Report to the Legislative Assembly

Ministerial call in under the Planning Act 2016 - Coochin Creek Tourist Park

January 2026

REPORT TO BE TABLED IN THE LEGISLATIVE ASSEMBLY ABOUT MINISTER'S DECISION ON A CALL IN OF A CHANGE APPLICATION UNDER THE *PLANNING ACT 2016*

A CHANGE APPLICATION FOR COOCHIN CREEK TOURIST PARK MADE BY MURRAY BELL AND ASSOCIATES ON BEHALF OF COOCHIN CREEK PROPERTY PTY LTD

CALLED IN BY THE DEPUTY PREMIER, MINISTER FOR STATE DEVELOPMENT, INFRASTRUCTURE AND PLANNING AND MINISTER FOR INDSUTRIAL RELATIONS, THE HONOURABLE JARROD BLIEIJIE MP ON 11 JUNE 2025

AND

DECIDED BY THE DEPUTY PREMIER, MINISTER FOR STATE DEVELOPMENT, INFRASTRUCTURE AND PLANNING AND MINISTER FOR INDSUTRIAL RELATIONS, THE HONOURABLE JARROD BLIEIJIE MP ON 6th January 2026

THIS REPORT HAS BEEN PREPARED PURSUANT TO SECTION 106 OF THE *PLANNING ACT 2016*

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1 Introduction

On 11 June 2025, I as Deputy Premier, Minister for State Development, Infrastructure, and Planning and Minister for Industrial Relations called in the change application to a development permit for the Coochin Creek Tourist Park (the application) at 1807 Roys Road, Coochin Creek. made to the Sunshine Coast Regional Council (the Council) by Murray Bell and Associates on behalf of Coochin Creek Property Pty Ltd (the applicant).

On 6th January 2026 I decided to approve the change application subject to development conditions.

Pursuant to section 106(1) of the *Planning Act 2016* (Planning Act), this report:

- explains the nature of my decision
- explains the matters I considered in making my decision to approve the change application subject to development conditions.
- includes a copy of my Decision Notice (**Annexure A**).

Section 106(2) of the Planning Act requires that I table a copy of this report in the Legislative Assembly within 14 sitting days after I gave my notice of decision to the Council and to the applicant.

2 Background

The type of approval the applicant applied for was a 'Other' change to a development permit for:

- Material change of use of premises to establish a tourist park (comprising 150 sites [75 cabins and 75 camp sites] and ancillary recreation facilities)
- Operational work (stormwater, earthworks and access).

On 11 June 2025, I decided to give a call in notice for the application under section 103 of the Planning Act (Attachment 2) and in doing so decided to:

- assess and decide the application; and
- restart the process for administering the application at the start of the confirmation period in the application stage of the development assessment process under chapter 1, part 1 of the Development Assessment Rules (DA Rules).

On 12 June 2025, the call in notice was given to the Council (as the original decision maker for the application) and the applicant.

On 1 July 2025, the application was referred to the State Assessment and Referral Agency (SARA) as a concurrence agency.

On 9 July 2025, I issued an information request for the application requesting further detail of the proposed development. The information request related to:

- the outcomes for the Northern Inter-Urban Break (NIUB) in the *ShapingSEQ* 2023 (including the interface with sensitive areas)
- the outcomes of the Rural zone and Strategic framework under the Sunshine Coast Planning Scheme 2014 in respect of the location of, and impacts of, the proposal
- further information about the need for the proposal on this site and in this locality
- technical information required to assess the proposal.

On 25 August 2025, SARA issued a referral agency response that the application should be refused. However, SARA responded on only specific, now amended, assessment benchmarks in making this decision. On 23 October 2025, SARA issued an amended referral agency response identifying an additional referral trigger.

On 8 October 2025, the applicant responded to my information request and included additional and amended plans/technical reports to address the matters raised.

Between 24 October and 17 November 2025, the application was publicly notified. 805 submissions were received, of which 784 were properly made and 21 not properly made. Of the properly made submissions, 374 were opposed to the development and 410 in support.

3 Matters Considered

Section 105(5) of the Planning Act states that, in deciding a called in change application, I may consider anything I consider relevant.

Prior to making my decision on the application, I was provided with a Briefing Note MBN25/1159 and attachments, including:

- Planning Assessment Report, prepared by officers of the Department and attachments
- Draft Decision Notice, including conditions and reasons for the decision
- Human rights assessment.

I am informed that the following matters were considered in undertaking the assessment of the development application in the Planning Assessment Report:

- Planning Act 2016
- Human Rights Act 2019
- Planning Regulation 2017
- State Planning Policy 2017 (SPP)
- South East Queensland Regional Plan ShapingSEQ 2023
- State development and assessment provisions (SDAP) State codes
- Sunshine Coast Planning Scheme 2014
- The application and supporting material
- Submissions received on the public notification of the application
- Technical advice from State agencies
- Other relevant considerations including Destination 2045, Sunshine Coast Destination Tourism Plan, Sunshine Coast Regional Economic Development Strategy, Sunshine Coast Biosphere designation, Ramsar Convention obligations, and Moreton Bay Marine Park considerations.

4 Decision

On 6th January 2026, I:

- approved the 'Other' change application, subject to conditions for:
  - Material Change of Use of premises to establish a Tourist Park, comprising 150 sites (75 cabins and 75 camp sites) and ancillary recreation facilities
  - Operational work (stormwater, earthworks and access).

A copy of my Decision Notice, including approved plans and documents, is at **Annexure A.**

4.1 Reasons for Decision

1. On 11 June 2025, I called in a change application made to Sunshine Coast Regional Council under section 78 of the Planning Act, being an application for a change, other than a minor change, to an existing development permit. The change application seeks a development permit for:
   - Material change of use of premises to establish a Tourist Park (comprising 150 sites [75 cabins and 75 camp sites] and ancillary recreation facilities)
   - Operational work – Stormwater, Earthworks and Access.
2. On a call in I may consider anything I consider relevant in deciding the change application, pursuant to section 105(5) of the Planning Act.
3. My decision is to approve the whole of the change application, subject to the conditions set out in the Decision Notice.
4. My reasons for approving the application subject to conditions, are set out below.

Development Proposal

5. The assessment undertaken by the Department of State Development, Infrastructure and Planning (the Department) informs of the following matters relevant to the proposal, which I accept.
6. The existing development approval is for a development permit for material change of use for Nature Based Tourism which provides for a nature-based tourism facility (comprising 100 camp sites and ancillary recreation facilities, capped at 300 guests excluding staff), which was given on 20 December 2023, pursuant to a judgment of the Planning and Environment Court (existing approval).
7. The proposal as changed is for:
   - a tourist park for 150 sites, comprising 75 camping sites and 75 cabins, 213 carparking spaces and ancillary recreational facilities including a bar and restaurant to service the tourist park, swimming pools and waterplay park and indoor recreation facility; and
   - operational works for site stormwater, access and earthworks to facilitate the development of the tourist park.
8. I am informed that the proposal maintains substantially the same development footprint and provides for camp sites, amenities block, recreational facilities and internal road layout but seeks the following changes to the existing approval:
   - an increase from 100 to 150 sites (25 per cent increase) and the introduction of cabins
   - an increase to the maximum guest capacity from 300 to 600 guests (100 per cent increase)
   - an increase the car parking from 111 to 213 car parking spaces (~47 per cent increase)
   - an increase of the Gross Floor Area (GFA) for indoor recreation from ~500m² to 1,000m² (50 per cent

increase)

- an increase in outdoor recreation facilities from 2 to 7 (250 per cent increase)
- an increase in the GFA of the reception building from 500m^2 to 1,000m^2 (50 per cent increase)
- the introduction of a food and drink outlet and bar (ancillary use)
- a reduction of amenity buildings from 8 to 6 (25 per cent decrease).

9. The subject site is located at 1807 Roys Road, Coochin Creek, with a total site area of 43.111 hectares. Consistent with the existing approval, the proposed development is accessed via a right of way and access easement over Lot 7 on SP106174 which grants access rights to the subject land and connects the subject land to Roys Road.

10. The site is located approximately 10 kilometres south of Pelican Waters and approximately 8 kilometres east of the Bruce Highway on the northern reaches of the Pumicestone Passage/Coochin Creek Esplanade. The site is bounded to the north and east by the Bribie Island National Park and the Moreton Bay Marine Park. Directly to the west of the site is a small collection of buildings associated with surrounding farms, while Bribie Island is located on the south-eastern side of the Pumicestone Passage.

11. I have assessed the proposed development in the context of the development approval.

State Planning Policy

12. I am satisfied that the development proposal as conditioned is consistent with the relevant State interest policies expressed in the State Planning Policy dated July 2017 (SPP), in that:

- Economic Growth – Tourism
  - I am satisfied that the proposed tourist park will support Queensland's tourism sector by delivering sustainable, nature-based visitor accommodation and recreation facilities, while protecting natural values, and that the proposal demonstrates significant economic benefits, including job creation and regional tourism dispersal.
  - I am satisfied the development will provide a quality, nature-based tourism product that aligns with Queensland's strategic priorities for sustainable tourism through the provision of diverse accommodation comprising 75 cabins and 75 camp sites. The application demonstrates that the proposal will generate economic benefits of approximately $34 million dollars in annual visitor expenditure stimulating local business in the Coochin Creek, Beerwah and Glasshouse Mountains region of the Sunshine Coast and create approximately 200 construction jobs and 25-30 full time operational jobs. Additionally, the development addresses a documented shortfall in tourist accommodation on the Sunshine Coast, thus contributing to the Sunshine Coast's visitor economy.
- Economic Growth – Agriculture
  - I am satisfied the development is proposed on a site with limited agricultural value, with most land classified as low suitability for cropping. I am satisfied the proposal does not detract from regional agricultural values or compromise long-term productivity regionally.
  - Furthermore, the development will provide setbacks and buffers to ensure compatibility with surrounding rural uses, and I am satisfied the proposal is consistent with the SPP intent to protect agricultural resources.
- Environment and heritage – Biodiversity
  - The development will avoid areas of high ecological significance and confines development to previously cleared land and subject to conditions will provide revegetation (3.37 hectares), native landscaping, and fauna management measures.
  - Accordingly, I am satisfied that these measures deliver a net gain in habitat connectivity and ecological function, ensuring the health and resilience of biodiversity and the natural environment is maintained external from the site and improved within the development site.

- Environment and heritage – Coastal Environment
  - The development is located within the Coastal Management District, where the SPP seeks to protect and enhance the coastal environment while supporting compatible coastal-dependent development and maintaining public access. The proposal avoids introducing coastal works or structures within erosion-prone areas and maintains substantial setbacks from the Highest Astronomical Tide (minimum 40 metres), ensuring the natural coastal processes and public access are preserved. The design confines built form to previously cleared land and incorporates landscaping to enhance ecological values, consistent with SPP outcomes for protecting coastal resources and scenic amenity.
  - The proposal demonstrates proper management of erosion and water quality risks through an RPEQ certified Stormwater Management Plan that confirms compliance with the SPP's "non-worsening" water quality objective, that is supported by conditions for implementation of management measures during construction and operational phases of the development. These measures ensure the development does not adversely impact sensitive receiving environments, including Pumicestone Passage and adjoining wetlands, and maintains the integrity of the coastal environment.
  - Further, no coastal development works are proposed.
- Safety and resilience to hazards – Natural hazards, risk and resilience
  - The development is located within areas mapped for bushfire and flood hazard, where the SPP seeks to ensure risks from natural hazards are avoided or mitigated to an acceptable level to protect people, property, and community resilience. Technical assessments have been undertaken for bushfire risk and flooding risk hazards applicable.
  - The design avoids high bushfire-intensity areas, provides Asset Protection Zones, and incorporates internal roads compliant with emergency access standards. Conditions require a Bushfire Emergency Management Plan, on-site firefighting water supply, and shelter-in-place provisions in certain circumstances.
  - Flood risk has been addressed through minimum floor levels above the Probable Maximum Flood (PMF), a Flood Emergency Management Plan, and designated refuge areas with backup power and water supply. These measures ensure safe shelter during extreme events and maintain compliance with the Planning Scheme and SPP benchmarks for hazard resilience.
  - I am satisfied the proposal demonstrates proper management of bushfire and flood risks through design and operational measures, ensuring the development does not worsen hazard impacts and achieves the SPP outcome of protecting people and property while enhancing community resilience.
- Infrastructure – Transport infrastructure
  - I am satisfied the applicant has demonstrated the site is appropriately serviced by Roys Road with access to Bells Creek Arterial and the network can accommodate additional trips with minor conditioned upgrades. Further I am satisfied internal roads comply with emergency access standards.

ShapingSEQ 2023

13. I am satisfied the proposal, as conditioned, is consistent with *ShapingSEQ* 2023's vision for sustainable growth, promoting tourism that enhances regional amenity and biodiversity while strengthening economic development.
14. Furthermore, I am satisfied that the proposed development aligns with the intent of the Regional Landscape and Rural Production Area (RLRPA) to protect the values of this land from encroachment by urban and rural residential development, to protect natural and cultural assets, and support development and economic growth of rural communities and industries, in that:
    - The proposed development is a low-impact tourism use within a rural setting, that will preserve the non-urban and landscape character of the area and avoiding fragmentation of rural land.
    - I am satisfied the proposal protects environmental and scenic values as the development footprint is

confined to previously cleared land, avoiding remnant vegetation and sensitive habitats, and subject to conditions, will require revegetation and landscaping to enhance biodiversity and scenic amenity.

- I am satisfied the tourist park use is compatible with surrounding uses and designed to complement rural and conservation areas, with substantial buffers (>300 metres) to productive agricultural land and operational management plans to mitigate reverse amenity impacts.
- The development proposal promotes:
  - rural economic diversification as it introduces nature-based tourism as an alternative economic activity, and
  - community access and enjoyment of the unique surrounding landscape and environmental values reinforcing the RLRPA's role as an outdoor recreation and tourism destination.
- I am satisfied that the site is adequately serviced by existing rural road infrastructure via Roys Road and that the proposed development will not place an unreasonable demand on urban transport networks, which is consistent with the intent of the RLRPA to avoid urban infrastructure pressures in non-urban areas.
- Further, I am satisfied the site is appropriately serviced by existing infrastructure, and the proposed change includes operational works for stormwater, access, and earthworks that have been demonstrated to comply with Council's development codes. These works are conditioned to maintain best-practice standards for water quality, erosion, and sediment control, and they respond appropriately to site constraints. The operational works are proportionate to the scale of development.

15. The premises are also mapped within the NIUB under *ShapingSEQ* 2023. The NIUB is a critical green buffer preserving landscape values and regional identity. The Department's assessment concludes, and I am satisfied that consistent with the objectives of the NIUB, the proposal preserves the non-urban separation between major urban areas, protects landscape and scenic values, maintains ecological functions and supports rural and recreational uses compatible with its character, in that the proposal:

- Maintains open space and natural character, with built form clustered within an existing cleared footprint, with a site cover of ~2.45 per cent of the premises, avoiding sprawl and fragmentation. Within the site cabins and campsites are clustered to minimise ecological disturbance.
- Delivers nature-based recreation that complements the NIUB's role as a regional landscape and rural production area.
- Provides controlled visitor access and delivers environmental education programs through guided eco-tours, interpretive signage, and on-site activities, reinforcing the NIUB's role as a destination for low-impact tourism and conservation, as conditioned by the existing approval, and maintained as part of the change decision.
- Protects and enhances environmental values, including biodiversity and water quality, in that the proposal avoids remnant vegetation and sensitive habitats, incorporates 3.37 hectares of wetland revegetation, and extensive native landscaping. Conditions imposed require fauna management and operational controls to protect the adjoining National Park and Pumicestone Passage. Water quality values have been assessed through stormwater quality assessments and management plans are conditioned to ensure development does not result in water quality impacts.
- Maintains scenic amenity and rural landscape character, as all structures are below 8.5 metre height, set back from Pumicestone Passage 40 metres or more and screened with native vegetation, and proposed landscaping will enhance visual buffers and maintain views to the Glass House Mountains.
- Diversifies the rural economy through nature-based tourism, creating jobs and visitor expenditure as demonstrated in the application material. Significant setbacks (>300 metre) to adjoining cropping land mitigate reverse amenity impacts.
- Avoids fragmentation of rural land where the development footprint is confined to existing lots under one ownership, and I am satisfied the use is compatible with surrounding rural and conservation areas.

State Assessment Criteria

16. I am informed that through the development assessment process following my call in, the application was referred to the SARA and that SARA's referral agency response issued to me on 23 October 2025 recommended refusal of the application on two grounds, namely:
    - There will not be a significant adverse economic, social or environmental impact on the community if the development is not carried out (by reference to part 4, division 6, section 41B(2)(b) of the Planning Regulation).
    - The locational requirements or environmental impacts of the development do not require it to be inside the NIUB (by reference to schedule 10, part 16B, division 9, table 1, item 4(h) of the Planning Regulation).
17. I am also informed that SARA's referral agency response identified that conditions about the following matters were recommended to be imposed (if I was minded to approve the application), to achieve compliance with respect to matters relevant to its assessment:
    - mitigating impacts associated with the additional traffic generation at the intersection of Roys Road and Bells Creek Arterial Road
    - mitigating impacts of the proposed development to adjacent sensitive uses and reverse amenity concerns from cropping pursuits
    - ensuring the use and users of the site are adequately protected in the scenario of a bushfire event that threatens the site itself and access to and from the use
    - mitigating adverse impacts on the ecological values of the surrounding environment and sensitive receiving waters
    - mitigating impacts arising from the taking or interfering with water.
18. I am further informed and accept since the SARA assessment was undertaken:
    - On 28 November 2025, schedule 10, part 16, division 2, subdivision 3 and part 16B, division 9 of the Planning Regulation were amended to change the matters that tourist and recreation uses in the RLRPA and NIUB must be assessed against. The new criteria reflect the State's current interests in supporting economic opportunities for tourism and recreation, while continuing to ensure safeguards for SEQ's rural and natural areas
    - I have received additional information and documentation to support my assessment of the proposal, submitted by the applicant on 8 October 2025 in response to my information request, including information relating to bushfire management, operational management, setbacks and acoustic barriers
    - Additional technical advice was received by the Department from key State agencies about transport, bushfire, water, and environmental considerations relevant to my assessment of the development proposal.
19. I am satisfied that the above matters are relevant considerations for my assessment of the proposal and in the circumstances consider SARA's assessment of the proposal be given limited weight.
20. The Department's assessment provided to me for the purposes of this decision informs and I accept that the proposal complies with the current criteria that a referral agency assessment must be against for an application for tourist and recreation uses referred under schedule 10, part 16, division 2, subdivision 3 and part 16B, division 9 of the Planning Regulation, in that the application (including supporting material provided in response to my Information Request) demonstrates:
    - The tourist park use as conditioned does not result in adverse impacts on the regional biodiversity network or regional landscape values of the area. The development footprint is confined to previously cleared areas within the subject site and remains consistent with the footprint of the existing approval. To mitigate potential impacts on ecological values and sensitive receiving waters, the proposal will be conditioned to require an operational management plan limiting access to adjoining areas such as the National Park and Pumicestone Passage. No coastal works are proposed as part of the change application, and the interface with sensitive environments will be managed through setbacks, habitat rehabilitation, and a conditioned

onsite wetland offset.

- The other change is for a Tourist Park, and the Material Change of Use does not involve a residential use other than tourist accommodation or accommodation for employees (in the form of a manager's residence).
- There is no commercial, industrial or retail component of development proposed as part of the change that is not ancillary to the tourist park use. A condition is included that limits any non-accommodation components of the Tourist Park use (such as the food and drink outlet and bar) to remain ancillary to the primary Tourist Park accommodation.
- The tourist park proposal is consistent with *ShapingSEQ* 2023 including the outcomes and strategies, and subregional directions, stated in the plan. The proposal aligns with regional strategies for sustainable tourism and rural diversification. The NIUB does not prohibit place responsive and well-planned tourism of a scale and intensity that manages impacts and is designed to be responsive to its setting and landscape values. I am satisfied that impacts to surrounding environmentally significant areas and any potential reverse amenity impacts to neighbouring rural uses can be effectively mitigated via conditions addressing design setbacks, rehabilitation and covenant protection areas, stormwater management, construction practices, and operational management measures.

Local Planning Scheme

21. The Department's assessment informs, and I am satisfied that the application demonstrates compliance with the relevant provisions of the Planning Scheme, in that:
    - The Planning Scheme identifies that a Tourist Park is a 'potentially consistent use' for the Rural Zone provided it is low-impact and complements rural character and has been assessed to align with the intent for the zone.
    - The proposal aligns with the Rural Zone intent as it maintains the rural character and environmental values, provides low scale and low-density tourist accommodation options from cabins to camp sites with substantial buffers to sensitive environments and includes landscaping to enhance currently cleared and unvegetated areas of the pre-existing farmlands.
    - The further assessment against the applicable use and overlay codes in the Planning Scheme demonstrates that the development either complies or can comply through reasonable and relevant conditions with performance outcomes relating to rural character, scenic amenity, biodiversity protection, bushfire and flood resilience, and infrastructure provision. The proposal also satisfies the intent of the Relocatable Home Park and Tourist Park Code, providing appropriate site layout, amenity, and internal circulation consistent with planning benchmarks.
22. I am satisfied the site is appropriately serviced by existing infrastructure and that the proposed change includes operational works for stormwater, access, and earthworks that comply with Council's development codes. I am imposing conditions for these works to maintain best-practice standards for water quality, erosion, and sediment control and respond appropriately to site constraints. Further, the proposal incorporates comprehensive bushfire and flood hazard mitigation measures, ensuring resilience to natural hazards. The development also delivers significant environmental benefits through 3.37 hectares of wetland revegetation, extensive native landscaping, and fauna management measures, creating a net gain in habitat and strengthening ecological connectivity by establishing vegetated corridors and stepping-stone habitats that link remnant vegetation and riparian areas to surrounding conservation zones. These measures are consistent with the strategic intent of the planning and protect environmental values and accommodate low-impact tourism responding appropriately to the applicable site overlays associated with biodiversity, flood and bushfire hazards.

Other matters

23. The Department's assessment informs of the following relevant matters which I accept and am satisfied support approval of the application, in that:
    - I am satisfied the proposal will support the important Queensland tourism industry. *Destination 2045: Delivering Queensland's Tourism Future* states that the tourism industry is a serious economic contributor

for Queensland, contributing $37.6 billion to Queensland's Gross State Product in 2023-24 and generating $96.4 million in visitor spend a day during the 12 months ending December 2024. The tourism industry provides one in 11 Queensland jobs and supports 65,000 tourism related businesses. I am satisfied the proposal will add much-needed cabin and camping supply without impacting on existing facilities, thus increasing overnight stays, capturing a greater share of visitor expenditure and extending the region's tourism season. The site location between Brisbane and the Sunshine Coast allows it to serve as a gateway experience, encouraging multi-destination itineraries that benefit the broader state economy.

- *The Sunshine Coast Regional Economic Development Strategy 2013-2033* (updated version August 2023) provides that the Sunshine Coast is consistently the third most visited region in Queensland and is consistently in the top five most visited tourism regions in regional Australia, with the tourism sector generating $3.4 billion in visitor expenditure for the region and representing the second largest export sector. I am satisfied the application demonstrates the proposed tourist park development demonstrates significant economic benefits including job creation and regional tourism dispersal and thereby represents a valuable opportunity for tourism and economic growth for the Sunshine Coast, consistent with the outcomes of the Strategy.
- I am satisfied the proposal provides low-impact, sustainable tourism opportunities that includes a landscape responsive design and is sensitive to surrounding ecological and protected areas. The proposed development is located within the Sunshine Coast Biosphere buffer zone and avoids direct impacts on Ramsar-listed wetlands and Moreton Bay Marine Park. I am satisfied the siting of development setback from environmental values and including buffer areas and no coastal works, ensures no direct disturbance to critical habitats such as seagrass meadows, mangroves, saltmarshes, and declared fish habitat areas. Furthermore, conditions are being imposed to require revegetation, fauna management, and operational controls to protect sensitive environments and deliver environmental benefits.
- The Department's assessment informs I received 804 submissions in response to the public notification of the application, with views both in support and opposition to the proposal. The objections to the proposal raised concerns about matters regarding environmental impacts, regulatory compliance, traffic, natural hazards and amenity. I am satisfied on the Department's assessment that the application demonstrates appropriate mitigation measures including for bushfire management (asset protection zones, fire breaks, water supply for firefighting, and safe vehicular access for emergency services) and environmental values (fauna management plans, eco-sensitive lighting controls and regeneration of previously disturbed land areas) and conditions being imposed require submitted management plans to be implemented. Accordingly, I am satisfied the objections do not raise matters that warrant refusal of the application.

Conclusion

24. I have decided to approve the whole of the application, subject to the conditions set out in the Decision Notice.
25. For the reasons stated above, I am satisfied approval of the proposal as conditioned is consistent with the Planning Act, the SPP and *ShapingSEQ* 2023, as well as the Sunshine Coast Planning Scheme 2014.
26. Furthermore, I am satisfied the proposal provides a valuable tourism opportunity for the Sunshine Coast to meet rising demand for visitor accommodation while fostering engagement with the region's distinctive environmental assets. The development has been designed to avoid unacceptable impacts on surrounding properties and sensitive environments, with conditions imposed to manage bushfire and flood hazards on the use of the site, protect water quality, and enhance biodiversity through revegetation and ecological connectivity measures. These outcomes ensure the proposal delivers economic and social benefits while maintaining compliance with statutory obligations and strategic planning intent.
27. A human rights assessment has been undertaken for this decision. I am satisfied that the decision is compatible with human rights under the *Human Rights Act 2019* because it only limits any relevant human rights to the extent that is reasonable and demonstrably justifiable in accordance with section 13 of that Act.
28. The reasons for my decision, including the findings on material questions of fact are based upon the matters and evidence contained within MBN25/1159 and all attachments including the planning assessment report prepared by the Department.

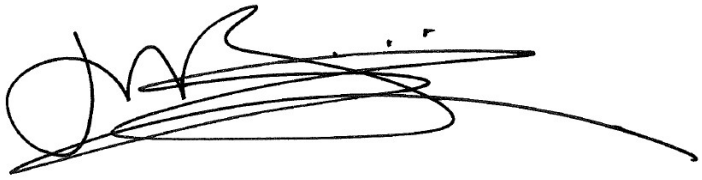
5 Conclusion

After considering the above matters, I decided to approve the change application, subject to conditions.

I consider that my decision, as documented in my Decision Notice dated 6th January 2026, delivers an outcome for the site that:

- is consistent with the Planning Act, the SPP and *ShapingSEQ 2023*, as well as the Sunshine Coast Planning Scheme 2014
- provides a valuable tourism opportunity for the Sunshine Coast to meet rising demand for visitor accommodation while fostering deeper engagement with the region's distinctive environmental assets
- has been designed to avoid unacceptable impacts on surrounding properties and sensitive environments, and enhances biodiversity through revegetation and ecological connectivity measures.

Dated 6th January 2026



JARROD BLEIJIE MP
DEPUTY PREMIER
Minister for State Development, Infrastructure and Planning
Minister for Industrial Relations

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DECISION NOTICE

I refer to my decision made on 11 June 2025 to exercise my ministerial powers and call in the change application made by Coochin Creek Property Pty Ltd, with respect to premises located at 1807 Roys Road, Coochin Creek (the change application).

Please be advised that on 6 January 2026, I decided to approve the change application, subject to the conditions in this decision notice.

Ministerial call in details

Date call in notice given: 11 June 2025

The change application has been assessed and decided under section 105 of the *Planning Act 2016* (the Planning Act).

Date of decision: 6 January 2026

Details of decision: **Approve** the change application subject to the conditions in Schedule 1 and Schedule 2 of this decision notice, for a development permit for:

- Material Change of Use of premises to establish a tourist park; comprising 150 sites (75 cabins and 75 camp sites) and ancillary recreation facilities
- Operational work for stormwater, earthworks and access.

Matters considered

As required by section 105(9)(a) of the Planning Act, the following matters were considered in making my decision:

- Ministerial Briefing Note (MBN25/1159) and attachments, including
  - Planning Assessment Report, prepared by officers of the Department of State Development, Infrastructure, and Planning, and attachments
  - Human Rights Assessment
  - Draft decision notice, including the draft conditions and reasons for the decision.

Property details

Street address:	1807 Roys Road, Coochin Creek, Qld, 4519
Real property description:	Lot 10 on SP132227 and Lot 6 on SP184133

Application details

Original assessment manager:	Sunshine Coast Regional Council (the council)
Date change application properly made:	25 October 2024
Level of assessment:	Impact assessable
Existing approval	Development permit for material change of use for Nature Based Tourism given by the Planning and Environment Court on 20 December 2023 (Appeal No. 1836 of 2022)

Infrastructure Charges

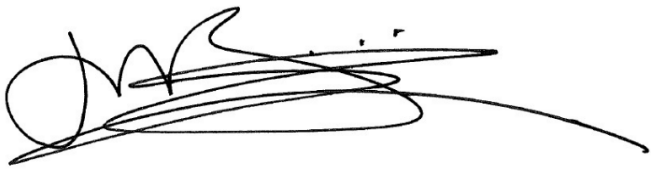
The council may levy infrastructure charges under sections 119 and 121 of the Planning Act following this decision notice.

Appeal rights

A person may not appeal against the Minister's decision.

If you require any further assistance, please email ministerial.callin@dsdilgp.qld.gov.au.

Yours sincerely



JARROD BLEIJIE MP
DEPUTY PREMIER
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Schedule 1 – Development permit for the material change of use
Schedule 2 – Development permit for the operational work
Schedule 3 – Advisory and Property notes
Schedule 4 – Reasons for decision
Schedule 5 – Approved plans and documents

Schedule 1

Development permit for a material change of use for a Tourist Park (comprising 150 sites [75 cabins and 75 camp sites] and ancillary recreation facilities)

Table of approved plans and documents

Document No.	Rev.	Document Name	Date
-	-	DA Layout Plan, prepared by CUSP and Comiskey Group.	04/09/2025
620.30557.00101	1.0	Traffic Impact Assessment swept paths, prepared by SLR	2/09/2024
22S58.5.SAH	-	Coochin Creek – Proposed camping facility – Roys Road safety improvements – Minor update to advice of 11 May 2023, prepared by Holland Traffic Consulting	18/12/2023
R.30015.01_FEMPV2C	3	Flood Emergency Management Plan, prepared by Water Engineering Partners	08/10/2024
21-197	2	Environmental Amenity Assessment, prepared by MWA Environmental Pty Ltd	19/08/2025
J001320	V3	Bushfire Hazard Assessment & Management Plan, prepared by North Coast Environmental Services	13/08/2025
2136.001V5	V5	Biting Insect Management Plan, prepared by Ecological Service Professionals Pty Ltd	06/02/2023
-	E	Wetland and Buffer Area - 1807 Roys Rd Revegetation Plan, prepared by Terrestria Pty Ltd	28/11/2023
-	B	Landscape Concept Plan, prepared by CUSP	22/01/2025
-	-	Waste Management Plan	05/09/2025
24007-SD 10.01	D	Ground Level Floor Plan, prepared by KP Architects	May 2024
24007-SD 11.01	A	Roof Plan, prepared by KP Architects	May 2024
24007-SD 20.01	B	Elevations, prepared by KP Architects	May 2024
24007-SD 20.02	B	Elevations, prepared by KP Architects	May 2024
24007-SD 30.01	A	Sections, prepared by KP Architects	May 2024
24007-SD 10.02	B	Amenities Plan + Elevations + Section, prepared by KP Architects	May 2024
24007-SD 10.03	A	Camp Kitchen Plan + Elevations + Section, prepared by KP Architects	May 2024

Document No.	Rev.	Document Name	Date
24007-SD 10.04	C	1 Bed Cabin Plan + Elevations, prepared by KP Architects	September 2024
24007-SD 10.05	C	2 Bed Cabin Plan + Elevations, prepared by KP Architects	September 2024
24007-SD 10.06	C	3 Bed Cabin Plan + Elevations, prepared by KP Architects	September 2024

Conditions of approval

Condition		Timing
PLANNING		
Approved Plans		
1.	Development for Tourist Park authorised by this approval must be undertaken generally in accordance with the Approved Plans listed within this development approval (Schedule 1) including any changes required by conditions of this approval.	At all times
Nature and Extent of Approved Use		
2.	The approved use (Tourist Park) shall provide overnight accommodation for a maximum of 150 sites, comprising: • 75 cabins • 75 camp sites	At all times
3.	(a) The approved use (Tourist Park) shall provide overnight accommodation for a maximum of 600 guests. (b) A register or record is to be kept by the operator that details the number of guests being accommodated on the site on any given day. (c) The register is to be made available to Council to view, subject to written request from Council to the operator.	At all times
4.	All camping sites associated with the approved Tourist Park must be operated by a single entity and must not be subdivided, or otherwise separately titled, or leased to a separate entity.	At all times
5.	(a) All non-accommodation components of the approved Tourist Park use are to remain ancillary to the primary Tourist Park accommodation use at all times and are not to be leased or made for hire for by non-guests. (b) The reception/admin building must not be used as a Function facility.	At all times
6.	The Tourist Park accommodation must incorporate on-site activities for visitors related to the conservation, interpretation, and appreciation of the natural environment of the site including the wetlands and proximity to the Pumicestone National Park and Pumicestone Passage.	At all times
7.	The floor area of the reception building is not to exceed 1000m^2.	At all times

Condition		Timing
Operational Management		
8.	(a) Prepare a new or updated Operational Management Plan that includes, but not be limited to: i. Hours of use and applicable activity areas ii. Emergency Evacuation Plans for bushfire and flood hazard risk management iii. environmental, cultural, and safety guidance consistent with the Operational Management Plan iv. visitor education measures required under the Operational Management Plan v. information about no-go and or environmentally sensitive areas vi. the use of fireworks and lasers on the site are prohibited. vii. the use of portable generators on the site is prohibited viii. no domestic pets are permitted ix. written information must be provided to all patrons and campers advising: – that the site is located within an area that is highly affected by nuisance biting insects (mosquitoes and midge); and – how to minimise the risk of arbovirus infection whilst staying in park (e.g., wearing long-sleeved clothing, applying mosquito repellent, avoiding outdoor activity during peak biting times). (b) Implement the Operational Management Plan, including providing a copy of the provisions within the Operational Management Plan. (c) The operator must maintain records demonstrating compliance with the Operational Management Plan, environmental controls, and access restrictions.	Prior to commencement of use and to be maintained
9.	Except in the case of an emergency, helicopters or other aircraft must not land or take off from the property.	At all times
10.	(a) Prepare and provide written environmental awareness and education material to all overnight site visitors. The information must: i. provide educational information regarding the significance of the ecological attributes of the Vegetation Protection Covenant, adjoining national park and Pumicestone Passage and marine	Prior to commencement of use and to be maintained

Condition		Timing
	environment and the potential negative impacts that may result from some visitor/stayer activities. ii. highlight the potential negative impacts from visitor activities, such as littering, introducing domestic pets, disposing of green waste, and straying off designated pathways.	
Building Height and setbacks		
11.	The maximum height of the development must not exceed 8.5m above natural ground level.	Prior to commencement of use and to be maintained
12.	Where development occurs adjacent to areas of native vegetation all buildings or structures are set back by a minimum distance of 50 metres.	Prior to commencement of use and to be maintained
Street Identification		
13.	The street address of the development must be clearly visible and discernible from Roys Road by the provision of a street number and, where appropriate, the name of development.	Prior to commencement of use and to be maintained
Building Appearance		
14.	Buildings including the reception/administration building and managers' facilities are to use: i. muted tones ii. low reflectivity roofing.	Prior to commencement of use and to be maintained
Foreshore and National Park Interface		
15.	No new pontoons, moorings, revetment walls, or other marine infrastructure are permitted as part of this approval.	At all times
16.	Access to the Pumicestone Passage must be via existing public infrastructure only.	At all times
17.	Install and maintain 'Do Not Enter' signage along the National Park boundary.	At all times
Damage to public infrastructure		
18.	(a) Repair any damage to existing public infrastructure (including replacing traffic signs and line markings, removal of concrete slurry from footways, roads, kerb and channel and stormwater gullies and drain lines) caused	Prior to commencement of use

Condition		Timing
	by works carried out in association with the approved development. (b) Should existing public infrastructure require repair or relocation, due to the approved development and/or works associated with the approved development, repair and/or relocate the public infrastructure at no cost to others and in accordance with statutory requirements and adopted design standards.	
Road work, access and parking		
19.	(a) All proposed upgrades to Roys Road between the site and Bells Creek Arterial set out in the following documents must be undertaken: i. Coochin Creek – Proposed camping facility – Roys Road safety improvements – Minor Update to advice of 11 May 2023, prepared by Holland Traffic Consulting, dated 18 December 2023. (b) Where differing works are indicated at a specific location, the works identified in the latest document shall be undertaken. (c) Where works are required at a specific location in only one document, the works will be undertaken. *Note: no works are approved within Bells Creek Arterial Road under the Transport Infrastructure Act 1994 as part of this change approval. No right hand turn from Roys Road onto Bells Creek Arterial is approved as part of this decision.*	Prior to commencement of use
20.	(a) All proposed upgrades to Roys Road between the site and Bells Creek Arterial must include: i. for sections of Roys Road where there is in-adequate sight distance and where the opposing vehicles may have to leave the sealed road to pass an oncoming vehicle, provide a minimum seal of 6.0m wide seal in accordance with the recommendations of the Holland Traffic Consulting (HTC) documentation dated 18 December 2023. ii. vegetation clearing within the road reserve of Roys Road to achieve minimum 150 metre sight lines at locations specified in the HTC documentation, subject to environmental considerations. iii. provide 20 metre long sealed passing bays with 2.5 metre tapers at all locations (rather than the 15 metre long bays) recommended in the HTC documentation iv. construction of all road safety measures identified in the SLR and HTC reports, including installation of all signage and other actions listed in the traffic and	Prior to commencement of use

Condition		Timing
	road safety assessment reports referenced in this decision notice v. installation of guardrails as indicated in the SLR and HTC reports vi. extension of stormwater culverts and provision of headwalls and guardrails / guideposts where required. (b) Where differing works are indicated at a specific location, the works identified in the latest document shall be undertaken. *Note: no works are approved within Bells Creek Arterial Road under the Transport Infrastructure Act 1994 as part of this change approval. No right hand turn from Roys Road onto Bells Creek Arterial is approved as part of this decision.*	
21.	(a) A sealed access driveway must be provided from the Roys Road development entrance to all service vehicle manoeuvring and parking areas, including road access between the Roys Road frontage and along internal roads which provide access for service vehicles. (b) Internal roads must be constructed to accommodate the relevant service vehicles in accordance with the Traffic Impact Assessment swept paths, prepared by SLR dated 2/09/24.	Prior to commencement of use and to be maintained
22.	All-weather internal circulation roads must be: i. 8 metre wide access driveway to Roys Road ii. 6 metre wide internal circulation road widths.	Prior to commencement of use and to be maintained
23.	(a) The development must provide the following on-site car parking spaces and clearly marked on the site: i. 150 spaces for guests, with a minimum one space located within each camp site / cabin throughout the Tourist Park site. Spaces on camp sites are not required to be marked. ii. one vehicle parking space provided for the live-in site manager's residence iii. maximum of 60 spaces for visitors and staff, including two spaces for people with disabilities iv. minimum of 15 dedicated bicycle spaces at or near the reception centre for guests and staff. (b) The dedicated visitor and staff parking areas must include the following at a minimum: i. provision of vandal-resistant public lighting angled down and directed to the area needed to be lighted	Prior to commencement of use and to be maintained

Condition		Timing
	ii. parking spaces for people with disabilities must satisfy the current requirements of the National Construction Code iii. dimensions, crossfalls and gradients in accordance with *AS 2890.1 – Parking facilities*.	
24.	All on-site parking areas and access driveways must be maintained exclusively for vehicle parking and manoeuvring and kept in a tidy, trafficable, and safe condition at all times. Vehicles are required to be restricted to internal driveways, parking areas, and camping sites.	At all times
25.	Provide directional signage to guide guests to designated car parking spaces provided on-site.	Prior to commencement of use and to be maintained
26.	Where access to the site is restricted by a security gate, provide an intercom or alternative entry system that can be operated while vehicles queue clear of Roys Road.	Prior to commencement of use and to be maintained
27.	Provide a pedestrian crossing in the form of line marking between the 'Temporary layby parking' area and the 'Reception Centre' as shown on the DA Layout Plan, prepared by CUSP and Comiskey Group, dated 04/09/2025.	Prior to commencement of use and to be maintained
28.	(a) Service vehicle parking, manoeuvring, and standing spaces must be provided on the site in accordance with AS 2890.2 – Off-street commercial vehicle facilities and must include in particular: i. a minimum of one Van space ii. a minimum of one HRV space (Type A Access). iii. a minimum of one RCV space	Prior to commencement of use and to be maintained
29.	Heavy vehicle movements, including waste collection, must be scheduled to avoid peak agricultural freight periods on Roys Road.	At all times
Servicing and infrastructure		
30.	Reticulated electricity must be provided to the requirements of the service provider. The applicant must either provide a Certificate for Electrical Supply or apply for a further operational works approval, where Contestable Works are required.	Prior to commencement of use and to be maintained
31.	Unless otherwise agreed in writing by the relevant service provider, any public or third-party infrastructure located on the	Prior to commencement of

Condition		Timing
	subject site must be placed within an easement registered against the title of the property.	use and to be maintained
32.	All easements must be designed in accordance with the planning scheme and granted at no cost to the Grantee. Where the Grantee is Council or a service authority, the easement documentation must be in accordance with the Grantee's standard easement terms. Draft easement documentation must be submitted to Council for endorsement.	Prior to commencement of use and to be maintained
33.	All works must be kept clear of any existing or proposed easements on the subject land, unless agreed otherwise in writing by the Grantee.	Prior to commencement of use and to be maintained
Flood Immunity		
34.	The minimum floor level of all buildings, other than class 10 buildings, constructed on the site must be RL3.09m AHD.	Prior to commencement of use and to be maintained
35.	The finished ground surface level of all camp sites must be at or above 2.0m AHD.	Prior to commencement of use and to be maintained
Flood Management		
36.	(a) All works and management plans must be undertaken generally in accordance with the Flood Emergency Management Plan Issue 3, prepared by Water Engineering Partners, dated 08 October 2024, and specifically include the following: i. The floodplain storage capacity of the site must be maintained with no reduction in the floodplain storage capacity for all events up to the 1% AEP flood level under projected 2100 climate conditions. Detailed calculations and drawings must be provided in conjunction with the first operational works application over the site demonstrating that floodplain storage capacity is being maintained generally in accordance with the approved stormwater management plan and any compensatory cut area is free draining with minimum 0.2% grade. ii. The internal driveways must be constructed so that a route which progressively grades to land above the probable maximum flood is provided for each camp site.	(a)Prior to commencement of use (b)maintained at all times

Condition		Timing
	iii. A minimum 10,000m2 area must be retained on the site above the Probable Maximum Flood level (3.8m AHD). This area must be central to the camp site area and include at least one amenities block and camp kitchen. iv. The refuge area must be equipped with potable water, sanitation, and backup power for three (3) days of isolation. v. Electrical systems must be designed for flood resilience, including: – Submersible cabling and Residual Current Device protection – Ability to progressively disconnect power during flooding. vi. Backup power must be provided for: – Reception building – Camp kitchens and amenities block located above Probable Maximum Flood level. vii. Provide a helicopter landing area above Probable Maximum Flood level for emergency services. viii. Ensure clear and unimpeded access to adjacent public boat ramp infrastructure for emergency services access by boat. ix. Implement staged response protocols (Alert, Warning, Shelter, Stand Down) with triggers based on Bureau of Meteorology forecasts and gauge telemetry. x. Implement communication and training protocols, including the following: – Provide flood risk information to guests at booking and check-in. – Maintain SMS alert capability for all registered guests. – Conduct annual staff training and refresher exercises prior to the wet season. (b) Operation of the site is to be undertaken in accordance with the Flood Emergency Management Plan requirements and this condition.	
37.	A flood gauge which continuously monitor water levels must be installed at the location nominated in the Flood Emergency Management Plan. The Flood Gauge must be constructed to Council's standard and connected to Council's flood monitoring system. Data from this flood gauge must be utilised by the development in accordance with the FEMP and	Prior to commencement of use and to be maintained

Condition		Timing
	may be sourced either from Council's flood management system or from a direct connection to the flood gauge.	
38.	The site and the Flood Emergency Management Plan must be registered with the Local Disaster Management Coordination Centre.	Prior to commencement of use
39.	(a) The Flood Emergency Management Plan must be reviewed by a suitably qualified person to identify improvements in the operation and implementation of the Flood Emergency Management Plan and resubmitted to Council at a minimum of the following times: i. following Council preparing a new flood study relevant to the site ii. following a change in the non-structural and/or structural flood mitigation measure iii. after the occurrence of moderate or greater flooding resulting in floodwaters entering the site iv. after implementation of the Flood Emergency Management Plan has resulted in evacuation of the site. (b) The Flood Emergency Management Plan must be reviewed in consultation with Council, completed by a REPQ and submitted to Council within three months of the flood event.	As indicated and to be maintained
Landscaping		
40.	(a) The development site must be landscaped in accordance with the approved Landscape Concept Plan Rev B prepared by CUSP, dated 22 January 2025. The works must include in particular: i. a planting palette that comprises only low threat vegetation (for example grassland managed in minimal fuel condition, maintained lawns, cultivated gardens, and scattered trees). All new tree stock must comply with AS2303:2018 Tree stock for landscape use ii. removal of all weed species listed in the following standards and legislation: – invasive plants listed in the Biosecurity Act 2014 – Sunshine *Coast Council Local Government Area Biosecurity Plan 2017*. iii. car parking areas along the Pumicestone Passage frontage must be screened with native vegetation in accordance with the approved Landscape Concept Plan. Landscaping design and species selection must be cross-checked with bushfire management	Prior to commencement of use and to be maintained

Condition		Timing
	requirements to ensure compliance with Asset Protection Zone standards and low-flammability planting, detailed below. iv. Landscaping must use low flammability species where appropriate, avoid continuous fuel loads and maintain low threat conditions, throughout the life of the development. Amendments to the approved landscape concept plan are to be submitted to Council prior to site works commencing and be accompanied by advice from a suitably qualified person that any amendments are consistent with the requirements of the Bushfire hazard assessment and management plan for the development.	
41.	All landscape works must be established prior to commencement of use and maintained in accordance with the approved design for the life of the development, and in a manner that ensures healthy and sustained plant growth. All plant material must be allowed to grow to full form and be refurbished when its life expectancy is reached.	Prior to commencement of use and to be maintained.
42.	Except where otherwise specified in the conditions of this development approval, all landscape works must be established in deep natural ground that is open to the ground below and open to the sky above.	Prior to commencement of use and to be maintained.
Entrance Features		
43.	(a) Any proposed entrance feature must be located entirely within private land and not within the public road reserve. (b) Entrance features must: i. reflect a local character ii. comprise feature vegetation (either existing or planted) in combination with built forms iii. integrate with the landscape design of the balance of the site iv. be constructed of durable and low maintenance materials v. be treated with a graffiti resistant coating vi. not restrict pedestrian access.	Prior to commencement of use and to be maintained.
ENVIRONMENTAL HEALTH		
Waste Management		
44.	(a) Refuse storage, removal and collection facilities must be provided in accordance with the following:	Prior to commencement of

Condition		Timing
	i. provision of only bulk bins for general and recyclable waste having a capacity sufficient for the use ii. collection by service vehicles from within the site only in a safe, efficient, and unobstructed manner iii. provision of a functionally accessible communal hardstand impervious area for the permanent storage location and service collection of all bulk bins iv. maintain continued responsibility of the site management entity, to present all bulk bins at the temporary collection point on refuse collection day v. provision of a 1.8m high purpose built enclosure to the bin storage and collection area, which is screened from the street and adjoining properties by landscaping vi. provision of a readily accessible wash-down area in the vicinity of the permanent bin storage area fitted with a hose cock, bin roll over bund, and drain connected to the on-site effluent disposal system that has a stormwater catchment area of no more than $1m^2$ vii. provision of readily accessible waste receptacles located within camp site areas viii. provision of a manual wheelie bin lifter, or other equivalent means, for the transfer of waste from camp site waste receptacles into bulk bins for collection.	use and to be maintained.
45.	An inspection must be organised with Council's Development Services Branch to confirm waste servicing and collection arrangements. Where obstructions to waste collection vehicles and facilities prevent safe and efficient servicing, the obstruction must be removed or rectified.	Prior to commencement of use and to be maintained.

Condition		Timing
Acoustic Amenity		
46.	(a) Except where varied by conditions of this development approval, acoustic measures and treatments must be incorporated into the development as follows: i. Construct a 2.4 metre high acoustic barrier along part of the Western Boundary from the road entry point to past the maintenance and hardstand area. The noise barrier shall be constructed of suitable materials to achieve a minimum surface density of 12 kg/m2 in accordance with section 4.4.3 the Environmental Amenity Assessment listed within this development approval. (b) Submit certification to Council from a qualified person that the acoustic barrier has been constructed in accordance with the requirements of this approval.	Prior to commencement of use and to be maintained.
47.	Amplified music is limited to no louder than 85dB(A) at 3 metres from any loudspeaker and is permitted only between 7am to 10pm daily.	At all times
48.	The use of the communal activity areas is permitted between 7am to 10pm daily.	At all times
49.	Waste collection must be undertaken using vehicles and methods assessed in the approved noise report.	At all times
Potable Water		
50.	(a) Underground connections to reticulated water must be provided for the development in accordance with the relevant connection policy and any water approval conditions prior to commencement of the use. (b) Any relevant approvals from the Department of Local Government, Water and Volunteers must be obtained prior to commencement of use.	As indicated
51.	In addition to underground reticulated water connections, provide on-site potable water storage tanks with a minimum total capacity of 250 kL.	Prior to commencement of use and to be maintained
52.	Dam storage is not permitted to be used for potable water supply.	At all times
53.	(a) In periods of low flow when water demand exceeds supply, the site Operational Management Plan must include appropriate measures such as: i. use of stored tank water supply	As indicated

Condition		Timing
	ii. trucking in water from external sources iii. applying temporary water restrictions.	
Effluent Disposal		
54.	(a) An on-site wastewater treatment and effluent disposal system is to be provided within the area identified as 'Wastewater treatment plant and irrigation area' on the DA Layout Plan, prepared by CUSP and Comiskey Group, dated 04/09/2025, as amended in red by DSDIP. (b) The on-site wastewater treatment and effluent disposal system is to have a capacity sufficient for the use and be provided in accordance with the requirements of the Seqwater Development Guidelines for Water Quality Management in Drinking Water Catchments 2017 and the conditions of this approval.	Prior to commencement of use and to be maintained
55.	The development must obtain all necessary approvals and permissions for waste and effluent systems from the relevant authorities.	Prior to commencement of use
56.	(a) Prior to lodging a wastewater application with the statutory authority, submit to Council: i. an amenity assessment report addressing potential amenity impacts associated with the wastewater irrigation area on adjoining and nearby properties; and ii. a Water Supply Concept Plan that reflects any recommendations of the above amenity impact assessments. (b) Both documents must be prepared by suitably qualified professionals and demonstrate compliance with the relevant planning scheme provisions and conditions of this development approval.	As indicated and prior to undertaking site works
57.	All wastewater generated on site must be treated to a minimum advanced secondary standard.	At all times
58.	Effluent systems associated with the development must not discharge to groundwater, surface water, or tidal areas at any time.	At all times
59.	Design and operate effluent wastewater treatment plant (WWTP) and irrigation areas to avoid nutrient and sediment conveyance to wetlands.	At all times
Mosquito & Biting Insects		
60.	Except where varied by conditions of this development approval, mosquito and biting insect mitigation measures and	Prior to commencement of

Condition		Timing
	treatments must be incorporated into the development generally in accordance with Section 4 of the Biting Insect Management Plan listed within this development approval. Where utilised, application of insecticidal sprays must be applied in such a manner that avoids, as far as practicable, any adverse impacts on ecologically important areas.	use and to be maintained
61.	Certification must be submitted to Council from a qualified person that the development has been constructed in accordance with the Biting Insect Management Plan listed within this development approval.	Prior to commencement of the use
62.	(a) Provide a 25m open space biting insect buffer in accordance with the approved plan. The buffer must: i. be turfed and maintained free of any camp sites, tents, or structures ii. be designed to avoid mosquito and midge harbourage iii. consist of open grassland (e.g., mown grass) or woodland and exclude dense vegetation. (b) The detailed design of the biting insect buffer must be provided at the time application is made for operational works.	Prior to commencement of use and to be maintained
63.	The design, construction and operation of the development must be undertaken in accordance with the Coochin Creek Eco Park Biting Insect Management Plan, including the mitigation and management measures outlined in Section 4.	Prior to commencement of use and to be maintained
Lighting Amenity		
64.	Lighting associated with the use must be designed, sited, installed, and tested to comply with Tables 3.2 & 3.3 for Zone A1 of AS 4282 - Control of the obtrusive effects of outdoor lighting, unless otherwise varied by the conditions of this approval.	Prior to commencement of use and to be maintained
65.	Certification must be submitted to Council from a qualified person that all lighting devices comply with the requirements of this development approval.	Prior to commencement of use
66.	(a) All lighting must be invertebrate-friendly and comply with the following: i. use motion-controlled, warm-coloured lighting such as yellow/orange-hued LEDs and bollards with yellow/orange lights ii. angle lighting downward and direct it only to areas requiring illumination iii. incorporate down-directed lighting into bollards	Prior to commencement of use and to be maintained

Condition		Timing
	iv. use warm-coloured light sources with a maximum 3000K CCT (e.g., amber, orange, or red LEDs) v. shield or direct lighting as required to comply with AS 4282 – Control of Obtrusive Effects of Outdoor Lighting.	
Land Rehabilitation and Covenant		
67.	Revegetate the identified wetland buffer area with native shrubs at a density that will not interfere with biting insect management or bushfire management. Planting must occur at a density of 1 plant per $4m^2$.	Prior to commencement of use
68.	(a) A vegetation protection covenant must be registered against the title of the property over the area identified as mapped wetland area and the wetland buffer area and shown on the Wetland and Buffer Area Revegetation Plan Rev E dated 28 November 2023 pursuant to Section 97A(3)(b) of the *Land Title Act 1994*. (b) The covenant document and a survey plan must be submitted to council for endorsement prior to lodgement with the relevant titles authority. The covenant document must: i. incorporate the requirements of this decision notice ii. include Sunshine Coast Council as Covenantee reference Queensland Land Registry Standard Terms Document No. 715219876.	As indicated
69.	If any provision in the covenant document is requisitioned or refused registration by the titles authority, include a substitute provision that, as far as practicable, achieves the same objective. The wording of the substitute provision must be agreed by Council.	As indicated
Covenant Area requirements		
70.	(a) The following activities must not occur within the Vegetation Protection Covenant: i. clearing, cutting down, poisoning, lopping, or pruning of native vegetation, which is indigenous to, or planted within, the Vegetation Protection Covenant ii. soil or spoil dumping and/or compacting iii. soil excavation, other than for planting indigenous native plant iv. discharge of treated or untreated effluent above or below ground level v. grazing by domestic stock.	At all times

Condition		Timing
71.	Any fencing within or on the boundary of the Vegetation Protection Covenant Area must not incorporate any barbed wire, electric fences or other materials that may cause harm to native fauna.	At all times
72.	No clearing of native flora indigenous to the Vegetation Protection Covenant Area is permitted for fence maintenance, except for: i. declared plants under the Land Protection (Pest and Stock Route Management) Act 2002 and sub-ordinate Regulation 2003 ii. plants listed in the Sunshine Coast Local Area Pest Management Plan 2012-2016 iii. indigenous native trees which pose a well-founded threat to persons or property controlled bushfire burns to maintain ecological processes, subject to submission of a Bushfire Management Plan and agreed in writing by Council.	At all times
73.	The following works must be undertaken within the Vegetation Protection Covenant: i. the installation of permanent survey markers in the form of star pickets 1.2 metres out of ground at each boundary peg and change in boundary direction corner and at 20 metres between survey markers ii. all boundaries of the Vegetation Protection Covenant must include the following: – two hardwood posts (to each boundary) 100mm x 100mm x 1.2m out of ground – each post to include an attached sign as follows: Vegetation Protection Covenant Area" 90mm x 50mm x 3mm anodized aluminium, engraved and paint filled black with 4mm x 4mm counter sunk mounting holes.	Prior to commencement of use
Ecology		
74.	(a) Provide for the following vegetation clearing and habitat management measures across the site: i. Vegetation clearing must be strictly limited to: – 0.6684 hectares of advanced regrowth Melaleuca quinquenervia open forest on northern dam flanks; and – 1.852 hectares of early phase regrowth (1–2 metres) within the northern dam footprint.	Prior to site works commencing and to be maintained

Condition		Timing
	– no remnant vegetation or mapped Koala Habitat Areas are to be cleared. ii. Undertake pre-clearing fauna load reduction and two stage clearing (understorey then canopy after a minimum 48 hours) with fauna spotter and catcher attendance. iii. Inspect and manage habitat features (including hollows and nests) prior to tree felling and translocate salvageable features to designated habitat augmentation sites identified in the VFMP. iv. Implement Koala Sensitive Design Guideline (Qld Gov, 2012) measures during construction, including exclusion fencing where necessary, internal speed limits, and night curfews for high-risk areas. v. For the south-west dam infill and northern dam excavation and expansion, implement ecologist led dewatering that includes staged water level reduction, macroinvertebrate and fish relocation to suitable receiving waters, and maintenance of shallow littoral shelves for sedge habitat in the new northern dam profile.	
75.	Implement a Weed Management Program for all land within 20m of the disturbance footprint to prevent the entry or spread of pest plants in Environmental Investigation Areas. The program must include. i. monthly inspections ii. targeted control using mechanical or chemical methods, as appropriate.	Prior to commencement of use and to be maintained
76.	(a) Prior to the commencement of any vegetation clearing, engage a qualified and licensed fauna spotter–catcher to be present on site for the duration of all clearing activities. (b) The fauna spotter–catcher must: i. Undertake a pre-clearing survey of the area to identify potential habitat trees, hollows, nests, or other fauna refuges. ii. Supervise all clearing works to ensure fauna are identified, captured (if necessary), and relocated to suitable habitat in accordance with relevant permits and guidelines. iii. Record and report fauna interactions, injuries, or mortalities to the relevant regulatory authority within the required timeframe. iv. Ensure that clearing is staged where practicable, to allow fauna to disperse naturally before felling habitat trees.	As indicated

Condition		Timing
77.	(a) Vegetation must only be removed or disturbed in accordance with a fauna management plan (FMP) (or part thereof) prepared by a qualified person. A fauna management plan is to be prepared and submitted to and endorsed by Council prior to site works commencing. (b) The FMP must be implemented and reviewed periodically to ensure ongoing compliance. Recommendations of the FMP are to be included in site based operational management plans to ensure ongoing protection and management of fauna on site.	As indicated and to be maintained.
78.	Prepare and submit to Council prior to site works commencing a vegetation management plan prepared by a suitably qualified person to direct vegetation clearing activities and minimise impact on habitat, including aquatic habitat.	Prior to site works commencing and to be maintained.
79.	Existing trees on the site and in the esplanade must be retained in accordance with an arborist report (or part thereof) prepared by a qualified person.	While site works are occurring and to be maintained
Biodiversity offsets		
80.	Implement the 3.37 hectare Wetland and Buffer Area revegetation on previously disturbed land (north east), using locally native species and excluding declared and environmental weeds, to achieve a net environmental gain that exceeds the 0.6684 hectare loss of advanced regrowth.	Prior to commencement of use and to be maintained
81.	(a) Offset objectives and performance criteria must: i. achieve at least 80 percent survival at 12 months, at least 70 percent survival at 24 months, and minimum patch structural metrics by 36 months ii. enhance connectivity to adjacent Environmental Investigation Areas and corridors (SFM5), minimise edge to area ratios and provide stepping stone habitats through the development area iii. ensure offset areas and works are not used for material or commercial gain. (b) If performance criteria for offset and revegetation areas are not met at 24 or 36 months, implement infill planting and enhanced maintenance measures including irrigation, mulch, and guard replacement until the criteria are met.	Prior to commencement of use and to be maintained
82.	(a) Offset funding and management must: i. provide an Offset Management Schedule detailing funding, responsibilities, maintenance including weeding, watering and infill, monitoring and adaptive management	Prior to commencement of use and to be maintained

Condition		Timing
	ii. maintain offset areas for a minimum of five years post planting.	
83.	Undertake quarterly monitoring of offset and revegetation areas for three years, then biannually to Year 5, covering survival, canopy cover, weed load, fauna usage (indicator taxa) and hydrologic function. Provide annual ecological performance reports to the assessment manager, including photo points, GIS layers and corrective actions.	As indicated
84.	Any new fencing (excluding acoustic fencing) to delineate boundary alignments must allow for free movement of fauna and comply with the following: i. allow adequate clearance at ground level for local macropods ii. not include any use of barbed wire or similar materials iii. provide regular opportunities for passage over and through.	Prior to commencement of use and to be maintained
85.	Install ten (10) permanent artificial nesting boxes within the site to provide habitat for arboreal mammals and hollow-dependent avian species.	Prior to commencement of use and to be maintained
Erosion, Sediment & Water Quality		
86.	Install and maintain erosion and sediment controls prior to soil disturbance, consistent with the Sediment Erosion Control Plan. Inspect controls weekly and after rainfall events of 25 millimetres or more and rectify any deficiencies within 48 hours.	Prior to site works commencing and to be maintained during the works period.
Bushfire Management		
87.	(a) The development must be carried out in accordance with the approved Bushfire Hazard Assessment and Management Plan (v3) prepared by North Coast Environmental Services (August 2025), as listed within this decision notice, including all referenced mitigation measures and as amended in accordance with the conditions of approval. (b) The Bushfire Hazard Assessment must be amended to recognise the potential bushfire hazard of regrowth vegetation on adjoining land to the north-west and east of the site and to reflect any amended layout and design of proposed cabins necessary to reduce bushfire risks. (c) Undertake further refinement of bushfire risk management requirements via consultation with Queensland Parks and	Prior to commencement of use and to be maintained

Condition		Timing
	Wildlife Services, Queensland Forestry Departments and adjoining neighbours. (d) Bushfire hazard management measures are to include provision of on-site firefighting equipment for bushfire response (which is to be determined in consultation with QFES and local fire response services), and staff are to be trained to use the firefighting equipment.	
88.	(a) A copy of the Bushfire Hazard Assessment and Management Plan (v3) prepared by North Coast Environmental Services (August 2025), including any revisions required to address conditions of this approval, must be provided to: i. District Urban Fire Service, Caloundra ii. all Rural Fire Service Stations within the Fire Risk Catchment area iii. Rural Fire District Office, Sunshine Coast iv. the nearest fire authority v. the Officer in Charge of the local and regional Queensland Police Stations.	Prior to commencement of use and to be maintained
89.	(a) Certification must be submitted to Council from a qualified person confirming that the development has been constructed in accordance with the bushfire management conditions of this decision notice, including: i. Setbacks and Asset Protection Zones (APZ): – all cabins and campsites maintain a minimum separation of 50 metres from hazardous vegetation – APZs provide setbacks sufficient to achieve less than 10 kW per square metre radiant heat flux to all habitable structures, as identified in the approved plan – landscaping within APZs comprises low threat vegetation and maintains fuel loads less than 8 tonnes per hectare with a discontinuous fuel structure. ii. Shelter in place facilities: – the Reception Centre and Indoor Recreation Building are provided and maintained as designated shelter in place facilities with a minimum combined capacity for 1,130 persons and a site peak occupancy of 705 persons – QFES compliant hydrant coverage is provided	Prior to commencement of use

Condition		Timing
	– a dedicated firefighting water storage of 288 kilolitres is installed and commissioned – a backup generator is installed and capable of supplying power for 48 hours with sufficient fuel stored on site – emergency radio and communications systems are installed and regularly tested. iii. Firefighting water supply: – a private reticulated water system is installed and maintained with a minimum 250 kilolitre potable water tank – system performance provides pressure and flow of at least 10 litres per second at 200 kilopascals at all times – hydrants are provided at the locations specified in the Bushfire Hazard Assessment report, including near cabins C35 to C38 and generally in accordance with the *QFES Fire Hydrant and vehicle access guidelines for residential, commercial and industrial lots (2019).* iv. Vehicular access and roads: – internal roads comply with the Queensland Fire Hydrant and Vehicle Access Guidelines (2019), providing a minimum clearance of 3.5 metres wide by 4.8 metres high, all weather construction suitable for 15 tonne fire trucks, and a maximum gradient of 12.5 percent. – no dead end roads are permitted. Multiple through road connections must be maintained. v. Firebreak trails: – compliant firebreak trails are constructed and maintained adjacent to mapped High Potential Bushfire Intensity areas, as shown in the approved plan.	
90.	(a) Certification must be submitted to Council by a suitably qualified person that the Bushfire Hazard Assessment and Management Plan (v3) prepared by North Coast Environmental Services (August 2025) risk management measures have been integrated into the site operational management plans including: i. defined response triggers for action, based on Fire Danger Ratings and the proximity of any uncontrolled fire in the catchment. ii. Include procedures for SMS alerts to all guests via the Booking Management System.	Prior to commencement of use and to be maintained

Condition		Timing
	iii. Provide shelter in place activation procedures and staged evacuation protocols, with identification of safe external routes via Roys Road to the Bruce Highway or via Beerwah and provide alternative safe egress and access routes that do not involve travelling through an identified bushfire prone area iv. Include conditions of stay for guests and procedures for staff, for the advance closure of the facility on days of forecast Extreme or Catastrophic fire danger. v. include signage and staff training for evacuation routes and emergency protocols vi. include procedures that instruct guests during high fire danger conditions to park vehicles more than 100 metres from hazardous vegetation and to disconnect LPG cylinders, with on site managers responsible for disconnecting LPG cylinders in communal facilities when triggers are met or when directed by emergency services. vii. nominate roles and responsibilities, decision making authority and coordination with emergency services. (b) The Bushfire Hazard Assessment and Management Plan must be reviewed at least every three years, or sooner if site conditions change, and after any bushfire event, in consultation with Queensland Fire and Emergency Services. Revised copies of management plans and operational management plans are to be submitted to Council and the relevant fire service authorities.	
91.	(a) Within six months of the commencement of the use, the operator must undertake a full test of the lockdown and on site evacuation actions specified in the Bushfire Hazard Assessment and Management Plan and the Bushfire Emergency Response Plan. (b) The outcomes of these tests must be communicated to Council, including identification of any issues requiring rectification and the actions taken or proposed to rectify these issues.	As indicated
92.	(a) The operator must maintain up-to-date records of: i. water supply volumes and annual tests for firefighting and potable water tanks ii. generator testing and fuel management to ensure 48 hours of operation iii. emergency radio and communications testing iv. Bushfire Emergency Response Plan training and drills v. SMS alert testing	At all times

Condition		Timing
	vi. Bushfire Emergency Response Plan reviews. (b) Records must be made available to Council and emergency services upon request.	
Construction Environment and Construction Management Plan		
93.	(a) Prepare and submit to Council for endorsement a Construction Environmental Management Plan (CEMP). The CEMP must address the following at a minimum: i. environmental risk management during all aspects of the construction phase including: – identification of potential environmental impacts and proposed mitigation measures – erosion and sediment control measures to maintain water quality and protect existing drainage lines – dust and air quality management strategies – dewatering management plan – noise and vibration management strategies – construction waste and hazardous materials handling procedures – protection of flora and fauna within and adjacent to the site. ii. works programme identifying key components of the works and their respective durations iii. roles and responsibilities including contact details for the on-site manager and persons responsible for implementing the CEMP iv. monitoring and reporting protocols including inspection schedules, incident response procedures, and compliance reporting v. complaints management procedures including: – contact details for the on-site manager – dispute resolution procedures vi. emergency response plan detailing actions for spills, pollution incidents, and extreme weather events vii. unexpected finds protocol for contamination, heritage/cultural items, or acid sulfate soils. (b) Carry out the development in accordance with the endorsed CEMP.	Prior to site works commencing, to be implemented and maintained.
94.	(a) Prepare and submit to council a construction management plan for endorsement that addresses the following:	(a) Prior to site works commencing

Condition		Timing
	i. traffic management during all aspects of the construction phase including: – a traffic management control plan in accordance with the Manual of Uniform Traffic Control Devices (MUTCD) detailing all temporary signage and traffic control measures prior to construction – maintenance of safe pedestrian access for the areas affected by the works during and after daily construction has ceased – proposed fencing to the site during the construction phase of the development – provision for worker car parking ii. maintenance and protection of water quality and existing drainage lines through the construction site, through the implementation of appropriate erosion and sediment control measures iii. works programme identifying key components of the works and their respective durations iv. establishment of a communication protocol with the general public, adjoining owners, emergency services and local businesses to advise of agreed construction times, impacts on traffic, services, and other relevant issues v. identification of complaint management procedures including: – contact details for the on-site manager – dispute resolution procedures vi. details on the location of external fill sites/sources, the haulage route, type of vehicle to be utilised during filling operations and frequency of usage. (b) Carry out the development in accordance with the endorsed construction management plan.	(b) While site works are occurring
95.	(a) Treat construction runoff via sediment basins and biofilters to meet relevant water quality objectives for the catchment before discharge to wetlands or Pumicestone Passage. (b) Maintain natural hydrologic regimes of waterways and wetlands to the greatest extent practicable, ensuring no change to reference duration flow curves or mean annual flows that would cause adverse wetland effects. (c) Avoid groundwater abstraction and saline ingress to freshwater aquifers.	Prior to site works commencing and to be maintained during the works period.

Schedule 2

Development permit for operational works for earthworks, stormwater and access

Table of approved plans and documents

Document No.	Rev.	Document Name	Date
M24-0395	B	Site Based Stormwater Management Plan prepared by Covey Associates	December 2024
Plan Set 1	B	Civil Operational Works plan set prepared by Covey Project no.243823	December 2024
	E	Wetland and Buffer Area - 1807 Roys Rd Revegetation Plan, prepared by Terrestria Pty Ltd	28/11/23
		DA Layout Plan, prepared by CUSP and Comiskey Group, as amended in red by DSDIP.	04/09/2025

Conditions of approval

Condition		Timing
OPERATIONAL WORKS		
Approved Plans		
1.	Development authorised by this approval must be undertaken generally in accordance with the Approved Plans listed within this development approval (Schedule 1).	At all times
Damage to public infrastructure		
2.	(a) Repair any damage to existing public infrastructure (including replacing traffic signs and line markings, removal of concrete slurry from footways, roads, kerb and channel and stormwater gullies and drainlines) caused by works carried out in association with the approved development. (b) Should existing public infrastructure require repair or relocation, due to the approved development and/or works associated with the approved development, repair and/or relocate the public infrastructure at no cost to others and in accordance with statutory requirements and adopted design standards.	Prior to commencement of use
Preliminary Construction Management Plan		
3.	(a) Prepare a preliminary construction management plan that addresses the following: i. traffic management during all aspects of the construction phase including: – a traffic management control plan in accordance with the Manual of Uniform Traffic Control Devices (MUTCD) detailing all temporary signage and traffic control measures prior to construction. – maintenance of safe pedestrian access for the areas affected by the works during and after daily construction has ceased. – proposed fencing to the site during the construction phase of the development. – provision for worker car parking. ii. maintenance and protection of water quality and existing drainage lines through the construction site, through the implementation of appropriate erosion and sediment control measures. iii. works programme identifying key components of the works and their respective durations.	Prior to site works commencing

Condition		Timing
	iv. establishment of a communication protocol with the general public, adjoining owners, emergency services and local businesses to advise of agreed construction times, impacts on traffic, services, and other relevant issues. v. identification of complaint management procedures including: – contact details for the on-site manager. – dispute resolution procedures. vi. details on the location of external fill sites/sources, the haulage route, type of vehicle to be utilised during filling operations and frequency of usage. (b) Carry out the works in accordance with the preliminary construction management plan.	
4.	(a) Prepare a Construction Environmental Management Plan (CEMP). The CEMP must address the following at a minimum: i. environmental risk management during all aspects of the construction phase including: – identification of potential environmental impacts and proposed mitigation measures – erosion and sediment control measures to maintain water quality and protect existing drainage lines – dust and air quality management strategies – noise and vibration management strategies – construction waste and hazardous materials handling procedures – protection of flora and fauna within and adjacent to the site. ii. works programme identifying key components of the works and their respective durations iii. Dewatering management plans where required iv. roles and responsibilities including contact details for the on-site manager and persons responsible for implementing the CEMP v. monitoring and reporting protocols including inspection schedules, incident response procedures, and compliance reporting vi. complaints management procedures including: – contact details for the on-site manager – dispute resolution procedures	Prior to site works commencing, to be implemented and maintained.

Condition		Timing
	vii. emergency response plan detailing actions for spills, pollution incidents, and extreme weather events viii. unexpected finds protocol for contamination, heritage/cultural items, or acid sulfate soils. (b) Carry out the development in accordance with the CEMP.	
Contaminated Land		
5.	(a) All land disturbing works must manage any contaminated land findings in accordance with mandatory requirements and best practice guidelines as advised by suitably qualified person. (b) All contamination sources must be removed from the site in accordance with the conclusions and recommendations of the Preliminary Site Investigation report listed within this development approval. (c) Certification must be submitted to Council from a qualified person that all contamination sources have been removed from the site in accordance with the Preliminary Site Investigation report listed within the development approval.	While site works are occurring and prior to commencement of the use.
Acid Sulfate Soils		
6.	All site works must be carried out in accordance with an acid sulfate soil and groundwater management plan (or part thereof) prepared by a qualified person.	Prior to site works commencing and to be maintained.
7.	(a) All waters, including stormwater runoff, groundwater seepage and leachate from acid sulfate soils must achieve the following quality prior to release from the site: i. a pH range of 6.5-8.5 pH units ii. 50mg/L maximum total suspended solids concentration iii. 0.3mg/L maximum total iron concentration iv. 0.2mg/L maximum total aluminium concentration v. no visible plume at either the point of release from the site or within a waterway.	While site works are occurring and to be maintained
8.	(a) All treated material must undergo verification testing at the rate of one sample per 200m^3 throughout the duration of the excavation phase of the development. (b) The verification testing must be undertaken by a qualified person using the SPOCAS or Chromium Reducible Sulphur testing suite, and the results for each sample must be submitted to Council.	While site works are occurring

Condition		Timing
Erosion and Sediment Management		
9.	(a) Submit to Council for endorsement an Erosion and Sediment Control Plan (ESCP), certified by a RPEQ or an accredited professional in erosion and sediment control, and prepared generally in accordance with the following: i. Construction phase stormwater management design objectives of the State Planning Policy 2017 (Appendix 2 Table A) ii. Healthy Land and Water Technical Note: Complying with the SPP – Sediment Management on Construction Sites. (b) Install and maintain erosion and sediment controls prior to soil disturbance, consistent with the endorsed ESCP. Inspect controls weekly and after rainfall events of 25 millimetres or more and rectify any deficiencies within 48 hours.	Prior to site works commencing and to be maintained
10.	(a) Treat construction runoff via sediment basins and biofilters to meet relevant water quality objectives for the catchment before discharge to wetlands or Pumicestone Passage. (b) Maintain natural hydrologic regimes of waterways and wetlands to the greatest extent practicable, ensuring no change to reference duration flow curves or mean annual flows that would cause adverse wetland effects. (c) Avoid groundwater abstraction and saline ingress to freshwater aquifers.	Prior to site works commencing and to be maintained during the works period.
Earthworks and Retaining Walls		
11.	All fill and associated batters must be contained entirely within the subject site unless written permission from the respective landowner(s) is provided to Council.	While site works are occurring and to be maintained
12.	All retaining walls exceeding 1 metre in height must be designed and constructed in accordance with the planning scheme and must be certified by a Registered Professional Engineer of Queensland (RPEQ).	While site works are occurring and to be maintained
13.	Safety barriers must be implemented where steep slope or fall hazards exist naturally or are created by the design. The barrier type must be assessed and designed by a RPEQ as being appropriate for each location and the anticipated risks during construction, establishment, maintenance, and end use, in accordance with the following criteria and standards:	While site works are occurring and to be maintained

Condition		Timing
	i. where located on public roadways, vehicle barriers must be designed in accordance with Austroads and the DTMR design guidelines ii. where located adjacent to vehicle manoeuvring areas, vehicle barriers must be designed in accordance with AS 2890.1 – Off-street Parking iii. where located near publicly accessible paths, pedestrian and cycle barriers must be designed in accordance with Austroads Guide to Road Design – Part 6A Paths for Walking and Cycling iv. where located in areas with limited access, pedestrian barrier selection must be based on a suitable risk assessment method e.g., AS 2156.2 Walking Tracks v. all barriers must be certified to the appropriate load conditions from *AS 1170 – Structural Design Actions* by either the manufacturer or engineering calculations.	
Hours of Work – Construction		
14.	Unless otherwise endorsed by Council, construction hours for the approved development are limited to Monday to Saturday between 6:30am to 6:30pm, excluding public holidays.	At all times
Stormwater management		
15.	(a) The site must be provided with a stormwater drainage system connecting to a lawful point of discharge. The works must be undertaken in accordance with the Queensland Urban Drainage Manual, and must include in particular: i. the works described in the Site Based Stormwater Management Plan Issue B prepared by Covey Associates, dated December 2024 listed in this development approval. ii. stormwater from the development must be disposed of on-site without causing scour or damage to the subject site or any adjoining property iii. stormwater must be returned to sheet flow at the discharge points from the site where the existing situation is sheet flow and additional concentration of flow at other discharge locations avoided iv. extension of the site stormwater system to accommodate stormwater from external to the site, including registration of drainage easements	Prior to commencement of use and to be maintained

Condition		Timing
	v. all channels designed to be fully vegetated channels designed in accordance with the Planning Scheme Policy for Development Works vi. the use of gravity stormwater drainage and not surcharge pits. vii. No worsening impacts are to be made by the development on adjoining properties to the west at any time from stormwater conveyance, discharge or ponding.	
16.	Stormwater flow entering the site over the western boundary as sheet flow and concentrated flow must continue to be accepted and conveyed through the site without any ponding or increase in stormwater levels occurring on the property to the west.	Prior to commencement of use and to be maintained
17.	A minimum 4m wide easement for drainage purposes must be registered against the title of the property in favour of Council over the proposed easement identified on the Approved Plans.	Prior to commencement of use
18.	A stormwater quality treatment system must be provided for the development. The works must include stormwater quality treatment devices of a size and location generally in accordance with those shown the Site Based Stormwater Management Plan Issue B prepared by Covey Associates, dated December 2024 listed in this development approval.	Prior to commencement of use and to be maintained
19.	All stormwater quality treatment devices must be maintained in accordance Council infrastructure standards and best practice management guidelines. Records of all maintenance activities undertaken must be kept and made available to Council upon request.	Prior to commencement of use and to be maintained
20.	There must be no worsening of stormwater discharge to the Pumicestone Passage or the adjoining National Park as a result of the development. All stormwater management measures must ensure that both the quality and quantity of discharge remain consistent with pre-development conditions and comply with the approved stormwater management plan.	Prior to commencement of use and to be maintained
General		
21.	(a) Prior to site works commencing tree protection zones must be installed in accordance with Australian Standards around trees to be retained as part of the approval in accordance with an arborist report (or part thereof) prepared by a suitably qualified person.	Prior to site works commencing and to be maintained for the construction phase

Condition		Timing
	(b) Implement tree protection zone measures in accordance with Australian standards and the recommendations of the arborist report.	While site works are occurring and to be maintained
22.	Implement Koala Sensitive Design Guideline (Qld Gov, 2012) measures during construction, including exclusion fencing where necessary, internal speed limits, and night curfews for high-risk areas. Retain koala food and shelter species in landscaping in accordance with the Fauna Management Plan to achieve the outcomes of the Material change of use conditions of approval for the Tourist Park.	Prior to site works commencing and to be maintained during construction phase.
23.	Site works are to ensure that the land area defined as mapped wetland area and the identified buffer area on the subject site and shown on the Wetland and Buffer Area Rehabilitation Plan Rev E dated 28 November 2023 achieve the outcomes of the Material change of use conditions of approval for the Tourist Park.	As indicated.

Schedule 3

Advisory and Property notes

ADVISORY NOTES	
The following notes are included for guidance and information purposes only and do not form part of the assessment manager conditions:	
Equitable Access and Facilities	
1.	The plans for the proposed building work have NOT been assessed for compliance with the requirements of the National Construction Code - Building Code of Australia as they relate to people with disabilities. In addition to the requirements of the National Construction Code as they relate to people with disabilities, one or more of the following may impact on the proposed building work: (a) the Disability Discrimination Act 1992 (Commonwealth) (b) the Anti-Discrimination Act 1991 (Queensland) (c) the Disability (Access to Premises – Buildings) Standards.
Infrastructure	
2.	Unless otherwise specified, all assessment manager conditions of this development approval relating to the provision of infrastructure are non-trunk infrastructure conditions for Chapter 4 of the Planning Act 2016
Aboriginal Cultural Heritage Act 2003	
3.	There may be a requirement to establish a Cultural Heritage Management Plan and/or obtain approvals pursuant to the *Aboriginal Cultural Heritage Act 2003*. The *ACH Act* establishes a cultural heritage duty of care which provides that: "*A person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage.*" It is an offence to fail to comply with the duty of care. Substantial monetary penalties may apply to individuals or corporations breaching this duty of care. Injunctions may also be issued by the Land Court, and the Minister administering the Act can also issue stop orders for an activity that is harming or is likely to harm Aboriginal cultural heritage or the cultural heritage value of Aboriginal cultural heritage. You should contact the Cultural Heritage Unit on 1300 378 401 to discuss any obligations under the *ACH Act*.
Easements and Future Works over External Land	
4.	Should the approved development necessarily require easements or works to be undertaken over land external to the site, including crane overhang into neighbouring airspace, council recommends that easement, access agreements and works requirements are negotiated with the relevant landowner/s prior to advancing to detailed design stages of the development to avoid unexpected costs or delays. To discuss easement or works requirements over council owned or controlled land,

ADVISORY NOTES	
	please liaise directly with council's Property Management Unit and note that compensation may be payable.
Other Laws and Requirements	
5.	This approval relates to development requiring approval under the *Planning Act 2016* only. It is the applicant's responsibility to obtain any other necessary approvals, licences or permits required under State and Commonwealth legislation or council local law, prior to carrying out the development. Information with respect to other council approvals, licences or permits may be found on the Sunshine Coast Council website (www.sunshinecoast.qld.gov.au). For information about State and Commonwealth requirements please consult with these agencies directly.
Infrastructure Charges	
6.	Infrastructure charges, determined in accordance with council's Infrastructure Charges Resolution, apply to this development approval.
Development Compliance Inspection	
7.	Prior to the commencement of the use, please contact council's Development Audit & Response unit to arrange a development compliance inspection.
Building and Construction Industry (Portable Long Service Leave) Levy ("Qleave")	
8.	The QLeave levy must be paid prior to the issue of a Development Permit for Operational Works where required. Council will not be able to issue a development approval for operational works without receipt of details that the Levy has been paid. QLeave contact: 1800 803 491 (free call) or (07) 3212 6844.
Qualified Person	
9.	For the purpose of reviewing the Flood Emergency Management Plan for the development, a qualified person is considered to be a Registered Professional Engineer of Queensland (RPEQ) experienced in hydraulics and hydrology.
10.	For the purpose of preparing a Landscape Plan, a qualified person is considered to be a landscape architect, landscape designer and/or horticulturist with a minimum of five (5) years current experience in the field of landscape design
11.	For the purpose of preparing an Arborist report/Certification, a qualified person is considered to be an arborist with a minimum five years current experience in tree protection, hazard identification/mitigation (*AS 4970-2009 'Protection of Trees on Development Sites'*) and AS2303 Tree Stock for Landscape Use assessment and either: (a) International Society of Arboriculture (ISA) certification; or (b) A Diploma of Arboriculture.
12.	For the purpose of certifying acoustic matters or treatments for the development, a qualified person is considered to be either:

ADVISORY NOTES	
	(a) a Registered Professional Engineer of Queensland (RPEQ); (b) an environmental consultant with a minimum of three (3) years current experience in the field of acoustics.
13.	For the purpose of certifying lighting devices for the development, a qualified person is considered to be either: (a) a Registered Professional Engineer of Queensland (RPEQ); (b) an environmental or electrical design consultant with a minimum of three (3) years current experience in the field of outdoor lighting.
14.	For the purpose of certifying contaminated land matters for the development, a qualified person must have qualifications and experience relevant to contaminated land remediation and assessment and must be a current member of a professional organisation prescribed under Schedule 14 of the Environmental Protection Regulation 2019.
15.	For the purpose of certifying biting insect matters or plans for the development, a qualified person is considered to be: (a) an environmental or ecological consultant with a minimum of three (3) years current experience in the field of entomology.
16.	For the purpose of preparing an acid sulfate soil and groundwater management plan, a qualified person is considered to be either: (a) a Registered Professional Engineer of Queensland (RPEQ) or; (b) a soil scientist with a minimum of five (5) years current experience in the field of acid sulfate soils.
17.	For the purpose of preparing a rehabilitation plan, a qualified person is considered to be a landscape architect or ecologist with a minimum of three (3) years current experience in the field of landscape design.
18.	For the purpose of preparing a fauna management plan, a qualified person is considered to be an ecologist with a minimum of three (3) years current experience in the field of fauna assessment and management.
19.	For the purpose of preparing a bushfire management plan, and for certifying compliance with the bushfire requirements of this decision notice, a qualified person is considered to be an ecologist with a minimum of three (3) years current experience in the field of bushfire assessment and management.
Bioretention Basin Educational Signage	
20.	Suggested wording for the permanent educational signage required by this development approval is as follows: "*BIORETENTION BASIN - This bioretention basin reduces the pollution of our waterways by reducing the amount of heavy metals, litter, suspended solids, and nutrients discharged to the Pumicestone Passage*".

ADVISORY NOTES	
Flood Gauge Locations	
21.	Approximate flood gauge location is as follows: 153.063 -26.884 Degrees The exact location will need to be determined through a site inspection.
Biosecurity	
22.	All development is to be undertaken in accordance with the *Biosecurity Act 2014.* Fire ant biosecurity measures and requirements must be implemented.

PROPERTY NOTES
The following property notes will be placed against the subject property in council's property record system:
Mosquito and Biting Midge *This property has been identified as being affected by mosquitoes and biting insects from the adjacent Pumicestone Passage. Property owners are advised that residential amenity may be affected at times during peak summer conditions.*
Bushfire Management *To ensure the safety of people and property on this property is maintained, all buildings and structures must be sited and constructed in accordance with the bushfire management conditions of approval and associated Operational Work approvals.*
Vegetation Protection Covenant *A Vegetation Protection Covenant applies to this property. No clearing of vegetation is to occur within the covenanted area, except where in accordance with the terms of the covenant.*

Schedule 4

Reasons for decision

The reasons for the decision, including the findings on material questions of fact and evidence on which those findings were based, is set out below.

Reasons for decision

1. On 11 June 2025 I called in a change application made to Sunshine Coast Regional Council under section 78 of the *Planning Act 2016* (Planning Act), being an application for a change, other than a minor change, to an existing development permit. The change application seeks a development permit for:
    - Material change of use of premises to establish a Tourist Park (comprising 150 sites [75 cabins and 75 camp sites] and ancillary recreation facilities)
    - Operational work – Stormwater, Earthworks and Access.
2. On a call in I may consider anything I consider relevant in deciding the change application, pursuant to section 105(5) of the Planning Act.
3. My decision is to approve the whole of the change application, subject to the conditions set out in the decision notice.
4. My reasons for approving the application subject to conditions, are set out below.

Development Proposal

5. The assessment undertaken by the Department of State Development, Infrastructure and Planning (DSDIP) informs of the following matters relevant to the proposal, which I accept.
6. The existing development approval is for a development permit for material change of use for Nature Based Tourism which provides for a nature-based tourism facility (comprising 100 camp sites and ancillary recreation facilities, capped at 300 guests excluding staff), which was given on 20 December 2023, pursuant to a judgment of the Planning and Environment Court (existing approval).
7. The proposal as changed is for:
    - A tourist park for 150 sites, comprising 75 camping sites and 75 cabins, 213 carparking spaces and ancillary recreational facilities including a bar and restaurant to service the tourist park, swimming pools and waterplay park and indoor recreation facility; and
    - Operational works for site stormwater, access and earthworks to facilitate the development of the tourist park.
8. I am informed that the proposal maintains substantially the same development footprint and provides for camp sites, amenities block, recreational facilities and internal road layout but seeks the following changes to the existing approval:
    - an increase from 100 to 150 sites (25% increase) and the introduction of cabins
    - an increase to the maximum guest capacity from 300 to 600 guests (100% increase)
    - an increase the car parking from 111 to 213 car parking spaces (~47% increase)
    - an increase of the GFA for indoor recreation from ~500m² to 1,000m² (50% increase)
    - an increase in outdoor recreation facilities from 2 to 7 (250% increase)
    - an increase in the GFA of the reception building from 500m² to 1,000m² (50% increase)

- the introduction of a food and drink outlet and bar (ancillary use)
- a reduction of amenity buildings from 8 to 6 (25% decrease).

9. The subject site is located at 1807 Roys Road, Coochin Creek, with a total site area of 43.111 hectares. Consistent with the existing approval, the proposed development is accessed via a right of way and access easement over Lot 7 on SP106174 which grants access rights to the subject land and connects the subject land to Roys Road.
10. The site is located approximately 10km south of Pelican Waters and approximately 8km east of the Bruce Highway on the northern reaches of the Pumicestone Passage/ Coochin Creek Esplanade. The site is bounded to the north and east by the Bribie Island National Park and the Moreton Bay Marine Park. Directly to the west of the site is a small collection of buildings associated with surrounding farms, while Bribie Island is located on the south-eastern side of the Pumicestone Passage.
11. I have assessed the proposed development in the context of the development approval.

State Planning Policy

12. I am satisfied that the development proposal as conditioned is consistent with the relevant State interest policies expressed in the State Planning Policy dated July 2017 (SPP), in that:

- *Economic Growth – Tourism*
  - I am satisfied that the proposed tourist park will support Queensland's tourism sector by delivering sustainable, nature-based visitor accommodation and recreation facilities, while protecting natural values, and that the proposal demonstrates significant economic benefits, including job creation and regional tourism dispersal.
  - I am satisfied the development will provide quality, nature-based tourism product that aligns with Queensland's strategic priorities for sustainable tourism through the provision of diverse accommodation comprising 75 cabins and 75 camp sites. The application demonstrates that the proposal will generate economic benefits of approximately $34 million dollars in annual visitor expenditure stimulating local business in the Coochin Creek, Beerwah and Glasshouse Mountains region of the Sunshine Coast and create approximately 200 construction jobs and 25-30 full time operational jobs. Additionally, the development addresses a documented shortfall in tourist accommodation on the Sunshine Coast, thus contributing to the Sunshine Coast's visitor economy.
- *Economic Growth – Agriculture*
  - I am satisfied the development is proposed on a site with limited agricultural value, with most land classified as low suitability for cropping. I am satisfied the proposal does not detract from regional agricultural values or compromise long-term productivity regionally.
  - Furthermore, the development will provide setbacks and buffers to ensure compatibility with surrounding rural uses, and I am satisfied the proposal is consistent with the SPP intent to protect agricultural resources.
- *Environment and heritage – Biodiversity*
  - The development will avoid areas of high ecological significance and confines development to previously cleared land and 0.668ha of advanced regrowth vegetation. Conditions will provide revegetation of 3.37 ha of native landscaping, and fauna management measures delivering an overall net benefit for site rehabilitation.

- Accordingly, I am satisfied that these measures deliver a net gain in habitat connectivity and ecological function, ensuring the health and resilience of biodiversity and the natural environment is maintained external from the site and improved within the development site.

- *Environment and heritage – Coastal Environment*
  - The development is located within the Coastal Management District, where the State Planning Policy seeks to protect and enhance the coastal environment while supporting compatible coastal-dependent development and maintaining public access. The proposal avoids introducing coastal works or structures within erosion-prone areas and maintains substantial setbacks from the Highest Astronomical Tide (minimum 40 metres), ensuring the natural coastal processes and public access are preserved. The design confines built form to previously cleared land and incorporates landscaping to enhance ecological values, consistent with SPP outcomes for protecting coastal resources and scenic amenity.
  - The proposal demonstrates proper management of erosion and water quality risks through an RPEQ certified Stormwater Management Plan that confirms compliance with the SPP's "non-worsening" water quality objective, that is supported by conditions for implementation of management measures during construction and operational phases of the development. These measures ensure the development does not adversely impact sensitive receiving environments, including Pumicestone Passage and adjoining wetlands, and maintains the integrity of the coastal environment.
  - Further, no coastal development works are proposed.

- *Safety and resilience to hazards – Natural hazards, risk and resilience*
  - The development is located within areas mapped for bushfire and flood hazard, where the State Planning Policy seeks to ensure risks from natural hazards are avoided or mitigated to an acceptable level to protect people, property, and community resilience. Technical assessments have been undertaken for bushfire risk and flooding risk hazards applicable.
  - The design avoids high bushfire-intensity areas, provides Asset Protection Zones, and incorporates internal roads compliant with emergency access standards. Conditions require a Bushfire Emergency Management Plan, on-site firefighting water supply, and shelter-in-place provisions in certain circumstances.
  - Flood risk has been addressed through minimum floor levels above the Probable Maximum Flood (PMF), a Flood Emergency Management Plan, and designated refuge areas with backup power and water supply. These measures ensure safe shelter during extreme events and maintain compliance with the Planning Scheme and SPP benchmarks for hazard resilience.
  - I am satisfied the proposal demonstrates proper management of bushfire and flood risks through design and operational measures, ensuring the development does not worsen hazard impacts and achieves the SPP outcome of protecting people and property while enhancing community resilience.

- *Infrastructure – Transport infrastructure*
  - I am satisfied the applicant has demonstrated the site is appropriately serviced by Roys Road with access to Bells Creek Arterial and the network can accommodate additional trips with minor conditioned upgrades. Further I am satisfied internal roads comply with emergency access standards.

ShapingSEQ 2023

13. I am satisfied the proposal, as conditioned, is consistent with *ShapingSEQ 2023*'s vision for sustainable growth, promoting tourism that enhances regional amenity and biodiversity while strengthening economic development.

14. Furthermore, I am satisfied that the proposed development aligns with the intent of the Regional Landscape and Rural Production Area (RLRPA) to protect the values of this land from encroachment by urban and rural residential development, to protect natural and cultural assets, and support development and economic growth of rural communities and industries, in that:

    - The proposed development is a low-impact tourism use within a rural setting, that will preserve the non-urban and landscape character of the area and avoiding fragmentation of rural land.
    - I am satisfied the proposal protects environmental and scenic values as the development footprint is confined to previously cleared land, avoiding remnant vegetation and sensitive habitats, and subject to conditions will require revegetation and landscaping to enhance biodiversity and scenic amenity.
    - I am satisfied the tourist park use is compatible with surrounding uses and designed to complement rural and conservation areas, with substantial buffers (>300m) to productive agricultural land and operational management plans to mitigate reverse amenity impacts.
    - The development proposal promotes:
        - rural economic diversification as it introduces nature-based tourism as an alternative economic activity, and
        - community access and enjoyment of the unique surrounding landscape and environmental values reinforcing the RLRPA's role as an outdoor recreation and tourism destination.
    - I am satisfied that the site is adequately serviced by existing rural road infrastructure via Roys Road and that the proposed development will not place an unreasonable demand on urban transport networks, which is consistent with the intent of the Regional Landscape and Rural Production Area (RLRPA) to avoid urban infrastructure pressures in non-urban areas.
    - Further, I am satisfied the site is appropriately serviced by existing infrastructure, and the proposed change includes operational works for stormwater, access, and earthworks that have been demonstrated to comply with Council's development codes. These works are conditioned to maintain best-practice standards for water quality, erosion, and sediment control, and they respond appropriately to site constraints. The operational works are proportionate to the scale of development.

15. The premises are also mapped within the Northern Inter-Urban Break (NIUB) under *ShapingSEQ 2023*. The NIUB is a critical green buffer preserving landscape values and regional identity. The Department's assessment concludes, and I am satisfied that consistent with the objectives of the NIUB, the proposal preserves the non-urban separation between major urban areas, protects landscape and scenic values, maintains ecological functions and supports rural and recreational uses compatible with its character, in that the proposal:

    - Maintains open space and natural character, with built form clustered within an existing cleared footprint, with a site cover of ~2.45% of the premises, avoiding sprawl and fragmentation. Within the site cabins and campsites are clustered to

minimise ecological disturbance.

- Delivers nature-based recreation that complements the NIUB's role as a regional landscape and rural production area.
- Provides controlled visitor access and delivers environmental education programs through guided eco-tours, interpretive signage, and on-site activities, reinforcing the Northern Inter-Urban Break's role as a destination for low-impact tourism and conservation, as conditioned by the existing approval and maintained as part of the change decision.
- Protects and enhances environmental values, including biodiversity and water quality, in that the proposal avoids remnant vegetation and sensitive habitats, incorporates 3.37 ha of wetland revegetation, and extensive native landscaping. Conditions imposed require fauna management and operational controls to protect the adjoining National Park and Pumicestone Passage. Water quality values have been assessed through stormwater quality assessments and management plans are conditioned to ensure development does not result in water quality impacts.
- Maintains scenic amenity and rural landscape character, as all structures are below 8.5m height, set back from Pumicestone Passage 40 metres or more and screened with native vegetation, and proposed landscaping will enhance visual buffers and maintain views to the Glass House Mountains.
- Diversifies the rural economy through nature-based tourism, creating jobs and visitor expenditure as demonstrated in the application material. Significant setbacks (>300m) to adjoining cropping land mitigate reverse amenity impacts.
- Avoids fragmentation of rural land where the development footprint is confined to existing lots under one ownership, and I am satisfied the use is compatible with surrounding rural and conservation areas.

State Assessment Criteria

16. I am informed that through the development assessment process following my call in, the application was referred to the State Assessment and Referral Agency (SARA) and that SARA's referral agency response issued to me on 23 October 2025 recommended refusal of the application on two grounds, namely:
    - There will not be a significant adverse economic, social or environmental impact on the community if the development is not carried out (by reference to part 4, division 6, section 41B(2)(b) of the Planning Regulation).
    - The locational requirements or environmental impacts of the development do not require it to be inside the NIUB (by reference to schedule 10, part 16B, division 9, table 1, item 4(h) of the Planning Regulation).
17. I am also informed that SARA's referral agency response identified that conditions about the following matters were recommended to be imposed (if I was minded to approve the application), to achieve compliance with respect to matters relevant to its assessment:
    - mitigating impacts associated with the additional traffic generation at the intersection of Roys Road and Bells Creek Arterial Road
    - mitigating impacts of the proposed development to adjacent sensitive uses and reverse amenity concerns from cropping pursuits
    - ensuring the use and users of the site are adequately protected in the scenario of a bushfire event that threatens the site itself and access to and from the use
    - mitigating adverse impacts on the ecological values of the surrounding environment

and sensitive receiving waters

- mitigating impacts arising from the taking or interfering with water.

18. I am further informed and accept since the SARA assessment was undertaken:

    - On 28 November 2025, schedule 10, part 16, division 2, subdivision 3 and part 16B, division 9 of the Planning Regulation were amended to change the matters that tourist and recreation uses in the RLRPA and NIUB must be assessed against. The new criteria reflect the State's current interests in supporting economic opportunities for tourism and recreation, while continuing to ensure safeguards for SEQ's rural and natural areas

    - I have received additional information and documentation to support my assessment of the proposal, submitted by the applicant on 8 October 2025 in response to my information request, including information relating to bushfire management, operational management, setbacks and acoustic barriers

    - Additional technical advice was received by the Department from key State agencies about transport, bushfire, water, and environmental considerations relevant to my assessment of the development proposal.

19. I am satisfied that the above matters are relevant considerations for my assessment of the proposal and in the circumstances consider SARA's assessment of the proposal be given limited weight.

20. The Department's assessment provided to me for the purposes of this decision informs and I accept that the proposal complies with the current criteria that a referral agency assessment must be against for an application for tourist and recreation uses referred under schedule 10, part 16, Division 2, Subdivision 3 and Part 16B, Division 9 of the Planning Regulation, in that the application (including supporting material provided in response to my Information Request) demonstrates:

    - The tourist park use as conditioned does not result in adverse impacts on the regional biodiversity network or regional landscape values of the area. The development footprint is confined to previously cleared areas within the subject site and remains consistent with the footprint of the existing approval. To mitigate potential impacts on ecological values and sensitive receiving waters, the proposal will be conditioned to require an operational management plan limiting access to adjoining areas such as the National Park and Pumicestone Passage. No coastal works are proposed as part of the change application, and the interface with sensitive environments will be managed through setbacks, habitat rehabilitation, and a conditioned onsite wetland offset.

    - The other change is for a Tourist Park, and the Material Change of Use does not involve a residential use other than tourist accommodation or accommodation for employees (in the form of a manager's residence).

    - There is no commercial, industrial or retail component of development proposed as part of the change that is not ancillary to the tourist park use. A condition is included that limits any non-accommodation components of the Tourist Park use (such as the food and drink outlet and bar) to remain ancillary to the primary Tourist Park accommodation.

    - The tourist park proposal is consistent with *ShapingSEQ 2023* including the outcomes and strategies, and subregional directions, stated in the plan. The proposal aligns with regional strategies for sustainable tourism and rural diversification. The NIUB does not prohibit place responsive and well-planned tourism of a scale and intensity that manages impacts and is designed to be responsive to its setting and landscape values. I am satisfied that impacts to

surrounding environmentally significant areas and any potential reverse amenity impacts to neighbouring rural uses can be effectively mitigated via conditions addressing design setbacks, rehabilitation and covenant protection areas, stormwater management, construction practices, and operational management measures.

Local Planning Scheme

21. The Department's assessment informs, and I am satisfied that the application demonstrates compliance with the relevant provisions of the Planning Scheme, in that:

    - The Planning Scheme identifies that a Tourist Park is a 'potentially consistent use' for the Rural Zone provided it is low-impact and complements rural character and has been assessed to align with the intent for the zone.
    - The proposal aligns with the Rural Zone intent as it maintains the rural character and environmental values, provides low scale and low-density tourist accommodation options from cabins to camp sites with substantial buffers to sensitive environments and includes landscaping to enhance currently cleared and unvegetated areas of the pre-existing farmlands.
    - The further assessment against the applicable use and overlay codes in the Planning Scheme demonstrates that the development either complies or can comply through reasonable and relevant conditions with performance outcomes relating to rural character, scenic amenity, biodiversity protection, bushfire and flood resilience, and infrastructure provision. The proposal also satisfies the intent of the Relocatable Home Park and Tourist Park Code, providing appropriate site layout, amenity, and internal circulation consistent with planning benchmarks.

22. I am satisfied the site is appropriately serviced by existing infrastructure and that the proposed change includes operational works for stormwater, access, and earthworks that comply with Council's development codes. I am imposing conditions for these works to maintain best-practice standards for water quality, erosion, and sediment control and respond appropriately to site constraints. Further, the proposal incorporates comprehensive bushfire and flood hazard mitigation measures, ensuring resilience to natural hazards. The development also delivers significant environmental benefits through 3.37 hectares of wetland revegetation, extensive native landscaping, and fauna management measures, creating a net gain in habitat and strengthening ecological connectivity by establishing vegetated corridors and stepping-stone habitats that link remnant vegetation and riparian areas to surrounding conservation zones. These measures are consistent with the strategic intent of the planning and protect environmental values and accommodate low-impact tourism responding appropriately to the applicable site overlays associated with biodiversity, flood and bushfire hazards.

Other matters

23. The Department's assessment informs of the following relevant matters which I accept and am satisfied support approval of the application, in that:

    - I am satisfied the proposal will support the important Queensland tourism industry. *Destination 2045: Delivering Queensland's Tourism Future* states that the tourism industry is a serious economic contributor for Queensland, contributing $37.6B to Queensland's Gross State Product in 2023-24 and generating $96.4 million in visitor spend a day during the 12 months ending December 2024. The tourism industry provides 1 in 11 Queensland jobs and supports 65,000 tourism related businesses. I am satisfied the proposal will add much-needed cabin and camping supply without impacting on existing facilities, thus increasing overnight stays, capturing a greater share of visitor expenditure and extending the region's tourism season. The site location between Brisbane and the Sunshine Coast allows it to serve as a gateway

experience, encouraging multi-destination itineraries that benefit the broader state economy.

- *The Sunshine Coast Regional Economic Development Strategy 2013-2033* (updated version August 2023) provides that the Sunshine Coast is consistently the third most visited region in Queensland and is consistently in the top five most visited tourism regions in regional Australia, with the tourism sector generating $3.4 billion in visitor expenditure for the region and representing the second largest export sector. I am satisfied the application demonstrates the proposed tourist park development demonstrates significant economic benefits including job creation and regional tourism dispersal and thereby represents a valuable opportunity for tourism and economic growth for the Sunshine Coast, consistent with the outcomes of the Strategy.
- I am satisfied the proposal provides low-impact, sustainable tourism opportunities that includes a landscape responsive design and is sensitive to surrounding ecological and protected areas. The proposed development is located within the Sunshine Coast Biosphere buffer zone and avoids direct impacts on Ramsar-listed wetlands and Moreton Bay Marine Park. I am satisfied the siting of development setback from environmental values and including buffer areas and no coastal works, ensures no direct disturbance to critical habitats such as seagrass meadows, mangroves, saltmarshes, and declared fish habitat areas. Furthermore, conditions are being imposed to require revegetation, fauna management, and operational controls to protect sensitive environments and deliver environmental benefits.
- The Department's assessment informs I received 805 submissions in response to the public notification of the application, with views both in support and opposition to the proposal. The objections to the proposal raised concerns about matters regarding environmental impacts, regulatory compliance, traffic, natural hazards and amenity. I am satisfied on the Department's assessment that the application demonstrates appropriate mitigation measures including for bushfire management (asset protection zones, fire breaks, water supply for firefighting, and safe vehicular access for emergency services) and environmental values (fauna management plans, eco-sensitive lighting controls and regeneration of previously disturbed land areas) and conditions being imposed require submitted management plans to be implemented. Accordingly, I am satisfied the objections do not raise matters that warrant refusal of the application.

Conclusion

24. I have decided to approve the whole of the application, subject to the conditions set out in the decision notice.
25. For the reasons stated above, I am satisfied approval of the proposal as conditioned is consistent with the Planning Act, the SPP and *ShapingSEQ 2023*, as well as the Sunshine Coast Planning Scheme 2014.
26. Furthermore, I am satisfied the proposal provides a valuable tourism opportunity for the Sunshine Coast to meet rising demand for visitor accommodation while fostering engagement with the region's distinctive environmental assets. The development has been designed to avoid unacceptable impacts on surrounding properties and sensitive environments, with conditions imposed to manage bushfire and flood hazards on the use of the site, protect water quality, and enhance biodiversity through revegetation and ecological connectivity measures. These outcomes ensure the proposal delivers economic and social benefits while maintaining compliance with statutory obligations and strategic planning intent.
27. A human rights assessment has been undertaken for this decision. I am satisfied that the

decision is compatible with human rights under the Human Rights Act 2019 because it only limits any relevant human rights to the extent that is reasonable and demonstrably justifiable in accordance with section 13 of that Act.

28. The reasons for my decision, including the findings on material questions of fact are based upon the matters and evidence contained within MBN25/1159 and all attachments including the planning assessment report prepared by the Department.

Matters considered in making the decision

Prior to making my decision on the application, I was provided with a Briefing Note MBN25/1159 and attachments, including:

- Planning Assessment Report, prepared by officers of the Department and attachments
- Draft decision notice, including conditions and reasons for the decision.
- Human rights assessment.

I am informed that the following matters were considered in undertaking the assessment of the development application in the Planning Assessment Report:

- *Planning Act 2016*
- *Human Rights Act 2019*
- Planning Regulation 2017
- State Planning Policy 2017 (SPP)
- South East Queensland Regional Plan *ShapingSEQ 2023*
- State development and assessment provisions (SDAP) State codes
- Sunshine Coast Planning Scheme 2014
- The application and supporting material
- Submissions received on the public notification of the application
- Technical advice from State agencies
- Other relevant considerations including Destination 2045, Sunshine Coast Destination Tourism Plan, Sunshine Coast Regional Economic Development Strategy, Sunshine Coast Biosphere designation, Ramsar Convention obligations, and Moreton Bay Marine Park considerations

Schedule 5

Approved plans and documents

REAL PROPERTY DESCRIPTION
LOTS: 10 ON SP132272 AND 6 ON SP184133

SITE AREA:
LOT 10 - 26,410 m2
LOT 6 - 404, 700 m2
LOCAL AUTHORITY: S.C REGIONAL COUNCIL

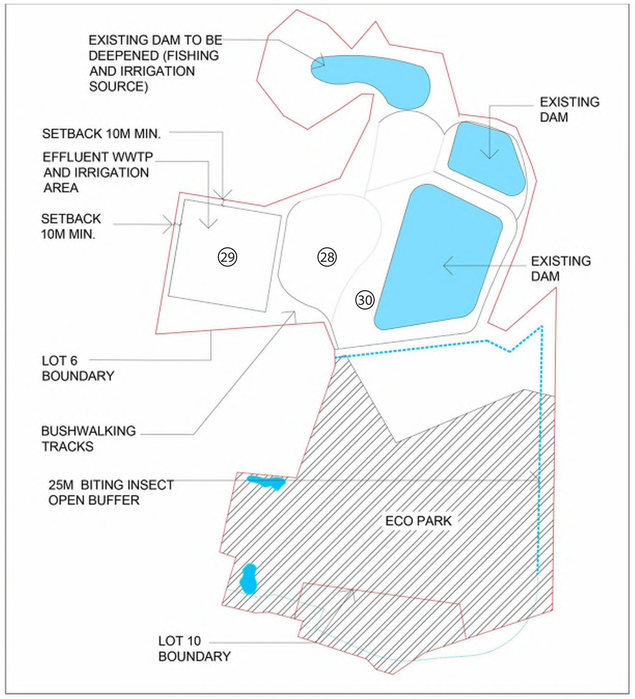
MAPPED WETLAND AREA

PUMICESTONE PASSAGE

HAT 40M OFFSET

BITING INSECT BUFFER (25M FROM MANGROVE)

MHWS



OVERALL PLAN 1:5000 (REFER SITE PLAN FOR MORE DETAIL)

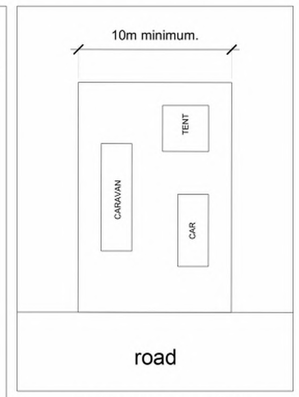
LEGEND

Sites - 75
Cabins - 75 (one uncovered car space per cabin (minimum)

- 3 bed x 38 no.
- 2 bed x 27 no.
- 1 bed x 10 no.

TOTAL SITES = 150 NO.
Caretakers House x 1 no.

1. Reception centre (1000 m2)
2. Pool
3. Waterplay park
4. Playground
5. Indoor recreation
6. Putt putt
7. Jumping pillow
8. Basketball
9. Tennis
10. Pickleball
11. Camp kitchen
12. Amenities with laundry/drying area
13. Amenities
14. Laundry
15. BOH
16. Section of Existing Dam to be retained
17. Drainage Corridor (min. 10m width)
18. Boomgate
19. Service road
20. Maintenance/Cleaning/Storage Sheds
21. Carparking with 2 No. PWDs
22. Temporary layby parking
23. Drainage easement
24. Managers residence with covered carpark
25. 3m wide vegetated buffer
26. Walking Track/Firebreak Trail
27. 8m wide access driveway to Roys Road withing EMT 8 on SP106174
28. Emergency helicopter landing area
29. Wastewater treatment plant and irrigation area
30. Potable water treatment plant



Typical arrangement on minimum width camping site

Existing tree
Culvert crossing
Pathways

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL
DSDIP ref: MBN25/1159
Date: 6 January 2026

FOR APPROVAL

COOCHIN ECO-RESORT - DA LAYOUT PLAN - 04/09/25

Scale 1:1000 @ A1

10m 20m 80m 100m

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

EXISTING DAM TO BE DEEPENED (FISHING AND IRRIGATION SOURCE)

EXISTING DAM

SETBACK 10M (MIN)

SETBACK 10M (MIN)

SETBACK 10M (MIN)

WALKING TRACKS

TREATED EFFLUENT IRRIGATION AREA

EMERGENCY HELICOPTER LANDING AREA

EXISTING DAM

PROPERTY BOUNDARY

WASTEWATER TREATMENT PLANT, BUFFER TANK AND EFFLUENT IRRIGATION TANK.

WASTEWATER TREATMENT PLANT, AND STORAGE TANK.

REFER DA LAYOUT PLAN FOR MORE DETAIL

FOR APPROVAL

Scale 1:1500 @ A1

15m 30m 120m 150m

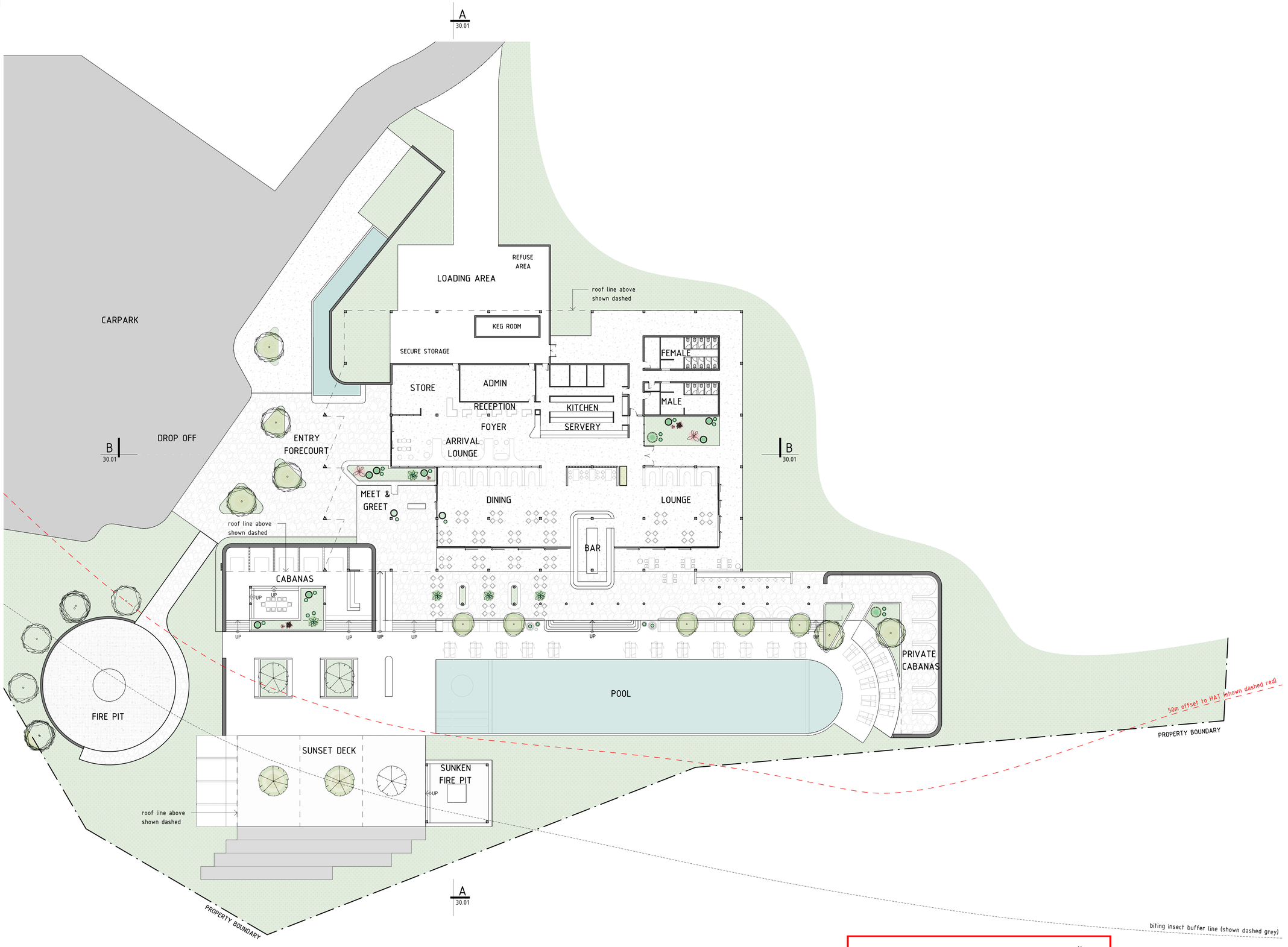
CUSP COMISKEY GROUP

COOCHIN ECO-RESORT - DA SITE PLAN - 04/09/25

PRELIMINARY
NOT FOR CONSTRUCTION

AREAS - PROPOSED RECEPTION

DESCRIPTION	AREA
PROPOSED GFA	1000 m²
	1000 m²



FLOOR PLAN - GROUND LEVEL
SCALE 1 : 250

PLOT DATE/TIME: 10/10/2024 2:13:03 PM

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

D	UPDATED GFA	NR	10.10.24
C	ISSUE TO CLIENT	NR	23.05.24
B	ISSUE TO CLIENT	NR	22.05.24
A	CLIENT MEETING	NR	16.05.24
issue	revision	by	date

do not scale off this drawing - all dimensions are subject to site measurement and verification

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client: COMISKEY GROUP

project: COOCHIN CREEK HOLIDAY RESORT RECEPTION CENTRE

drawing title: GROUND LEVEL FLOOR PLAN

drawn by: NR
date: MAY 2024
scale: 1 : 250 @A1

0 2.5 5.0 7.5 10.0 12.5 m

drawing number
24007- SD 10.01 D

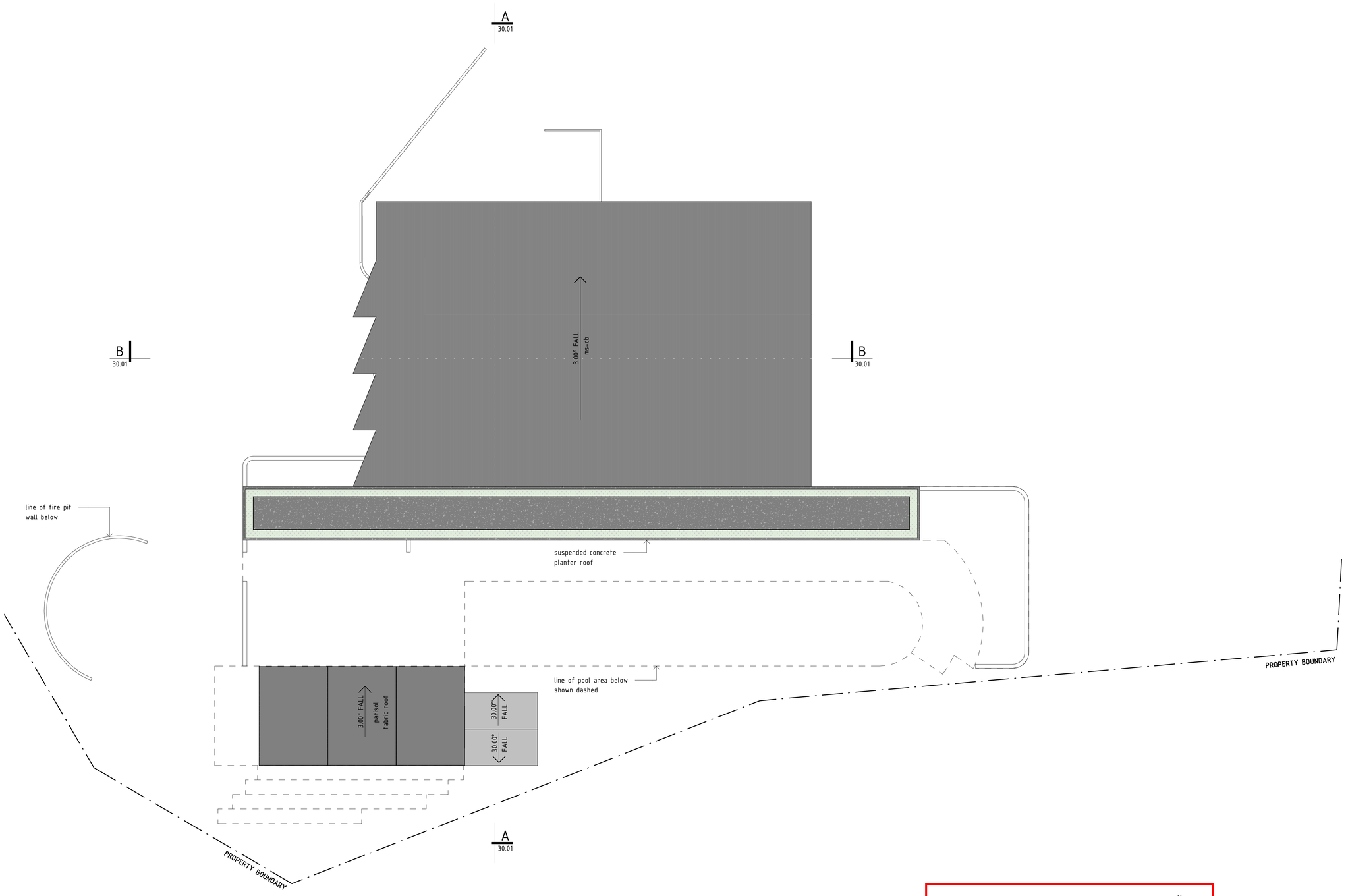
PRELIMINARY
NOT FOR CONSTRUCTION

ROOF PLAN NOTES

01.	ROOF TIEDOWN AND BRACING TO STRUCTURAL ENGINEER'S DESIGN AND CERTIFICATION
02.	ROOF FRAMING, INCLUDING BEAMS, RAFTERS, PURLINS, BATTENS AND THE LIKE TO STRUCTURAL ENGINEER'S DESIGN AND CERTIFICATION
03.	ROOF TRUSSES TO BE AT 900MM CENTRES UNLESS NOTED OTHERWISE.
04.	SHEET METAL ROOFING AT ROOF PITCH AS NOMINATED ON THE DRAWINGS, FIXED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS

FINISHES LEGEND

abbrev	description
ms-cb	METAL COLORBOND SHEET



ROOF PLAN
SCALE 1 : 250

PLOT DATE/TIME: 23/05/2024 3:47:41 PM

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

issue	revision	by	date
A	ISSUE TO CLIENT	NR	23.05.24

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client: COMISKEY GROUP

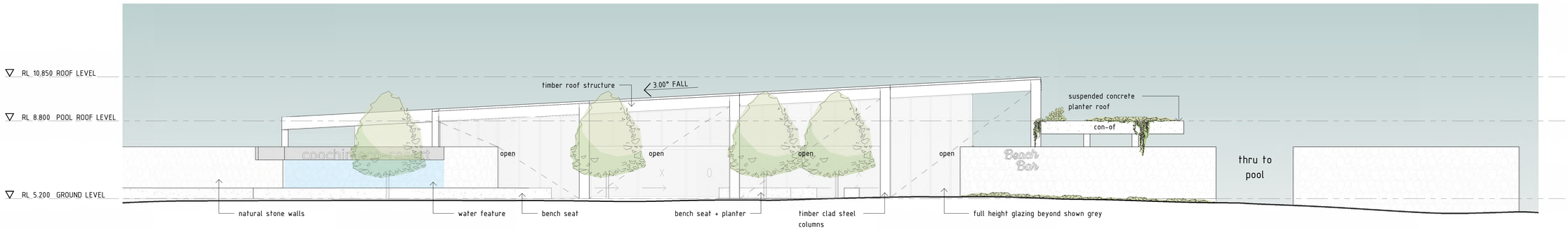
project: COOCHIN CREEK HOLIDAY RESORT RECEPTION CENTRE

drawing title: ROOF PLAN

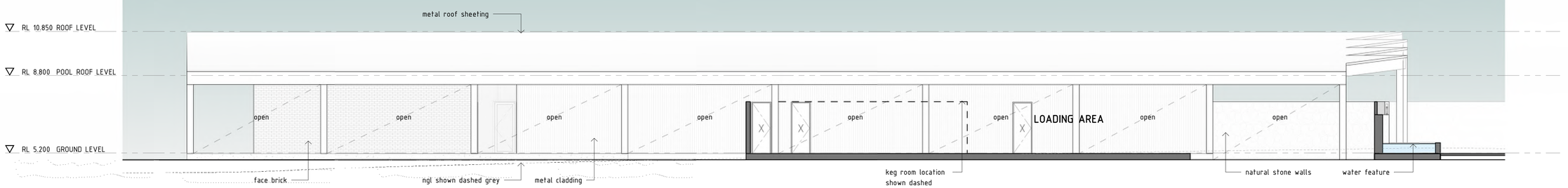
drawn by: NR
date: MAY 2024
scale: 1 : 250 @A1

0 2.5 5.0 7.5 10.0 12.5 m

drawing number
24007- SD 11.01 A



01 | WEST ELEVATION
SCALE 1 : 100



02 | NORTH ELEVATION
SCALE 1 : 100

PLOT DATE/TIME: 23/05/2024 3:47:47 PM

PRELIMINARY
NOT FOR CONSTRUCTION

ELEVATION NOTES

01.	ALL EXISTING PAINTED SURFACES ARE TO BE MADE GOOD AND RE-PAINTED - REFER TO SCHEDULE OF FINISHES FOR COLOUR SELECTIONS
02.	ALL EXISTING WALL LIGHTS, CAMERAS AND ALARMS TO BE REMOVED. MAKE GOOD EXISTING SURFACE.
03.	ALL EXISTING WALL SIGNAGE TO BE REMOVED. MAKE GOOD EXISTING SURFACE.
04.	CONFIRM FINAL LOCATION OF ALL WALL LIGHTS, HEATERS AND MISTERS WITH ARCHITECT PRIOR TO INSTALLATION WIRING AND FIXTURE/FITTING.

FINISHES LEGEND

abbrev	description
con-of	CONCRETE OFF FORM

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

B	ISSUE TO CLIENT	NR	23.05.24
A	ISSUE TO CLIENT	NR	22.05.24
Issue	revision	by	date

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client: COMISKEY GROUP

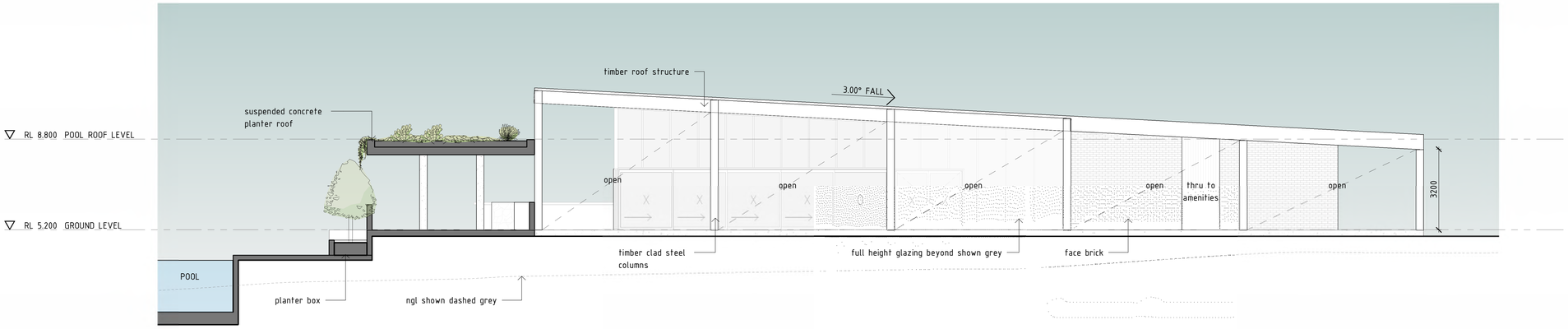
project: COOCHIN CREEK HOLIDAY RESORT RECEPTION CENTRE

drawing title: ELEVATIONS

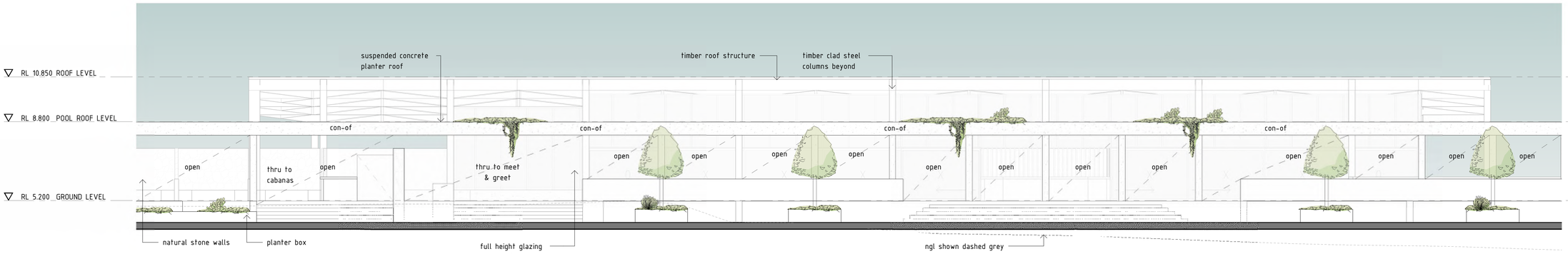
drawn by: NR
date: MAY 2024
scale: 1 : 100 @A1

0 1 2 3 4 5 m

drawing number
24007- SD 20.01 B



03 | EAST ELEVATION
SCALE 1 : 100



04 | SOUTH ELEVATION
SCALE 1 : 100

PRELIMINARY
NOT FOR CONSTRUCTION

ELEVATION NOTES

01.	ALL EXISTING PAINTED SURFACES ARE TO BE MADE GOOD AND RE-PAINTED - REFER TO SCHEDULE OF FINISHES FOR COLOUR SELECTIONS
02.	ALL EXISTING WALL LIGHTS, CAMERAS AND ALARMS TO BE REMOVED. MAKE GOOD EXISTING SURFACE.
03.	ALL EXISTING WALL SIGNAGE TO BE REMOVED. MAKE GOOD EXISTING SURFACE.
04.	CONFIRM FINAL LOCATION OF ALL WALL LIGHTS, HEATERS AND MISTERS WITH ARCHITECT PRIOR TO INSTALLATION WIRING AND FIXTURE/FITTING.

FINISHES LEGEND

abbrev	description
con-of	CONCRETE OFF FORM

B	ISSUE TO CLIENT	NR	23.05.24
A	ISSUE TO CLIENT	NR	22.05.24
issue	revision	by	date

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client: COMISKEY GROUP

project: COOCHIN CREEK HOLIDAY RESORT RECEPTION CENTRE

drawing title: ELEVATIONS

drawn by: NR
date: MAY 2024
scale: 1 : 100 @A1

0 1 2 3 4 5 m

drawing number
24007- SD 20.02 B

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

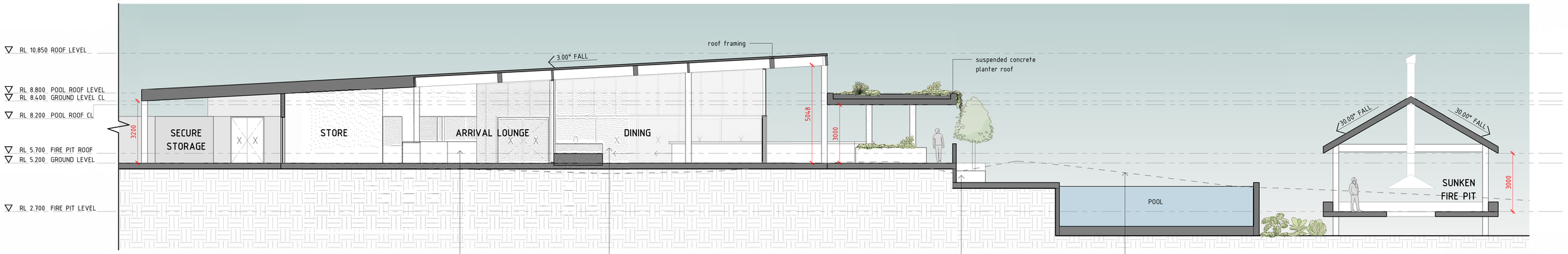
PLOT DATE/TIME: 23/05/2024 3:48:01 PM

PRELIMINARY
NOT FOR CONSTRUCTION

SECTION NOTES

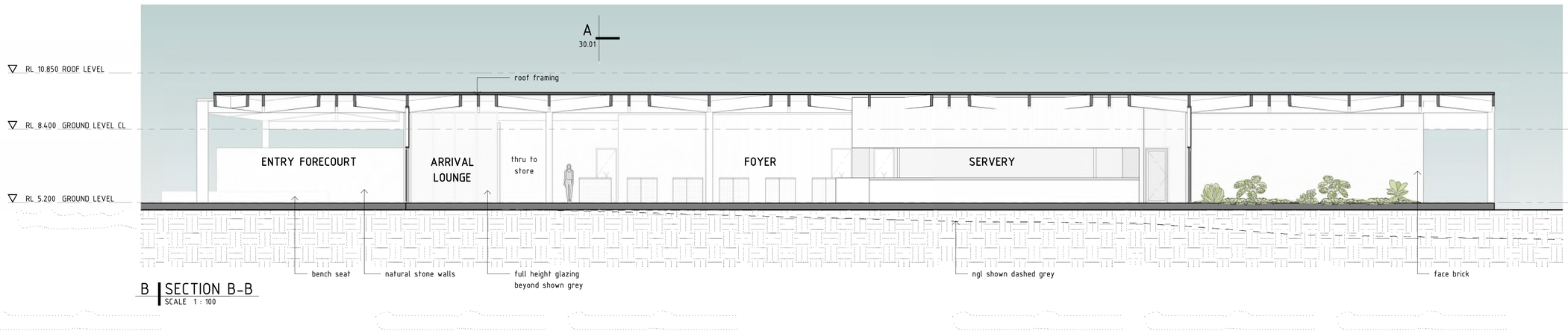
01.	ALL STRUCTURAL ELEMENTS ARE TO BE CROSS REFERENCED WITH THE STRUCTURAL ENGINEERS DRAWINGS + DOCUMENTATION. WHERE DISCREPANCIES ARISE, NOTIFY THE ARCHITECT FOR CLARIFICATION.

B
30.01



A | SECTION A-A
SCALE 1 : 100

A
30.01



B | SECTION B-B
SCALE 1 : 100

PLOT DATE/TIME: 23/05/2024 3:48:13 PM

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

issue	revision	by	date
A	ISSUE TO CLIENT	NR	23.05.24

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client: COMISKEY GROUP

project: COOCHIN CREEK HOLIDAY RESORT RECEPTION CENTRE

drawing title: SECTIONS

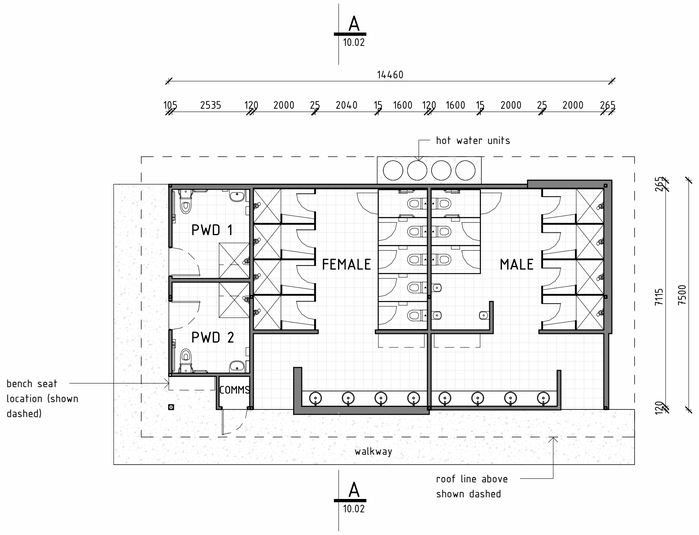
drawn by: NR
date: MAY 2024
scale: 1 : 100 @A1

0 1 2 3 4 5 m

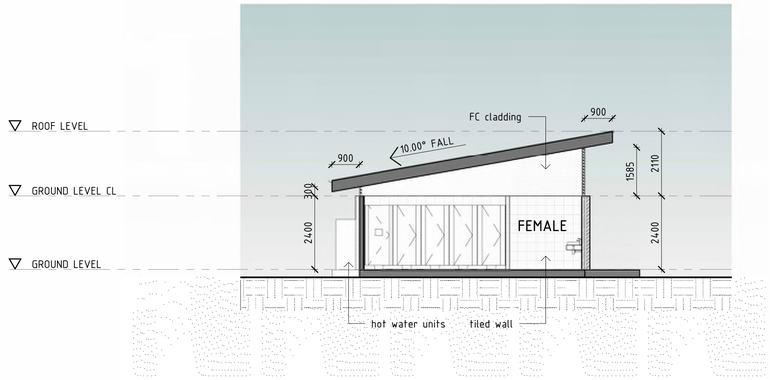
drawing number
24007- SD 30.01 A

PRELIMINARY
NOT FOR CONSTRUCTION

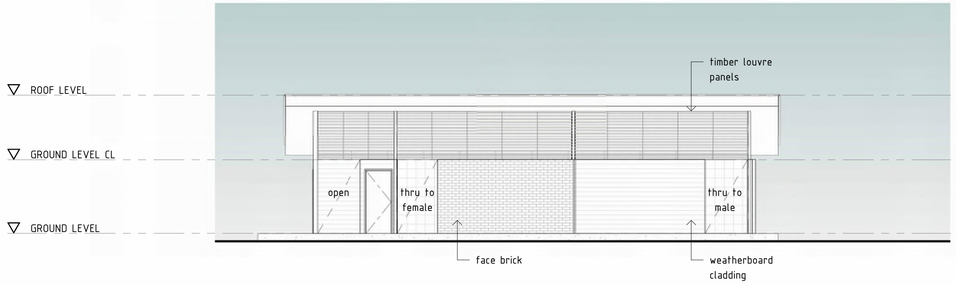
AREAS - PROPOSED - AMENITIES	
DESCRIPTION	AREA
PROPOSED AMENITIES GFA	110 m²
	110 m²



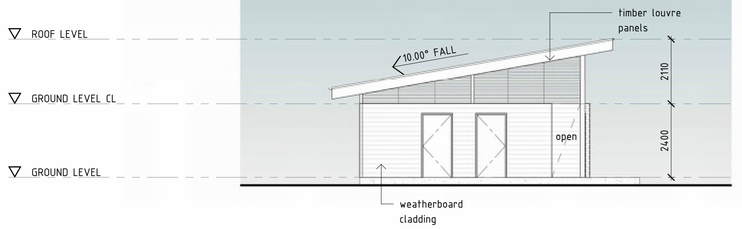
AMENITIES FLOOR PLAN
SCALE 1 : 100



A SECTION A-A
SCALE 1 : 100



01 SOUTH ELEVATION
SCALE 1 : 100



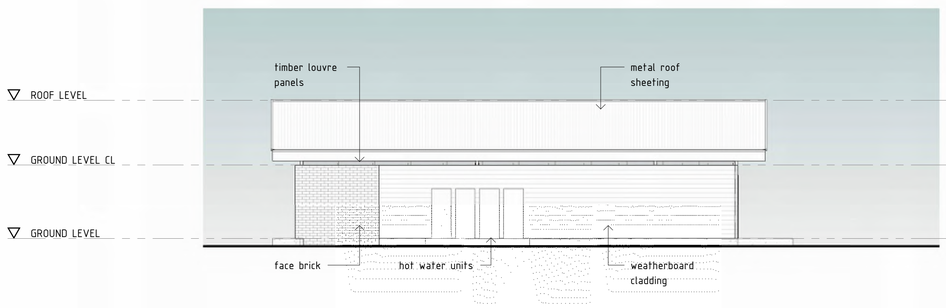
02 WEST ELEVATION
SCALE 1 : 100

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

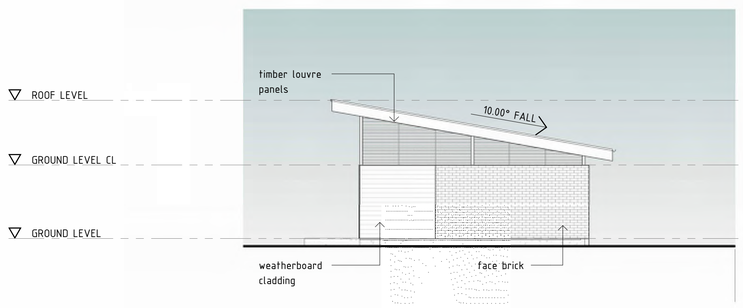
Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



03 NORTH ELEVATION
SCALE 1 : 100



04 EAST ELEVATION
SCALE 1 : 100

issue	revision	by	date
B	UPDATED GFA	NR	10.10.24
A	PRELIMINARY AMENITIES + CAMP KITCHEN DRAWINGS	NR	29.05.24

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client: COMISKEY GROUP

project: COOCHIN CREEK HOLIDAY RESORT

drawing title: AMENITIES PLAN + ELEVATIONS + SECTION

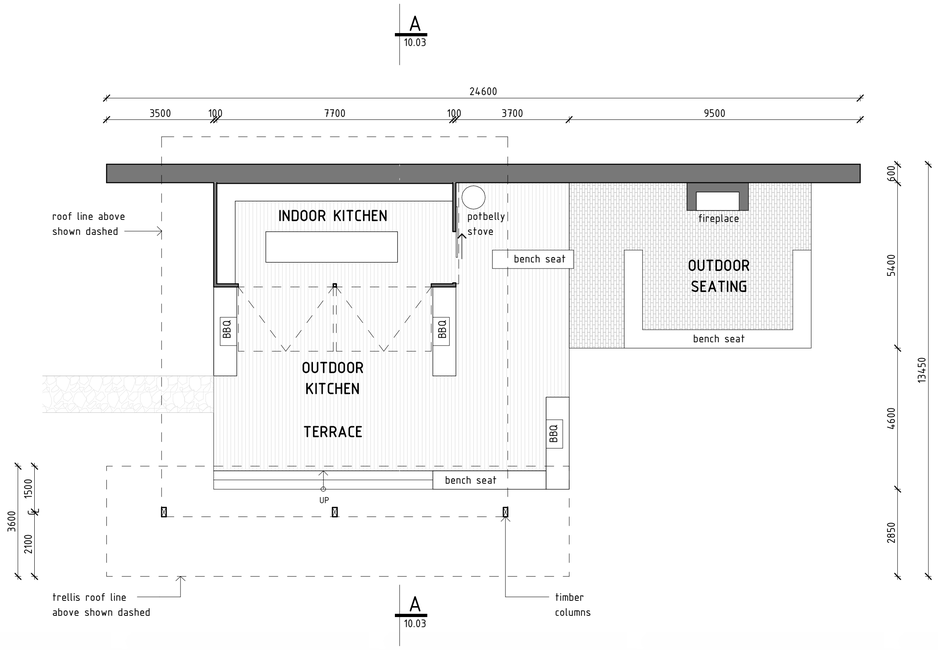
drawn by: NR
date: MAY 2024
scale: 1 : 100 @A1

0 1 2 3 4 5 m

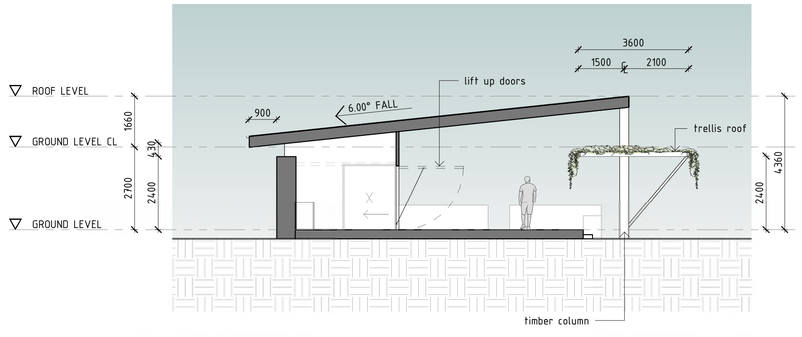
drawing number
24007- SD 10.02 B

PLOT DATE/TIME: 10/10/2024 4:04:39 PM

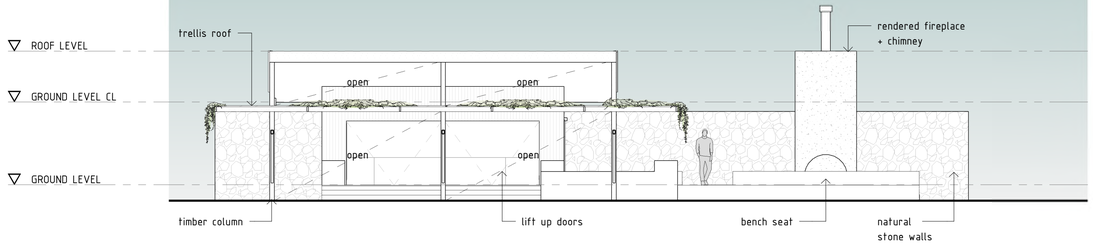
PRELIMINARY
NOT FOR CONSTRUCTION



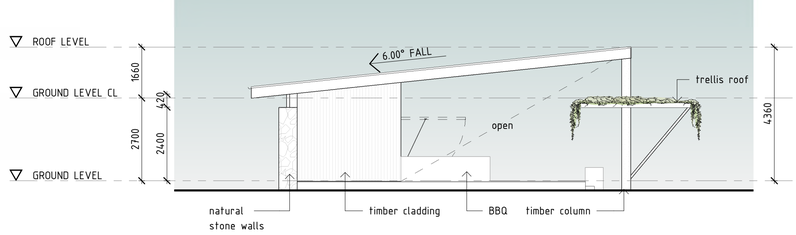
CAMP KITCHEN FLOOR PLAN
SCALE 1 : 100



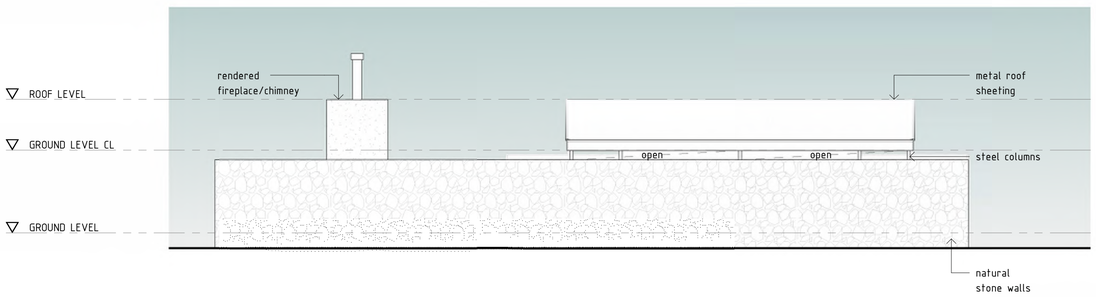
A | SECTION A-A
SCALE 1 : 100



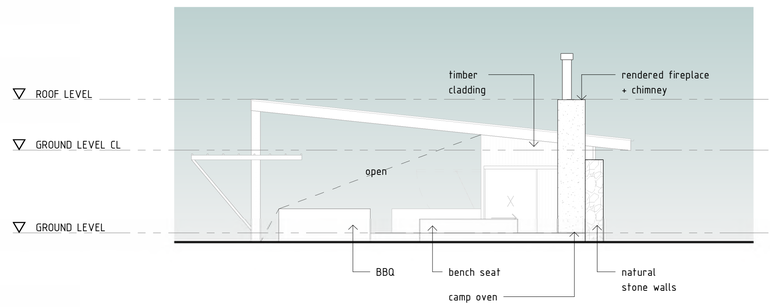
01 | SOUTH ELEVATION
SCALE 1 : 100



02 | WEST ELEVATION
SCALE 1 : 100



03 | NORTH ELEVATION
SCALE 1 : 100



04 | EAST ELEVATION
SCALE 1 : 100

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

Issue	revision	by	date
A	PRELIMINARY AMENITIES + CAMP KITCHEN DRAWINGS	NR	29.05.24

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client: COMISKEY GROUP

project: COOCHIN CREEK HOLIDAY RESORT

drawing title: CAMP KITCHEN PLAN + ELEVATIONS + SECTION

drawn by: NR
date: MAY 2024
scale: 1 : 100 @A1

0 1 2 3 4 5 m

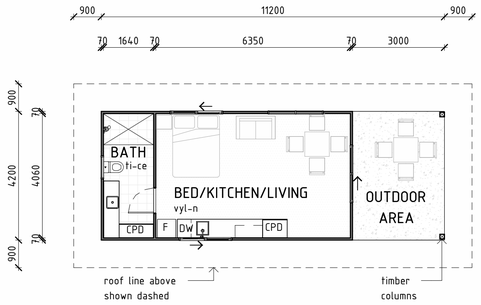
drawing number
24007- SD 10.03 A

PLOT DATE/TIME: 29/05/2024 2:18:49 PM

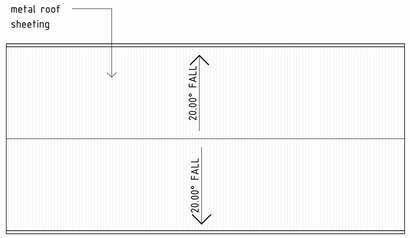
PRELIMINARY
NOT FOR CONSTRUCTION

AREAS - PROPOSED - 1 BED	
DESCRIPTION	AREA
1 BED	40 m²
	40 m²

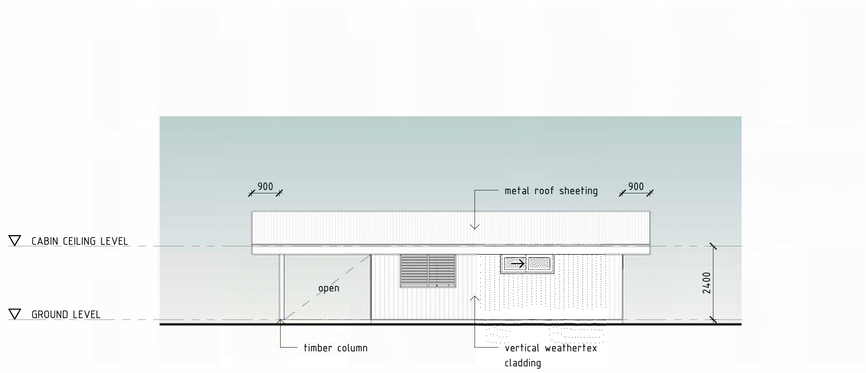
FINISHES LEGEND	
abbrev	description
ti-ce	TILES CERAMIC
vyl-n	VINYL



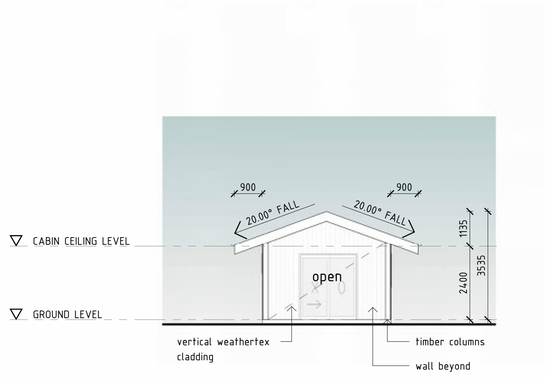
1 BED CABIN - FLOOR PLAN
SCALE 1 : 100



1 BED CABIN - ROOF PLAN
SCALE 1 : 100



1 BED CABIN - ELEVATION 01
SCALE 1 : 100



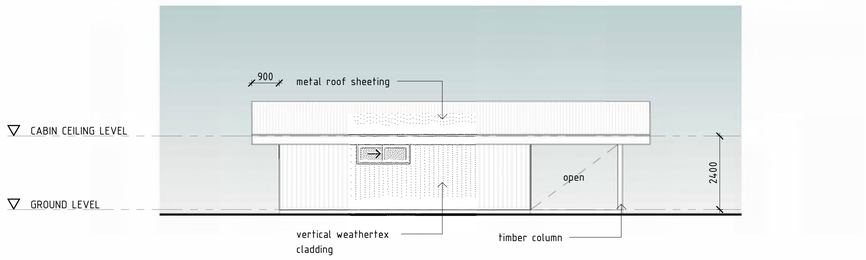
1 BED CABIN - ELEVATION 02
SCALE 1 : 100

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

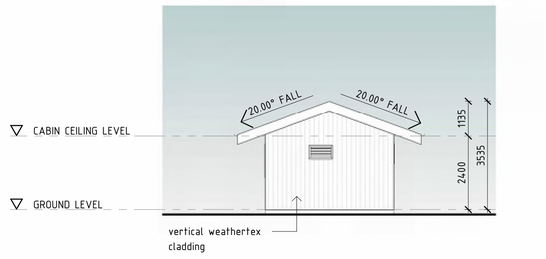
Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



1 BED CABIN - ELEVATION 03
SCALE 1 : 100



1 BED CABIN - ELEVATION 04
SCALE 1 : 100

Issue	revision	by	date
C	UPDATED GFA	NR	10.10.24
B	REVISED CABIN DRAWINGS	NR	23.09.24
A	PRELIMINARY CABIN DRAWINGS	NR	11.09.24

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client: COMISKEY GROUP

project: COOCHIN CREEK HOLIDAY RESORT

drawing title: 1 BED CABIN PLAN + ELEVATIONS

drawn by: NR
date: SEP 2024
scale: 1 : 100 @A1

0 1 2 3 4 5 m

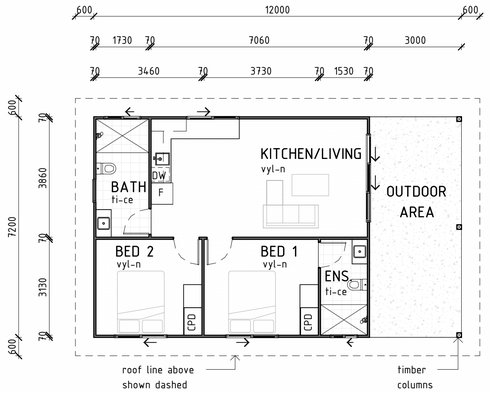
drawing number
24007- SD 10.04 C

PLOT DATE/TIME: 10/10/2024 2:14:45 PM

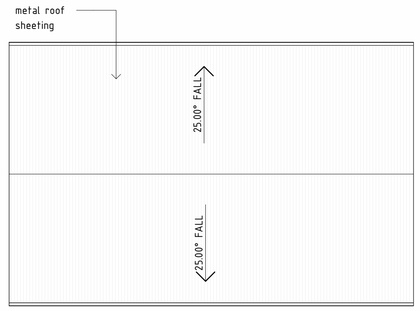
PRELIMINARY
NOT FOR CONSTRUCTION

AREAS - PROPOSED - 2 BED	
DESCRIPTION	AREA
2 BED	70 m²
	70 m²

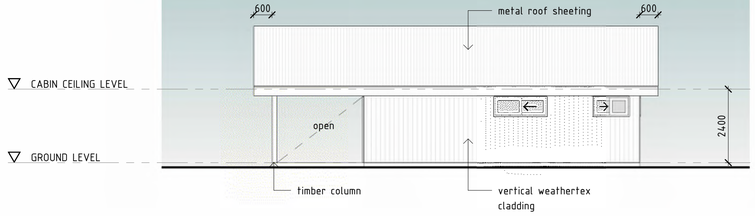
FINISHES LEGEND	
abbrev	description
ti-ce	TILES CERAMIC
vyl-n	VINYL



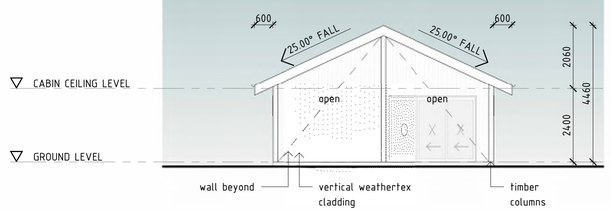
2 BED CABIN - FLOOR PLAN
SCALE 1 : 100



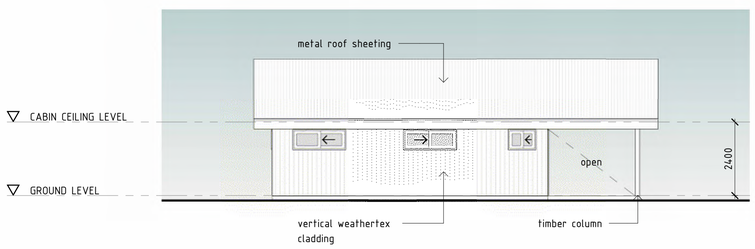
2 BED CABIN - ROOF PLAN
SCALE 1 : 100



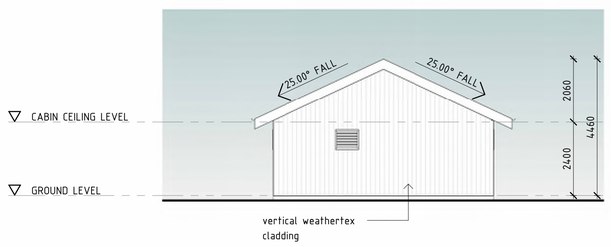
2 BED CABIN - ELEVATION 01
SCALE 1 : 100



2 BED CABIN - ELEVATION 02
SCALE 1 : 100



2 BED CABIN - ELEVATION 03
SCALE 1 : 100



2 BED CABIN - ELEVATION 04
SCALE 1 : 100

PLOT DATE/TIME: 10/10/2024 2:54:54 PM

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

issue	revision	by	date
C	UPDATED GFA	NR	10.10.24
B	REVISED CABIN DRAWINGS	NR	23.09.24
A	PRELIMINARY CABIN DRAWINGS	NR	11.09.24

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client: COMISKEY GROUP

project: COOCHIN CREEK HOLIDAY RESORT

drawing title: 2 BED CABIN PLAN + ELEVATIONS

drawn by: NR
date: SEP 2024
scale: 1 : 100 @A1

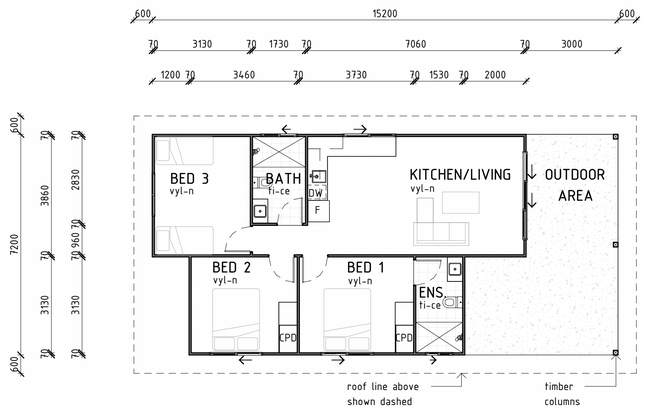
0 1 2 3 4 5 m

drawing number
24007- SD 10.05 C

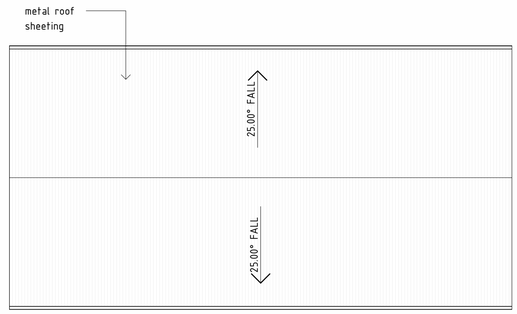
PRELIMINARY
NOT FOR CONSTRUCTION

AREAS - PROPOSED - 3 BED	
DESCRIPTION	AREA
3 BED	85 m²
	85 m²

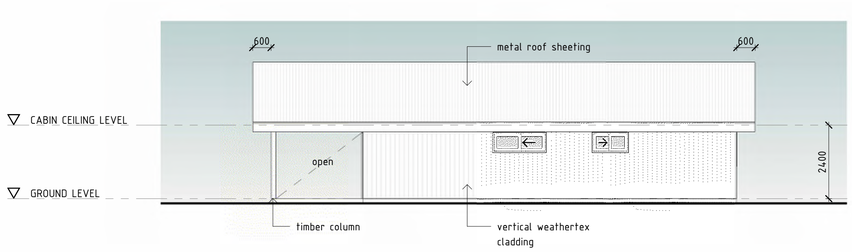
FINISHES LEGEND	
abbrev	description
ti-ce	TILES CERAMIC
vyl-n	VINYL



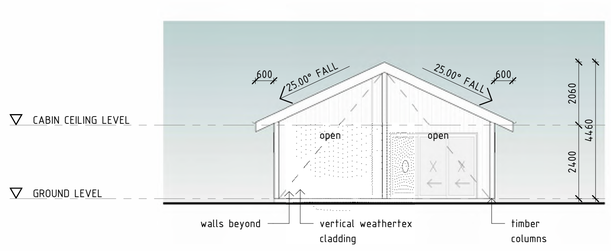
3 BED CABIN - FLOOR PLAN
SCALE 1 : 100



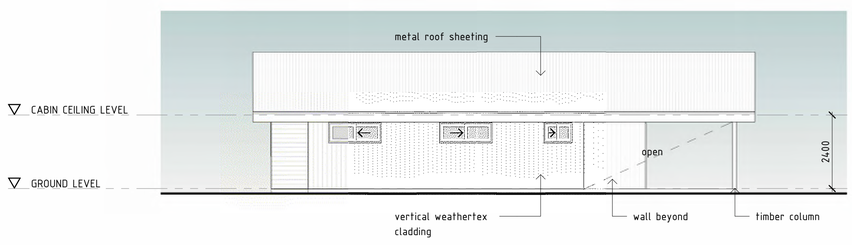
3 BED CABIN - ROOF PLAN
SCALE 1 : 100



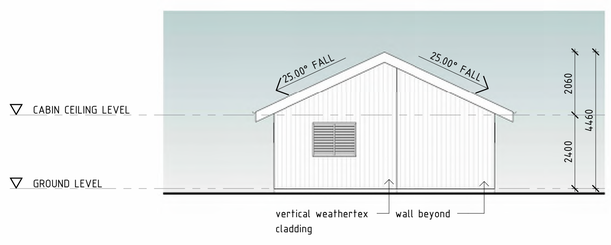
3 BED CABIN - ELEVATION 01
SCALE 1 : 100



3 BED CABIN - ELEVATION 02
SCALE 1 : 100



3 BED CABIN - ELEVATION 03
SCALE 1 : 100



3 BED CABIN - ELEVATION 04
SCALE 1 : 100

PLOT DATE/TIME: 10/10/2024 2:15:02 PM

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

issue	revision	by	date
C	UPDATED GFA	NR	10.10.24
B	REVISED CABIN DRAWINGS	NR	23.09.24
A	PRELIMINARY CABIN DRAWINGS	NR	11.09.24

do not scale off this drawing - all dimensions are subject to site measurement and verification

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client: COMISKEY GROUP

project: COOCHIN CREEK HOLIDAY RESORT

drawing title: 3 BED CABIN PLAN + ELEVATIONS

drawn by: NR
date: SEP 2024
scale: 1 : 100 @A1

0 1 2 3 4 5 m

drawing number
24007- SD 10.06 C

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

COOCHIN ECO RESORT

LANDSCAPE CONCEPT REPORT

22.01.2025
Revision : [B]

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Rev A	Draft for review	20.12.2024	SP
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CUSP acknowledge the Traditional Owners of the lands and waters on which we work. We recognise the deep connection of First Peoples to Country and value their contribution to caring for and managing our lands, waters and seas. We pay our respects to Elders past and present and extend that respect to all First Nations peoples.

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PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

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DEVELOPMENT APPROVAL

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1.0 Masterplan

LEGEND

1. Reception centre (1000 m2)
2. Pool
3. Waterplay park
4. Playground
5. Indoor recreation
6. Putt putt
7. Jumping pillow
8. Basketball
9. Tennis
10. Pickleball
11. Camp kitchen
12. Amenities with laundry/drying area
13. Amenities
14. Laundry
15. BOH
16. Section of Existing Dam to be retained
17. Drainage Corridor
18. Boomgate
19. Service road
20. Maintenance/Cleaning/Storage Sheds
21. Carparking with 2 No. PWDs
22. Temporary layby parking
23. Drainage easement
24. Managers residence with covered carpark
25. Culvert crossing
26. 3m wide buffer planting to boundary

Scale 1:4000 @ A3

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1.1 Masterplan

LEGEND

1. Reception centre (1000 m2)
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21. Carparking with 2 No. PWDs
22. Temporary layby parking
23. Drainage easement
24. Managers residence with covered carpark
25. Culvert crossing
26. Buffer landscaping between cabins
27. 3m wide buffer planting to boundary

Scale 1:4000 @ A3

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1.2 Landscape Concept Plan

TYPICAL CABIN LAYOUT PLAN

*Note: Private covered outdoor areas will be provided to each cabin as per architectural plans by KP architects.

Scale 1:300 @ A3

LEGEND

1. Turf
2. Carpark
3. Footpath
4. Feature tree planting between rear of cabins
5. Private lawn space and/or planting to road edge
6. Buffer/screen planting between cabins

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

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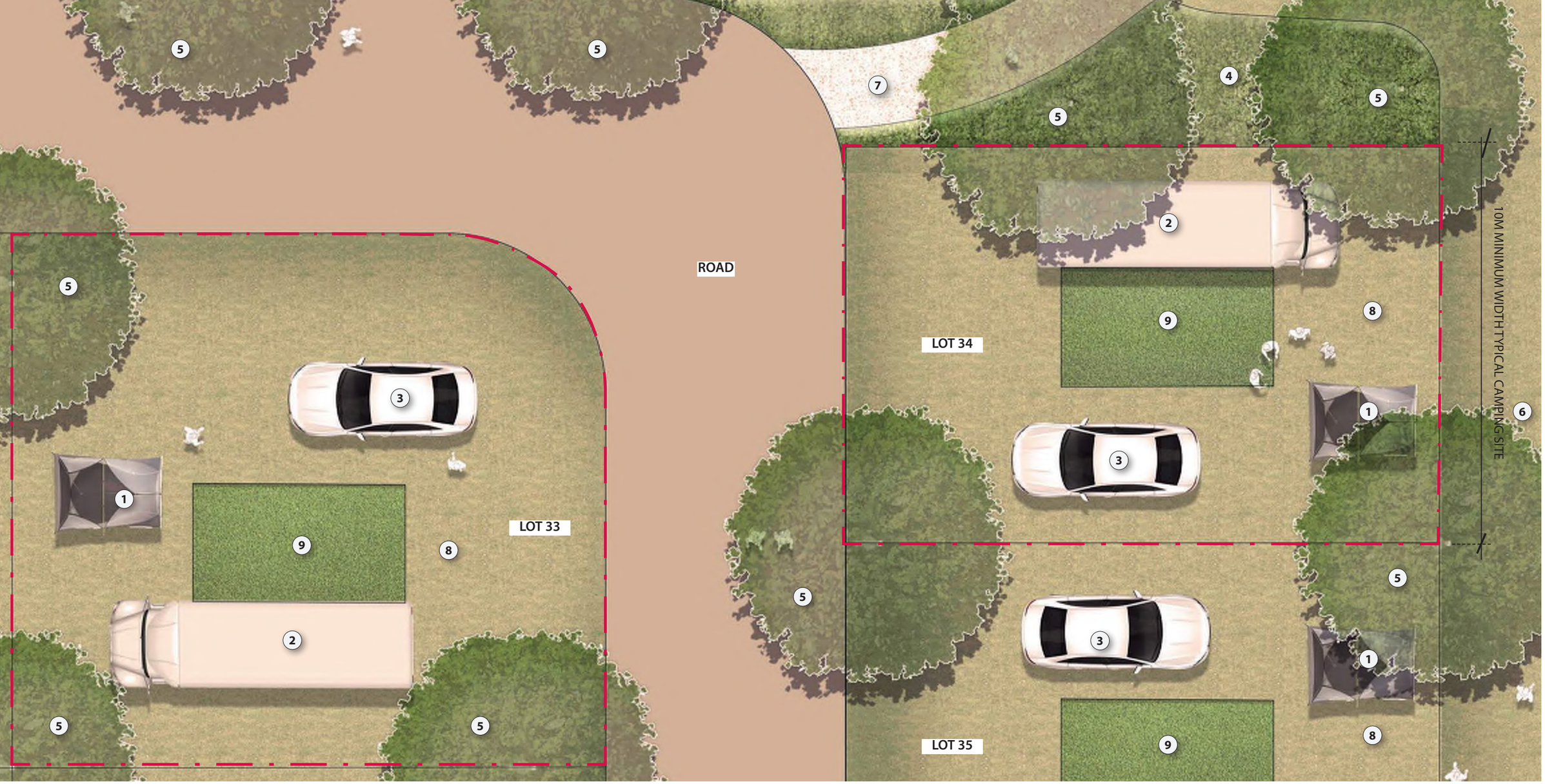
Date: 6 January 2026

1.3 Detail Plan A - Typical Cabin Landscape Concept



Scale 1:100 @ A3

LEGEND

1. Tent
2. Caravan/Camper van
3. Car
4. Planting bed
5. Shade tree
6. Open space
7. Pedestrian footpath
8. Turf
9. Optional Artificial Turf Pad

1.4 Detail Plan B - Typical Camping Layout Plan

TYPICAL CAMPING LAYOUT PLAN

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

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Site Diagrams 2.0

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LEGEND

- Wire boundary fence - 1.2m high
- Acoustic fence - 2.4m high (refer to acoustic report)
- Feature entry gate
- Boom gate

2.1 Fences and gates

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Date: 6 January 2026

LEGEND

- Spine Road - 8.0m wide, two way
- Threshold Treatment
- Access Road - 6.0m wide, two way
- Maintenance access road only
- Layby Road - 4.0m wide, one way
- Footpath - 1.5m wide (Gravel/deco/concrete)

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

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2.2 Roads and Pathways

3.0

Plant Pallete

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DSDIP ref: MBN25/1159

Date: 6 January 2026

	Botanical Name	Common name			
	TREES		Cabins/ Camp	Rec Areas	Open Space
1	*Alphitonia excelsa*	Red ash	✓	✓	✓
2	*Elaeocarpus obovatus*	Hard quandong	✓	✓	✓
3	*Elaeocarpus reticulatus*	Blueberry ash	✓	✓	
4	*Ficus coronata*	Sandpaper fig		✓	
5	*Ficus rubiginosa*	Rusty fig		✓	
6	*Glochidion umbellatum*	Buttonwood	✓		
7	*Jagera pseudorhus*	Foambark	✓		
8	*Melicope elleryana*	Pink flowered doughwood	✓		

	Botanical Name	Common name	Location		
	SHRUBS		Cabins	Rec Areas	Open Space
9	*Banksia robur*	Swamp Banksia		✓	
10	*Dodonea triquetra*	Common hop bush		✓	
11	*Persoonia virgata*	Small-Leaved Geebung		✓	

*Note: All species nominated occur within the local regional eco system 12.3.5 & 12.5.3 and are classified as fire retardant species according to:

[1] Queensland Reconstruction Authority (2020), *Bushfire resilient building guidance for Queensland Homes.* QRA

[2] John Bowden (1999), *Living with the Environment in the Pine Rivers Shire.* Pine Rivers Shire Council

3.1 Planting Pallete

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

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	Botanical Name	Common name	Location		
	GROUNDCOVERS		Cabins	Rec Areas	Open Space
1	*Dianella revoluta*		✓	✓	✓
2	*Eustrephus latifolius*				✓
3	*Goodenia rotundifolia*		✓	✓	
4	*Hardenbergia violacea*				✓
5	*Hibbertia stricta*		✓		
6	*Hibbertia vestita*		✓		
7	*Lepidosperma laterale*				✓
8	*Lomandra confertifolia*		✓	✓	
9	*Lomandra longifolia*		✓	✓	✓
10	*Lomandra multiflora*		✓		

*Note: All species nominated occur within the local regional eco system 12.3.5 & 12.5.3 and are classified as fire retardant species according to:

[1] Queensland Reconstruction Authority (2020), *Bushfire resilient building guidance for Queensland Homes.* QRA

[2] John Bowden (1999), *Living with the Environment in the Pine Rivers Shire.* Pine Rivers Shire Council

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INFORMATION REQUEST RESPONSE

ENVIRONMENTAL AMENITY ASSESSMENT

PROPOSED COOCHIN CREEK TOURIST PARK

1807 ROYS ROAD

COOCHIN CREEK

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

Prepared for:
Comiskey Management Services Pty Ltd

Prepared by:
MWA Environmental

19 August 2025

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Job No: 21-197
Original Date of Issue: 19 August 2025

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1.0 INTRODUCTION

1.1 STUDY BRIEF

MWA Environmental has been engaged to prepare an Environmental Amenity Impact Assessment report in response to an Information Request issued by Sunshine Coast Council for the development application for a Tourist Park at 1807 Roys Road, Coochin Creek.

The 'Environmental Amenity Impact Assessment, Proposed Coochin Creek Tourist Park – 1807 Roys Road, Coochin Creek dated 12.8.24' prepared by MWA Environmental previously was submitted to Sunshine Coast Council. Upon review of the report, Sunshine Coast Council issued an Information Request (ref: MCU21/0348.01 & OPW24/0406 dated 15 November 2024) with Item 16 related to the acoustic amenity issues.

Subsequently an Information Request issued by the Deputy Premier dated 9 July 2025 (ref MBN25/959) was issued with Items 2b, 2c, 6a, 6b and 7 relevant to amenity issues.

Sunshine Coast Council Item 16 is as follows:

Acoustic Amenity

16. *The submitted Environmental Amenity Assessment does not adequately demonstrate how the proposal addresses Performance Outcome PO1 of the Nuisance code, as based on the capacity of the park, there could be more than 500 patrons during peak times, with under prediction of actual noise impacts.*

    Provide a revised Environmental Amenity Assessment, to include the following:

    (a) Revised assessment and predictions for internal amplified music and patron noise against established limits for maximum capacity of the Reception Centre, 50 pax is not considered representative of the likely capacity based on the larger capacity and layout of the Function Centre.

    (b) Specify the location of internal amplified music and entertainment within the Reception Centre, and specify the maximum proposed levels at 3m from the speaker source, with revised assessment predictions.

    (c) Specify if source noise level adjustments have been made in relation to any tonal and impulsive characteristics of source noises, and how much has been applied.

    (d) Specify the number of people assumed for the People active at recreational areas source noise levels in Table 5, and ensure this is reflective of maximum numbers of people conducting sporting activities at the pool and multicourt areas continuously over 1 hour during the day and evening periods.

    (e) Provide revised assessment of People at recreational areas in Table 5 (and source noise levels) that reflects the maximum likely number of people occupying the entire recreational areas

continuously over 1 hour period during the day and evening periods.

(f) Revise the line source for the slow moving refuse truck at the Back of House area to align with the Heavy Rigid Vehicle swept path provided in the Traffic Impact Assessment.

(g) ***Provide an assessment and prediction of front lift waste collection noise at a source height of 6m as indicated by the swept paths in the Traffic Impact Assessment report as being the servicing vehicle.***

The Deputy Premier relevant request items are:

Rural Zone

2. Issue

The subject site is located within the Rural Zone under the Sunshine Coast Planning Scheme 2014 (Planning Scheme) and currently holds an existing development approval for Nature-based tourism. This change application seeks to amend the approved use to a Tourist Park.

The Planning Scheme identifies that a Tourist Park is a 'potentially consistent use' for the Rural Zone where appropriate, having regard to its location, nature, scale and intensity and where it does not compromise the use of the land for rural activities. The submitted town planning report, dated October 2024, does not adequately demonstrate these matters.

Action:

(a) *…*
(b) *Demonstrate that the proposal has been located, designed and will be operated so as not to compromise existing and future rural activities in the surrounding rural lands.*
(c) *Demonstrate that a reasonable level of privacy and separation will be achieved between cabins and car parking areas, and with buildings on adjoining properties.*

Amenity

6. Issue

While the submitted Environmental Amenity Assessment has addressed potential reverse amenity impacts on existing agricultural operations, it does not consider the potential for reverse amenity impacts arising from the lawful use of surrounding rural land that is currently not under cultivation, or the implications of introducing significant volumes of non-rural traffic into a rural area.

Action:

(a) *Provide an assessment of how the proposed development will avoid reverse amenity impacts on the lawful future use of adjoining rural land for agricultural purposes, in particular to 1771 Roys Road.*

(b) *Provide an amended Environmental Amenity Assessment that demonstrates how increased traffic, especially from non-rural activities, will not impact on the ongoing operation of agricultural activities that are dependent on the efficient movement of heavy vehicles along Roys Road.*

7. Issue

While the submitted Environmental Amenity Assessment addresses noise impacts associated with the proposal, several matters remain unresolved and require further clarification.

Action:

(a) *Revise the Environmental Amenity Assessment to include the following:*

i. *confirmation that the report has used a conservative 'worst case scenario' approach relating to accommodation numbers and that assessments of all activities proposed on site reflect the maximum numbers of people anticipated to occupy those areas*

ii. *confirm that the potential use of generators at unpowered camping sites has been considered in the noise impact predictions*

iii. *Revise the line source for the slow moving refuse truck at the Back of House area to align with the Heavy Rigid Vehicle swept path provided in the Traffic Impact Assessment*

iv. *Provide an assessment and prediction of front lift waste collection noise at a source height of 6m as indicated by the swept paths in the Traffic Impact Assessment report as being the servicing vehicle.*

The individual responses to the above Information Request items are provided in Section 1.4 of this report.

This updated report addresses the requested items by Council and the potential impact of noise emissions upon the surrounding noise sensitive receptors and any noise control measure required to comply with the relevant noise criteria from the Sunshine Coast Planning Scheme 2014. Further, the reporting considers the reverse amenity constraints associated with surrounding rural lands and addresses the matters raised by the Deputy Premier.

The assessment is based on ambient noise monitoring previously conducted at the locality, noise measurements previously conducted on typical sources associated with the proposed use and detailed noise propagation modelling.

1.2 SITE DESCRIPTION

The subject site is located at 1807 Roys Road Coochin Creek and has a real property description of Lot 10 on SP132272 and Lot 6 on SP184133. The site is located at the eastern end of Roys Road and has frontage to Pumicestone Passage to the South. The western boundary of the site adjoins rural properties with the land adjacent to the proposed camp site area comprising rural lands with detached dwellings and outbuildings. To the northwest of the land is existing rural cropping production uses.

To the North and East of the land are heavily vegetated conservation land including the Pumicestone National Park.

To the West of the land, Roys Road provides access to existing farming uses and rural dwellings and the Coochin Creek boat ramp facility.

The site location is shown on **Figure 1**. **Figure 2** provides an aerial photo with the site plan of development overlaid and identifies surrounding land uses.

1.3 PROPOSED DEVELOPMENT

The Development Application for a Material Change of Use for a Tourist Park development comprising of 150 accommodation sites (75 cabins and 75 tent/caravan sites), ancillary recreation facilities (pool, tennis court, waterpark, multi-purpose court, playground), administration and central facilities building and ancillary amenities.

A reception/administration building with adjacent carparking is proposed on the Southern part of the land on the internal access roadway. Maintenance buildings (sheds) are to be located in the Western part of the land with associated hardstand area for refuse storage and collection.

The Site Plan prepared by Cusp dated 26 July 2024 included as **Attachment 1**.

The development provides 75 grassed camp sites for use with tents, caravans, camper trailers and the like located to the eastern area of the site with 75 cabin sites located to the western area of the site. All camp sites will be provided with access to mains power.

The recreational facilities are located in the central area of the site with the balance area to the North to remain as forested areas, dams and former cultivated land.

The wastewater treatment and irrigation area is to be located in the Northwest corner of the former cultivation area well removed from the camping use areas.

1.4 RESPONSES TO INFORMATION REQUEST

Item 16 of the Sunshine Coast Council Information Request outlines several noise issues to be addressed in this updated report. A summary of the response to each identified issue is provided below.

a) *Revised assessment and predictions for internal amplified music and patron noise against established limits for maximum capacity of the Reception Centre, 50 pax is not considered representative of the likely capacity based on the larger capacity and layout of the Function Centre.*

RESPONSE

The noise assessment has been updated to represent the maximum number of patrons, internal and external to the Reception Centre, as well as indicative speaker locations and source levels as advised by the client.

The number of patrons within the Reception Centre has been increased to 100 people with six amplified speakers at 95 dB(A) at 3 metres. The patron numbers external to the Reception Centre i.e. pool area, pool decks and external forecourt is 100 people with four amplified speakers at 95 dB(A) at 3 metres.

Therefore, the updated assessment allows for total of 200 people internal and external to Reception Centre which is considered conservative in addition to the amplified music sources.

b) *Specify the location of internal amplified music and entertainment within the Reception Centre, and specify the maximum proposed levels at 3m from the speaker source, with revised assessment predictions.*

RESPONSE

As advised above in item (a), the amplified music sources have been updated to represent six speakers within the dining and lounge areas of the Reception Centre and four speakers at pool deck areas external to the Reception Centre. All speaker source levels are modelled at 95 dB(A) at 3 metres which is higher than previously assessed levels for the external areas and considered a conservatively high noise level.

c) *Specify if source noise level adjustments have been made in relation to any tonal and impulsive characteristics of source noises, and how much has been applied.*

RESPONSE

All noise sources provided in Table 5 of this report have been adjusted for tonality and impulsiveness as necessary with adjustments of 3 to 5 dB(A) based on measurements of specific source levels.

d) *Specify the number of people assumed for the People active at recreational areas source noise levels in Table 5, and ensure this is reflective of maximum numbers of people conducting sporting activities at the pool and multicourt areas continuously over 1 hour during the day and evening periods.*

RESPONSE

The noise source 'People active at recreational areas' relates to sporting activity noise such as people in the pool, playing on the multicourts and impact noise from equipment used and does not relate to certain number of people. The number of people in the recreational areas, other than the recreational area at the reception centre, was represented as a separate noise source over the entire recreational area.

The number of people at the recreational area noise source i.e. multicourt and pool area (excluding the reception centre pool area, which is separately modelled sources) for the day and evening periods has been increased to a maximum of 150 patron across the entire recreational area, as advised by the client.

e) *Provide revised assessment of People at recreational areas in Table 5 (and source noise levels) that reflects the maximum likely number of people occupying the entire recreational areas continuously over 1 hour period during the day and evening periods.*

RESPONSE

Updated noise assessment prepared as per response to Item (d).

f) *Revise the line source for the slow moving refuse truck at the Back of House area to align with the Heavy Rigid Vehicle swept path provided in the Traffic Impact Assessment.*

RESPONSE

As per the request, the noise model has been updated to represent the Heavy Rigid Vehicle swept path as shown in the Traffic Impact Assessment report prepared by SLR (SLR Project No.: 620.30557.00101 dated 2 September 2024).

g) *Provide an assessment and prediction of front lift waste collection noise at a source height of 6m as indicated by the swept paths in the Traffic Impact Assessment report as being the servicing vehicle.*

RESPONSE

The noise source of refuse collection has been updated to represent two point sources at a height of 2.5 metres for the truck source and 5 metres for the bin collection noise.

We note that a source height of 6 metres is considered a significant over representation of the assessment height for refuse collection. This height only relates to a clearance height for the top of the bin when elevated over the truck and inverted. In reality, any noise at 6m high would be an instantaneous impact noise, which can include, but retaining the majority of the noise nearer ground level i.e. truck engine, exhaust noise, lifting noise etc.

Therefore, the adoption of the two separate noise sources at heights of 2.5 m and 5 metres for assessment of waste collection is considered appropriate.

Deputy Premier Information Request

The Information Request from the Deputy Premier included matters relevant to acoustic amenity and reverse amenity matters relating to nearby rural lands. A summary of the response to each identified issue is provided below.

2.(b) *Demonstrate that the proposal has been located, designed and will be operated so as not to compromise existing and future rural activities in the surrounding rural lands.*

RESPONSE

The design of the development provides setbacks and buffering between future cabins and the western boundary of the land which adjoins rural zoned land. It is relevant to note that the land at Lot 7 SP106174 is a relatively small parcel of land that is present developed with a house and shed and is of such a size that it has very limited use for rural activities such as cropping and on this basis is not considered to have potential for rural uses to impact upon the proposed accommodation uses. The development layout has located the maintenance shed areas adjacent this boundary providing separation and screening, along with an acoustic barrier to future accommodation uses.

The rural land on Lot 5 SP184133 where it directly adjoins the development site its western extent is an existing large waterbody. The design of the development provides buffers and setbacks between proposed cabins and the western boundary and with the waterbody and vegetation area on Lot 5 and the limited area of Lot 5 any future rural uses would be of small scale such that the development does not pose a reverse amenity constraint upon this land.

The primary rural land currently used for rural purposes is Lot 13 SP300465 to the west which is well separated from the proposed development. Assessment of noise and spray drift (odour) impacts from strawberry farming uses on this land is provided in this report and demonstrates that the separation distances are such that the development does not impose a reverse amenity constraint upon rural use of the land.

2.(c) Demonstrate that a reasonable level of privacy and separation will be achieved between cabins and car parking areas, and with buildings on adjoining properties.

RESPONSE

In respect to acoustic amenity, it is our opinion that the internal layout of the development in respect to spacing between cabins and carparking areas will provide for suitable acoustic amenity outcomes.

Insofar as separation from future accommodation use areas and buildings on adjacent lands, it is our opinion that appropriate separation buffers are achieved and the noise impact assessment provided in this report demonstrates appropriate acoustic outcomes will be achieved.

6.(a) Provide an assessment of how the proposed development will avoid reverse amenity impacts on the lawful future use of adjoining rural land for agricultural purposes, in particular to 1771 Roys Road.

RESPONSE

The adjacent rural land at 1771 Roys Road (Lot 7 SP106174) is of a small area such that any rural uses would be unlikely to generate any significant environmental impacts at the development site and the design of the development in locating the maintenance area, sheds and acoustic barriers to part of the western boundary provides buffering to future accommodation from this land.

It is our experience and opinion that the development as proposed will not impose an unacceptable reverse amenity constraint upon rural activities at 1771 Roys Road.

The reverse amenity matters relevant to Lot 5 SP184133 and Lot 13 SP300465 are addressed in the response to 2b above.

6(b) Provide an amended Environmental Amenity Assessment that demonstrates how increased traffic, especially from non-rural activities, will not impact on the ongoing operation of agricultural activities that are dependent on the efficient movement of heavy vehicles along Roys Road.

RESPONSE

This matter has been addressed by the project traffic engineers as it relates to traffic engineering matters.

7 While the submitted Environmental Amenity Assessment addresses noise impacts associated with the proposal, several matters remain unresolved and require further clarification.

(a) Revise the Environmental Amenity Assessment to include the following:

i. confirmation that the report has used a conservative 'worst case scenario' approach relating to accommodation numbers and that assessments of all activities proposed on site reflect the maximum numbers of people anticipated to occupy those areas

RESPONSE

The updated reporting has adopted increased patron numbers and noise generating activities which reflect a worst case scenario in terms of operations.

ii. confirm that the potential use of generators at unpowered camping sites has been considered in the noise impact predictions

RESPONSE

All camping sites are to be provided with access to mains power and not generators will be used by campers on site.

iii. Revise the line source for the slow moving refuse truck at the Back of House area to align with the Heavy Rigid Vehicle swept path provided in the Traffic Impact Assessment

RESPONSE

As per the request, the noise model has been updated to represent the Heavy Rigid Vehicle swept path as shown in the Traffic Impact Assessment report prepared by SLR (SLR Project No.: 620.30557.00101 dated 2 September 2024).

iv. Provide an assessment and prediction of front lift waste collection noise at a source height of 6m as indicated by the swept paths in the Traffic Impact Assessment report as being the servicing vehicle.

RESPONSE

The noise source of refuse collection has been updated to represent two point sources at a height of 2.5 metres for the truck source and 5 metres for the bin collection noise.

We note that a source height of 6 metres is considered a significant over representation of the assessment height for refuse collection. This height only relates to a clearance height for the top of the bin when elevated over the truck and inverted. In reality, any noise at 6m high would be an instantaneous impact noise, which can include, but retaining the majority of the noise nearer ground level i.e. truck engine, exhaust noise, lifting noise etc.

Therefore, the adoption of the two separate noise sources at heights of 2.5 m and 5 metres for assessment of waste collection is considered appropriate.

2.0 EXISTING NOISE ENVIRONMENT

The site is located in a rural area and at the termination of the Eastern section of Roys Road. The ambient noise environment is best described as a quiet rural area.

The primary noise influence in the locality is rural farming activities, traffic on Roys Road associated with rural farming, the boat ramp and residential dwelling associated traffic.

Importantly, in the context of noise amenity, the site has previously operated as a Strawberry Farm with associated packing shed which on seasonal basis generated both car and truck traffic on Roys Road for staff and servicing. In addition, farming activities including ground cultivation and cropping generated noise.

MWA Environmental has conducted unattended noise monitoring on the site for a 10 day period from 25 October to 4 November 2022. The noise monitor was located on the western boundary of the land in a location considered representative of the ambient noise environment of the nearest off-site residence to the west and the site in general. The location of the noise logger is shown on **Plate 1** below:

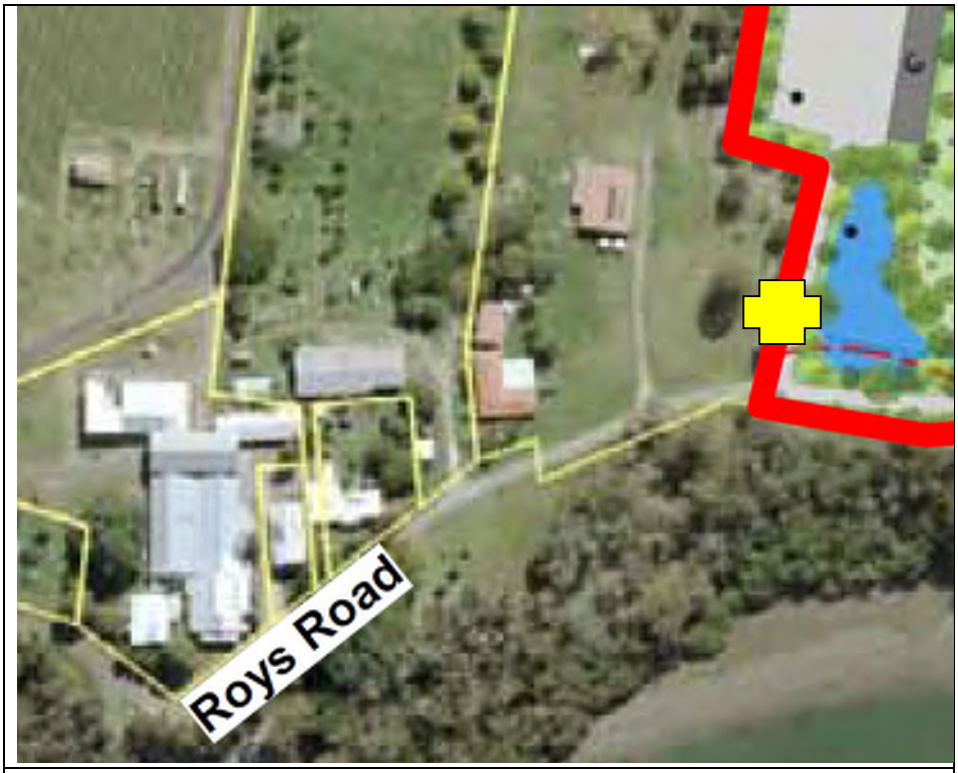

Plate 1: Location of Noise Logger

The data has been filtered to remove insect noise and extraneous noise events.

Table 1: Recorded Noise Level Ranges - Coochin Creek
25 October to 4 November 2022

PARAMETER	PERIOD	RECORDED NOISE LEVELS - dBA		
		MINIMUM	MAXIMUM	AVERAGE
L_1	Daytime (7am-6pm)	30.8	59.1	40.9
	Evening (6pm-10pm)	38.1	58.9	49.2
	Nighttime (10pm-7am)	30.8	59.5	42.6
L_{10}	Daytime (7am-6pm)	40.8	73.8	49.5
	Evening (6pm-10pm)	41.0	62.1	52.9
	Nighttime (10pm-7am)	33.9	64.1	48.3
L_{90}	Daytime (7am-6pm)	28.6	50.4	37.0
	Evening (6pm-10pm)	31.1	45.1	35.4
	Nighttime (10pm-7am)	28.9	48.4	33.8
L_{eq}	Daytime (7am-6pm)	38.8	72.1	47.5
	Evening (6pm-10pm)	39.8	60.5	51.5
	Nighttime (10pm-7am)	32.7	60.9	46.8

	MINIMUM	MAXIMUM	AVERAGE
L10 18hour	47.5	52.0	50.1
L90 8 hour	30.1	37.3	33.6
Leq 24 hour	44.0	50.4	47.9
Maximum Leq 1hr (7am-10pm)	49.4	66.2	55.0
Maximum Leq 1hr (10pm-7am)	49.0	59.3	51.8
L10 12hour	47.9	54.2	49.5

Rating Background Levels are provided below:

Day = 34 dB(A)
Evening = 35 dB(A)
Night = 32 dB(A)

3.0 NOISE CRITERIA

The Sunshine Coast Planning Scheme 2014, Schedule 6 requires noise assessment to be undertaken in accordance with Performance Outcome PO1 and PO2 Table 9.4.3.3.1 (Performance outcomes and acceptable outcomes for assessable development) of the Nuisance code. However, no specific noise limits are present in the Performance Code. Furthermore, Schedule 6, SC6.15.4 provides the following assessment requirements.

SC6.15.4 Advice for preventing or minimising nuisance emissions and imissions associated with noise and/or vibration

The following is advice for achieving Performance Outcomes PO1 and PO2 of **Table 9.4.3.3.1 (Performance outcomes and acceptable outcomes for assessable development)** of the **Nuisance code** where there is potential for noise and/or vibration emissions or imissions to cause environmental harm or nuisance at a sensitive land use -

(a) compliance with Performance Outcomes PO1 and PO2 of **Table 9.4.3.3.1 (Performance outcomes and acceptable outcomes for assessable development)** of the **Nuisance code** may be demonstrated in part or aided by the submission of a noise impact assessment report prepared by a competent person, which properly addresses, describes or includes the following -

(i) a location plan identifying the subject site and sensitive land uses or the nearest potentially sensitive land uses to the subject site and any significant features such as topographic variation, barriers and intervening buildings;

(ii) the results of measurements of background LA90 noise levels using an appropriate methodology at a location representative of the nearest potentially affected sensitive land uses to the subject site in the absence of noise emissions from the subject site, with -

(A) the background noise levels to include time periods that are most likely to be sensitive from a noise perspective (generally at night), and
(B) the background noise monitoring to be completed for a sufficient period of time to establish 'the average minimum background noise levels' for the locality;

(iii) comparison of the background noise level with predicted source noise levels using an appropriately recognised methodology and criteria, from the proposed activity at the nearest potentially affected sensitive land uses to determine compliance with criteria as defined in Schedule 1 of the *Environmental Protection (Noise) Policy 2008*, and

(iv) specification of appropriate control and mitigation measures as necessary.

Considering the above, the *Environmental Protection (Noise) Policy 2008* is considered relevant in assessing the development. The Policy specifies noise limits for sensitive receptors to enhance or protect acoustic amenity.

3.1 ACOUSTIC QUALITY OBJECTIVES

The *Environmental Protection (Noise) Policy 2008* specifies Acoustic Quality Objectives for sensitive receptors to enhance or protect acoustic amenity. The applicable Acoustic Quality Objectives from Schedule 1 of the policy are presented in **Table 2**.

Table 2: Adopted Acoustic Quality Objectives

SENSITIVE RECEPTOR	PERIOD	ACOUSTIC QUALITY OBJECTIVES (MEASURED AT THE RECEPTOR) DB(A)			ENVIRONMENTAL VALUE
		($L_{Aeq,adj,1\text{-}hour}$)	($L_{A10,adj,1\text{-}hour}$)	($L_{A1,adj,1\text{-}hour}$)	
Dwelling (for outdoors)	7am to 10pm	50	55	65	Health and wellbeing
Dwelling (for indoors)	7am to 10pm	35	40	45	Health and wellbeing
	10pm to 7am	30	35	40	Health and wellbeing in relation to the ability to sleep

Having regard to the proposed use experience dictates that the most stringent of the Acoustic Quality Objective parameter for residential type uses are the L_{Aeq} levels for each period of the day.

A 7 dBA reduction by the building envelope with windows open, is considered to derive the representative external noise criteria from the respective indoors noise limits[1].

3.2 CONTROLLING BACKGROUND CREEP

Part 4, Section 10 of the *Environmental Protection (Noise) Policy (2008)* provides 'controlling background creep' noise criteria for the assessment of amenity impacts for an activity involving noise.

Considering the nature of mechanical plant noise emissions, the relevant 'controlling background creep' criteria are specified as 'continuous noise', while all other noise sources associated with the development are considered as 'noise that varies over time', as per the following:

[1] AS3671 states approximate 10 dB(A) noise reduction through a façade with 10% open area. Thus approximately 7 dB(A) noise reduction through a façade with 20% open area. A large 1200x1800 sliding window relates to approximately 10% open area. A large 2100x2300 sliding glass door represents approximately 20% open area. Thus, 7dB(A) noise reduction is conservatively adopted based upon a large sliding glass door in the affected façade. Openings larger than 20% open area are unlikely to be necessary for ventilation during the night period.

10 Controlling Background Creep

(1) This section states the management intent for an activity involving noise.

Note—

See section 51 of the Environmental Protection Regulation 2008.

(2) To the extent that it is reasonable to do so, noise from an activity must not be—

(a) for noise that is continuous noise measured by $L_{A90,T}$ – more than nil dB(A) greater than the existing acoustic environment measured by $L_{A90,T:}$

(b) for noise that varies over time measured by LAeq,adj,T – more than 5 dB(A) greater than the existing acoustic environment measured by LA90,T

The noise criteria adopted using Background Creep would be that:

- the noise from **mechanical plant** (continuous steady-state noise) measured as the $L_{A90,adj,T}$ does not exceed the otherwise prevailing $L_{A90,T;}$ and
- the **overall noise** from the use measured as the $L_{Aeq,adj,T}$ (noise that varies over time) does not exceed the otherwise prevailing $L_{A90,T}$ by more than 5 dB(A).

The applicable criteria are presented in **Table 3**, based upon the site specific noise monitoring.

Table 3: Adopted Background Creep Noise Criteria

Days	Period	Background Noise Level (L_{A90}) – dB(A) RBL	Mechanical Plant Noise Criteria (L_{A90}) – dB(A)	Overall Noise Criteria (L_{Aeq}) – dB(A)
Monday to Sunday	Daytime (7am to 6pm)	34	**34**	**39**
	Evening (6pm to 10pm)	35	**35**	**40**
	Night (10pm to 7am)	32	**32**	**37**

3.2 SLEEP DISTURBANCE

As the site will be occupied during the night period it is appropriate to consider the potential for sleep disturbance at nearby sensitive receptors. Queensland *Ecoaccess Guideline: Noise - Planning for Noise Control* (2015) indicates that unreasonable sleep disturbance impacts can occur when short duration noise peaks in the range 45 to 50 dB(A) within a bedroom occur more than 10 to 15 times per night.

Consideration of potential sleep disturbance noise criteria should also give regard to the ambient noise environment i.e. whether noise from vehicles on public roads results in noise levels above the default planning criteria.

Given the existing ambient noise levels during the 10pm to 7am period, the lower range sleep disturbance noise criterion of 45 dB(A) L_{max} noise level within a bedroom due to noise from vehicle movements and car starts / door slams during the night period is appropriate. Adopting a typical 7 dB(A) noise reduction through an open window relates to a sleep disturbance criterion of **L_{max} 52 dB(A) external** to a bedroom window.

4.0 NOISE IMPACT ASSESSMENT

4.1 NEAREST NOISE SENSITIVE RECEPTORS

The nearest existing surrounding sensitive land uses (residential dwellings are located to the West of the site on rural lands fronting Roys Road. The dwelling that has been identified and considered as the nearest noise sensitive receptor for the purposes of this assessment is the following property:

R1: Existing residence at 1771 Roys Road

4.2 MECHANICAL PLANT NOISE

The proposed use as a tourist park comprising camp sites, cabins and associated facilities has limited potential to generate noise of significance from mechanical plant. The only likely mechanical plant would relate to pool filtration equipment, any exhaust fans associated with the amenities buildings, air-conditioning/refrigeration plant and exhaust fans for the reception/administration building and washers/dryers in one of the amenities buildings any exhaust fans associated with this use and possible washing machine in the maintenance building.

There is also potential for split system air-conditioning units to the proposed cabins and air conditioning units on any RV's using the campsites.

At the detailed design stage, it will be necessary for site fixed mechanical plant to be selected, located and/or acoustically treated as necessary to comply with relevant noise limits included in development approval conditions.

Experience dictates that noise from mechanical plant and equipment associated with the use can be appropriately controlled such that it will not result in any adverse impact upon either on or off site sensitive uses.

The above noise sources are considered in the noise modelling assessment with the following sound power levels represented as identified in **Table 4.**

Table 4: **Mechanical Plant and Equipment Noise Sources**

Use	Unit	SWL – dB(A)	Source Height (m)
RV Roof Mounted [2]	Air-conditioning units	73.0	3.0
Cabin Split System	Air-conditioning unit (per cabin)	60.0	1.0
Reception Building	Refrigeration units	83	1.0 above roof top
Reception Building	Air-conditioning units	78.0	1.0 above roof top
Amenities Building	Exhaust Fans	61.8	0.5 above roof top
Amenities Building	Washing Machines and dryers	73.0	1.0
Pool area	Enclosed Pool Pumps	70.0	0.5

4.3 TIME VARYING NOISE

The proposed development is considered to have a low potential to generate noise of significance given that it is nature based resort.

The primary noise generation associated with the use will be related to the following:

(i) Traffic generated on Roys Road
(ii) Maintenance shed use
(iii) Site maintenance including mowing and vegetation management
(iv) Refuse collection from hardstand area to rear of maintenance shed
(v) Guest noise associated with use of outdoor facilities including multi court, tennis court, pool and playground areas.
(vi) Noise of guests at campsites
(vii) Potential low level amplified music at accommodations sites and pool/ outdoor facilities and reception building.

Having regard to the above noise sources and the fact that the site is a rural area with existing farming and associated activities, the noise from the cars and trucks accessing the site, carparking noise, maintenance shed, grounds maintenance and even truck movements (refuse) on the site are noise that would be expected and occurs in this locality (including previous use of the land as a Strawberry Farm).

[2] At various locations across the site.

The noise associated with guests in outdoor recreation areas and potential low level background music are noise sources that warrant specific consideration in assessing potential impact of the use upon the nearest off-site dwelling.

A SoundPLAN noise model of the proposed development has been prepared to assess noise from the use at the nearest off-site sensitive receptor location. The nearest residence is located to the west of the land at 1771 Roys Road. The residence location relative to the site is provided on **Figure 2**.

Source sound power levels (SWLs) for the above activities have been recorded by MWA Environmental and others and are summarised in **Table 5** below.

Table 5: Operational Noise Sources

Noise Source	SWL – dB(A)		Source Height (m)
	L_{max}	L_{eq}	
Day time Noise Sources			
Slow moving car	89	47.2/m [3]	0.5
Car Parking (includes Car starts / door slams)	90	84.8 [4]	0.5
Slow moving refuse collection truck	101	64/m [5]	2.5
Refuse collection	104	104 [6]	5.0
Refuse collection truck	104	104 [7]	2.5
Maintenance Workshop	108.1	108.1[8]	1.0
People	78.0	73.0 [9]	1.5
People active at recreational areas	102.5	97.5 [10]	1.5
People at recreational areas	105	96.6 [11]	1.5
People at reception pool areas	103	94 [12]	1.5
Amplified Music Campsites	92.5	87.5 [13]	1.0
Amplified Music external to Reception Centre	117.5	112.5 [14]	1.0
Amplified Music Recreational Areas	107.5	102.5 [15]	1.0
Night-time Noise Sources			
Slow moving car	89	47.2/m	0.5
Car Parking (includes Car starts / door slams)	90	84.8	0.5
People	78.0	73.0	1.5
People external to Reception Centre	103	94	1.5
Amplified Music Campsites	92.5	87.5	1.0
All Mechanical Plant	As per Section 4.2		

[3] Sound power level per vehicle movement adjusted for peak traffic movement as report by SLR which was 340 trips per day and 46 vph in the peak hour travelling at 15km/hr.

[4] Represented 60 parking bays at 1 carparking bay movements per bay per hour.

[5] Based on 2 truck movement in 15min, travelling at 10kmh during day period only.

[6] Noise source activity adjusted for 1 second noise event per refuse collection during day period only.

[7] Noise source activity adjusted for 30 second noise event per refuse collection during day period only.

[8] Noise source activity adjusted for 10 minutes per hour during day period only.

[9] People in conversation continuously over hour period at numerous locations across the site.

[10] People conducting sporting activities at pool and multicourt areas continuously over hour during day and evening period only.

[11] 150 People occupying the entire recreational areas continuously over hour during day and evening period only.

[12] 100 People occupying the entire pool recreational areas continuously.

[13] Background speakers at camp sites.

[14] Amplified music (95 dB(A) at 3m) internal and external to the Reception Centre.

[15] Amplified music (85 dB(A) at 3m) at pool and multicourt areas during day and evening period only.

The noise generated by mowing and general external maintenance works will be intermittent and occur at varying locations over the site. In the context of a rural area, activities such as mowing and general maintenance are considered to fit within the rural character of the area and not a noise source that it of concern in regard to amenity impacts upon surrounding land uses.

4.3.1 Reception Centre Internal Noise Sources

Noise emissions internally from the reception building have been assessed using a SoundPLAN computer noise model with detailed representations of the built-form and internal use areas.

The key noise emissions from the proposed development relate to noise from patrons and amplified entertainment internally.

Patron noise has conservatively been assessed based upon an indicative internal layout of each use area, with patrons distributed throughout the indoor areas.

The following key noise source sound power levels have been represented in the SoundPLAN modelling:

Amplified Music:	L_{Aeq} = 112.5 dB(A) [16]
Patron Noise: 100pax:	L_{Aeq} = 94 dB(A)

Patron noise sources have been modelled as area sources with the amplified speakers as point sources.

Noise emissions from within the building have been represented as an industrial building source including the indoor noise sources and external façade construction materials. The Sound Transmission Loss (STL) through the walls, window and open doors of the building were input to the model as per **Table 6**.

[16] Equivalent to 95dB(A) at 3 metres

Table 6: Modelled Building Component Sound Transmission Loss

CONSTRUCTION ELEMENT	Rw
Roof/Ceiling	**32**
Doorway/Windows (Open)	**0**
6.38mm Laminate Glazing (wall)	**32**

For the purposes of the assessment, operable access doorways/ glazing to the external pool area from the dining and lounge were represented as open throughout the trading period.

4.4 NOISE PREDICTIONS

4.4.1 Mechanical Plant Noise Results

The predicted noise levels at the nearest noise sensitive receptor are summarised in **Table 7** for assessment of compliance with the adopted noise criteria.

The SoundPLAN model noise contour maps of the predicted mechanical plant L_{A90} noise levels with recommended noise control measures are provided in **Attachment 2**.

Table 7: Predicted Mechanical Plant Noise Levels at Noise Sensitive Receptor

Receptors	Predicted Noise Level L_{A90} dB(A)
R1	21
L_{A90} Noise Criterion	**34/35/32 dB(A)**

The above predicted noise level demonstrates that mechanical plant noise readily complies with the adopted noise limits for the development site.

4.4.2 Time Varying Noise Results

The predicted L_{Aeq} noise levels at the nearest sensitive receptor during the day (7am to 6pm) evening (6pm to 10pm) and night period (10pm – 7am) are summarised in **Table 8** below for compliance with the adopted noise criteria.

Table 8: Predicted Noise Levels

Receptor	$L_{Aeq,adj,T}$ dB(A) Day	$L_{Aeq,adj,T}$ dB(A) Evening	$L_{Aeq,adj,T}$ dB(A) Night-time	L_{Amax} dB(A) Night-time
R1	39	39	34	41
Criteria	**39**	**40**	**37**	**52**

The SoundPLAN model noise contour maps of the predicted L_{Aeq} noise levels with recommended noise control measures are provided in **Attachment 3**.

4.4.3 Recommended Noise Control Measures

The following noise control measures are recommended for the proposed development to achieve compliance at the nearest noise sensitive receptor:

(i) Construct 2.4 metre high acoustic barrier along part of the Western Boundary of the land as shown on **Plate 2**. The noise barrier shall be constructed of suitable materials to achieve a minimum surface density of 12 kg/m^2;
(ii) Hours of use of formal outdoor recreation areas limited to maximum time period 7am to 10pm;
(iii) External amplified music at reception/admin/pool area limited to no louder than 95 dB(A) at 3 metres from any loudspeaker and limited to the time period 7am to 10pm only;
(iv) Refuse collection limited to daytime hours of 7am to 6pm only; and
(v) Maintenance conducted during daytime hours of 7am to 6pm only.

In regard to noise mitigation measures, it is a recommendation that at **2.4 metre high** acoustic barrier fence be constructed along part of the Western boundary of the land from the road entry point to past the maintenance and hardstand area as identified on **Plate 2.** This acoustic barrier fence will provide noise mitigation to the nearest residence. An alternate design would be to locate the noise barrier on the western edge of the hardstand area and maintenance access path, rather than on the boundary.

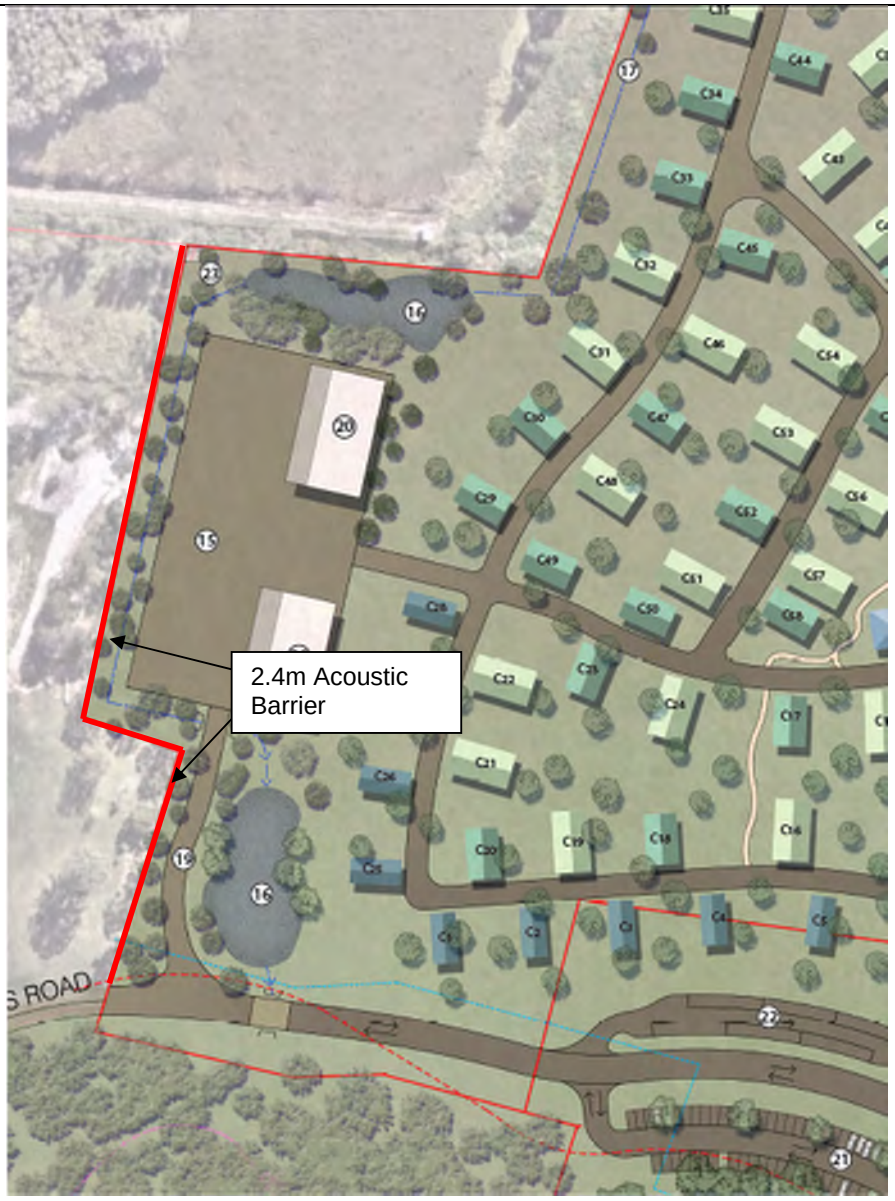

Plate 2: Recommended Acoustic Barrier – 2.4 metres high

4.4.4 Noise Impact upon Surrounding Environmental Areas

The noise assessment prepared in considering the resultant noise from site operations upon the nearest residence identifies that compliance with the adopted noise criteria will be achieved.

In context, the use of the land in the past for agricultural cropping would have generated noise from farming activities rather than the site being a greenfield site with no previous noise generation.

The proximity of the proposed development to surrounding environmental areas is such that resultant noise from the proposed use at environmental areas will likely be of no higher noise level than from past farming activities.

The noise prediction plots in **Attachment 3** provide a basis for understanding the potential noise generated by the proposed development upon surrounding areas for consideration by ecological experts.

The conduct of maintenance works on the site including mowing and associated works will be intermittent in occurrence and at varying locations over the site. The impact of noise from such activities i.e. mowing and the like is similar to many rural farming activities and not considered to be of significance in regard to noise impact upon any ecological sensitive uses nearby.

4.5 NOISE IMPACTS UPON THE USE

The site is located in a rural area with identified farming activities including cropping occurring on land to the West of the site. The immediately adjacent rural lands are used for dwellings rather than any active rural pursuits.

Site inspections identify that the primary cropping uses in the immediate locality are strawberry growing and turf farming.

The strawberry farming use is operated by Donnybrook Berries.

Strawberry farming is a seasonal crop with fruit picking occurring generally May to October each year. The plants are established each year by planting runners and at the end of the picking season are ploughed in and a cover crop is typically then grown for several months. The cover crop is then ploughed in for nutrient purposes and the land later ploughed and hilled rows formed for strawberry growing.

Our understanding is that land preparation and strawberry picking is primarily a daytime activity.

Strawberries when picked are understood to be loaded onto road trucks and transported off-site to the existing Donnybrook Packing facility at Elimbah.

Weed maintenance is primarily via plastic over the hilled rows and occasional tilling between rows and use of chemical herbicides as required.

In the context of rural cropping, strawberry farming is a low intensity use when considered of the basis of using machinery for working the soil. Fruit picking is undertaken by hand with manual trolleys moved along the rows by fruit pickers.

In the case of the strawberry farming, irrigation is commonly required and would be sourced from on-site water storages (dams). Aerial photography demonstrates power lines are in proximity to the Donnybrook water storages and it all likelihood electric motor driven irrigation pumps would be in use. On this basis, noise from irrigation activities would be negligible.

An important consideration in respect to the potential noise impact of rural farming activities upon the amenity of the resort is that existing dwellings located west of the land, fronting Roys Road already impose a reverse amenity constraint upon rural activities, meaning that the development of the site as proposed, on a first principles approach does not introduce a new constraint to farming activities.

To assess the noise amenity impact of operations of existing farming activities we have prepared SoundPLAN noise model representation of tractors working the Donnybrook land in the eastern areas nearest the subject site.

A moving point source has been represented in the SoundPLAN noise model for a tractor moving along the nearest area to the site being along the eastern property boundary of the strawberry farm.

A Sound Power Level of L_{max} of 104 dB(A) has been used, with the tractor moving at 5kmh under load, i.e. ploughing, which is equivalent to a L_{eq} of 67 dB/m.

The nearest proposed camp site lot was assessed for noise impact from the strawberry farm. The predicted noise levels are provided in **Table 9.**

The SoundPLAN model noise contour maps of the predicted noise levels are provided in **Attachment 4**.

Table 9: Predicted Noise Levels from Strawberry Farm

Receptor	**$L_{Aeq,adj,T}$ dB(A)**
Lot 1	29
Criteria	**39/40/37**

The predicted noise level demonstrates that any potential noise impact of rural farming activities upon the camping use of the site is negligible. It is relevant to identify that the nearest camping sites will be screened from the nearest rural land by the acoustic barrier proposed along part of the Western Boundary.

The minimum separation of 230 metres provides significant separation and noise attenuation from farming activities. In this regard it is also relevant to consider that farming activities in respect to amenity impact potential are already constrained to an extent by existing dwellings on Roys Road which are located within 110 metres of the cropping use areas.

Further, the reasonable expectation of persons staying at the tourist park would experience the local environment which includes rural activities. It is our opinion that camping and short stay uses have a lower expectation of acoustic amenity as compared to permanent residential uses and any farming activities would be part of the experience of the locality.

5.0 AIR QUALITY IMPACTS

5.1 FARMING ACTIVITIES

The conduct of existing rural cropping uses on land to the west of the subject site, as identified above is primarily for strawberry farming on land at Lot 13 SP300465. Immediately adjacent rural zoned land to the west including Lot 5 SP184133 and Lot 7 SP106171 are of limited area and have limited potential for rural activities that have potential for noise or air quality impacts upon the proposed development. The large water body and vegetation area on Lot 5 provides significant buffering to the proposed development in addition to internal buffering proposed to cabins near this boundary. The design of the development has located a non sensitive use (maintenance area and sheds) adjacent to Lot 7 which effectively buffers accommodation uses on the site from this small rural holding.

In respect to air quality impacts from these rural farming uses upon the proposed camping facility it is relevant to consider both spray drift (from application of herbicides/pesticides), and dust from working the land.

Figure 3 identifies the minimum separation distances between camp sites nearest the strawberry farm and also existing vegetation areas.

The Masterplan identifies vegetation areas between the camp sites and the western boundary of the land with camp sites set back off the boundary approximately 10 metres. This vegetated zone provides an area for vegetation for both visual and physical screening.

Use of vegetation within a buffer between agricultural uses and sensitive receptors is a well understood concept and a matter regularly considered by Council with respect to development of sensitive uses in proximity to rural activity areas.

In this instance, the minimum separation distance from a proposed camp site to strawberry farming areas is 230 metres. **Figure 3** identifies that within this separation distance there are areas of existing vegetation on lands to the west of the site. **Figure 3** also identifies the areas of vegetation proposed on the development site adjacent the western boundary which can assist in buffering to agricultural uses to the West.

The concept of agricultural buffers is considered in the Sunshine Coast Planning Scheme – CODE – Reference. This references historical guidelines issued by the Queensland Government "*Planning Guidelines – Separating Agricultural and Residential Land Uses*" DNR, August 1997.

The Planning Guidelines identify the requirement to provide suitable buffering between sensitive land use and agricultural activities to both protect amenity of the sensitive land use and to minimise/prevent reverse amenity constraint

being imposed upon agricultural uses as a result of potential complaint from the sensitive use.

The air quality concepts considered in respect to buffering including spray drift, odour and dust impacts. The Planning Guidelines provided guidance on buffers in a form of Performance Criteria and Acceptable Solutions.

In regard to buffers, with regard to air quality impacts, specifically spray drift, the guidance provided was to provide a separation buffer in the order of 300 metres or in the alternative a 40 metre buffer with vegetation where sensitive uses were located closer than 300 metres. The buffer concept is identified below in an extract of **Figure 4** of the Planning Guidelines.

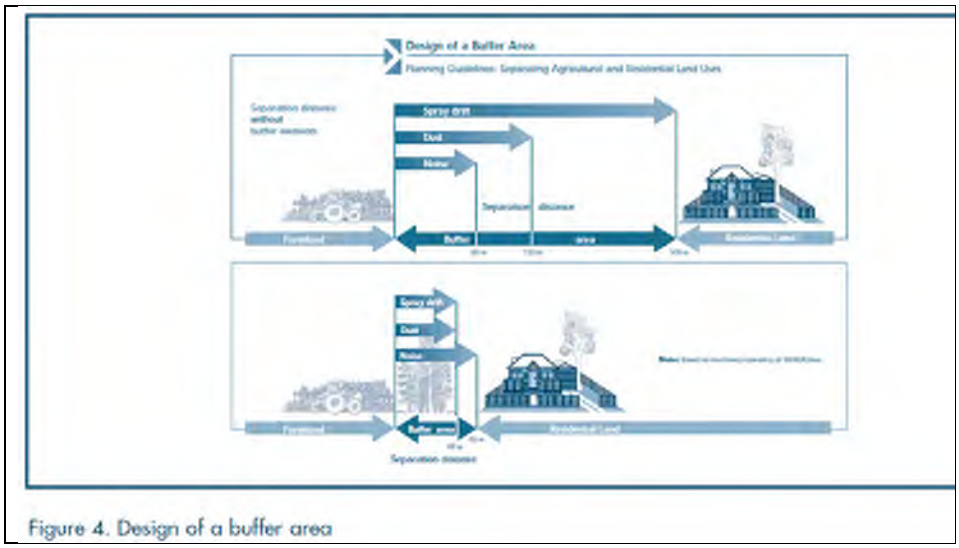

Figure 4. Design of a buffer area

In the case of the subject development the available separation distance of a minimum of 230 metres provides a significant separation between active farming uses and the nearest camp sites. The existing vegetation areas and the proposed vegetation on the site is considered to provide a level of control with respect to air quality impacts that will maintain an acceptable level of amenity at the camping facility such that there is a very low potential for complaint and reverse amenity constraint on agricultural uses.

Spray Drift

In addition to the concept of a buffer as discussed above, the physical impacts associated with spraying chemicals such as herbicides and pesticides on the strawberry farm can be considered in respect to spray drift.

Chemicals applied for strawberry farming are regulated in that the crop is a food and use of chemicals harmful to human health is thus constrained.

Strawberries are an at ground crop, they grow on low height dirt mounds covered with plastic. Application of chemical sprays for weed, mould or pest control is primarily conducted using tractor mounted boom sprays that have a low release height of less than 1 metre above ground level. This low release height provides the most effective cover and application method and achieves the most effective coverage to the areas requiring the chemical application. Aerial spraying is not used for strawberry cropping.

The concept of spray drift is well understood. Drift of the applied spray away from the target area is wasteful and costly to the farmer and it is best practice in terms of both the environment and economics that spray application is conducted from low height, using medium to coarse spray droplet sizes and during weather conditions that are light winds rather than stronger winds which can carry the spray beyond the target area.

A paper "Nozzles: Selection and Sizing" Virginia State University, Grisso R, Askew D and McCall D, Publication 442-032 (2019) provides information on the classification of spray droplet sizes and potential spray drift distances under nominated wind conditions for various droplet sizes for application from a height of 3 metres. This is a much higher application height than used for strawberry farming and hence is a conservative comparison to the use.

A classification system of the British Crop Protection Council (BCPS) and American Society of Agricultural and Biological Engineers (ASABE) assigns the following spray droplet size categories:

Table 10: **Droplet Size Classification**

Spray Droplet Category	Approximate Volume Mean Diameter Range (microns)
Very Fine	<105
Fine	106- 235
Medium	236-340
Coarse	341-403
Very Coarse	404-502
Extremely Coarse	>503

In terms of spray droplet size and target plants, Medium size droplets applied with there is ambient air velocity deposit more efficiently on stems and narrow vertical leaves such as grasses. Coarse size droplets deposit most efficiently on large flat surfaces such as broadleaf plants (i.e. strawberry plants).

The movement of spray droplets of varying diameters for a 3 metre release height and a 4.8 km/hr wind speed are provided in **Table 11** below.

Table 11: **Lateral Movement of Spray Droplets**

Droplet Diameter	Droplet Size	Lateral Movement 4.8km/h wind, 3 m release height
5	Fog	4800m
<100	Very Fine	13.4m
240	Medium	8.5 m
400	Coarse	2.6m
1000	Extremely Coarse	1.4 m

The above thus demonstrates for medium to coarse droplet sizes, as relevant to strawberry farming, the lateral spray drift under 4.8 km/h wind speed is less than 10 metres.

In the case of the proposed camping facility, the available separation distances are > 230 metres and thus the likelihood of spray drift from the farming activities impacting upon the camping facility is extremely low. Of importance, application of sprays under high speed wind conditions, which have greater potential for drift away from the target area, is counter intuitive for both wasting chemicals and costs thrown away by the farmer. In practice, modern day farming would not apply chemical sprays under high wind speed conditions due to environmental, practical and economic reasons.

On the basis of the above it is considered that the camping facility is adequately buffered from existing agricultural uses such that adverse air quality impacts from spray drift are extremely unlikely.

Odour

Another consideration in terms of air quality is odour. Firstly some agricultural chemical used have odour to make them distinguishable to the user and in my experience many have no odour.

The above assessment in respect to spray drift equally applies to odour as the spray droplets are not carried farm from the application location and given the significant separation distances to the camping facility, odour from chemical application being of such a level as to be a nuisance or to invoke a complaint is highly unlikely.

Other odour impacts associated with fertilisers used in cropping including organic fertilisers are in my experience typically not a significant amenity impact as application is generally in solid form to the ground and the fertiliser is then ploughed into the soil which covers and controls any odour emissions.

In summary, odour impacts from agricultural farming in the vicinity of the proposed camping facility are considered to be a very low risk and not a matter which would preclude the use nor result in complaints or reverse amenity constraints as a result.

The final air quality consideration is dust from farming operations. Dust is generated from cropping operations by sources/activities including:

- Ploughing of the field in preparation for cropping
- Rotary hoeing for weed control
- Movement of wheeled equipment on unsealed internal roads
- Wind generated fugitive dust from fallow fields without cropping.

Strawberry farming is a seasonal crop with fruit picking occurring generally May to October each year. The plants are established each year by planting runners and at the end of the picking season are ploughed in and a cover crop is typically then grown for several months. The cover crop is then ploughed in for nutrient purposes and the land later ploughed and hilled rows formed for strawberry growing.

The potential for adverse dust generated by farming activities to impact upon the proposed camping area is considered to be very low for the following reasons:

- The available separation distance being > 230 metres.
- Intervening vegetation (existing) and proposed on site.
- Prevailing winds are from the southern sectors i.e. not dominantly from the farming areas towards the camping areas.
- Ploughing occurs infrequently throughout the year.
- When growing strawberries, hilled mounds are covered with plastic and the earth lanes between the rows have low dust generation potential as they are firmed from wheel equipment driving over and foot traffic from farm workers.
- Strawberries are irrigated and application of water minimises dust generation.

In summary, given the above, adverse dust from farming activities resulting in nuisance to campers is considered a low risk and similarly the potential for reverse amenity constraint upon the agricultural uses from guest complaints is negligible on this basis.

5.2 CONSTRUCTION AND OPERATION AIR QUALITY

The construction of the facility will require earthworks to form camping areas and internal roadways. This will require the use of earthmoving equipment and consequent dust generation.

In terms of impact of dust generated from construction it is relevant to note that this will likely be managed as part of a Construction Environmental Management Plan which will have regard to the location of nearby residences and environmental areas in proximity.

This will be a matter for construction planning and design and use of water carts and stabilisation of exposed areas as required.

It must be noted that previous use of the land for cropping would have generated dust from ground preparation, ploughing and the like such that any impacts from short duration construction works are likely to be less in the near field than from past farming activities.
On the basis of the above, the construction phase will be able to be suitably managed to control dust emissions to protect the amenity of surrounding areas.

The proposed camping facility will include internal roadways that are sealed to provide a stabilised driving surface and hence no dust from vehicle movements on site of consequence will occur. The camping sites will be grassed as will balance areas and will be landscaped and stabilised. On this basis there is negligible potential for adverse air quality impact from the operational phase of the development.

6.0 SITE LIGHTING

6.1 LIGHTING CRITERIA

The operation of fixed lighting on the site for wayfinding, safety and security during hours of darkness is required to comply with appropriate standards to ensure that light spill and glare does not adversely impact upon receptors external to the site.

Australian Standard AS/NZS 4282:2019 "Control of the obtrusive effects of outdoor lighting" sets maximum vertical plane illuminance (lux) levels for various environmental zones based upon varying sensitivity in different zones and ambient lighting environments.

Table 3.1 of AS/NZS 4282:2019 defines environmental zones, with the subject land and surrounding uses best defined as Zone A1 (Dark), as follows:

TABLE 3.1

ENVIRONMENTAL ZONES

Zones	Description	Examples
A0	Intrinsically dark	UNESCO Starlight Reserve. IDA Dark Sky Parks. Major optical observatories No road lighting -unless specifically required by the road controlling authority
A1	Dark	Relatively uninhabited rural areas No road lighting - unless specifically required by the road controlling authority
A2	Low district brightness	Sparsely inhabited rural and semi-rural areas
A3	Medium district brightness	Suburban areas in towns and cities
A4	High district brightness	Town and city centres and other commercial areas Residential areas abutting commercial areas
TV	High district brightness	Vicinity of major sports stadium during TV broadcasts
V	Residences near traffic routes	Refer AS/NZS1158.1.1
R1	Residences near local roads with significant setback	Refer AS/NZS 1158.3.1
R2	Residences near local roads	Refer AS/NZS 1158.3.1
R3	Residences near a roundabout or local area traffic management device	Refer AS/NZS 1158.3.1
RX	Residences near a pedestrian crossing	Refer AS/NZS 1158.4

Table 3.2 of AS/NZS 4282:2019 sets a 'curfewed hours'[17] maximum design value for vertical plane illuminance (EV) of 0.1 lux for Environmental Zone A1, as follows:

[17] Nominally 11pm to 6am

TABLE 3.2

MAXIMUM VALUES OF LIGHT TECHNICAL PARAMETERS

Zones	Vertical illuminance levels (E_v) lx		Threshold increment (TI)		Sky glow
	Non-curfew	Curfew	%	Default adaptation level (L_{ad})	Upward light ratio
A0	See Note 1	0	N/A	N/A	0
A1	2	0.1	N/A	N/A	0
A2	5	1	20%	0.2	0.01
A3	10	2	20%	1	0.02
A4	25	5	20%	5	0.03
TV	See Table 3.4	N/A	20%	10	0.08
V	N/A	4	Note 2	Note 2	Note 2
R1	N/A	1	20%	0.1	Note 3
R2	N/A	2	20%	0.1	Note 3
R3	N/A	4	20%	0.1	Note 3
RX	N/A	4	20%	5	Note 4

Thus, vertical plane illuminance (e.g. illumination of a habitable room façade) of less than or equivalent to 0.1 lux is deemed to be acceptable.

The selection of luminaires with appropriate directional controls, use of glare shields and orientation and aiming of lights downwards will control glare and can readily achieve acceptable outcomes in terms of controlling visible glare viewed from external the site.

Screening via landscaping and vegetation further reduces potential lighting amenity impacts.

6.2 LIGHTING DESIGN

There is no detailed lighting design for the proposed development at this point in time. Experience dictates that for a tourist park use, the minimum amount of site lighting will be employed to provide adequate wayfinding and security and to limit lighting such that the camping/accommodation experience is not adversely affected by artificial lighting.

The site lighting will likely require installation of low height pole mounted lights on internal driveways, bollard style lighting for pedestrian pathways and low level lighting around buildings including the amenities and camp kitchen areas. Each cabin will likely have external lighting to entry areas with the reception/administration building also having external lighting to entry/exit points and the externa deck and terrace areas.

To maintain the guests experience, lighting will not involve tall floodlights rather, directional luminaires fitted with glare shields will be employed on low mounting heights to provide distributed non-obtrusive lighting throughout the site.

Lighting to common areas such as multi-court, tennis court and central facilities areas will be to meet Australian Standard requirements for wayfinding and safety but not to provide highly lit areas that would be out of character with the local environment.

It is our experience that suitable site lighting can be designed and installed to provide adequate lighting on the site but to prevent light spill beyond the boundary of the land and to prevent visible glare of unacceptable brightness when viewed from beyond the land.

Compliance with the illuminance criterion of AS4282 to achieve non-curfew 2 lux and post curfew 0.1 lux is readily achievable on this site given the size of the site and buffering between internal use areas and the site boundaries.

The above design considerations will also ensure that any artificial lighting on the site is contained and will not spill nor cause adverse glare to any surrounding ecologically sensitive areas. This is readily achieved by appropriate placement and orientation of site lighting, minimising mounting heights, using directional luminaires and glare shields and screening provided by landscape vegetation and any fencing.

On the basis of the above it is concluded that that fixed lighting can be readily designed and fitted with appropriate illumination control measures to manage lighting levels to comply with statutory requirements.

It is recommended that an appropriate condition be included in the development approval requiring that fixed lighting be designed and certified to comply with the requirements of AS/NZS 4282:2019.

7.0 CONCLUSION

The updated assessment undertaken has demonstrated that the proposed use will not result in adverse noise amenity impacts at surrounding dwellings on the basis of the implementation of the recommended noise mitigation measures:

The assessment also demonstrates that noise impact from surrounding farming activities will not result in nuisance at the facility nor be a cause for valid complaint and reverse amenity impacts.

Air quality impacts of agricultural farming activities will not result in adverse impact upon facility nor be a cause for valid compliant and reverse amenity impacts.

The site is suitably buffered from existing agricultural uses by distance, intervening vegetation and provision of vegetated areas along the western boundary of the land, as shown on the Masterplan will also assist in providing a comprehensive buffer to agricultural uses.

Air quality impact of the use upon surrounding land uses will be negligible.

Site lighting can be designed, installed and operated such that no adverse impact will occur upon off-site sensitive receptors and ecologically sensitive areas.

It is our conclusion that the proposed Tourist Park use will not result in adverse amenity impacts and similarly will not experience adverse amenity impacts from surrounding rural uses.

It is recommended that the proposal be approved with reasonable and relevant amenity conditions.

MWA Environmental
19 August 2025

FIGURES

LEGEND

SITE LOCATION

DRAWING REFERENCE
© THE STATE OF QUEENSLAND (DEPARTMENT OF RESOURCES) QLDGLOBE.

0 200 400 600m

CLIENT
COMISKEY MANAGEMENT SERVICES PTY LTD

PROJECT
NOISE IMPACT ASSESSMENT
COOCHIN CREEK ECO PARK
1807 ROYS ROAD
COOCHIN CREEK QLD

TITLE
SITE LOCATION AND SURROUNDING LAND USES

JOB	COOCHIN CREEK	**FIGURE 1**
JOB NO.	21-197	DWG NUMBER
DATE	26/07/24	**21-197-1**
SCALE	1:20000 (A4)	

Max Winders & Associates Pty Ltd tas MWA Environmental
Level 15, 241 Adelaide St, Brisbane. GPO BOX 3137, Brisbane Qld 4001
P 07 3002 5500 F 07 3002 5588 E mail@mwaenviro.com.au
W www.mwaenviro.com.au
ABN 94 010 833 084

LEGEND

- SITE LOCATION
- NEAREST RESIDENCES

DRAWING REFERENCES

- © THE STATE OF QUEENSLAND (DEPARTMENT OF RESOURCES) QLDGLOBE.
- CUSP (QLD) PTY LTD, COOCHIN ECO-RESORT - DA PLAN - 11/06/24.

N

0 50 100 150 200m

CLIENT

COMISKEY MANAGEMENT SERVICES PTY LTD

PROJECT

NOISE IMPACT ASSESSMENT

COOCHIN CREEK ECO PARK
1807 ROYS ROAD
COOCHIN CREEK QLD

TITLE

SENSITIVE RECEPTOR LOCATIONS

JOB	COOCHIN CREEK	**FIGURE 2**
JOB NO.	21-CCNIA	DWG NUMBER
DATE	26/07/24	**21-CCNIA-2**
SCALE	1:7500 (A4)	

mwa ENVIRONMENTAL

Max Winders & Associates Pty Ltd tas MWA Environmental
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W www.mwaenviro.com.au
ABN 94 010 833 084

LEGEND

- SITE LOCATION
- EXISTING VEGETATION AREAS
- PROPOSED VEGETATION AREAS NEAR WESTERN SITE BOUNDARY

DRAWING REFERENCES

- © THE STATE OF QUEENSLAND (DEPARTMENT OF RESOURCES) QLDGLOBE.
- CUSP (QLD) PTY LTD, COOCHIN ECO-RESORT - DA PLAN - 11/06/24.

N

0 50 100 150 200m

CLIENT

COMISKEY MANAGEMENT SERVICES PTY LTD

PROJECT

NOISE IMPACT ASSESSMENT

COOCHIN CREEK ECO PARK
1807 ROYS ROAD
COOCHIN CREEK QLD

TITLE

AGRICULTURAL BUFFERS

JOB	COOCHIN CREEK	FIGURE 3
JOB NO.	21-CCNIA	DWG NUMBER
DATE	05/08/24	21-CCNIA-3
SCALE	1:7500 (A4)	

mwa ENVIRONMENTAL

Max Winders & Associates Pty Ltd tas MWA Environmental
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P 07 3002 5500 F 07 3002 5588 E mail@mwaenviro.com.au
W www.mwaenviro.com.au
ABN 94 010 833 084

Attachment 1

Proposed Development Plan

REAL PROPERTY DESCRIPTION
LOTS: 10 ON SP132272 AND 6 ON SP184133

SITE AREA:
LOT 10 - 26,410 m2
LOT 6 - 404, 700 m2
LOCAL AUTHORITY: S.C REGIONAL COUNCIL

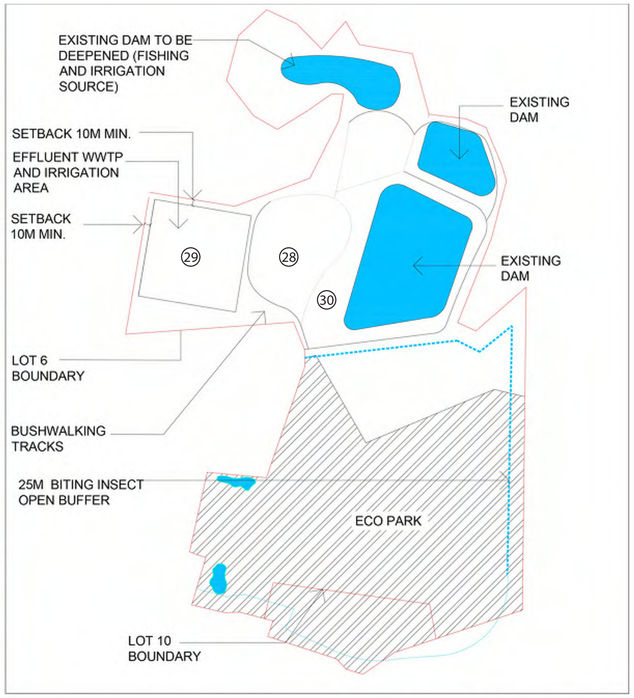
MAPPED WETLAND AREA

PUMICESTONE PASSAGE

HAT 40M OFFSET

BITING INSECT BUFFER (25M FROM MANGROVE)

MHWS



OVERALL SITE PLAN 1:5000

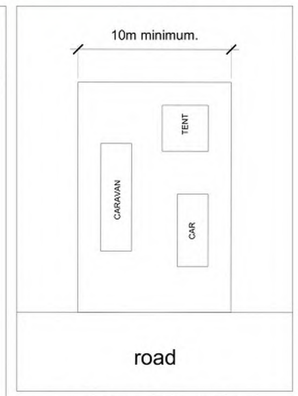
LEGEND

Sites - 75
Cabins - 75 (one uncovered car space per cabin (minimum)

- 3 bed x 38 no.
- 2 bed x 27 no.
- 1 bed x 10 no.

TOTAL SITES = 150 NO.
Caretakers House x 1 no.

1. Reception centre (1000 m2)
2. Pool
3. Waterplay park
4. Playground
5. Indoor recreation
6. Putt putt
7. Jumping pillow
8. Basketball
9. Tennis
10. Pickleball
11. Camp kitchen
12. Amenities with laundry/drying area
13. Amenities
14. Laundry
15. BOH
16. Section of Existing Dam to be retained
17. Drainage Corridor (min. 10m width)
18. Boomgate
19. Service road
20. Maintenance/Cleaning/Storage Sheds
21. Carparking with 2 No. PWDs
22. Temporary layby parking
23. Drainage easement
24. Managers residence with covered carpark
25. 3m wide vegetated buffer
26. Walking Track/Firebreak Trail
27. 8m wide access driveway to Roys Road withing EMT 8 on SP106174
28. Emergency helicopter landing area
29. Wastewater treatment plant and irrigation area
30. Potable water treatment plant
31. Existing jetty
32. Existing boat launching areas



Typical arrangement on minimum width camping site

- Existing tree
- Culvert crossing
- Pathways

FOR APPROVAL

cusp
COMISKEY GROUP

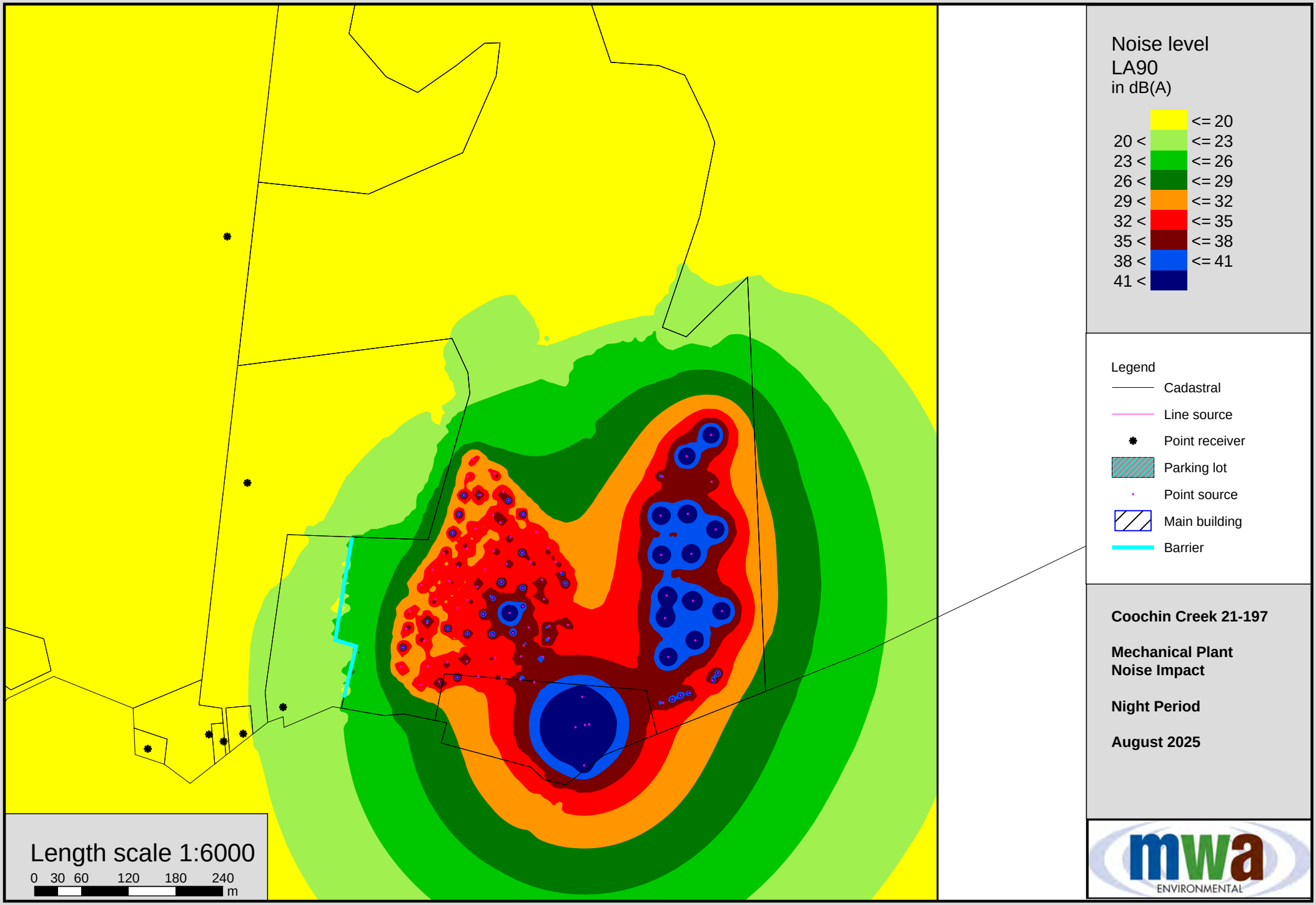
COOCHIN ECO-RESORT - DA PLAN - 14/08/25

Scale 1:1000 @ A1

10m 20m 80m 100m

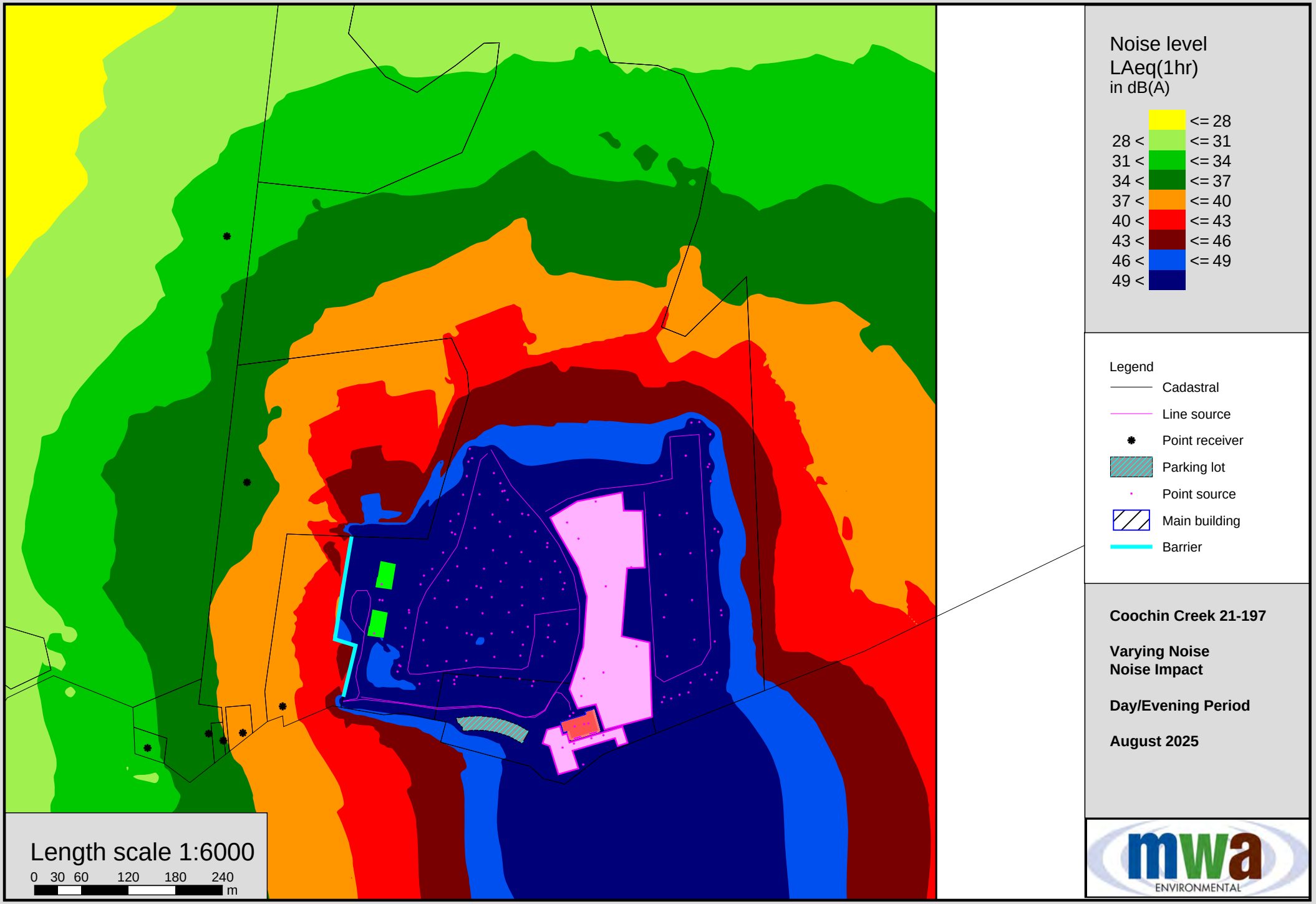
Attachment 2

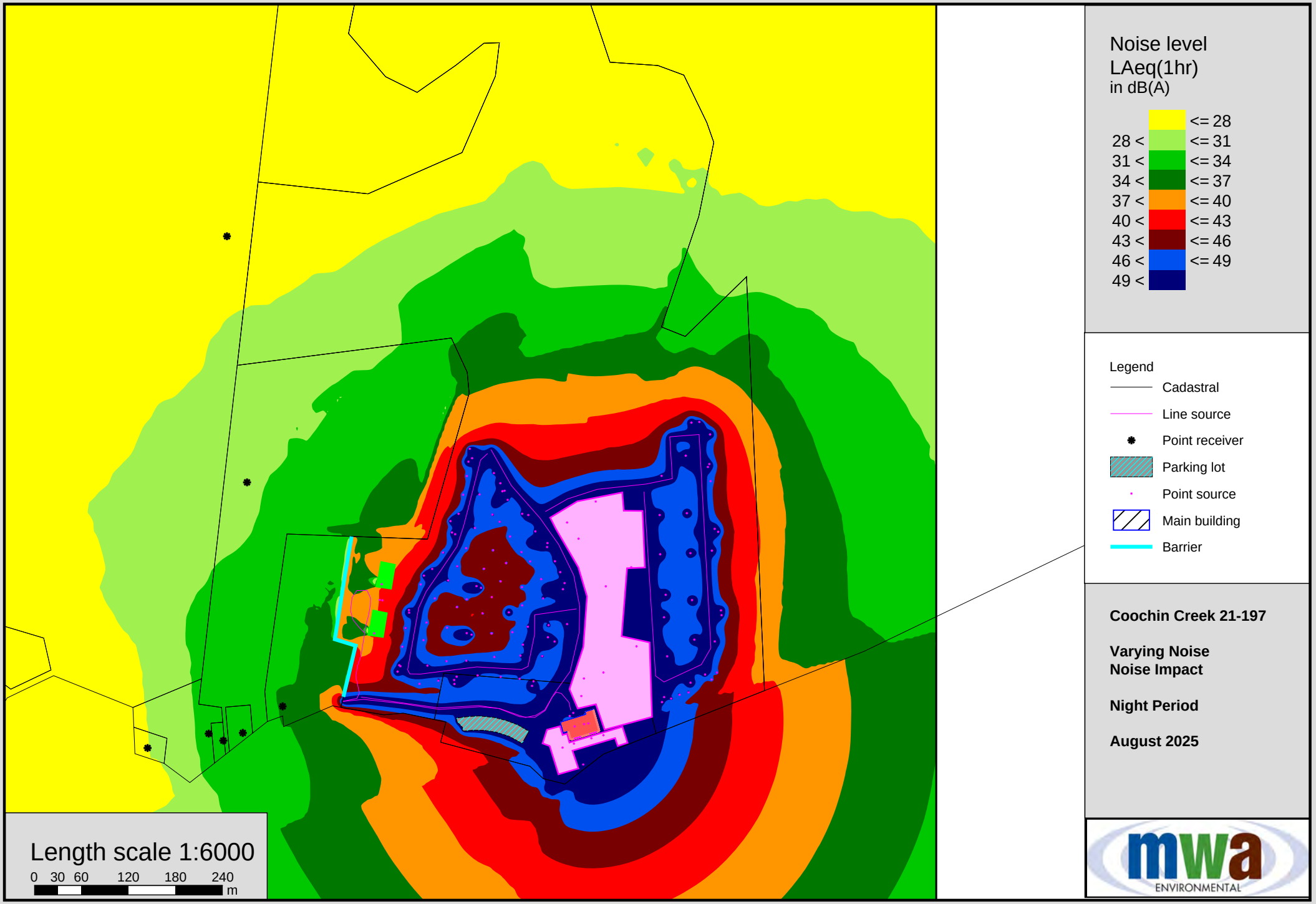
Mechanical Plant Noise Contour Plot

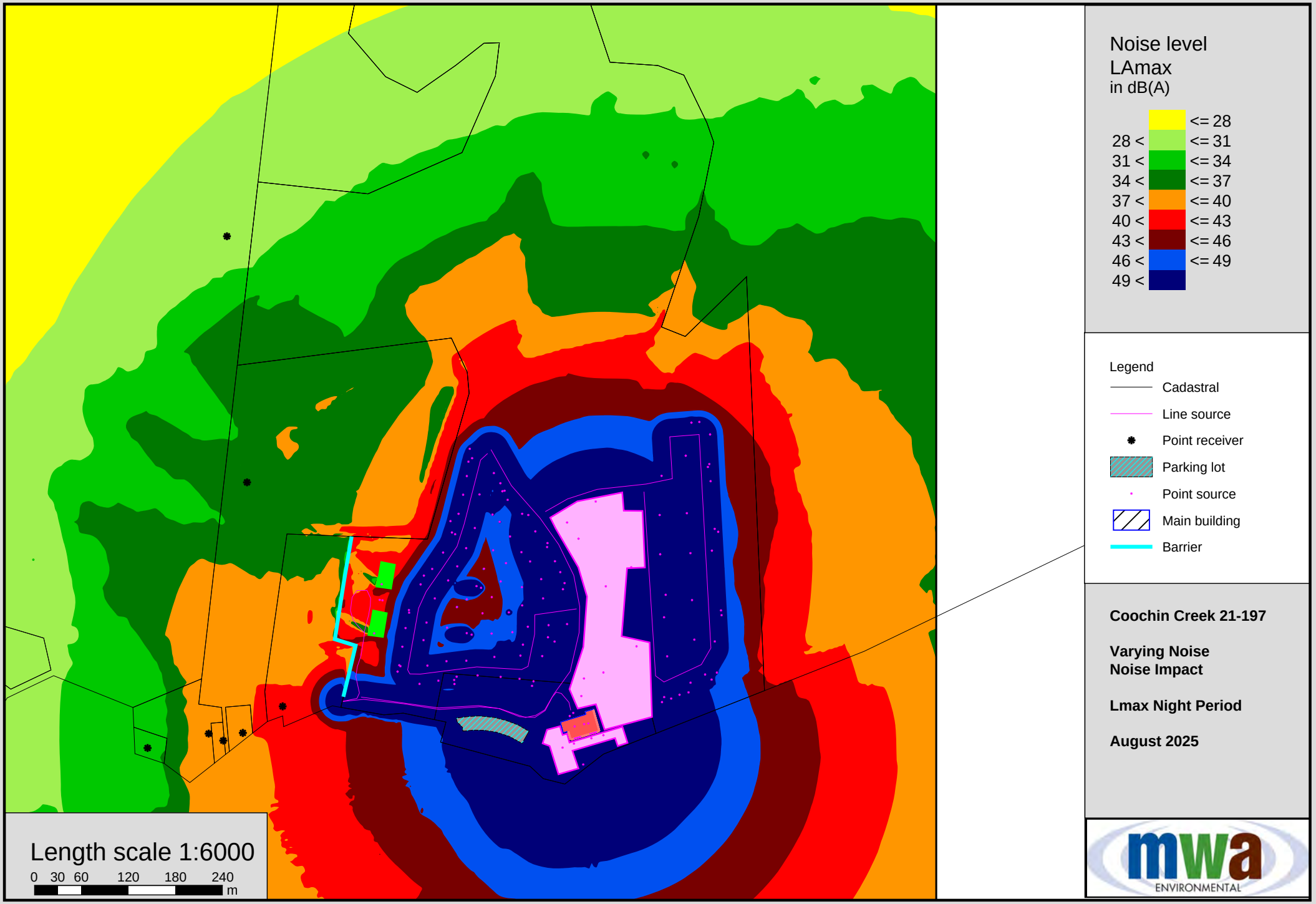

Noise level
LA90
in dB(A)
<= 20
20 < <= 23
23 < <= 26
26 < <= 29
29 < <= 32
32 < <= 35
35 < <= 38
38 < <= 41
41 <
Legend
Cadastral
Line source
Point receiver
Parking lot
Point source
Main building
Barrier
Coochin Creek 21-197
Mechanical Plant
Noise Impact
Night Period
August 2025
Length scale 1:6000
0 30 60 120 180 240
m
mwa
ENVIRONMENTAL

Attachment 3

Time Varying Noise Contour Plots

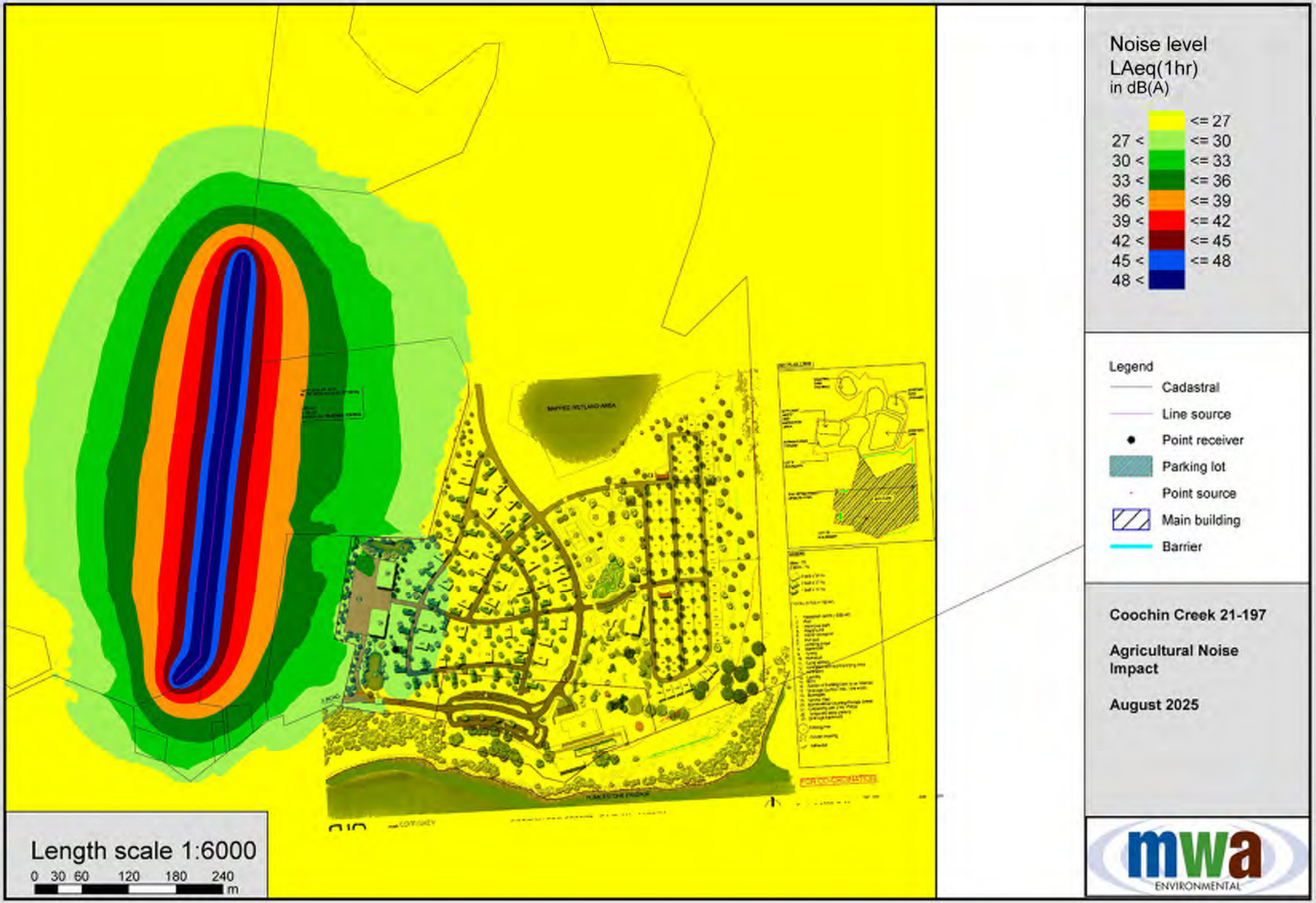

Noise level
LAeq(1hr)
in dB(A)
<= 28
28 < <= 31
31 < <= 34
34 < <= 37
37 < <= 40
40 < <= 43
43 < <= 46
46 < <= 49
49 <
Legend
Cadastral
Line source
Point receiver
Parking lot
Point source
Main building
Barrier
Length scale 1:6000
0 30 60 120 180 240
m
Coochin Creek 21-197
Varying Noise
Noise Impact
Day/Evening Period
August 2025
mwa
ENVIRONMENTAL


Noise level
LAeq(1hr)
in dB(A)
<= 28
28 < <= 31
31 < <= 34
34 < <= 37
37 < <= 40
40 < <= 43
43 < <= 46
46 < <= 49
49 <
Legend
Cadastral
Line source
Point receiver
Parking lot
Point source
Main building
Barrier
Coochin Creek 21-197
Varying Noise
Noise Impact
Night Period
August 2025
Length scale 1:6000
0 30 60 120 180 240
m
mwa
ENVIRONMENTAL


Noise level
LAmax
in dB(A)
<= 28
28 < <= 31
31 < <= 34
34 < <= 37
37 < <= 40
40 < <= 43
43 < <= 46
46 < <= 49
49 <
Legend
Cadastral
Line source
Point receiver
Parking lot
Point source
Main building
Barrier
Coochin Creek 21-197
Varying Noise
Noise Impact
Lmax Night Period
August 2025
Length scale 1:6000
0 30 60 120 180 240
m
mwa
ENVIRONMENTAL

Attachment 4

Agricultural Noise Contour Plot


Noise level
LAeq(1hr)
in dB(A)
<= 27
27 < <= 30
30 < <= 33
33 < <= 36
36 < <= 39
39 < <= 42
42 < <= 45
45 < <= 48
48 <
Legend
Cadastral
Line source
Point receiver
Parking lot
Point source
Main building
Barrier
Coochin Creek 21-197
Agricultural Noise Impact
August 2025
Length scale 1:6000
0 30 60 120 180 240
m
mwa
ENVIRONMENTAL

N

0 10 20 40 60 80

Meters

Legend

Vehicular Access
(no planting required in these areas)

Wetland Boundary Fence
(fence, bollard or similar to preventvehicular aceess)

Buffer Planting Rows

Buffer Planting

Site Boundary

Zone

12.3.11

12.3.6

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Design: AD	Date:28/11/2023
Drawn: AD	Date: 28/11/2023
Checked: AD	Date: 28/11/2023

CLIENT:
Sunshine Coast Regional Council

PROJECT:
1807 Roys Road Revegetation

DRAWING TITLE:

Drawing Status:

Drawing No.	Datum: GDA	
	Sheet Size A3	
Council Ref	Revision E	SHEET 1 of 2

REHABILITATION SPECIFICATIONS

1. INITIAL SITE MANAGEMENT

All gross pollutants and non-endemic debris such as plastics, building materials and dumped exotic vegetative matter within the rehabilitation area comprised of Zone 1 and Zone 2 (**Rehabilitation Area**) are to be removed and disposed of appropriately.. A contractor and a suitably qualified ecologist are to be engaged to carry out the restoration of the Rehabilitation Area in accordance with this document. The proposed contractor and ecologist are to be agreed by the Council, acting reasonably, prior to them being engaged.

2. IDENTIFICATION OF WEED SPECIES

All exotic flora growing in the Rehabilitation Area shall be identified by the ecologist for treatment. Special attention is required for the detection of:

- invasive plants under the *Biosecurity Act 2014* (Qld);
- weed grasses;
- environmental weeds and species with restrictions within the local government area.

3. METHODS OF WEED CONTROL

All declared weeds and weeds determined by the ecologist to present a danger to initial plant establishment are to be removed prior to planting of the Rehabilitation Area. Treatment of weeds is to be undertaken using best horticultural practices that ensure natural regeneration is protected and minimal soil disturbance occurs, avoiding increased erosion potential. When chemicals are to be used, the manufacturers' instructions for those chemicals are to be adhered to. Initial use of herbicides is to occur 2-3 weeks prior to planting of native tubestock. All noxious weed seed material shall be collected, removed from site and disposed of at an appropriate Council refuse facility.

4. EROSION CONTROL

The site is to be maintained so that no areas of erosion greater than $2m^2$ are evident.

Physical erosion control methods are to be in accordance with *Soil Erosion and Sediment Control' – Engineering Guidelines for Queensland Construction Sites – June 1996*.

Following initial weed treatment and removal, All zones are to be blanket covered with mulch of well-composted forest blend to a depth of at least 100-150mm. Imported mulch is to be free of weed material and foreign debris. Mulch from Council refuse centres is not suitable.

5. REVEGETATION

The Rehabilitation Area is to be planted by randomly arranged seedlings of the species and proportions listed in the Plant Schedule across the entire rehabilitation area. All individuals planted are to be sun-hardened '50 – 125mm native tubestock' with a minimum height of 200mm. Only healthy stock that is not root bound or underdeveloped are to be used.

Planting densities for both Zone 1 and Zone 2 of the Rehabilitation Area are as follows:

- canopy trees – 3 metre centres;
- shrub layer – 2 metre centres;
- ground layer – 1 metre centres.

Overall coverage is to maintain plants at 1m centres across the entire rehabilitation area.

6. INITIAL WATERING

Each plant is to be watered with a minimum of 5 – 10 litres of water at the time of planting.

All seedlings are to be watered on a weekly basis for the first 6 weeks and then monthly for at least 6 months. Watering should continue as required to maintain healthy plants in the densities prescribed in Section 5 (Revegetation) for the duration of the on-maintenance period.

7. MAINTENANCE

On the completion of the planting of the Rehabilitation Area in accordance with section 5 (Revegetation), the Rehabilitation Area is to remain on maintenance for 5 years or until the performance criteria in Section 8 (Monitoring) are achieved, whichever is the longer.

The contractor is to conduct maintenance within the rehabilitation area at the following frequencies:

- weekly for the first 6 weeks;
- monthly for the first 12 months;
- every 4 months for years 2 – 4;
- yearly up until 5 years post planting.

Maintenance actions (during the on maintenance period):

- suppression of all environmental and declared weeds so they do not affect rehabilitation success;
- maintain a weed free zone for a radius if 500mm from individual planted stock;
- apply mulch as required to suppress weeds and maintain healthy planted stock;
- replant lost tubestock to maintain densities; prescribed in Section 5 (Revegetation) at proportions detailed in the Plant Schedule.

8. MONITORING

The Rehabilitation Area is to achieve the benchmarks provided in Tables 1 and 2, below.

Table 1: Establishment Performance Criteria

PARAMETER (Post Planting)	6 mths min	12 mths min	24 mths min
Mortality	< 5%	<10%	<10%
Height[1] (Tree Species)	>500mm	>900 mm	>1800mm

1. Height = more than 80% of trees in plot to attain height.

Table 2: On-Maintenance Performance Criteria

PARAMETER[1] (Post Planting)	2 YEARS	3 YEARS	5 YEARS
Canopy Cover (% Preclear)	>20%	>30%	>50%
Canopy Height (% Preclear)	>10%	>20%	>40%

1. As described in Herbarium RE Technical descriptions: REDD v11.

Monitoring of the Rehabilitation Area is to be conducted by the ecologist and reported to the contractor. The contractor is responsible for keeping monitoring records for the duration of the on-maintenance period and providing them to Council upon request. The contractor is to rectify non-compliant benchmarks specified in Tables 1 and 2.

PLANT SCHEDULE

Zone 1 (Open Forest - RE 12.3.6)

Trees	%
Eucalyptus tereticornis	10
Eucalyptus microcorys	10
Corymbia intermedia	10
Lophostemon suaveolens	10
Melaleuca quinquenervia	30
Allocasuarina litoralis	10
Banksia oblonigfolia	10
Glochidion sumatranum	10

Upper Shrubs / Lower Tree	
Melaleuca quinquenervia	10
Allocasuarina litoralis	10
Lophostemon suaveolens	10
Alphitonia excelsa	10
Leptospermum polygalifolium	10
Acacia leiocalyx	10
Commersonia bartramia	10
Livistona decora	10
Melaleuca linariifolia	10
Polyscia elegans	10

Lower Shrub	
Melastoma malabathricum	40
Trema tomentosa	20
Banksia robur	40

Ground Cover	
Themeda triandra	10
Capillipedium spicigerum	10
Entolasia stricta	10
Pteridium esculentum	10
Lomandra longifolia	10
Dianella caerulea	10
Lomandra multiflora	10
Alloteropsis semialata	10
Gahnia aspera	10
Juncus usitatus	10

Zone 2 (Open forest – RE 12.3.11)

Trees	%
Eucalyptus tereticornis	10
Eucalyptus tindaliae	10
Corymbia intermedia	10
Lophostemon suaveolens	10
Melaleuca quinquenervia	30
Corymbia tessellaris	10
Corymbia citriodora	10
Eucalyptus siderophloia	10

Upper Shrubs / Lower Tree	
Melaleuca quinquenervia	10
Allocasuarina litoralis	10
Lophostemon suaveolens	10
Banksia integrifolia	10
Allocasuarina litorials	10
Leptospermum polygalifolium	10
Alphitonia excelsa	10
Trema tomentosa	10
Melaleuca linariifolia	10
Myrsine variable	10

Lower Shrub	
Trema tomentosa	40
Breynia oblongifolia	20
Clerodendrum floribundum	20
Pittosporum revolutum	20

Ground Cover	
Themeda triandra	10
Capillipedium spicigerum	10
Entolasia stricta	10
Pteridium esculentum	10
Dianella caerulea	10
Lomandra confertifolia	10
Alloteropsis semialata	10
Gahnia aspera	10
Cymbopogon refractus	10
Lepidosperma laterale	10

REV	DATE	By	CHKD
AD	22/03/23	AD	AD
AD1	11/07/23	AD	AD

LEGEND

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referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

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Report

Client: Comiskey Group Pty Ltd

Project: Stormwater Management Plan

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1 INTRODUCTION

This Stormwater Management Plan (SMP) contains information regarding the stormwater management strategies for the proposed Holiday Resort at 1807 Roys Road, Coochin Creek. Stormwater management strategies have been developed to support a combined application of Material Change of Use (MCU) and Operational Works (OPW). This SMP refers to the stormwater quality management strategies proposed for the site in its entirety.

The Sunshine Coast Council (SCC) Planning Scheme Policy for Development Works states that a new development should avoid or minimise adverse impacts on stormwater quality. As such, SCC requires that stormwater runoff be suitably managed prior to discharge from the site. The Queensland State Planning Policy (SPP, 2017) also requires that development projects demonstrate how the potential impacts of stormwater runoff to receiving environments are mitigated and nominates the most current pollutant load reduction targets. Further, an assessment is undertaken to analyse the conveyance of upstream and on-site stormwater runoff.

2 SITE DESCRIPTION

2.1 Site Location

The proposed development site is located at 1807 Roys Road, Coochin Creek. The real property description is Lot 6 SP 184133 and Lot 10 SP 132272.

The proposed development site is approximately 43.1 ha in area and is bound by the Pumicestone Passage to the south, agriculture lots to the west, and low lying vegetation to the north and east (refer to Figure 2-1).

A Site Plan is presented in Appendix A which provides further details on the proposed development.

Figure 2-1 Site Locality (image courtesy of Nearmap)

2.2 Previous Land-use, Topography and Drainage

The site is presently comprised of two large agricultural lots, containing agricultural land, rural driveways, and existing buildings. The southern portion of the site has a high point in the centre (near the existing access road through the site), and the site drains towards the property boundaries on all sides, with elevations ranging from 5.42 m AHD to 1.37 m AHD. The northern portion of the site drains from north-west to south-east.

External catchments to the west discharge into the existing dams adjacent the western property boundary and drain through existing channels and waterbodies on site. The discharge location is to the southwestern corner of the site and directly into Pumicestone Passage. The eastern portion of the site discharges to the east and connects with external catchments, ultimately, draining to the Pumicestone Passage via overland flow.

2.3 Proposed Land-use

A holiday resort eco-park development is proposed in the southern portion of the site. The proposed development consists of cabins to the west, camping and caravan sites to the east, and additional buildings, recreational developments, access driveways, car parking and associated infrastructure (i.e., roads and concrete pathways). See Figure 2-2 and Appendix A for more details.

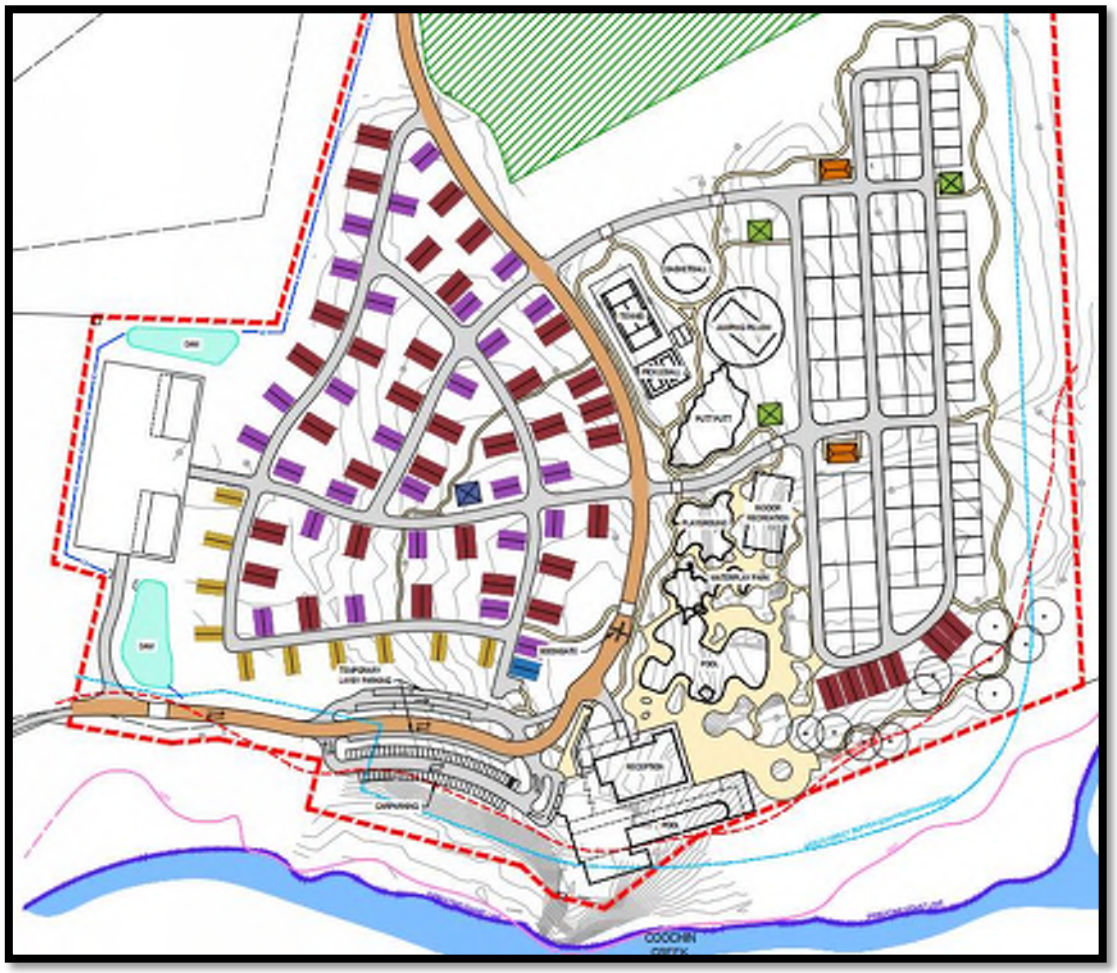

Figure 2-2 Plan of Proposed Development

3 STORMWATER QUANTITY

The proposed stormwater quantity management strategy for this site ensures appropriate design standards are utilised and overland flow paths can adequately convey the proposed development catchment areas. Development of the site will result in a minor increase in impervious area and a corresponding minor increase in peak stormwater runoff rates. However, as the development site is located immediately adjacent to an existing waterway (i.e., the Pumicestone Passage) on-site detention is not required as attenuating the peak flows from the development is likely to increase the peak flows for the overall catchment draining to the river, causing coincidental peak flows. Rather, this analysis ensures that any on-site or external stormwater runoff is adequately conveyed through the site prior to the regional peak flow occurring. The proposed development site has been analyzed for the 1%, 10% and 50% Annual Exceedance Probability (AEP) events. The 1% AEP climate change (+20% increase in rainfall intensity) was also considered in the analysis.

A number of existing man-made channels are present on the site and the development proposes works in the vicinity of these channels. The following sections of the report detail the analysis of the existing and proposed stormwater channels. Refer to the Engineering Plans in Appendix A for further detail.

3.1 Modelling Process

An analysis of the stormwater required for the site, involved the following processes:

- Determining the catchment areas contributing to flow from the proposed development site including external upstream catchments;
- Calculating the design event peak discharges using ensemble storm hydrological modelling; and
- Hydraulic modelling using DRAINS for the design events to demonstrate that peak discharges can be conveyed through the site.

3.2 Hydrology

To determine the peak discharges for the site the hydrological modelling used the ensemble storms as per the Australian Rainfall and Runoff (ARR, 2019) procedures using the RAFTS hydrology model with the DRAINS software package.

3.3 DRAINS Data

3.3.1 Model Scenarios

The post-development scenario for the design rainfall events were modelled in DRAINS to determine the peak stormwater flows for the site.

3.3.2 Catchment Areas

The total catchment area has been modelled as 11 sub-catchments. Refer to Figure 3-1 for the 11 stormwater quantity sub-catchment boundaries and Table 3-1 for the sub-catchment parameters.

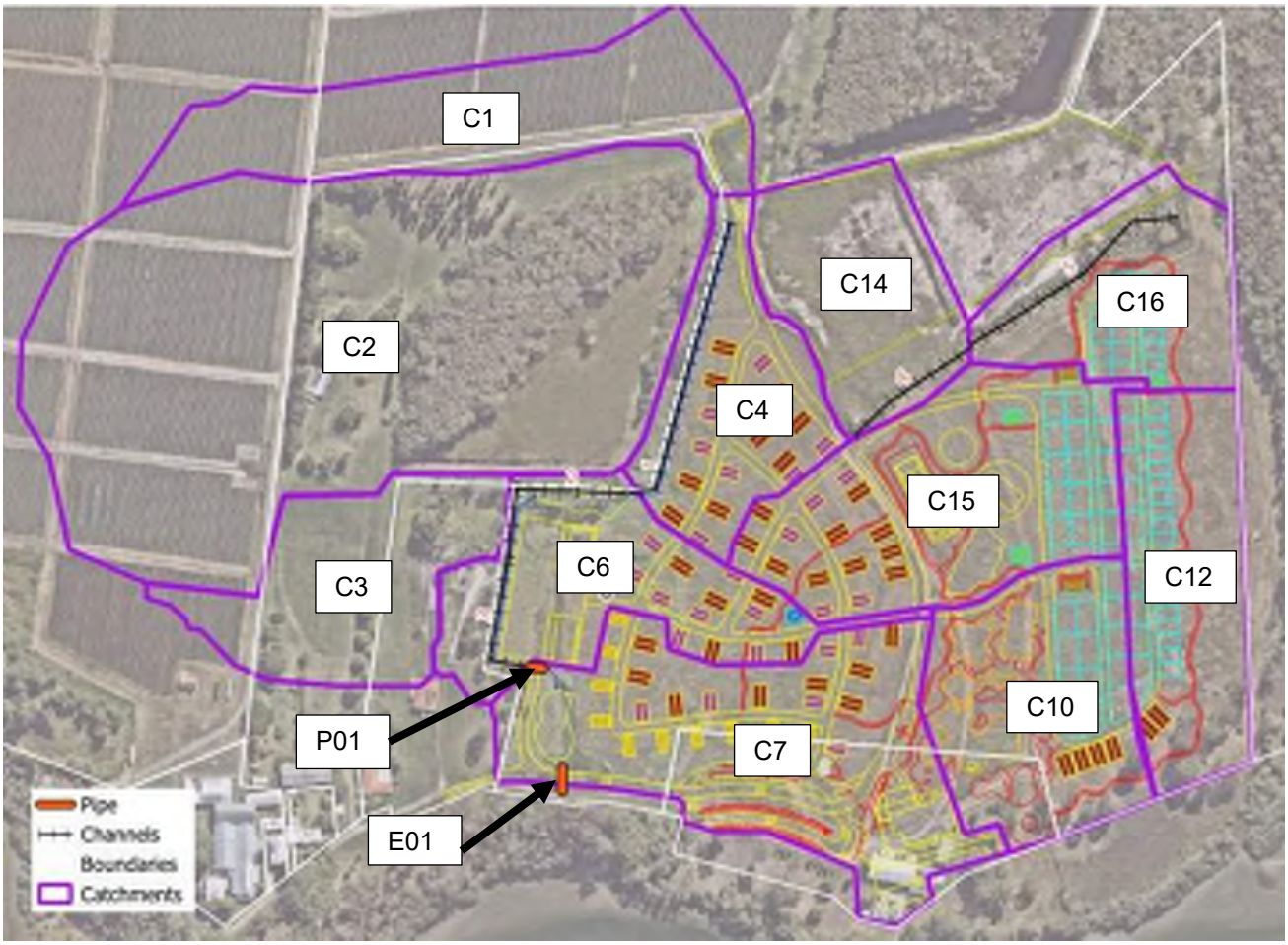

Figure 3-1 Stormwater Sub-catchments Modelled in DRAINS (for Water Quantity)

3.3.3 Temporal Patterns, Rainfall Intensities and Rainfall Losses

The rainfall temporal pattern adopted for the flood modelling were sourced from ARR 2019. The rainfall intensities used in DRAINS are typical to Coochin Creek and were generated from the Bureau of Meteorology's online IFD data website. The IFD data is provided in Appendix C.

Rainfall Losses have been sourced from Australian Rainfall and Runoff Data Hub and are relevant to Coochin Creek.

All standard durations between 10 and 720 minutes were reviewed for the purpose of the modelling. It was determined the critical durations occurred during the 15-minute and 180-minute durations.

3.3.4 Impervious Areas

The fraction of impervious areas for each sub-catchment in the development are detailed in Table 3-1.

Table 3-1 Catchment Parameters

Sub-catchment ID	Area (ha)	Fraction Impervious (%)	Slope (%)
1	3.038	0	1
2	10.819	16	2
3	2.262	5	2.5
4	2.056	40	1
6	2.487	70	0.5
7	4.239	40	0.5
10	2.561	30	1
12	2.317	10	1
14	2.004	0	1.5
15	3.482	30	1
16	2.037	10	0.5

3.3.5 Manning's n Values

Manning's n values for the catchments varied due to the differing catchment characteristics / land uses and were applied independently to the catchment. The values that were adopted are follows:

- Pervious Area, n = 0.025; and
- Impervious Area, n = 0.018.

Manning's n values that were adopted for the existing and proposed channels are defined below:

- Grassed channel base and sides, n = 0.04 and
- Channel overbank, n = 0.03.

The locations of the grassed channels are demonstrated in the engineering plans in Appendix A.

3.3.6 Catchment Slope

The Equal Area method was used to determine the catchment slope.

3.3.7 Model Validation

The Sunshine Coast Council modified rational method was used to validate the results from the hydrological model. Results were compared to the north-eastern outlet location which comprised Catchments 14 to 16. The results from the validation are shown in Table 3-2 and Table 3-3. The validation has demonstrated that the DRAINS model 1% AEP results differ by only 15%, which is considered acceptable for this comparison.

Table 3-2 Rational Method Results

AEP	63.2%	50%	39%	20%	10%	5%	2%	1%
Intensity (mm/h)	57	64	70	86	101	115	134	148
Fy	0.9	0.918	0.925	0.975	1.00	1.025	1.075	1.1
C	0.720	0.734	0.740	0.780	0.800	0.820	0.860	0.880
Q (m3/s)	0.861	0.986	1.08	1.41	1.69	1.98	2.41	2.73
Q (2100)	1.03	1.18	1.30	1.69	2.03	2.37	2.89	3.28
	ToC	33	mins	**Area**	0.07523	km^2	**C10**	0.80

Table 3-3 Model Validation Results for Catchments 14 to 16

AEP	Rational Peak Flow (m3/s)	DRAINS Peak Flow (m3/s)	Difference
50%	0.986	0.84	-18%
10%	1.687	1.87	10%
1%	2.730	3.22	15%

3.3.8 Stormwater culverts

The following culverts were included in the model (as shown in Figure 3-1):

- Pipe P01 – 2 x 900 mm dia. RCP at 0.5% grade
- Pipe E01 – 2 x 900 mm dia. RCP at 0.5% grade

Any changes to the proposed layout will require a review of the proposed channel and culvert designs.

3.3.9 Modelling Assumptions

The following assumptions were incorporated in the modelling process:

- A constant downstream tailwater level was applied to all outlets, during the 1% AEP event, equivalent to the highest astronomical tide (HAT) with an additional 500 mm for climate change considerations, which was to R.L 1.93 m AHD.

3.4 Results

All channels in the eastern portion of the site demonstrated capacity to manage the 1% AEP Climate Change storm event. The proposed and existing channels in the western portion of the site (Channels CH1 to CH3) had adequate capacity for the 10% AEP. Pipe E01 had an immunity up to the 1% AEP climate change event. Pipe P01 had a 50% AEP immunity. Above a 50% AEP event, stormwater overtopped the road crossing above pipe P01, however, the depth x velocity (dV) in this location was a maximum of 0.13 m^2/s, which is acceptable.

For the 1% AEP climate change event, the maximum water surface level within the channels in the western portion of the site was R.L 3.28m. Therefore, to maintain a minimum of 300 mm freeboard to Class 1 habitable buildings (i.e. cabins) in this area, the minimum recommended floor level is R.L 3.58, which has been achieved.

Therefore, the proposed and existing channels adequately convey both on-site and upstream external stormwater catchments.

3.5 Frequent Flow Management

Due to the site's proximity to an existing mapped wetland, the development is required to maintain pre-development low flow discharges regimes. To achieve this, the stormwater quality treatment train includes pipeless bioretention basins which infiltrate stormwater into the in-situ soil (see Section 4.3.3). This type of bioretention basin is effective in mitigating potential increases in low flow discharges due to the development's increase in impervious area.

4 STORMWATER QUALITY

This section of this SMP demonstrates how the proposed stormwater quality management strategy complies with the requirements to protect the High Ecological Value (HEV) receiving environment (Pumicestone Passage), the objectives of the State Planning Policy (SPP) and those of the SCC in terms of demonstrating how the relevant stormwater pollutant reduction objectives will be met. SCC require the stormwater runoff to be managed by the non-worsening approach since the receiving environment is an ecologically sensitive waterway. This means that the pollutant loads from future development must be equal to or less than those from the existing land use.

Stormwater runoff generated from the site must achieve the pollutant reduction targets required under the *State Planning Policy* (SPP, 2017) and the *Sunshine Coast Council's Planning Scheme* (SCC, 2014). These targets are listed in Table 4-1.

Table 4-1 Pollutant Reduction Targets

Pollutant Type	Reduction Targets
Total Suspended Solids (TSS)	Non-worsening approach – meaning loads of pollutants from future development must be equivalent to or less than that from the existing land use prior to development
Total Phosphorus (TP)	
Total Nitrogen (TN)	
Gross Pollutants (GP)	90% reduction in average annual load of pollutants

4.1 Scenario Method

It is proposed that approximately 6.09 ha of the total site area (43.1 ha) be developed, which will be inclusive of permanent buildings (e.g., cabins, sheds, reception building), access driveways, car parking, recreation areas, and concrete pathways. These development works will be contained within the southern portion of the site. Stormwater runoff from the developed portion of the site will be managed and treated to ensure it achieves the non-worsening pollution reduction targets outlined in Table 4-1. The balance of the site area will not be developed, so it does not require targeted stormwater quality management. Noteworthy is that the pool areas and waterpark do not require targeted stormwater management since the runoff is generally fully contained within the infrastructure, ensuring no environmental impact on receiving waterways.

The developed part of the site includes fifteen (15) sub-catchments of varying size and fraction impervious which were used in the water quality modelling. The sub-catchments were derived from the stormwater drainage design required for the site due to the existing and proposed topography. Refer to Figure 4-1 for more information.

Three (3) split catchment source nodes were used to represent the development area for each sub-catchment, including road, roof and ground cover. The split catchment area for the road was calculated from the proposed development plan in Appendix A, where no verge was included in the fraction impervious adopted. The roof area comprises all permanent buildings on site, including cabins, sheds, and additional buildings (e.g., reception building and indoor recreation area). The ground cover encompassed all impervious recreational areas (e.g., courts, playgrounds) and concrete pathways.

Figure 4-1 Stormwater Quality Sub-catchments (for Water Quality)

The nominated fraction impervious for each source node modelled in MUSIC was therefore:

- Road area: 100% impervious
- Roof area: 100% impervious
- Ground cover: 100% impervious

The existing case and developed case scenarios were modelled in MUSIC to demonstrate compliance with stormwater quality treatment requirements outlined in Table 4-1. The existing case scenario was modelled as an agriculture source node with a fraction impervious of 5% to account for existing buildings and sheds. The existing case agriculture node was modelled with an area equal to the total proposed development area (6.09 ha). This was adopted to facilitate a suitable comparison between the existing case scenario (unmitigated scenario) and the developed case scenario (mitigated scenario).

It is appropriate to model the existing node as an agriculture node since the existing site has been used for agriculture and farming for at least 60 years, so the pollutant loads should reflect agricultural use (i.e., plastics, pesticides, herbicides, fertilizers. The MUSIC Modelling Guidelines - Version 1 (WBD, 2010) was used to source rainfall-runoff parameters for rural residential land use and to source base and storm flow concentrations and runoff generation for agriculture and urban development land use.

4.2 MUSIC Water Quality Modelling

4.2.1 MUSIC Modelling Parameters

The model was calibrated using pluviographic rainfall and potential evaporation data from the eWater Toolkit for Caloundra between 1997 and 2006 at a six-minute time step. This is in accordance with Water by Design's MUSIC Modelling Guidelines – Southeast Queensland Version 1.0 (WBD, 2010). All source nodes were set up in accordance with the MUSIC Modelling Guidelines (WBD, 2010), specifically for split urban catchments. No routing of drainage links was adopted as a conservative approach, which assumes that the flow through the drainage system is instantaneous. MUSIC version 6.3.0 was used for this assessment.

4.2.2 MUSIC model inputs

Table 4-2 details the split sub-catchment source node characteristics for the proposed development modelled in MUSIC. A copy of the MUSIC model can be found in Appendix B.

Table 4-2 MUSIC Source Node Characteristics for the Sub-catchments

Catchment ID	Road Area (ha)	Roof Area (ha)	Ground Cover (ha)	Total (ha)
A1	0.078	0.141	0.017	0.236
A2	0.207	0.199	0.010	0.416
A4	0.116	0.000	0.000	0.116
A5	0.209	0.181	0.005	0.395
A7	0.012	0.099	0.000	0.111
A8	0.298	0.254	0.000	0.552
B1	0.225	0.000	0.000	0.225
B2	0.190	0.201	0.817	1.21
C1	0.285	0.043	0.805	1.13
C2	0.088	0.013	0.000	0.102
C3	0.242	0.233	0.014	0.488
D1	0.110	0.000	0.000	0.110
D3	0.260	0.000	0.000	0.260
D4	0.083	0.000	0.000	0.083
D5	0.132	0.140	0.382	0.654
Total	**2.54**	**1.50**	**2.05**	**6.09***

**Note: The existing case source node was modelled as an agriculture source node with a fraction impervious of 5% and an area equal to the total development area for the proposed development (6.09 ha). Furthermore, this approach is conservative because the pervious areas of the proposed development will not be subject to pollutant loads as high as those imposed by the previous agricultural uses (i.e., plastics, pesticides, herbicides, fertilizers).*

4.3 Proposed Treatment Train

Bioretention basins and a swale are proposed to treat stormwater runoff from the development sub-catchments before being discharged into the receiving environment. In addition, rainwater harvesting tanks are proposed as part of the water supply strategy for the park.

4.3.1 Rainwater Harvesting Tanks

Roof water capture for re-use on site is a major component of the water supply strategy for the development as outlined in the Water Supply Assessment by Gilbert and Sutherland (April 2023). The water supply network will include tanks, dams, bores, water treatment plant, pumps and piped reticulation system. For the purposes of this assessment, the following minimum rainwater tank sizes have been conservatively assumed:

- 2.5 kL per cabin
- 7.5 kL per shed
- 25 kL for all other buildings combined
- 240 kL total

In addition, the assumed reuse demands for the rainwater harvesting tanks for this assessment were as follows:

- 0.25 kL/day per cabin
- 1.75 kL/day for both sheds
- 2.5 kL/day for all other buildings combined

For note, sub-catchment B2's roof area was characterised as an indoor recreation area, which does not require reuse. This roof area is instead treated by a bioretention basin, outlined in Section 4.3.3.

4.3.2 Swale Treatment

It is proposed that development sub-catchment A4 be treated by one (1) swale system before discharging to the receiving environment. This swale was modelled as an individual swale treatment node in MUSIC. This swale was modelled according to Option A in the MUSIC modelling guidelines since it was designed to receive distributed lateral inflow along its length and discharge at a single point (WBD, 2010). Consequently, the swale was modelled with its actual length of 30 m, an estimated vegetation height of 0.250 m and a bed slope of 0.5%.

4.3.3 Bioretention Treatment

Fourteen (14) bioretention systems are proposed to treat stormwater runoff from the remaining fourteen (14) sub-catchments. Two (2) of the proposed bioretention systems will be designed as saturated bioretention basins. These bioretention basins are required due to the topographical constraints in the eastern portion of the site and for sub-catchment A8. Due to the limited elevation, these saturated bioretention systems are considered the most practical method for treating select sub-catchments in the proposed development. These bioretention systems were modelled as lined bioretention treatment nodes in MUSIC. These bioretention basins are modelled with a submerged zone with carbon present, estimated at 0.45 m deep (WBD, 2014).

Four (4) of the bioretention basins will be pipeless basins with a permeable liner to the base and sides which will allow stormwater to infiltrate into the in-situ soil. The On-site Effluent Disposal and Nutrient Impact Assessment by Gilbert and Sutherland (September 2021 - Document no. 12139) indicates that the soil on site demonstrated a permeability ranging from 0.27–0.58 m/day consistent with Soil Category 3 to 4. Pipeless

bioretention basins are considered to be effective where implemented in soils within this permeability range. For the purpose of assessing the water quality treatment effectiveness, the pipeless bioretention basins have been modelled as conventional.

The eight (8) remaining bioretention basins were designed as at-source bioretention systems and were modelled as conventional, lined bioretention treatment nodes in MUSIC without a submerged zone.

All bioretention basins were modelled with a filter depth and extended detention depth of 0.4 m and 0.3 m, respectively. The filter depth of 0.4 m was utilised due to the topographical constraints on site and is the minimum allowable depth in the MUSIC modelling guideline (WBD, 2010). Table 4-3 outlines the bioretention basin details modelled in MUSIC as part of the treatment train.

Table 4-3 MUSIC Details for the Proposed Bioretention Basins

Catchment ID	Surface area (m^2)	Filter Area (m^2)
A1	30	30
A2	50	50
A4	Swale Treatment	
A5	45	45
A7	15	15
A8 *	74	65
B1 ^	35	35
B2 *	205	175
C1 ^	190	165
C2 ^	15	15
C3 ^	75	65
D1	20	20
D3	40	40
D4	15	15
D5	115	100

**These sub-catchments were treated by saturated bioretention basins.*
^These sub-catchment were treated by pipeless bioretention basins

4.4 MUSIC Modelling Results

As per the requirements to protect the receiving environment, those of the SPP (2017) and the SCC (2014) Planning Scheme, MUSIC modelling was performed to demonstrate how the proposed development mitigates impacts on the environmental values of receiving waters by managing the release of nutrients and sediments into waterways. Specifically, this model was performed to ensure that the nominated treatment strategy achieves the non-worsening approach on the pollutant loads, meaning that loads of pollutants from future development are equivalent to or less than those from the existing land use prior to development.

Ultimately, the proposed treatment strategy included:

- rainwater harvesting tanks for the majority of roof areas;
- one (1) swale; and,
- fourteen (14) bioretention basins

Table 4-4 compares the pollutant loads in the existing case scenario (i.e. pre-development) to the mitigated developed case scenario, which incorporates the proposed treatment train. These two scenarios were compared to fulfil the pollutant load requirements outlined in Table 4-1.

Table 4-4 MUSIC Modelling Results

Pollutant	**Existing case** (kg/yr)	**Unmitigated – Developed Case** (kg/yr)	**Mitigated – Developed Case** (kg/yr)	**Reduction Achieved** (%)	**Target Reduction**	**Compliance**
TSS	11600	19000	2570	86.5	Non-worsening approach	Y
TP	12	34.3	8.26	75.9		Y
TN	68.5	155	69.6	55.9		Y
GP	180	1770	0	100	90	Y

The MUSIC modelling results in Table 4-4 demonstrate that the proposed stormwater management strategy for the proposed development complies with the pollutant load reduction targets required by the SCC (2014) and the SPP (2017) since the non-worsening approach has been met.

5 MAINTAINENCE PERIOD

The proposed bioretention basins will require consideration and management during both the construction period and maintenance period of the development. To establish vegetation and treatment functions in the bioretention systems, the filter media will require protection from the common pollutants generated in the construction phases of the development. During the operational phase, regular maintenance is required to ensure a comprehensive vegetation establishment, a critical component in stormwater pollutant uptake. Section 5.1 provides details for the general maintenance periods and the requirements for the bioretention basins.

5.1 Bioretention Basins

5.1.1 Construction Period' Maintenance Requirements

Erosion and sediment control devices will be installed at the commencement of the works to capture and treat runoff during construction works. The sediment control devices should be cleaned out as required and at the end of the works. During the construction stage, all sediment control devices are to be inspected:

- Weekly;
- After runoff generating rain events; and
- Prior and after prolonged site shutdowns (e.g. holiday periods).

The proposed bioretention basins may be excavated and used as sediment basins during construction, where appropriate. All sediment basins will require weekly inspection to prevent scour and sediment build up. Basins should be inspected regularly and cleaned out when 1/3rd full. At the completion of construction, the sediment basins will be removed. The bioretention basins will then be installed at the end of the construction phase when the site is stabilised.

5.1.2 Maintenance Period' Maintenance Requirements

The bioretention basins on ground level may be temporarily turfed if required during the maintenance period. Once construction of 80% of the site in the catchment of the development is complete, the turf will be removed, and the basins will be vegetated appropriately.

5.1.3 Operational Period' Maintenance Requirements

Maintenance is to be carried out as needed to ensure continued functionality of the system. Maintenance includes initial watering plants in new systems, removal of litter or plant debris and reparation of eroded areas.

6 CONCLUSION

This SMP demonstrates that the stormwater management measures for the proposed Coochin Creek holiday resort site will successfully achieve the performance criteria set by the SCC (2014) and by the SPP (2017).

The analysis of stormwater quantity has demonstrated that the existing and proposed channels on-site have adequate capacity to cater for both on-site and upstream external catchment stormwater runoff.

SCC requires stormwater runoff discharging to ecologically sensitive waterways to be treated to meet a level of 'non-worsening.' This means that the pollutant loads from future development must equal or be less than those from the existing land use before discharging to the receiving environment. The proposed treatment train has demonstrated compliance with the non-worsening approach from SCC (2014) and the requirements of the SPP (2017). Additionally, the modelling approach used is considered conservative as no routing in the drainage links was applied.

Sufficient consideration of stormwater controls has been demonstrated by:

- Compliance with the stormwater quality requirements in Sunshine Coast Council's *Planning Scheme* (2014);
- Compliance with the *State Planning Policy* (2017); and
- Compliance with QUDM (2017).

The operational design of the stormwater quantity management proposed in this SMP is based on current and best-practice principles.

7 REFERENCES

Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors) (ARR), 2019, Australian Rainfall and Runoff: A Guide to Flood Estimation, Commonwealth of Australia

Queensland Urban Drainage Manual (QUDM), 2017. Institute of Public Works Engineering Australasia, Queensland Division Ltd, Fourth Edition 2017.

State Planning Policy (SPP), 2017. Department of State Development, Infrastructure and Planning, Brisbane, Queensland.

Sunshine Coast Council (SCC), 2014. Planning Scheme.

Water by Design (WBD), 2010. MUSIC Modelling Guidelines, SEQ Healthy Waterways Partnership. Brisbane, Queensland.

Water by Design (WBD), 2014. Bioretention Technical Design Guidelines, Version 11.

APPENDIX A

OPW Engineering Plans

PROPOSED LEGEND

STAGE BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
HAT	
HAT 50M OFFSET	
INSECT BUFFER	
COAST LINE	
DRAINAGE CORRIDOR	
EXISTING DAM TO BE RETAINED	
EXISTING TREE TO BE RETAINED	
CULVERT CROSSING	
REVEGETATION AREA	
SITES	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
1 BEDROOM CABIN	
CAMP KITCHEN	
AMINITIES (LAUNDRY/DRYING)	
MAINTENANCE/CLEANING/ STORAGE SHEDS	

0m 20m 40m 60m

SCALE 1:1000 (A1) - 1:2000 (A3)

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Scales - AS SHOWN
Document Stage - APPROVAL

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A	03.09.24	APPROVAL	GHK

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Drawing title - DEVELOPMENT LAYOUT PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C100

Digital Ref : C100 DEVELOPMENT LAYOUT PLAN Issue : B

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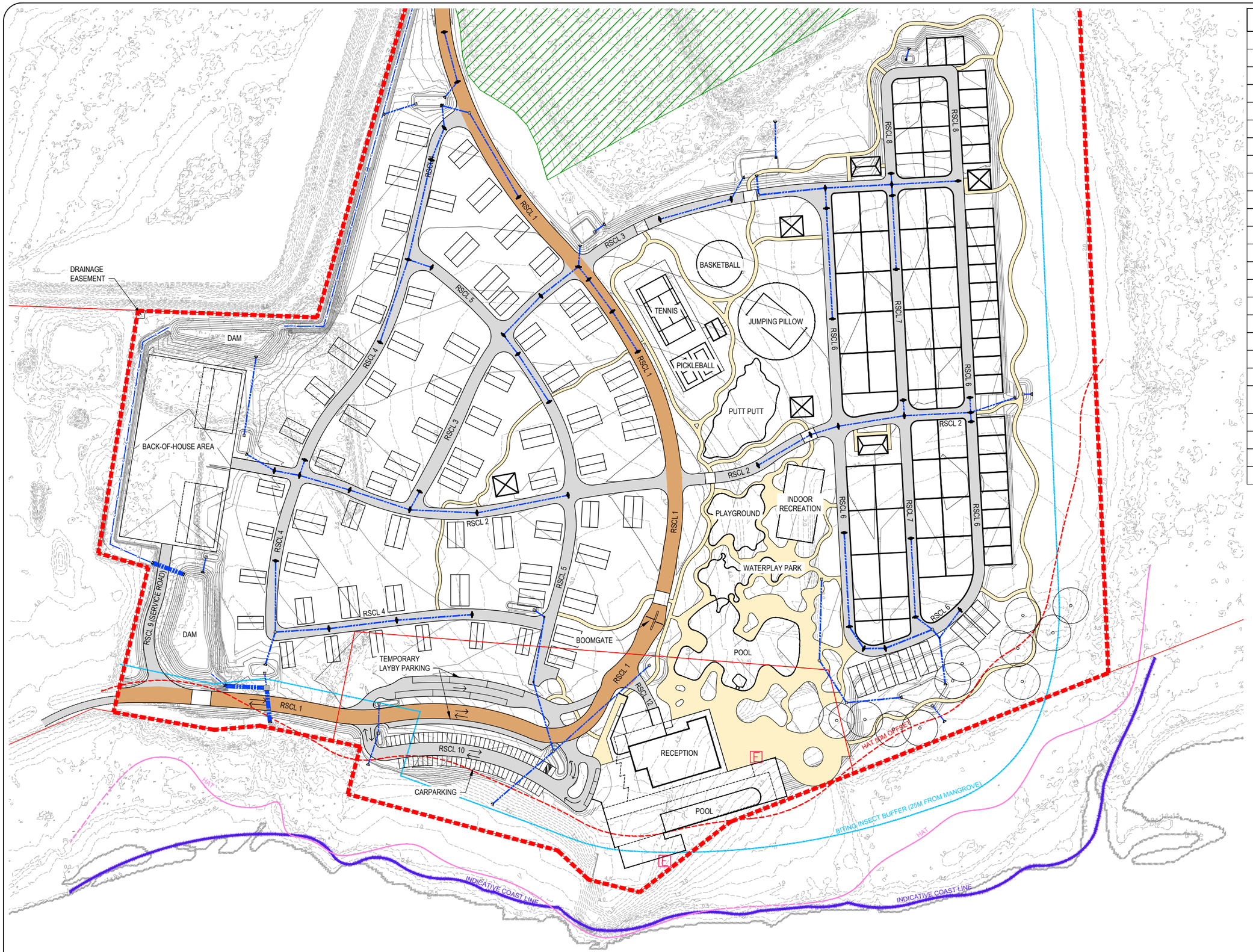


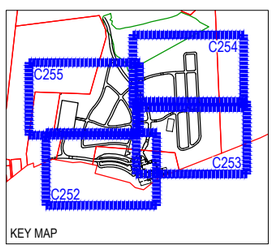
LEGEND

STAGE BOUNDARY	
EXISTING LOT BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
DRAINAGE CORRIDORE	
EXISTING DAM TO BE RETAINED	
CULVERT CROSSING	
HAT	
HAT 50M OFFSET	
INSECT BUFFER	
COAST LINE	
EXISTING TREE TO BE RETAINED	
CAMPING / VAN SITES	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
1 BEDROOM CABIN	
LAUNDRY	
CAMP KITCHEN	
AMINITIES (LAUNDRY/DRYING)	
MAINTENANCE/CLEANING/ STORAGE SHEDS	
EXISTING EARTH DRAIN	
EXISTING ELECTRIC POLE	
EXISTING ELECTRIC BOX	
STORMWATER PIPE	

N

0m 20m 40m 60m

SCALE 1:1000 (A1) - 1:2000 (A3)



KEY MAP

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Drawing title - OVERALL ROADWORKS AND DRAINAGE PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C251

Digital Ref : C251 OVERALL ROADWORKS AND DRAINAGE PLAN Issue : B

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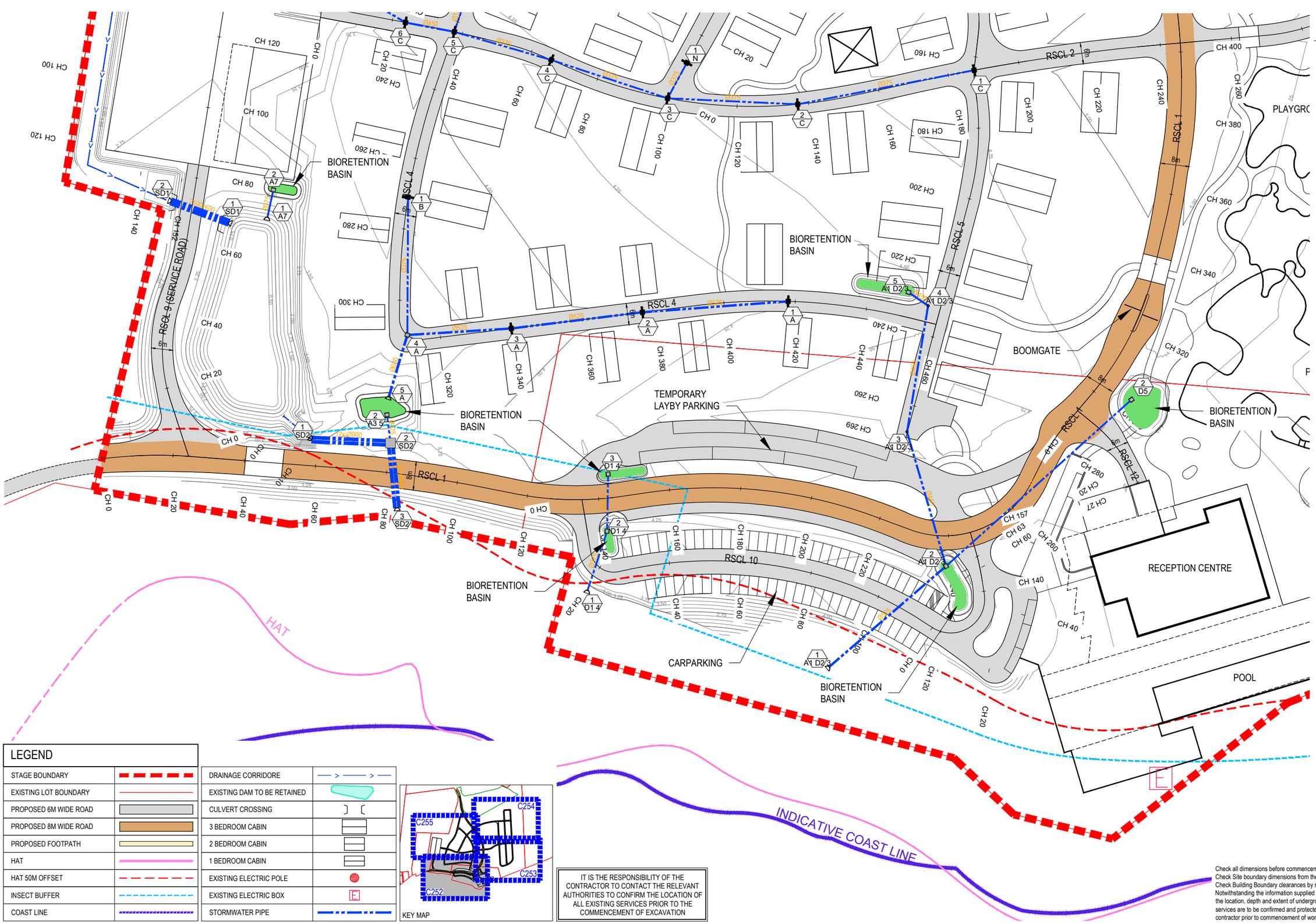

LEGEND

STAGE BOUNDARY		DRAINAGE CORRIDORE	
EXISTING LOT BOUNDARY		EXISTING DAM TO BE RETAINED	
PROPOSED 6M WIDE ROAD		CULVERT CROSSING	
PROPOSED 8M WIDE ROAD		3 BEDROOM CABIN	
PROPOSED FOOTPATH		2 BEDROOM CABIN	
HAT		1 BEDROOM CABIN	
HAT 50M OFFSET		EXISTING ELECTRIC POLE	
INSECT BUFFER		EXISTING ELECTRIC BOX	
COAST LINE		STORMWATER PIPE	

KEY MAP

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Drawing title - ROADWORKS AND DRAINAGE PLAN (SHEET 1 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C252

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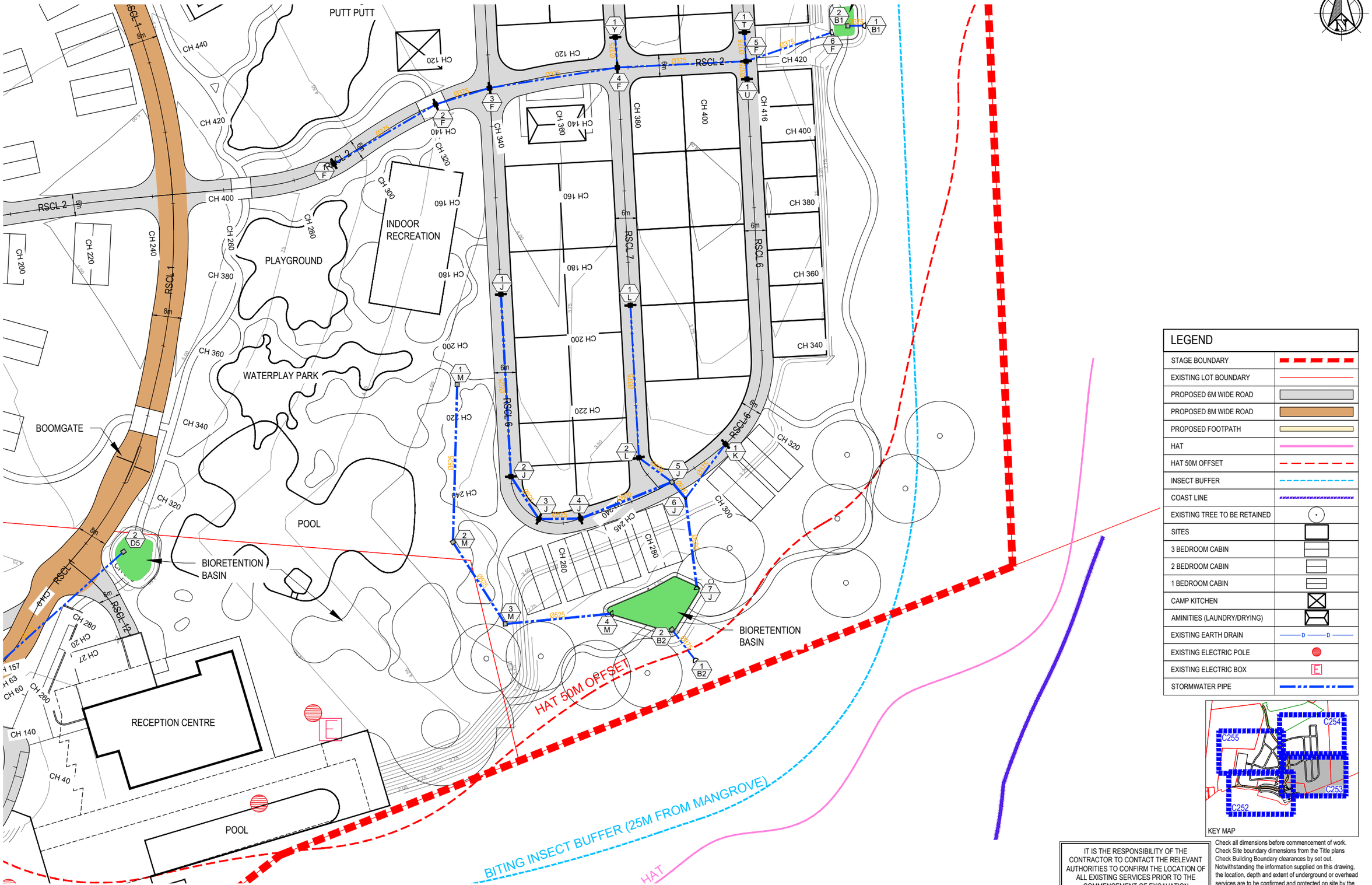

LEGEND

STAGE BOUNDARY	
EXISTING LOT BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
HAT	
HAT 50M OFFSET	
INSECT BUFFER	
COAST LINE	
EXISTING TREE TO BE RETAINED	
SITES	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
1 BEDROOM CABIN	
CAMP KITCHEN	
AMINITIES (LAUNDRY/DRYING)	
EXISTING EARTH DRAIN	D D
EXISTING ELECTRIC POLE	
EXISTING ELECTRIC BOX	E
STORMWATER PIPE	

KEY MAP

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Drawing title - ROADWORKS AND DRAINAGE PLAN (SHEET 2 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

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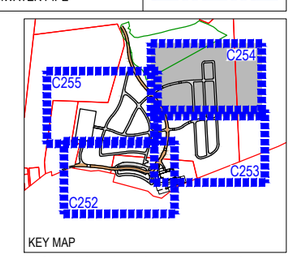
LEGEND

STAGE BOUNDARY	
EXISTING LOT BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
HAT 50M OFFSET	
INSECT BUFFER	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
SITES	
CAMP KITCHEN	
AMINITIES (LAUNDRY/DRYING)	
REVEGETATION AREA	
STORMWATER PIPE	



KEY MAP

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Drawing title - ROADWORKS AND DRAINAGE PLAN (SHEET 3 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

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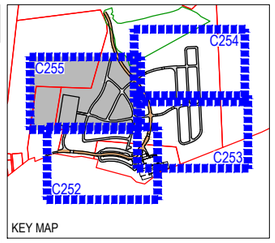
LEGEND

STAGE BOUNDARY	
EXISTING LOT BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
DRAINAGE CORRIDORE	
EXISTING DAM TO BE RETAINED	
CULVERT CROSSING	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
1 BEDROOM CABIN	
LAUNDRY	
MAINTENANCE/CLEANING/ STORAGE SHEDS	
REVEGETATION AREA	
STORMWATER PIPE	



KEY MAP

DRAINAGE EASEMENT

BOH

BIORETENTION BASIN

BIORETENTION BASIN

BIORETENTION

RSCL 4

RSCL 5

RSCL 3

RSCL 2

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Drawing title - ROADWORKS AND DRAINAGE PLAN (SHEET 4 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

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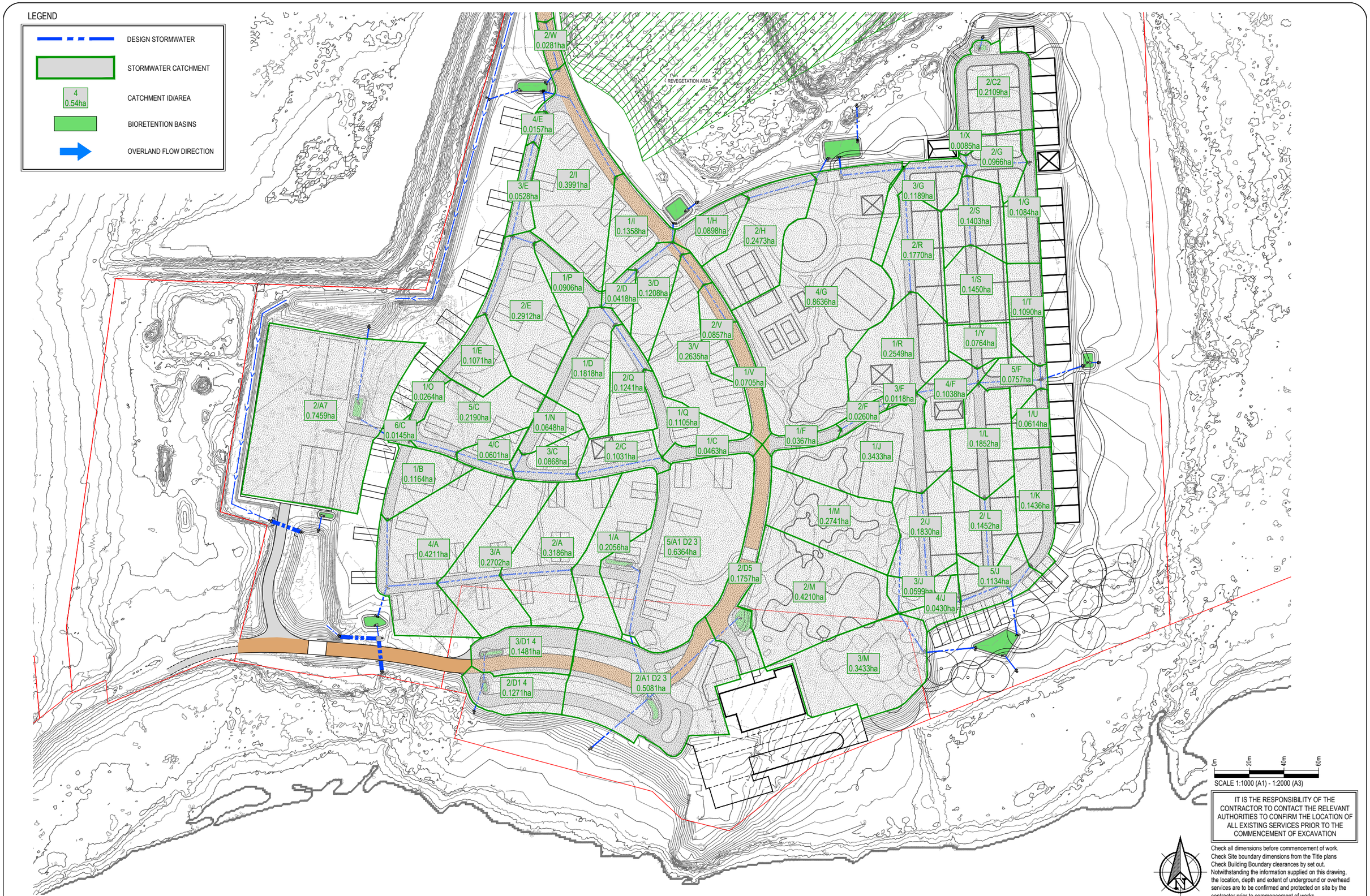

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Drawing title -

STORMWATER QUANTITY CATCHMENT PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C400

Digital Ref : C400 STORMWATER DRAINAGE CATCHMENT PLAN Issue : B

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Drawing title - STORMWATER QUALITY CATCHMENT PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C401

Digital Ref : C400 STORMWATER DRAINAGE CATCHMENT PLAN Issue : A

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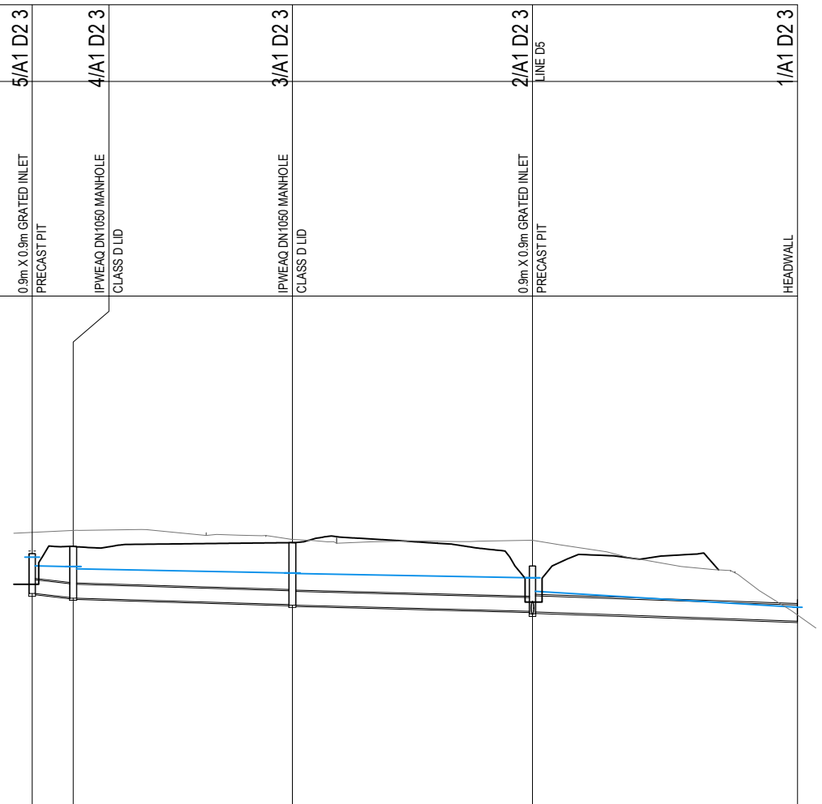

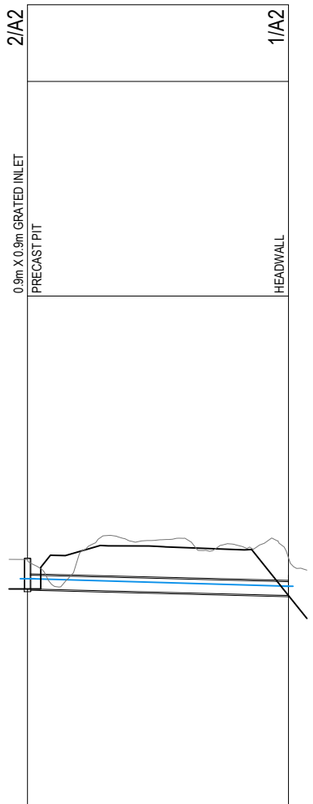

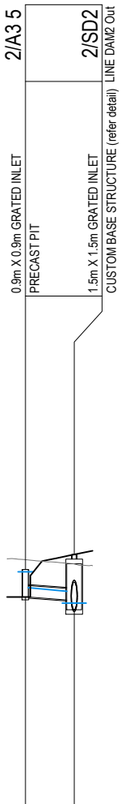

STRUCTURE NAME	5/A1 D2 3	4/A1 D2 3	3/A1 D2 3	2/A1 D2 3	LINE D5	1/A1 D2 3	2/A2	1/A2	2/A3 5	2/SD2	LINE DAM2 Out
STRUCTURE DESCRIPTION	0.9m X 0.9m GRATED INLET	PRECAST PIT	IPWEAQ DN1050 MANHOLE	CLASS D LID	IPWEAQ DN1050 MANHOLE	CLASS D LID	0.9m X 0.9m GRATED INLET	PRECAST PIT	HEADWALL	0.9m X 0.9m GRATED INLET	PRECAST PIT	1.5m X 1.5m GRATED INLET	CUSTOM BASE STRUCTURE (refer detail)
PIPE SIZE (mm)		450		450		450	525		450			375	
PIPE CLASS		RCP (3)		RCP (3)		RCP (3)	RCP (3)		RCP (3)			RCP (3)	
PIPE GRADE (%)		1.94%		0.59%		0.51%	0.69%		0.50%			1.18%	
PIPE SLOPE (1 in X)		51.45		170.24		195.75	144.09		200.00			84.41	
FULL PIPE VELOCITY (m/s)		1.09		1.09		1.08	2.11		1.14			1.59	
PART FULL VELOCITY (m/s)		2.42		1.52		1.44	2.11		1.43			1.96	
DATUM RL		-10.0							-11.0			-11.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	4.084	3.803 / 3.778 / 3.781	3.704	3.571	3.552	3.412	2.972	2.451	2.383	2.137	2.609	2.092 / 1.974	1.587
PIPE FLOW (Cumecs)		0.174		0.174		0.171	0.457		0.181			0.176	
PIPE CAPACITY AT GRADE (Cumecs)		0.398		0.219		0.204	0.358		0.202			0.191	
DEPTH TO INVERT	1.300	1.665	1.685	2.019	2.039	1.480	1.500	0.700 / 0.700	1.000	0.663	0.900	1.482	1.801
INVERT LEVEL OF DRAIN	2.900	2.770	2.750	2.540	2.520	2.320	2.300	2.000 / 2.000	2.050	1.837	1.785	1.691	1.372
SETOUT LEVEL	4.200	4.435		4.559		3.800		2.700	3.050	2.500	2.685	3.173	
PIT LOCATION	E 508882.662 N 7025282.521	E 508888.169 N 7025278.725		E 508882.248 N 7025243.468		E 508893.178 N 7025205.875		E 508860.423 N 7025177.664	E 508725.421 N 7025377.130	E 508731.898 N 7025419.189	E 508736.593 N 7025248.209	E 508737.607 N 7025240.316	
CHAINAGE	0.000	6.689 / 6.689	35.751	42.440	39.150	81.590	43.228	124.818	0.000	42.555	42.555	0.000	7.957 / 7.957

SECTION A1 D2 3

SECTION A2

SECTION A3 5

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A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 1 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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engineers@covey.com.au (07) 5443 7777

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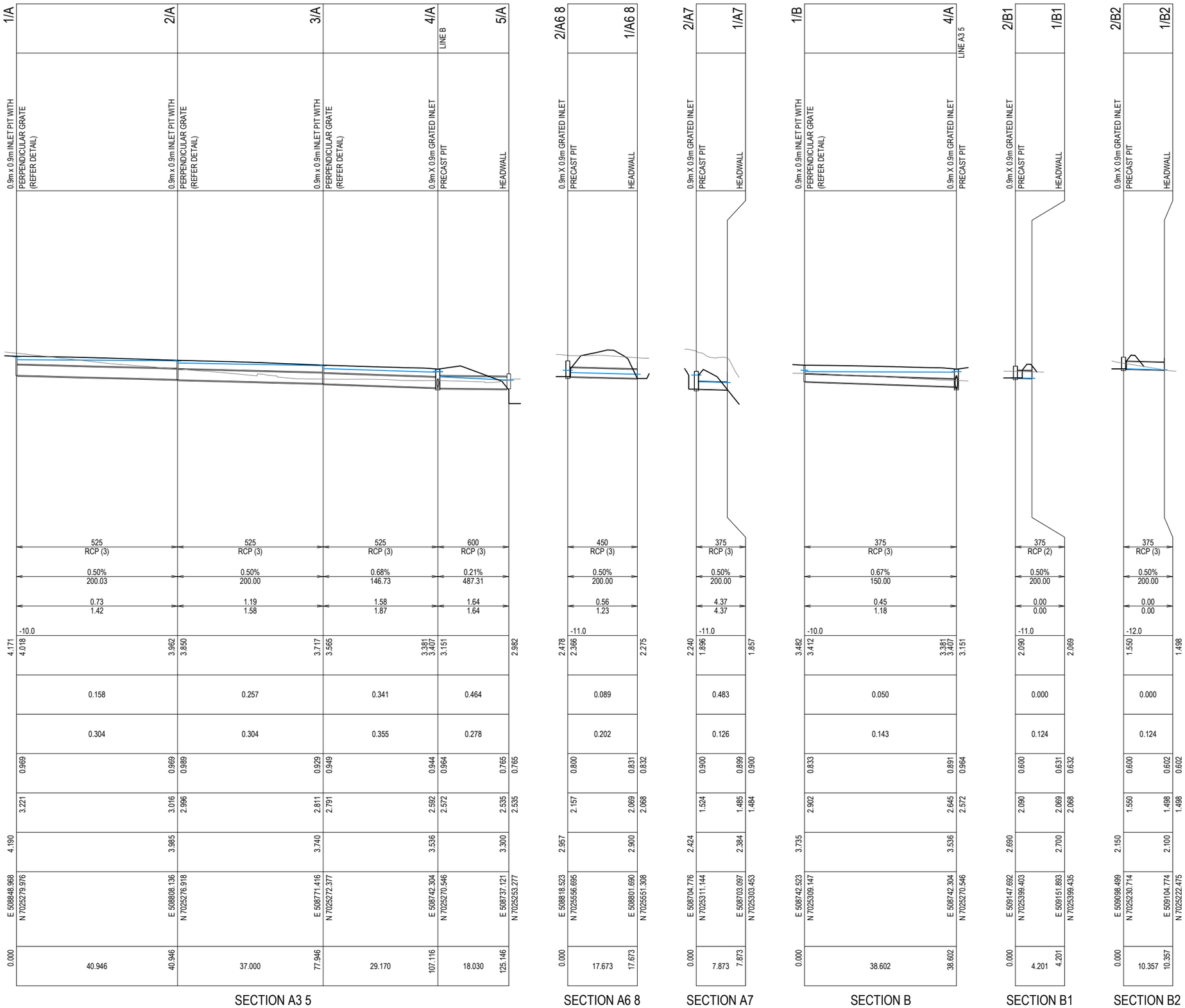

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 2 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
PO BOX 16 MAROOCHYDORE QLD 4558
engineers@covey.com.au (07) 5443 7777

Approved:

Checked : SR Design : CM Drawn : GHK

Scales : AS SHOWN

Document Stage : APPROVAL

Project : 243823 Sheet No. C451

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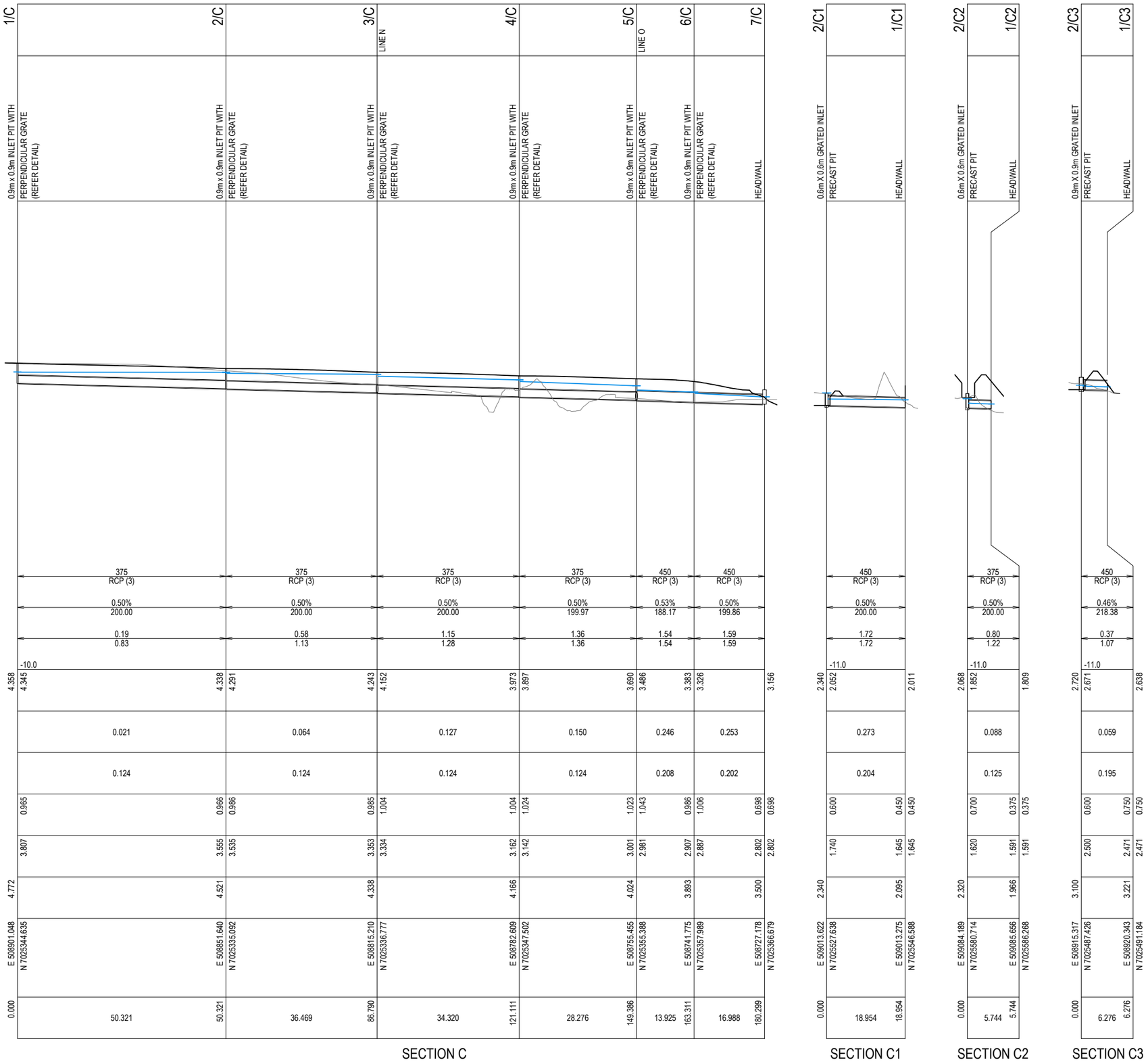

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 3 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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Project : 243823 Sheet No. C452

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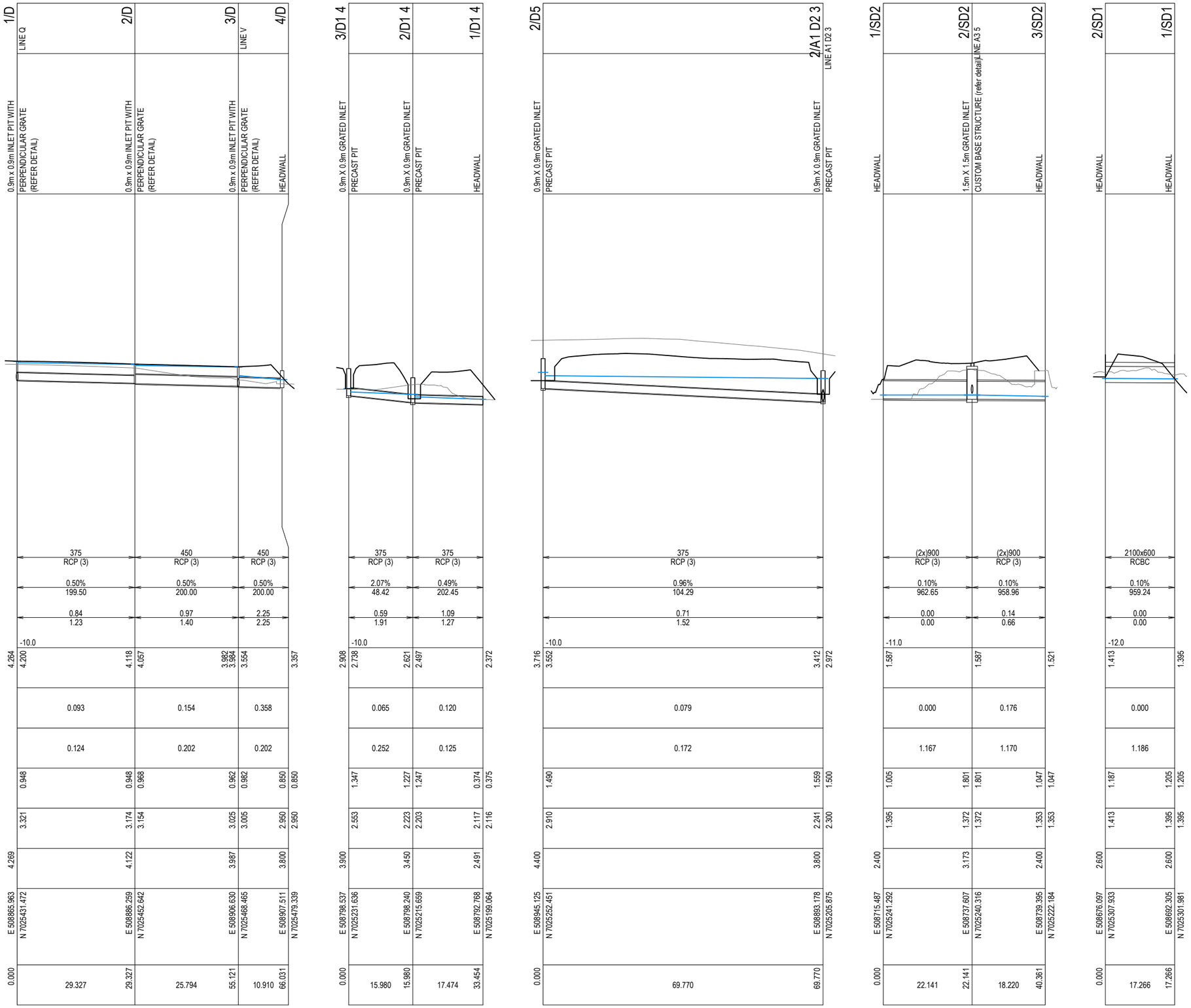

SECTION D

SECTION D1 4

SECTION D5

SECTION DAM2 OUT

SECTION DI2 DAM2

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 4 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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Project : 243823 Sheet No. C453

Digital Ref : Issue : B

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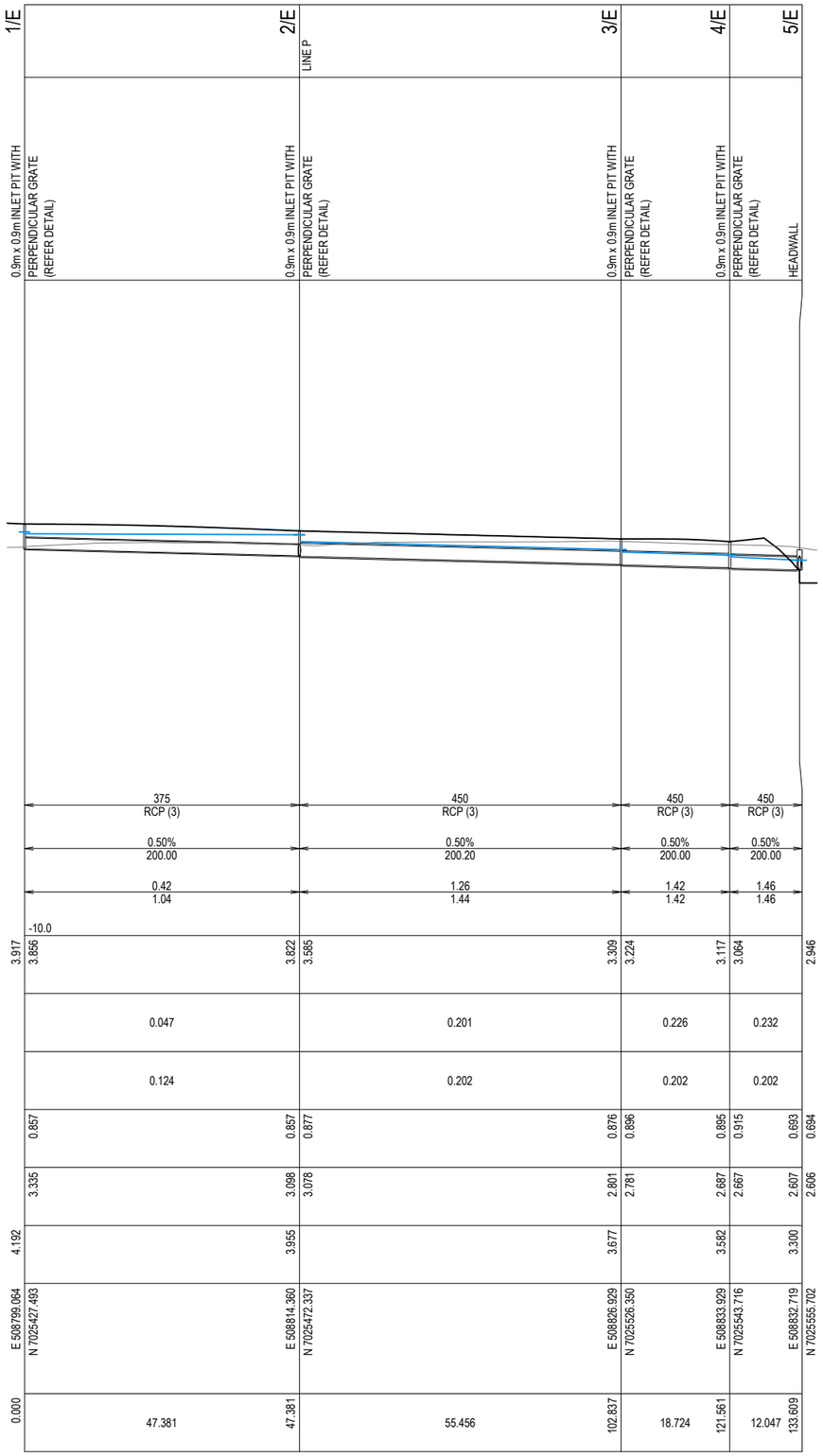
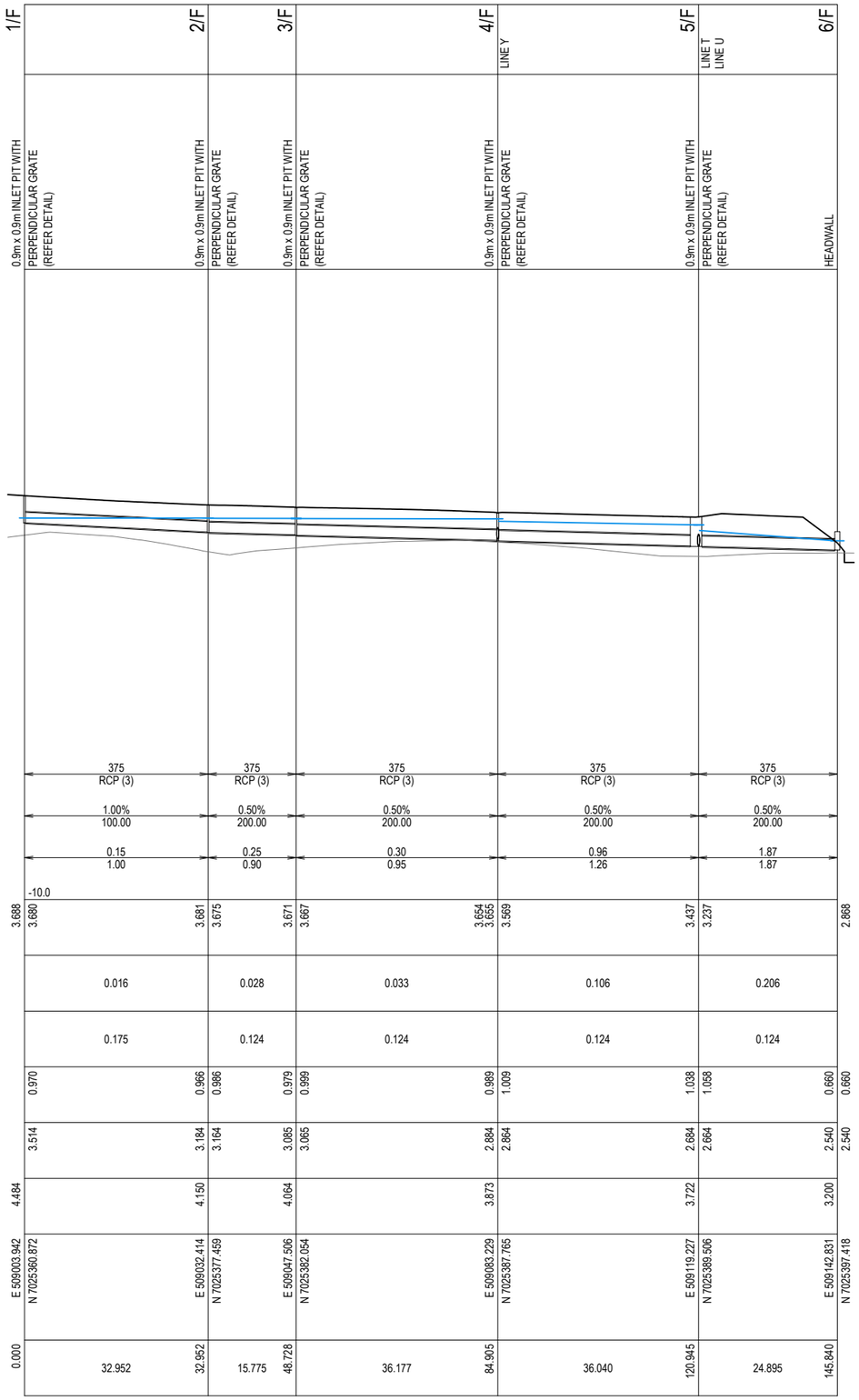


SECTION E



SECTION F

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 5 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
PO BOX 16 MAROOCHYDORE QLD 4558
engineers@covey.com.au (07) 5443 7777

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Scales : AS SHOWN

Document Stage : APPROVAL

Project : 243823 Sheet No. C454

Digital Ref : Issue : B

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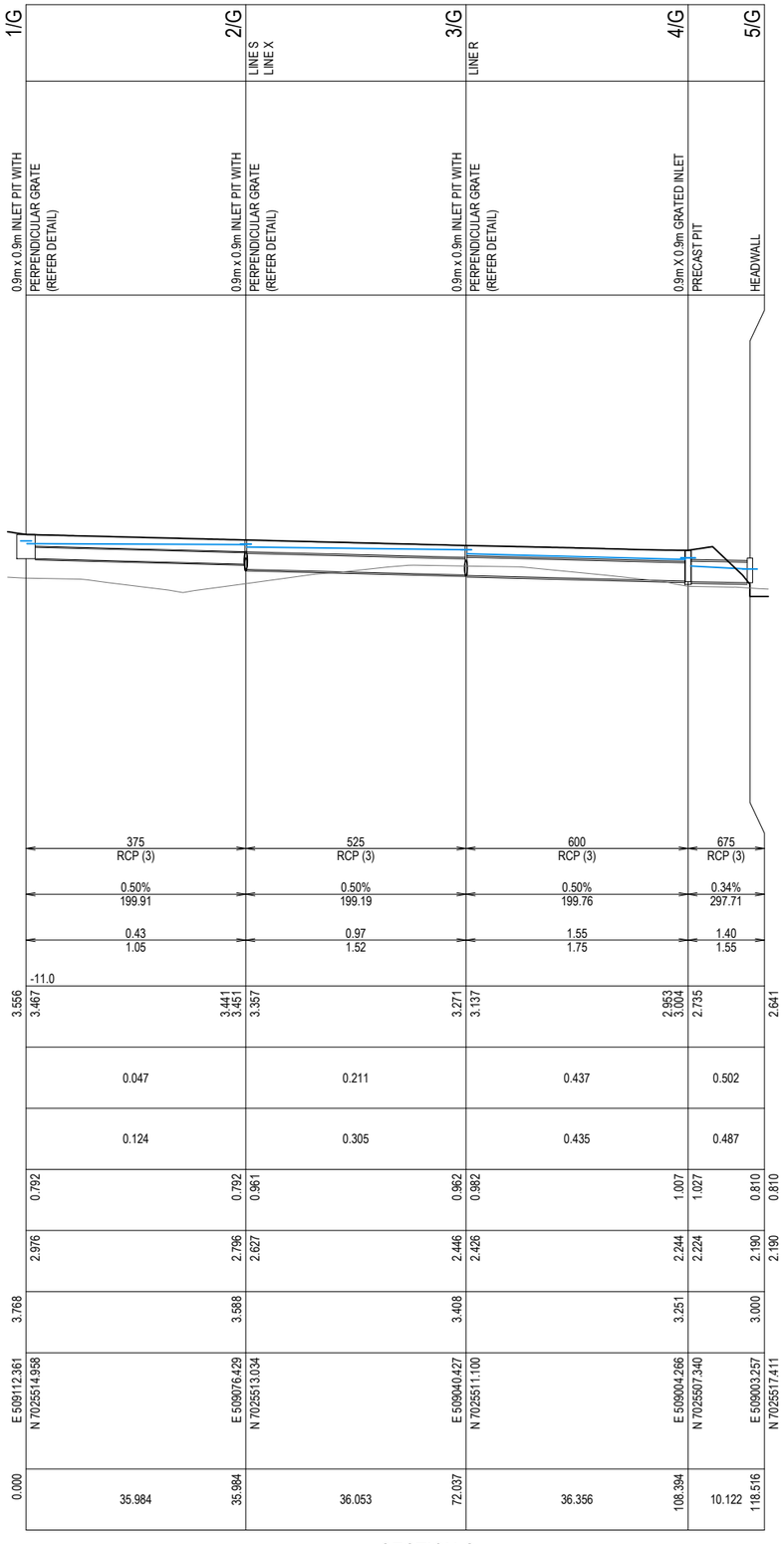

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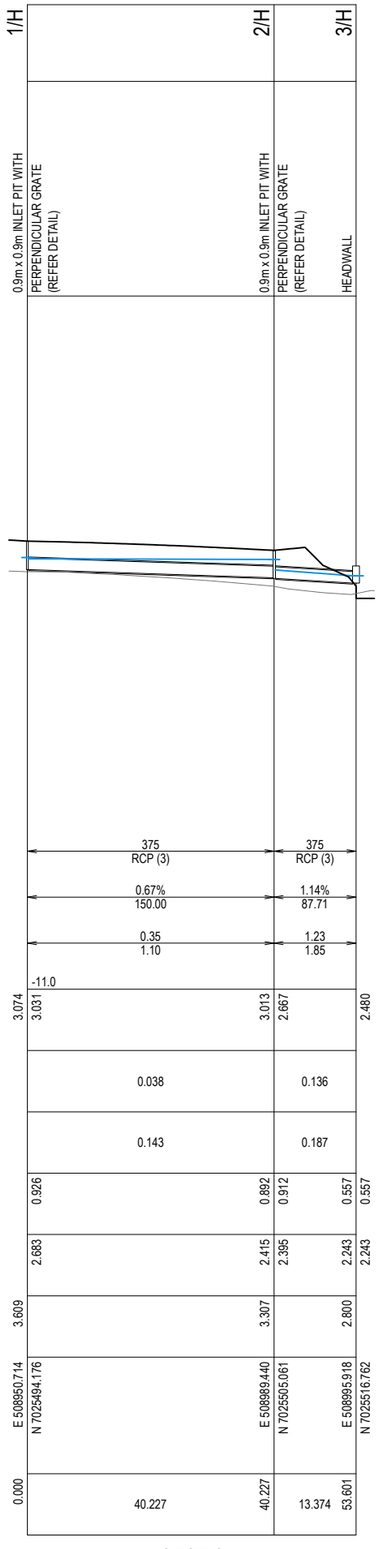

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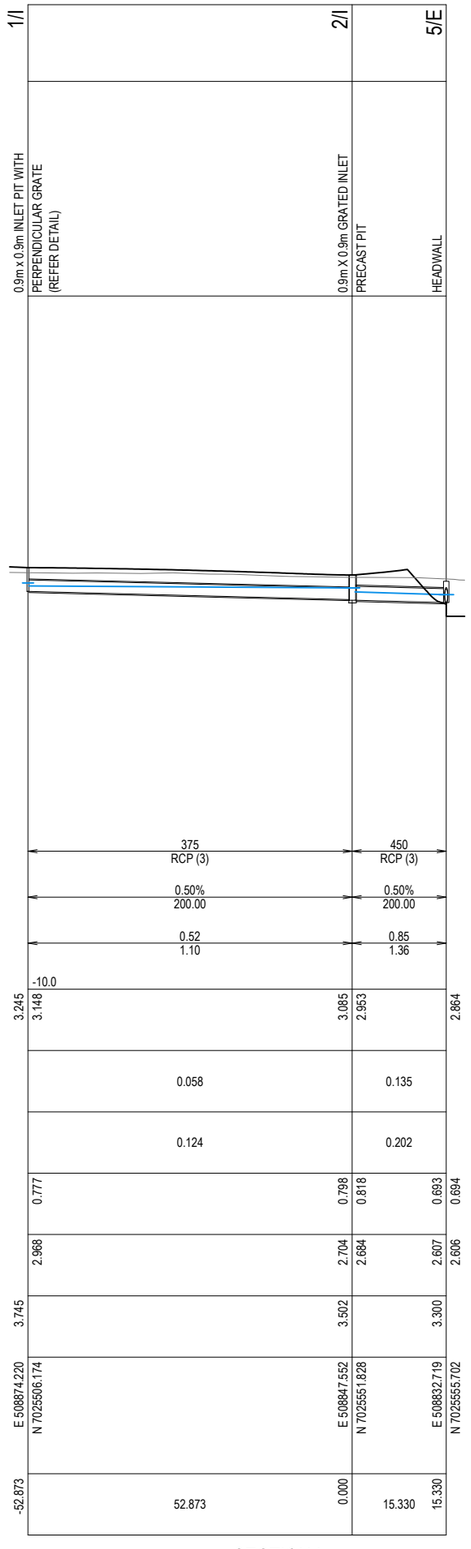

SECTION I

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B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 6 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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Project : 243823 Sheet No. C455

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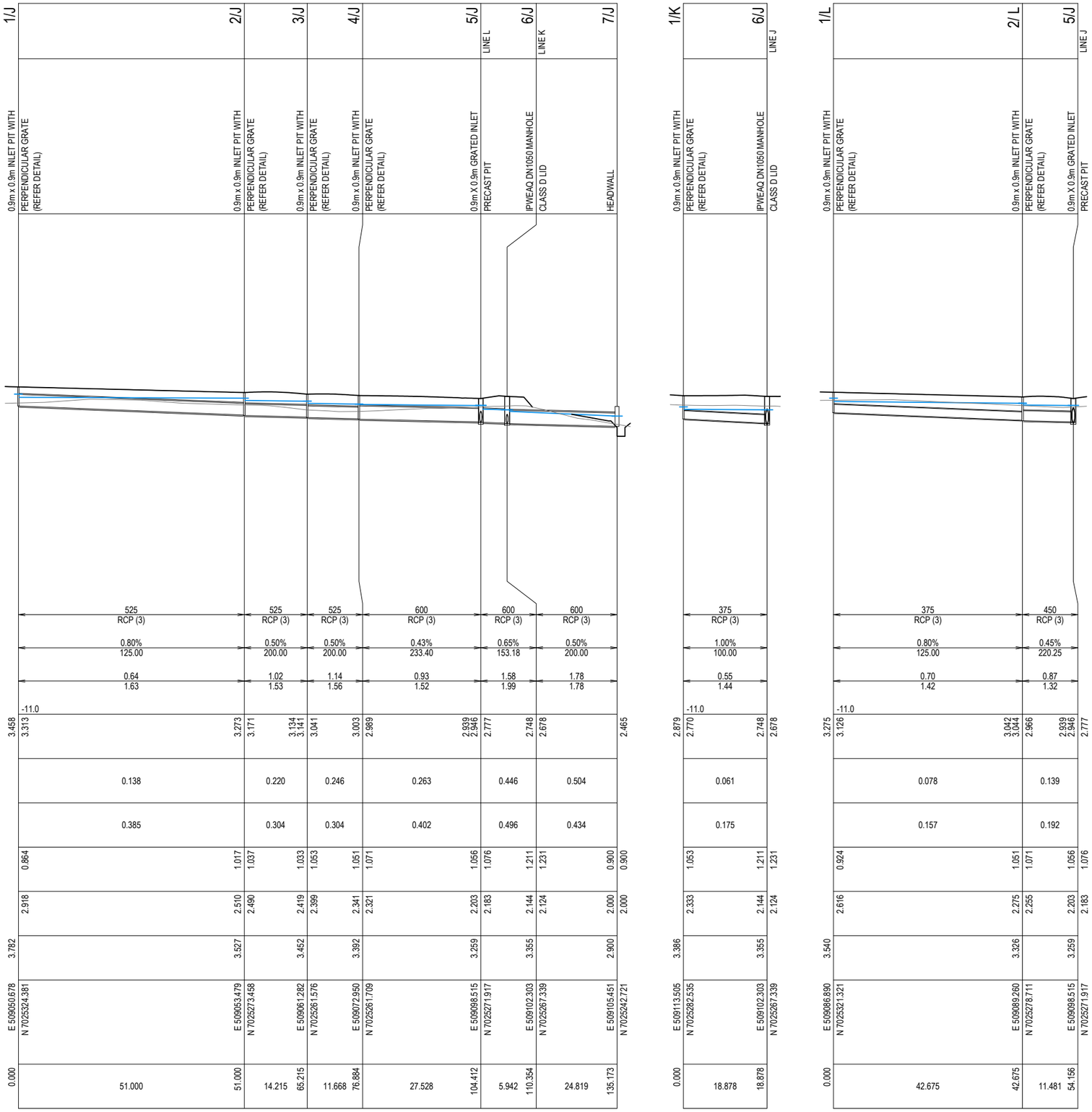

SECTION J

SECTION K

SECTION L

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 7 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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PO BOX 16 MAROOCHYDORE QLD 4558
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Project : 243823 Sheet No. C456

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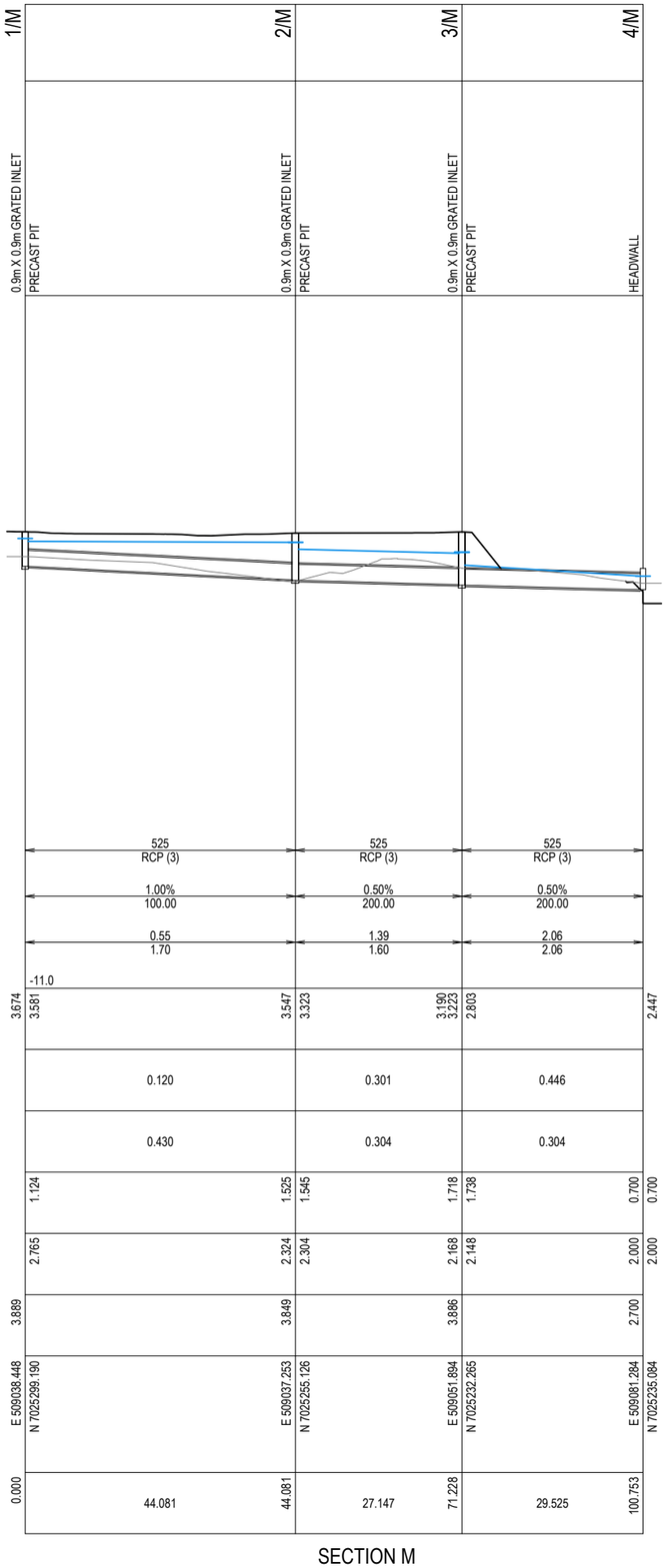

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 8 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
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Project : 243823 Sheet No. C457

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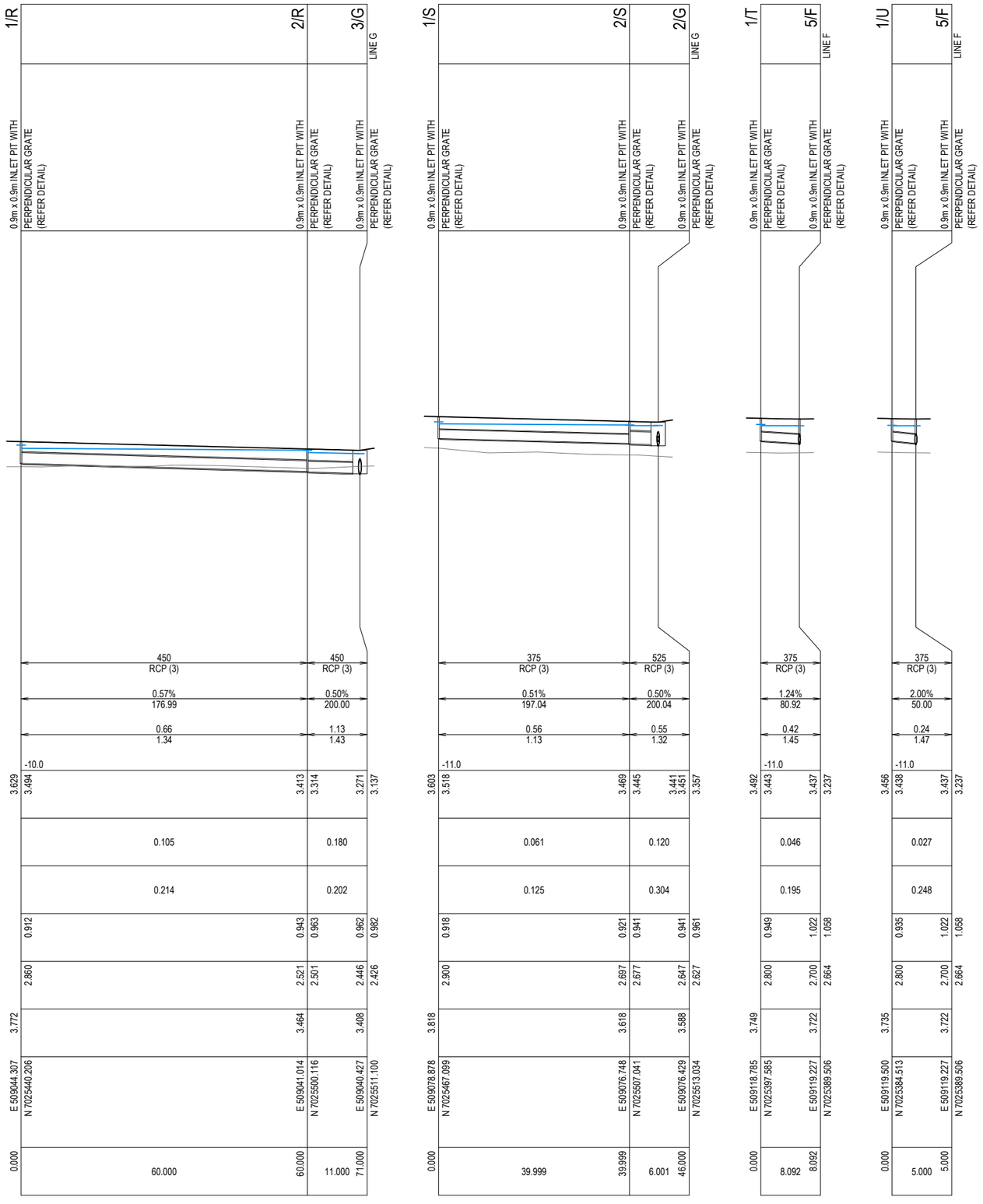

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A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 9 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
PO BOX 16 MAROOCHYDORE QLD 4558
engineers@covey.com.au (07) 5443 7777

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Document Stage : APPROVAL

Project : 243823 Sheet No. C458

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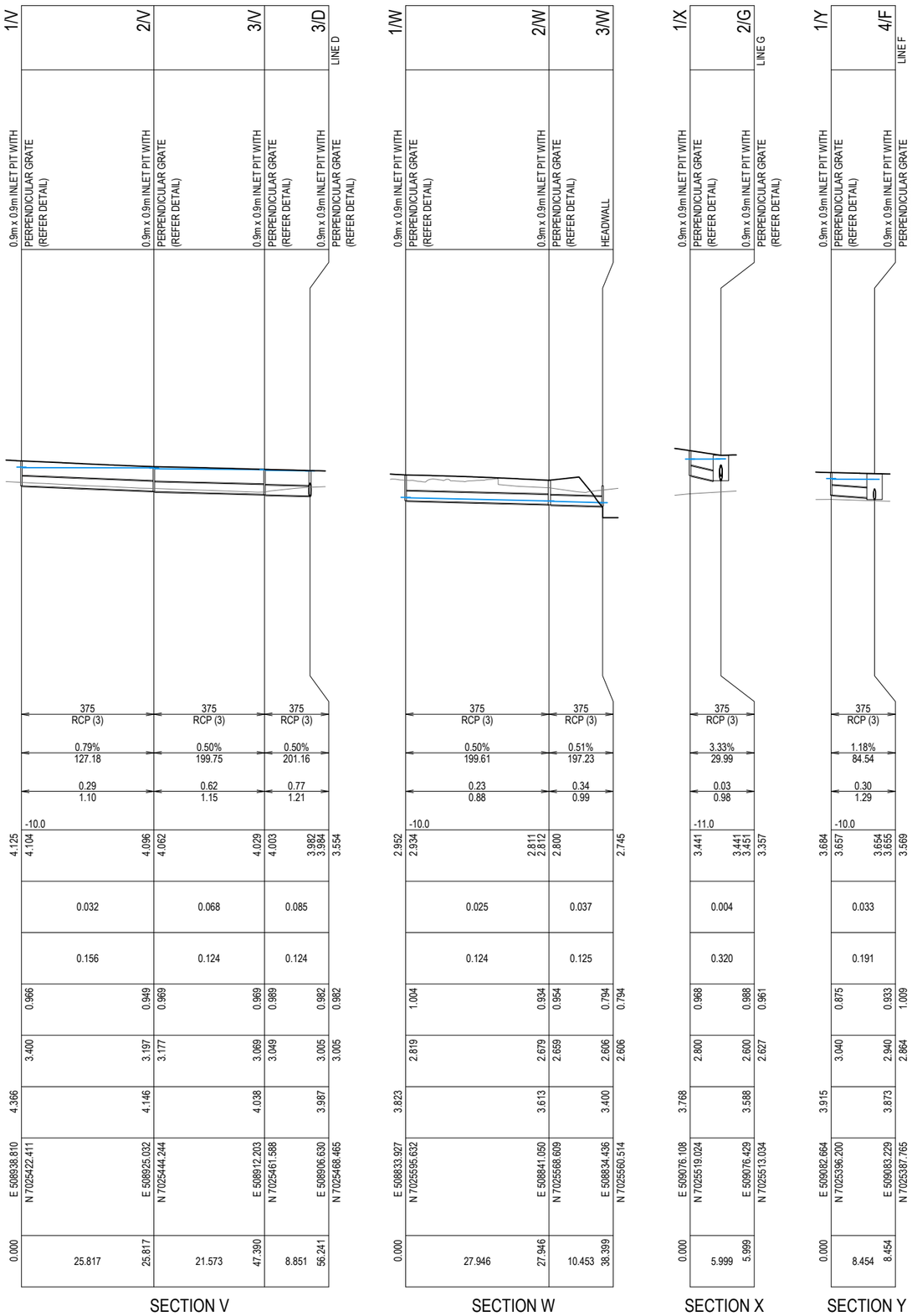
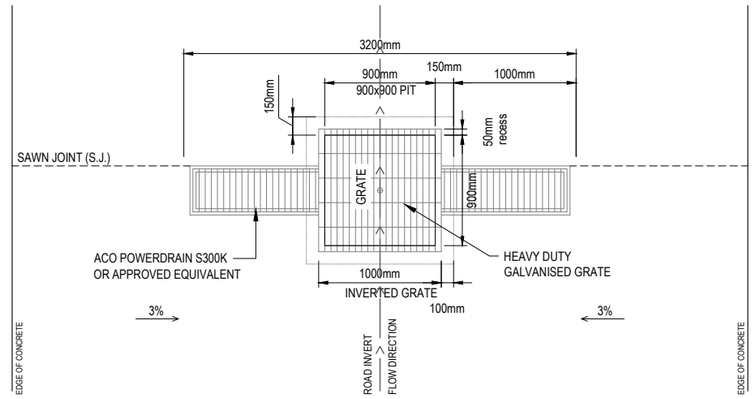
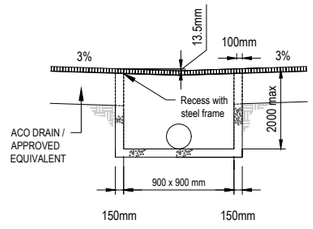


SECTION V | SECTION W | SECTION X | SECTION Y

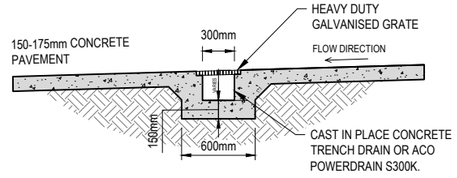


PLAN VIEW
SCALE 1:25 A1



SECTION
SCALE 1:25 A1

900x900 INLET PIT WITH PERPENDICULAR GRATE



ALTERNATIVE CAST-IN-SITU GRATED TRENCH
SCALE 1:25 A1

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A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 10 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
PO BOX 16 MAROOCHYDORE QLD 4558
engineers@covey.com.au (07) 5443 7777

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Project : 243823 Sheet No. C459

Digital Ref : Issue : B

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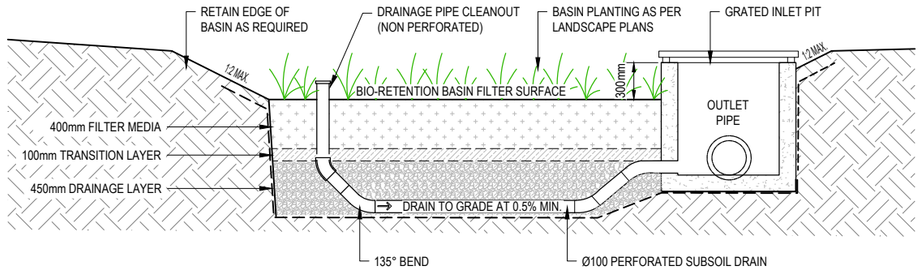
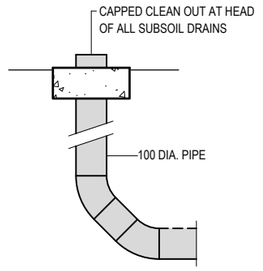
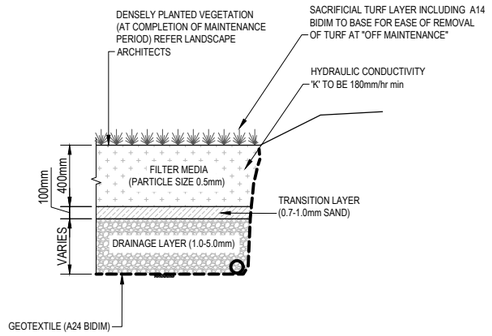


TYPICAL BIO-RETENTION BASIN SECTION
SCALE 1:25 (A1)

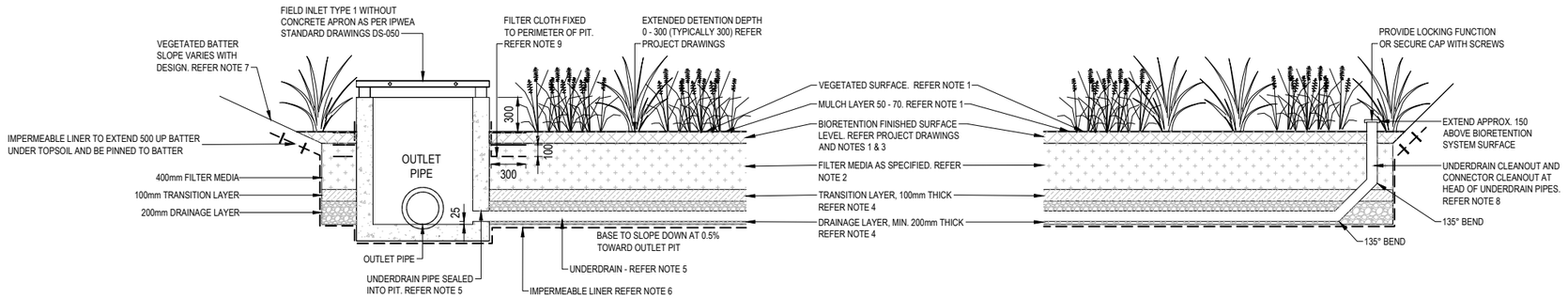


PIPE CLEAN OUT DETAIL
SCALE 1:10 (A1) / 1:20 (A3)



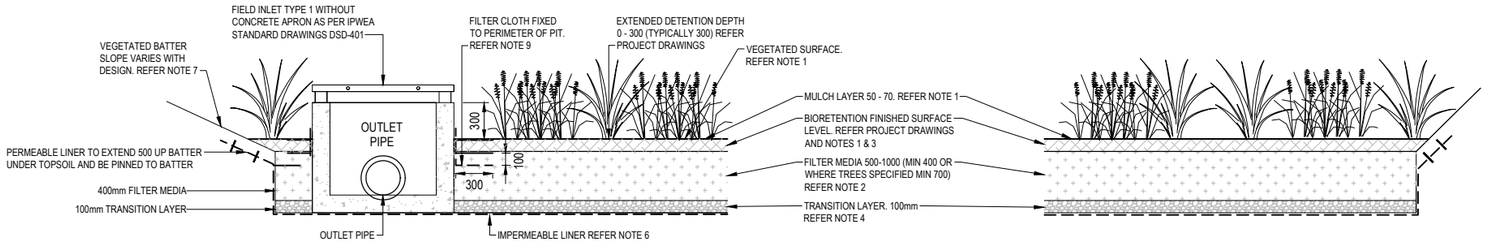
FILTER MEDIA DETAIL
SCALE 1:25 (A1)

TYPE 1 BIO-RETENTION BASINS - **SATURATED**



TYPICAL BIO-RETENTION BASIN FILTER SETION
SCALE 1:25 (A1)

TYPE 2 BIO-RETENTION BASINS - **CONVENTIONAL**



TYPICAL BIO-RETENTION BASIN FILTER SETION
SCALE 1:25 (A1)

TYPE 3 BIO-RETENTION BASINS - **PIPELESS**

NOTES

1. BIORETENTION SYSTEM SURFACE. REFER NOTE 1 IPWEA STD DRG DS-070.
2. FILTER MEDIA SPECIFICATION. REFER NOTE 2 DS-070.
3. CONSTRUCTION TOLERANCES. REFER NOTE 3 DS-070.
4. TRANSITION LAYER AND DRAINAGE LAYER. REFER NOTE 4 DS-070.
5. UNDERDRAIN. REFER NOTE 5 DS-070.
6. IMPERMEABLE LINER. REFER NOTE 6 DS-070.
7. VEGETATED BATTER. REFER NOTE 8 DS-070.
8. INSPECTION/CLEANOUT POINT. REFER NOTE 9 DS-070.
9. FILTER CLOTH. REFER NOTE 10 DS-070.
10. FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO DS-078.
11. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.

SCALE 1:25 (AT A1)

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	12.09.24	APPROVAL	GHK

Approved
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ABN 59 137 305 992
(07) 5443 7777
engineers@covey.com.au
124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BIORETENTION BASIN DETAILS (SHEET 1 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT
Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C500
Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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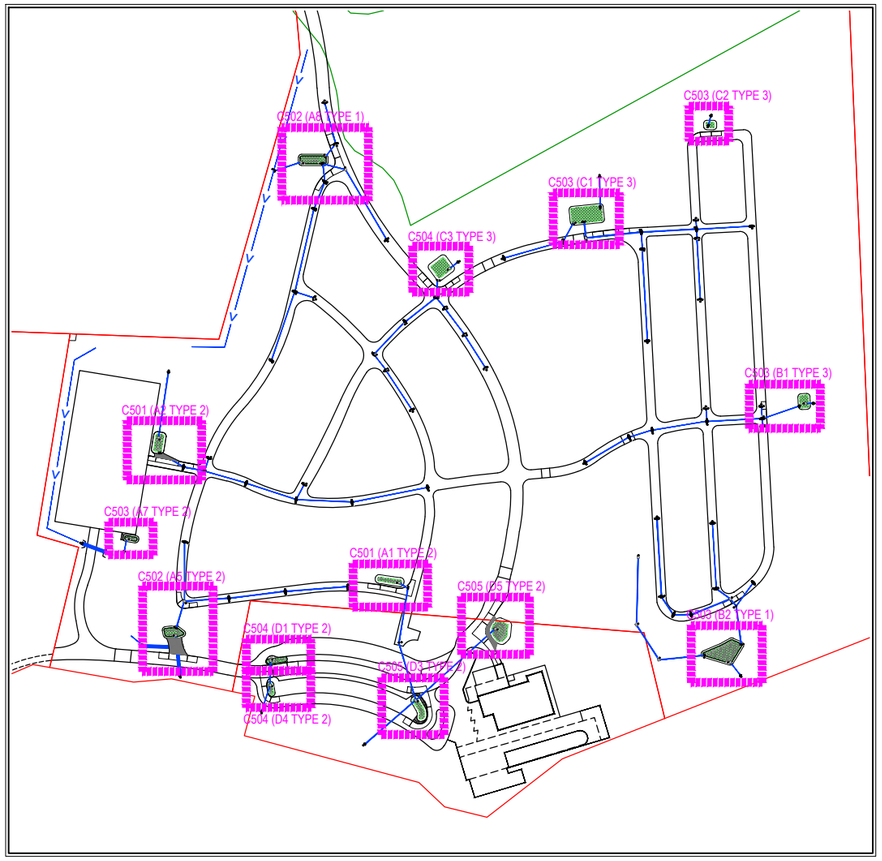
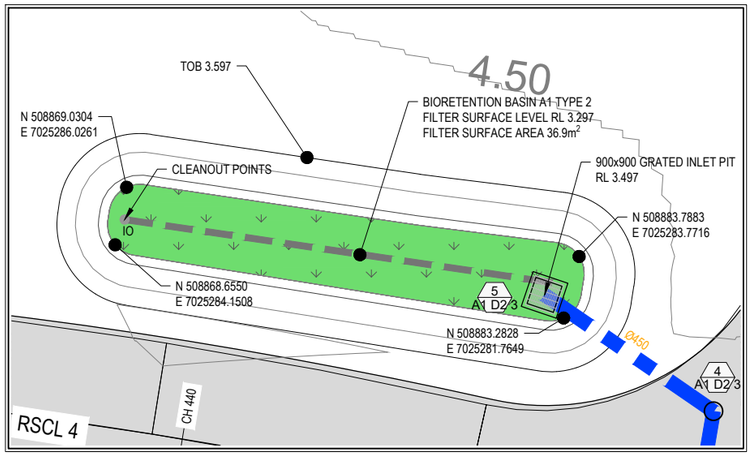
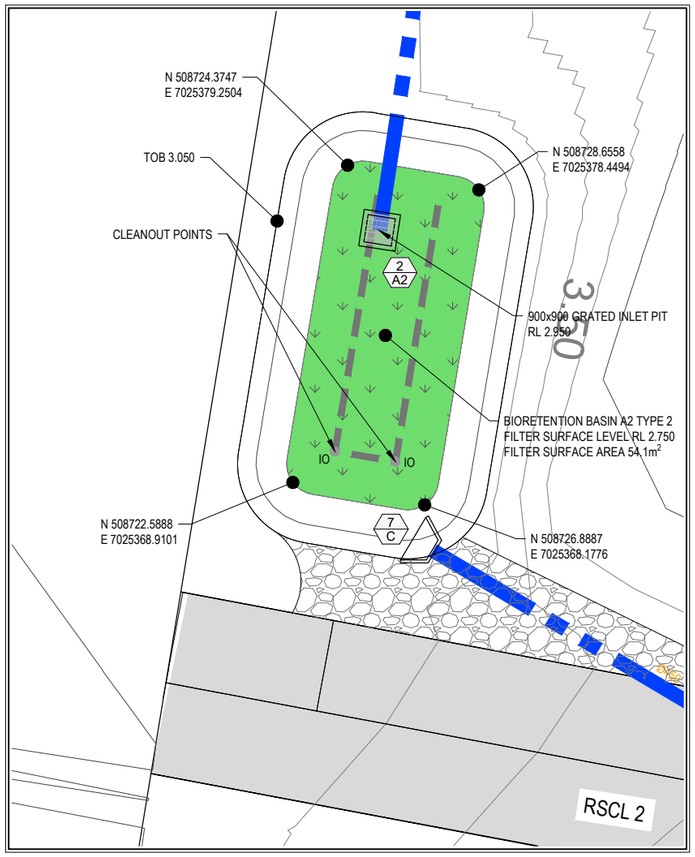


KEY MAP
1:2000 (A1) / 1:4000 (A3)



BIO-RETENTION BASIN A1 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)



BIO-RETENTION BASIN A2 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- 2 — DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	02.10.24	APPROVAL	GHK

covey

Approved

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(07) 5443 7777
engineers@covey.com.au

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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BIORETENTION BASIN DETAILS (SHEET 2 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C501

Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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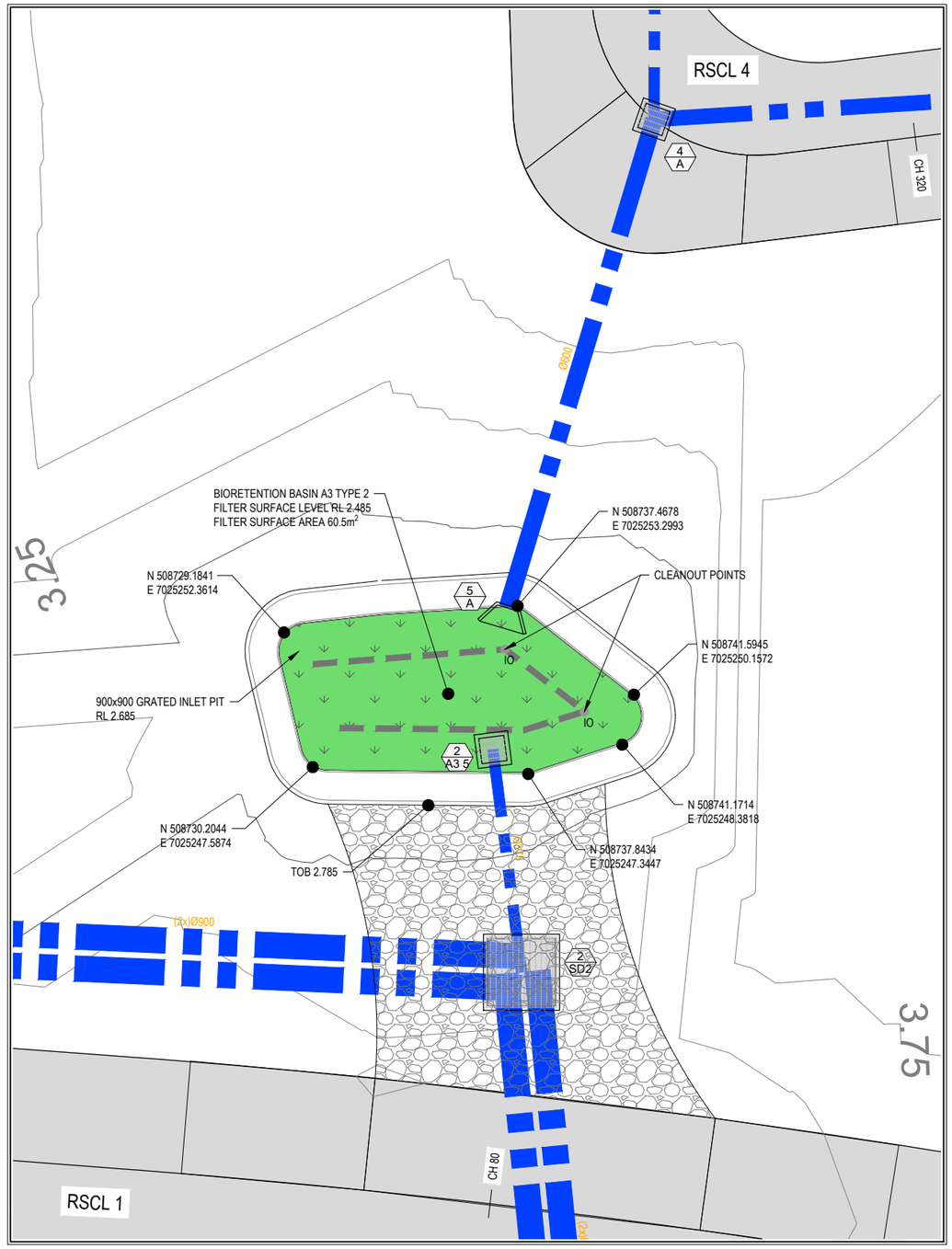
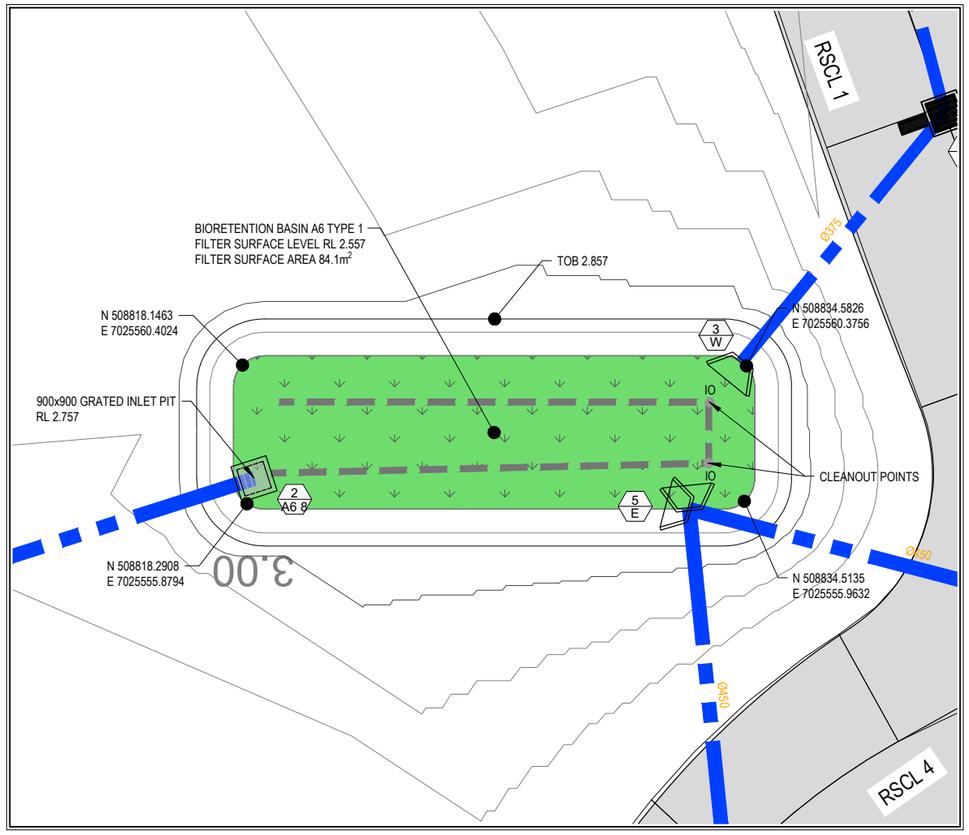


BIO-RETENTION BASIN A5 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- 2 — DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION



BIO-RETENTION BASIN A8 (TYPE 1) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	02.10.24	APPROVAL	GHK

Approved

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Drawing title - BIORETENTION BASIN DETAILS (SHEET 3 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT
Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C502
Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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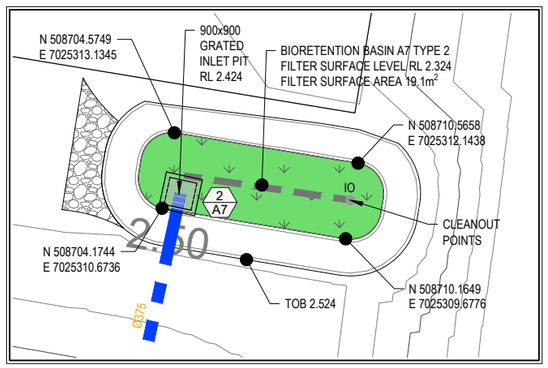

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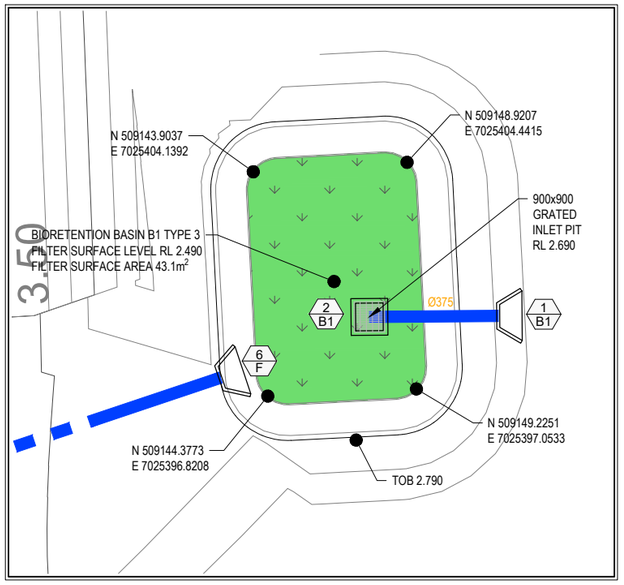
SCALE 1:100 (A1) / 1:200 (A3)



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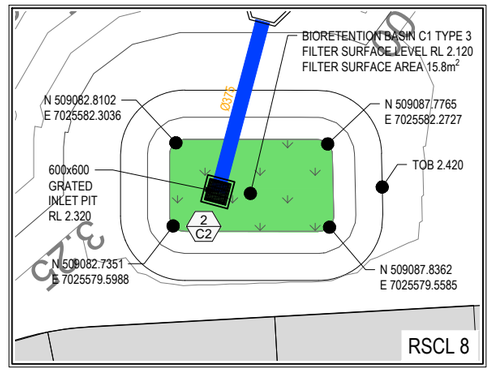
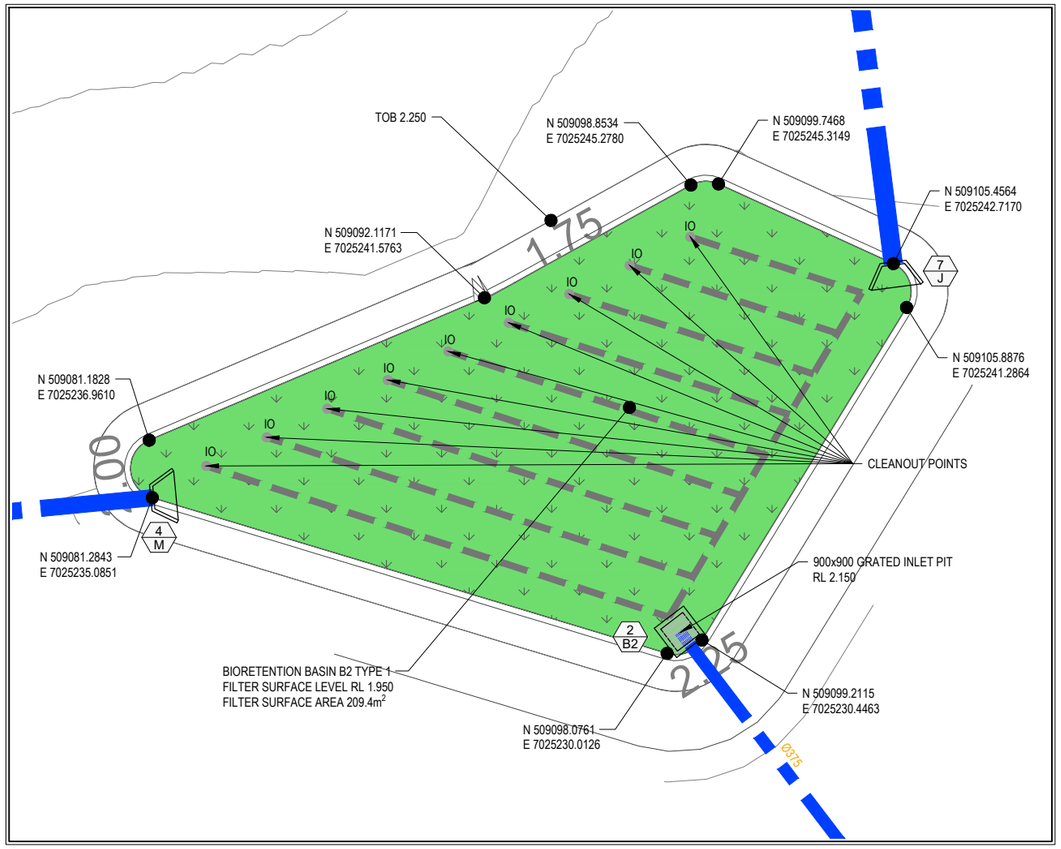


BIO-RETENTION BASIN C2 (TYPE 3) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- 2 — DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION



BIO-RETENTION BASIN B2 (TYPE 1) DETAILS
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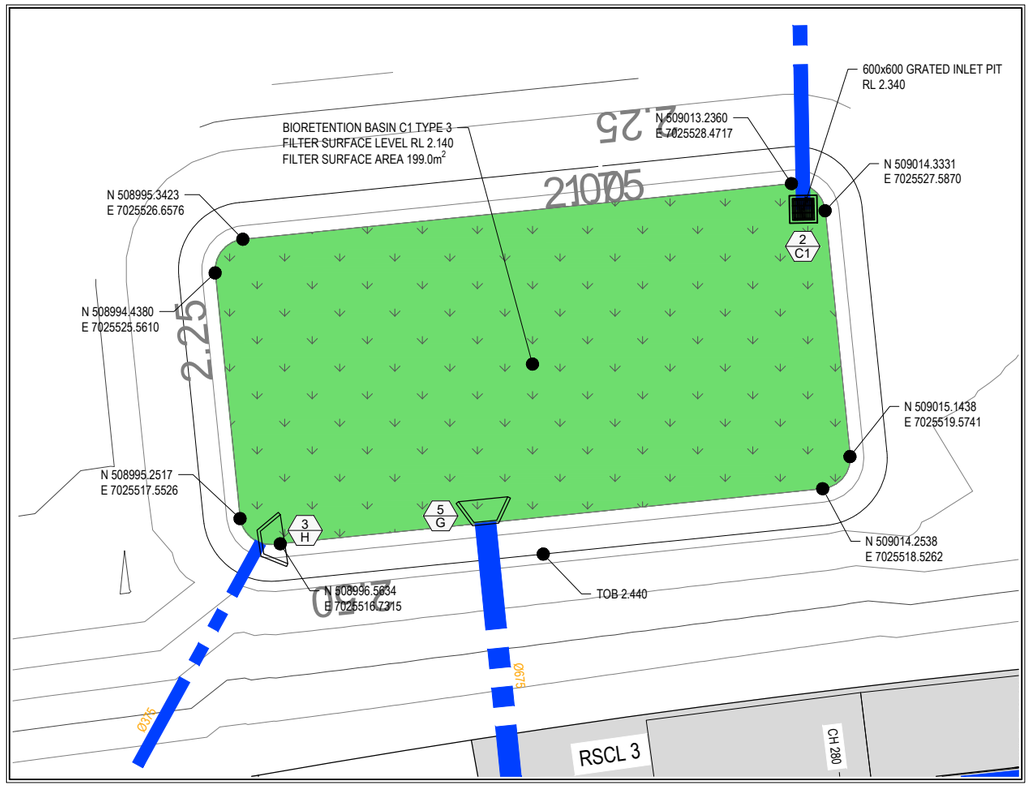

BIO-RETENTION BASIN C1 (TYPE 3) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

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Scales - AS SHOWN
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A	02.10.24	APPROVAL	GHK

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Drawing title - BIORETENTION BASIN DETAILS (SHEET 4 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT
Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C503
Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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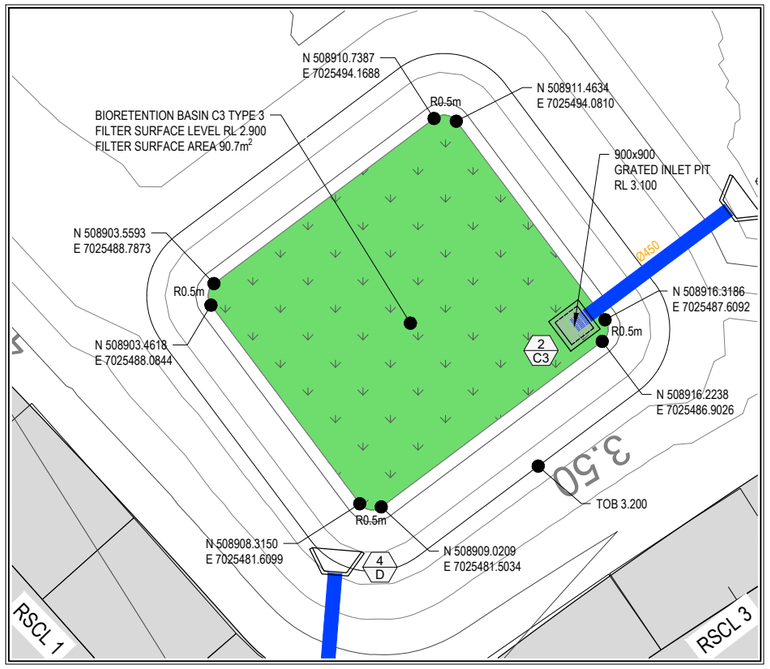

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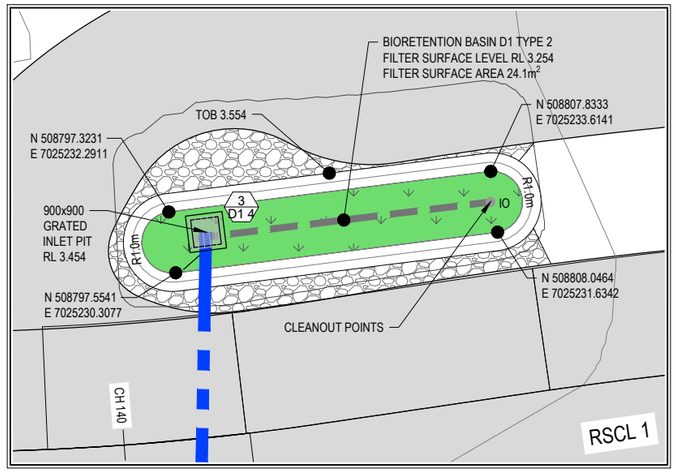

BIO-RETENTION BASIN D1 (TYPE 2) DETAILS
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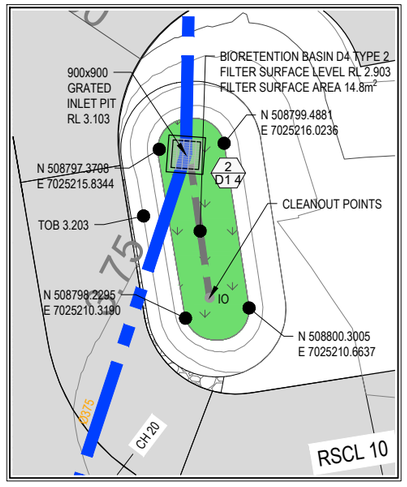

BIO-RETENTION BASIN D4 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION

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Design - CM	Drawn - GHK		
Scales - AS SHOWN			
Document Stage - APPROVAL			

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A	02.10.24	APPROVAL	GHK

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Drawing title - BIORETENTION BASIN DETAILS (SHEET 5 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C504

Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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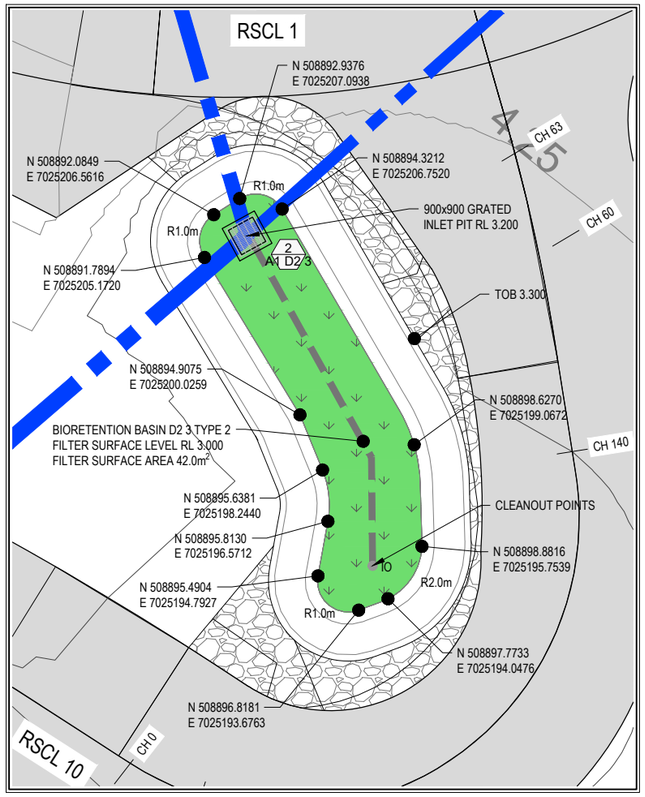

BIO-RETENTION BASIN D3 (TYPE 2) DETAILS
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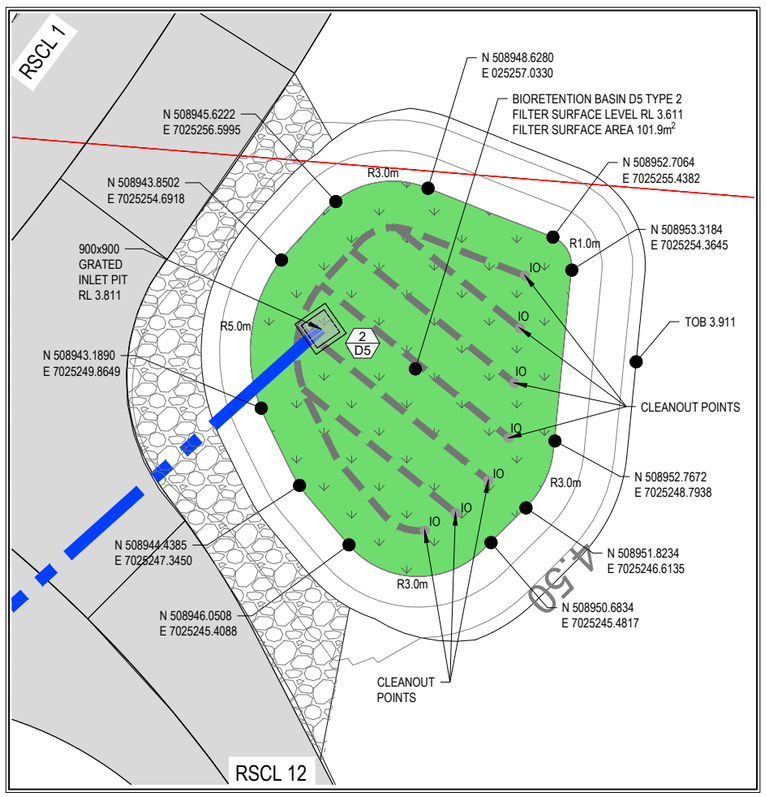

BIO-RETENTION BASIN D5 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- 2 — DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
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Drawing title - BIORETENTION BASIN DETAILS (SHEET 6 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT
Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C505
Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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BIORETENTION SYSTEM SPECIFICATIONS

1. REFERENCED DOCUMENTS

THE FOLLOWING DOCUMENTS ARE INCORPORATED INTO THIS SPECIFICATION BY REFERENCE:

1.1 STANDARDS

1.1.1. AS 1289 - METHODS OF TESTING SOILS FOR ENGINEERING PURPOSES

1.1.2. AS 1289.5.4.1-2007- SOIL COMPACTION AND DENSITY TESTS--COMPACTION CONTROL TEST--DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO

1.1.3. AS 1289.5.7.1-2006 - SOIL COMPACTION AND DENSITY TESTS--COMPACTION CONTROL TEST--HILF DENSITY RATIO AND HILF MOISTURE VARIATION (RAPID METHOD)

1.1.4. AS 2758 - AGGREGATES AND ROCK FOR ENGINEERING PURPOSES

1.1.5. AS 4419 - SOILS FOR LANDSCAPING AND GARDEN USE

1.1.6. AS 4454 - COMPOSTS, SOIL CONDITIONERS AND MULCHES

1.2 OTHER PUBLICATIONS

1.2.1. GUIDELINES FOR SOIL FILTER MEDIA IN BIORETENTION SYSTEMS (FAWB) - THE CURRENT VERSION OF THE GUIDELINE CAN BE FOUND AT http://www.monash.edu.au/fawb/

1.2.2. CONSTRUCTION AND ESTABLISHMENT GUIDELINES - SWALES, BIORETENTION SYSTEMS AND WETLANDS (WATER BY DESIGN) http://waterbydesign.com.au/ceguide/

1.2.3. TRANSFERRING OWNERSHIP OF VEGETATED STORMWATER ASSETS (WATER BY DESIGN) http://waterbydesign.com.au/transferguide/

1.2.4. TRANSFERRING OWNERSHIP OF VEGETATED STORMWATER ASSETS (WATER BY DESIGN) http://waterbydesign.com.au/transferguide/

1.2.5. BIORETENTION TECHNICAL DESIGN GUIDELINES (WATER BY DESIGN) http://waterbydesign.com.au/techguide/

1.2.6. WATER SENSITIVE URBAN DESIGN FIELD GUIDE (WATER BY DESIGN)

2. ABBREVIATIONS AND DEFINITIONS

2.1. THE BIORETENTION SYSTEM SPECIFICATION CONSISTS OF THE FOLLOWING ABBREVIATIONS AND DEFINITIONS:

2.2. FILTER: SOIL LAYER WHICH ACTS AS A POLLUTANT FILTER AND SUPPORTS PLANT GROWTH.

2.3. IMPERMEABLE LINERS: THE LINER THAT PREVENTS WATER MOVEMENT BETWEEN THE FILTER AND THE SURROUNDING SOILS AND DEFINES THE EDGE OF THE SYSTEM.

2.4. TRANSITION LAYER: LAYER TO SEPARATE FILTER LAYER FROM THE DRAINAGE LAYER TO AVOID MIGRATION OF SOILS FROM THE FILTER TO THE DRAINAGE LAYER

2.5. DRAINAGE LAYER: RELATIVELY FREE DRAINING LAYER TO CONVEY INFILTRATED WATER TO THE UNDERDRAINAGE.

2.6. UNDER-DRAINS: SLOTTED DRAINS COLLECT TREATED STORMWATER FROM THE DRAINAGE LAYER AT THE BASE OF THE BIORETENTION SYSTEM.

3. TEST METHODS AND STANDARDS

3.1. THE FOLLOWING TEST METHODS AND STANDARDS ARE TO BE USED AS SPECIFIED IN THE ABOVE GUIDELINES WHEN CONDUCTING TESTS ASSOCIATED WITH THIS SPECIFICATION:

3.2. THE HYDRAULIC CONDUCTIVITY OF POTENTIAL FILTER MEDIA SHALL BE MEASURED USING THE ASTM F1815-11 METHOD

3.3. PARTICLE SIZE DISTRIBUTION: AS1289.3.6.1 - 1995

3.4. 3.4. SOILS FOR LANDSCAPING AND GARDEN USE: AS4419 - 2003.

4. MATERIALS

4.1. MATERIALS SHALL MEET THE REQUIRED SPECIFICATIONS DETAILED IN SECTION 8 FILTER MEDIA, SECTION 9 TRANSITION LAYER, SECTION 10 DRAINAGE LAYER, SECTION 11 UNDER DRAINAGE, SECTION 12 PERMEABLE LINER, SECTION 13 IMPERMEABLE LINER AND SECTION 14 LANDSCAPING OF THIS DOCUMENT. ALL MATERIALS MUST BE CERTIFIED BY THE SUPPLIER WITH CERTIFICATION AND DELIVERY

4.2. SUPPLY DOCKETS SHALL BE PROVIDED ON REQUEST TO CERTIFY THE MATERIAL DELIVERED IS THE MATERIAL TESTED.

5. TIMING AND EROSION AND SEDIMENT CONTROL

5.1. THE TIMING OF CIVIL AND LANDSCAPE WORKS FOR BIORETENTION SYSTEMS MUST BE CAREFULLY PLANNED TO ENSURE THAT BOTH THE BIORETENTION SYSTEM AND THE DOWNSTREAM WATERWAYS, ARE NOT IMPACTED BY STORMWATER AND SEDIMENT (E.G. THROUGH BEST PRACTICE EROSION AND SEDIMENT CONTROL). IN PARTICULAR, THE DRAINAGE LAYER, TRANSITION LAYER AND FILTER MEDIA MUST NOT BE PLACED UNTIL THE RISK OF HIGH SEDIMENT LOADING FROM UPSTREAM CONSTRUCTION ACTIVITIES HAS BEEN MITIGATED.

5.2. EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION MUST BE DELIVERED IN ACCORDANCE WITH ALL LEGISLATIVE REQUIREMENTS INCLUDING, WHERE REQUIRED, THE PREPARATION OF SITE-SPECIFIC ESC PLAN/S IN ACCORDANCE WITH CURRENT BEST PRACTICE EROSION AND SEDIMENT CONTROL (E.G. IECA 2008, OR LATER VERSION).

6. EARTHWORKS AND HYDRAULIC STRUCTURES

6.1. THE CONSTRUCTION OF HYDRAULIC STRUCTURES MUST ENSURE THE DESIGN LEVELS ARE ACHIEVED. BUNDS/ EMBANKMENTS SURROUNDING THE SYSTEM SHALL BE AT CORRECT LEVELS. THE BELOW TABLE SUMMARISES THE CONSTRUCTION TOLERANCES FOR EACH ELEMENT OF A TYPICAL BIORETENTION SYSTEM.

6.2. BIORETENTION SYSTEMS TOLERANCES (SEE CHART BELOW)

BIORETENTION SYSTEMS TOLERANCES

BIORETENTION ELEMENT	TOLERANCE (UNLESS SPECIFIED OTHERWISE)
HYDRAULIC STRUCTURES	+ /- 25 mm (+/- 15 mm FOR STREETSCAPE SYSTEMS)
EARTHWORKS	+ /-50 mm
UNDER-DRAINAGE	+/- 25 mm
DRAINAGE AND TRANSITION LAYERS	+ 25 mm
SURFACE LEVEL	+/- 25 mm +/- 40 mm FOR FILTER MEDIA >300 m² PROVIDED THE AVERAGE EXTENDED DETENTION REQUIREMENT IS WITHIN 25 mm OF THE DESIGN REQUIREMENT.
EMBANKMENTS AND BUNDS	-25 mm, + 50 mm

7. MAINTENANCE ACCESS

MAINTENANCE ACCESS IS PROVIDED IN ACCORDANCE WITH THE DESIGN DRAWINGS.

8. FILTER MEDIA

8.1. MATERIALS

A FUNDAMENTAL PART OF BIORETENTION SYSTEMS IS THE FILTER MEDIA. THE MAIN ROLE OF THE FILTER MEDIA IS TO SUPPORT VEGETATION AND REMOVE POLLUTANTS. FILTER MEDIA SHOULD BE LOAMY SAND THAT HAS HIGH PERMEABILITY WHEN COMPACTED. IT SHOULD NOT CONTAIN ANY RUBBISH OR DELETERIOUS MATERIAL. THE LOAMY SAND SHOULD CONTAIN SOME ORGANIC MATTER TO IMPROVE WATER-HOLDING CAPACITY AND PLANT HEALTH, BUT IT SHOULD BE LOW IN NUTRIENT CONTENT. THE FILTER MEDIA MUST BE COMPLIANT WITH AS4419 - SOILS FOR LANDSCAPING AND GARDEN USE, AND MEET THE FOLLOWING REQUIREMENTS:

FILTER MEDIA REQUIREMENTS

PARAMETER	TEST METHOD IN ACCORDANCE WITH	REQUIREMENT
SATURATED HYDRAULIC CONDUCTIVITY	ASTM f1815-11	50 - 500 mm/hr (200 PREFERRED)
pH	AS 4419	5.5 - 7.5
ELECTRICAL CONDUCTIVITY	AS 4419	<1.2 dS/m
NITROGEN CONTENT	AS 4419	<800 mg/kg
PHOSPHORUS CONTENT	AS 4419	<40 mg/kg
ORGANIC CONTENT	AS 4419	3% - 10% WHERE ORGANIC CONTENT IS BELOW THIS THRESHOLD, THE FILTER MEDIA MAY BE AMELIORATED BY ADDING 50 mm OF COMPOST AND TINING IT INTO THE TOP 150 mm OF FILTER MEDIA.
PARTICLE SIZE DISTRIBUTION	AS 1289.3.6.1 - 1995	CLAY & SILT 3 - 6% (<0.05 mm) VERY FINE SAND 5 - 30% (0.05 - 0.15 mm) FINE SAND 10- 30% (0.15 - 0.25 mm) MEDIUM TO COARSE SAND 40- 60% (0.25 - 1.0 mm) COARSE SAND 7 - 10% (1.0 - 2.0 mm) FINE GRAVEL <3% (2.0 - 3.4%)

SOURCE: GUIDELINES FOR SOIL FILTER MEDIA IN BIORETENTION SYSTEMS (FAWB) AND BIORETENTION TECHNICAL DESIGN GUIDELINES (WATER BY DESIGN)

FILTER MEDIA MUST BE FREE OF WEEDS AND PROPAGATES. OTHER CHARACTERISTICS OF THE FILTER MEDIA REQUIRED FOR PLANT GROWTH SHOULD BE CONFIRMED WITH A SOIL ANALYSIS OR CONFIRMED WITH A HORTICULTURIST/LANDSCAPE ARCHITECT.

8.2. TESTING FREQUENCY

SUITABLE FILTER MEDIA CAN BE DELIVERED TO SITE OR IMPORTED SAND CAN BE AMELIORATED TO MEET THE ABOVE SPECIFICATION. IN EITHER CASE, THE MEDIA SHALL BE TESTED AGAINST THE ABOVE PARAMETERS AT ONE SAMPLE PER 500 m3 OF FILTER MEDIA. FOR SOIL SUPPLIED TO SITE, TESTING MUST BE UNDERTAKEN ON THE ACTUAL MATERIAL TO BE DELIVERED TO THE BIORETENTION SYSTEM. THE SUPPLIER AND CONTRACTOR WILL BE RESPONSIBLE FOR ENSURING THE FILTER MEDIA MEETS THE SPECIFICATION AND THE CORRECT MATERIAL IS DELIVERED TO SITE PRIOR TO INSTALLATION.

8.3. INSTALLATION AND COMPACTION

WHEN INSTALLING, THE FOLLOWING SPECIFICATIONS SHALL BE APPLIED:

8.3.1. FILTER MEDIA SHALL BE INSTALLED AND COMPACTED IN TWO LIFTS FOR DEPTHS OF OVER 500 mm. COMPACTION SHALL BE LIGHT AND EVEN ACROSS THE SURFACE.

8.3.2. THE TOP SURFACE OF THE DRAINAGE LAYER, TRANSITION LAYER AND THE FILTER MEDIA LAYER SHALL BE LEVEL AND FREE FROM LOCALISED DEPRESSIONS TO ENSURE EVEN DISTRIBUTION OF STORMWATER FLOWS ACROSS THE SURFACE AND PREVENT LOCALISED PONDING.

8.3.3. FILTER FABRIC MUST NOT BE USED BETWEEN DRAINAGE LAYER, TRANSITION LAYER AND THE FILTER MEDIA LAYERS OR WRAPPED AROUND THE UNDER-DRAINAGE

9. TRANSITION LAYER

TRANSITION LAYERS PREVENT FILTER MEDIA MIGRATING INTO THE DRAINAGE LAYER.

9.1. MATERIALS

9.1.1. TRANSITION LAYER SHALL BE MINIMUM THICKNESS OF 100 mm COARSE SAND UNLESS OTHERWISE SPECIFIED (TYPICALLY 1 mm PARTICLE SIZE DIAMETER) WITH <2% FINES.

9.1.2. A PARTICLE SIZE DISTRIBUTION FOR THE SAND SHALL BE OBTAINED TO ENSURE THAT IT MEETS THE FOLLOWING CRITERIA (VICROADS).

9.1.3. D15 (TRANSITION LAYER) ≤ 5 X D85 (FILTER MEDIA)

9.2. TESTING

A SAMPLE OF THE PROPOSED TRANSITION LAYER IS TO BE PROVIDED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION. THE SUPERINTENDENT MAY REQUIRE THE TRANSITION LAYER TO BE TESTED TO ENSURE ITS PARTICLE SIZE.

10. DRAINAGE LAYER

DRAINAGE LAYERS CONVEY INFILTRATED WATER INTO THE SLOTTED UNDER-DRAINAGE PIPES.

10.1 MATERIALS

10.1.1. DRAINAGE LAYER SHALL BE COMPRISED OF FINE GRAVEL (NOMINAL 2-5 mm) WITH <2% FINES AND A MINIMUM SATURATED HYDRAULIC CONDUCTIVITY OF 400 mm/hr. THE DEPTH OF THE DRAINAGE LAYER SHALL ENSURE AT LEAST 50 mm OF AGGREGATE COVER OVER ALL PERFORATED UNDER-DRAINAGE PIPES.

10.1.2. A PARTICLE SIZE DISTRIBUTION FOR THE GRAVEL SHALL BE OBTAINED TO ENSURE THAT IT MEETS THE FOLLOWING BRIDGING CRITERIA (VICROADS): D15 (DRAINAGE LAYER) ≤ 5 X D85 (TRANSITION LAYER)

10.2. TESTING

A SAMPLE OF THE PROPOSED DRAINAGE LAYER IS TO BE PROVIDED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION. THE SUPERINTENDENT MAY REQUIRE THE DRAINAGE LAYER TO BE TESTED TO ENSURE ITS PARTICLE SIZE.

11. UNDER-DRAINAGE

11.1. MATERIALS

EITHER SLOTTED RIGID PIPE (HDPE OR SIMILAR) OR AG-PIPE CAN BE USED FOR UNDER-DRAINAGE AS SPECIFIED IN THE CONSTRUCTION DRAWINGS. WHEN INSTALLING, THE FOLLOWING SPECIFICATIONS SHALL BE CONSIDERED:

11.1.1. TYPICALLY 100 MM-SLOTTED HDPE PIPE IS THE PREFERRED TYPE OF RIGID PIPE.

11.1.2. THE SLOTS IN THE PIPE SHALL NOT ALLOW THE DRAINAGE LAYER AGGREGATE TO FREELY ENTER THE PIPE (UNDER-DRAINAGE WITH SLOT WIDTH OF 2 mm OR SMALLER IS PREFERRED).

11.1.3 UNDER-DRAINAGE PIPES MUST NOT BE SURROUNDED BY ANY GEOFABRIC OR SOCK.

11.2. INSTALLATION

11.2.1. THE MAXIMUM SPACING OF UNDER-DRAINS FOR BIO-RETENTION SYSTEMS <100 m2 IS 1.5 m FROM CENTRE TO CENTRE. FOR BIORETENTION SYSTEMS >100 m2 THE MAXIMUM SPACING CAN BE INCREASED TO 2.0 - 2.5 m IF SPECIFIED IN THE CONSTRUCTION DRAWINGS.

11.2.2. THE UNDER-DRAINS SHALL BE SLOPED TOWARDS THE OUTLET PIT (MIN. 0.5% LONGITUDINAL GRADE) AND THE BASE OF FILTRATION TRENCH SHALL BE FREE FROM LOCALISED DEPRESSIONS. FOR BIORETENTION SYSTEMS WITH A SATURATED ZONE A 0% PIPE GRADE IS ACCEPTABLE.

11.2.3. ALL JUNCTIONS AND CONNECTIONS SHALL BE APPROPRIATELY SEALED.

11.2.4.UNDER-DRAINAGE PIPES SHALL BE SEALED INTO THE OVERFLOW PIT.

11.2.5. ALL UNDER DRAINAGE PIPES TO HAVE RAISED CLEAN OUT POINTS CONSTRUCTED FROM NON-SLOTTED PIPES WHICH EXTEND TO 150 mm ABOVE FILTER MEDIA SURFACE

12. PERMEABLE LINER (WHERE SPECIFIED)

12.1. A PERMEABLE GEOTEXTILE LINER FABRIC MUST BE USED TO LINE THE OUTSIDE OF THE BIORETENTION SYSTEM.

12.2. THE LINER MUST EXTEND AT LEAST 500 mm BEYOND THE TOP OF THE SIDES AND MUST BE KEYED INTO BATTER AND COVERED BY AT LEAST 200 mm OF TOPSOIL.

12.3. THE LINER MUST BE RESISTANT TO ALL SOIL ACIDS AND ALKALIS, RESISTANT TO MICROORGANISMS AND COMPLY WITH THE REQUIREMENTS OF AS3706.12 AND AS3706.13.

13. IMPERMEABLE LINER (WHERE SPECIFIED)

13.1. MATERIALS LINER OPTIONS INCLUDE CLAY, GEOSYNTHETIC BENTONITE CLAY LINERS OR HIGH-DENSITY POLY ETHYLENE (HDPE) LINERS. REFER TO THE PROJECT DRAWINGS FOR LINER DETAILS.

13.2. INSTALLATION INSTALLATION MUST BE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS AND DESIGN DRAWINGS AND ACHIEVE THE FOLLOWING:

13.2.1. THE LINERS SHALL BE KEYED INTO THE BATTERS AND TO THE EMBANKMENTS.

13.2.2.LINERS MUST BE SEALED AROUND PROTRUSIONS SUCH AS OUTLET PIPES.

13.2.3 MUST ACHIEVE A MAXIMUM PERMEABILITY OF 1X10-9M/S

14. LANDSCAPING

14.0. REFER TO LANDSCAPE DESIGN DRAWINGS.

14.1. BATTER SLOPES MUST HAVE MIN 200 mm TOPSOIL WHICH MUST BE TESTED BY A NATA-ACCREDITED LABORATORY IN ACCORDANCE WITH AS 4419.

14.2. SUBSOILS TO BE CULTIVATED TO 150 mm PRIOR TO PLACING TOPSOIL ON BATTER SLOPES.

14.3. PLANTING DENSITIES AND SPECIES MUST BE CONSISTENT WITH THE LANDSCAPE DESIGN DRAWINGS. NO SUBSTITUTIONS SHOULD BE MADE UNLESS APPROVED BY THE SUPERINTENDENT.

14.4. PLANTS SUPPLIED TO SITE MUST:

14.4.1. BE GROWN IN CLEAN, WEED- AND PEST-FREE CONDITIONS;

14.4.2. BE WELL DEVELOPED, SUN-HARDENED AND CONTAIN A FULLY ESTABLISHED ROOT BALL THAT DOES NOT CRUMBLE WHEN REMOVED FROM ITS CONTAINER.

14.4.3. BE AT LEAST 200 MM HIGH.

14.4.4. SHOW NO SIGN OF PEST AND DISEASE

14.4.5. SHOW NO SIGNS OF NUTRIENT DEFICIENCY

14.4.6. BE FREE FROM WEEDS

14.4.7. BE CLEARLY LABELLED

14.4.8. BE SUPPLIED IN A CONTAINER THAT IS AT LEAST: 90 MM HIGH X 50 MM WIDE

14.5. PREPARING FILTER MEDIA: UNLESS SPECIFIED OTHERWISE, EACH PLANT MUST RECEIVE AT LEAST 10 G OF SLOW-RELEASE NATIVE FERTILIZER IN GRANULAR OR TABLET FORM. PRE-HYDRATED WATER CRYSTALS MAY BE APPLIED AT 1-2%%% BY WEIGHT.

14.6. MULCH MUST BE APPLIED IN ACCORDANCE WITH THE DESIGN DRAWINGS, BE APPLIED PRIOR TO PLANTING, PROVIDE COVERAGE OF THE SOIL AND NOT EXCEED 75 MM THICKNESS, AND BE KEPT 50 MM CLEAR OF PLANT STEMS. UNLESS OTHERWISE SPECIFIED, MULCH SHOULD BE FINE SUGAR CANE MULCH SECURED IN PLACE BY A LOOSE WEAVE JUTE NET PINNED AT 500 MM CENTRES.

14.7. FILTER MEDIA SURFACE AND PLANT STOCK ARE TO BE WATERED IMMEDIATELY PRIOR TO PLANTING. UNLESS OTHERWISE SPECIFIED, PLANTS SHOULD BE PLANTED IN CLUMPS OF THE SAME SPECIES, AND LARGE MONOCULTURES AVOIDED.

14.8. PLANT METHOD MUST MINIMISE SOIL COMPACTION AND ENSURE THAT ALL ROOTS ARE COVERED BY AT LEAST 10 - 20 MM OF SOIL, AVOID COVERING PLANT CROWNS.

14.9. UNLESS SPECIFIED OTHERWISE, THE FOLLOWING IRRIGATION SCHEDULE APPLIES DURING PLANT ESTABLISHMENT (AT 2.5 - 5 L PER PLANT PER WEEK) - WEEK 1-5 FIVE WATERINGS PER WEEK - WEEK 6-10 THREE WATERINGS PER WEEK - WEEK 11-15 TWO WATERINGS PER WEEK - THEREAFTER AS REQUIRED TO SUSTAIN PLANTS UNTIL SUCCESSFUL ESTABLISHMENT

14.10. REPLANTING MUST OCCUR DURING THE ESTABLISHMENT PERIOD IF LESS THAN 90% OF PLANTS SURVIVE.

14.11. SUCCESSFUL PLANT ESTABLISHMENT IN BIORETENTION SYSTEMS IS CONSIDERED WHEN THE PLANTS ARE ROBUST AND SELF-SUSTAINING, AND MEET THE FOLLOWING CRITERIA. - VEGETATION MUST COVER AT LEAST 90% OF THE BIORETENTION SURFACE WITH MULCH COVERING THE REMAINDER (< 10% MULCH VISIBLE FROM ABOVE) - AVERAGE GROUNDCOVER PLANT HEIGHT MUST BE GREATER THAN 500 MM. - PLANTS MUST BE HEALTHY AND FREE FROM DISEASE. - NO WEEDS OR LITTER TO BE PRESENT.

15. CERTIFICATION AND CHAIN OF CUSTODY

15.1. THE FOLLOWING CERTIFICATION AND THE CHAIN OF CUSTODY APPLIES TO BIORETENTION MEDIA:

15.1.1. THE SUPPLIER AND CONTRACTOR ARE RESPONSIBLE FOR ENSURING THE BIORETENTION MEDIA MEETS THE SPECIFICATIONS OUTLINED IN THESE GUIDELINES AND THAT THE CORRECT MATERIAL IS DELIVERED TO SITE. THE SUPPLIER MUST ARRANGE FOR TESTING OF THE FILTER MEDIA BY A SOIL LABORATORY CERTIFIED FOR THE METHODS IN ACCORDANCE WITH THE REQUIREMENTS LISTED ABOVE. ON THE BASIS OF THE TESTING, THE SOIL LABORATORY AND SUPPLIER MUST CERTIFY THE MATERIAL MEETS THESE SPECIFICATIONS. THE SUPPLIER MUST PROVIDE THE CERTIFICATION AND LABORATORY TEST RESULTS TO THE CONTRACTOR WITH THE SUPPLY DOCKET.

15.1.2. THE CONTRACTOR PROVIDES A COPY OF THE SUPPLIER'S CERTIFICATION, TEST RESULTS AND SUPPLY DOCKET TO THE SITE SUPERINTENDENT OR BIORETENTION DESIGNER FOR REVIEW.

15.1.3. FOLLOWING REVIEW OF THE CERTIFICATION, TEST RESULTS AND THE SUPPLY DOCKET, THE SITE SUPERINTENDENT OR BIORETENTION DESIGNER APPROVES INSTALLATION OF THE BIORETENTION MEDIA.

15.1.4. THE RELEVANT SECTIONS OF THE BIORETENTION MEDIA SIGN-OFF FORM AS PER THE CONSTRUCTION AND ESTABLISHMENT GUIDELINES (WATER BY DESIGN) SHOULD BE COMPLETED AND SIGNED. THIS SIGN-OFF FORM IS PROVIDED AS PART OF THE CONSTRUCTION CERTIFICATION BY THE SITE SUPERINTENDENT OR BIORETENTION DESIGNER.

16. HOLD POINTS

16.1. THE FOLLOWING HOLD POINTS MUST BE OBSERVED IN ACCORDANCE WITH THE MOST RECENT WATER BY DESIGN CONSTRUCTION CHECKLISTS AND SUPERINTENDENT APPROVAL IS REQUIRED FOR WORKS TO PROCEED:

16.0.1. PRESTART MEETING

16.0.2. COMPLETION OF HYDRAULIC STRUCTURES AND UNDER-DRAINAGE

16.0.3. PRIOR TO PLACING FILTER MEDIA

16.1.4. AFTER PLACEMENT OF FILTER MEDIA (PRIOR TO APPLYING MULCH AND PLANTING).

17. COMPLIANCE TESTING (FOR ON OR OFF MAINTENANCE)

17.1. COMPLIANCE TESTING MUST BE IN ACCORDANCE WITH CHAPTER 5 OF TRANSFERRING OWNERSHIP OF VEGETATED STORMWATER ASSETS (WATER BY DESIGN). CHECKLISTS MUST BE COMPLETED AND SIGNED BY THE SUPERINTENDENT.

DISCLAIMER: IT IS THE RESPONSIBILITY OF THE CERTIFYING REGISTERED PROFESSIONAL ENGINEER TO ENSURE THESE STANDARD NOTES ARE ADAPTED TO THE SPECIFIC NEEDS OF THE PROJECT. IT IS EXPECTED THAT ADDITIONAL DRAWING NOTES WOULD BE REQUIRED TO COVER OTHER IMPORTANT PROJECT ISSUES (E.G. WORKPLACE HEALTH AND SAFETY, ENVIRONMENTAL PROTECTION, EROSION AND SEDIMENT CONTROL, ETC). HEALTHY WATERWAYS, IPWEA AND ALL CONTRIBUTORS TO THIS DOCUMENT ACCEPT NO LIABILITY FOR THE USE, MISUSE OR ANY OMISSION OR INACCURACY IN THIS DOCUMENT.

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Document Stage - APPROVAL

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B	18.12.24	RESPONSE TO RFI	CM
A	12.09.24	APPROVAL	GHK

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Drawing title - BIORETENTION BASIN SYSTEM SPECIFICATIONS

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C506

Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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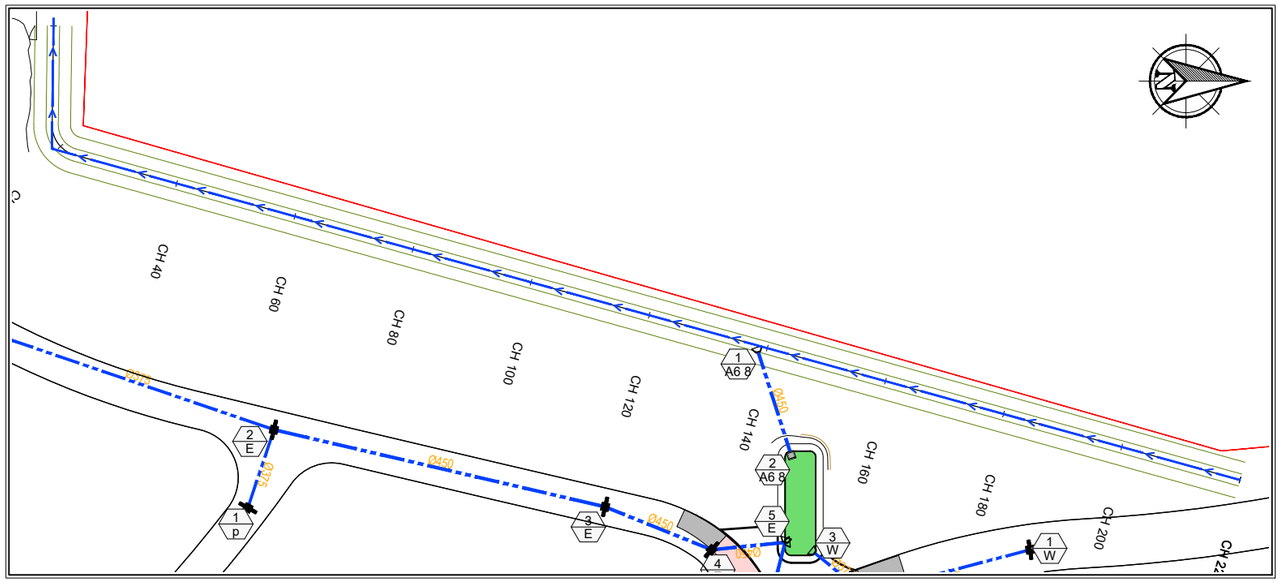

KEY MAP
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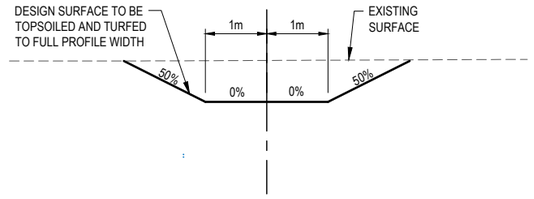
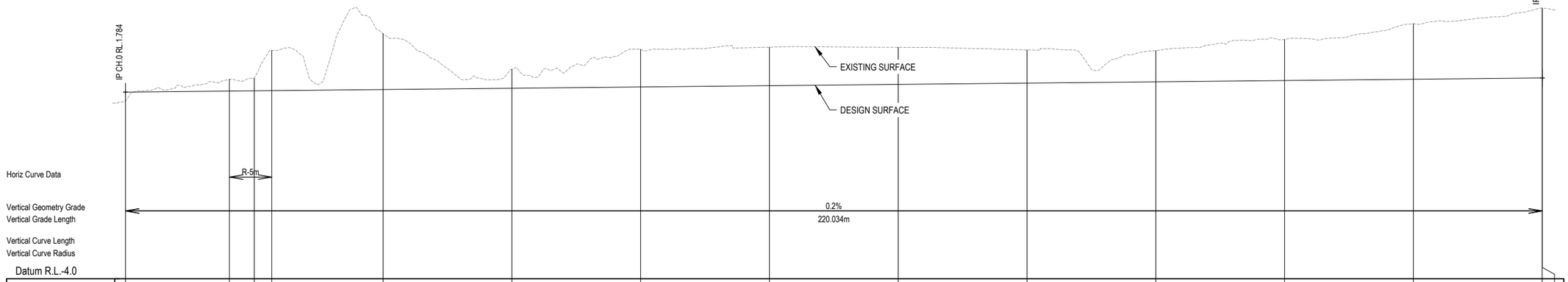


SWALE TYPICAL SECTION
1:50 (A1) / 1:100 (A3)

DI1								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	508748.546	7025436.386	1.784	90°46'52.82"			
TC	16.149	508764.693	7025436.166	1.816	90°46'52.82"			
IP 2	19.430	508768.544	7025436.114	1.823		R = -5.000	6.563	75°12'23.40"
CT	22.712	508769.578	7025439.823	1.829	15°34'29.42"			
IP 3	220.034	508822.558	7025629.900	2.224	15°34'29.42"			



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Natural Ground	1.505		2.181		2.219	3.077		3.594		2.493		3.113		3.178		3.173		3.092		3.071		3.419		3.904		4.386	4.385
Depth of Cut or Fill	-0.279		0.365		0.395	1.248		1.730		0.589		1.169		1.194		1.149		1.028		0.967		1.275		1.720		2.162	2.161
Chainage	0.000		16.149		20.000	22.712		40.000		60.000		80.000		100.000		120.000		140.000		160.000		180.000		200.000		220.000	220.034

SECTION DI1
HORIZ. 1:350(A1) / VERT. 1:70(A1)

0 7m 14m 28m
SCALE 1:700 (A3)
HORIZ.

0 1.4m 2.8m 5.6m
SCALE 1:140 (A3)
VERT.

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Drawing title - SWALE DETAILS (SHEET 1 OF 3)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C550

Digital Ref : C550-C552 SWALE DETAILS Issue : B

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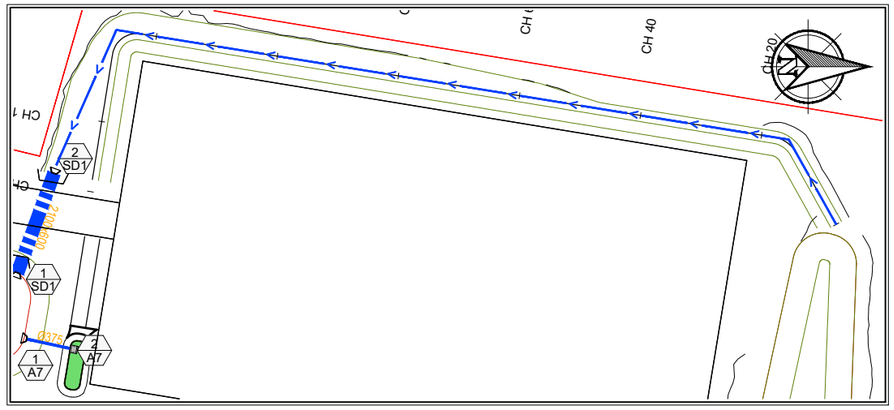
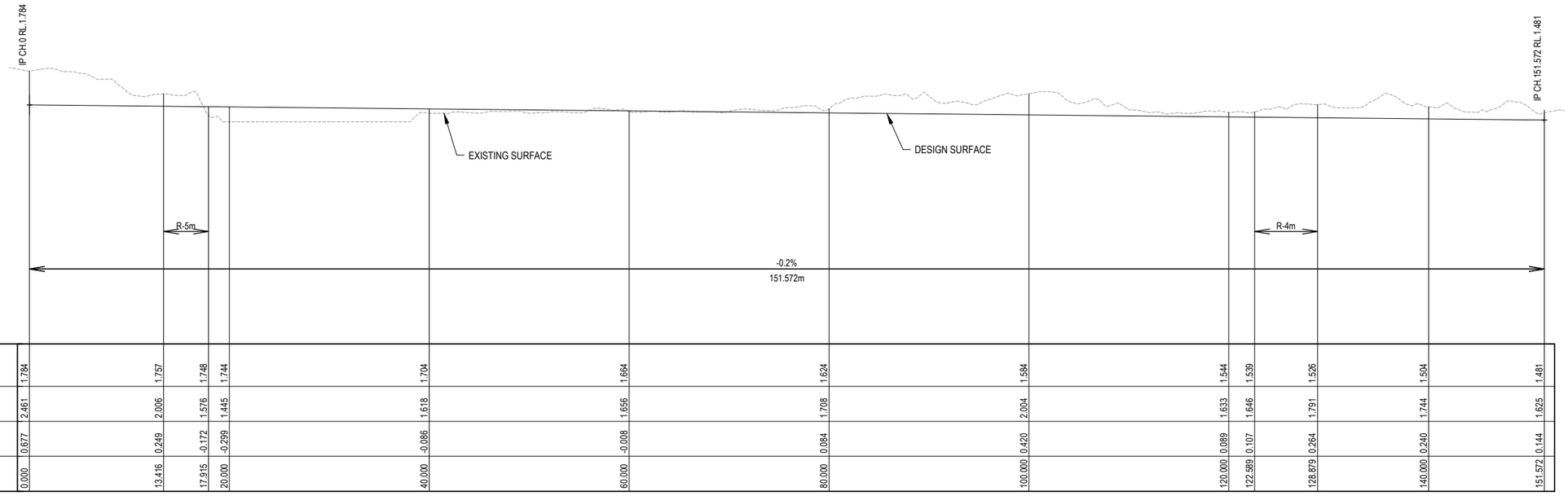


KEY MAP
1:2000 (A1) / 1:4000 (A3)

DI2								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	508684.424	7025435.491	1.784	240°48'35.34"			
TC	13.416	508672.712	7025428.948	1.757	240°48'35.34"			
IP 2	15.666	508670.604	7025427.771	1.753		R = -5.000	4.498	51°32'47.36"
CT	17.915	508670.216	7025425.388	1.748	189°15'47.98"			
TC	122.589	508653.366	7025322.079	1.539	189°15'47.98"			
IP 3	125.734	508652.721	7025318.124	1.533		R = -4.000	6.290	90°06'16.19"
CT	128.879	508656.677	7025317.486	1.526	99°09'31.79"			
IP 4	151.572	508679.080	7025313.874	1.481	99°09'31.79"			



SECTION DI2
HORIZ. 1:250(A1) / VERT. 1:50(A1)

SCALE 1:600 (A3) HORIZ. 0 6m 12m 24m
SCALE 1:120 (m) A3 VERT. 0 1.2m 2.4m 3.6m

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Drawing title - SWALE DETAILS (SHEET 2 OF 3)

Project - COOCHIN CREEK HOLIDAY RESORT
Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C551
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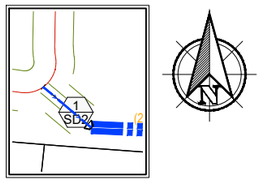
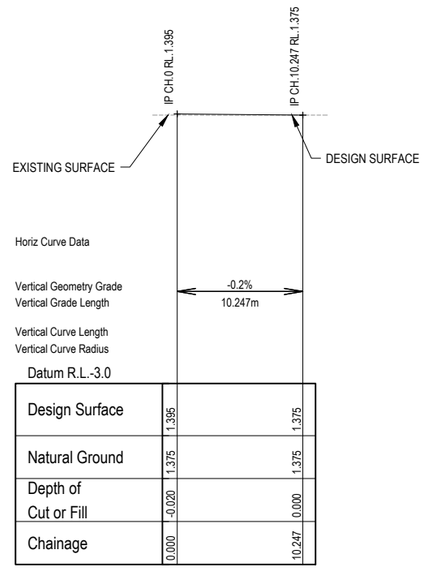


KEY MAP
1:2000 (A1) / 1:4000 (A3)

DI4					
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING
IP 1	0.000	508707.643	7025247.886	1.395	130°03'02.48"
IP 2	10.247	508715.487	7025241.292	1.375	130°03'02.48"



SECTION DI4
HORIZ. 1:250(A1) / VERT. 1:50(A1)

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Drawing title -
SWALE DETAILS
(SHEET 3 OF 3)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site -
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Project No. 243823 Sheet No. C552

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APPENDIX B

MUSIC Model (electronic copy)

APPENDIX C

Rainfall Data

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All Design Rainfall Depth (mm)
Issued: 21-Jul-24
Location Label:
Requested Latitude -26.89 Longitude 153.09
Nearest gri Latitude 26.8875 (S) Longitude 153.0875 (E)

Duration in min	Annual Exceedance Probability (AEP)								
	63.20%	50%	0.5EY	20%	0.2EY	10%	5%	2%	1%
1 min	2.97	3.32	3.68	4.42	4.51	5.17	5.91	6.88	7.63
2 min	5.12	5.72	6.35	7.7	7.85	9.1	10.5	12.6	14.2
3 min	7.16	8.01	8.89	10.8	11	12.7	14.7	17.4	19.6
4 min	9.03	10.1	11.2	13.6	13.8	16	18.3	21.6	24.2
5 min	10.7	12	13.3	16.1	16.4	18.9	21.6	25.4	28.3
10 min	17.4	19.5	21.6	25.9	26.4	30.2	34.4	39.9	44
15 min	22.2	24.8	27.5	32.9	33.5	38.3	43.6	50.5	55.7
20 min	25.9	28.9	32.1	38.3	39.1	44.6	50.8	58.9	65.1
25 min	28.8	32.2	35.7	42.7	43.6	49.9	56.9	66.1	73.2
30 min	31.4	35	38.9	46.5	47.5	54.4	62.1	72.4	80.3
45 min	37.2	41.6	46.1	55.6	56.7	65.2	74.8	87.9	98
1 hour	41.5	46.5	51.6	62.5	63.7	73.7	84.9	100	112
1.5 hour	48	53.9	59.9	73.3	74.8	87	101	120	135
2 hour	52.9	59.7	66.3	81.9	83.5	97.7	114	136	154
3 hour	60.7	68.9	76.4	95.8	97.7	115	135	162	184
4.5 hour	69.6	79.5	88.3	112	114	136	160	193	220
6 hour	76.8	88.3	98	126	128	153	181	219	250
9 hour	88.7	103	114	148	151	181	215	261	298
12 hour	98.5	114	127	167	170	205	243	296	338
18 hour	114	134	148	197	201	242	288	352	403
24 hour	127	149	165	220	225	272	324	397	455
30 hour	138	162	179	240	245	296	353	434	499
36 hour	147	172	191	256	261	317	378	467	538
48 hour	162	190	211	283	288	350	419	519	601
72 hour	183	214	238	319	325	396	475	594	693
96 hour	196	230	255	343	349	426	513	644	754
120 hour	205	240	267	358	366	446	539	678	795
144 hour	211	247	274	369	377	461	558	702	823
168 hour	215	251	279	377	385	471	572	718	840

APPENDIX D

Water Quantity Data

Appendix D

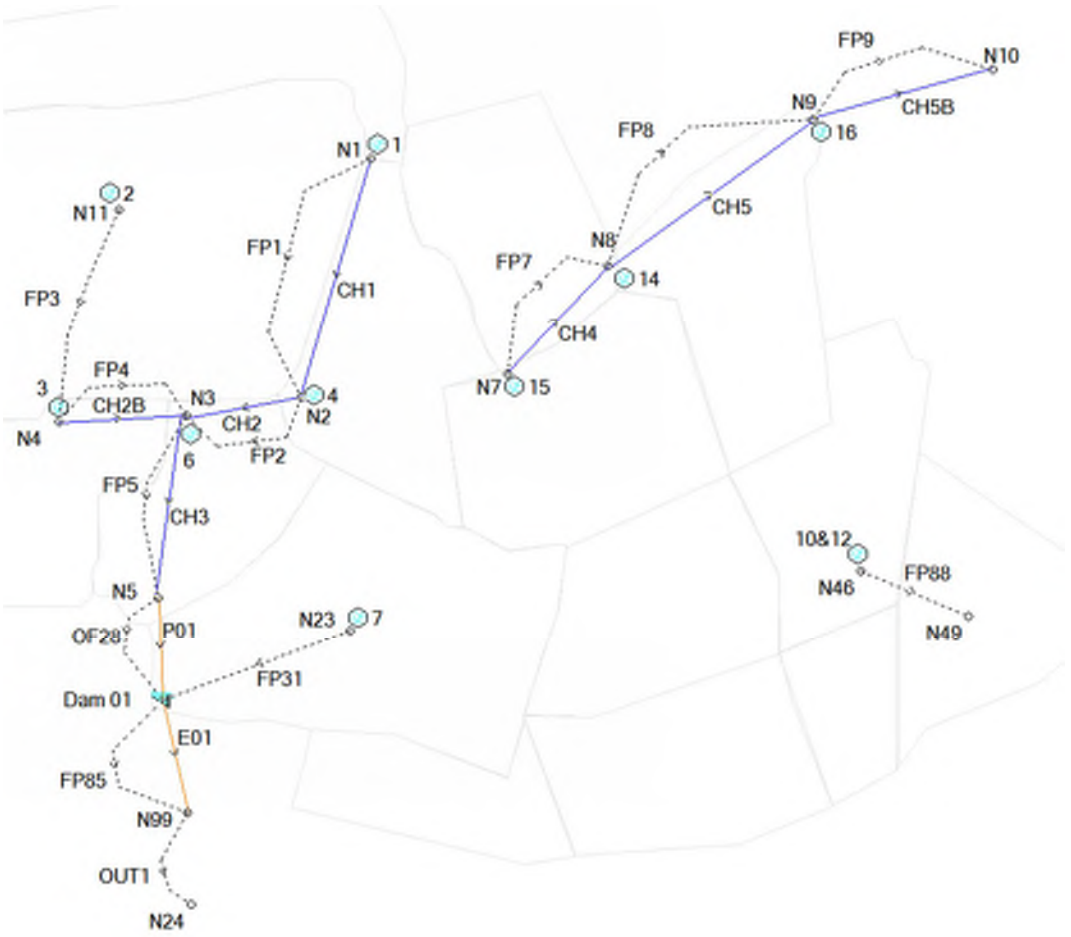


Figure D1 – DRAINS Model

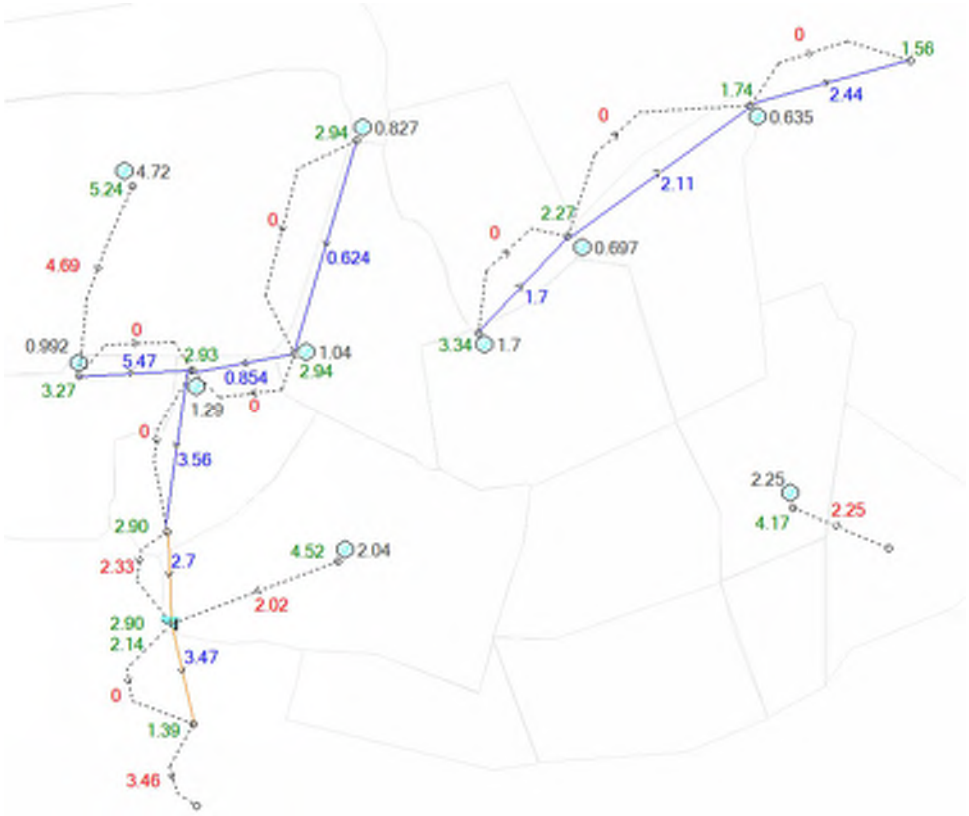


Figure D1 –DRAINS results 10% AEP Climate Change

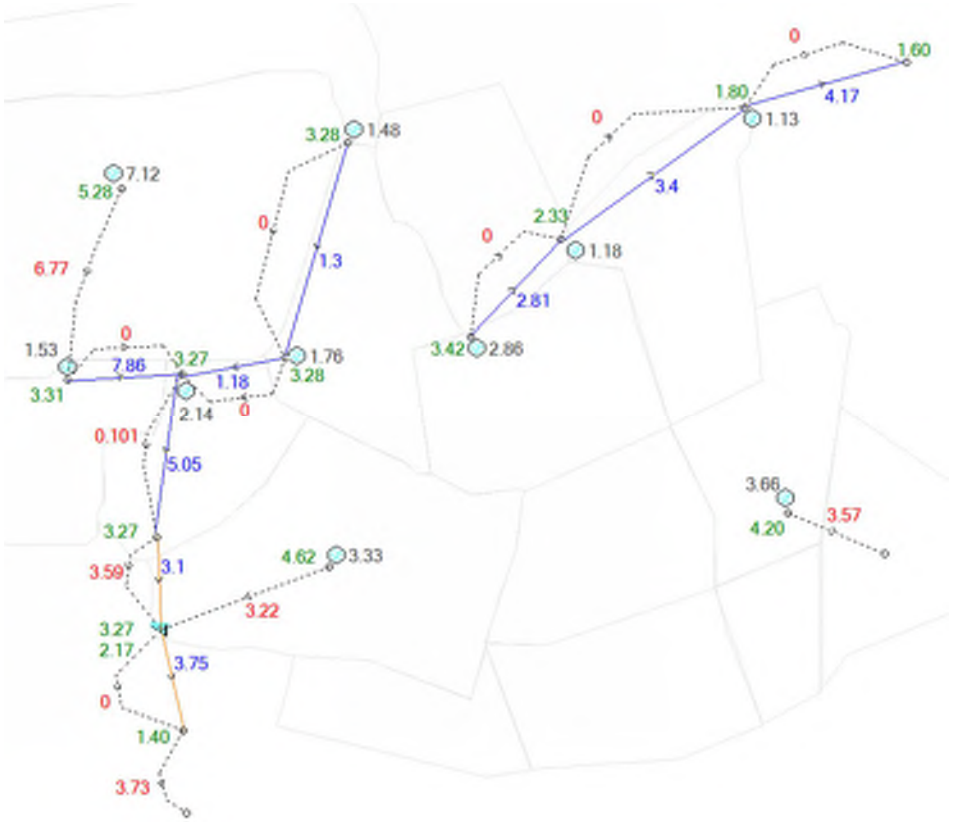
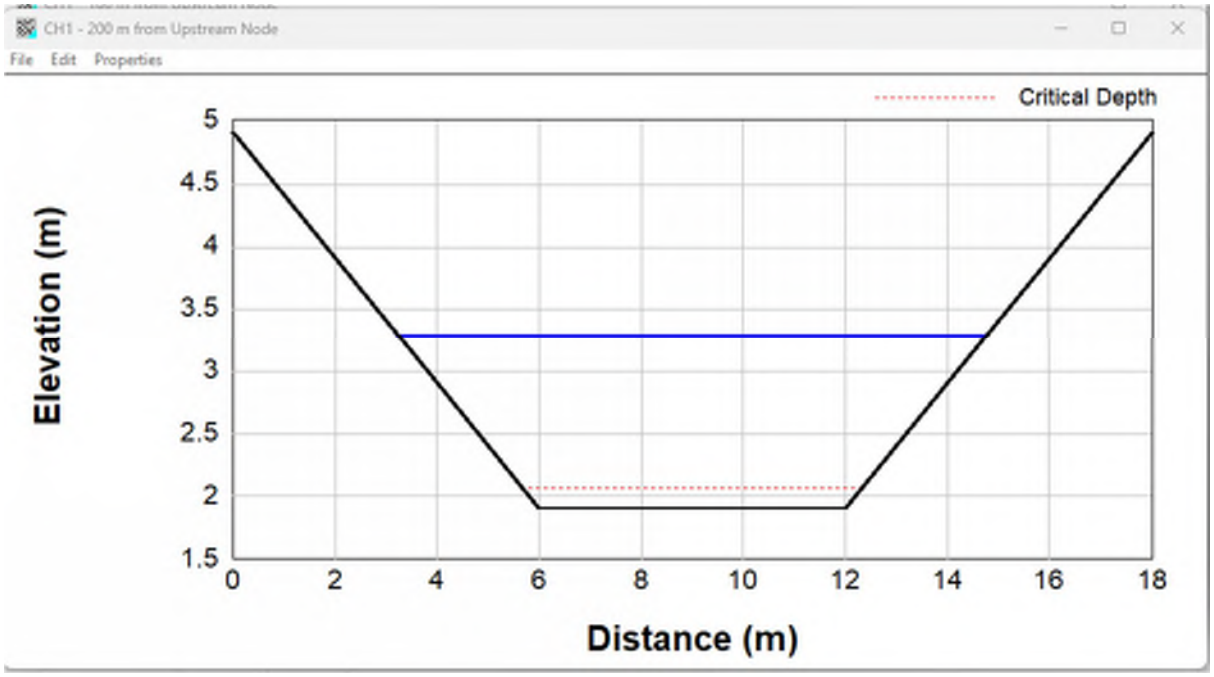
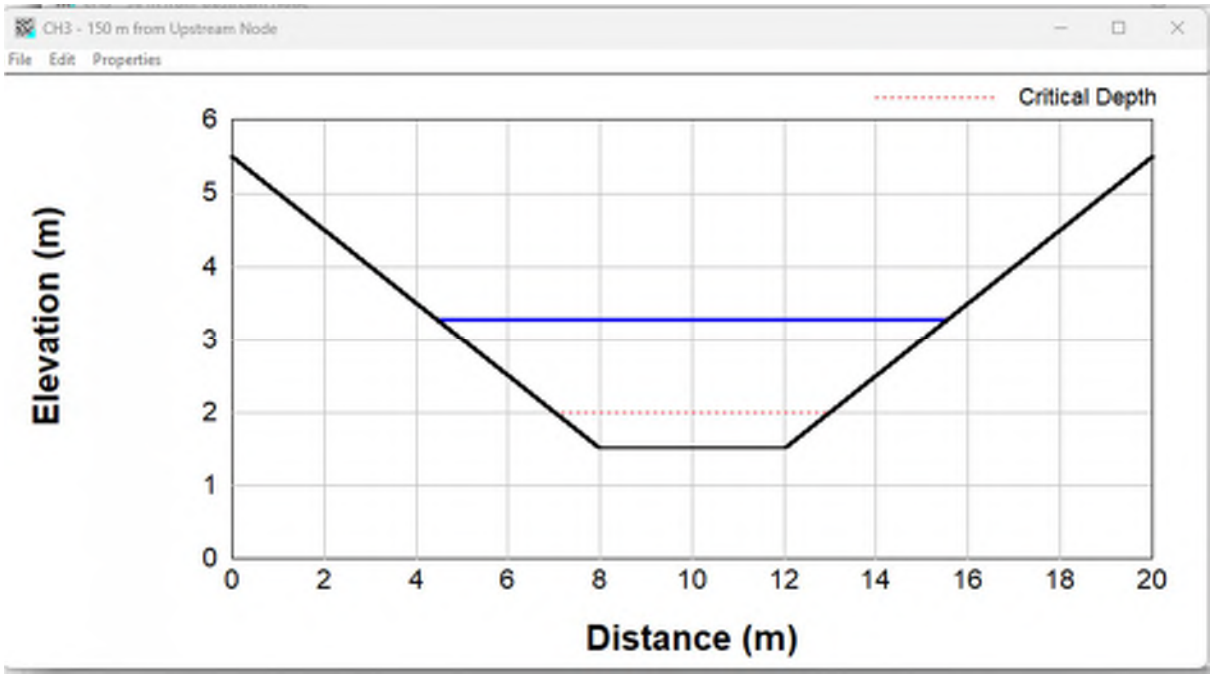
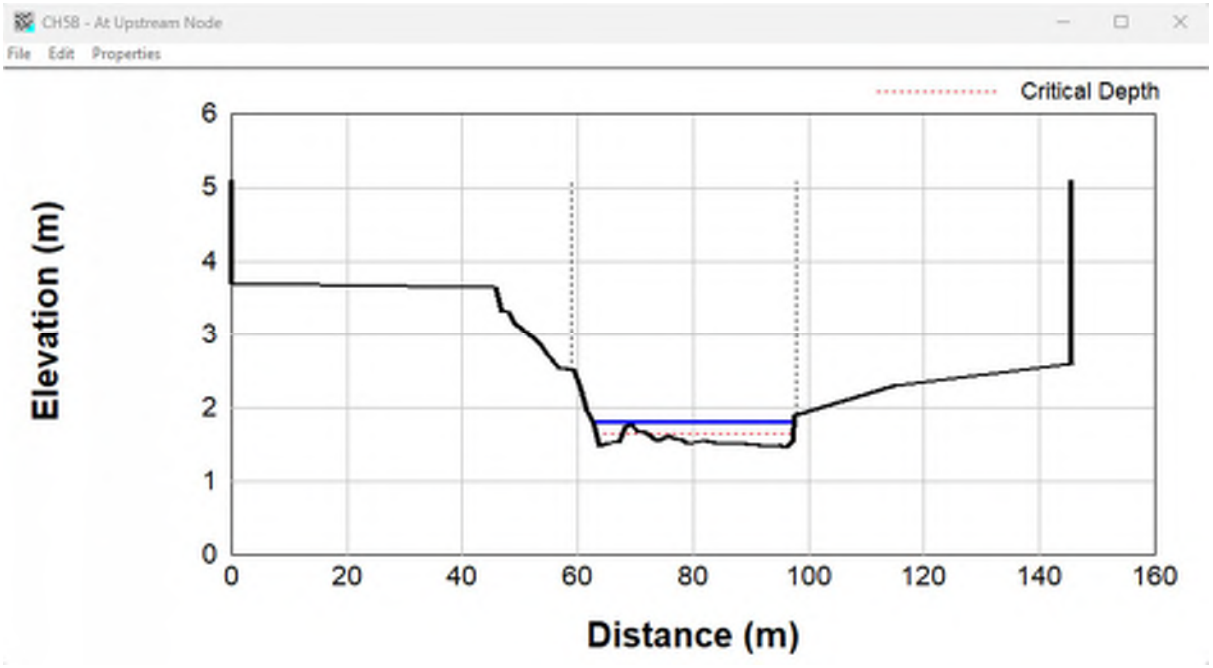


Figure D2 –DRAINS results 1% AEP Climate Change

Figure D3 – Critical Channel Cross-sections 1% AEP Climate Change






CH58 - At Upstream Node
File Edit Properties
Critical Depth
Elevation (m)
0
1
2
3
4
5
6
0
20
40
60
80
100
120
140
160
Distance (m)

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

Water Engineering Partners Pty Ltd

Flood Emergency Management Plan, 1807 Roys Road, Coochin Creek (Regional Flooding)

Prepared for: Comiskey Group

Date: 08 October 2024

File Reference: R.30015.01_FEMPV2

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Disclaimer

The flood modelling presented in this report was based and relies on the adopted Council flood model.

The flood modelling presented in this report is based and relies on survey data and other data obtained from third parties. While all reasonable steps have been taken to verify the data, Water Engineering Partners does not guarantee the data obtained or supplied for the investigation

Rainfall is variable in nature. The modelling presented in this report is based on available rainfall data sourced from government agencies, with appropriate factors added to account for climate change estimates in accordance with guidance from local and state government bodies relevant to the study location in their planning schemes. Actual rainfall patterns and totals in the future could vary from those adopted for this report.

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1 Introduction

1.1 Overview

The Comiskey Group proposes to develop an Eco Park at 1807 Roys Road, Coochin Creek, with a real property description of Lots 10 on SP132272 and 6 on SP184133 (the Site). The site location is included in Figure 1-1.

This report provides an update to the BMT, Flood Emergency Management Plan (24 Nov 2022) as cited in the Planning and Environment Court, Judgement No. 1836 of 2022 between Comiskey Management Services and Sunshine Coast Regional Council (SCRC) with regards to a new proposed layout as presented in Figure 1-2 and a comparison of the two layouts is presented in Figure 1-3.

The key differences between the plans (refer to Figure 1-3) are as follows:

1. an increase in the number of Sites from 100 to 150 sites, which includes 75 cabins and 75 tent/caravan sites;
2. Larger main building;
3. More facilities; and
4. Proposed earthworks indicate all camp site and cabins are above the 1 in 100yr AEP with climate change (i.e. 2.59m AHD) flood and storm surge level.

   At this level the Eco Park is well above the minimum conditioned level of RL 2.0m AHD (i.e. 1 in 100yr AEP without climate change).

The key similarities between the two proposals with regards to the FEMP is that the footprint is similar to the existing proposal and a notable area remains above the Probable Maximum Flood (PMF) to allow shelter in-place.

This report also incorporates the requirements documented in items 51 to 57 of the judgement, with the relevant extracts provided in Appendix C.

1.2 Location and Description

The site is situated within the wider Pumicestone Passage floodplain, with the Passage itself located immediately south of the site's southern boundary. The Coochin Creek tributary discharges to the Pumicestone Passage approximately 2.5km west of the site. A local catchment area of approximately 36ha is situated north and west of the central hillock through the site. This catchment is defined by constructed earth bunds for agricultural purposes and contains a few storages and associated irrigation/drainage channels.

Access to the Site via Roys Road has the potential to be inundated during flood events in Coochin Creek and storm tide in Pumicestone Passage, causing the site to be isolated. Lower parts of the proposed site have the potential to be inundated during regional Pumicestone Passage flood events and major storm surge events, particularly with climate change due to sea level rise to 2100.

The BMT report Flood Assessment – 1807 Roys Road, Coochin Creek (Revision 3, 21 September 2021) (the BMT Flood Report) presents an assessment of the flooding risks associated with the proposed use with a focus on considering the immunity and likely time of closure of Roys Road which provides access to the site. This FEMP is based on the results presented in the BMT Flood Report and consequently this report shall be read in conjunction with these reports.

Note:

At present, the proposed Eco Park development is at a conceptual stage only, and this FEMP shall therefore, be updated during the subsequent design phase(s) to reflect the final design.

Due to the relatively small size of the local catchment, local catchment drainage is not part of this Flood Emergency Plan (FEMP). It is noted that local catchment drainage is to be considered as part design and/or during the subsequent design phase(s) and if relevant this FEMP should be updated with those results.

Data Sources:
Photography: QLD Globe
Topography:
Cadastre © The State of Queensland (Department of Resources).
Coordinate System: GDA94 / MGA zone 56

Water Engineering Partners endeavours to ensure that the information provided in this map is correct at the time of publication. Water Engineering Partners does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

PROJECT: Flood Emergency Management Plan
1807 Roys Road, Coochin Creek

CLIENT: Comiskey Group

WEP | Water Engineering Partners
www.wep.com.au

TITLE: Site Location

N
0 1,000 2,000 m

DRAWING NUMBER: 1-1
REVISION:
DATE: 20-August-2024

Filepath: Y:\Jobs\30015_Comiskey_1807 Roys Road\6_GIS\30015.GIS.001 - Site Location.qgz

Data Sources:

Photography: QLD Globe

Topography:

Cadastre © The State of Queensland (Department of Resources).

Coordinate System: GDA94 / MGA zone 56

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PROJECT: Flood Emergency Management Plan
1807 Roys Road, Coochin Creek

CLIENT: Comiskey Group

WEP | Water Engineering Partners

www.wep.com.au

TITLE: Proposed Eco Park Development

N

0 50 100 m

DRAWING NO: 1-2

DATE: 20-August-2024

Filepath: Y:\Jobs\30015_Comiskey_1807 Roys Road\6_GIS\30015 GIS 002 - Proposed Development.qgz

Data Sources:
Photography: QLD Globe
Topography:
Cadastre: © State of Queensland (Department of Resources) 2023
Coordinate System: GDA94 / MGA zone 56

Water Engineering Partners endeavours to ensure that the information provided in this map is correct at the time of publication. Water Engineering Partners does not warrant, guarantee or make representations regarding the currency and accuracy of information (if any) in this map.

Legend:
- Site Boundary
- Cadastral Boundary
- Easement

N

Flood Emergency Management Plan 1807 Roys Road, Coochin Creek	Development Comparison
Comiskey Group	WEP Water Engineering Partners Scale: 0 50 100 m 1-3 11-Sep

P:\Projects\...\Development Comparison.wor

1.3 Proposed Eco Park Description

As per the previous proposal (refer to BMT, 2022 & Figure 1-3), the Eco Park caters for temporary tourist accommodation; no long-term accommodation is proposed for the site apart from the manager/caretaker residence to provide a 24-hour presence on the site when operational.

Similar to the previous proposal, the Eco Park proposal consists of (refer to Figure 1.2):

1. Cabins (i.e. 75 proposed in the current proposal) and 75 campsites (i.e. 100 previously proposed) and internal pavements providing access;
2. Reception / Administration building with on-site Managers' Facilities (24/7).
3. Indoor recreation facilities;
4. Outdoor recreational facilities;
5. Two amenities buildings (1 with laundry);
6. Camp kitchens; and
7. Maintenance / Cleaning Stores.

Apart from the increase in the potential number of people at the Site, the Eco Park proposal provided in the BMT (2022) report is similar to the current proposal.

1.4 Purpose of Plan

Developed parts of the proposed site have the required flood immunity with respect to the major flood event (i.e. 1 in 100yr AEP event, including climate change) used for defining minimum development levels according to the Sunshine Coast Planning Scheme. However, the site is not immune to flooding associated with rare to extreme flood events (i.e. events more severe than the Planning Scheme design standard) and access via Roys Road is restricted in frequent flood events causing isolation of the Site for extended periods.

It is, therefore, necessary to manage the flood risk during rare to extreme flood events associated with the use of the Eco Park site and more frequent events sufficient to inundate the Roys Road access to the site. This Flood Emergency Management Plan (FEMP) presents the results of the following assessments based on the proposed layout presented in Figure 1-2:

1. Current flood risk associated with accessing and exiting the Site via Roys Road;
2. Current flood risk associated with rare to extreme events within the Eco Park Site;
3. Available warning time prior to the flooding of the site;
4. Ability to move to higher parts of the site; and
5. Ability to shelter in place.

The risk assessment was based on the following major tasks as detailed in Section 4:

1. identification of risk;
2. analysis of risk;
3. evaluation of risk; and
4. identification and evaluation of treatment options.

A summary of the requirements of the risk management plan is contained in Section 5, which presents the risk management strategy for the site. The risk management strategy includes the requirement to ensure the proposed conceptual layout included the provision of Helicopter Pad and provision of suitable boat and access to minimise flood risks and to facilitate the operation of the site.

Note on Levels Nominated Report

This report refers to ground levels and flood levels as relevant to describe the current immunity of the site to flooding and the potential for flooding to occur.

All levels in this report are specified in terms of the height above the Australian Height Datum. If the ground level at a certain point is 3 m AHD, the ground is approximately 3 metres above mean sea level. Similarly, if the flood level at the point is 3.5 mAHD, it means that the depth of flooding is 0.5 metres and not 3.5 metres.

The report generally refers to flood levels rather than the depth of flooding.

The purpose of this FEMP is to assist the subsequent design and operational phases in enabling the management of the site by the specification of clearly defined infrastructure requirements, procedures, roles and responsibilities. This FEMP is ultimately intended to be a "living" document that should be reviewed and updated periodically, as defined in the Council correspondence (refer to Section 1.5 and the court judgement item 56).

While procedures nominated in this plan are considered to reflect the best and most feasible options available to minimise risks, any directions provided by Council officers, Police or State Emergency Services personnel SHALL take precedence over this plan.

1.5 Correspondence from Council

Correspondence from Council was provided on 26 May 2022 concerning flood immunity and flood management. For ease of reference, the key points provided in the correspondence associated with flooding and those aspects reflected in this FEMP are presented below.

1.5.1 Flood Immunity

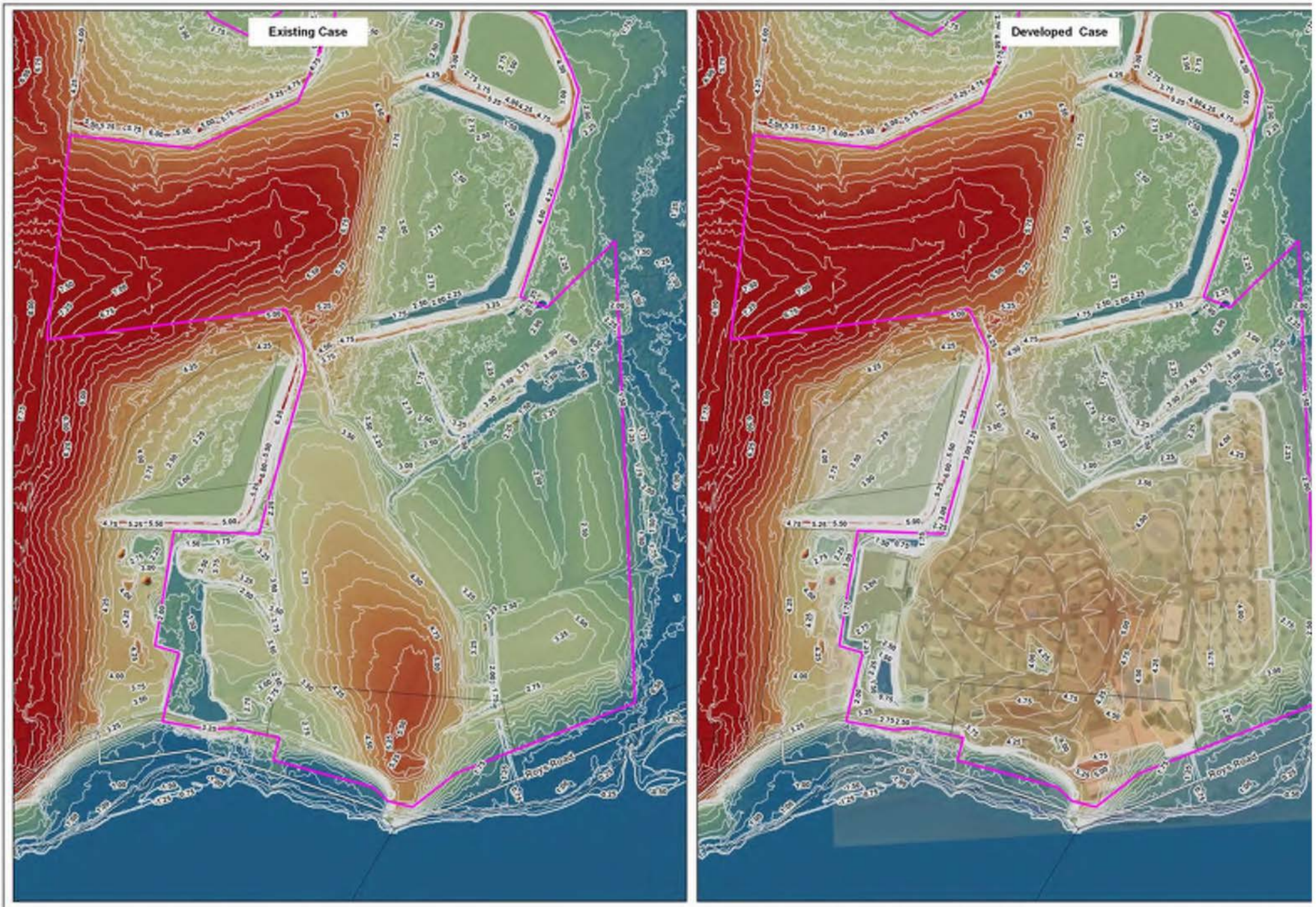
The following advice was provided by Council regarding flood immunity.

1. *The minimum floor level of all buildings constructed on the site must be provided in accordance with the requirements of the Flood hazard overlay code.*

2. *The finished ground surface level of all campsites must be at or above **2.0m AHD**.*

Regarding floor levels of buildings and cabins, Table 8.2.7.3.3 of the Flood Hazard Overlay Code defines minimum design levels for business, industrial and residential uses. General development not fitting within these uses (or community uses) is defined as 'other' and therefore, the DFE is the 1% AEP (100-year) event, including climate change to the year 2100. As no historical flood level information is known to be available for the site, the relevant floor level is the DFE plus 500 mm freeboard. This would imply a minimum **surface** and **floor level** for the buildings proposed on the site shall be **3.09mAHD**.

Proposed ground levels across the site relative to the development layout are shown in Figure 1.4. With reference to the figure, significant parts of the proposed site (i.e. over 3 ha) are above the level of the Probable Maximum Flood (PMF) level of 3.8 mAHD identified in the BMT Flood Report and Appendix A.



Data Sources:
Photography:
Topography: © The State of Queensland (DNRM), 2014 LiDAR
Cadastre: © The State of Queensland (Department of Resources).
Coordinate System: GDA94 / MGA zone 56

Legend:
Site Boundary
Elevation Contours (0.25m interval)

Elevation (m AHD)
<=1.0 >=6.0

Flood Emergency Management Plan
1807 Roys Road, Coochin Creek

Corniskey Group

Topography - Existing and Developed Cases

WEP Water Engineering Partners

0 60 120 m

1-4

30-Sep

1.5.2 Flood Management

The following advice was provided by Council regarding flood management.

1. *The internal driveways must be constructed so that a route which progressively grades to land above the probable maximum flood is provided for each campsite.*

2. *A minimum 10,000m^2 area must be retained on the site above the probable maximum flood level (3.8m AHD). This area must be central to the camp site area and include at least one amenities block and camp kitchen.*

3. *Flood gauges which continuously monitor water levels must be installed at the two most flood prone portions of Roys Road*. The Flood Gauges must be constructed to Council's standard and connected to Council's flood monitoring system. The use of publicly available data from these the flood gauges must be incorporated into the Flood Emergency Management Plan required by this development approval*.

As shown on Figure 1.4 (developed topography on right-hand side of figure) and the PMF flood map provided in Appendix A, a significant portion of the proposed development (i.e. 10ha) will be above PMF level, and typically internal roads or internal footpaths provide access to the central hillock area (i.e. area above PMF level). The central portion above the PMF is in the order of 100,000m^2 (i.e. 10ha), exceeding Council requirements and this will include virtually all building '11s' (i.e. camp kitchens), building 14 (laundry) and building 12 (i.e. Amenities with laundry/drying area).

1.6 Planning and Environment Court, Judgement No. 1836 of 2022 - Conditions

As cited in the Planning and Environment Court, Judgement No. 1836 of 2022 between Comiskey Management Services and Sunshine Coast Regional Council the following conditions are relevant to the

1.6.1 Flood Immunity

Condition 51 -> *The minimum floor level of all buildings, other than class 10 buildings, constructed on the site must be RL3.09m AHD*.

Condition 52 -> *The finished ground surface level of all camp sites must be at or above 2.0m AHD*.

1.6.2 Flood Management

Condition 53 -> All works must be undertaken generally in accordance with section 5.2 **–** Design and Construction **–** Passive Measures of the Flood Emergency Management Plan listed in this development approval and specifically include the following:

(a) The floodplain storage capacity of the site must be maintained with no reduction in the floodplain storage capacity for all events up to the 1% AEP flood level under projected 2100 climate conditions. Detailed calculations and drawings must be provided in conjunction with the first operational works application over the site demonstrating that floodplain storage capacity is being maintained generally in accordance with the approved stormwater management plan and any compensatory cut area is free draining with minimum 0.2% grade.

(b) The internal driveways must be constructed so that a route which progressively grades to land above the probable maximum flood is provided for each camp site.

(c) A minimum 10,000m^2 area must be retained on the site above the probable maximum flood level (3.8m AHD). This area must be central to the camp site area and include at least one amenities block and camp kitchen.

Condition 54 -> *A flood gauge which continuously monitor water levels must be installed at the location nominated in the FEMP*. The Flood Gauge must be constructed to Council's standard and connected to Council's flood monitoring system. Data from this flood gauge must be utilised by the development in accordance with the FEMP, and may be sourced either from Council's flood management system or from a direct connection to the flood gauge, *(Refer to Advisory Note)*

Condition 55 -> *. The site must be operated in accordance with the Flood Emergency Management Plan at all times.*

Condition 56 -> *The Flood Emergency Management Plan (FEMP) required by this development approval must be reviewed by a suitably qualified person* to identify improvements in the operation and implementation of the FEMP and resubmitted to council at a minimum of the following times:*

a. *following council preparing a new flood study relevant to the site;*
b. *following a change in the non-structural and/or structural flood mitigation measures;*

b) *after the occurrence of moderate or greater flooding resulting in floodwaters entering the site; and*
c) *after implementation of the Flood Emergency Management Plan has resulted in evacuation of the site.*
d) *The Flood Emergency Management Plan must be reviewed in consultation with council, completed by a REPQ and submitted to Council within three (3) months of the flood event.*

(Refer to Advisory Note)

Condition 57 -> *The site and the Flood Emergency Management Plan must be registered with the Local Disaster Management Coordination Centre.*

To address the requirements defined by Council, the FEMP includes provision for:

- *A flood level gauge to be installed at the most flood affected location on Roys Road;*
- *Gauge to be connected to a dedicated system in the on-site Managers' Facilities (24/7); and*
- *Flood staff within Site to allow flood levels to be visually confirmed*.

A boom gate (part of the normal operation of the facility to control access to the camping area) will also be provided as described in Section 5.2.

It is proposed to include a gauge at the most flood affected location on Roys Road (Crossing 1 on Figure 2-1), together with a flood staff at the Site rather than gauges at two locations on Roys Road as proposed by Council. This allows the gauge to capture conditions at the most flood affected crossing and for the flood maker at the Site to allow storm tide conditions that would affect the lowest crossing (Crossing 2 on Figure 2-1) to be identified.

1.7 Adopted Flood Terminology

To be consistent with the description of flooding in the planning scheme, flood events are referred to in this report according to their annual exceedance probability, or **AEP**.

For example, a **1% AEP event has a 1% probability of occurrence in any one year**. This approach replaces the previous description of a flood in terms of its average recurrence interval (or ARI).

A 100-year ARI event is an event that, on average over a long period of time, would occur an average of once every 100 years. Flood events with a magnitude equivalent to a 100-year ARI event could conceivably occur a number of years in a row or occur hundreds of years apart. Consequently, whether or not a flood occurs in the initial years of operation of the Eco Park does not provide a guide in relation to the potential for a flood to occur or not occur in the future.

To avoid the perception that 100-year ARI events would be separated in time by 100 years, floods are now referred to by their probability of occurrence, or AEP.

To assist in understanding the relationship between the AEP and ARI of an event:

- A 10% AEP event is similar to a 10-year ARI event;
- **A 1% AEP event is equivalent to a 100-year ARI event**; and
- A 0.05% AEP event is equivalent to a 2,000-year ARI event.

To assist in the interpretation of flood levels and their probability of occurrence, this report presents the AEP and the corresponding ARI (e.g. 1% AEP & 100-year ARI event).

The report also deals with the **Probable Maximum Flood, or PMF**. The PMF represents the flood of the greatest magnitude that could conceivably occur and represents an upper limit to flooding.

Areas outside the PMF can be used as flood-free refuge areas during extreme flood events.

2 Description of Existing Site

2.1 Site Description

With reference to Figure 1.1, the Eco Park is located approximately 12 kilometres east of the Bruce Highway via Roys Road. The Site is bounded to the south by Pumicestone Passage and to the north, west and east via existing farmland and marsh area.

The total site area is approximately 43.1ha with Lot 6 consisting of mostly cleared agricultural land that has previously operated as a strawberry farm. Lot 10 is currently occupied by a residential dwelling with an in-ground pool and has direct access (including a jetty) to Pumicestone Passage.

The existing and proposed topography across the site is shown in Figure 1.4, indicating natural surfaces that range from approximately 8mAHD in the northwest corner down to 0.9mAHD along the passage frontage. A small hillock is situated through the middle of the southern portion of the site with levels up to approximately 5.3mAHD. From the proposed earthworks plans and also shown in Figure 1.4, this hillock area will be reduced in level, but a significant area (10ha) will remain above the PMF level (i.e. 3.8mAHD), and the resulting material will be used to fill other portions of the Site that will increase the flood immunity broadly across the Site.

The land contains a few farm dams and local irrigation drains to facilitate the agricultural uses previously undertaken on the site. Three dam storages are located in the southwest corner, northeast corner and centrally towards the eastern boundary.

2.2 Nature of Flooding Potential

The BMT Flood Report presents the existing extent of inundation of the site, while the proposed inundation extents are provided in Appendix A, based on a PMF level of 3.8mAHD. As noted from these maps, the proposed Eco Park generally has a flood immunity that exceeds the development level requirements nominated in the Flood Hazard overlay code of the planning scheme.

Access to the site is achieved from Roys Road at the southwest corner of the property. Roys Road is essentially the only main sealed road access from the site to the Bruce Highway, which is located approximately 8km to the northwest. The wider flood extents based on the 39% AEP (2yr ARI) is presented in Figure 2.1. This figure shows the inundation extents along the Roys Road access route to the Bruce Highway and the main crossings/low points along the route. The mapping indicates that Roys Road is potentially inundated to depths greater than 250mm (the limit that is potentially considered trafficable by small vehicles although it is noted that the general philosophy is for a 'if it is flooded forget it' approach to be adopted) in events greater than the 39% AEP (2-year ARI) event.

During floods sufficient to close Roys Road, the site will be isolated and, as demonstrated in Section 4, is the key flood risk to be managed in the operation of the Site due to the frequency of inundation compared to that of the Eco Park itself.

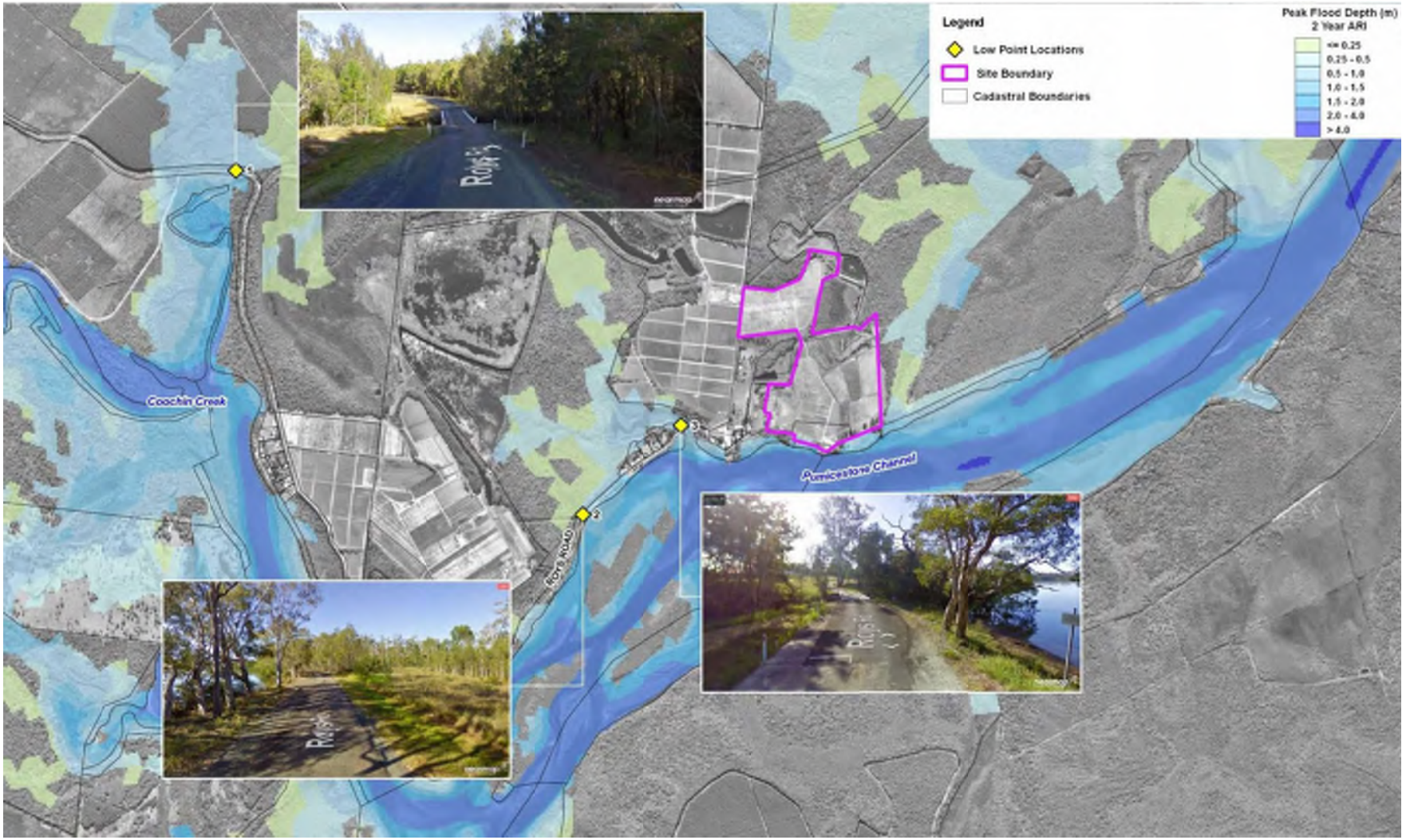


Figure 2-1 – Roys Road Crossing/Low Point Locations Subject to Frequent Inundation

3 Context of Risk Assessment-Flooding Potential and Management of Risk

3.1 Rainfall / Flooding Patterns

The seasonality of flooding in the region is typically the result of two distinct weather patterns; ex-tropical cyclones and intense tropical low depressions close to the coast combined with storm surge (i.e. elevated sea levels). In the early months of the year, tropical cyclones originating in the Coral Sea may move south and have been known to produce rains of duration and intensity to cause a flood in the Pumicestone Passage creek catchments and, in particular, will cause inundation of the Roys Road access.

Another potential cause of flood events is the development of intense depressions close to the coast, which usually form off either southern Queensland or northern NSW in a trough from the Coral Sea or from a shallow system. Rain depressions can develop at any time of the year but are most likely when sea surface temperatures are high, and the air is humid. Therefore, most flood events occur in the summer months and over the first half of the year. It is noted that in the lower reaches of the Pumicestone Passage and local creek catchments, the flood model yields the highest flood levels under storm tide conditions.

Rainfall patterns are also dependent on weather patterns that occur throughout the year. Flooding is more prevalent in a La Nina year when rainfall is significantly greater than the average rainfall. Flooding may also occur due to storm tide, driven by an extended low-pressure system and an easterly or south easterly system in the Coral Sea.

Flooding at the subject site is dominated by flooding from Pumicestone Passage creek catchment flooding and storm tide conditions. However, localised short and long duration flooding may occur to a level that inundates the Roys Road access from frequent flood / rainfall events (i.e. greater than the 39% AEP (2- year ARI) event).

3.2 Flood Immunity, River Flooding

The Flood Hazard Overlay Code does not provide specific advice in relation to the level required for camp-site but does nominate a level for 'other' types of development at the 1% AEP (100-year ARI) with climate change to 2100 as the DFE plus 0.5m. However, similar to other facilities of the same nature and recognising the differences between the type of development anticipated in the code and the use proposed in this case, it is proposed to adopt a risk management approach with respect to the campsites. As detailed in Council's correspondence detailed in Section 1.5 and 1.6, the proposal is to adopt a minimum campsite level of 2 mAHD.

This proposed camp-site level is above the present-day 1% AEP (100-year) flood level of 1.96 mAHD (refer Table 3.1) and the present-day 1% AEP (100-year) storm tide level of 1.65 mAHD (refer to Table 3.2). With the inclusion of climate change to year 2100, the minimum campsite level would have a reduced flood immunity equivalent to the 39% AEP (2-year) event. The reduced flood immunity is primarily due to sea level rise (+0.8m) rather than increases in rainfall intensity. With climate change, typically storm tide levels (refer to Table 3.2) are approximately 100-200mm below the flood levels with storm surge. As noted in the BMT Flood Report, a sensitivity scenario with the tailwater level lowered to the MHWS level of approximately 0.5mAHD reduced the 1% AEP (100-year ARI) peak flood level at the site by 200-400mm.

Table 3-1 Peak River Flood Level at Site (source Council Flood Grids & BMT, Sept 2021)

AEP (%) (ARI, y)	Peak Flood Level (m AHD)	Comments
39% (2)	1.30	No Flooding within any of the campsite shall occur as the proposed minimum fill level is typically above RL 3.25m AHD.
18% (5)	1.44	
10% (10)	1.55	
5% (20)	1.67	
2% (50)	1.85	
1% (100)	1.96	
0.5% (200)	2.04	No Flooding within any of the campsite shall occur as the proposed minimum fill level is typically above RL 3.25m AHD
0.2% (500)	2.18	
0.05% (2,000)	2.38	No Flooding within any of the campsite shall occur as the proposed minimum fill level is typically above RL 3.25m AHD
1% (100) + Climate Change to 2100	**2.59**	No Flooding within any of the campsite shall occur as the proposed minimum fill level is typically above RL 3.25m AHD
PMF	**3.80**	Inundation of 50 campsites of the 75 Inundation of only 18 cabins of the 75

The increase in sea level rise at the year 2100 may decrease the flood immunity of the Eco Park. However, as nominated from the Council correspondence, the FEMP must be resubmitted to Council at prescribed times, such that adjustments to the campsites (i.e. retreating or filling) in the future to account for actual climate change effects can progressively occur and be made over the next 80 years in response to the actual change in sea level and the rate of change in flood level. It is therefore also recommended that the FEMP is re-submitted at intervals no greater than 10 years should the prescribed times defined by Council not occur in this period.

It should also be appreciated that all 75 campsites are typically proposed above 2.59m AHD and would thereby satisfy the requirements of Table 8.2.7.3.3 of the Flood Hazard Overlay Code of the Sunshine Coast Planning Scheme. The finished levels of the camp kitchens (buildings 11), Laundry (building 14) and the Amenities with laundry/drying area are proposed on the central hillock near or above the PMF level.

3.3 Storm Tide/Surge

Storm tide levels are provided in Table 3.2 and as previously noted, the proposed camp-site level is above the present-day 1% AEP (100-year) storm tide level of 1.65 mAHD and also with Climate change. A significant portion of the campsites and cabins are also above the PMST level.

From the Bureau of Meteorology (BOM) and Queensland Fire and Emergency Services Tropical Cyclone Storm Tide Warning (QFES, 2016), a Storm Tide Warning is issued during a cyclone watch or cyclone warning phase when a chance of storm tide risk exceeding the Highest Astronomical Tide (HAT) is identified.

Table 3-2 Peak Storm Tide/Surge Levels at the Site (source BMT Sept 2021)

AEP (%) (ARI, y)	Peak Flood Level (m AHD)	Comments
39% (2)	1.30	No Flooding within the Eco Park occurs up to the PMF level without climate change
18% (5)	1.37	
10% (10)	1.42	
5% (20)	1.47	
2% (50)	1.57	
1% (100)	1.65	
0.5% (200)	1.65	
0.2% (500)	1.71	
0.05% (2,000)	1.78	
PMF	1.78	
Future Climate to 2100		
39 (2)	2.10	No Flooding within the Eco Park occurs up to the 1 in 100yr AEP with climate change
10 (10)	2.22	
1 (100)	2.45	
0.05 (2,000)	2.85	No Flooding within the Eco Park occurs in the 1 in 2,000yr AEP with climate change
PMST	3.93	Inundation of 50 campsites of the 75 Inundation of only 18 cabins of the 75

The Storm Tide Warning response system is presented in QFES (2016), with a copy presented in Figure 3.1 for ease of reference. From this figure, typically, 24 hours' notice is available prior to evacuation. Twelve (12) hours is then generally available for self-evacuation, followed by a further twelve (12) hours available for an evacuation directed by Emergency Services.

Given the relatively short distance required to evacuate (i.e. approx. 8km to the Bruce Highway) the lead times will typically be sufficient for patrons and employees to leave the Eco Park and this is the recommended approach given strong winds are likely to be associated with such an event. It is also relevant to note that patronage of the site would be expected to be reduced due to the significant rainfall associated with a storm tide event.

It should be noted that with progressive increasing levels from climate change, the evacuation protocol may change depending upon the actual increase in sea level, since inundation of Roys Road may become more frequent.

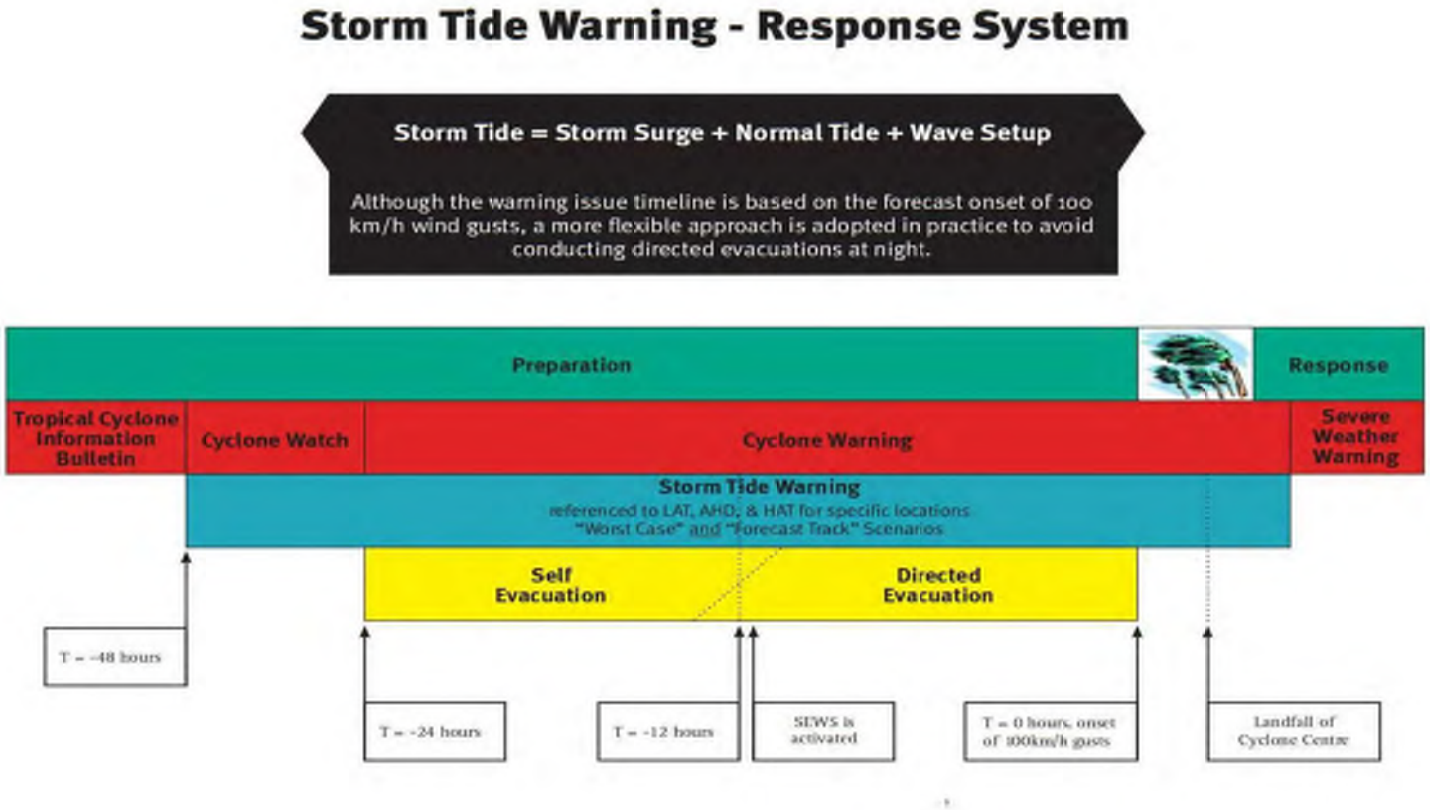


Figure 3-1 – Storm Tide Warning Response System Timeline

3.4 Extreme River and Storm Surge Flood Levels

Performance Outcome PO4 of the Flood Hazard Overlay Code of the Planning Scheme requires that 'Development does not compromise the safety of people resulting from the residual flood inundation risk associated with events exceeding the DFE…, up to and including the probable maximum flood (PMF)'. This concept is part of the risk management approach in response to the risk associated with rare to extreme floods.

Acceptable Outcome AO4 provides the following options to satisfy Performance Outcome PO4:

1. *'Development provides an effective evacuation route that remains passable, with sufficient flood warning time, to enable people to progressively evacuate to areas above the PMF…in the face of advancing flood…for events exceeding the DFE….'; or*

2. *'Development incorporates building floor levels or surface levels within each lot, as adequate safe refuges, that are above the PMF'.*

   Given the potential for a relatively short response time of the catchment and the low flood immunity of the access road out of the Site (refer Section 4 of the BMT Flood Report), it is expected that evacuation of the site will not be possible unless the decision to evacuate is made based on the forecast of frequent to more rare/extreme rainfall and the Bureau of Meteorology issuing a severe storm warning or a storm-tide warning. Due to the uncertainty associated with rainfall prediction, particularly for frequent flood events that can inundate Roys Road (both in terms of quantum and timing), a 'shelter in place' strategy is necessary to account for the eventuality of a frequent to rare/extreme flood event occurring. As noted in Acceptable Outcome AO4, for such an approach, it will be necessary to incorporate floor levels/ surface levels as adequate safe refuges that are above the PMF.

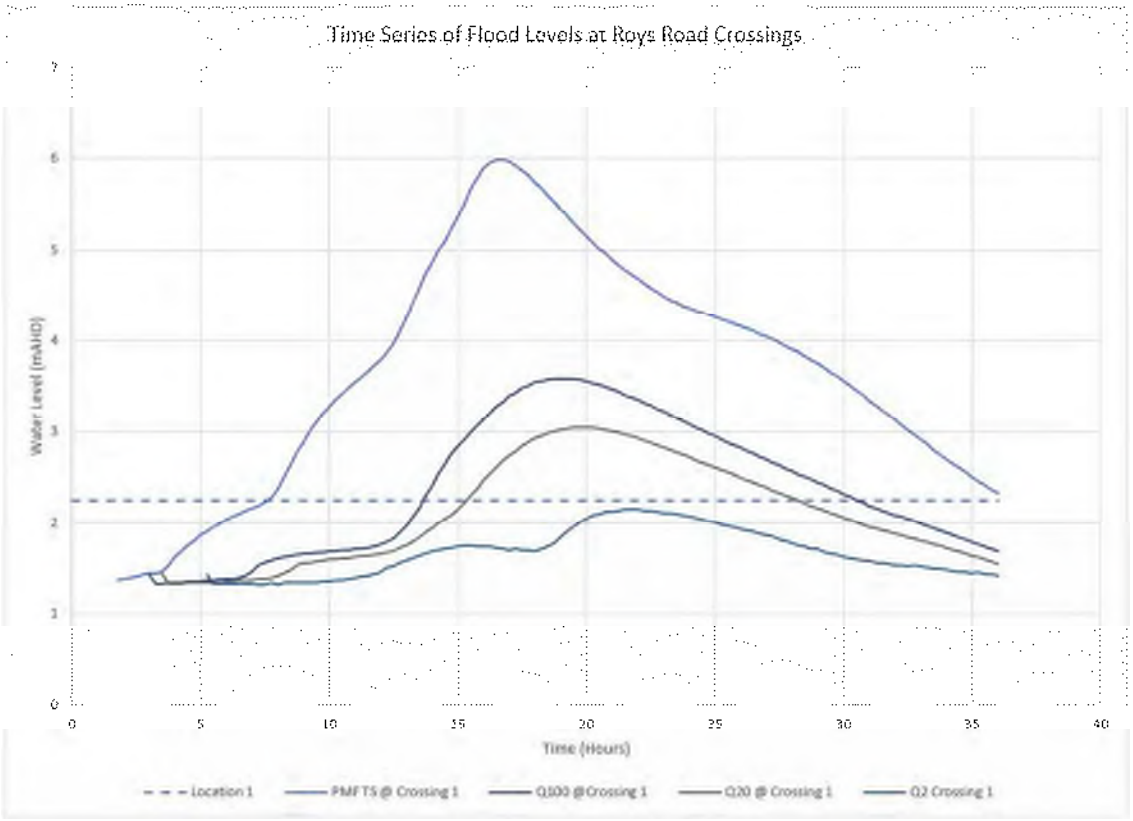
   The flood level associated with the PMF (3.8 mAHD) is 1.21 metres higher than the flood level caused by the 1% AEP (100-year ARI) event with climate change. The area above the PMF level is evident on Figure 1.4 and Appendix A. With reference to Figure 1.4, campsites and cabins that are below PMF level can progressively move towards areas above the PMF and also to the administration building.

3.5 Roys Road Access

Access to the site is achieved via Roys Road. As previously presented in Figure 2.1 and also depicted in the hydrographs of Figure 3.2 (with crossing locations shown on Figure 2.1), the access is subject to inundation from frequent flood events (39% AEP (2-year ARI)) or storm tide conditions when climate change at the year 2100 is considered. From Figure 3.2, the period of isolation could be greater than 24 hours.

With reference to the figure, the road level at Crossing 1 is 2.25mAHD. The road has a flood immunity equivalent to about the 39% AEP (2-year ARI) event. While the road level at Crossing 2 is lower (1.65mAHD), it has a flood immunity of slightly less than the 5% AEP (20-year ARI) event. Although the road is lower at Crossing 2 the flood immunity is higher because it is closer to the mouth of the creek and the flood levels are lower compared to Crossing 1.

For this reason, the plan provides the ability for patrons to evacuate the site based on forecast rainfall and/or storm tide conditions and guided by the flood gauge which continuously monitors water levels at the most flood affected location (Crossing 1) and the level at the site (which provides guidance in relation to the level at the lowest crossing (Crossing 2). The intent will be that evacuation will occur well before roads are closed due to flooding. However, any decision to evacuate will need to consider any road closures due to rainfall or storm tide levels that have already occurred.



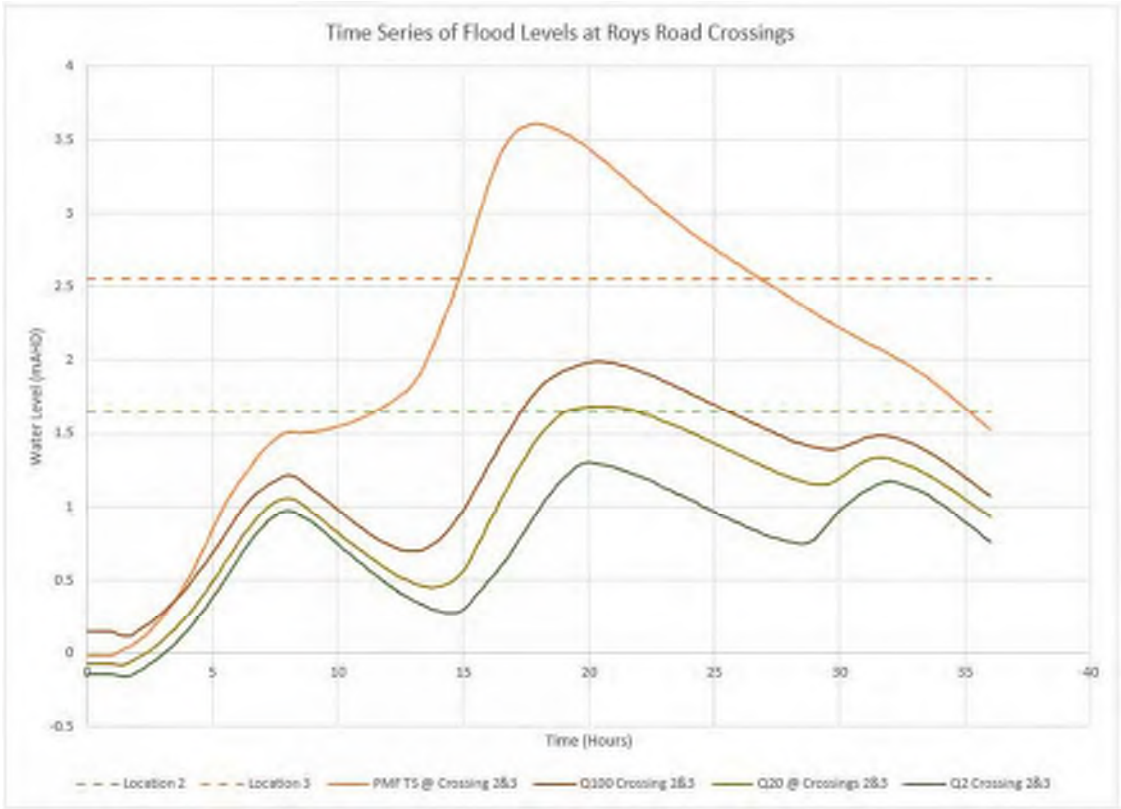


Figure 3-2 Times Series of Flood Level at Roys Road Crossings 1,2 and 3 (refer to Figure 2-1 for location)

4 Risk Management Assessment

The risk assessment was prepared in accordance with recommendations and guidance included in the following documents:

- *Queensland Prevention, Preparedness, Response and Recovery Disaster Management Guideline (January 2018) prepared by Queensland Fire and Emergency Services;*
- *AS 31000 Risk Management;*
- *Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia – Handbook 7, Australian Disaster Resilience Handbook Collection (2017); and*
- *National Emergency Risk Assessment Guidelines (Australian Institute for Disaster Resilience, Second Edition 2015, updated 2020)*

These documents deal specifically with the steps required in determining risk, and in this instance, flood risk associated with a particular situation and/or development.

The risk assessment was based on the following:

- Identification of risk (refer Table 4.4);
- Analysis of risk (refer Table 4.5);
- Evaluation of risk (refer Table 4.6); and
- Identification and evaluation of treatment options (refer Table 4.7).

The following tables provide further detail on the identification, analysis, evaluation and assessment of the risks associated with the site.

The consequence and likelihood levels employed in the risk analysis were drawn from Table 3, Table 6 and Table 10 of the National Emergency Risk Assessment Guidelines. The adopted consequence and likelihood levels are listed in Table 4.1and Table 4.2. **It can be noted that the consequence and likelihood levels nominated for each identified risk relate to conditions <u>without</u> management measures in place.**

Table 4-1 People Consequence Levels

LEVEL	CRITERIA	
	DEATH	INJURY OR ILLNESS
CATASTROPHIC	Deaths directly from emergency greater than 1 in 10,000 people for population of interest	Critical injuries with long-term or permanent inca-pacitation greater than 1 in 10,000 people for population of interest
MAJOR	Deaths directly from emergency greater than 1 in 100,000 people for population of interest	Critical injuries with long-term or permanent inca-pacitation greater than 1 in 100,000 people for population of interest, or Serious injuries greater than 1 in 10,000 people for population of interest
MODERATE	Deaths directly from emergency greater than 1 in 1,000,000 people for population of interest	Critical injuries with long-term or permanent inca-pacitation greater than 1 in 1,000,000 people for population of interest, or Serious injuries greater than 1 in 100,000 people for population of interest
MINOR	Deaths directly from emergency greater than 1 in 10,000,000 people for population of inter-est	Critical injuries with long-term or permanent inca-pacitation greater than 1 in 10,000,000 people for population of interest, or Serious injuries greater than 1 in 1,000,000 people for population of interest
INSIGNIFICANT	Deaths directly from emergency less than 1 in 10,000,000 people for population of interest	Critical injuries less than 1 in 10,000,000 people for population of interest, or Serious injuries less than 1 in 1,000,000 people for population of interest, or Minor injuries to any number of people

Table 4-2 Qualitative Scale of Likelihood

LIKELIHOOD	ANNUAL EXCEEDANCE PROBABILITY (AEP)	AVERAGE RECURRENCE INTERVAL (ARI) (INDICATIVE)	FREQUENCY (INDICATIVE)
Almost certain	63% per year or more	Less than 1 year	Once or more per year
Likely	10% to <63% per year	1 to <10 years	Once per 10 years
Unlikely	1% to <10% per year	10 to <100 years	Once per 100 years
Rare	0.1% to <1% per year	100 to <1000 years	Once per 1000 years
Very rare	0.01% to <0.1% per year	1000 to <10,000 years	Once per 10,000 years
Extremely rare	Less than 0.01% per year	10,000 years or more	Once per 100,000 years

The level of risk depends on the likelihood of the risk occurring, and its consequence. The risk criteria employed for this assessment, which was drawn from the qualitative risk matrix presented in Table 11 of the National Emergency Risk Assessment Guidelines (p40) are shown in Table 4.3.

Table 4-3 Risk Classification Matrix

	CONSEQUENCE LEVEL				
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
ALMOST CERTAIN	Medium	Medium	High	Extreme	Extreme
LIKELY	Low	Medium	High	Extreme	Extreme
UNLIKELY	Low	Low	Medium	High	Extreme
RARE	Very low	Low	Medium	High	High
VERY RARE	Very low	Very low	Low	Medium	High
EXTREMELY RARE	Very low	Very low	Low	Medium	High

Table 4-4 Risk Identification

Hazard	Vulnerable Element	Risk	Consequences
Flooding / Storm Tide	Campers, Visitors to Site/ Public (excluding access)	Patrons, visitors to the site/ members of the general public may attempt to enter or pass through floodwater. People may drown, be electrocuted or be swept away in flow for rare to extreme floods events greater than 1% AEP (100-year ARI) including climate change.	People may be injured/ drowned.
	Staff	Staff may enter or pass through floodwater. Staff may drown or be swept away by flow for rare to extreme floods events greater than 1% AEP (100-year ARI) event including climate change for the general site.	People may be injured/ drowned.
	Buildings/ Equipment	Damage to equipment, stored goods and facilities for rare floods /storm tide events greater than 1% AEP (100-year ARI) event including climate change.	Potential for damage to equipment, goods and facilities. Potential for electrocution.
	Vehicles/ Caravans	Inundation and commencement of risk of potential loss of vehicles/ campervans for rare floods greater than 1% AEP (100-year ARI) event including climate change.	Potential for damage to/ loss of vehicles and caravans.
	Access	Access to and from the Site may not be possible during frequent to rare floods greater than 39% AEP (2-year ARI) event, without climate change and/or public may attempt to enter or pass through floodwater.	Isolation of people on site. The potential need for evacuation in the event of prolonged or extreme regional flooding.
	Emergency Services	Access to site may not be possible for frequent flood floods greater than 39% AEP (2-year ARI) event without climate change.	Potential inability to reach injured people or people otherwise requiring medical attention/ fire emergency situation.

Table 4-5 Risk Analysis

Hazard (Flooding)	Risk	Likelihood Rating	Consequence Rating	Risk Rating
Campers Visitors to Site/ Public	Patrons, visitors to the site/ members of the general public may attempt to enter or pass through floodwater. People may drown, be electrocuted or be swept away in flow for rare to extreme floods event greater than 1% AEP (100- year ARI with climate change.	Rare	Catastrophic	High
Staff	Staff may enter or pass through floodwater. Staff may drown, be electrocuted or be swept away by flow for rare to extreme floods events greater than 1% AEP (100-year ARI) event including climate change for the general site.	Rare	Catastrophic	High
Buildings/ Equipment	Damage to equipment, stored goods and facilities for extreme floods greater than 1% AEP (100-year ARI) event including climate change. Disruption to electrical reticulation system during rare to extreme flood events.	Rare	Moderate	Medium
Vehicles/ Campervans	Inundation and commencement of risk of potential loss of vehicles/ campervans for rare extreme floods greater than 1% AEP (100-year ARI) event including climate change for general site.	Rare	Moderate	Medium
Access	Access to and from Site will not be possible during frequent floods greater than 39% AEP (2-year ARI) event.	Almost Certain	Catastrophic	Extreme
Emergency Services	Access to and from Site will not be possible during frequent floods greater than 39% AEP (2-year ARI) event.	Almost Certain	Catastrophic	Extreme

Note: Risk rating refers to conditions prior to design or operational mitigation measures.

Table 4-6 Risk Evaluation

Hazard (Flooding)	Risk	Risk Rating	Risk Evaluation	Risk Priority
Campers Visitors to Site/ Public	Patrons, visitors to the site/ members of the general public may attempt to enter or pass through floodwater. People may drown, be electrocuted or be swept away in flow for rare to extreme floods event greater than 1% AEP (100- year ARI) with climate change.	High	Members of the public could enter flood waters to return to their campervans/ tents to collect goods/ vehicles stored on site. Depth of flooding across site becomes increasingly significant for extreme events greater than the .05% AEP (2,000-year ARI) event with climate change .	High
Staff	Staff may enter or pass through floodwater. Staff may drown, be electrocuted or be swept away by flow for rare to extreme floods events greater than 1% AEP (100-year ARI event including climate change for the general site.	High	Depth of flooding across site becomes increasingly significant for extreme events greater than the 0.05% AEP (2000-year ARI) event, presenting a flood hazard to staff.	High
Buildings/ Equipment	Damage to equipment, stored goods and facilities for extreme floods greater than 1% AEP (100-year ARI) event, including climate change. Disruption to electrical reticulation system and electrocution of people in flood waters during rare to extreme flood events.	Medium	Damage will occur to equipment, stored goods and facilities for rare to extreme floods beyond design standards.	Low-Medium
Vehicles/ Campervans	Inundation and commencement of risk of potential loss of vehicles/ campervans for rare extreme floods greater than 1% AEP (100-year ARI) event including climate change for general site.	Medium	Risk of electrocution if the electrical reticulation system is not designed appropriately.	Medium
Access	Access to and from Site will not be possible during frequent floods greater than 39% AEP (2-year ARI) event.	Extreme	The main Roys Road access to site will be inundated by events greater than 39% AEP (2-year ARI) event. The Site will be isolated until flood waters recede. Patrons, visitors to the site/ members of the general public may attempt to enter or pass through floodwater.	High
Emergency Services	Access to and from Site will not be possible during frequent floods greater than 39% AEP (2-year ARI) event.	Extreme	The main Roys Road access to site will be inundated by events greater High than 39% AEP (2-year ARI) event. The Site will be isolated until flood Priority waters recede and a medical emergency coinciding with a flood may occur, particularly given relatively frequency of flooding.	High

Note: Risk rating refers to conditions prior to design or operational mitigation measures

Table 4-7 Identification and Evaluation of Treatment Options

Hazard (Flooding)	Risk	Risk Rating	Risk Evaluation	Risk Priority
Campers Visitors to Site/ Public	Patrons, visitors to the site/ members of the general public may attempt to enter or pass through floodwater. People may drown, be electrocuted or be swept away in flow for rare to extreme floods event greater than 1% AEP (100- year ARI) with climate change.	High	Minimise/eliminate potential for people to enter flood waters: • Advise of risk of flooding to visitors upon arrival; • Offer opportunity to evacuate if heavy rainfall forecast; • Provide shelter-in-place in areas above PMF level, including access to administration building and manager/caretaker building; • Nominate ground areas above PMF in guest information. • Install flood gauges (gauge on Roys Road and flood staff in Site) and order people to stay in refuge areas if flood trigger levels are exceeded. • Design of electrical system to obviate potential for electrocution. Ability to switch off electrical systems below the PMF	Option minimises desire of people to enter flooded waters.
Staff	Staff may enter or pass through floodwater. Staff may drown, be electrocuted or be swept away by flow for rare to extreme floods events greater than 1% AEP (100-year ARI event including climate change for the general site.	High	Staff to be trained with respect to potential for flooding to occur and to not enter flood waters. Manager/caretaker residence and/or reception buildings located above PMF to provide refuge for staff and patrons. No access is to be permitted to retrieve goods.	Option should prevent staff entering flooded waters.
Buildings/ Equipment	Damage to equipment, stored goods and facilities for extreme floods greater than 1% AEP (100-year ARI) event including climate change. Disruption to electrical reticulation system in flood waters during rare to extreme flood events.	Medium	All buildings to be designed to withstand hydrostatic and flow forces associated with PMF event. Use of materials resilient to flood damage and which can be readily cleaned for buildings/areas below the PMF. Design of electrical system to obviate potential for electrocution including ability to disconnect electrical supply should a rare to extreme flood event occur.	Measures facilitate the recovery of the site following an extreme flood event and ensure that refuge areas remain in place.
Vehicles/ Campervans	Inundation and commencement of risk of potential loss of vehicles/ campervans for rare extreme floods greater than 1% AEP (100-year ARI) event including climate change for general site.	Medium	Campervans, caravans and general parking areas shall be located in higher parts of the site (at DFE or above) as presented on the Eco Park plan in areas 21 and 22. Formal car parks will have immunity in excess of that nominally required under the Planning Scheme, No treatment measures beyond the ability to evacuate in the event of severe rainfall being imminent is proposed.	Given the immunity proposed for campervans/caravan sites, car parks and the need for rare to extreme flood events to result in damage, the exclusion of specific measures is considered to be acceptable.

Access	Access to and from Site will not be possible during frequent floods greater than 39% AEP (2-year ARI) event.	High	As roads leading to Site will be flooded during frequent flood events (isolating the site), the provision of the ability to shelter in place by providing refuges and facilities above PMF is required.	The provision of safe refuge areas and facilities (water / flood) is considered to be acceptable.
Emergency Services	Access to and from Site will not be possible during frequent floods greater than 39% AEP (2-year ARI) event.	High	Have ability to land helicopter on part of the site above the PMF if necessary. Provision of access via boat shall also be provided.	The Site will be isolated until flood waters recede and a medical emergency coinciding with a flood may occur, particularly given the relative frequency of flooding.

5 Risk Management Solutions

5.1 Overview

Developed parts of the Site are typically all above the 1 in 100yr (AEP) with climate change and are therefore only affected by rare to extreme flood or storm tide events (with or without climate change). The design levels proposed are at those typically considered for the setting of surface and floor levels in residential areas where permanent accommodation is anticipated rather than the temporary use in this ECO park. In addition, a large, developed portion of the Site (10ha) is unaffected by flooding or storm-tide levels (i.e., is above the PMF and therefore immune to flooding or storm tide inundation) and will provide a readily available area to shelter-in-place with facilities.

The inundation of the Roys Road access road may occur from present-day frequent flood events (i.e. 39% AEP (2-year ARI) and from an extreme storm-tide in the present-day climate. Due to the relatively short response time of the tributaries that cross Roys Road and the low flood immunity, it is considered that insufficient time is available for evacuation and closure of the site following the onset of heavy rainfall (refer Section 4 of the BMT Flood Report).

Based on this, in the event of a flood occurring, there is a need to allow people to either evacuate well prior to the flood commencing (i.e. forecast of heavy rainfall and/or flooding) or to shelter in place safely during the flood. It is considered that both of these options are achievable. It is also relevant to note that it is expected that occupancy of the Site will decrease in the period preceding inclement weather, particularly rainfall or cyclones sufficient to cause major flooding in the vicinity of the site.

The risk assessment detailed in Section 4 identified the requirement for appropriate design (i.e. passive) and operational (i.e. active) controls to minimise the flood risk associated with the site. Minimisation of the flood risk will be achieved by appropriate design, followed by the operation of the Eco Park in accordance with this FEMP. This section of the report discusses the requirements for these management solutions.

5.2 Design and Construction – Passive Measures

5.2.1 Buildings

The reception building (i.e. building 1) is proposed and shall be located above the PMF to enable coordination of communication, computer equipment and essential items of the operation of the Eco park systems to be working during an extreme flood event.

As noted in the Council correspondence (refer to Section 1.4), at least one camp kitchen and one amenity block shall be constructed within the area outside of the PMF extent to allow campers and employees to maintain the cooking facilities and provide portable power facilities to continue operation. From the proposed plan, the camp kitchens (i.e. buildings 11) and the amenity block (building 12) are located above the PMF level. These facilities **shall** be provided with the following and guaranteed to function during the PMF:

1. A guaranteed water supply for hygiene and sanitation use to allow for 3 days of isolation and ready for emergency use for the maximum population.
2. A guaranteed potable water supply ready for emergency use to allow for 3 days of isolation for the maximum population.
3. Backup power **shall** be provided or enable transportation to the camp kitchens (i.e. from a PMF excluded area) to allow emergency lighting and cooking facilities to continue.

Further details are provided in the Gilbert & Sutherland (Sept 2024) report regarding water supply and sanitation.

5.2.2 Electrical reticulation system and essential electrical services

All underground cable installed on the site shall be suitable for continuous submergence in water to avoid electrocution. Further, only submersible-type splices should be provided below the 1% AEP (100-year ARI) event flood level, and any conduits located below the flood level should be installed so that they will be self-draining where possible.

All cabling and fixtures/outlets shall be under RCD (Residual Current Device) protection to avoid electrocution.

The electrical system **shall** be designed to avoid electrocution and also allow areas of the site to be turned off progressively as part of the operation of the site during an extreme flood event. Essential electrical services (communications, computer servers etc) shall be located outside the PMF extent to minimise disruption to site operation should an extreme flood event occur.

An emergency power (generator or battery storage system) shall be provided at the main reception building (i.e. above the level of the PMF) to enable emergency equipment to appropriately function in a all extreme flood conditions. Emergency power shall also be provided at the camp kitchen and amenities block for the facilities outside the PMF extent.

The power set shall be designed to service the following loads (at a minimum) within the development:

1. all fire and life safety equipment, including fire pumps, fire detection systems, emergency lighting systems, smoke control systems and emergency control systems;

2. common area lighting and power (e.g. camp kitchens and amenity block outside the PMF) and emergency lighting, including open space areas, where required in areas above the PMF.

The power set shall be maintained and tested as recommended by the supplier to ensure it is functional when needed.

In addition, the main computer system shall either be connected to the power set or provided with a UPS capable of operating for a minimum of 72 hours.

5.2.3 Flood refuge area

Approximately 10ha of the Site within the central hillock area is proposed outside the PMF extent and is greater than that required by Council in their correspondence provided in Section 1.5 and the Court judgement provided in Section 1.6. This area shall act as a flood refuge area, and this area shall be shared (e.g. roadside, common areas such as open space, fire pit area, etc) to allow patrons to use their own facilities.

For patrons where their own facilities cannot be used and/or camp-sites below the PMF level, access shall be provided to the reception, on-site Managers' facilities and/or other covered areas.

5.2.4 Helicopter area and Boat Access

Given that the access (i.e. Roys Road) to the Site can be restricted from frequent flood events, an area suitable for landing helicopters in an emergency situation shall be provided in the central hillock area above the PMF.

Access via a suitable boat shall also be provided from the existing pontoon, if possible or another suitable location on Site and suitable for Emergency Services to dock. The on-site manager shall be experienced and licensed to enable the transport of patrons in an emergency (i.e. not requiring immediate medical assistance) to access facilities in Caloundra.

5.3 Operational - Active Measures

5.3.1 Access via Roys Road

Access to and from the Site is limited during flood events, and the flow depth (refer to Figure 3.2) and velocities across the road can be significant. To minimise the potential for people to use the road when flooded, boom gates shall be included at the entry/exit to the Eco Park to ensure guests and staff do not attempt to leave and pass through flood waters. The boom gates shall be closed in the event of the flood warning system on Roys Road being triggered or the trigger level at the Site flood staff being exceeded and not re-opened until the road is dry and checked by the on-site Manager or their nominated delegate.

In addition, should the boom gates be closed due to the trigger levels being reached, then future bookings shall be cancelled via SMS and a dedicated call system to ensure patrons do not try to cross through flood waters to reach the park.

5.3.2 Guest Information

Guests staying at the Eco Park cannot be expected to be aware of site-specific flood risks associated with the site. Appropriate information shall be provided to warn people that the site can flood during rare to extreme events, and, in particular, Roys Road (i.e. the access road) can flood from frequent flood events and this may cause isolation.

Upon booking, information **shall** be provided to guests explaining the site-specific flood management risks and procedures.

5.3.3 Communications

Normal operation of the Eco Park includes the transmission of messages via SMS, noting the system allows for two-way communication. The registration process (refer Section 5.3.5) provides for the collection of mobile phone data prior to entry to the site being permitted.

The plan consequently allows for the transmission of flood warnings and information via text message.

5.3.4 Booking Information

Upon booking information shall be provided to each guest notifying the potential for frequent flooding over Roys Road and flooding of campsites in rare circumstances. Acknowledgement of the information shall be included as part of the standard set of terms agreed to by guests using the site.

Although subject to detailed design, the infomration would include the following:

- Potential for inundation of Roys Road
- Potential for part of the site to be inundated in the event of prolonged high rainfall and/or extreme storm tide conditions;
- Existence of ample area above highest flood level (including map of area) with ready supplies of water and facilities;
- Potential warnings to be issued by on-site Manager (by SMS):
  - Alert (heavy rainfall, potential for Roys Road to be inundated);
  - Warning (heavy to extreme rainfall, greater potential for Roys Road to be inundated); and
  - Shelter in place (Including movement to high parts of the site should an event in excess of the 1% AEP event occur).
  - All clear.

5.3.5 Registration

As part of standard Eco Park operation, guests of the Eco Park will be required to complete an electronic registration. This information will be maintained on the Eco Park computer system, noting that the system is configured to allow the mass transmission of SMS messages to all guests using the Eco Park.

The following information shall be collected, as a minimum:

1. Main contact name, mobile number, email, arrival and departure date, any special needs;
2. Main contact address (in the event of it being necessary to communicate after a flood event);
3. Vehicle registration number(s);
4. Details for emergency contact(s) including name and phone number; and
5. Number of other party members and whether they have any special needs.

The registration shall include conditions of entry relating to flooding including:

1. In the event of inundation (or potential) of Roys Road, at the direction of the on-site Manager guests must not attempt to leave the Site and the boom gate will be closed. This direction is not negotiable.
2. In rare to extreme rainfall conditions and flooding of the site being expected, at the direction of the on-site Manager guests must first move to the hillock area or if in-sufficient time shall shelter in place and at the designated flood refuge areas. This direction is not negotiable.
3. Guests are responsible for any potential flood damage to guest property; and
4. All children are the responsibility of their parents or guardians and must be supervised at all times.

5.3.6 Flood Warning System

As noted in Section 3.5, a flood gauge will be used to provide warnings of flooding by telemetry and installed at the most flood prone location on Roys Road (Crossing 1 on Figure 2-1). In addition, a flood staff shall be located within the site to provide visual flood level information for both the site and the lowest crossing (Crossing 2 on Figure 2-1) to allow for scenarios involving site flooding and/or storm tide.

The flood gauge shall be solar-powered with battery backup and shall be linked to the on-site Manager's residence and mobile device and located above the PMF flood level. The flood staff will be located in a position that is readily accessible/ observable by the on-site Manager.

When the flood level reaches the pre-determined height / trigger level defined at the gauge, the flood warning system will be activated and the on-site Manager will automatically be notified. The on-site Manager shall also review the level at the Site flood staff in accordance with the management procedure and act accordingly.

This system shall be designed (including trigger levels from detailed survey), installed and maintained by a suitably qualified and experienced individual.

5.4 On-Site Manager Duties

5.4.1 Overview

The primary role of the on-site Manager and staff during a flood emergency is to give first priority to the safety of guests. Life safety shall take precedence over asset protection during a flood incident.

The on-site Manager shall be responsible for the implementation of this plan and the plan assumes that the on-site Manager (or nominated delegate trained to an equal standard in the event that the normal on- site Manager is not on site for any reason) shall be on-site **at all times** guests are present at the Eco Park.

The duties of the on-site Manager shall be consistent with AS 3745 **–** 2010 and shall be based on the general duties identified below.

5.4.2 Prior to Flood Event

The actions to be undertaken by the on-site Manager include:

1. Ensuring all equipment required in a flood event (flood warning system, backup power supplies, signage, communications equipment, torches) is properly maintained and available for use;

2. Ensuring limited quantities of food and water are available on-site should an extended period of isolation occur;

3. Conducting regular training and exercises for staff;

4. Maintaining an electronic register of staff including mobile, email and emergency contact details together with any special needs; and

5. Keeping flood management procedures up to date.

To ensure weather and flood alerts are delivered in a timely manner, the on-site Manager and key staff shall have access to a mobile device connected to the internal flood warning system and the Council and Bureau of Meteorology Apps (refer to Section 5.5).

5.4.3 During a Potential or Actual Flood Event

Subsequent to a raised alarm (e.g. environmental indicators, severe weather warning, high recorded rainfall or on-site flood warning), the on-site Manager shall immediately implement the appropriate stage of the plan (i.e. Alert, Warning, or Shelter stages).

The on-site Manager will be responsible for the overall implementation of the plan during a flood event, including communications with staff and guests.

The on-site Manager will also be responsible for notifying staff and guests in the event of a false alarm.

5.4.4 Post Flood

The action to be undertaken by the on-site manager following a flood event shall include the following:

1. when the flood has passed, inform all guests that the incident has passed (this may occur via SMS verbally as the situation may warrant);

2. organise a debrief with staff; and

3. where appropriate, compile a report for the reviewers of the Flood Emergency Management Plan highlighting the need (if any) for corrective action and update the plan as required based on outcome of this report.

5.4.5 Staff Induction and Training

Training will be provided to the on-site Manager and key staff to enable them to competently execute their obligations including the following:

1. developing, managing and maintaining the FEMP;
2. the duties of the on-site Manager and staff;
3. management of documentation and implementation of training and assessment activities, including response exercises;
4. emergency mitigation, preparedness and prevention;
5. liaison with emergency services; and
6. post emergency management.

The evacuation procedure and risk management plan outlined in this report will be implemented as part of the training and induction of new staff. Staff will be made aware of the flooding risks associated with the site, the presence of flood refuges, and the actions associated with the plan as appropriate for their role.

Refresher training shall be undertaken each September prior to the commencement of the wet season. Records shall be kept in relation to the nature of any training undertaken with regards to the Flood Emergency Management Plan.

5.4.6 Maintenance

The flood gauge, communication system and signage shall be routinely maintained, at a minimum once a year in September prior to the wet season. At this time, the web links referred to in this plan for obtaining flood information shall be reviewed to ensure that they are current.

5.5 Severe Weather and/or Flood Watch Warning Alerts

5.5.1 Available Alerts and Information

The Bureau of Meteorology (BOM) is responsible for forecasting and monitoring rainfall and river levels, and issuing flood warnings. Warnings are issued via:

1. Local Response Organisations – these include Sunshine Coast Council, Police, and the State
2. Emergency Service in the local area; Bureau of Meteorology – flood Warnings and general information are available directly from the Bureau – refer http://www.bom.gov.au/qld/warnings/ for flood warnings and http://www.bom.gov.au/products/IDR663.loop.shtml for radar (read time rainfall information)
3. Radio – radio stations, particularly local ABC and local commercial stations broadcast Warnings (and Bulletins) soon after they are issued (www.abc.net.au/local)
4. TV – events of sufficient magnitude to potentially flood the site will be accompanied by extensive coverage by all television stations; and

5. Telephone Recorded Information Services – flood Warnings are available on a Bureau of Meteorology recorded message service (1300 659 219) (Charges apply for the service).

In addition, the Bureau operates the 'BOM Weather App', which provides a means to access information including:

1. Radar data;
2. Weather warnings; and
3. Recorded and forecast rainfall.

Information regarding the BOM Weather App is available on New BOM Weather App

The on-site Manager and all site staff shall install the app on their phones and be familiar with its operation.

5.5.2 Sunshine Coast Council

Sunshine Coast Council has developed emergency management tools which collate information from a number of sources. As the data can be accessed through a single Council website, it is recommended that the Council website, together with the radar images available through the Bureau of Meteorology be used as the primary means for accessing flood information, with other sites accessed directly in the event of the Council system not being operational.

- **SCC App**

Council has developed the 'SCC App' for Apple and Android devices which, among other features provides access to the Disaster Hub (described below) and lists emergency contacts.

  - Although the heavy rainfall that will precede any major flood should trigger a review of flood levels and flood warnings on the Disaster Hub, the alerts issued via the app will prompt the routine review of conditions and the movement through the Alert, and Warning stages of an extreme flood event.
  - The on-site Manager and all site staff shall install the app on their phones and be familiar with its operation.

Further information regarding the app is available on:
https://www.sunshinecoast.qld.gov.au/Site-Help/SCC-App

- **Emergency Management Disaster Data Hub**

  Council maintains a Disaster data hub https://disaster.sunshinecoast.qld.gov.au/#Dashboard

  The dashboard provides relevant data from multiple sources in a single location. Figure 5.1 presents the format of the dashboard at the time of preparation of the plan.

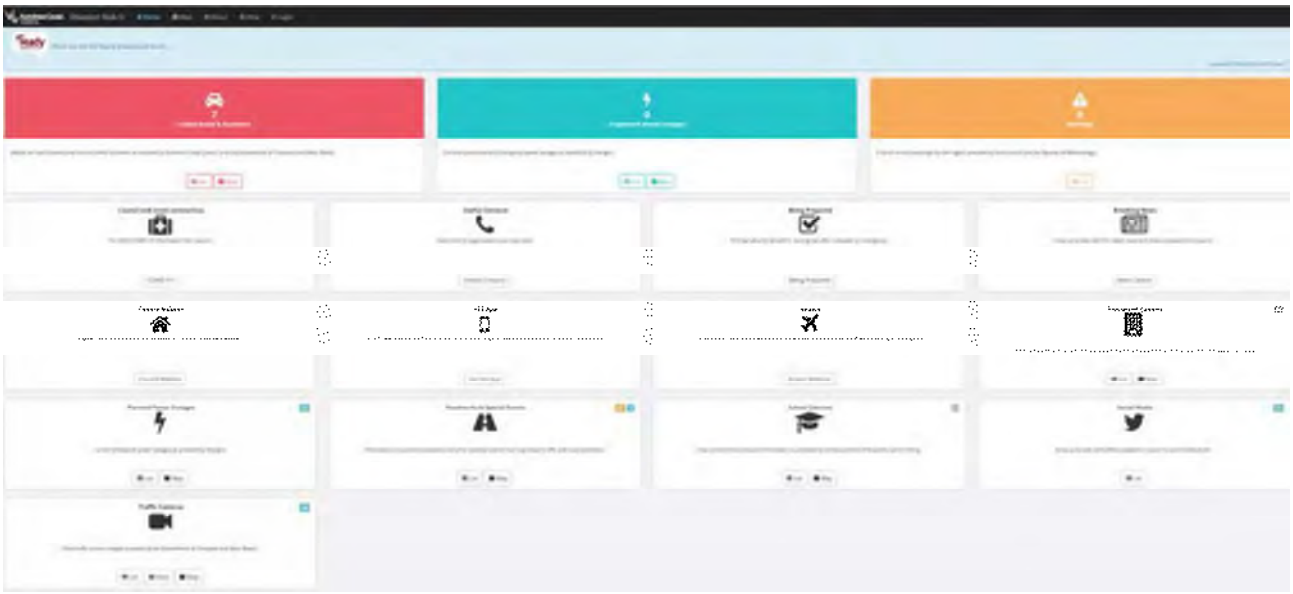


Figure 5-1 Emergency Management Disaster Hub

With reference to the figure, the following information that can be accessed via the dashboard is of note.

- **Weather Warnings**- provides access to the warnings/ forecasts issued by the Bureau of Meteorology and Council.
- **Road Conditions**- allows Council to provide updates on roads during flood events
- **Evacuation Centres**- advises which Council evacuation centres have been activated.

Of particular relevance to flood awareness, the mapping system which can be accessed from the data hub (refer Figure 5.1) provides relevant real time information regarding rainfall and flood levels.

Figure 5.2 presents the map in the vicinity of the site.

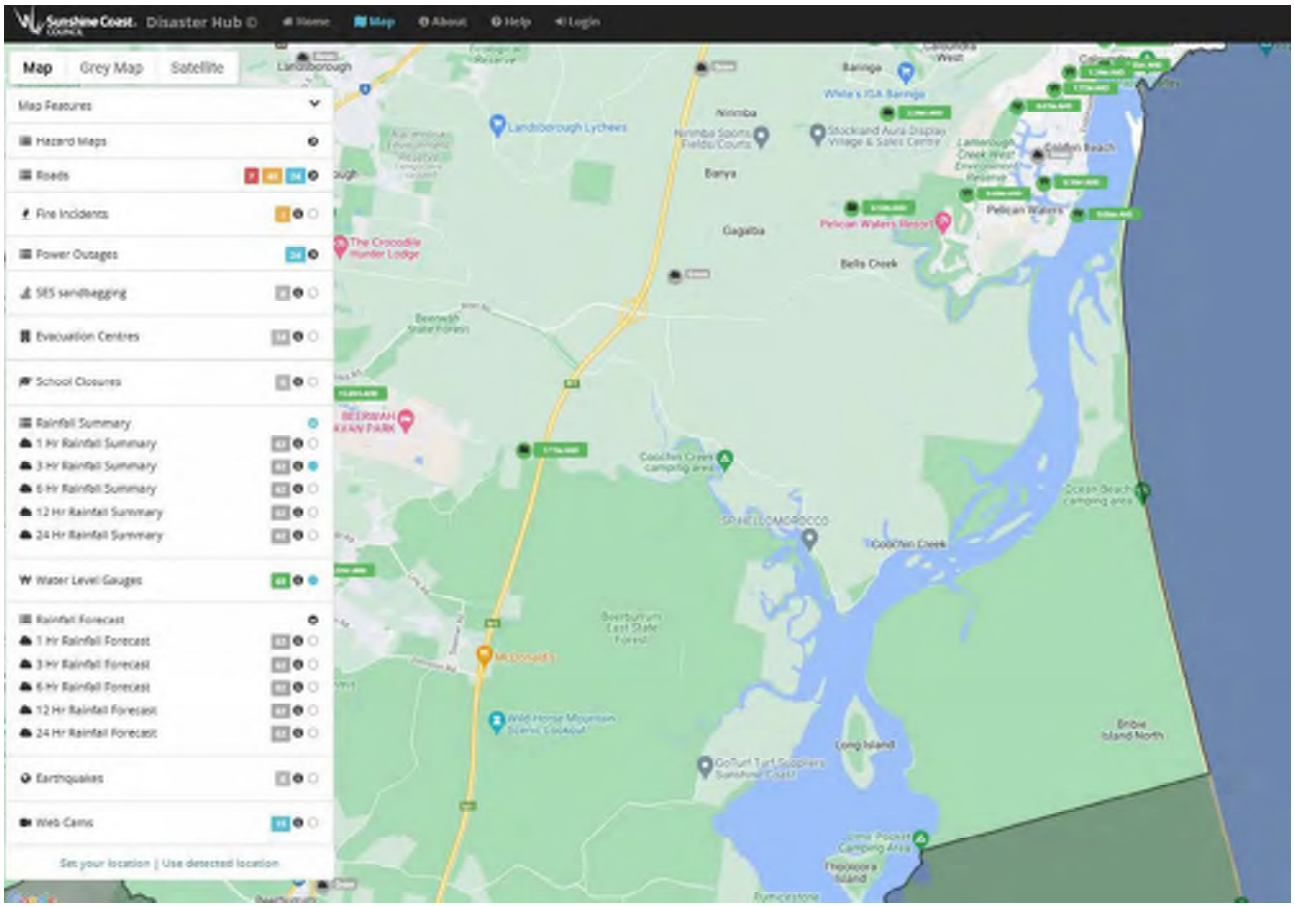


Figure 5-2 Council Disaster Hub Mapping

Figure 5.2 has been configured to provide a summary or recorded 1 hour rainfall totals at a number of stations. The map can also be used to show:

1. Recorded rainfall over periods of 1 hour, 3 hours, 6 hours, 12 hours and 24 hours;
2. Forecast rainfall over periods of 1 hour, 3 hours, 6 hours, 12 hours and 24 hours;
3. Location of Evacuation Centres;
4. Flooded/ closed roads;
5. General flood mapping for extreme, major and moderate riverine flooding (noting that the information is of a general nature when considering potential regional flooding and is not accurate in the vicinity of the site where flood levels are governed by local catchment flooding; and
6. Flood levels at stream gauges, noting that the gauges in the vicinity of the site are located on rivers and only provide general guidance in relation to the occurrence of regional flooding; each gauge is shown relative to the levels set for minor, moderate and major flooding.

5.6 Flood Management During Flood Events

5.6.1 Overall

The flooding of Roys Road, being the main access into and out of the proposed Eco Park will result in isolation, while rare to extreme flood events can result in a portion of the site becoming inundated.

However, the Eco Park has 10ha of area above the PMF & PMST level that is available to enable safe refuge.

Flooding of the site caused by rare to extreme flood of storm tide events (with climate change) will be associated with significant hazard and risk to people and property in the low-lying areas of the property.

Due to the relatively short warning time associated with flooding in the local tributaries that cross Roys Road and the low flood immunity of the access road, insufficient time is available for evacuation of the site after the commencement of significant rainfall. While evacuation can occur in response to forecast rainfall, once rainfall is sufficient to cause inundation of the access road, the site will become isolated, and it is considered preferable to shelter in place and to then (if necessary) progressively move to areas above the level of the PMF should regional flooding occur across the Eco Park.

A shelter-in-place strategy (refer to K. Haynes et al, 2009) has inherent residual risks. The key risk specific to a shelter-in-place strategy is that patrons are isolated in frequent flood events, and they will not be able to leave in the event of a medical emergency. This period of isolation is difficult to calculate from the Council flood model due to the method used by Council to represent storms. The plan conservatively provides an allowance of up to 3 days for sheltering. Given the potential period of isolation, emergency backup supplies of food, water and an area suitable for the landing of a helicopter will be provided, including the option to leave via a boat for when the need is critical.

The intent of the plan is to allow the optional evacuation to occur in the event of heavy forecast rainfall (the **Alert Stage**), particularly for vulnerable persons, and there is sufficient time to evacuate the site before the rainfall affects the Roys Road and the regional road network. In the event of a forecast being issued with a limited warning or heavy rainfall commencing, the plan provides for guests to be directed to remain on-site and to monitor water levels (the **Warning Stage**).

In the event of Roys Road being inundated, the site will be isolated and guests will need to shelter in place (the **Shelter Stage**). In the event that major flooding occurring and flooding of lower parts of the site commencing, guests and staff will need (if required) to progressively move to the higher flood refuge area. It is noted that inundation of Roys Road will have occurred prior to significant site flooding.

Following the cessation of Site flooding and/or inundation of Roys Road, operation of the site can return to normal (the **Stand Down Stage**). The Stand Down Stage also occurs in the event of the forecast rainfall associated with the Alert Stage or the Warning Stage not occurring or not resulting in closure of Roys Road or inundation of the site.

This approach is considered to be appropriate given the relatively high flood immunity of the greater Eco Park and the need for rare to extreme rainfall to occur with coincident storm tides for the flood levels to inundate the Site, including the full effects of climate change.

5.6.2 Adopted Triggers

The adopted triggers are based on:

- Forecast rainfall for Alert Stage;
- Forecast and recorded rainfall for Warning Stage; and
- Flood levels for Shelter Stage.

The rationale for the triggers and staging is as follows.

- ***Alert Stage and Warning Stage***

As noted in the preceding section, insufficient time is available to evacuate the site in response to rising water levels following rainfall. Consequently, the Alert Stage for site management is based on forecast rainfall.

As floods and the rainfall that produces them are natural events, the response of the local tributary that crosses Roys Road will vary from flood to flood and may not be associated with more broad flood warnings from the BOM. Peak flood levels in the local catchment crossed by Roys Road will most likely be associated with heavy rainfall.

It is recommended that a precautionary principle be adopted with regard to assessing rainfall, also noting the inherent uncertainty associated with forecast rainfall, particularly when predicted to occur a number of days in advance. The following forecast rainfall triggers are proposed for the Alert Stage and Warning Stage:

1. Trigger R1 - BOM daily Forecast ≥50mm with 'heavy falls'; or

2. Trigger R2 - BOM warning of flooding or 'heavy falls' e.g. an east coast low, ex-cyclone etc

Please note, if a rare to an extreme (present climate) storm-tide warning is provided by an appropriate authorised authority (i.e. refer to Section 3.3), then the evacuation of the Eco Park should occur as directed.

The difference between the Alert Stage and the Warning Stage is that the Alert Stage is triggered by forecasts of conditions beyond 24 hours and the Warning Stage is triggered by rainfall forecast in the next 24 hours or recorded in the last 24 hours.

- ***Shelter Stage***

The Shelter Stage is trigged by the inundation of Roys Road (isolating the site) and, in the event of rare/ extreme flooding, Inundation of lower parts of the site.

Roys Road

It is proposed to monitor levels at the most flood affected point on Roys Road (Crossing 1 on Figure 2.1) via an automatic gauge. The adopted trigger point is 0.2m below the road level.

The lowest point in the road (Crossing 2 on Figure 2.1) is not as flood affected (despite being lower) due to its proximity to the Pumicestone Passage. As creek flooding would be expected to trigger the flood gauge at Crossing 1, it is proposed to use the Site flood staff as a guide to storm tides that could affect flooding at Crossing 2 while not triggering the gauge at Crossing 1.

As Crossing 2 is closer to the site than Crossing 1, it is proposed to set the adopted trigger level at 0.15m below road level (equivalent to 1.5 mAHD at the Site flood staff).

Site Flooding

Based on a review of the proposed topography, flood will not occur until the full effects of climate change have occurred and for flood event >> 1 in 100yr AEP with climate change. At these level and without the full effects of climate change, trigger levels within the Site are not currently necessary since all sites are typically above 3.25mAHD.

Trigger levels should be re-considered as part of the ongoing revision of the FEMP and as part of the detailed design to reflect the final location adopted for the gauge and final ground levels across the Site.

- ***Stand Down Stage***

The site may return to normal operation when flood waters have fully receded and no further flooding of Roys Road or the site is expected. This can be discerned via flood warnings that state that future rainfall is likely to be low and/or the water level receding beneath the warning trigger level.

5.6.3 Flood Management Staging

This section of the report details the triggers and actions associated with each stage of the flood management process.

Although this plan details the actions to be taken should an extreme event occur, any direction given via Council, the Police or Emergency Services Personnel overrides this plan.

Alert Stage – Voluntary Evacuation

TRIGGER FOR ALERT STAGE:

Forecast for 50mm or more of rainfall with 'heavy falls' 24 hours or more from current time (i.e., rainfall not forecast within the next 24 hours) with resultant potential for inundation of Roys Road.

(Warnings of extreme rainfall/ cyclones can be used as a trigger according to a precautionary principle).

ACTIONS FOR THE ALERT STAGE:

- On-site Manager to advise guests of potential for flooding of Roys Road to occur via SMS, reinforced by staff talking to guests.
- Guests can be given the option to evacuate while it is safe to do so (and avoid isolation if the rain eventuates) provided:
  - Roys Road is not inundated: level at automated flood gauge on Roys Road less than 2.05 mAHD (200 mm below road level) and level at Site flood staff less than 1.5 mAHD (150 mm below road level);
  - Regional road closures nominated on Council's Disaster Hub are reviewed and suitable routes are available for evacuation; and
  - There is a safe place for people to go (in the event that a safe place is not available to the guest the on-site Manager shall review the status of Evacuation Centres via Council's Disaster Hub).
- On-site Manager to monitor (hourly) rainfall forecasts and recorded rainfall together with water levels at the Roys Road flood gauge and the Site flood staff.
- On-site Manager shall complete initial preparations to allow for isolation of the Site, including charging all mobile phones and other measures used to access the internet and communications a UPS or other backup power supply capable of operating for 3 days shall be provided for internet connection and communications).

Warning Stage

TRIGGER FOR WARNING STAGE:

Forecast for 50mm or more of rainfall with 'heavy falls' within next 24 hours with resultant potential for inundation of Roys Road or heavy rainfall (in excess of 50 mm at the rainfall gauges near the site reported by Council's Disaster Hub).

(Warnings of extreme rainfall/ cyclones can be used as a trigger according to a precautionary principle).

ACTIONS FOR THE WARNING STAGE:

- On-site Manager to advise guests of potential for flooding of Roys Road and recommend that guests shelter on site via SMS, reinforced by staff talking to guests.
- In the case of forecast rather than actual rainfall, guests can be given the option to evacuate while it is safe to do so (and avoid isolation if the rain eventuates) provided:
  - Roys Road is not inundated: level at automated flood gauge on Roys Road less than 2.05 mAHD (200 mm below road level) and level at Site flood staff less than 1.5 mAHD (150 mm below road level);
  - Regional road closures nominated on Council's Disaster Hub are reviewed and are available for evacuation; and
  - There is a safe place for people to go to in the event that a safe place is not available to the guest the on-site Manager shall review the status of Evacuation Centres via Council's Disaster Hub).
- On-site Manager to monitor (half-hourly) rainfall forecasts and recorded rainfall together with water levels at the Roys Road flood gauge and Site flood staff.
- If not already undertaken, on-site Manager shall complete initial preparations to allow for isolation of the site, including charging all mobile phones and other measures used to access the internet and communications (a UPS or other backup power supply capable of operating for 3 days shall be provided for internet connection and communications).
- On-site Manager or their delegate will complete a review of any guests or staff with special needs and deal with them appropriately (for example relocating people to flood free areas early or ensuring that their medicine is available).

Shelter Stage

TRIGGER FOR SHELTER STAGE:

Isolation due to inundation of Roys Road:

- *Automated flood gauge* (at Crossing 1, the most flood affected point on Roys Road, refer to Figure 2.1): Level of 2.05 mAHD (0.2 m below the road level); or
- *Site flood staff* (a guide to flood/storm tide level at Crossing 2, the lowest point on Roys Road, refer to Figure 2.1): Level of 1.5 mAHD (0.15 m below the road level).

Potential for Site Flooding:

- Site flood staff: Level of 1.50 mAHD.

ACTIONS FOR THE SHELTER STAGE-

Isolation due to inundation of Roys Road and Site

- On-site Manager to advise guests of potential/ actual flooding of Roys Road via SMS, reinforced by staff talking to guests.
- On-site Manager to keep boom gate closed to ensure guests and staff do not use Roys Road and shelter on site (boom gate can be opened to let people into the site).
- On-site Manager to monitor (half-hourly) rainfall forecasts and recorded rainfall together with water levels at the Roys Road flood gauge and the Site flood staff.
- If not completed already, the on-site Manager will complete a review of any guests or staff with special needs and deal with them appropriately

Additional actions in the event of Site

- On-site Manager to advise guests of potential flooding of site via SMS, reinforced by staff talking to guests.
- Relocation of people from lowest campsites (if occupied) to higher ground under the direction of the on-site Manager
- Progressive relocation of people (guests and staff) to areas above PMF flood level (flood refuge)
- On-site Manager to ensure that people do not enter flooded areas and remain above flood level.
- On-site Manager shall disconnect the electricity supply to the site (or appropriate parts of the site) at an appropriate point, with the option to commence using emergency power in areas above flood level.
- On-site Manager shall notify Emergency Services (132 500, www.ses.qld.gov.au) that people have been directed to flood refuge areas as appropriate.
- On-site Manager to ensure that any guests or staff with special needs are moved to locations above flood level.

Stand Down Stage (Return to Normal Operation)

TRIGGER FOR STAND DOWN STAGE:

- *Automated flood gauge:* Level below 2.05 mAHD (0.2 m below road level) and falling; and
- *Site flood staff*: Level below 1.5 mAHD (0.15 m below the road level) and falling; and
- Limited forecast rainfall.

ACTIONS FOR THE STAND DOWN STAGE-

- On-site Manager to visually confirm that Roys Road is open;
- On-site Manager to allow boom gate to open to allow guests/ staff to use Roys Road;
- On-site Manager to advise guests of ability to use Roys Road via SMS, reinforced by staff talking to guests.
- If site flooding has occurred, on-site Manager to ensure electrical system can be connected (with qualified electrician as appropriate) prior to restoring normal power supply.

Council Evacuation Centres

The Evacuation Centres that have been opened by Council will be nominated on Council's Disaster Hub. Similarly, the Disaster Hub will nominate road closures.

Guests and visitors who choose to evacuate based on forecast rainfall can opt to relocate to one of the Council's Evacuation Centres (if open). Similarly, depending on the severity of a flood, following the cessation of flood waters, guests can relocate to one of the Evacuation Centres. It is noted that, depending on the number of road closures, guests may choose to return to their homes or remain on site.

It is expected that the severity of rainfall required to cause flooding of the site will be accompanied by widespread flooding in the region and that Council will have opened a number of its Centres when the site needs to be evacuated.

In the unlikely event that no Evacuation Centre is open at the time the Alert Stage is triggered, it may be prudent to not order the evacuation of the site until such time as an Evacuation Centre is opened. In such a situation, the on-site Manager will need to balance the desire to evacuate the facility as a precautionary measure against ensuring that people have a place to safely evacuate to.

The on-site Manager shall also confirm which people intend to stay at an Evacuation Centre in order that they can be contacted when the site reopens.

5.7 Monitoring and Record Keeping

During an event, monitoring shall occur at regular intervals. In the event of extreme rainfall being forecast (i.e. the Alert Stage) the Council Disaster Hub and the Bureau of Meteorology web sites shall be reviewed on an hourly basis. Upon the commencement of extreme rainfall or extreme rainfall being forecast in the short term (i.e. the Warning Stage) the review period shall reduce to 30 minutes.

During the Alert, Warning and Shelter Stages, flood levels and flood warnings shall continue to be reviewed. The on-site Manager can delegate this task provided the person delegated with the task reports immediately to the on-site Manager in the event of one of the trigger levels being exceeded and there is a need for action.

When reviewing flood gauge levels, due care will be taken to ensure that the gauge has not failed and is reporting actual conditions.

A record shall be kept of each review. The record will include:

1. The time of the review;
2. The level at the gauge (Warning Stage onwards);
3. The nature of the current rainfall/flood forecast and recorded rainfall; and
4. Whether any trigger level has been exceeded based on actual or forecast events.

At a general level, records shall be kept regarding the following:

1. Nominated on-site Manager and assistant responsible for flood management of site;
2. Records of training of staff (induction and refresher);
3. Records of site maintenance (e.g. signage/ currency of websites providing flood information); and
4. Performance of Site during actual events including non-conformances and areas where the plan could be improved.

6 Flood Emergency Management Plan

6.1 Flood Emergency Management Plan Structure

As noted in Section 5, the flood emergency management plan consists of two stages.

- **Design and Construction**

  The required measures to be incorporated in the design and construction phase are detailed in Section 5.2.

- **Operation**

  For simplicity, the key actions associated with the operation of the facility are detailed in tabular form in Annex B. It is intended that the plan provided in the Annex B is typically referred to when a flood event is in progress, with the master document (i.e. this report) providing additional information if required.

6.2 Administration and Plan Revision

This version of the Flood Emergency Management Plan has been developed in support of the development approval and shall be updated in parallel with progressive design stage. **A revised version of the plan will need to be developed as part of the detailed design process to reflect the final design of the site.**

It is recommended that the plan be reviewed by the on-site Manager for adequacy, and to take advantage of actual experience, on an annual basis.

In particular, while a precautionary approach is desirable, it is also desirable to limit the number of false warnings to avoid genuine warnings being ignored. Although the trigger levels nominated in the plan are considered reasonable based on currently available information, it is important that the trigger levels be reviewed in the light of actual flood events.

If it is considered that the plan can be improved, then a revised version of the plan should be prepared. The plan should be viewed as a live document to be improved over time.

Appendix A Flood Inundation Maps – Proposed Design

Data Sources:
Photography: QLD Globe
Topography: © State of Queensland (Department of Resources) 2023
Cadastre
Coordinate System: GDA94 / MGA zone 56

Water Engineering Partners endeavours to ensure that the information provided in this map is correct at the time of publication. Water Engineering Partners does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

PROJECT: Flood Emergency Management Plan
1807 Roys Road, Coochin Creek

CLIENT: Comiskey Group

WEP | Water Engineering Partners
www.wep.com.au

TITLE: Peak Flood Depths - 2 Year ARI (Developed Case)

N
0 100 200 m

FIGURE NUMBER: A-1

REVISION:

DATE: 30-September-2024

File path: Y:\Jobs\30015_Comiskey_1807 Roys Road\6_GIS\QGIS\Flood Maps SSC Grids\30015.GIS.006 - Flood Maps SSC Grids - Developed.qgz

Data Sources:
Photography: QLD Globe
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PROJECT: Flood Emergency Management Plan
1807 Roys Road, Coochin Creek

CLIENT: Comiskey Group

WEP | Water Engineering Partners
www.wep.com.au

TITLE: Peak Flood Depths - 10 Year ARI (Developed Case)

N
0 100 200 m

FIGURE NUMBER: A-2

REVISION:

DATE: 30-September-2024

Filepath: Y:\Jobs\30015_Comiskey_1807 Roys Road\6_GIS\QGIS\Flood Maps SSC Grids\30015.GIS.006 - Flood Maps SSC Grids - Developed.qgz

Data Sources:
Photography: QLD Globe
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Flood Emergency Management Plan
1807 Roys Road, Coochin Creek

Comiskey Group

WEP | Water Engineering Partners
www.wep.com.au

Peak Flood Depths - 100 Year ARI (Developed Case)

N
0 100 200 m

FIGURE NUMBER: A-3
REVISION:
DATE: 30-September-2024

Filepath: Y:\Jobs\30015_Comiskey_1807 Roys Road\6_GIS\QGIS\Flood Maps SSC Grids\30015.GIS.006 - Flood Maps SSC Grids - Developed.qgz

Data Sources:
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PROJECT: Flood Emergency Management Plan
1807 Roys Road, Coochin Creek

CLIENT: Comiskey Group

WEP | Water Engineering Partners
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TITLE: Peak Flood Depths - 2000 Year ARI (Developed Case)

N
0 100 200 m

FIGURE NUMBER: A-4
REVISION:
DATE: 30-September-2024

Filepath: Y:\Jobs\30015_Comiskey_1807 Roys Road\6_GIS\QGIS\Flood Maps SSC Grids\30015.GIS.006 - Flood Maps SSC Grids - Developed.qgz

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PROJECT: Flood Emergency Management Plan
1807 Roys Road, Coochin Creek

CLIENT: Comiskey Group

WEP Water Engineering Partners
www.wep.com.au

TITLE: Peak Flood Depths -PMF (Developed Case)

N
0 100 200 m

FIGURE NUMBER: A-5
REVISION:
DATE: 30-September-2024

Filepath: Y:\Jobs\30015_Comiskey_1807 Roys Road\6_GIS\QGIS\Flood Maps SSC Grids\30015.GIS.006 - Flood Maps SSC Grids - Developed.qgz

Data Sources:
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Coordinate System: GDA94 / MGA zone 56

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PROJECT: Flood Emergency Management Plan
1807 Roys Road, Coochin Creek

CLIENT: Comiskey Group

WEP | Water Engineering Partners
www.wep.com.au

TITLE: Peak Flood Depths - 100 Year ARI Climate Change (Developed Case)

N
0 100 200 m

FIGURE NUMBER: A-6

REVISION:

DATE: 30-September-2024

File path: Y:\Jobs\30015_Comiskey_1807 Roys Road\6_GIS\QGIS\Flood Maps SSC Grids\30015.GIS.006 - Flood Maps SSC Grids - Developed.qgz

Appendix B Flood Emergency Management Plan

Flood Emergency Management Plan – Eco Park

Any direction given by Council, the Police or SES overrides this plan. Priority is to be given to personal safety over damage to property.

Floods are described in relation to the Annual Exceedance Probability (AEP) of the event. A 1% AEP event has a 1% probability of occurring in any year. Floods can also be described in terms of their Average Recurrence Interval (ARI). A 100-year ARI event occurs, on average, once every 100 years, but can occur in any year. A 1% AEP event has the same magnitude as a 100-year ARI event.

The Probable Maximum Flood (or PMF) is the largest flood that could ever conceivably occur. Locations above the level of the PMF are free from flooding and can be used to shelter.

Item	Commentary
Person Responsible	On-site Manager (The on-site Manager shall satisfy the requirements of AS3745-2010 Planning for emergencies in facilities with respect to competence and training).
Performance Objectives:	To inform staff and guests of the flood characteristics of the site and of the evacuation process in case of a flood event occurring. Ensure that the flood risk to people or property is managed and appropriately minimised by evacuating early (optional) to avoid isolation if possible or by sheltering in place on-site (in areas above the level of the PMF if necessary). No member of staff or the public is to leave a flood-free area (i.e. enter flood waters) following the order to move to shelter until flood waters have receded.
Implementation Strategy:	1. Design to use materials resistant to flood damage if the camp kitchen and amenity blocks are below the PMF. Reception and on-site Managers' buildings, are to be located above the PMF level. 2. Design to include communication system to allow distribution and receipt of messages by SMS. 3. Essential equipment (backup power supply, communications equipment, main computer server etc) to be located within the reception building or on-site Manager building (or other suitable location) above the PMF. 4. All electrical wiring below PMF shall be suitable for continuous submergence in water. Only submersible-type splices should be installed and conduits are to be self-draining if possible. Fixtures/ Outlets to be under RCD protection. 5. Electrical system to be capable of progressive disconnection by Person Responsible. 6. Backup power supply to be provided at the reception building, on-site mangers' building, camp kitchens and amenities block in the areas above PMF level. 7. Covered flood refuges (equivalent to 1.2 m^2 area per person) to be provided together with camp kitchen and amenity block in one of the areas. 8. Flood gauge with telemetry to be installed at most flood affected location on Roys Road. Flood warning system to provide for automatic warnings upon trigger level for the gauge being reached (Person Responsible to keep boom gate that provides access to the Eco Park closed following trigger level being reached until flood levels recede). 9. Flood staff within Site to be monitored visually (trigger level provides storm tide warning for lowest crossing on Roys Road allowing boom gate to be kept closed and general Site level warning). 10. Person Responsible to ensure that plan is incorporated into general site operation procedures. 11. Person Responsible (or nominated delegate trained to the same standard) to be on-site 24 hours a day while the Eco Park is operational. 12. All staff and guests are to be made aware of the plan and requirements for sheltering in place as directed by the Person Responsible. 13. Person Responsible to maintain register of staff contact details. 14. Check-in procedure to include provision of handout regarding flooding and the collection of relevant data including mobile phone and any special needs. 15. The Person Responsible (and all relevant other staff) shall load the Council warning app (SCC App) and the Bureau of Meteorology App (BOM App) onto their mobile phones to receive severe weather warnings. 16. The Person Responsible shall be responsible for training staff in relation to flooding and actions to be taken in the event of a flood. 17. Follow this plan in the event of a flood being likely or occurring. 18. Adopt a precautionary principle with respect to site management. 19. Update plan as required based on actual experience to improve the protection of people and property.
Potential For Flooding:	**Access**: 1. The Roys Road access is subject to flood inundation which causes the isolation of the Site. 2. It is important to note that the rainfall associated with the inundation of Roys Road may not be forecast by BOM. Reliance on the flood gauge and flood staff will be required. **Eco Park** 1. Developed parts of the site are all set above 3.25m AHD at minimum (i.e. >>1% AEP | 100-year ARI present climate). The proposed design contains campsite areas above the Defined Flood Event according to the Sunshine Coast Planning Scheme (the 1% AEP | 100-year ARI event including climate change). 2. The site is subject to inundation during extreme flood events larger than the Defined Flood Event. However, over 10ha (including the manager/ caretaker building and a portion of the cabins) are above the highest possible flood level (i.e. PMF). 3. It is important to note that the rainfall associated with a rare to extreme flood event is significantly greater than normally experienced and will also require a coincident storm surge. Such rainfall is likely to be preceded by multiple forecasts of heavy rainfall and major flood warnings. 4. In the event of a rare to extreme flood event being predicted, it is essential that people either leave if there is sufficient time to do so (at least 24 hours prior to the rainfall being predicted to occur) or to shelter in place at a location above the PMF flood as directed by the Person Responsible.
Overall Strategy:	The site will be managed as follows: 1. **Alert**: Active monitoring of rainfall forecasts beyond 24 hour time frame, with guests to be made aware of the forecast and given the option to evacuate if sufficient warning is available and roads are open - no other action required by guests. 2. **Warning**: Monitoring of forecast and actual rainfall within 24 hour period together with levels at automatic gauge and Site flood staff. People to be warned about the potential need to shelter in place. Continued monitoring of rainfall and water levels. 3. **Shelter**: Order to stay on site and shelter in place in event of Roys Road being closed, and Order to move to areas above flood level and shelter in place in the event of Site flooding based on flood levels and forecast rainfall. 4. **Stand Down**: Ability to move around site and for guests to relocate to Council evacuation centres or return home depending on extent of inundation/ damage- return to normal operations.
Available Information:	The Sunshine Coast Council SCC App (https://www.sunshinecoast.qld.gov.au/Site-Help/SCC-App) provides severe weather warnings issued by the Bureau of Meteorology, recorded and forecast rainfall, details of road closures and evacuation centres. The Bureau of Meteorology App (New BOM Weather App) provides severe weather warnings issued by the Bureau and access to the weather radar. During a flood event, the primary source of information regarding flooding is the Disaster Hub operated by Sunshine Coast Council which provides information from a range of sources in one location (https://disaster.sunshinecoast.qld.gov.au/#Dashboard). The dashboard and mapping page can be used to access weather warnings, recorded and forecast rainfall, details of Evacuation Centres opened by Council, and road closure information. The Bureau of Meteorology website (http://www.bom.gov.au/) also provides information regarding severe weather events and A stream gauge on Roys Road and a flood staff at the Site are installed to assist in flood warning for the site. When reviewing gauge levels, it is important to confirm that the gauge is operational by confirming that the most recent level report occurred recently.

Item	Alert Stage
Common Measures	**TRIGGER FOR ALERT STAGE**: - Forecast for 50mm or more of rainfall with 'heavy falls' 24 hours or more from current time (i.e. rainfall not forecast within the next 24 hours) with resultant potential for inundation of Roys Road. (Warnings of extreme rainfall/ cyclones can be used as a trigger according to a precautionary principle).
	ACTIONS FOR THE ALERT STAGE: 1. On-site Manager to advise guests of potential for flooding of Roys Road to occur via SMS, reinforced by staff talking to guests. 2. Guests can be given the option to evacuate while it is safe to do so (and avoid isolation if the rain eventuates) provided: a. Roys Road is not inundated: level at automated flood gauge on Roys Road less than 2.05 mAHD (200 mm below road level) and level at Site flood staff less than 1.5 mAHD (150 mm below road level); b. Regional road closures nominated on Council's Disaster Hub are reviewed and suitable routes are available for evacuation; and c. There is a safe place for people to go (in the event that a safe place is not available to the guest the on-site Manager shall review the status of Evacuation Centres via Council's Disaster Hub). 3. On-site Manager to monitor (hourly) rainfall forecasts and recorded rainfall together with water levels at the Roys Road flood gauge and the Site flood staff. 4. On-site Manager shall complete initial preparations to allow for isolation of the Site, including charging all mobile phones and other measures used to access the internet and communications (a UPS or other backup power supply capable of operating for 3 days shall be provided for internet connection and communications).
Item	**Warning Stage**
Common Measures	**TRIGGER FOR WARNING STAGE**: - Forecast for 50mm or more of rainfall with 'heavy falls' within next 24 hours with resultant potential for inundation of Roys Road or heavy rainfall (in excess of 50 mm at the rainfall gauges near the site reported by Council's Disaster Hub). (Warnings of extreme rainfall/ cyclones can be used as a trigger according to a precautionary principle).
	ACTIONS FOR THE WARNING STAGE: 1. On-site Manager to advise guests of potential for flooding of Roys Road and recommend that guests shelter on site via SMS, reinforced by staff talking to guests. 2. In the case of forecast rather than actual rainfall, guests can be given the option to evacuate while it is safe to do so (and avoid isolation if the rain eventuates) provided: a. Roys Road is not inundated: level at automated flood gauge on Roys Road less than 2.05 mAHD (200 mm below road level) and level at Site flood staff less than 1.5 mAHD (150 mm below road level); b. Regional road closures nominated on Council's Disaster Hub; and c. There is a safe place for people to go to in the event that a safe place is not available to the guest the on-site Manager shall review the status of Evacuation Centres via Council's Disaster Hub). 3. On-site Manager to monitor (half-hourly) rainfall forecasts and recorded rainfall together with water levels at the Roys Road flood gauge and Site flood staff. 4. If not already undertaken, on-site Manager shall complete initial preparations to allow for isolation of the site, including charging all mobile phones and other measures used to access the internet and communications (a UPS or other backup power supply capable of operating for 3 days shall be provided for internet connection and communications). 5. On-site Manager or their delegate will complete a review of any guests or staff with special needs and deal with them appropriately (for example relocating people to flood free areas early or ensuring that their medicine is available).
Item	**Shelter Stage**
Common Measures	**TRIGGER FOR SHELTER STAGE**: - <u>Isolation due to inundation of Roys Road:</u> 1. Automated flood gauge (at Crossing 1, the most flood affected point on Roys Road, refer to Figure 2.1): Level of 2.05 mAHD (0.2 m below the road level); or 2. Site flood staff (a guide to flood/storm tide level at Crossing 2, the lowest point on Roys Road, refer to Figure 2.1): Level of 1.5 mAHD (0.15 m below the road level). <u>Potential for Site Flooding</u>: 3. Site flood staff: Level of 1.50 mAHD.
	ACTIONS FOR THE SHELTER STAGE: <u>Isolation due to inundation of Roys Road:</u> 1. On-site Manager to advise guests of potential/ actual flooding of Roys Road via SMS, reinforced by staff talking to guests. 2. On-site Manager to keep boom gate closed to ensure guests and staff do not use Roys Road and shelter on site (boom gate can be opened to let people into the site). 3. On-site Manager to monitor (half-hourly) rainfall forecasts and recorded rainfall together with water levels at the Roys Road flood gauge and the Site flood staff. 4. If not completed already, the on-site Manager will complete a review of any guests or staff with special needs and deal with them appropriately <u>Additional actions in the event of Site flooding</u>: 1. On-site Manager to advise guests of potential flooding of site via SMS, reinforced by staff talking to guests. 2. Relocation of people from lowest campsites (if occupied) to higher ground under the direction of the on-site Manager. 3. Progressive relocation of people (guests and staff) to areas above PMF flood level (flood refuge) 4. On-site Manager to ensure that people do not enter flooded areas and remain above flood level. 5. On-site Manager shall disconnect the electricity supply to the site (or appropriate parts of the site) at an appropriate point, with the option to commence using emergency power in areas above flood level. 6. On-site Manager shall notify Emergency Services (132 500, www.ses.qld.gov.au) that people have been directed to flood refuge areas as appropriate. 7. On-site Manager to ensure that any guests or staff with special needs are moved to locations above flood level.

Item	Stand Down Stage
Common Measures	**TRIGGER FOR STAND DOWN**: - 1. Automated flood gauge: Level below 2.05 mAHD (0.2 m below road level) and falling; and 2. Site flood staff: Level below 1.5 mAHD (0.15 m below the road level) and falling; and 3. Limited forecast rainfall.
	ACTIONS FOR THE STAND DOWN: 1. On-site Manager to visually confirm that Roys Road is open; 2. On-site Manager to allow boom gate to open to allow guests/ staff to use Roys Road; 3. On-site Manager to advise guests of ability to use Roys Road via SMS, reinforced by staff talking to guests. 4. If site flooding has occurred, on-site Manager to ensure electrical system can be connected (with qualified electrician as appropriate) prior to restoring normal power supply.

Item	Commentary
Reporting During Event	Records shall be kept of each review of levels and forecasts during the Alert, Warning, and Shelter Stages The record will include: • The time of the review; • The level at each gauge (Warning Stage onwards); • The nature of the current flood forecast; and • Whether any trigger level has been exceeded based on actual or forecast levels.
Reporting (General)	Records shall be kept regarding the following: • Nominated on-site Manager and assistant responsible for flood management of site; • Records of training of staff (induction and refresher); • Records of site maintenance (flood monitoring system and signage); • Performance of site during actual events including non-conformances and areas where the plan could be improved.
Corrective Action:	Where any of the performance objectives are unachievable in practice, a review of the objectives shall be undertaken. The reason for the non-conformance shall be reviewed. In the event of it being necessary to comply with the objective, then appropriate measures to allow compliance in the future shall be identified. Alternatively, in the event of an objective being proven to be unreasonable, the plan shall be revised to include objectives that are reasonable while still achieving the overall aim of the plan.

Appendix C Court Conditions

PL ENVIRONMENT COURT
2023
FILED
BRISBANE

36
nt

In the Planning and Environment Court
Held at: Brisbane

No. 1836 of 2022

Between: **COMISKEY MANAGEMENT SERVICES PTY LTD (ACN 115 254 307)** Appellant

And: **SUNSHINE COAST REGIONAL COUNCIL** Respondent

JUDGMENT

VOLUME 1 OF 3

CONNOR O'MEARA
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Level 22
69 Ann Street
BRISBANE 4000
Telephone: 3221 3033
Facsimile: 3221 6661

THE PLANNING AND ENVIRONMENT COURT
BRISBANE

In the Planning and Environment Court
Held at: Brisbane

No. 1836 of 2022

Between:	**COMISKEY MANAGEMENT SERVICES PTY LTD (ACN 115 254 307)**	Appellant
And:	**SUNSHINE COAST REGIONAL COUNCIL**	*Respondent*

JUDGMENT

Before Her Honour Judge McDonnell

Date of Hearing: 20 December 2023

Date of Order: 20 December 2023

THIS MATTER HAVING on this day come on for hearing by way of appeal against the decision of the Respondent to refuse a development application for a development permit for a material change of use of premises for Nature Based Tourism (*"Development Application"*) with respect to land described as Lot 10 on SP132272 and Lot 6 SP184133 and situated at 1807 Roys Road, Coochin Creek

IT IS ORDERED THAT:

1. The appeal be allowed.

2. The Development Application be approved in accordance with the conditions and plans attached hereto and marked "A", contained in pages 1 to 650.

20/12/2023

Judgment
Filed on behalf of the Appellant
Form No PEC-7

CONNOR O'MEARA
Solicitors
Level 22, 69 Ann Street
BRISBANE 4000
Phone: 3221 3033
Fax: 3221 6661

3. Each party bear their own costs.

Filed on 20/12/2023

Filed by: Connor O'Meara Solicitors
Service Address: Level 22, 69 Ann Street, Brisbane 4000
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Facsimile: (07) 3221 6661
E-mail address: michaelconnor@connoromeara.com.au

.....
Registrar

Flood Management

53. All works must be undertaken generally in accordance with section 5.2 – *Design and Construction – Passive Measures* of the *Flood Emergency Management Plan* listed in this development approval and specifically include the following:
    (a) The floodplain storage capacity of the site must be maintained with no reduction in the floodplain storage capacity for all events up to the 1% AEP flood level under projected 2100 climate conditions. Detailed calculations and drawings must be provided in conjunction with the first operational works application over the site demonstrating that floodplain storage capacity is being maintained

generally in accordance with the approved stormwater management plan and any compensatory cut area is free draining with minimum 0.2% grade.
    (b) The internal driveways must be constructed so that a route which progressively grades to land above the probable maximum flood is provided for each camp site.
    (c) A minimum 10,000m2 area must be retained on the site above the probable maximum flood level (3.8m AHD). This area must be central to the camp site area and include at least one amenities block and camp kitchen.

54. A flood gauge which continuously monitor water levels must be installed at the location nominated in the FEMP*. The Flood Gauge must be constructed to Council's standard and connected to Council's flood monitoring system. Data from this flood gauge must be utilised by the development in accordance with the FEMP, and may be sourced either from Council's flood management system or from a direct connection to the flood gauge.
    (Refer to Advisory Note)

55. The site must be operated in accordance with the *Flood Emergency Management Plan* at all times.

56. The *Flood Emergency Management Plan* (FEMP) required by this development approval must be reviewed by a suitably qualified person* to identify improvements in the operation and implementation of the FEMP and resubmitted to council at a minimum of the following times:
    (a) following council preparing a new flood study relevant to the site;
    (b) following a change in the non-structural and/or structural flood mitigation measures;
    (c) after the occurrence of moderate or greater flooding resulting in floodwaters entering the site; and
    (d) after implementation of the *Flood Emergency Management Plan* has resulted in evacuation of the site.

    The Flood Emergency Management Plan must be reviewed in consultation with council, completed by a REPQ and submitted to Council within three (3) months of the flood event.
    (Refer to Advisory Note)

57. The site and the *Flood Emergency Management Plan* must be registered with the Local Disaster Management Coordination Centre.

North Coast Environmental Services
Environmental Management Consultants

BUSHFIRE HAZARD ASSESSMENT AND MANAGEMENT PLAN v3

LOT 10 ON SP132272 & LOT 6 ON SP184133

1807 ROYS ROAD,

COOCHIN CREEK QLD

FOR

COMISKEY GROUP

AUGUST 2025

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

PO Box 385 Peregian Beach QLD 4573 / Email: admin@northcoastenv.com.au
ABN 60 625 108 625

DOCUMENT CONTROL

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Client: Comiskey Group

Project Number: J001320

Project: Material Change of Use (150 Sites)

Site: Lot 10 on SP132272 & Lot 6 on SP184133
1807 Roys Road, Coochin Creek QLD 4519

File Ref: C:\CLIENTS\COMISKEY GROUP – 1807 Roys Rd, Coochin creek\04 REPORTING \02_BHAMP\Bushfire Hazard Assessment & Management Plan v3 – 1807 Roys Rd COOCHIN CREEK.docx

Version	Date	Distribution	Author/s	Approved
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2	05/09/2024			
3	13/08/2025		Joshua Lee (B. Sc. AES, mEIANZ) - Director	

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1 INTRODUCTION

1.1 Background

This Bushfire Hazard Assessment and Management Plan has been prepared to assess and manage the degree of potential bushfire hazard and associated risk acting on Lot 10 on SP132272 and Lot 6 on SP184133, located at 1807 Roys Road, Coochin Creek QLD 4519. A development application for a Material Change of Use (Tourist Park) is to be submitted to Sunshine Coast Regional Council. This assessment is to be used to assist Council with their decision-making process.

The site has an existing Development Permit for Nature Based Tourism issued by the P&E Court and dated 20/12/23. The proposed Material Change of Use (Tourist Park) has the same development footprint as the existing approval.

1.2 State Planning Policy Bushfire Intensity Overlay Map

The lots are mapped under the State Planning Policy (SPP) as containing the following Potential Bushfire Intensity areas (refer to Plate 1):

- High Potential Bushfire Intensity area;
- Medium Potential Bushfire Intensity area; and
- Potential Impact Buffer.

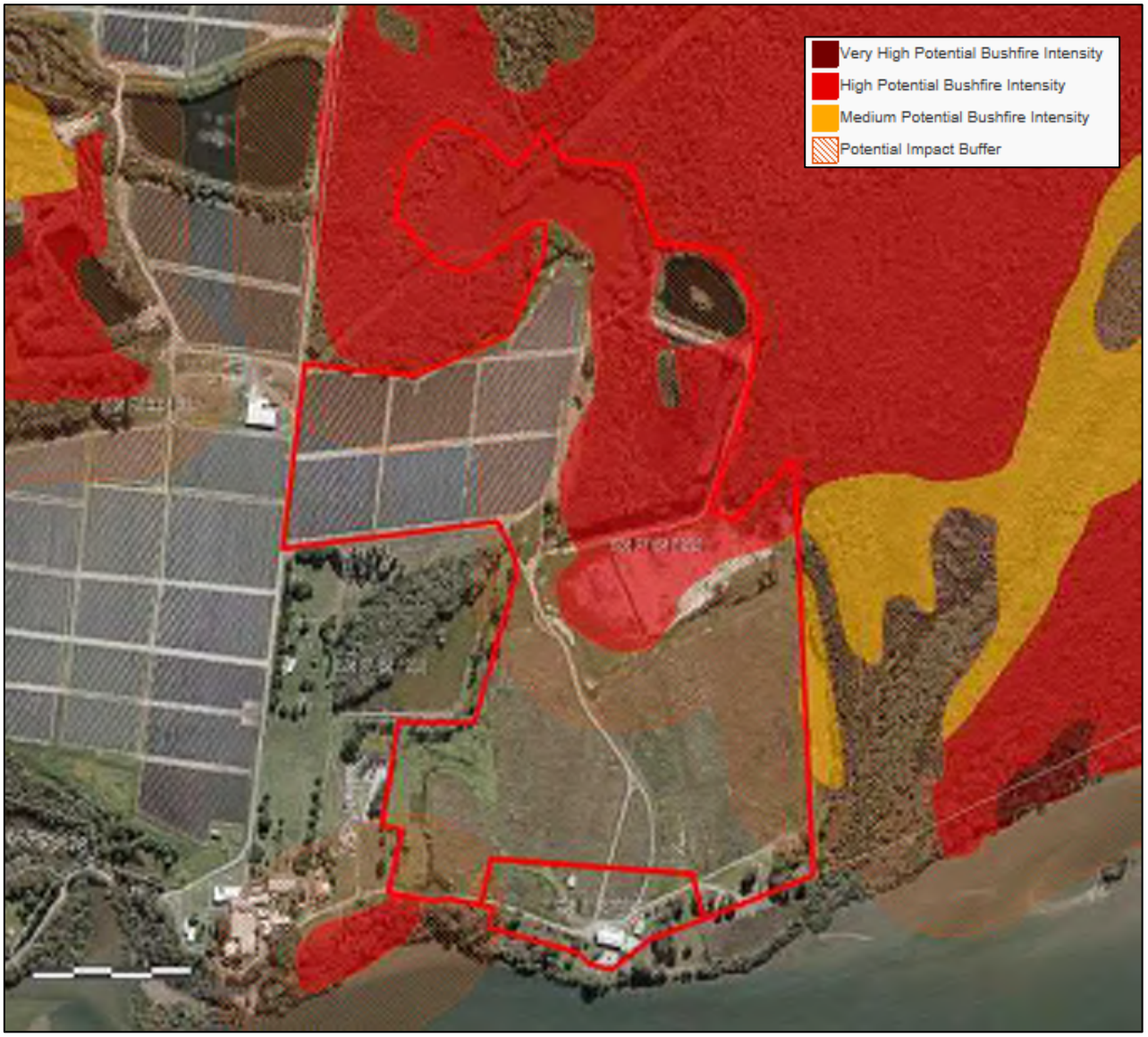

Plate 1 – SPP Bushfire Intensity Mapping Overlay

Under Chapter 2, Part 1, Section 8, Item 4(a) of the *Planning Act 2016*, where there is an inconsistency between a State planning policy and local government planning instrument, a State planning policy applies instead of a regional plan or local planning instrument. As such the SPP Bushfire Prone Areas mapping prevails with respect to the currency of the methodology used to assign risk classes hence is to be used as the trigger for assessment under Council's Bushfire Hazard Overlay Code in lieu of the SCC Bushfire Hazard Overlay.

1.3 Development Proposal

The site is proposed to host a tourist park accommodation facility. The proposed plan of development includes 75 camp sites, 75 cabins, reception centre, pool, maintenance building, and various outdoor recreational pursuits. The development proposes to gain access from the existing access point within the site's southwest corner.

The Plan of Development has been provided as Appendix 1.

The proposed development is deemed to be a tourist park use. Therefore, the appropriate 'vulnerable use' SPP benchmarks will apply.

The location of the proposed development is within the southern extent of Lot 6 on SP184133 and the entirety of Lot 10 on SP132272 and is labelled "Eco Park" with black hatching in Plate 2 (referenced hereafter as 'the site'). This report will focus on this area exclusively. Should the plan of development change and consequently activities be proposed in the balance areas of the site then further investigation of bushfire risk will be necessary.

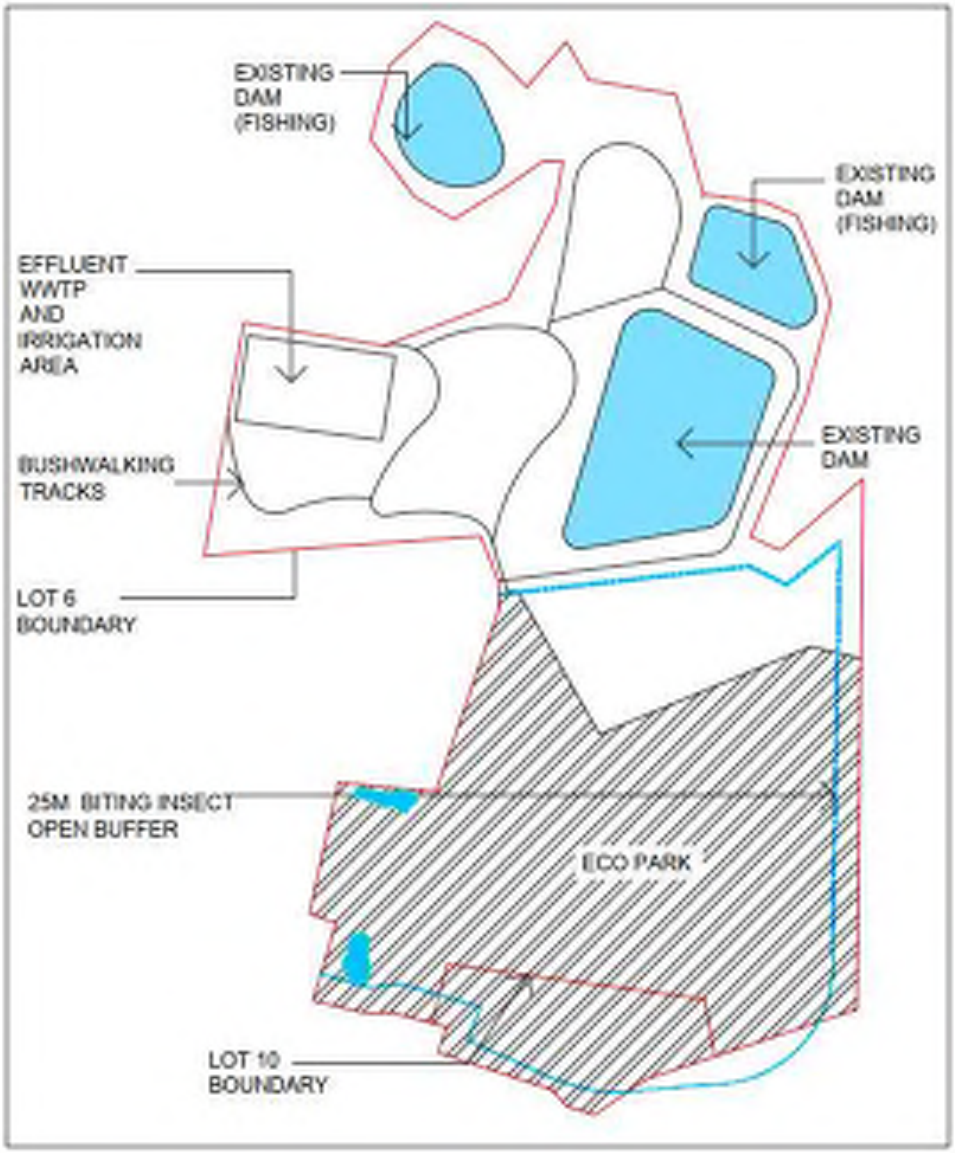

Plate 2 – Proposed development location (Source: Comiskey Group (Appendix 1))

2 Site Description

2.1 General

The site measures approximately 18.6ha and is located in the central extent of the suburb of Coochin Creek. The site currently supports a single dwelling with several associated sheds and a pool located about the centre of the southern boundary.

In general, the majority of the site is host to relict horticultural areas that now resemble managed grassland areas. Units of woody vegetation are present surrounding the site including paperbark open forest, sedgelands, and wetlands. The site is bordered by Pumicestone National Park to the north and east, Pumicestone Passage and then Bribie Island to the south, and rural land uses including a strawberry farm to the northwest and west.

The site is zoned as Rural and the dams to the north and northwest are designated as *drainage easements* within the *Sunshine Coast Planning Scheme 2014.*

Plate 3 depicts the site's position in the landscape and the extent of existing development.

Plate 3 – Site Context (Source: Queensland Globe)

2.2 Topography

The slope of land is a major determinant of fire behaviour. Fire burns faster as it travels upslope via preheating of unburnt fuels ahead of the fire front which increases the rate of spread and fireline intensity. Conversely, fires move more slowly as they travel downslope. Fireline intensity is a function of the rate of spread (QFES 2019).

The site is located on generally flat ground showing very little variation in topography. A small rise is present near the existing dwelling producing average slopes of 1-2 degrees except to the south-west where a relatively steep side slope declines from the dwelling down to the Pumicestone Passage foreshore inclusive of an alluvial terrace to the south-west. Numerous dams and artificial drains were observed across the site associated with the former cropping use.

The site reaches a topographic high of approximately 5m AHD in the south near the existing dwelling

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and a low of approximately 2m AHD in the sites northeast corner.

Plate 4 depicts topography conditions within and adjacent to the site.

Plate 4 – Site Topography (Source: Queensland Globe)

2.3 Vegetation within the site

The majority of the site is characterised by managed grassland. Scattered mature trees over managed lawn are present near the site's southern boundary and include *Eucalyptus tereticornis, Casuarina glauca,* and *Ficus macrophylla*.

2.4 Vegetation external of the site

The site is surrounded by patches of paperbark forests set amongst a mosaic of cleared and wetland areas. Units of paperbark open forest are present to the north, northeast, northwest, east and southwest of the site.

Extensive stands of swamp she-oak woodland, mangrove area, and sedgelands are present to the east of the site and to the south of Pumicestone Passage on Bribie Island.

Plate 5 depicts the general extent of bushland fuel sources surrounding the site. Vegetation hazard characteristics are described in detail in Section 3.2.

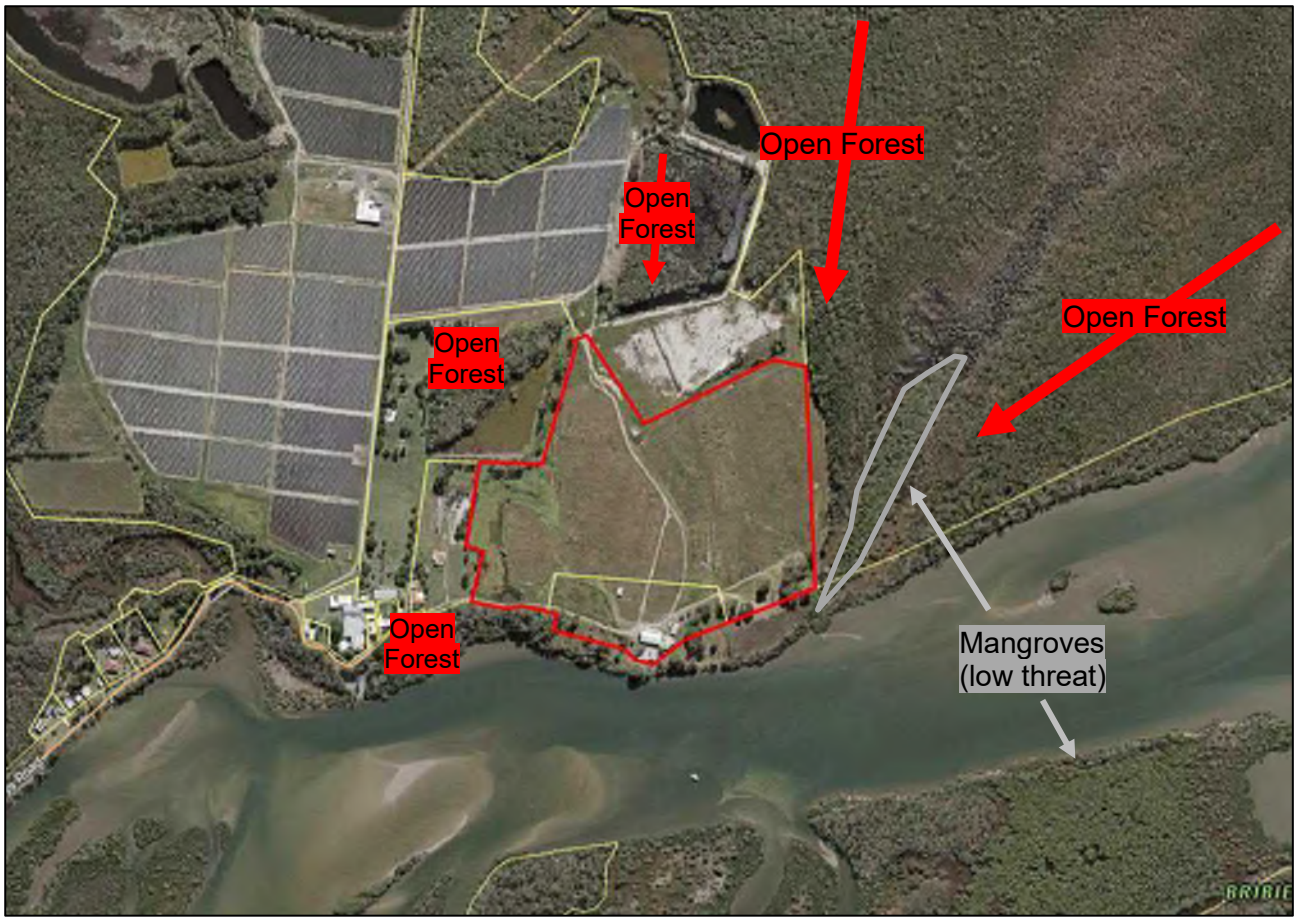

Plate 5 – Dominant forest fire runs (Source: Queensland Globe)

3 HAZARD ASSESSMENT

3.1 Hazard Assessment Methodology

The SCRC Planning Scheme requires that a site-specific bushfire hazard assessment be prepared to assess the degree of bushfire hazard acting on a development site captured within a mapped Designated Bushfire Hazard Area. The SPP Bushfire Prone Area mapping prevails over the SCRC Bushfire Hazard Area mapping with respect to the currency of the methodology adopted to prepare the mapping. Accordingly, the site-specific hazard mapping required by the Bushfire Hazard Overlay Code is to be prepared consistent with the methodology adopted to prepare the SPP mapping.

The methodology used to prepare the SPP mapping is described in:

- Department of Infrastructure, Local Government and Planning's *Natural Hazards, Risk and Resilience — Bushfire (December 2019) State Planning Policy – state interest guidance material; and*
- Queensland Fire and Emergency Services - (2019) *Planning for Bushfire Resilient Communities.*

Site-specific hazard maps are referred to as Local Hazard Area Maps in the SPP documents. The preparation of Local Hazard Area Maps has been undertaken for the site in accordance with the methodology described in the above referenced documents.

3.1.1 Local Hazard Area Map

A Local Hazard Area Map was prepared by adopting the following methodology:

- Categorizing the vegetation within the site in accordance with the vegetation hazard classes derived from QFES (2019);
- Using the patch and corridor filtering process to remove narrow corridors and small patches of VHC's[1];
- Subdividing the identified vegetation hazard classes into bushfire hazard sub-units based on slope differences and vegetation hazard classes. All upslope and across slope vegetation units are allocated an underlying slope of 1 degree as per methodology prescribed within Queensland Fire and Emergency Services - (2019) Planning for Bushfire Resilient Communities. The maximal slope recorded within 25m x 25m grids within the VHC's is adopted as the effective slope underlying the VHC. A conservative approach is adopted where multiple slopes persist within VHC's;
- Assigning SPP Potential Bushfire Intensity classes to the sub-units;
- Application of 100m Potential Impact Buffers to the amended sub-units to derive an overall Local Hazard Area Map.

[1] The patch and corridor filtering process to remove or downgrade hazard levels of small patches and narrow corridors involves the following three stages:

- Merging small patches of a single Vegetation Hazard Class less than 0.5 ha;
- Merging small Vegetation Hazard Class patches between 0.5 and 1 ha with higher or moderate fuel loads (greater than 8 tonnes/ha); and
- Removing narrow corridors of vegetation less than 50m wide through a process of patch erosion and dilation. These small patches are merged with surrounding vegetation by allocating a patch to the Vegetation Hazard Class that is most common to the patch boundary (Leonard *et al*., 2017).

3.2 Vegetation Hazard Classes

The following vegetation hazard classes (VHC's) (classified in accordance with QFES (2019)) were identified within the assessment area which includes a 150m buffer surrounding the site (as defined in Section 1.3):

- Vegetation Hazard Class 22.1 – Melaleuca open forest on seasonally inundated lowland coastal swamps;
- Vegetation Hazard Class 28.2 – Woodlands in coastal locations with species such as she-oak or swamp box;
- Vegetation Hazard Class 35.3 – Shrubland associated with mangroves and tidal saltmarshes;
- Vegetation Hazard Class 39.2 – Low to moderate tree cover in built-up areas;
- Vegetation Hazard Class 40.4 – Continuous low grass or tree cover; and
- Vegetation Hazard Class 43.6 – Water bodies or very low vegetation cover.

The characteristics of each observed vegetation hazard class are described in Appendix 2. *Plan BF01A – Pre-Development Vegetation Hazard Classes* depicts the VHC distribution across the assessment area based on the conditions at the time of inspection.

Plan BF01B – Post-Development Vegetation Hazard Classes depicts the VHC distribution based on the expected conditions at the commencement of the proposed use and takes into consideration the matters detailed in the Notes below. For the purposes of this assessment, *BF01B – Post Development Vegetation Hazard Classes* will be utilised when formulating the post development Local Hazard mapping and determining setback requirements.

NOTE:

1. The large dam to the northwest of the proposed development; Sub Unit 1b, contained within 5SP184133 and designated as a *drainage easement* under SCRC PS 2014, was largely devoid of water at the time of inspection and primarily exhibited dry grassland conditions subject to woody regrowth vegetation. An active pump was heard to be drawing water from the remaining water coverage in the far west of the dam. The regrowth featured a low to mid density of 0.5-1.5m tall *Melaleuca spp.* & *Allocasuarina spp.* characteristic of VHC 22.1 (refer Plate A2-7). The dam has historically comprised an inundated waterbody however appears to have been drawn down since 2021. The applicant has advised the dam will be fully inundated again prior to the commencement of the use. Therefore, the dam (Sub Unit 1b) has been designated as VHC 43.6 water bodies on *Plan BF01B – Post-Development Vegetation Hazard Classes.*
2. Wetland revegetation works are proposed directly north of the proposed development footprint about the SCRC PS 2014 mapped *Wetlands*. The previously Court approved *Wetland and Buffer Area – 1807 Roys Rd Revegetation Plan* prepared by Terrestria Pty Ltd is proposed to be used to direct the rehabilitation of the wetland area (refer Appendix 5). Based on the specified species palette within the *Revegetation Plan* , VHC 22.1 has been assigned to *Zone 1* & *Zone 2.* It is understood the *Buffer Planting* area is intended to be a managed buffer featuring linear rows of plantings interspaced with rows of low cropped grass of sufficient width to enable regular mowing. The *Revegetation Plan* does not prescribe a specific species palette for the buffer planting and simply labels "Native shrubs at 1m centres". This degree of ambiguity could result in bushfire hazardous species from the *Upper Shrubs* & *Lower Shrubs* palettes being planted which could easily grow limbs to fill the 4m gap between the rows leading to an interlocking canopy. Such an outcome would likely facilitate significant access restrictions which prevent management of the grassy inter rows hence lead to the accumulation of surface and fuels and woody regrowth and ultimately the development of a hazardous vegetation community. To avoid this scenario, the revegetation design criteria specified in Section 5.9 is to be adopted to ensure the buffer planting zone can be suitably managed in perpetuity to be a low threat VHC (i.e., VHC 40.4). To this end VHC 40.4 was assigned to the *Buffer Planting* area on *Plan BF01B – Post-Development Vegetation Hazard Classes*.

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LEGEND

- The Lots
  10SP132272 & 6SP184133
- The Site
  (Indicative Development Footprint of the Proposed Use)
- 150m Assessment Buffer
- VHC 22.1 - Vegetation Hazard Class 22.1
  Melaleuca open forests on seasonally inundated lowland coastal swamps
- VHC 28.2 - Vegetation Hazard Class 28.2
  Woodlands in coastal locations with species such as she-oak or swamp box
- VHC 35.3 - Vegetation Hazard Class 35.3
  Shrubland associated with mangroves and tidal saltmarshes
- VHC 38.5 - Vegetation Hazard Class 38.5
  Discontinuous irrigated cropping and horticulture
- VHC 39.2 - Vegetation Hazard Class 39.2
  Low to moderate tree cover in built-up areas
- VHC 40.4 - Vegetation Hazard Class 40.4
  Continuous low grass or tree cover
- VHC 43.6 - Vegetation Hazard Class 43.6
  Water bodies or very low vegetation cover

(Leonard et. al (2017)

- Units of Vegetation Removed As Per the Patch and Corridor Filtering Process (refer text for criteria/reason)

NOTE:
VHC designation based on assumptions stated within Notes 1 & 2 in Section 3.2.

BACKPLATE SOURCE:
Queensland Globe Aerial Imagery, screenshot taken 08/07/2024

SCALE BAR 1:3250
0 20 50 100 200

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ABN: 60 625 136 625

PROJECT TITLE:
BUSHFIRE HAZARD ASSESSMENT
1807 ROYS ROAD, COOCHIN CREEK QLD 4519

CLIENT:
COMISKEY GROUP

ISSUE	DETAILS	DATE	INT	CHKD
1	VERSION 1	11-07-2024	JT	JL

TITLE:
POST-DEVELOPMENT
VEGETATION HAZARD CLASSES

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LEGEND

- The Lots
  10SP132272 & 6SP184133
- The Site
  (Indicative Development Footprint of the Proposed Use)
- 150m Assessment Buffer
- VHC 22.1 - Vegetation Hazard Class 22.1
  Melaleuca open forests on seasonally inundated lowland coastal swamps
- VHC 28.2 - Vegetation Hazard Class 28.2
  Woodlands in coastal locations with species such as she-oak or swamp box
- VHC 35.3 - Vegetation Hazard Class 35.3
  Shrubland associated with mangroves and tidal saltmarshes
- VHC 38.5 - Vegetation Hazard Class 38.5
  Discontinuous irrigated cropping and horticulture
- VHC 39.2 - Vegetation Hazard Class 39.2
  Low to moderate tree cover in built-up areas
- VHC 40.4 - Vegetation Hazard Class 40.4
  Continuous low grass or tree cover
- VHC 43.6 - Vegetation Hazard Class 43.6
  Water bodies or very low vegetation cover

(Leonard et. al (2017)

- Units of Vegetation Removed
  As Per the Patch and Corridor Filtering Process (refer text for criteria/reason)

BACKPLATE SOURCE:
Queensland Globe Aerial Imagery, screenshot taken 08/07/2024

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CLIENT:
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3.3 Potential Bushfire Intensity classes

Table 1 details the Potential Bushfire Intensity classes and their corresponding potential fire-line intensity (kW/m) values as prescribed within Leonard *et. al.* 2017.

Table 1: Potential Bushfire Intensity classes

Potential Bushfire Intensity	Potential Fire-line Intensity
1. Very high	40,000+ kW/m
2. High	20,000 – 39,999 kW/m
3. Medium	4,000 – 19,999 kW/m

3.4 Bushfire Hazard Sub-Units

Plan BF02 – Sub-Units identifies the site scale Potential Bushfire Intensity classes across the site. *Plan BF02 (1 of 2)* identifies High Potential Bushfire Intensity areas are present generally to the north, northeast, and northwest of the proposed development.

The Potential Bushfire Intensity class data tables for each sub unit are presented in *Plan BF02 (2 of 2)*.

Note: Sub Units 1-5 comprise VHC's which are designated as either Prone Type 2 – Grassfire prone or Prone Type 3 – Low hazard. Section 7.5.2, 7.6 & Figure 14 of Bushfire Resilient Communities 2019 identifies Prone Type 2 and 3 VHC's as non-bushfire prone VHC's. Therefore, Sub Units 1-5 were mapped as Low Potential Bushfire Intensity classes on *Plan BF02.*

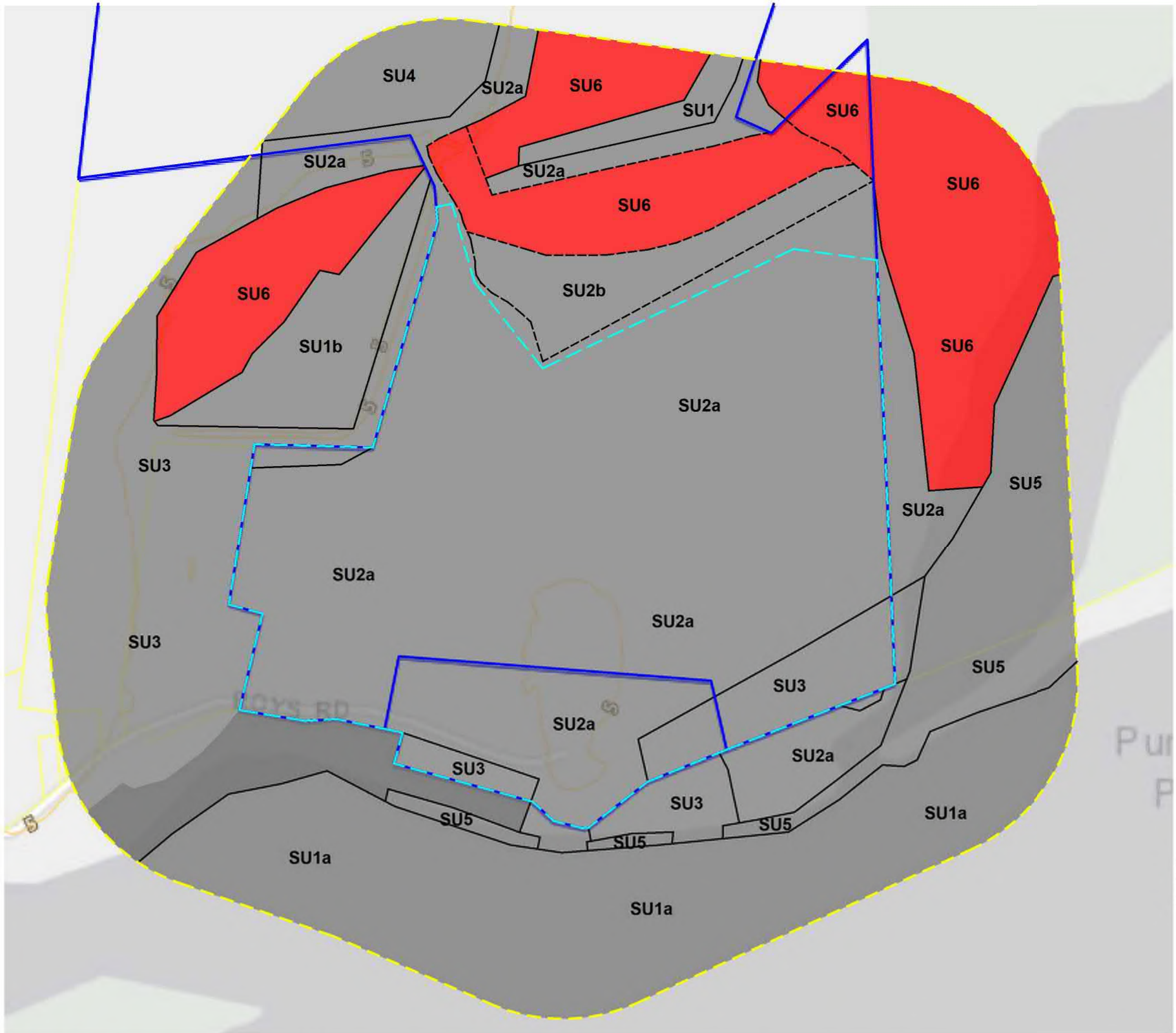
3.5 Local Hazard Map

A Local Hazard Map; *Plan BF03 – Local Hazard Map,* has been prepared and identifies the Potential Bushfire Intensity classes across the site inclusive of 100m wide Potential Impact Buffer areas. *Plan BF03* is to supersede the SPP broadscale mapping attributed to the site and should be used to guide the formulation of appropriate site-based bushfire management measures for the proposal.

The Local Hazard Map identifies proposed development is located external of the confirmed High Potential Bushfire Intensity areas, but the northern and eastern extents are generally located within the associated 100m wide *Potential Impact Buffer*. Table 2 identifies the components of the proposed development which are captured within the confirmed *Potential Impact Buffer* noting all remaining components are located within a confirmed *Low Potential Bushfire Intensity* area.

Table 2: Components of the development captured within the confirmed Potential Impact Buffer

Type of Infrastructure	No.'s of Infrastructure (refer *Plan BF03*)
Cabins	4 in total C35, C36, C37, C38
Campsites	28 in total 24-52
Amenities (13)	1
Camp Kitchen (11)	1



LEGEND

- The Lots
  10SP132272 & 6SP184133
- The Site
  (Indicative Development Footprint of the Proposed Use)
- SUn — Sub Units
- 150m Assessment Buffer
- Low Potential Bushfire Intensity
- Medium Potential Bushfire Intensity
- High Potential Bushfire Intensity
- Very High Potential Bushfire Intensity

Sub Unit Notes:
SU1b = Dam assumed to be an inundated waterbody
SU2b = Wetland Buffer revegetation works assumed to representative of low threat vegetation

BACKPLATE SOURCE:
Queensland Globe Topography, screenshot taken 08/07/2024

SCALE BAR 1:3250
0 20 50 100 200

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JOB: J001320 PLAN: BF02A REV: 1
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Sub Unit 1a-b

Vegetation Hazard Class #	Prone Type	Combined Surface and Near Surface Fuel Load (t/ha)	Total Fuel Load (t/ha)	Fire Weather Severity (FFDI)	Maximum Effective Slope (degrees)	Maximum Site Slope (degrees)	Potential Fireline Intensity (kw/m)	**Potential Bushfire Intensity ***
VHC 43.6 - Water bodies or very low vegetation cover	3	0	0	54	N/A	N/A	N/A **	Low

Sub Unit 2a-b

Vegetation Hazard Class #	Prone Type	Combined Surface and Near Surface Fuel Load (t/ha)	Total Fuel Load (t/ha)	Fire Weather Severity (FFDI)	Maximum Effective Slope (degrees)	Maximum Site Slope (degrees)	Potential Fireline Intensity (kw/m)	**Potential Bushfire Intensity ***
VHC 40.4 - Continuous low grass or tree cover	2	4.5	5	54	N/A	N/A	N/A **	Low

Sub Unit 3

Vegetation Hazard Class #	Prone Type	Combined Surface and Near Surface Fuel Load (t/ha)	Total Fuel Load (t/ha)	Fire Weather Severity (FFDI)	Maximum Effective Slope (degrees)	Maximum Site Slope (degrees)	Potential Fireline Intensity (kw/m)	**Potential Bushfire Intensity ***
VHC 39.2 - Low to moderate tree cover in built-up areas	3	5	8	54	N/A	N/A	N/A **	Low

Sub Unit 4

Vegetation Hazard Class #	Prone Type	Combined Surface and Near Surface Fuel Load (t/ha)	Total Fuel Load (t/ha)	Fire Weather Severity (FFDI)	Maximum Effective Slope (degrees)	Maximum Site Slope (degrees)	Potential Fireline Intensity (kw/m)	**Potential Bushfire Intensity ***
VHC 38.5 - Discontinuous irrigated cropping and horticulture	3	1.5	2	54	N/A	N/A	N/A **	Low

Sub Unit 5

Vegetation Hazard Class #	Prone Type	Combined Surface and Near Surface Fuel Load (t/ha)	Total Fuel Load (t/ha)	Fire Weather Severity (FFDI)	Maximum Effective Slope (degrees)	Maximum Site Slope (degrees)	Potential Fireline Intensity (kw/m)	**Potential Bushfire Intensity ***
VHC 35.5 - Sedgeland associated with mangroves and tidal saltmarhses	3	1.7	1.7	54	N/A	N/A	N/A **	Low

Sub Unit 6

(Fireline intensity calculated using Flamesol modelling adopting forest as the relevant vegetation type)

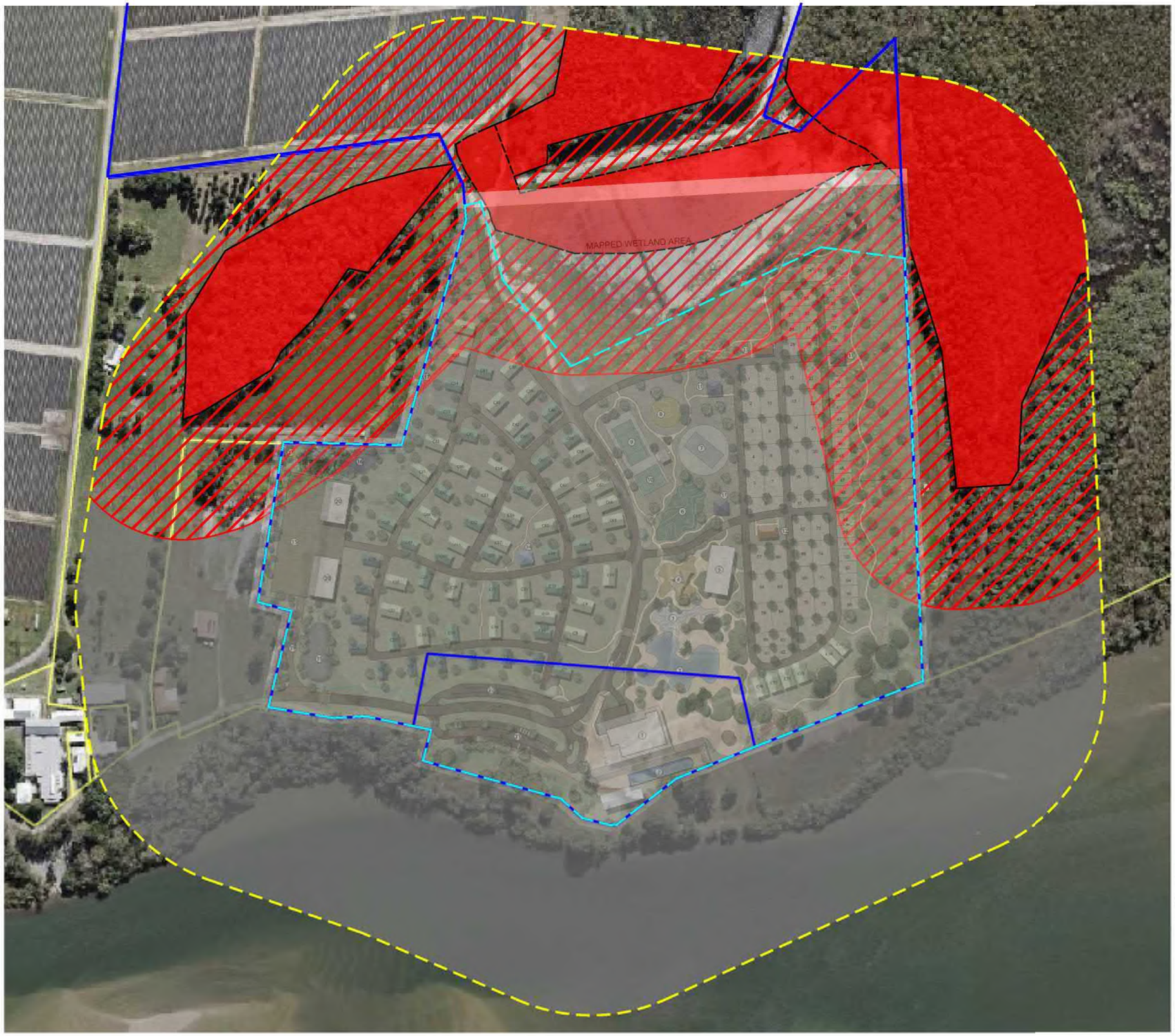
Vegetation Hazard Class #	Prone Type	Combined Surface and Near Surface Fuel Load (t/ha)	Total Fuel Load (t/ha)	Fire Weather Severity (FFDI)	Maximum Effective Slope (degrees)	Maximum Site Slope (degrees)	Potential Fireline Intensity (kw/m)	**Potential Bushfire Intensity ***
VHC 22.1 - Melaleuca open forests on seasonally inundated lowland coastal swamps	1	23.4	28.4	54	1	1	23,838	High

From: Leonard, J., & Opie, K., (2017) Estimating the potential bushfire hazard of vegetation patches and corridors – an enhancement of Queensland's methodology for State-wide mapping of bushfire prone areas. CSIRO, Australia.

* From: Leonard, J., Newnham, G., Opie, K., and Blanchi, R. (2014) A new methodology for state-wide mapping of bushfire prone areas in Queensland. CSIRO, Australia.

** Fireline intensity, radiant heat flux, and bushfire attack level are not calculated for non-bushfire prone VHCs grass fire prone VHCs (prone type = 2) and/or low hazard VHCs (prone type = 3) as per Bushfire Resilient Communities 2019 Sections 7.5.2, 7.6 & Figure 14 (remnant/mature fuel loads assumed).

Note, Effective Slope is measured by the maximum slope conditions underlying the hazardous vegetation relative to the proposed development footprint & Site Slope is measured by the maximum slope conditions underlying the setback area located between the hazardous vegetation and the proposed development footprint.



LEGEND

- The Lots
  10SP132272 & 6SP184133
- The Site
  (Indicative Development Footprint of the Proposed Use)
- 150m Assessment Buffer
- Low Potential Bushfire Intensity
- Medium Potential Bushfire Intensity
- High Potential Bushfire Intensity
- Very High Potential Bushfire Intensity
- Potential Impact Buffer

BACKPLATE SOURCE:
Queensland Globe Aerial Imagery, screenshot taken 08/07/2024 & Plan of Development by Comiskey Group

SCALE BAR 1:3250

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LOCAL HAZARD MAP

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3.6 Quantitative Modelling

Quantitative modelling of the potential bushfire conditions that may be experienced within the VHC 22.1 flanking the site has been undertaken to assist in understanding the risk to the development and determining the suitability of the layout with respect to any asset setback requirements.

The models used comprise industry standard bushfire equations which have been built into the FPAA endorsed FLAMESOL computer model. FLAMESOL allows numerous input variables to be adjusted including fuel loads, fire danger index, site slope and distance to vegetation. FLAMESOL uses the following algorithms:

- Rate of Spread – McArthur (1973) and Nobel *et al*. (1980)
- Flame Length – NSW Rural Fire Service (2001) and Nobel *et al*. (1980)
- Elevation of Receiver – Douglas and Tan (2005)
- Flame Angle – Douglas and Tan (2005)
- Radian Heat Flux – Drysdale (1999), Sullivan *et al*. (2003) and Douglas and Tan (2005)

The FLAMESOL Minimum Distance calculator has been used and comprises an AS 3959:2018 Method 2 (Appendix B) based calculator which can determine a suite of bushfire behaviour variables including the minimum distances required to achieve a range of different radiant heat level exposures.

Fuel load inputs have been drawn from *Planning for Bushfire Resilient Communities* (QFES 2019) based on the calculated potential fuel loads for:

- VHC 22.1 (23.4 t/ha surface and near surface fuels and 28.4 t/ha total fuels)

Table 3 summarises the slopes and flame width input variables assigned to each of the identified Sub Units in the Flamesol modelling.

Note, effective slope was measured by utilising the closest adjacent section of the proposed development as the point of reference when calculating the slope.

Table 3: Flamesol Input Summary

Sub Unit & assigned VHC	Effective Slope (Maximum slope conditions underlying the hazardous vegetation relative to the proposed development footprint)	Site Slope (Maximum slope conditions underlying the setback area located between the hazardous vegetation and the proposed development footprint)	Flame Width (Width of the sub unit relative to a perpendicular fire run toward the site, default 100m maximum)
SU6 – VHC 22.1	1° Across slope	1° Across slope	100m

A FFDI of 54 has been adopted for the site consistent with the assignment of same by QFES (Catalyst 2020) (refer Plate 6).

Plate 6 - FFDI (Source: QFES Redi Map)

The Flamesol output results are attached as Appendix 3 and summarised in Section 4.2.

4 BUSHFIRE RISK ASSESSMENT

4.1 General

A bushfire risk assessment for the proposed building areas has been prepared generally in accordance with *State Planning Policy – State Interest Guideline – Natural Hazards, Risk and Resilience* (DILGP, 2016) and *AS/NZS ISO 31000:2018 – Risk Management Methodology*.

The bushfire risk assessment details the likelihood that the proposed cabins, reception centre, amenities, camp kitchens, and other structures, adjoining the hazardous vegetation will be exposed to radiant heat impact from the adjacent confirmed Bushfire Potential Intensity areas depicted on *Plan BF03*.

Plate 7 illustrates the primary bushfire attack mechanisms that can impact a building including radiant heat flux.

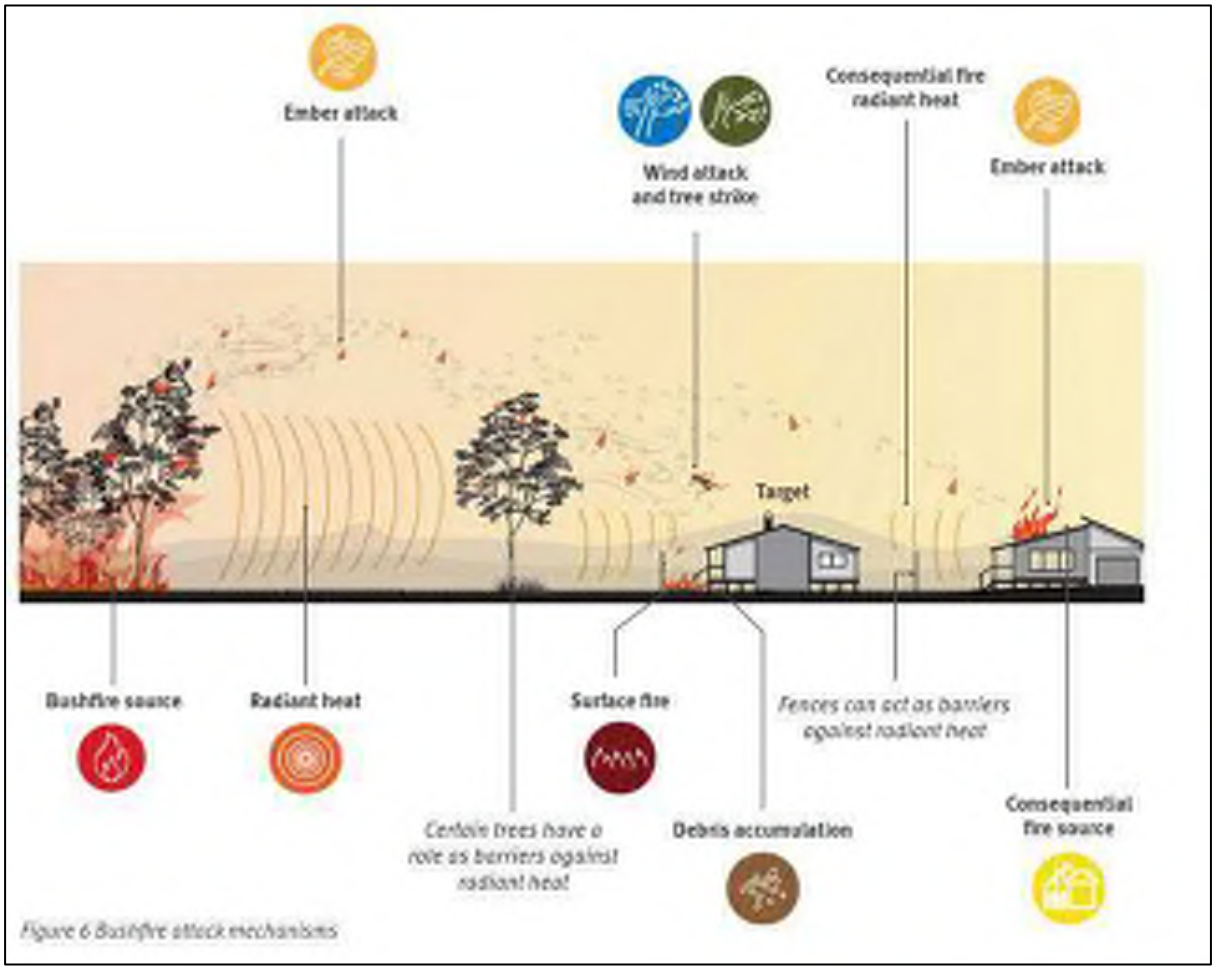

Plate 7 – Bushfire attack mechanisms (Bushfire Resilient Building Guidance for Queensland Homes 2020)

According to AS/NZS ISO 31000:2018, a 'hazard' is defined as a source of potential harm or a situation with a potential to cause loss, whereas a 'risk' is the chance of something happening that will have an impact on objectives measured in terms of consequences and likelihood. The *State Planning Policy – State Interest Guideline – Natural Hazards, Risk and Resilience* (DILGP, April 2016) refers to 'acceptable risk', 'tolerable risk', and 'intolerable risk' which are defined below.

- **Acceptable risk**
    - A risk that, following an understanding of the likelihood and consequences, is sufficiently low to require no new treatments or actions to reduce risk further. Individuals and society can live with this risk without feeling the necessity to reduce the risks any further.
- **Tolerable risk**

- A risk that, following an understanding of the likelihood and consequences, is low enough to allow the exposure to continue, and at the same time high enough to require new treatments or actions to reduce risk. Society can live with this risk but believe that as much as is reasonably practical should be done to reduce the risks further.

- **Intolerable risk**
  - A risk that, following an understanding of the likelihood and consequences, is so high that it requires actions to avoid or reduce the risk. Individuals and society will not accept this risk and measures are to be put in place to reduce risks to at least a tolerable level.

Section 9.4 of the QFES Bushfire Resilient Communities 2019 references radiant heat flux exposure of <10kW/m² on the development footprint plan as generating an Acceptable to Tolerable level of risk for vulnerable uses.

AS/NZS ISO 31000:2018 defines 'Likelihood' as the chance that something might happen. Likelihood can be defined, determined, or measured objectively or subjectively and can be expressed either qualitatively or quantitatively (using mathematics). The following 'likelihood' categories for the probability of the assessed bushfire attack mechanisms impacting the assessment area have been adopted within this assessment:

- Likely - Will probably occur
- Unlikely - Could occur but doubtful

The determination of whether a bushfire event is likely or unlikely to occur (i.e., impact the site) has been based on the relative position of hazardous vegetation to the site. Hazardous vegetation located upwind of a site under typical south-east Queensland (SEQ) seasonal fire winds from the north to north-west to west to south-west is deemed to expose a site to a 'likely' probability of impact. Hazardous vegetation located downwind of the site under typical SEQ seasonal fire winds is deemed to expose a site to an 'unlikely' probability of impact.

4.2 Risk from Identified Hazardous Vegetation

The Plan of Development depicts the proposed development adjacent to the identified hazardous vegetation to the north, northeast, and northwest of the site. The likelihood of a fire approaching from the north to northwest is considered *likely*, given dominant regional fire weather winds are derived from the north-west to west to south-west. The likelihood of a fire approaching from the northeast is considered *unlikely*, given north-east winds are rarely associated with fire events in SEQ.

The degree of separation offered to the adjoining vegetation is the primary driver of the assigned level of risk and was determined with consideration to the Flamesol modelling output presented in Section 3.3.

The following minimum separation distances are required to the identified hazardous vegetation to ensure the proposed development is exposed to <10kW/m² radiant heat flux as per the Flamesol modelling presented herein:

- 50.1m to the units of Sub unit 6 (VHC 22.1).

Plan BF04 – Setback Requirements depicts the <10kW/m^2 RHF 'vulnerable use' setback requirement relative to the proposed development. *Plan BF04* demonstrates the proposed layout facilitates an **acceptable risk** of radiant heat impact in accordance with Section 9.4 of the QFES Bushfire Resilient Communities 2019, as all components of the proposed footprint achieve the <10kW/m^2 RHF 'vulnerable use' setback requirement.

The majority of the proposed infrastructure is provided with >100m separation from the hazardous vegetation as identified in Table 2.

LEGEND

- The Lots
  10SP132272 & 6SP184133
- The Site
  (Indicative Development Footprint of the Proposed Use)
- SUn — Sub Units
- 150m Assessment Buffer
- High Potential Bushfire Intensity
- Separation Distances Required to Achieve <10kW/m2 RHF 'vulnerable use'

<10kW/m2 RHF 'vulnerable use'
Setback Requirement:
Sub Unit 6 = 50.1m

BACKPLATE SOURCE:
Queensland Globe Aerial Imagery, screenshot taken 08/07/2024 & Plan of Development by Comiskey Group

SCALE BAR 1:3250
0 20 50 100 200

North Coast Environmental Services
Environmental Management Consultants
PO Box 9566 Pacific Paradise, Qld, 4564
P: 07 5450 5564
ABN: 60 625 136 625

PROJECT TITLE: BUSHFIRE HAZARD ASSESSMENT
1807 ROYS ROAD, COOCHIN CREEK QLD 4519

CLIENT: COMISKEY GROUP

ISSUE	DETAILS	DATE	INT	CHKD
1	VERSION 1	11-07-2024	JT	JL

TITLE: SETBACK REQUIREMENTS

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JOB:	PLAN:	REV:	NORTH:
J001320	BF04	1	

SCALE: 1:3250 @ A3

5 BUSHFIRE IMPACT REDUCTION MEASURES

5.1 General

The following section describes bushfire impact reduction measures to be incorporated into the proposed development to reduce the risk of bushfire impacts to people and property. Implementation of the identified measures is not implied nor intended to advocate that building occupants remain on the site during a bushfire event, nor that people and property will be protected from bushfire impacts. The measures are intended to reduce the potential severity of bushfire impact to the development and not prevent bushfire impact. The bushfire mitigation measures have been derived from:

- Department of State Development, Manufacturing, Infrastructure and Planning's *State Planning Policy – State interest guidance material – Natural hazards, risk and resilience – Bushfire (December 2019)* (referenced herein as SPP (Bushfire) 2019)*;* and
- Queensland Fire and Emergency Services. (2019). *Planning for Bushfire Resilient Communities.*

5.2 Asset Protection Zones

5.2.1 General

Asset Protection Zones (APZ) provide a defensive tool to assist in the reduction of potential bushfire impact to people and property situated in bushfire prone areas. For illustrative purposes, Plate 8 depicts the concept of an APZ surrounding a dwelling in a bushfire prone areas.

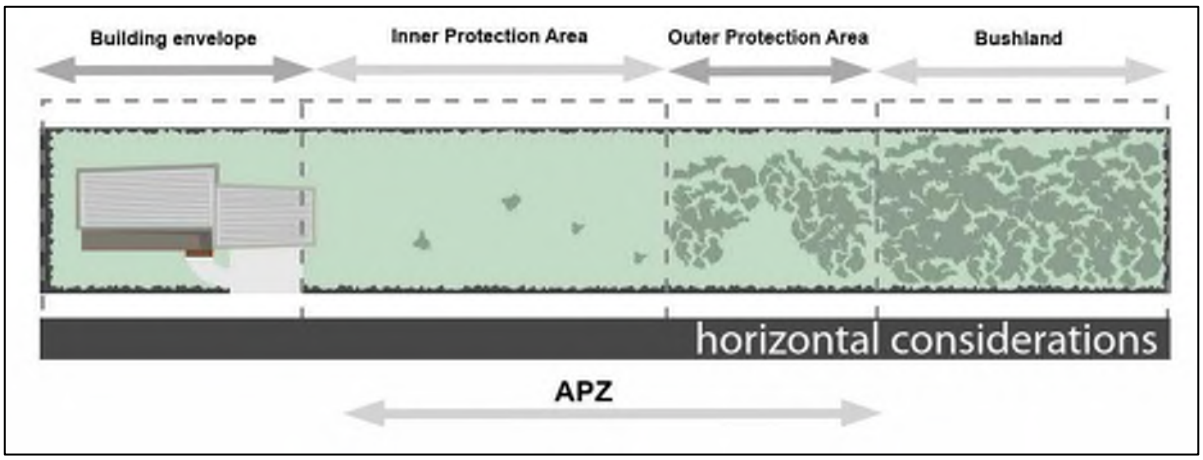

Plate 8 – Asset Protection Zones

The proposed use is for an Eco Resort featuring a mixture of cabins, recreational infrastructure, sheds, and amenities (permanent structures) and campsites (non-permanent structures or mobile habitable buildings such as RV's or motor homes. The components of the development that require an APZ comprise the cabins, campsites, reception centre, maintenance/cleaning/storage sheds, camp kitchens, and amenities.

This assessment inherently assumes the proposed use will be landscaped to reflect low threat vegetation conditions (i.e., generally lawn + / - scattered shrubs, trees, and gardens). Refer Section 5.6 for a more detailed description of low threat vegetation conditions.

5.2.2 Tourist Park – 'Vulnerable Uses'

There are no specific setback criteria for a Material Change of Use development application under the SCRC Bushfire Hazard Overlay Code 2014.

State Planning Policy – State interest guidance material for natural hazards, risk and resilience for bushfire considers nature-based tourism a 'vulnerable use'. Therefore, as stipulated in Section 9.4 of the *Technical Reference Guide for the State Planning Policy State Interest 'Natural Hazards, Risk and Resilience - Bushfire',* the applicable assets in the development footprint must be separated from the closest edge of an adjacent mapped medium, high or

very-high potential bushfire intensity area by a distance (APZ width) that achieves a radiant heat flux level of 10 kW/m^2 or less at all development footprint boundaries.

The risk assessment performed in Section 4.2 herein identifies that the entire development footprint boundary is separated by sufficient distance to achieve <10kW/m^2 RHF from the confirmed *High Potential Intensity* areas associated with the VHC 22.1 vegetation hence satisfy the 'vulnerable use' setback criteria.

Any land that falls within the <10kW/m² radiant heat flux setback requirements identified in Section 4 should be designed to comprise low threat conditions as referenced in Section 5.6 Landscaping and Regrowth.

5.3 Water Supply

The availability of a reliable water supply for firefighting purposes is a vital tool in the defence of bushfire impact. Reticulated town water supply is currently not available within the site.

However, the proposed development includes the installation of a private reticulation system using on site water resources. Part of this system will require a minimum of 250kL tank supply of potable water to be maintained at all times. The applicant has advised this private reticulation system will maintain a minimum pressure and flow in excess of 10L/s and 200kPa at all times and will be distributed to be able to provide water to all proposed buildings.

The proposed reticulated water supply is considered to satisfy both the SCRC Bushfire Hazard Overlay Code and SPP Bushfire 2019 water supply requirements.

Given the provision of pressurized reticulated water supply, it is recommended fire hydrants are installed, to enable QFES to access the water supply in a bushfire and or structure fire emergency, as follows:

- 1 x adjacent to cabins C35, C36, C37 & C38 in the north-west corner of the development footprint. and

Where the above buildings are not serviced by the reticulated water supply they can be serviced by dedicated water tank supply as follows:

- 2 x 10kL tanks for cabins C35, C36, C37 & C38

It is understood the Amenities and Camp Kitchen buildings will be constructed with structural steel and blockwork materials and that the Camp Kitchen is not an enclosed building, but rather a roofed open area with maybe one side wall.

The buildings represent low risk of ignition or sustaining a fire and are not located in proximity to any other at risk structural buildings (i.e., cabins). Provision of a hydrant or dedicated water tank supply to the Amenities and Camp Kitchen buildings is therefore considered a low priority.

It is understood the Reception Centre, which is designated as the shelter in place location, is to be serviced by QFES compliant hydrant coverage (complete with permanent 288kL dedicated water storage for fighting and fire pumps). This proposed water supply to the Reception Centre is acceptable.

5.4 Fire Breaks

The provision of fire breaks and fire trails within a site located in a bushfire prone area offers an important bushfire defence measure to assist in reducing the risk and severity of bushfire ingress onto and through a site.

Plate 9 outlines the SPP benchmark design parameters for a fire trail that allows for safe access and egress and operational space for rural fire-fighting vehicles.

Parameter	Provisions
Width	Contains a width of at least 20 metres including: 1. A **trafficable area** (cleared and formed): a. with a minimum width of 4 metres that can accommodate a rural firefighting vehicle b. with no less than 4.8 metres vertical clearance from canopy vegetation c. with no adjacent inhibiting embankments or retaining walls 2. A **working area** each side of the trafficable area: a. with a minimum width of 3 metres each side b. cleared of all flammable vegetation greater than 0.1 metre in height 3. The **balance** (i.e. 10 metres width) managed vegetation area: a. sited to separate the trafficable area from adjacent mapped medium, high or very high potential bushfire intensity areas managed vegetation b. comprising managed vegetation clear of major surface hazards.
Access	Access is granted in favour of the local government and Queensland Fire and Emergency Services Note – This access is commonly granted in the form of an easement that is to be maintained by the grantor.
Egress	Contains trafficable vehicle routes in to low hazard areas, every 200 metres

Plate 9 – Fire trail and working area design parameters (Source: SPP Natural hazards, risk and resilience – Bushfire Table 4)

It is recommended that a SPP compliant firebreak trail is provided directly adjacent to the mapped High Potential Bushfire Intensity areas. The *Balance* area should be located on the outermost interface between the *trafficable & working areas* and High Potential Bushfire Intensity areas. Plate 10 outlines the indicative alignment of the recommended firebreak trail network that should meet the requirements stated in Plate 9.

It's understood the firebreak trail will be located adjacent to the eastern site boundary and low threat landscaping is proposed between the fire break trail and the adjacent camp sites.

Plate 10 – Indicative Fire break alignment (Source: POD, Appendix 1)

5.5 Vehicular Access

Development in bushfire prone areas should be serviced by safe access/exit points for both occupants and emergency services personnel. Access to the proposed development is via the existing access point in the southwest corner of the site (i.e., Roys Road). The access is located within a low threat area comprised of cleared areas and thin patches of riparian vegetation hence the risk of access/egress to the site becoming constrained during a bushfire event is deemed low.

To ensure the development can support accessibility and manoeuvring for firefighting and emergency services during a bushfire event it is recommended that the driveway design satisfies Section 5 of the QLD Fire Hydrant and Vehicle Access Guidelines for Residential Commercial and Industrial Lots 2019 (Fire Hydrant Guidelines 2019) which provides 4 main specifications for accessibility and manoeuvring for firefighting and emergency services as follows:

- 5.1 Road Width and Height;
- 5.2 Road Construction;
- 5.3 Road Grades; and
- Turning Bays.

<u>Road Width and Height</u>

Section 5 states '*Fire service vehicular access is to enable the service to intervene to fight the fire, assist with evacuation and stop the spread of fire to another building. A minimum roadway clearance of 3.5m wide by 4.8m high is required for a fire truck. Constructed roads must*

comply with Government legislation as specified in the "Road Planning and Design Manual".

Road Construction

The Performance Outcome in Section 5.2 seeks that *Roads must be constructed to facilitate the safe passage of a laden fire truck in all weather conditions.*

The nominated acceptable outcome is that *Roads must be constructed to a standard so that they are accessible in all weather conditions and capable of accommodating a vehicle of 15 tonnes for the trafficable road width as specified in the "Road Planning and Design Manual".*

It is recommended the internal road network to service the development comply with this Acceptable Outcome and such can be set as a condition of approval.

Road Grades

The Performance Outcome in Section 5.3 seeks that *Grades of roads must facilitate the safe passage of fire trucks.*

The nominated acceptable outcome is that *The average grades, dips, and exit angles must be addressed as specified in the "Road Planning and Design Manual".*

It is recommended the internal road network to service the development comply with this Acceptable Outcome and such can be set as a condition of approval.

Turning Bays

The Performance Outcome in Section 5.4 seeks that *Provision is made for fire trucks to turn at the end of dead-end roads.* The nominated acceptable outcome is that *Constructed roads more than 60m in length from the nearest intersection must have a turning circle with a minimum radius of 8m (including roll-over kerbs if they are provided). Other solutions using T or Y heads of specified dimensions are also appropriate. See figure 2 in the "Road Planning and Design Manual".*

The rationale for turning bays is stated as:

> *It is dangerous for emergency vehicles to be required to reverse along roads for excessive distances in urban areas. Turning is normally carried out after the incident is under control when emergency movement is not required. Even then, large trucks reversing in residential areas create safety concerns. Fire trucks occasionally need to seek an alternative route necessitating a 180 degree turn in emergency*
>
> *conditions. Using a three-point turn, fire trucks require a turning circle radius of 8m to turn safely. Alternative designs using specified T or Y heads are also appropriate. This area needs to be clear of obstructions.*

The proposed development access utilises a large network of internal roads, it offers multiple connecting routes to traverse the site, with no *dead-end roads*. Therefore, installation of a specific turn around point for emergency service vehicles is deemed unnecessary.

5.6 Landscaping and Regrowth

Existing and future landscaping within the site should avoid increasing the potential for bushfire hazard. Assessment Benchmark 5 of the SPP Bushfire 2019 seeks that the site layout places the landscape and open spaces within the site between premises and adjacent mapped medium, high or very high potential bushfire intensity areas. This landscaping and open space comprises protective landscape treatments that:

1. Comprise only low threat vegetation (for example grassland managed in a minimal fuel condition, maintained lawns, golf courses and cultivated gardens); or

2. Are designed to ensure a potential available fuel load is maintained at less than 8 tonnes/hectare in aggregate and with a fuel structure that remains discontinuous.

To reduce the potential for bushfire impact to buildings, structures and occupants as a result of future regrowth and landscaping works within the site, it is recommended:

- Site landscaping comprises low threat vegetation conditions dominated by lawn, scattered trees and discrete gardens; and
- Installation of new landscaping maximises low flammability species, satisfies Assessment Benchmark 5 of the SPP Bushfire 2019 and is arranged in clumps and or linear screening treatments that do not offer a continuous fuel load within 3m of buildings.

The low threat conditions are to be maintained by the property manager for the life of the development.

It is envisaged that the proposed landscaping and street trees about the perimeter of the development footprint will assist to decrease the severity of radiant heat exposure to the sensitive receivers within the site in the event of a bushfire occurring in the adjacent bushland.

5.7 General Property Maintenance

The undertaking of an appropriate level of property maintenance throughout the year, and in particular prior to the fire season, can significantly reduce the severity of fire impact upon a site. Queensland Fire and Emergency Services recommend the following general actions be undertaken to prepare for the fire season:

Structure

- Clear leaves, twigs, bark and other debris from the roof and gutters.
- Purchase and test the effectiveness of gutter plugs.
- Enclose open areas under decks and floors.
- Install fine steel wire mesh screens on all windows, doors, vents and weep holes.
- Point LPG cylinder relief valves away from the house.
- Conduct maintenance checks on pumps, generators and water systems.
- Seal all gaps in external roof and wall cladding.

Access

- Display a prominent house or lot number, in case it is required in an emergency.
- Ensure there is adequate access to your property for fire trucks - 4 metres wide by 4 metres high, with a turn-around area.

Vegetation

- Reduce vegetation loads along the access path.
- Mow your grass regularly.
- Remove excess ground fuels and combustible material (long dry grass, dead leaves and branches).
- Trim low-lying branches two metres from the ground surrounding your home.

Note the above recommendations are that of QFES and are offered herein for advisory purposes. They have not been set as recommendations for certification purposes.

5.8 Bushfire Evacuation

Given the extent of hazardous bushland in the vicinity of the site there is an inherent risk that an evacuation of the site may be required to mitigate serious risk of impact to site occupants should a significant fire threaten the site. A Bushfire Emergency Response Plan has therefore been prepared to direct the evacuation of the site (refer Appendix 2) and comprises an integral component of the measures prescribed herein to manage bushfire safety on the site.

5.9 Addendum to Wetland and Buffer Area Revegetation Plan

This addendum does not seek to change or revise the revegetation plan but simply to refine the broad revegetation methodology prescribed within the *Buffer Planting* area to ensure low threat vegetation conditions will be achievable, practical, and suitable to be maintained in

perpetuity.

It is considered imperative that in order for the *Buffer Planting* area to comprise low threat vegetation it must be able to be mown in between the planting rows managed for the life of the development. To this end, the following specifications are to be adopted for the revegetation works of the *Buffer Planting* area:

- *Banksia robur, Melastoma malabathricum* and *Lomandra longifolia* are to be used exclusively in the *Buffer Planting* area;
- The plantings are to be strategically located to minimise the extent of interlocking canopies at maturity between rows to ensure the space between the rows can be mown. Each *Banksia robur and Melastoma malabathricum* planting should be separated by a *Lomandra longifolia* and the plantings of *L. longifolia* should be diagonally offset from each other between opposing rows so that an *L. longifolia* specimen is always opposite either a *Melastoma malabathricum* or *Banksia robur* planting.
- Plate 12 below depicts the above recommendation.

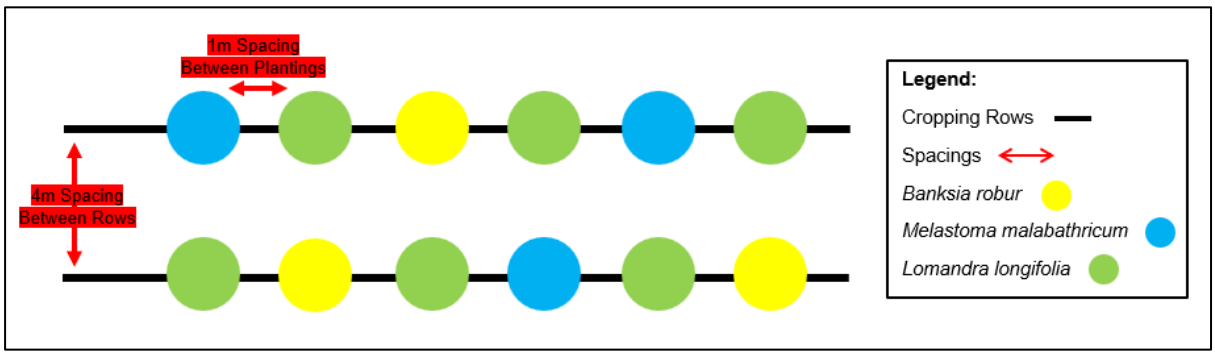

Plate 12 – Addendum to Wetland and Buffer Area Revegetation Plan – Buffer Planting area Revegetation Methodology Diagram

6 AUSTRALIAN STANDARD 3959:2018 CONSTRUCTION OF BUILDINGS IN BUSHFIRE PRONE AREAS (AS 3959:2018) SETBACKS

The northern, south-western, and eastern limits of the site are located within a *Designated Bushfire Prone Area* (refer Plate 1). Building works within a *Designated Bushfire Prone Area* identified on a Bushfire Hazard Overlay Map (Local or State) triggers building design assessment under AS 3959:2018. The Standard provides minimum construction requirements for new habitable dwellings and habitable building alterations in designated Bushfire Prone Areas. The construction requirements are intended to improve the performance of buildings subjected to burning debris, radiant heat or flame contact. Building works in Designated Bushfire Prone Areas must be built to the Bushfire Attack Level (BAL) construction standard relevant to the building site as identified by the AS 3959:2018 methodology.

Compliance with the SPP Assessment Benchmark 4 <29kW/m² RHF separation criteria typically results in a maximum BAL 29 outcome for new dwellings on a development site. It is however important to note that the patch and corridor filtering process available under the SPP methodology is not available under the AS3959 methodology. Assessment under AS3959 is required to assess small linear strips of vegetation which are less than 50m in width.

A specific BAL assessment for any the Class 1, 2, 3, 9c or 10a buildings associated with the former will be required once building plans have been prepared given the BAL relies on an accurate understanding of the final footprint of the building within the new allotments and is required to be assessed against the active version of the Standard at the time of assessment.

The proposed cabins are anticipated to be the only Class 1 habitable dwellings and/or include a Class 10 shed associated with Class 1 dwelling as part of the development. Only cabins located internal of a *Designated Bushfire Prone Area* under the SCRC PS 2014 Bushire Hazard Overlay and the SPP Bushfire Hazard Overlay are required to satisfy the provisions of AS3959:2018.

A preliminary BAL assessment suggests that all AS3959 applicable cabins would achieve BAL 12.5 based on the assumption that the development footprint resembles low threat conditions.

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7 LEGISLATION AND OVERLAYS

7.1 Sunshine Coast Planning Scheme 2014

The SCRC Bushfire Hazard Overlay Code applies to self-assessable and assessable development that is:

- Subject to the bushfire hazard overlay shown on the overlay maps contained within Schedule 2 (Mapping) of the SCRC Planning Scheme; and
- Identified as requiring assessment against the Bushfire Hazard Overlay Code by the tables of assessment in Part 5 (Tables of assessment) of the SCRC Planning Scheme.

The purpose of the Bushfire Hazard Overlay Code is to ensure that development avoids or mitigates the potential adverse impacts of bushfire on people, property, economic activity and the environment.

The proposed development is considered *assessable development* and therefore is assessable against the assessment criteria contained within Table 8.2.4.3.2 of the Bushfire Hazard Overlay Code which has been reproduced as Table 4.

Note - Under Chapter 2, Part 1, Section 8, Item 4(a) of the *Planning Act 2016*, where there is an inconsistency between a State planning policy and local government planning instrument, a State planning policy applies instead of a regional plan or local planning instrument. Therefore, the State Planning Policy – Natural Hazards, Risk and Resilience assessment benchmarks prevail over those prescribed in the SCRC Bushfire Hazard Overlay Code where they involve the same design elements (i.e., the SPP separation requirements prevail over SCRC requirements etc).

Table 4 – Table 8.2.4.3.2 of the Bushfire Hazard Overlay Code

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSAL COMPLIANCE SUMMARY
BUSHFIRE HAZARD ASSESSMENT AND MANAGEMENT				
PO1	Bushfire mitigation measures are adequate for the potential bushfire hazard level of the site, having regard to the following: - (a) vegetation type; (b) slope; (c) aspect; (d) on-site and off-site bushfire hazard implications of the particular development; (e) bushfire history; (f) conservation values of the site; and (g) ongoing maintenance. Note—where a bushfire hazard assessment and management plan has previously been approved for development proposed on the site (e.g., as part of a prior approval), design of the proposed development in accordance with that plan shall be taken as achieving compliance with this performance outcome.	**AO1.1**	The level of bushfire hazard shown on a Bushfire Hazard Overlay Map is confirmed through the preparation of a site-specific bushfire hazard assessment and management plan, prepared in accordance with the Planning scheme policy for the bushfire hazard overlay code.	**AO1.1** The preparation of this Bushfire Hazard Assessment and Management Plan satisfies AO1.1.
		AO1.2	Development is located, designed and operated in accordance with a Council-approved bushfire hazard assessment and management plan, prepared in accordance with the Planning scheme policy for the bushfire hazard overlay code.	**AO1.2** The proposed development has been located, designed and shall be operated in accordance with this Bushfire Hazard Assessment and Management Plan and therefore complies with AO1.2.
IMPACT OF BUSHFIRE MITIGATION MEASURES ON ECOLOGICALLY IMPORTANT AREAS				
PO2	Bushfire mitigation measures do not adversely impact on: - (a) biodiversity values and functionality; and (b) the long-term physical integrity of waterways, wetlands and native vegetation areas.	**AO2**	No acceptable outcome provided.	**AO2** The proposed development footprint boundary has been located with enough separation to satisfy the 'vulnerable use' <10kW/m² radiant heat flux exposure SPP requirement. No clearing of mature vegetation is required for bushfire mitigation measures.
SAFETY OF PEOPLE AND PROPERTY				
PO3	Development maintains the safety of people and property from the adverse impacts of bushfire.	**AO3**	Development which will materially increase the number of people living or congregating on premises, including reconfiguring a lot, is not located or intensified within a confirmed medium or high bushfire hazard area. This includes, but is not limited to, the following uses: - (a) child care centre; (b) community care centre; (c) community residence; (d) community use; (e) educational establishment; (f) emergency services; (g) hospital; (h) indoor sport and recreation; (i) nature-based tourism; (j) outdoor sport and recreation; (k) relocatable home park; (l) resort complex; (m) short-term accommodation; (n) residential care facility; (o) retirement facility; (p) short-term accommodation; (q) tourist attraction; and (r) tourist park. Note—the level of bushfire hazard shown on a Bushfire Hazard Overlay Map is to be confirmed through the preparation of a site-specific bushfire hazard assessment and management plan, prepared in accordance with the Planning scheme policy for the bushfire hazard overlay code.	**AO3** This Bushfire Hazard Assessment and Management Plan has been prepared to maintain the safety of people and property from the adverse impacts of bushfire.
ESSENTIAL COMMUNITY INFRASTRUCTURE				

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSAL COMPLIANCE SUMMARY
PO4	Essential community infrastructure is able to function effectively during and immediately after bushfire events.	**AO4**	Development involving essential community infrastructure is not located within a confirmed medium or high bushfire hazard area. OR Where located in a confirmed medium or high bushfire hazard area, development involving essential community infrastructure is designed to function effectively during and immediately after bushfire events in accordance with a Bushfire Hazard Assessment and Management Plan prepared in accordance with the Planning scheme policy for the bushfire hazard overlay code.	**AO4** The proposed development does not involve essential community infrastructure.
HAZARDOUS MATERIALS				
PO5	Public safety and the environment are not adversely affected by the detrimental impacts of bushfire on hazardous materials manufactured or stored in bulk.	**AO5**	Development involving the manufacture or storage of hazardous materials in bulk is not located within a confirmed medium or high bushfire hazard area.	**AO5** The proposed development does not involve the manufacture or storage of hazardous materials in bulk.
ACCESS AND EVACUATION ROUTES				
PO6	Where development involves provision of a new public or private road, the layout, design and construction of the road: - (a) allows easy and safe movement away from any encroaching fire; (b) allows easy and safe access for fire-fighting and other emergency vehicles; and (c) provides for alternative safe access and evacuation routes should access in one direction be blocked in the event of a fire.	**AO6.1**	The road layout provides for “through roads” and avoids cul-de-sac and “dead end roads” (except where a perimeter road isolates the development from hazardous vegetation, or the cul-de-sac are provided with an alternative access linking the cul-de-sac to other through roads).	**AO6.1** Access to the proposed development is via the existing access point. The access is located within low threat area comprised of cleared areas and thin patches of vegetation hence the risk of access/egress becoming constrained during a bushfire event is deemed low. The proposed internal road network provides no *dead-end roads* and offers multiple looping connections for each section of the site.
		AO6.2	Roads have a maximum gradient of 12.5%.	**AO6.2** The roads will utilise a grade less than 12.5%.
FIRE BREAKING TRAILS				
PO7	Fire breaking trails are located, designed and constructed to mitigate against bushfire hazard by: - (a) ensuring adequate access for fire-fighting and other emergency vehicles; (b) ensuring adequate access for the evacuation of residents and emergency personnel in an emergency situation, including an alternative safe access routes should access in one direction be blocked in the event of fire; and (c) providing for the separation of developed areas and adjacent bushland.	**AO7**	Where development involves the creation of a new road, fire breaking trails are provided between the development site and hazardous vegetation. Such fire breaking trails: - (a) are located along and within a cleared road reserve having a minimum width of 20 metres; and (b) have a maximum gradient of 12.5%. OR Where development does not involve the creation of a new road, fire breaking trails are provided between the development site and hazardous vegetation. Such fire breaking trails: - (a) have a cleared minimum width of 6 metres; (b) have a maximum gradient of 12.5%; (c) provide continuous access for fire fighting vehicles; (d) allow for vehicle access every 200 metres; (e) provide passing bays and turning bays every 400 metres; and (f) are located within an access easement that is granted in favour of Council and Queensland Fire and Rescue Service.	**AO7** It is recommended that a SPP compliant firebreak trail is provided directly adjacent to the mapped High Potential Bushfire Intensity areas as shown on Plate 11. The *balance area* should be located between the *trafficable* & *working areas* and High Potential Bushfire Intensity areas.
LOT LAYOUT				
PO8	The lot layout of development is designed to: - (a) mitigate any potential bushfire hazard; and (b) provide safe building sites.	**AO8.1**	Residential lots are designed so that their size and shape allow for efficient emergency access to buildings and for fire fighting vehicles (e.g., by avoiding battle-axe/hatchet lots and long narrow lots with long access drives to buildings).	**AO8.1** Not Applicable – The application is not for new residential lots.

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSAL COMPLIANCE SUMMARY
		AO8.2	Residential lots are designed so that their size and shape ensure buildings and structures: - (a) are sited in locations of lowest hazard within the lot; (b) achieve setbacks from hazardous vegetation of 1.5 times the height of the predominant mature tree canopy or 10 metres, whichever is greater; (c) achieve a setback of 10 metres from any retained vegetation strips or small areas of vegetation; and (d) are sited so that elements of the development least susceptible to fire are sited closest to the fire hazard.	**AO8.2** Not Applicable – Refer AO8.1
WATER SUPPLY FOR FIRE FIGHTING PURPOSES				
PO9	Development provides an adequate water supply for firefighting purposes which is reliable, safely located and freely accessible.	**AO9.1**	Premises are connected to a reticulated water supply with a minimum pressure and flow of 10 litres a second at 200kPa at all times. **OR** Where there is no reticulated water supply: - (a) the premises has a minimum water supply capacity of 5,000 litres dedicated for firefighting purposes; and (b) the water supply dedicated to fire fighting purposes is sourced from: - (i) a separate tank; (ii) a reserve section in the bottom part of the main water supply tank; (iii) a swimming pool installed immediately upon construction of the development; or (iv) a permanent dam. Note—due consideration should be given to the location of the water storage in relation to the most likely fire fronts on the site, as well as to the resistance of the water storage to the effects of radiant heat and direct flame.	**AO9.1** Reticulated town water supply is not available within the site. The proposed development includes the installation of a private reticulation system using on site water resources. Part of this system will require a minimum of 250kL tank supply of potable water to be maintained at all times. The applicant has advised this private reticulation system will maintain a minimum pressure and flow in excess of 10L/s and 200kPa at all times and will be distributed to be able to provide water to all proposed buildings. Water supply recommendations are provided in Section 5.3. Based on the above, the proposed water supply is considered to satisfy both the SCRC Bushfire Hazard Overlay Code and SPP Bushfire 2019 water supply requirements. Note the reliance upon dams or pools for water storage is not an acceptable solution under the SPP.
		AO9.2	The water supply outlet for firefighting purposes is: - (a) located remote from any potential fire hazards, such as venting gas bottles; (b) provided with a pipe 50mm in diameter and fitted with a 50mm female camlock (standard rural fire brigade fitting); and (c) provided with a hardstand area within 6 metres of the outlet for fire vehicles.	**AO9.2** AO9.2 is recommended to be adopted where tanks are used for the emergency bushfire water supply source and can be conditioned with an approval.
		AO9.3	The pumps that pressurise water output from the tank, swimming pool or drain are able to be operated without reticulated power.	**AO9.3** AO9.3 is recommended to be adopted where tanks are used for the emergency bushfire water supply source. A diesel-powered Honda fire fighter pump or similar is recommended.
		AO9.4	Fire hydrants along perimeter roads adjacent to National Parks and other conservation reserves are located not more than 100 metres apart.	**AO9.4** No perimeter roads interface conservation reserves. Private reticulated water will be available within the site. Water supply recommendations are provided in Section 5.3.
LANDSCAPE WORKS IN BUSHFIRE HAZARD AREAS				
PO10	Development ensures that landscape treatment and species selection does not exacerbate potential bushfire hazard.	**AO10.1**	Development provides for road verges and/or nature strips to be landscaped so as to form a swale drain for stormwater run-off with: - (a) low form, non-fire promoting native vegetation; or (b) low form and sparsely planted vegetation. Note—the Planning scheme policy for development works provides guidance on selection of non-fire promoting vegetation species.	**AO10.1** All landscape and revegetation work associated with the site are proposed to comply with AO10.2 and can be detailed in a future Landscape Plan for the application where applicable.

PERFORMANCE OUTCOMES		ACCEPTABLE OUTCOMES		PROPOSAL COMPLIANCE SUMMARY
		AO10.2	Development incorporates low form, non-fire promoting native vegetation on areas of the site that are adjacent to or abutting bushland.	**AO10.2** All landscape and revegetation work associated with the site are proposed to comply with AO10.2 and can be detailed in a future Landscape Plan for the application where applicable.

7.2 State Planning Policy – Natural Hazards, Risk and Resilience

The Department of State Development, Manufacturing, Infrastructure and Planning's *State Planning Policy – State interest guidance material – Natural hazards, risk and resilience – Bushfire (December 2019)* contains the development assessment benchmarks for natural hazards, risk and resilience - bushfire. The SPP assessment benchmarks prevail over those prescribed in the SCC Bushfire Hazard Overlay Code where they involve the same design elements. The following assessment benchmarks have deemed to be applicable to the proposed development and assessments compliance have been included below.

Assessment Benchmark 3

For development in a bushfire prone area involving vulnerable uses

1. Vulnerable uses are not established or intensified within the bushfire prone area unless:

a. there is an overriding need in the public interest for the new or expanded service the development provides

b. there are no other suitable alternative location within the required service catchment, and

c. site planning can appropriately mitigate the risk (for example, siting ovals for an educational establishment between the hazardous vegetation and structure.

The proposed development footprint boundary satisfies the vulnerable use <10kW/m² RHF exposure threshold set under the SPP hence is deemed to be positioned in an acceptable location within the site.

Assessment Benchmark 4

Assessable Development

Development contributes to an effective and efficient emergency response and recovery capabilities. In the first instance, this can be achieved by new or expanded community infrastructure that is providing essential services (emergency services, hospital and educational establishment) not being in a bushfire prone area, as addressed in assessment benchmark 3.

To ensure emergency services can respond effectively, development is located within a reticulated water supply area or includes a dedicated static water supply that is available solely for fire-fighting purposes and can be accessed by fire-fighting vehicles.

Reticulated town water supply is currently not available within the site. The proposed development includes the installation of a private reticulation system using on site water resources. Part of this system will require a minimum of 250kL tank supply of potable water to be maintained at all times. The applicant has advised this private reticulation system will maintain a minimum pressure and flow in excess of 10L/s and 200kPa at all times and will be distributed to be able to provide water to all proposed buildings.

The proposed reticulated water supply is considered to satisfy both the SCRC Bushfire Hazard Overlay Code and SPP Bushfire 2019 water supply requirements.

Assessment Benchmark 5

Assessable material change of use

Site layout places the landscape and open spaces within the site between premises and adjacent mapped medium, high or very high potential bushfire intensity areas. This landscaping and open space comprises protective landscape treatments that:

1. Comprise only low threat vegetation, including grassland managed in a minimal fuel condition16, maintained lawns, golf courses and cultivated gardens; or

2. Are designed to ensure a potential available fuel load is maintained at less than 8 tonnes/hectare in aggregate and with a fuel structure that remains discontinuous.

Note – The landscape or open space may be located within the mapped medium, high and very high intensity areas to create a separation between the development and the balance of the bushfire prone area.

The proposed development footprint boundary is separated from the hazardous vegetation areas. It is recommended that any new landscaping associated with the proposed works maximises the use of low-flammability species and or avoids clustering of flammable species. Refer Section 5.6.

Where involving a requirement for revegetation or rehabilitation outside of bushfire prone areas

1. Revegetation or rehabilitation areas contain patches of less than one ha of continuous fuel (i.e., surrounded by either no fuel or non-continuous fuel) and are further than 100 metres from the interface with mapped medium, high or very high potential bushfire intensity patches greater than two hectares in size. Vegetation corridors in these areas with continuous fuel, should be less than 50 metres in width and isolated patches of continuous fuel, should be less than 0.5 hectare.

Revegetation works are proposed directly north of the proposed development about the SCRC PS 2014 mapped *Wetlands*. The "Wetland and Buffer Area – 1807 Roys Rd Revegetation Plan" has been prepared by Terrestria Pty Ltd has been used to guide the post development vegetation conditions within the area (attached as Appendix 5). Based on the specified species palette VHC 22.1 was assigned to *Zone 1* & *Zone 2* and VHC 40.4 was assigned to the *Buffer Planting* area (based on the assumptions stated in Section 3.3 and revegetation methodology outlined in Section 5.9). The proposed revegetation works were incorporated into the Plan *BF01B – Post Development Vegetation Hazard Classes* and subsequent post development Local Hazard mapping when determining setback requirements.

Assessment Benchmark 7

Where a requirement for an asset protection zone (or similar) exists

Landscaping treatments comprise only low threat vegetation, including grassland managed in a minimal fuel condition, maintained lawns, golf courses, maintained public reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks.

OR

Landscaping management maintains a potential available fuel load which is less than eight tonnes/hectare in aggregate, and fuel structure which is discontinuous.

OR

Development includes a bushfire management plan for the maintenance of any identified asset protection zone, including landscape design and ongoing vegetation management.

This document includes a Bushfire Management Plan which addresses *Landscaping treatments*.

8 CONCLUSIONS

This Bushfire Hazard Assessment and Management Plan has been prepared to assess and manage the degree of potential bushfire risk associated with a Material Change of Use application for Lot 10 on SP132272 and Lot 6 on SP184133 located at 1807 Roys Road, Coochin Creek QLD.

A Local Hazard Map has been prepared for the site consistent with the *State Planning Policy – Natural Hazards, Risk and Resilience – Technical Manual – A 'fit for purpose' approach in undertaking natural hazard studies and risk assessments.* The Local Hazard Map has identified that the northern and eastern limits of the proposed development footprint are located within a *Potential Impact Buffer* associated with the *High Potential Bushfire Intensity* areas positioned to the north, northeast, and northwest.

A bushfire risk assessment has been undertaken in general accordance with *AS/NZS ISO 31000:2018 – Risk Management Methodology.* The risk assessment identified that the proposed development footprint boundary is exposed to an acceptable level of radiant heat impact risk as defined in Section 9.4 of the QFES Bushfire Resilient Communities 2019.

Overall, the development proposed for the site, in combination with recommendations referenced herein, is deemed suitable with respect to providing a reasonable level of protection for people and property within the site.

Bushfire is an extremely serious and often unpredictable phenomenon that requires serious preparatory planning and decision making to avoid potential damage to infrastructure and or loss of life. All recommendations made herein have been formulated based on site conditions at the time of writing and therefore may not be appropriate in the event site conditions change over time.

Implementation of the bushfire mitigation measures referenced herein is not implied nor intended to advocate that site occupants remain on the site during a bushfire event, nor that people and property will be protected from bushfire impact. The measures are intended to reduce the potential severity of bushfire impact to persons and property and not prevent actual bushfire impact.

The landowners and site managers are to be responsible for ensuring the measures prescribed herein are applied and stay up to date with site conditions and industry standards. Landholders/managers should therefore liaise with Queensland Fire and Rescue Services at regular intervals (e.g., recommended at least every 5 years).

The first call in the event of a bushfire emergency should always be '000'.

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9 REFERENCES

Cruz M.G., Gould J.S., Alexander M.E., Sullivan A.L., McCaw W.L., Matthews S. (2015) *A Guide to Rate of Fire Spread Models for Australian Vegetation*. CSIRO Land and Water Flagship, Canberra, ACT, and AFAC, Melbourne, Vic, 123pp.

Gould, McCaw, Cheney, Ellis & Matthews. (2007). *Field Guide – Fuel assessment and fire behaviour in dry eucalypt open forest.* Ensis-CSIRO, Canberra, ACT and Department of Environment and Conservation, Perth, WA.

Leonard, J., Opie, K. (2017). Estimating the potential bushfire hazard of vegetation patches and corridors. An enhancement of Queensland's methodology for State-wide mapping of bushfire prone areas. CSIRO Land & Water, Australia.

Sunshine Coast Planning Scheme (2014). Bushfire Hazard Overlay Code. Sunshine Coast regional Council.

Queensland Fire and Emergency Services. (2019). *Bushfire Resilient Communities - Technical Reference Guide for the State Planning Policy - State Interest Guideline - Natural Hazards, Risk and Resilience 2- Bushfire.*

Southeast Queensland Fire and Biodiversity Consortium – *Operational Manual*.

The State of Queensland, Department of State Development, Manufacturing, Infrastructure and Planning (2019). Natural hazards, risk and resilience - Bushfire State Planning Policy – state interest guidance material.

Webster. (2002). *The Complete Bushfire Safety Book*. Random House (Aust) Pty Ltd.

APPENDIX 1 – PLAN OF DEVELOPMENT

REAL PROPERTY DESCRIPTION
LOTS: 10 ON SP132272 AND 6 ON SP184133

SITE AREA:
LOT 10 - 26,410 m2
LOT 6 - 404, 700 m2
LOCAL AUTHORITY: S.C REGIONAL COUNCIL

MAPPED WETLAND AREA

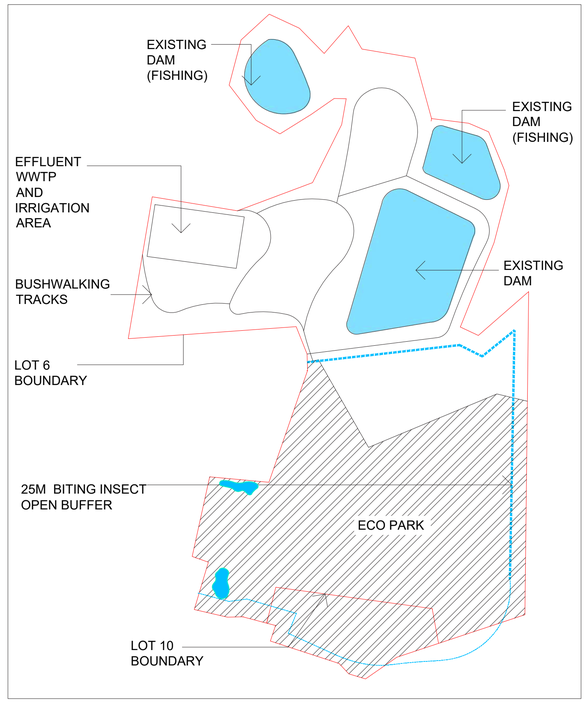
ROYS ROAD

PUMICESTONE PASSAGE

HAT 50m SETBACK

BUTING INSECT BUFFER (25M FROM MANGROVES)

KEY PLAN 1:5000



LEGEND

Sites - 75
Cabins - 75

- 3 bed x 38 no.
- 2 bed x 27 no.
- 1 bed x 10 no.

TOTAL SITES = 150 NO.
Caretakers House x 1 no.

1. Reception centre (1000 m2)
2. Pool
3. Waterplay park
4. Playground
5. Indoor recreation
6. Putt putt
7. Jumping pillow
8. Basketball
9. Tennis
10. Pickleball
11. Camp kitchen
12. Amenities with laundry/drying area
13. Amenities
14. Laundry
15. BOH
16. Section of Existing Dam to be retained
17. Drainage Corridor (min. 10m width)
18. Boomgate
19. Service road
20. Maintenance/Cleaning/Storage Sheds
21. Carparking with 2 No. PWDs
22. Temporary layby parking
23. Drainage easement
24. Caretakers House

- Existing tree
- Culvert crossing
- Pathways

FOR CO-ORDINATION

cusp

COMISKEY GROUP

COOCHIN ECO-RESORT - DA PLAN - 26/07/24

Scale 1:1000 @ A1

10m 20m 80m 100m

APPENDIX 2 – VEGETATION HAZARD CLASS DESCRIPTIONS

Vegetation Hazard Class 22.1 – Melaleuca open forests on seasonally inundated lowland coastal swamps

Location = Multiple units within the assessment area

Average canopy height = 15-20m

Projective Foliage Canopy Cover (PFCC) = 30%

Canopy = Dominated by *Melaleuca quinquenervia* with scattered *Eucalyptus tereticornis* also present

Midstorey = Dominated by *Macaranga tanarius, Glochidion ferdinandi,* and *Casuarina glauca*

Understorey = Range of native shrubs, ferns, sedges and grasses along with notable infestations of *Lantana camara*

Potential combined surface fuel load = 23.4t/ha
Total fuel load = 28.4t/ha
Prone Type Class = 1 (QFES BRC 2019)

Plate A2-1A & A2-1B depicts typical conditions within VHC 22.1

Plate A2-1A – Characteristic vegetation within VHC 22.1

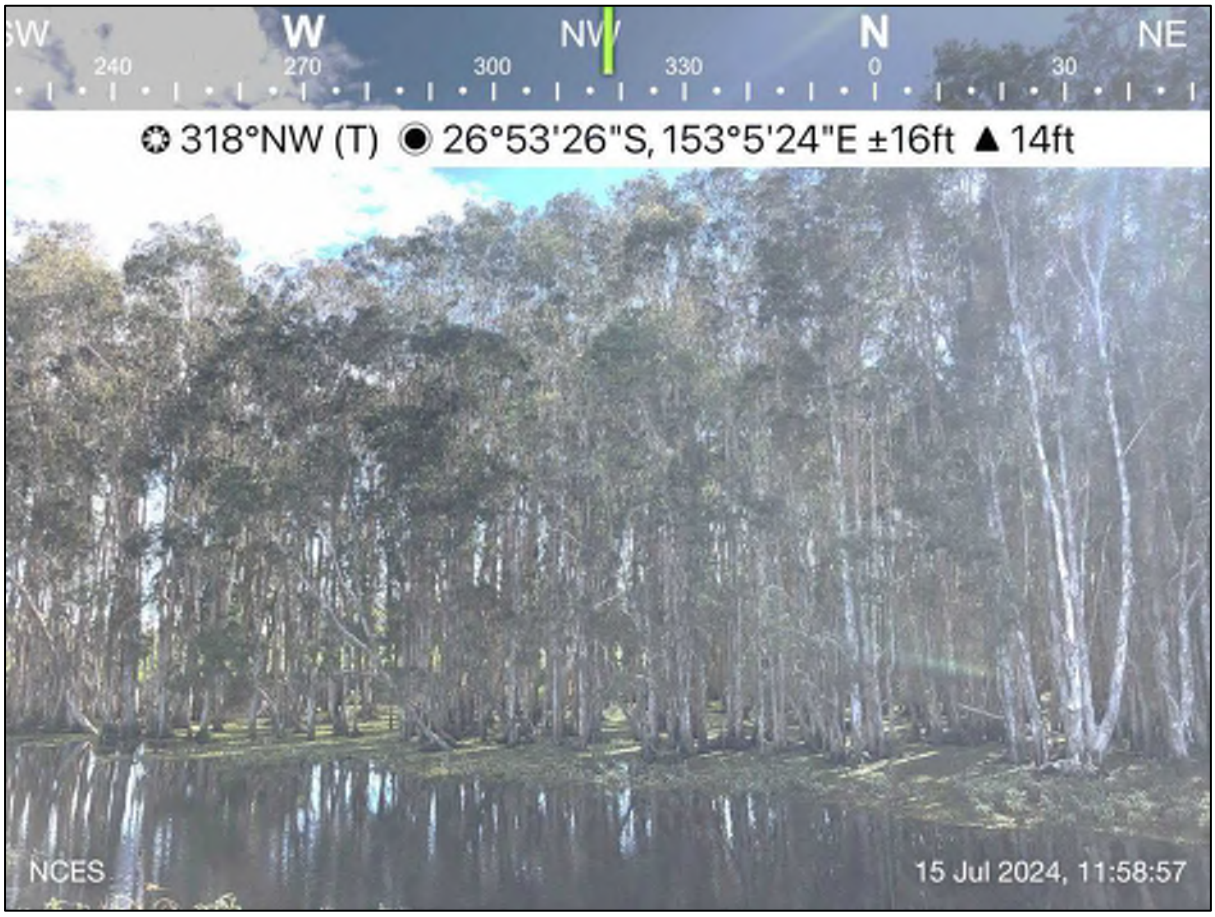


Plate A2-1B – Characteristic vegetation within VHC 22.1

Vegetation Hazard Class 28.2 – Woodlands in coastal locations with species such as she-oak or swamp box

Location = Single unit in the eastern extent of the assessment area

Average canopy height = 6-10m

Projective Foliage Canopy Cover (PFCC) = 20%

The unit contained almost a monoculture of *Casuarina glauca*, however, scattered *Melaleuca quinquenervia, Eucalyptus tereticornis*. and *Pinus elliotii* were also present on the fringes of the community

Potential combined surface fuel load = 15t/ha
Total fuel load = 18.3t/ha
Prone Type Class = 1 (QFES BRC 2019)

Plate A2-2 depicts typical conditions within VHC 28.2

Plate A2-2 – Characteristic vegetation within VHC 28.2

Vegetation Hazard Class 35.3 – Shrubland associated with mangroves and tidal marshes

Location = Eastern extent of assessment area

Areas dominated by mangrove spp.

Potential combined surface fuel load = 0t/ha
Total fuel load = 0t/ha
Prone Type Class = 3 (QFES BRC 2019)

Plate A2-3 depicts typical conditions within VHC 35.3

Plate A2-3 – Characteristic vegetation within VHC 35.3

Vegetation Hazard Class 39.2 – Low to moderate tree cover in built-up areas

Location = Numerous
Average canopy height = Varies
Projective Foliage Canopy Cover (PFCC) = Varies
Dominant Canopy & Mid-storey Species = Scattered native and exotic trees
Understorey = Unmanaged and managed grassland, and infrastructure

Potential combined surface fuel load = 5t/ha
Total fuel load = 8t/ha
Prone Type Class = 3 (QFES BRC 2019)

Plate A2-4 depicts typical conditions within VHC 39.2

Plate A2-4 – Characteristic vegetation within VHC 39.2

Vegetation Hazard Class 40.4 – Continuous low grass or tree cover

Location = Numerous
Average canopy height = Varies
Projective Foliage Canopy Cover (PFCC) = Varies
Dominant Canopy & Mid-storey Species = Generally absent
Understorey = Managed and unmanaged grassland

Potential combined surface fuel load = 4.5t/ha
Total fuel load = 5t/ha
Prone Type Class = 2 (QFES BRC 2019)

Plate A2-5 depicts typical conditions within VHC 40.4

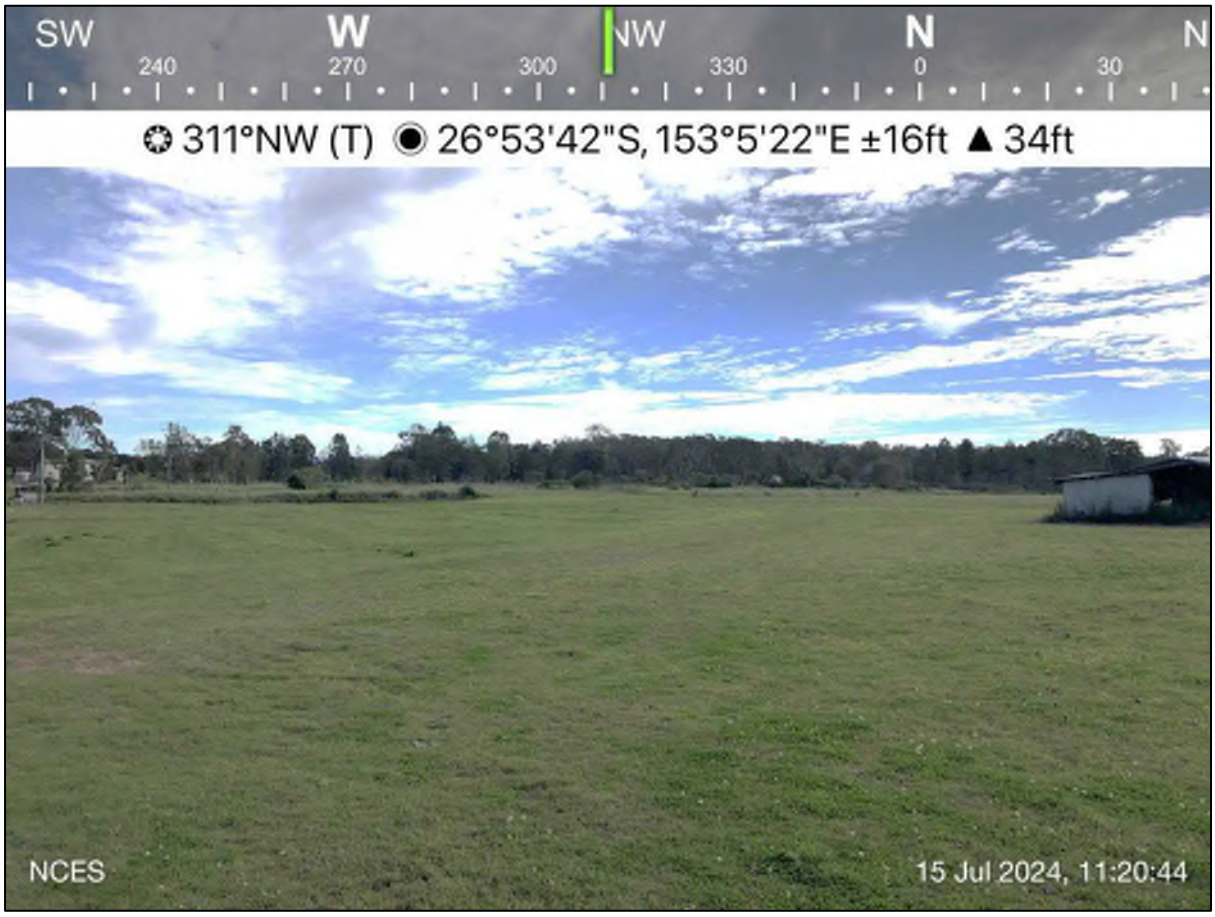


Plate A2-5 – Characteristic vegetation within VHC 40.4 (foreground)

Vegetation Hazard Class 43.6 – Water bodies or very low vegetation cover

Location = Dams and Pumicestone Passage
Average canopy height = Absent
Projective Foliage Canopy Cover (PFCC) = Absent
Dominant Canopy & Mid-storey Species = Absent
Understorey = Generally absent

Potential combined surface fuel load = 0t/ha
Total fuel load = 0t/ha
Prone Type Class = 3 (QFES BRC 2019)

Plate A2-6 depicts typical conditions within VHC 43.6

Plate A2-6 – Characteristic vegetation within VHC 43.6

Northwest Dam Conditions at the Time of Inspection

The majority of the northwest dam exhibited dry grassland conditions featuring regrowth *Melaleuca spp.* and *Allocasuarina spp.* 0.5-1.5m in height. Plate A2-7 depicts typical conditions within the northwest dam at the time of inspection.

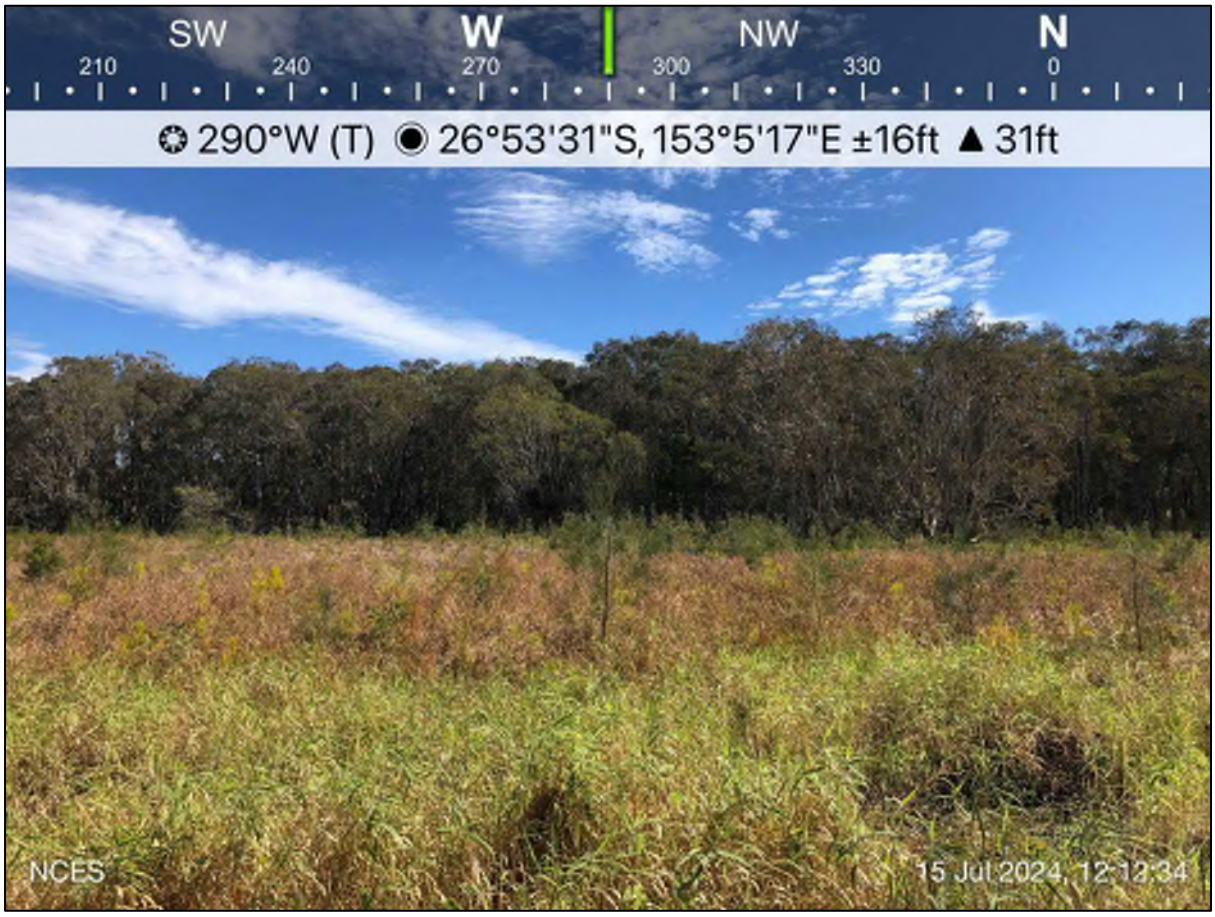


Plate A2-7 – Characteristic vegetation within northwest dam at the time of inspection

APPENDIX 3 – FLAMESOL OUTPUT RESULTS

FLAMESOL
FPA AUSTRALIA

Calculated July 15, 2024, 3:43 pm (MDc v.4.9)

Sub Unit 6 - VHC 22.1 - 1° ES & SS - 100m FW

Minimum Distance Calculator - AS3959-2018 (Method 2)

Inputs		Outputs	
Fire Danger Index	54	Rate of spread	1.62 km/h
Vegetation classification	Forest	Flame length	13.96 m
Understorey fuel load	23.4 t/ha	Flame angle	65 °, 71 °, 76 °, 79 °, 80 ° & 85 °
Total fuel load	28.4 t/ha	Elevation of receiver	6.04 m, 6.21 m, 6.23 m, 6.1 m, 6 m & 4.97 m
Vegetation height	n/a	Fire intensity	23,838 kW/m
Effective slope	1 °	Transmissivity	0.858, 0.839, 0.8139999999999999, 0.791, 0.779 & 0.726
Site slope	1 °	Viewfactor	0.4168, 0.3084, 0.2082, 0.1411, 0.1145 & 0.0308
Flame width	100 m	Minimum distance to < 40 kW/m²	16.4 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	22 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	31.3 m
Flame temperature	1,200 K	Minimum distance to < 12.5 kW/m²	42.9 m
		Minimum distance to < 10 kW/m²	50.1 m

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

APPENDIX 4 – BUSHFIRE EMERGENCY RESPONSE PLAN

North Coast Environmental Services
Environmental Management Consultants

BUSHFIRE EMERGENCY RESPONSE PLAN$_{v3}$

LOT 10 ON SP132272 & LOT 6 ON SP184133

1807 ROYS ROAD

COOCHIN CREEK QLD

FOR

COMISKEY GROUP

AUGUST 2025

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

PO Box 385 Peregian Beach QLD 4573 / Email: admin@northcoastenv.com.au
ABN 60 625 108 625

Table 1 - Bushfire Emergency Response Summary
(refer Section 10 for full Bushfire Emergency Response)

Trigger	Response Action
Uncontrolled bushfire in the Fire Risk Catchment	Access gate is locked and Site's visitor management system is triggered to text all checked-in guests to be ready for evacuation to the on-site evacuation centre. All not checked-in guests notified that the site is not accepting new guests while the uncontrolled fire is active. Implement shelter in place unless otherwise directed by the relevant emergency service (depending on position of fire and projected burn pathway).
Catastrophic Fire Danger Rating	No new guests permitted to access the site. Site's visitor management system is triggered to text all booked but not checked-in guests notice that the site is not accepting new guests while the catastrophic fire danger rating is active. Site's visitor management system is triggered to text all checked-in guests notice that they have the option to self-evacuate the site or stay with the knowledge that if an uncontrolled bushfire does commence anywhere in the fire risk catchment, the access gate will be locked and they will not be allowed to leave, unless directed otherwise by QFES or QPS.
Extreme Fire Danger Rating	Site's visitor management system is triggered to text all checked-in guests that an Extreme Fire Danger Rating is active and they have the option to self-evacuate the site or stay with the knowledge that if an uncontrolled bushfire does commence anywhere in the fire risk catchment, the access gate will be locked and they will not be allowed to leave, unless directed otherwise by QFES or QPS. Site's visitor management system is triggered to text all booked but not checked-in guests notice that the new guests are permitted to gain access to the site with the knowledge that if an uncontrolled bushfire does commence anywhere in the fire risk catchment, the access gate will be locked and they will not be allowed to leave, unless directed otherwise by QFES or QPS.
High Fire Danger Rating	Staff to be warned of the potential risk and be aware of evacuation procedures. Ensure internal access roads are maintained and can accommodate the expected traffic. Ensure that water points are functional. Ensure that signage informing personnel of the evacuation procedures in the event of a bushfire are provided on site.

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DOCUMENT CONTROL

Document Bushfire Emergency Response Plan

Client: Comiskey Group

Project Number: J001320

Project: Material Change of Use

Site: Lot 10 on SP132272 & Lot 6 on SP184133
1807 Roys Road, Coochin Creek QLD 4519

Version	Date	Distribution	Author/s	Approved
1	30/07/2024	Mark Wiebusch - Comiskey Group	J. Isaacs (B. Env Sc.) Environmental Scientist; Joshua Lee (B. Sc. AES, mEIANZ) - Director	Joshua Lee (B. Sc. AES, mEIANZ) - Director
2	05/09/2024			
3	13/08/2025		Joshua Lee (B. Sc. AES, mEIANZ) - Director	

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1. INTRODUCTION

This Bushfire Emergency Response Plan (BERP) has been designed to assist management to protect life and property in the event of a bushfire or a pending bushfire on the proposed Tourist Park (the site). The site is formally described as Lot 10 on SP132272 & Lot 6 on SP184133 and is located at 1807 Roys Road, Coochin Creek QLD. The site is the subject of a proposed Material Change of Use (Tourist Park) development application to be submitted to Sunshine Coast Council. The applicant is seeking to secure a Material Change of Use (MCU) permit for the construction of a fully functional camping ground. The proposed development will occupy the southern extent of the site.

The BERP aims to establish pre-planning guidelines for an evacuation of the premises where there is a need to relocate personnel from one place to another to enhance the protection of those people. This evacuation plan forms part of a more comprehensive report undertaken over the subject area to assess and recommend fire mitigation measures for bushfire protection; Bushfire Hazard Assessment & Management Plan by North Coast Environmental Services. Application of this evacuation plan does not specifically require reference to the above document however it is recommended both documents be stored together.

The proposed development will increase the number of people within the site. The decision to enact a bushfire evacuation is generally a managerial decision until the point that an official evacuation recommendation is issued by QFES and/or QLD Police.

During a bushfire in the fire risk catchment, guests and employees will firstly shelter in place on site and be directed not to leave the site until if and when instructed to do so by QFES and/or QLD Police. The approx. 1,080sq.m Reception Centre building is to be used as the shelter in place location for such purposes. It is envisaged that during a bushfire emergency the booking management system that requires records of mobile numbers of guests will be utilised to send text messages to all recorded mobile numbers and also allow guests to reply back.

QFES currently offer advice via Twitter, Facebook, QLD Police and local radio stations. The current QFES warning / evacuation categories are shown in Plate 1.

Plate 1 – QFES warning / evacuation categories

2. DETAILS OF PREMISES

Lot 10 on SP132272 and Lot 6 on SP184133
1807 Roys Road, Coochin Creek QLD 4519
Type of facility: Tourist Park (Holiday Park)
Type of building (Class): Varies, 75 Class 1 habitable buildings are proposed (cabins)

3. ROLES AND RESPONSIBILITIES

CHIEF FIRE WARDEN

- Ascertain the nature of the emergency and determine appropriate action.

- Once notified of the possibility of a fire, ascertain the nature of the emergency and determine appropriate action to ensure the safety of occupants, staff and visitors.
- Ensure that the appropriate emergency service has been notified.
- Go to the designated assembly site and take charge.
- Check on progress of movement of occupants, staff and visitors.
- Allocate any extra staff required to assist in any searches for missing occupants, staff or visitors.
- Instruct the management team where additional staff are required for supervisory or support duties.
- Liaise with Emergency Services personnel.

4. BOOKING MANAGEMENT SYSTEM

The Booking Management System (BMS) will form an integral management measure to address the bushfire safety preparedness on the site. The BMS will record the contact details for at least one contact per family group. For large bookings involving more than one family group on an individual site, contact details will be recorded for at least one contact in each family group. The BMS will be utilised to send text messages informing both 'checked in' guests and yet to be 'checked in' guests of any bushfire emergency provisions that have been enacted on the site which may impact their stay. This will include advising guests of the Bushfire Evacuation Response Protocol status of the site on any given day when the Bushfire Evacuation Response Protocols are triggered (refer Section 10), which will be a function of the daily and projected Fire Behaviour Index and the presence vs absence of an uncontrolled fire in the Fire Risk Catchment.

5. CONTACT DETAILS OF EMERGENCY SERVICES

Name of Organization	**Name/ Place of Contact Phone Number**
Caloundra South Fire Station	Cnr Revelry Road and Novel Road, Bells Creek QLD 4551 (07) 5413 6800 | Emergency 000
Caloundra South Police Station	Cnr Revelry Road and Novel Road, Bells Creek QLD 4551 (07) 5409 4333 | Emergency 000
Caloundra South Ambulance Station	Cnr Revelry Road and Novel Road, Bells Creek QLD 4551 (07) 5293 4001 | Emergency 000
Sunshine Coast Council	(07) 5475 7272 (including after-hours emergency service)
State Emergency Service	132 500
QLD Ambulance Service	000
Caloundra Hospital	West Terrace, Caloundra QLD 4551 (07) 5436 8500

All fires to be reported to 000

6. EVACUATION LOCATION

In the event of a bushfire, guests and employees will shelter in place within the large approx. 1,000sq.m Reception Centre building and approx. 700m² Indoor Recreation building (refer Buildings No.1 and 5 on the plan of development). These buildings are positioned near the entry to the site, approximately 210m from the eastern boundary, 300m from the northern mapped wetland/vegetation area, and 35m from the safety of the broad Coochin Creek waterbody to the south. The buildings are effectively removed from bushland hazards, including associated risk of direct flame contact, radiant heat and severe ember attack.

Figure 5 of the Bushfire Resilient Communities document identifies 0.5kW/m² RHF is akin to exposure to direct sunlight at noon on a bright sunny day which can be deemed to represent acceptable risk of radiant heat flux exposure from a bushfire. The shelter in place Reception Centre building is located >450m from the nearest identified Medium to Very High Potential Intensity Area as shown on Plan BF04 in the submitted BHAMP v3 (NCES, 2025); SU6 High Potential Intensity Area.

Figure 22 from *A new methodology for State-wide mapping of bushfire prone areas in Queensland* (Leonard, Opie, Newnham and Blanchi 2014) identifies that 100m separation to a High Potential Intensity Area generates 1.5kW/m² RHF. Opie *et al* report that *human skin is damaged by exposure levels greater than 2 kW/m2, as shown as a pink dashed line in Figure 22*. It can be conservatively assumed that a separation of 450m would likely generate <1kW/m² RHF and therefore the degree of RHF exposure acting on the Reception Centre building is more than acceptable.

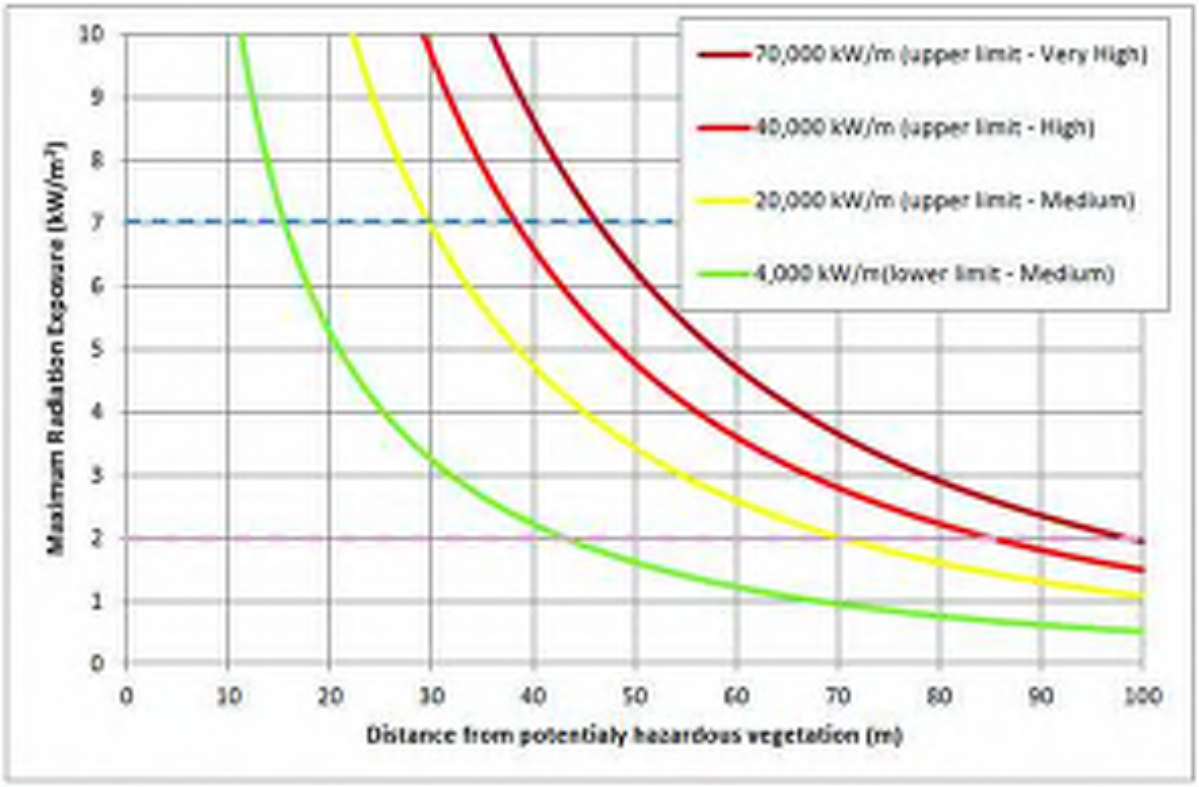

Figure 22: Relationship between maximum radiation exposure (kW/m²) and distance from hazardous vegetation (m)

It is understood that a compliant fire hydrant system will be provided to assist in defending the proposed shelter in place location. This system will include a permanent 288kL dedicated water storage for fire fighting and fire pumps). The shelter in place facility is to be provided with a back-up petrol generator which will provide power in the event of a mains power failure. Sufficient petrol is to be stored on site to allow power supply for 48 hours.

Given the available separation between the proposed shelter in place location (Reception Centre building) and adjacent bushland, the amount of dedicated water for fire-fighting purposes is deemed adequate.

It is envisaged this water storage can also be used for potable water supply in the event of an emergency.

It should also be noted that the development proposed includes the construction and installation of a private reticulation system using on site water sources. Part of this system will require a minimum of 250kW tank supply of potable water to be maintained at all times. The

client has advised this private reticulation system will maintain a minimum pressure and flow in excess of 10L/s and 200kPa at all times providing water to all of the proposed buildings.

A total of 75 cabins and 75 camps sites are currently proposed. Commonly used emergency shelter in place requirements is 1.5m^2 /person hence the Reception Centre building can adequately cater for approximately 720 people and the Indoor Recreation building can cater for 410 people. The park is expected to accommodate the following numbers at 100% capacity:

• 30 staff;

• 600 guests (conservative average of 4 people per cabin/campsite with a total of 75 cabins and 75 camps sites); and

• 75 visitors (estimate based on 2 visitors for every 4th guest group; 150/4= 37.5 x 2= 75)

The total number of people requiring shelter in place provision can therefore be estimated to be 705 which is less than the 1130 person capacity of the nominated shelter in place buildings. The nominated shelter in place building is therefore deemed suitable to accommodate all visitors, guests, and staff during peak periods (e.g., the park is at 100% capacity).

In the event that additional shelter in place capacity is required, the large maintenance sheds on the western site boundary can be used as they are located in a confirmed non-bushfire prone area (i.e., located external of a Potential Impact Buffer and hence >100m from the nearest confirmed unit of hazardous vegetation) and will be provided with amenities. The use of the sheds will more than double the shelter in place capacity of the proposed use.

In the event of a shelter in place directive being issued, the 24/7 onsite manager conduct the following:

- Utilise the booking management system to send a text message to all current visitors directing them to the shelter in place location. This will initially be the Reception Centre building followed by the maintenance sheds if required.
- The entry/exit boom gate is to be locked to prevent any site occupants from ignoring the advice and fleeing the site.
- Ensure all occupants, staff and visitors have taken refuge in the Reception Centre building (i.e., conduct a lap of the park to ensure all occupants have taken up shelter) with a record of such made in a residents and visitors register to be kept in the Reception Centre building.
- Ensure communications are maintained between staff in the Reception Centre building and the maintenance sheds.

Site occupants are to remain in the shelter in place location until it is advised that it is safe to leave by QFES and/or QPS.

7. TRANSPORTATION

Visitors and staff are to either walk or use personal vehicles to gain access to the Reception Centre building and vehicles are to be parked in convoy along the roadside in case a site evacuation order is issued.

Under such circumstances visitors and staff personal vehicles are to be used to evacuate the site. Road access for emergency evacuation is to be from the main entry exit in the southwest corner of the site. If instructed by QFES to evacuate the site, the fire warden will release guests from the site in a controlled, staged manner so as not to congest the external roads.

All vehicles and caravans will ordinarily be parked >50m from the nearest adjacent bushfire hazard vegetation unit to achieve <10kW/m² RHF exposure. Gas bottles can explode if they are subject to intense heat. The heating of the gas cylinder increases pressure within the vessel and may also compromise the strength of the gas bottle. If gas cylinders are exposed to a fire, they can rupture and explode – posing danger to people and property.

In the event of the pending bushfire impact, park guests will be instructed to locate their vehicles at least 100m from any confirmed bushfire hazardous vegetation units to achieve <2kW/m² RHF exposure which is sufficient to avoid the risk of LPG gas bottle explosion and prevent unpiloted ignition of caravan and vehicle components and or failure of glass windows etc. They will also be instructed to turn off their gas supply, remove the bottle from any connections and ensure the pressure relief vent is directed away from the caravan/vehicle.

8. EVACUATION ROUTES

The available evacuation routes to the Reception Centre building shelter in place location within the site comprise the internal road network. This road network will be flanked by low threat lawn/landscaping, cabins, camp sites, and firebreak trails host to negligible fuel loads. The risk of the access routes to the shelter in place location becoming blocked during a wildfire is therefore unlikely. Numerous through roads have been incorporated into the design of the Park hence evacuation routes do not rely on using routes which flank the development footprint boundaries and nearby bushland. The evacuation route chosen will be dependent on the location of the fire front. The available evacuation routes within the site to the shelter in place location are identified in Plate 2.

Plate 2 – Available evacuation routes to shelter in place building (Source: Plan of Development – Comiskey Group)

The available evacuation routes beyond the site through the local landscape are flanked by a mosaic of fuel laden bushland and scattered cleared to semi cleared rural properties host to low to moderate fuel loads. The risk of entrapment external of the site is therefore real and strategic selection of the most suitable external evacuation route during a bushfire event will be a critical decision.

Note, given the extent of cleared land between the shelter in place location and adjacent bushland areas, it is expected that the shelter in place policy will stand for the majority of bushfire events. If a bushfire is located to the west of the site preventing safe passage along the Bruce Highway or Roys Road, the shelter in place location should be utilised until advised it is safe to evacuate by QFES and/or QPS. In this scenario, the entry/exit boom gate is to be locked to prevent patrons ignoring the advice and fleeing the site towards the fire front.

In the instance where QFES confirms that the site is to be fully evacuated it is expected directives would be given for site occupants to travel to the township of Beerwah or to the Bruce Highway interchange and then head either north or south depending on the projected path of the fire front. The available evacuation routes to Beerwah and the Bruce Highway are identified in Plate 3 and comprise:

- Head West along Roys Road, North along Coochin Road, West along Bells Creek Road then either:
    - North along the Bruce Highway: or
    - South along the Bruce Highway; or
    - West along Roys Road.

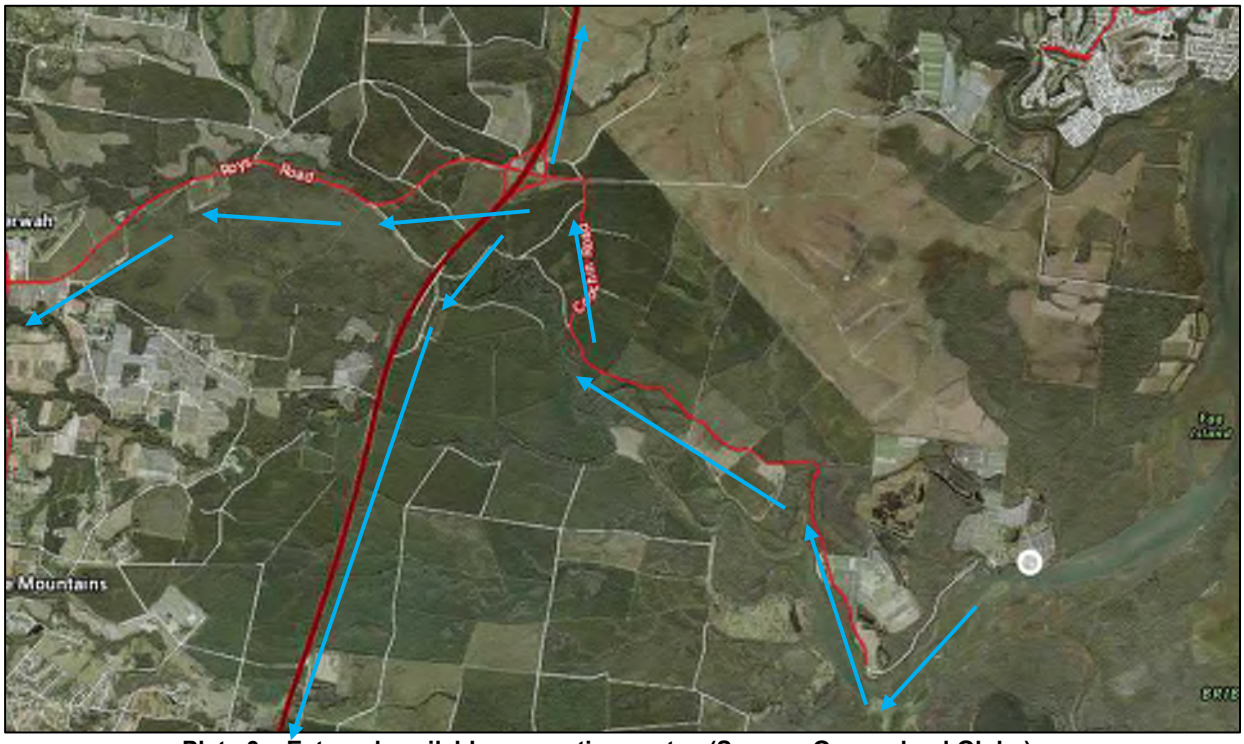

Plate 3 – External available evacuation routes (Source: Queensland Globe)

The evacuation route chosen will be dependent on the location of the fire front. In most instances it is anticipated that the safest evacuation route will be west along Roys Road, then north along Coochin Road, then west along Bells Creek Road, then West along Roys Road towards the Beerwah Township. A transit time of approximately 15 minutes should be allowed to reach the Bruce Highway and 25 minutes should be allowed to access the township of Beerwah.

Determination of the most suitable evacuation route for a specific fire event should be made with consideration to the relevant advice issued by QFES. Given the extent of hazardous vegetation in the vicinity of the site and along the available evacuation route, the decision to evacuate the site must be made very early to ensure enough time is available to safely transit to the Bruce Highway and then to Beerwah or the safe location designated by QFES and/or QLD Police.

9. FIRE RISK CATCHMENT

The principal of a Fire Risk Catchment is to be used to provide a clearly defined geographic boundary about the site which can be used to initiate bushfire response actions on the site under various bushfire risk conditions. The identification/awareness of an uncontrolled bushfire within the defined Fire Risk Catchment will trigger, unless directed otherwise by QFES or QPS, a site lock down and likely evacuation of all people on the site to the designated shelter in place building/s.

The ‘Fire Risk Catchment’ for the Tourist Park is defined in Plate 4.

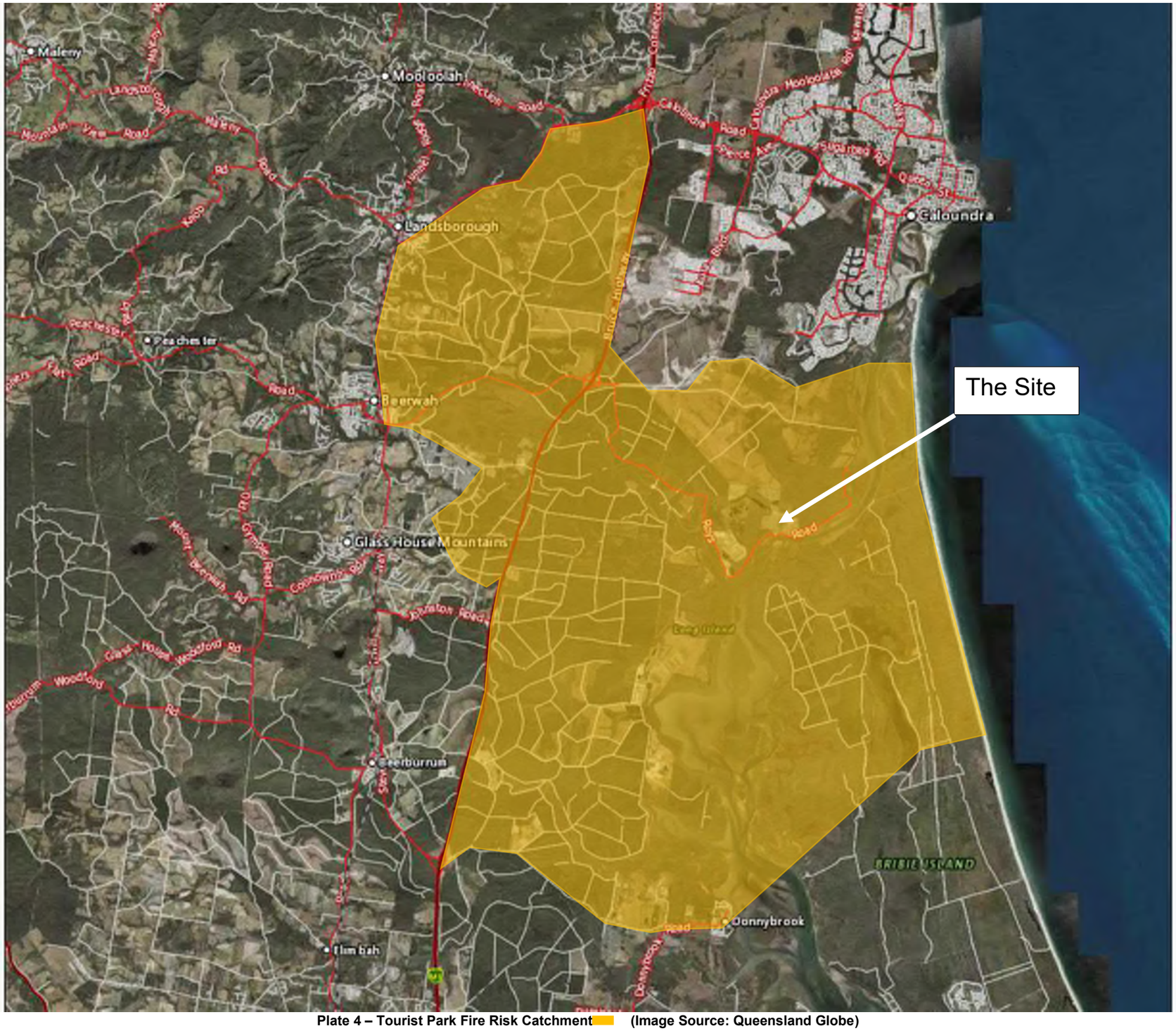

Plate 4 – Tourist Park Fire Risk Catchment (Image Source: Queensland Globe)

10. RESPONSE TRIGGERS

The response 'triggers' which initiate emergency actions on a site should be devised with consideration given to numerous factors including the proximity of the bushfire to the site, advice regarding the matter issued by QFES and the status of the current National Fire Danger Rating System (FDRS). Fire danger ratings describe the potential level of danger should a bushfire start. They are important because they provide people with information to take action to protect themselves and others from the potentially dangerous impacts of bushfires. They do not indicate the chance of a fire occurring, although this is a common misconception. Ratings are calculated via the Fire Behaviour Index (FBI) which uses a combination of weather forecasting and information about vegetation that could fuel a fire (AFAC 2023). The FBI index rages from 0 through to a maximum of 100+ which co-coincides with a Catastrophic fire danger rating category. A guide to understanding the FDR system and associated fire behaviour potential is presented in Plate 5 (QFES, 2023)

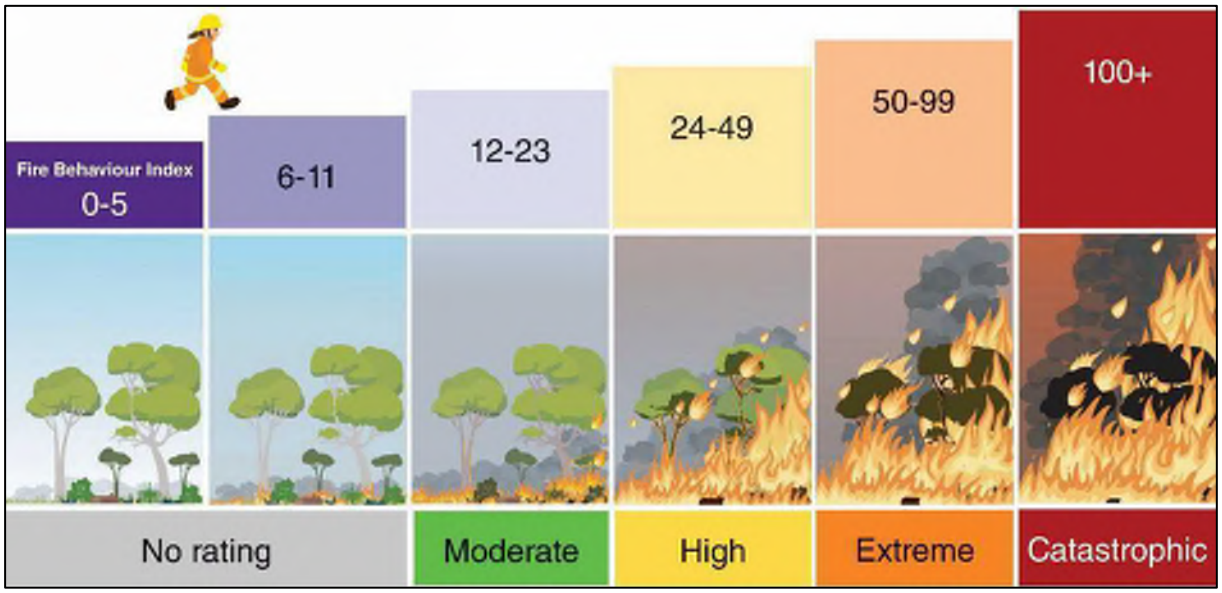

Plate 5 – National Fire Danger Rating System

The following section outlines the steps to be taken as the FBI increases; however, an earlier evacuation may be triggered by other circumstances such as thick smoke causing medical problems for occupants of the site. It should be noted that in the event of a bushfire emergency, designated and appropriately qualified and trained staff are to remain onsite to assist with shelter in place activities and QFES personnel responding to a bushfire emergency.

1. Precautions for a prevailing **No Rating – Moderate fire danger rating**.

- Staff are aware of evacuation procedures.
- Ensure internal access roads are maintained and can accommodate the expected traffic.

2. Precautions for a prevailing **High fire danger rating**.

- Staff are aware of evacuation procedures.
- Ensure that water points are functional.
- Ensure internal access roads are unobstructed and can accommodate the expected traffic.
- Staff to be warned of the potential risk.
- Ensure that signage informing personnel of the evacuation procedures in the event of

a bushfire are provided on site.

4. Precautions for a prevailing **Extreme fire danger rating**.

- All guests are given the option to self-evacuate the site or stay with the knowledge that if an uncontrolled bushfire does commence anywhere in the fire risk catchment, the access gate will be locked and they will not be allowed to leave, unless directed otherwise by QFES or QPS. This means that the site's visitor management system is triggered to text all checked-in guests a warning about the risk.
- New guests are permitted to gain access to the site with the knowledge that if an uncontrolled bushfire does commence anywhere in the fire risk catchment, the access gate will be locked and they will not be allowed to leave, unless directed otherwise by QFES or QPS. This means that the site's visitor management system is triggered to text all booked but not checked-in guests a warning about the risk.
- Staff, occupants and visitors are aware of evacuation procedures.
- Ensure that water points are functional.
- Ensure internal access roads are unobstructed and can accommodate the expected traffic.
- Ensure that vehicles are parked in such a way as to facilitate the prompt and safe egress of vehicles to the shelter in place location and if need be from the site (i.e., vehicles not being parked or positioned in a manner which impedes traffic flow.
- Staff, occupants and visitors to be verbally warned by Fire Wardens of the potential risk.
- Ensure that signage informing personnel of the evacuation routes in the event of a bushfire are provided on site.
- Stay informed of any local bushfires and determine the level of threat to the site by contacting the local Fire Brigade.
- Monitor relevant websites, local media and public service announcements regarding the fire situation.

5. Precautions for a prevailing **Catastrophic fire danger rating**.

- No new guests will be permitted to access the site. This means that the site's visitor management system is triggered to text all booked but not checked-in guests notice that the site is not accepting new guests while the catastrophic fire danger rating is active.
- If there is no uncontrolled fire within the fire risk catchment, all guests are given the option to self-evacuate the site or stay with the knowledge that if an uncontrolled bushfire does commence anywhere in the fire risk catchment, the access gate will be locked and they will not be allowed to leave, unless directed otherwise by QFES or QPS. This means that the site's visitor management system is triggered to text all checked-in guests a warning about the risk.
- Staff, occupants and visitors are aware of evacuation procedures.
- Ensure that water points are functional.
- Ensure internal access roads are unobstructed and can accommodate the expected traffic.
- Ensure that vehicles are parked in such a way as to facilitate the prompt and safe egress of vehicles to the shelter in place location and if need be from the site (i.e., vehicles not being parked or positioned in a manner which impedes traffic flow.

- Staff, occupants and visitors to be verbally warned by Fire Wardens of the potential risk.
- Ensure that signage informing personnel of the evacuation routes in the event of a bushfire are provided on site.
- Stay informed of any local bushfires and determine the level of threat to the site by contacting the local Fire Brigade.
- Monitor relevant websites, local media and public service announcements regarding the fire situation.

Precautions where an uncontrolled fire occurs within the fire risk catchment.

- If an uncontrolled fire is burning within the fire risk catchment, the access gate is locked and guests are readied for evacuation to the on-site evacuation centre unless otherwise directed by QFES or QPS. This means that the site's visitor management system is triggered to text all checked-in guests to be ready for evacuation to the on-site evacuation centre, and all not checked-in guests notice that the site is not accepting new guests while the uncontrolled fire is active.
- Stay informed of the fire's progress and determine the level of threat to the subject site by contacting the local Fire Control Staff (i.e., the Beerwah Fire Station) and monitor announcements regarding the fire situation via QFES public notifications.
- Alert staff and site occupants to the presence of a fire and advise them to pack up their belongings in preparation for imminent shelter in place action or evacuation as directed by the relevant emergency service (depending on position of fire and projected burn pathway).
- Implement shelter in place as directed by the relevant emergency service (depending on position of fire and projected burn pathway).
- Advise the relevant emergency services of the instigation of shelter in place and the numbers involved.

A copy of the QFES Get Ready Guide is provided as Appendix 1 and the management measures described therein form a component of the general evacuation protocols to be employed during a bushfire emergency and as part of general preparedness for such an emergency.

APPENDIX 1 – GET READY GUIDE

get ready GUIDE

get ready QUEENSLAND

QUEENSLAND FIRE AND EMERGENCY SERVICES

Queensland Government

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QUEENSLAND FIRE AND EMERGENCY SERVICES

The purpose of this booklet is to assist all Queenslanders to understand the types of disasters that may affect their area and what they need to do in order to prepare for these events.

Queenslanders each year face a range of hazards, including bushfires, cyclones, floods and severe storms. All Queenslanders share responsibility for not just being prepared for disasters, but also building a community that is resilient to nature's ongoing challenges.

That's why Queensland Fire and Emergency Services (QFES) work closely with residents, councils, other government agencies, community groups and business, to encourage and help everyone to *Get Ready*.

QFES' operational arms are also on standby around the clock to respond to incidents such as structure fires, chemical spills and a wide range of rescues from swift flowing water, road crashes, or in remote or dangerous situations.

Alongside the paid emergency services workforce, close to 40,000 trained QFES volunteers give their time to local communities across the state as part of the Rural Fire Service (RFS) and the State Emergency Service (SES).

RFS volunteers help landowners manage fire risk on properties through hazard reduction burns and turn out around the clock to fight bushfires wherever they start.

SES volunteers are best known for their work helping communities respond to severe weather events and assisting police and other agencies with searches.

4–STEP PLAN

Don't wait for a disaster to happen before you think about how you and your family are going to survive...

In a major disaster, high winds, fire, or rising floodwaters can prevent emergency services from reaching you. Debris and damage can cut road access. Your community and your family could become isolated for up to three days or more.

Even if you live just around the corner from a shopping centre, you may not be able to get there. And even if you could, the shops may be closed due to damage, lack of electricity, staff not being able to get there or being out of stock.

After a disaster has passed, roads can be closed and essential services disrupted, such as power, gas and water supply, and phone communications. Emergency Services will be focused on assisting the most vulnerable in the community during an event where a large number of people are affected.

Depending on your circumstances, you may not have immediate access to the support provided and will need to rely on the supplies and equipment you have on hand at home.

If you were isolated by a disaster right now, are you prepared? Do you have enough food, water and equipment to sustain your family for three days or more?

The following four simple steps will ensure you and your family are as prepared as possible.

Step 1
Prepare your emergency plan

Step 2
Prepare your emergency and evacuation kits

Step 3
Prepare your home

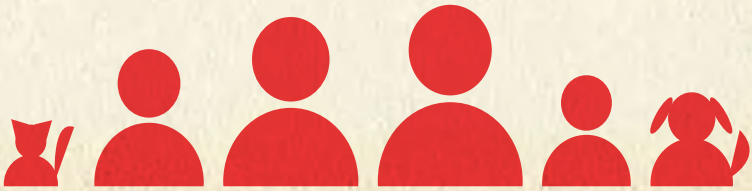
Step 4
Tune in to warnings

STEP 1 - PREPARE YOUR EMERGENCY PLAN

Take the time now to prepare an Emergency Plan.

Develop your Emergency Plan with the entire household. It is an important step to prepare for what can happen and to stay safe.

- **Research hazards and disaster management arrangements in your community:**
  - Check with council if your area is prone to bushfire, cyclone, storm, flood or tsunami.
  - Ask about local emergency plans, evacuation zones and nominated evacuation routes for where you live and work.
  - Ask about evacuation centres and Neighbourhood Safer Places.
  - Ask about details in emergency and evacuation plans at your workplace, school and childcare provider. Provide them with your household emergency contact details.
  - Find out what sort of support is available to your household via council and local support agencies (if required).
- **Discuss possible scenarios and responses with your household:**
  - What might happen in a bushfire, cyclone, storm, flood or tsunami?
  - What would you all do in the event of each emergency?
  - Where might you be when an emergency occurs? (Home, school, work etc.)
  - How will you stay in contact?
  - Where would you go if you need to evacuate?
  - Are there medical conditions or special needs of household members that require specific consideration?
  - What preparations are required for your pets?
- **Record details on your Emergency Plan:**
  - Two out of town emergency contacts in case you and your family become separated.
  - Two emergency meeting places in case you cannot return home or you need to evacuate. One in your neighbourhood and another further inland and on higher ground that everyone can easily get to.
  - Information on the council evacuation zone you live in and nominated evacuation routes for your area.
  - All householder contact phone numbers.
  - Specific medical conditions, essential medications and dosage.
  - Details for your pets – description, veterinarian contact details and medications.
  - All tasks required prior to evacuating (storing electrical items off the ground, switching off main supplies, sandbagging drains etc.)
- **Ensure everyone is prepared:**
  - Teach children how and when to call Triple Zero (000) in an emergency.
  - Queensland Ambulance Service advises householders to have a sound knowledge of first aid.
  - Ensure everyone knows where, how and when to turn off the main power, water and gas supply in case of emergency and evacuation.
  - Share your emergency plan with family and friends.



STEP 2A - EMERGENCY KIT

Your Emergency Kit contains the provisions for your essential needs in the event of an emergency.

Include items you'd need for several days in case of disruption to essential services (i.e. power and water supplies). Also, include the equipment you'll need to prepare meals with no power. Keep your kit in a waterproof storage container and store in an easy to access location. Check your kit every season to stock up and rotate supplies to ensure provisions are fresh and safe to use.

- Food and water for at least three days:
  - 10 litres of water per person as 3 days supply
  - Non-perishable food
  - Can opener, cutlery and cooking equipment
- Medical and sanitation supplies:
  - First Aid Kit and manual
  - Essential medications, prescriptions and dosage
  - Toilet paper and personal hygiene items
  - Toiletries – toothbrush, toothpaste, soap, shampoo etc.
- Light:
  - Battery or wind-up torch/lantern (extra batteries)
- Communications:
  - Battery powered or wind-up radio (extra batteries)
  - Fully charged mobile phone and charger
  - Prepaid phone cards and coins for phone booth calls
- Clothing and footwear:
  - Change of warm protective clothes and shoes for everyone
- Important documents:
  - Keep original or certified copies
  - Scan copies to USB or online storage

☑ CHECKLIST

- ☐ a - fresh water for three days
- ☐ b - three days worth of non-perishable food and can opener
- ☐ c - first aid kit
- ☐ d - portable radio
- ☐ e - torch
- ☐ f - sturdy gloves
- ☐ g - spare batteries for radio, torch and mobile phone
- ☐ h - essential medication
- ☐ i - mobile phone and charger
- ☐ j - important documents in sealed bags + cash
- ☐ k - baby formula + nappies
- ☐ l - waterproof bags
- ☐ m - toiletries

☑ IMPORTANT DOCUMENTS

- ☐ insurance (house, contents, vehicles, life)
- ☐ wills
- ☐ property deeds
- ☐ bank documents
- ☐ passports, birth + marriage certificates
- ☐ medicare, pension, immunisation records
- ☐ emergency plan + contact numbers

Other emergency supplies to have ready at home

basic toolkit | extra supplies | portable cooker

STEP 2B - EVACUATION KIT

The potential need to evacuate where you live might happen at short notice. Preparing an **Evacuation Kit** now will save you time and be one less thing to stress about in the event of a disaster.

Note - you may not be able to take your emergency kit into a shelter or evacuation centre. Contact your local council for more information.

When you evacuate, ensure that you take your **Emergency Kit**, **Evacuation Kit** and **Emergency Plan** with you. To help you prepare, download a copy of the Prepare for Evacuation fact sheet from getready.qld.gov.au/be-prepared

☑ CHECKLIST

- ☐ a - blanket
- ☐ b - sleeping bag
- ☐ c - kids toys/entertainment
- ☐ d - pillows
- ☐ e - warm clothes
- ☐ f - valuables + mementos
- ☐ g - essential medication, scripts & eye glasses
- ☐ h - mobile phone + charger
- ☐ i - important documents in sealed bags + cash
- ☐ j - baby formula + nappies
- ☐ k - toiletries

STEP 3 - PREPARE YOUR HOME

General home maintenance:

- Keep your roof in good condition and check it regularly.
- Keep gutters and downpipes clear so water can drain away quickly.
- Trim trees and overhanging branches (be aware of any overhead powerlines).
- Check and fix any corrosion, rotten timber, termite infestations and loose fittings.

General home preparations:

- Ensure your home, contents and car insurance is current and adequate. Check your policy includes debris clean up and removal.
- Identify the strongest room to shelter in place during severe storm or cyclone.
- Identify where and how to turn off the main supply for water, power and gas.
- Consider what arrangements need to be made if you have pets.
- Check with your neighbours in case they need assistance.

Be careful using portable generators. Do not use them indoors or in enclosed places such as garages or carports. This can lead to a build-up of carbon monoxide — a colourless and odourless gas that can make you pass out or cause death.

If you live in a flood-prone area:

- Store all poisons and garden chemicals well above ground level.
- Identify indoor items you will need to raise or empty if flood threatens.
- Consider alternatives to carpet and relocate power-points to well above previous flood levels (using a licensed contractor).

If you live in a cyclone / severe storm-prone area:

- Arrange for a professional builder to check your building and identify ways you can increase the structural security of your home to withstand high winds.
- Fit windows with shutters or metal screens for added protection during high winds.

If you live in a bushfire-prone area:

- Understand your risk - speak to your local Rural Fire Brigade or Volunteer Community Educator.
- Prepare your Bushfire Survival Plan
  - ensure access to your property is easy for fire vehicles.
  - remove materials that can help fuel a fire (e.g. long dry grass, dead leaves, branches or debris around your home).
  - check that pumps, generators and water systems are working correctly.

Final home preparations:

- **For when warnings are issued for cyclone or severe storm**
  - disconnect electrical appliances and external television / radio aerials and turn off electricity and gas main supplies if instructed to do so.
  - Secure or put away items (e.g. garden furniture) that can be blown around.
  - fill buckets and bath with clean water in case of interruptions to water supply.
  - close windows with shutters or tape windows with strong tape and draw curtains.
- **For when warnings are issued for flood:**
  - disconnect electrical appliances.
  - move outdoor equipment, garbage, chemicals and poisons to a higher location.
  - empty and raise freezers / refrigerators and stack or move furniture, valuables and electrical items off-site.
  - sandbag internal drains and toilets to prevent sewage backflow.
  - move livestock, plant and feed to higher ground.

STEP 4 - TUNE INTO WARNINGS

Ensure everyone knows how to Tune In, Log On, Listen Out and Act:

TUNE IN:

» To your local radio and TV station to listen for warnings and weather updates and local community safety announcements.

LOG ON:

» To the Bureau of Meteorology (www.bom.gov.au) for weather warnings.

» To www.qld.gov.au/alerts for information on current disasters.

» To your council website (www.lgaq.asn.au) for:
- local information on the emergency
- information on evacuation centres and evacuation routes
- information on assistance after a disaster event.

LISTEN OUT:

» For the Standard Emergency Warning Signal (SEWS) - the siren sound used at the beginning of serious warnings on radio and television. Pay careful attention to the message that follows SEWS and act immediately on the advice given.

» For Emergency Alert voice messages to your landline and text messages to your mobile telephone.

» For sirens and loud-hailer announcements that Emergency Services may use.

» For Emergency Services personnel who may door-knock your local area to pass on warnings.

When warnings are issued you may be directed to:

» finalise preparations and secure items around your home

» activate your **Emergency Plan** and shelter in place, or

» evacuate to your predetermined safer location.

ACT:

» Act quickly on the advice provided.

» Ensure all householders are aware of the warning and advice provided.

» Check on neighbours and friends who may need special assistance.

» Activate your **Emergency Plan** and locate your **Emergency Kit**.

» Activate your evacuation arrangements if required.

facebook.com/QldFireandEmergencyServices

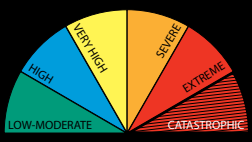
facebook.com/QueenslandPolice

twitter.com/QldFES or @QldFES

twitter.com/qpsmedia

BUSHFIRE

You don't have to live in the bush to be threatened by bushfire, just close enough to be affected by burning material, embers, and smoke.



The Fire Danger Rating (FDR) is an assessment of the potential fire behaviour, the difficulty of suppressing a fire, and the potential impact on the community. It is an early indicator of potential danger, and should act as your first trigger for action. The higher the rating, the greater the need for you to act.

PREPARE

Planning and preparing for bushfire is essential to your survival in a bushfire – people who plan and prepare for bushfires are more likely to survive than those that do not.

- Prepare your Bushfire Survival Plan (BSP)
  - contact your local fire station for a copy or download one at www.ruralfire.qld.gov.au.
- Decide NOW if you will prepare to stay or prepare to leave.
- Share your Bushfire Survival Plan with your family and friends.
- Practise your Bushfire Survival Plan regularly.

ACT

Take Action to save your life.

- Refer to your prepared Bushfire Survival Plan.
- If you are going to **prepare to leave.**
  - Notify your family and friends that you are leaving.
  - Tell them where you are going.
- If you are going to **prepare to stay.**
  - Follow the plans you have made in your Bushfire Survival Plan to prepare your home.
  - Notify your family and friends that you are staying.

Bushfire Warnings

ADVICE
Monitor conditions and review your Bushfire Survival Plan.

WATCH AND ACT
Conditions are changing. Start taking action and follow your Bushfire Survival Plan.

EMERGENCY WARNING
You are in danger. Act on your Bushfire Survival Plan now.

- Tune in to bushfire warnings via your local radio station, QFES websites and social media.

SURVIVE

Follow your plan (or BSP) to stay alive.

If you have left early

- Don't return to your home until you are advised it is safe to do so.
- Remember to look out for dangers as you return home including:
  - Emergency Crews working around the area.
  - Animals not behaving normally.
  - Trees that may have been weakened by the fire and can fall at any time.
  - Power lines that have come down or may fall.
  - Water and other infrastructure that may not be working.

For more information, visit www.ruralfire.qld.gov.au or read other PREPARE.ACT.SURVIVE. resources.

If you have stayed

- As the fire passes.
  - Stay inside your home until the fire has passed.
  - Keep hydrated.
  - Check around your home for possible embers.
  - Check on everyone in your home and make sure they are ok.
- Once it has passed.
  - Check around the outside of your house for spot fires.
  - Drink plenty of water.
  - Stay at your home until it is safe.
- Stay tuned in for bushfire warnings and messages.

HOUSEHOLD EMERGENCY PLAN

Circle the hazards in our area:

BUSHFIRE

STORM

CYCLONE

COASTAL INUNDATION

FLOOD

Evacuation destination	
Place to meet:	
Address:	
Phone number:	
Email address:	
Out of town emergency contact	
Name:	
Address:	
Phone number:	
Email address:	
Main service supplies	**Location/switch off**
Electricity:	
Gas:	
Water:	
Vehicle registration	**Vehicle description**
Our strongest room is	
Medical conditions	**Essential medication /dosage**
Pets	**Pet requirements (including vet details)**

Householder	Special needs

Householder contact details

Emergency contacts	
Triple Zero (000)	Life threatening emergencies: **Police - Fire - Ambulance**
132 500	Storm damage and rising flood water - **SES**
	Local Council
	Doctor/hospital
	Chemist
	Insurance supplier

Emergency / Bushfire Survival Plan activation

- ☐ Contact all householders
- ☐ Check on our neighbours
- ☐ Locate **Emergency Kit**
- ☐ Make final preparations
- ☐ Tune into Warnings
- ☐ Shelter in our strongest room (unless instructed to evacuate)

Evacuation checklist

Prior to evacuation:

- ☐ Ensure vehicle is full of fuel
- ☐ Know the location of evacuation meeting place
- ☐ Check on our neighbours
- ☐ Know the preferred evacuation routes

When evacuating:

- ☐ Pack **Emergency Kit**, **Evacuation Kit**, a copy of our **Emergency Plan**, important documents and valuables, medications and water supplies
- ☐ Turn off mains supply for power, gas and water
- ☐ Contact our out of town emergency contact before we leave and once we arrive at our evacuation destination
- ☐ Secure and lock our home and proceed to our predetermined evacuation destination

If flooding or storm surge is imminent:

- ☐ Sandbag internal drains and toilets to prevent backwash
- ☐ Store electrical items off the ground

DISPLAY YOUR EMERGENCY PLAN ON THE FRIDGE. PROVIDE COPIES TO HOUSEHOLD MEMBERS, RELEVANT FRIENDS, FAMILY AND NEIGHBOURS AND KEEP A COPY IN YOUR EMERGENCY KIT.

APPENDIX 5 – WETLAND AND BUFFER AREA – 1807 ROYS RD REVEGETATION PLAN

N

0 10 20 40 60 80

Meters

Legend

Vehicular Access
(no planting required in these areas)

Wetland Boundary Fence
(fence, bollard or similar to preventvehicular aceess)

Buffer Planting Rows

Buffer Planting

Site Boundary

Zone

12.3.11

12.3.6

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Design: AD	Date:28/11/2023
Drawn: AD	Date: 28/11/2023
Checked: AD	Date: 28/11/2023

CLIENT:
Sunshine Coast Regional Council

PROJECT:
1807 Roys Road Revegetation

DRAWING TITLE:

Drawing Status:

Drawing No.	Datum: GDA	
	Sheet Size A3	
Council Ref	Revision E	SHEET 1 of 2

REHABILITATION SPECIFICATIONS

1. INITIAL SITE MANAGEMENT

All gross pollutants and non-endemic debris such as plastics, building materials and dumped exotic vegetative matter within the rehabilitation area comprised of Zone 1 and Zone 2 (**Rehabilitation Area**) are to be removed and disposed of appropriately.. A contractor and a suitably qualified ecologist are to be engaged to carry out the restoration of the Rehabilitation Area in accordance with this document. The proposed contractor and ecologist are to be agreed by the Council, acting reasonably, prior to them being engaged.

2. IDENTIFICATION OF WEED SPECIES

All exotic flora growing in the Rehabilitation Area shall be identified by the ecologist for treatment. Special attention is required for the detection of:

- invasive plants under the *Biosecurity Act 2014* (Qld);
- weed grasses;
- environmental weeds and species with restrictions within the local government area.

3. METHODS OF WEED CONTROL

All declared weeds and weeds determined by the ecologist to present a danger to initial plant establishment are to be removed prior to planting of the Rehabilitation Area. Treatment of weeds is to be undertaken using best horticultural practices that ensure natural regeneration is protected and minimal soil disturbance occurs, avoiding increased erosion potential. When chemicals are to be used, the manufacturers' instructions for those chemicals are to be adhered to. Initial use of herbicides is to occur 2-3 weeks prior to planting of native tubestock. All noxious weed seed material shall be collected, removed from site and disposed of at an appropriate Council refuse facility.

4. EROSION CONTROL

The site is to be maintained so that no areas of erosion greater than $2m^2$ are evident.

Physical erosion control methods are to be in accordance with *Soil Erosion and Sediment Control' – Engineering Guidelines for Queensland Construction Sites – June 1996*.

Following initial weed treatment and removal, All zones are to be blanket covered with mulch of well-composted forest blend to a depth of at least 100-150mm. Imported mulch is to be free of weed material and foreign debris. Mulch from Council refuse centres is not suitable.

5. REVEGETATION

The Rehabilitation Area is to be planted by randomly arranged seedlings of the species and proportions listed in the Plant Schedule across the entire rehabilitation area. All individuals planted are to be sun-hardened '50 – 125mm native tubestock' with a minimum height of 200mm. Only healthy stock that is not root bound or underdeveloped are to be used.

Planting densities for both Zone 1 and Zone 2 of the Rehabilitation Area are as follows:

- canopy trees – 3 metre centres;
- shrub layer – 2 metre centres;
- ground layer – 1 metre centres.

Overall coverage is to maintain plants at 1m centres across the entire rehabilitation area.

6. INITIAL WATERING

Each plant is to be watered with a minimum of 5 – 10 litres of water at the time of planting.

All seedlings are to be watered on a weekly basis for the first 6 weeks and then monthly for at least 6 months. Watering should continue as required to maintain healthy plants in the densities prescribed in Section 5 (Revegetation) for the duration of the on-maintenance period.

7. MAINTENANCE

On the completion of the planting of the Rehabilitation Area in accordance with section 5 (Revegetation), the Rehabilitation Area is to remain on maintenance for 5 years or until the performance criteria in Section 8 (Monitoring) are achieved, whichever is the longer.

The contractor is to conduct maintenance within the rehabilitation area at the following frequencies:

- weekly for the first 6 weeks;
- monthly for the first 12 months;
- every 4 months for years 2 – 4;
- yearly up until 5 years post planting.

Maintenance actions (during the on maintenance period):

- suppression of all environmental and declared weeds so they do not affect rehabilitation success;
- maintain a weed free zone for a radius if 500mm from individual planted stock;
- apply mulch as required to suppress weeds and maintain healthy planted stock;
- replant lost tubestock to maintain densities; prescribed in Section 5 (Revegetation) at proportions detailed in the Plant Schedule.

8. MONITORING

The Rehabilitation Area is to achieve the benchmarks provided in Tables 1 and 2, below.

Table 1: Establishment Performance Criteria

PARAMETER (Post Planting)	6 mths min	12 mths min	24 mths min
Mortality	< 5%	<10%	<10%
Height[1] (Tree Species)	>500mm	>900 mm	>1800mm

1. Height = more than 80% of trees in plot to attain height.

Table 2: On-Maintenance Performance Criteria

PARAMETER[1] (Post Planting)	2 YEARS	3 YEARS	5 YEARS
Canopy Cover (% Preclear)	>20%	>30%	>50%
Canopy Height (% Preclear)	>10%	>20%	>40%

1. As described in Herbarium RE Technical descriptions: REDD v11.

Monitoring of the Rehabilitation Area is to be conducted by the ecologist and reported to the contractor. The contractor is responsible for keeping monitoring records for the duration of the on-maintenance period and providing them to Council upon request. The contractor is to rectify non-compliant benchmarks specified in Tables 1 and 2.

PLANT SCHEDULE

Zone 1 (Open Forest - RE 12.3.6)

Trees	%
Eucalyptus tereticornis	10
Eucalyptus microcorys	10
Corymbia intermedia	10
Lophostemon suaveolens	10
Melaleuca quinquenervia	30
Allocasuarina litoralis	10
Banksia oblonigfolia	10
Glochidion sumatranum	10

Upper Shrubs / Lower Tree	
Melaleuca quinquenervia	10
Allocasuarina litoralis	10
Lophostemon suaveolens	10
Alphitonia excelsa	10
Leptospermum polygalifolium	10
Acacia leiocalyx	10
Commersonia bartramia	10
Livistona decora	10
Melaleuca linariifolia	10
Polyscia elegans	10

Lower Shrub	
Melastoma malabathricum	40
Trema tomentosa	20
Banksia robur	40

Ground Cover	
Themeda triandra	10
Capillipedium spicigerum	10
Entolasia stricta	10
Pteridium esculentum	10
Lomandra longifolia	10
Dianella caerulea	10
Lomandra multiflora	10
Alloteropsis semialata	10
Gahnia aspera	10
Juncus usitatus	10

Zone 2 (Open forest – RE 12.3.11)

Trees	%
Eucalyptus tereticornis	10
Eucalyptus tindaliae	10
Corymbia intermedia	10
Lophostemon suaveolens	10
Melaleuca quinquenervia	30
Corymbia tessellaris	10
Corymbia citriodora	10
Eucalyptus siderophloia	10

Upper Shrubs / Lower Tree	
Melaleuca quinquenervia	10
Allocasuarina litoralis	10
Lophostemon suaveolens	10
Banksia integrifolia	10
Allocasuarina litorials	10
Leptospermum polygalifolium	10
Alphitonia excelsa	10
Trema tomentosa	10
Melaleuca linariifolia	10
Myrsine variable	10

Lower Shrub	
Trema tomentosa	40
Breynia oblongifolia	20
Clerodendrum floribundum	20
Pittosporum revolutum	20

Ground Cover	
Themeda triandra	10
Capillipedium spicigerum	10
Entolasia stricta	10
Pteridium esculentum	10
Dianella caerulea	10
Lomandra confertifolia	10
Alloteropsis semialata	10
Gahnia aspera	10
Cymbopogon refractus	10
Lepidosperma laterale	10

REV	DATE	By	CHKD
AD	22/03/23	AD	AD
AD1	11/07/23	AD	AD

LEGEND

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Design: AD	Date: 11/07/23
Drawn: AD	DATE: 11/07/23
CHECKED: AD	DATE: 11/07/23

CLIENT:
Sunshine Coast Regional Council

PROJECT:
1807 Roys Rd Revegetation Area

DRAWING TITLE:
Revegetation Schedule

Drawing Status:
Revegetation condition

Drawing No. 007	DATUM: GDA	
	A3 SHEET SIZE	
COUNCIL REF Revision B	Revision D	SHEET 2 OF 2

terrestria
ECOLOGICAL MANAGEMENT

WASTE MANAGEMENT PLAN

PROJECT
Project name: Coochin Creek Eco Resort
Site address: 1807 Roys Road, Coochin Creek Qld 4519
Name of applicant: Comiskey Group
Address of Applicant: 32/640 South Pine Road, Eatons Hill Qld 4037
Phone: 07 3261 7333
Email: mark@comiskey.com.au (Contact - Mark Wiebusch)
Describe buildings and other structures currently on the site: Existing house and farm sheds to be demolished
Describe proposed use/development: Tourist Park - 75 cabins, 75 powered sites plus associated facilites and amenities
I confirm that the details provided on this form are the intentions for managing waste relating to this use/development. Signature of applicant: Date: 5/9/25

SPACE
Number of sites: 75 cabins, 75 powered sites plus associated facilities and amennities
Estimated general waste generation: Guest general waste: 3L/guest/day Resort operations general waste: 300L/day
Estimated recycling generation: Recycling: 2L/guest/day Resort operations recycling: 200L/day
Describe equipment and system to be used for managing waste: Wheelie bin enclosures for guest general waste will be located at regular intervals throughout the resort, including at all amenities, camp kitchens, laundries and recreation facilities. Wheelie bins for guest general waste will typically be 240-660L. Resort operations will utilise bulk general waste bins (1100-3000L) located in the reception centre loading bay and the BOH maintenance yard. The resort will own and operate it's own self compacting waste collection vehicle (WCV) that will be able to negotiate the internal road network to collect general waste from the guest bin enclosures, the reception centre and BOH maintenance yard. Once full, the resorts WCV will transfer general waste to a licensed waste collection centre for disposal.
Describe equipment and system used for managing recyclables: Wheelie bin enclosures for guest recycling will be located at regular intervals throughout the resort, including at all amenities, camp kitchens, laundries and recreation facilities. Wheelie bins for guest recycling will typically be 240-660L. Guest bin enclosures will also include "Containers For Change" bins for recycling appropriate containers. Resort operations will utilise bulk recycling bins (1100-3000L) located in the reception centre loading bay and the BOH maintenance yard. The BOH maintenance yard will also have a bulk cardboard bin. Recycling bins from the guest bin enclosures and Reception Centre will be collected by on site staff and taken to the BOH area for transfer into the bulk recycling bins. The bulk recycling bins will be collected by a licensed contractor and taken for recycling off site. Bulk cardboard bins will be collected by a licensed contractor and taken for recycling off site. “Containers for Change” bins located throughout the eco-resort will be collected by a licensed contractor and taken for recycling off site.
Describe equipment and system to be used for managing garden organics: Garden organics generated from the regular maintenance of the resort will be mulched and stored in the northern part of the site and utiltised as required to re-mulch landscape areas within the resort.

ACCESS
Describe arrangements for access by guests to waste facilities: Wheelie bin enclosures will be screened but not locked and will be available for guest usage at all times.
Describe arrangements for access by collection contactors to waste facilites: Resort staff will provide access for waste collection contractors to collect recyclables from the BOH maintenance yard and the reception centre loading bay. Resort staff will also provide access for Containers For Change contractors to access the resort guest bin enclosures.
Is minimum height met for service vehicles to access waste collection areas: All waste collection areas are outside and will meet the minimum height requirements for service vehicles.

AMENITY
Describe how noise generated from guests using bins, collection contractors emptying bins has been minimised: Guests will utilise typical wheelie bins with lids that do not generate excessive noise when being used. Collections by both the resort WCV and external contractors will be limited to between 7am to 6pm so as to minimise disturbance to guests and neighbours.
Describe the ventilation of waste storage areas: All bins will be located outside and have lids, allowing for natural ventilation.
Describe facilities for washing bins and waste storage areas: The BOH maintenance yard will have pressure washing facilites for washing bins. Bin stoage areas will be regularly cleaned by resort staff.
Describe features for preventing ingress of vermin into waste storage areas: All bins will have lids to prevent ingress of vermin. Appropriate pest control measures will also be located at all bin storage areas.
Describe measures taken to ensure waste storage areas are aesthetically consistent with the rest of the development: Guest bin enclosures will be designed with screens that will compliment the architectural and landscape design of the resort.

MANAGEMENT
Identify each stage of waste transfer between sites and loading into the collection vehicle and who is responsible for each transfer: Guests will transfer their general waste and recyclables from their cabin or site to the bins in the guest bin enclosures. Resort staff will collect general waste from the guest bin enclosures, reception centre loading bay and BOH maintenance yard using the resorts WCV and dispose off site at a licensed waste collection centre. Third party contractors will collect recycling and Containers For Change from the guest bin enclosures, the reception centre loading bay and BOH for recycling off site.
Describe arrangements for cleaning of waste storage areas and equipment: The BOH maintenance yard will have pressure washing facilites for washing bins. Bin stoage areas will be regularly cleaned by resort staff.
Describe arrangments for ensuring bins are labelled and guests are aware of how to use the waste management system correctly; Guest bin enclosures will include general waste bins with red lids and recycling bins with yellow lids. All bins will have labels advising what waste they can be used for. Containers For Change Bins will also be clearly labelled. Information provided to guests at check in will include how to use the waste management system correctly.

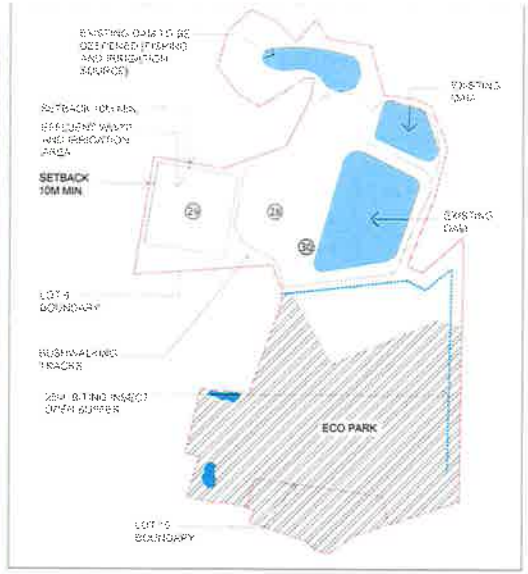
DETAILS OF WASTE MANAGEMENT

Materials	**Volume***	**Proposed On-Site Storage or Treatment**	**Destination**
(Type of waste expected to be generated)	(Expected quantities)	(e.g. waste storage, compaction & recycling, composting)	(Compost, recycle or landfill)
Recyclables	120-240L/day	Waste storage for recycling	Recycle off site
Paper	120-240L/day	Waste storage for recycling	Recycle off site
Cardboard	120-240L/day	Waste storage for recycling	Recycle off site
Glass	120-240L/day	Waste storage for recycling	Recycle off site
Aluminium Cans	120-240L/day	Waste storage for recycling	Recycle off site
Plastic Bottles	120-240L/day	Waste storage for recycling	Recycle off site
Other			
Non-Recyclables	350-700L/day	Waste storage before disposal off site	Landfill
Foodscraps	350-700L/day	Waste storage before disposal off site	Landfill
Plastic	350-700L/day	Waste storage before disposal off site	Landfill
Garden Organics	$1m^3$/week	Mulch and store on site	Re-use on site

* volumes will vary greatly based on the occupancy rate of the resort

REAL PROPERTY DESCRIPTION
LOTS: 10 ON SP132272 AND 6 ON SP184139

SITE AREA:
LOT 10 - 26,410 m2
LOT 6 - 404, 700 m2
LOCAL AUTHORITY: S.C REGIONAL COUNCIL



OVERALL PLAN 1:5000 (REFER SITE PLAN FOR MORE DETAIL)

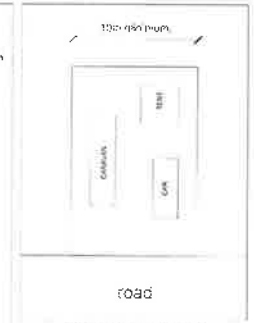
LEGEND

Sites - 75
Cabins - 75 (one uncovered car space per cabin (maximum)

- 3 bed x 36 no.
- 2 bed x 27 no.
- 1 bed x 10 no.

TOTAL SITES = 150 NO.
Caretakers House x 1 no.

1. Reception centre (1000 m2)
2. Pool
3. Waterplay park
4. Playground
5. Indoor recreation
6. Putt putt
7. Jumping pillow
8. Basketball
9. Tennis
10. Pickleball
11. Camp kitchen
12. Amenities with laundry/drying area
13. Amenities
14. Laundry
15. BOH
16. Section of Existing Dam to be retained
17. Drainage Corridor (ten. 10m width)
18. Boomgate
19. Service road
20. Maintenance/Cleaning/Storage Sheds
21. Carparking with 2 No. PWDs
22. Temporary layby parking
23. Drainage easement
24. Managers residence with covered carpark
25. 3m wide vegetated buffer
26. Walking Track/Firebreak Trail
27. 8m wide access driveway to Roys Road utilising EMT 8 on SP105114
28. Emergency helicopter landing area
29. Wastewater treatment plant and irrigation area
30. Potable water treatment plant



Typical arrangement on minimum width camping site

- Existing tree
- Culvert crossing
- Pathways

FOR APPROVAL

cusp COMISKEY GROUP

COOCHIN ECO-RESORT - DA LAYOUT PLAN - 04/09/25

Scale 1:1000 @ A1

10m 20m 80m 100m

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

Ecological Service Professionals
Sustainable Science Solutions

Mark Wiebusch
Development Manager
Comiskey Group
640 South Pine Road
Eatons Hill QLD 4037

Our Reference: 2271.002V2

9 July 2024

Addendum: *Coochin Creek Holiday Park, Biting Insect Management Plan*

1 Introduction

Comiskey Group previously obtained approval for a 100 site Nature Based Tourism development on Lot 10 of SP 132272 and Lot 6 of SP 184133 at Coochin Creek on the southern Sunshine Coast, Queensland. The development was approved[1] (with conditions) by way of a judgement of the Planning and Environment Court on 20 December 2023[2].

The assessment manager (Sunshine Coast Regional Council) Conditions for the approval require, *inter alia*, conditions with respect to Mosquito and Biting Insects:

> 78. Except where varied by conditions of this development approval, mosquito and biting insect mitigation measures and treatments must be incorporated into the development generally in accordance with Section 4 of the *Biting Insect Management Plan* listed within this development approval. Where utilised, application of insecticidal sprays must be applied in such a manner that avoids, as far as practicable, any adverse impacts on ecologically important areas.
>
> 79. Certification must be submitted to Council from a qualified person* that the development has been constructed in accordance with the *Biting Insect Management Plan* listed within this development approval.
>
> 80. A 25m open space biting insect buffer must be provided in accordance with the approved plan. The biting insect buffer area must be turfed and maintained free of any camp sites, tents, or structures. The buffer zone will be designed to not include the conduit and harbourage of mosquitoes and midges. It will not include dense vegetation, but rather consist of open grassland (e.g. mown grass) or woodland. The detailed design of the biting insect buffer must be provided at the time application is made for operational works.

[1] Development Permit for Material Change of Use of Premises to Establish a Nature Based Tourism Park
[2] Appeal No. 1836 of 2022, Comiskey Management Services Pty Ltd v Sunshine Coast Regional Council

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81. The design, construction and operation of the development must be undertaken in accordance with the Coochin Creek Eco Park Biting Insect Management Plan, including the mitigation and management measures outlined in Section 4.

82. Prior to, or at the time of entry to the park, written information must be provided to all patrons and campers to advise:

(a) that the site is located within an area that is highly affected by nuisance biting insects (mosquitoes and midge), and

(b) information about how patrons and campers can minimise their risk of arbovirus infection whilst staying in park (e.g., appropriate long sleeve clothing, application of mosquito sprays, avoiding being outside during peak biting times).

Ecological Service Professionals (ESP) prepared the *Coochin Creek Eco Park Biting Insect Management Plan*[3].

Comiskey Group are now lodging a new application for a Tourist Park that will supersede the Nature Based Tourism proposal. The new proposal includes the following changes from the Nature Based Tourism proposal:

- An increase from 100 to 150 sites.
- The inclusion of 75 cabins and 75 tent/caravan sites (formerly all were tent/caravan sites).
- A larger main building and carpark.
- More facilities, including:
    - an additional pool and a waterplay park
    - an indoor recreation facility, and
    - additional outdoor activities including putt putt, jumping pillow, basketball and pickleball.

The proposed master plan is provided in Attachment A, and the previously approved plan is provided in Attachment B for comparison.

1.1 Purpose of this Addendum

This addendum has been prepared to confirm that:

- the new proposal is consistent with the objectives and management measures outlined in the Biting Insect Management Plan approved with the Nature Based Tourism development (provided at Attachment C for reference), and
- the conditions of approval relating to Mosquito & Biting Insects for the new proposal can therefore be the same as those provided in the Nature Based Tourism approval.

[3] Version 5, prepared 6 February 2023. Provided at Attachment C.

2 Applicability of the Biting Insect Management Plan

The tourist park can be implemented in accordance with the *Biting Insect Management Plan* approved with the Nature Based Tourism development (the Plan, Attachment C) and the relevant conditions of approval. Specifically:

- The layout includes a minimum 25 m wide open space biting insect buffer from the freshwater and estuarine wetlands (mosquito and biting midge breeding areas) on and adjacent to the site, as required under Sections 4.1.1 and 4.2.5 of the Plan, and under Condition 80 of the Nature Based Tourism approval.
- The stormwater management system can be designed to avoid the formation of pools within the stormwater infrastructure and in the adjacent estuarine wetlands, particularly saltmarsh (as required under Sections 4.1.2 and 4.2.6 of the Plan).
- The proposed management measures for freshwater mosquitos during construction, and in on-site infrastructure and the dams and wetlands on-site (Section 4.2 of the Plan), will not change.
- Management measures proposed for the swimming pool (Section 4.2.8 of the Plan) can be applied to the additional swimming pool and the water play area.
- The management measures outlined in Section 4.2.11 (Campsite Areas) can be applied to the proposed cabin sites.
- The proposed cabins and surrounding landscape areas can be designed in accordance with the requirements of Section 4.3 of the Plan, i.e. suitable design and maintenance of landscaped areas; the inclusion of insect screens and the use of fans or air conditioners to increase air movement within the cabins; and suitable choice of lights for the cabins.
- The lighting controls outlined in Section 4.3.2 can be applied to all proposed outdoor activity areas that will be used at night.
- Education of residents and visitors in accordance with Section 4.3.5 of the Plan and Condition 82 of the Nature Based Tourism approval does not need to change.
- The response to complaints outlined in Section 4.4 of the Plan does not need to change, and can be implemented in accordance with Condition 78 of the Nature Based Tourism approval.

Regards,

Lauren Thorburn

Ecological Service Professionals Pty Ltd

Attachment A Proposed Tourism Park Master Plan

REAL PROPERTY DESCRIPTION
LOTS: 10 ON SP132272 AND 6 ON SP184133

SITE AREA:
LOT 10 - 26,410 m2
LOT 6 - 404, 700 m2
LOCAL AUTHORITY: S.C REGIONAL COUNCIL

MAPPED WETLAND AREA

S ROAD

PUMICESTONE PASSAGE

HAT SINGLE TREE

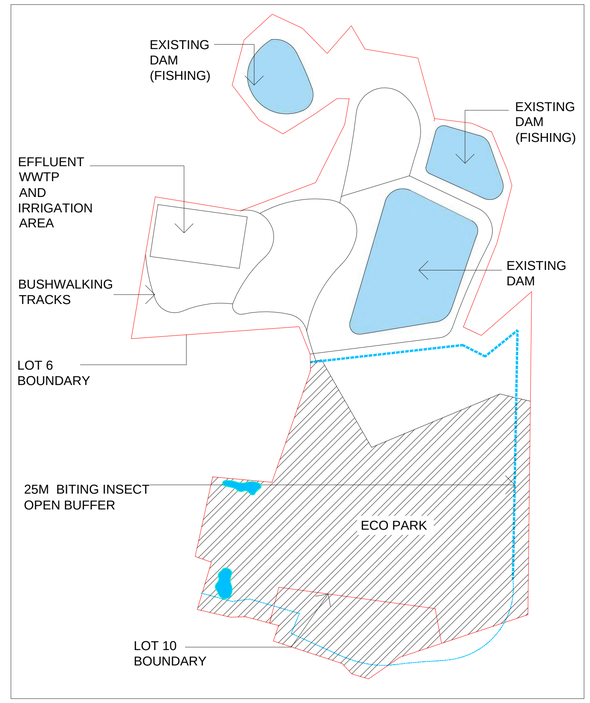
BITING INSECT BUFFER (25M FROM MANGROVES)

INDICATIVE COASTLINE

INDICATIVE COASTLINE

50

KEY PLAN 1:5000



LEGEND

Sites - 75
Cabins - 75

- 3 bed x 38 no.
- 2 bed x 27 no.
- 1 bed x 10 no.

TOTAL SITES = 150 NO.

1. Reception centre (1000 m2)
2. Pool
3. Waterplay park
4. Playground
5. Indoor recreation
6. Putt putt
7. Jumping pillow
8. Basketball
9. Tennis
10. Pickleball
11. Camp kitchen
12. Amenities with laundry/drying area
13. Amenities
14. Laundry
15. BOH
16. Section of Existing Dam to be retained
17. Drainage Corridor (min. 10m width)
18. Boomgate
19. Service road
20. Maintenance/Cleaning/Storage Sheds
21. Carparking with 2 No. PWDs
22. Temporary layby parking
23. Drainage easement

Existing tree

Culvert crossing

Pathways

FOR CO-ORDINATION

cusp

COMISKEY GROUP

COOCHIN ECO-RESORT - DA PLAN - 11/06/24

Scale 1:1000 @ A1

10m 20m 80m 100m

Attachment B Approved Nature Based Tourism Master Plan

To - Horse Riding
- Dams/Fishing
- Bush walking
- STP and Effluent Irrigation Area

'Roy's Orchard'

Legend
- HAT
- 50m offset to HAT
- Pathways

Entry

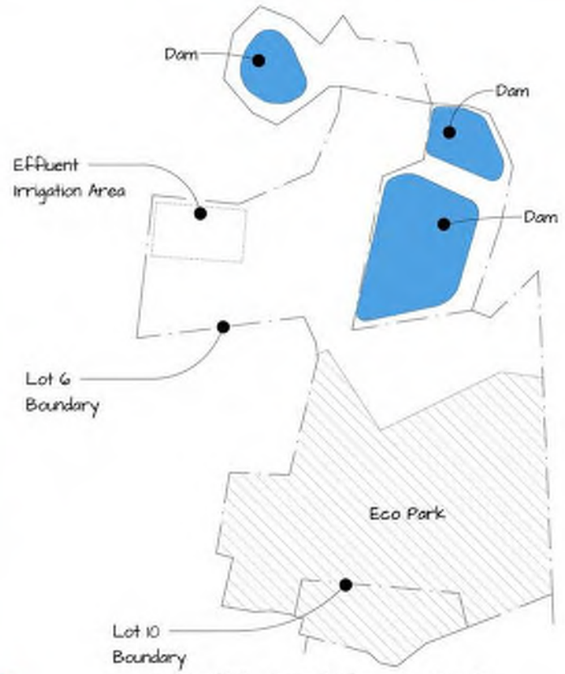
MRV

Pumicestone passage

upgrade existing jetty to cater for eco tour vessel

upgrade existing boat ramp

Existing Road license Area - RL0/218025
Lot 1 on AP6741 (18ha approx.)



OVERALL SITE MAP - 1 : 5000

PLAN LEGEND
1. Reception/Admin/Education Centre/ Shop/Food and Drink/ Caretakers Residence (500m² GFA)
2. Pool
3. Amenities Block
4. Camp Kitchen
5. Fire Pit
6. Maintenance/Cleaning/Linen/Stores
7. Vegetable Garden/Orchard
8. Stables
9. Tennis Court
10. High ropes course
11. Multi Purpose Court
12. Playground

SITE CALCS
Camp sites 150
Total Sites 150

REAL PROPERTY DESCRIPTION
Lots: 10 on SP132272 and 6 on SP 184193
Site Area:
Lot 10 - 26,410m²
Lot 6 - 404,700m²
Local Authority: SC Regional Council

PRELIMINARY

PROPOSED COOCHIN CREEK ECO PARK
@ 1807 ROYS RD, COOCHIN CREEK
for COMISKEY GROUP PTY LTD

MASTER SITE PLAN - ECO PARK - 1 : 1000

VALENTINE BUILDING DESIGN
Email: Beauvalentine@bigpond.com
Po Box 192 Mooloolaba, Qld, 4557
Mobile : 0411807727
ABN: 72639167061 QBCC: 15187361

02.09.21 | 1:1000 | 21101 | S 01.02 H

Attachment C Biting Insect Management Plan

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

Coochin Creek Eco Park

Biting Insect Management Plan

Prepared for: Comiskey Group

Prepared by Ecological Service Professionals Pty Ltd

February 2023

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Client Contact: Mark Wiebusch

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Executive Summary

This report has been prepared for the Comiskey Group and outlines a biting insect management plan for the proposed Coochin Creek Eco Park. The aim of this biting insect management plan is to reduce the impacts of mosquitoes and biting midges on the Eco Park visitors. It has been developed based on the following:

- an appreciation of the current site conditions and the nature of the proposed development
- an assessment of the biting insect species likely to be present on-site, based on desktop review, site inspection and information provided by Sunshine Coast Regional Council (SCRC)
- an assessment of the risk that biting insects may pose to guests and visitors, and
- a review of current best-practice guidelines for the design, construction, and management of developments to minimise the incidence of biting insects on the site.

No biting insect surveys were completed for this plan since data from SCRC was available for Pumicestone Passage, and given it is accepted that there is a high risk of human exposure to biting insects from freshwater and saltwater breeding habitats on and adjacent to the site, particularly during warmer months. Instead, this plan focusses on the mitigation and management of the high risk of human exposure to biting insects. A biting insect monitoring program is proposed, should excessive complaints be received from guests.

The Eco Park site is adjacent to estuarine wetlands, including areas of mangrove and saltmarsh, associated with the tidal reaches of Pumicestone Passage. Pools of water that form in these habitats after high tides or heavy rainfall, particularly in saltmarsh areas, provide breeding habitat for a range of salt and brackish water mosquito species. SCRC currently have a large-scale, proactive program to manage mosquitoes, including regular surveillance and chemical treatments of mosquito-prone areas. This program has been shown to significantly reduce saltmarsh mosquito numbers.

The site and surrounds also contains a number of freshwater dams and wetlands, and the proposed development will include features such as effluent water treatment and an irrigation area. These areas, along with areas of pooled water that may be found in association with landscaped, reception, campsite and amenity areas, may provide breeding habitat for a range of freshwater mosquito species. Freshwater midges may also breed in leaf litter and well-watered vegetation, particularly following rain or excessive watering.

A number of design and management measures have been incorporated into the proposed Eco Park to minimise the impact of biting insects on guests and the amenity. Proposed measures include:

- maintaining an open space buffer zone along the northern, eastern and southern boundaries of the Eco Park, between the campsites and key breeding habitats
- avoiding discharges of stormwater to the adjacent saltmarsh areas

- regularly inspect and manage the formation of water-filled depressions and other shallow stagnant pools during construction and operation (including landscaped, camp kitchen, campsite, waste storage and collection, and amenity areas)
- managing the dams and wetlands to minimise mosquito breeding habitat, including:
    - managing surface water to reduce erosion and run-off of nutrients to the wetlands
    - stocking of dams with native larvivorous fish to manage mosquito larvae numbers, where appropriate
    - regularly inspecting dams and managing very dense growth of emergent vegetation, particularly weed species
    - maintaining deep, open water, where possible (e.g. to be considered during the detail design for dams, and pumping water between dams to maintain water levels)
    - design dam edges to ensure good drainage and prevent isolated pools, where relevant
    - plant and/or maintain emergent macrophytes with thin vertical upright stems, where relevant, and
    - use destratification units, recirculation pumps or similar to maintain a fully mixed system and create surface waves or movements, where relevant.
- ensuring rainwater tanks meet the current Queensland regulations and are regularly inspected and maintained
- regularly maintain and treat the swimming pool to ensure water quality is suitable for recreational swimming (mosquitoes are unable to breed in deep, chlorinated water)
- designing stormwater, amenities, wastewater treatment systems and the irrigation area to avoid accumulation of silt or stagnant pools, and to be well drained or fitted with appropriate screen or covers to avoid mosquito breeding
- designing landscaping and lighting to avoid attracting or harbourage of mosquitoes near populated areas
- including insect screens and fans or air conditioners on all permanent buildings, and regularly maintaining gutters
- if insectide treatment on screens and external surfaces is required, ensure use is in accordance with safety data sheets (SDS) and the restrictions outlined for fish habitat areas (FHAs), and
- educate groundskeepers, guests and vistors, including:
    - use of screens on doors and windows and fans or air conditioners while inside (including screens and fans in tents and caravans, where available)
    - limiting time outdoors at dawn and dusk where possible

- if outdoors during mosquito biting times (especially at dawn and dusk), wearing long clothes (light colours are best) and / or using personal repellents, as required, and
- maintaining gardens, campsites, reception, amentities and other areas to avoid areas of pooled water.

Where these measures are still insufficient to control mosquito numbers (for example during extreme climatic events such as prolonged rainfall), it is recommended that monitoring of mosquito numbers is completed to determine the likely source of the mosquitoes (e.g. freshwater vs saltwater breeding habitats), and subsequent treatment of mosquitoes is undertaken as required in accordance with SDS and the restrictions outlined for FHAs.

It is considered that implementation of the above design and management measures will reasonably reduce the risk of mosquitoes and biting midges and maintain the amenity of the Eco Park.

1 Introduction

This report has been prepared by Ecological Service Professionals (ESP) for the Comiskey Group to outline a biting insect management plan for the proposed Coochin Creek Eco Park at 1807 Roys Road, Coochin Creek. It responds to the Sunshine Coast Regional Council (SCRC) pre-lodgement advice regarding the Development Application, which specified a *technical report is required to be submitted which demonstrates how the development is located, designed and operated to be responsive to the Sunshine Coasts sub-tropical character and minimising the risk to public health, from insect borne arbovirus, and nuisance caused by biting insects.* It has also been updated to reflect further information requests from SCRC. To do this, mosquito and biting midge likely to occur in the area, including available habitat, were described via a desktop review and site inspection; and the potential impacts of the proposed development on these populations were assessed, including outlining mitigation measures that have been incorporated into the design and management of the proposed Eco Park.

1.1 Background

Coochin Creek Eco Park is a proposed 100 site eco-park located on Lot 10 of SP 132272 and Lot 6 of SP 184133 at Coochin Creek on the southern Sunshine Coast, Queensland. Key elements of the proposed development include (Figure 1.1):

- 100 campground sites
- a reception, administration, caretaker residence and education area, including a shop
- three amenities blocks, five camp kitchens and two maintenance, cleaning and storage buildings
- recreational facilities (fire pits, playground, pool, tennis court), and
- sewage treatment plant and effluent irrigation area.

Existing dams and wetlands on the site will be used to irrigate the camp sites and Eco Park landscaping, and will have guest access tracks with educational signage to inform guests of the local biodiversity.

The site is currently used for horticulture (strawberry farm) and is zoned as rural under the Sunshine Coast Planning Scheme and Regional Landscape and Rural Production area under the South East Queensland Regional Plan.

1.2 Scope of Works

The overall objective of this Biting Insect Management Plan was to assess the potential impacts of mosquitoes and biting midges on guests of the proposed Eco Park, and to develop design and management measures to reduce this risk as far as practicable, via desktop review and a site inspection. Specifically, this included:

- an appreciation of the current site conditions and the nature of the proposed development
- an assessment of the biting insect species likely to be present on-site, based on desktop review, site inspection completed on 2 November 2022, and information provided by SCRC
- an assessment of the risk biting insects may pose to guests and visitors, and
- a review of current best-practice guidelines for the design, construction, and management of developments to minimise the incidence of biting insects on the site.

No biting insects surveys were completed for this plan since data from SCRC was available for Pumicestone Passage, and given it is accepted that there is a high risk of human exposure to biting insects from freshwater and saltwater breeding habitats on and adjacent to the site, particularly during warmer months. Instead, this plan focusses on the mitigation and management of the high risk of human exposure to biting insects. A biting insect monitoring program is proposed, should excessive complaints be received from guests (Section 4.4.1).

Figure 1.1 Proposed Coochin Creek Eco Park

2 Mosquito Risk

2.1 Mosquito and Biting Midge in the Area

Because of the proximity of the site to saltwater and freshwater breeding areas, both saltwater and freshwater mosquito and biting midge species will occur on the site at times. Populations are expected to be high to very high during peak breeding times (e.g. after spring high tides or rainfall).

Mosquitoes are native insects that breed in salt, brackish or fresh water, with over 220 mosquito species occurring in Queensland. The mosquito lifecycle consists of egg, larvae, pupa and adult stages. Breeding mainly occurs during September to April, with high levels of mosquitoes typically recorded during December to April, and nuisance levels peaking between February and March (SCRC 2015). The egg to adult phase typically takes seven to ten days but may take longer in cooler weather or where eggs remain viable and dormant during dry conditions. Adult females have proboscis that can pierce the skin of a host and feed on blood, which contains protein to develop her eggs. Eggs are generally laid within two to three day of consuming blood and a female can lay up to four to five times consecutively (LGAQ 2014). Mosquitoes are vectors for several human diseases, with most of these diseases not endemic to south-east Queensland. Ross River and Barmah Forest viruses are the two most common diseases transmitted to humans by mosquitoes in south east Queensland (Queensland Health 2002). Japanese encephalitis has also recently been detected in south east Queensland (and other states).

Biting midges are some of the smallest blood-sucking flies, with body lengths typically less than 3 mm (Mellor et al 2002; Carpenter et al 2013). Most midges (from the *Culicoides* genus) breed in substrate associated with wetlands, particularly in the intertidal zone. Breeding predominantly occurring between Spring and Autumn, with midges most active between September and April (SCRC 2015). One species of biting midge, *Lasiohelia townsvillensis*, breeds prolifically in leaf litter and well-watered urban gardens of the tropics and sub-tropics, particularly following rain or excessive watering. This species is known to bite all day. The development cycle of biting midge consists of egg, four larval instars, pupa and adult, with only female midges consuming blood for the development of eggs (Mellor et al 2002; Carpenter et al 2013). In south east Queensland, the egg to adult period takes around two to three months, with adults typically emerging around spring and during neap tide periods for intertidal species. Midges can be easily blown by prevailing wind, and as such generally feed during still days with high humidity (SCRC 2015). The most common impact on humans by biting midges occurs by opportunistic nuisance biting inflicted by female adults (Mellor et al 2002; Carpenter et al 2013). Biting midges rarely transmit pathogens between humans and are typically only vectors of arboviruses of livestock (Carpenter et al 2013). In rare events that biting midges are able to act as a vector to specific viruses, these viruses do not occur in Australia (Carpenter et al. 2013).

Table 2.1 outlines the dominant mosquito and biting midge species that may occur on the site, based on known species that occur elsewhere in the south east Queensland region (McGinn 2013; Ryan et al. 2004; Queensland Health 2002).

Table 2.1 Dominant mosquito and biting midge species that may occur on the site

Species[1]	Breeding Habitat	Disease Vector in South East Queensland	Comments
Anopheles annulipes	Freshwater and slightly brackish pools, streams and swamps; large artificial containers	Ross River virus [4,5] Canine heartworm [4,5]	Pest range usually 1.5 km. Bite at night, particularly dusk and dawn
Coquillettidia xanthogaster	Freshwater swamps and pools with aquatic vegetation	Ross River virus [3,4]	Pest range usually 1.5 km. Bite at night or during day in shade
Coquillettidia linealis	Brackish and freshwater pools [4]	Ross River virus [4] Barmah Forest virus [4]	Can be a significant pest in close proximity to breeding habitat. Bite at night or during day [4]
Culex annulirostris	Freshwater areas with pooled water and vegetation	Ross River virus Canine heartworm	Pest range usually 5 km. Bite mainly at night but will bite during day if disturbed from resting place
Culex orbostiensis	Vegetated ground pools in coastal areas [4]	Unknown [4]	Uncommonly bites humans [4]
Culex sitiens	Brackish pools in saltmarsh, areas where tidal flow is blocked	Ross River virus [2,3]	Pest range usually 3 km but can be up to 35 km depending on prevailing conditions e.g. wind. Bite mainly at night
Culicoides longior	Mangrove mud [6]	N/A [7]	Pest range is approximately 800 m [6]
Culicoides marmoratus	Mud and sand associated with mangroves [6]	N/A [7]	Can be caried for kilometres from breeding sites by wind [6]
Culicoides ornatus	Fine silt of mangroves [6]	N/A [7]	Can travel for kilometres without wind assistance. Known to be a serious pest near breeding sites [6]
Culicoides molestus	Clean sandy beaches of sheltered tidal waterways [6]	N/A [7]	Well known to be a pest in constructed canal estate beaches. Pest range over 400 m [6]

Species[1]	Breeding Habitat	Disease Vector in South East Queensland	Comments
Culicoides subimmaculatus	Sandy mud associated with mangroves [6]	N/A [7]	Pest range of approximately 400 m [6]
Lasiohelia townsvillensis	Freshwater in leaf litter and well-watered urban gardens	N/A [7]	Pest range of approximately 50 m. Bite during day
Mansonia uniformis	Freshwater swamps and pools with aquatic vegetation	Ross River virus [2,3]	Pest range usually 1.5 km. Bite at night or during day in shade
Ochlerotatus kochi	Leaf axils in coastal areas [4]	Unknown [4]	Relatively uncommon but can be a pest near breeding sites [4]
Ochlerotatus notoscriptus	Freshwater pools including domestic containers [4]	Ross River virus [4] Barmah Forest virus [3,4] Canine Heartworm [4]	Major domestic pest species. Bite at night or during day in shade [4].
Ochlerotatus procax	Brackish or freshwater pools [4]	Ross River virus [3,4] Canine Heartworm [4]	Minor pest near breeding areas [4]
Ochlerotatus vigilax	Temporary pools in saltmarsh	Ross River virus [4] Barmah Forest virus [3,4] Canine Heartworm [4]	Significant pest species. Pest range usually 5 km but can be up to 50 km depending on prevailing conditions e.g. wind. Bite during the day and night
Verrallina funereal	Brackish-freshwater pools that are well-shaded (often in swampy areas adjacent to tidal wetlands)	Ross River virus [2] Barmah Forest virus [2]	Pest range usually 2 km with limited dispersal capability. Bite during the day in shaded areas, and night

1 Occurs in south east Queensland as in McGinn (2013) and Ryan et al. (2004). Other species may also occur but likely in negligible numbers

2 Potential vector

3 Shown to be a vector in laboratory trials

4 Russell (1996)

5 Not considered to be an important vector for this disease (Russell 1996)

6 Shivas (2016)

7 Biting midge species in Australia do not spread viruses, rather they are a public biting nuisance

2.2 Incidence of Mosquito-Borne Viruses in the Region

The two most common mosquito-borne viruses (arboviruses) that occur in south east Queensland are Ross River virus and Barmah Forest virus. Although viruses such as dengue fever and malaria are not endemic to Australia, they are present in many neighbouring countries with outbreaks known to occur in the region at times due to viraemic overseas travellers (Queensland Health 2020). There are also cases of other mosquito borne diseases, such as flavivirus, Japanese encephalitis and zika virus, but these are typically rare, although in recent years there has been an outbreak of Japanese encephalitis in eastern Australia (Queensland Health 2020). Zika virus is spread predominately by *Aedes aegypti*, a container-breeding mosquito not currently in south east Queensland, but with the potential to establish.

2.2.1 Ross River Virus

Ross River virus is the most common mosquito-borne viral disease transmitted to humans in Australia (including in south east Queensland), with around 2,000 cases reported in Queensland each year (Queensland Health 2020). In 2020, a total of 3,382 cases were reported and in 2021, a total of 814 cases were reported in Queensland (Queensland Health 2022). It cannot be spread from human to human; rather it is spread by bites from mosquitoes, most commonly *Culex annulirostris, Ochlerotatus vigilax* and *Ochlerotatus notoscriptus* (Queensland Health 2017a). Symptoms of Ross River virus tend to occur within three to 11 days of being bitten by an infectious mosquito; and include joint inflammation and pain that can last from two to six weeks, a raised red rash that can last for one to ten days, and in some cases a fever (Queensland Health 2017a). There is no specific drug treatment available (Queensland Health 2017a).

Ross River virus has been reported in the SCRC, as well as surrounding local government areas, including Noosa Shire Council, Gympie Regional Council, Somerset Regional Council, Moreton Bay Regional Council and Brisbane City Council. Notification rates of Ross River virus between 2016 and 2021 were generally highest in the Sunshine Coast or Metro North Brisbane Hospital and Health Service areas compared to other nearby areas (Table 2.1; Queensland Health 2022). This may be a result of the larger human populations in these areas close to extensive coastal mosquito breeding habitats.

2.2.2 Barmah Forest Virus

Barmah Forest virus is also transmitted to humans by mosquitoes only; the mosquitoes may have contracted the virus after biting marsupials (the virus is only known from Australia) (Queensland Health 2017b). Barmah Forest virus has similar symptoms to Ross River virus, although symptoms are usually shorter in duration; again, there is no specific treatment available. There are over 400 cases of Barmah Forest virus reported in Queensland each year (Queensland Health 2020).

Similar to Ross River virus, notification rates for Barmah Forest virus occurred in the SCRC and all adjacent local government areas. Between 2016 and 2021, the highest notification rates for Barmah Forest virus were in the Sunshine Coast or Metro North Brisbane Hospital and Health Service areas compared with the other nearby areas (Table 2.1).

Table 2.2 Rates of notified Ross River virus and Barmah Forest virus infections (annual total) by Hospital and Health Service areas (Queensland Health 2022)

Year	Hospital and Health Service	Ross River virus	Barmah Forest virus
2016	Sunshine Coast	241	21
	Wide Bay	112	14
	Darling Downs	83	10
	West Moreton	65	5
	Metro North Brisbane	200	25
	Metro South Brisbane	164	19
2017	Sunshine Coast	368	54
	Wide Bay	148	24
	Darling Downs	96	4
	West Moreton	96	6
	Metro North Brisbane	262	32
	Metro South Brisbane	222	17
2018	Sunshine Coast	235	37
	Wide Bay	86	18
	Darling Downs	120	7
	West Moreton	88	6
	Metro North Brisbane	241	34
	Metro South Brisbane	197	17
2019	Sunshine Coast	256	17
	Wide Bay	82	11
	Darling Downs	56	5
	West Moreton	47	4
	Metro North Brisbane	276	27
	Metro South Brisbane	222	13
2020	Sunshine Coast	519	119
	Wide Bay	131	33
	Darling Downs	324	2

Year	Hospital and Health Service	Ross River virus	Barmah Forest virus
	West Moreton	199	14
	Metro North Brisbane	722	56
	Metro South Brisbane	466	36
2021	Sunshine Coast	163	43
	Wide Bay	47	20
	Darling Downs	54	11
	West Moreton	36	2
	Metro North Brisbane	116	36
	Metro South Brisbane	100	25

2.3 Biting Insect Habitat

Preferred breeding habitat is characterised by:

- salt, brackish or freshwater
- standing, shallow (<60 cm) water with gently sloping banks that is likely to persist for longer than 7 to 14 days, which is the typical breeding cycle of mosquitoes
- swamp and saltmarsh
- artificial containers and rain filled depressions which are able to hold water for more than a few days
- areas of dense macrophytes or vegetation, and / or
- mud and sand substrate associated with mangroves within the intertidal zone.

Biting midges are generally most active during the warmer months of September to April, during dawn and dusk (although freshwater species are active during the day). Mosquitoes are also typically recorded during September to April, with peak abundances between February and March.

2.4 Existing Available Breeding Habitat

There are known breeding areas in the vicinity of the proposed Eco Park and large abundances of biting insects known from the area, at times. The southern end of the Sunshine Coast (including Bells Creek, Pelican Waters, Boronia Grove, Pelican Waters Golf Club etc) has the highest number of complaints regarding nuisance biting insects in the SCRC local government area (SCRC n.d.; SCRC pers. comm.).

While they may occur at any time of year when conditions are suitable for breeding, the cooler months from May to September typically have very low to no mosquitoes (SCRC n. d.; Figure 2.1). SCRC has a regular (generally weekly) survaliance program for mosquitoes in Pumicestone Passage to manage the active control program (refer to Section 2.5). Long

term trends for Pumicestone Passage since the program was implemented in the early 1990s are shown in Figure 2.2. In general, once the weekly survey numbers from the light traps are above approximately 100 mosquitoes, feedback from the general public advising of the impacts is typically received (SCRC pers. comm.). The closer to the tidal areas the residential area is, the greater the impacts, with suburbs as far away as Beerwah and Glasshouse Mountains etc. feeling the impacts from saltwater breeding species in Pumicestone Passage during the peak months, given the vastly increased levels (SCRC pers. comm.).

Numbers can peak at several thousand in the traps each night when rainfall and higher tidal activity combine in the summer months, regardless of how much aerial treatment work is done with larvicides. The closest large urban area is located away (3 km or more), so these impacts are only felt by a small few who live adjacent to the Pumicestone Passage, with nearby properties well aware of the potential mosquito issue during the warmer months and are well prepared with screens (SCRC pers. comm.).

Species caught in the traps include those from both freshwater and saltwater breeding habitats (SCRC pers. comm.).

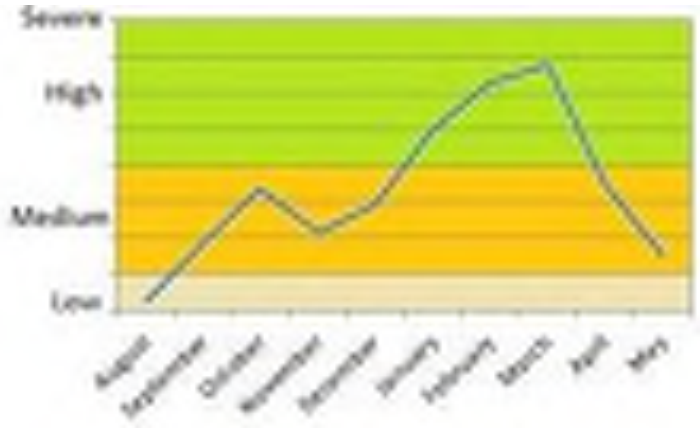


Figure 2.1 Long-term trend for mosquito species abundance on the Sunshine Coast (source: SCRC n. d.)

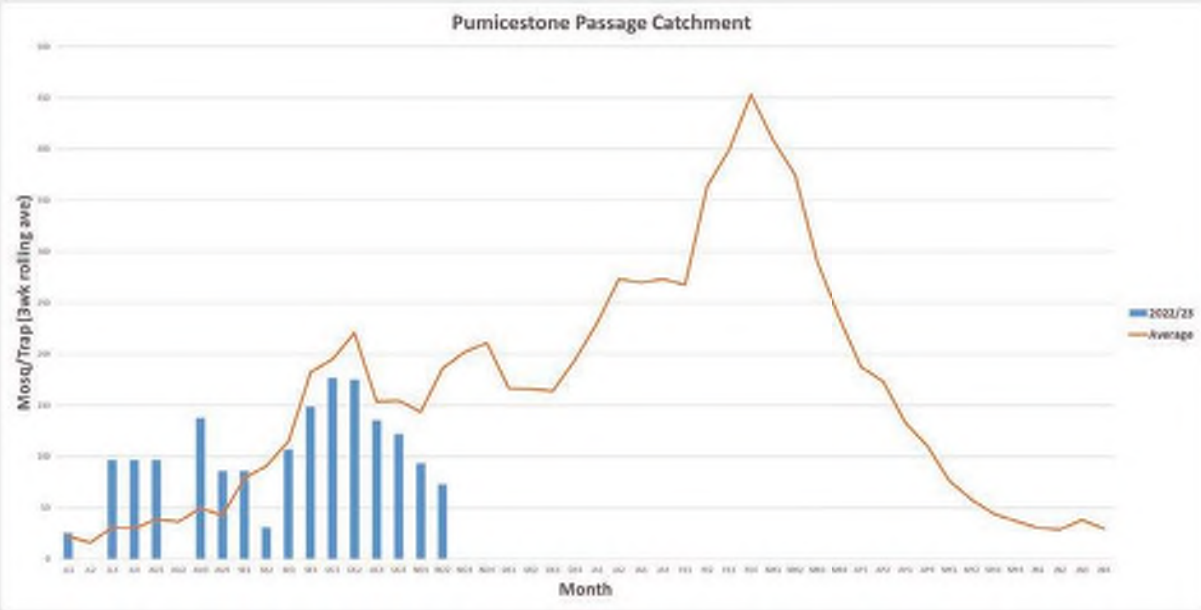


Figure 2.2 Long-term trend for mosquito species abundance in Pumicestone Passage, with the average of all data (orange line) and the three week rolling average between July and mid-November 2022 (blue bars) (source: SCRC pers. comm.)

2.4.1 Saltwater Habitat

The Eco Park site is directly adjacent to estuarine wetlands, including areas of mangrove and saltmarsh, associated with the tidal reaches of Pumicestone Passage (Figure 2.3 and Figure 2.5). There are also large areas of saltmarsh and mangrove habitat associated with Bribie Island, to the south of the site (Figure 2.5).

Pools of water that form in these habitats after high tides or heavy rainfall, particularly in saltmarsh areas, provide breeding habitat for a range of saltwater mosquito species. Female mosquitoes lay eggs at the base of vegetation at the edge of pools or depressions. These eggs can dry and become dormant, hatching weeks to months later when submerged by tidal inundation or when rainwater fills the depressions (DAF 2021). The mosquito larvae hatch in pools that persist and that are protected from predators such as fish, then grow into pupae and typically emerge as adults within six days (DAF 2021). The most extensive breeding habitat is found in pools within the high marsh area that are not subject to daily tidal inundation; however, breeding also occurs in pools in the low marsh or mangrove areas, where tidal channels have become blocked and there are stagnant pools (DAF 2021).

Saltmarsh mosquitoes (particularly *Ochlerotatus vigilax*) are one of the most dominant species breeding in the area, given the close proximity to approximately 500 Ha of breeding habitat in the Pumicestone Passage. They are typically abundant between September and April and seven to ten days after spring tides, which occur fortnightly. Following this, they generally persist for two to three weeks. Once an adult, saltmarsh mosquitoes have the ability to fly further than 10 km from the breeding habitat to feed (SCRC n.d.; SCRC 2015). As the Eco Park is well within this nuisance range, and experiences prevailing wind conditions supporting the dispersal of mosquitoes towards the Eco Park (e.g. strongest wind are from the south–east), the site is likely to experience outbreaks of nuisance populations, particularly during peak breeding times.

a)

b)

Figure 2.3 Photos of the saltmarsh and estuarine wetland areas adjacent to the site, including (a) pools of water in the claypan, and (b) tidal pools in mangroves and saltmarsh habitat

The sand and mud substrate associated with mangroves and the banks of streams are the preferred breeding habitat for many species of biting midges (Shivas 2016). Female saltwater midge species will lay eggs within well-aerated wet substrate in the upper half of the intertidal zone. In south-east Queensland, the development from egg to adult midge typically takes two to three months and most commonly occurs between spring and autumn (Shivas 2016). There is substantial suitable breeding habitat for biting midges surrounding the Eco Park, specifically, the sand and mud substrate along the waterfront edge of Pumicestone Passage, south and east of the Eco Park and within the mud substrate within the mangrove habitat to the south-east of the site, which is within the pest range (<400 m) of several species (refer to Table 2.1).

2.4.2 Freshwater Habitat

There are three freshwater dams mapped as one large lacustrine wetland on the north-east section of the site (Figure 2.4 and Figure 2.5) that may provide freshwater breeding habitat, particularly in areas where water level is low (<60 cm) and persistent (>7 to 14 days). There is also an existing unmapped dam in the south-west section of the site (refer to lower areas of elevation in this area in Appendix A; BMT 2021). In the center of the site, there is a mapped palustrine wetland (Figure 2.5), however, this area was completely cleared by the previous owner a number of years ago for agricultural purposes (Comiskey Group pers. comm.). There are local irrigation drains in the mapped palustrine wetland, and across the site that fills with freshwater at times (Figure 2.5 and refer to lower areas of elevation in Appendix A; BMT 2021). Depressions or containers on the site that hold water may also provide mosquito breeding habitat.

There are several mapped and unmapped large areas of open water (lacustrine wetland) and vegetated swamps (palustrine wetlands) on adjacent properties to the west, north-east and east of the site (Figure 2.5). These freshwater wetlands may provide breeding habitat for a number of freshwater mosquito species (although the deeper dams are unlikely to be core habitat; refer to Section 3.2.2). The property adjoining the western boundary of the site has large areas of open grassland, horticulture or deep dams (Comiskey Group pers. comm.) and as such is unlikely to provide ideal breeding habitat.

The vegetation within and surrounding the site is mainly mapped as regional ecosystem 12.3.5 (RE12.3.5), which is dominated by paperbarks (*Melaleuca quinquenervia*) and other swamp tree species associated with paperbark communities (Appendix B). Paperbark communities are commonly seasonally inundated with stagnant water and provide potential breeding habitat for freshwater mosquitoes. However, most of the paperbark communities mapped on the site have been cleared, with remnant areas mainly to the east and north-east of the site (Figure 2.5). One patch of paperbark wetland remains on the site within a dammed area (Figure 2.4b).

Freshwater mosquito species lay eggs on the surface of shallow water or at the edge of the water. The eggs hatch into larvae, which live under the surface of still water (for four to six days in summer, longer in winter) until they grow into pupae (two to three days in summer) then emerge as adults (BCC 2021). Freshwater midge species lay eggs in leaf litter and well-watered urban gardens. This breeding habitat may be present within the site following rainfall or excess watering.

a)

b)

Figure 2.4 Photos of the mapped lacustrine wetland areas on the site, including (a) perched dam with long thin sedges around the perimeter, and (b) *Melaleuca* wetland

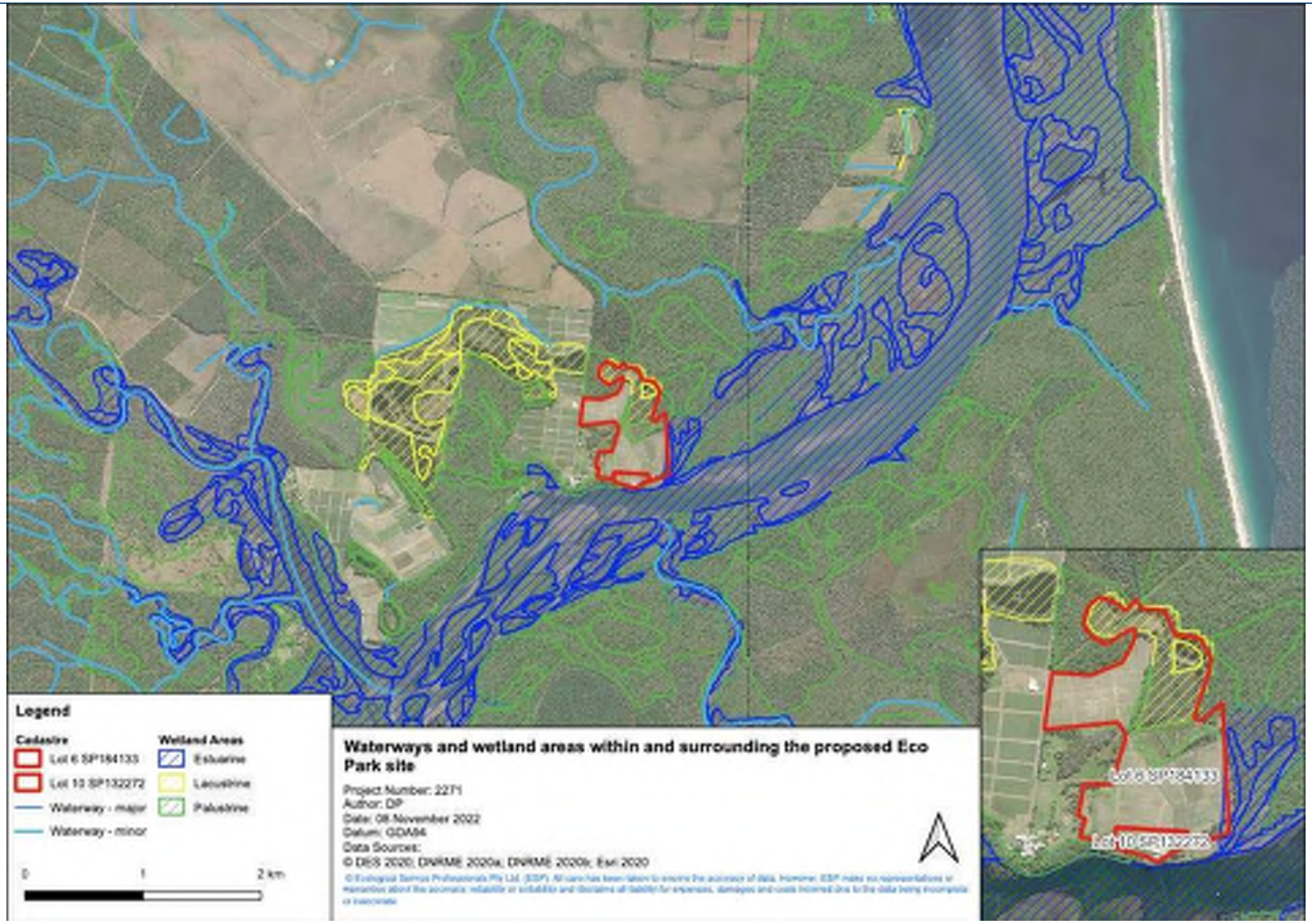


Figure 2.5 Mapped wetland areas within and surrounding the proposed Eco Park site

2.5 Current Mosquito Control

The SCRC currently has a proactive program to manage mosquitoes including regular surveillance and larval treatments of mosquito-prone areas. Treatment to reduce mosquito breeding uses two biological control products that affect mosquito larvae (SCRC 2015):

- Methoprene – a target-specific insect growth regulator which controls insects by disrupting their normal metamorphosis and prevents larvae from developing to an adult, and
- *Bacillus thuringiensis israelensis* (*Bti*) – a target-specific bacterium which is ingested by mosquito larvae and results in the destruction of the digestive tract, killing the larvae six to 72 hours after ingestion.

These control products are sprayed on breeding areas and along waterways through a large-scale aerial treatment program or through site-specific target groundwork. Up to 12 treatments are done per season throughout the Pumicestone Passage, targeting breeding habitat. Larval control work reduces mosquito numbers by approximately 90% (SCRC 2015). The SCRC also conducts routine field surveys and set light traps to monitor the number of larvae after tidal and rainfall events as well as after aerial treatments. Saltmarsh breeding areas, including those adjacent to the site, are surveyed weekly to determine larval levels and to target broad scale aerial treatment (Figure 2.6; SCRC 2015).

Biting midges are more difficult to control due to their habitat and life cycle as, unlike mosquitoes, there are no target-specific chemical treatment for the larvae, and insecticides are not to be used on or adjacent to environmentally sensitive areas, such as tidal or mangrove ecosystems.

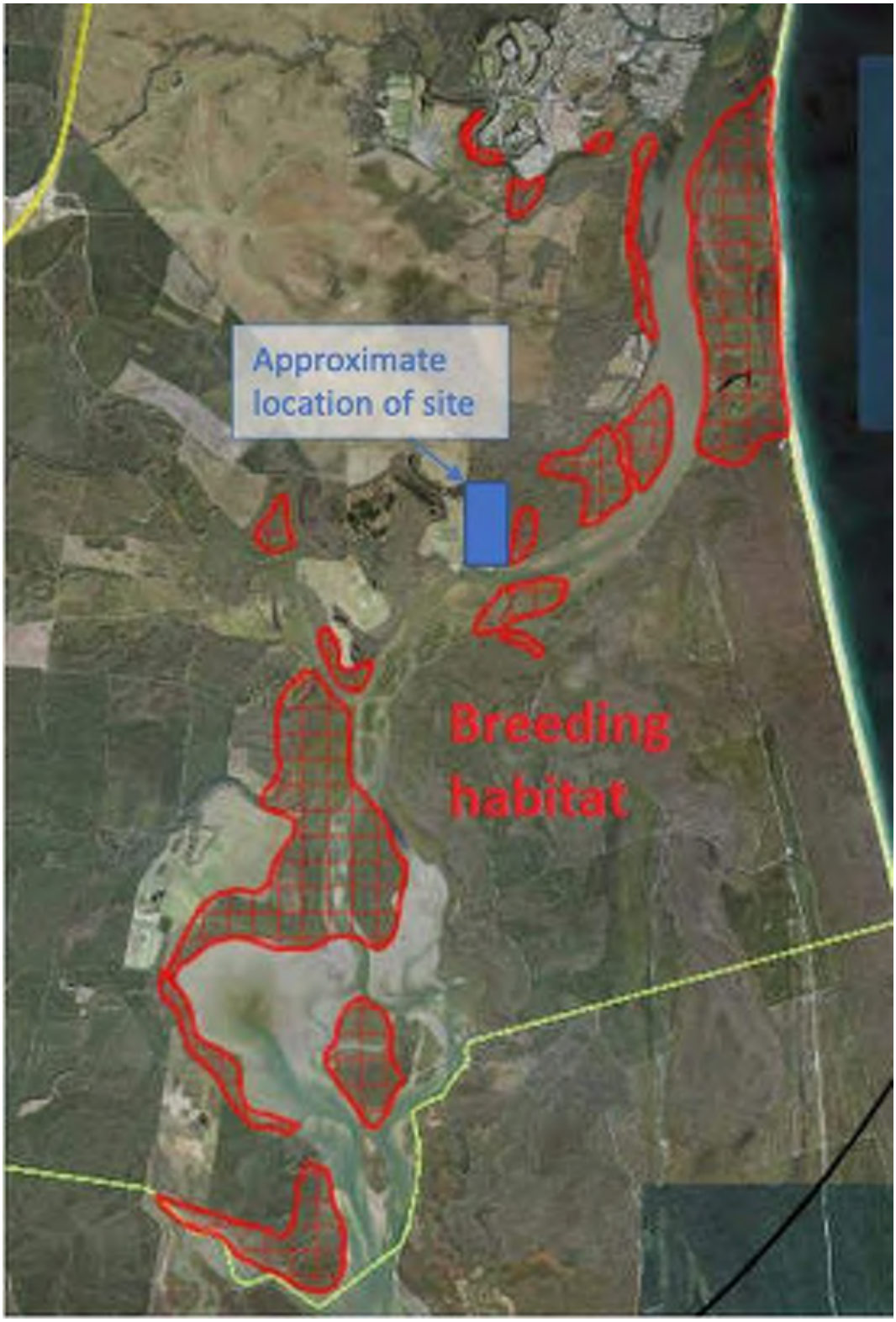


Figure 2.6 Saltmarsh breeding habitat in Pumicestone Passage targeted for mosquito surveys and control (SCRC 2015), and the approximate location of the site of the proposed Eco Park

3 Potential Impacts

3.1 Saltwater Mosquitoes and Midges

Saltmarsh mosquitoes (*Ochlerotatus vigilax*) and potentially other brackish water species (*Coquillettidia linealis, Culex orbostiensis, Culex sitiens, Ochlerotatus procax* and *Verrallina funerea*), along with midges (*Culicoides* spp.) are likely to breed in the adjacent tidal wetlands; particularly in the saltmarsh areas, but also in any ponded areas within the mangroves that are not well flushed. These habitats will remain post development. The prevailing winds in the region vary throughout the year but are predominantly from the north and between the east and south, with the strongest winds from the south–east, which will result in mosquitoes and midges from the surrounding saltmarshes dispersing into the Eco Park. Vegetation can provide shelter / resting habitat for mosquitoes and biting midges, and therefore dense vegetation can provide a dispersal route (Queensland Health 2002).

3.2 Freshwater Mosquitoes and Midges

The proposed Eco Park may result in the retention of mosquito breeding habitat on-site and / or the creation of additional breeding habitat for freshwater mosquitoes and biting midges, as described below.

3.2.1 Construction

During construction, drainage lines and other depressions (e.g. wheel ruts) that hold water can create artificial breeding habitat for freshwater mosquito species (Queensland Health 2002).

3.2.2 Dams and Wetlands on the Site

Mosquito larvae are more successful in shallower water; however, although it is uncommon, the larvae may potentially be able to survive in deeper water, such as freshwater dams. The freshwater dams on the site could potentially provide breeding habitat for freshwater mosquitoes such as *Coquillettida spp., Culex spp., Mansonia uniformis, Ochlerotatus notoscriptus* and *O. procax,* and *Verrallina funereal*, especially where the dams water levels are low and persistent, which provide larvae with suitable habitat.

Dams to be retained following the development that are likely to continue to provide breeding habitat for freshwater mosquitoes include (Comiskey Group pers. comm.):

- One dam to the north of the site.
- One perched dam the north-east corner that fills with rainwater (not surface water runoff) and is expected to be over 2 m deep, with long, thin sedges around the perimeter (refer to Figure 2.4a).
- *Melaleuca* wetland to the south of the perched dam, fed by surface water runoff at the western side and deepens to a pool used as a dam to the east side (refer to Figure 2.4b).

- Two sections of an existing dam will be retained to the south-west of the site, connected by an open channel to the west of the waste storage and collection area.

3.2.3 Wetlands Adjacent to the Site

The freshwater wetlands adjacent to the proposed development site also provide breeding habitat for freshwater mosquitoes (refer to Section 2.4.2). Some prevailing winds in the region (predominant winds are from the north and between the east and south, with the strongest winds from the south–east) are likely to result in mosquitoes from the freshwater lakes in the west of the development area predominantly dispersing away from the site. However, the mosquitoes in the freshwater wetlands to the north, east and south of the site have the potential to disperse throughout the Eco Park area.

3.2.4 Stormwater Infrastructure

Stormwater management infrastructure that involves open still pooling water has the potential to provide breeding habitat for freshwater mosquito species, unless designed appropriately.

3.2.5 Rainwater Tanks

Where rainwater is captured and stored in rainwater tanks, they may provide potential breeding habitat for freshwater mosquitoes if not properly designed and maintained (Queensland Health 2011b); particularly pest species that are known to breed in domestic containers, such as *Ochlerotatus notoscriptus*.

3.2.6 Landscaping

Dense vegetation can provide shelter to mosquitoes and provide a dispersal pathway between breeding sites and human populations (Queensland Health 2002). Continuous belts of dense foliage trees planted throughout the Eco Park could provide new harbourage habitat for biting insects. Certain plant species can also hold water after rainfall, creating mosquito and midge breeding habitat.

3.2.7 Lighting

Many mosquito species are attracted to white light (Whelan 2011). As such, where white light is used throughout the development, mosquitoes may become abundant around evening activity areas (e.g. camp kitchens).

3.2.8 Swimming Pool

Poorly maintained swimming pools (e.g. not maintained with chemicals or broken filtration system) become an ideal environment for freshwater mosquitoes to breed.

3.2.9 Amenities and Wastewater Treatment System

Wastewater treatment systems can be a major source of mosquitoes, as the water is typically nutrient rich providing an optimal breeding habitat (Whelan 2004). The ability of mosquitoes to breed in these areas depends entirely on the available access to water,

usually due to damaged or missing tank tops or unscreened vents (Whelan 2004). Therefore, a poorly maintained amenities or wastewater treatment system may provide breeding habitat for mosquitoes.

3.2.10 Effluent Irrigation Area

If irrigated areas do not have adequate drainage or evaporation, shallow puddles which remain for multiple days will provide breeding habitat for mosquitoes. Well watered vegetation also provide ideal habitat for freshwater midges.

3.2.11 Campsite Areas

Campsites (including camp kitchens), landscaped areas, waste storage and collection areas as well as other areas in the Eco Park provide a range of potential breeding areas for freshwater mosquitoes, particularly *Ochlerotatus notoscriptus*. Potential breeding habitat includes (but are not limited to) containers or other areas that hold water or gutters clogged with leaves that hold water.

4 Mitigation and Management

4.1 Saltwater Mosquitoes and Midges

The SCRC currently implements a biting insect management program in the region to reduce the number of biting insects (refer to Section 2.5). However, additional measures will be completed as part of the construction or operation of the proposed Eco Park to further minimise the impact of saltwater biting insects on the visitors of the Eco Park. These measures are described below.

4.1.1 Incorporation of Open Space Buffer

The proposed development will not directly impact the adjacent tidal wetlands, or their capacity to act as breeding areas. It is necessary for the development plan to incorporate open space buffer zones between the adjacent breeding areas and the Eco Park. The width of a buffer zone is dependent on the species of biting insects, the prevailing wind conditions, the existence of natural barriers (i.e. open grassland and woodland) and the design of the development (Queensland Health 2002). However, based on previous developments in the area, a minimum of 25 m of open space buffer surrounding the development is required to reduce biting insect numbers (SCRC pers. comm.).

In order to minimise the ability of the adjacent saltwater habitats to disperse biting insects into the Eco Park, an open space buffer zone has been designated between the Eco Park and adjacent saltwater mosquito and biting midge habitat. The buffer zone (25 m or greater) is located along the southern and eastern boundary of the site, between the campsites and Pumicestone Passage as well as between the campsites and adjacent estuarine and freshwater wetlands to the east of the site (refer to Figure 1.1). The buffer zone will be designed to not increase the conduit and harbourage of mosquitoes or midges. It will not include dense vegetation, but rather consist of open grassland (e.g. mown grass) or woodland.

The buffer zone will not include areas of marine plants protected under the *Fisheries Act 1994* (including mangroves and saltmarsh), threatened flora and fauna habitat protected under the *Nature Conservation Act 1992* or *Environment Protection and Biodiversity Conservation Act 1999* or other environmentally sensitive areas on and adjacent to the site (e.g. High Ecological Significance (HES) wetlands, High Ecological Value (HEV) waters, Fish Habitat Areas, Moreton Bay Marine Park and RAMSAR wetland). The buffer zone will not include shrubs, however, any existing native tree canopy and midstorey tree species will be retained, with the buffer areas maintained so that they remain as open woodland lacking dense understorey vegetation. The buffer may also include other open space such as roads, parking areas, pathways or well drained agricultural areas.

4.1.2 Management of Stormwater Runoff

Minor and major flows will be directed to bio-rention systems via internal swales before discharging from the site. Minor flows will be collected by a stormwater pipe network and / or discharged as overland flow, and major flows will be discharged as overland flow. Discharge from the site will be designed to avoid the formation of additional pools from stormwater

runoff within the adjacent estuarine areas. Some overland flow to the tidal wetlands may still occur during large, infrequent rainfall events.

4.2 Freshwater Mosquitoes and Midges

4.2.1 Construction Management

During construction there will be an ongoing program to (Queensland Health 2002):

- fill potential breeding sites such as depressions, wheel ruts, potholes and borrow pits, and
- prevent spoil materials, road embankments, access roads or soil / silt from blocking drainage of water from the site, which could result in stagnant pools.

Containers or other equipment resulting in pooling water and acting as breeding sites should also be identified and removed during construction.

4.2.2 Dam and Wetland Management

The dams and wetlands on the site will incorporate the following measures in order to minimise the extent of mosquito breeding in these water bodies (Queensland Health 2002; LGAQ 2014):

- manage surface water to reduce erosion and run-off of nutrients to the wetlands
- implement a fish stocking program (as outlined in Section 4.2.4) in dammed areas that are not connected to natural waterways, where appropriate
- inpect for and manage very dense growth of emergent vegetation (particularly weed species as outlined in Section 4.2.3) to reduce mosquito breeding, allowing natural predators to reach mosquitoes and potentially increase wave action, and
- prevent the water depth from falling below 50 cm (or preferrably 30 cm), where possible, to maintain deep water which does not support mosquito breeding (increased water depth may also enhance native fish populations and therefore predation on larvae).

These measures will likely enhance the natural ecological processes and predator populations. The buffer zone along the northern boundary as described in Section 4.2.5 will also limit freshwater mosquitoes from the dams and wetlands on the northern section of the site.

In addition to the general measures outlined above, the following measures apply to the perched dam and the two sections of an existing dam that will be retained to the south-west of the site, to further minimise the extent of breeding in these constructed dams:

- maintain deep, open water bodies, where possible (e.g. during the detail design and pumping water between dams to maintain water levels) – deep water that is subject to wave action from wind does not provide suitable breeding habitat for mosquitoes, and provides habitat for natural predators of mosquito larvae (such as larvivorous fish and aquatic invertebrates). It is understood that water levels in the perched dam are maintained by pumping water from the lacustrine wetland to the south, which

minimising the risk of water levels dropping to levels that support mosquito breeding i.e. <50 cm

- where relevant, lake edges should be designed to support emergent macrophyte vegetation and graded (i.e. as steep as possible, with consideration for public safety standards) to ensure good drainage and avoid creating isolated pools that provide mosquito breeding habitat when water levels draw down, and that allow access to the shallow margins of the lake are accessible by larvivorous fish and invertebrates at all times
- plants with thin vertical upright stems will be used as the dominant planted species in vegetated area to maximise predation of mosquito larvae by allowing for the passage of small fish and macroinvertebrate predators (the existing perched dam is already dominated by plants with thin vertical upright stems and provides a good example of how to achieve this; refer to Figure 2.4a); aquatic macrophytes should cover <60% of shallow water (<50 cm), with separation to allow wind and wave action
- access for mosquito predators, such as fish, will be provided to all parts of the water bodies to avoid stagnant isolated areas of water, and
- destratification units (e.g. bubble plume), recirculation pumps or similar may be installed and operated to maintain a fully mixed system, which will create waves or movements that can prevent mosquitoes from laying eggs.

4.2.3 Aquatic Weed Management

The dams and wetlands on site will be regularly (monthly during the peak breeding season of September to April) inspected for excessive plant growth, particularly for weed species, such as olive hymenachne (*Hymenachne amplexicaulis*), salvinia (*Salvinia molesta*), water hyacinth (*Eichhornia crassipes*) and water lettuce (*Pistia stratiotes*) – noting that these aquatic weeds were not observed in the dams / wetlands on the site during the site inspection. Removal of aquatic weeds (e.g. through manual, chemical or mechanical measures) will be implemented where aquatic weeds are present as they may provide mosquito larvae with protection from predators and prevent water surface movements facilitating landing to lay eggs (LGAQ 2014, Queensland Health 2002).

4.2.4 Fish Stocking Program

An additional native fish stocking program may also be implemented in the perched dam and the two sections of the existing dam to be retained to the south-west of the site. Stocking of freshwaters with native larvivorous fish species has been found to be a highly effective mosquito management measure that reduces the need for chemical treatments (LGAQ 2014). Stocking of fish in private waters does not require a permit from the Department of Agriculture and Fisheries (DAF), as long as the fish are native to the local catchment. Native fish that would be suitable for stocking include (Queensland Government 2017):

- Agassiz's glassfish (*Ambassis agassizi*)
- crimson-spotted rainbowfish (*Melanotaenia duboulayi*)
- ornate rainbowfish (*Rhadinocentrus ornatus*)

- bug-eyed goby (*Redigobius bikolanus*)
- Marjorie's hardyhead (*Craterocephalus marjoriae*)
- firetail gudgeon (*Hypseleotris galii*)
- fly-specked hardyhead (*Craterocephalus stercusmuscarum fulvus*)
- Pacific blue-eye (*Pseudomugil signifer*)
- empire gudgeon (*Hypseleotris compressa*)
- Purple-spotted gudgeon (*Mogurnda adspersa*), and
- Australian smelt (*Retropinna semoni*).

Of these, the crimson-spotted rainbowfish, firetail gudgeon and Pacific blue-eye are considered to be the most effective species for the biological control of mosquito larvae (Hurst et al. 2005), and have been bred by some local councils in south east Queensland for distribution to residents stocking waterbodies on their properties (Moffat et al. 2005). These species can be also be sourced from local licenced fish hatcheries (Queensland Government 2017). These species are considered to be relatively hardy, however, water quality of the dam should be analysed before introducing fish and implementing adjustments to improve water quality if needed to ensure the survival and success of fish.

4.2.5 Incorporation of Open Space Buffer

The mapped palustrine wetland on the site was cleared several years ago for horticulture and will remained following the development (Comiskey Group pers. comm.). An open space buffer zone (25 m or more) occurs along the northern boundary of the development, between the campsites and the mapped lacustrine wetland on the site (refer to Section 3.2.2). This buffer zone, along with the buffer zone along the eastern boundary of the site (described in Section 4.1.1) will also limit freshwater mosquitoes from palustrine wetlands mapped on adjacent properties to the north and east.

The adjacent property to the west of the site is cleared mainly for horticulture, with several large deep dams (Comiskey Group pers. comm.). There are no mapped wetlands in this area, with the closest mapped wetland 200 m or more to the west of the proposed development site (refer to Figure 2.5), and as such it is not considered ideal biting insect breeding habitat. The winds in the region (predominant winds are from the north and between the east and south), also do not support the dispersal of mosquitoes from the west onto the site. Given this, no buffer zone is proposed along the western boundary of the site.

4.2.6 Stormwater Infrastructure

The following design measures will be included in the stormwater infrastructure, in order to minimise the extent of mosquito breeding:

- drains will be designed so that silt does not accumulate, and water does not pond in the drain
- erosion and excessive nutrient runoff will be controlled, where possible e.g. using appropriate slope batters and planting vegetation suitable to stabilise the slopes

- infrastructure will avoid stagnant, isolated pools of water, which would provide mosquito breeding habitat that cannot be accessed by native predators of mosquito larvae e.g. any detention basins should be designed to drain with a few days of filling and include a provision for ongoing maintenance, and
- swales and overland flow paths will be designed such that they do not have depressions that hold water after flows.

There will be bio-retention swales near the south-west, south and eastern boundaries of the site. These will be designed to free drain and will not hold water for multiple days (Comiskey Group pers. comm.), thus limiting biting insect breeding.

4.2.7 Rainwater Tanks

Any rainwater tanks on site will be designed in accordance with the Queensland *Public Health Regulation 2005*, which requires any openings to be fitted with:

- mosquito-proof screens that must:
    - be made of brass, copper, aluminium or stainless steel gauze
    - have a mesh size of 1 mm or less
    - be installed in a way that does not cause or accelerate corrosion, and
    - stops mosquitoes passing through the openings, and / or
- flap valves, including overflows, in a way that stops mosquitoes passing through the openings when closed.

Unless in use and where possible, all access points will be kept shut with close fitting lids that will prevent mosquito access, with the exception of inlets and overflows, which will be covered with closely fitting removable insect-proof screens. In addition, rainwater tanks will not be allowed to pool in containers or on surfaces below tank outlets or taps, where possible, as this can also provide a breeding site. Rainwater tanks will be regularly (e.g. every six months) inspected for holes or defects, which will be repaired as soon as practical if found.

4.2.8 Swimming Pool

The swimming pool will be:

- regularly maintained
- regularly treated with chemicals (e.g. chorine) to a level that ensures water quality is suitable for recreational swimming, and
- operated with a filtration system and frequently cleaned.

Mosquitoes are unable to breed in deep, chlorinated water.

4.2.9 Amenities and Wastewater Treatment System

The amenities and wastewater treatment system will be designed to avoid mosquito breeding, including:

- covering or screening any access points to wastewater and regularly (e.g. every 6 months) inspect the system for damaged that allows mosquito access
- using vertical concrete margins for infrastructure, where possible, and
- avoiding areas of shallow (<50 cm) water that pools for more than a few days.

4.2.10 Effluent Irrigation Area

The irrigation area on site for the effluent wastewater treatment is designed to run at a rate of 2-4 mm/day and water will infiltrate the vegetation, with no standing pools or runoff of water expected (Comiskey Group pers. comm.). This will avoid the creation of standing water for freshwater mosquitoes to breed.

4.2.11 Campsite Areas

The site (including but not limited to landscaped, camp kitchen, campsite, waste storage and collection, and amenity areas) will be regularly (e.g. monthly during the breeding season of December to April) inspected for containers, clogged gutters or other areas (e.g. surface depressions) that hold water. These areas will be maintained to minimise pooling water that persists for more than 14 days (which is the typical breeding cycle for most mosquitoes).

4.3 General Measures

4.3.1 Landscaping

The creation of mosquito resting and dispersal habitat throughout the development will be minimised by avoiding (where possible) continuous belts of vegetation with dense foliage within the development, and only planting trees and shrubs with light foliage that do not require substantial watering (Queensland Health 2002). Landscaped areas will be designed with adequate drainage to avoid areas of pooled water, where possible. Grassed lawns will be regularly closely mown.

Watering and mulching of planted trees would most likely be required to ensure successful survive of newly planted vegetation and horticultural areas. The creation of mosquito or midge breeding habitat will be avoided by managing watering and / or irrigation in such a way that saturation of the area and the formation of pools that could enable breeding is avoided.

4.3.2 Lighting

Light emitting diode (LED) light bulbs will be used throughout the Eco Park, where possible. Where the bulbs chosen to produce a ‘warmer’ white (i.e. produce a more yellow colour) rather than a ‘cool’ white (i.e. a more blue colour), the attractiveness to mosquitoes will be minimised.

Lights will also be angled away from breeding habitats, if possible, especially in places within the site where large floodlights may occur, such as the tennis courts, multipurpose courts and playgrounds to avoid attracting mosquitoes.

4.3.3 Building Design and Maintenance

Insect screens will be incorporated into the design of all permanent buildings, including being fitted to windows and doors. Screens will be sprayed with chemical insect treatment, where necessary (treatment restrictions described for Fish Habitat Areas (FHAs) in Section 4.4.2 strictly apply).

Inside buildings, the use of fans or air conditioners to increase air movement may also limit mosquito and biting midges (e.g. midge activity is generally reduced in wind speeds >6 to >8 km/hour.).

4.3.4 External Surfaces

External surfaces which could act as general resting areas for biting insects such as building walls, pool fences, garden vegetation, tennis court fences, amenities building walls, may be treated with insecticide via backpack spraying, where appropriate and necessary (treatment restrictions described for FHAs in Section 4.4.2 strictly apply). However, the effectiveness is reliant upon an insect landing directly upon the treated surface. Insecticides will be avoided inside or in high use areas (such the playground) as chemicals may be a concern for some guests. Application will be in accordance with the manufacturer instructions and the Safety Data Sheet (SDS).

4.3.5 Education of Residents and Visitors

Residents and visitors will be informed of the risks of mosquitoes and midges in the areas and personal preventative measure will be encouraged, particularly during the peak breeding seasons (September to April). This will be achieved by measures such as educational signage and / or inclusion of information in correspondence to grounds keepers. Grounds keepers and / or visitors will be advised of the benefits of:

- maintaining gardens, campsites, camp kitchens, amentities and other areas to avoid areas of pooled water
- use of screens on doors and windows, and use of fans or air conditioners while inside (including screens, fans and / or airconditioners in tents and caravans)
- limiting time outdoors at dawn and dusk where possible, and
- if outdoors during mosquito biting times (especially at dawn and dusk), wearing long clothes and / or using personal repellents, as required.

4.4 Response to Complaints

The design and management measures outlined above are aimed at reducing the interaction between biting insects and humans to an acceptable level. However, there may be times when, despite these measures, biting insect numbers on the site reach nuisance levels and trigger complaints from guests of the Eco Park (e.g. during extreme climatic conditions that favour mosquito breeding such as prolonged rainfall). In these situations, it is recommended that further mosquito management be applied in accordance with the Mosquito Management Code of Practice (LGAQ 2014). Residents and visitors with complaints about biting insects will be encouraged to lodge the details in writing the site manager and any other appropriate

on-site contact (e.g. groundskeeper). Where excessive complaints are received, the site manager will liaise with the nominated licenced pest control technician (groundskeeper where possible, or contractor), to determine whether changes need to be made. This may require implementation of a trapping program (described below) to determine the likely source of the adult mosquitoes.

4.4.1 Monitoring Program

Should excessive complaints be received from visitors, it is recommended that a trapping program be implemented on the site to investigate the likely source of adult mosquitoes, in order to target additional control measures to the appropriate breeding habitat. The trapping program should be designed in accordance with the Queensland Health (2002) guidelines; briefly, the trapping program will:

- be undertaken over several occasions to provide representative collections and include sampling undertaken between October and April when biting insect populations are likely to be more abundant
- record environmental conditions such as daily maximum and minimum temperatures, rainfall and tide events (relevant for saltmarsh mosquito breeding) to assist interpretation of data
- include at least six monitoring sites located in areas where residents and / or guests are most likely to be affected
- use specially-designed light traps with carbon dioxide as an attractant (in the form of dry ice)
- involve overnight trap deployment for at least 8 hours, and
- report on the methods of sampling used (locations, collection methods, including specific number, type and locations of mosquito and biting insect traps) and results of the monitoring program, including appropriate management measures to reduce nuisance populations.

The species present in each of the traps will be identified, and this information will be used to determine the likely breeding or dispersal habitats that require further management. Treatment will be triggered where more than 100 adult mosquitoes are recorded from two or more light traps around the site (Queensland Health 2011a; refer to Section 4.4.2).

4.4.2 Treatment

Where excessive complaints are received and / or trapping data suggests that the source of nuisance mosquitoes on the site is the adjacent saltmarsh breeding areas to the east and/or the freshwater dams and wetlands on the site, these areas on the site could be treated with strict adherence to the guidelines for FHAs outlined below. A nominated licenced pest control technician (groundskeeper where possible, or contractor) will be responsible for planning and implementing ongoing treatment to areas within the site boundary. Application will be in accordance with the manufacturer instructions and the SDS.

The following restrictions apply for using pesticides in FHA (DES 2015):

- Only insecticides registered for the control of mosquitoes by the Australian Pesticides and Veterinary Medicines Authority (APVMA) may be used.
- Insecticides must be used in accordance with the specifications of the manufacturer and must only be applied by an authorised person.
- Broad scale aerial distribution of insecticide is not allowed within a declared FHA, although aerial distribution of the biological control agent with *Bti* may occur in accordance with the manufacturer's instructions.
- Aerial distribution of an insecticide (e.g. s-methoprene) should only be considered when there is a public health risk or an emergency situation.
- Backpack spraying from all-terrain vehicles and fogging is allowed.
- Application to water is not allowed.
- Pesticides may only be used subject to an integrated management plan having been prepared and approved by local government.

Given the close proximity to FHA, these measures will be followed at all times.

5 Conclusions

The proposed Coochin Creek Eco Park site is adjacent to estuarine wetlands, including areas of mangrove and saltmarsh, which are known breeding habitats for saltwater midge and mosquito species, including significant pest species in south east Queensland. This proposed site also contains and is adjacent to freshwater wetlands and dams that provide potential breeding habitat for a range of freshwater mosquito species.

The SCRC has a mosquito control program in place, targeting breeding areas in adjacent saltmarsh habitat. A number of design and management measures have also been incorporated into the proposed Eco Park to minimise the impact of mosquitoes from both saltmarsh and freshwater breeding habitats on visitors and groundskeepers, and the amenity of the development. In accordance with the principles of social, ecological and economic sustainability, these measures focus on best-practice design and management to minimise biting insect breeding.

Where these measures are still insufficient to control mosquito numbers (for example during extreme climatic events such as prolonged rainfall), monitoring of mosquito numbers and subsequent treatment of mosquitoes may be required in accordance with the Mosquito Management Code of Practice (LGAQ 2014). Any treatment must be done by a licenced pest control technicial and in accordance with the relevant restrictions relating to the sensitivity of the adjacent FHA.

It is considered that implementation of the above design and management measures will reasonably reduce the risk of mosquitoes to guests and the amenity of the Eco Park, in the context of the Sunshine Coast's sub-tropical character.

6 References

BCC 2021, Mosquitoes, Brisbane City Council Mosquito and Pest Services, https://www.brisbane.qld.gov.au/clean-and-green/natural-environment-and-water/biodiversity-in-brisbane/wildlife-in-brisbane/invasive-plants-and-animals/mosquitoes, accessed August 2021.

BMT 2021, *Flood assessment: 1807 Roys Road, Coochin Creek*. Report prepared for Comiskey Group, September 2021.

Carpenter, S., Groschup, M., Garros, C., Felippe-Bauer, M. and Purse, B. 2013, '*Culicoides* biting midges, arboviruses and public health in Europe', *Journal of Antiviral Research*, 102–113.

DAF 2017, *Accepted Development requirements for operational work that is the removal, destruction of damage of marine plants*. Department of Agriculture and Fisheries, July 2017.

DAF 2020, *Accepted development requirements for operational work that is completely or partly within a declared fish habitat area*. Department of Agriculture and Fisheries, September 2020.

DAF 2021, *Mosquito Management in Tidal Wetlands*, https://www.daf.qld.gov.au/__data/assets/pdf_file/0015/54222/mosquito-management-factsheet-web.pdf, accessed August 2021.

DES 2015, *Fish Habitat Area Code of Practice: The lawful use of physical, pesticide and biological controls in a declared Fish Habitat Area*. Department of Environment and Science. Version QPW/2015/1243 v 2.02.

Harley, D., Bossingham, D., Purdie, D.M., Pandeya, N. & Sleigh, A.C. 2002, 'Ross River virus disease in tropical Queensland: evolution of rheumatic manifestations in an inception cohort followed for six months', *Medical Journal of Australia*, 177: 352–355.

Hurst, T., Ryan, P., Brown, M. & Kay, B.H. 2005, 'Fishing for a mosquito control agent', *Arbovirus Research in Australia*, 9: 143–147.

LGAQ 2014, *Mosquito Management Code of Practice*, The Local Government Association of Queensland.

McGinn 2013, *Noosa on Weyba Biting Insect Investigation and Risk Management Report*, report prepared for Northbrook Corporation Pty Ltd.

Mellor, P., Boorman, J., Baylis, M., 2000. '*Culicoides* biting midges: their role as arbovirus vectors', *Annual review of Entomology*, 45: 307–340.

Moffat, R., Cliff, L., Thomas, D., Breitfuss, M. & Hurst, T. 2005, 'A local government perspective: benefits of native fish for mosquito control and public relations opportunities', *Arbovirus Research in Australia*, 9: 252–254.

Queensland Government 2017, *Mosquito Control in Private Dams*, https://www.qld.gov.au/recreation/activities/boating-fishing/rec-fishing/dams/mosquito-control, accessed August 2021.

Queensland Health 2002, *Guidelines to Minimise Mosquito and Biting Midge Problems in New Development Areas*, Queensland Health.

Queensland Health 2010, *Queensland Joint Strategic Framework for Mosquito Management: 2010 – 2015*, Queensland Health.

Queensland Health 2011a, *Guidelines for Controlling Public Health Risks Relating to Mosquitoes, Flies and Black Flies in a Flood Event*, Queensland Health.

Queensland Health 2011b, *Preventing Mosquito Breeding*, https://www1.health.gov.au/internet/publications/publishing.nsf/Content/ohp-enhealth-raintank-cnt-l~ohp-enhealth-raintank-cnt-l-5~ohp-enhealth-raintank-cnt-l-5.5, accessed August 2021.

Queensland Health 2017a, *Ross River Virus, Version 2*, http://conditions.health.qld.gov.au/HealthConditions/2/Infections-Parasites/41/Viral-Infections/743/Ross-River-Virus, accessed August 2021.

Queensland Health 2017b, *Barmah Forest Virus, Version 1*, http://conditions.health.qld.gov.au/HealthConditions/2/Infections-Parasites/41/Viral-Infections/48/Barmah-Forest-Virus, accessed August 2021.

Queensland Health 2018*, Mosquito Borne Diseases in Queensland: 1 July 2012 – 30 June 2017*, Communicable Diseases Branch of Queensland Health.

Queensland Health 2020, *Notifiable mosquito borne diseases in Queensland*, https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/diseases/mosquito-borne/other, accessed August 2021.

Queensland Health 2022, *Notifiable Conditions Annual Reporting*, https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/surveillance/reports/notifiable/annual, accessed September 2021.

Russell, R. C. 1996, *A Colour Photo Atlas of Mosquitoes of Southeastern Australia*, modified and presented at http://medent.usyd.edu.au/arbovirus/mosquit/othermosq.htm, accessed September 2021.

Ryan, P.A., Lyons, S.A., Alsemgeest, D., Thomas, P. & Kay, B.H. 2004, 'Spatial statistical analysis of adult mosquito (Diptera: Culicidae) counts: an example using light trap data in Redland Shire, Southeastern Queensland, Australia', *Journal of Medical Entomology*, 41(6): 1143–1156.

Shivas, M. 2006, *Biting midge information sheet*, Brisbane City Council Medical Entomologist.

SCRC 2015, *Mosquito Management on the Sunshine Coast Factsheet*, Sunshine Coast Regional Council.

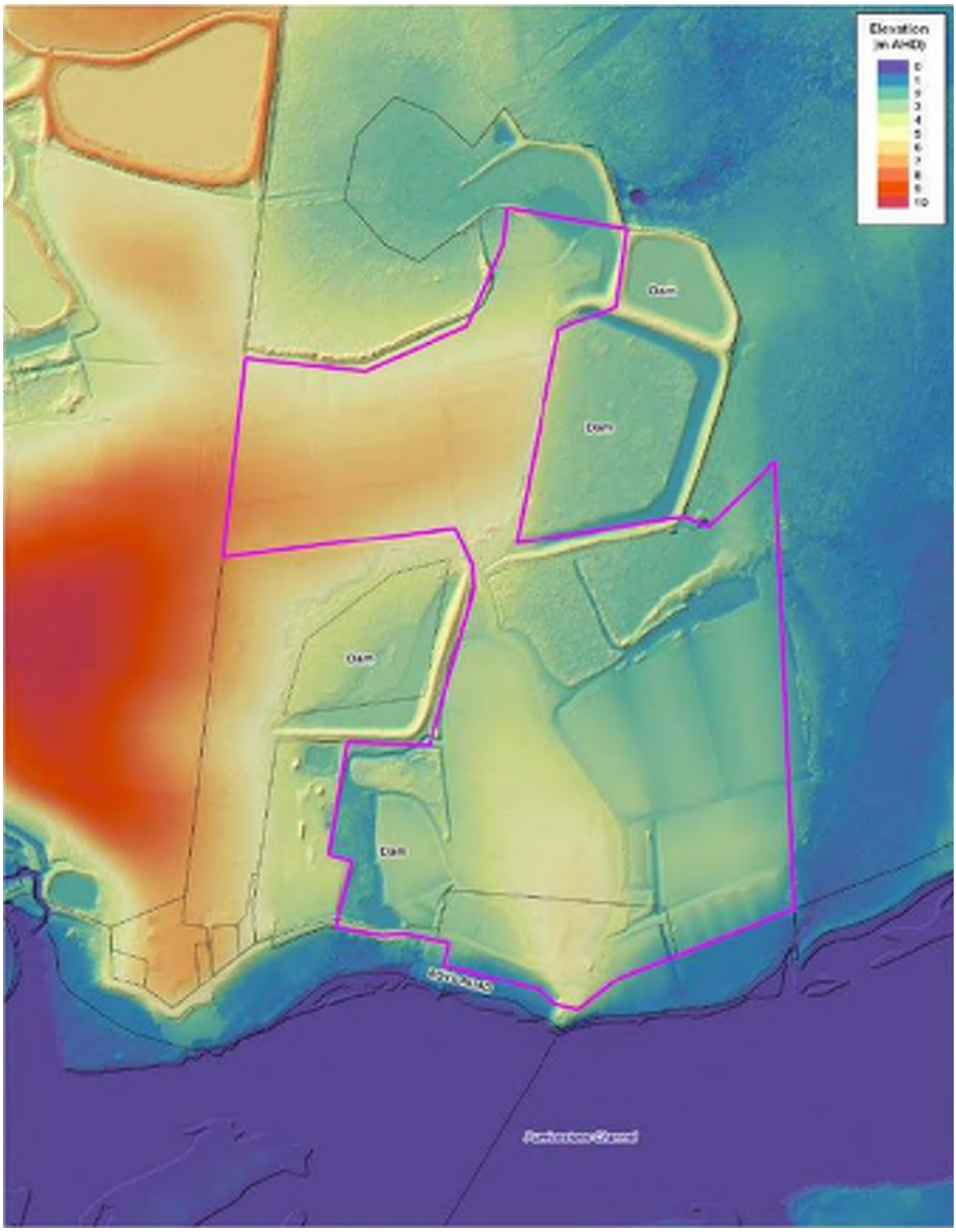
SCRC no date, Mosquitoes – Caloundra West, Bells Creek, Golden Beach and Pelican Waters Fact Sheet, Sunshine Coast Regional Council.

Whelan, P. 2011, *Personal Protection from Mosquitoes and Biting Midges in the NT*, Northern Territory Department of Health.

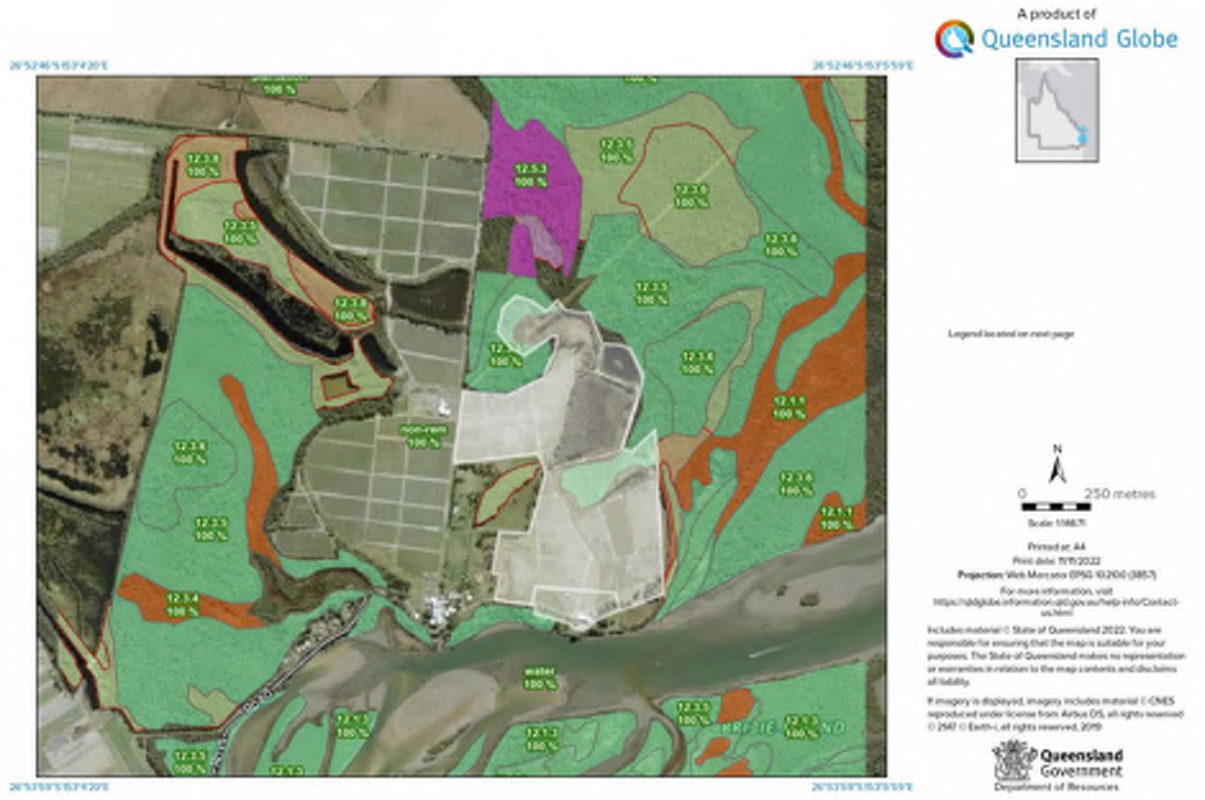
Whelan, P. 2004, *Problem Mosquito Species in the Top End of the NT: Pest and Vector Status and Breeding Sites*, 1997 with Minor Updates January 2004, Northern Territory Department of Health and Community Services.

Williams, C. & Kokkinn, M. 2008, *Mosquitoes at Buckland Park, South Australia: An analysis of mosquito communities, future nuisance and disease threats, potential management strategies, and the impacts of climate change*, Mosquito and Plant Research Group, University of South Australia, Adelaide.

Appendix A Site Topography (Source: BMT 2021)



Appendix B Regional Ecosystem Map



Legend

Lots.kmz - poly

Vegetation management regional ecosystem map labels

Category A or B area containing endangered

Category A or B area containing of concern

Category A or B area that is least concern

Category C or R area containing endangered

Category C or R area containing of concern

Category C or R area that is of least concern

Road Crossing

Bridge

Tunnel

Road

Highway

Main

Local

Private

Railway

Cities and Towns

Attribution

MBRC, Maxar

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Appendix B Swept Paths

Coochin Creek Eco Resort

Traffic Impact Assessment

Comiskey Management Services Pty Ltd

SLR Project No.: 620.30557.00101

2 September 2024

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

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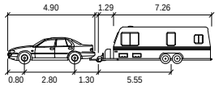
SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance



Car-Caravan

meters

Car Width	: 1.80
Trailer Width	: 2.30
Car Track	: 1.80
Trailer Track	: 2.30
Lock to Lock Time	: 6.0
Steering Angle	: 25.0
Articulating Angle	: 70.0

N

0.0 4 8 12 16
METERS

SCALE 1:400

Comiskey Management Services

Coochin Creek Eco Resort

Single Lane Crossing (5.7km)
SPA - Car + Trailer

FIGURE SK04

CONCEPT ONLY

30KM/HR ON APPROACH TO AND ON CROSSING.

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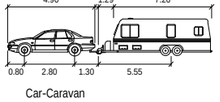
SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance



Car-Caravan

	meters
Car Width	: 1.80
Trailer Width	: 2.30
Car Track	: 1.80
Trailer Track	: 2.30
Lock to Lock Time	: 6.0
Steering Angle	: 25.0
Articulating Angle	: 70.0

N

0.0 4 8 12 16
METERS

SCALE 1:400

Comiskey Management Services

Coochin Creek Eco Resort

Single Lane Crossing (10.6km)
SPA - Car + Trailer (NB)

FIGURE SK05

CONCEPT ONLY

30KM/HR ON APPROACH TO AND ON CROSSING.

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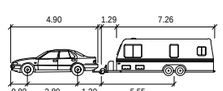
SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance



Car-Caravan

	meters
Car Width	: 1.80
Trailer Width	: 2.30
Car Track	: 1.80
Trailer Track	: 2.30
Lock to Lock Time	: 6.0
Steering Angle	: 25.0
Articulating Angle	: 70.0

N

0.0 4 8 12 16
METERS

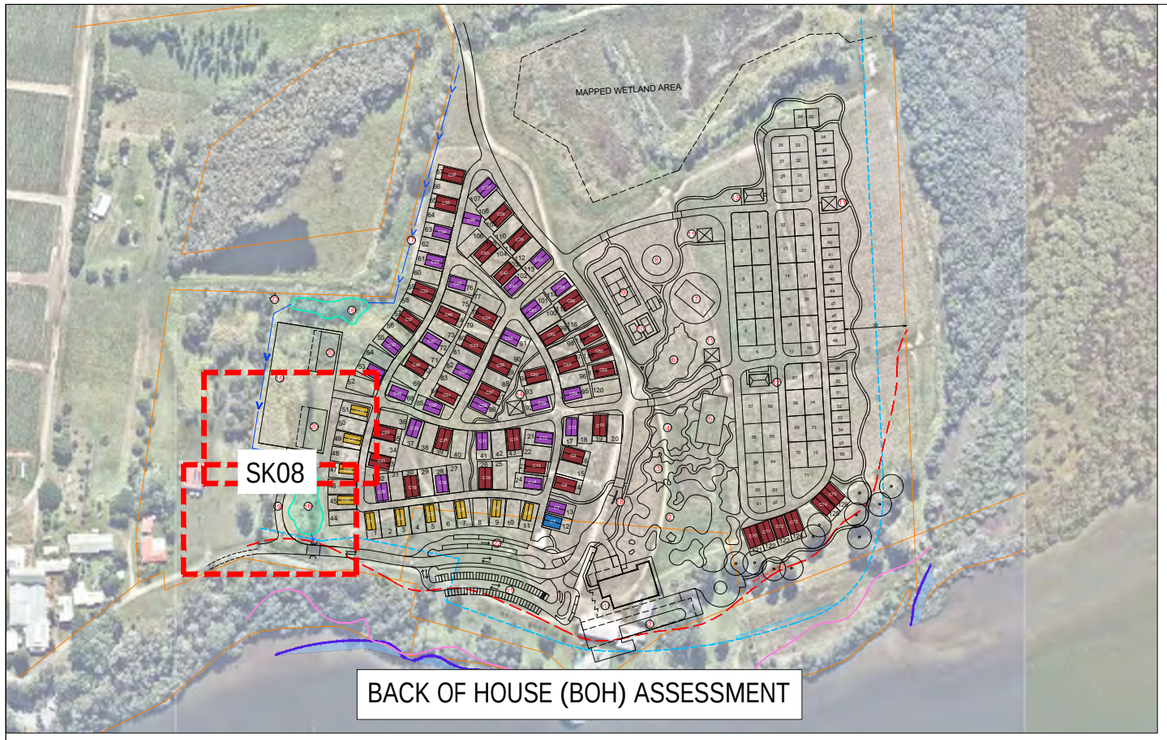
SCALE 1:400

Comiskey Management Services

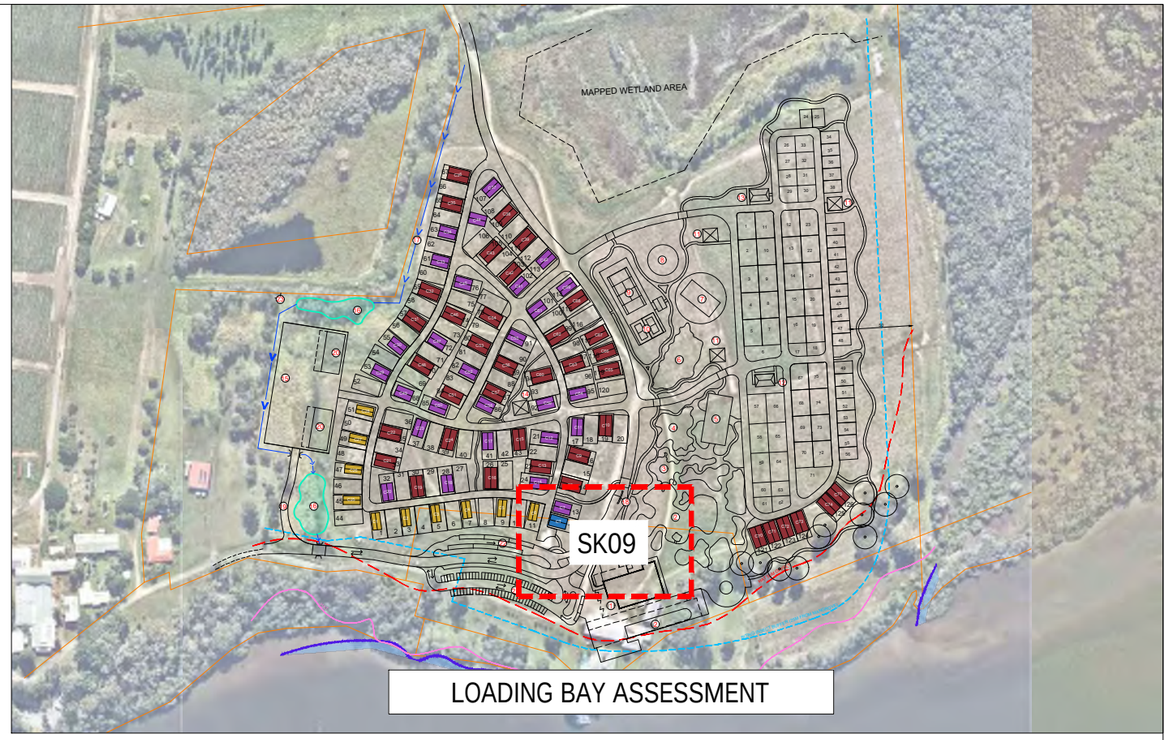
Coochin Creek Eco Resort

Single Lane Crossing (10.6km)
SPA - Car + Trailer (SB)

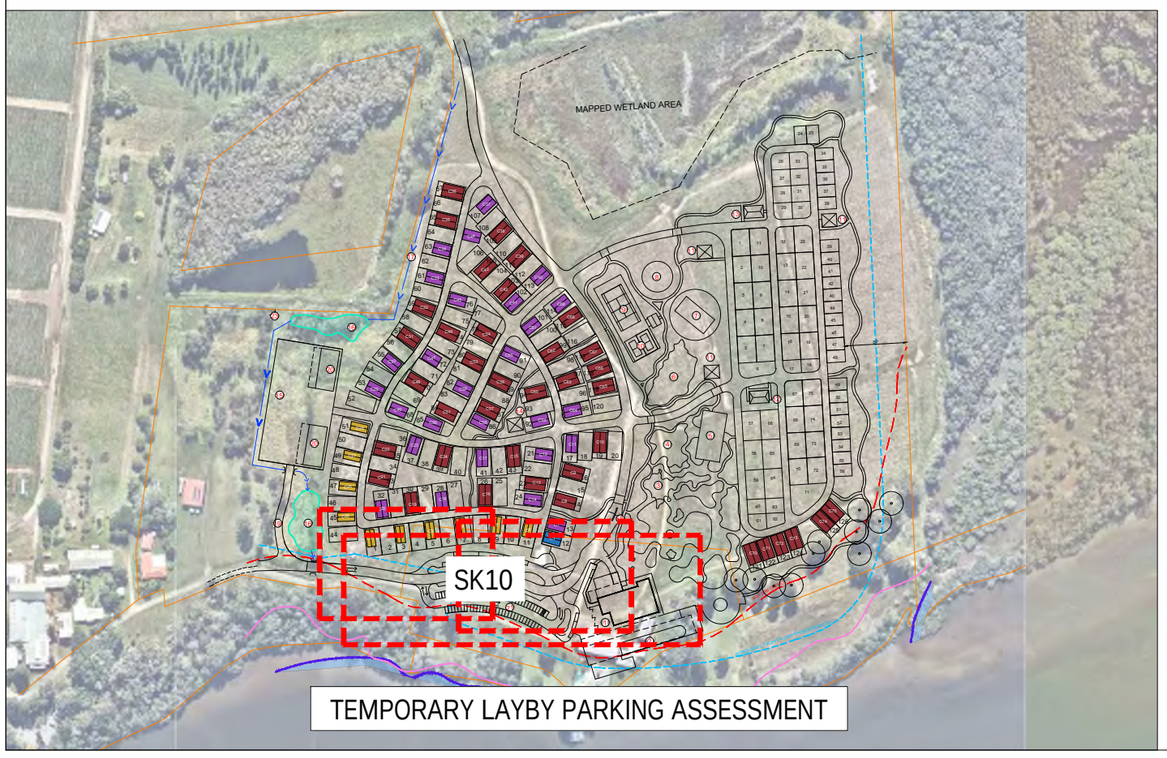
FIGURE SK06



BACK OF HOUSE (BOH) ASSESSMENT



LOADING BAY ASSESSMENT



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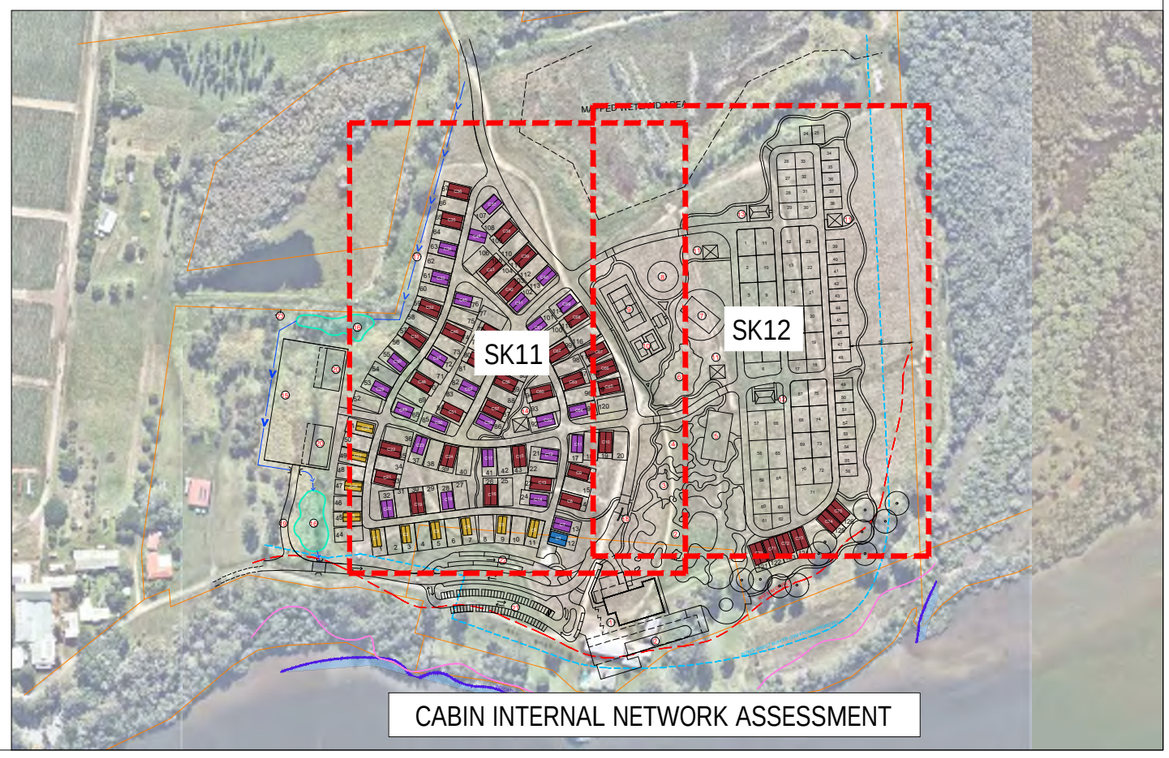

CABIN INTERNAL NETWORK ASSESSMENT

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N

0.0 50 100 150 200
METRES

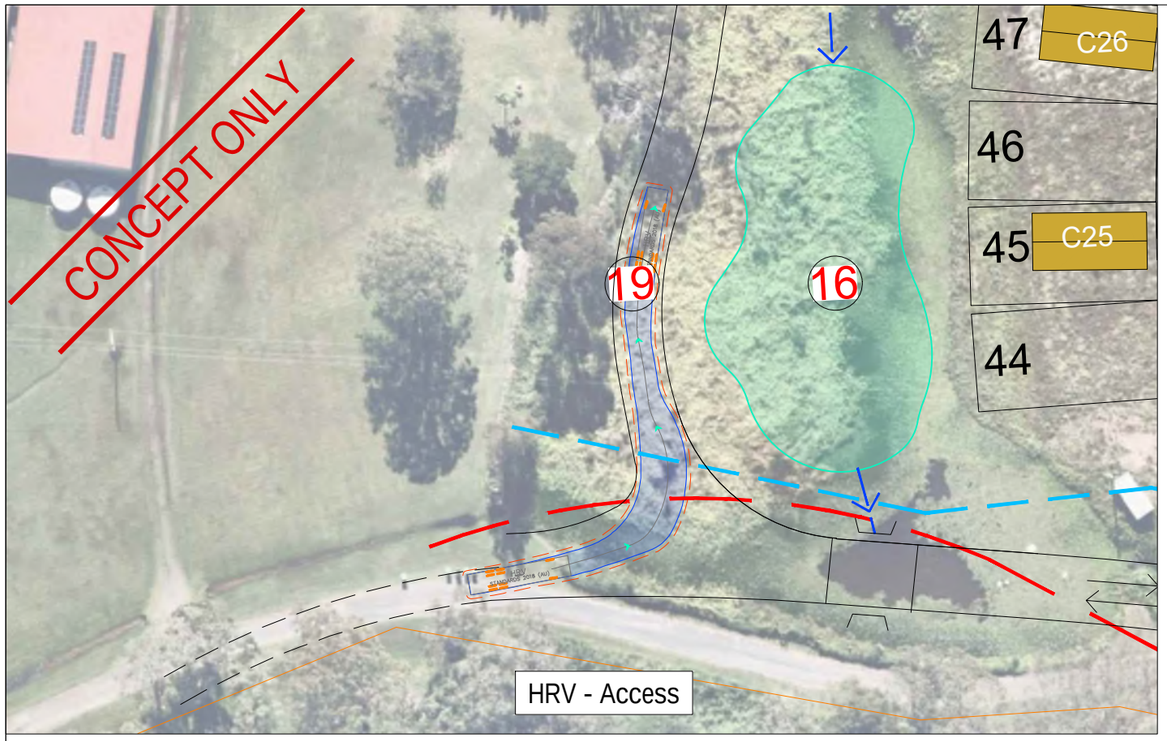
SCALE 1:5000

Comiskey Management Services

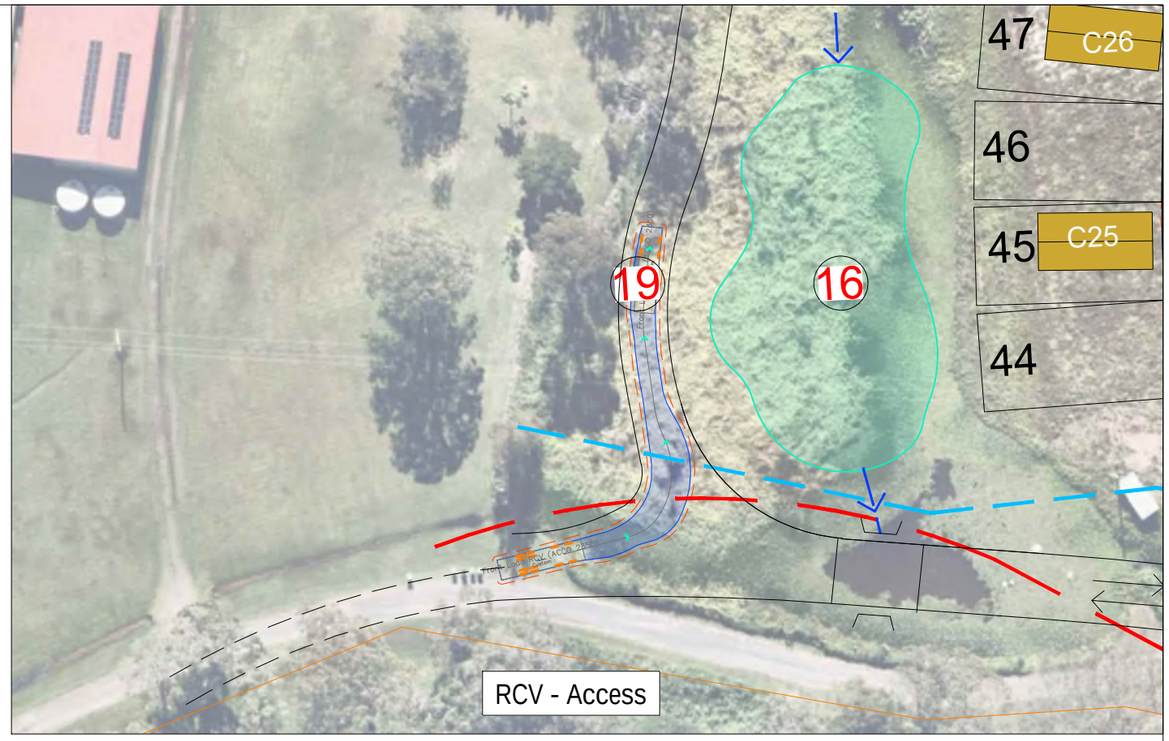
Coochin Creek Eco Resort

Swept Path Assessment Concept Layout

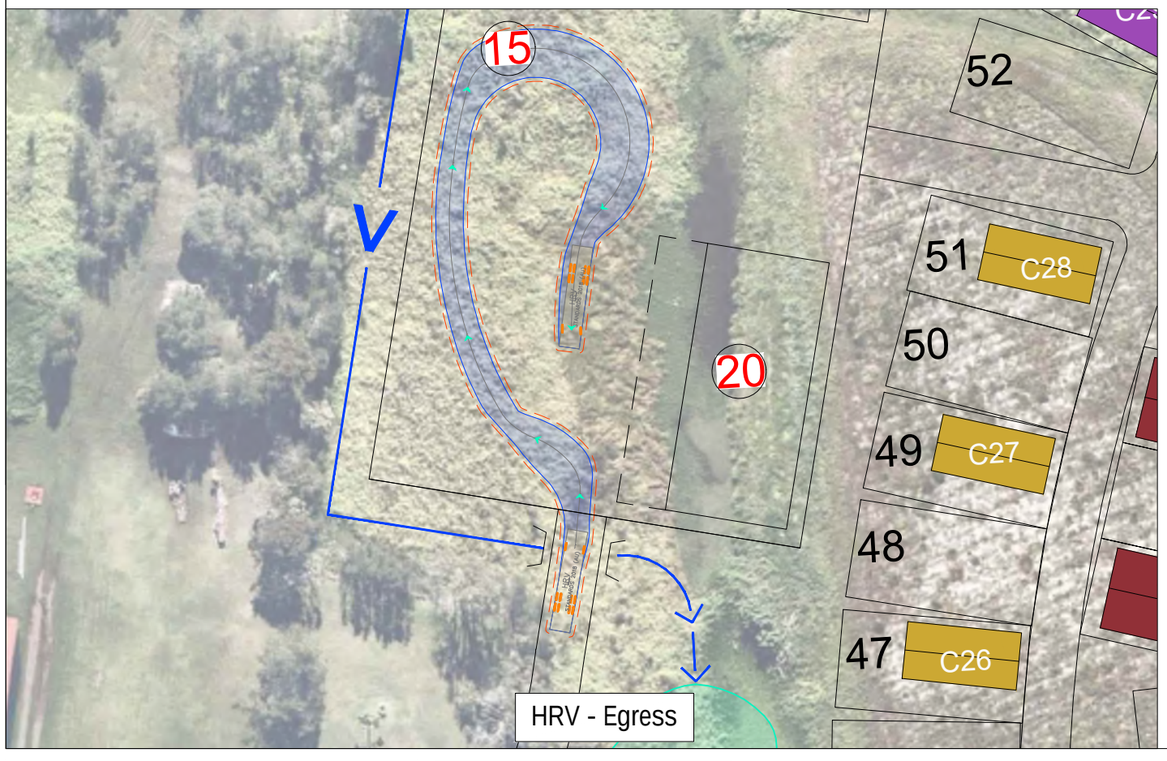
FIGURE SK07



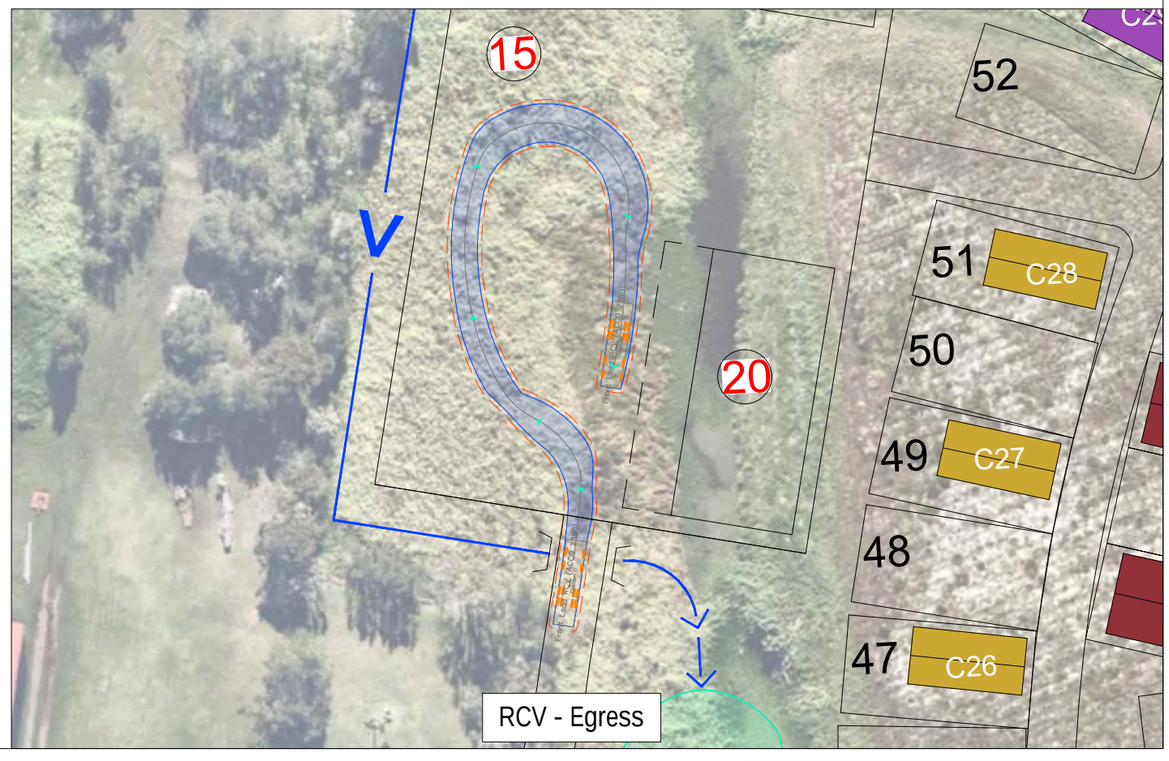
HRV - Access



RCV - Access



HRV - Egress



RCV - Egress

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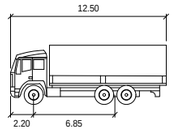
SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance



HRV

	meters
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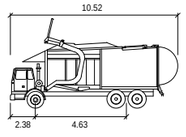
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.7



Front Load RCV (ACCO 2350)

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 28.0

N

0,0 7,5 15 22,5 30

METRES

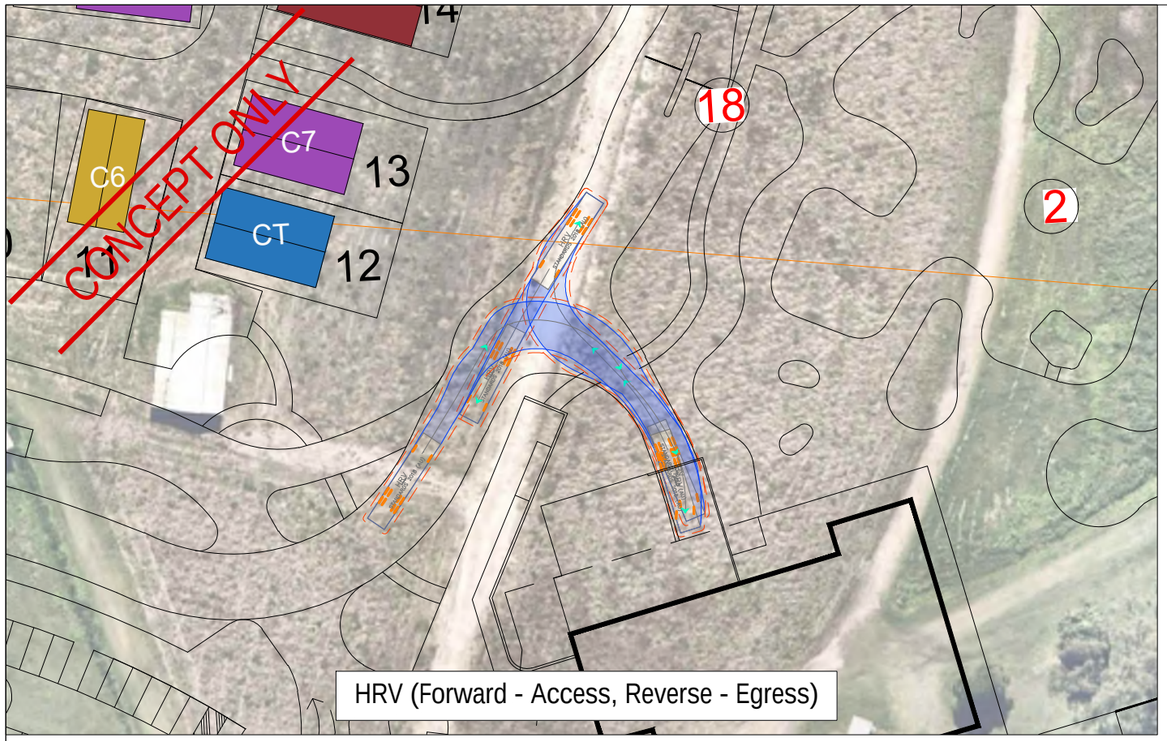
SCALE 1:750

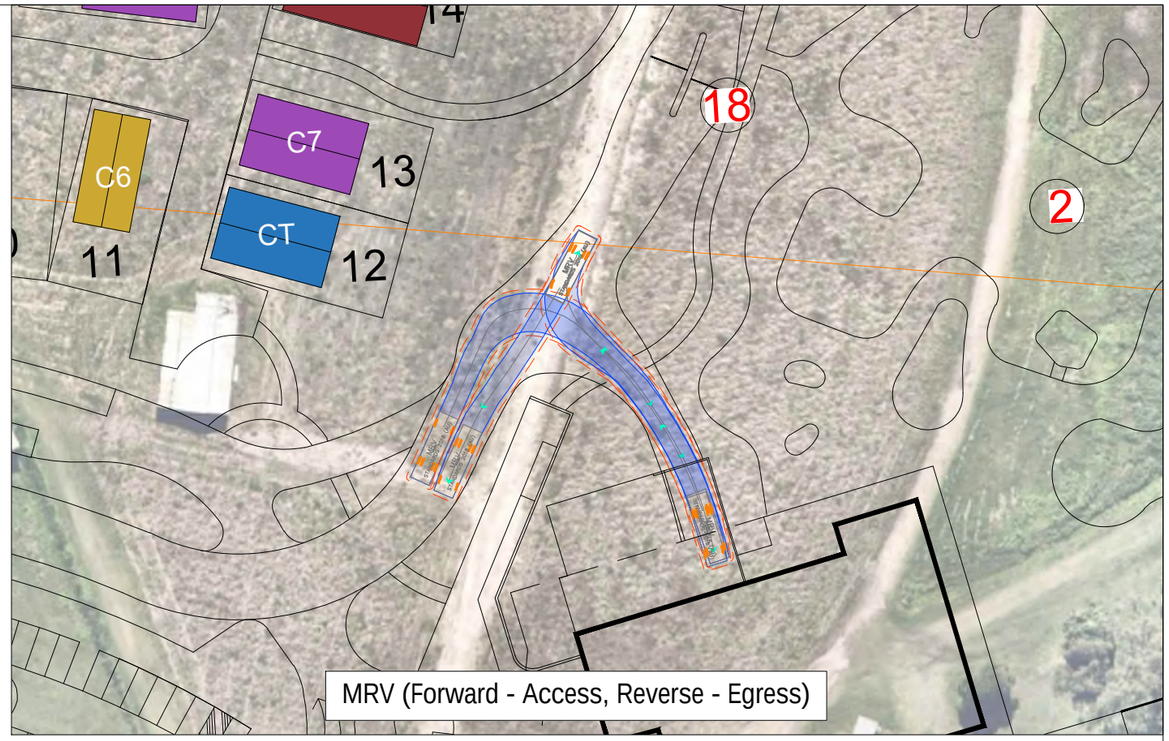
Comiskey Management Services

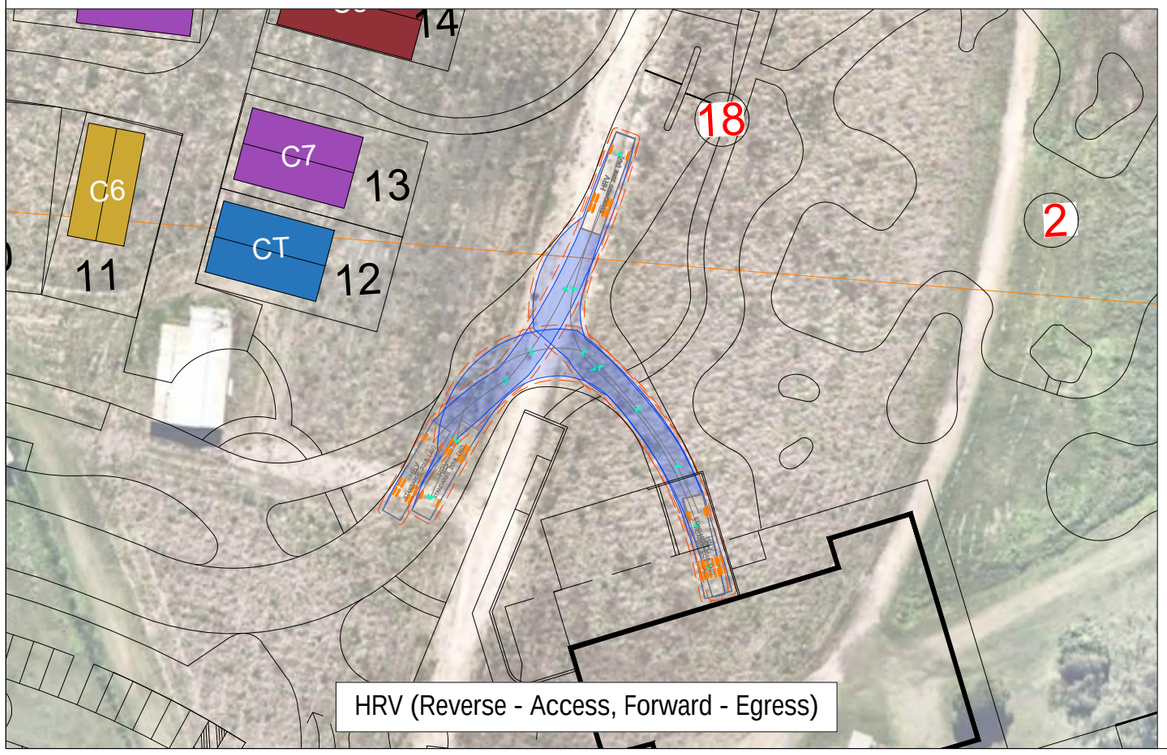
Coochin Creek Eco Resort

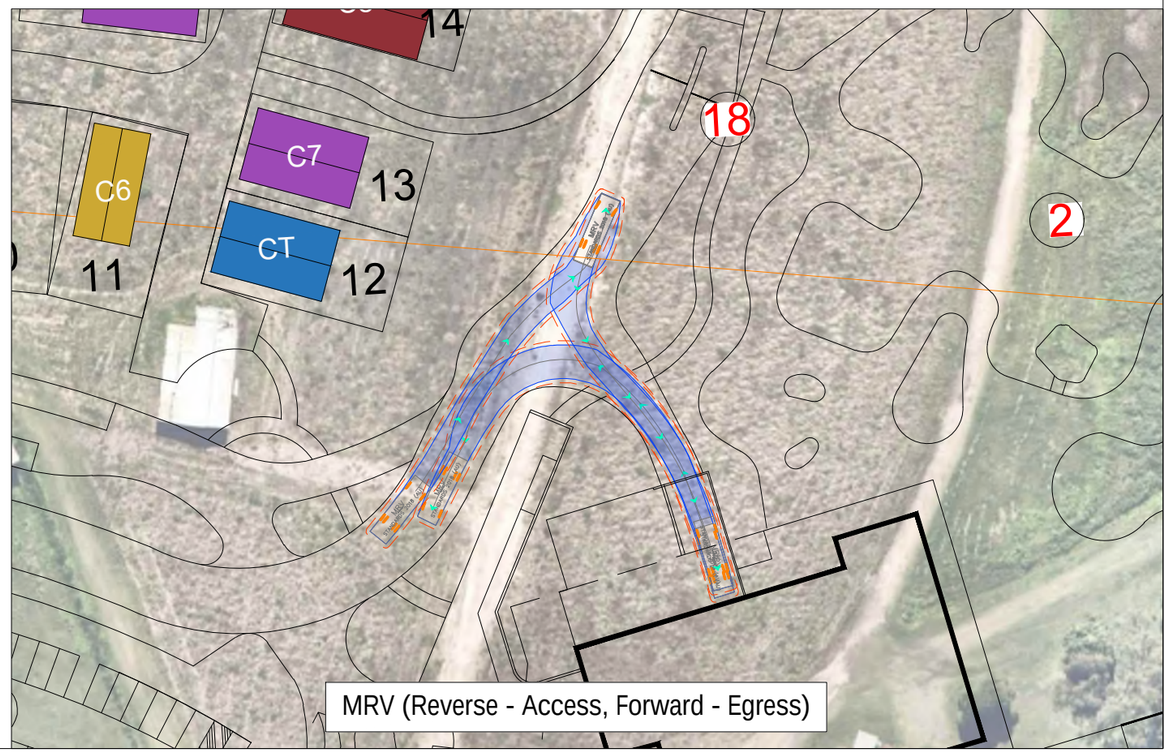
Swept Path Assessment Back of House (BOH)

FIGURE SK08









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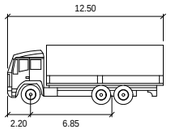
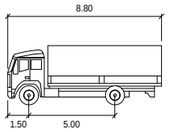
SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance



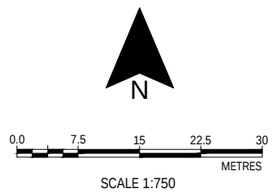
HRV

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.7



MRV

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 34.0



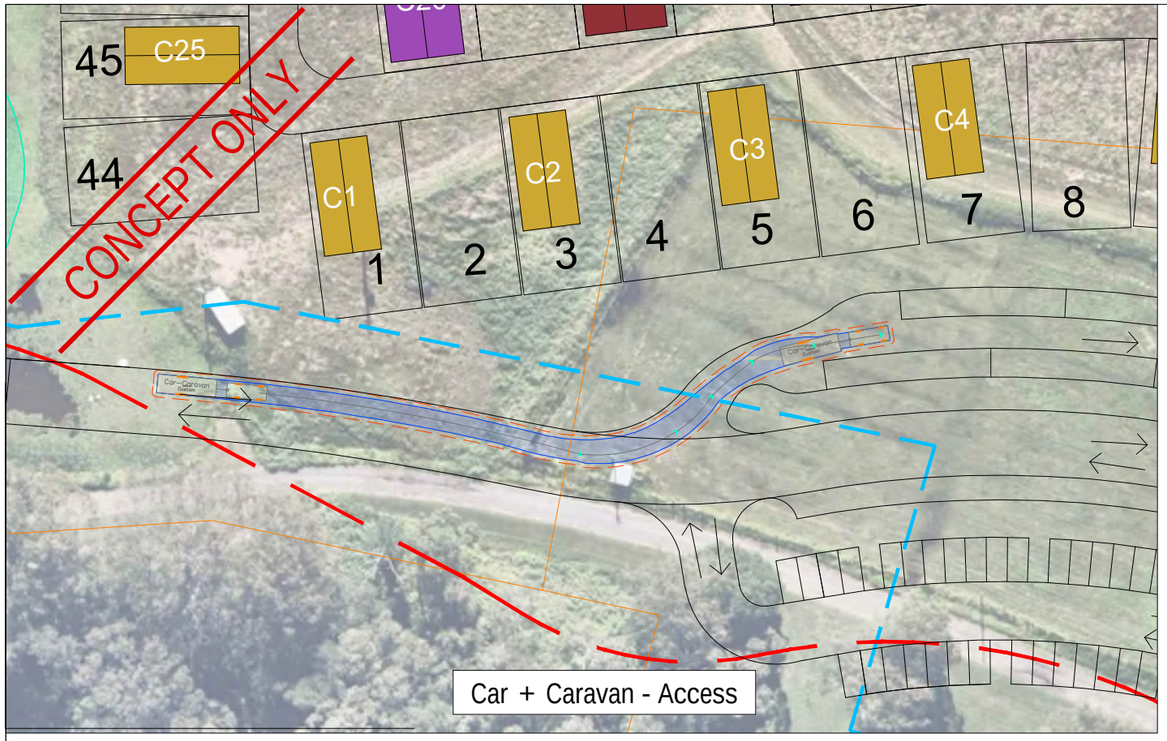
SCALE 1:750

Comiskey Management Services

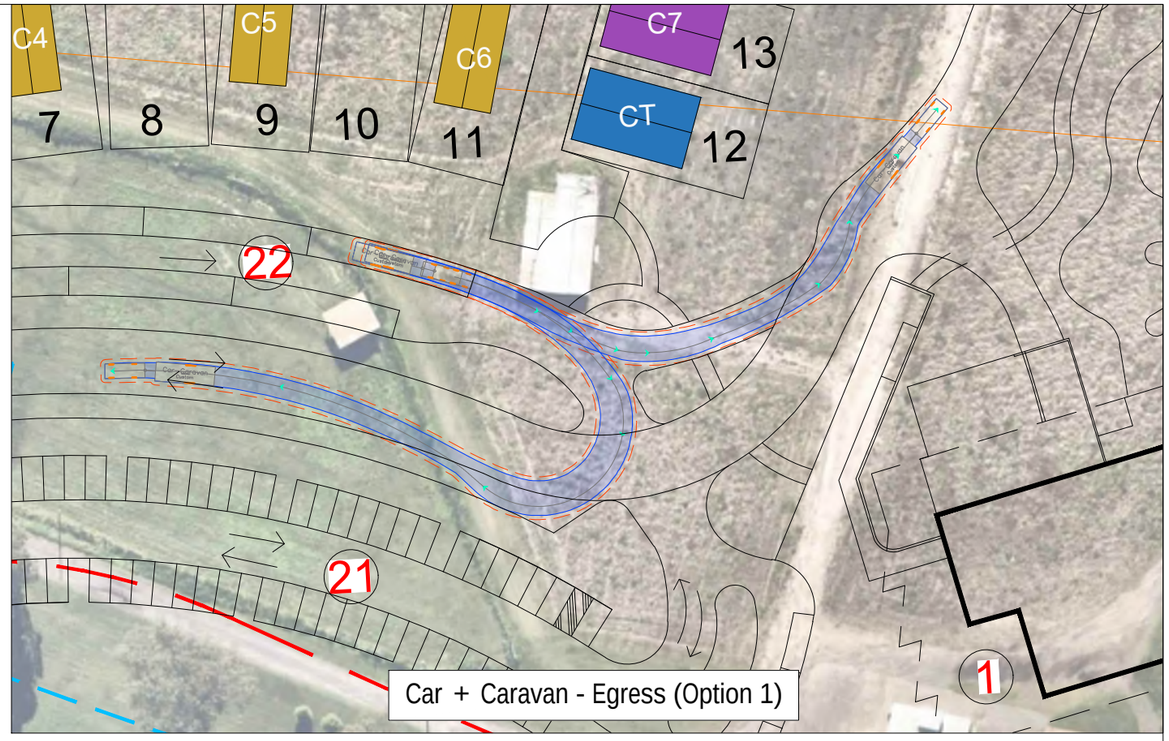
Coochin Creek Eco Resort

Swept Path Assessment Loading Bay

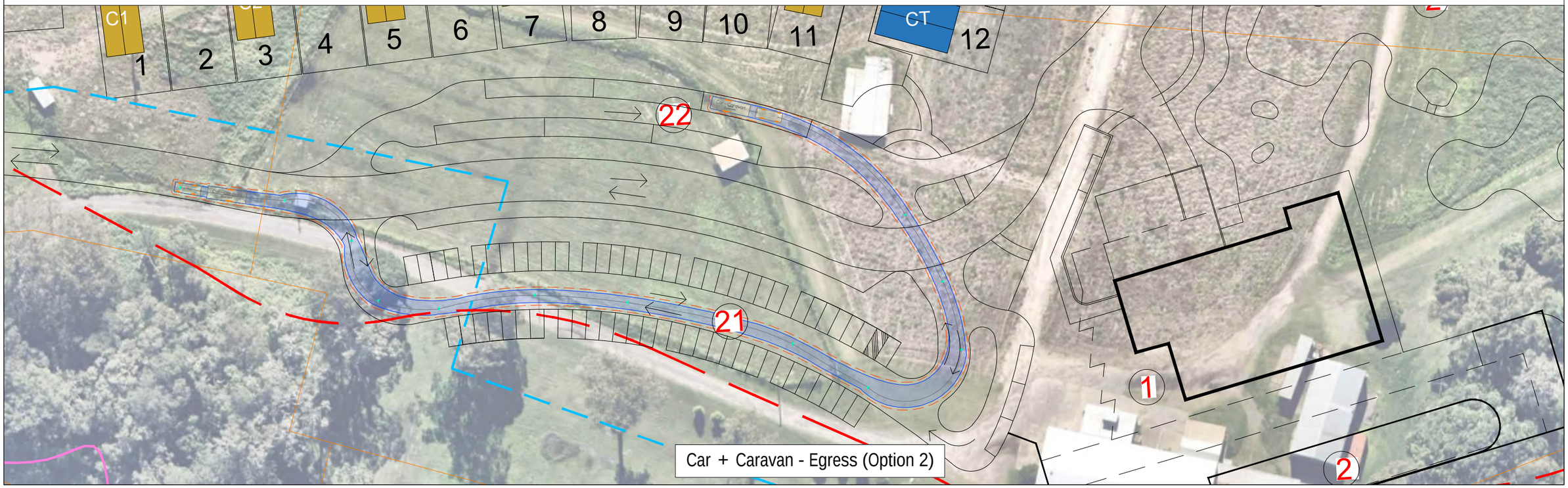
FIGURE SK09



Car + Caravan - Access



Car + Caravan - Egress (Option 1)



Car + Caravan - Egress (Option 2)

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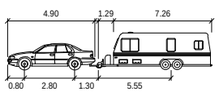
SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance



Car-Caravan

	meters
Car Width	: 1.80
Trailer Width	: 2.30
Car Track	: 1.80
Trailer Track	: 2.30
Lock to Lock Time	: 6.0
Steering Angle	: 25.0
Articulating Angle	: 70.0

N

0.0 7.5 15 22.5 30
METRES

SCALE 1:750

Comiskey Management Services

Coochin Creek Eco Resort

Swept Path Assessment
Temporary Layby Parking

FIGURE SK10

CONCEPT ONLY

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

www.slrconsulting.com

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Project No:	620.30557
Date:	01/08/24
Drawn by:	DN
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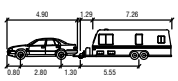
Sheet Size:	A3
Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance



Car-Caravan

	meters
Car Width	: 1.80
Trailer Width	: 2.30
Car Track	: 1.80
Trailer Track	: 2.30
Lock to Lock Time	: 6.0
Steering Angle	: 25.0
Articulating Angle	: 70.0

N

0.0 10 20 30 40

METRES

SCALE 1:1000

Comiskey Management Services

Coochin Creek Eco Resort

Swept Path Assessment
Cabin Internal Network

FIGURE SK11

CONCEPT ONLY

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

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Date:	01/08/24
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Scale:	AS SHOWN
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Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance

Car-Caravan

	meters
Car Width	: 1.80
Trailer Width	: 2.30
Car Track	: 1.80
Trailer Track	: 2.30
Lock to Lock Time	: 6.0
Steering Angle	: 25.0
Articulating Angle	: 70.0

N

0.0 10 20 30 40 METRES

SCALE 1:1000

Comiskey Management Services

Coochin Creek Eco Resort

Swept Path Assessment
Cabin Internal Network

FIGURE SK12

HOLLAND TRAFFIC CONSULTING PTY LTD
ABN 46 011 068 152

From our Red Hill office
Stuart Holland
Phone: 07 3369 4315
Fax: 07 3369 4316
Email: htc.stuart@bigpond.com
39 Edith Tce
Red Hill 4059

Also at Chelmer
Bob Holland
Phone: 07 3379 7016

Our Ref: 22S58.5.SAH

Date: 18 December 2023

Connor O'Meara
GPO Box 2239
Brisbane 4001

Attention Truc Ly

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

Coochin Creek – Proposed camping facility – Roys Road safety improvements – Minor update to advice of 11 May 2023

I refer to your request for the provision of traffic engineering advice in relation to recommendations for safety improvements to Roys Road at Coochin Creek sufficient to ameliorate impacts associated with traffic introduced to the road by the proposed camping ground facility proposed by Comiskey Management Services at the south-eastern end of the road.

This is an update to HTC advice of 11 May 2023, with the only change being in relation to works in relation to works at Location 10 at Appendix A (page 25 of this report), to lengthen the upgrading works at that location from 120m to 150m.

The road has a sign posted speed limit of 60km/h and is divided into two segments, with the northern section about 5.5km in length comprises a two-lane road with marked centre line, extending from the Bells Creek Road intersection in the north, to a single lane bridge in the southeast. The southern section comprises a sealed carriageway width of about 3.5m, whereby vehicles travel along that single lane width of seal in both directions, and when passing each other each vehicle moves off to the side of the sealed carriageway with the wheels on the right hand side of the vehicle remaining on the sealed carriageway, and the wheels on the left hand side of the vehicle moving onto the unsealed shoulder on each side of the road.

The safety issues along the road arise in the southern single lane carriageway section at horizontal curves in the road where sight distances between opposing vehicles are inadequate, such that drivers each travelling toward each other on the same section of sealed carriageway may be surprised and not react appropriately when a vehicle suddenly appears travelling directly toward then in the opposing direction.

The conceptual safety improvement works package recommended in Appendix A has concentrated on the southern section of road, which is the section of road on which safety risks are most apparent.

The existing road environment on the southern section of road does not invite travel above the posted speed limit of 60km/h, and a 60km/hr design speed has reasonably been adopted (except at the very south-eastern end of the road, where a reduced 50km/h speed limit is recommended for implementation).

The first two plans at Appendix A are from the previous SLR assessment, onto which I have added the critical locations in that southern section of the road in numbered red boxes.

The third plan at Appendix A is a plan from QLD Globe showing land tenure along each side of the southern section of road, to identify whether the adjacent land is national park, privately owned land, or state forest.

The remaining pages in Appendix A reference the numbered locations shown on those front two plans, and include an aerial photo of each location with the desired 150m sight line between opposing vehicles

(being 60km/hr stopping sight distance for each vehicle (75m) times 2) and my commentary regarding improvement works, as well as a screenshot from my dashcam footage for each location.

The last few plans in Appendix A show the full extent of the southeastern end of the road where there is residential frontage access onto the road, through to the boat ramp access. In that section, a 50km/hr speed limit is recommended for implementation, together with passing bays, some areas of under-storey vegetation clearing, and some pavement widening at tight bends.

For the road carriageway widening works recommended throughout Appendix A, the following specification is appropriate:

(i) Road widening works are to be sufficient to create a total 6m wide sealed pavement;

(ii) Lengths identified for road widening works are exclusive of tapers to existing sealed widths;

(iii) Pavements for widening works to be flexible pavements with gravel layers the same depths as the existing adjacent pavement plus 25mm AC seal;

(iv) No upgrade or altering to existing pavements;

(v) No resurfacing, upgrading or repair of existing road seal;

(vi) No gravel shoulders beyond the 6m wide sealed pavement

(vii) No kerb, sub-drains or crossover works; and

(viii) No stormwater drainage works other than extending any existing cross road culverts at widening locations

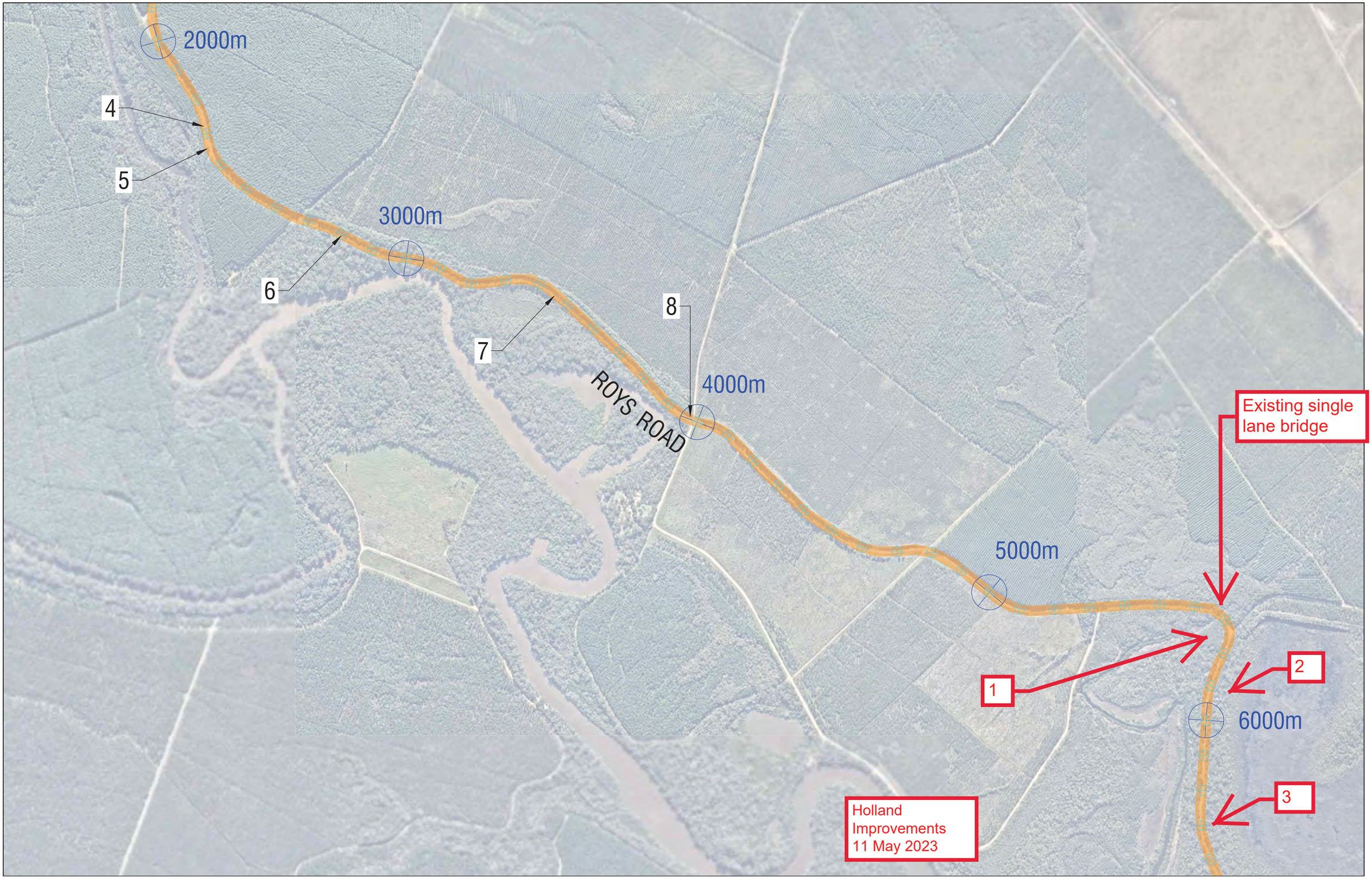
It is noted that a speed survey at the front of the first house at the western end of the proposed 50km/hr speed zone in February 2023 indicated an 85th percentile speed of 54km/hr. That location was selected as the location at which speeds within the proposed 50km/hr speed zone would be highest.

It is also noted that the scope of works in Appendix A are applicable to the current proposal for 100 camp sites, but would not change in my opinion if the number of camp sites were increased to 150.

Yours faithfully
HOLLAND TRAFFIC CONSULTING PTY LTD

S A HOLLAND
RPEQ 05611

APPENDIX A: CONCEPTUAL SAFETY IMPROVEMENT WORKS PACKAGE



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Projection:	-

LEGEND

- 1000m Chainage Marker
- 100m Chainage Marker
- # Road Safety Element Reference Number

N

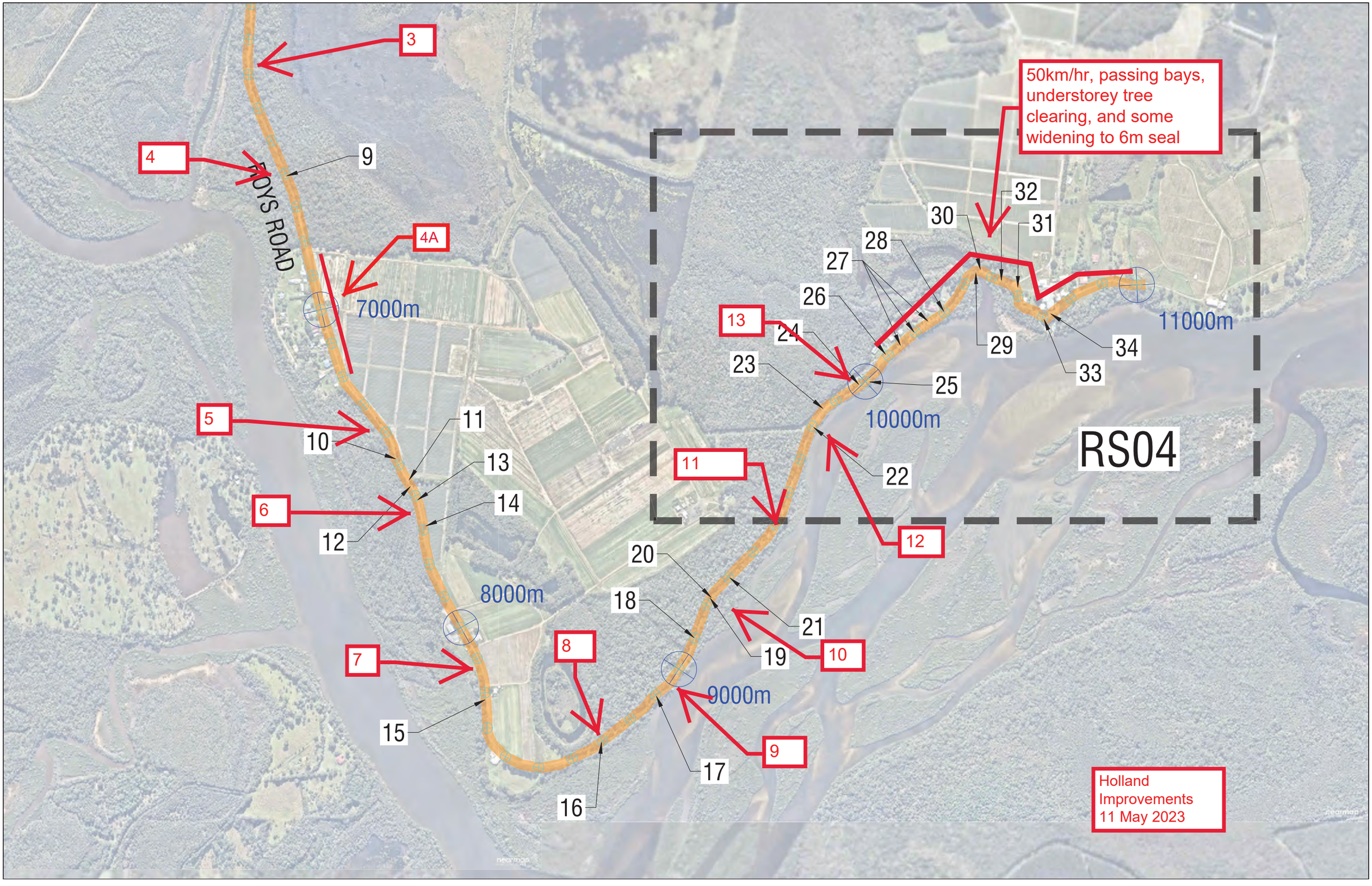
0.0 0.3 0.6 0.9 1.2
KILOMETRES
SCALE 1:30

Comiskey Management Services

COOCHIN CREEK HOLIDAY RESORT

Road Safety Inspection Map Context Plan

FIGURE RS02 4



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Project No:	620.30557
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Projection:	-

LEGEND

- 1000m Chainage Marker
- 100m Chainage Marker
- # Road Safety Element Reference Number

N

0.0 0.3 0.6 0.9 1.2
KILOMETRES
SCALE 1:30

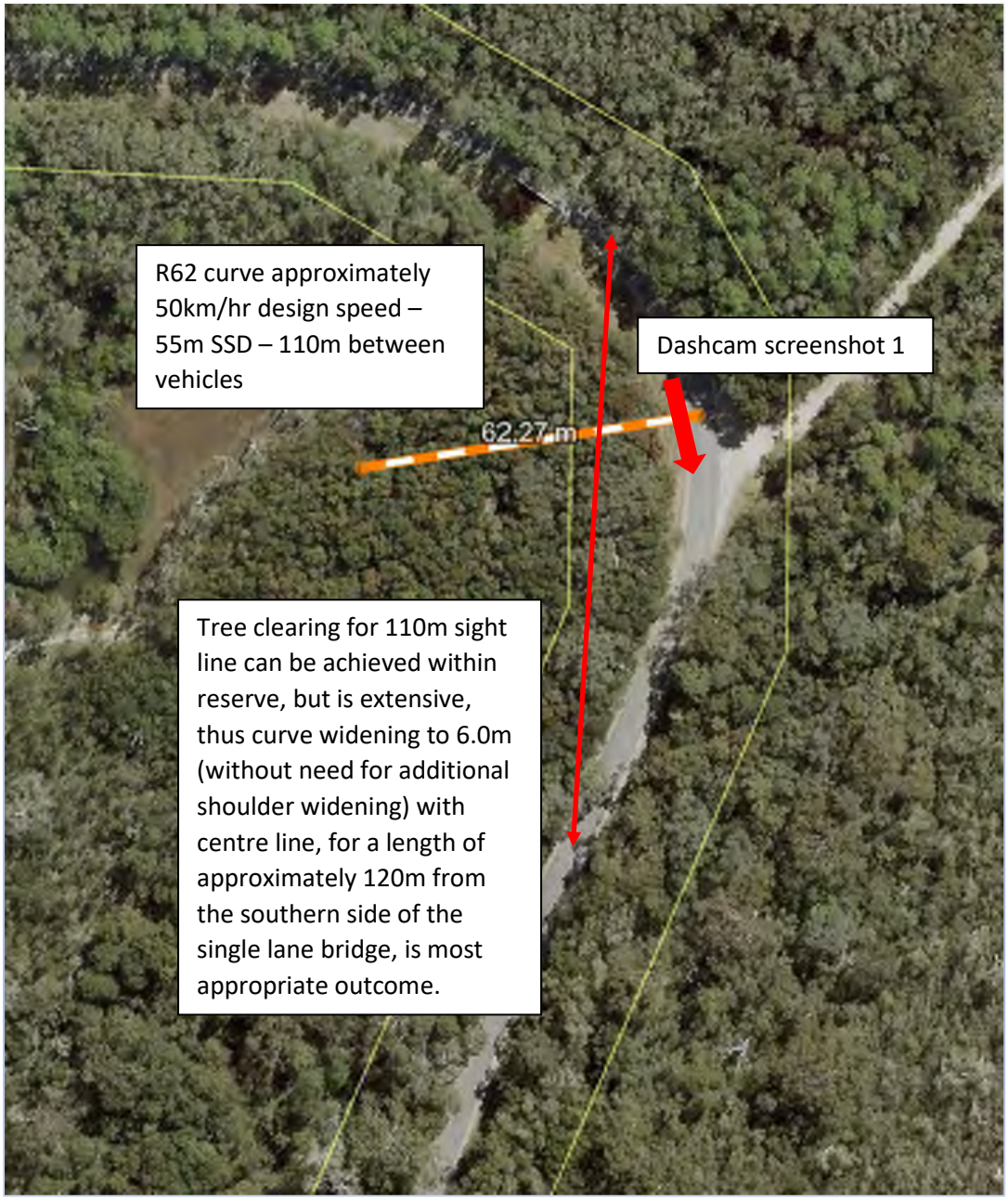
Comiskey Management Services

COOCHIN CREEK HOLIDAY RESORT

Road Safety Inspection Map Context Plan

FIGURE RS03 5

Legend
Show legend in extent only
Hide places in legend
Land parcel
Parcel
Land parcel - gt 1 ha
Parcel
Land parcel - gt 10 ha
Parcel
Tenure
Below the Depth Plans
Boat Harbours
Carbon Abatement Interest
Commonwealth Acquisition
Covenant
Easement
Forest Reserve
Freehold
Housing Land
Industrial Estates
Lands Lease
Main Road
Mines Tenure
National Park
Port and Harbours Boards
Profit à Prendre
Railway
Reserve
State Forest
State Land
Timber Reserve



Location 1

Dashcam screenshot 1

Location 2

Dashcam screenshot 2

Location 3

Dashcam screenshot 3

Location 4

Dashcam screenshot 4

Location 4A - Widen pavement to 6.0m with a marked centre line in the highlighted sections. 20m either side of The Esplanade intersection (plus tapers) at the northern end, and from 20m north of the northern driveway on the western side of the road to 20m south of the southern driveway (plus tapers) at the southern half.

Location 4A

Photo from northern end of the Location 4A, looking south

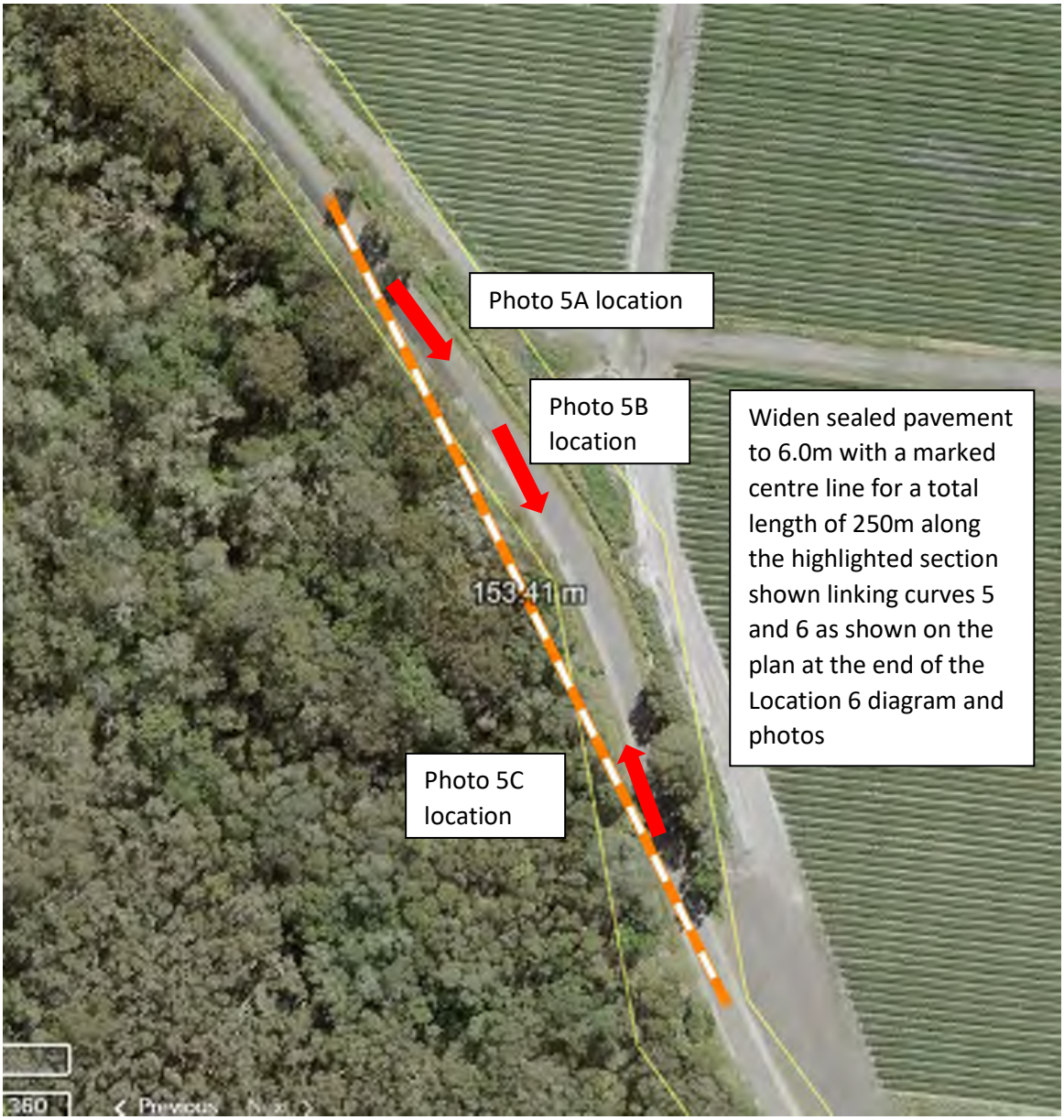


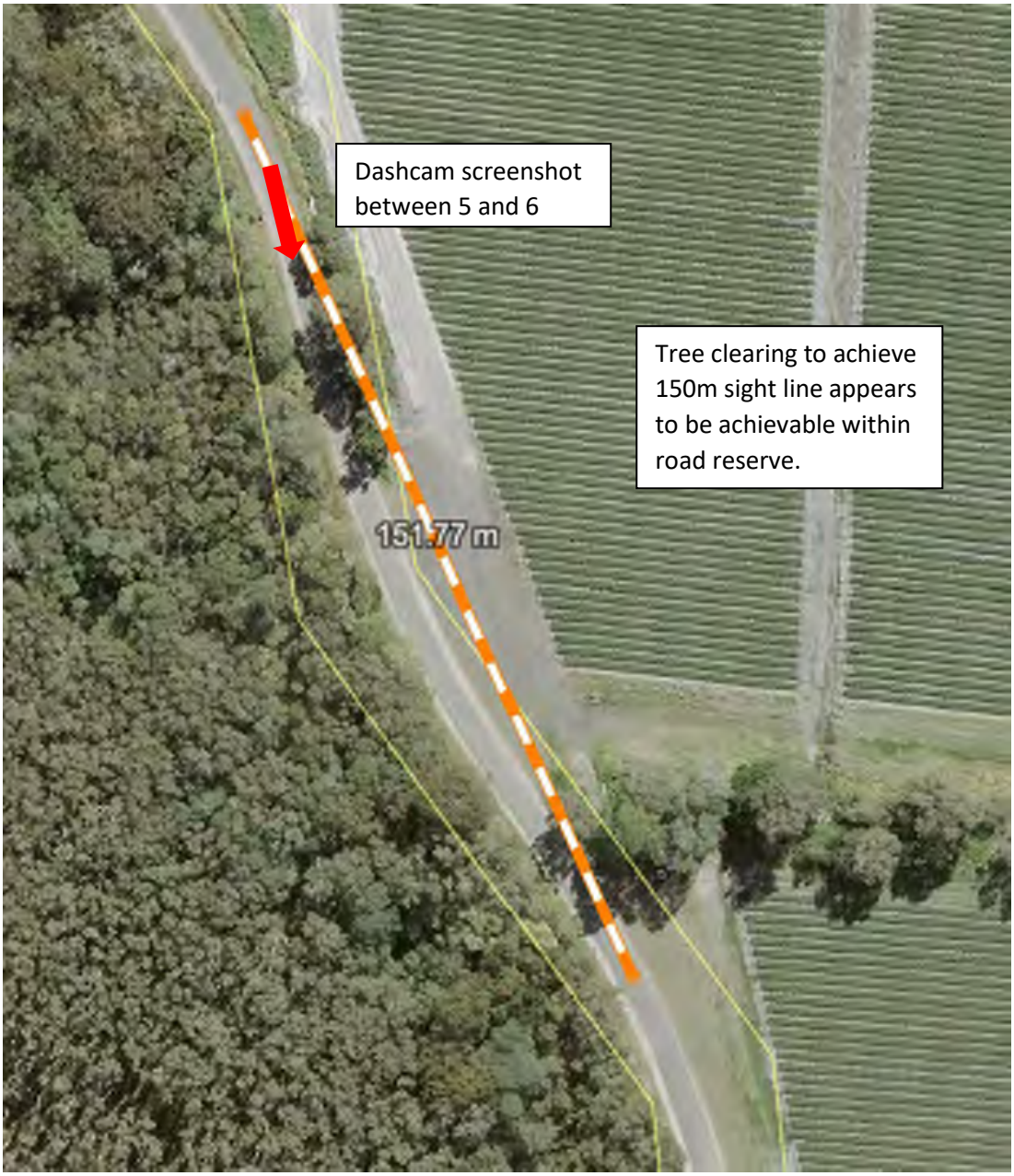
Photo 5A location
Photo 5B location
Widen sealed pavement to 6.0m with a marked centre line for a total length of 250m along the highlighted section shown linking curves 5 and 6 as shown on the plan at the end of the Location 6 diagram and photos
153.41 m
Photo 5C location
360
Previous

Location 5

Photo 5A

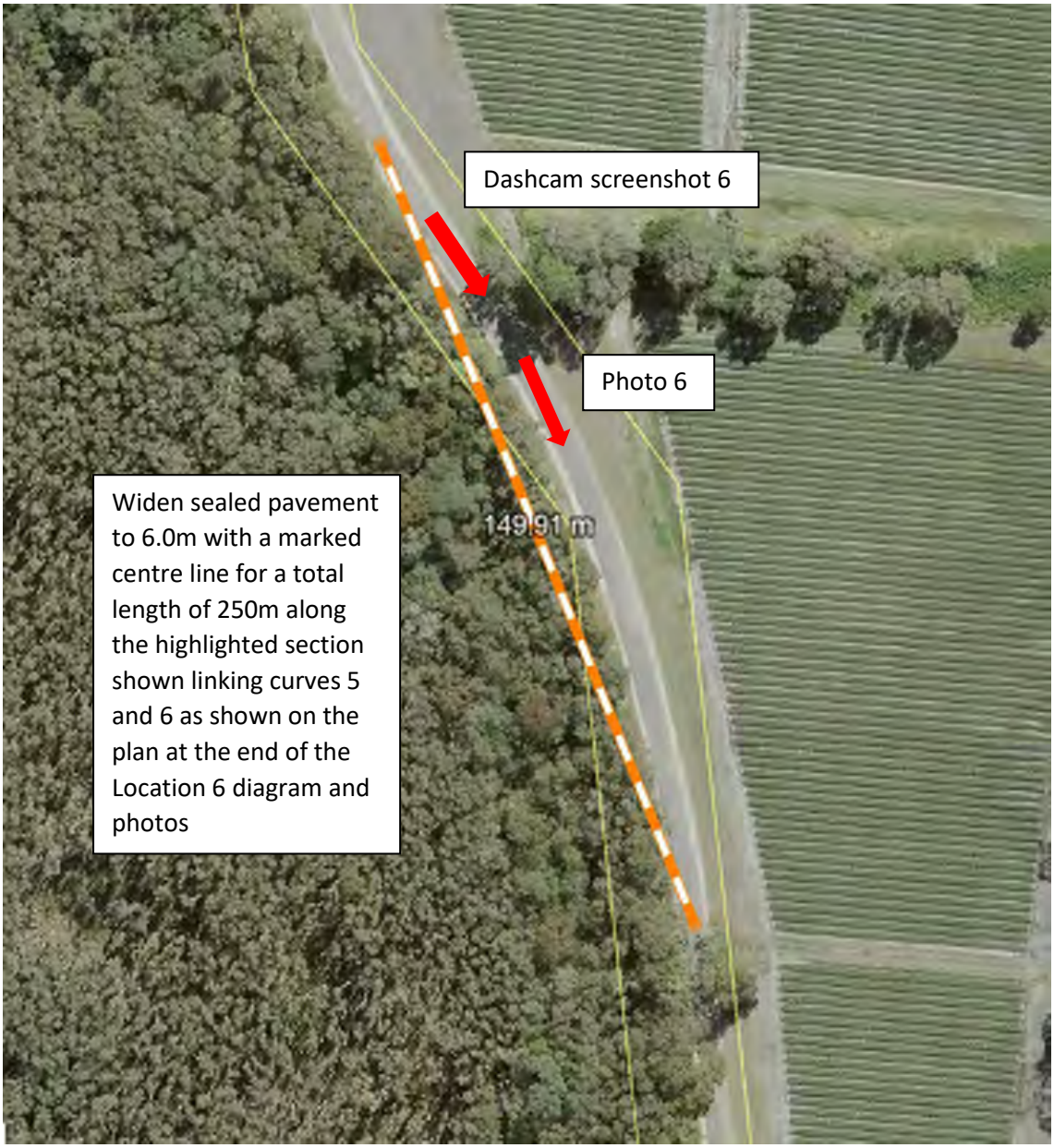
Photo 5B

Photo 5C



Between locations 5 and 6

Dashcam screenshot between 5 and 6



Location 6

Dashcam screenshot 6

Photo 6

Locations 5 and 6

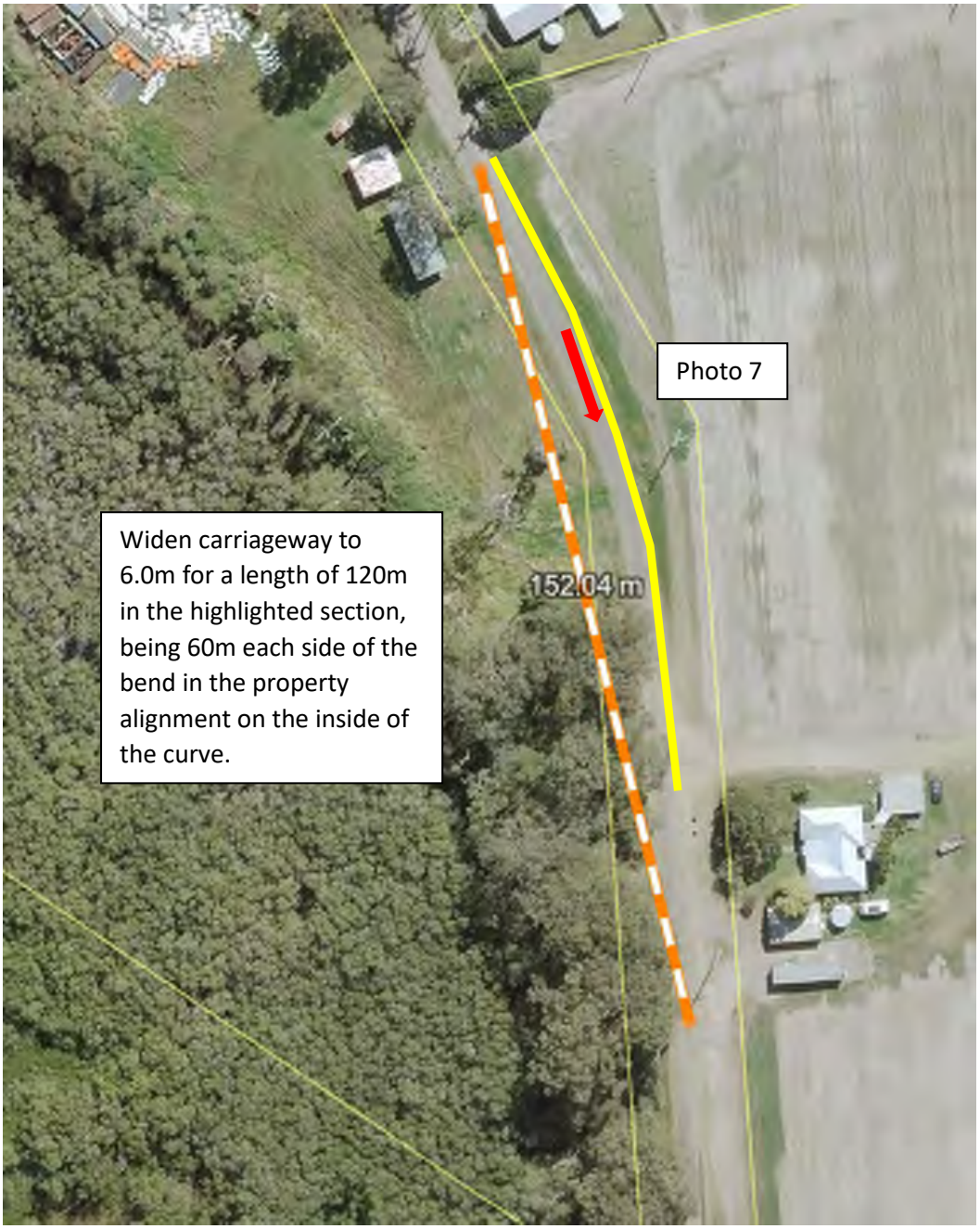
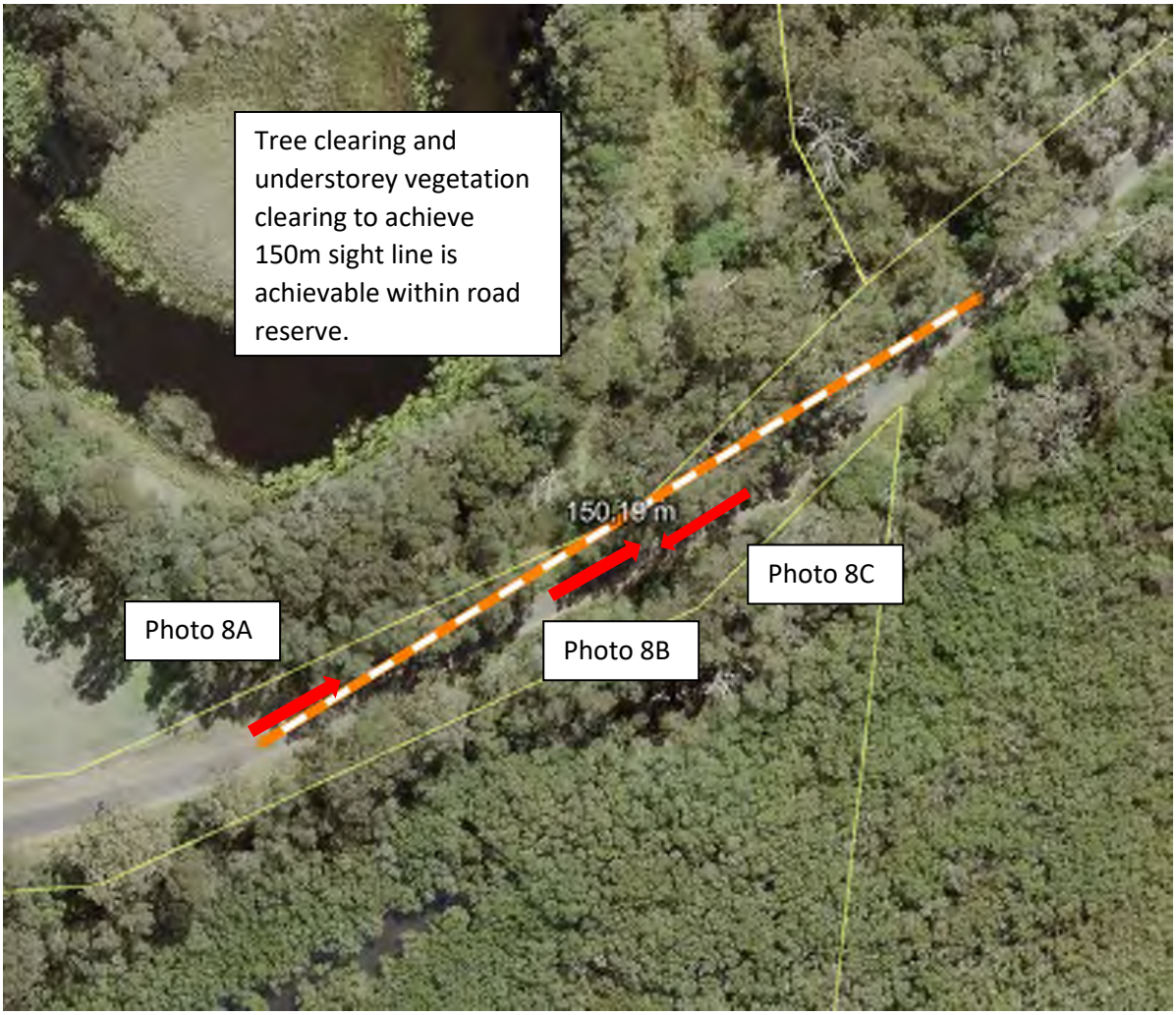


Photo 7
Widen carriageway to 6.0m for a length of 120m in the highlighted section, being 60m each side of the bend in the property alignment on the inside of the curve.
152.04 m

Location 7

Photo 7



Location 8

Photo 8A

Photo 8B

Photo 8C

Tree clearing to achieve 150m sight line easily achievable within road reserve
150.30 m
Photo 9B
Photo 9A

Location 9

Photo 9A

Photo 9B

Location 10

Dashcam screenshot 10

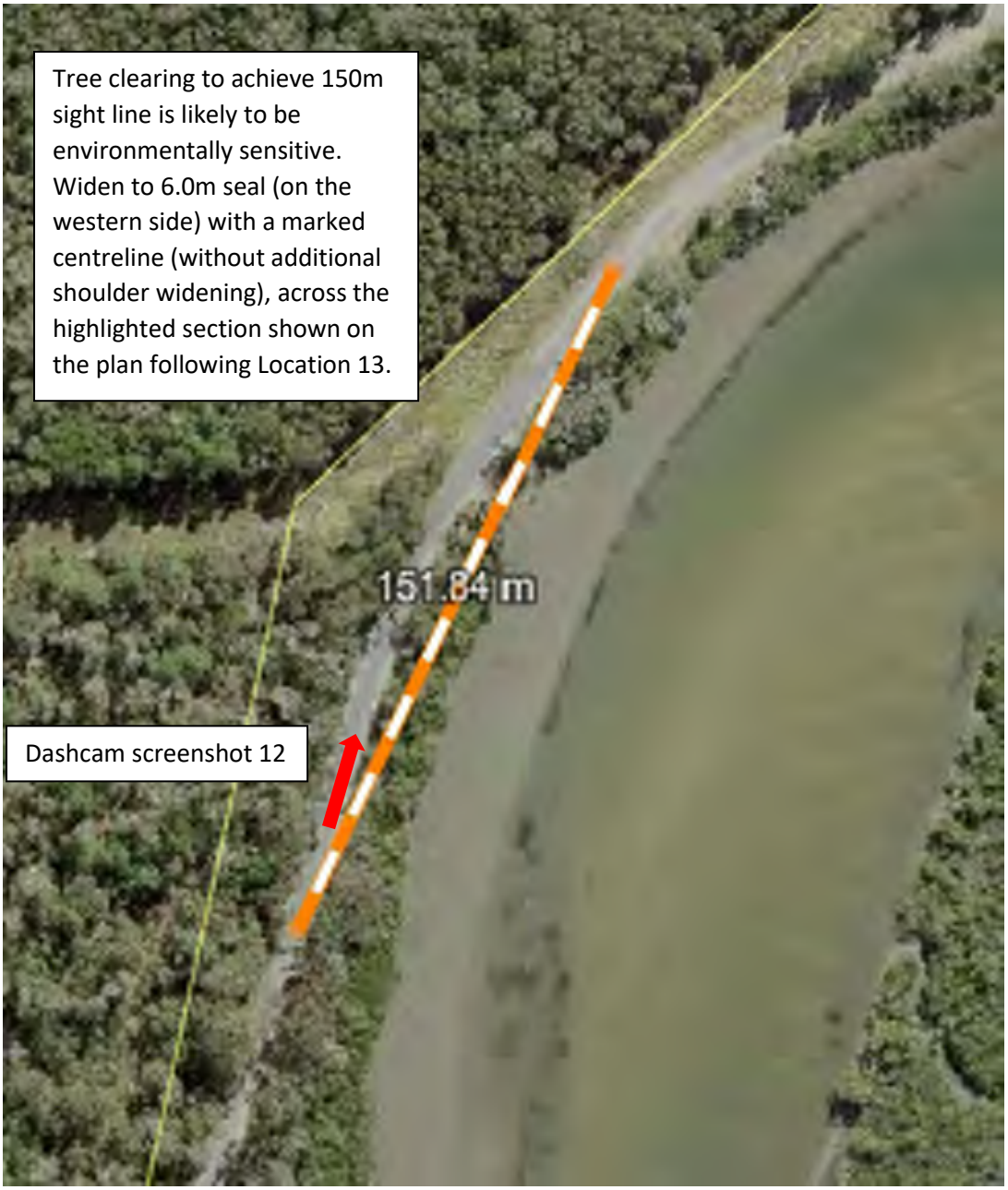
Widen carriageway to 6.0m for a length of 150m, being 75m each side of the bend in the property alignment on the inside of the curve.

Location 11

Photo 11B

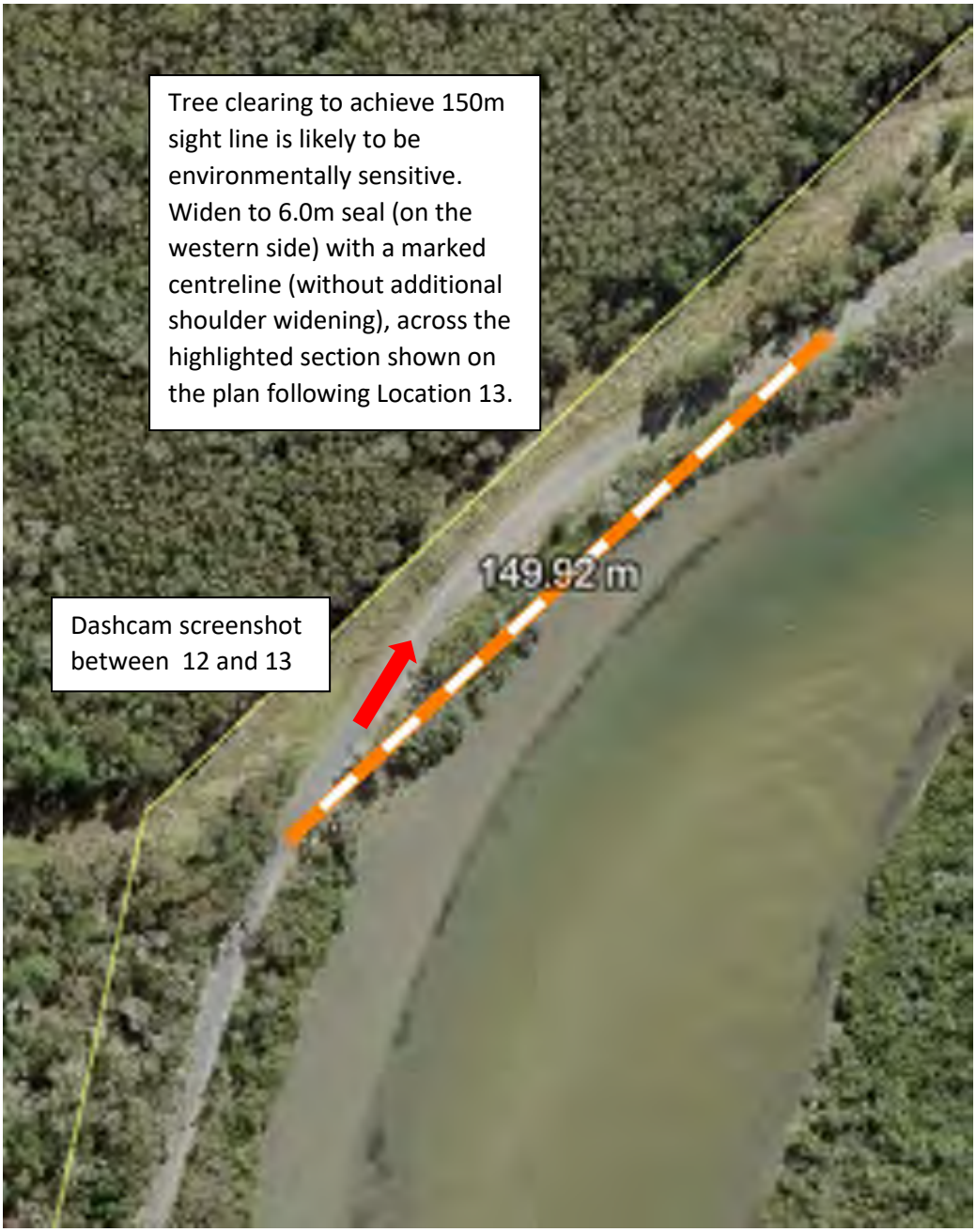
Photo 11C

Photo 11D



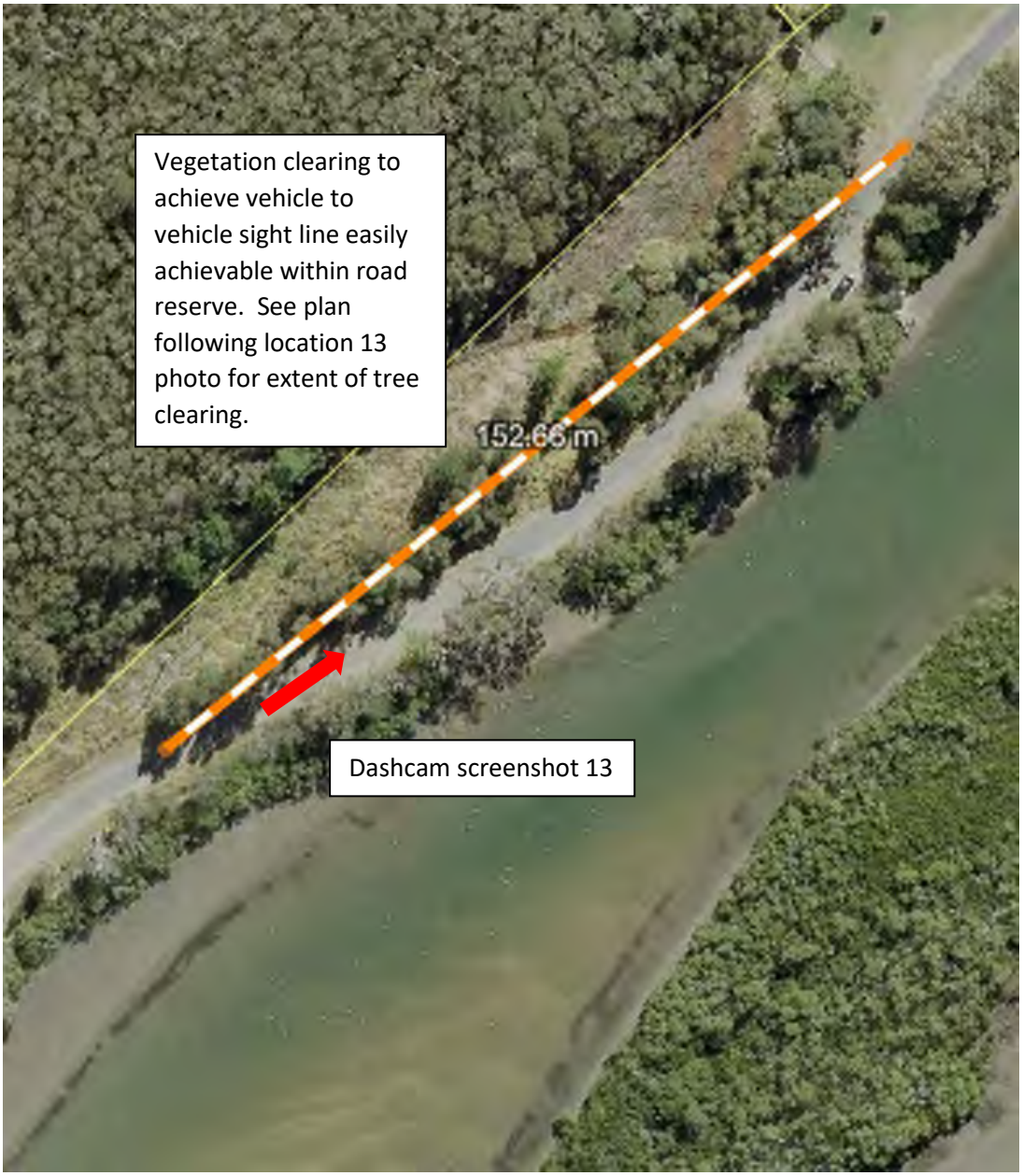
Location 12

Dashcam screenshot 12



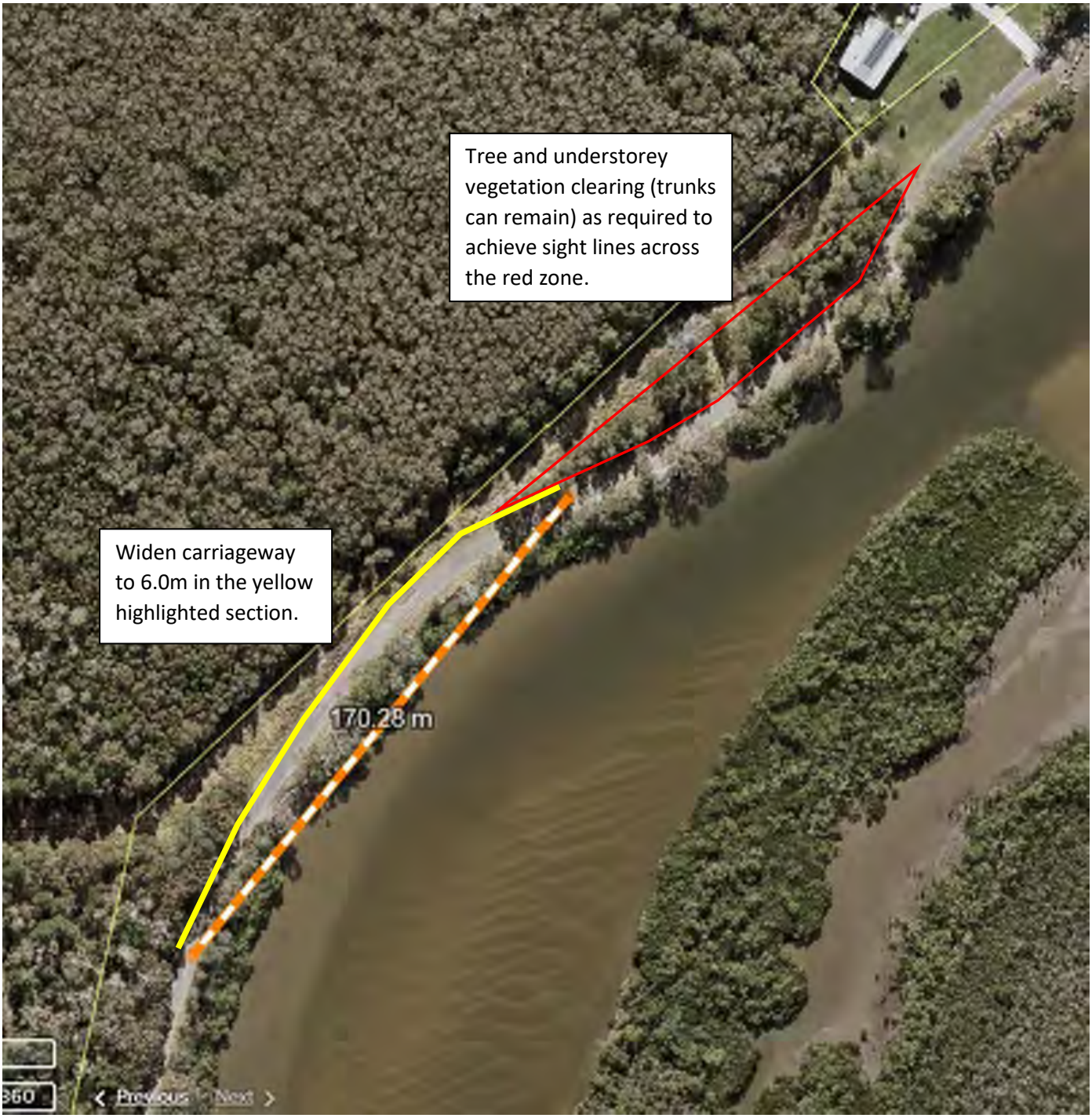
Between Locations 12 and 13

Dashcam screenshot between locations 12 and 13



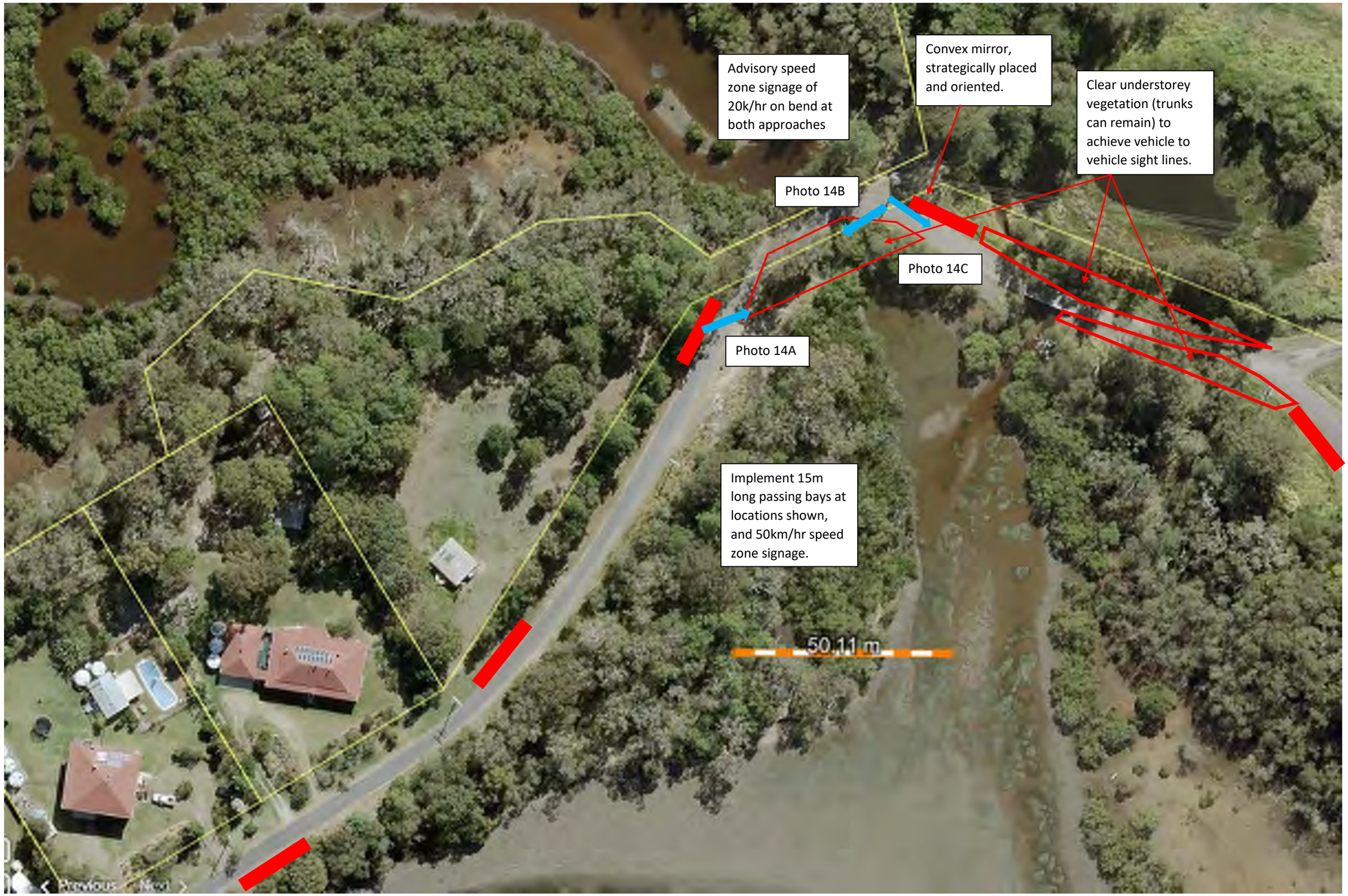
Location 13

Dashcam screenshot 13



Works at locations 12 and 13

Implement 15m long passing bays at locations shown, and 50km/hr speed zone signage.
49.85 m


Advisory speed zone signage of 20k/hr on bend at both approaches
Convex mirror, strategically placed and oriented.
Clear understorey vegetation (trunks can remain) to achieve vehicle to vehicle sight lines.
Photo 14B
Photo 14C
Photo 14A
Implement 15m long passing bays at locations shown, and 50km/hr speed zone signage.
50.11 m

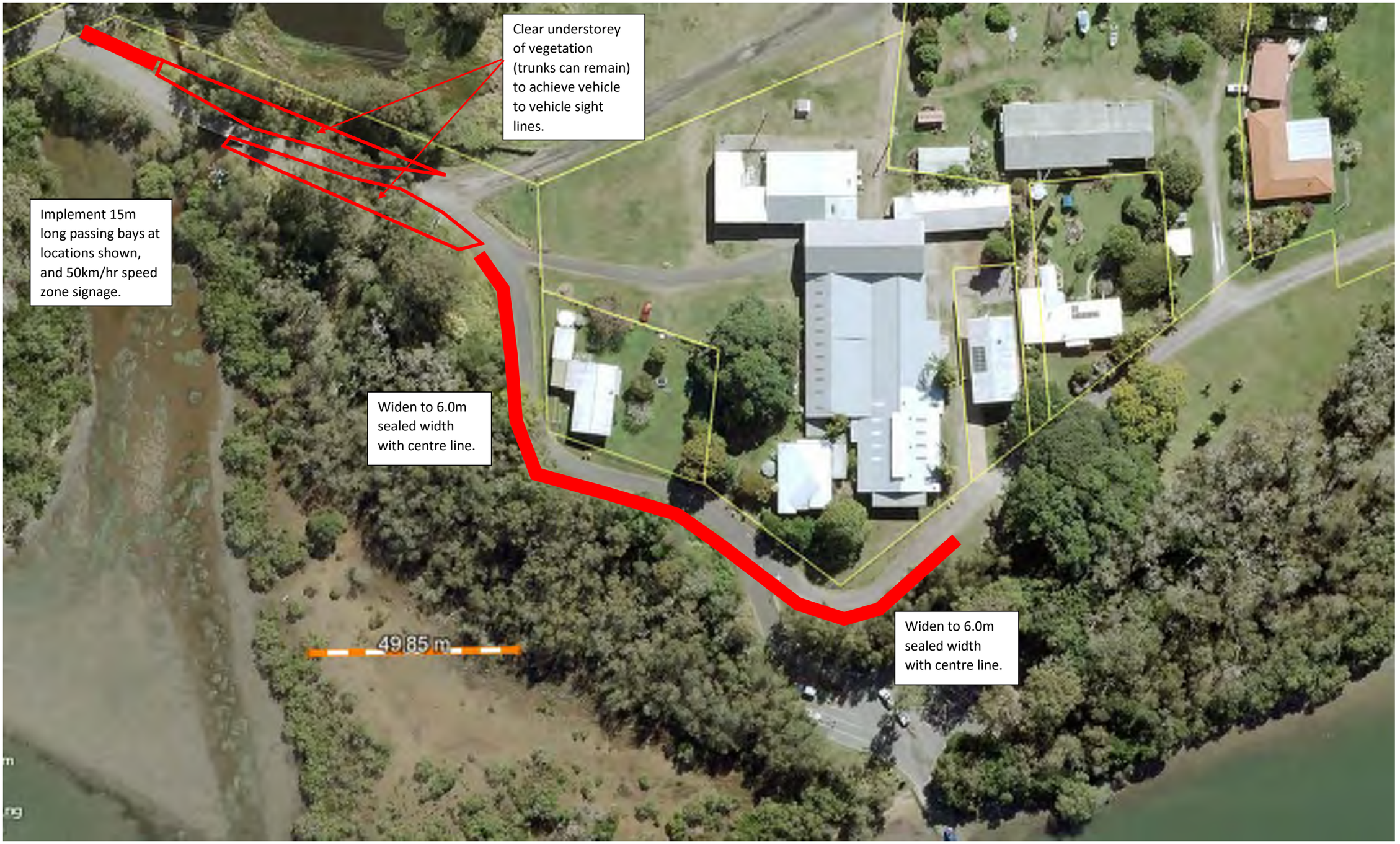

Clear understorey of vegetation (trunks can remain) to achieve vehicle to vehicle sight lines.
Implement 15m long passing bays at locations shown, and 50km/hr speed zone signage.
Widen to 6.0m sealed width with centre line.
49.85 m
Widen to 6.0m sealed width with centre line.

Photo 14A

Photo 14B

Photo 14C

CIVIL OPERATIONAL WORKS

COOCHIN CREEK HOLIDAY RESORT

LOT 10 SP132272 / LOT 6 SP184133

FOR

COMISKEY GROUP PTY LTD

AT

1807 ROYS ROAD, COOCHIN CREEK

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

DEVELOPMENT PERMIT NUMBERS:

COVEY ASSOCIATES PTY LTD
ABN 59 137 305 992
(07) 5443 7777
engineers@covey.com.au
124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

PROJECT No. 243823 ISSUE FOR - APPROVAL

PROJECT ENGINEER: SHANE RYNNE PH 07 5443 7777

PROJECT COORDINATOR: ANDREW DAVIS PH 07 5443 7777

DRAWING NO. - C000 DRAWING TITLE - COVER SHEET
ISSUE - B

LOCALITY PLAN

N.T.S.

IMAGE SOURCE: GOOGLEMAPS

Sheet List Table

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C392	ROAD 12 CROSS SECTIONS
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C401	STORMWATER QUALITY CATCHMENT PLAN
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C503	BIORETENTION BASIN DETAILS (SHEET 4 OF 6)
C504	BIORETENTION BASIN DETAILS (SHEET 5 OF 6)
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C506	BIORETENTION BASIN SYSTEM SPECIFICATIONS
C550	SWALE DETAILS (SHEET 1 OF 3)
C551	SWALE DETAILS (SHEET 2 OF 3)
C552	SWALE DETAILS (SHEET 3 OF 3)

EXISTING LEGEND	
EXISTING LOT BOUNDARY	
SITE BOUNDARY	
ELECTRIC POLE	
ELECTRIC BOX	E
WATER TANK	TW TW
EARTH DRAIN	D D
EXISTING DAM TO BE RETAINED	
EXISTING TREE TO BE RETAINED	

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

EXISTING SHED
EXISTING DAM
STW 375 DIA PIPE IL 1.86
STW 375 DIA PIPE IL 2.42
EXISTING SHED
EXISTING SHED
EXISTING SHED
EXISTING HOUSE
POOL
FLAGPOLE
EXISTING SHED
PIER
ROYS ROAD
ROYS ROAD
ROYS ROAD
COOCHIN CREEK

0m 20m 40m 60m

SCALE 1:1000 (A1) - 1:2000 (A3)

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
Check Building Boundary clearances by set out.
Notwithstanding the information supplied on this drawing, the location, depth and extent of underground or overhead services are to be confirmed and protected on site by the contractor prior to commencement of works.

Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.09.24	APPROVAL	GHK

covey

Approved

COVEY ASSOCIATES PTY LTD
ABN 59 137 305 992
(07) 5443 7777
engineers@covey.com.au

124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - EXISTING FEATURES PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C050

Digital Ref : C050 EXISTING FEATURES PLAN Issue : B

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c:\12ds\data\12DSERVER\243823_3381\DWG Covey\OPW\Uncontrolled\C050 EXISTING FEATURES PLAN.dwg

Plot 18 December 2024 - 11:29 AM

PROPOSED LEGEND

STAGE BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
HAT	
HAT 50M OFFSET	
INSECT BUFFER	
COAST LINE	
DRAINAGE CORRIDOR	
EXISTING DAM TO BE RETAINED	
EXISTING TREE TO BE RETAINED	
CULVERT CROSSING	
REVEGETATION AREA	
SITES	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
1 BEDROOM CABIN	
CAMP KITCHEN	
AMINITIES (LAUNDRY/DRYING)	
MAINTENANCE/CLEANING/ STORAGE SHEDS	

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

0m 20m 40m 60m

SCALE 1:1000 (A1) - 1:2000 (A3)

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

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Checked - SR

Design - CM Drawn - GHK

Scales - AS SHOWN

Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.09.24	APPROVAL	GHK

covey

Approved

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engineers@covey.com.au

124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - DEVELOPMENT LAYOUT PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C100

Digital Ref : C100 DEVELOPMENT LAYOUT PLAN Issue : B

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Plot 18 December 2024 - 11:25 AM

KEY MAP

FLOOD STORAGE CALCULATIONS

BASED ON 1% AEP (+ CLIMATE CHANGE) FLOOD LEVEL RL2.59m*

(;,67,1* &$6(	
FLOOD STORAGE AT DEVELOPMENT AREA	15,446m³
FLOOD STORAGE AT DAM	0m³
'(9(/23(' &$6(	
FLOOD STORAGE AT DEVELOPMENT AREA	6,480m³
FLOOD STORAGE AT DAM (PERMANENT WATER LEVEL RL1.6m)	23,382m³

* SOURCE - BMT, Sept 2021

EARTHWORKS VOLUMES

'(9(/230(17 $5($	
TOPSOIL STRIP (100mm THICK)	14,778m³
CUT TO FILL	12,991m³
FILL REQUIRED	103,233m³
'$0 $5($	
TOPSOIL STRIP (100mm THICK)	2,666m³
CUT TO FILL	58,033m³
FILL REQUIRED	156m³
327(17,$/ &87 72),// $5($	
TOPSOIL STRIP (100mm THICK)	5,180m³
CUT TO FILL	9,144m³
FILL REQUIRED	460m³
727$/6	
TOTAL CUT	80,168m³
TOTAL FILL	103,849m³
DEFICIT (see note below)	23,681m³

NOTE: THE DEFICIT VOLUME COULD BE FURNISHED ON SITE THROUGH PIPE TRENCH EXCAVATION, ADDITIONAL PAVEMENT DEPTHS, ETC. ALTERNATIVELY, ADDITIONAL MATERIAL REQUIRED COULD BE FURTHER EXCAVATED FROM THE PROPOSED DAM FOR THE REQUIRED VOLUME.

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

BULK EARTHWORKS LEGEND (500mm INC.)

	CUT	FILL
PROPOSED EARTHWORKS 0.00 - 0.50m		
PROPOSED EARTHWORKS 0.50 - 1.00m		
PROPOSED EARTHWORKS 1.00 - 1.50m		
PROPOSED EARTHWORKS 1.50 - 2.00m		
PROPOSED EARTHWORKS 2.00 - 2.50m		
PROPOSED EARTHWORKS 2.50 - 3.00m		
PROPOSED EARTHWORKS > 3.00m		
EXISTING CONTOURS	3.0	
PROPOSED CONTOURS	3.0	
DEPTH CONTOURS	3.0	

BULK EARTHWORKS NOTES

1. STRIP ALL TOPSOIL CONTAINING ORGANIC MATTER TO A DEPTH OF 100mm AND SPOIL TO SUITABLE STOCKPILE AREA. REMOVE RUBBLE MATERIAL, OVERSATURATED MATERIALS, ORGANIC MATTER AND OTHER UNSUITABLE MATERIAL FROM THE SITE.

2. EARTHWORKS ON ALLOTMENTS SHALL BE CARRIED OUT IN ACCORDANCE WITH AUSTRALIAN STANDARDS AS3798 - GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS - COMPACTION TO 95% STANDARD (AS1289E1.1).

3. SIMILARLY, SUBGRADE COMPACTION TO 98% STANDARD (AS1289E1.1). REMOVE ANY SOFT OR COMPRESSIBLE ZONES AND REPLACE WITH SUITABLE MATERIAL.

4. SUPERVISION, INSPECTION & TESTING SHALL BE CARRIED OUT TO LEVEL 1 STANDARD U.N.O. FREQUENCY OF COMPACTION TESTS ARE AS FOLLOWS:

LOCATION	FREQUENCY
FINISHED LEVEL OR ROAD SUBGRADE (IN CUT OR FILL)	1 per 100 m
ALLOTMENT FILL WHERE DEPTH 300 - 500mm	1 per LOT
ALLOTMENT FILL WHERE DEPTH > 500mm	1 per LOT/500mm
LEVEL OF INSPECTION FOR ALLOTMENT FILL	LEVEL 1

5. QUALITY TESTS OF IMPORTED MATERIAL ARE REQUIRED AT A RATE OF 1 TEST PER 400 cu m OR PART THEREOF.

6. IMPORTED FILL MATERIAL SHALL BE LOW PLASTICITY GRANULAR FILLING. PLACE FILL TO THE BUILDING PLATFORM AREAS IN LAYERS OF LOOSE THICKNESS APPROPRIATE TO THE TYPE OF MACHINERY BEING USED AND NOT GREATER THAN 250mm. ANY UNSUITABLE MATERIAL SHALL BE IDENTIFIED, REMOVE AND REPLACE AS SPECIFIED.

7. ALL TESTING OF EARTHWORKS SHALL BE CARRIED OUT AT THE CONTRACTORS EXPENSE UNLESS NOTED OTHERWISE.

STOCKPILE NOTE

1. STOCKPILES OF CONSTRUCTION AND LANDSCAPING MATERIALS, AND OTHER SITE DEBRIS, SHALL BE LOCATED CLEAR FROM ANY POSITION FROM WHICH IT COULD BE WASHED ONTO ANY FOOTPATH, NATURE STRIP, ROADWAY, OR INTO ANY DRAIN OR WATERCOURSE.

APPROXIMATE CUT/FILL VOLUMES

1. INCLUDES ALL QUANTITIES BETWEEN EXISTING (LESS 100) AND FINISHED SURFACES (LESS 150).
2. EXCLUDES ANY EXCAVATION RELATED TO FUTURE CIVIL WORKS, ie PIPE TRENCHING, ADDITIONAL PAVEMENT, etc

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0m 40m 80m 120m

SCALE 1:2000 (A1) - 1:4000 (A3)

Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BULK EARTHWORKS OVERALL PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C150

Digital Ref : C150 BULK EARTHWORKS OVERALL PLAN Issue : B

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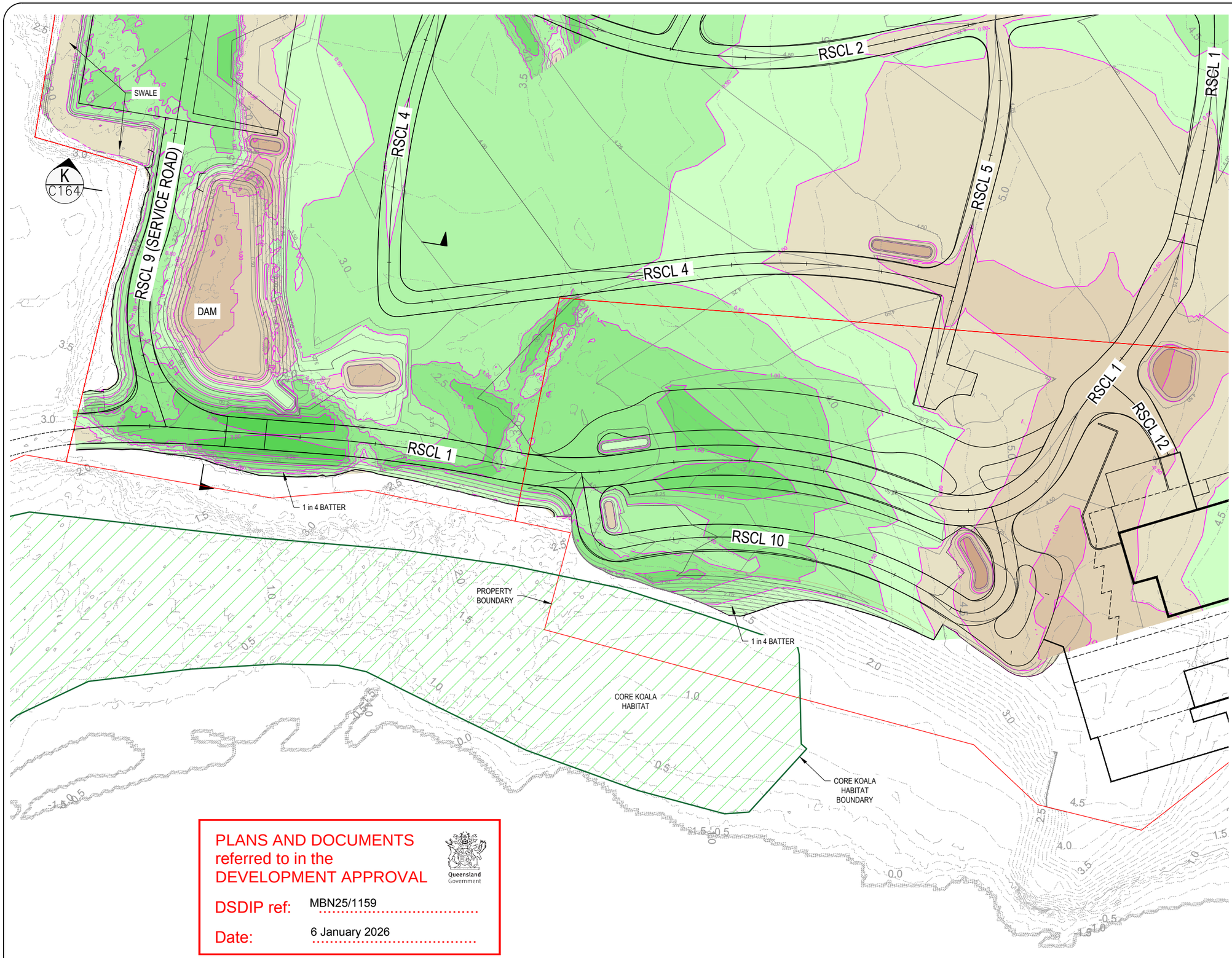


BULK EARTHWORKS LEGEND (500mm INC.)

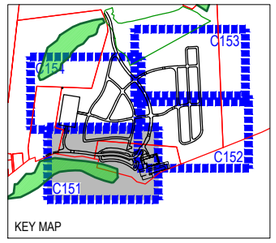
	CUT	FILL
PROPOSED EARTHWORKS 0.00 - 0.50m		
PROPOSED EARTHWORKS 0.50 - 1.00m		
PROPOSED EARTHWORKS 1.00 - 1.50m		
PROPOSED EARTHWORKS 1.50 - 2.00m		
PROPOSED EARTHWORKS 2.00 - 2.50m		
PROPOSED EARTHWORKS 2.50 - 3.00m		
PROPOSED EARTHWORKS > 3.00m		
EXISTING CONTOURS	3.0	
PROPOSED CONTOURS	3.0	
DEPTH CONTOURS	3.0	

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



KEY MAP

0m 10m 20m 30m

SCALE 1:500 (A1) - 1:1000 (A3)

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	23.09.24	APPROVAL	GHK

covey

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(07) 5443 7777
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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BULK EARTHWORKS PLAN (SHEET 1 OF 5)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C151

Digital Ref : C151-C155 BULK EARTHWORKS PLAN Issue : B

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Plot 18 December 2024 - 11:26 AM

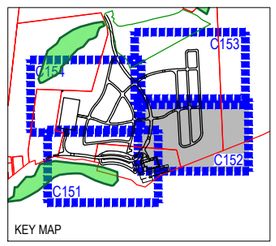
BULK EARTHWORKS LEGEND (500mm INC.)	CUT	FILL
PROPOSED EARTHWORKS 0.00 - 0.50m		
PROPOSED EARTHWORKS 0.50 - 1.00m		
PROPOSED EARTHWORKS 1.00 - 1.50m		
PROPOSED EARTHWORKS 1.50 - 2.00m		
PROPOSED EARTHWORKS 2.00 - 2.50m		
PROPOSED EARTHWORKS 2.50 - 3.00m		
PROPOSED EARTHWORKS > 3.00m		
EXISTING CONTOURS	3.0	
PROPOSED CONTOURS	3.0	
DEPTH CONTOURS	3.0	

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



0m 10m 20m 30m

SCALE 1:500 (A1) - 1:1000 (A3)

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Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	23.09.24	APPROVAL	GHK

covey

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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BULK EARTHWORKS PLAN (SHEET 2 OF 5)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C152

Digital Ref : C151-C155 BULK EARTHWORKS PLAN Issue : B

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Plot 18 December 2024 - 11:25 AM

BULK EARTHWORKS LEGEND (500mm INC.)

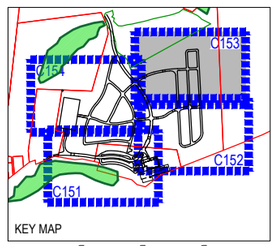
	CUT	FILL
PROPOSED EARTHWORKS 0.00 - 0.50m		
PROPOSED EARTHWORKS 0.50 - 1.00m		
PROPOSED EARTHWORKS 1.00 - 1.50m		
PROPOSED EARTHWORKS 1.50 - 2.00m		
PROPOSED EARTHWORKS 2.00 - 2.50m		
PROPOSED EARTHWORKS 2.50 - 3.00m		
PROPOSED EARTHWORKS > 3.00m		
EXISTING CONTOURS	3.0	
PROPOSED CONTOURS	3.0	
DEPTH CONTOURS	3.0	

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



0m 10m 20m 30m

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	23.09.24	APPROVAL	GHK

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covey

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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BULK EARTHWORKS PLAN (SHEET 3 OF 5)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C153

Digital Ref : C151-C155 BULK EARTHWORKS PLAN Issue : B

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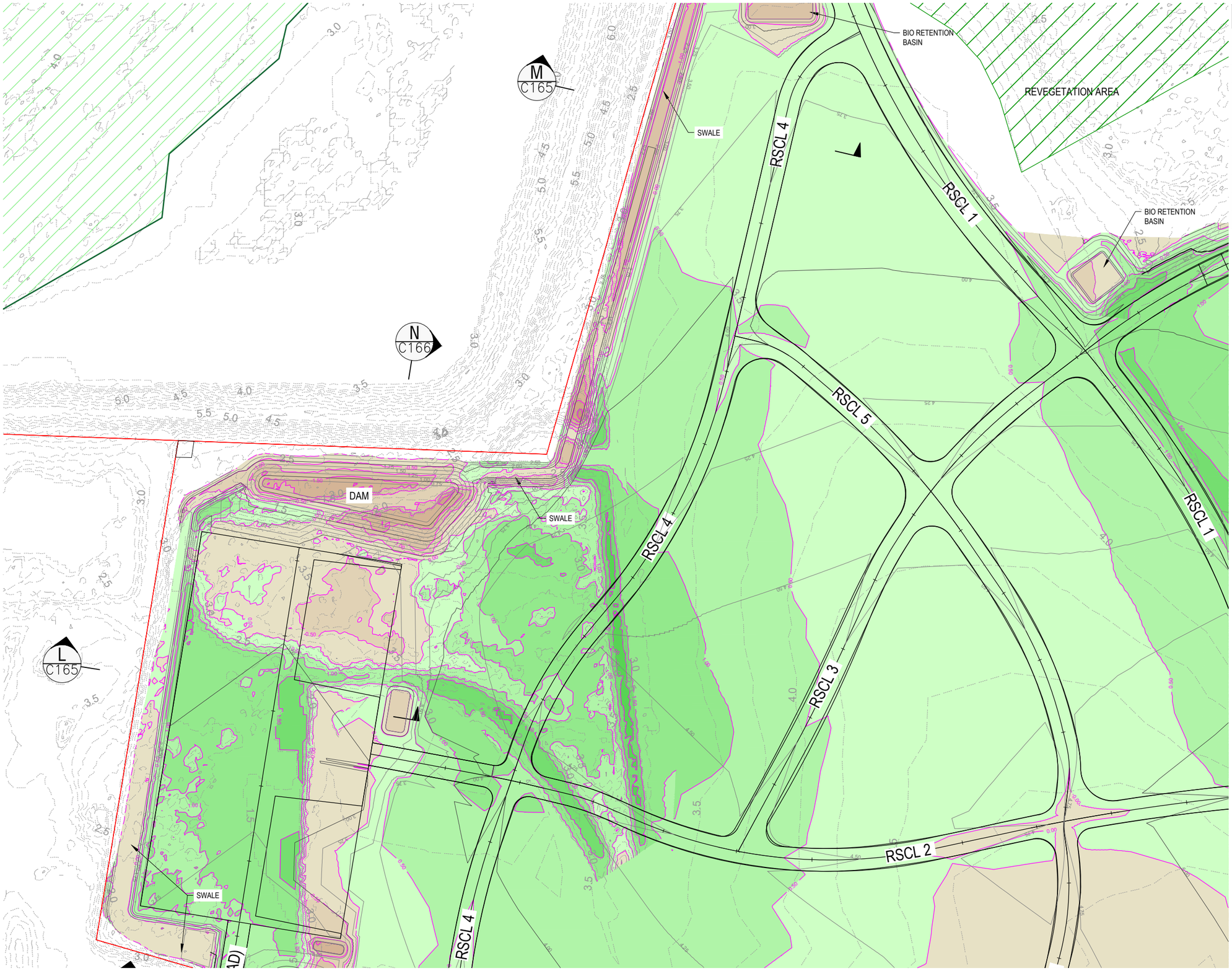

BULK EARTHWORKS LEGEND (500mm INC.)

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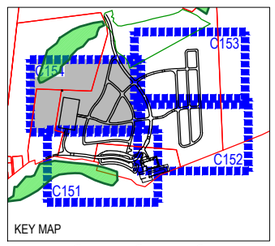
PROPOSED EARTHWORKS 0.50 - 1.00m		
PROPOSED EARTHWORKS 1.00 - 1.50m		
PROPOSED EARTHWORKS 1.50 - 2.00m		
PROPOSED EARTHWORKS 2.00 - 2.50m		
PROPOSED EARTHWORKS 2.50 - 3.00m		
PROPOSED EARTHWORKS > 3.00m		
EXISTING CONTOURS	3.0	
PROPOSED CONTOURS	3.0	
DEPTH CONTOURS	3.0	

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



0m 10m 20m 30m

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Design - CM Drawn - GHK

Scales - AS SHOWN

Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	23.09.24	APPROVAL	GHK

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covey

Approved

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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BULK EARTHWORKS PLAN (SHEET 4 OF 5)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C154

Digital Ref : C151-C155 BULK EARTHWORKS PLAN Issue : B

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referred to in the
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Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

BULK EARTHWORKS LEGEND (500mm INC.)	CUT	FILL
PROPOSED EARTHWORKS 0.00 - 0.50m		
PROPOSED EARTHWORKS 0.50 - 1.00m		
PROPOSED EARTHWORKS 1.00 - 1.50m		
PROPOSED EARTHWORKS 1.50 - 2.00m		
PROPOSED EARTHWORKS 2.00 - 2.50m		
PROPOSED EARTHWORKS 2.50 - 3.00m		
PROPOSED EARTHWORKS > 3.00m		
EXISTING CONTOURS	3.0	
PROPOSED CONTOURS	3.0	
DEPTH CONTOURS	3.0	

PROPERTY BOUNDARY

CORE KOALA HABITAT

CORE KOALA HABITAT BOUNDARY

I C163

J C164

PROPOSED DAM
(PERMANENT WATER LEVEL RL1.6m)

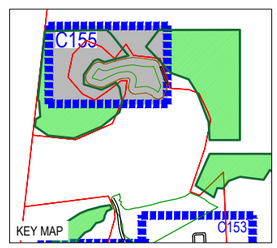
1 in 6 BATTER

REMOVE EXISTING BUND TO PROVIDE COMPENSATORY FLOOD STORAGE

OVERFLOW WEIR
RL: 1.6m, LENGTH: 55m

0 C165

1 in 6 BATTER



0m 10m 20m 30m

SCALE 1:500 (A1) - 1:1000 (A3)

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	23.09.24	APPROVAL	GHK

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covey

Approved

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engineers@covey.com.au

124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BULK EARTHWORKS PLAN (SHEET 5 OF 5)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C155

Digital Ref : C151-C155 BULK EARTHWORKS PLAN Issue : B

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Plot 18 December 2024 - 11:25 AM

PLANS AND DOCUMENTS
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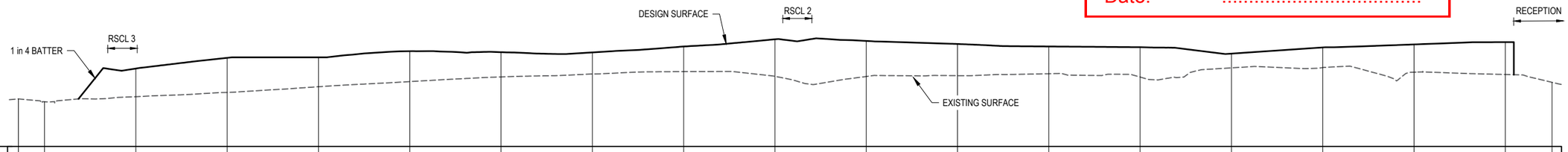
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



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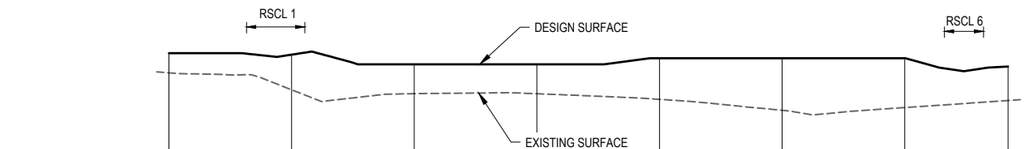
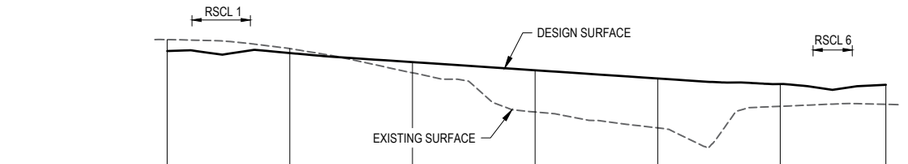
Natural Ground	2.079	1.958	2.176	2.365	2.613	2.837	3.042	3.171	3.276	3.067	3.061	3.098	3.182	3.037	3.437	3.450	3.249	3.148	2.803	
Depth of Cut or Fill	0.000	0.000	-1.232	-1.512	-1.287	-1.332	-1.082	-0.943	-1.097	-1.622	-1.556	-1.386	-1.193	-1.306	-0.623	-0.884	-1.214	-1.415	0.000	
Chainage	14.293	20.000	40.000	60.000	80.000	100.000	120.000	140.000	160.000	180.000	200.000	220.000	240.000	260.000	280.000	300.000	320.000	340.000	350.230	

SECTION A
HORIZ. 1:500(A1) / VERT. 1:100(A1)
A C153



Datum R.L.0.0								
Design Surface	4.365	4.316	4.000	4.000	4.200	4.200	4.200	3.929
Natural Ground	3.724	3.172	3.046	3.043	2.860	2.504	2.594	2.823
Depth of Cut or Fill	-0.642	-1.144	-0.954	-0.957	-1.340	-1.696	-1.606	-1.106
Chainage	0.000	20.000	40.000	60.000	80.000	100.000	120.000	136.837

SECTION B
HORIZ. 1:500(A1) / VERT. 1:100(A1)
B C153



Datum R.L.0.0							
Design Surface	4.924	4.869	4.563	4.297	4.031	3.849	3.824
Natural Ground	5.297	5.004	4.214	2.937	2.419	3.122	3.187
Depth of Cut or Fill	0.374	0.144	-0.349	-1.360	-1.611	-0.727	-0.637
Chainage	0.000	20.000	40.000	60.000	80.000	100.000	117.216

SECTION C
HORIZ. 1:500(A1) / VERT. 1:100(A1)
C C152

SCALE 1:1000 (A3) HORIZ.
SCALE 1:200 (A3) VERT.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

Approved

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Drawing title - EARTHWORKS SECTIONS (SHEET 1 OF 7)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C160

Digital Ref : C160-C166 EARTHWORKS SECTIONS Issue : B

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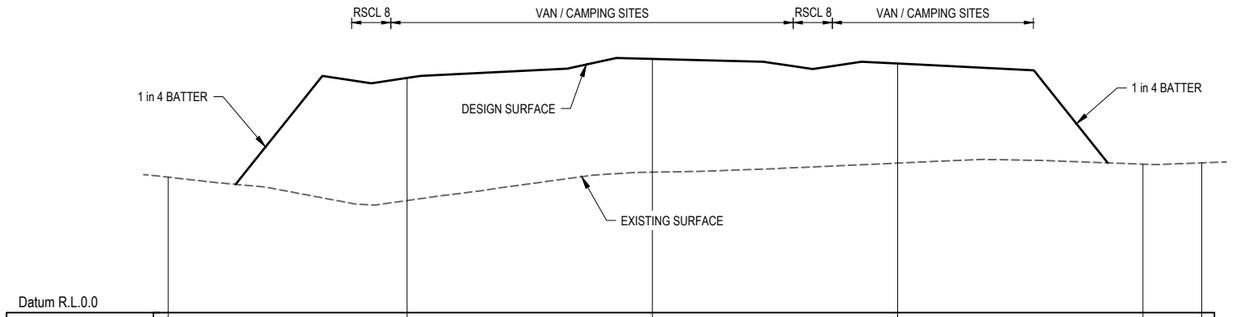
Plot 18 December 2024 - 11:23 AM

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

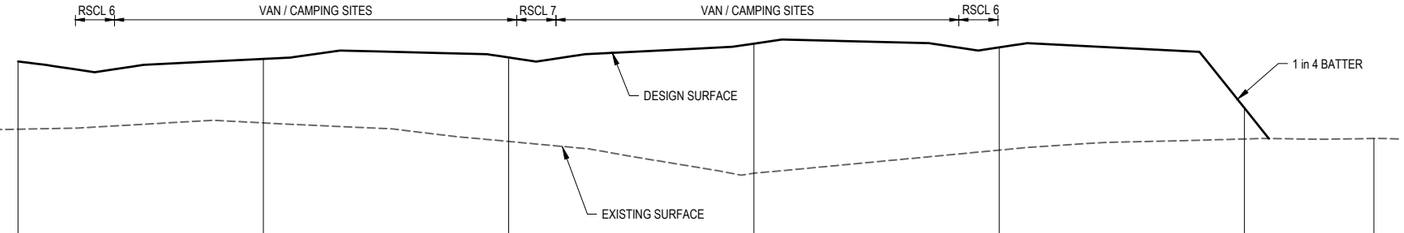
Date: 6 January 2026



Datum R.L.0.0

Design Surface	2.209	3.826	4.136	4.061	2.421	2.442	
Natural Ground	2.209	1.828	2.290	2.438	2.421	2.442	
Depth of Cut or Fill	0.000	-1.999	-1.846	-1.623	0.000	0.000	
Chainage	0.517	20.000	40.000	60.000	80.000	94.799	

SECTION D
HORIZ. 1:250(A1) / VERT. 1:50(A1)
D / C153



Datum R.L.0.0

Design Surface	3.811	3.853	3.877	4.102	4.041	3.052	2.555	
Natural Ground	2.707	2.810	2.508	1.989	2.366	2.548	2.555	
Depth of Cut or Fill	-1.104	-1.044	-1.370	-2.113	-1.675	-0.504	0.000	
Chainage	0.000	20.000	40.000	60.000	80.000	100.000	110.556	

SECTION E
HORIZ. 1:250(A1) / VERT. 1:50(A1)
E / C153

00 5m 10m 15m
SCALE 1:500 (A3)
HORIZ.

00 1m 2m 3m
SCALE 1:100 (A3)
VERT.

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

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Drawing title - EARTHWORKS SECTIONS (SHEET 2 OF 7)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C161

Digital Ref : C160-C166 EARTHWORKS SECTIONS Issue : B

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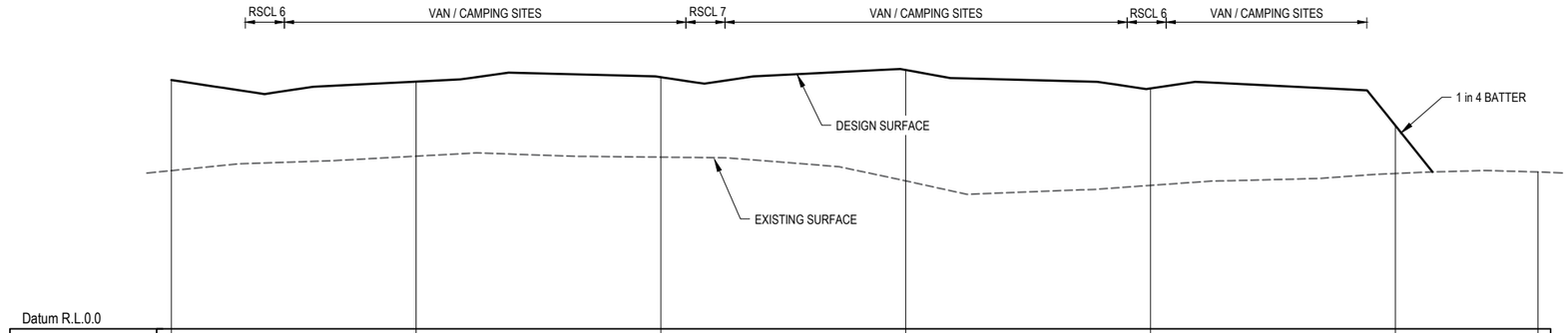
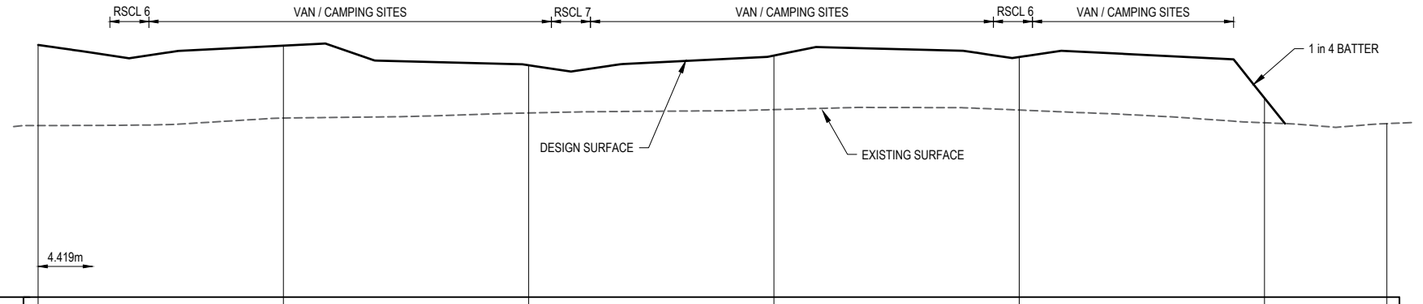
Plot 18 December 2024 - 11:27 AM



Datum R.L.0.0

Design Surface	4.068	4.042	4.114	4.231	3.929	3.323	2.564
Natural Ground	2.586	2.822	2.806	2.419	2.344	2.539	2.564
Depth of Cut or Fill	-1.482	-1.219	-1.307	-1.813	-1.585	-0.784	0.000
Chainage	0.000	20.000	40.000	60.000	80.000	100.000	111.657

SECTION F
HORIZ. 1:250(A1) / VERT. 1:50(A1)
F
C153



Datum R.L.0.0

Design Surface	4.111	4.098	3.779	3.937	3.912	3.245	2.827
Natural Ground	2.795	2.919	3.001	3.055	3.048	2.841	2.827
Depth of Cut or Fill	-1.315	-1.179	-0.778	-0.882	-0.864	-0.403	0.000
Chainage	0.000	20.000	40.000	60.000	80.000	100.000	109.979

SECTION G
HORIZ. 1:250(A1) / VERT. 1:50(A1)
G
C152

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

00 5m 10m 15m
SCALE 1:500 (A3)
HORIZ.

00 1m 2m 3m
SCALE 1:100 (A3)
VERT.

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

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Drawing title - EARTHWORKS SECTIONS (SHEET 3 OF 7)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C162

Digital Ref : C160-C166 EARTHWORKS SECTIONS Issue : B

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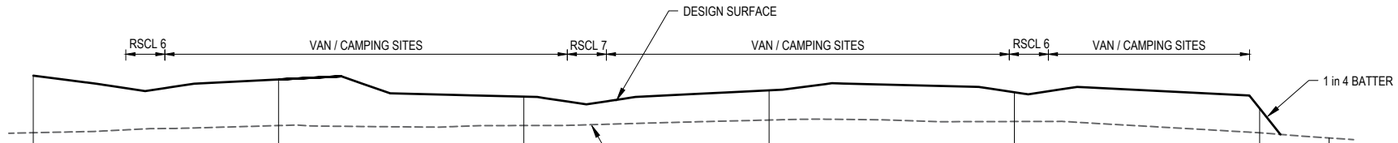
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

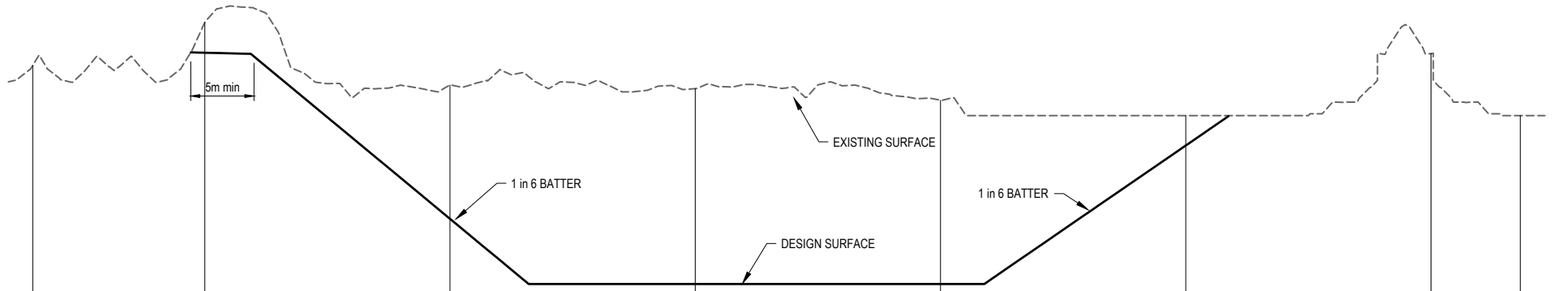
DSDIP ref: MBN25/1159

Date: 6 January 2026



Datum R.L.0.0

| | | |



Datum R.L.-1.5

Design Surface	2.629	2.769	0.062	-1.000	-1.000	1.257	2.755	1.742
Natural Ground	2.564	3.264	2.244	2.186	1.995	1.745	2.755	1.745
Depth of Cut or Fill	0.035	0.495	2.182	3.186	2.995	0.488	0.000	0.003
Chainage	5.983	20.000	40.000	60.000	80.000	100.000	120.000	127.283

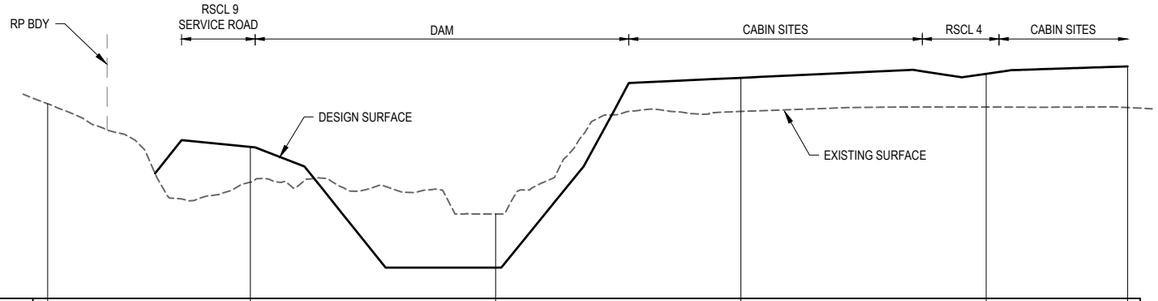
SECTION J
HORIZ. 1:250(A1) / VERT. 1:50(A1)
J / C155

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



Datum R.L.0.0

Design Surface	3.173	2.468	0.500	3.595	3.660	3.781
Natural Ground	3.173	1.893	1.375	3.046	3.119	3.111
Depth of Cut or Fill	0.000	-0.574	0.875	-0.549	-0.542	-0.671
Chainage	3.465	20.000	40.000	60.000	80.000	91.531

SECTION K
HORIZ. 1:250(A1) / VERT. 1:50(A1)
K / C151

0 5m 10m 15m
SCALE 1:500 (A3)
HORIZ.

0 1m 2m 3m
SCALE 1:100 (A3)
VERT.

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

covey

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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - EARTHWORKS SECTIONS (SHEET 5 OF 7)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C164

Digital Ref : C160-C166 EARTHWORKS SECTIONS Issue : B

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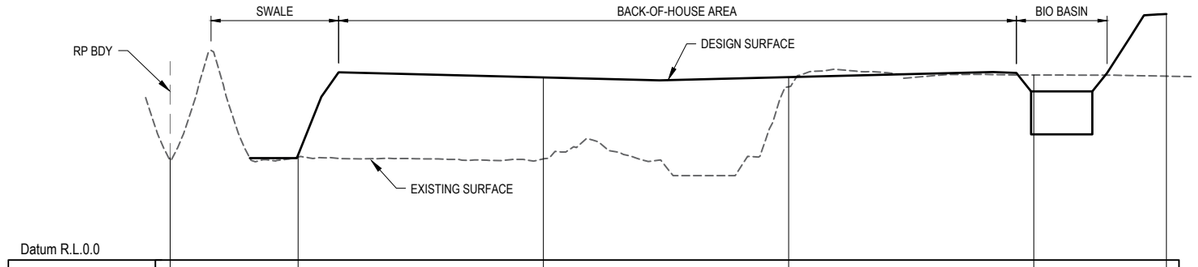
Plot 18 December 2024 - 11:27 AM



Datum R.L.0.0

Design Surface	1.679	1.710	2.977	2.983	2.050	4.012
Natural Ground	1.627	1.678	1.650	2.825	3.016	2.998
Depth of Cut or Fill	-0.052	-0.032	-1.328	-0.158	0.966	-1.014
Chainage	9.565	20.000	40.000	60.000	80.000	90.809

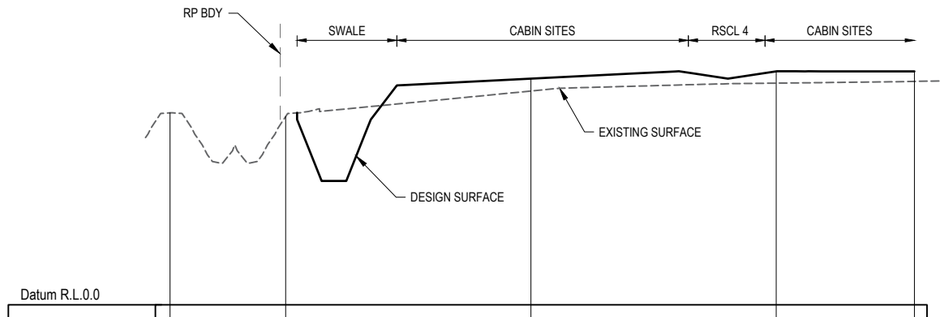
SECTION L
HORIZ. 1:250(A1) / VERT. 1:50(A1)
L / C154

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



Datum R.L.0.0

Design Surface	3.020	3.072	3.687	3.806	3.807
Natural Ground	3.130	3.072	3.486	3.614	3.643
Depth of Cut or Fill	0.110	0.000	-0.201	-0.192	-0.164
Chainage	10.571	20.000	40.000	60.000	71.269

SECTION M
HORIZ. 1:250(A1) / VERT. 1:50(A1)
M / C154

0 5m 10m 15m
SCALE 1:500 (A3)
HORIZ.

0 1m 2m 3m
SCALE 1:100 (A3)
VERT.

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Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

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covey

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Drawing title - EARTHWORKS SECTIONS (SHEET 6 OF 7)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C165

Digital Ref : C160-C166 EARTHWORKS SECTIONS Issue : B

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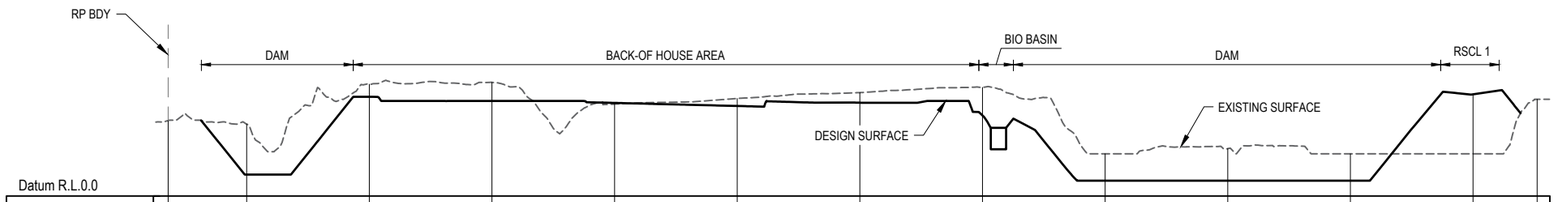
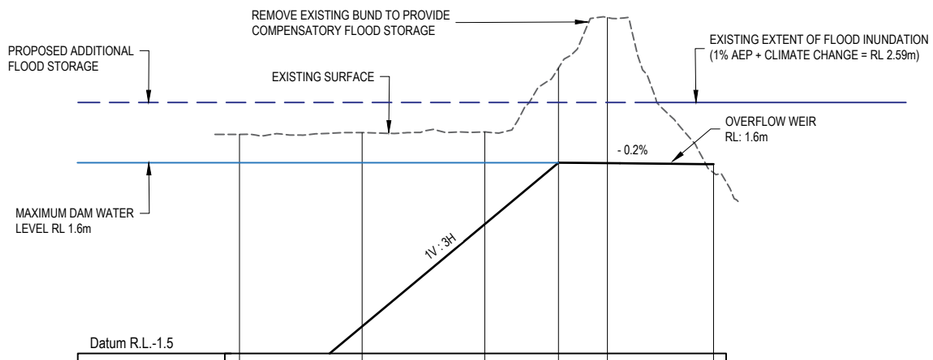


Datum R.L.0.0

Design Surface	2.461	0.700	3.394	3.100	3.035	2.935	3.042	2.623	0.500	0.500	0.500	3.314	3.152
Natural Ground	2.461	2.345	3.644	3.705	2.998	3.180	3.372	3.539	1.375	1.545	1.375	1.375	3.152
Depth of Cut or Fill	0.000	1.645	0.250	0.605	-0.037	0.245	0.330	0.917	0.875	1.045	0.875	-1.939	0.000
Chainage	27.182	40.000	60.000	80.000	100.000	120.000	140.000	160.000	180.000	200.000	220.000	240.000	250.456

SECTION N
HORIZ. 1:500(A1) / VERT. 1:100(A1)
N
C154



Datum R.L.-1.5

Design Surface	-1.500	-1.059	0.608	1.610	1.602	1.585
Natural Ground	2.071	2.100	2.110	3.154	3.975	1.445
Depth of Cut or Fill	3.571	3.159	1.502	1.544	2.373	-0.139
Chainage	0.000	10.000	20.000	26.011	30.000	38.649

SECTION O
HORIZ. 1:250(A1) / VERT. 1:50(A1)
O
C155

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

00 10m 20m 30m
SCALE 1:1000 (A3)
HORIZ.

00 2m 4m 6m
SCALE 1:200 (A3)
VERT.

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Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

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covey

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Drawing title - EARTHWORKS SECTIONS (SHEET 7 OF 7)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C166

Digital Ref : C160-C166 EARTHWORKS SECTIONS Issue : B

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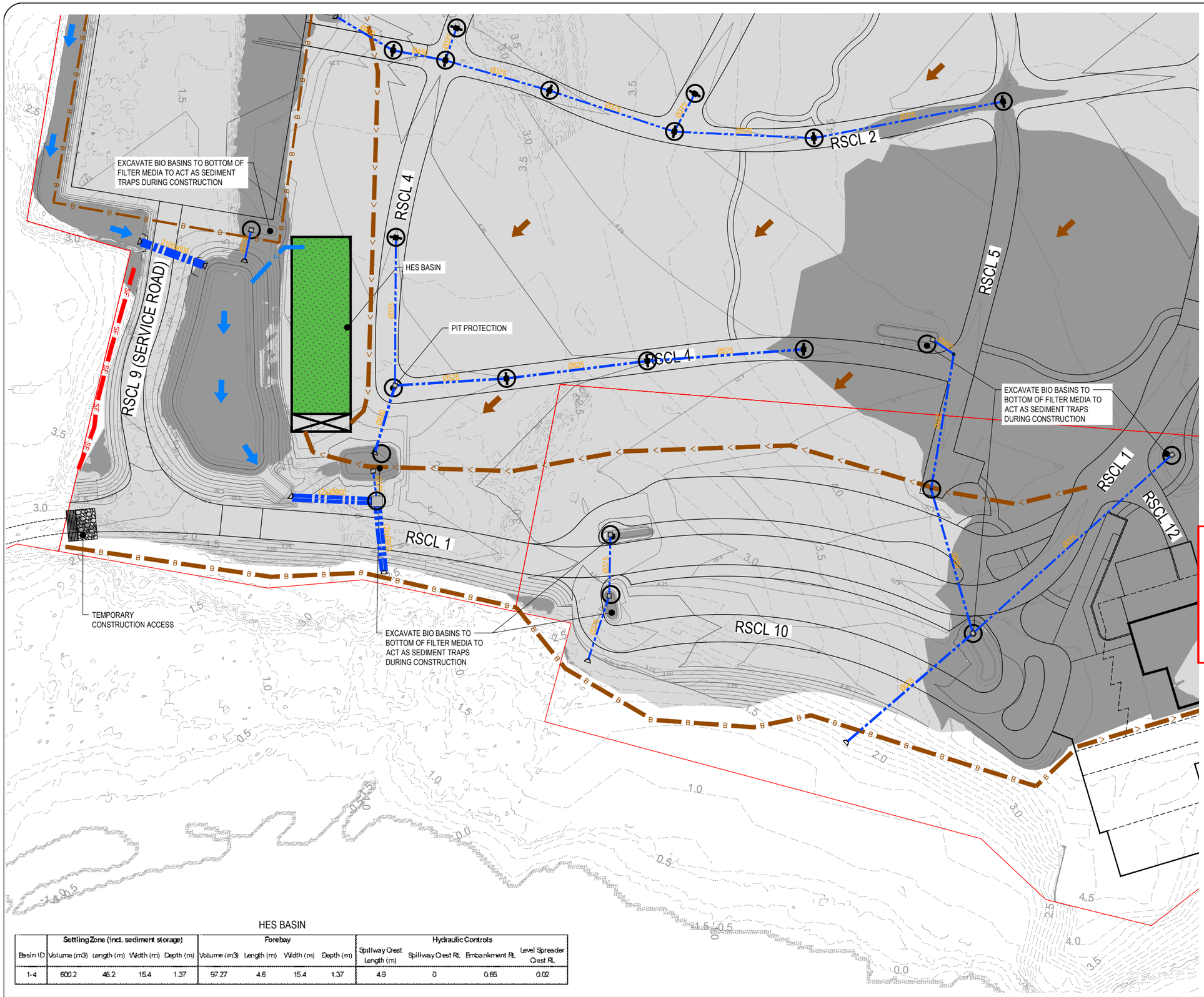
Plot 18 December 2024 - 11:23 AM



LEGEND

- EXTENT OF EARTHWORKS FILL
- EXTENT OF EARTHWORKS CUT
- HES BASIN
- NO-GO EXCLUSION FENCING TO EXTENT OF WORKS
- DIRTY WATER FLOW DIRECTION
  SITE WATER TO BE DIRECTED BY PUMPING OR SURFACE DRAIN
- CLEAN WATER FLOW DIRECTION
- PROPOSED CLEAN WATER DIVERSION DRAIN
- PROPOSED DIRTY WATER DIVERSION BUND
- PROPOSED DIRTY WATER DIVERSION DRAIN
- PROPOSED SEDIMENT FENCING
- INLET PIT SEDIMENT BARRIER - (TO BE ERECTED & MAINTAINED DURING GENERAL CONSTRUCTION PERIOD)
- SEDIMENT BASIN STORMWATER CATCHMENT BOUNDARIES
- DESIGN SURFACE CONTOURS (0.010m INTERVALS)

ORDER OF WORKS (AS APPLICABLE)

1. SITE ESTABLISHMENT
   a) ENTRYWAY
   b) SITE OFFICE - LOCATION AT DISCRETION OF CONTRACTOR
2. ESTABLISH EXCLUSION / NO-GO ZONE AREAS & FENCING
3. INSTALL CLEAN WATER DIVERSION
4. INSTALL SEDIMENT FENCING
5. INSTALL DIRTY WATER DIVERSION DRAINS
6. INSTALL PIPEWORK
7. CONSTRUCT ROADS AND DRIVEWAYS

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

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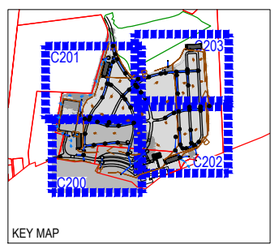
Date: 6 January 2026



SCALE 1:500 (A1) - 1:1000 (A3)

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	29.08.24	APPROVAL	GHK

Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Approved

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MAROOCHYDORE QLD 4558

Drawing title - EROSION AND SEDIMENT CONTROL PLAN (SHEET 1 OF 5)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C200

Digital Ref : C200-C204 EROSION AND SEDIMENT CONTROL PLAN Issue : B

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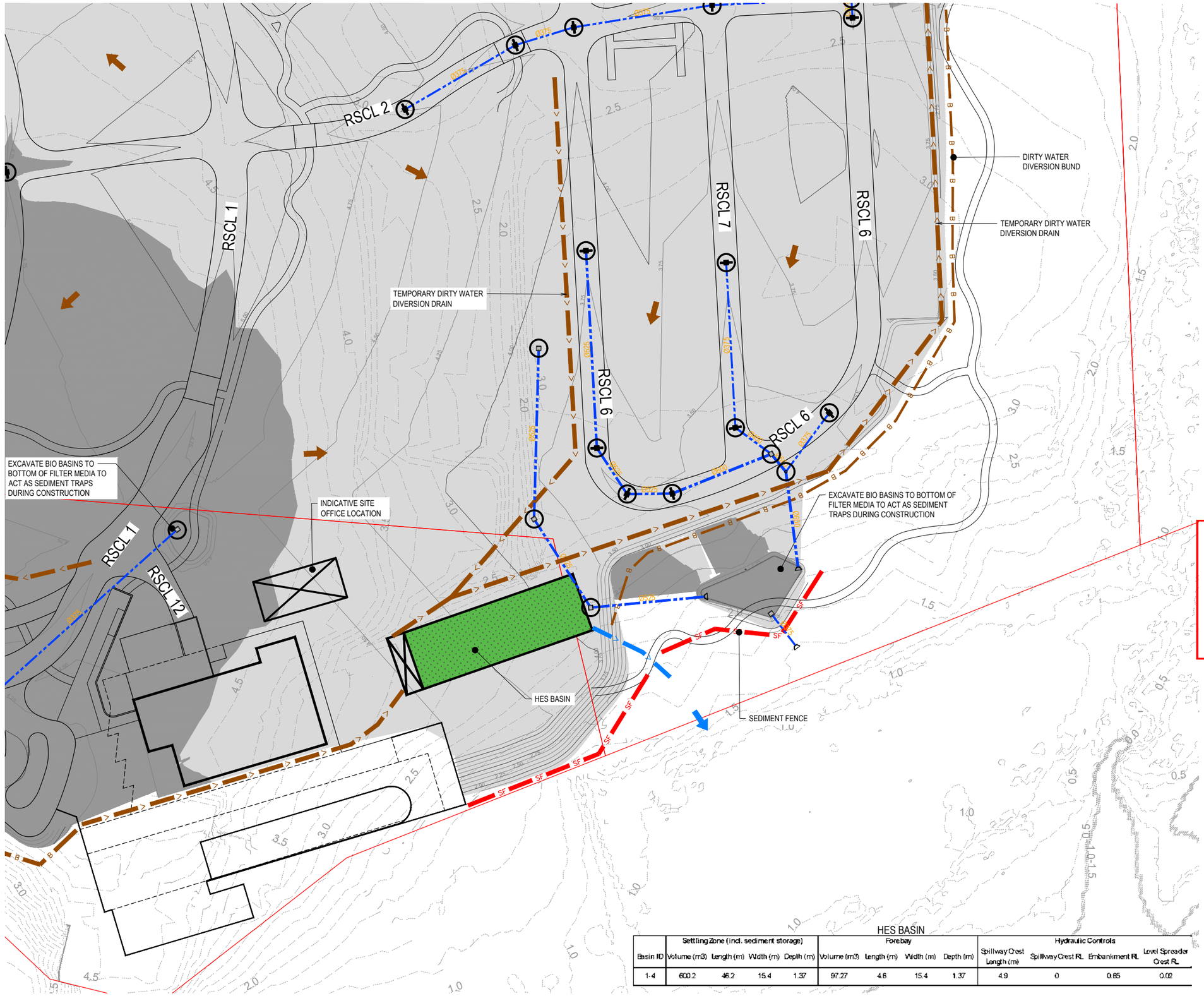

LEGEND

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- DESIGN SURFACE CONTOURS (0.010m INTERVALS)

ORDER OF WORKS (AS APPLICABLE)

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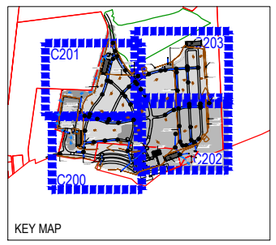
PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



KEY MAP

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SCALE 1:500 (A1) - 1:1000 (A3)

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Drawing title - EROSION AND SEDIMENT CONTROL PLAN (SHEET 3 OF 5)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C202

Digital Ref : C200-C204 EROSION AND SEDIMENT CONTROL PLAN Issue : B

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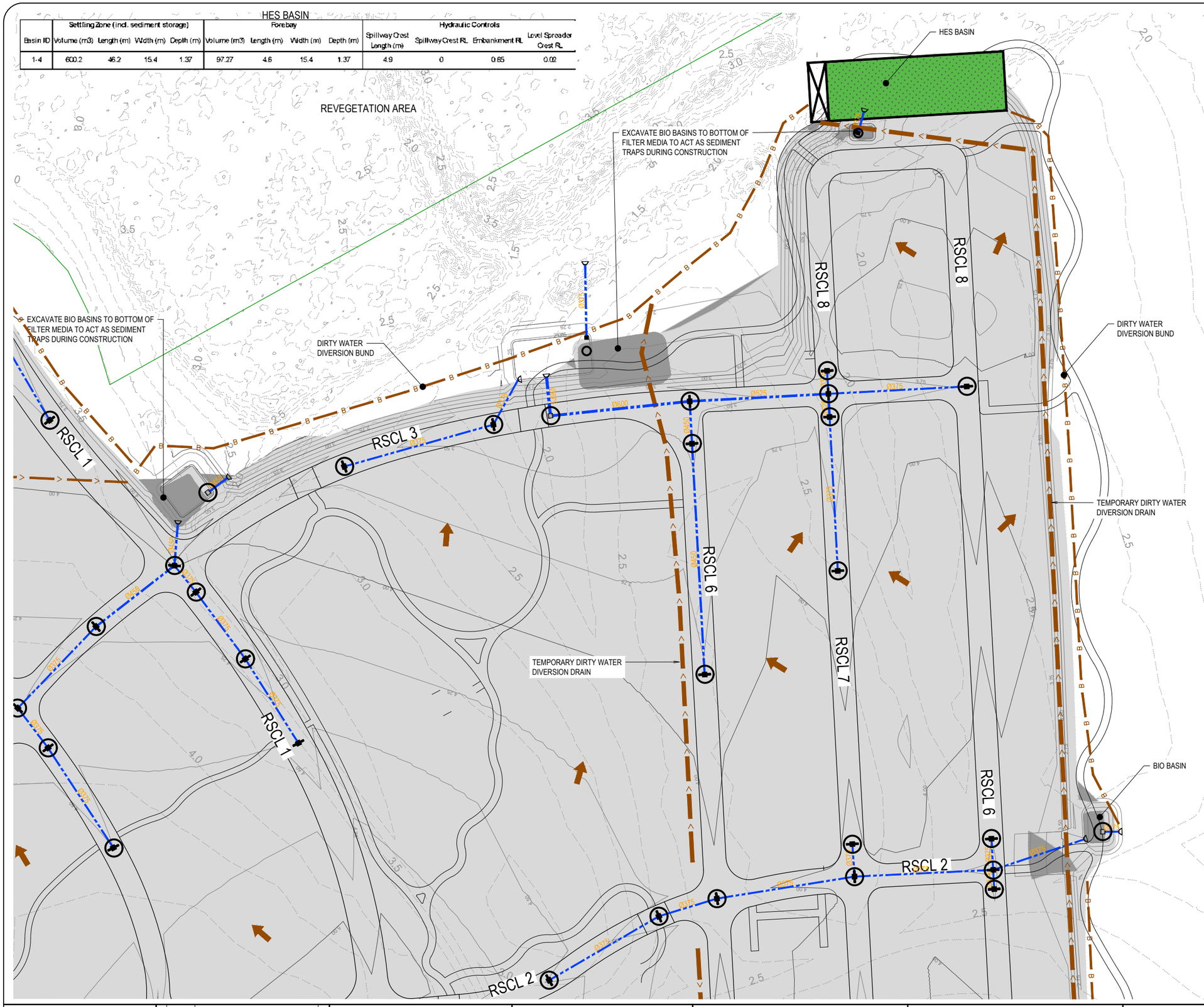

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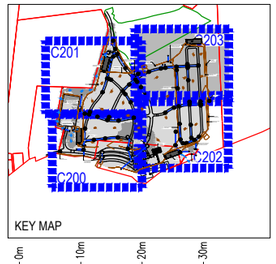

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Drawing title - EROSION AND SEDIMENT CONTROL PLAN (SHEET 4 OF 5)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C203

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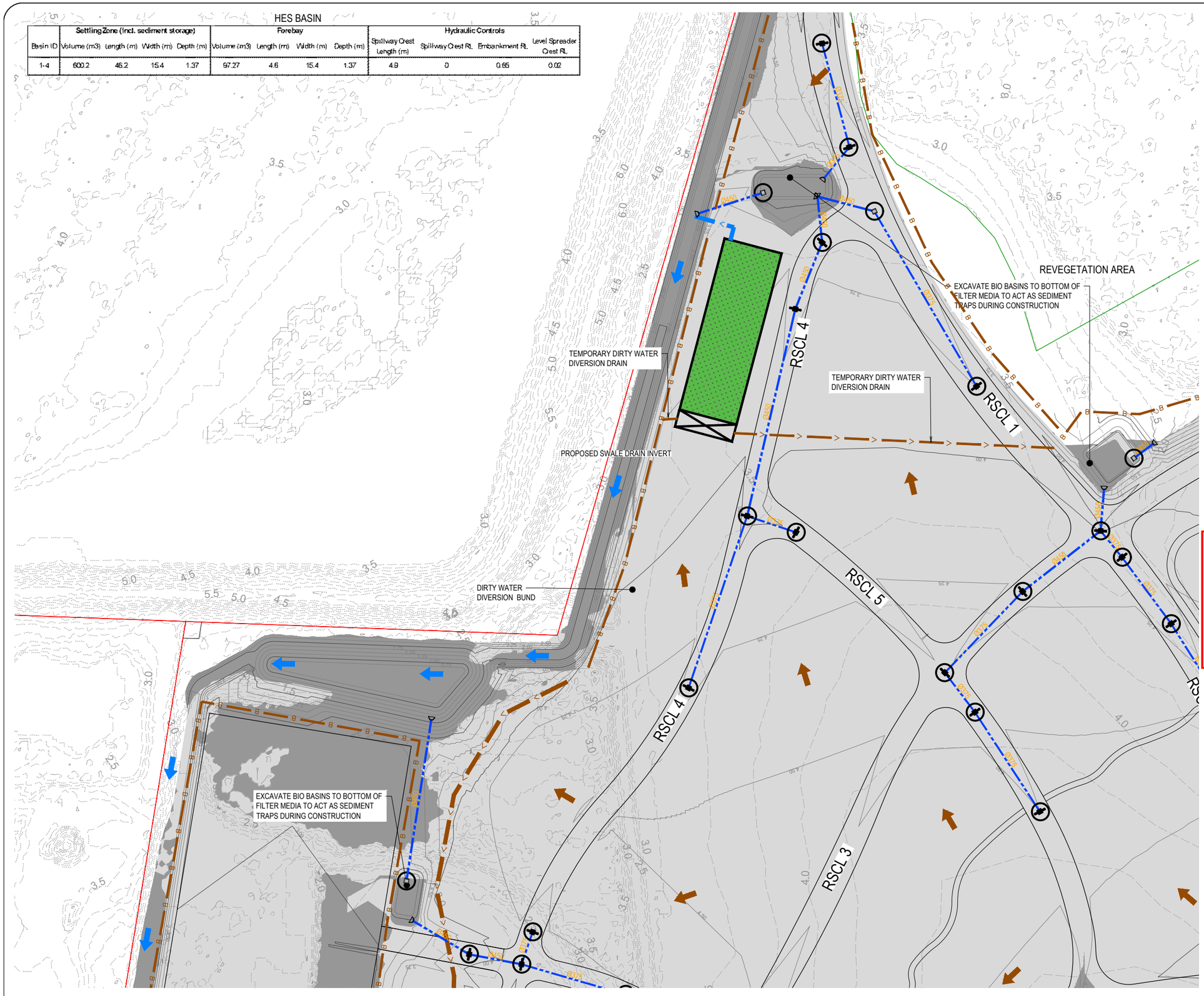

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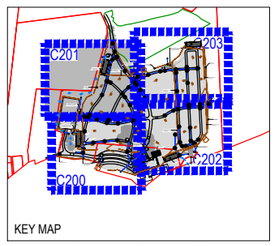

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Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C201

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PLANS AND DOCUMENTS
referred to in the
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DAM

SILT FENCE

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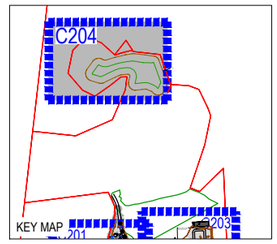

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Drawing title - EROSION AND SEDIMENT CONTROL PLAN (SHEET 5 OF 5)

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Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C204

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EROSION AND SEDIMENT CONTROL DETAILS

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

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ALL EROSION AND SEDIMENT IN ACCORDANCE WITH IN ACCORDANCE WITH WITH IECA MANUAL FOR EROSION AND SEDIMENT CONTROL

EROSION AND SEDIMENT CONTROL NOTES

THE FOLLOWING NOTES AND DETAILS PROVIDE INFORMATION ON THE CONTROLS AND PROCEDURES THAT ARE TO BE IMPLEMENTED AS PART OF THE EROSION AND SEDIMENT CONTROL PLAN (E&SCP). THESE MEASURES ARE CONSIDERED SUFFICIENT TO ENSURE THE EROSION AND SEDIMENT CONTROL STANDARD WILL BE MET, GIVEN THE SITE CHARACTERISTICS, PROPOSED DEVELOPMENT AND CONTROL MEASURES.

CONSTRUCTION MANAGEMENT PLAN

OBJECTIVE/TARGET

TO ENSURE THAT:
(A) STORMWATER QUALITY LEAVING THE SITE IS OF ACCEPTABLE STANDARDS (<50MG/L TSS AND <75 NTU).
(B) EROSION AND SEDIMENTATION DURING CONSTRUCTION IS MINIMISED.

THE ABOVE OBJECTIVES ARE TO BE ACHIEVED BY COMPLYING WITH THE FOLLOWING REGULATIONS AND GUIDELINES:

- EPACT 1994 AND RELEVANT POLICES.
- INSTITUTION OF ENGINEERS SEDIMENT AND EROSION CONTROL GUIDELINES.
- IECA'S BEST PRACTICE EROSION & SEDIMENT CONTROL

MANAGEMENT STRATEGY

THE SITE FOREMAN WILL BE RESPONSIBLE FOR:

- IDENTIFYING AND CHECKING STORMWATER LAND FLOWS.
- PROVIDE BARRIERS AND OTHER MEASURES TO PREVENT STORMWATER FLOWS OVER EMBANKMENTS AND SEDIMENTS INTO EXISTING GULLY PITS.

TASKS/ACTION PRE-CONSTRUCTION

BEFORE CONSTRUCTION ACTIVITIES BEGIN, THE FOLLOWING MEASURES NEED TO BE IMPLEMENTED TO MINIMIZE DISTURBANCE AND ADVERSE WATER QUALITY IMPACTS.

- SEDIMENT FENCES ARE TO BE CONSTRUCTED AT THE TOP OF EMBANKMENTS AND AT THE BASE OF FILL EMBANKMENTS.
- DIVERSION BANKS TO BE CREATED AT THE UPSTREAM BOUNDARY OF CONSTRUCTION ACTIVITIES TO ENSURE UPSTREAM RUNOFF IS DIVERTED AROUND ANY AREAS TO BE EXPOSED. CATCH-DRAINS AT THE DOWNSTREAM BOUNDARY OF CONSTRUCTION ACTIVITIES SHOULD ALSO BE CREATED (WHEREVER POSSIBLE) TO ENSURE ANY SEDIMENT-LADEN RUNOFF IS CONTAINED AND DIRECTED TOWARD TREATMENT AREAS AND NOT PERMITTED TO FLOW ONTO DOWNSTREAM UNDISTURBED AREAS. DIVERSION BANKS SHOULD BE CONSTRUCTED APPROXIMATELY ALONG CONTOURS TO MINIMIZE SCOUR ALONG THE DRAINS.
- SILT FENCES AND SAND BAGS WILL BE PLACED ALONG CATCH DRAINS TO SLOW FLOW, REDUCE SCOUR, MINIMIZE SEDIMENT FROM RUNOFF.
- STRATEGICALLY PLACE CHECK DAMS AROUND GULLY PITS. DESIGNATION OF AREAS FOR PLANT AND MATERIAL STORAGE.
- DESIGNATION AND MARKING OF TRANSPORT ROUTES ACROSS UNDISTURBED PORTIONS OF THE SITE TO MINIMIZE UNNECESSARY VEGETATION DISTURBANCE.
- EDUCATION OF SITE PERSONNEL TO THE SEDIMENT AND EROSION CONTROL MEASURES IMPLEMENTED ON SITE.

TASKS/ACTIONS DURING CONSTRUCTION

MEASURES TO MITIGATE WATER QUALITY IMPACTS DURING CONSTRUCTION.

- CONSTRUCTION ACTIVITIES BE CONFINED WITHIN THE NECESSARY CONSTRUCTION AREA(S)
- INSTALLATION OF SILT FENCES DOWNSTREAM OF DISTURBED AREAS. SILT FENCES SHOULD BE LOCATED CONTINUOUSLY ALONG CONTOURS AND SHOULD TREAT AREAS LESS THAN 0.6 HA. PER 100M OF SILT FENCE.
- WEEKLY INSPECTION AND MAINTENANCE OF SILT FENCES, SEDIMENT BASINS AND OTHER EROSION CONTROL MEASURES. CHECK FENCES AFTER RAINFALL EVENTS AND REMOVE COLLECTED MATERIAL WHEN FENCE IS 50% FULL. REPLACEMENT OF ANY DAMAGED EQUIPMENT SHOULD BE PERFORMED IMMEDIATELY.
- RETAIN SITE VEGETATION WHERE POSSIBLE AND SUITABLE.
- PROGRESSIVE RE-VEGETATION OF CUT AND FILL AREAS AND FILL BATTERS WITH TWO GRASS SPECIES IF SEEDING.
- MULCHING AND RETENTION OF VEGETATION AND TOPSOIL FOR FINAL SITE REHABILITATION AND LANDSCAPING WORKS.
- AIM FOR 60% COVERAGE WITHIN 20 DAYS AND 70% WITHIN 6 WEEKS
- RE-VEGETATION AND LANDSCAPING OF REMAINING EXPOSED AREAS USING THE TOPSOIL AND ANY MULCHED VEGETATION RETAINED FROM INITIAL SITE CLEARING. VEGETATION SHOULD BE WATERED AND MAINTAINED UNTIL IT IS SUITABLY ESTABLISHED.
- IF LANDSCAPING IS REQUIRED SPECIES TO BE USED SHOULD PREFERABLY BE NATIVE AND ENDEMIC TO THE AREA. REMOVAL/MANAGEMENT OF WEEDS.

PERFORMANCE INDICATORS

THE SITE FOREMAN WILL CARRY OUT REGULAR CHECKS OF THE ONSITE SEDIMENT AND EROSION CONTROL MEASURES DURING CONSTRUCTION AND AFTER EVERY RAINFALL EVENT. THE CHECKS WILL INCLUDE THE FOLLOWING:

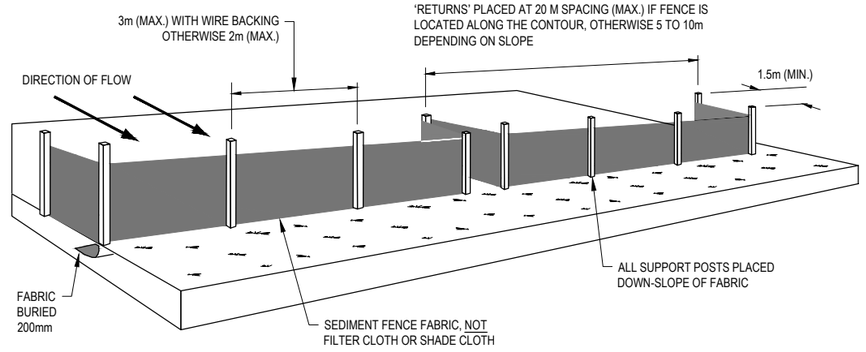
- EROSION AND SEDIMENT FLOWS CHECKED AT THE BASE OF EMBANKMENTS.
- NO VISIBLE EVIDENCE OF INCREASED TURBIDITY DIRECTLY ATTRIBUTED TO CONSTRUCTION ACTIVITIES.
- NO VISUAL EVIDENCE OF SCOURING.
- CONSTRUCTED CHECK DAMS TO BE INSPECTED DURING RAINFALL EVENTS TO ENSURE THEY ARE OPERATING CORRECTLY.

FREQUENCY/DEADLINE

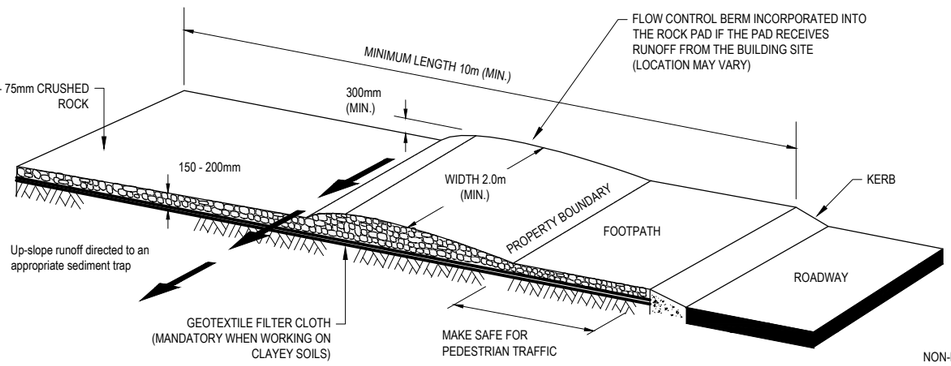
- MATERIAL STOCKPILES WILL BE INSPECTED REGULARLY TO CONFIRM THEIR LOCATION IS NOT RESULTING IN THE GENERATION AND UNCONTROLLED TRANSPORT OF SEDIMENT.
- INSPECTION OF EROSION AND SEDIMENT CONTROL MEASURES AND STRUCTURES TO BE UNDERTAKEN AFTER EACH RAINFALL EVENT.
- IF AREAS ARE BEING RE-VEGETATED FOLLOWING COMPLETION OF CONSTRUCTION, THESE AREAS WILL BE INSPECTED WEEKLY TO CONFIRM THAT VEGETATION IS BECOMING ESTABLISHED.

REPORTING AND REVIEW

RESULTS OF INSPECTIONS WILL BE REPORTED AS PART OF THE DEVELOPERS REGULAR REPORTS TO THE MORETON BAY REGIONAL COUNCIL SITE INSPECTOR.



INSTALLATION OF SEDIMENT FENCE
NOT TO SCALE



(A) ROCK ENTRY/EXIT PAD FOR BUILDING SITES

CONSTRUCTION NOTES:

MATERIALS

ROCK: WELL GRADED, HARD, ANGULAR, EROSION RESISTANT ROCK, NOMINAL DIAMETER OF 40 TO 75mm.

FOOTPATH STABILISING AGGREGATE: 25 TO 50mm GRAVEL OR AGGREGATE (IF REQUIRED).

GEOTEXTILE FABRIC: HEAVY-DUTY, NEEDLE-PUNCHED, NON-WOVEN FILTER CLOTH ('BIDIM' A24 OR EQUIVALENT).

INSTALLATION

1. INSPECT ALL SITE ENTRY AND EXIT POINTS PRIOR TO FORECAST RAIN, DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER RUNOFF-PRODUCING RAINFALL, OR OTHERWISE AT FORTNIGHTLY INTERVALS.

2. IF SAND, SOIL, SEDIMENT OR MUD IS TRACKED OR WASHED ONTO THE ADJACENT SEALED ROADWAY, THEN SUCH MUST BE PHYSICALLY REMOVED, FIRST USING A SQUARE-EDGED SHOVEL, AND THEN A STIFF-BRISTLED BROOM, AND THEN BY A MECHANICAL VACUUM UNIT, IF AVAILABLE.

3. IF NECESSARY FOR SAFETY REASONS, THE ROADWAY SHALL ONLY BE WASHED CLEAN AFTER ALL REASONABLE EFFORTS HAVE BEEN TAKEN TO SHOVEL AND SWEEP THE MATERIAL FROM THE ROADWAY.

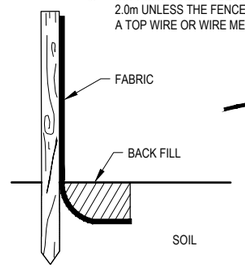
4. WHEN THE VOIDS BETWEEN THE ROCK BECOMES FILLED WITH MATERIAL AND THE EFFECTIVENESS OF THE ROCK PAD IS REDUCED TO A POINT WHERE SEDIMENT IS BEING TRACKED OFF THE SITE, A NEW 100mm LAYER OF ROCK MUST BE ADDED AND/OR THE ROCK PAD MUST BE EXTENDED.

5. ENSURE ANY ASSOCIATED DRAINAGE CONTROL MEASURES (e.g. FLOW CONTROL BERM) ARE MAINTAINED IN ACCORDANCE WITH THEIR DESIRED OPERATIONAL CONDITION.

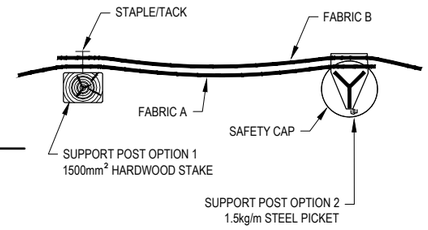
6. DISPOSE OF SEDIMENT AND DEBRIS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

SEDIMENT FENCE CONSTRUCTION NOTES

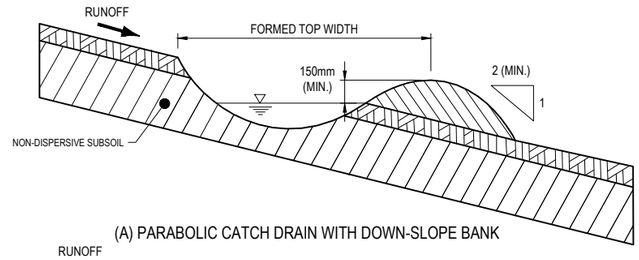
1. SEDIMENT FENCE TO BE INSTALLED ALONG A LINE OF CONSTANT GROUND ELEVATION WHEREVER PRACTICAL.
2. BOTH ENDS OF THE SEDIMENT FENCE TO EXTEND UP THE SLOPE AT LEAST 1.0m.
3. SUPPORT POST TO BE SPACED A MAXIMUM 2.0m UNLESS THE FENCE IS SUPPORTED BY A TOP WIRE OR WIRE MESH BACKING, IN WHICH CASE 3.0m MAX. SPACING.
4. FENCE 'RETURNS' SHALL BE INSTALLED AT MAXIMUM 20m SPACING IF FENCE IS INSTALLED ALONG THE CONTOUR, OTHERWISE 5 TO 10m MAXIMUM SPACING.
5. MINIMUM 4 STAPLES OR TIE WIRES PER STAKE.



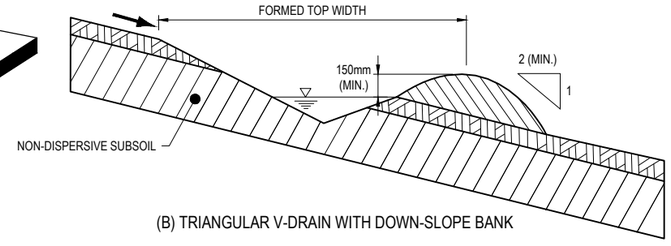
SEDIMENT FENCE ANCHORING BASE OF FABRIC
NOT TO SCALE



SEDIMENT FENCE JOINING FABRIC
NOT TO SCALE



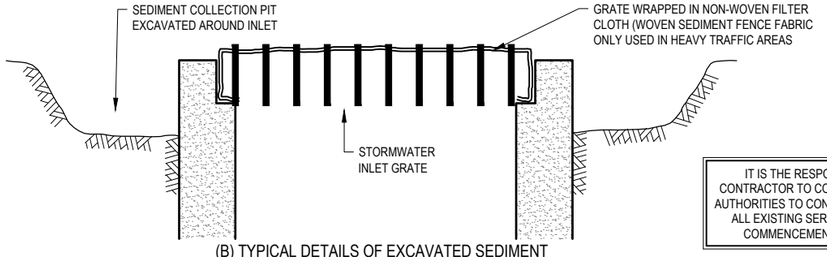
(A) PARABOLIC CATCH DRAIN WITH DOWN-SLOPE BANK



(B) TRIANGULAR V-DRAIN WITH DOWN-SLOPE BANK

CATCH DRAIN CONSTRUCTION NOTES

1. EXCAVATE THE DIVERSION CHANNEL REMOVING ALL DEBRIS
2. ENSURE THE DRAIN INVERT MUST FALL 10cm EVERY 10m FOR EACH 1% OF CHANNEL GRADIENT
3. ENSURE THE SIDES OF THE CUT DRAIN ARE NO STEEPER THAN 1.5:1 (H:V) SLOPE AND TEH EMBANKMENT FILL SLOPES ARE NO STEEPER THAN 2:1
4. ENSURE THE DRAIN DISCHARGES TO A STABLE OUTLET
5. IF GEOTEXTILE LINED FOLLOW THE METHOD OD INTSALLATION PROCEDURES PROVIDED BY THE MANUFACTURER OR DISTRIBUTOR OF THE PRODUCT.
6. INSPECT THE DIVERSION CHANNEL WEEKLY AND AFTER ANY INCREASE OF FLOWS OR RAIN EVENTS. REPAIR ANY SLUMPS, WHEEL TRACK DAMAGE OR LOSS OFF FREEBOARD
7. ON COMPLETION OF THE CONSTRUCTION WORK, REMOVE THE TEMPORARY DIVERSION CHANNEL. THE AREA IS TO BE STABILISED AND REHABILITED APPROPRIATELY.



(B) TYPICAL DETAILS OF EXCAVATED SEDIMENT COLLECTION TRENCH

GRATED STORMWATER (FIELD) INLET SEDIMENT TRAP

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Checked - SR			
Design - CM	Drawn - GHK		
Scales - AS SHOWN			
Document Stage - APPROVAL			

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	04.10.24	APPROVAL	CM

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Drawing title - EROSION AND SEDIMENT CONTROL DETAILS (SHEET 1 OF 2)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C210

Digital Ref : C210-C211 EROSION AND SEDIMENT CONTROL DETAILS Issue : B

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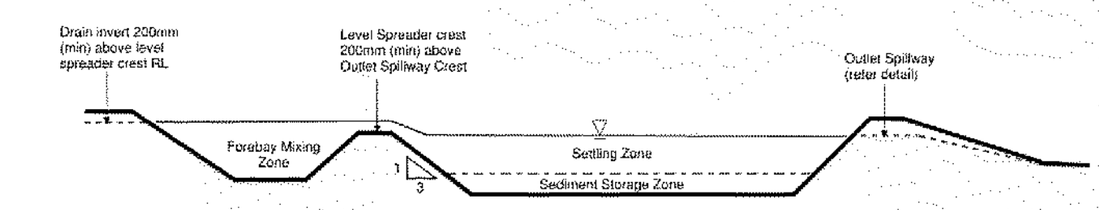
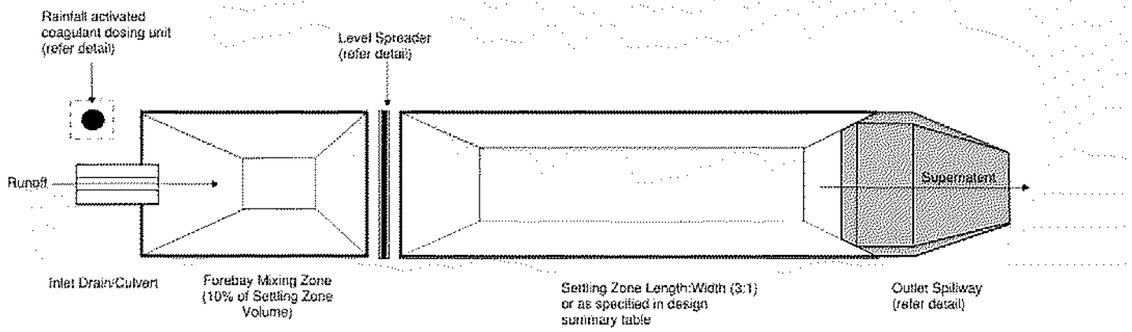
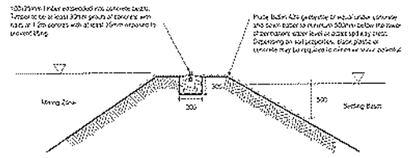
Plot 18 December 2024 - 11:29 AM



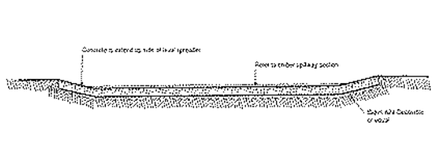
Type B Sediment Basin Long Section (Typical NTS)



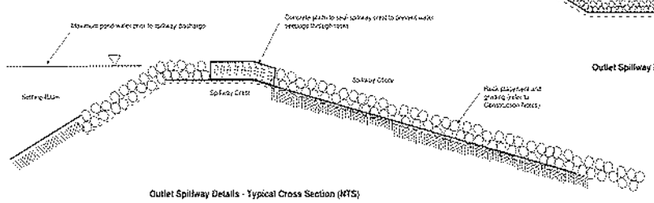
Type B Sediment Basin Plan View (Typical NTS)



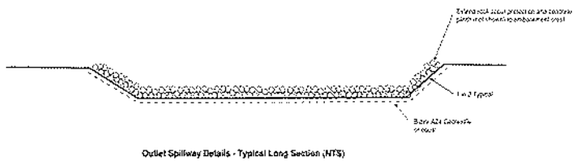
Level Spreader Details - Typical Cross Section (NTS)



Level Spreader Details - Typical Long Section (NTS)



Outlet Spillway Details - Typical Cross Section (NTS)



Outlet Spillway Details - Typical Long Section (NTS)

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

DSDIP ref: MBN25/1159

Date: 6 January 2026

Queensland Government

Notes:

Auto Doser

1. Provided as either Flow Box or IFDD-Rain to manufacturers specification.
2. Doser and supply of flocculant to be provided on level pad 4mx4m within 10m of dosing point.
3. All-weather access track to be provided to doser.
4. Flocculant provided as Turbiclear (ACH). If alternative flocculant used then the basin size is to be increased according to jar settlement test (refer to table below.

Jar Settlement after 15 mins	Multiplication Factor to Settling Zone Volume
(mm)	
50	x3
75	x2
100	x1.5
150	x1

Basin construction:

Materials-

5. Earth Fill: clean soil with Emerson Class 2(i), 3, 4 or 5 and free of roots, woody vegetation, rocks and other unsuitable material. Soil with Emerson Class 4 and 5 may not be suitable depending on particle size distribution and degree of dispersion. Class 2(i) should only be used upon recommendation from geotechnical specialist.
6. Spillway rock: hard, angular, durable, weather resistant and evenly graded rock with 50% by weight larger than the specified nominal (d50) rock size. Large rock should dominate, with sufficient small rock to fill the voids between larger rock. the diameter of the largest rock should be no larger than 1.5 times the nominal rock size. The specific gravity should be at least 2.5.
7. Geotextile fabric: heavy duty, needle-punched, non-woven cloth, minimum 'bidim' A24 or equivalent

Construction-

8. Notwithstanding any description contained with approved plans or specifications, the Contractor shall be responsible for satisfying themselves as to the nature and extent of the specified works and the physical and legal conditions under which the works will be carried out. This shall include means of access, extent of clearing, nature of the materials to be excavated, type and size of mechanical plant required, location and suitability of water supply for construction and testing purposes, and any other likely matters affecting the construction of the works.
9. Refer to approved plans for location, dimensions, and construction details. If there are questions or problems with the location, dimensions, or method of installation, contact the engineer or responsible on-site officer for assistance.
10. Before starting any clearing or construction, ensure all the necessary materials and components are on the site to avoid delays in completing the sediment basin once works begin.
11. Install requires short term sediment control measures downstream of the proposed earthworks to control sediment runoff during construction of the basin.
12. The area to be covered by the embankment, borrow pits and incidental works, together with an area extending beyond the limits of each for a distance not exceeding five (5) metres all around must be cleared of all trees, scrub, stumps, roots, dead timber and rubbish and disposed of in a suitable manner. Delay clearing the main basin area until the embankment is complete.
13. Ensure all holes made by grubbing within the embankment footprint are filled with sound material, adequately compacted, and finished flush with the natural surface.

Cut-off Trench-

14. Before construction of the cut-off trench or any ancillary works within the embankment footprint, all grass growth and topsoil must be removed from the area to be occupied by the embankment and must be deposited clear of this area and reserved for topdressing the completed embankment.
15. Excavate a cut-off trench along the centre line of the earth fill embankment. Cut the trench to stable soil material, but in no case make it less than 600mm deep. the cut-off trench must extend into both abutments to at least the elevation of the outlet spillway crest. Make the minimum bottom width wide enough to permit operation of the excavation and compaction equipment, but in no case less than 600mm. Make the side slopes of the trench no steeper than 1:1 (H:V).
16. Ensure all water, loose soil, and rock are removed from the trench before backfilling commences. The cut-off trench must be backfilled with select earth-fill of the type specified for the embankment, and this soil must have a moisture content and degree of compaction the same as specified for the core zone.
17. Material excavated from the cut-off trench may be used in the construction of the embankment provided it is suitable and it is placed in the correct zone according to its classification.

Embankment-

18. Scarify areas on which fill is to be placed before placing the fill.
19. Ensure all fill material used to form the embankment meets the specifications certified by a soil scientist of geotechnical specialist.
20. The fill material must contain sufficient moisture so it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction. Place fill material in 150 to 300mm continuous layers over the entire length of the fill area and then compact before placement of further fill.
21. Unless specified on the approved plans, compact the soil at about 1% to 2% wet optimum and to 95% modified or 100% standard compaction embankment to an elevation 10% higher than the design height to allow for settling
22. Where both dispersive and non-dispersive classified earth-fill materials are available, non-dispersive earth-fill must be used in the core zone. the remaining classified earth-fill materials must only be used as directed by the site superintendent..
23. Where specified, construct the embankment to an elevation 10% higher than the design height to allow for settling; otherwise finished dimensions of the embankment after spreading of topsoil must conform to the drawing with a tolerance of 75mm from specified dimensions.
24. Ensure debris and other unsuitable building waste is not placed within the earth embankment.
25. After completion of the embankment all loose uncompacted earth-fill material on the upstream and downstream batter must be removed prior to spreading topsoil.
26. Topsoil and re-vegetate/stabilise all exposed earth as directed within the approved plans.

Spillway construction-

27. The spillway must be excavated as shown on the plans, and the excavated material if classified as suitable, must be used in the embankment, and if not suitable it must be disposed of into spoil heaps.
28. Ensure excavated dimensions allow adequate boxing-out such that the specified elevations, grades, chute width, and entrance and exit slopes for the emergency spillway will be achieved after placement of the rock or other scour protection measures as specified in the plans.
29. Place specified scour protection measures on the emergency spillway. ensure the finished grade blends with the surrounding area to allow a smooth flow transition from spillway to downstream channel.
30. If a synthetic filter fabric underlay is specified, place the fabric directly on the prepared foundation. If more than 1 sheet of filter fabric is required, overlap the edges by at least 300mm and place anchor pins at minimum 1m spacing along the overlap. bury the upstream end of the filter fabric a minimum 300mm below ground and where necessary, bury the lower end of the fabric or overlap a minimum 300mm over the next downstream section as required. Ensure the filter fabric extends at least 1000mm upstream of the spillway crest.
31. Take care not to damage the fabric during or after placement. If damage occurs, remove the rock and repair the sheet by adding another layer of fabric with a minimum overlap of 300mm around the damaged area.31f extensive damage is suspected, remove and replace the entire sheet.
32. Where large rock is used, or machine placement is difficult, a minimum 100mm layer of fine gravel, aggregate, or sand may be needed to protect the fabric.
33. Placement of rock should follow immediately after placement of the filter fabric. Place rock so that it forms a dense, well graded mass of rock with a minimum of voids. the desired distribution of rock throughout the mass may be obtained by selective loading at the quarry and controlled dumping during final placement.
34. The finished slope should be free of pockets of small rock or clusters of large rocks. Hand placing may be necessary to achieve the proper distribution of rock sizes to produce a relatively smooth, uniform surface. the finished grade of the rock should blend with the surrounding area. No overfall or protrusion of rock should be apparent.
35. Ensure that the final arrangement of the spillway crest will not promote excessive flow through the rock such that the water can be retained within the settling basin at the elevation no less than 50mm above of below the nominated spillway crest elevation.

Establishing the settling pond-

36. The area to be covered by the stored water outside of the limits of the borrow pits must be cleared rubbish. Trees must be cut down stump high and removed from the immediate vicinity of the work.
37. Establish all required inflow chutes and outlet baffles, if specified, to enable water to discharge into the basin in a manner that will not cause soil erosion or the re-suspension of settled sediment.
38. Install a sediment storage level marker post with a cross member set just below the top of the sediment storage zone (as specified on the approved plans). Use at least a 75mm wide post firmly set into the basin floor.
39. If specified, install internal settling pond baffles. Ensure the crest of these baffles is set level with, or just below, the elevation of the emergency spillway.
40. Install all appropriate measures to minimise safety risk to on-site personnel and the public caused by the presence of the settling pond. Avoid steep, smooth internal slopes. Appropriately fence the settling pond and post warning signs if unsupervised public access is likely or there is considered to be an unacceptable risk to the public.

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Document Stage - APPROVAL			
B	18.12.24	RESPONSE TO RFI	CM
A	04.10.24	APPROVAL	CM
Issue	Date	Description	By

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Drawing title - EROSION AND SEDIMENT CONTROL DETAILS (SHEET 2 OF 2)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C211

Digital Ref : C210-C211 EROSION AND SEDIMENT CONTROL DETAILS Issue : B

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Plot 18 December 2024 - 11:28 AM

PLANS AND DOCUMENTS
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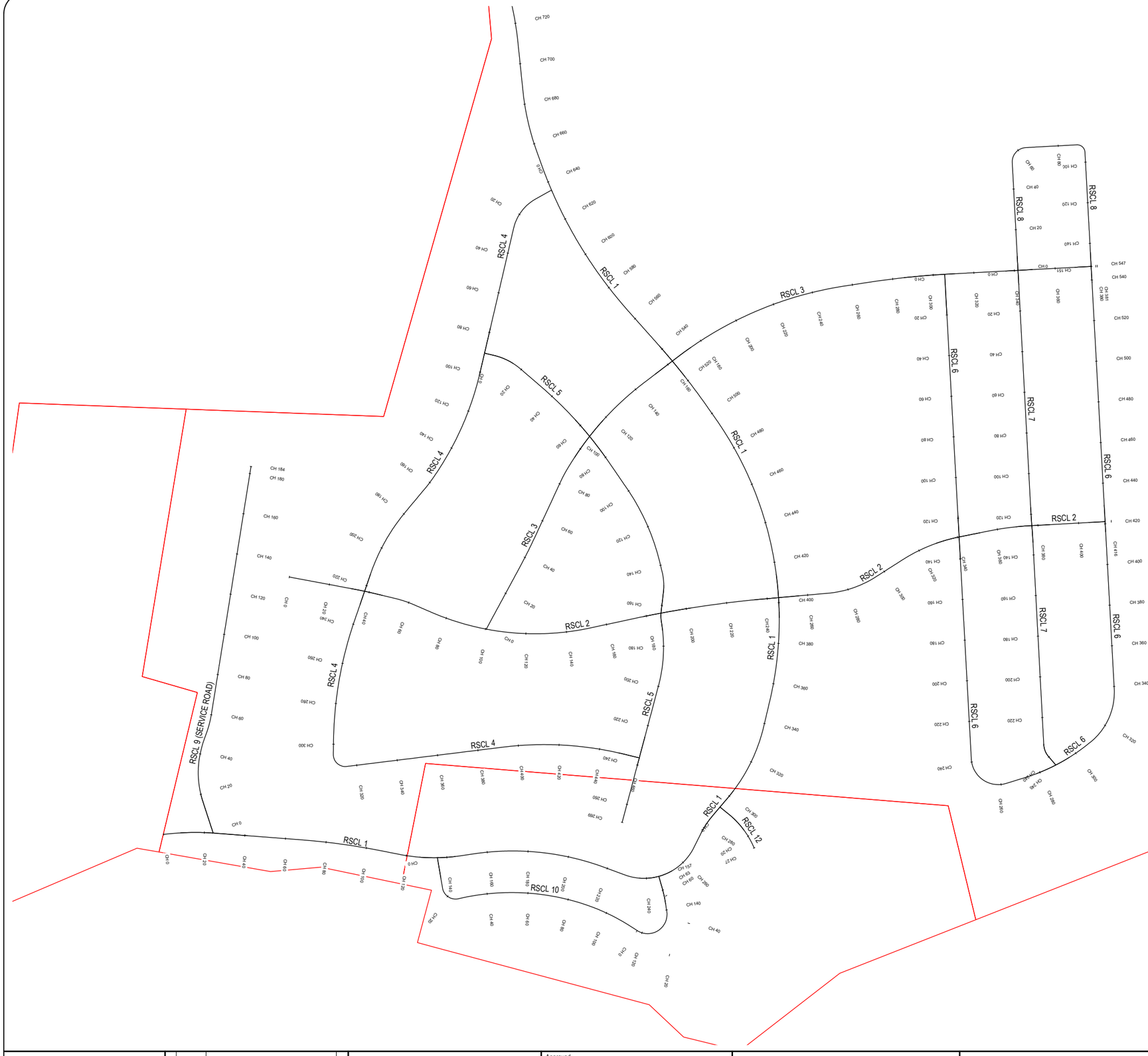
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



0m 20m 40m 60m

SCALE 1:1000 (A1) - 1:2000 (A3)

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Drawing title - ROAD ALIGNMENTS PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C250

Digital Ref : C250 ROAD ALIGNMENTS PLAN Issue : B

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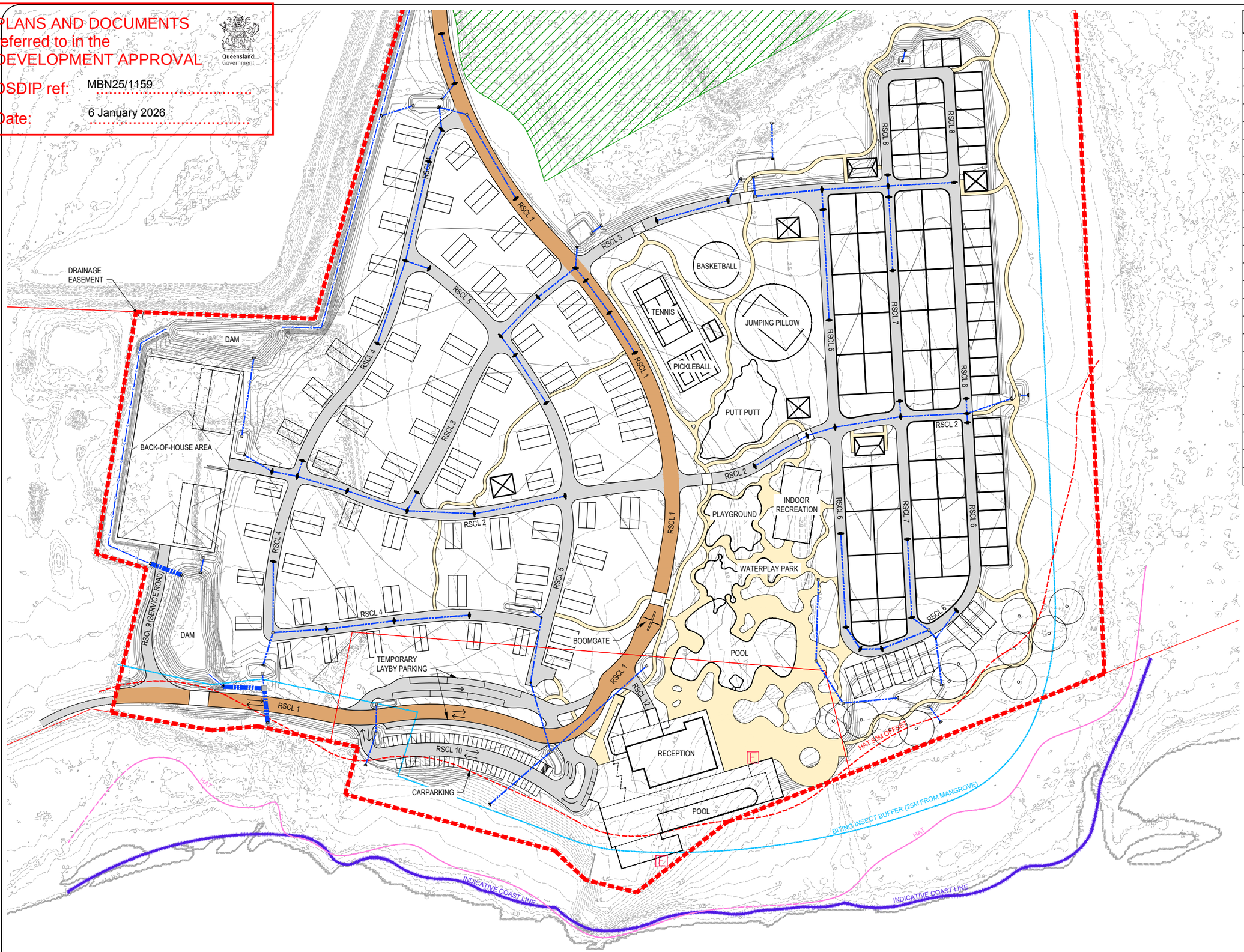


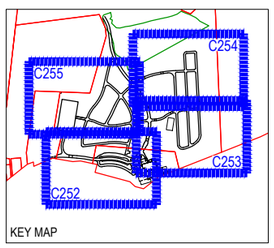
LEGEND

STAGE BOUNDARY	
EXISTING LOT BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
DRAINAGE CORRIDORE	
EXISTING DAM TO BE RETAINED	
CULVERT CROSSING	
HAT	
HAT 50M OFFSET	
INSECT BUFFER	
COAST LINE	
EXISTING TREE TO BE RETAINED	
CAMPING / VAN SITES	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
1 BEDROOM CABIN	
LAUNDRY	
CAMP KITCHEN	
AMINITIES (LAUNDRY/DRYING)	
MAINTENANCE/CLEANING/ STORAGE SHEDS	
EXISTING EARTH DRAIN	
EXISTING ELECTRIC POLE	
EXISTING ELECTRIC BOX	
STORMWATER PIPE	

N

0m 20m 40m 60m

SCALE 1:1000 (A1) - 1:2000 (A3)



KEY MAP

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

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Drawing title - OVERALL ROADWORKS AND DRAINAGE PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C251

Digital Ref : C251 OVERALL ROADWORKS AND DRAINAGE PLAN Issue : B

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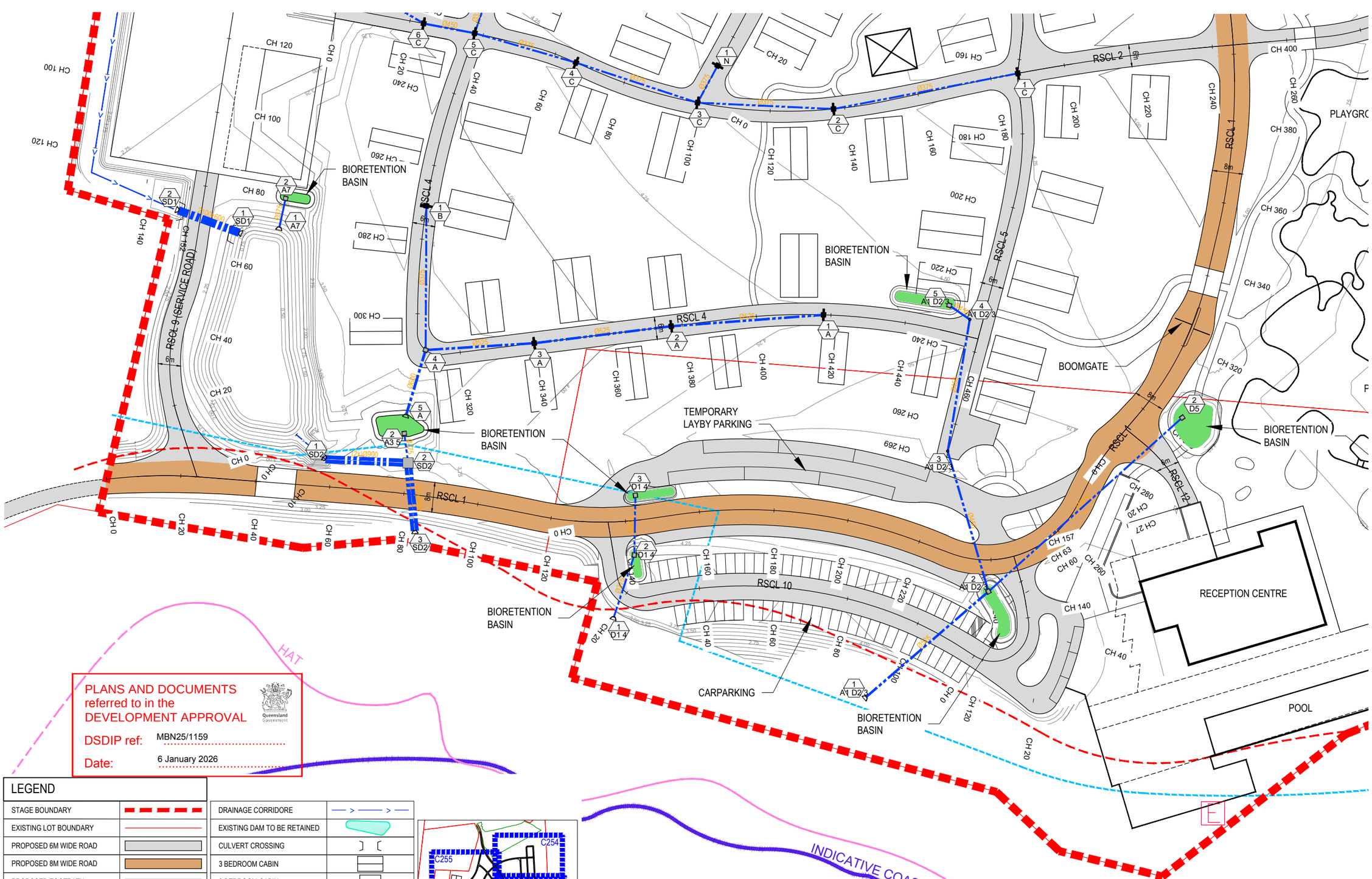

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

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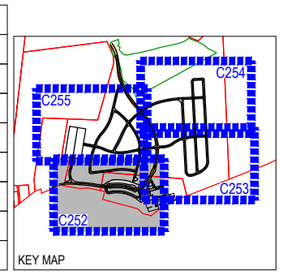
DSDIP ref: MBN25/1159

Date: 6 January 2026

LEGEND

STAGE BOUNDARY		DRAINAGE CORRIDORE	
EXISTING LOT BOUNDARY		EXISTING DAM TO BE RETAINED	
PROPOSED 6M WIDE ROAD		CULVERT CROSSING	
PROPOSED 8M WIDE ROAD		3 BEDROOM CABIN	
PROPOSED FOOTPATH		2 BEDROOM CABIN	
HAT		1 BEDROOM CABIN	
HAT 50M OFFSET		EXISTING ELECTRIC POLE	
INSECT BUFFER		EXISTING ELECTRIC BOX	
COAST LINE		STORMWATER PIPE	



KEY MAP

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
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Checked - SR			
Design - CM	Drawn - GHK		
Scales - AS SHOWN			
Document Stage - APPROVAL			

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	04.09.24	APPROVAL	GHK

covey

Approved

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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROADWORKS AND DRAINAGE PLAN (SHEET 1 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C252

Digital Ref : C252-C255 ROADWORKS AND DRAINAGE PLAN Issue : B

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Plot 18 December 2024 - 11:25 AM

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

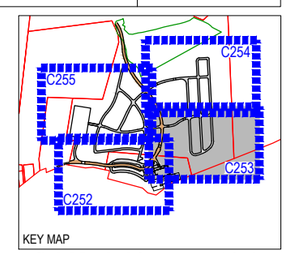
Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

PUTT PUTT
INDOOR RECREATION
PLAYGROUND
WATERPLAY PARK
POOL
BOOMGATE
BIORETENTION BASIN
BIORETENTION BASIN
RECEPTION CENTRE
POOL
HAT 50M OFFSET
BITING INSECT BUFFER (25M FROM MANGROVE)
HAT
RSCL 1
RSCL 2
RSCL 6
RSCL 7
RSCL 12

LEGEND	
STAGE BOUNDARY	
EXISTING LOT BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
HAT	
HAT 50M OFFSET	
INSECT BUFFER	
COAST LINE	
EXISTING TREE TO BE RETAINED	
SITES	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
1 BEDROOM CABIN	
CAMP KITCHEN	
AMINITIES (LAUNDRY/DRYING)	
EXISTING EARTH DRAIN	D D
EXISTING ELECTRIC POLE	
EXISTING ELECTRIC BOX	E
STORMWATER PIPE	



KEY MAP

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	04.09.24	APPROVAL	GHK

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MAROOCHYDORE QLD 4558

Drawing title - ROADWORKS AND DRAINAGE PLAN (SHEET 2 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C253

Digital Ref : C252-C255 ROADWORKS AND DRAINAGE PLAN Issue : B

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Plot 18 December 2024 - 11:28 AM

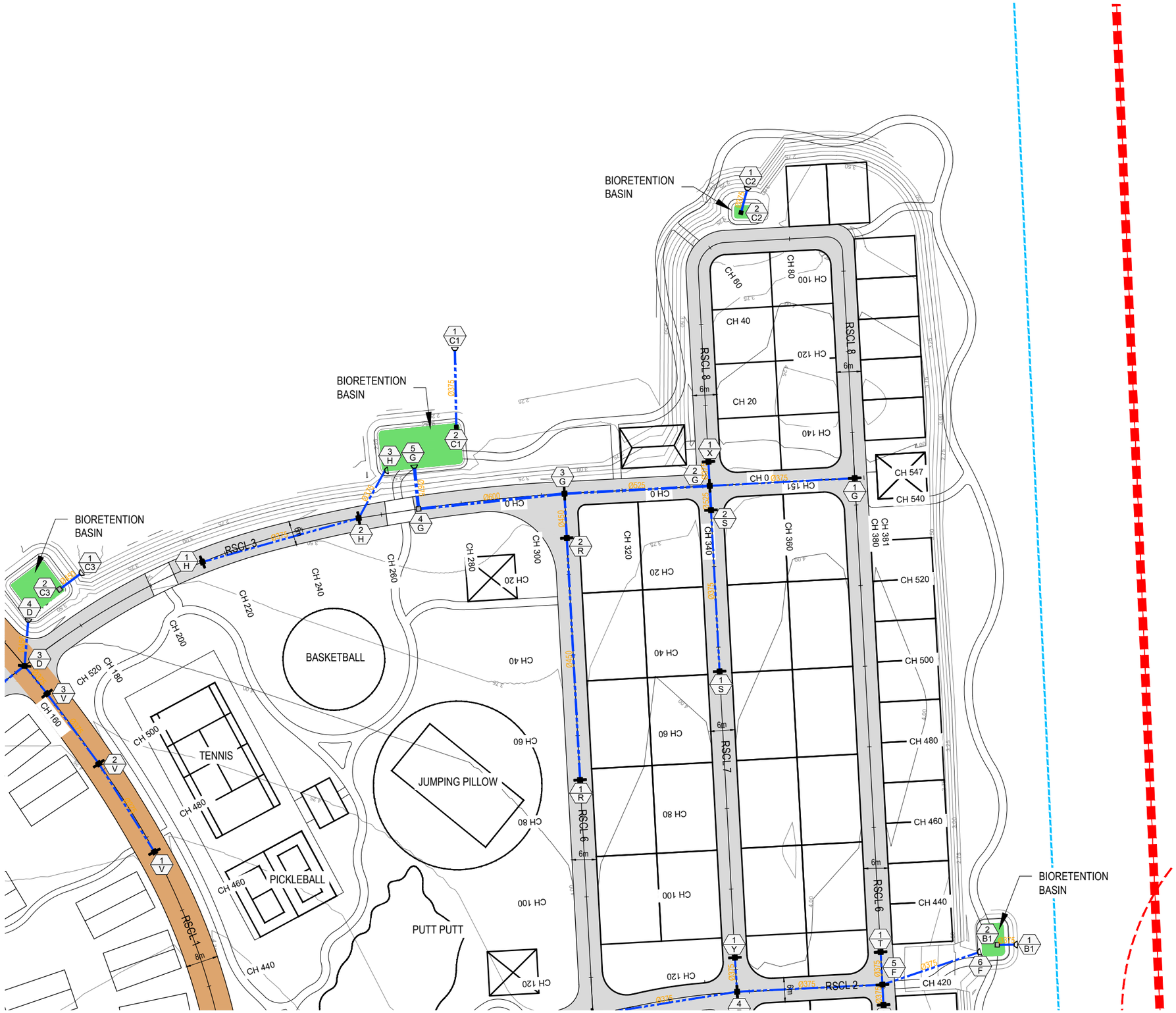
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

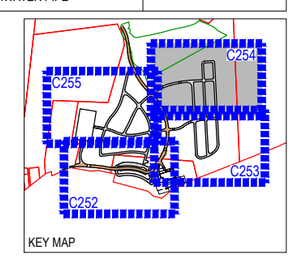
DSDIP ref: MBN25/1159

Date: 6 January 2026



LEGEND

STAGE BOUNDARY	
EXISTING LOT BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
HAT 50M OFFSET	
INSECT BUFFER	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
SITES	
CAMP KITCHEN	
AMINITIES (LAUNDRY/DRYING)	
REVEGETATION AREA	
STORMWATER PIPE	



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Checked - SR			
Design - CM	Drawn - GHK		
Scales - AS SHOWN			
Document Stage - APPROVAL			

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	04.09.24	APPROVAL	GHK

covey

Approved

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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROADWORKS AND DRAINAGE PLAN (SHEET 3 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C254

Digital Ref : C252-C255 ROADWORKS AND DRAINAGE PLAN Issue : B

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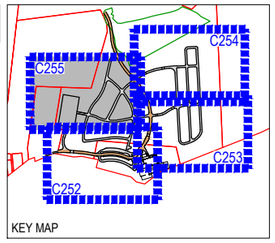
Plot 18 December 2024 - 11:26 AM

LEGEND	
STAGE BOUNDARY	
EXISTING LOT BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
DRAINAGE CORRIDORE	
EXISTING DAM TO BE RETAINED	
CULVERT CROSSING	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
1 BEDROOM CABIN	
LAUNDRY	
MAINTENANCE/CLEANING/ STORAGE SHEDS	
REVEGETATION AREA	
STORMWATER PIPE	



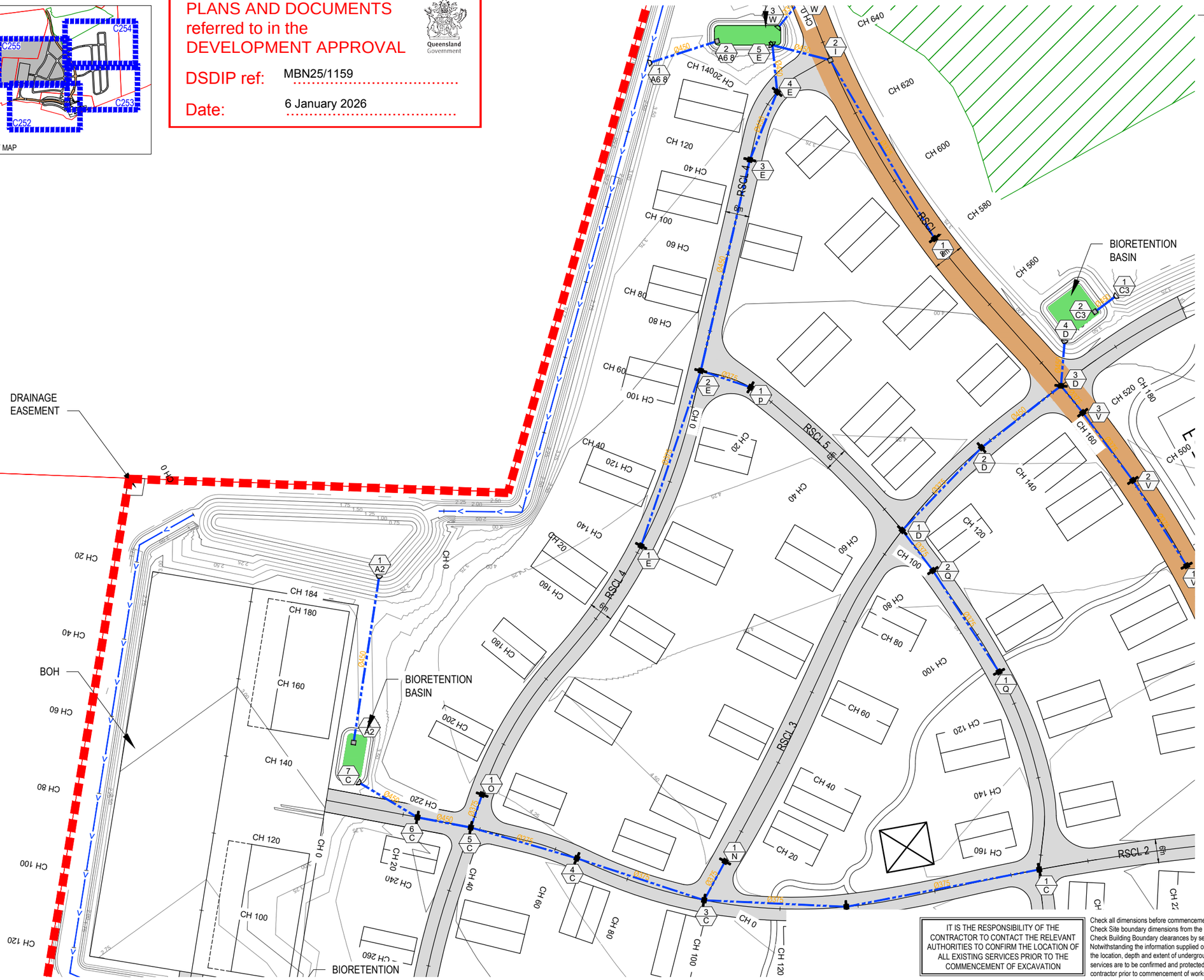
KEY MAP

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	04.09.24	APPROVAL	GHK

covey

Approved

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MAROOCHYDORE QLD 4558

Drawing title - ROADWORKS AND DRAINAGE PLAN (SHEET 4 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C255

Digital Ref : C252-C255 ROADWORKS AND DRAINAGE PLAN Issue : B

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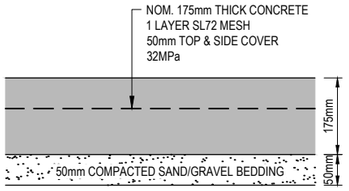
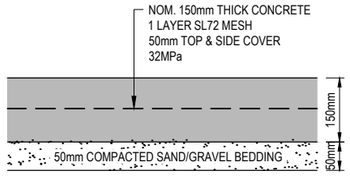
Plot 18 December 2024 - 11:23 AM



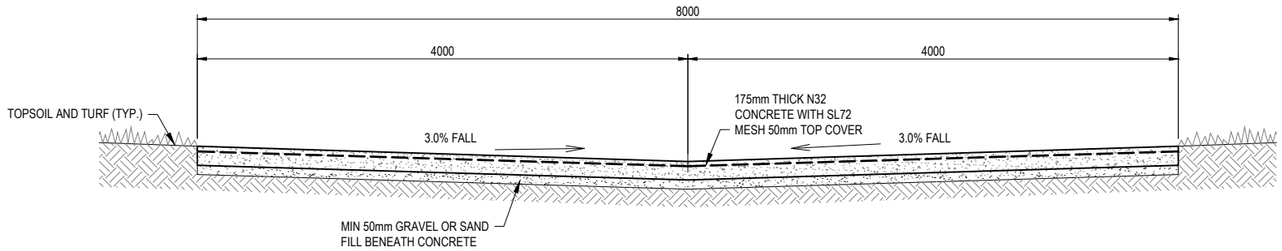
PAVEMENT TYPE 1
CONCRETE WITH SMOOTH FINISH

REFER IPWEAQ DWG RS-065
TOOLED JOINTS MAX. 3.0m CTRS.
CONSTRUCTION JOINTS MAX. 12.0m CTRS.
NTS

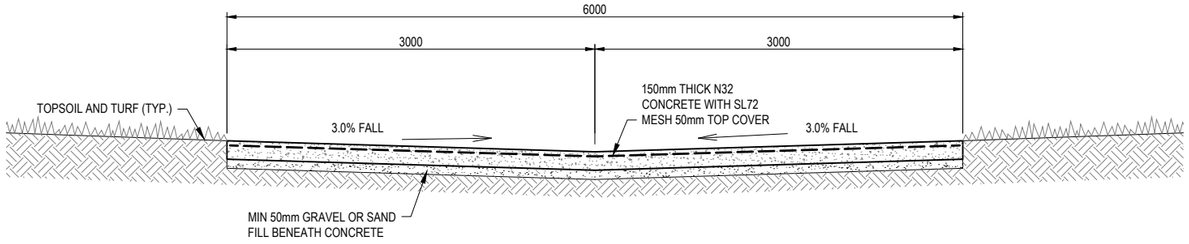


PAVEMENT TYPE 2
CONCRETE WITH SMOOTH FINISH

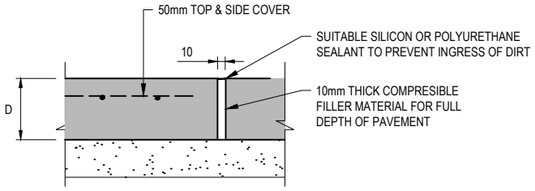
REFER IPWEAQ DWG RS-065
TOOLED JOINTS MAX. 3.0m CTRS.
CONSTRUCTION JOINTS MAX. 12.0m CTRS.
NTS



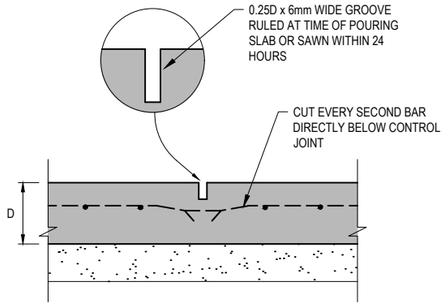
TYPICAL ROAD RSCL01 CROSS SECTION DETAIL
SCALE 1:50 A3



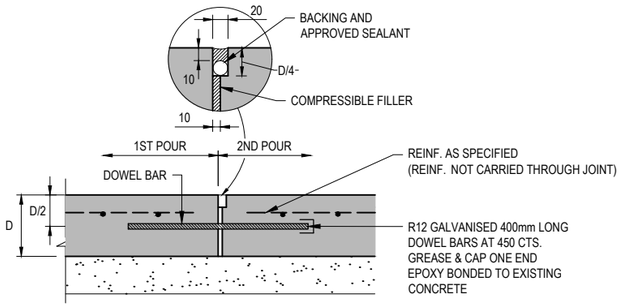
TYPICAL ROAD RSCL02-12 CROSS SECTION DETAIL
SCALE 1:50 A3



TYPICAL ISOLATION JOINT (I.J.)
NTS



TYPICAL CONTROL (SAWN) JOINT (S.J.)
NTS



TYPICAL EXPANSION (DOWELLED) JOINT (D.J.)
NTS

CONCRETE NOTES

1. ALL CONCRETE WORK AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE S.A.A. CONCRETE STRUCTURES CODE AS 3600.
2. ALL CONCRETE TO HAVE A MAXIMUM AGGREGATE SIZE OF 20mm AND SLUMP OF 80mm. ALL CONCRETE IS TO BE MECHANICALLY VIBRATED DURING PLACEMENT.
3. CONCRETE IS TO BE OF STRENGTH GRADE 32 MPa.
4. CLEAR REINFORCEMENT COVER IS TO BE 50mm.
5. FABRIC LAPS ARE TO BE TWO CROSS BARS PLUS 50mm. ALL LAPS ARE TO BE WIRED TOGETHER AT 1000mm.
6. BAR LAPS ARE TO BE AS FOLLOWS U.N.O. N36-2300mm, N28-1400mm, N32-1800mm, N24-1000mm N20-800mm, N16-600mm, N12-500mm.
7. CONDUITS, PIPES ETC. MUST NOT BE PLACED IN CONCRETE COVER.
8. ALL REINFORCEMENT IS TO BE SUPPORTED ON CHAIRS OR HANGERS. FABRIC IS TO BE SUPPORTED AT 800mm CENTRES BOTH WAYS.
9. ALL REINFORCEMENT IS TO BE ACCURATELY POSITIONED, ADEQUATELY SUPPORTED AND THEN INSPECTED BY THE ENGINEER BEFORE ANY CONCRETE IS PLACED.
10. ALL EXPOSED SURFACES ARE TO BE SPRAYED WITH CEMENT AIDS 'MASTERCURE 410' WITHIN ONE HOUR OF CASTING OR FINISHING OFF.

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

? ? ? ?
CHOOSE YOUR SCALE (m)

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	29.08.24	APPROVAL	GHK

covey

Approved

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MAROOCHYDORE QLD 4558

Drawing title - TYPICAL SECTIONS AND PAVEMENT DETAILS

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C300

Digital Ref : C300 TYPICAL SECTIONS AND PAVEMENT DETAILS Issue : B

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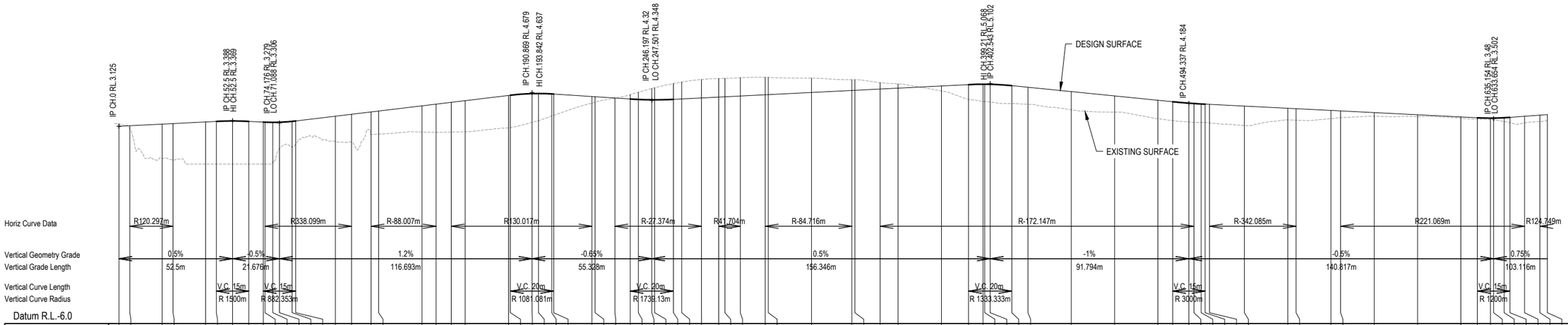
Plot 18 December 2024 - 11:29 AM

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



Chainage	Design Control Line	Design Edge Conc Right	Design Edge Conc Left	Natural	Depth of Cut or Fill
0.000	3.125	3.245	3.245	3.235	0.110
5.001	3.150	3.276	3.270	3.016	-0.134
20.000	3.225	3.359		1.632	-1.593
25.001	3.250	3.379		1.578	-1.672
40.000	3.325	3.445	3.443	1.375	-1.950
45.000	3.350	3.470	3.470	1.375	-1.975
52.500	3.369	3.489	3.489	1.375	-1.994
60.000	3.350	3.470	3.470	1.375	-1.975
66.676	3.317	3.437	3.437	1.375	-1.942
67.470	3.313	3.433	3.433	1.375	-1.938
71.088	3.306	3.426	3.334	1.420	-1.885
74.176	3.311	3.431	3.264	2.084	-1.227
80.000	3.351	3.471	3.271	2.149	-1.201
81.676	3.369	3.489	3.289	2.309	-1.060
100.000	3.589	3.709	3.709	2.414	-1.175
107.470	3.679	3.799	3.799	2.383	-1.296
116.510	3.787	3.907	3.907	2.745	-1.042
120.000	3.829	3.949	3.949	2.762	-1.067
140.000	4.069	3.992	4.087	2.857	-1.212
146.510	4.147	4.267	4.067	2.860	-1.297
153.543	4.232	4.352	4.152	2.857	-1.374
160.000	4.309	4.429	4.366	2.868	-1.441
180.000	4.549	4.669	4.669	3.050	-1.499
180.869	4.559	4.679	4.679	3.064	-1.495
190.869	4.633	4.753	4.753	3.304	-1.329
193.842	4.637	4.757	4.757	3.383	-1.254
200.000	4.620	4.740	4.740	3.600	-1.019
200.869	4.614	4.734	4.734	3.631	-0.983
218.543	4.500	4.620	4.620	4.189	-0.310
220.000	4.490	4.610	4.610	4.245	-0.245
229.154	4.431	4.551	4.551	4.426	-0.005
236.197	4.365	4.330	4.330	4.566	0.201
240.000	4.364	4.567	4.484	4.698	0.334
246.197	4.348	4.526	4.526	4.671	0.322
247.501	4.370	4.537	4.468	4.905	0.557
256.197	4.389	4.490	4.490	5.100	0.730
260.000	4.435	4.509	4.509	5.170	0.782
269.154	4.474	4.555	4.555	5.287	0.853
277.104	4.524	4.594	4.594	5.332	0.858
280.000	4.582	4.556	4.609	5.342	0.853
287.104	4.589	4.469	4.693	5.370	0.845
298.616	4.689	4.571	4.711	5.388	0.806
300.000	4.689	4.573	4.716	5.384	0.795
320.000	4.784	4.784	4.868	5.351	0.662
338.616	4.782	4.902	4.902	5.276	0.494
340.000	4.789	4.909	4.909	5.274	0.485
351.681	4.847	4.967	4.967	5.141	0.294
360.000	4.889	5.009	5.009	5.083	0.194
380.000	4.989	5.109	5.109	5.083	-0.229
392.543	5.052	5.172	5.172	4.759	-0.674
399.210	5.068	4.299	5.089	4.377	-0.790
400.000	5.068	4.299	4.278	4.276	-0.798
402.543	5.064	4.298	4.022	4.270	-0.820
412.543	5.002	4.236	4.041	4.244	-0.830
420.000	4.927	5.047	5.119	4.172	-0.788
440.000	4.727	4.847	5.047	4.139	-0.842
460.000	4.527	4.647	4.847	3.885	-0.747
480.000	4.327	4.447	4.647	3.780	-0.857
486.837	4.259	4.379	4.447	3.470	-0.878
494.337	4.193	4.313	4.379	3.360	-0.872
496.681	4.176	4.296	4.313	3.308	-0.868
500.000	4.156	4.276	4.296	3.298	-0.858
501.837	4.146	4.266	4.276	3.299	-0.847
503.883	4.136	4.256	4.266	3.279	-0.857
520.000	4.055	4.175	4.256	3.160	-0.896
540.000	3.955	4.008	4.175	3.421	-0.534
543.883	3.936	3.866	4.056	3.406	-0.530
560.000	3.855	3.975	3.975	3.477	-0.379
564.445	3.833	3.953	3.953	3.524	-0.309
580.000	3.755	3.875	3.875	3.584	-0.171
600.000	3.655	3.775	3.775	3.570	-0.085
620.000	3.555	3.675	3.675	3.489	-0.056
627.654	3.517	3.637	3.643	3.463	-0.064
633.654	3.502	3.622		3.433	-0.069
635.154	3.503	3.623		3.427	-0.076
640.000	3.519	3.639	3.455	3.344	-0.175
642.654	3.536	3.656	3.468	3.297	-0.239
649.445	3.587	3.707	3.507	3.277	-0.309
656.528	3.640	3.760	3.635	3.346	-0.293
660.000	3.666	3.786	3.740	3.392	-0.274

SECTION RSCL01

HORIZ. 1:1000(A1) / VERT. 1:100(A1)

SCALE 1:2000 (A3) HORIZ. 0 20m 40m 60m

SCALE 1:200 (A3) VERT. 0 2m 4m 6m

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

covey

Approved

COVEY ASSOCIATES PTY LTD
ABN 59 137 305 992
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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 1 LONGITUDINAL SECTION (SHEET 1 OF 2)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C301

Digital Ref : C301-C306 ROAD 1 SECTIONS Issue : B

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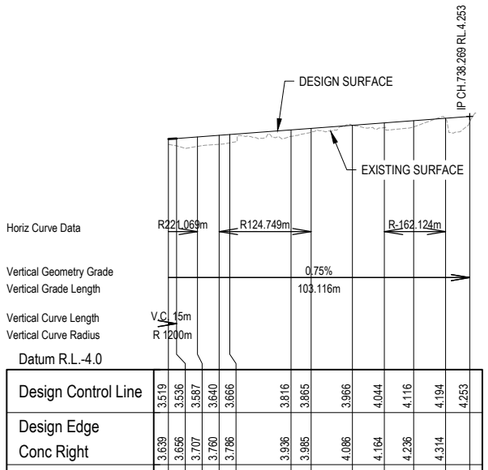
Plot 18 December 2024 - 11:24 AM

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



Design Control Line	3.519	3.536	3.587	3.640	3.666	3.816	3.865	3.966	4.044	4.116	4.194	4.253
Design Edge Conc Right	3.639	3.656	3.707	3.760	3.786	3.936	3.985	4.086	4.164	4.236	4.314	
Design Edge Conc Left	3.455	3.458	3.507	3.635	3.740	3.936	3.985	4.086	4.164	4.236	4.314	
Natural	3.344	3.297	3.277	3.346	3.392	3.604	3.745	3.945	3.891	3.911	4.156	4.071
Depth of Cut or Fill	-0.175	-0.239	-0.309	-0.293	-0.274	-0.211	-0.120	-0.020	-0.153	-0.205	-0.038	-0.182
Chainage	640.000	642.654	649.445	656.528	660.000	680.000	686.528	700.000	710.411	720.000	730.411	738.269

SECTION RSCL01

HORIZ. 1:1000(A1) / VERT. 1:100(A1)

RSCL01								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	508656.718	7025235.980	3.125	84°52'14.37"			
TC	5.001	508661.699	7025236.427	3.150	84°52'14.37"			
IP 2	15.001	508671.682	7025237.324	3.200		R = 120.297	20.000	9°31'32.71"
CT	25.001	508681.676	7025236.555	3.250	94°23'47.08"			
TC	67.470	508724.019	7025233.300	3.313	94°23'47.08"			
IP 3	87.470	508743.983	7025231.765	3.439		R = 338.099	40.000	6°46'42.91"
CT	107.470	508763.627	7025227.884	3.679	101°10'29.99"			
TC	116.510	508772.496	7025226.132	3.787	101°10'29.99"			
IP 4	131.510	508787.355	7025223.197	3.967		R = -88.007	30.000	19°31'51.84"
CT	146.510	508802.341	7025225.398	4.147	81°38'38.15"			
TC	153.543	508809.300	7025226.420	4.232	81°38'38.15"			
IP 5	186.043	508842.142	7025231.244	4.609		R = 130.017	65.000	28°38'38.82"
CT	218.543	508873.277	7025219.734	4.500	110°17'16.97"			
TC	229.154	508883.230	7025216.055	4.431	110°17'16.97"			
IP 6	249.154	508906.236	7025207.550	4.349		R = -27.374	40.000	83°43'19.41"
CT	269.154	508917.206	7025229.488	4.435	26°33'57.56"			
TC	277.104	508920.761	7025236.598	4.474	26°33'57.56"			
IP 7	282.104	508923.008	7025241.092	4.499		R = 41.704	10.000	13°44'18.78"
CT	287.104	508926.258	7025244.923	4.524	40°18'16.34"			
TC	298.616	508933.705	7025253.703	4.582	40°18'16.34"			
IP 8	318.616	508946.888	7025269.245	4.682		R = -84.716	40.000	27°03'11.19"
CT	338.616	508951.559	7025289.082	4.782	13°15'05.15"			
TC	351.681	508954.554	7025301.799	4.847	13°15'05.15"			
IP 9	424.181	508972.230	7025376.860	4.885		R = -172.147	145.000	48°15'37.20"
CT	496.681	508927.990	7025440.021	4.176	324°59'27.95"			
TC	503.883	508923.858	7025445.920	4.136	324°59'27.95"			
IP 10	523.883	508912.371	7025462.320	4.036		R = -342.085	40.000	6°41'58.53"
CT	543.883	508899.049	7025477.268	3.936	318°17'29.42"			
TC	564.445	508885.368	7025492.618	3.833	318°17'29.42"			
IP 11	606.945	508856.737	7025524.743	3.621		R = 221.069	85.000	22°01'47.81"
CT	649.445	508842.247	7025565.261	3.587	340°19'17.23"			
TC	656.528	508839.862	7025571.931	3.640	340°19'17.23"			
IP 12	671.528	508834.786	7025586.123	3.752		R = 124.749	30.000	13°46'43.16"
CT	686.528	508833.237	7025601.116	3.865	354°06'00.39"			
TC	710.411	508830.782	7025624.873	4.044	354°06'00.39"			
IP 13	720.411	508829.753	7025634.832	4.119		R = -162.124	20.000	7°04'05.30"
CT	730.411	508827.506	7025644.590	4.194	347°01'55.09"			
IP 14	738.269	508825.742	7025652.247	4.253	347°01'55.09"			

0 20m 40m 60m
SCALE 1:2000 (A3)
HORIZ.

0 2m 4m 6m
SCALE 1:200 (A3)
VERT.

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Drawing title - ROAD 1 LONGITUDINAL SECTION (SHEET 2 OF 2)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C302

Digital Ref : C301-C306 ROAD 1 SECTIONS Issue : B

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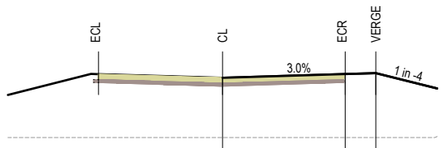
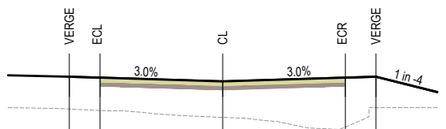


EASTING 508696.63
NORTHING 7025235.405
DATUM -2.000

DESIGN SURFACE	3.325		3.445	3.475	
NATURAL SURFACE	1.375		1.375	1.375	
OFFSET	0.000		4.000	5.000	

CH 40.000



EASTING 508756.284
NORTHING 7025229.251
DATUM -1.000

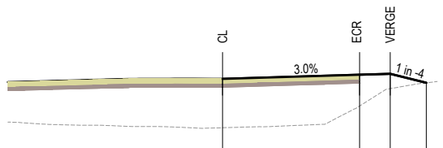
DESIGN SURFACE	3.739	3.709	3.589	3.709	3.739	
NATURAL SURFACE	2.687	2.640	2.414	2.099	2.731	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	

CH 100.000

EASTING 508815.709
NORTHING 7025227.199
DATUM -1.000

DESIGN SURFACE	4.366	4.309	4.429	4.459
NATURAL SURFACE	2.917	2.868	2.854	2.880
OFFSET	-4.000	0.000	4.000	6.973

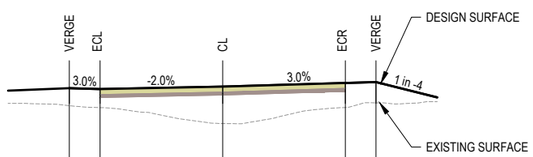
CH 160.000



EASTING 508676.682
NORTHING 7025236.835
DATUM -2.000

DESIGN SURFACE	3.225	3.359	3.389	3.095	
NATURAL SURFACE	1.632	2.340	2.908	3.095	
OFFSET	0.000	4.471	5.471	6.646	

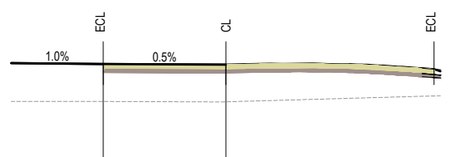
CH 20.000



EASTING 508736.492
NORTHING 7025232.108
DATUM -1.000

DESIGN SURFACE	3.301	3.271	3.351	3.471	3.501	
NATURAL SURFACE	2.730	2.668	2.149	2.673	2.825	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	

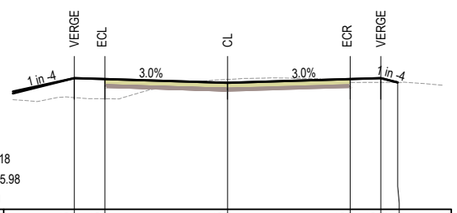
CH 80.000



EASTING 508795.872
NORTHING 7025224.691
DATUM -1.000

DESIGN SURFACE	4.087	4.069		
NATURAL SURFACE	2.868	2.857		
OFFSET	-4.000	0.000		

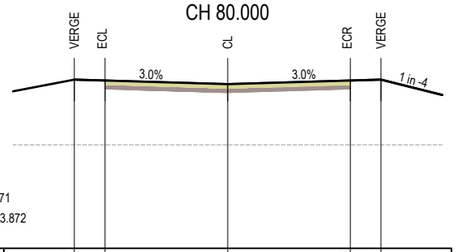
CH 140.000



EASTING 508656.718
NORTHING 7025235.98
DATUM -1.000

DESIGN SURFACE	3.275	3.245	3.125	3.245	3.275	3.137
NATURAL SURFACE	2.643	2.604	3.235	3.135	3.136	3.137
OFFSET	-5.000	-4.000	0.000	4.000	5.000	5.551

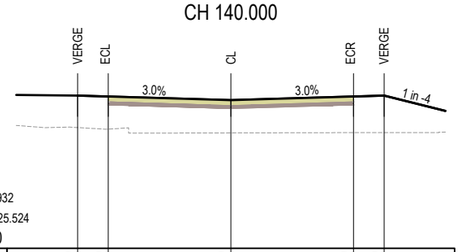
CH 0.000



EASTING 508716.571
NORTHING 7025233.872
DATUM -2.000

DESIGN SURFACE	3.500	3.470	3.350	3.470	3.500	
NATURAL SURFACE	1.375	1.375	1.375	1.375	1.375	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	

CH 60.000



EASTING 508775.932
NORTHING 7025225.524
DATUM -1.000

DESIGN SURFACE	3.979	3.949	3.829	3.949	3.979
NATURAL SURFACE	2.937	2.884	2.762	2.772	2.773
OFFSET	-5.000	-4.000	0.000	4.000	5.000

CH 120.000

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

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Drawing title - ROAD 1 CROSS SECTIONS (SHEET 1 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C303

Digital Ref : C301-C306 ROAD 1 SECTIONS Issue : B

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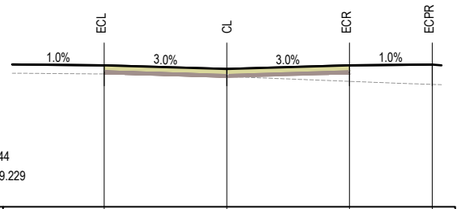
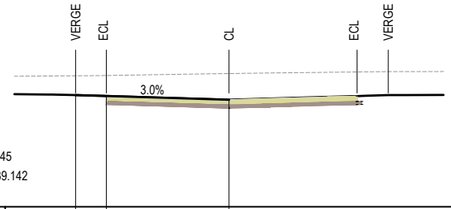
Plot 18 December 2024 - 11:24 AM



EASTING 508874.644
NORTHING 7025219.229
DATUM 0.000

DESIGN SURFACE	4.610	4.490	4.610	4.637
NATURAL SURFACE	4.329	4.245	4.088	3.988
OFFSET	-4.000	0.000	4.000	6.699

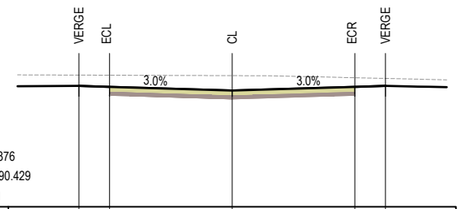
CH 220.000



EASTING 508922.145
NORTHING 7025239.142
DATUM 1.000

DESIGN SURFACE	4.639	4.609	4.489	
NATURAL SURFACE	5.269	5.278	5.342	
OFFSET	-5.000	-4.000	0.000	

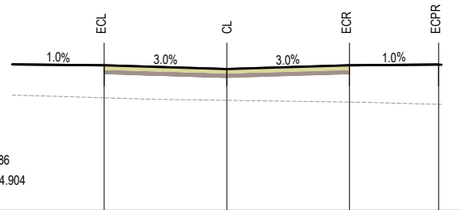
CH 280.000



EASTING 508951.876
NORTHING 7025290.429
DATUM 1.000

DESIGN SURFACE	4.939	4.909	4.789	4.909	4.939
NATURAL SURFACE	5.292	5.288	5.274	5.206	5.183
OFFSET	-5.000	-4.000	0.000	4.000	5.000

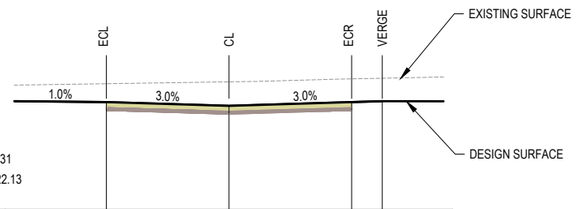
CH 340.000



EASTING 508855.486
NORTHING 7025224.904
DATUM 0.000

DESIGN SURFACE	4.740	4.620	4.740	4.769
NATURAL SURFACE	3.682	3.600	3.542	3.468
OFFSET	-4.000	0.000	4.000	6.907

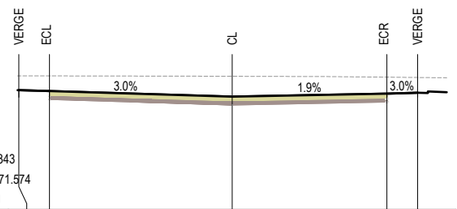
CH 200.000



EASTING 508911.831
NORTHING 7025222.13
DATUM 1.000

DESIGN SURFACE	4.509	4.389	4.509	4.539	
NATURAL SURFACE	5.109	5.170	5.267	5.288	
OFFSET	-4.000	0.000	4.000	5.000	

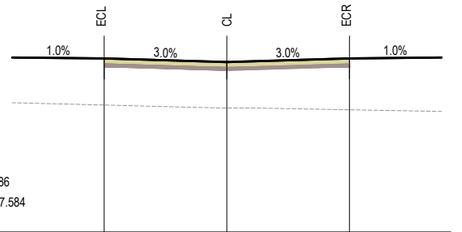
CH 260.000



EASTING 508945.343
NORTHING 7025271.574
DATUM 1.000

DESIGN SURFACE	4.898	4.868	4.689	4.784	4.814	
NATURAL SURFACE	5.364	5.364	5.351	5.322	5.312	
OFFSET	-5.960	-5.960	0.000	5.048	6.048	

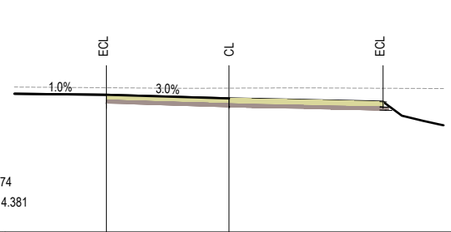
CH 320.000



EASTING 508835.686
NORTHING 7025227.584
DATUM -1.000

DESIGN SURFACE	4.669	4.549	4.669	
NATURAL SURFACE	3.148	3.050	2.994	
OFFSET	-4.000	0.000	4.000	

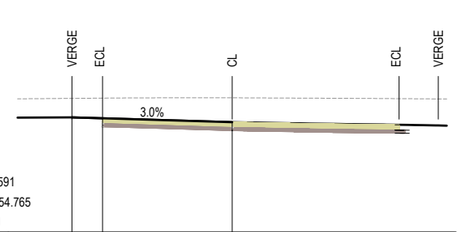
CH 180.000



EASTING 508893.874
NORTHING 7025214.381
DATUM 0.000

DESIGN SURFACE	4.484	4.364		
NATURAL SURFACE	4.712	4.698		
OFFSET	-4.000	0.000		

CH 240.000



EASTING 508934.591
NORTHING 7025254.765
DATUM 1.000

DESIGN SURFACE	4.746	4.716	4.589		
NATURAL SURFACE	5.365	5.373	5.384		
OFFSET	-5.227	-4.227	0.000		

CH 300.000

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Queensland Government

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engineers@covey.com.au

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Drawing title - ROAD 1 CROSS SECTIONS (SHEET 2 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C304

Digital Ref : C301-C306 ROAD 1 SECTIONS Issue : B

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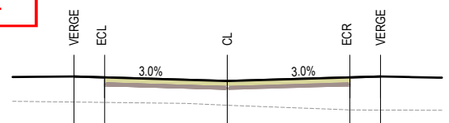
DSDIP ref: MBN25/1159

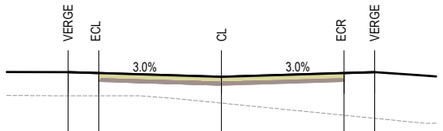
Date: 6 January 2026



EASTING 508956.783
NORTHING 7025369.634
DATUM 0.000

DESIGN SURFACE	5.077	5.047	4.927	5.047	5.077	
NATURAL SURFACE	4.243	4.231	4.139	3.989	3.981	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	

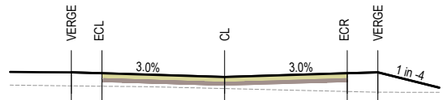
CH 420.000



EASTING 508936.883
NORTHING 7025425.917
DATUM -1.000

DESIGN SURFACE	4.477	4.447	4.327	4.447	4.477	
NATURAL SURFACE	3.709	3.709	3.470	3.073	2.974	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	

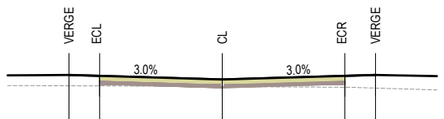
CH 480.000



EASTING 508888.326
NORTHING 7025489.3
DATUM 0.000

DESIGN SURFACE	4.005	3.975	3.855	3.975	4.005	
NATURAL SURFACE	3.564	3.552	3.477	3.381	3.357	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	

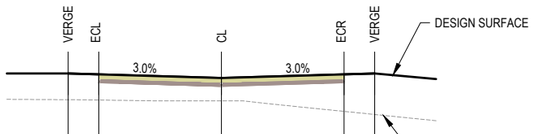
CH 560.000



EASTING 508958.754
NORTHING 7025329.773
DATUM 1.000

DESIGN SURFACE	5.139	5.109	4.989	5.109	5.139	
NATURAL SURFACE	4.784	4.781	4.759	4.736	4.710	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	

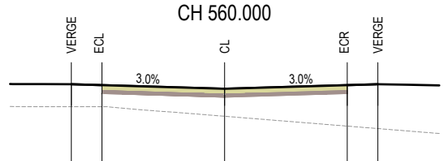
CH 380.000



EASTING 508945.686
NORTHING 7025407.971
DATUM 0.000

DESIGN SURFACE	4.677	4.647	4.527	4.647	4.677	
NATURAL SURFACE	3.820	3.808	3.780	3.438	3.337	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	

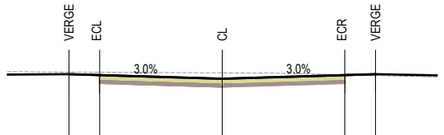
CH 460.000



EASTING 508914.304
NORTHING 7025458.898
DATUM -1.000

DESIGN SURFACE	4.205	4.175	4.055	4.175	4.205	
NATURAL SURFACE	3.471	3.471	3.160	2.839	2.759	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	

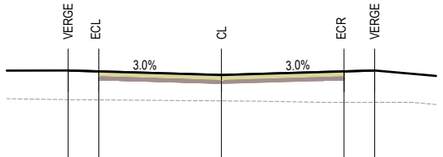
CH 520.000



EASTING 508956.264
NORTHING 7025309.94
DATUM 1.000

DESIGN SURFACE	5.039	5.009	4.889	5.009	5.039	
NATURAL SURFACE	5.106	5.101	5.083	5.018	4.995	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	

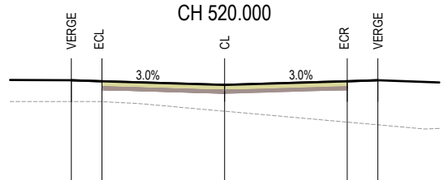
CH 360.000



EASTING 508952.349
NORTHING 7025389.125
DATUM 0.000

DESIGN SURFACE	4.877	4.847	4.727	4.847	4.877	
NATURAL SURFACE	3.926	3.918	3.885	3.836	3.837	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	

CH 440.000



EASTING 508926.086
NORTHING 7025442.74
DATUM -1.000

DESIGN SURFACE	4.306	4.276	4.156	4.276	4.306	
NATURAL SURFACE	3.612	3.608	3.298	2.943	2.855	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	

CH 500.000

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Check Site boundary dimensions from the Title plans
Check Building Boundary clearances by set out.
Notwithstanding the information supplied on this drawing, the location, depth and extent of underground or overhead services are to be confirmed and protected on site by the contractor prior to commencement of works.

Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

Approved

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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 1 CROSS SECTIONS (SHEET 3 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C305

Digital Ref : C301-C306 ROAD 1 SECTIONS Issue : B

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c:\12d\data\12DSERVER\243823_3381\DWG Covey\OPW\Uncontrolled\C301-C306 ROAD 1 SECTIONS.dwg

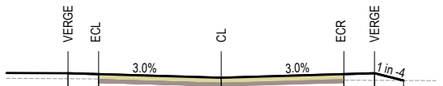
Plot 18 December 2024 - 11:29 AM

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



EASTING 508853.977
NORTHING 7025538.277
DATUM 0.000

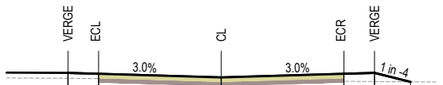
DESIGN SURFACE	3.705	3.675	3.555	3.675	3.705	3.469	
NATURAL SURFACE	3.526	3.520	3.499	3.478	3.473	3.469	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	5.946	

CH 620.000

EASTING 508834.077
NORTHING 7025594.643
DATUM 0.000

DESIGN SURFACE	3.966	3.936	3.816	3.936	3.966	3.631	
NATURAL SURFACE	3.435	3.438	3.604	3.685	3.694	3.631	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	6.340	

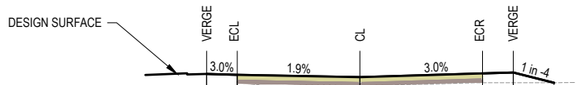
CH 680.000



EASTING 508863.944
NORTHING 7025520.946
DATUM 0.000

DESIGN SURFACE	3.805	3.775	3.655	3.775	3.805	3.512	
NATURAL SURFACE	3.627	3.616	3.570	3.530	3.521	3.512	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	6.173	

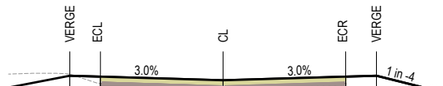
CH 600.000



EASTING 508838.738
NORTHING 7025575.216
DATUM 0.000

DESIGN SURFACE	3.770	3.740	3.666	3.786	3.816	3.483	
NATURAL SURFACE	3.284	3.354	3.392	3.484	3.483	3.483	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	6.331	

CH 660.000



EASTING 508829.515
NORTHING 7025634.376
DATUM 0.000

DESIGN SURFACE	4.266	4.236	4.116	4.236	4.266	3.901	
NATURAL SURFACE	4.314	4.010	3.911	3.897	3.898	3.901	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	6.461	

CH 720.000

EASTING 508875.436
NORTHING 7025504.585
DATUM 0.000

DESIGN SURFACE	3.905	3.875	3.755	3.875	3.905	3.497	
NATURAL SURFACE	3.609	3.605	3.584	3.540	3.527	3.497	
OFFSET	-5.000	-4.000	0.000	4.000	5.000	6.631	

CH 580.000

EASTING 508845.616
NORTHING 7025556.439
DATUM 0.000

DESIGN SURFACE	3.519	3.639	3.669	3.398	
NATURAL SURFACE	3.344	3.322	3.359	3.398	
OFFSET	0.000	4.000	5.000	6.081	

CH 640.000

EASTING 508831.852
NORTHING 7025614.517
DATUM 0.000

DESIGN SURFACE	4.116	4.086	3.966	4.086	4.116		
NATURAL SURFACE	3.819	3.833	3.945	3.742	3.741		
OFFSET	-5.000	-4.000	0.000	4.000	5.000		

CH 700.000

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

covey

Approved

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engineers@covey.com.au

124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 1 CROSS SECTIONS (SHEET 4 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C306

Digital Ref : C301-C306 ROAD 1 SECTIONS Issue : B

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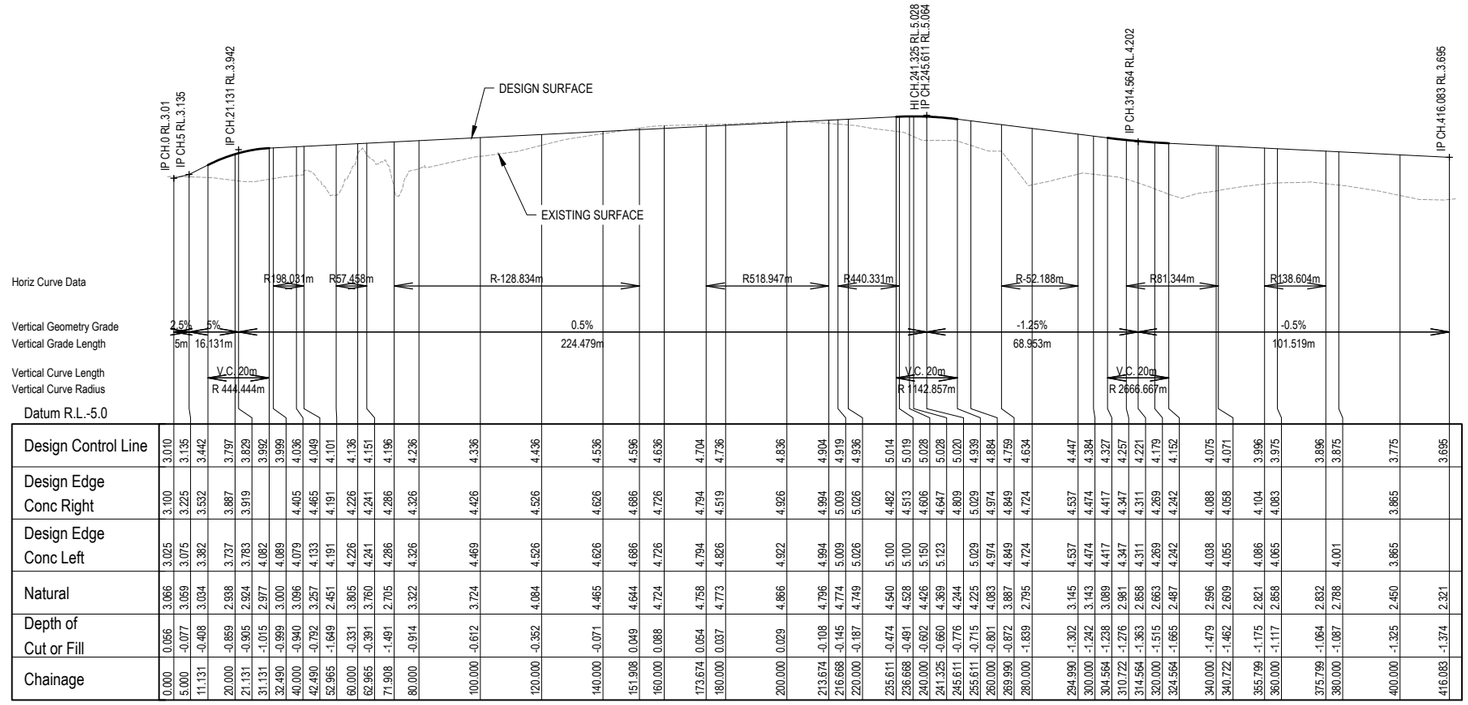
Plot 18 December 2024 - 11:24 AM

RSCL02								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	508718.451	7025362.378	3.010	100°35'38.86"			
TC	32.490	508750.387	7025356.404	3.999	100°35'38.86"			
IP 2	37.490	508755.303	7025355.485	4.024		R = 198.031	10.000	2°53'35.77"
CT	42.490	508760.166	7025354.318	4.049	103°29'14.63"			
TC	52.965	508770.352	7025351.875	4.101	103°29'14.63"			
IP 3	57.965	508775.226	7025350.706	4.126		R = 57.458	10.000	9°58'18.62"
CT	62.965	508779.825	7025348.711	4.151	113°27'33.25"			
TC	71.908	508788.029	7025345.150	4.196	113°27'33.25"			
IP 4	111.908	508825.949	7025328.694	4.396		R = -128.834	80.000	35°34'40.75"
CT	151.908	508866.365	7025337.373	4.596	77°52'52.50"			
TC	173.674	508887.645	7025341.942	4.704	77°52'52.50"			
IP 5	193.674	508907.209	7025346.143	4.804		R = 518.947	40.000	4°24'58.71"
CT	213.674	508927.039	7025348.825	4.904	82°17'51.21"			
TC	216.668	508930.006	7025349.226	4.919	82°17'51.21"			
IP 6	226.668	508939.917	7025350.567	4.969		R = 440.331	20.000	2°36'08.62"
CT	236.668	508949.880	7025351.456	5.019	84°53'59.83"			
TC	269.990	508983.070	7025354.418	4.759	84°53'59.83"			
IP 7	282.490	508995.764	7025355.551	4.603		R = -52.188	25.000	27°26'48.87"
CT	294.990	509006.507	7025362.407	4.447	57°27'10.96"			
TC	310.722	509019.768	7025370.871	4.257	57°27'10.96"			
IP 8	325.722	509032.558	7025379.034	4.146		R = 81.344	30.000	21°07'51.35"
CT	340.722	509047.430	7025382.037	4.071	78°35'02.31"			
TC	355.799	509062.209	7025385.021	3.996	78°35'02.31"			
IP 9	365.799	509072.028	7025387.004	3.946		R = 138.604	20.000	8°16'03.17"
CT	375.799	509082.030	7025387.554	3.896	86°51'05.48"			
IP 10	416.083	509122.253	7025389.766	3.695	86°51'05.48"			



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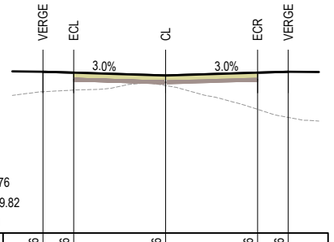
PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

DSDIP ref: MBN25/1159

Date: 6 January 2026

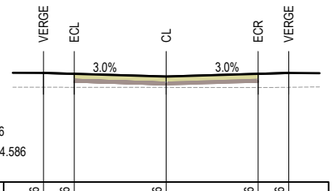
Queensland Government



EASTING 508777.076
NORTHING 7025349.82
DATUM -1.000

DESIGN SURFACE	4.256	4.226	4.136	4.226	4.256	
NATURAL SURFACE	3.607	3.659	3.805	3.032	2.769	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

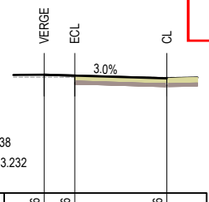
CH 60.000



EASTING 508834.66
NORTHING 7025334.586
DATUM 1.000

DESIGN SURFACE	4.556	4.526	4.436	4.526	4.556	
NATURAL SURFACE	4.089	4.087	4.084	4.080	4.088	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

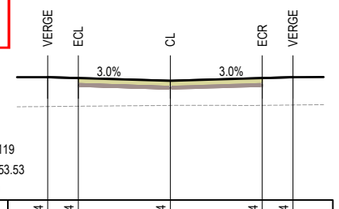
CH 120.000



EASTING 508893.838
NORTHING 7025343.232
DATUM 1.000

DESIGN SURFACE	4.856	4.826	4.736			
NATURAL SURFACE	4.776	4.775	4.773			
OFFSET	-4.000	-3.000	0.000			

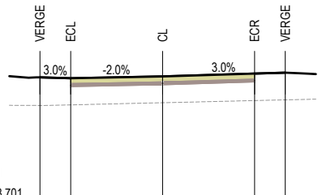
CH 180.000



EASTING 508973.119
NORTHING 7025353.53
DATUM 1.000

DESIGN SURFACE	5.004	4.974	4.884	4.974	5.004	
NATURAL SURFACE	4.048	4.057	4.083	4.085	4.097	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

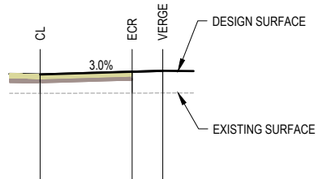
CH 260.000



EASTING 508738.11
NORTHING 7025358.701
DATUM -1.000

DESIGN SURFACE	3.767	3.737	3.797	3.887	3.917	
NATURAL SURFACE	2.849	2.868	2.938	3.008	3.032	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

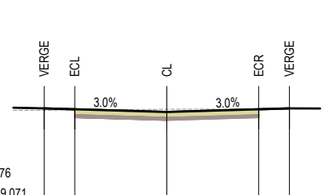
CH 20.000



EASTING 508814.809
NORTHING 7025336.854
DATUM 0.000

DESIGN SURFACE		4.336	4.426	4.456		
NATURAL SURFACE		3.724	3.730	3.731		
OFFSET		0.000	3.000	4.000		

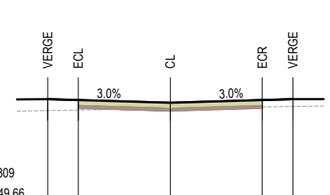
CH 100.000



EASTING 508874.276
NORTHING 7025339.071
DATUM 1.000

DESIGN SURFACE	4.756	4.726	4.636	4.726	4.756	
NATURAL SURFACE	4.694	4.702	4.724	4.732	4.736	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

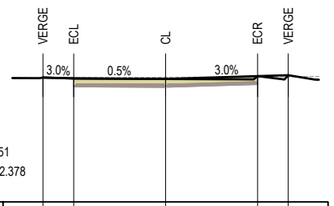
CH 160.000



EASTING 508933.309
NORTHING 7025349.66
DATUM 1.000

DESIGN SURFACE	5.056	5.026	4.936	5.026	5.066	
NATURAL SURFACE	4.681	4.698	4.749	4.800	4.817	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

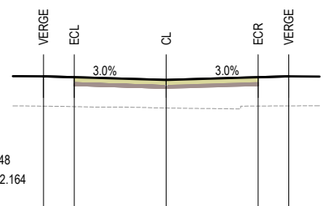
CH 220.000



EASTING 508718.451
NORTHING 7025362.378
DATUM -1.000

DESIGN SURFACE	3.055	3.025	3.010	3.100	3.130	
NATURAL SURFACE	3.052	3.056	3.066	3.077	3.080	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

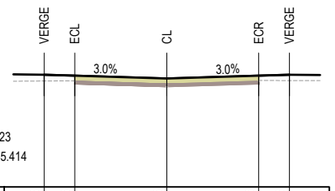
CH 0.000



EASTING 508795.548
NORTHING 7025342.164
DATUM 0.000

DESIGN SURFACE	4.356	4.326	4.236	4.326	4.356	
NATURAL SURFACE	3.382	3.367	3.322	3.386	3.391	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

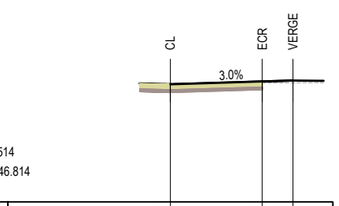
CH 80.000



EASTING 508854.623
NORTHING 7025335.414
DATUM 1.000

DESIGN SURFACE	4.656	4.626	4.536	4.626	4.656	
NATURAL SURFACE	4.453	4.458	4.465	4.469	4.468	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 140.000



EASTING 508913.514
NORTHING 7025346.814
DATUM 1.000

DESIGN SURFACE		4.836	4.926	4.956		
NATURAL SURFACE		4.866	4.881	4.887		
OFFSET		0.000	3.000	4.000		

CH 200.000

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

covey

Approved

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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 2 CROSS SECTIONS (SHEET 1 OF 2)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C311

Digital Ref : C310-C312 ROAD 2 SECTIONS Issue : B

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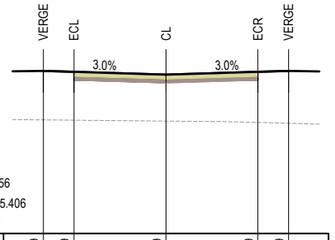
Plot 18 December 2024 - 11:24 AM

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

DSDIP ref: MBN25/1159

Date: 6 January 2026

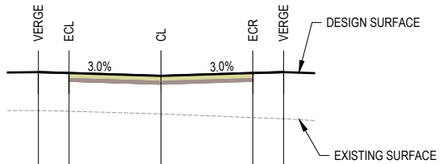
Queensland Government



EASTING 509027.856
NORTHING 7025375.406
DATUM -1.000

DESIGN SURFACE	4.299	4.269	4.179	4.269	4.299		
NATURAL SURFACE	2.703	2.693	2.663	2.619	2.592		
OFFSET	-4.000	-3.000	0.000	3.000	4.000		

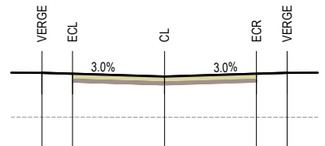
CH 320.000



EASTING 509010.73
NORTHING 7025365.103
DATUM -1.000

DESIGN SURFACE	4.504	4.474	4.384	4.474	4.504		
NATURAL SURFACE	3.251	3.231	3.143	3.024	2.984		
OFFSET	-4.000	-3.000	0.000	3.000	4.000		

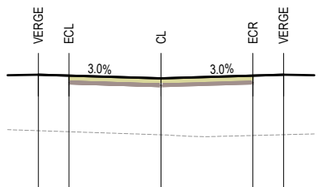
CH 300.000



EASTING 509106.194
NORTHING 7025388.883
DATUM -1.000

DESIGN SURFACE	3.895	3.865	3.775	3.865	3.895		
NATURAL SURFACE	2.452	2.451	2.450	2.448	2.448		
OFFSET	-4.000	-3.000	0.000	3.000	4.000		

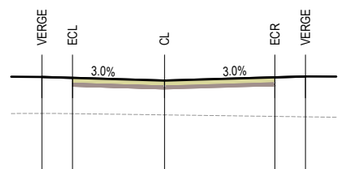
CH 400.000



EASTING 508992.894
NORTHING 7025356.256
DATUM -1.000

DESIGN SURFACE	4.754	4.724	4.634	4.724	4.754		
NATURAL SURFACE	2.930	2.896	2.795	2.773	2.799		
OFFSET	-4.000	-3.000	0.000	3.000	4.000		

CH 280.000



EASTING 509066.338
NORTHING 7025385.79
DATUM -1.000

DESIGN SURFACE	4.095	4.065	3.975	4.083	4.113		
NATURAL SURFACE	2.906	2.897	2.858	2.808	2.795		
OFFSET	-4.000	-3.000	0.000	3.600	4.600		

CH 360.000

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Scales - AS SHOWN
Document Stage - APPROVAL

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A	25.09.24	APPROVAL	GHK

covey

Approved

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MAROOCHYDORE QLD 4558

Drawing title -
ROAD 2 CROSS SECTIONS
(SHEET 2 OF 2)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site -
ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C312

Digital Ref : C310-C312 ROAD 2 SECTIONS Issue : B

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Plot 18 December 2024 - 11:29 AM

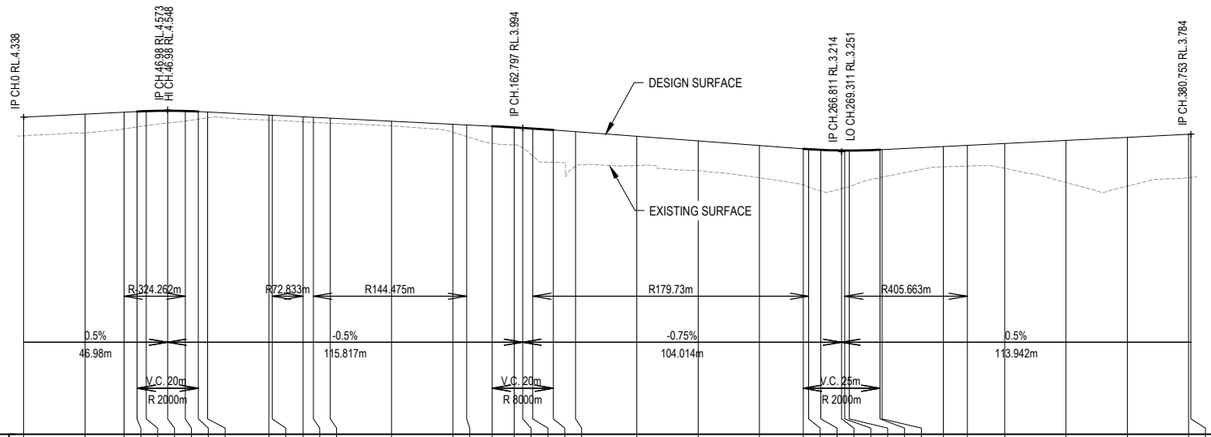
PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

RSCL03								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	508815.211	7025336.777	4.338	28°25'56.22"			
TC	32.733	508830.795	7025365.561	4.502	28°25'56.22"			
IP 2	42.733	508835.558	7025374.358	4.544		R = -324.262	20.000	3°32'02.11"
CT	52.733	508839.769	7025383.431	4.540	24°53'54.11"			
TC	81.104	508851.714	7025409.166	4.402	24°53'54.11"			
IP 3	86.104	508853.822	7025413.708	4.377		R = 72.833	10.000	7°52'00.27"
CT	91.104	508856.533	7025417.919	4.352	32°45'54.38"			
TC	94.502	508858.372	7025420.777	4.335	32°45'54.38"			
IP 4	119.502	508872.038	7025442.012	4.210		R = 144.475	50.000	19°49'44.04"
CT	144.502	508892.098	7025457.351	4.085	52°35'38.42"			
TC	166.063	508909.224	7025470.449	3.967	52°35'38.42"			
IP 5	211.063	508945.736	7025498.370	3.632		R = 179.730	90.000	28°41'27.60"
CT	256.063	508991.170	7025505.335	3.295	81°17'06.02"			
TC	267.827	509002.798	7025507.117	3.252	81°17'06.02"			
IP 6	287.827	509022.584	7025510.150	3.319		R = 405.663	40.000	5°38'58.56"
CT	307.827	509042.571	7025511.221	3.419	86°56'04.58"			
IP 7	380.753	509115.393	7025515.120	3.784	86°56'04.58"			



| | | | | | | | |

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

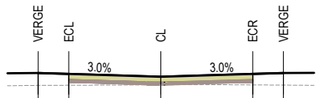
DSDIP ref: MBN25/1159

Date: 6 January 2026

EASTING 508842.829
NORTHING 7025390.023
DATUM 1.000

DESIGN SURFACE	4.628	4.598	4.508	4.598	4.628	
NATURAL SURFACE	4.243	4.282	4.319	4.345	4.348	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

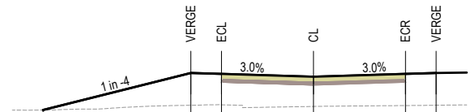
CH 60.000



EASTING 508888.565
NORTHING 7025454.561
DATUM 0.000

DESIGN SURFACE	4.228	4.198	4.108	4.198	4.228	
NATURAL SURFACE	3.826	3.830	3.843	3.841	3.835	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 140.000



EASTING 508956.309
NORTHING 7025496.343
DATUM -1.000

DESIGN SURFACE	2.480	3.685	3.655	3.565	3.655	3.685
NATURAL SURFACE	2.480	2.634	2.650	2.596	2.625	2.635
OFFSET	-8.820	-4.000	-3.000	0.000	3.000	4.000

CH 220.000

EASTING 508834.183
NORTHING 7025371.99
DATUM 0.000

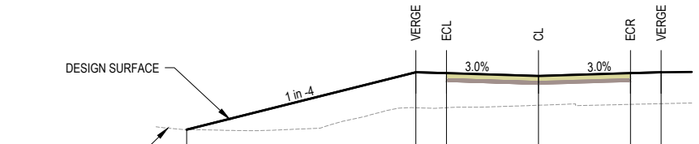
DESIGN SURFACE	4.656	4.626	4.536	4.626	4.656	
NATURAL SURFACE	4.000	4.017	4.065	4.112	4.127	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 40.000

EASTING 508873.987
NORTHING 7025440.892
DATUM 0.000

DESIGN SURFACE	4.328	4.298	4.208	4.298	4.328	
NATURAL SURFACE	4.036	4.041	4.054	4.061	4.063	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

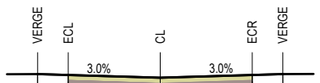
CH 120.000



EASTING 508937.963
NORTHING 7025488.404
DATUM -2.000

DESIGN SURFACE	1.967	3.835	3.805	3.715	3.805	3.835
NATURAL SURFACE	1.967	2.679	2.680	2.761	2.789	2.812
OFFSET	-11.473	-4.000	-3.000	0.000	3.000	4.000

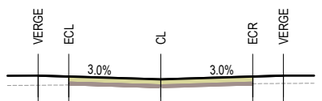
CH 200.000



EASTING 508824.733
NORTHING 7025354.365
DATUM 0.000

DESIGN SURFACE	4.558	4.528	4.438	4.528	4.558	
NATURAL SURFACE	3.729	3.753	3.823	3.893	3.916	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

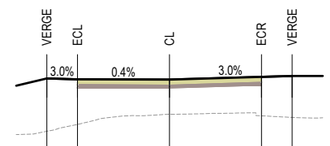
CH 20.000



EASTING 508851.249
NORTHING 7025408.164
DATUM 1.000

DESIGN SURFACE	4.528	4.498	4.408	4.498	4.528	
NATURAL SURFACE	4.216	4.223	4.245	4.267	4.274	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 80.000



EASTING 508920.612
NORTHING 7025478.477
DATUM -1.000

DESIGN SURFACE		3.906	3.876	3.865	3.955	3.985
NATURAL SURFACE		2.181	2.405	2.735	2.686	2.634
OFFSET		-4.000	-3.000	0.000	3.000	4.000

CH 180.000

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

covey

Approved

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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 3 CROSS SECTIONS (SHEET 1 OF 2)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C321

Digital Ref : C320-C322 ROAD 3 SECTIONS Issue : B

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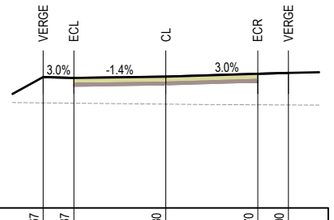
Plot 18 December 2024 - 11:23 AM

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

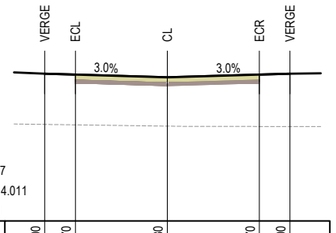
Date: 6 January 2026



EASTING 509014.857
NORTHING 7025508.781
DATUM -1.000

DESIGN SURFACE		3.267	3.237	3.280	3.370	3.400
NATURAL SURFACE		2.423	2.413	2.382	2.360	2.354
OFFSET		-4.000	-3.000	0.000	3.000	4.000

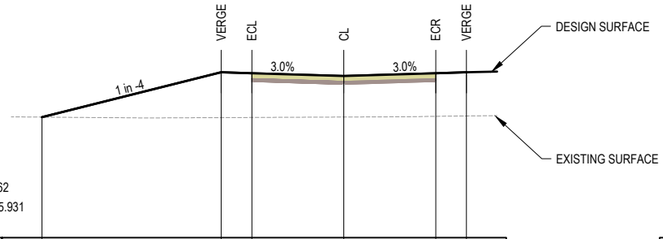
CH 280.000



EASTING 509094.67
NORTHING 7025514.011
DATUM -1.000

DESIGN SURFACE		3.800	3.770	3.680	3.770	3.800
NATURAL SURFACE		2.145	2.131	2.088	2.078	2.077
OFFSET		-4.000	-3.000	0.000	3.000	4.000

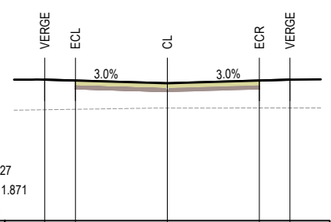
CH 360.000



EASTING 508995.062
NORTHING 7025505.931
DATUM -2.000

DESIGN SURFACE	1.932	3.393	3.363	3.273	3.363	3.393	
NATURAL SURFACE	1.932	1.916	1.920	1.934	1.957	1.970	
OFFSET	-9.846	-4.000	-3.000	0.000	3.000	4.000	

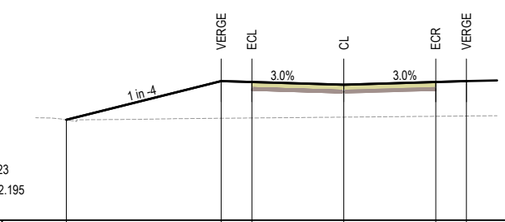
CH 260.000



EASTING 509054.727
NORTHING 7025511.871
DATUM -1.000

DESIGN SURFACE	3.600	3.570	3.480	3.570	3.600	
NATURAL SURFACE	2.618	2.633	2.671	2.675	2.677	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

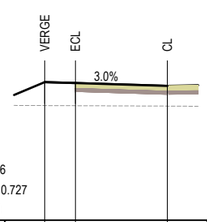
CH 320.000



EASTING 508975.423
NORTHING 7025502.195
DATUM -1.000

DESIGN SURFACE	2.272	3.535	3.505	3.415	3.505	3.535	
NATURAL SURFACE	2.272	2.324	2.333	2.360	2.388	2.398	
OFFSET	-9.052	-4.000	-3.000	0.000	3.000	4.000	

CH 240.000



EASTING 509034.76
NORTHING 7025510.727
DATUM -1.000

DESIGN SURFACE	3.500	3.470	3.380	
NATURAL SURFACE	2.737	2.733	2.720	
OFFSET	-4.000	-3.000	0.000	

CH 300.000

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covey

Approved

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MAROOCHYDORE QLD 4558

Drawing title - ROAD 3 CROSS SECTIONS (SHEET 2 OF 2)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C322

Digital Ref : C320-C322 ROAD 3 SECTIONS Issue : B

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c:\12ds\data\12DSERVER\243823_3381\DWG Covey\OPW\Uncontrolled\C320-C322 ROAD 3 SECTIONS.dwg

Plot 18 December 2024 - 11:23 AM

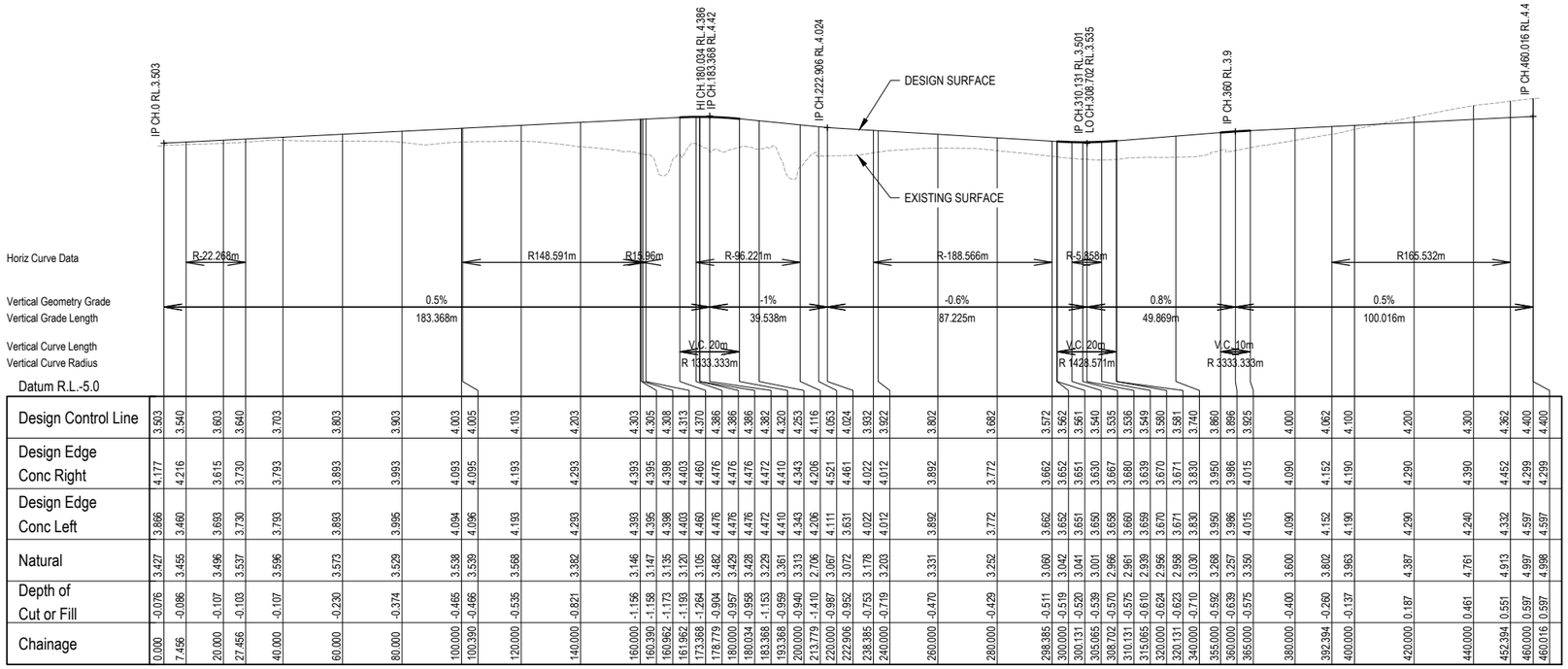
PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

RSCL04								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	508847.494	7025551.962	3.503	244°33'34.98"			
TC	7.456	508840.761	7025548.759	3.540	244°33'34.98"			
IP 2	17.456	508831.070	7025544.149	3.590		R = -22.268	20.000	51°27'38.00"
CT	27.456	508828.638	7025533.697	3.640	193°05'56.98"			
TC	100.390	508812.109	7025462.661	4.005	193°05'56.98"			
IP 3	130.390	508805.216	7025433.039	4.155		R = 148.591	60.000	23°08'08.19"
CT	160.390	508787.238	7025408.506	4.305	216°14'05.17"			
TC	160.962	508786.899	7025408.044	4.308	216°14'05.17"			
IP 4	161.462	508786.604	7025407.641	4.310		R = 15.960	1.000	3°35'24.13"
CT	161.962	508786.283	7025407.257	4.313	219°49'29.30"			
TC	178.779	508775.513	7025394.341	4.386	219°49'29.30"			
IP 5	196.279	508764.180	7025380.751	4.291		R = -96.221	35.000	20°50'28.34"
CT	213.779	508758.424	7025364.018	4.116	198°59'00.96"			
TC	238.385	508750.420	7025340.750	3.932	198°59'00.96"			
IP 6	268.385	508740.577	7025312.140	3.752		R = -188.566	60.000	18°13'51.58"
CT	298.385	508740.180	7025281.887	3.572	180°45'09.38"			
TC	305.065	508740.092	7025275.208	3.540	180°45'09.38"			
IP 7	310.065	508740.004	7025268.493	3.536		R = -5.858	10.000	97°48'07.62"
CT	315.065	508746.669	7025269.317	3.549	82°57'01.76"			
TC	392.394	508823.414	7025278.807	4.062	82°57'01.76"			
IP 8	422.394	508853.517	7025282.530	4.212		R = 165.532	60.000	20°46'04.53"
CT	452.394	508882.985	7025275.337	4.362	103°43'06.29"			
IP 9	460.016	508890.389	7025273.529	4.400	103°43'06.29"			



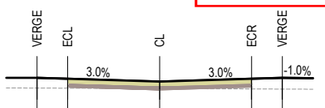
| | | | | | | | |

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

DSDIP ref: MBN25/1159

Date: 6 January 2026

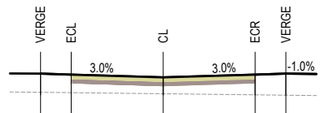
Queensland Government



EASTING 508821.263
NORTHING 7025502
DATUM 0.000

DESIGN SURFACE	3.923	3.893	3.803	3.893	3.923	
NATURAL SURFACE	3.591	3.586	3.573	3.561	3.557	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

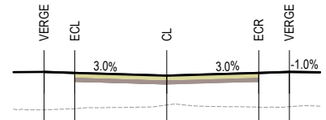
CH 60.000



EASTING 508806.419
NORTHING 7025443.91
DATUM 0.000

DESIGN SURFACE	4.223	4.193	4.103	4.193	4.223	
NATURAL SURFACE	3.615	3.604	3.568	3.533	3.521	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

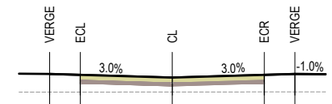
CH 120.000



EASTING 508774.737
NORTHING 7025393.399
DATUM 0.000

DESIGN SURFACE	4.506	4.476	4.386	4.476	4.506	
NATURAL SURFACE	3.269	3.308	3.429	3.356	3.374	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 180.000



EASTING 508744.574
NORTHING 7025319.953
DATUM 0.000

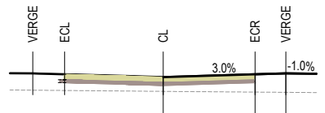
DESIGN SURFACE	3.922	3.892	3.802	3.892	3.922	
NATURAL SURFACE	3.327	3.328	3.331	3.334	3.335	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 260.000

EASTING 508825.795
NORTHING 7025521.48
DATUM 0.000

DESIGN SURFACE	3.823	3.793	3.703	3.793	3.823	
NATURAL SURFACE	3.622	3.616	3.596	3.588	3.587	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

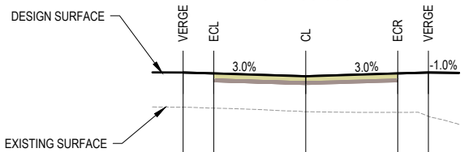
CH 40.000



EASTING 508812.197
NORTHING 7025463.041
DATUM 0.000

DESIGN SURFACE		4.003	4.093	4.123		
NATURAL SURFACE		3.538	3.514	3.506		
OFFSET		0.000	3.000	4.000		

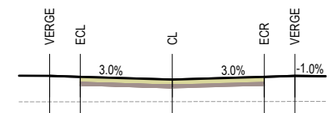
CH 100.000



EASTING 508787.468
NORTHING 7025408.821
DATUM -1.000

DESIGN SURFACE	4.423	4.393	4.303	4.393	4.423	
NATURAL SURFACE	3.292	3.262	3.146	3.125	2.996	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

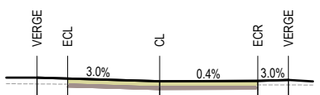
CH 160.000



EASTING 508749.901
NORTHING 7025339.221
DATUM 0.000

DESIGN SURFACE	4.042	4.012	3.922	4.012	4.042	
NATURAL SURFACE	3.197	3.198	3.203	3.207	3.208	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

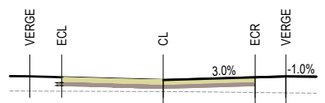
CH 240.000



EASTING 508831.501
NORTHING 7025540.544
DATUM 0.000

DESIGN SURFACE	3.723	3.693	3.603	3.615	3.645	
NATURAL SURFACE	3.517	3.510	3.496	3.486	3.484	
OFFSET	-4.000	-3.000	0.000	3.202	4.202	

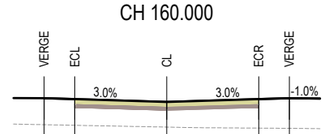
CH 20.000



EASTING 508816.73
NORTHING 7025482.52
DATUM 0.000

DESIGN SURFACE		3.903	3.993	4.023		
NATURAL SURFACE		3.529	3.499	3.487		
OFFSET		0.000	3.000	4.000		

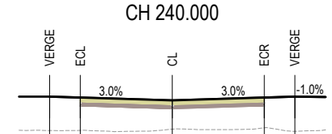
CH 80.000



EASTING 508798.126
NORTHING 7025425.727
DATUM 0.000

DESIGN SURFACE	4.323	4.293	4.203	4.293	4.323	
NATURAL SURFACE	3.460	3.441	3.382	3.348	3.341	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 140.000



EASTING 508763.822
NORTHING 7025376.683
DATUM 0.000

DESIGN SURFACE	4.373	4.343	4.253	4.343	4.373	
NATURAL SURFACE	3.268	3.273	3.313	3.358	3.243	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 200.000

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
Check Building Boundary clearances by set out.
Notwithstanding the information supplied on this drawing, the location, depth and extent of underground or overhead services are to be confirmed and protected on site by the contractor prior to commencement of works.

Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

covey

Approved

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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 4 CROSS SECTIONS (SHEET 1 OF 2)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C331

Digital Ref : C330-C332 ROAD 4 SECTIONS Issue : B

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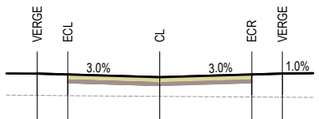
Plot 18 December 2024 - 11:23 AM

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

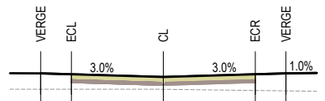
Date: 6 January 2026



EASTING 508751.567
NORTHING 7025269.923
DATUM -1.000

DESIGN SURFACE	3.700	3.670	3.580	3.670	3.700	
NATURAL SURFACE	2.988	2.979	2.956	2.936	2.929	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

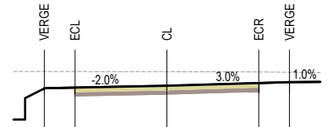
CH 320.000



EASTING 508811.114
NORTHING 7025277.286
DATUM 0.000

DESIGN SURFACE	4.120	4.090	4.000	4.090	4.120	
NATURAL SURFACE	3.604	3.604	3.600	3.561	3.549	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

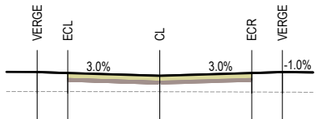
CH 380.000



EASTING 508870.846
NORTHING 7025277.823
DATUM 0.000

DESIGN SURFACE	4.220	4.240	4.300	4.390	4.420	
NATURAL SURFACE	4.767	4.765	4.761	4.751	4.741	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

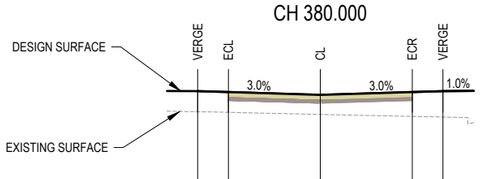
CH 440.000



EASTING 508740.159
NORTHING 7025280.272
DATUM 0.000

DESIGN SURFACE	3.682	3.652	3.562	3.652	3.682	
NATURAL SURFACE	3.047	3.047	3.042	3.032	3.028	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

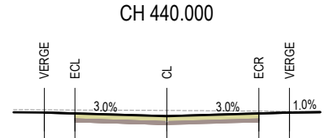
CH 300.000



EASTING 508791.265
NORTHING 7025274.832
DATUM -1.000

DESIGN SURFACE	4.016	3.986	3.896	3.986	4.016	
NATURAL SURFACE	3.346	3.326	3.257	3.193	3.172	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

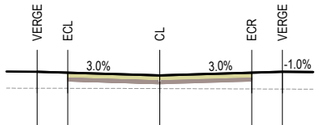
CH 360.000



EASTING 508850.966
NORTHING 7025279.9
DATUM 0.000

DESIGN SURFACE	4.320	4.290	4.200	4.290	4.320	
NATURAL SURFACE	4.407	4.402	4.387	4.366	4.354	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

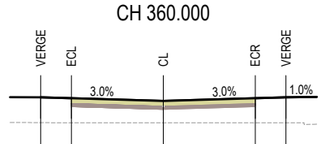
CH 420.000



EASTING 508741.317
NORTHING 7025300.23
DATUM 0.000

DESIGN SURFACE	3.802	3.772	3.682	3.772	3.802	
NATURAL SURFACE	3.263	3.261	3.252	3.241	3.237	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

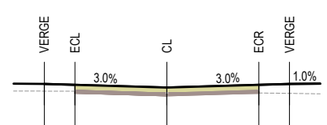
CH 280.000



EASTING 508771.416
NORTHING 7025272.377
DATUM -1.000

DESIGN SURFACE	3.860	3.830	3.740	3.830	3.860	
NATURAL SURFACE	3.033	3.030	3.030	3.031	3.031	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 340.000



EASTING 508830.981
NORTHING 7025279.567
DATUM 0.000

DESIGN SURFACE	4.220	4.190	4.100	4.190	4.220	
NATURAL SURFACE	3.984	3.982	3.963	3.925	3.911	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 400.000

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

covey

Approved

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MAROOCHYDORE QLD 4558

Drawing title - ROAD 4 CROSS SECTIONS (SHEET 2 OF 2)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C332

Digital Ref : C330-C332 ROAD 4 SECTIONS Issue : B

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Plot 18 December 2024 - 11:29 AM

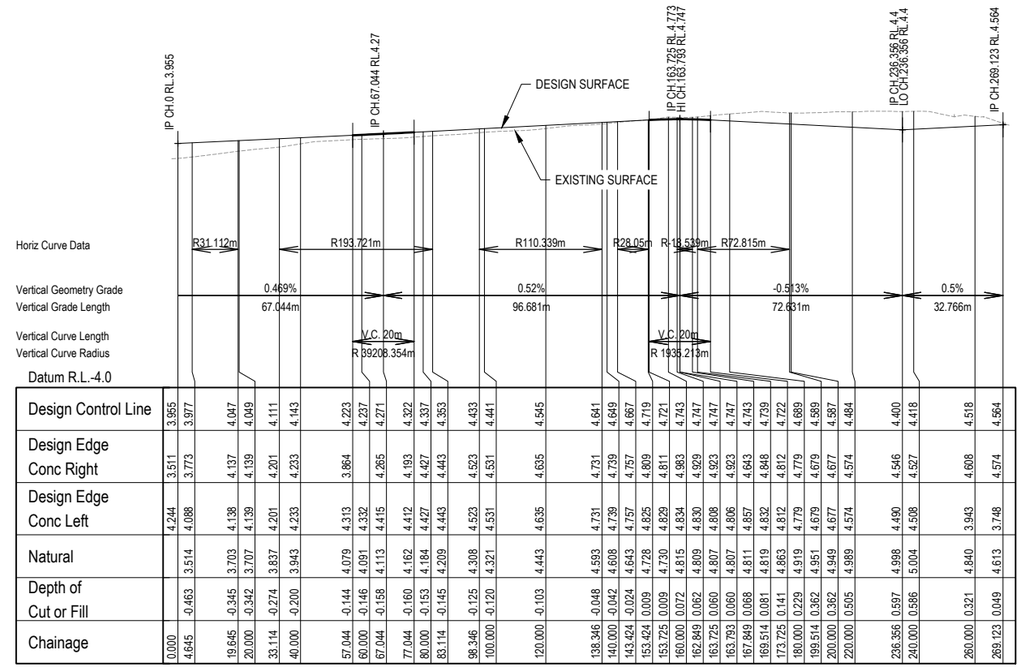
PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

DESIGN/ROADING/Alignments->RSCL05 HORIZONTAL POINTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	508814.360	7025472.337	3.955	103°08'02.48"			
TC	4.645	508818.884	7025471.282	3.977	103°08'02.48"			
IP 2	12.145	508826.332	7025469.544	4.012		R = 31.112	15.000	27°37'27.52"
CT	19.645	508832.126	7025464.550	4.047	130°45'30.00"			
TC	33.114	508842.328	7025455.757	4.111	130°45'30.00"			
IP 3	58.114	508861.371	7025439.344	4.228		R = 193.721	50.000	14°47'17.64"
CT	83.114	508875.593	7025418.614	4.353	145°32'47.64"			
TC	98.346	508884.211	7025406.054	4.433	145°32'47.64"			
IP 4	118.346	508895.651	7025389.379	4.537		R = 110.339	40.000	20°46'14.84"
CT	138.346	508900.434	7025369.731	4.641	166°19'02.48"			
TC	143.424	508901.636	7025364.796	4.667	166°19'02.48"			
IP 5	148.424	508902.831	7025359.886	4.693		R = 28.050	10.000	20°25'34.04"
CT	153.424	508902.238	7025354.868	4.719	186°44'36.52"			
TC	162.849	508901.131	7025345.508	4.747	186°44'36.52"			
IP 6	165.349	508900.835	7025343.010	4.746		R = -18.539	5.000	15°27'10.65"
CT	167.849	508901.216	7025340.524	4.743	171°17'25.87"			
TC	169.514	508901.468	7025338.878	4.739	171°17'25.87"			
IP 7	184.514	508903.772	7025323.838	4.666		R = 72.815	30.000	23°36'21.96"
CT	199.514	508899.861	7025309.134	4.589	194°53'47.83"			
IP 8	269.123	508881.966	7025241.864	4.564	194°53'47.83"			



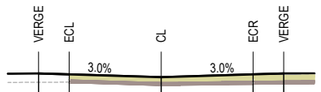
| | | | | | | | |

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



EASTING 508873.811
NORTHING 7025421.167
DATUM 1.000

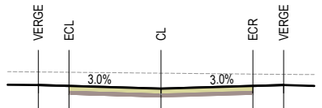
DESIGN SURFACE	4.457	4.427	4.337	4.427	4.457	
NATURAL SURFACE	4.171	4.174	4.184	4.194	4.198	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 80.000

EASTING 508900.826
NORTHING 7025368.123
DATUM 1.000

DESIGN SURFACE	4.769	4.739	4.649	4.739	4.769	
NATURAL SURFACE	4.598	4.600	4.608	4.616	4.619	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

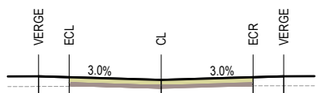
CH 140.000



EASTING 508894.594
NORTHING 7025289.336
DATUM 1.000

DESIGN SURFACE	4.604	4.574	4.484	4.574	4.604	
NATURAL SURFACE	5.028	5.018	4.989	4.959	4.950	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

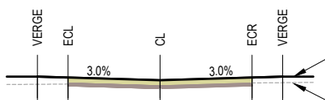
CH 220.000



EASTING 508847.463
NORTHING 7025451.169
DATUM 0.000

DESIGN SURFACE	4.263	4.233	4.143	4.233	4.263	
NATURAL SURFACE	3.931	3.934	3.943	3.952	3.953	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

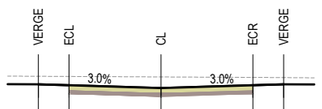
CH 40.000



EASTING 508894.636
NORTHING 7025387.114
DATUM 1.000

DESIGN SURFACE	4.665	4.635	4.545	4.635	4.665	
NATURAL SURFACE	4.416	4.422	4.443	4.463	4.469	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

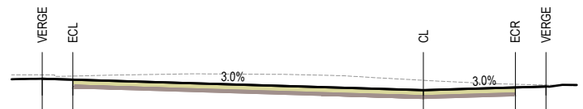
CH 120.000



EASTING 508899.736
NORTHING 7025308.663
DATUM 1.000

DESIGN SURFACE	4.707	4.677	4.587	4.677	4.707	
NATURAL SURFACE	4.970	4.965	4.949	4.933	4.928	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

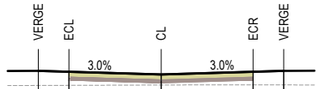
CH 200.000



EASTING 508884.311
NORTHING 7025250.68
DATUM 1.000

DESIGN SURFACE	4.891	4.861		4.518	4.608	4.638
NATURAL SURFACE	5.018	4.978		4.840	4.710	4.685
OFFSET	-12.433	-11.433		0.000	3.000	4.000

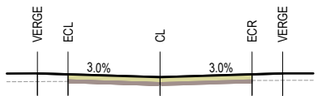
CH 260.000



EASTING 508832.395
NORTHING 7025464.318
DATUM 0.000

DESIGN SURFACE	4.169	4.139	4.049	4.139	4.169	
NATURAL SURFACE	3.693	3.696	3.707	3.712	3.710	
OFFSET	-4.006	-3.006	0.000	3.000	4.000	

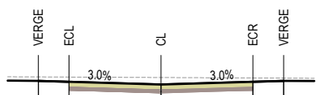
CH 20.000



EASTING 508885.136
NORTHING 7025404.683
DATUM 1.000

DESIGN SURFACE	4.561	4.531	4.441	4.531	4.561	
NATURAL SURFACE	4.297	4.303	4.321	4.334	4.337	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

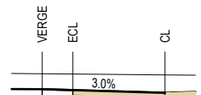
CH 100.000



EASTING 508902.306
NORTHING 7025328.435
DATUM 1.000

DESIGN SURFACE	4.809	4.779	4.689	4.779	4.809	
NATURAL SURFACE	4.938	4.933	4.919	4.904	4.899	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 180.000



EASTING 508889.453
NORTHING 7025270.008
DATUM 1.000

DESIGN SURFACE	4.538	4.508	4.418			
NATURAL SURFACE	5.041	5.032	5.004			
OFFSET	-4.000	-3.000	0.000			

CH 240.000

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
Check Building Boundary clearances by set out.
Notwithstanding the information supplied on this drawing, the location, depth and extent of underground or overhead services are to be confirmed and protected on site by the contractor prior to commencement of works.

Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	25.09.24	APPROVAL	GHK

covey

Approved
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ABN 59 137 305 992
(07) 5443 7777
engineers@covey.com.au
124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 5 CROSS SECTIONS

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C341

Digital Ref : C340-C341 ROAD 5 SECTIONS Issue : B

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c:\12ds\data\12DSERVER\243823_3381\DWG Covey\OPW\Uncontrolled\C340-C341 ROAD 5 SECTIONS.dwg

Plot 18 December 2024 - 11:28 AM

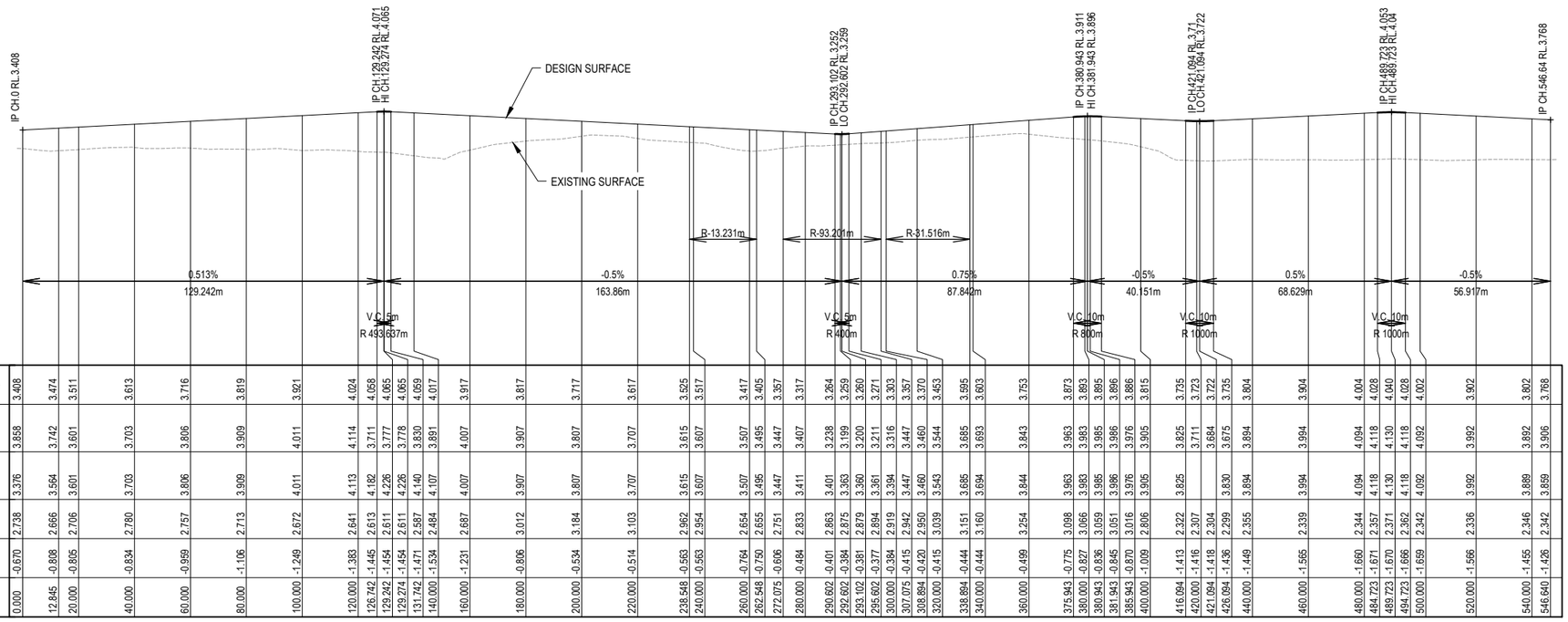
PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

RSCL06								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	509040.427	7025511.100	3.408	176°56'24.91"			
IP 2	12.845	509041.113	7025498.273	3.474				
TC	238.548	509053.509	7025272.911	3.525	176°51'05.48"			
IP 3	250.548	509054.438	7025256.023	3.465		R = -13.231	24.000	103°55'37.43"
CT	262.548	509070.606	7025260.989	3.405	72°55'28.05"			
TC	272.075	509079.713	7025263.787	3.357	72°55'28.05"			
IP 4	289.575	509096.641	7025268.987	3.269		R = -93.201	35.000	21°30'59.15"
CT	307.075	509110.482	7025280.033	3.357	51°24'28.90"			
TC	308.894	509111.904	7025281.167	3.370	51°24'28.90"			
IP 5	323.894	509124.602	7025291.301	3.483		R = -31.516	30.000	54°32'25.99"
CT	338.894	509123.714	7025307.522	3.595	356°52'02.91"			
IP 6	546.640	509112.361	7025514.958	3.768	356°52'02.91"			



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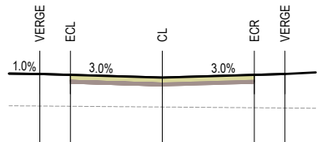
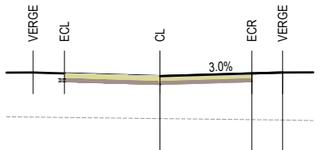


EASTING 509043.703
NORTHING 7025451.19
DATUM -1.000

DESIGN SURFACE	3.836	3.806	3.716	3.806	3.836	
NATURAL SURFACE	2.790	2.782	2.757	2.733	2.725	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

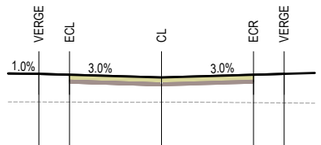
CH 60.000



EASTING 509046.998
NORTHING 7025391.28
DATUM -1.000

DESIGN SURFACE	4.024	4.114	4.144		
NATURAL SURFACE	2.641	2.606	2.595		
OFFSET	0.000	3.000	4.000		

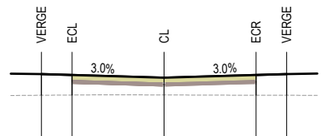
CH 120.000



EASTING 509050.294
NORTHING 7025331.371
DATUM -1.000

DESIGN SURFACE	3.937	3.907	3.817	3.907	3.937	
NATURAL SURFACE	3.020	3.016	3.012	2.997	2.988	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

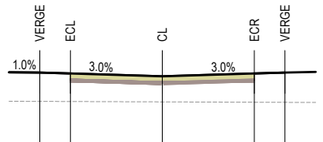
CH 180.000



EASTING 509053.668
NORTHING 7025271.468
DATUM -1.000

DESIGN SURFACE	3.637	3.607	3.517	3.607	3.637	
NATURAL SURFACE	2.944	2.951	2.954	2.945	2.944	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

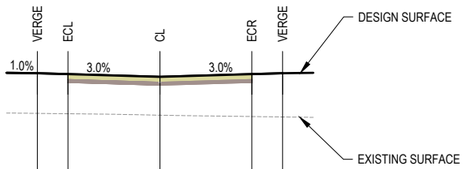
CH 240.000



EASTING 509042.604
NORTHING 7025471.159
DATUM -1.000

DESIGN SURFACE	3.733	3.703	3.613	3.703	3.733	
NATURAL SURFACE	2.796	2.792	2.780	2.768	2.764	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

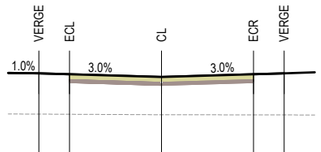
CH 40.000



EASTING 509045.9
NORTHING 7025411.25
DATUM -1.000

DESIGN SURFACE	4.041	4.011	3.921	4.011	4.041	
NATURAL SURFACE	2.731	2.719	2.672	2.628	2.614	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

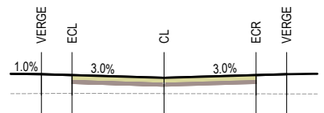
CH 100.000



EASTING 509049.195
NORTHING 7025351.34
DATUM -1.000

DESIGN SURFACE	4.037	4.007	3.917	4.007	4.037	
NATURAL SURFACE	2.706	2.701	2.687	2.681	2.680	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

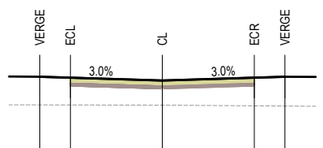
CH 160.000



EASTING 509052.491
NORTHING 7025291.431
DATUM 0.000

DESIGN SURFACE	3.737	3.707	3.617	3.707	3.737	
NATURAL SURFACE	3.106	3.111	3.103	3.096	3.093	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

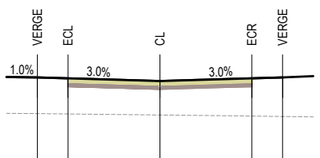
CH 220.000



EASTING 509041.506
NORTHING 7025491.129
DATUM -1.000

DESIGN SURFACE	3.631	3.601	3.511	3.601	3.631	
NATURAL SURFACE	2.717	2.714	2.706	2.685	2.677	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

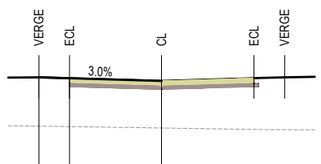
CH 20.000



EASTING 509044.801
NORTHING 7025431.22
DATUM -1.000

DESIGN SURFACE	3.939	3.909	3.819	3.909	3.939	
NATURAL SURFACE	2.757	2.746	2.713	2.676	2.663	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

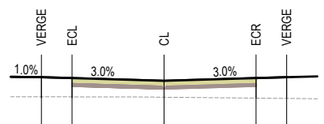
CH 80.000



EASTING 509048.097
NORTHING 7025371.31
DATUM -1.000

DESIGN SURFACE	4.137	4.107	4.017			
NATURAL SURFACE	2.544	2.530	2.484			
OFFSET	-4.000	-3.000	0.000			

CH 140.000



EASTING 509051.392
NORTHING 7025311.401
DATUM 0.000

DESIGN SURFACE	3.837	3.807	3.717	3.807	3.837	
NATURAL SURFACE	3.197	3.195	3.184	3.154	3.144	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 200.000

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
Check Building Boundary clearances by set out.
Notwithstanding the information supplied on this drawing, the location, depth and extent of underground or overhead services are to be confirmed and protected on site by the contractor prior to commencement of works.

Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	26.09.24	APPROVAL	GHK

covey

Approved

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ABN 59 137 305 992
(07) 5443 7777
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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 6 CROSS SECTIONS (SHEET 1 OF 3)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C351

Digital Ref : C350-C353 ROAD 6 SECTIONS Issue : B

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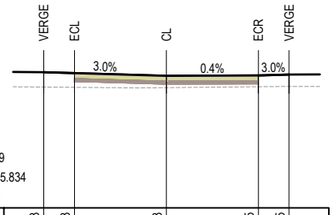
c:\12d\data\12DSERVER\243823_3381\DWG Covey\OPW\Uncontrolled\C350-C353 ROAD 6 SECTIONS.dwg

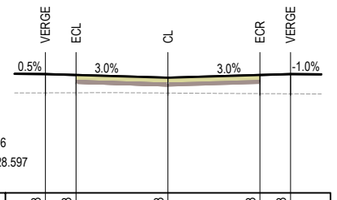
Plot 18 December 2024 - 11:25 AM



EASTING 509104.79
NORTHING 7025275.834
DATUM -1.000

DESIGN SURFACE	3.423	3.393	3.303	3.315	3.345	
NATURAL SURFACE	2.938	2.929	2.919	2.949	2.956	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

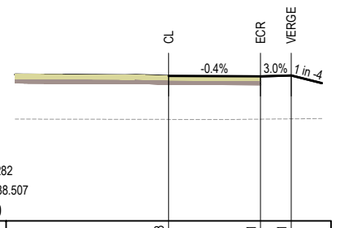
CH 300.000



EASTING 509122.56
NORTHING 7025328.597
DATUM 0.000

DESIGN SURFACE	3.873	3.843	3.753	3.843	3.873	
NATURAL SURFACE	3.260	3.263	3.254	3.235	3.229	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

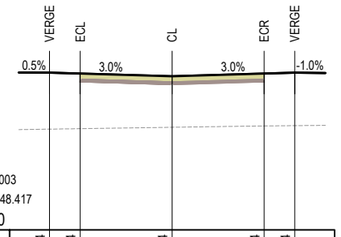
CH 360.000



EASTING 509119.282
NORTHING 7025388.507
DATUM -1.000

DESIGN SURFACE			3.723	3.711	3.741	
NATURAL SURFACE			2.307	2.315	2.325	
OFFSET			0.000	3.000	4.000	

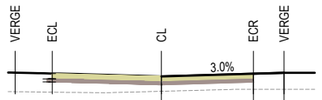
CH 420.000



EASTING 509116.003
NORTHING 7025448.417
DATUM -1.000

DESIGN SURFACE	4.124	4.094	4.004	4.094	4.124	
NATURAL SURFACE	2.284	2.299	2.344	2.387	2.397	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

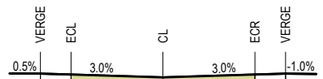
CH 480.000



EASTING 509087.18
NORTHING 7025266.433
DATUM -1.000

DESIGN SURFACE			3.317	3.407	3.437	
NATURAL SURFACE			2.833	2.900	2.900	
OFFSET			0.000	3.000	4.000	

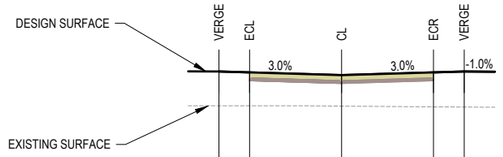
CH 280.000



EASTING 509123.653
NORTHING 7025308.627
DATUM 0.000

DESIGN SURFACE	3.723	3.693	3.603	3.693	3.723	
NATURAL SURFACE	3.154	3.156	3.160	3.163	3.163	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

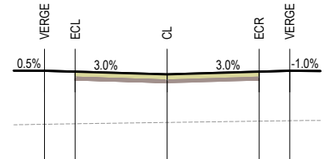
CH 340.000



EASTING 509120.375
NORTHING 7025368.537
DATUM -1.000

DESIGN SURFACE	3.935	3.905	3.815	3.905	3.935	
NATURAL SURFACE	2.816	2.816	2.806	2.782	2.775	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

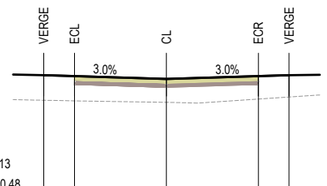
CH 400.000



EASTING 509117.096
NORTHING 7025428.447
DATUM -1.000

DESIGN SURFACE	4.024	3.994	3.904	3.994	4.024	
NATURAL SURFACE	2.279	2.296	2.339	2.382	2.396	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

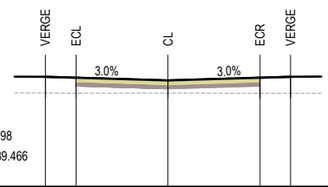
CH 460.000



EASTING 509068.113
NORTHING 7025260.48
DATUM -1.000

DESIGN SURFACE	3.537	3.507	3.417	3.507	3.537	
NATURAL SURFACE	2.722	2.702	2.654	2.761	2.827	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

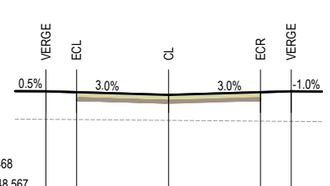
CH 260.000



EASTING 509119.198
NORTHING 7025289.466
DATUM 0.000

DESIGN SURFACE	3.573	3.543	3.453	3.543	3.573	
NATURAL SURFACE	3.042	3.041	3.039	3.036	3.035	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

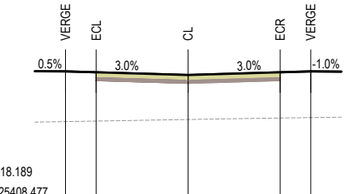
CH 320.000



EASTING 509121.468
NORTHING 7025348.567
DATUM 0.000

DESIGN SURFACE	4.013	3.983	3.893	3.983	4.013	
NATURAL SURFACE	3.099	3.091	3.066	3.041	3.032	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 380.000



EASTING 509118.189
NORTHING 7025408.477
DATUM -1.000

DESIGN SURFACE	3.924	3.894	3.804	3.894	3.924	
NATURAL SURFACE	2.287	2.304	2.355	2.402	2.417	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 440.000

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

Check all dimensions before commencement of work.
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Check Building Boundary clearances by set out.
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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	26.09.24	APPROVAL	GHK

covey

Approved

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engineers@covey.com.au

124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 6 CROSS SECTIONS (SHEET 2 OF 3)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C352

Digital Ref : C350-C353 ROAD 6 SECTIONS Issue : B

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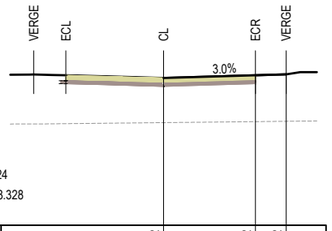
Plot 18 December 2024 - 11:23 AM

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

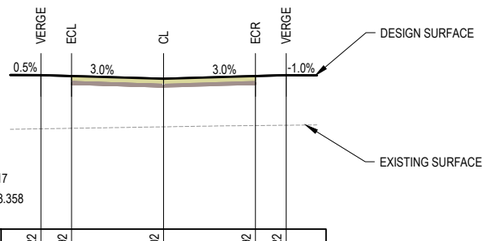
Date: 6 January 2026



EASTING 509112.724
NORTHING 7025508.328
DATUM -1.000

DESIGN SURFACE			3.802	3.892	3.922	
NATURAL SURFACE			2.346	2.379	2.389	
OFFSET			0.000	3.000	4.000	

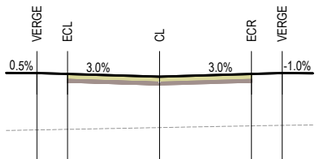
CH 540.000



EASTING 509113.817
NORTHING 7025488.358
DATUM -1.000

DESIGN SURFACE	4.022	3.992	3.902	3.992	4.022	
NATURAL SURFACE	2.272	2.288	2.336	2.378	2.388	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 520.000



EASTING 509114.91
NORTHING 7025468.388
DATUM -1.000

DESIGN SURFACE	4.122	4.092	4.002	4.092	4.122	
NATURAL SURFACE	2.267	2.286	2.342	2.399	2.415	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 500.000

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	26.09.24	APPROVAL	GHK

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covey

Approved

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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 6 CROSS SECTIONS (SHEET 3 OF 3)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C353

Digital Ref : C350-C353 ROAD 6 SECTIONS Issue : B

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Plot 18 December 2024 - 11:26 AM

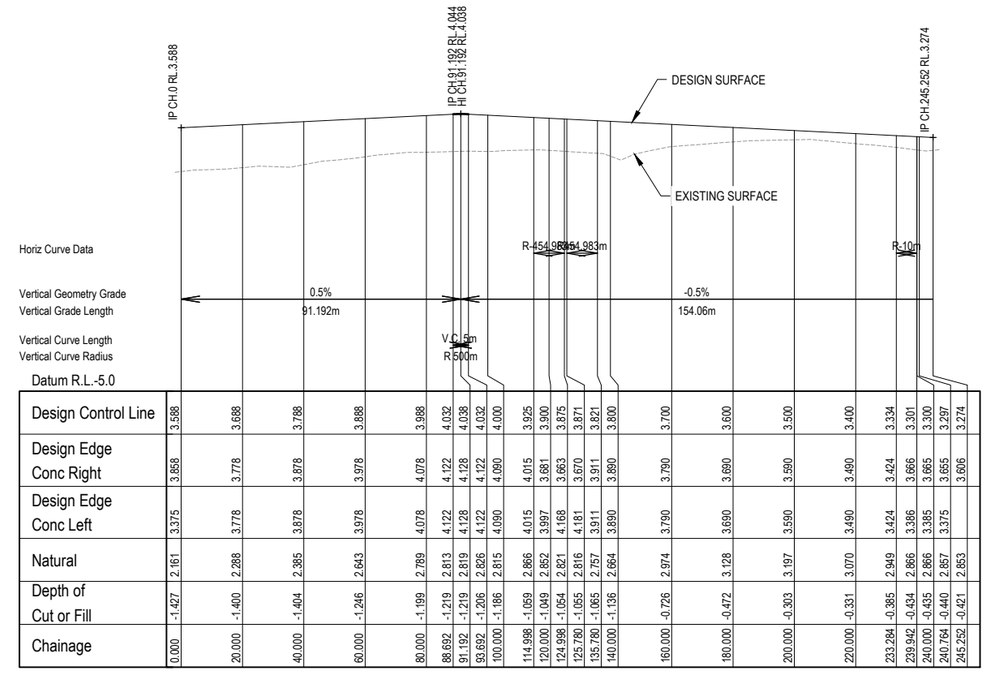
PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

RSCL07								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	509076.428	7025513.034	3.588	176°56'49.37"			
TC	114.998	509082.553	7025398.199	3.925	176°56'49.37"			
IP 2	119.998	509082.819	7025393.206	3.900		R = -454.983	10.000	1°15'33.46"
CT	124.998	509083.195	7025388.220	3.875	175°41'15.91"			
TC	125.780	509083.254	7025387.440	3.871	175°41'15.91"			
IP 3	130.780	509083.630	7025382.454	3.846		R = 454.983	10.000	1°15'33.46"
CT	135.780	509083.896	7025377.461	3.821	176°56'49.37"			
TC	233.284	509089.089	7025280.095	3.334	176°56'49.37"			
IP 4	236.613	509089.273	7025276.642	3.317		R = -10.000	6.657	38°08'36.78"
CT	239.942	509091.550	7025274.041	3.301	138°48'12.59"			
IP 5	240.764	509092.092	7025273.422	3.297				
IP 6	245.252	509095.025	7025270.024	3.274	139°12'15.92"			



Chainage	0.000	20.000	40.000	60.000	80.000	88.692	91.192	93.692	100.000	114.998	120.000	124.998	125.780	135.780	140.000	160.000	180.000	200.000	220.000	233.284	239.942	240.000	240.764	245.252
Design Control Line	3.588	3.688	3.788	3.888	3.988	4.032	4.038	4.032	4.000	3.925	3.900	3.875	3.871	3.821	3.800	3.700	3.600	3.500	3.400	3.334	3.301	3.300	3.297	3.274
Design Edge Conc Right	3.858	3.778	3.878	3.978	4.078	4.122	4.128	4.122	4.090	4.015	3.681	3.663	3.670	3.911	3.890	3.790	3.690	3.590	3.490	3.424	3.666	3.665	3.655	3.606
Design Edge Conc Left	3.375	3.778	3.878	3.978	4.078	4.122	4.128	4.122	4.090	4.015	3.997	4.168	4.161	3.911	3.890	3.790	3.690	3.590	3.490	3.424	3.386	3.385	3.375	
Natural	2.161	2.288	2.385	2.643	2.789	2.813	2.819	2.826	2.815	2.866	2.852	2.821	2.816	2.757	2.664	2.974	3.128	3.197	3.070	2.949	2.866	2.866	2.867	2.853
Depth of Cut or Fill	-1.427	-1.400	-1.404	-1.246	-1.199	-1.219	-1.219	-1.206	-1.166	-1.069	-1.049	-1.054	-1.055	-1.065	-1.136	-0.726	-0.472	-0.303	-0.331	-0.365	-0.434	-0.435	-0.440	-0.421

SECTION RSCL07

HORIZ. 1:1000(A1) / VERT. 1:100(A1)

SCALE 1:2000 (A3) HORIZ.

SCALE 1:200 (A3) VERT.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	26.09.24	APPROVAL	GHK

covey

Approved

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MAROOCHYDORE QLD 4558

Drawing title - ROAD 7 LONGITUDINAL SECTION

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C360

Digital Ref : C360-C361 ROAD 7 SECTIONS Issue : B

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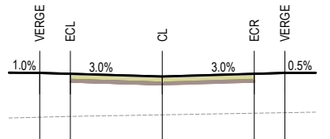
Plot 18 December 2024 - 11:28 AM

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

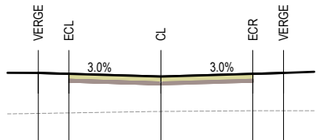
Date: 6 January 2026



EASTING 509079.624
NORTHING 7025453.119
DATUM -1.000

DESIGN SURFACE	4.008	3.978	3.888	3.978	4.008	
NATURAL SURFACE	2.565	2.591	2.643	2.694	2.712	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

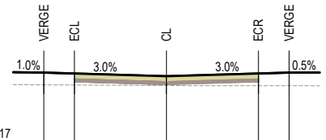
CH 60.000



EASTING 509084.121
NORTHING 7025373.247
DATUM -1.000

DESIGN SURFACE	3.920	3.890	3.800	3.890	3.920	
NATURAL SURFACE	2.600	2.616	2.664	2.688	2.688	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

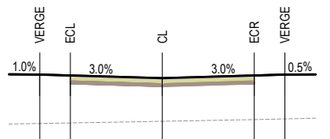
CH 140.000



EASTING 509087.317
NORTHING 7025313.332
DATUM 0.000

DESIGN SURFACE	3.620	3.590	3.500	3.590	3.620	
NATURAL SURFACE	3.220	3.214	3.197	3.191	3.190	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

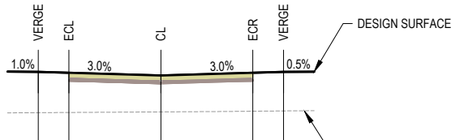
CH 200.000



EASTING 509078.559
NORTHING 7025473.09
DATUM -1.000

DESIGN SURFACE	3.908	3.878	3.788	3.878	3.908	
NATURAL SURFACE	2.313	2.331	2.385	2.440	2.462	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

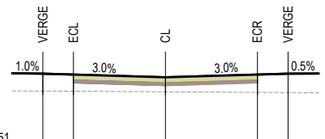
CH 40.000



EASTING 509081.754
NORTHING 7025413.176
DATUM -1.000

DESIGN SURFACE	4.120	4.090	4.000	4.090	4.120	
NATURAL SURFACE	2.789	2.796	2.815	2.837	2.847	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

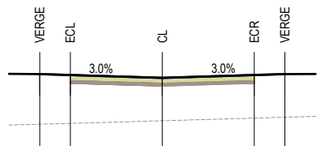
CH 100.000



EASTING 509086.251
NORTHING 7025333.304
DATUM 0.000

DESIGN SURFACE	3.720	3.690	3.600	3.690	3.720	
NATURAL SURFACE	3.152	3.147	3.128	3.109	3.102	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

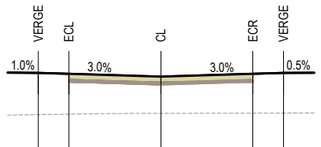
CH 180.000



EASTING 509077.493
NORTHING 7025493.062
DATUM -1.000

DESIGN SURFACE	3.808	3.778	3.688	3.778	3.808	
NATURAL SURFACE	2.175	2.202	2.288	2.374	2.403	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

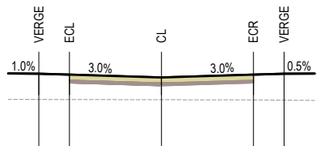
CH 20.000



EASTING 509080.689
NORTHING 7025433.147
DATUM -1.000

DESIGN SURFACE	4.108	4.078	3.988	4.078	4.108	
NATURAL SURFACE	2.748	2.764	2.789	2.795	2.798	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

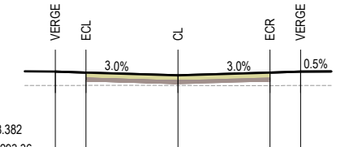
CH 80.000



EASTING 509085.186
NORTHING 7025353.275
DATUM -1.000

DESIGN SURFACE	3.820	3.790	3.700	3.790	3.820	
NATURAL SURFACE	2.982	2.980	2.974	2.969	2.960	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 160.000



EASTING 509088.382
NORTHING 7025293.36
DATUM 0.000

DESIGN SURFACE	3.520	3.490	3.400	3.490	3.520	
NATURAL SURFACE	3.070	3.072	3.070	3.067	3.068	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 220.000

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	26.09.24	APPROVAL	GHK

covey

Approved

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(07) 5443 7777
engineers@covey.com.au

124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 7 CROSS SECTIONS

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C361

Digital Ref : C360-C361 ROAD 7 SECTIONS Issue : B

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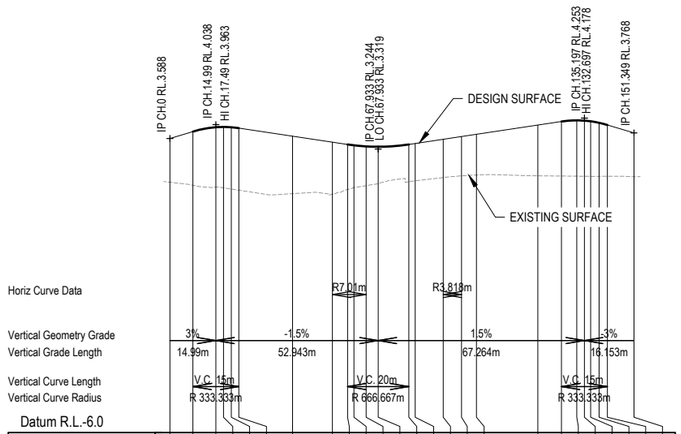
Plot 18 December 2024 - 11:27 AM

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



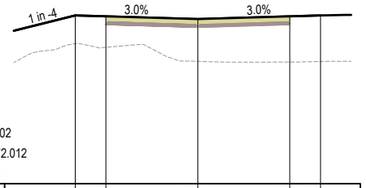
| Horiz Curve Data | | |

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

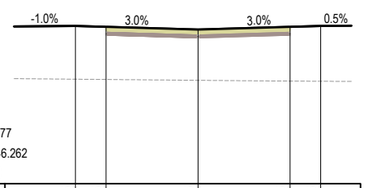
Date: 6 January 2026



EASTING 509076.502
NORTHING 7025572.012
DATUM -2.000

DESIGN SURFACE	3.486	3.456	3.366	3.456	3.486	
NATURAL SURFACE	2.568	2.444	1.990	1.968	1.984	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

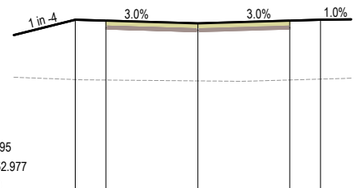
CH 60.000



EASTING 509110.677
NORTHING 7025546.262
DATUM -1.000

DESIGN SURFACE	4.145	4.115	4.025	4.115	4.145	
NATURAL SURFACE	2.407	2.398	2.371	2.346	2.340	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

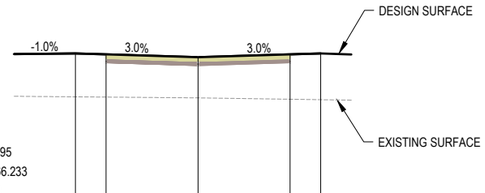
CH 120.000



EASTING 509074.295
NORTHING 7025552.977
DATUM -2.000

DESIGN SURFACE	3.783	3.753	3.663	3.753	3.783	
NATURAL SURFACE	1.831	1.817	1.789	1.818	1.847	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

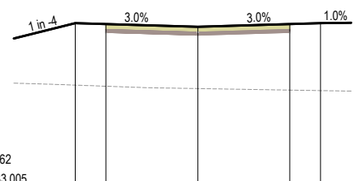
CH 40.000



EASTING 509109.595
NORTHING 7025566.233
DATUM -1.000

DESIGN SURFACE	3.845	3.815	3.725	3.815	3.845	
NATURAL SURFACE	2.432	2.423	2.397	2.353	2.339	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

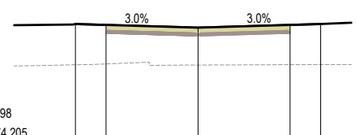
CH 100.000



EASTING 509075.362
NORTHING 7025533.005
DATUM -2.000

DESIGN SURFACE	4.074	4.044	3.954	4.044	4.074	
NATURAL SURFACE	2.052	2.016	1.940	1.890	1.873	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

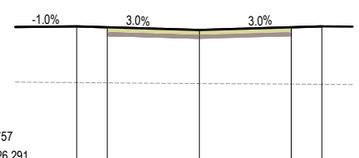
CH 20.000



EASTING 509096.198
NORTHING 7025574.205
DATUM -1.000

DESIGN SURFACE	3.545	3.515	3.425	3.515	3.545	
NATURAL SURFACE	2.216	2.243	2.207	2.219	2.223	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 80.000



EASTING 509111.757
NORTHING 7025526.291
DATUM -1.000

DESIGN SURFACE	4.218	4.188	4.098	4.188	4.218	
NATURAL SURFACE	2.384	2.376	2.353	2.337	2.329	
OFFSET	-4.000	-3.000	0.000	3.000	4.000	

CH 140.000

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	26.09.24	APPROVAL	GHK

covey

Approved

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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 8 CROSS SECTIONS

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C371

Digital Ref : C370-C371 ROAD 8 SECTIONS Issue : B

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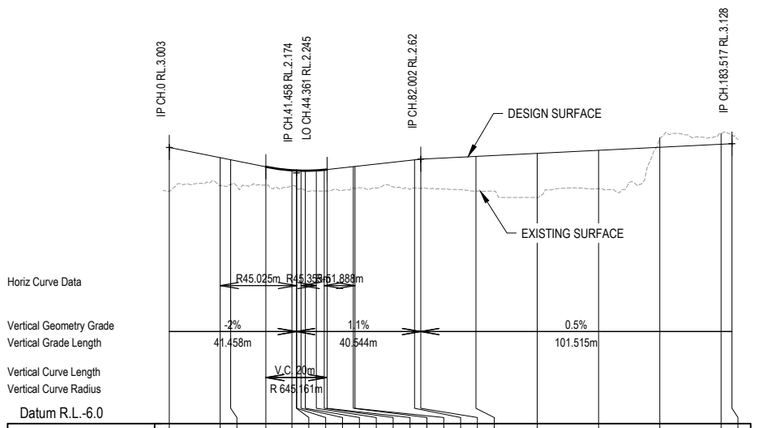
Plot 18 December 2024 - 11:26 AM

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



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PLANS AND DOCUMENTS
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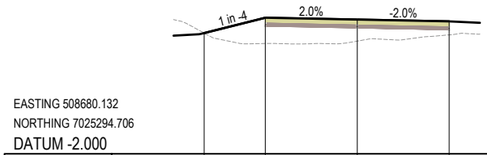
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

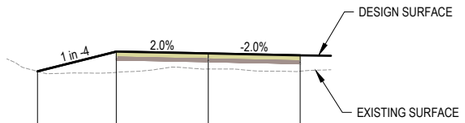
Date: 6 January 2026



EASTING 508680.132
NORTHING 7025294.706
DATUM -2.000

DESIGN SURFACE	1.940	2.438	2.378	2.318	
NATURAL SURFACE	1.940	1.600	1.676	1.879	
OFFSET	-4.994	-3.000	0.000	3.000	

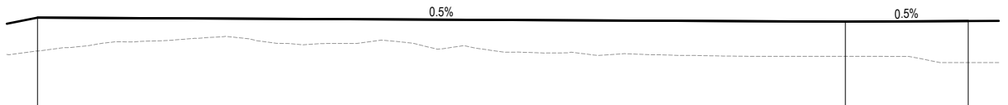
CH 60.000



EASTING 508674.673
NORTHING 7025275.495
DATUM -2.000

DESIGN SURFACE	1.677	2.320	2.260	2.200	
NATURAL SURFACE	1.677	1.644	1.752	1.681	
OFFSET	-5.571	-3.000	0.000	3.000	

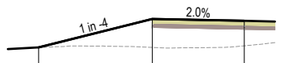
CH 40.000



EASTING 508686.452
NORTHING 7025334.203
DATUM -2.000

DESIGN SURFACE	2.842	2.710	2.730		
NATURAL SURFACE	1.753	1.580	1.375		
OFFSET	-26.354	0.000	4.006		

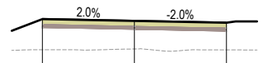
CH 100.000



EASTING 508674.982
NORTHING 7025255.661
DATUM -2.000

DESIGN SURFACE	1.736	2.663	2.603	
NATURAL SURFACE	1.736	1.735	1.788	
OFFSET	-6.710	-3.000	0.000	

CH 20.000



EASTING 508683.294
NORTHING 7025314.454
DATUM -2.000

DESIGN SURFACE	2.658	2.598	2.538	
NATURAL SURFACE	1.659	1.684	1.655	
OFFSET	-3.000	0.000	3.000	

CH 80.000

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
A	04.09.24	APPROVAL	GHK

covey

Approved

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engineers@covey.com.au
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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 9 CROSS SECTIONS (SHEET 1 OF 3)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C381

Digital Ref : C380-C383 ROAD 9 SECTIONS Issue : A

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Plot 18 December 2024 - 11:26 AM

RSCL010								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	508791.200	7025224.479	3.571	170°21'09.19"			
TC	15.103	508793.731	7025209.590	3.344	170°21'09.19"			
IP 2	20.412	508794.891	7025202.766	3.286		R = -6.500	10.619	93°36'02.87"
CC	25.722	508801.628	7025204.352	3.309	76°45'06.32"			
IP 3	57.203	508833.079	7025211.757	3.780		R = 113.717	62.962	31°43'23.80"
CC	88.684	508863.725	7025201.518	3.784	108°28'30.11"			
IP 4	101.294	508875.749	7025197.500	3.721		R = 100.000	25.220	14°27'00.24"
CT	113.904	508886.390	7025190.610	3.658	122°55'30.35"			
TC	117.427	508889.347	7025188.695	3.640	122°55'30.35"			
IP 5	122.899	508894.526	7025185.341	3.613		R = -9.500	10.944	66°00'07.45"
CT	128.371	508899.696	7025188.708	3.601	56°55'22.91"			
IP 6	133.843	508904.866	7025192.075	3.619		R = -9.500	10.944	66°00'07.45"
CT	139.314	508903.892	7025198.168	3.646	350°55'15.46"			
TC	143.773	508903.188	7025202.570	3.668	350°55'15.46"			
IP 7	147.389	508902.617	7025206.145	3.686		R = -60.000	7.232	6°54'22.03"
CT	151.005	508901.620	7025209.626	3.704	344°00'53.43"			
IP 8	153.430	508900.952	7025211.957	3.717				
IP 9	156.946	508899.984	7025215.337	3.734	344°00'51.60"			

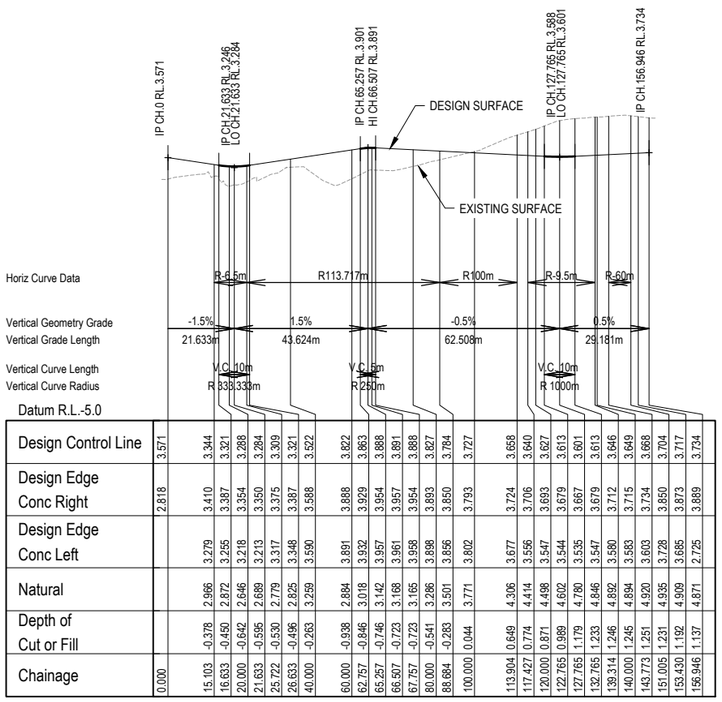
RSCL12								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	508930.032	7025249.373	3.954	129°10'03.26"			
TC	5.627	508934.395	7025245.819	4.066	129°10'03.26"			
IP 2	15.627	508942.291	7025239.386	4.266		R = 42.945	20.000	26°41'00.66"
CT	25.627	508946.458	7025230.093	4.466	155°51'03.92"			
IP 3	26.552	508946.836	7025229.249	4.485	155°51'03.92"			

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



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PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

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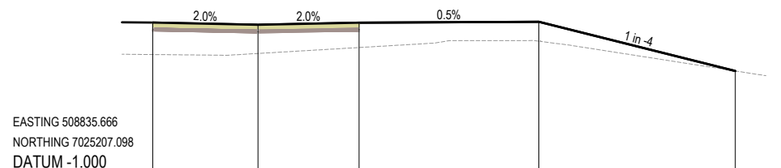
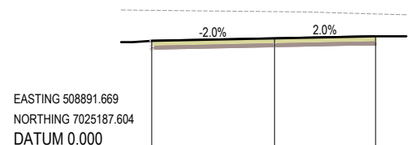


EASTING 508835.666
NORTHING 7025207.098
DATUM -1.000

DESIGN SURFACE	3.891	3.822	3.888	3.917	2.315	
NATURAL SURFACE	2.849	2.884	3.078	3.284	2.315	
OFFSET	-3.434	0.000	3.300	9.160	15.570	

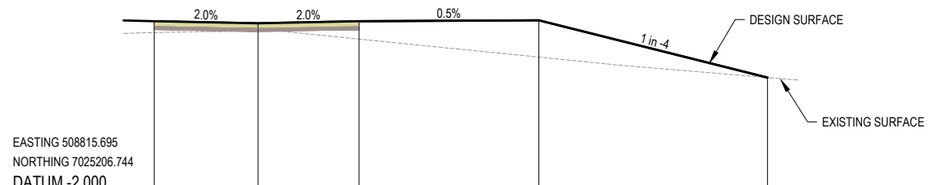
CH 60.000



EASTING 508891.669
NORTHING 7025187.604
DATUM 0.000

DESIGN SURFACE	3.547	3.627	3.693	
NATURAL SURFACE	4.541	4.498	4.423	
OFFSET	-4.003	0.000	3.300	

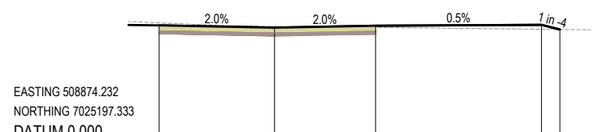
CH 120.000



EASTING 508815.695
NORTHING 7025206.744
DATUM -2.000

DESIGN SURFACE	3.590	3.522	3.588	3.617	1.752	
NATURAL SURFACE	3.217	3.259	3.005	2.418	1.752	
OFFSET	-3.386	0.000	3.300	9.160	16.622	

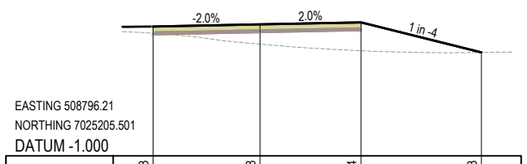
CH 40.000



EASTING 508874.232
NORTHING 7025197.333
DATUM 0.000

DESIGN SURFACE	3.802	3.727	3.793	3.820	3.669
NATURAL SURFACE	3.887	3.771	3.736	3.676	3.669
OFFSET	-3.762	0.000	3.300	8.708	9.311

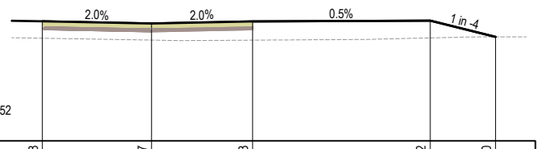
CH 100.000



EASTING 508796.21
NORTHING 7025205.501
DATUM -1.000

DESIGN SURFACE	3.218	3.288	3.354	2.373	
NATURAL SURFACE	2.998	2.646	2.429	2.373	
OFFSET	-3.488	0.000	3.300	7.223	

CH 20.000



EASTING 508855.391
NORTHING 7025203.952
DATUM 0.000

DESIGN SURFACE	3.898	3.827	3.893	3.922	3.390
NATURAL SURFACE	3.347	3.286	3.284	3.358	3.390
OFFSET	-3.559	0.000	3.300	9.095	11.224

CH 80.000

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Issue	Date	Description	By
A	04.09.24	APPROVAL	GHK

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Approved

COVEY ASSOCIATES PTY LTD
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124 DUPORTH AVENUE
PO BOX 16
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Drawing title - ROAD 10 CROSS SECTIONS (SHEET 1 OF 2)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C391

Digital Ref : C390-C393 ROAD 10 & 12 SECTIONS Issue : A

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c:\12ds\data\12DSERVER\243823_3381\DWG Covey\OPW\Uncontrolled\C390-C393 ROAD 10 & 12 SECTIONS.dwg

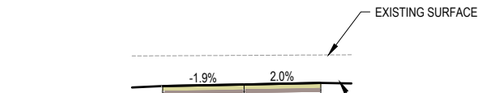
Plot 18 December 2024 - 11:25 AM

PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



EASTING 508943.826
NORTHING 7025235.062
DATUM 1.000

DESIGN SURFACE	4.303	4.354	4.404	
NATURAL SURFACE	5.289	5.304	5.317	
OFFSET	-2.654	0.000	2.500	

CH 20.000

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
A	04.09.24	APPROVAL	GHK

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covey

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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - ROAD 12 CROSS SECTIONS

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C393

Digital Ref : C390-C393 ROAD 10 & 12 SECTIONS Issue : A

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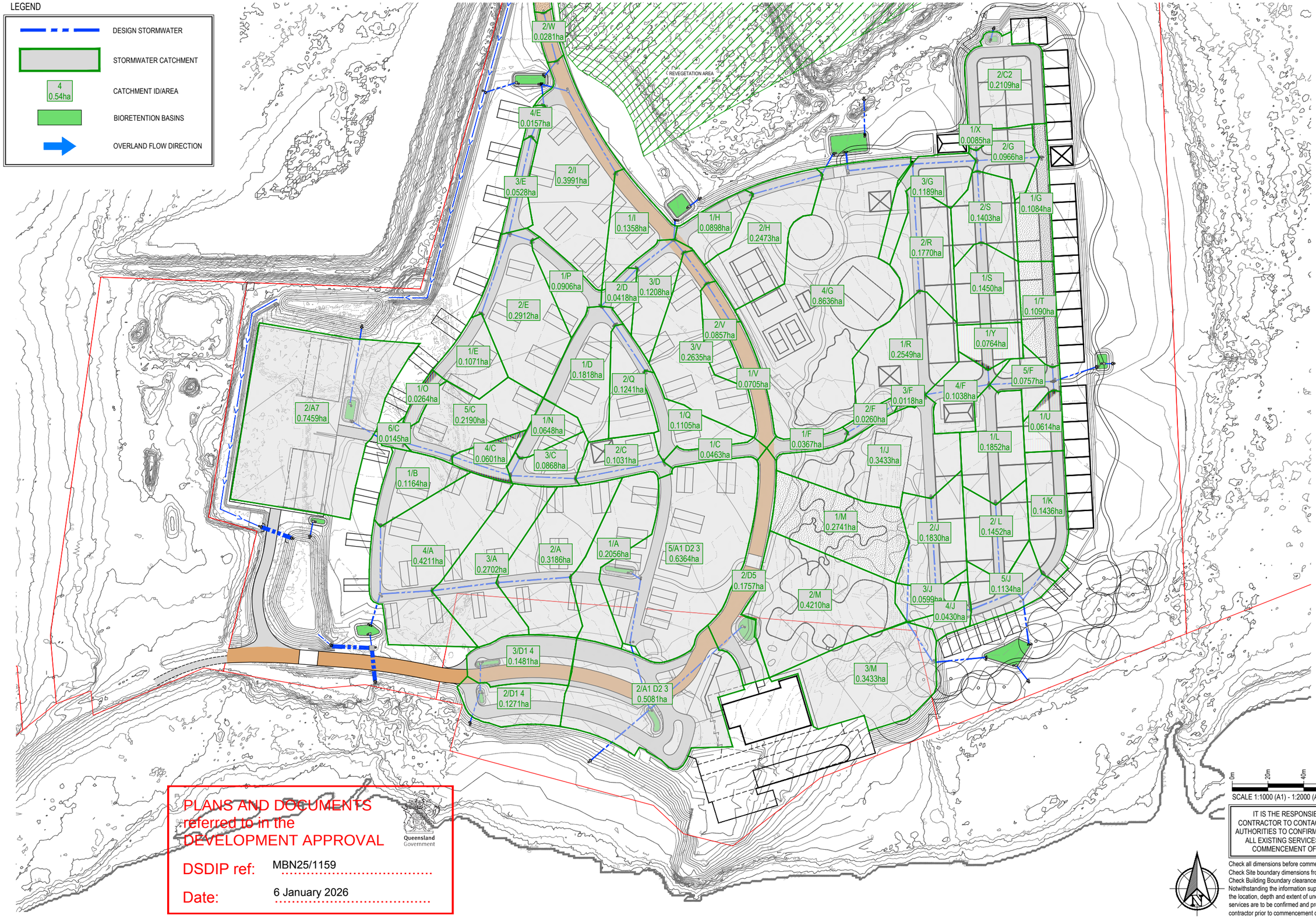
Plot 18 December 2024 - 11:29 AM

LEGEND

- DESIGN STORMWATER
- STORMWATER CATCHMENT
- 4 / 0.54ha — CATCHMENT ID/AREA
- BIORETENTION BASINS
- OVERLAND FLOW DIRECTION



PLANS AND DOCUMENTS
referred to in the
DEVELOPMENT APPROVAL

DSDIP ref: MBN25/1159

Date: 6 January 2026

Queensland Government

0m 20m 40m 60m

SCALE 1:1000 (A1) - 1:2000 (A3)

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	04.10.24	APPROVAL	CM

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Approved

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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - STORMWATER QUANTITY CATCHMENT PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C400

Digital Ref : C400 STORMWATER DRAINAGE CATCHMENT PLAN Issue : B

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Plot 18 December 2024 - 11:25 AM

LEGEND

- DESIGN STORMWATER
- STORMWATER CATCHMENT
- 4 / 0.54ha — CATCHMENT ID/AREA
- BIORETENTION BASINS
- OVERLAND FLOW DIRECTION

REVEGETATION AREA

1 0.7459ha
2 0.4908ha
3 1.3429ha
4 0.1367ha
5 0.1313ha
6 0.3531ha
7 0.7537ha
8 0.8957ha
9 2.3040ha
10 0.8441ha
11 0.3879ha
12 2.2777ha
13 1.1331ha
14 0.8849ha
15 1.2222ha

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

DSDIP ref: MBN25/1159

Date: 6 January 2026

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	04.10.24	APPROVAL	CM

Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - STORMWATER QUALITY CATCHMENT PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C401

Digital Ref : C400 STORMWATER DRAINAGE CATCHMENT PLAN Issue : A

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Plot 18 December 2024 - 11:28 AM

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

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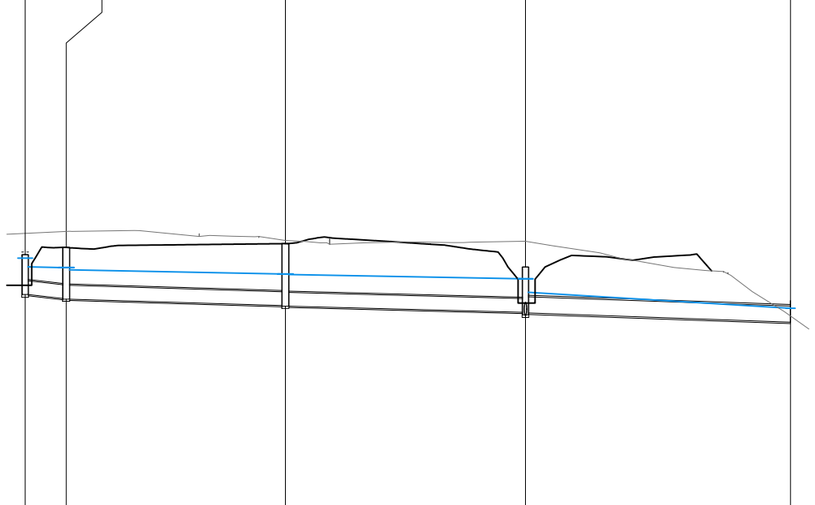
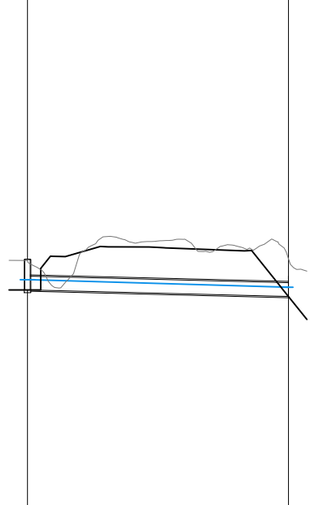
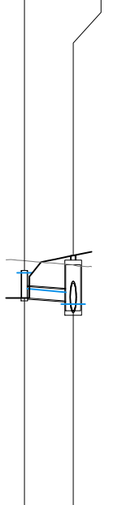
DSDIP ref: MBN25/1159

Date: 6 January 2026







STRUCTURE NAME	5/A1 D2 3	4/A1 D2 3	3/A1 D2 3	2/A1 D2 3	1/A1 D2 3	2/A2	1/A2	2/A3 5	2/SD2
STRUCTURE DESCRIPTION	0.9m X 0.9m GRATED INLET PRECAST PIT	IPWEAQ DN1050 MANHOLE CLASS D LID	IPWEAQ DN1050 MANHOLE CLASS D LID	0.9m X 0.9m GRATED INLET PRECAST PIT	HEADWALL	0.9m X 0.9m GRATED INLET PRECAST PIT	HEADWALL	0.9m X 0.9m GRATED INLET PRECAST PIT	1.5m X 1.5m GRATED INLET CUSTOM BASE STRUCTURE (refer detail)
PIPE SIZE (mm)	450	450	450	525		450		375	LINE D5 / LINE DAM2 Out
PIPE CLASS	RCP (3)	RCP (3)	RCP (3)	RCP (3)		RCP (3)		RCP (3)	
PIPE GRADE (%)	1.94%	0.59%	0.51%	0.69%		0.50%		1.18%	
PIPE SLOPE (1 in X)	51.45	170.24	195.75	144.09		200.00		84.41	
FULL PIPE VELOCITY (m/s)	1.09	1.09	1.08	2.11		1.14		1.59	
PART FULL VELOCITY (m/s)	2.42	1.52	1.44	2.11		1.43		1.96	
DATUM RL	-10.0					-11.0		-11.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	4.084 / 3.803	3.778 / 3.781 / 3.704	3.571	3.552	3.412 / 2.972 / 2.451	2.383	2.137	2.609 / 2.092	1.974 / 1.587
PIPE FLOW (Cumecs)	0.174	0.174	0.171	0.457		0.181		0.176	
PIPE CAPACITY AT GRADE (Cumecs)	0.398	0.219	0.204	0.358		0.202		0.191	
DEPTH TO INVERT	1.300	1.665 / 1.685	2.019 / 2.039	1.480 / 1.500	0.700 / 0.700	1.000	0.663	0.900	1.482 / 1.801
INVERT LEVEL OF DRAIN	2.900	2.770 / 2.750	2.540 / 2.520	2.320 / 2.300	2.000 / 2.000	2.050	1.837	1.785	1.691 / 1.372
SETOUT LEVEL	4.200	4.435	4.559	3.800	2.700	3.050	2.500	2.685	3.173
PIT LOCATION	E 508882.662 N 7025282.521	E 508888.169 N 7025278.725	E 508882.248 N 7025243.468	E 508893.178 N 7025205.875	E 508860.423 N 7025177.664	E 508725.421 N 7025377.130	E 508731.898 N 7025419.189	E 508736.593 N 7025248.209	E 508737.607 N 7025240.316
CHAINAGE	0.000	6.689 / 6.689	35.751 / 42.440	39.150 / 81.590	43.228 / 124.818	0.000	42.555 / 42.555	0.000	7.957 / 7.957

SECTION A1 D2 3

SECTION A2

SECTION A3 5

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 1 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

covey

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
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Approved:

Checked : SR Design : CM Drawn : GHK

Scales : AS SHOWN

Document Stage : APPROVAL

Project : 243823 Sheet No. C450

Digital Ref : Issue : B

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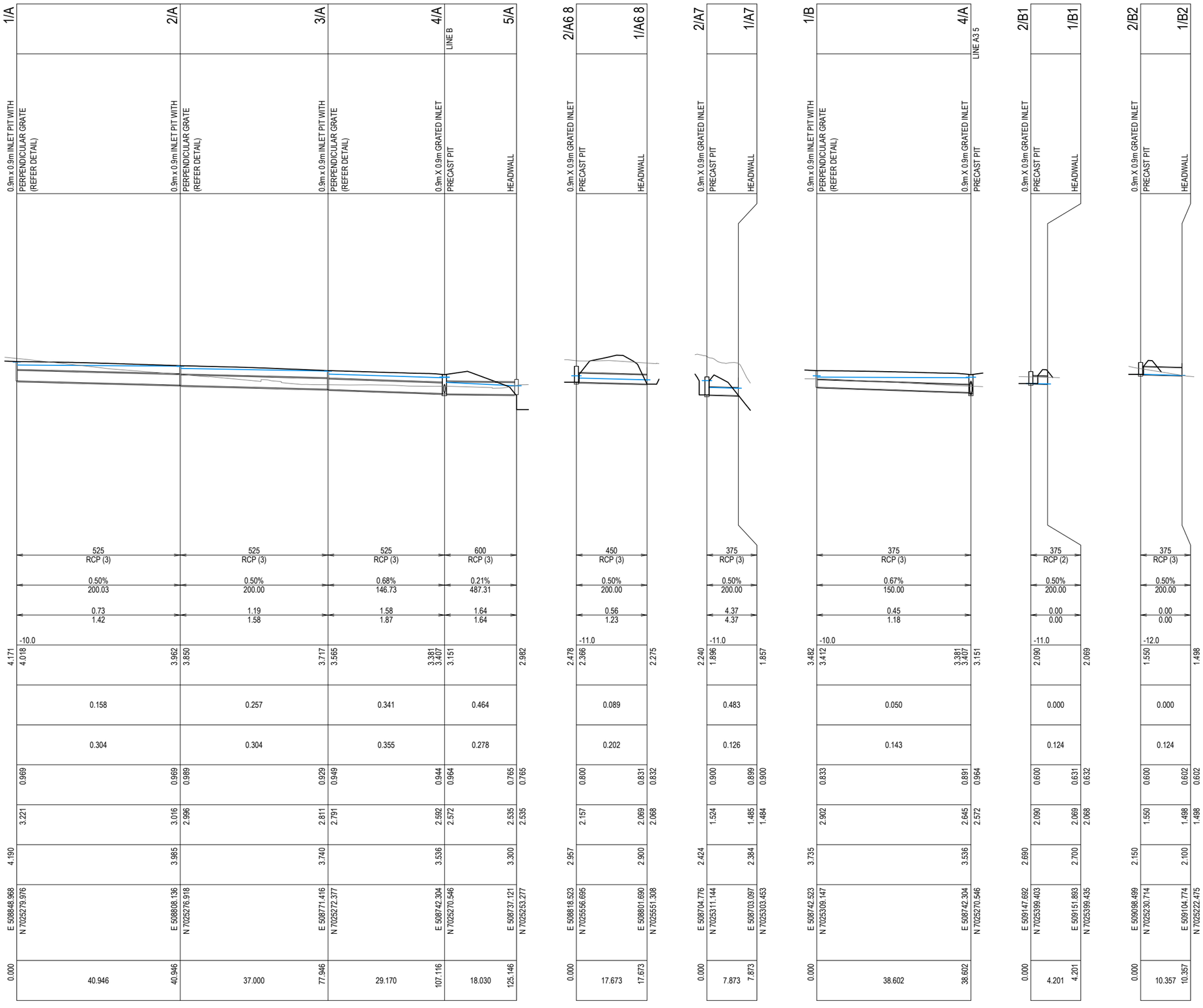

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 2 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
PO BOX 16 MAROOCHYDORE QLD 4558
engineers@covey.com.au (07) 5443 7777

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Document Stage : APPROVAL

Project : 243823 Sheet No. C451

Digital Ref : Issue : B

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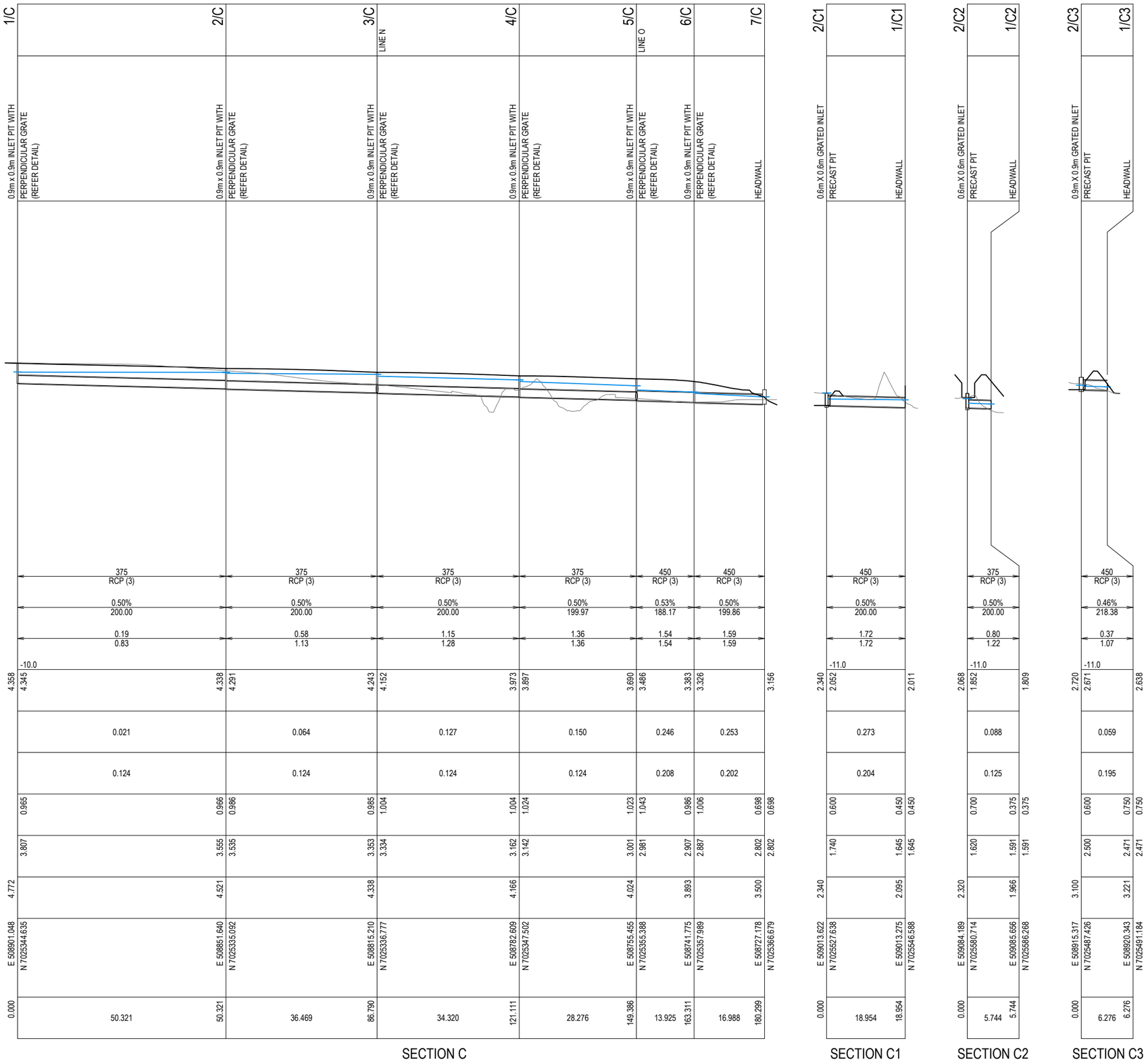

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 3 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
PO BOX 16 MAROOCHYDORE QLD 4558
engineers@covey.com.au (07) 5443 7777

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Document Stage : APPROVAL

Project : 243823 Sheet No. C452

Digital Ref : Issue : B

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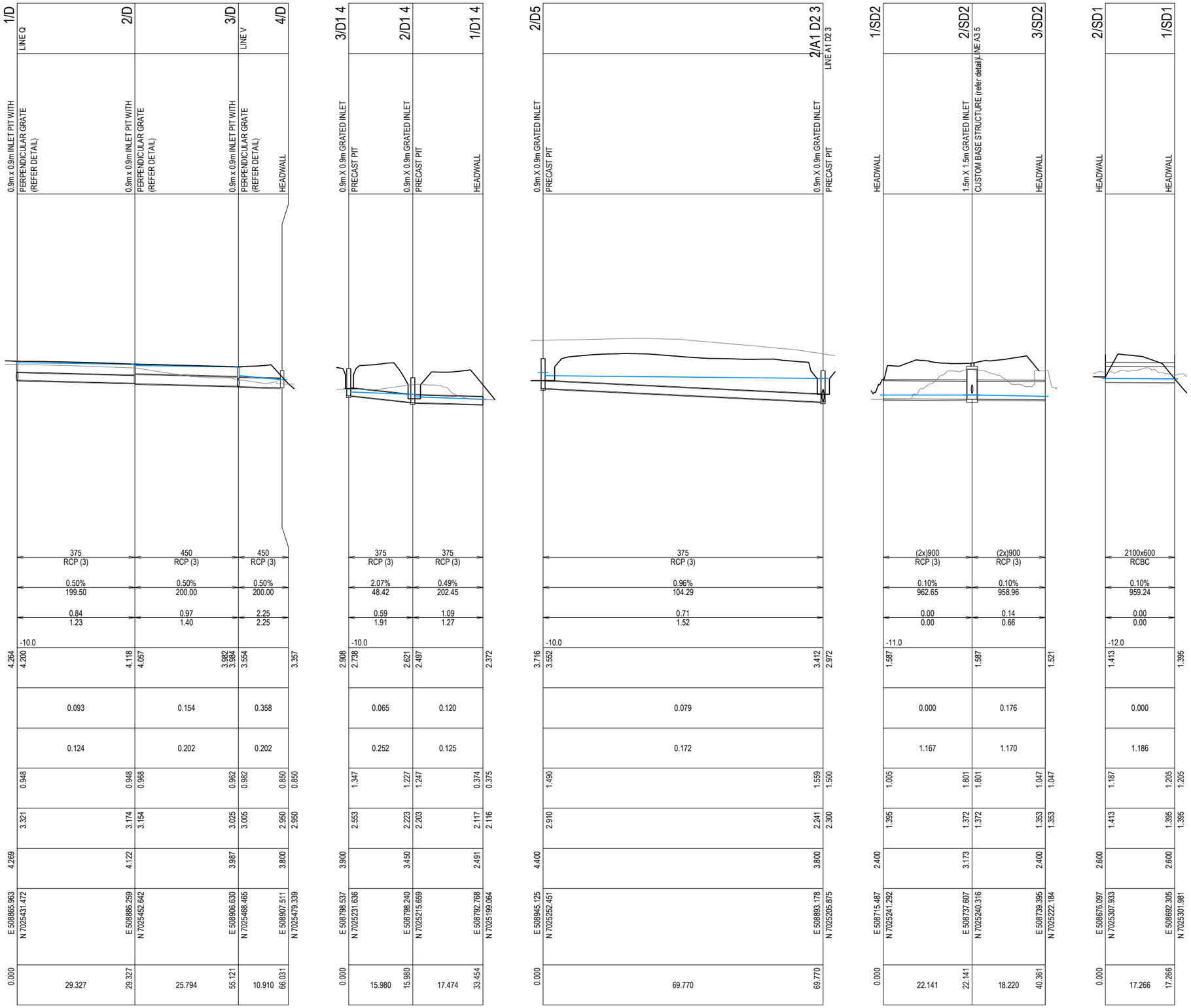

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

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B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 4 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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engineers@covey.com.au (07) 5443 7777

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Project : 243823 Sheet No. C453

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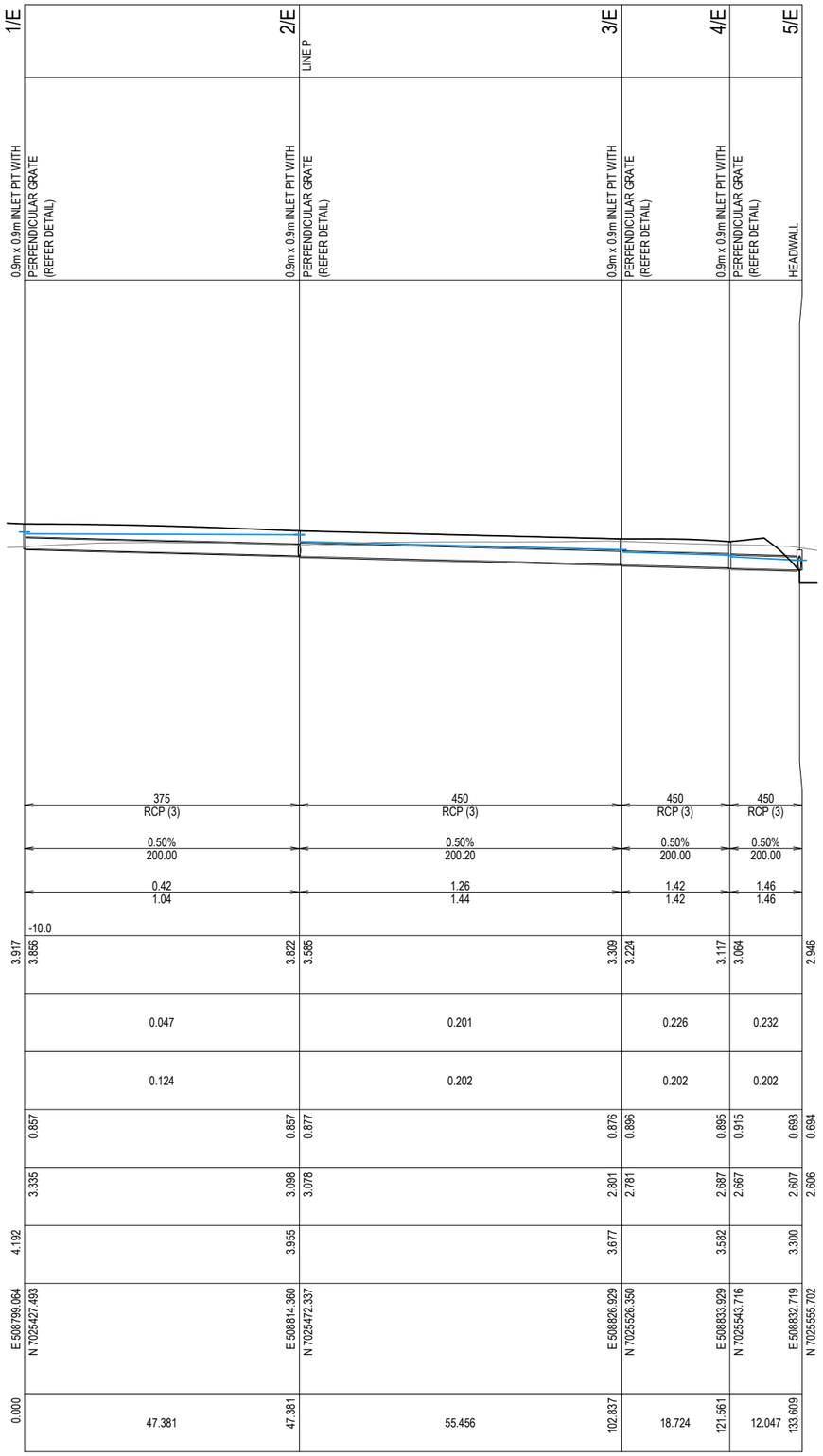
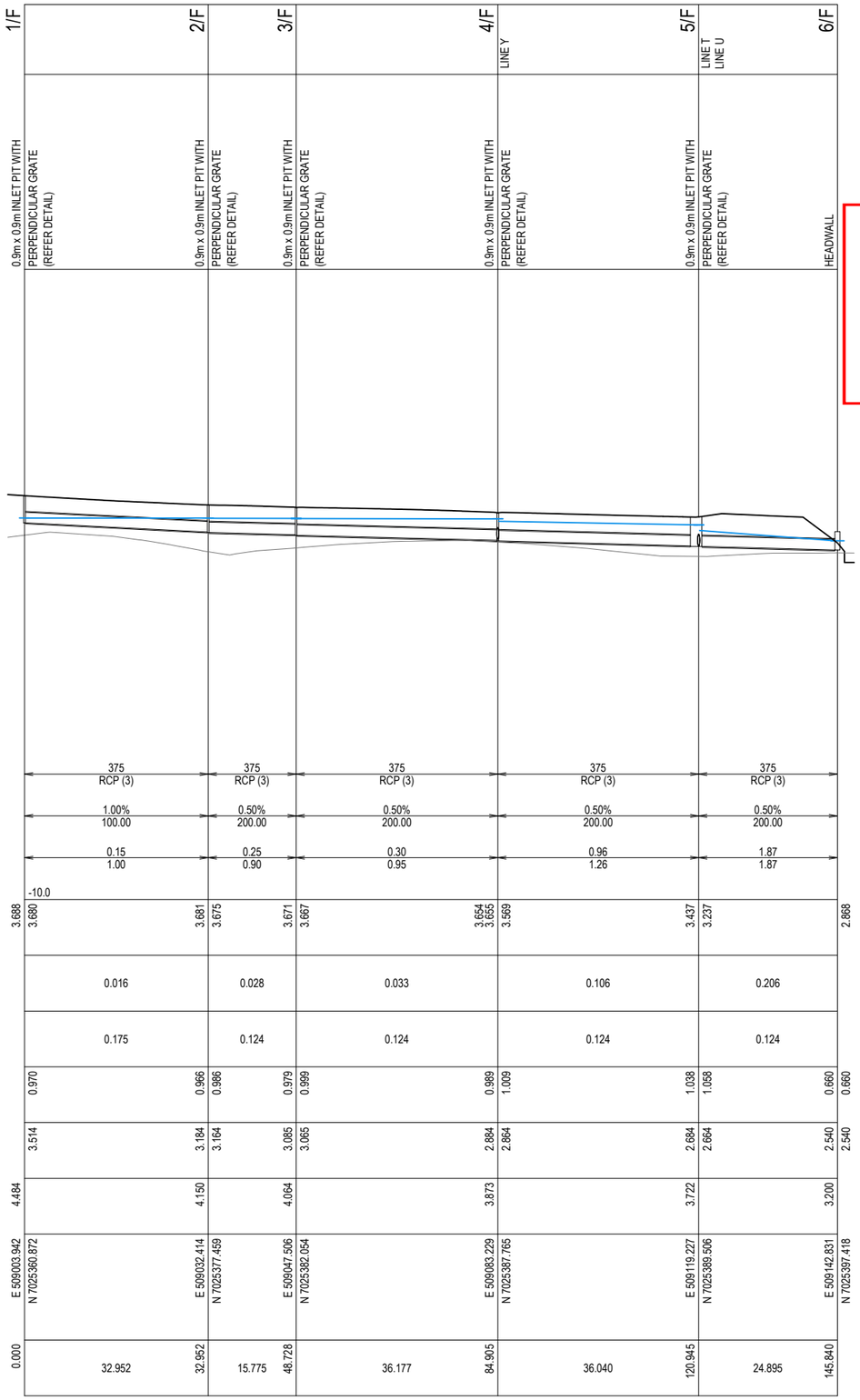


SECTION E



SECTION F

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

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B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 5 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
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engineers@covey.com.au (07) 5443 7777

Approved:

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Scales : AS SHOWN

Document Stage : APPROVAL

Project : 243823 Sheet No. C454

Digital Ref : Issue : B

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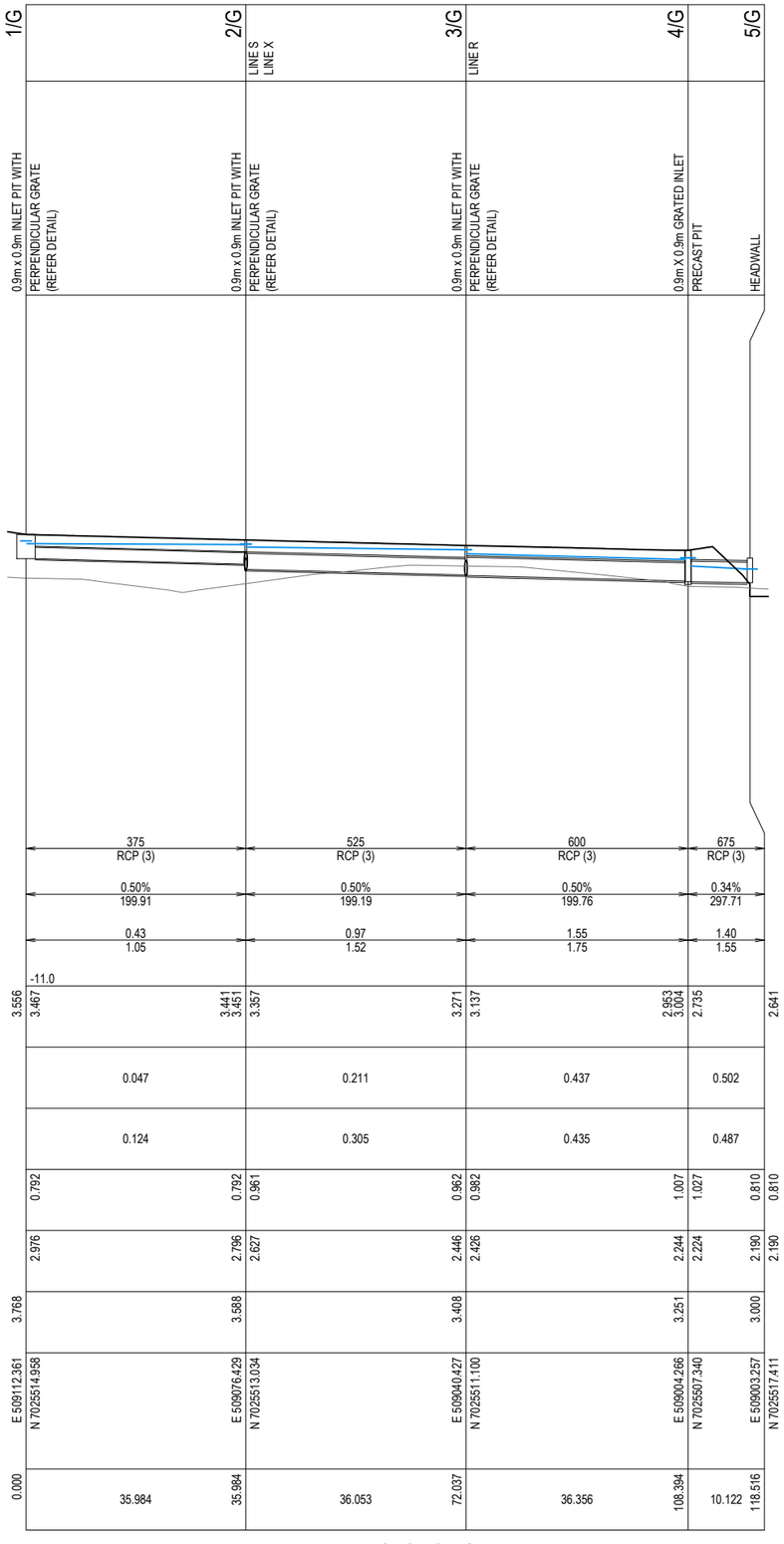
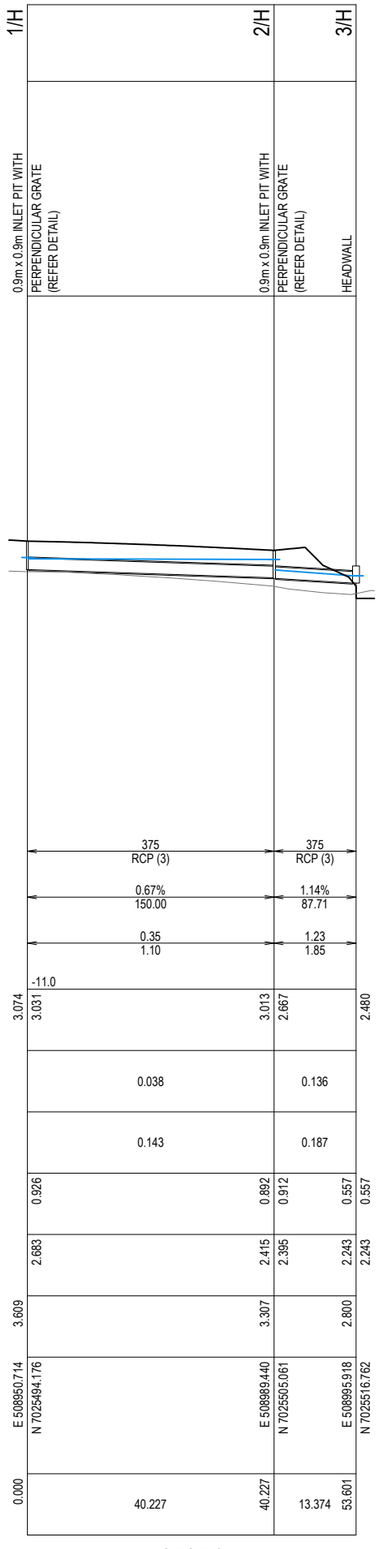
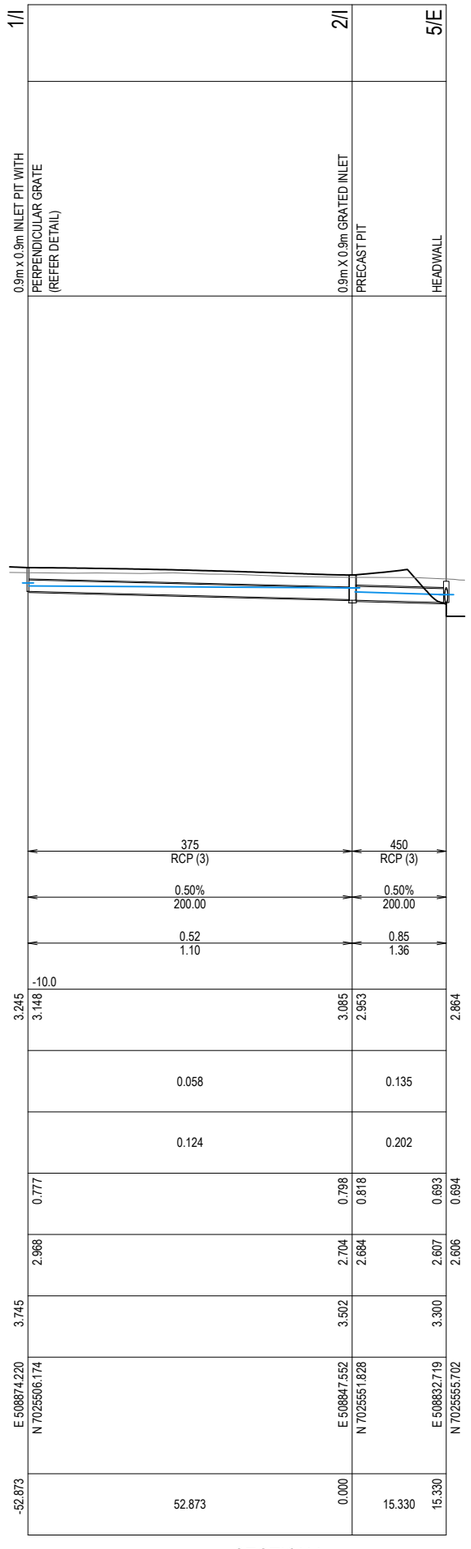


SECTION G



SECTION H



SECTION I

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

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A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 6 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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Document Stage : APPROVAL

Project : 243823 Sheet No. C455

Digital Ref : Issue : B

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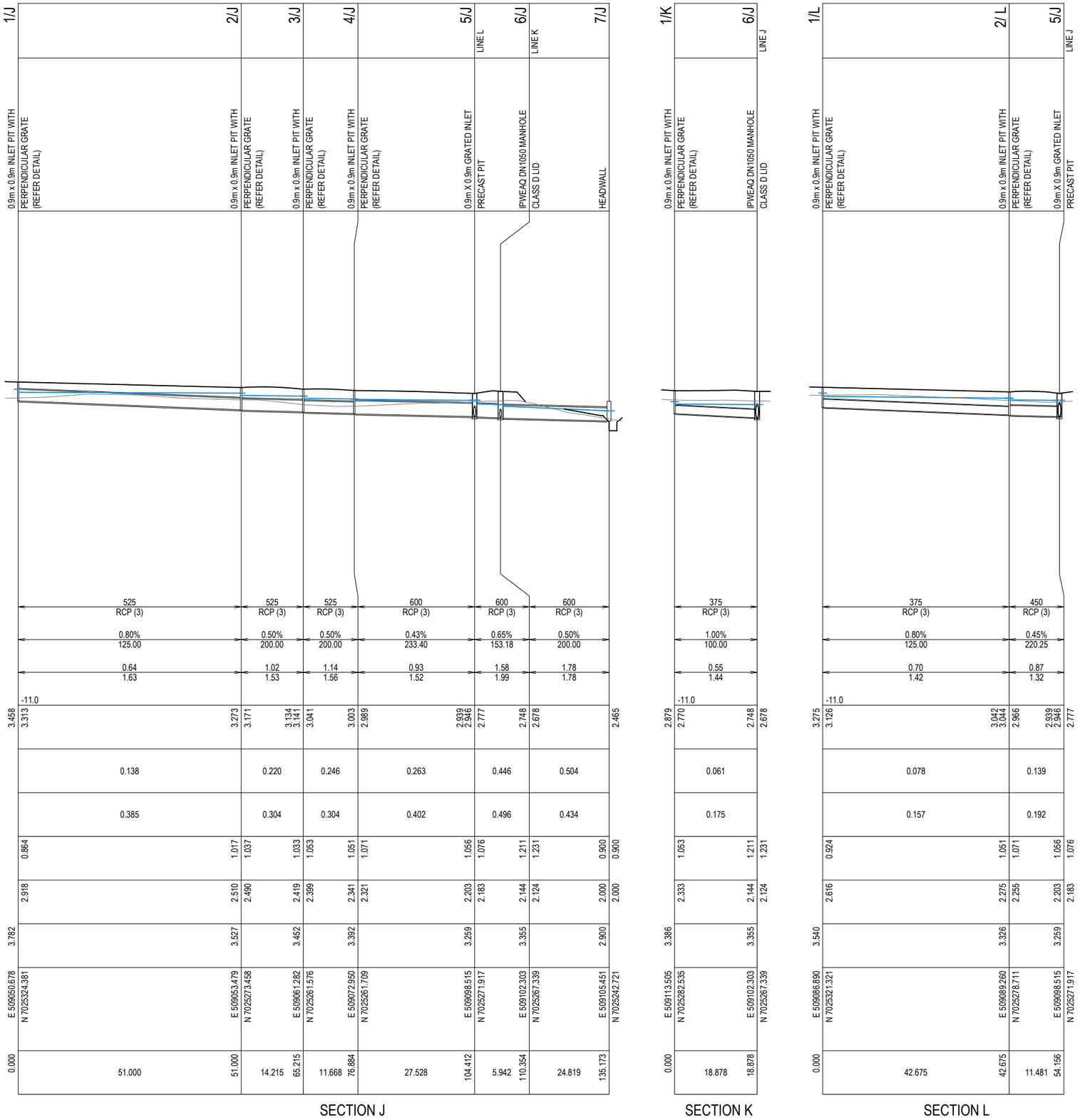

SECTION J

SECTION K

SECTION L

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

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B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 7 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
PO BOX 16 MAROOCHYDORE QLD 4558
engineers@covey.com.au (07) 5443 7777

Approved:

Checked : SR Design : CM Drawn : GHK

Scales : AS SHOWN

Document Stage : APPROVAL

Project : 243823 Sheet No. C456

Digital Ref : Issue : B

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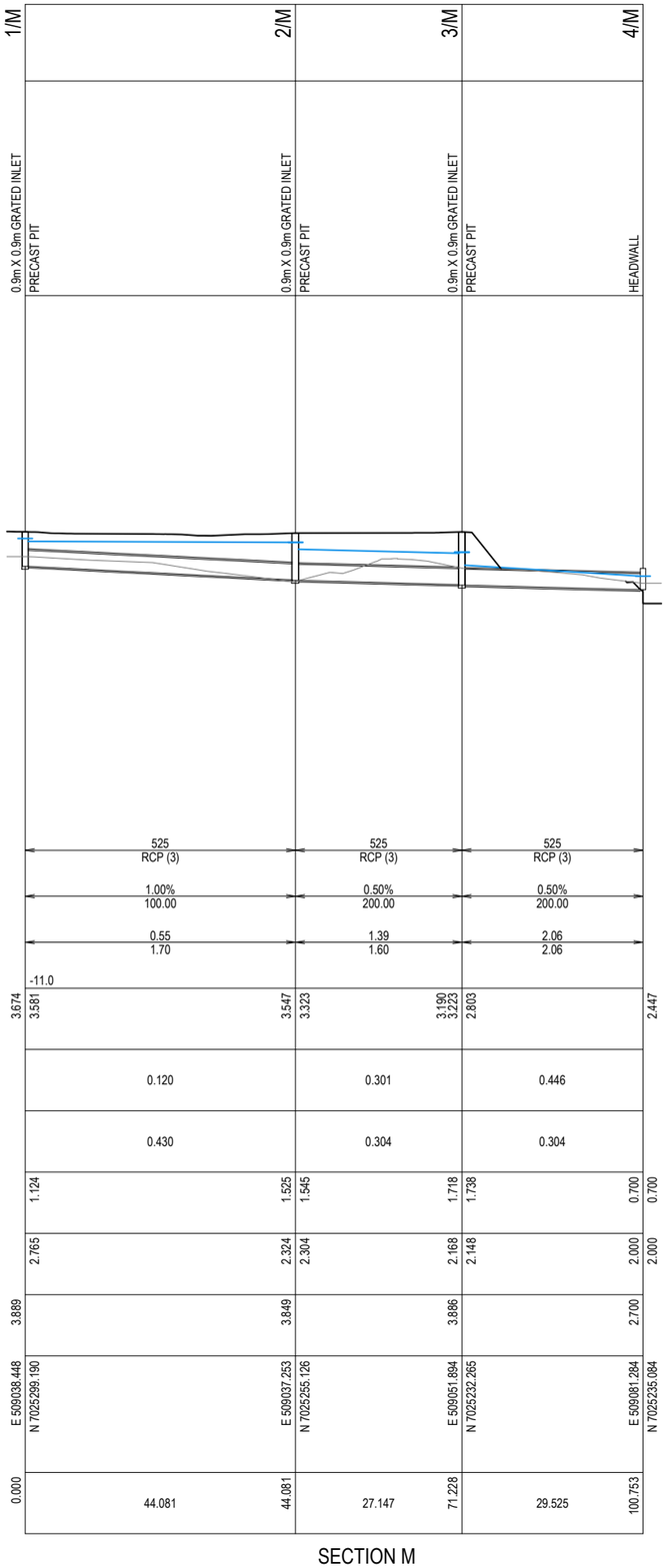

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

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A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 8 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
PO BOX 16 MAROOCHYDORE QLD 4558
engineers@covey.com.au (07) 5443 7777

Approved:

Checked : SR Design : CM Drawn : GHK

Scales : AS SHOWN

Document Stage : APPROVAL

Project : 243823 Sheet No. C457

Digital Ref : Issue : B

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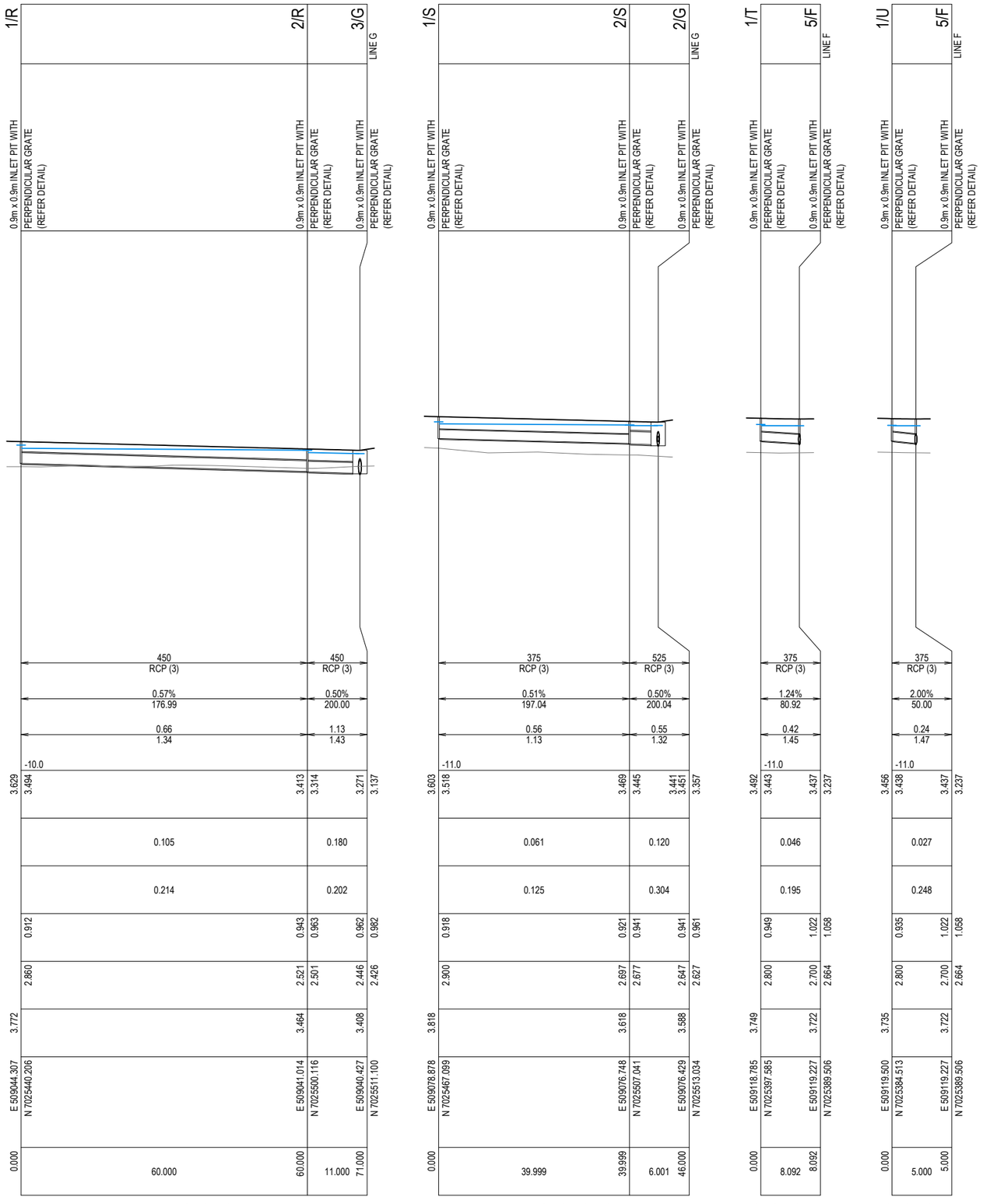

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans.
Check Building Boundary clearances by set out.
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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 9 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
PO BOX 16 MAROOCHYDORE QLD 4558
engineers@covey.com.au (07) 5443 7777

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Checked : SR Design : CM Drawn : GHK

Scales : AS SHOWN

Document Stage : APPROVAL

Project : 243823 Sheet No. C458

Digital Ref : Issue : B

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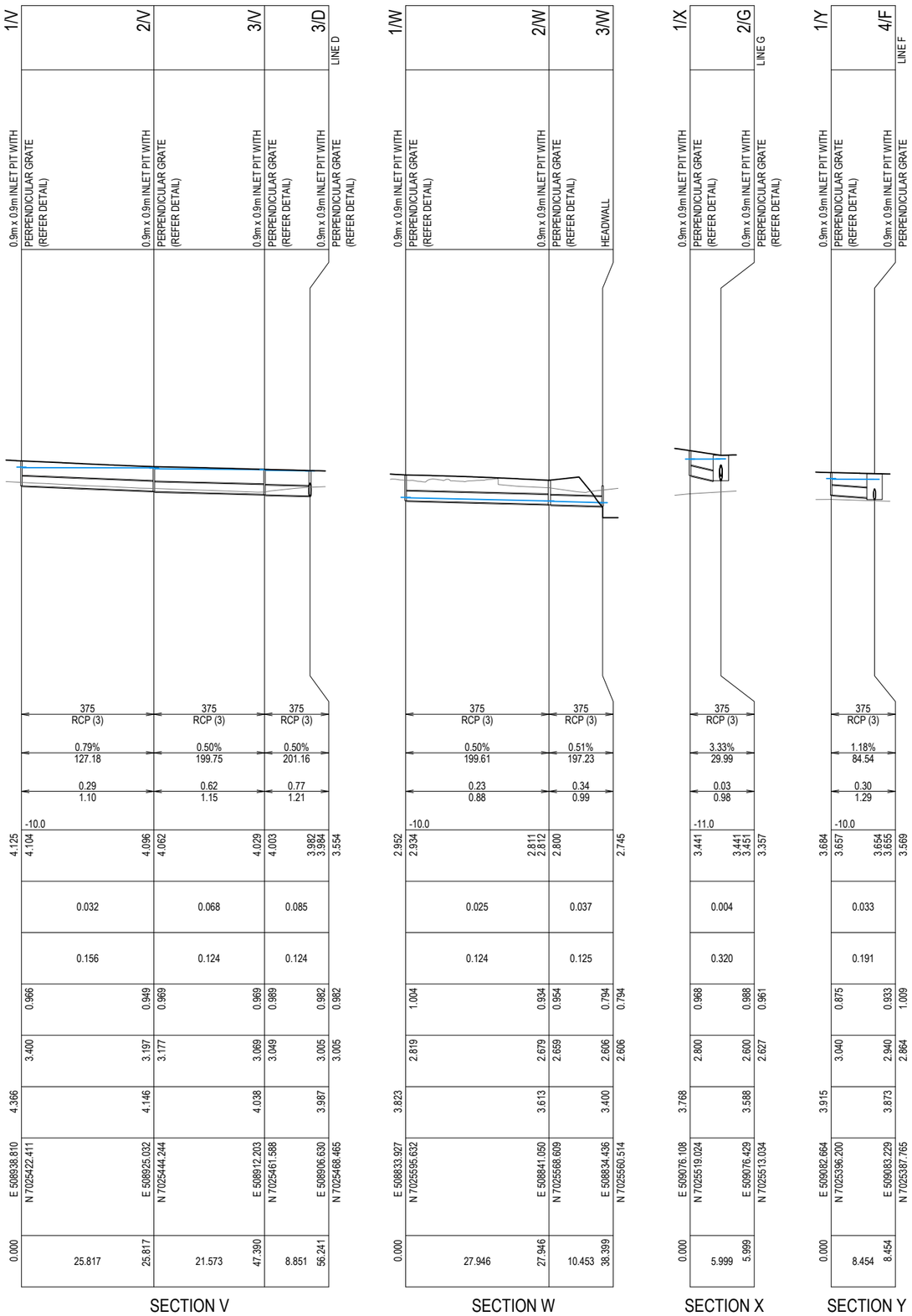


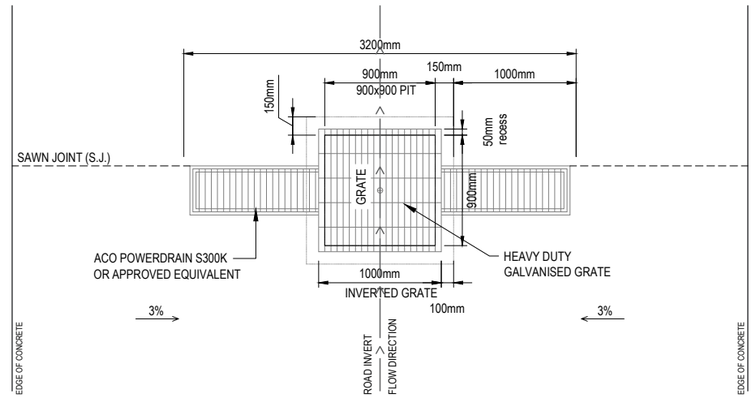
SECTION V | SECTION W | SECTION X | SECTION Y

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

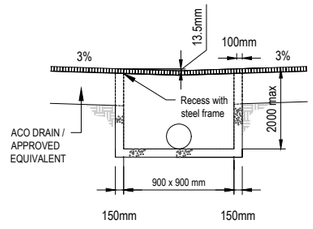
Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

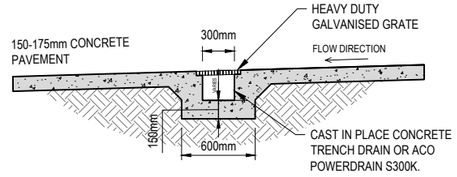


PLAN VIEW
SCALE 1:25 A1



SECTION
SCALE 1:25 A1

900x900 INLET PIT WITH PERPENDICULAR GRATE



ALTERNATIVE CAST-IN-SITU GRATED TRENCH
SCALE 1:25 A1

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 10 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
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engineers@covey.com.au (07) 5443 7777

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Document Stage : APPROVAL

Project : 243823 Sheet No. C459

Digital Ref : Issue : B

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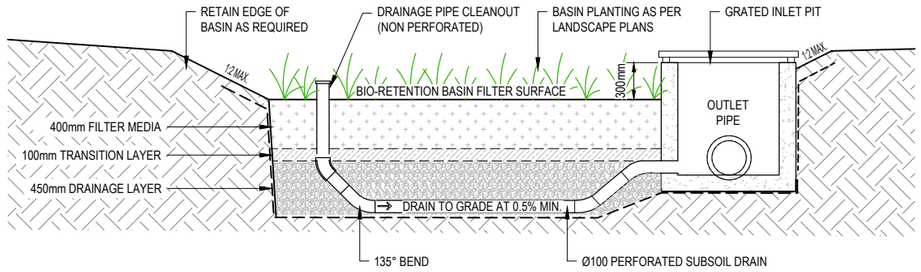
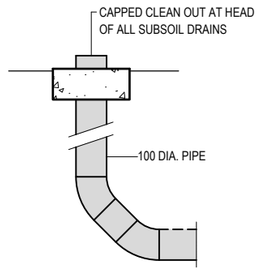
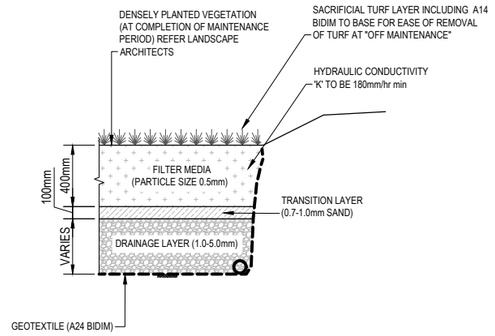


TYPICAL BIO-RETENTION BASIN SECTION
SCALE 1:25 (A1)

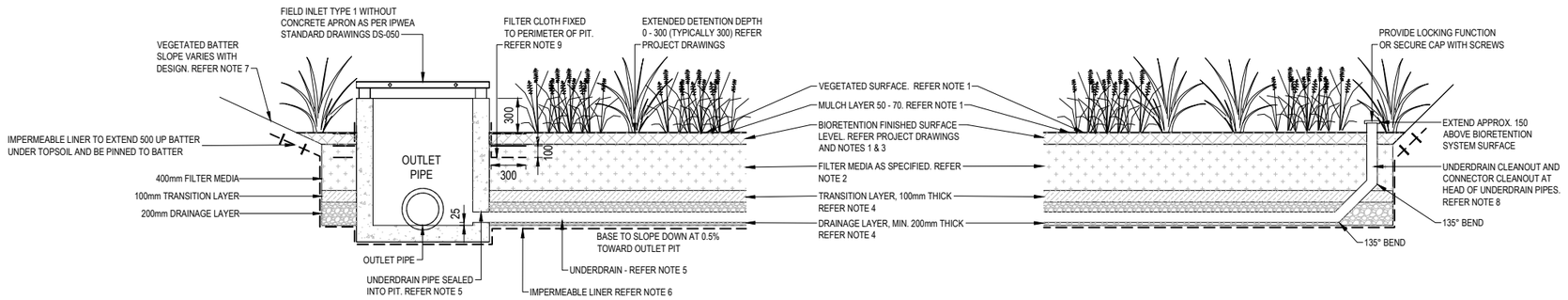


PIPE CLEAN OUT DETAIL
SCALE 1:10 (A1) / 1:20 (A3)



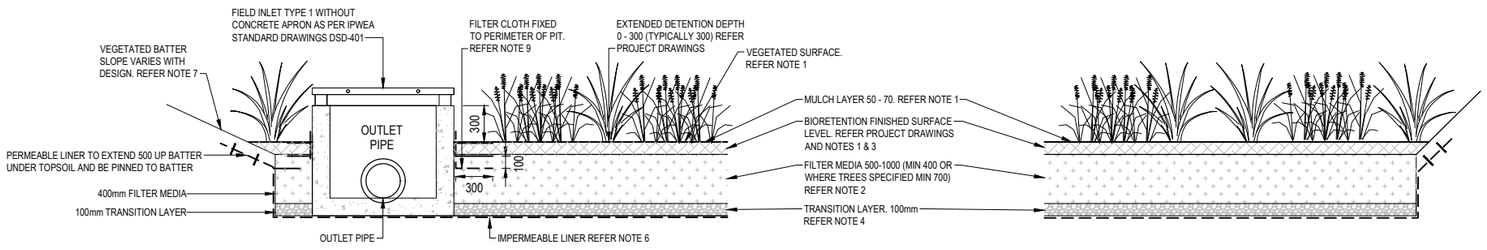
FILTER MEDIA DETAIL
SCALE 1:25 (A1)

TYPE 1 BIO-RETENTION BASINS - **SATURATED**



TYPICAL BIO-RETENTION BASIN FILTER SETION
SCALE 1:25 (A1)

TYPE 2 BIO-RETENTION BASINS - **CONVENTIONAL**



TYPICAL BIO-RETENTION BASIN FILTER SETION
SCALE 1:25 (A1)

TYPE 3 BIO-RETENTION BASINS - **PIPELESS**

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

NOTES

1. BIORETENTION SYSTEM SURFACE. REFER NOTE 1 IPWEA STD DRG DS-070.
2. FILTER MEDIA SPECIFICATION. REFER NOTE 2 DS-070.
3. CONSTRUCTION TOLERANCES. REFER NOTE 3 DS-070.
4. TRANSITION LAYER AND DRAINAGE LAYER. REFER NOTE 4 DS-070.
5. UNDERDRAIN. REFER NOTE 5 DS-070.
6. IMPERMEABLE LINER. REFER NOTE 6 DS-070.
7. VEGETATED BATTER. REFER NOTE 8 DS-070.
8. INSPECTION/CLEANOUT POINT. REFER NOTE 9 DS-070.
9. FILTER CLOTH. REFER NOTE 10 DS-070.
10. FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO DS-078.
11. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.

0m 0.5m 1m 1.5m 2m
SCALE 1:25 (AT A1)

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	12.09.24	APPROVAL	GHK

covey

Approved

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MAROOCHYDORE QLD 4558

Drawing title - BIORETENTION BASIN DETAILS (SHEET 1 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C500

Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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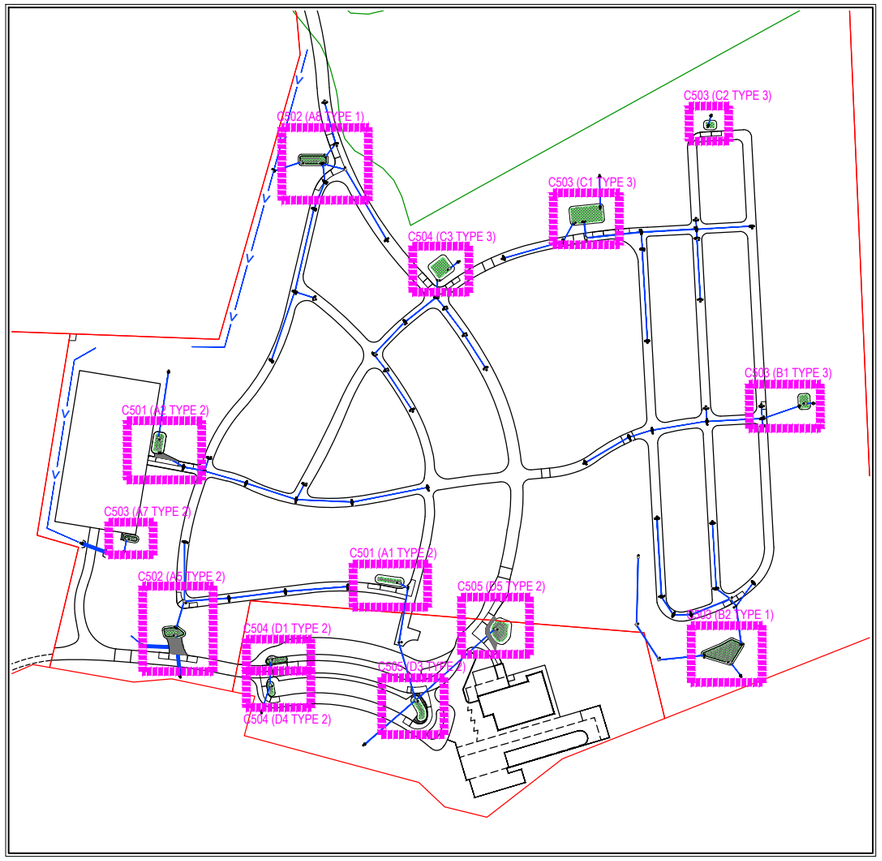
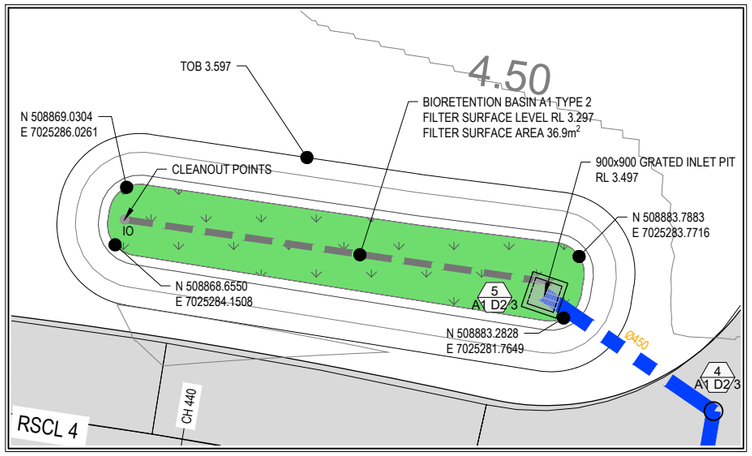
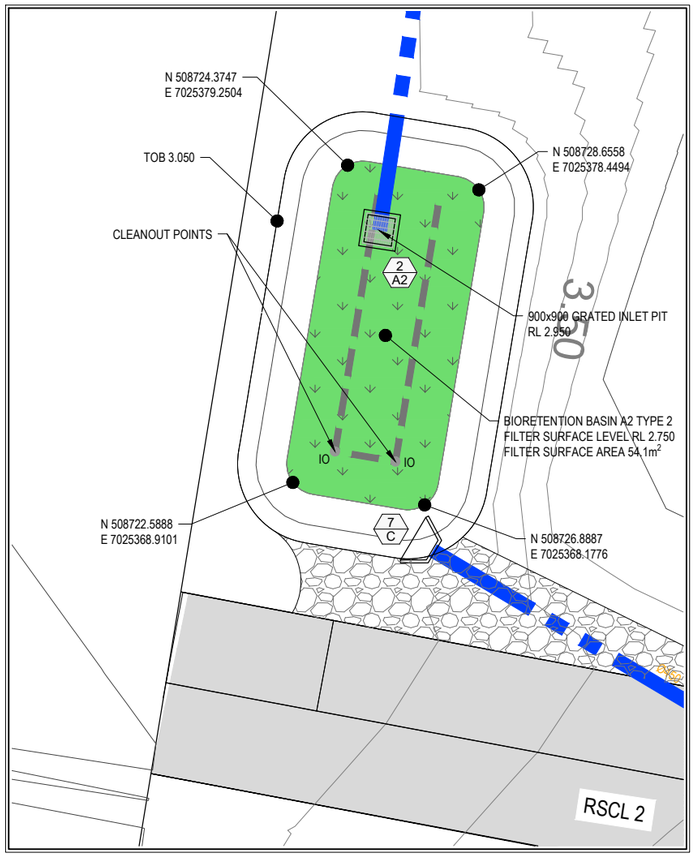
Plot 18 December 2024 - 11:27 AM



KEY MAP
1:2000 (A1) / 1:4000 (A3)



BIO-RETENTION BASIN A1 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)



BIO-RETENTION BASIN A2 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- 2 — DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	02.10.24	APPROVAL	GHK

Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

covey

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(07) 5443 7777
engineers@covey.com.au
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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BIORETENTION BASIN DETAILS (SHEET 2 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C501

Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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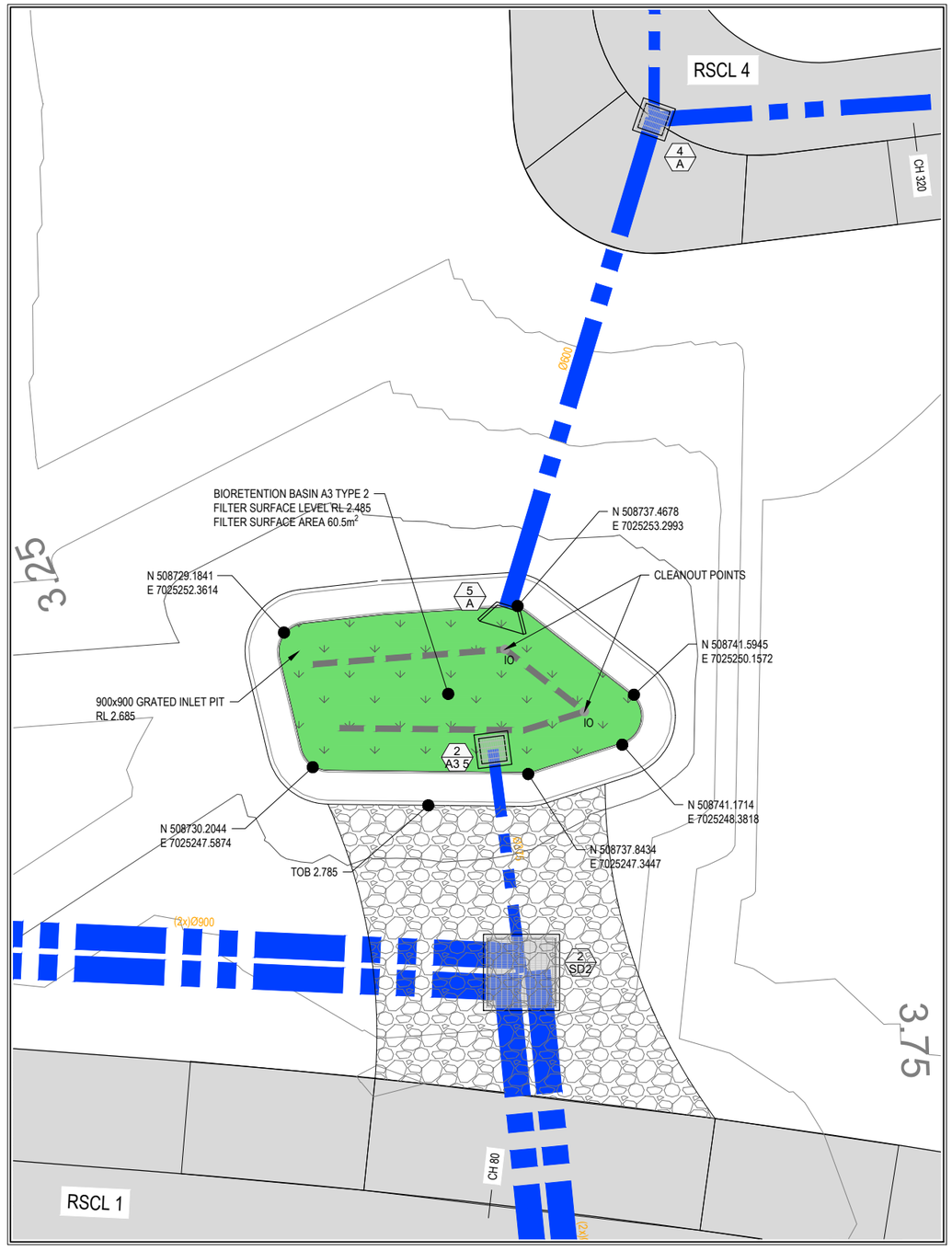
Plot 18 December 2024 - 11:26 AM



BIO-RETENTION BASIN A5 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

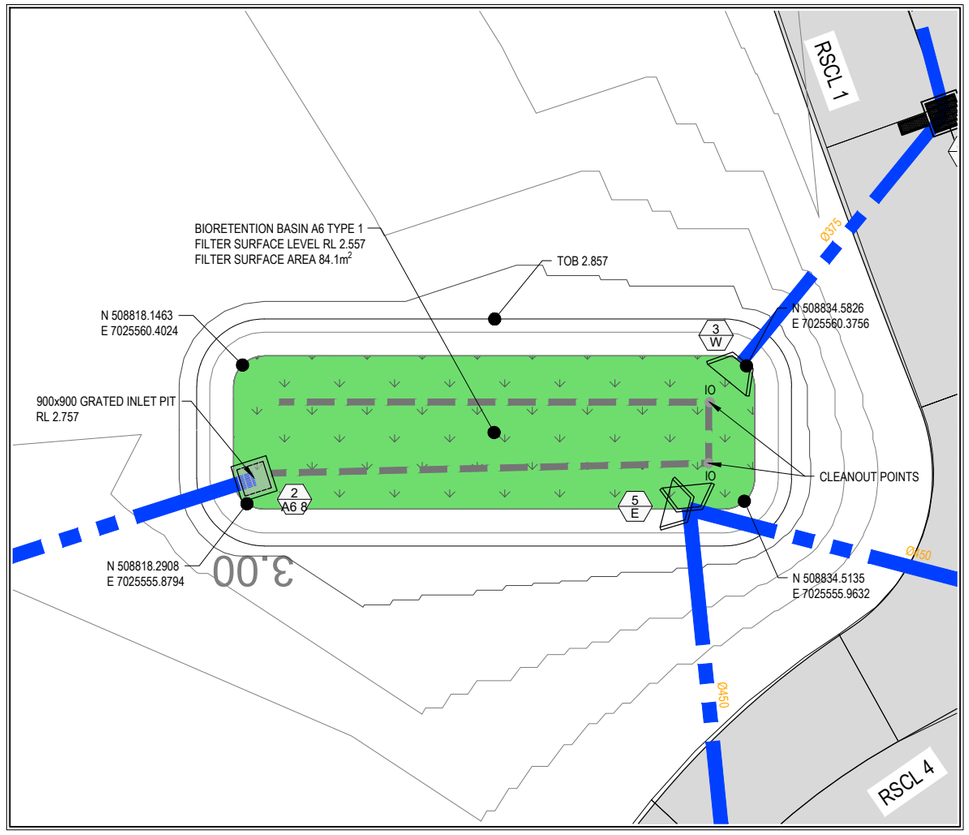
Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- 2 — DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION



BIO-RETENTION BASIN A8 (TYPE 1) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

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Design - CM	Drawn - GHK		
Scales - AS SHOWN			
Document Stage - APPROVAL			

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	02.10.24	APPROVAL	GHK

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(07) 5443 7777
engineers@covey.com.au

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MAROOCHYDORE QLD 4558

Drawing title - BIORETENTION BASIN DETAILS (SHEET 3 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C502

Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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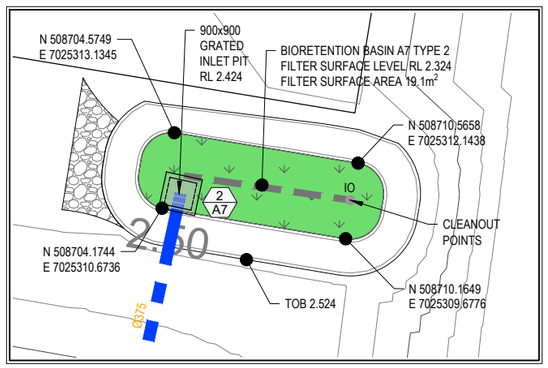
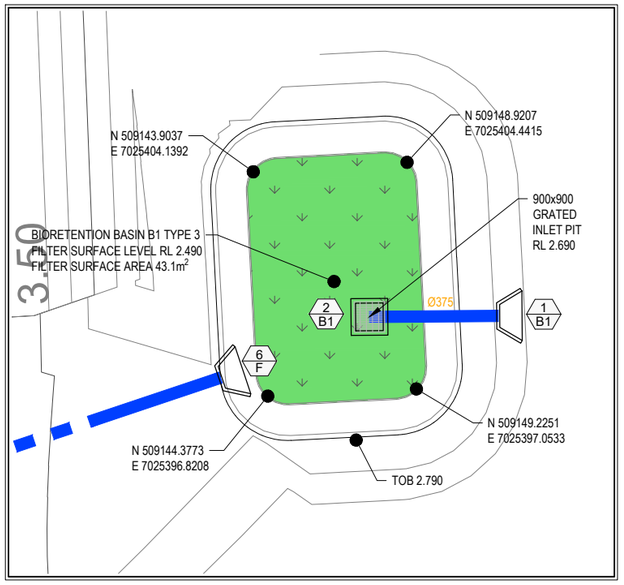
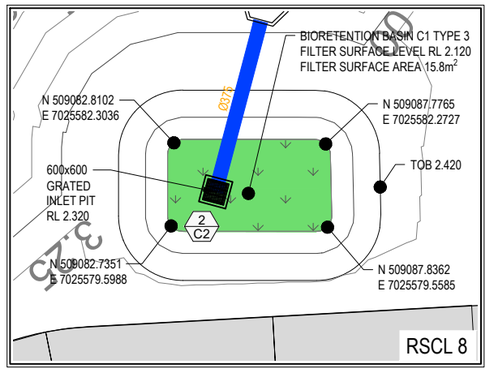
Plot 18 December 2024 - 11:25 AM



BIO-RETENTION BASIN A7 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)



BIO-RETENTION BASIN B1 (TYPE 3) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)



BIO-RETENTION BASIN C2 (TYPE 3) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

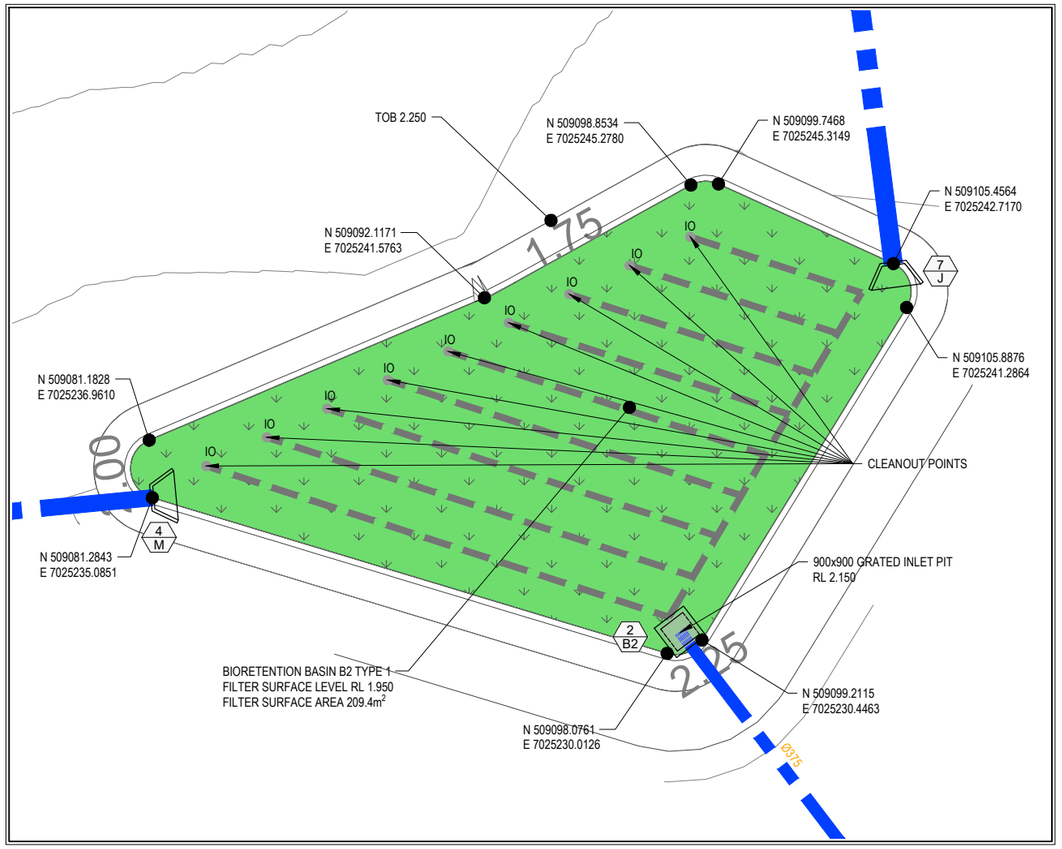
- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- 2 — DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026



BIO-RETENTION BASIN B2 (TYPE 1) DETAILS
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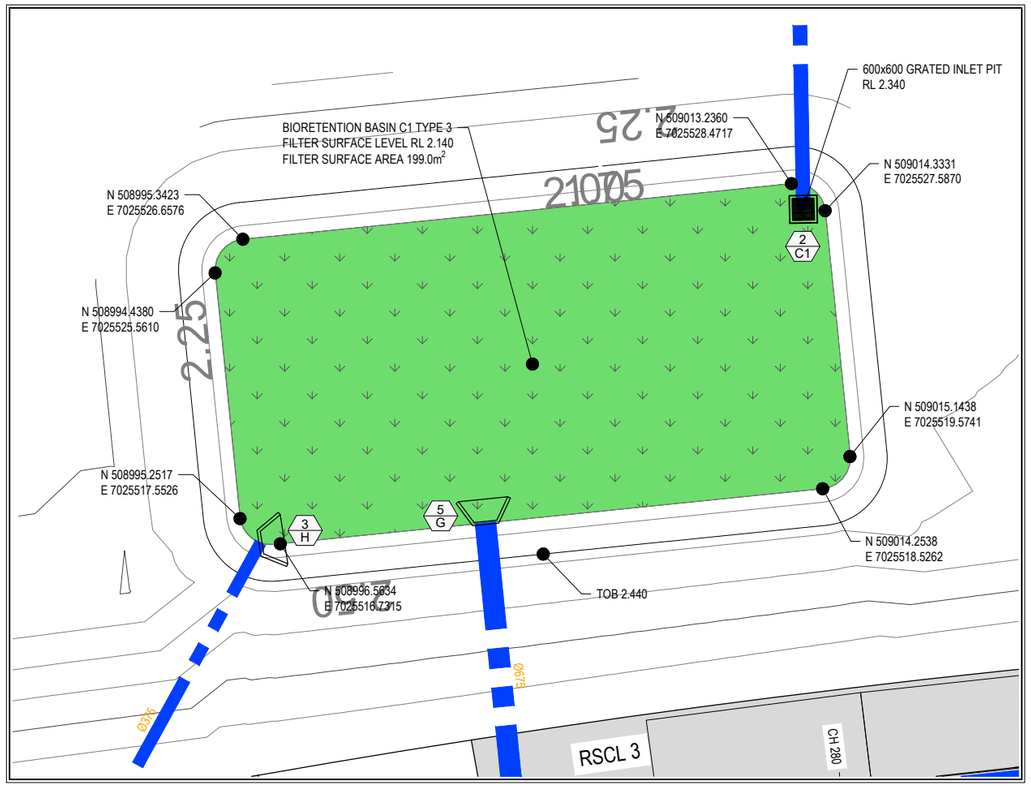

BIO-RETENTION BASIN C1 (TYPE 3) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	02.10.24	APPROVAL	GHK

covey

Approved

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MAROOCHYDORE QLD 4558

Drawing title - BIORETENTION BASIN DETAILS (SHEET 4 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C503

Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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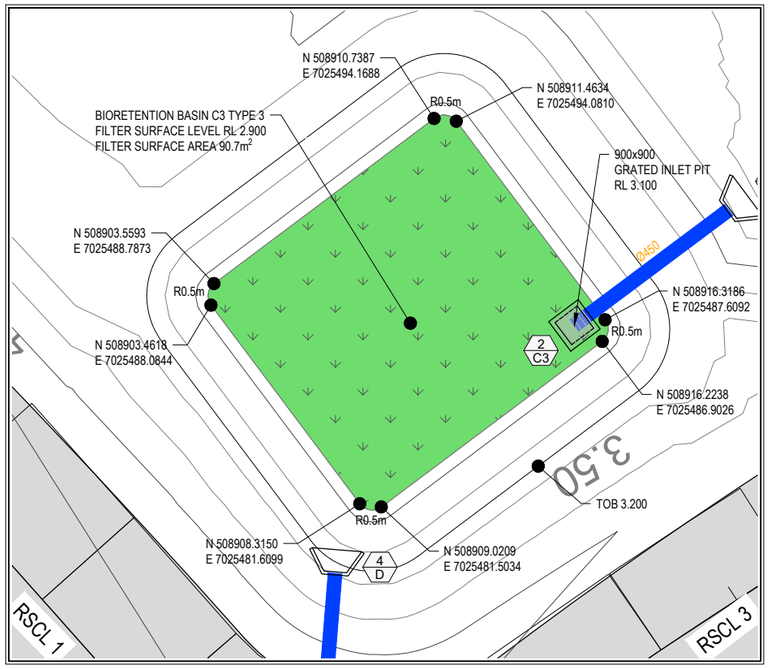
Plot 18 December 2024 - 11:28 AM



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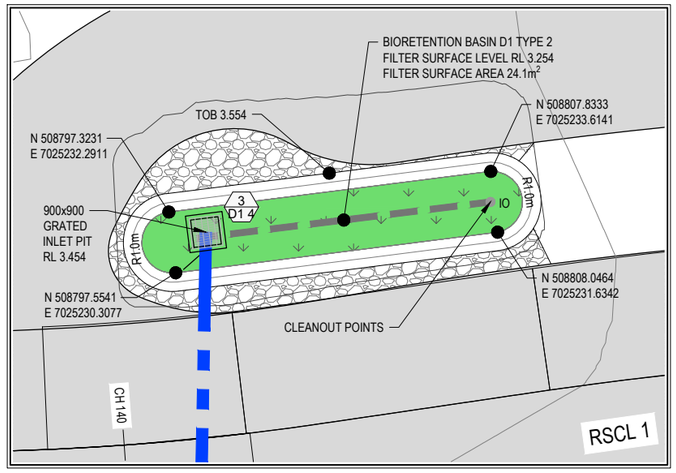
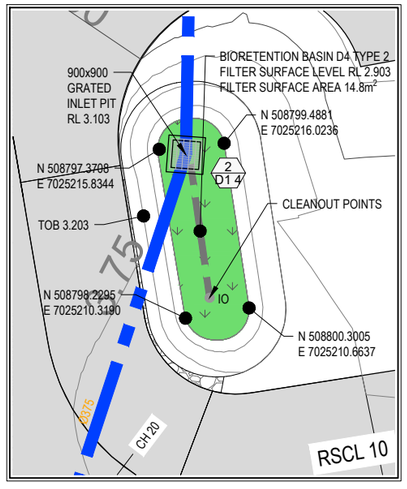


BIO-RETENTION BASIN D1 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)



BIO-RETENTION BASIN D4 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	02.10.24	APPROVAL	GHK

covey

Approved

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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BIORETENTION BASIN DETAILS (SHEET 5 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C504

Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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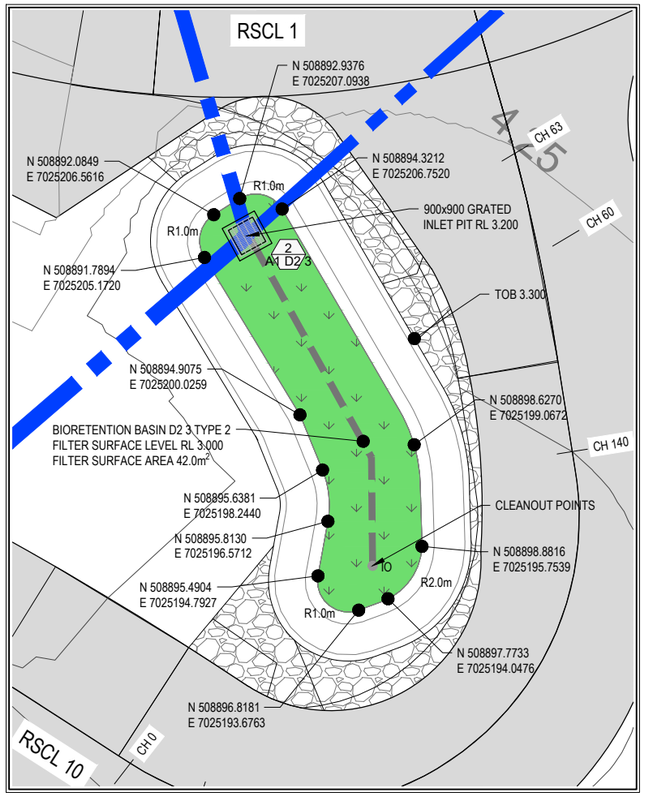
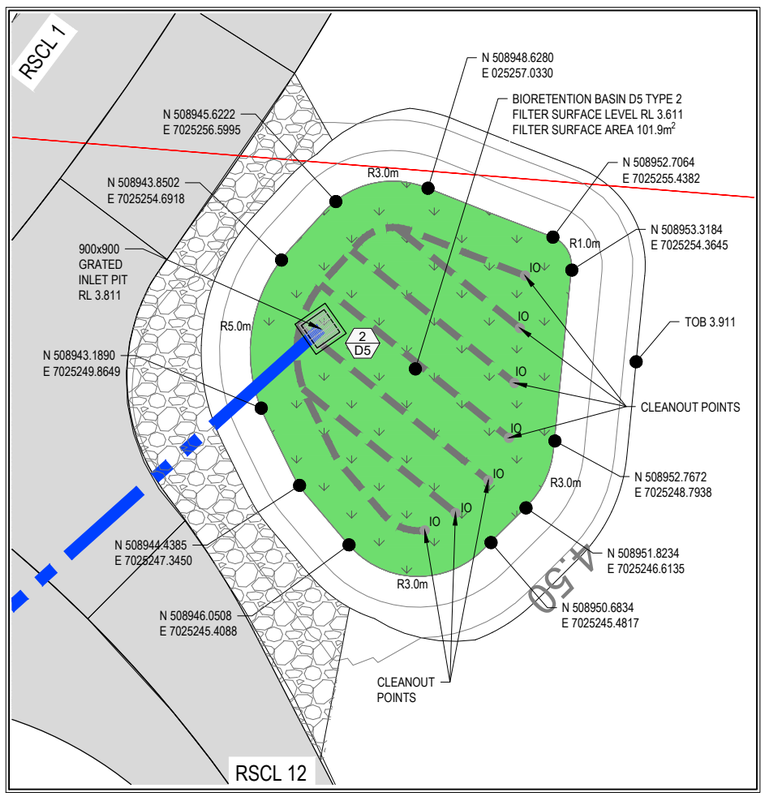
Plot 18 December 2024 - 11:25 AM



BIO-RETENTION BASIN D3 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)



BIO-RETENTION BASIN D5 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
Check Building Boundary clearances by set out.
Notwithstanding the information supplied on this drawing, the location, depth and extent of underground or overhead services are to be confirmed and protected on site by the contractor prior to commencement of works.

Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	02.10.24	APPROVAL	GHK

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Approved

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Drawing title - BIORETENTION BASIN DETAILS (SHEET 6 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C505

Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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Plot 18 December 2024 - 11:23 AM

BIORETENTION SYSTEM SPECIFICATIONS

1. REFERENCED DOCUMENTS

THE FOLLOWING DOCUMENTS ARE INCORPORATED INTO THIS SPECIFICATION BY REFERENCE:

1.1 STANDARDS

1.1.1. AS 1289 - METHODS OF TESTING SOILS FOR ENGINEERING PURPOSES

1.1.2. AS 1289.5.4.1-2007- SOIL COMPACTION AND DENSITY TESTS--COMPACTION CONTROL TEST--DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO

1.1.3. AS 1289.5.7.1-2006 - SOIL COMPACTION AND DENSITY TESTS--COMPACTION CONTROL TEST--HILF DENSITY RATIO AND HILF MOISTURE VARIATION (RAPID METHOD)

1.1.4. AS 2758 - AGGREGATES AND ROCK FOR ENGINEERING PURPOSES

1.1.5. AS 4419 - SOILS FOR LANDSCAPING AND GARDEN USE

1.1.6. AS 4454 - COMPOSTS, SOIL CONDITIONERS AND MULCHES

1.2 OTHER PUBLICATIONS

1.2.1. GUIDELINES FOR SOIL FILTER MEDIA IN BIORETENTION SYSTEMS (FAWB) - THE CURRENT VERSION OF THE GUIDELINE CAN BE FOUND AT http://www.monash.edu.au/fawb/

1.2.2. CONSTRUCTION AND ESTABLISHMENT GUIDELINES - SWALES, BIORETENTION SYSTEMS AND WETLANDS (WATER BY DESIGN) http://waterbydesign.com.au/ceguide/

1.2.3. TRANSFERRING OWNERSHIP OF VEGETATED STORMWATER ASSETS (WATER BY DESIGN) http://waterbydesign.com.au/transferguide/

1.2.4. TRANSFERRING OWNERSHIP OF VEGETATED STORMWATER ASSETS (WATER BY DESIGN) http://waterbydesign.com.au/transferguide/

1.2.5. BIORETENTION TECHNICAL DESIGN GUIDELINES (WATER BY DESIGN) http://waterbydesign.com.au/techguide/

1.2.6. WATER SENSITIVE URBAN DESIGN FIELD GUIDE (WATER BY DESIGN)

2. ABBREVIATIONS AND DEFINITIONS

2.1. THE BIORETENTION SYSTEM SPECIFICATION CONSISTS OF THE FOLLOWING ABBREVIATIONS AND DEFINITIONS:

2.2. FILTER: SOIL LAYER WHICH ACTS AS A POLLUTANT FILTER AND SUPPORTS PLANT GROWTH.

2.3. IMPERMEABLE LINERS: THE LINER THAT PREVENTS WATER MOVEMENT BETWEEN THE FILTER AND THE SURROUNDING SOILS AND DEFINES THE EDGE OF THE SYSTEM.

2.4. TRANSITION LAYER: LAYER TO SEPARATE FILTER LAYER FROM THE DRAINAGE LAYER TO AVOID MIGRATION OF SOILS FROM THE FILTER TO THE DRAINAGE LAYER

2.5. DRAINAGE LAYER: RELATIVELY FREE DRAINING LAYER TO CONVEY INFILTRATED WATER TO THE UNDERDRAINAGE.

2.6. UNDER-DRAINS: SLOTTED DRAINS COLLECT TREATED STORMWATER FROM THE DRAINAGE LAYER AT THE BASE OF THE BIORETENTION SYSTEM.

3. TEST METHODS AND STANDARDS

3.1. THE FOLLOWING TEST METHODS AND STANDARDS ARE TO BE USED AS SPECIFIED IN THE ABOVE GUIDELINES WHEN CONDUCTING TESTS ASSOCIATED WITH THIS SPECIFICATION:

3.2. THE HYDRAULIC CONDUCTIVITY OF POTENTIAL FILTER MEDIA SHALL BE MEASURED USING THE ASTM F1815-11 METHOD

3.3. PARTICLE SIZE DISTRIBUTION: AS1289.3.6.1 - 1995

3.4. 3.4. SOILS FOR LANDSCAPING AND GARDEN USE: AS4419 - 2003.

4. MATERIALS

4.1. MATERIALS SHALL MEET THE REQUIRED SPECIFICATIONS DETAILED IN SECTION 8 FILTER MEDIA, SECTION 9 TRANSITION LAYER, SECTION 10 DRAINAGE LAYER, SECTION 11 UNDER DRAINAGE, SECTION 12 PERMEABLE LINER, SECTION 13 IMPERMEABLE LINER AND SECTION 14 LANDSCAPING OF THIS DOCUMENT. ALL MATERIALS MUST BE CERTIFIED BY THE SUPPLIER WITH CERTIFICATION AND DELIVERY

4.2. SUPPLY DOCKETS SHALL BE PROVIDED ON REQUEST TO CERTIFY THE MATERIAL DELIVERED IS THE MATERIAL TESTED.

5. TIMING AND EROSION AND SEDIMENT CONTROL

5.1. THE TIMING OF CIVIL AND LANDSCAPE WORKS FOR BIORETENTION SYSTEMS MUST BE CAREFULLY PLANNED TO ENSURE THAT BOTH THE BIORETENTION SYSTEM AND THE DOWNSTREAM WATERWAYS, ARE NOT IMPACTED BY STORMWATER AND SEDIMENT (E.G. THROUGH BEST PRACTICE EROSION AND SEDIMENT CONTROL). IN PARTICULAR, THE DRAINAGE LAYER, TRANSITION LAYER AND FILTER MEDIA MUST NOT BE PLACED UNTIL THE RISK OF HIGH SEDIMENT LOADING FROM UPSTREAM CONSTRUCTION ACTIVITIES HAS BEEN MITIGATED.

5.2. EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION MUST BE DELIVERED IN ACCORDANCE WITH ALL LEGISLATIVE REQUIREMENTS INCLUDING, WHERE REQUIRED, THE PREPARATION OF SITE-SPECIFIC ESC PLAN/S IN ACCORDANCE WITH CURRENT BEST PRACTICE EROSION AND SEDIMENT CONTROL (E.G. IECA 2008, OR LATER VERSION).

6. EARTHWORKS AND HYDRAULIC STRUCTURES

6.1. THE CONSTRUCTION OF HYDRAULIC STRUCTURES MUST ENSURE THE DESIGN LEVELS ARE ACHIEVED. BUNDS/ EMBANKMENTS SURROUNDING THE SYSTEM SHALL BE AT CORRECT LEVELS. THE BELOW TABLE SUMMARISES THE CONSTRUCTION TOLERANCES FOR EACH ELEMENT OF A TYPICAL BIORETENTION SYSTEM.

6.2. BIORETENTION SYSTEMS TOLERANCES (SEE CHART BELOW)

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

BIORETENTION SYSTEMS TOLERANCES

BIORETENTION ELEMENT	TOLERANCE (UNLESS SPECIFIED OTHERWISE)
HYDRAULIC STRUCTURES	+ /- 25 mm (+/- 15 mm FOR STREETSCAPE SYSTEMS)
EARTHWORKS	+ /-50 mm
UNDER-DRAINAGE	+/- 25 mm
DRAINAGE AND TRANSITION LAYERS	+ 25 mm
SURFACE LEVEL	+/- 25 mm +/- 40 mm FOR FILTER MEDIA >300 m² PROVIDED THE AVERAGE EXTENDED DETENTION REQUIREMENT IS WITHIN 25 mm OF THE DESIGN REQUIREMENT.
EMBANKMENTS AND BUNDS	-25 mm, + 50 mm

7. MAINTENANCE ACCESS

MAINTENANCE ACCESS IS PROVIDED IN ACCORDANCE WITH THE DESIGN DRAWINGS.

8. FILTER MEDIA

8.1. MATERIALS

A FUNDAMENTAL PART OF BIORETENTION SYSTEMS IS THE FILTER MEDIA. THE MAIN ROLE OF THE FILTER MEDIA IS TO SUPPORT VEGETATION AND REMOVE POLLUTANTS. FILTER MEDIA SHOULD BE LOAMY SAND THAT HAS HIGH PERMEABILITY WHEN COMPACTED. IT SHOULD NOT CONTAIN ANY RUBBISH OR DELETERIOUS MATERIAL. THE LOAMY SAND SHOULD CONTAIN SOME ORGANIC MATTER TO IMPROVE WATER-HOLDING CAPACITY AND PLANT HEALTH, BUT IT SHOULD BE LOW IN NUTRIENT CONTENT. THE FILTER MEDIA MUST BE COMPLIANT WITH AS4419 - SOILS FOR LANDSCAPING AND GARDEN USE, AND MEET THE FOLLOWING REQUIREMENTS:

FILTER MEDIA REQUIREMENTS

PARAMETER	TEST METHOD IN ACCORDANCE WITH	REQUIREMENT
SATURATED HYDRAULIC CONDUCTIVITY	ASTM f1815-11	50 - 500 mm/hr (200 PREFERRED)
pH	AS 4419	5.5 - 7.5
ELECTRICAL CONDUCTIVITY	AS 4419	<1.2 dS/m
NITROGEN CONTENT	AS 4419	<800 mg/kg
PHOSPHORUS CONTENT	AS 4419	<40 mg/kg
ORGANIC CONTENT	AS 4419	3% - 10% WHERE ORGANIC CONTENT IS BELOW THIS THRESHOLD, THE FILTER MEDIA MAY BE AMELIORATED BY ADDING 50 mm OF COMPOST AND TINING IT INTO THE TOP 150 mm OF FILTER MEDIA.
PARTICLE SIZE DISTRIBUTION	AS 1289.3.6.1 - 1995	CLAY & SILT 3 - 6% (<0.05 mm) VERY FINE SAND 5 - 30% (0.05 - 0.15 mm) FINE SAND 10- 30% (0.15 - 0.25 mm) MEDIUM TO COARSE SAND 40- 60% (0.25 - 1.0 mm) COARSE SAND 7 - 10% (1.0 - 2.0 mm) FINE GRAVEL <3% (2.0 - 3.4%)

SOURCE: GUIDELINES FOR SOIL FILTER MEDIA IN BIORETENTION SYSTEMS (FAWB) AND BIORETENTION TECHNICAL DESIGN GUIDELINES (WATER BY DESIGN)

FILTER MEDIA MUST BE FREE OF WEEDS AND PROPAGATES. OTHER CHARACTERISTICS OF THE FILTER MEDIA REQUIRED FOR PLANT GROWTH SHOULD BE CONFIRMED WITH A SOIL ANALYSIS OR CONFIRMED WITH A HORTICULTURIST/LANDSCAPE ARCHITECT.

8.2. TESTING FREQUENCY

SUITABLE FILTER MEDIA CAN BE DELIVERED TO SITE OR IMPORTED SAND CAN BE AMELIORATED TO MEET THE ABOVE SPECIFICATION. IN EITHER CASE, THE MEDIA SHALL BE TESTED AGAINST THE ABOVE PARAMETERS AT ONE SAMPLE PER 500 m3 OF FILTER MEDIA. FOR SOIL SUPPLIED TO SITE, TESTING MUST BE UNDERTAKEN ON THE ACTUAL MATERIAL TO BE DELIVERED TO THE BIORETENTION SYSTEM. THE SUPPLIER AND CONTRACTOR WILL BE RESPONSIBLE FOR ENSURING THE FILTER MEDIA MEETS THE SPECIFICATION AND THE CORRECT MATERIAL IS DELIVERED TO SITE PRIOR TO INSTALLATION.

8.3. INSTALLATION AND COMPACTION

WHEN INSTALLING, THE FOLLOWING SPECIFICATIONS SHALL BE APPLIED:

8.3.1. FILTER MEDIA SHALL BE INSTALLED AND COMPACTED IN TWO LIFTS FOR DEPTHS OF OVER 500 mm. COMPACTION SHALL BE LIGHT AND EVEN ACROSS THE SURFACE.

8.3.2. THE TOP SURFACE OF THE DRAINAGE LAYER, TRANSITION LAYER AND THE FILTER MEDIA LAYER SHALL BE LEVEL AND FREE FROM LOCALISED DEPRESSIONS TO ENSURE EVEN DISTRIBUTION OF STORMWATER FLOWS ACROSS THE SURFACE AND PREVENT LOCALISED PONDING.

8.3.3. FILTER FABRIC MUST NOT BE USED BETWEEN DRAINAGE LAYER, TRANSITION LAYER AND THE FILTER MEDIA LAYERS OR WRAPPED AROUND THE UNDER-DRAINAGE

9. TRANSITION LAYER

TRANSITION LAYERS PREVENT FILTER MEDIA MIGRATING INTO THE DRAINAGE LAYER.

9.1. MATERIALS

9.1.1. TRANSITION LAYER SHALL BE MINIMUM THICKNESS OF 100 mm COARSE SAND UNLESS OTHERWISE SPECIFIED (TYPICALLY 1 mm PARTICLE SIZE DIAMETER) WITH <2% FINES.

9.1.2. A PARTICLE SIZE DISTRIBUTION FOR THE SAND SHALL BE OBTAINED TO ENSURE THAT IT MEETS THE FOLLOWING CRITERIA (VICROADS).

9.1.3. D15 (TRANSITION LAYER) ≤ 5 X D85 (FILTER MEDIA)

9.2. TESTING

A SAMPLE OF THE PROPOSED TRANSITION LAYER IS TO BE PROVIDED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION. THE SUPERINTENDENT MAY REQUIRE THE TRANSITION LAYER TO BE TESTED TO ENSURE ITS PARTICLE SIZE.

10. DRAINAGE LAYER

DRAINAGE LAYERS CONVEY INFILTRATED WATER INTO THE SLOTTED UNDER-DRAINAGE PIPES.

10.1 MATERIALS

10.1.1. DRAINAGE LAYER SHALL BE COMPRISED OF FINE GRAVEL (NOMINAL 2-5 mm) WITH <2% FINES AND A MINIMUM SATURATED HYDRAULIC CONDUCTIVITY OF 400 mm/hr. THE DEPTH OF THE DRAINAGE LAYER SHALL ENSURE AT LEAST 50 mm OF AGGREGATE COVER OVER ALL PERFORATED UNDER-DRAINAGE PIPES.

10.1.2. A PARTICLE SIZE DISTRIBUTION FOR THE GRAVEL SHALL BE OBTAINED TO ENSURE THAT IT MEETS THE FOLLOWING BRIDGING CRITERIA (VICROADS): D15 (DRAINAGE LAYER) ≤ 5 X D85 (TRANSITION LAYER)

10.2. TESTING

A SAMPLE OF THE PROPOSED DRAINAGE LAYER IS TO BE PROVIDED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION. THE SUPERINTENDENT MAY REQUIRE THE DRAINAGE LAYER TO BE TESTED TO ENSURE ITS PARTICLE SIZE.

11. UNDER-DRAINAGE

11.1. MATERIALS

EITHER SLOTTED RIGID PIPE (HDPE OR SIMILAR) OR AG-PIPE CAN BE USED FOR UNDER-DRAINAGE AS SPECIFIED IN THE CONSTRUCTION DRAWINGS. WHEN INSTALLING, THE FOLLOWING SPECIFICATIONS SHALL BE CONSIDERED:

11.1.1. TYPICALLY 100 MM-SLOTTED HDPE PIPE IS THE PREFERRED TYPE OF RIGID PIPE.

11.1.2. THE SLOTS IN THE PIPE SHALL NOT ALLOW THE DRAINAGE LAYER AGGREGATE TO FREELY ENTER THE PIPE (UNDER-DRAINAGE WITH SLOT WIDTH OF 2 mm OR SMALLER IS PREFERRED).

11.1.3 UNDER-DRAINAGE PIPES MUST NOT BE SURROUNDED BY ANY GEOFABRIC OR SOCK.

11.2. INSTALLATION

11.2.1. THE MAXIMUM SPACING OF UNDER-DRAINS FOR BIO-RETENTION SYSTEMS <100 m2 IS 1.5 m FROM CENTRE TO CENTRE. FOR BIORETENTION SYSTEMS >100 m2 THE MAXIMUM SPACING CAN BE INCREASED TO 2.0 - 2.5 m IF SPECIFIED IN THE CONSTRUCTION DRAWINGS.

11.2.2. THE UNDER-DRAINS SHALL BE SLOPED TOWARDS THE OUTLET PIT (MIN. 0.5% LONGITUDINAL GRADE) AND THE BASE OF FILTRATION TRENCH SHALL BE FREE FROM LOCALISED DEPRESSIONS. FOR BIORETENTION SYSTEMS WITH A SATURATED ZONE A 0% PIPE GRADE IS ACCEPTABLE.

11.2.3. ALL JUNCTIONS AND CONNECTIONS SHALL BE APPROPRIATELY SEALED.

11.2.4.UNDER-DRAINAGE PIPES SHALL BE SEALED INTO THE OVERFLOW PIT.

11.2.5. ALL UNDER DRAINAGE PIPES TO HAVE RAISED CLEAN OUT POINTS CONSTRUCTED FROM NON-SLOTTED PIPES WHICH EXTEND TO 150 mm ABOVE FILTER MEDIA SURFACE

12. PERMEABLE LINER (WHERE SPECIFIED)

12.1. A PERMEABLE GEOTEXTILE LINER FABRIC MUST BE USED TO LINE THE OUTSIDE OF THE BIORETENTION SYSTEM.

12.2. THE LINER MUST EXTEND AT LEAST 500 mm BEYOND THE TOP OF THE SIDES AND MUST BE KEYED INTO BATTER AND COVERED BY AT LEAST 200 mm OF TOPSOIL.

12.3. THE LINER MUST BE RESISTANT TO ALL SOIL ACIDS AND ALKALIS, RESISTANT TO MICROORGANISMS AND COMPLY WITH THE REQUIREMENTS OF AS3706.12 AND AS3706.13.

13. IMPERMEABLE LINER (WHERE SPECIFIED)

13.1. MATERIALS LINER OPTIONS INCLUDE CLAY, GEOSYNTHETIC BENTONITE CLAY LINERS OR HIGH-DENSITY POLY ETHYLENE (HDPE) LINERS. REFER TO THE PROJECT DRAWINGS FOR LINER DETAILS.

13.2. INSTALLATION INSTALLATION MUST BE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS AND DESIGN DRAWINGS AND ACHIEVE THE FOLLOWING:

13.2.1. THE LINERS SHALL BE KEYED INTO THE BATTERS AND TO THE EMBANKMENTS.

13.2.2.LINERS MUST BE SEALED AROUND PROTRUSIONS SUCH AS OUTLET PIPES.

13.2.3 MUST ACHIEVE A MAXIMUM PERMEABILITY OF 1X10-9M/S

14. LANDSCAPING

14.0. REFER TO LANDSCAPE DESIGN DRAWINGS.

14.1. BATTER SLOPES MUST HAVE MIN 200 mm TOPSOIL WHICH MUST BE TESTED BY A NATA-ACCREDITED LABORATORY IN ACCORDANCE WITH AS 4419.

14.2. SUBSOILS TO BE CULTIVATED TO 150 mm PRIOR TO PLACING TOPSOIL ON BATTER SLOPES.

14.3. PLANTING DENSITIES AND SPECIES MUST BE CONSISTENT WITH THE LANDSCAPE DESIGN DRAWINGS. NO SUBSTITUTIONS SHOULD BE MADE UNLESS APPROVED BY THE SUPERINTENDENT.

14.4. PLANTS SUPPLIED TO SITE MUST:

14.4.1. BE GROWN IN CLEAN, WEED- AND PEST-FREE CONDITIONS;

14.4.2. BE WELL DEVELOPED, SUN-HARDENED AND CONTAIN A FULLY ESTABLISHED ROOT BALL THAT DOES NOT CRUMBLE WHEN REMOVED FROM ITS CONTAINER.

14.4.3. BE AT LEAST 200 MM HIGH.

14.4.4. SHOW NO SIGN OF PEST AND DISEASE

14.4.5. SHOW NO SIGNS OF NUTRIENT DEFICIENCY

14.4.6. BE FREE FROM WEEDS

14.4.7. BE CLEARLY LABELLED

14.4.8. BE SUPPLIED IN A CONTAINER THAT IS AT LEAST: 90 MM HIGH X 50 MM WIDE

14.5. PREPARING FILTER MEDIA: UNLESS SPECIFIED OTHERWISE, EACH PLANT MUST RECEIVE AT LEAST 10 G OF SLOW-RELEASE NATIVE FERTILIZER IN GRANULAR OR TABLET FORM. PRE-HYDRATED WATER CRYSTALS MAY BE APPLIED AT 1-2%%% BY WEIGHT.

14.6. MULCH MUST BE APPLIED IN ACCORDANCE WITH THE DESIGN DRAWINGS, BE APPLIED PRIOR TO PLANTING, PROVIDE COVERAGE OF THE SOIL AND NOT EXCEED 75 MM THICKNESS, AND BE KEPT 50 MM CLEAR OF PLANT STEMS. UNLESS OTHERWISE SPECIFIED, MULCH SHOULD BE FINE SUGAR CANE MULCH SECURED IN PLACE BY A LOOSE WEAVE JUTE NET PINNED AT 500 MM CENTRES.

14.7. FILTER MEDIA SURFACE AND PLANT STOCK ARE TO BE WATERED IMMEDIATELY PRIOR TO PLANTING. UNLESS OTHERWISE SPECIFIED, PLANTS SHOULD BE PLANTED IN CLUMPS OF THE SAME SPECIES, AND LARGE MONOCULTURES AVOIDED.

14.8. PLANT METHOD MUST MINIMISE SOIL COMPACTION AND ENSURE THAT ALL ROOTS ARE COVERED BY AT LEAST 10 - 20 MM OF SOIL, AVOID COVERING PLANT CROWNS.

14.9. UNLESS SPECIFIED OTHERWISE, THE FOLLOWING IRRIGATION SCHEDULE APPLIES DURING PLANT ESTABLISHMENT (AT 2.5 - 5 L PER PLANT PER WEEK) - WEEK 1-5 FIVE WATERINGS PER WEEK - WEEK 6-10 THREE WATERINGS PER WEEK - WEEK 11-15 TWO WATERINGS PER WEEK - THEREAFTER AS REQUIRED TO SUSTAIN PLANTS UNTIL SUCCESSFUL ESTABLISHMENT

14.10. REPLANTING MUST OCCUR DURING THE ESTABLISHMENT PERIOD IF LESS THAN 90% OF PLANTS SURVIVE.

14.11. SUCCESSFUL PLANT ESTABLISHMENT IN BIORETENTION SYSTEMS IS CONSIDERED WHEN THE PLANTS ARE ROBUST AND SELF-SUSTAINING, AND MEET THE FOLLOWING CRITERIA. - VEGETATION MUST COVER AT LEAST 90% OF THE BIORETENTION SURFACE WITH MULCH COVERING THE REMAINDER (< 10% MULCH VISIBLE FROM ABOVE) - AVERAGE GROUNDCOVER PLANT HEIGHT MUST BE GREATER THAN 500 MM. - PLANTS MUST BE HEALTHY AND FREE FROM DISEASE. - NO WEEDS OR LITTER TO BE PRESENT.

15. CERTIFICATION AND CHAIN OF CUSTODY

15.1. THE FOLLOWING CERTIFICATION AND THE CHAIN OF CUSTODY APPLIES TO BIORETENTION MEDIA:

15.1.1. THE SUPPLIER AND CONTRACTOR ARE RESPONSIBLE FOR ENSURING THE BIORETENTION MEDIA MEETS THE SPECIFICATIONS OUTLINED IN THESE GUIDELINES AND THAT THE CORRECT MATERIAL IS DELIVERED TO SITE. THE SUPPLIER MUST ARRANGE FOR TESTING OF THE FILTER MEDIA BY A SOIL LABORATORY CERTIFIED FOR THE METHODS IN ACCORDANCE WITH THE REQUIREMENTS LISTED ABOVE. ON THE BASIS OF THE TESTING, THE SOIL LABORATORY AND SUPPLIER MUST CERTIFY THE MATERIAL MEETS THESE SPECIFICATIONS. THE SUPPLIER MUST PROVIDE THE CERTIFICATION AND LABORATORY TEST RESULTS TO THE CONTRACTOR WITH THE SUPPLY DOCKET.

15.1.2. THE CONTRACTOR PROVIDES A COPY OF THE SUPPLIER'S CERTIFICATION, TEST RESULTS AND SUPPLY DOCKET TO THE SITE SUPERINTENDENT OR BIORETENTION DESIGNER FOR REVIEW.

15.1.3. FOLLOWING REVIEW OF THE CERTIFICATION, TEST RESULTS AND THE SUPPLY DOCKET, THE SITE SUPERINTENDENT OR BIORETENTION DESIGNER APPROVES INSTALLATION OF THE BIORETENTION MEDIA.

15.1.4. THE RELEVANT SECTIONS OF THE BIORETENTION MEDIA SIGN-OFF FORM AS PER THE CONSTRUCTION AND ESTABLISHMENT GUIDELINES (WATER BY DESIGN) SHOULD BE COMPLETED AND SIGNED. THIS SIGN-OFF FORM IS PROVIDED AS PART OF THE CONSTRUCTION CERTIFICATION BY THE SITE SUPERINTENDENT OR BIORETENTION DESIGNER.

16. HOLD POINTS

16.1. THE FOLLOWING HOLD POINTS MUST BE OBSERVED IN ACCORDANCE WITH THE MOST RECENT WATER BY DESIGN CONSTRUCTION CHECKLISTS AND SUPERINTENDENT APPROVAL IS REQUIRED FOR WORKS TO PROCEED:

16.0.1. PRESTART MEETING

16.0.2. COMPLETION OF HYDRAULIC STRUCTURES AND UNDER-DRAINAGE

16.0.3. PRIOR TO PLACING FILTER MEDIA

16.1.4. AFTER PLACEMENT OF FILTER MEDIA (PRIOR TO APPLYING MULCH AND PLANTING).

17. COMPLIANCE TESTING (FOR ON OR OFF MAINTENANCE)

17.1. COMPLIANCE TESTING MUST BE IN ACCORDANCE WITH CHAPTER 5 OF TRANSFERRING OWNERSHIP OF VEGETATED STORMWATER ASSETS (WATER BY DESIGN). CHECKLISTS MUST BE COMPLETED AND SIGNED BY THE SUPERINTENDENT.

DISCLAIMER: IT IS THE RESPONSIBILITY OF THE CERTIFYING REGISTERED PROFESSIONAL ENGINEER TO ENSURE THESE STANDARD NOTES ARE ADAPTED TO THE SPECIFIC NEEDS OF THE PROJECT. IT IS EXPECTED THAT ADDITIONAL DRAWING NOTES WOULD BE REQUIRED TO COVER OTHER IMPORTANT PROJECT ISSUES (E.G. WORKPLACE HEALTH AND SAFETY, ENVIRONMENTAL PROTECTION, EROSION AND SEDIMENT CONTROL, ETC). HEALTHY WATERWAYS, IPWEA AND ALL CONTRIBUTORS TO THIS DOCUMENT ACCEPT NO LIABILITY FOR THE USE, MISUSE OR ANY OMISSION OR INACCURACY IN THIS DOCUMENT.

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
Check Building Boundary clearances by set out.
Notwithstanding the information supplied on this drawing, the location, depth and extent of underground or overhead services are to be confirmed and protected on site by the contractor prior to commencement of works.

Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	12.09.24	APPROVAL	GHK

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Drawing title - BIORETENTION BASIN SYSTEM SPECIFICATIONS

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C506

Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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Plot 18 December 2024 - 11:29 AM

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

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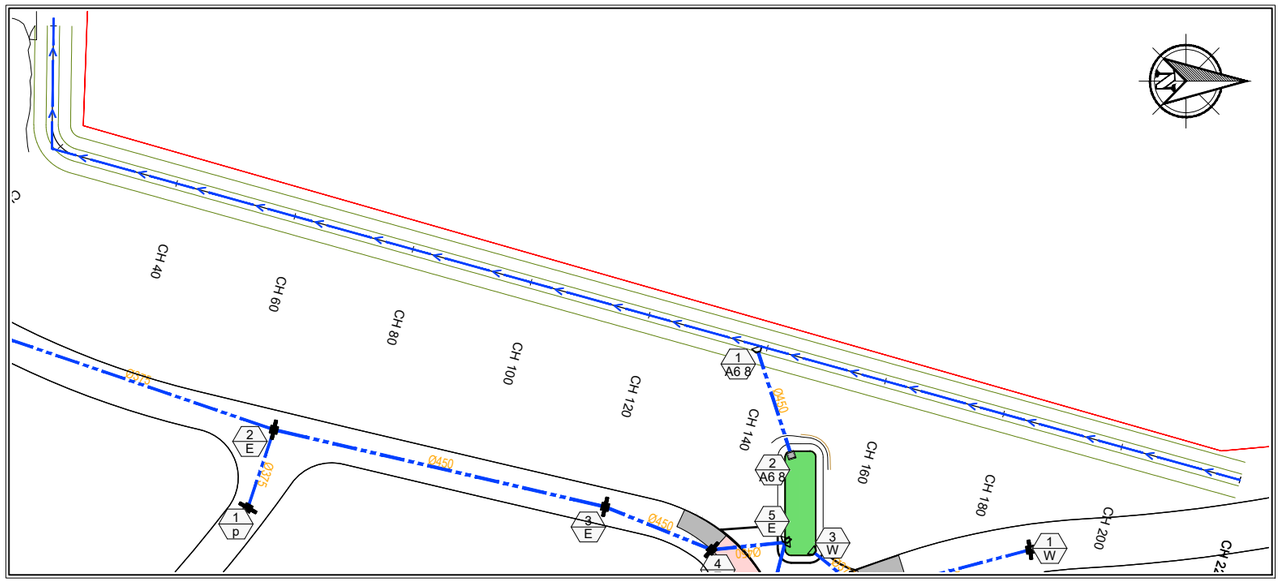
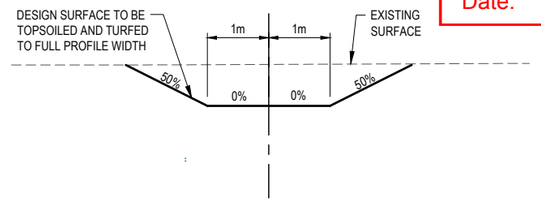
Date: 6 January 2026



KEY MAP
1:2000 (A1) / 1:4000 (A3)



SWALE TYPICAL SECTION
1:50 (A1) / 1:100 (A3)

DI1								
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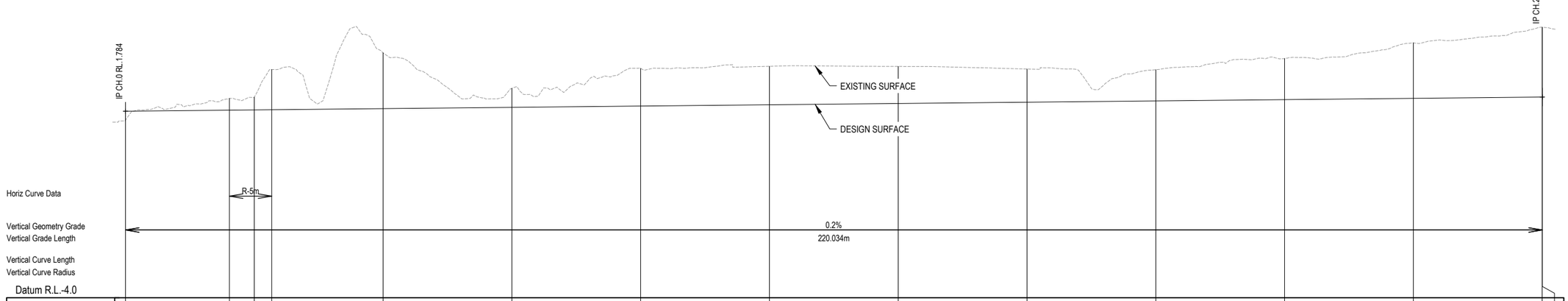
IP 1	0.000	508748.546	7025436.386	1.784	90°46'52.82"			
TC	16.149	508764.693	7025436.166	1.816	90°46'52.82"			
IP 2	19.430	508768.544	7025436.114	1.823		R = -5.000	6.563	75°12'23.40"
CT	22.712	508769.578	7025439.823	1.829	15°34'29.42"			
IP 3	220.034	508822.558	7025629.900	2.224	15°34'29.42"			



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Natural Ground	1.505		2.181		2.219	3.077		3.594		2.493		3.113		3.178		3.173		3.092		3.071		3.419		3.904		4.386	4.385
Depth of Cut or Fill	-0.279		0.365		0.395	1.248		1.730		0.589		1.169		1.194		1.149		1.028		0.967		1.275		1.720		2.162	2.161
Chainage	0.000		16.149		20.000	22.712		40.000		60.000		80.000		100.000		120.000		140.000		160.000		180.000		200.000		220.000	220.034

SECTION DI1
HORIZ. 1:350(A1) / VERT. 1:70(A1)

00 7m 14m 28m
SCALE 1:700 (A3)
HORIZ.

00 1.4m 2.8m 5.6m
SCALE 1:140 (A3)
VERT.

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MAROOCHYDORE QLD 4558

Drawing title - SWALE DETAILS (SHEET 1 OF 3)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C550

Digital Ref : C550-C552 SWALE DETAILS Issue : B

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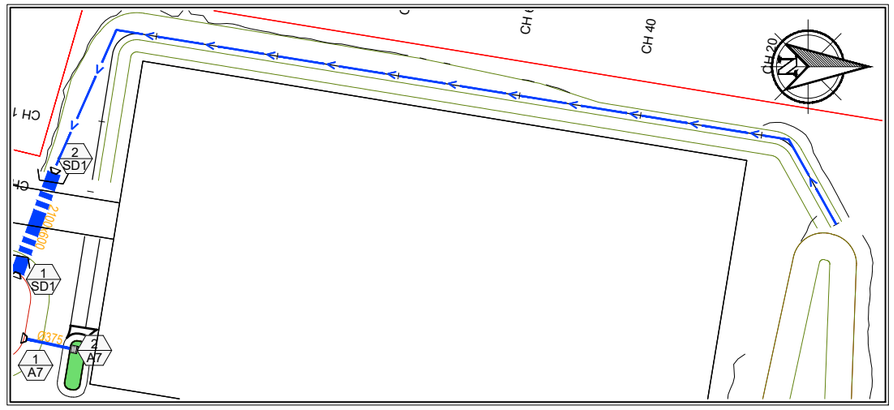

KEY MAP
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DI2								
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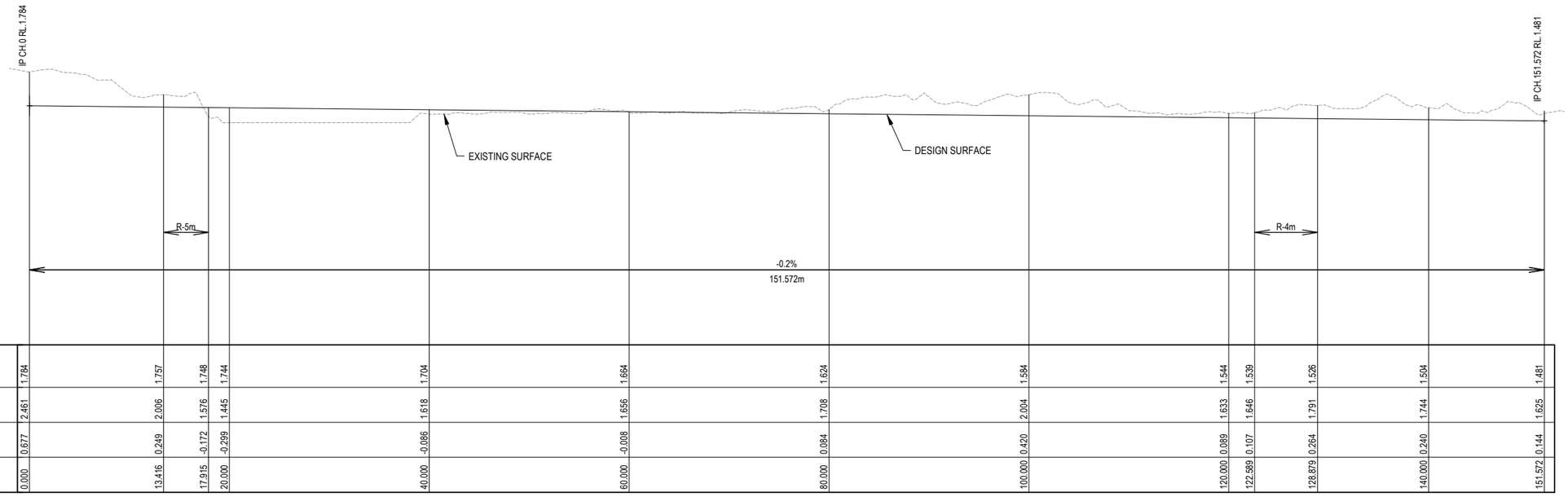
IP 1	0.000	508684.424	7025435.491	1.784	240°48'35.34"			
TC	13.416	508672.712	7025428.948	1.757	240°48'35.34"			
IP 2	15.666	508670.604	7025427.771	1.753		R = -5.000	4.498	51°32'47.36"
CT	17.915	508670.216	7025425.388	1.748	189°15'47.98"			
TC	122.589	508653.366	7025322.079	1.539	189°15'47.98"			
IP 3	125.734	508652.721	7025318.124	1.533		R = -4.000	6.290	90°06'16.19"
CT	128.879	508656.677	7025317.486	1.526	99°09'31.79"			
IP 4	151.572	508679.080	7025313.874	1.481	99°09'31.79"			



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Natural Ground	2.461		2.006	1.576	1.445		1.618	1.656	1.708		2.004	1.633	1.646	1.791		1.744	1.625					
Depth of Cut or Fill	0.677		0.249	-0.172	-0.299		-0.086	-0.008	0.084		0.420	0.089	0.107	0.264		0.240	0.144					
Chainage	0.000		13.416	17.915	20.000		40.000	60.000	80.000		100.000	120.000	122.589	128.879		140.000	151.572					

SECTION DI2

HORIZ. 1:250(A1) / VERT. 1:50(A1)

SCALE 1:600 (A3) HORIZ.
0 6m 12m 24m

SCALE 1:120 (m) A3 VERT.
0 1.2m 2.4m 3.6m

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Drawing title - SWALE DETAILS (SHEET 2 OF 3)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C551

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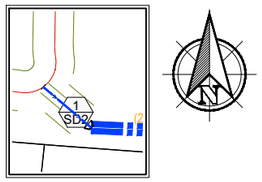
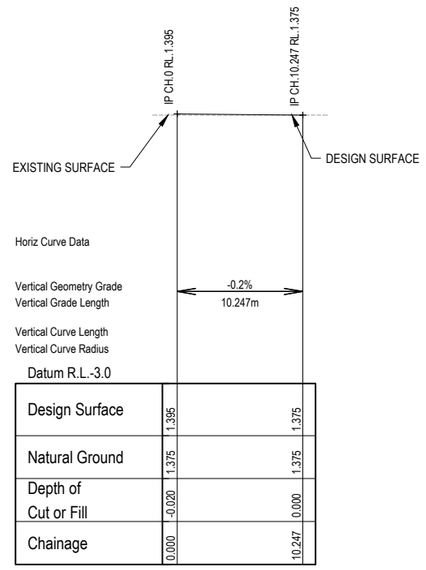


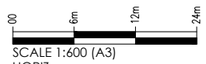
KEY MAP
1:2000 (A1) / 1:4000 (A3)

DI4					
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING
IP 1	0.000	508707.643	7025247.886	1.395	130°03'02.48"
IP 2	10.247	508715.487	7025241.292	1.375	130°03'02.48"

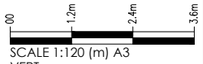


SECTION DI4

HORIZ. 1:250(A1) / VERT. 1:50(A1)



SCALE 1:600 (A3)
HORIZ.



SCALE 1:120 (m) A3
VERT.

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Drawing title -
SWALE DETAILS
(SHEET 3 OF 3)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site -
ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C552

Digital Ref : C550-C552 SWALE DETAILS Issue : B

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Plot 18 December 2024 - 11:24 AM

REAL PROPERTY DESCRIPTION
LOTS: 10 ON SP132272 AND 6 ON SP184133

SITE AREA:
LOT 10 - 26,410 m2
LOT 6 - 404, 700 m2
LOCAL AUTHORITY: S.C REGIONAL COUNCIL

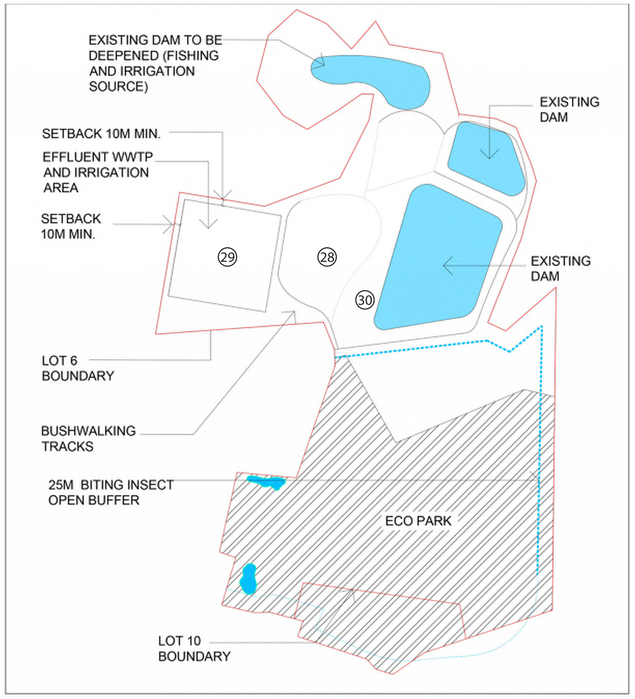
MAPPED WETLAND AREA

PUMICESTONE PASSAGE

HAT 40M OFFSET

BITING INSECT BUFFER (25M FROM MANGROVE)

HAT



OVERALL PLAN 1:5000 (REFER SITE PLAN FOR MORE DETAIL)

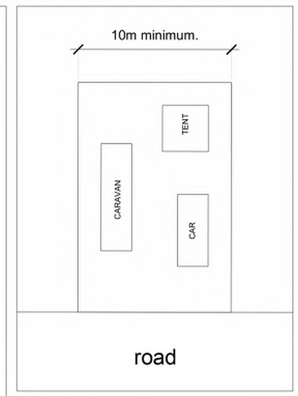
LEGEND

Sites - 75
Cabins - 75 (one uncovered car space per cabin (minimum)

- 3 bed x 38 no.
- 2 bed x 27 no.
- 1 bed x 10 no.

TOTAL SITES = 150 NO.
Caretakers House x 1 no.

1. Reception centre (1000 m2)
2. Pool
3. Waterplay park
4. Playground
5. Indoor recreation
6. Putt putt
7. Jumping pillow
8. Basketball
9. Tennis
10. Pickleball
11. Camp kitchen
12. Amenities with laundry/drying area
13. Amenities
14. Laundry
15. BOH
16. Section of Existing Dam to be retained
17. Drainage Corridor (min. 10m width)
18. Boomgate
19. Service road
20. Maintenance/Cleaning/Storage Sheds
21. Carparking with 2 No. PWDs
22. Temporary layby parking
23. Drainage easement
24. Managers residence with covered carpark
25. 3m wide vegetated buffer
26. Walking Track/Firebreak Trail
27. 8m wide access driveway to Roys Road withing EMT 8 on SP106174
28. Emergency helicopter landing area
29. Wastewater treatment plant and irrigation area
30. Potable water treatment plant



Typical arrangement on minimum width camping site

Existing tree
Culvert crossing
Pathways

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL
DSDIP ref: MBN25/1159
Date: 6 January 2026

FOR APPROVAL

COOCHIN ECO-RESORT - DA LAYOUT PLAN - 04/09/25

Scale 1:1000 @ A1

10m 20m 80m 100m

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

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DSDIP ref: MBN25/1159

Date: 6 January 2026

EXISTING DAM TO BE DEEPENED (FISHING AND IRRIGATION SOURCE)

EXISTING DAM

SETBACK 10M (MIN)

SETBACK 10M (MIN)

SETBACK 10M (MIN)

WALKING TRACKS

TREATED EFFLUENT IRRIGATION AREA

EMERGENCY HELICOPTER LANDING AREA

EXISTING DAM

PROPERTY BOUNDARY

WASTEWATER TREATMENT PLANT, BUFFER TANK AND EFFLUENT IRRIGATION TANK.

WASTEWATER TREATMENT PLANT, AND STORAGE TANK.

REFER DA LAYOUT PLAN FOR MORE DETAIL

FOR APPROVAL

Scale 1:1500 @ A1

15m 30m 120m 150m

cusp

COMISKEY GROUP

COOCHIN ECO-RESORT - DA SITE PLAN - 04/09/25

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Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

Report

Client: Comiskey Group Pty Ltd

Project: Stormwater Management Plan

Location: 1807 Roys Road, Coochin Creek

M24-0395Rpt – 243823 – December 2024

DOCUMENT ISSUE APPROVAL

Project Title:	Stormwater Management Plan
Project Scope:	Coochin Creek Holiday Resort
Project Location:	Coochin Creek
Project Address:	1807 Roys Road, Coochin Creek
LGA:	Sunshine Coast Council
Client:	Comiskey Group Pty Ltd
Project No:	243823
Report No:	M24-0395
Issue:	B
Date:	December 2024
Distribution:	Comiskey Group Pty Ltd
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Appendix C Rainfall Data

Appendix D Water Quantity Data

1 INTRODUCTION

This Stormwater Management Plan (SMP) contains information regarding the stormwater management strategies for the proposed Holiday Resort at 1807 Roys Road, Coochin Creek. Stormwater management strategies have been developed to support a combined application of Material Change of Use (MCU) and Operational Works (OPW). This SMP refers to the stormwater quality management strategies proposed for the site in its entirety.

The Sunshine Coast Council (SCC) Planning Scheme Policy for Development Works states that a new development should avoid or minimise adverse impacts on stormwater quality. As such, SCC requires that stormwater runoff be suitably managed prior to discharge from the site. The Queensland State Planning Policy (SPP, 2017) also requires that development projects demonstrate how the potential impacts of stormwater runoff to receiving environments are mitigated and nominates the most current pollutant load reduction targets. Further, an assessment is undertaken to analyse the conveyance of upstream and on-site stormwater runoff.

2 SITE DESCRIPTION

2.1 Site Location

The proposed development site is located at 1807 Roys Road, Coochin Creek. The real property description is Lot 6 SP 184133 and Lot 10 SP 132272.

The proposed development site is approximately 43.1 ha in area and is bound by the Pumicestone Passage to the south, agriculture lots to the west, and low lying vegetation to the north and east (refer to Figure 2-1).

A Site Plan is presented in Appendix A which provides further details on the proposed development.

Figure 2-1 Site Locality (image courtesy of Nearmap)

2.2 Previous Land-use, Topography and Drainage

The site is presently comprised of two large agricultural lots, containing agricultural land, rural driveways, and existing buildings. The southern portion of the site has a high point in the centre (near the existing access road through the site), and the site drains towards the property boundaries on all sides, with elevations ranging from 5.42 m AHD to 1.37 m AHD. The northern portion of the site drains from north-west to south-east.

External catchments to the west discharge into the existing dams adjacent the western property boundary and drain through existing channels and waterbodies on site. The discharge location is to the southwestern corner of the site and directly into Pumicestone Passage. The eastern portion of the site discharges to the east and connects with external catchments, ultimately, draining to the Pumicestone Passage via overland flow.

2.3 Proposed Land-use

A holiday resort eco-park development is proposed in the southern portion of the site. The proposed development consists of cabins to the west, camping and caravan sites to the east, and additional buildings, recreational developments, access driveways, car parking and associated infrastructure (i.e., roads and concrete pathways). See Figure 2-2 and Appendix A for more details.

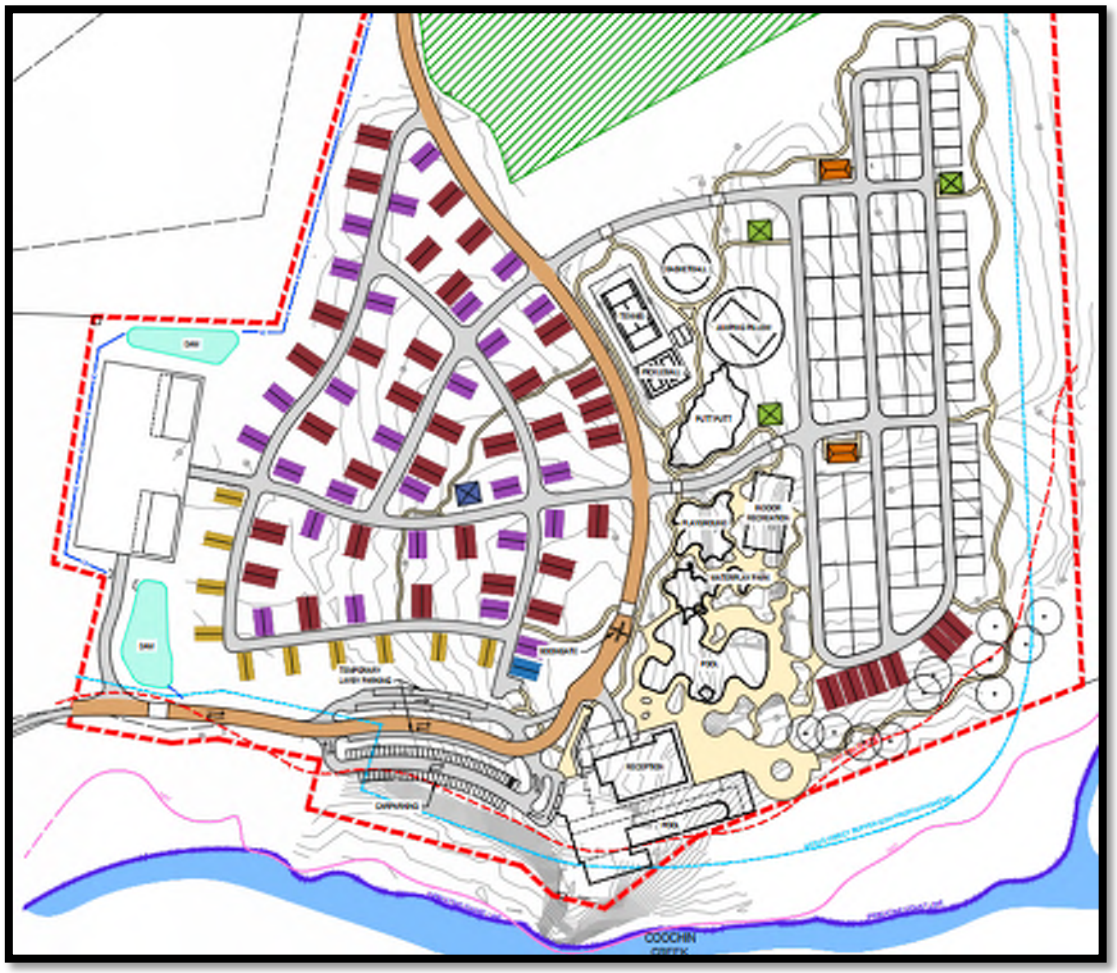

Figure 2-2 Plan of Proposed Development

3 STORMWATER QUANTITY

The proposed stormwater quantity management strategy for this site ensures appropriate design standards are utilised and overland flow paths can adequately convey the proposed development catchment areas. Development of the site will result in a minor increase in impervious area and a corresponding minor increase in peak stormwater runoff rates. However, as the development site is located immediately adjacent to an existing waterway (i.e., the Pumicestone Passage) on-site detention is not required as attenuating the peak flows from the development is likely to increase the peak flows for the overall catchment draining to the river, causing coincidental peak flows. Rather, this analysis ensures that any on-site or external stormwater runoff is adequately conveyed through the site prior to the regional peak flow occurring. The proposed development site has been analyzed for the 1%, 10% and 50% Annual Exceedance Probability (AEP) events. The 1% AEP climate change (+20% increase in rainfall intensity) was also considered in the analysis.

A number of existing man-made channels are present on the site and the development proposes works in the vicinity of these channels. The following sections of the report detail the analysis of the existing and proposed stormwater channels. Refer to the Engineering Plans in Appendix A for further detail.

3.1 Modelling Process

An analysis of the stormwater required for the site, involved the following processes:

- Determining the catchment areas contributing to flow from the proposed development site including external upstream catchments;
- Calculating the design event peak discharges using ensemble storm hydrological modelling; and
- Hydraulic modelling using DRAINS for the design events to demonstrate that peak discharges can be conveyed through the site.

3.2 Hydrology

To determine the peak discharges for the site the hydrological modelling used the ensemble storms as per the Australian Rainfall and Runoff (ARR, 2019) procedures using the RAFTS hydrology model with the DRAINS software package.

3.3 DRAINS Data

3.3.1 Model Scenarios

The post-development scenario for the design rainfall events were modelled in DRAINS to determine the peak stormwater flows for the site.

3.3.2 Catchment Areas

The total catchment area has been modelled as 11 sub-catchments. Refer to Figure 3-1 for the 11 stormwater quantity sub-catchment boundaries and Table 3-1 for the sub-catchment parameters.

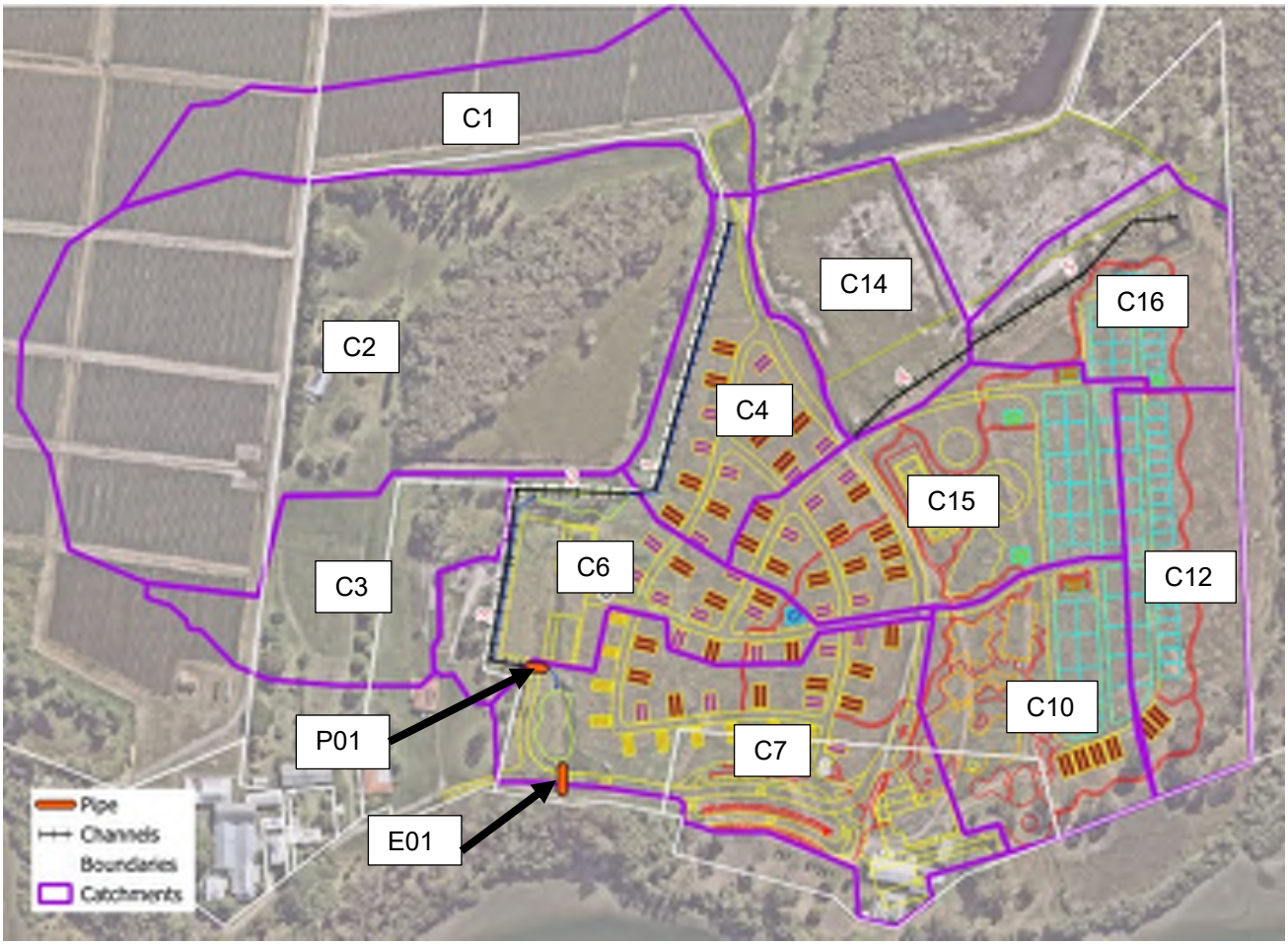

Figure 3-1 Stormwater Sub-catchments Modelled in DRAINS (for Water Quantity)

3.3.3 Temporal Patterns, Rainfall Intensities and Rainfall Losses

The rainfall temporal pattern adopted for the flood modelling were sourced from ARR 2019. The rainfall intensities used in DRAINS are typical to Coochin Creek and were generated from the Bureau of Meteorology's online IFD data website. The IFD data is provided in Appendix C.

Rainfall Losses have been sourced from Australian Rainfall and Runoff Data Hub and are relevant to Coochin Creek.

All standard durations between 10 and 720 minutes were reviewed for the purpose of the modelling. It was determined the critical durations occurred during the 15-minute and 180-minute durations.

3.3.4 Impervious Areas

The fraction of impervious areas for each sub-catchment in the development are detailed in Table 3-1.

Table 3-1 Catchment Parameters

Sub-catchment ID	Area (ha)	Fraction Impervious (%)	Slope (%)
1	3.038	0	1
2	10.819	16	2
3	2.262	5	2.5
4	2.056	40	1
6	2.487	70	0.5
7	4.239	40	0.5
10	2.561	30	1
12	2.317	10	1
14	2.004	0	1.5
15	3.482	30	1
16	2.037	10	0.5

3.3.5 Manning's n Values

Manning's n values for the catchments varied due to the differing catchment characteristics / land uses and were applied independently to the catchment. The values that were adopted are follows:

- Pervious Area, n = 0.025; and
- Impervious Area, n = 0.018.

Manning's n values that were adopted for the existing and proposed channels are defined below:

- Grassed channel base and sides, n = 0.04 and
- Channel overbank, n = 0.03.

The locations of the grassed channels are demonstrated in the engineering plans in Appendix A.

3.3.6 Catchment Slope

The Equal Area method was used to determine the catchment slope.

3.3.7 Model Validation

The Sunshine Coast Council modified rational method was used to validate the results from the hydrological model. Results were compared to the north-eastern outlet location which comprised Catchments 14 to 16. The results from the validation are shown in Table 3-2 and Table 3-3. The validation has demonstrated that the DRAINS model 1% AEP results differ by only 15%, which is considered acceptable for this comparison.

Table 3-2 Rational Method Results

AEP	63.2%	50%	39%	20%	10%	5%	2%	1%
Intensity (mm/h)	57	64	70	86	101	115	134	148
Fy	0.9	0.918	0.925	0.975	1.00	1.025	1.075	1.1
C	0.720	0.734	0.740	0.780	0.800	0.820	0.860	0.880
Q (m3/s)	0.861	0.986	1.08	1.41	1.69	1.98	2.41	2.73
Q (2100)	1.03	1.18	1.30	1.69	2.03	2.37	2.89	3.28
	ToC	33	mins	**Area**	0.07523	km^2	**C10**	0.80

Table 3-3 Model Validation Results for Catchments 14 to 16

AEP	Rational Peak Flow (m3/s)	DRAINS Peak Flow (m3/s)	Difference
50%	0.986	0.84	-18%
10%	1.687	1.87	10%
1%	2.730	3.22	15%

3.3.8 Stormwater culverts

The following culverts were included in the model (as shown in Figure 3-1):

- Pipe P01 – 2 x 900 mm dia. RCP at 0.5% grade
- Pipe E01 – 2 x 900 mm dia. RCP at 0.5% grade

Any changes to the proposed layout will require a review of the proposed channel and culvert designs.

3.3.9 Modelling Assumptions

The following assumptions were incorporated in the modelling process:

- A constant downstream tailwater level was applied to all outlets, during the 1% AEP event, equivalent to the highest astronomical tide (HAT) with an additional 500 mm for climate change considerations, which was to R.L 1.93 m AHD.

3.4 Results

All channels in the eastern portion of the site demonstrated capacity to manage the 1% AEP Climate Change storm event. The proposed and existing channels in the western portion of the site (Channels CH1 to CH3) had adequate capacity for the 10% AEP. Pipe E01 had an immunity up to the 1% AEP climate change event. Pipe P01 had a 50% AEP immunity. Above a 50% AEP event, stormwater overtopped the road crossing above pipe P01, however, the depth x velocity (dV) in this location was a maximum of 0.13 m^2/s, which is acceptable.

For the 1% AEP climate change event, the maximum water surface level within the channels in the western portion of the site was R.L 3.28m. Therefore, to maintain a minimum of 300 mm freeboard to Class 1 habitable buildings (i.e. cabins) in this area, the minimum recommended floor level is R.L 3.58, which has been achieved.

Therefore, the proposed and existing channels adequately convey both on-site and upstream external stormwater catchments.

3.5 Frequent Flow Management

Due to the site's proximity to an existing mapped wetland, the development is required to maintain pre-development low flow discharges regimes. To achieve this, the stormwater quality treatment train includes pipeless bioretention basins which infiltrate stormwater into the in-situ soil (see Section 4.3.3). This type of bioretention basin is effective in mitigating potential increases in low flow discharges due to the development's increase in impervious area.

4 STORMWATER QUALITY

This section of this SMP demonstrates how the proposed stormwater quality management strategy complies with the requirements to protect the High Ecological Value (HEV) receiving environment (Pumicestone Passage), the objectives of the State Planning Policy (SPP) and those of the SCC in terms of demonstrating how the relevant stormwater pollutant reduction objectives will be met. SCC require the stormwater runoff to be managed by the non-worsening approach since the receiving environment is an ecologically sensitive waterway. This means that the pollutant loads from future development must be equal to or less than those from the existing land use.

Stormwater runoff generated from the site must achieve the pollutant reduction targets required under the *State Planning Policy* (SPP, 2017) and the *Sunshine Coast Council's Planning Scheme* (SCC, 2014). These targets are listed in Table 4-1.

Table 4-1 Pollutant Reduction Targets

Pollutant Type	Reduction Targets
Total Suspended Solids (TSS)	Non-worsening approach – meaning loads of pollutants from future development must be equivalent to or less than that from the existing land use prior to development
Total Phosphorus (TP)	
Total Nitrogen (TN)	
Gross Pollutants (GP)	90% reduction in average annual load of pollutants

4.1 Scenario Method

It is proposed that approximately 6.09 ha of the total site area (43.1 ha) be developed, which will be inclusive of permanent buildings (e.g., cabins, sheds, reception building), access driveways, car parking, recreation areas, and concrete pathways. These development works will be contained within the southern portion of the site. Stormwater runoff from the developed portion of the site will be managed and treated to ensure it achieves the non-worsening pollution reduction targets outlined in Table 4-1. The balance of the site area will not be developed, so it does not require targeted stormwater quality management. Noteworthy is that the pool areas and waterpark do not require targeted stormwater management since the runoff is generally fully contained within the infrastructure, ensuring no environmental impact on receiving waterways.

The developed part of the site includes fifteen (15) sub-catchments of varying size and fraction impervious which were used in the water quality modelling. The sub-catchments were derived from the stormwater drainage design required for the site due to the existing and proposed topography. Refer to Figure 4-1 for more information.

Three (3) split catchment source nodes were used to represent the development area for each sub-catchment, including road, roof and ground cover. The split catchment area for the road was calculated from the proposed development plan in Appendix A, where no verge was included in the fraction impervious adopted. The roof area comprises all permanent buildings on site, including cabins, sheds, and additional buildings (e.g., reception building and indoor recreation area). The ground cover encompassed all impervious recreational areas (e.g., courts, playgrounds) and concrete pathways.

Figure 4-1 Stormwater Quality Sub-catchments (for Water Quality)

The nominated fraction impervious for each source node modelled in MUSIC was therefore:

- Road area: 100% impervious
- Roof area: 100% impervious
- Ground cover: 100% impervious

The existing case and developed case scenarios were modelled in MUSIC to demonstrate compliance with stormwater quality treatment requirements outlined in Table 4-1. The existing case scenario was modelled as an agriculture source node with a fraction impervious of 5% to account for existing buildings and sheds. The existing case agriculture node was modelled with an area equal to the total proposed development area (6.09 ha). This was adopted to facilitate a suitable comparison between the existing case scenario (unmitigated scenario) and the developed case scenario (mitigated scenario).

It is appropriate to model the existing node as an agriculture node since the existing site has been used for agriculture and farming for at least 60 years, so the pollutant loads should reflect agricultural use (i.e., plastics, pesticides, herbicides, fertilizers. The MUSIC Modelling Guidelines - Version 1 (WBD, 2010) was used to source rainfall-runoff parameters for rural residential land use and to source base and storm flow concentrations and runoff generation for agriculture and urban development land use.

4.2 MUSIC Water Quality Modelling

4.2.1 MUSIC Modelling Parameters

The model was calibrated using pluviographic rainfall and potential evaporation data from the eWater Toolkit for Caloundra between 1997 and 2006 at a six-minute time step. This is in accordance with Water by Design's MUSIC Modelling Guidelines – Southeast Queensland Version 1.0 (WBD, 2010). All source nodes were set up in accordance with the MUSIC Modelling Guidelines (WBD, 2010), specifically for split urban catchments. No routing of drainage links was adopted as a conservative approach, which assumes that the flow through the drainage system is instantaneous. MUSIC version 6.3.0 was used for this assessment.

4.2.2 MUSIC model inputs

Table 4-2 details the split sub-catchment source node characteristics for the proposed development modelled in MUSIC. A copy of the MUSIC model can be found in Appendix B.

Table 4-2 MUSIC Source Node Characteristics for the Sub-catchments

Catchment ID	Road Area (ha)	Roof Area (ha)	Ground Cover (ha)	Total (ha)
A1	0.078	0.141	0.017	0.236
A2	0.207	0.199	0.010	0.416
A4	0.116	0.000	0.000	0.116
A5	0.209	0.181	0.005	0.395
A7	0.012	0.099	0.000	0.111
A8	0.298	0.254	0.000	0.552
B1	0.225	0.000	0.000	0.225
B2	0.190	0.201	0.817	1.21
C1	0.285	0.043	0.805	1.13
C2	0.088	0.013	0.000	0.102
C3	0.242	0.233	0.014	0.488
D1	0.110	0.000	0.000	0.110
D3	0.260	0.000	0.000	0.260
D4	0.083	0.000	0.000	0.083
D5	0.132	0.140	0.382	0.654
Total	**2.54**	**1.50**	**2.05**	**6.09***

**Note: The existing case source node was modelled as an agriculture source node with a fraction impervious of 5% and an area equal to the total development area for the proposed development (6.09 ha). Furthermore, this approach is conservative because the pervious areas of the proposed development will not be subject to pollutant loads as high as those imposed by the previous agricultural uses (i.e., plastics, pesticides, herbicides, fertilizers).*

4.3 Proposed Treatment Train

Bioretention basins and a swale are proposed to treat stormwater runoff from the development sub-catchments before being discharged into the receiving environment. In addition, rainwater harvesting tanks are proposed as part of the water supply strategy for the park.

4.3.1 Rainwater Harvesting Tanks

Roof water capture for re-use on site is a major component of the water supply strategy for the development as outlined in the Water Supply Assessment by Gilbert and Sutherland (April 2023). The water supply network will include tanks, dams, bores, water treatment plant, pumps and piped reticulation system. For the purposes of this assessment, the following minimum rainwater tank sizes have been conservatively assumed:

- 2.5 kL per cabin
- 7.5 kL per shed
- 25 kL for all other buildings combined
- 240 kL total

In addition, the assumed reuse demands for the rainwater harvesting tanks for this assessment were as follows:

- 0.25 kL/day per cabin
- 1.75 kL/day for both sheds
- 2.5 kL/day for all other buildings combined

For note, sub-catchment B2's roof area was characterised as an indoor recreation area, which does not require reuse. This roof area is instead treated by a bioretention basin, outlined in Section 4.3.3.

4.3.2 Swale Treatment

It is proposed that development sub-catchment A4 be treated by one (1) swale system before discharging to the receiving environment. This swale was modelled as an individual swale treatment node in MUSIC. This swale was modelled according to Option A in the MUSIC modelling guidelines since it was designed to receive distributed lateral inflow along its length and discharge at a single point (WBD, 2010). Consequently, the swale was modelled with its actual length of 30 m, an estimated vegetation height of 0.250 m and a bed slope of 0.5%.

4.3.3 Bioretention Treatment

Fourteen (14) bioretention systems are proposed to treat stormwater runoff from the remaining fourteen (14) sub-catchments. Two (2) of the proposed bioretention systems will be designed as saturated bioretention basins. These bioretention basins are required due to the topographical constraints in the eastern portion of the site and for sub-catchment A8. Due to the limited elevation, these saturated bioretention systems are considered the most practical method for treating select sub-catchments in the proposed development. These bioretention systems were modelled as lined bioretention treatment nodes in MUSIC. These bioretention basins are modelled with a submerged zone with carbon present, estimated at 0.45 m deep (WBD, 2014).

Four (4) of the bioretention basins will be pipeless basins with a permeable liner to the base and sides which will allow stormwater to infiltrate into the in-situ soil. The On-site Effluent Disposal and Nutrient Impact Assessment by Gilbert and Sutherland (September 2021 - Document no. 12139) indicates that the soil on site demonstrated a permeability ranging from 0.27–0.58 m/day consistent with Soil Category 3 to 4. Pipeless

bioretention basins are considered to be effective where implemented in soils within this permeability range. For the purpose of assessing the water quality treatment effectiveness, the pipeless bioretention basins have been modelled as conventional.

The eight (8) remaining bioretention basins were designed as at-source bioretention systems and were modelled as conventional, lined bioretention treatment nodes in MUSIC without a submerged zone.

All bioretention basins were modelled with a filter depth and extended detention depth of 0.4 m and 0.3 m, respectively. The filter depth of 0.4 m was utilised due to the topographical constraints on site and is the minimum allowable depth in the MUSIC modelling guideline (WBD, 2010). Table 4-3 outlines the bioretention basin details modelled in MUSIC as part of the treatment train.

Table 4-3 MUSIC Details for the Proposed Bioretention Basins

Catchment ID	Surface area (m^2)	Filter Area (m^2)
A1	30	30
A2	50	50
A4	Swale Treatment	
A5	45	45
A7	15	15
A8 *	74	65
B1 ^	35	35
B2 *	205	175
C1 ^	190	165
C2 ^	15	15
C3 ^	75	65
D1	20	20
D3	40	40
D4	15	15
D5	115	100

**These sub-catchments were treated by saturated bioretention basins.*
^These sub-catchment were treated by pipeless bioretention basins

4.4 MUSIC Modelling Results

As per the requirements to protect the receiving environment, those of the SPP (2017) and the SCC (2014) Planning Scheme, MUSIC modelling was performed to demonstrate how the proposed development mitigates impacts on the environmental values of receiving waters by managing the release of nutrients and sediments into waterways. Specifically, this model was performed to ensure that the nominated treatment strategy achieves the non-worsening approach on the pollutant loads, meaning that loads of pollutants from future development are equivalent to or less than those from the existing land use prior to development.

Ultimately, the proposed treatment strategy included:

- rainwater harvesting tanks for the majority of roof areas;
- one (1) swale; and,
- fourteen (14) bioretention basins

Table 4-4 compares the pollutant loads in the existing case scenario (i.e. pre-development) to the mitigated developed case scenario, which incorporates the proposed treatment train. These two scenarios were compared to fulfil the pollutant load requirements outlined in Table 4-1.

Table 4-4 MUSIC Modelling Results

Pollutant	**Existing case** (kg/yr)	**Unmitigated – Developed Case** (kg/yr)	**Mitigated – Developed Case** (kg/yr)	**Reduction Achieved** (%)	**Target Reduction**	**Compliance**
TSS	11600	19000	2570	86.5	Non-worsening approach	Y
TP	12	34.3	8.26	75.9		Y
TN	68.5	155	69.6	55.9		Y
GP	180	1770	0	100	90	Y

The MUSIC modelling results in Table 4-4 demonstrate that the proposed stormwater management strategy for the proposed development complies with the pollutant load reduction targets required by the SCC (2014) and the SPP (2017) since the non-worsening approach has been met.

5 MAINTAINENCE PERIOD

The proposed bioretention basins will require consideration and management during both the construction period and maintenance period of the development. To establish vegetation and treatment functions in the bioretention systems, the filter media will require protection from the common pollutants generated in the construction phases of the development. During the operational phase, regular maintenance is required to ensure a comprehensive vegetation establishment, a critical component in stormwater pollutant uptake. Section 5.1 provides details for the general maintenance periods and the requirements for the bioretention basins.

5.1 Bioretention Basins

5.1.1 Construction Period' Maintenance Requirements

Erosion and sediment control devices will be installed at the commencement of the works to capture and treat runoff during construction works. The sediment control devices should be cleaned out as required and at the end of the works. During the construction stage, all sediment control devices are to be inspected:

- Weekly;
- After runoff generating rain events; and
- Prior and after prolonged site shutdowns (e.g. holiday periods).

The proposed bioretention basins may be excavated and used as sediment basins during construction, where appropriate. All sediment basins will require weekly inspection to prevent scour and sediment build up. Basins should be inspected regularly and cleaned out when 1/3rd full. At the completion of construction, the sediment basins will be removed. The bioretention basins will then be installed at the end of the construction phase when the site is stabilised.

5.1.2 Maintenance Period' Maintenance Requirements

The bioretention basins on ground level may be temporarily turfed if required during the maintenance period. Once construction of 80% of the site in the catchment of the development is complete, the turf will be removed, and the basins will be vegetated appropriately.

5.1.3 Operational Period' Maintenance Requirements

Maintenance is to be carried out as needed to ensure continued functionality of the system. Maintenance includes initial watering plants in new systems, removal of litter or plant debris and reparation of eroded areas.

6 CONCLUSION

This SMP demonstrates that the stormwater management measures for the proposed Coochin Creek holiday resort site will successfully achieve the performance criteria set by the SCC (2014) and by the SPP (2017).

The analysis of stormwater quantity has demonstrated that the existing and proposed channels on-site have adequate capacity to cater for both on-site and upstream external catchment stormwater runoff.

SCC requires stormwater runoff discharging to ecologically sensitive waterways to be treated to meet a level of 'non-worsening.' This means that the pollutant loads from future development must equal or be less than those from the existing land use before discharging to the receiving environment. The proposed treatment train has demonstrated compliance with the non-worsening approach from SCC (2014) and the requirements of the SPP (2017). Additionally, the modelling approach used is considered conservative as no routing in the drainage links was applied.

Sufficient consideration of stormwater controls has been demonstrated by:

- Compliance with the stormwater quality requirements in Sunshine Coast Council's *Planning Scheme* (2014);
- Compliance with the *State Planning Policy* (2017); and
- Compliance with QUDM (2017).

The operational design of the stormwater quantity management proposed in this SMP is based on current and best-practice principles.

7 REFERENCES

Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors) (ARR), 2019, Australian Rainfall and Runoff: A Guide to Flood Estimation, Commonwealth of Australia

Queensland Urban Drainage Manual (QUDM), 2017. Institute of Public Works Engineering Australasia, Queensland Division Ltd, Fourth Edition 2017.

State Planning Policy (SPP), 2017. Department of State Development, Infrastructure and Planning, Brisbane, Queensland.

Sunshine Coast Council (SCC), 2014. Planning Scheme.

Water by Design (WBD), 2010. MUSIC Modelling Guidelines, SEQ Healthy Waterways Partnership. Brisbane, Queensland.

Water by Design (WBD), 2014. Bioretention Technical Design Guidelines, Version 11.

APPENDIX A

OPW Engineering Plans

PROPOSED LEGEND

STAGE BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
HAT	
HAT 50M OFFSET	
INSECT BUFFER	
COAST LINE	
DRAINAGE CORRIDOR	
EXISTING DAM TO BE RETAINED	
EXISTING TREE TO BE RETAINED	
CULVERT CROSSING	
REVEGETATION AREA	
SITES	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
1 BEDROOM CABIN	
CAMP KITCHEN	
AMINITIES (LAUNDRY/DRYING)	
MAINTENANCE/CLEANING/ STORAGE SHEDS	

0m 20m 40m 60m

SCALE 1:1000 (A1) - 1:2000 (A3)

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Scales - AS SHOWN
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A	03.09.24	APPROVAL	GHK

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covey

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Drawing title - DEVELOPMENT LAYOUT PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C100

Digital Ref : C100 DEVELOPMENT LAYOUT PLAN Issue : B

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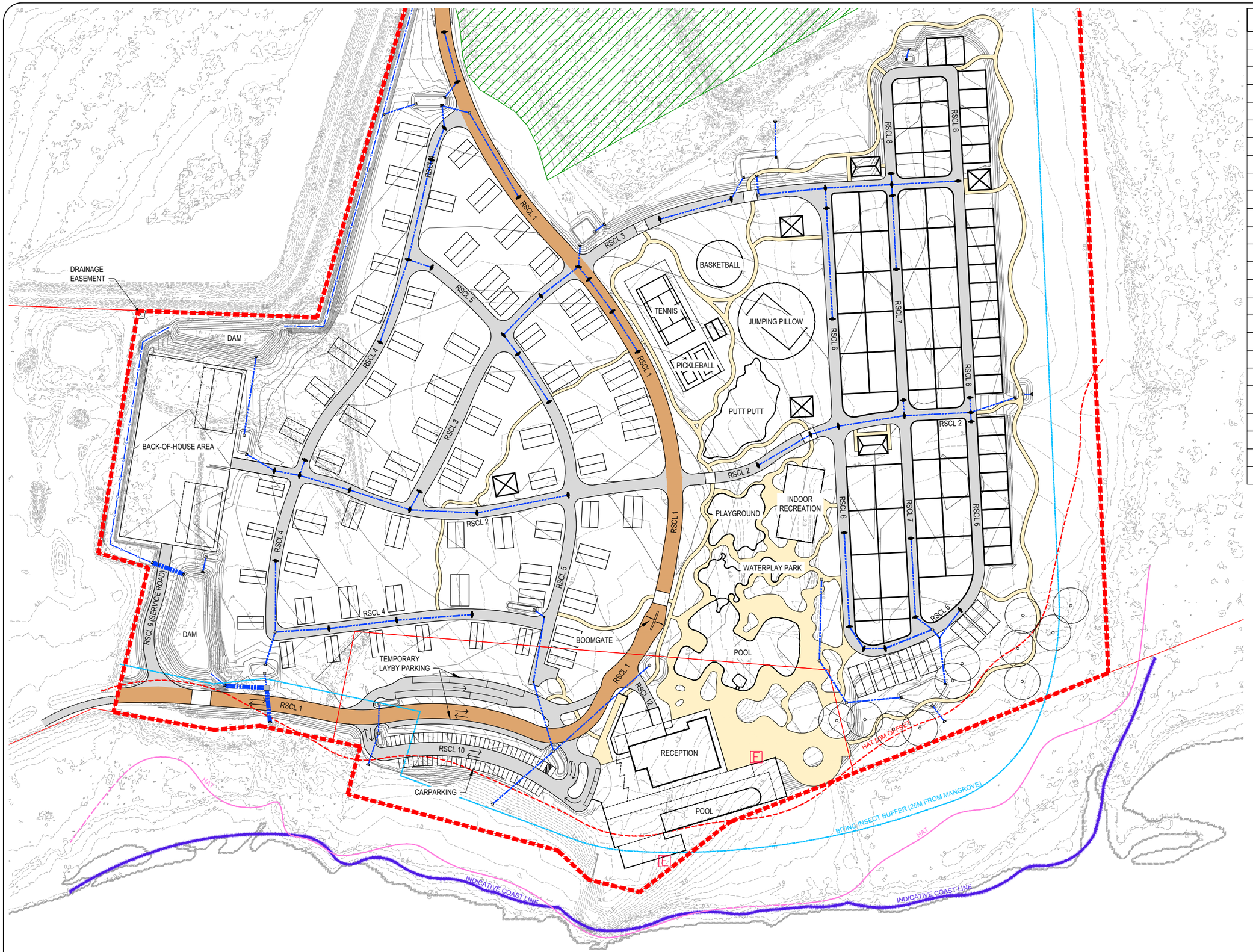


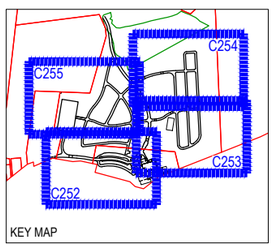
LEGEND

STAGE BOUNDARY	
EXISTING LOT BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
DRAINAGE CORRIDORE	
EXISTING DAM TO BE RETAINED	
CULVERT CROSSING	
HAT	
HAT 50M OFFSET	
INSECT BUFFER	
COAST LINE	
EXISTING TREE TO BE RETAINED	
CAMPING / VAN SITES	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
1 BEDROOM CABIN	
LAUNDRY	
CAMP KITCHEN	
AMINITIES (LAUNDRY/DRYING)	
MAINTENANCE/CLEANING/ STORAGE SHEDS	
EXISTING EARTH DRAIN	
EXISTING ELECTRIC POLE	
EXISTING ELECTRIC BOX	
STORMWATER PIPE	

N

0m 20m 40m 60m

SCALE 1:1000 (A1) - 1:2000 (A3)



KEY MAP

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Drawing title - OVERALL ROADWORKS AND DRAINAGE PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C251

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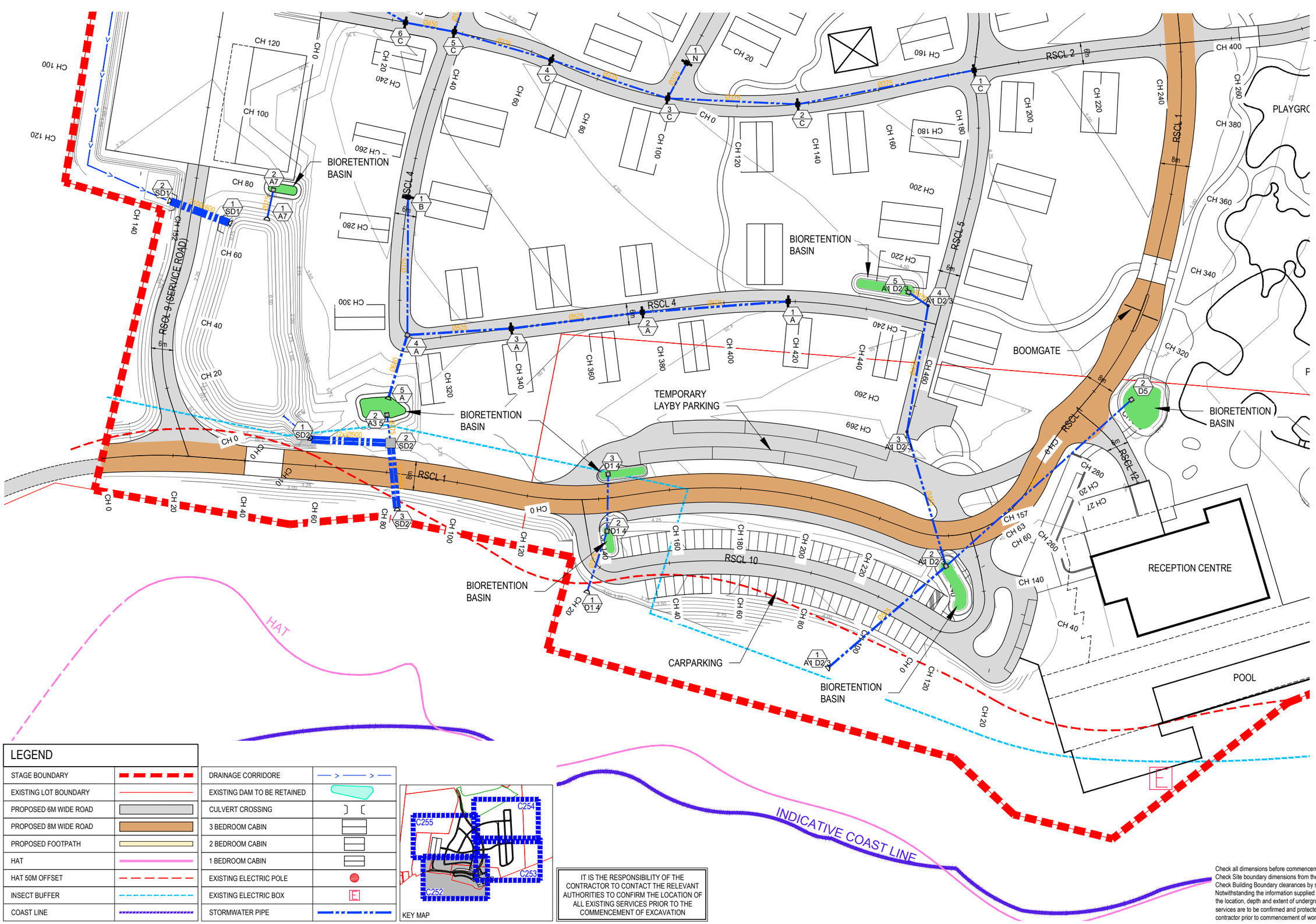

LEGEND

STAGE BOUNDARY		DRAINAGE CORRIDORE	
EXISTING LOT BOUNDARY		EXISTING DAM TO BE RETAINED	
PROPOSED 6M WIDE ROAD		CULVERT CROSSING	
PROPOSED 8M WIDE ROAD		3 BEDROOM CABIN	
PROPOSED FOOTPATH		2 BEDROOM CABIN	
HAT		1 BEDROOM CABIN	
HAT 50M OFFSET		EXISTING ELECTRIC POLE	
INSECT BUFFER		EXISTING ELECTRIC BOX	
COAST LINE		STORMWATER PIPE	

KEY MAP

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

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Drawing title - ROADWORKS AND DRAINAGE PLAN (SHEET 1 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

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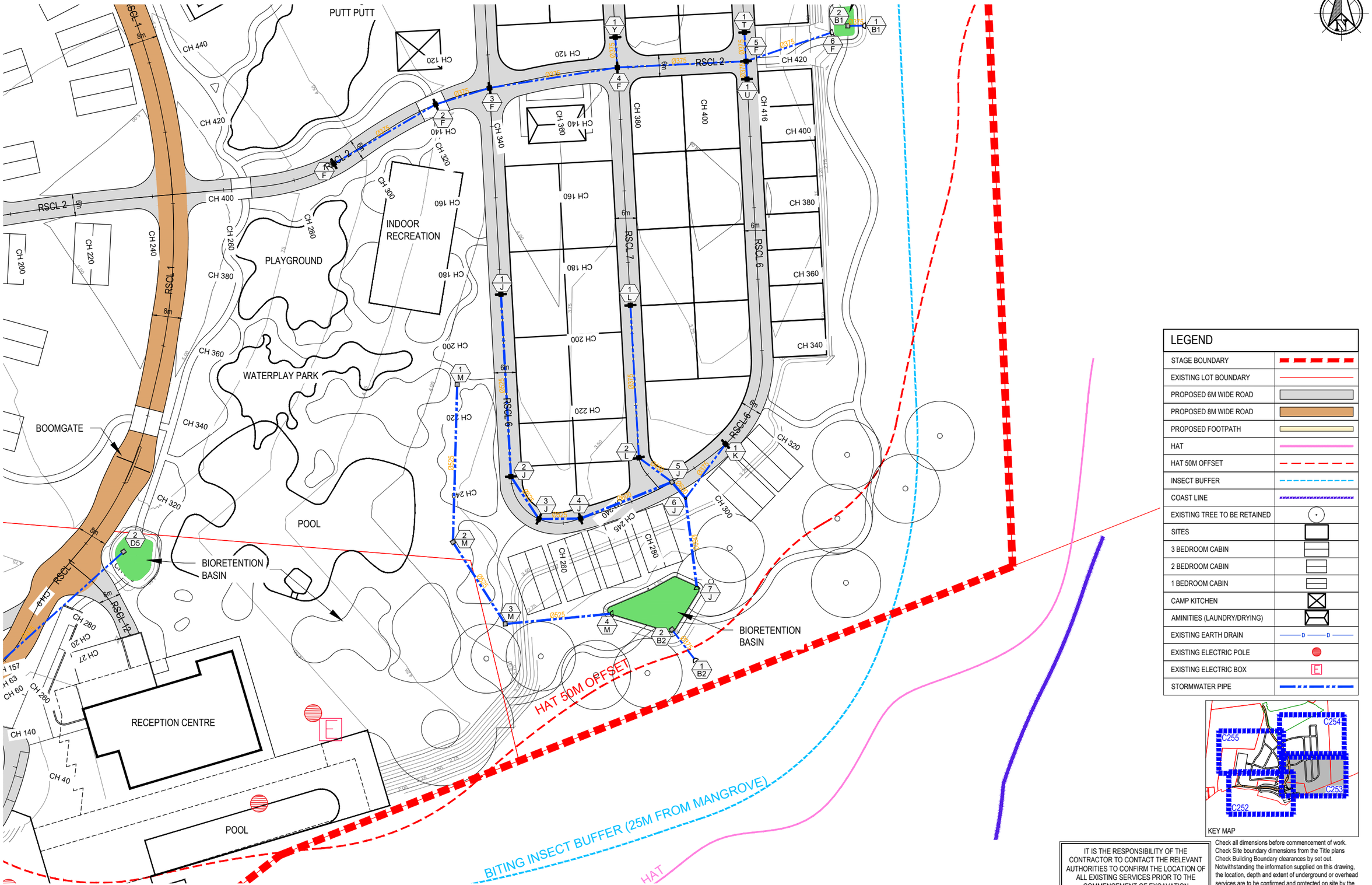

LEGEND

STAGE BOUNDARY	
EXISTING LOT BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
HAT	
HAT 50M OFFSET	
INSECT BUFFER	
COAST LINE	
EXISTING TREE TO BE RETAINED	
SITES	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
1 BEDROOM CABIN	
CAMP KITCHEN	
AMINITIES (LAUNDRY/DRYING)	
EXISTING EARTH DRAIN	D D
EXISTING ELECTRIC POLE	
EXISTING ELECTRIC BOX	E
STORMWATER PIPE	

KEY MAP

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	04.09.24	APPROVAL	GHK

covey

Approved

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Drawing title - ROADWORKS AND DRAINAGE PLAN (SHEET 2 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C253

Digital Ref : C252-C255 ROADWORKS AND DRAINAGE PLAN Issue : B

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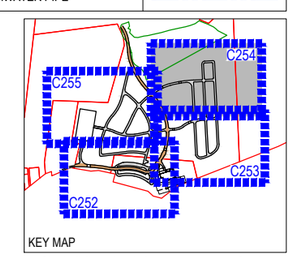
Plot 18 December 2024 - 11:28 AM

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

LEGEND

STAGE BOUNDARY	
EXISTING LOT BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
HAT 50M OFFSET	
INSECT BUFFER	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
SITES	
CAMP KITCHEN	
AMINITIES (LAUNDRY/DRYING)	
REVEGETATION AREA	
STORMWATER PIPE	



KEY MAP

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Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	04.09.24	APPROVAL	GHK

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Drawing title - ROADWORKS AND DRAINAGE PLAN (SHEET 3 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C254

Digital Ref : C252-C255 ROADWORKS AND DRAINAGE PLAN Issue : B

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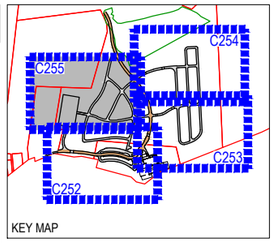
Plot 18 December 2024 - 11:26 AM

LEGEND

STAGE BOUNDARY	
EXISTING LOT BOUNDARY	
PROPOSED 6M WIDE ROAD	
PROPOSED 8M WIDE ROAD	
PROPOSED FOOTPATH	
DRAINAGE CORRIDORE	
EXISTING DAM TO BE RETAINED	
CULVERT CROSSING	
3 BEDROOM CABIN	
2 BEDROOM CABIN	
1 BEDROOM CABIN	
LAUNDRY	
MAINTENANCE/CLEANING/ STORAGE SHEDS	
REVEGETATION AREA	
STORMWATER PIPE	



KEY MAP

DRAINAGE EASEMENT

BOH

BIORETENTION BASIN

BIORETENTION BASIN

RSCL 4

RSCL 5

RSCL 3

RSCL 2

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

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Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	04.09.24	APPROVAL	GHK

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Drawing title - ROADWORKS AND DRAINAGE PLAN (SHEET 4 OF 4)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C255

Digital Ref : C252-C255 ROADWORKS AND DRAINAGE PLAN Issue : B

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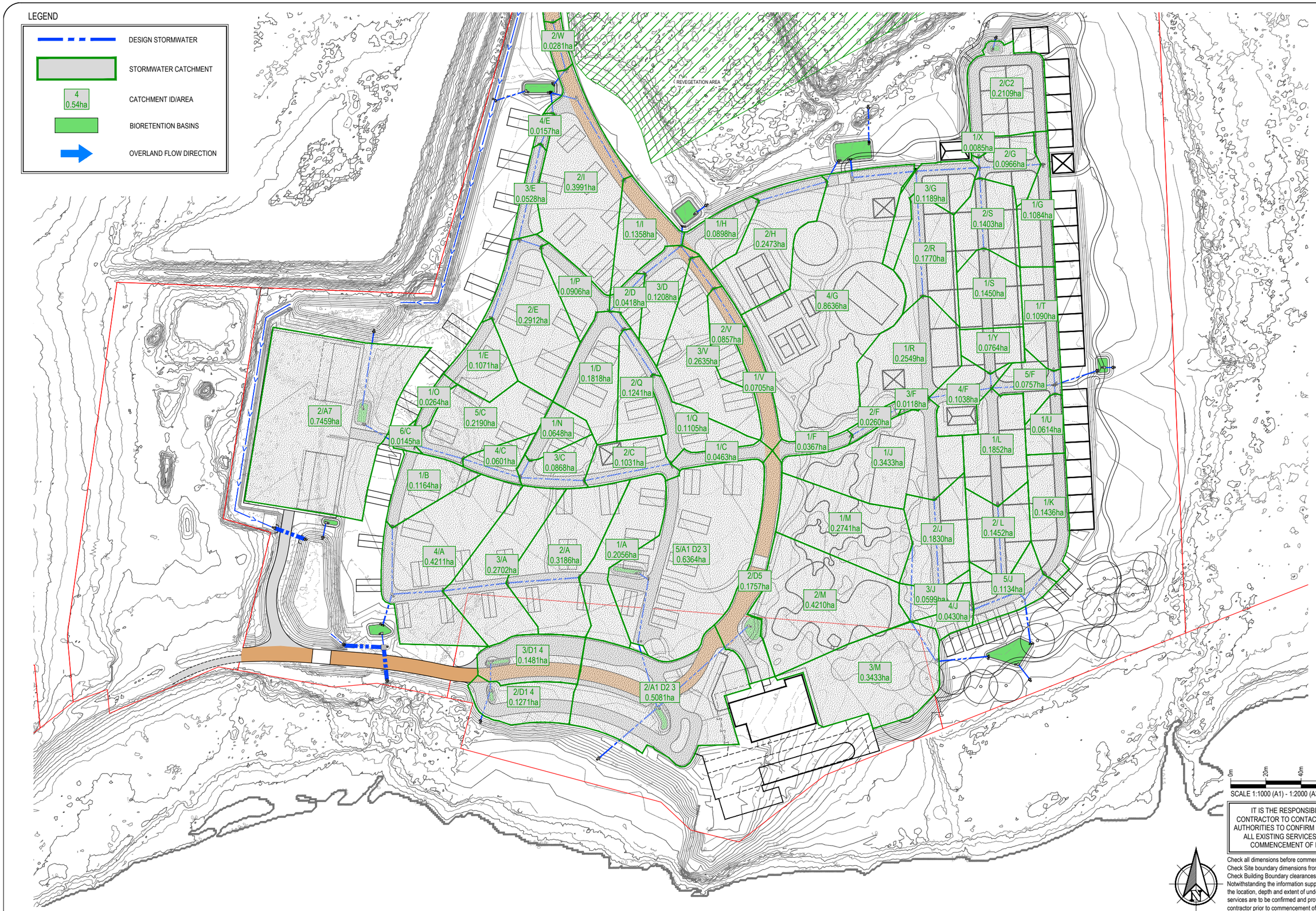
Plot 18 December 2024 - 11:23 AM



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Design - CM Drawn - GHK

Scales - AS SHOWN

Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	04.10.24	APPROVAL	CM

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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - STORMWATER QUANTITY CATCHMENT PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C400

Digital Ref : C400 STORMWATER DRAINAGE CATCHMENT PLAN Issue : B

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	04.10.24	APPROVAL	CM

covey

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Drawing title - STORMWATER QUALITY CATCHMENT PLAN

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C401

Digital Ref : C400 STORMWATER DRAINAGE CATCHMENT PLAN Issue : A

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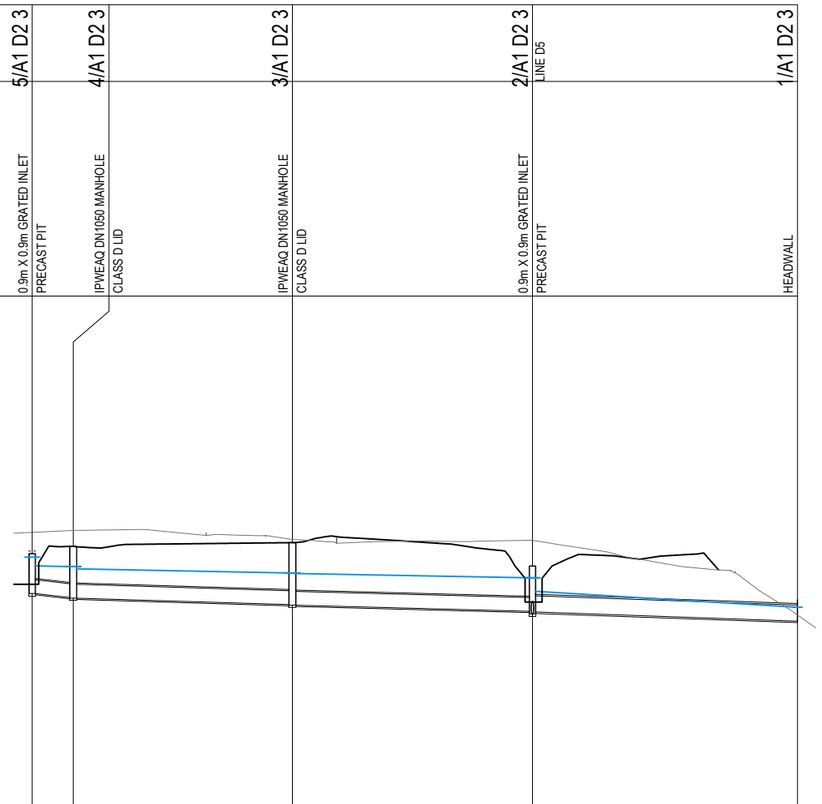

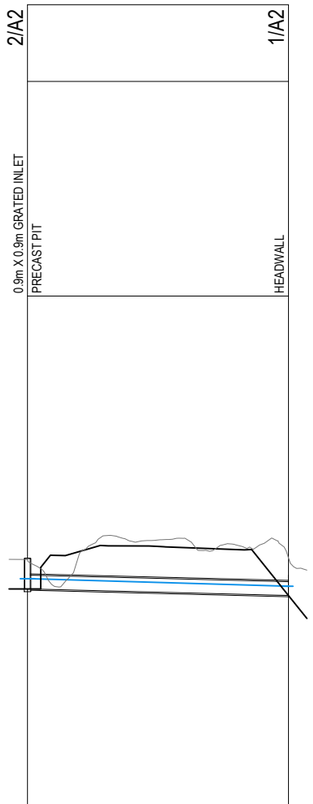

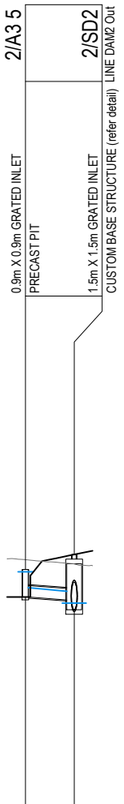

STRUCTURE NAME	5/A1 D2 3	4/A1 D2 3	3/A1 D2 3	2/A1 D2 3	LINE D5	1/A1 D2 3	2/A2	1/A2	2/A3 5	2/SD2	LINE DAM2 Out
STRUCTURE DESCRIPTION	0.9m X 0.9m GRATED INLET	PRECAST PIT	IPWEAQ DN1050 MANHOLE	CLASS D LID	IPWEAQ DN1050 MANHOLE	CLASS D LID	0.9m X 0.9m GRATED INLET	PRECAST PIT	HEADWALL	0.9m X 0.9m GRATED INLET	PRECAST PIT	1.5m X 1.5m GRATED INLET	CUSTOM BASE STRUCTURE (refer detail)
PIPE SIZE (mm)		450		450		450	525		450			375	
PIPE CLASS		RCP (3)		RCP (3)		RCP (3)	RCP (3)		RCP (3)			RCP (3)	
PIPE GRADE (%)		1.94%		0.59%		0.51%	0.69%		0.50%			1.18%	
PIPE SLOPE (1 in X)		51.45		170.24		195.75	144.09		200.00			84.41	
FULL PIPE VELOCITY (m/s)		1.09		1.09		1.08	2.11		1.14			1.59	
PART FULL VELOCITY (m/s)		2.42		1.52		1.44	2.11		1.43			1.96	
DATUM RL		-10.0							-11.0			-11.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	4.084	3.803 / 3.778 / 3.781	3.704	3.571	3.552	3.412	2.972	2.451	2.383	2.137	2.609	2.092 / 1.974	1.587
PIPE FLOW (Cumecs)		0.174		0.174		0.171	0.457		0.181			0.176	
PIPE CAPACITY AT GRADE (Cumecs)		0.398		0.219		0.204	0.358		0.202			0.191	
DEPTH TO INVERT	1.300	1.665	1.685	2.019	2.039	1.480	1.500	0.700 / 0.700	1.000	0.663	0.900	1.482	1.801
INVERT LEVEL OF DRAIN	2.900	2.770	2.750	2.540	2.520	2.320	2.300	2.000 / 2.000	2.050	1.837	1.785	1.691	1.372
SETOUT LEVEL	4.200	4.435		4.559		3.800		2.700	3.050	2.500	2.685	3.173	
PIT LOCATION	E 508882.662 N 7025282.521	E 508888.169 N 7025278.725		E 508882.248 N 7025243.468		E 508893.178 N 7025205.875		E 508860.423 N 7025177.664	E 508725.421 N 7025377.130	E 508731.898 N 7025419.189	E 508736.593 N 7025248.209	E 508737.607 N 7025240.316	
CHAINAGE	0.000	6.689 / 6.689	35.751	42.440	39.150	81.590	43.228	124.818	0.000	42.555	42.555	0.000	7.957 / 7.957

SECTION A1 D2 3

SECTION A2

SECTION A3 5

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 1 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
PO BOX 16 MAROOCHYDORE QLD 4558
engineers@covey.com.au (07) 5443 7777

Approved:

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Document Stage : APPROVAL

Project : 243823 Sheet No. C450

Digital Ref : Issue : B

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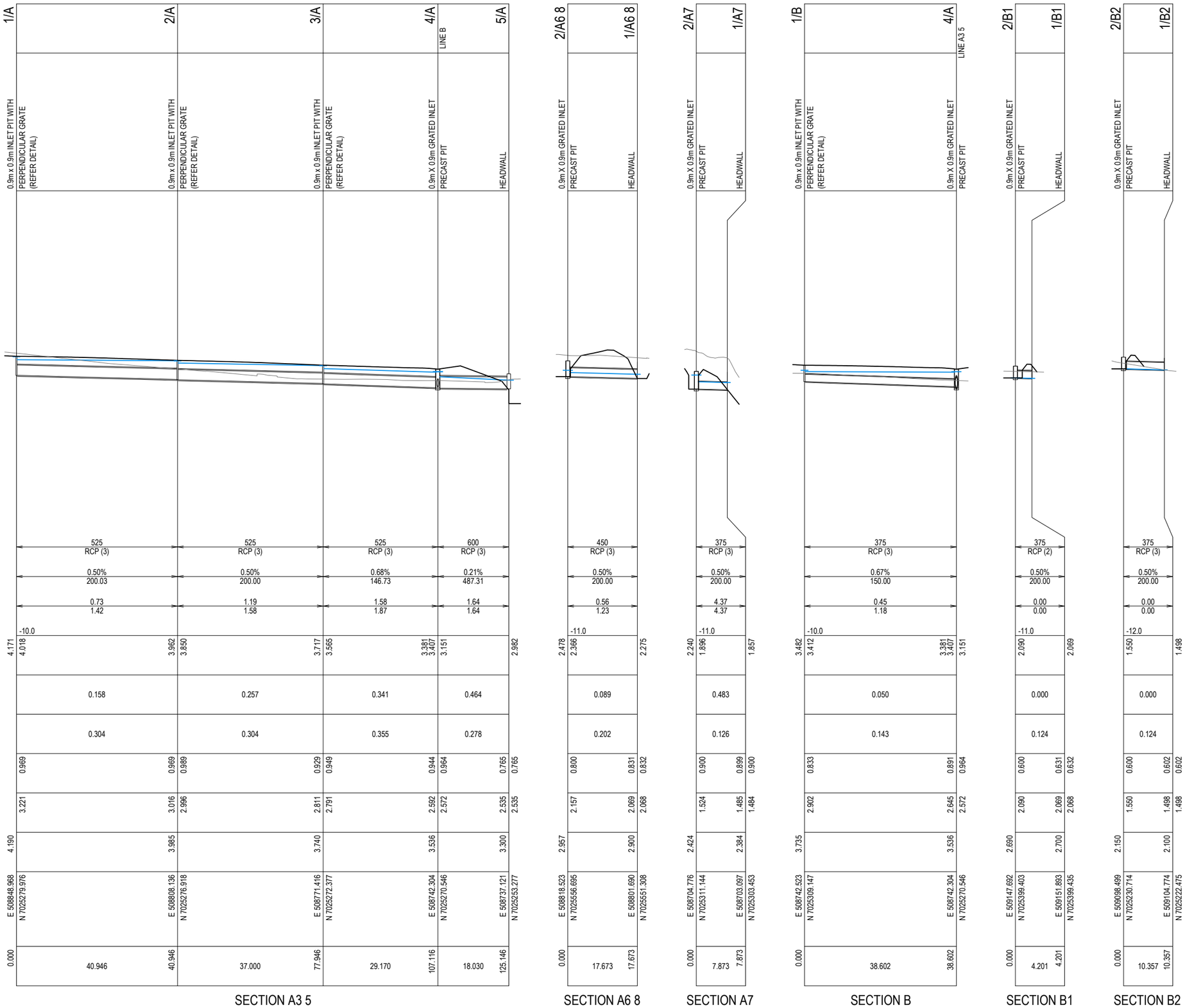

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 2 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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engineers@covey.com.au (07) 5443 7777

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Project : 243823 Sheet No. C451

Digital Ref : Issue : B

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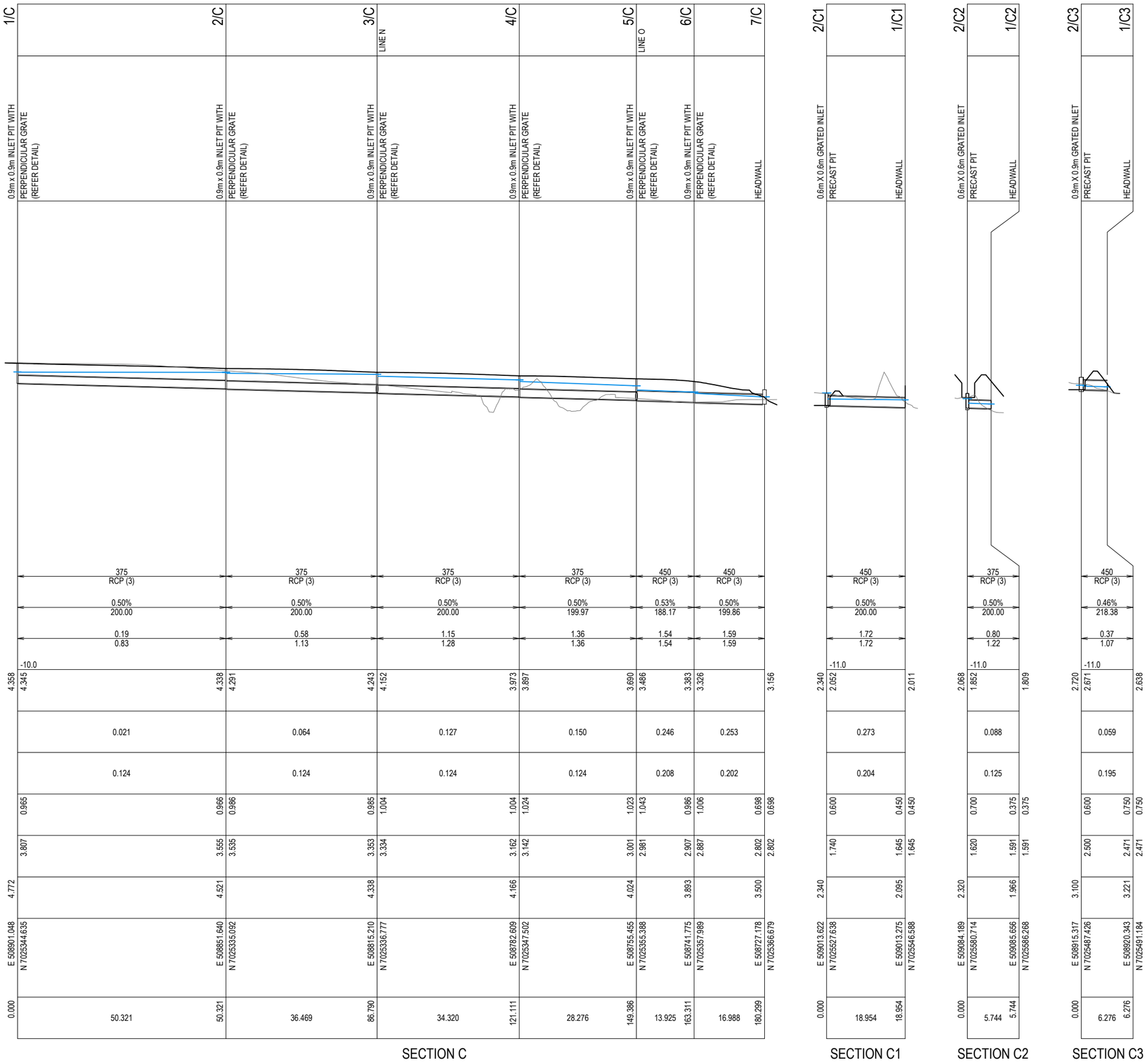

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B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 3 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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Project : 243823 Sheet No. C452

Digital Ref : Issue : B

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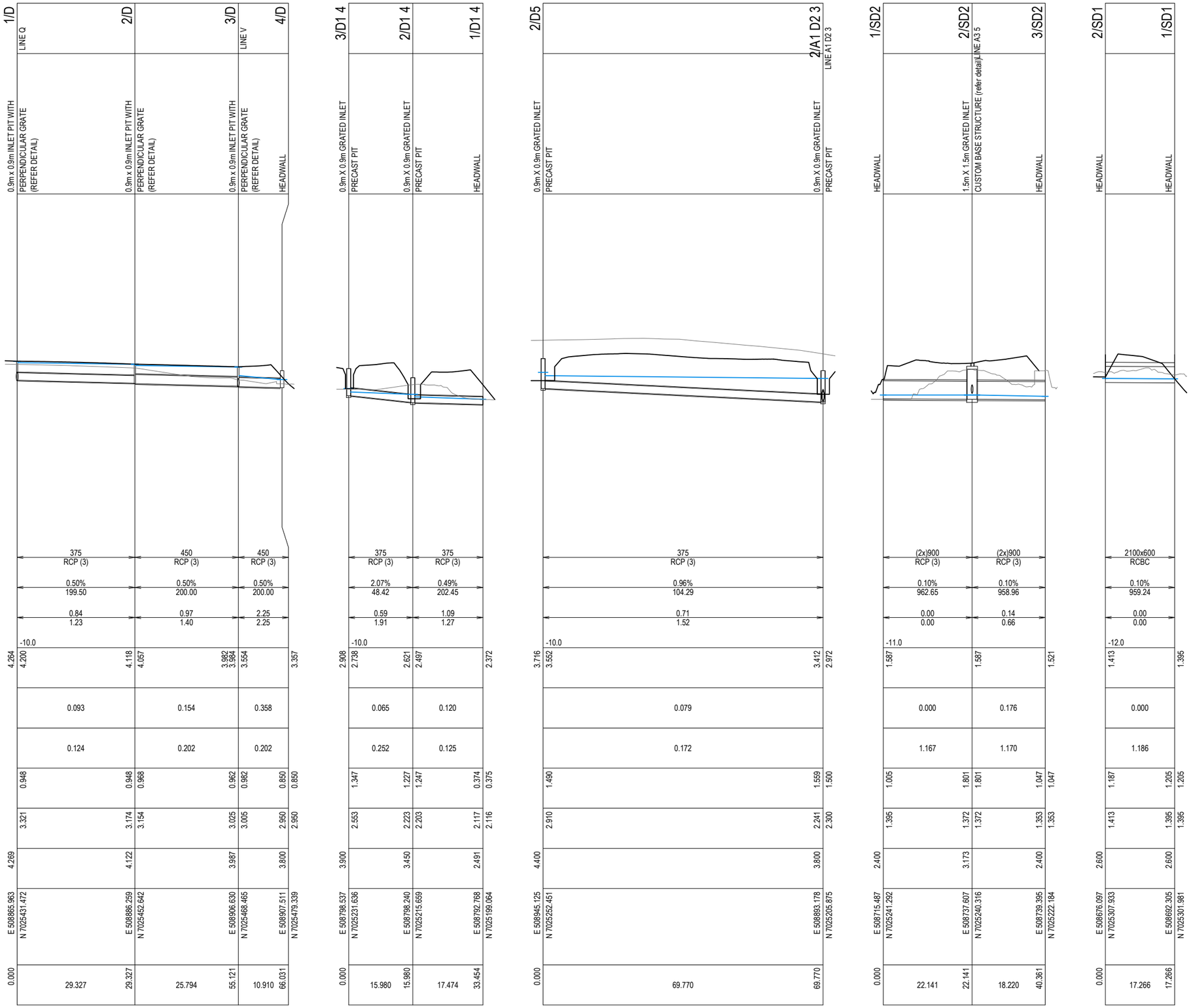

SECTION D

SECTION D1 4

SECTION D5

SECTION DAM2 OUT

SECTION DI2 DAM2

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A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 4 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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Document Stage : APPROVAL

Project : 243823 Sheet No. C453

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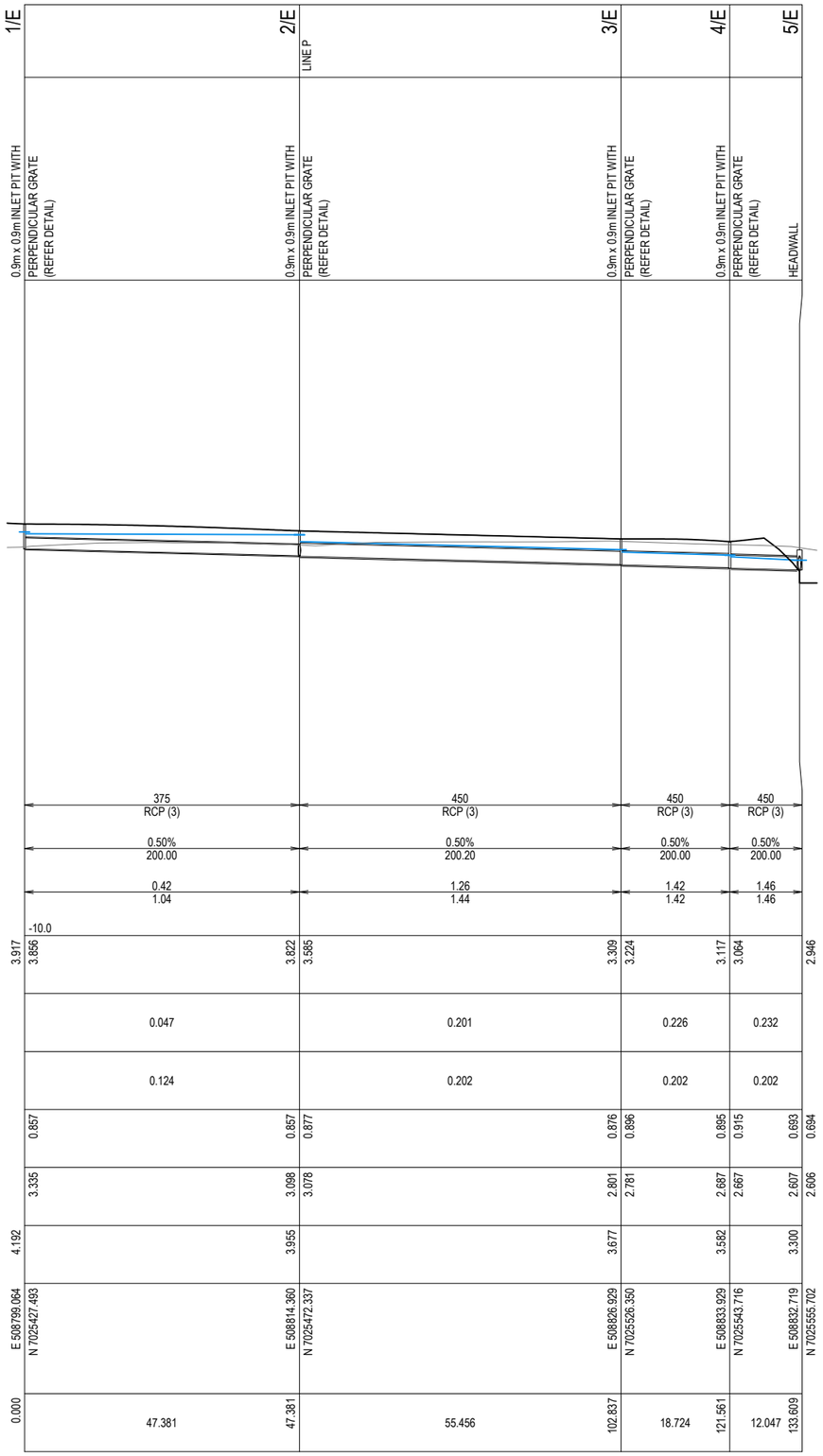
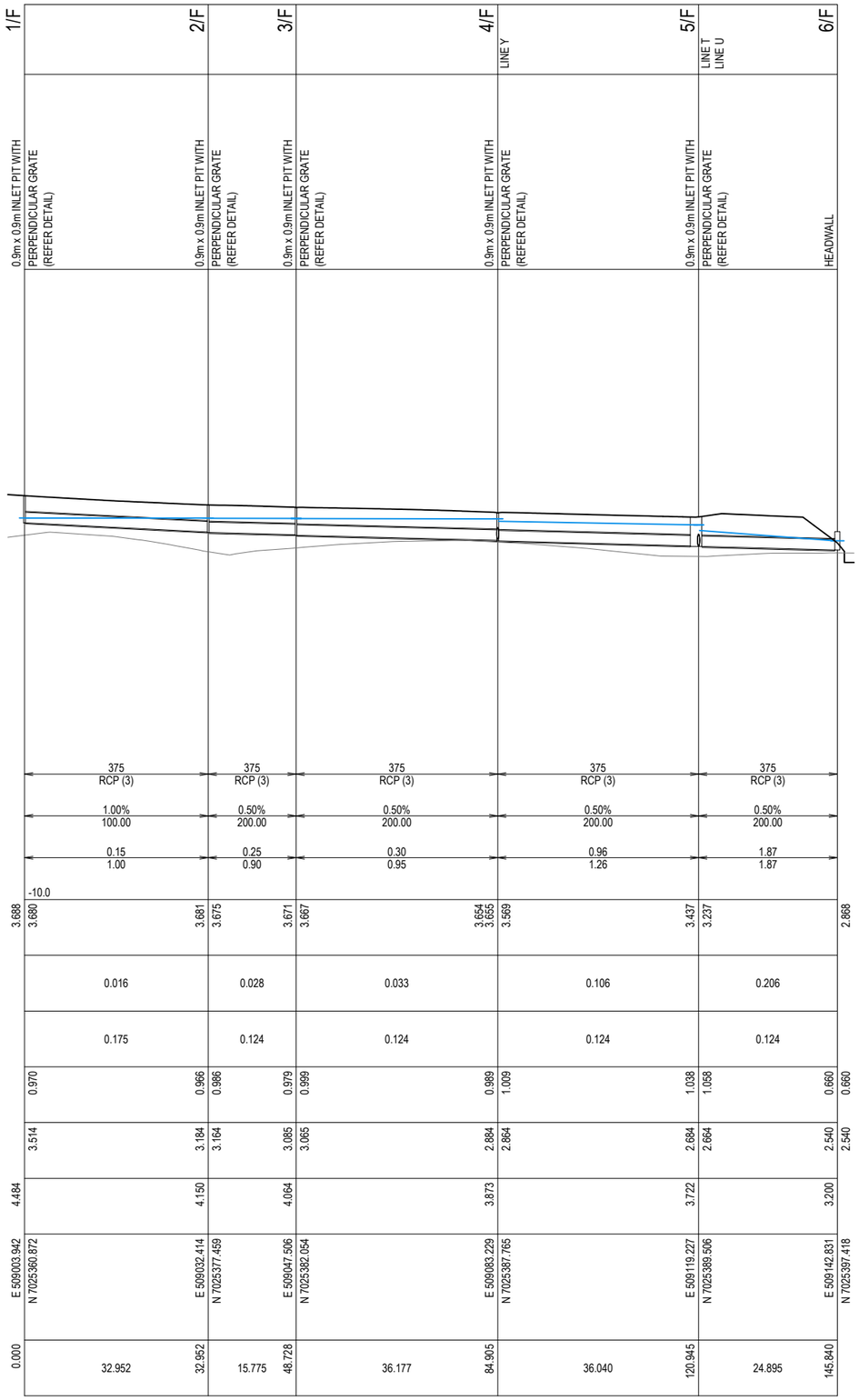


SECTION E



SECTION F

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B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 5 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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Document Stage : APPROVAL

Project : 243823 Sheet No. C454

Digital Ref : Issue : B

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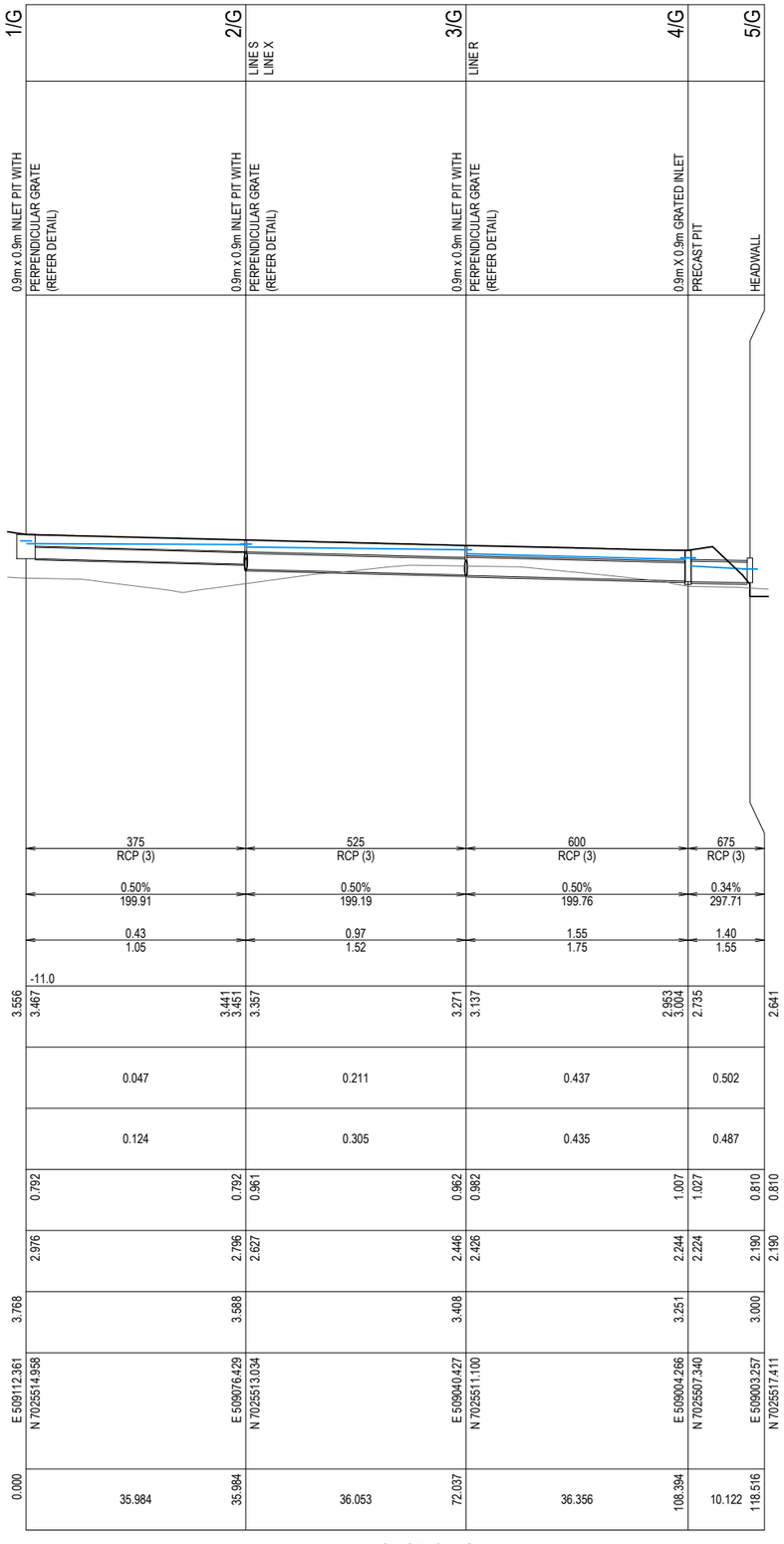
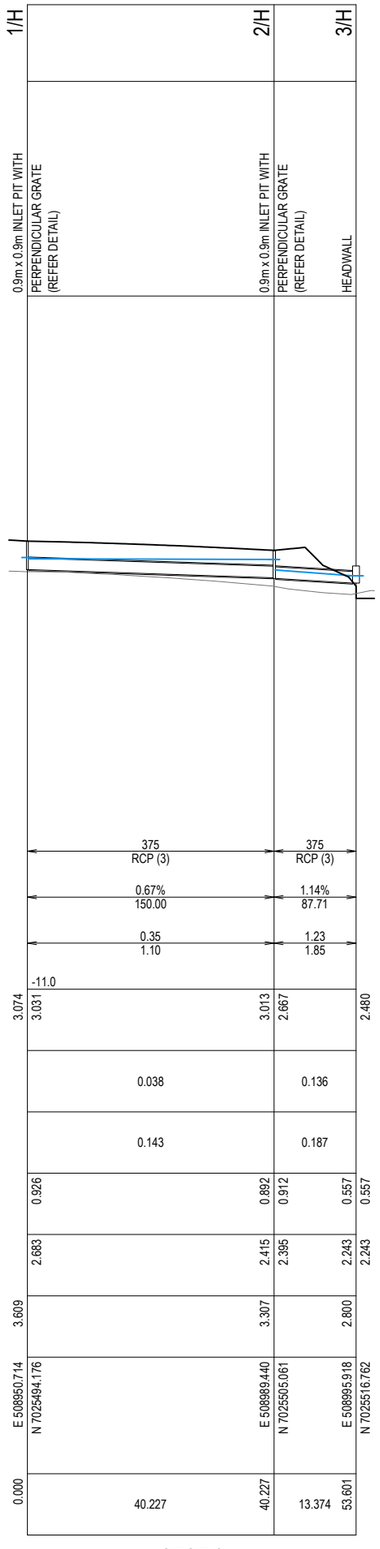
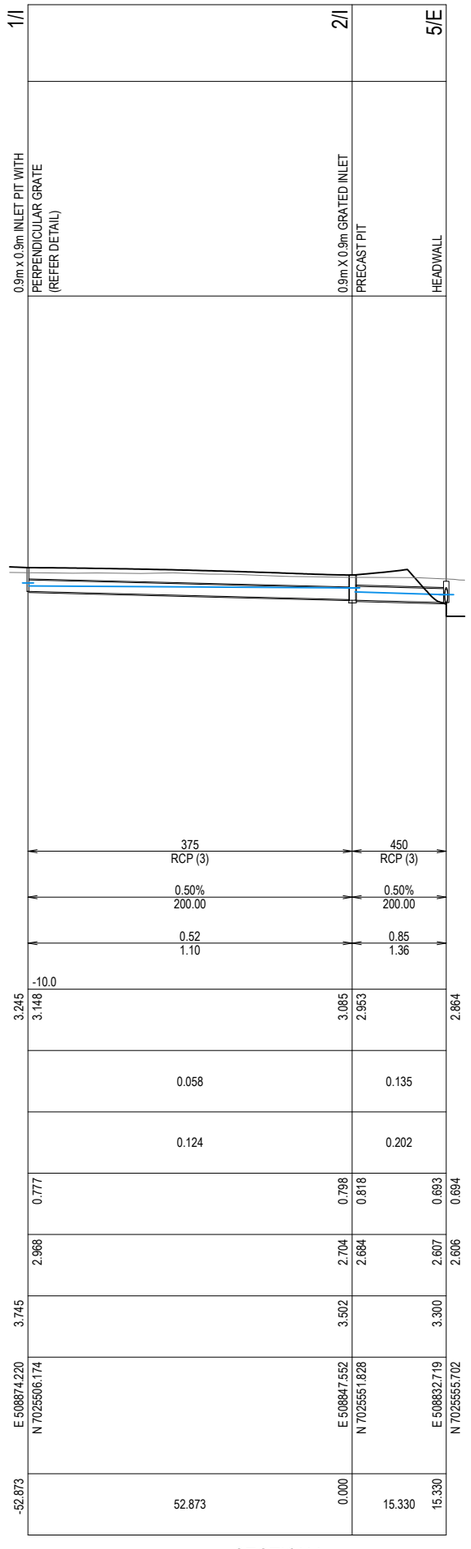


SECTION G



SECTION H



SECTION I

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B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 6 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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Project : 243823 Sheet No. C455

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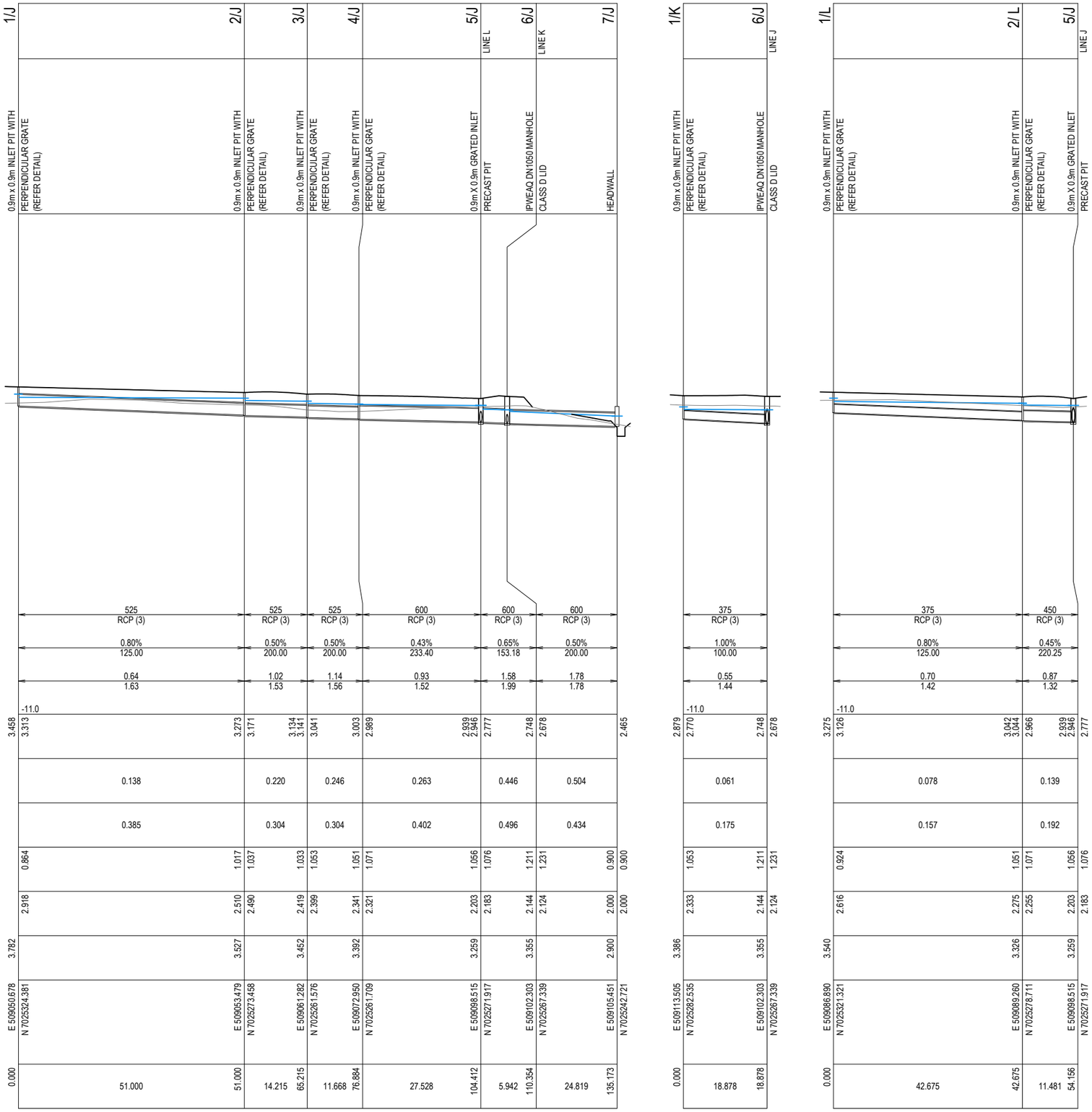

SECTION J

SECTION K

SECTION L

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A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 7 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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Document Stage : APPROVAL

Project : 243823 Sheet No. C456

Digital Ref : Issue : B

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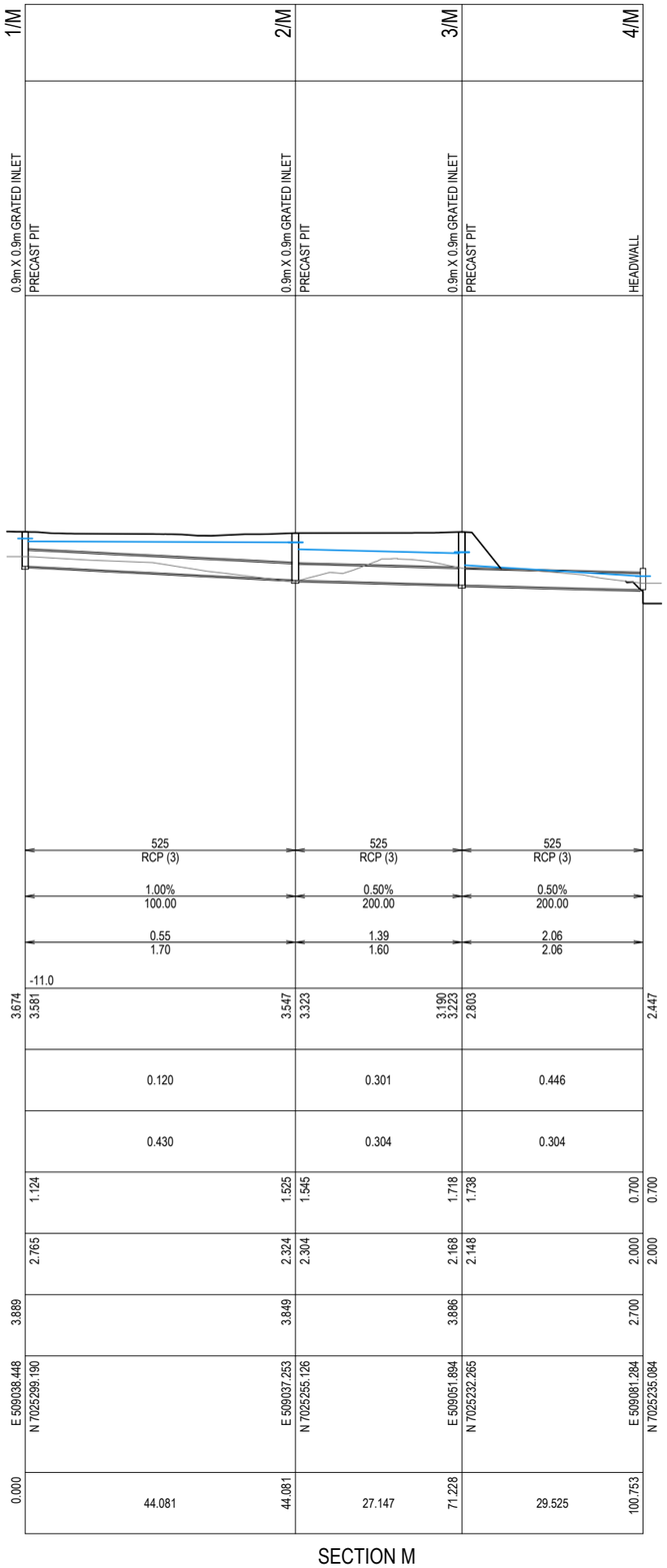

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Check Site boundary dimensions from the Title plans.
Check Building Boundary clearances by set out.
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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 8 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
124 DUPORTH AVENUE
PO BOX 16 MAROOCHYDORE QLD 4558
engineers@covey.com.au (07) 5443 7777

Approved:

Checked : SR Design : CM Drawn : GHK

Scales : AS SHOWN

Document Stage : APPROVAL

Project : 243823 Sheet No. C457

Digital Ref : Issue : B

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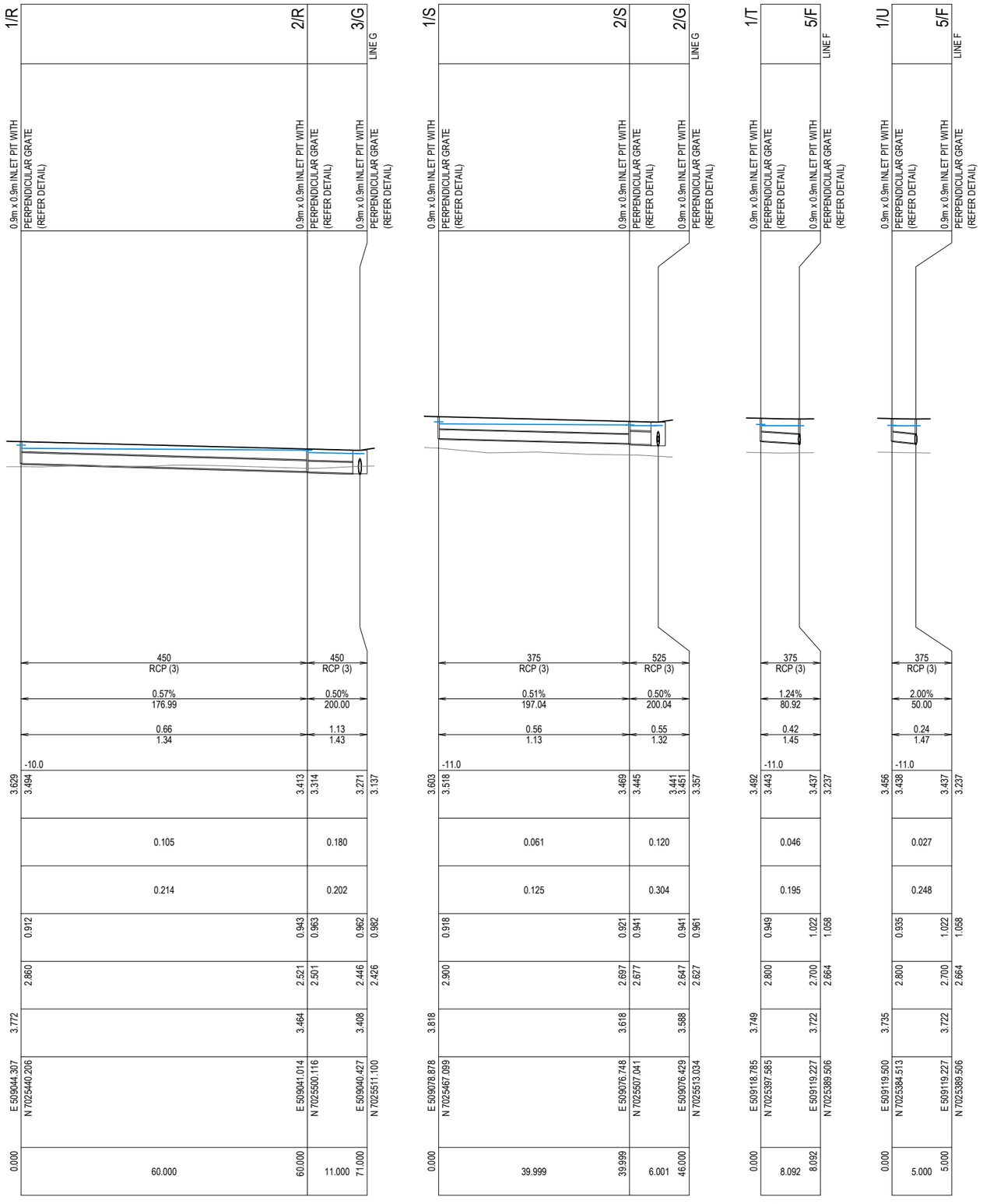

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 9 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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engineers@covey.com.au (07) 5443 7777

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Checked : SR Design : CM Drawn : GHK

Scales : AS SHOWN

Document Stage : APPROVAL

Project : 243823 Sheet No. C458

Digital Ref : Issue : B

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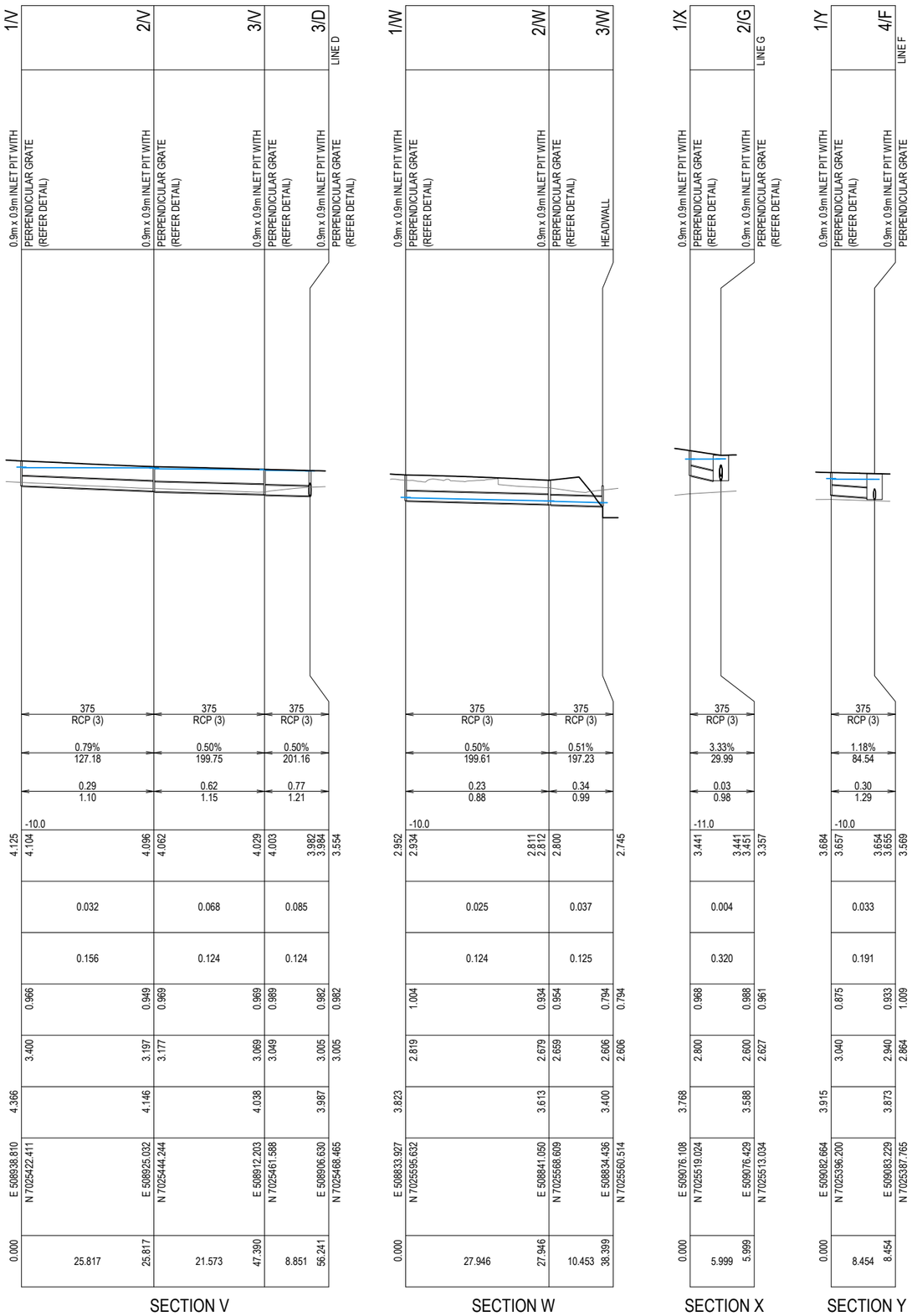
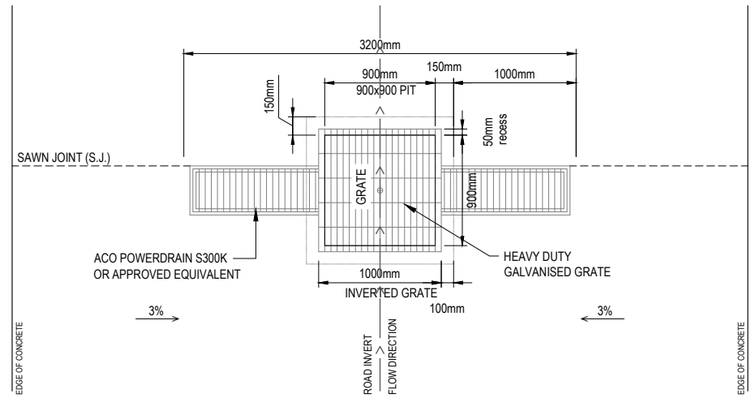
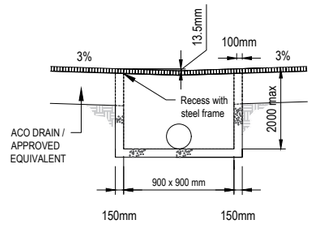


SECTION V | SECTION W | SECTION X | SECTION Y

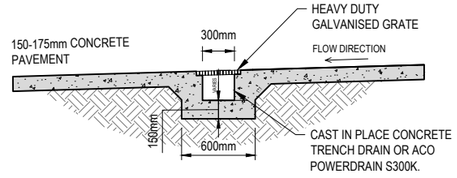


PLAN VIEW
SCALE 1:25 A1



SECTION
SCALE 1:25 A1

900x900 INLET PIT WITH PERPENDICULAR GRATE



ALTERNATIVE CAST-IN-SITU GRATED TRENCH
SCALE 1:25 A1

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Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	03.10.24	APPROVAL	GHK

Drawing title -

STORMWATER DRAINAGE LONGITUDINAL SECTIONS (SHEET 10 OF 10)

Project -

COOCHIN CREEK HOLIDAY RESORT

Client -

COMISKEY GROUP PTY LTD

Site -

ROYS ROAD, COOCHIN CREEK

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
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Document Stage : APPROVAL

Project : 243823 Sheet No. C459

Digital Ref : Issue : B

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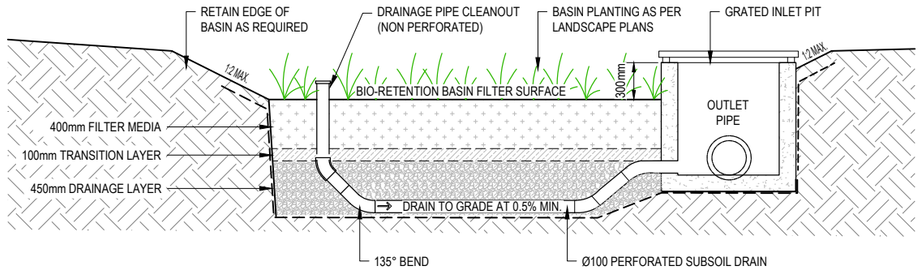
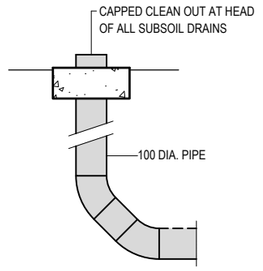
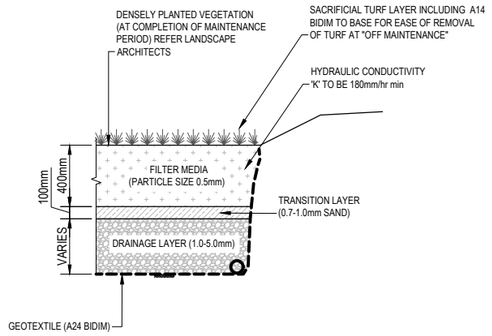


TYPICAL BIO-RETENTION BASIN SECTION
SCALE 1:25 (A1)

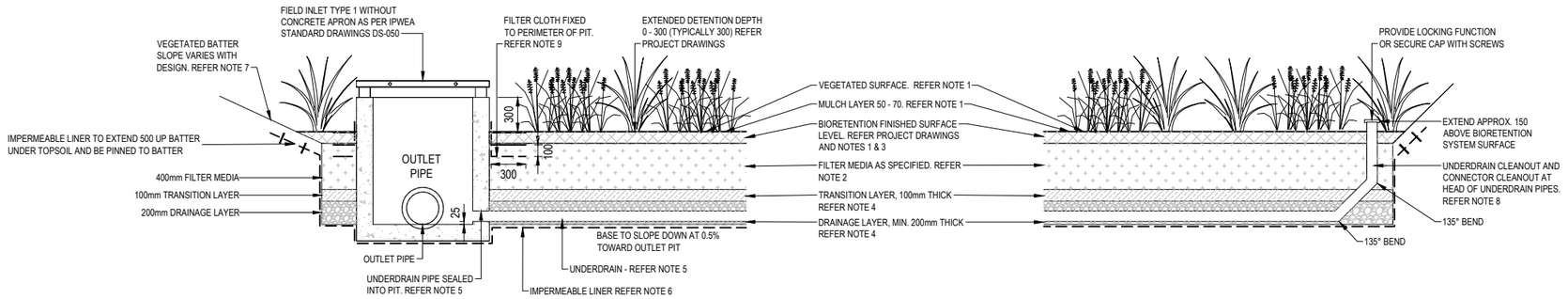


PIPE CLEAN OUT DETAIL
SCALE 1:10 (A1) / 1:20 (A3)



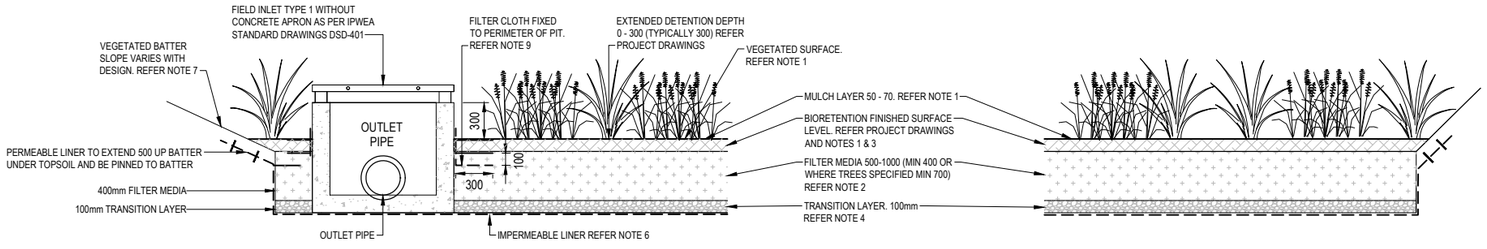
FILTER MEDIA DETAIL
SCALE 1:25 (A1)

TYPE 1 BIO-RETENTION BASINS - **SATURATED**



TYPICAL BIO-RETENTION BASIN FILTER SETION
SCALE 1:25 (A1)

TYPE 2 BIO-RETENTION BASINS - **CONVENTIONAL**



TYPICAL BIO-RETENTION BASIN FILTER SETION
SCALE 1:25 (A1)

TYPE 3 BIO-RETENTION BASINS - **PIPELESS**

NOTES

1. BIORETENTION SYSTEM SURFACE. REFER NOTE 1 IPWEA STD DRG DS-070.
2. FILTER MEDIA SPECIFICATION. REFER NOTE 2 DS-070.
3. CONSTRUCTION TOLERANCES. REFER NOTE 3 DS-070.
4. TRANSITION LAYER AND DRAINAGE LAYER. REFER NOTE 4 DS-070.
5. UNDERDRAIN. REFER NOTE 5 DS-070.
6. IMPERMEABLE LINER. REFER NOTE 6 DS-070.
7. VEGETATED BATTER. REFER NOTE 8 DS-070.
8. INSPECTION/CLEANOUT POINT. REFER NOTE 9 DS-070.
9. FILTER CLOTH. REFER NOTE 10 DS-070.
10. FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO DS-078.
11. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.

SCALE 1:25 (AT A1)

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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	12.09.24	APPROVAL	GHK

Approved
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ABN 59 137 305 992
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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BIORETENTION BASIN DETAILS (SHEET 1 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT
Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C500
Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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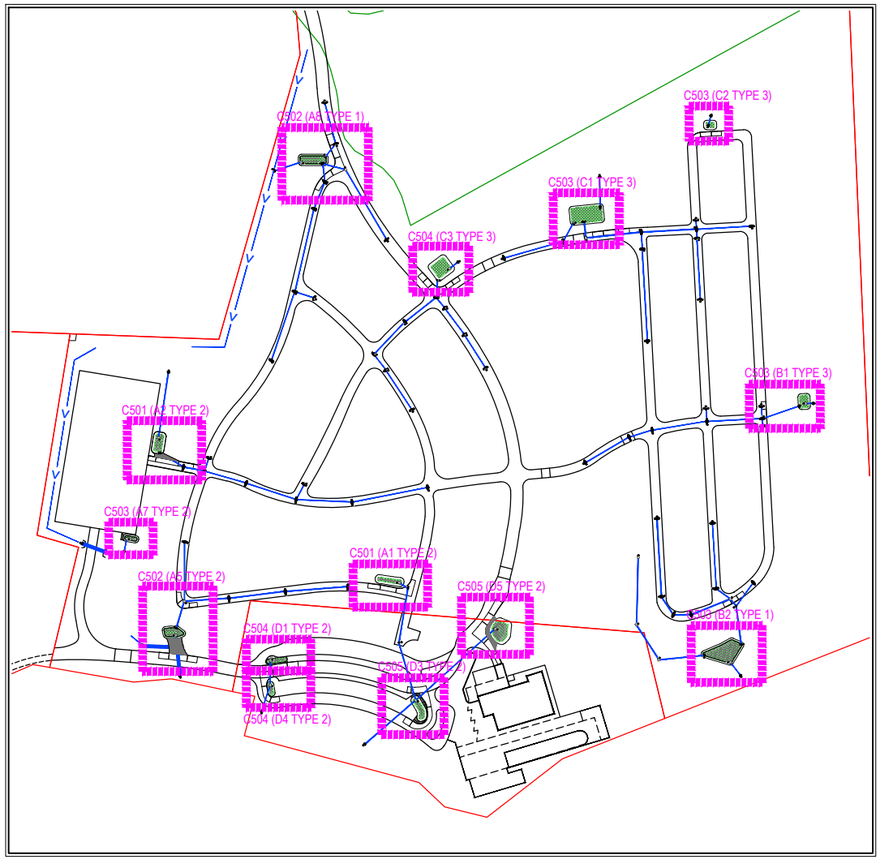
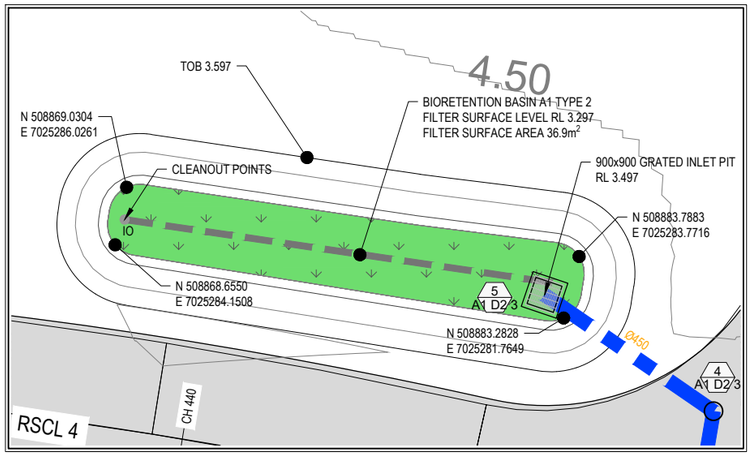
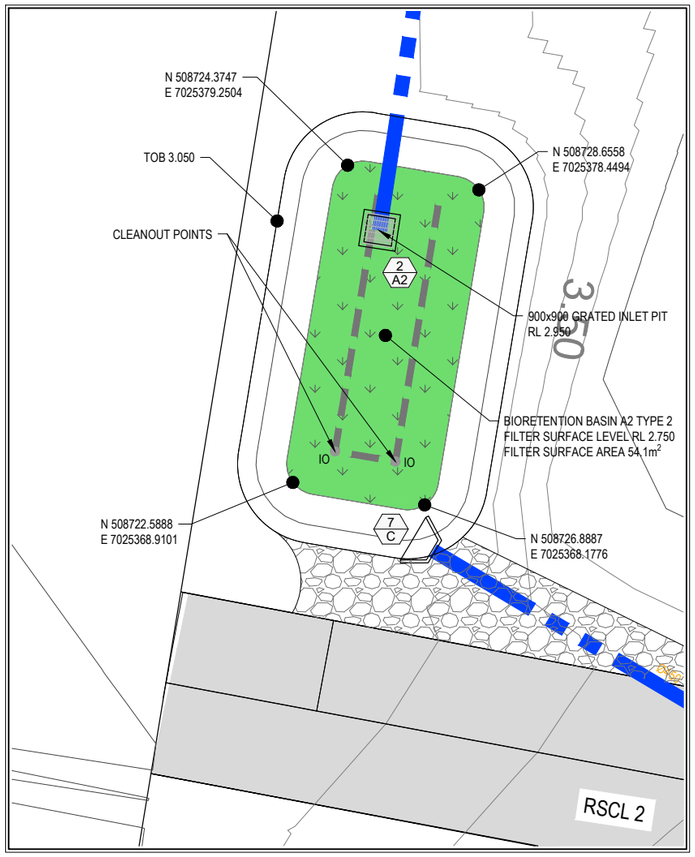


KEY MAP
1:2000 (A1) / 1:4000 (A3)



BIO-RETENTION BASIN A1 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)



BIO-RETENTION BASIN A2 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- 2 — DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	02.10.24	APPROVAL	GHK

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Approved

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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BIORETENTION BASIN DETAILS (SHEET 2 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C501

Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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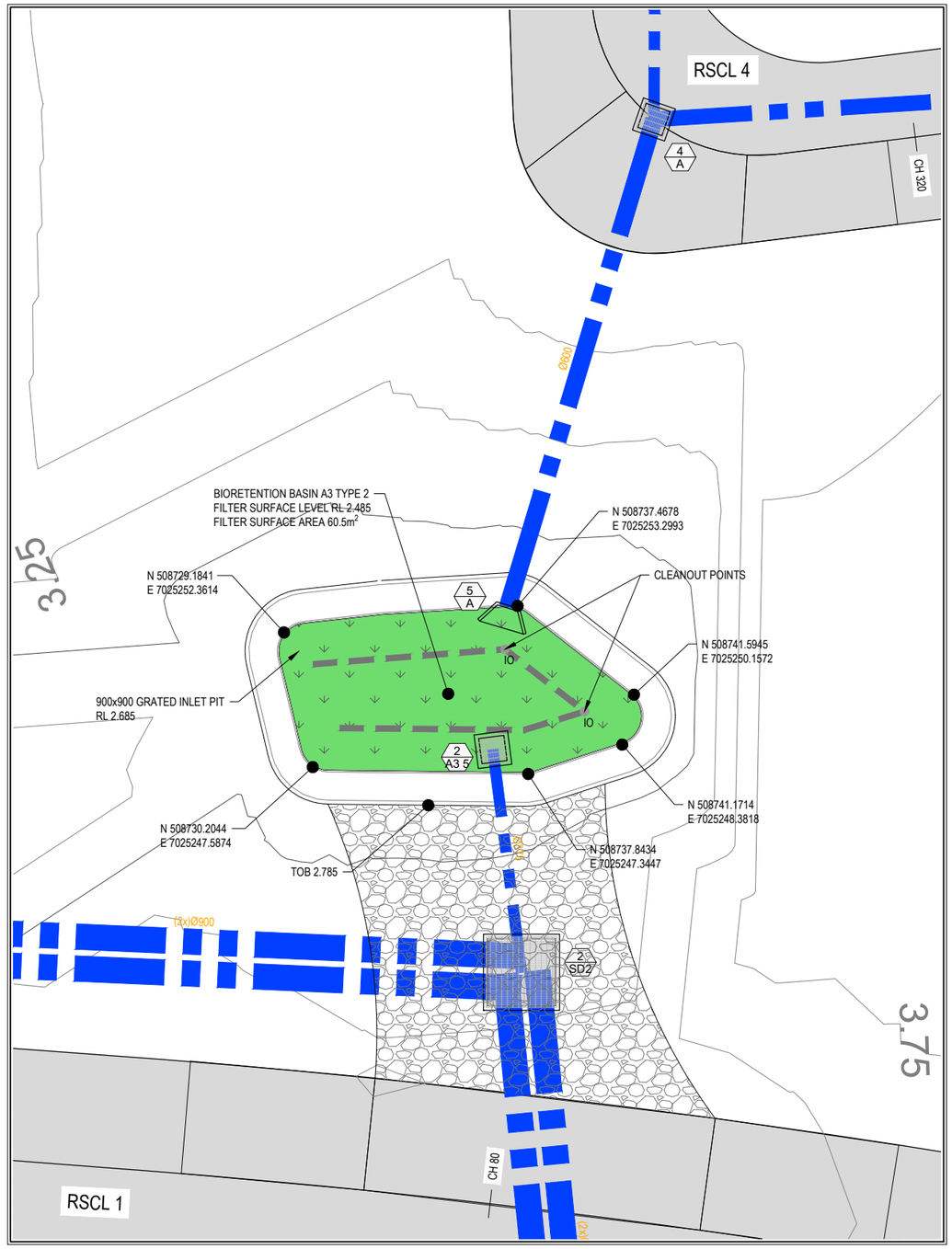
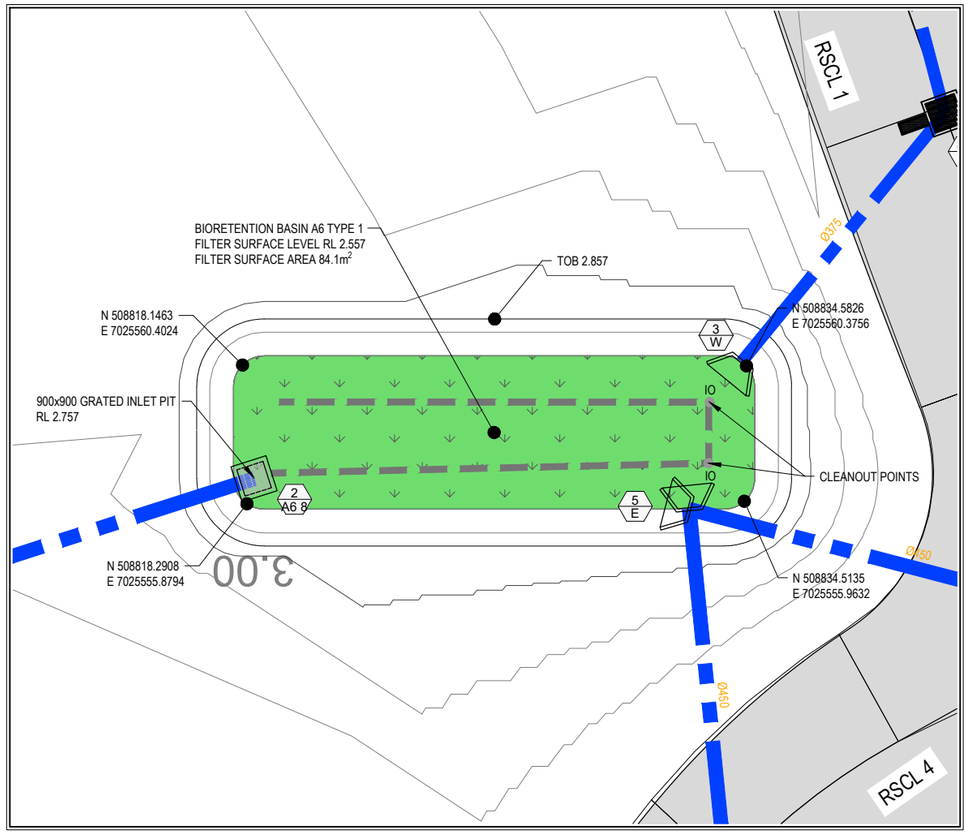


BIO-RETENTION BASIN A5 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- 2 — DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION



BIO-RETENTION BASIN A8 (TYPE 1) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	02.10.24	APPROVAL	GHK

Approved

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MAROOCHYDORE QLD 4558

Drawing title - BIORETENTION BASIN DETAILS (SHEET 3 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT
Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C502
Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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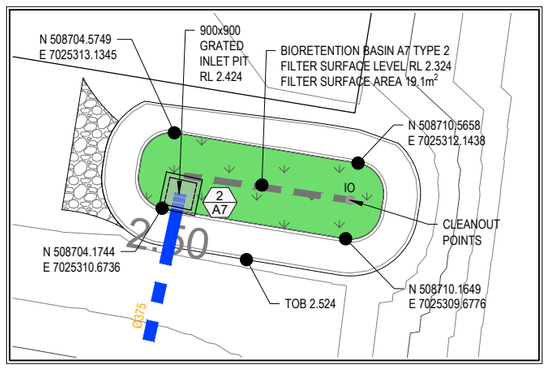

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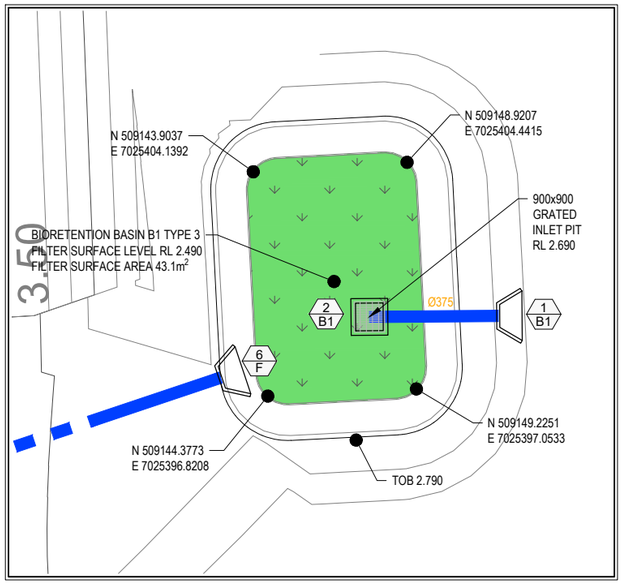
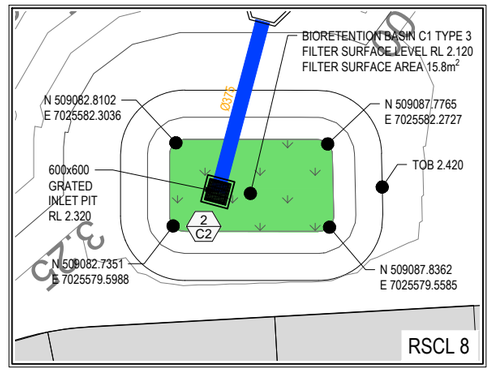
SCALE 1:100 (A1) / 1:200 (A3)



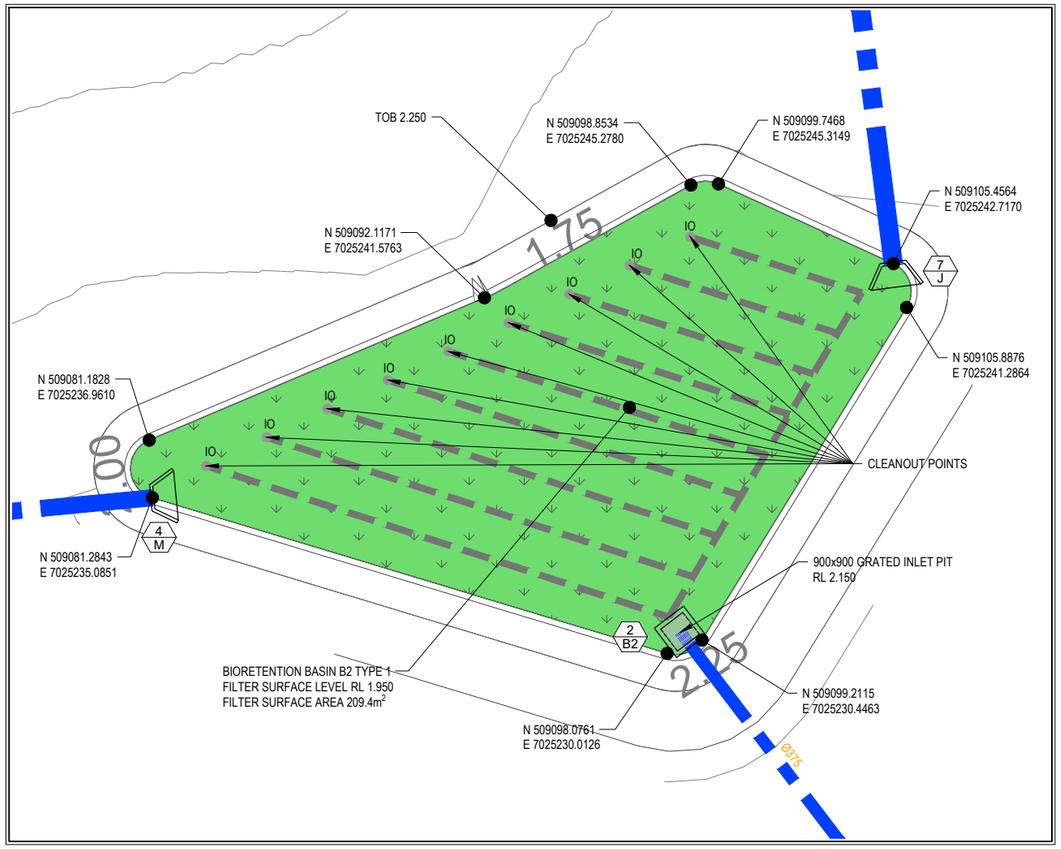
BIO-RETENTION BASIN B1 (TYPE 3) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)



BIO-RETENTION BASIN C2 (TYPE 3) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- 2 — DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION



BIO-RETENTION BASIN B2 (TYPE 1) DETAILS
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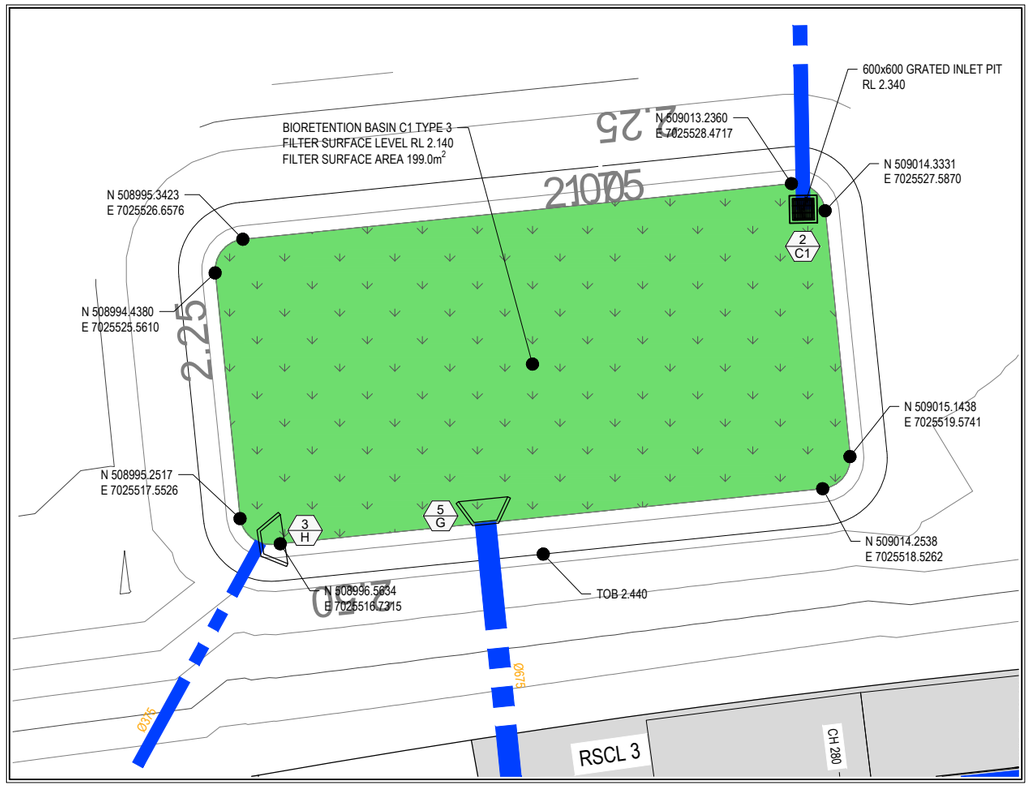

BIO-RETENTION BASIN C1 (TYPE 3) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	02.10.24	APPROVAL	GHK

covey

Approved

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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BIORETENTION BASIN DETAILS (SHEET 4 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT
Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C503
Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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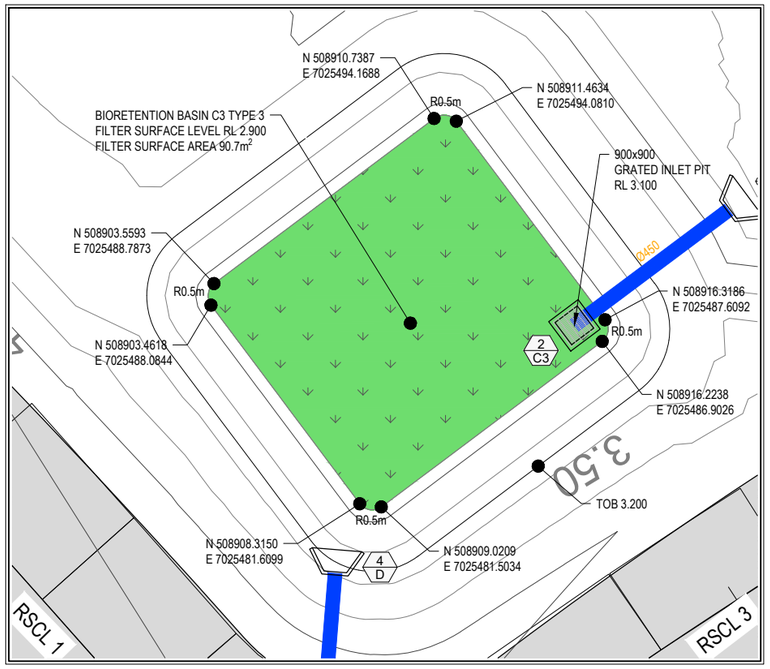

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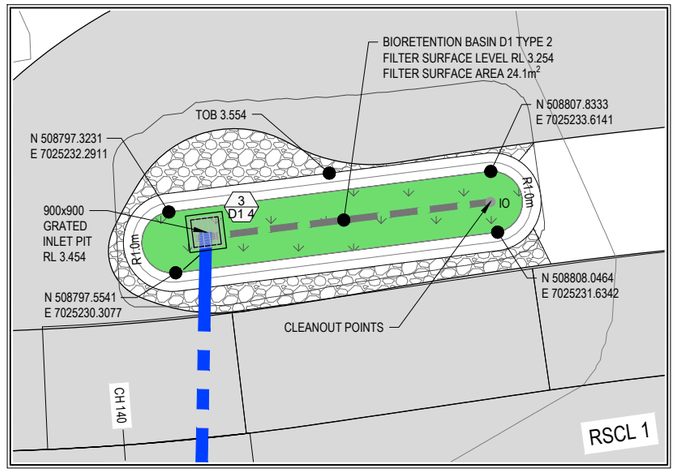
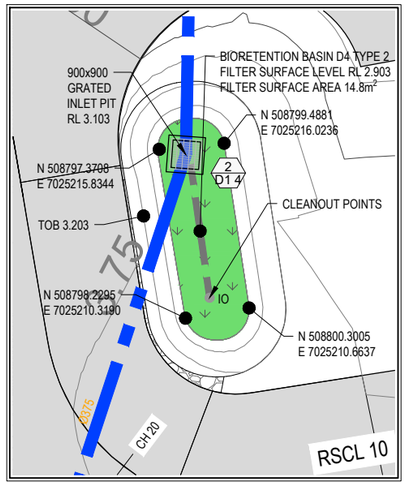


BIO-RETENTION BASIN D1 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)



BIO-RETENTION BASIN D4 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION

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Checked - SR			
Design - CM	Drawn - GHK		
Scales - AS SHOWN			
Document Stage - APPROVAL			

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	02.10.24	APPROVAL	GHK

Approved

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PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - BIORETENTION BASIN DETAILS (SHEET 5 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C504

Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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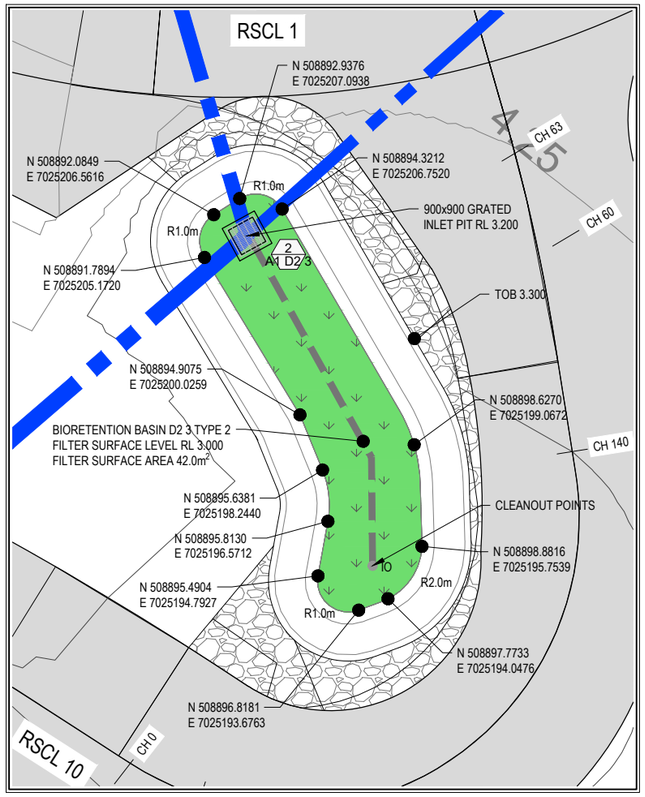
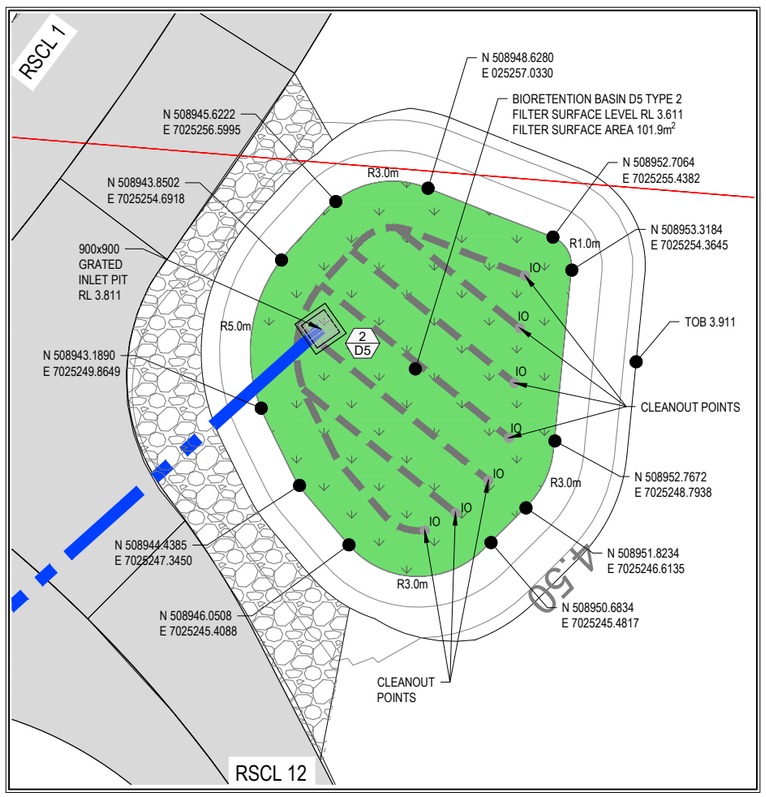
Plot 18 December 2024 - 11:25 AM



BIO-RETENTION BASIN D3 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)



BIO-RETENTION BASIN D5 (TYPE 2) DETAILS
SCALE 1:100 (A1) / 1:200 (A3)

LEGEND

- PROPOSED STORMWATER
- PROPOSED WATER (DIA. AS SHOWN)
- PROPOSED SWALE
- PROPOSED CONCRETE ROAD/DRIVEWAY/CARPARK
- PROPOSED BIO-BASIN
- 2 — DESIGN SURFACE CONTOURS (0.25m INCREMENTS)
- RIP RAP PROTECTION

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
Check Building Boundary clearances by set out.
Notwithstanding the information supplied on this drawing, the location, depth and extent of underground or overhead services are to be confirmed and protected on site by the contractor prior to commencement of works.

Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	02.10.24	APPROVAL	GHK

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Approved

Drawing title - BIORETENTION BASIN DETAILS (SHEET 6 OF 6)

Project - COOCHIN CREEK HOLIDAY RESORT
Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C505
Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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BIORETENTION SYSTEM SPECIFICATIONS

1. REFERENCED DOCUMENTS

THE FOLLOWING DOCUMENTS ARE INCORPORATED INTO THIS SPECIFICATION BY REFERENCE:

1.1 STANDARDS

1.1.1. AS 1289 - METHODS OF TESTING SOILS FOR ENGINEERING PURPOSES

1.1.2. AS 1289.5.4.1-2007- SOIL COMPACTION AND DENSITY TESTS--COMPACTION CONTROL TEST--DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO

1.1.3. AS 1289.5.7.1-2006 - SOIL COMPACTION AND DENSITY TESTS--COMPACTION CONTROL TEST--HILF DENSITY RATIO AND HILF MOISTURE VARIATION (RAPID METHOD)

1.1.4. AS 2758 - AGGREGATES AND ROCK FOR ENGINEERING PURPOSES

1.1.5. AS 4419 - SOILS FOR LANDSCAPING AND GARDEN USE

1.1.6. AS 4454 - COMPOSTS, SOIL CONDITIONERS AND MULCHES

1.2 OTHER PUBLICATIONS

1.2.1. GUIDELINES FOR SOIL FILTER MEDIA IN BIORETENTION SYSTEMS (FAWB) - THE CURRENT VERSION OF THE GUIDELINE CAN BE FOUND AT http://www.monash.edu.au/fawb/

1.2.2. CONSTRUCTION AND ESTABLISHMENT GUIDELINES - SWALES, BIORETENTION SYSTEMS AND WETLANDS (WATER BY DESIGN) http://waterbydesign.com.au/ceguide/

1.2.3. TRANSFERRING OWNERSHIP OF VEGETATED STORMWATER ASSETS (WATER BY DESIGN) http://waterbydesign.com.au/transferguide/

1.2.4. TRANSFERRING OWNERSHIP OF VEGETATED STORMWATER ASSETS (WATER BY DESIGN) http://waterbydesign.com.au/transferguide/

1.2.5. BIORETENTION TECHNICAL DESIGN GUIDELINES (WATER BY DESIGN) http://waterbydesign.com.au/techguide/

1.2.6. WATER SENSITIVE URBAN DESIGN FIELD GUIDE (WATER BY DESIGN)

2. ABBREVIATIONS AND DEFINITIONS

2.1. THE BIORETENTION SYSTEM SPECIFICATION CONSISTS OF THE FOLLOWING ABBREVIATIONS AND DEFINITIONS:

2.2. FILTER: SOIL LAYER WHICH ACTS AS A POLLUTANT FILTER AND SUPPORTS PLANT GROWTH.

2.3. IMPERMEABLE LINERS: THE LINER THAT PREVENTS WATER MOVEMENT BETWEEN THE FILTER AND THE SURROUNDING SOILS AND DEFINES THE EDGE OF THE SYSTEM.

2.4. TRANSITION LAYER: LAYER TO SEPARATE FILTER LAYER FROM THE DRAINAGE LAYER TO AVOID MIGRATION OF SOILS FROM THE FILTER TO THE DRAINAGE LAYER

2.5. DRAINAGE LAYER: RELATIVELY FREE DRAINING LAYER TO CONVEY INFILTRATED WATER TO THE UNDERDRAINAGE.

2.6. UNDER-DRAINS: SLOTTED DRAINS COLLECT TREATED STORMWATER FROM THE DRAINAGE LAYER AT THE BASE OF THE BIORETENTION SYSTEM.

3. TEST METHODS AND STANDARDS

3.1. THE FOLLOWING TEST METHODS AND STANDARDS ARE TO BE USED AS SPECIFIED IN THE ABOVE GUIDELINES WHEN CONDUCTING TESTS ASSOCIATED WITH THIS SPECIFICATION:

3.2. THE HYDRAULIC CONDUCTIVITY OF POTENTIAL FILTER MEDIA SHALL BE MEASURED USING THE ASTM F1815-11 METHOD

3.3. PARTICLE SIZE DISTRIBUTION: AS1289.3.6.1 - 1995

3.4. 3.4. SOILS FOR LANDSCAPING AND GARDEN USE: AS4419 - 2003.

4. MATERIALS

4.1. MATERIALS SHALL MEET THE REQUIRED SPECIFICATIONS DETAILED IN SECTION 8 FILTER MEDIA, SECTION 9 TRANSITION LAYER, SECTION 10 DRAINAGE LAYER, SECTION 11 UNDER DRAINAGE, SECTION 12 PERMEABLE LINER, SECTION 13 IMPERMEABLE LINER AND SECTION 14 LANDSCAPING OF THIS DOCUMENT. ALL MATERIALS MUST BE CERTIFIED BY THE SUPPLIER WITH CERTIFICATION AND DELIVERY

4.2. SUPPLY DOCKETS SHALL BE PROVIDED ON REQUEST TO CERTIFY THE MATERIAL DELIVERED IS THE MATERIAL TESTED.

5. TIMING AND EROSION AND SEDIMENT CONTROL

5.1. THE TIMING OF CIVIL AND LANDSCAPE WORKS FOR BIORETENTION SYSTEMS MUST BE CAREFULLY PLANNED TO ENSURE THAT BOTH THE BIORETENTION SYSTEM AND THE DOWNSTREAM WATERWAYS, ARE NOT IMPACTED BY STORMWATER AND SEDIMENT (E.G. THROUGH BEST PRACTICE EROSION AND SEDIMENT CONTROL). IN PARTICULAR, THE DRAINAGE LAYER, TRANSITION LAYER AND FILTER MEDIA MUST NOT BE PLACED UNTIL THE RISK OF HIGH SEDIMENT LOADING FROM UPSTREAM CONSTRUCTION ACTIVITIES HAS BEEN MITIGATED.

5.2. EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION MUST BE DELIVERED IN ACCORDANCE WITH ALL LEGISLATIVE REQUIREMENTS INCLUDING, WHERE REQUIRED, THE PREPARATION OF SITE-SPECIFIC ESC PLAN/S IN ACCORDANCE WITH CURRENT BEST PRACTICE EROSION AND SEDIMENT CONTROL (E.G. IECA 2008, OR LATER VERSION).

6. EARTHWORKS AND HYDRAULIC STRUCTURES

6.1. THE CONSTRUCTION OF HYDRAULIC STRUCTURES MUST ENSURE THE DESIGN LEVELS ARE ACHIEVED. BUNDS/ EMBANKMENTS SURROUNDING THE SYSTEM SHALL BE AT CORRECT LEVELS. THE BELOW TABLE SUMMARISES THE CONSTRUCTION TOLERANCES FOR EACH ELEMENT OF A TYPICAL BIORETENTION SYSTEM.

6.2. BIORETENTION SYSTEMS TOLERANCES (SEE CHART BELOW)

BIORETENTION SYSTEMS TOLERANCES

BIORETENTION ELEMENT	TOLERANCE (UNLESS SPECIFIED OTHERWISE)
HYDRAULIC STRUCTURES	+ /- 25 mm (+/- 15 mm FOR STREETSCAPE SYSTEMS)
EARTHWORKS	+ /-50 mm
UNDER-DRAINAGE	+/- 25 mm
DRAINAGE AND TRANSITION LAYERS	+ 25 mm
SURFACE LEVEL	+/- 25 mm +/- 40 mm FOR FILTER MEDIA >300 m² PROVIDED THE AVERAGE EXTENDED DETENTION REQUIREMENT IS WITHIN 25 mm OF THE DESIGN REQUIREMENT.
EMBANKMENTS AND BUNDS	-25 mm, + 50 mm

7. MAINTENANCE ACCESS

MAINTENANCE ACCESS IS PROVIDED IN ACCORDANCE WITH THE DESIGN DRAWINGS.

8. FILTER MEDIA

8.1. MATERIALS

A FUNDAMENTAL PART OF BIORETENTION SYSTEMS IS THE FILTER MEDIA. THE MAIN ROLE OF THE FILTER MEDIA IS TO SUPPORT VEGETATION AND REMOVE POLLUTANTS. FILTER MEDIA SHOULD BE LOAMY SAND THAT HAS HIGH PERMEABILITY WHEN COMPACTED. IT SHOULD NOT CONTAIN ANY RUBBISH OR DELETERIOUS MATERIAL. THE LOAMY SAND SHOULD CONTAIN SOME ORGANIC MATTER TO IMPROVE WATER-HOLDING CAPACITY AND PLANT HEALTH, BUT IT SHOULD BE LOW IN NUTRIENT CONTENT. THE FILTER MEDIA MUST BE COMPLIANT WITH AS4419 - SOILS FOR LANDSCAPING AND GARDEN USE, AND MEET THE FOLLOWING REQUIREMENTS:

FILTER MEDIA REQUIREMENTS

PARAMETER	TEST METHOD IN ACCORDANCE WITH	REQUIREMENT
SATURATED HYDRAULIC CONDUCTIVITY	ASTM f1815-11	50 - 500 mm/hr (200 PREFERRED)
pH	AS 4419	5.5 - 7.5
ELECTRICAL CONDUCTIVITY	AS 4419	<1.2 dS/m
NITROGEN CONTENT	AS 4419	<800 mg/kg
PHOSPHORUS CONTENT	AS 4419	<40 mg/kg
ORGANIC CONTENT	AS 4419	3% - 10% WHERE ORGANIC CONTENT IS BELOW THIS THRESHOLD, THE FILTER MEDIA MAY BE AMELIORATED BY ADDING 50 mm OF COMPOST AND TINING IT INTO THE TOP 150 mm OF FILTER MEDIA.
PARTICLE SIZE DISTRIBUTION	AS 1289.3.6.1 - 1995	CLAY & SILT 3 - 6% (<0.05 mm) VERY FINE SAND 5 - 30% (0.05 - 0.15 mm) FINE SAND 10- 30% (0.15 - 0.25 mm) MEDIUM TO COARSE SAND 40- 60% (0.25 - 1.0 mm) COARSE SAND 7 - 10% (1.0 - 2.0 mm) FINE GRAVEL <3% (2.0 - 3.4%)

SOURCE: GUIDELINES FOR SOIL FILTER MEDIA IN BIORETENTION SYSTEMS (FAWB) AND BIORETENTION TECHNICAL DESIGN GUIDELINES (WATER BY DESIGN)

FILTER MEDIA MUST BE FREE OF WEEDS AND PROPAGATES. OTHER CHARACTERISTICS OF THE FILTER MEDIA REQUIRED FOR PLANT GROWTH SHOULD BE CONFIRMED WITH A SOIL ANALYSIS OR CONFIRMED WITH A HORTICULTURIST/LANDSCAPE ARCHITECT.

8.2. TESTING FREQUENCY

SUITABLE FILTER MEDIA CAN BE DELIVERED TO SITE OR IMPORTED SAND CAN BE AMELIORATED TO MEET THE ABOVE SPECIFICATION. IN EITHER CASE, THE MEDIA SHALL BE TESTED AGAINST THE ABOVE PARAMETERS AT ONE SAMPLE PER 500 m3 OF FILTER MEDIA. FOR SOIL SUPPLIED TO SITE, TESTING MUST BE UNDERTAKEN ON THE ACTUAL MATERIAL TO BE DELIVERED TO THE BIORETENTION SYSTEM. THE SUPPLIER AND CONTRACTOR WILL BE RESPONSIBLE FOR ENSURING THE FILTER MEDIA MEETS THE SPECIFICATION AND THE CORRECT MATERIAL IS DELIVERED TO SITE PRIOR TO INSTALLATION.

8.3. INSTALLATION AND COMPACTION

WHEN INSTALLING, THE FOLLOWING SPECIFICATIONS SHALL BE APPLIED:

8.3.1. FILTER MEDIA SHALL BE INSTALLED AND COMPACTED IN TWO LIFTS FOR DEPTHS OF OVER 500 mm. COMPACTION SHALL BE LIGHT AND EVEN ACROSS THE SURFACE.

8.3.2. THE TOP SURFACE OF THE DRAINAGE LAYER, TRANSITION LAYER AND THE FILTER MEDIA LAYER SHALL BE LEVEL AND FREE FROM LOCALISED DEPRESSIONS TO ENSURE EVEN DISTRIBUTION OF STORMWATER FLOWS ACROSS THE SURFACE AND PREVENT LOCALISED PONDING.

8.3.3. FILTER FABRIC MUST NOT BE USED BETWEEN DRAINAGE LAYER, TRANSITION LAYER AND THE FILTER MEDIA LAYERS OR WRAPPED AROUND THE UNDER-DRAINAGE

9. TRANSITION LAYER

TRANSITION LAYERS PREVENT FILTER MEDIA MIGRATING INTO THE DRAINAGE LAYER.

9.1. MATERIALS

9.1.1. TRANSITION LAYER SHALL BE MINIMUM THICKNESS OF 100 mm COARSE SAND UNLESS OTHERWISE SPECIFIED (TYPICALLY 1 mm PARTICLE SIZE DIAMETER) WITH <2% FINES.

9.1.2. A PARTICLE SIZE DISTRIBUTION FOR THE SAND SHALL BE OBTAINED TO ENSURE THAT IT MEETS THE FOLLOWING CRITERIA (VICROADS).

9.1.3. D15 (TRANSITION LAYER) ≤ 5 X D85 (FILTER MEDIA)

9.2. TESTING

A SAMPLE OF THE PROPOSED TRANSITION LAYER IS TO BE PROVIDED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION. THE SUPERINTENDENT MAY REQUIRE THE TRANSITION LAYER TO BE TESTED TO ENSURE ITS PARTICLE SIZE.

10. DRAINAGE LAYER

DRAINAGE LAYERS CONVEY INFILTRATED WATER INTO THE SLOTTED UNDER-DRAINAGE PIPES.

10.1 MATERIALS

10.1.1. DRAINAGE LAYER SHALL BE COMPRISED OF FINE GRAVEL (NOMINAL 2-5 mm) WITH <2% FINES AND A MINIMUM SATURATED HYDRAULIC CONDUCTIVITY OF 400 mm/hr. THE DEPTH OF THE DRAINAGE LAYER SHALL ENSURE AT LEAST 50 mm OF AGGREGATE COVER OVER ALL PERFORATED UNDER-DRAINAGE PIPES.

10.1.2. A PARTICLE SIZE DISTRIBUTION FOR THE GRAVEL SHALL BE OBTAINED TO ENSURE THAT IT MEETS THE FOLLOWING BRIDGING CRITERIA (VICROADS): D15 (DRAINAGE LAYER) ≤ 5 X D85 (TRANSITION LAYER)

10.2. TESTING

A SAMPLE OF THE PROPOSED DRAINAGE LAYER IS TO BE PROVIDED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION. THE SUPERINTENDENT MAY REQUIRE THE DRAINAGE LAYER TO BE TESTED TO ENSURE ITS PARTICLE SIZE.

11. UNDER-DRAINAGE

11.1. MATERIALS

EITHER SLOTTED RIGID PIPE (HDPE OR SIMILAR) OR AG-PIPE CAN BE USED FOR UNDER-DRAINAGE AS SPECIFIED IN THE CONSTRUCTION DRAWINGS. WHEN INSTALLING, THE FOLLOWING SPECIFICATIONS SHALL BE CONSIDERED:

11.1.1. TYPICALLY 100 MM-SLOTTED HDPE PIPE IS THE PREFERRED TYPE OF RIGID PIPE.

11.1.2. THE SLOTS IN THE PIPE SHALL NOT ALLOW THE DRAINAGE LAYER AGGREGATE TO FREELY ENTER THE PIPE (UNDER-DRAINAGE WITH SLOT WIDTH OF 2 mm OR SMALLER IS PREFERRED).

11.1.3 UNDER-DRAINAGE PIPES MUST NOT BE SURROUNDED BY ANY GEOFABRIC OR SOCK.

11.2. INSTALLATION

11.2.1. THE MAXIMUM SPACING OF UNDER-DRAINS FOR BIO-RETENTION SYSTEMS <100 m2 IS 1.5 m FROM CENTRE TO CENTRE. FOR BIORETENTION SYSTEMS >100 m2 THE MAXIMUM SPACING CAN BE INCREASED TO 2.0 - 2.5 m IF SPECIFIED IN THE CONSTRUCTION DRAWINGS.

11.2.2. THE UNDER-DRAINS SHALL BE SLOPED TOWARDS THE OUTLET PIT (MIN. 0.5% LONGITUDINAL GRADE) AND THE BASE OF FILTRATION TRENCH SHALL BE FREE FROM LOCALISED DEPRESSIONS. FOR BIORETENTION SYSTEMS WITH A SATURATED ZONE A 0% PIPE GRADE IS ACCEPTABLE.

11.2.3. ALL JUNCTIONS AND CONNECTIONS SHALL BE APPROPRIATELY SEALED.

11.2.4.UNDER-DRAINAGE PIPES SHALL BE SEALED INTO THE OVERFLOW PIT.

11.2.5. ALL UNDER DRAINAGE PIPES TO HAVE RAISED CLEAN OUT POINTS CONSTRUCTED FROM NON-SLOTTED PIPES WHICH EXTEND TO 150 mm ABOVE FILTER MEDIA SURFACE

12. PERMEABLE LINER (WHERE SPECIFIED)

12.1. A PERMEABLE GEOTEXTILE LINER FABRIC MUST BE USED TO LINE THE OUTSIDE OF THE BIORETENTION SYSTEM.

12.2. THE LINER MUST EXTEND AT LEAST 500 mm BEYOND THE TOP OF THE SIDES AND MUST BE KEYED INTO BATTER AND COVERED BY AT LEAST 200 mm OF TOPSOIL.

12.3. THE LINER MUST BE RESISTANT TO ALL SOIL ACIDS AND ALKALIS, RESISTANT TO MICROORGANISMS AND COMPLY WITH THE REQUIREMENTS OF AS3706.12 AND AS3706.13.

13. IMPERMEABLE LINER (WHERE SPECIFIED)

13.1. MATERIALS LINER OPTIONS INCLUDE CLAY, GEOSYNTHETIC BENTONITE CLAY LINERS OR HIGH-DENSITY POLY ETHYLENE (HDPE) LINERS. REFER TO THE PROJECT DRAWINGS FOR LINER DETAILS.

13.2. INSTALLATION INSTALLATION MUST BE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS AND DESIGN DRAWINGS AND ACHIEVE THE FOLLOWING:

13.2.1. THE LINERS SHALL BE KEYED INTO THE BATTERS AND TO THE EMBANKMENTS.

13.2.2.LINERS MUST BE SEALED AROUND PROTRUSIONS SUCH AS OUTLET PIPES.

13.2.3 MUST ACHIEVE A MAXIMUM PERMEABILITY OF 1X10-9M/S

14. LANDSCAPING

14.0. REFER TO LANDSCAPE DESIGN DRAWINGS.

14.1. BATTER SLOPES MUST HAVE MIN 200 mm TOPSOIL WHICH MUST BE TESTED BY A NATA-ACCREDITED LABORATORY IN ACCORDANCE WITH AS 4419.

14.2. SUBSOILS TO BE CULTIVATED TO 150 mm PRIOR TO PLACING TOPSOIL ON BATTER SLOPES.

14.3. PLANTING DENSITIES AND SPECIES MUST BE CONSISTENT WITH THE LANDSCAPE DESIGN DRAWINGS. NO SUBSTITUTIONS SHOULD BE MADE UNLESS APPROVED BY THE SUPERINTENDENT.

14.4. PLANTS SUPPLIED TO SITE MUST:

14.4.1. BE GROWN IN CLEAN, WEED- AND PEST-FREE CONDITIONS;

14.4.2. BE WELL DEVELOPED, SUN-HARDENED AND CONTAIN A FULLY ESTABLISHED ROOT BALL THAT DOES NOT CRUMBLE WHEN REMOVED FROM ITS CONTAINER.

14.4.3. BE AT LEAST 200 MM HIGH.

14.4.4. SHOW NO SIGN OF PEST AND DISEASE

14.4.5. SHOW NO SIGNS OF NUTRIENT DEFICIENCY

14.4.6. BE FREE FROM WEEDS

14.4.7. BE CLEARLY LABELLED

14.4.8. BE SUPPLIED IN A CONTAINER THAT IS AT LEAST: 90 MM HIGH X 50 MM WIDE

14.5. PREPARING FILTER MEDIA: UNLESS SPECIFIED OTHERWISE, EACH PLANT MUST RECEIVE AT LEAST 10 G OF SLOW-RELEASE NATIVE FERTILIZER IN GRANULAR OR TABLET FORM. PRE-HYDRATED WATER CRYSTALS MAY BE APPLIED AT 1-2%%% BY WEIGHT.

14.6. MULCH MUST BE APPLIED IN ACCORDANCE WITH THE DESIGN DRAWINGS, BE APPLIED PRIOR TO PLANTING, PROVIDE COVERAGE OF THE SOIL AND NOT EXCEED 75 MM THICKNESS, AND BE KEPT 50 MM CLEAR OF PLANT STEMS. UNLESS OTHERWISE SPECIFIED, MULCH SHOULD BE FINE SUGAR CANE MULCH SECURED IN PLACE BY A LOOSE WEAVE JUTE NET PINNED AT 500 MM CENTRES.

14.7. FILTER MEDIA SURFACE AND PLANT STOCK ARE TO BE WATERED IMMEDIATELY PRIOR TO PLANTING. UNLESS OTHERWISE SPECIFIED, PLANTS SHOULD BE PLANTED IN CLUMPS OF THE SAME SPECIES, AND LARGE MONOCULTURES AVOIDED.

14.8. PLANT METHOD MUST MINIMISE SOIL COMPACTION AND ENSURE THAT ALL ROOTS ARE COVERED BY AT LEAST 10 - 20 MM OF SOIL, AVOID COVERING PLANT CROWNS.

14.9. UNLESS SPECIFIED OTHERWISE, THE FOLLOWING IRRIGATION SCHEDULE APPLIES DURING PLANT ESTABLISHMENT (AT 2.5 - 5 L PER PLANT PER WEEK) - WEEK 1-5 FIVE WATERINGS PER WEEK - WEEK 6-10 THREE WATERINGS PER WEEK - WEEK 11-15 TWO WATERINGS PER WEEK - THEREAFTER AS REQUIRED TO SUSTAIN PLANTS UNTIL SUCCESSFUL ESTABLISHMENT

14.10. REPLANTING MUST OCCUR DURING THE ESTABLISHMENT PERIOD IF LESS THAN 90% OF PLANTS SURVIVE.

14.11. SUCCESSFUL PLANT ESTABLISHMENT IN BIORETENTION SYSTEMS IS CONSIDERED WHEN THE PLANTS ARE ROBUST AND SELF-SUSTAINING, AND MEET THE FOLLOWING CRITERIA. - VEGETATION MUST COVER AT LEAST 90% OF THE BIORETENTION SURFACE WITH MULCH COVERING THE REMAINDER (< 10% MULCH VISIBLE FROM ABOVE) - AVERAGE GROUNDCOVER PLANT HEIGHT MUST BE GREATER THAN 500 MM. - PLANTS MUST BE HEALTHY AND FREE FROM DISEASE. - NO WEEDS OR LITTER TO BE PRESENT.

15. CERTIFICATION AND CHAIN OF CUSTODY

15.1. THE FOLLOWING CERTIFICATION AND THE CHAIN OF CUSTODY APPLIES TO BIORETENTION MEDIA:

15.1.1. THE SUPPLIER AND CONTRACTOR ARE RESPONSIBLE FOR ENSURING THE BIORETENTION MEDIA MEETS THE SPECIFICATIONS OUTLINED IN THESE GUIDELINES AND THAT THE CORRECT MATERIAL IS DELIVERED TO SITE. THE SUPPLIER MUST ARRANGE FOR TESTING OF THE FILTER MEDIA BY A SOIL LABORATORY CERTIFIED FOR THE METHODS IN ACCORDANCE WITH THE REQUIREMENTS LISTED ABOVE. ON THE BASIS OF THE TESTING, THE SOIL LABORATORY AND SUPPLIER MUST CERTIFY THE MATERIAL MEETS THESE SPECIFICATIONS. THE SUPPLIER MUST PROVIDE THE CERTIFICATION AND LABORATORY TEST RESULTS TO THE CONTRACTOR WITH THE SUPPLY DOCKET.

15.1.2. THE CONTRACTOR PROVIDES A COPY OF THE SUPPLIER'S CERTIFICATION, TEST RESULTS AND SUPPLY DOCKET TO THE SITE SUPERINTENDENT OR BIORETENTION DESIGNER FOR REVIEW.

15.1.3. FOLLOWING REVIEW OF THE CERTIFICATION, TEST RESULTS AND THE SUPPLY DOCKET, THE SITE SUPERINTENDENT OR BIORETENTION DESIGNER APPROVES INSTALLATION OF THE BIORETENTION MEDIA.

15.1.4. THE RELEVANT SECTIONS OF THE BIORETENTION MEDIA SIGN-OFF FORM AS PER THE CONSTRUCTION AND ESTABLISHMENT GUIDELINES (WATER BY DESIGN) SHOULD BE COMPLETED AND SIGNED. THIS SIGN-OFF FORM IS PROVIDED AS PART OF THE CONSTRUCTION CERTIFICATION BY THE SITE SUPERINTENDENT OR BIORETENTION DESIGNER.

16. HOLD POINTS

16.1. THE FOLLOWING HOLD POINTS MUST BE OBSERVED IN ACCORDANCE WITH THE MOST RECENT WATER BY DESIGN CONSTRUCTION CHECKLISTS AND SUPERINTENDENT APPROVAL IS REQUIRED FOR WORKS TO PROCEED:

16.0.1. PRESTART MEETING

16.0.2. COMPLETION OF HYDRAULIC STRUCTURES AND UNDER-DRAINAGE

16.0.3. PRIOR TO PLACING FILTER MEDIA

16.1.4. AFTER PLACEMENT OF FILTER MEDIA (PRIOR TO APPLYING MULCH AND PLANTING).

17. COMPLIANCE TESTING (FOR ON OR OFF MAINTENANCE)

17.1. COMPLIANCE TESTING MUST BE IN ACCORDANCE WITH CHAPTER 5 OF TRANSFERRING OWNERSHIP OF VEGETATED STORMWATER ASSETS (WATER BY DESIGN). CHECKLISTS MUST BE COMPLETED AND SIGNED BY THE SUPERINTENDENT.

DISCLAIMER: IT IS THE RESPONSIBILITY OF THE CERTIFYING REGISTERED PROFESSIONAL ENGINEER TO ENSURE THESE STANDARD NOTES ARE ADAPTED TO THE SPECIFIC NEEDS OF THE PROJECT. IT IS EXPECTED THAT ADDITIONAL DRAWING NOTES WOULD BE REQUIRED TO COVER OTHER IMPORTANT PROJECT ISSUES (E.G. WORKPLACE HEALTH AND SAFETY, ENVIRONMENTAL PROTECTION, EROSION AND SEDIMENT CONTROL, ETC). HEALTHY WATERWAYS, IPWEA AND ALL CONTRIBUTORS TO THIS DOCUMENT ACCEPT NO LIABILITY FOR THE USE, MISUSE OR ANY OMISSION OR INACCURACY IN THIS DOCUMENT.

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
Check Building Boundary clearances by set out.
Notwithstanding the information supplied on this drawing, the location, depth and extent of underground or overhead services are to be confirmed and protected on site by the contractor prior to commencement of works.

Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	12.09.24	APPROVAL	GHK

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Drawing title - BIORETENTION BASIN SYSTEM SPECIFICATIONS

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C506

Digital Ref : C500-C506 BIORETENTION BASIN DETAILS Issue : B

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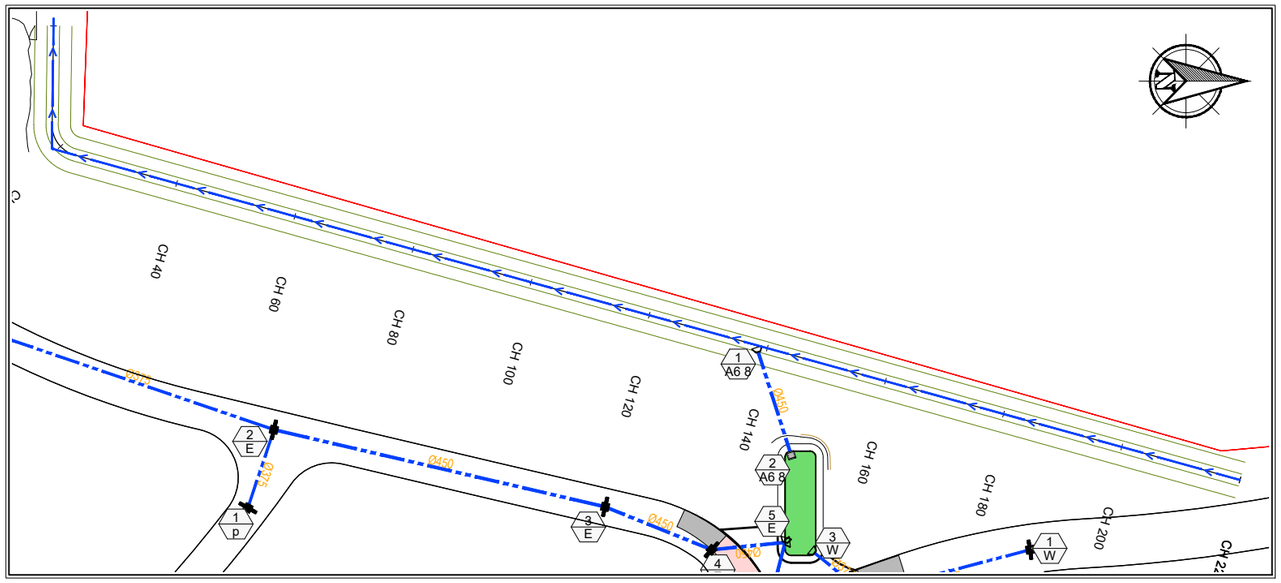
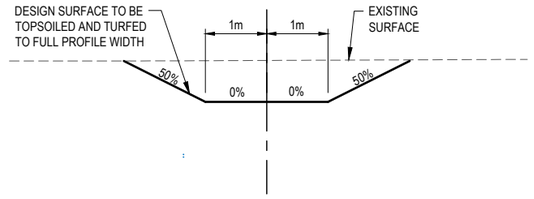
Plot 18 December 2024 - 11:29 AM

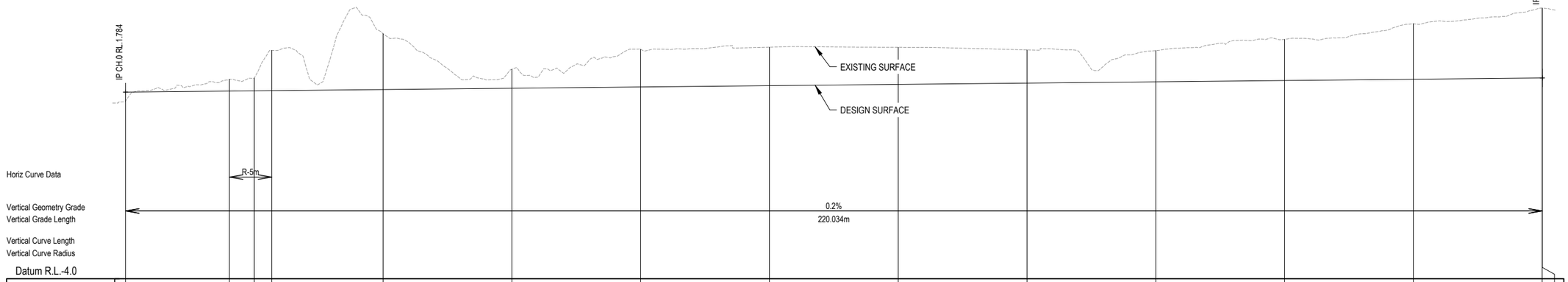


KEY MAP
1:2000 (A1) / 1:4000 (A3)



SWALE TYPICAL SECTION
1:50 (A1) / 1:100 (A3)

DI1								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	508748.546	7025436.386	1.784	90°46'52.82"			
TC	16.149	508764.693	7025436.166	1.816	90°46'52.82"			
IP 2	19.430	508768.544	7025436.114	1.823		R = -5.000	6.563	75°12'23.40"
CT	22.712	508769.578	7025439.823	1.829	15°34'29.42"			
IP 3	220.034	508822.558	7025629.900	2.224	15°34'29.42"			



Design Surface	1.784		1.816		1.824	1.829		1.864		1.904		1.944		1.984		2.024		2.064		2.104		2.144		2.184		2.224	2.224
Natural Ground	1.505		2.181		2.219	3.077		3.594		2.493		3.113		3.178		3.173		3.092		3.071		3.419		3.904		4.386	4.385
Depth of Cut or Fill	-0.279		0.365		0.395	1.248		1.730		0.589		1.169		1.194		1.149		1.028		0.967		1.275		1.720		2.162	2.161
Chainage	0.000		16.149		20.000	22.712		40.000		60.000		80.000		100.000		120.000		140.000		160.000		180.000		200.000		220.000	220.034

SECTION DI1
HORIZ. 1:350(A1) / VERT. 1:70(A1)

0 7m 14m 28m
SCALE 1:700 (A3)
HORIZ.

0 1.4m 2.8m 5.6m
SCALE 1:140 (A3)
VERT.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
Check Building Boundary clearances by set out.
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Checked - SR
Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	16.09.24	APPROVAL	GHK

Approved

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124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558

Drawing title - SWALE DETAILS (SHEET 1 OF 3)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C550

Digital Ref : C550-C552 SWALE DETAILS Issue : B

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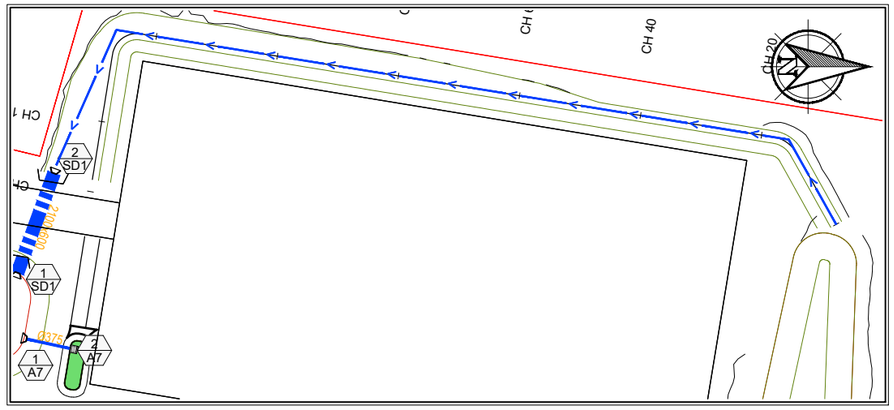
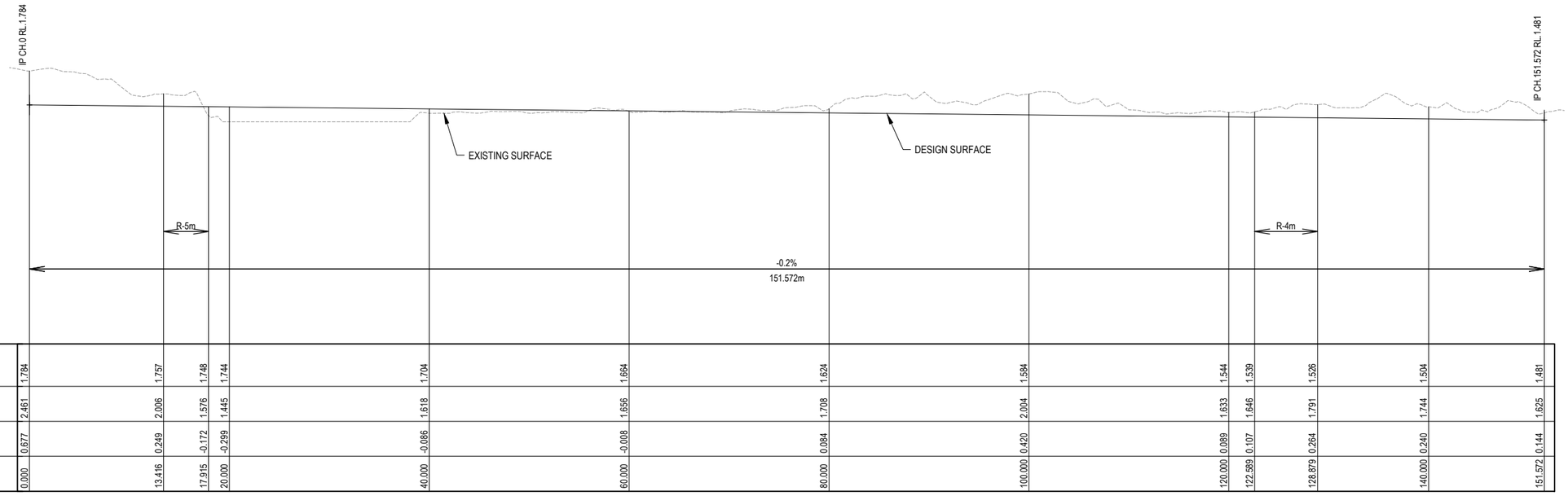
Plot 18 December 2024 - 11:22 AM



KEY MAP
1:2000 (A1) / 1:4000 (A3)

DI2								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	508684.424	7025435.491	1.784	240°48'35.34"			
TC	13.416	508672.712	7025428.948	1.757	240°48'35.34"			
IP 2	15.666	508670.604	7025427.771	1.753		R = -5.000	4.498	51°32'47.36"
CT	17.915	508670.216	7025425.388	1.748	189°15'47.98"			
TC	122.589	508653.366	7025322.079	1.539	189°15'47.98"			
IP 3	125.734	508652.721	7025318.124	1.533		R = -4.000	6.290	90°06'16.19"
CT	128.879	508656.677	7025317.486	1.526	99°09'31.79"			
IP 4	151.572	508679.080	7025313.874	1.481	99°09'31.79"			



SECTION DI2
HORIZ. 1:250(A1) / VERT. 1:50(A1)

SCALE 1:600 (A3) HORIZ. 0 6m 12m 24m
SCALE 1:120 (m) A3 VERT. 0 1.2m 2.4m 3.6m

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Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	16.09.24	APPROVAL	GHK

covey

Approved

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MAROOCHYDORE QLD 4558

Drawing title - SWALE DETAILS (SHEET 2 OF 3)

Project - COOCHIN CREEK HOLIDAY RESORT
Client - COMISKEY GROUP PTY LTD

Site - ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C551
Digital Ref : C550-C552 SWALE DETAILS Issue : B

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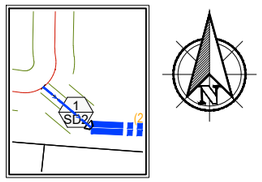
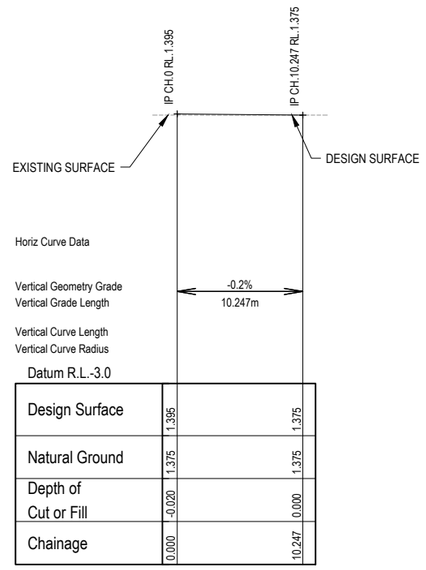
Plot 18 December 2024 - 11:25 AM



KEY MAP
1:2000 (A1) / 1:4000 (A3)

DI4					
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING
IP 1	0.000	508707.643	7025247.886	1.395	130°03'02.48"
IP 2	10.247	508715.487	7025241.292	1.375	130°03'02.48"



SECTION DI4
HORIZ. 1:250(A1) / VERT. 1:50(A1)

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION

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Design - CM Drawn - GHK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
B	18.12.24	RESPONSE TO RFI	CM
A	16.09.24	APPROVAL	GHK

covey

Approved

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MAROOCHYDORE QLD 4558

Drawing title -
SWALE DETAILS
(SHEET 3 OF 3)

Project - COOCHIN CREEK HOLIDAY RESORT

Client - COMISKEY GROUP PTY LTD

Site -
ROYS ROAD, COOCHIN CREEK

Project No. 243823 Sheet No. C552

Digital Ref : C550-C552 SWALE DETAILS Issue : B

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Plot 18 December 2024 - 11:24 AM

APPENDIX B

MUSIC Model (electronic copy)

APPENDIX C

Rainfall Data

Copyright Commonwealth of Australia 2016 Bureau of Meteorology (ABN 92 637 533 532)

All Design Rainfall Depth (mm)
Issued: 21-Jul-24
Location Label:
Requested Latitude -26.89 Longitude 153.09
Nearest gri Latitude 26.8875 (S) Longitude 153.0875 (E)

Duration in min	Annual Exceedance Probability (AEP)								
	63.20%	50%	0.5EY	20%	0.2EY	10%	5%	2%	1%
1 min	2.97	3.32	3.68	4.42	4.51	5.17	5.91	6.88	7.63
2 min	5.12	5.72	6.35	7.7	7.85	9.1	10.5	12.6	14.2
3 min	7.16	8.01	8.89	10.8	11	12.7	14.7	17.4	19.6
4 min	9.03	10.1	11.2	13.6	13.8	16	18.3	21.6	24.2
5 min	10.7	12	13.3	16.1	16.4	18.9	21.6	25.4	28.3
10 min	17.4	19.5	21.6	25.9	26.4	30.2	34.4	39.9	44
15 min	22.2	24.8	27.5	32.9	33.5	38.3	43.6	50.5	55.7
20 min	25.9	28.9	32.1	38.3	39.1	44.6	50.8	58.9	65.1
25 min	28.8	32.2	35.7	42.7	43.6	49.9	56.9	66.1	73.2
30 min	31.4	35	38.9	46.5	47.5	54.4	62.1	72.4	80.3
45 min	37.2	41.6	46.1	55.6	56.7	65.2	74.8	87.9	98
1 hour	41.5	46.5	51.6	62.5	63.7	73.7	84.9	100	112
1.5 hour	48	53.9	59.9	73.3	74.8	87	101	120	135
2 hour	52.9	59.7	66.3	81.9	83.5	97.7	114	136	154
3 hour	60.7	68.9	76.4	95.8	97.7	115	135	162	184
4.5 hour	69.6	79.5	88.3	112	114	136	160	193	220
6 hour	76.8	88.3	98	126	128	153	181	219	250
9 hour	88.7	103	114	148	151	181	215	261	298
12 hour	98.5	114	127	167	170	205	243	296	338
18 hour	114	134	148	197	201	242	288	352	403
24 hour	127	149	165	220	225	272	324	397	455
30 hour	138	162	179	240	245	296	353	434	499
36 hour	147	172	191	256	261	317	378	467	538
48 hour	162	190	211	283	288	350	419	519	601
72 hour	183	214	238	319	325	396	475	594	693
96 hour	196	230	255	343	349	426	513	644	754
120 hour	205	240	267	358	366	446	539	678	795
144 hour	211	247	274	369	377	461	558	702	823
168 hour	215	251	279	377	385	471	572	718	840

APPENDIX D

Water Quantity Data

Appendix D

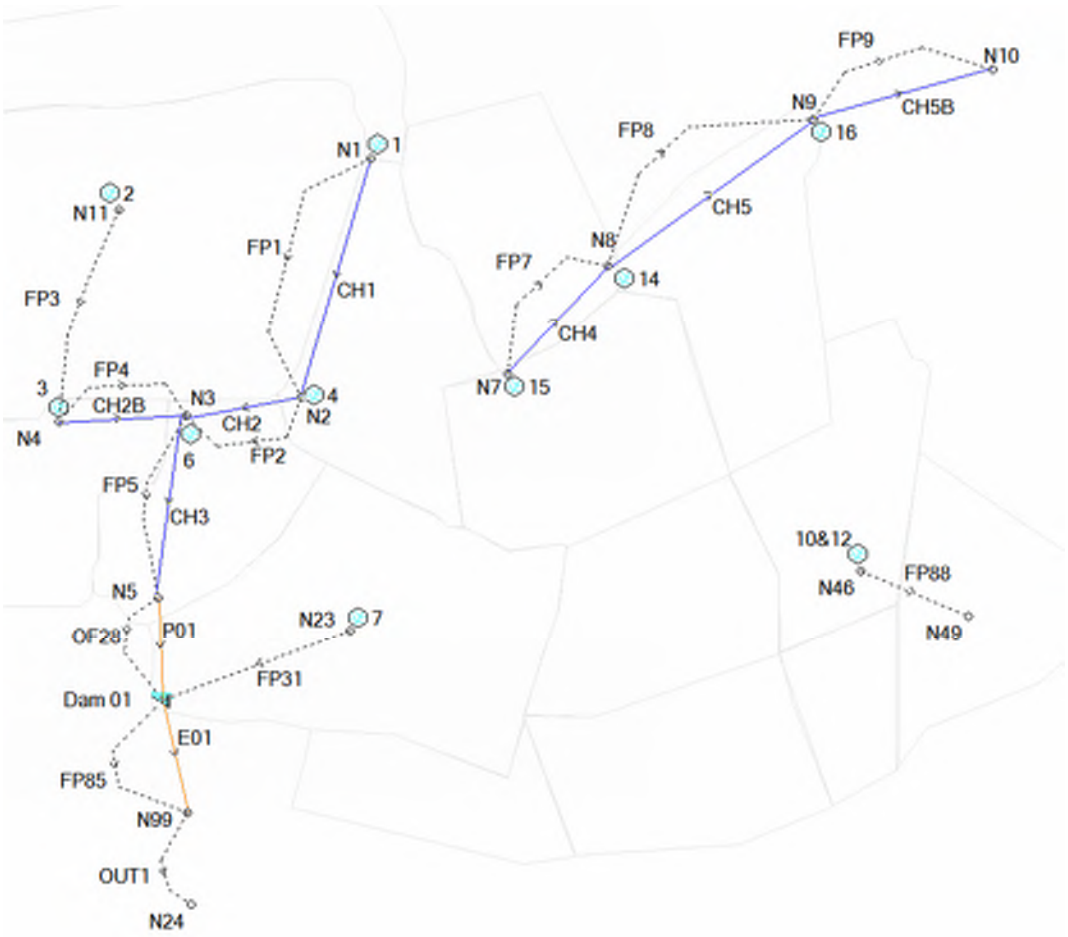


Figure D1 – DRAINS Model

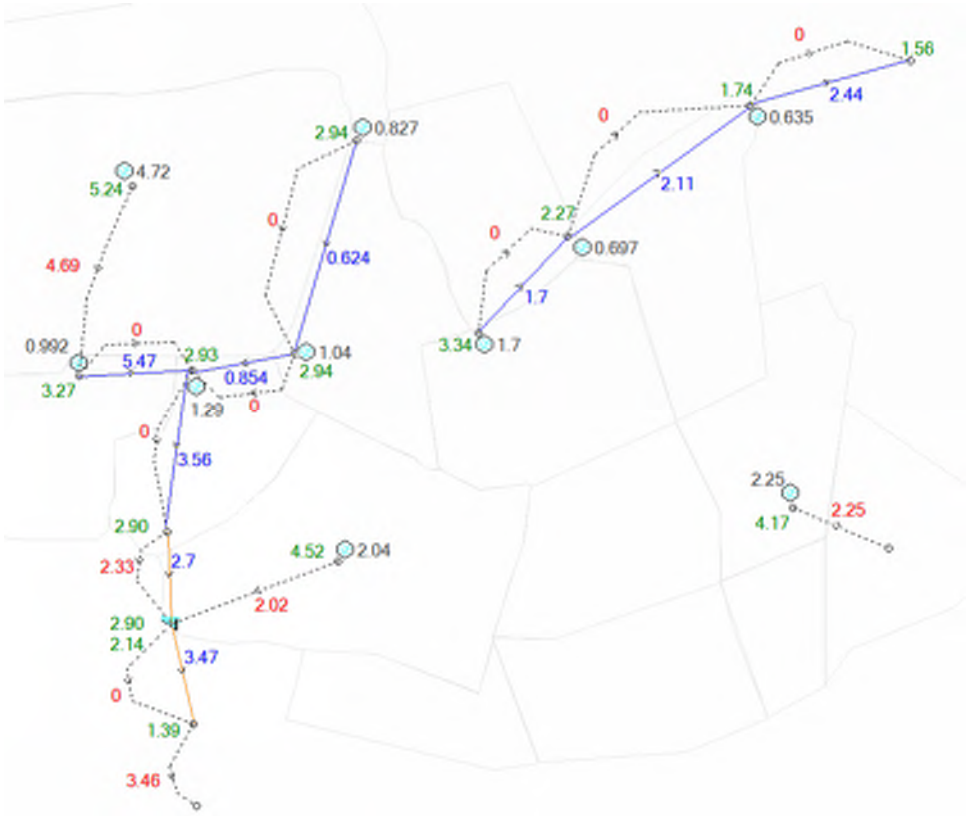


Figure D1 –DRAINS results 10% AEP Climate Change

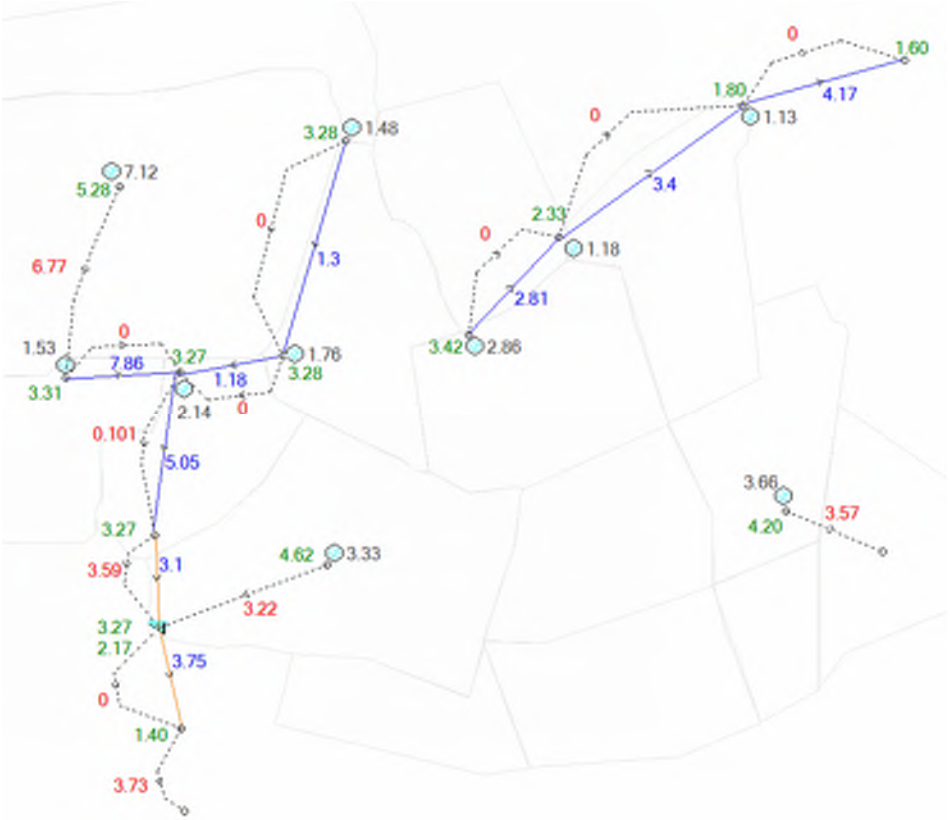
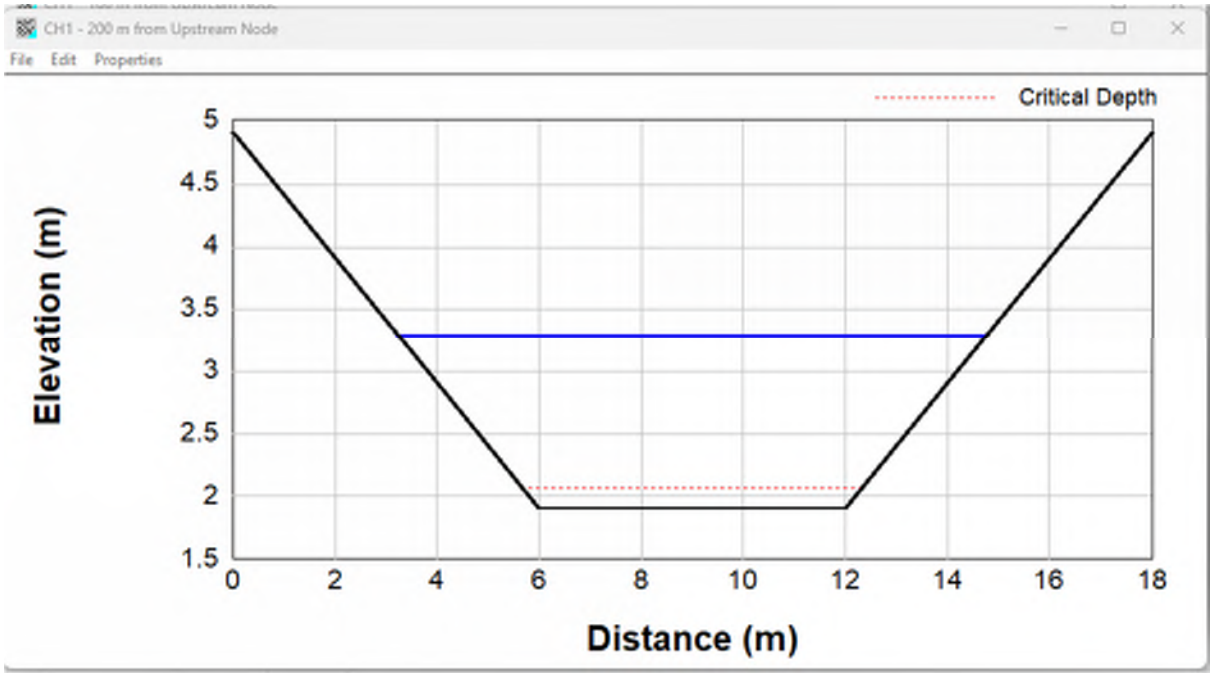
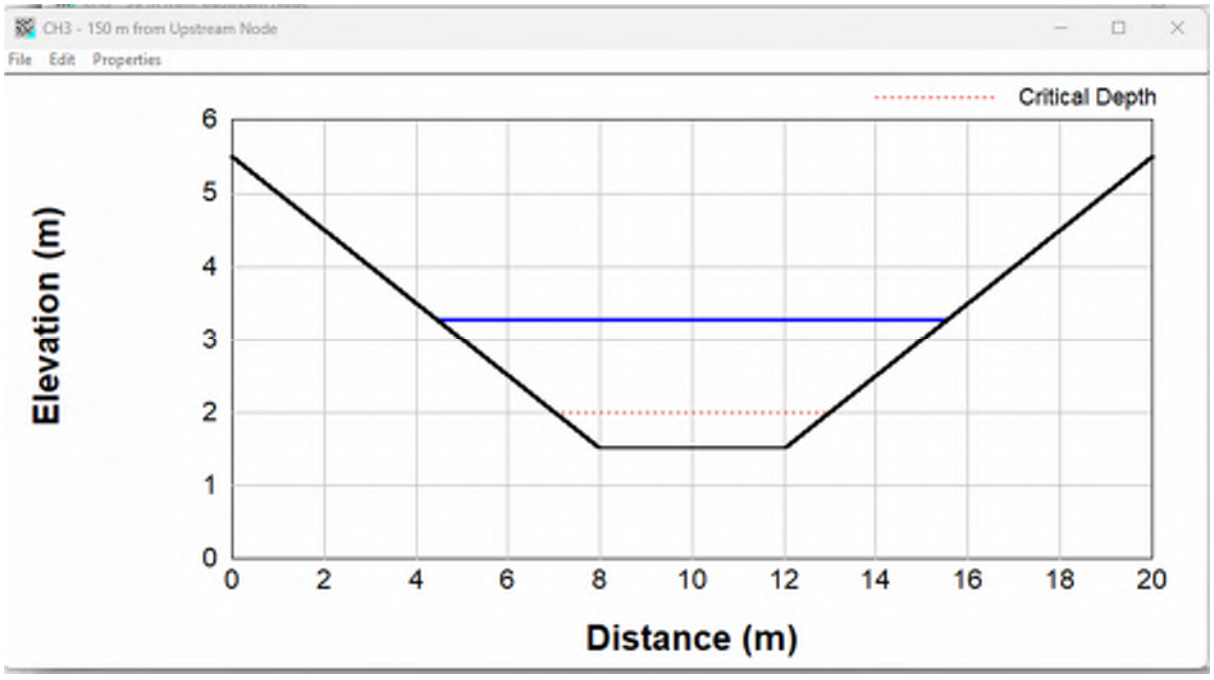
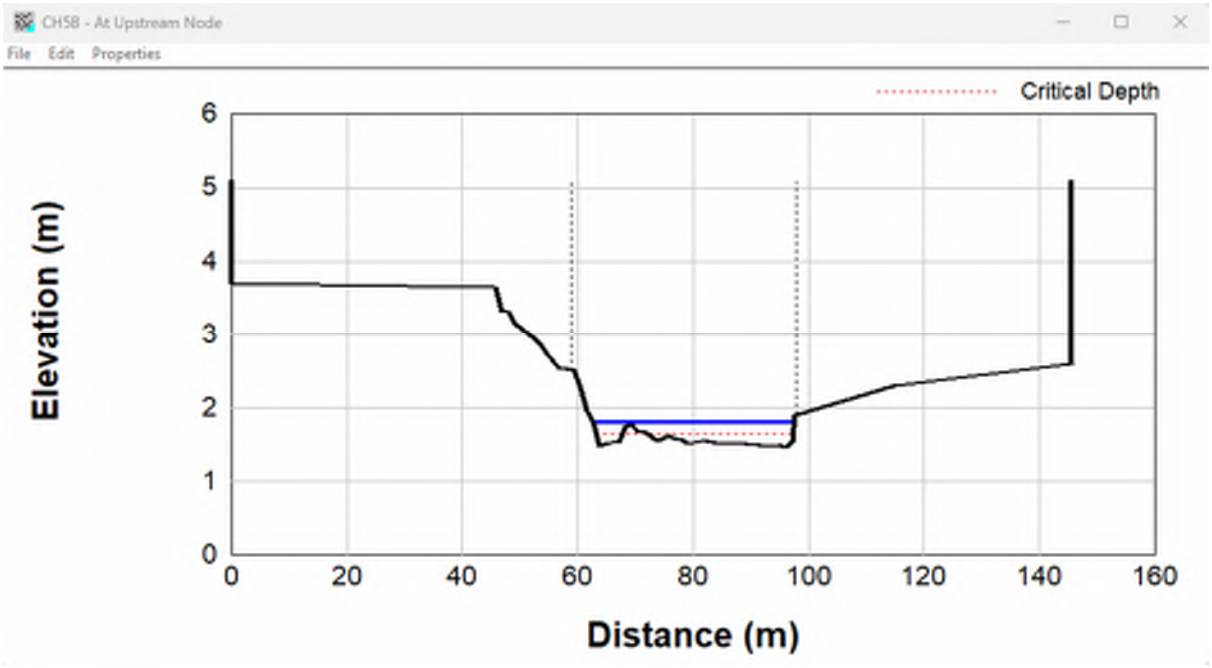


Figure D2 –DRAINS results 1% AEP Climate Change

Figure D3 – Critical Channel Cross-sections 1% AEP Climate Change






CH58 - At Upstream Node
File Edit Properties
Critical Depth
Elevation (m)
0
1
2
3
4
5
6
0
20
40
60
80
100
120
140
160
Distance (m)

N

0 10 20 40 60 80

Meters

Legend

Vehicular Access
(no planting required in these areas)

Wetland Boundary Fence
(fence, bollard or similar to preventvehicular aceess)

Buffer Planting Rows

Buffer Planting

Site Boundary

Zone

12.3.11

12.3.6

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Design: AD	Date:28/11/2023
Drawn: AD	Date: 28/11/2023
Checked: AD	Date: 28/11/2023

CLIENT:
Sunshine Coast Regional Council

PROJECT:
1807 Roys Road Revegetation

DRAWING TITLE:

Drawing Status:

Drawing No.	Datum: GDA	
	Sheet Size A3	
Council Ref	Revision E	SHEET 1 of 2

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

DSDIP ref: MBN25/1159

Date: 6 January 2026

Queensland Government

REHABILITATION SPECIFICATIONS

1. INITIAL SITE MANAGEMENT

All gross pollutants and non-endemic debris such as plastics, building materials and dumped exotic vegetative matter within the rehabilitation area comprised of Zone 1 and Zone 2 (**Rehabilitation Area**) are to be removed and disposed of appropriately.. A contractor and a suitably qualified ecologist are to be engaged to carry out the restoration of the Rehabilitation Area in accordance with this document. The proposed contractor and ecologist are to be agreed by the Council, acting reasonably, prior to them being engaged.

2. IDENTIFICATION OF WEED SPECIES

All exotic flora growing in the Rehabilitation Area shall be identified by the ecologist for treatment. Special attention is required for the detection of:

- invasive plants under the *Biosecurity Act 2014* (Qld);
- weed grasses;
- environmental weeds and species with restrictions within the local government area.

3. METHODS OF WEED CONTROL

All declared weeds and weeds determined by the ecologist to present a danger to initial plant establishment are to be removed prior to planting of the Rehabilitation Area. Treatment of weeds is to be undertaken using best horticultural practices that ensure natural regeneration is protected and minimal soil disturbance occurs, avoiding increased erosion potential. When chemicals are to be used, the manufacturers' instructions for those chemicals are to be adhered to. Initial use of herbicides is to occur 2-3 weeks prior to planting of native tubestock. All noxious weed seed material shall be collected, removed from site and disposed of at an appropriate Council refuse facility.

4. EROSION CONTROL

The site is to be maintained so that no areas of erosion greater than $2m^2$ are evident.

Physical erosion control methods are to be in accordance with *Soil Erosion and Sediment Control' – Engineering Guidelines for Queensland Construction Sites – June 1996*.

Following initial weed treatment and removal, All zones are to be blanket covered with mulch of well-composted forest blend to a depth of at least 100-150mm. Imported mulch is to be free of weed material and foreign debris. Mulch from Council refuse centres is not suitable.

5. REVEGETATION

The Rehabilitation Area is to be planted by randomly arranged seedlings of the species and proportions listed in the Plant Schedule across the entire rehabilitation area. All individuals planted are to be sun-hardened '50 – 125mm native tubestock' with a minimum height of 200mm. Only healthy stock that is not root bound or underdeveloped are to be used.

Planting densities for both Zone 1 and Zone 2 of the Rehabilitation Area are as follows:

- canopy trees – 3 metre centres;
- shrub layer – 2 metre centres;
- ground layer – 1 metre centres.

Overall coverage is to maintain plants at 1m centres across the entire rehabilitation area.

6. INITIAL WATERING

Each plant is to be watered with a minimum of 5 – 10 litres of water at the time of planting.

All seedlings are to be watered on a weekly basis for the first 6 weeks and then monthly for at least 6 months. Watering should continue as required to maintain healthy plants in the densities prescribed in Section 5 (Revegetation) for the duration of the on-maintenance period.

7. MAINTENANCE

On the completion of the planting of the Rehabilitation Area in accordance with section 5 (Revegetation), the Rehabilitation Area is to remain on maintenance for 5 years or until the performance criteria in Section 8 (Monitoring) are achieved, whichever is the longer.

The contractor is to conduct maintenance within the rehabilitation area at the following frequencies:

- weekly for the first 6 weeks;
- monthly for the first 12 months;
- every 4 months for years 2 – 4;
- yearly up until 5 years post planting.

Maintenance actions (during the on maintenance period):

- suppression of all environmental and declared weeds so they do not affect rehabilitation success;
- maintain a weed free zone for a radius if 500mm from individual planted stock;
- apply mulch as required to suppress weeds and maintain healthy planted stock;
- replant lost tubestock to maintain densities; prescribed in Section 5 (Revegetation) at proportions detailed in the Plant Schedule.

8. MONITORING

The Rehabilitation Area is to achieve the benchmarks provided in Tables 1 and 2, below.

Table 1: Establishment Performance Criteria

PARAMETER (Post Planting)	6 mths min	12 mths min	24 mths min
Mortality	< 5%	<10%	<10%
Height[1] (Tree Species)	>500mm	>900 mm	>1800mm

1. Height = more than 80% of trees in plot to attain height.

Table 2: On-Maintenance Performance Criteria

PARAMETER[1] (Post Planting)	2 YEARS	3 YEARS	5 YEARS
Canopy Cover (% Preclear)	>20%	>30%	>50%
Canopy Height (% Preclear)	>10%	>20%	>40%

1. As described in Herbarium RE Technical descriptions: REDD v11.

Monitoring of the Rehabilitation Area is to be conducted by the ecologist and reported to the contractor. The contractor is responsible for keeping monitoring records for the duration of the on-maintenance period and providing them to Council upon request. The contractor is to rectify non-compliant benchmarks specified in Tables 1 and 2.

PLANT SCHEDULE

Zone 1 (Open Forest - RE 12.3.6)

Trees	%
Eucalyptus tereticornis	10
Eucalyptus microcorys	10
Corymbia intermedia	10
Lophostemon suaveolens	10
Melaleuca quinquenervia	30
Allocasuarina litoralis	10
Banksia oblonigfolia	10
Glochidion sumatranum	10

Upper Shrubs / Lower Tree	
Melaleuca quinquenervia	10
Allocasuarina litoralis	10
Lophostemon suaveolens	10
Alphitonia excelsa	10
Leptospermum polygalifolium	10
Acacia leiocalyx	10
Commersonia bartramia	10
Livistona decora	10
Melaleuca linariifolia	10
Polyscia elegans	10

Lower Shrub	
Melastoma malabathricum	40
Trema tomentosa	20
Banksia robur	40

Ground Cover	
Themeda triandra	10
Capillipedium spicigerum	10
Entolasia stricta	10
Pteridium esculentum	10
Lomandra longifolia	10
Dianella caerulea	10
Lomandra multiflora	10
Alloteropsis semialata	10
Gahnia aspera	10
Juncus usitatus	10

Zone 2 (Open forest – RE 12.3.11)

Trees	%
Eucalyptus tereticornis	10
Eucalyptus tindaliae	10
Corymbia intermedia	10
Lophostemon suaveolens	10
Melaleuca quinquenervia	30
Corymbia tessellaris	10
Corymbia citriodora	10
Eucalyptus siderophloia	10

Upper Shrubs / Lower Tree	
Melaleuca quinquenervia	10
Allocasuarina litoralis	10
Lophostemon suaveolens	10
Banksia integrifolia	10
Allocasuarina litorials	10
Leptospermum polygalifolium	10
Alphitonia excelsa	10
Trema tomentosa	10
Melaleuca linariifolia	10
Myrsine variable	10

Lower Shrub	
Trema tomentosa	40
Breynia oblongifolia	20
Clerodendrum floribundum	20
Pittosporum revolutum	20

Ground Cover	
Themeda triandra	10
Capillipedium spicigerum	10
Entolasia stricta	10
Pteridium esculentum	10
Dianella caerulea	10
Lomandra confertifolia	10
Alloteropsis semialata	10
Gahnia aspera	10
Cymbopogon refractus	10
Lepidosperma laterale	10

REV	DATE	By	CHKD
AD	22/03/23	AD	AD
AD1	11/07/23	AD	AD

LEGEND

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Design: AD	Date: 11/07/23
Drawn: AD	DATE: 11/07/23
CHECKED: AD	DATE: 11/07/23

CLIENT:
Sunshine Coast Regional Council

PROJECT:
1807 Roys Rd Revegetation Area

DRAWING TITLE:
Revegetation Schedule

Drawing Status:
Revegetation condition

Drawing No. 007	DATUM: GDA	
	A3 SHEET SIZE	
COUNCIL REF Revision B	Revision D	SHEET 2 OF 2

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Queensland Government

DSDIP ref: MBN25/1159

Date: 6 January 2026

terrestria ECOLOGICAL MANAGEMENT