



DEVELOPMENT APPLICATION

PDPLANPMTD-2026/061523

PROPOSAL: Dwelling

LOCATION: 14 Bellis Street, Rokeby

RELEVANT PLANNING SCHEME: Tasmanian Planning Scheme - Clarence

ADVERTISING EXPIRY DATE: 14/09/2026 00:00:00

The relevant plans and documents can be inspected at the Council offices, 38 Bligh Street, Rosny Park, during normal office hours until 14/09/2026 00:00:00. In addition to legislative requirements, plans and documents can also be viewed at www.ccc.tas.gov.au during these times.

Any person may make representations about the application to the Chief Executive Officer, by writing to PO Box 96, Rosny Park, 7018 or by electronic mail to clarence@ccc.tas.gov.au. Representations must be received by Council on or before 14/09/2026 00:00:00.

To enable Council to contact you if necessary, would you please also include a day time contact number in any correspondence you may forward.

Any personal information submitted is covered by Council's privacy policy, available at www.ccc.tas.gov.au or at the Council offices.

Planning Application

Use this form to obtain planning approval for the use and development of land, including change of use, subdividing land into smaller lots, lot consolidation, or signage.

Please refer to the Planning Application checklist on the following pages to determine what documentation must be submitted with your application.

Proposal: **New Residence**

Location: **Lot 28 Tasman Rise, Rokeby**

Personal Information Removed



exemptions may apply which may save you time on your proposal.

If you had pre-application discussions with City of Clarence, please provide planner's name:

N/A

Current use of site:

Vacant Lot

Does the proposal involve land administered or owned by the Crown or Council? Yes ☐ No ☒

Declaration

- I have read the Certificate of Title and Schedule of Easements for the land and am satisfied that this application is not prevented by any restrictions, easements or covenants.
- I authorise the provision of a copy of any documents relating to this application to any person for the purposes of assessment or public consultation. I agree to arrange for the permission of the copyright owner of any part of this application to be obtained. I have arranged permission for Council's representatives to enter the land to assess this application
- I declare that, in accordance with Section 52 of the Land Use Planning and Approvals Act 1993, that I have notified the owner of the intention to make this application. Where the subject property is owned or controlled by Council or the Crown, their signed consent is attached.
- I declare that the information in this declaration is true and correct.

Acknowledgement

- I acknowledge that the documentation submitted in support of my application will become a public record held by Council and may be reproduced by Council in both electronic and hard copy format in order to facilitate the assessment process; for display purposes during public consultation; and to fulfil its statutory obligations. I further acknowledge that following determination of my application, Council will store documentation relating to my application in electronic format only.

Personal Information Removed



Planning Application checklist

Mandatory Documents

This information is required for the application to be valid. We are unable to proceed with an application without these documents.

- ☒ Details of the location of the proposed use or development.
- ☒ A copy of the current Certificate of Title, Sealed Plan, Plan or Diagram and Schedule of Easements and other restrictions for each parcel of land on which the use or development is proposed.
- ☒ Full description of the proposed use or development.
 - ☐ Description of the proposed operation. May include where appropriate: staff/student/customer numbers; operating hours; truck movements; and loading/unloading requirements; waste generation and disposal; equipment used; pollution, including noise, fumes, smoke or vibration and mitigation/management measures.
- ☒ Declaration the owner has been notified if the applicant is not the owner.
- ☐ Crown or Council consent (if publically-owned land).
- ☒ Any reports, plans or other information required by the relevant zone or code.
- ☐ Fees prescribed by the City of Clarence.

Application fees (please phone 03 6217 9550 to determine what fees apply). An invoice will be emailed upon lodgement.

Additional Documents

In addition to the mandatory information required above, Council may, to enable it to consider an application, request further information it considers necessary to ensure that the proposed use or development will comply with any relevant standards and purpose statements in the zone, codes or specific area plan, applicable to the use or development.

- ☒ Site analysis and site plan, including where relevant:
 - Existing and proposed use(s) on site.
 - Boundaries and dimensions of the site.
 - Topography, including contours showing AHD levels and major site features.
 - Natural drainage lines, watercourses and wetlands on or adjacent to the site.
 - Soil type.
 - Vegetation types and distribution, and trees and vegetation to be removed.
 - Location and capacity of any existing services or easements on/to the site.
 - Existing pedestrian and vehicle access to the site.
 - Location of existing and proposed buildings on the site.
 - Location of existing adjoining properties, adjacent buildings and their uses.
 - Any natural hazards that may affect use or development on the site.
 - Proposed roads, driveways, car parking areas and footpaths within the site.
 - Any proposed open space, communal space, or facilities on the site.
-



- Main utility service connection points and easements.
- Proposed subdivision lot boundaries.
- ☒ Where it is proposed to erect buildings, detailed plans with dimensions at a scale of 1:100 or 1:200 showing:
 - Internal layout of each building on the site.
 - Private open space for each dwelling.
 - External storage spaces.
 - Car parking space location and layout.
 - Major elevations of every building to be erected.
 - Shadow diagrams of the proposed buildings and adjacent structures demonstrating the extent of shading of adjacent private open spaces and external windows of buildings on adjacent sites.
 - Relationship of the elevations to natural ground level, showing any proposed cut or fill.
 - Materials and colours to be used on rooves and external walls.
- ☐ Where it is proposed to erect buildings, a plan of the proposed landscaping showing:
 - Planting concepts.
 - Paving materials and drainage treatments and lighting for vehicle areas and footpaths.
 - Plantings proposed for screening from adjacent sites or public places.
- ☒ Any additional reports, plans or other information required by the relevant zone or code.

This list is not comprehensive for all possible situations. If you require further information about what may be required as part of your application documentation, please contact City of Clarence Planning team on (03) 6217 9550.



SEARCH OF TORRENS TITLE

VOLUME 189872	FOLIO 28
EDITION 1	DATE OF ISSUE 01-Apr-2026

SEARCH DATE : 08-Apr-2026

SEARCH TIME : 08.47 am

DESCRIPTION OF LAND

City of CLARENCE

Lot 28 on Sealed Plan [189872](#)Derivation : Part of Lot 37617 (56.81ha) Gtd. to The
Director-General of Housing & ConstructionPrior CT [164406/3](#)SCHEDULE 1[M926006](#) TRANSFER to ORIGINAL INSIGHT PTY LTD Registered
19-Dec-2021 at 12.01 pmSCHEDULE 2

Reservations and conditions in the Crown Grant if any

[SP189872](#) EASEMENTS in Schedule of Easements[SP189872](#) COVENANTS in Schedule of Easements[SP189872](#) FENCING COVENANT in Schedule of Easements[SP142549](#) COVENANTS in Schedule of Easements[SP142549](#) FENCING COVENANT in Schedule of Easements[SP142549](#) WATER SUPPLY RESTRICTION[SP142549](#) SEWERAGE AND/OR DRAINAGE RESTRICTION[N194698](#) MORTGAGE to Manda Capital Holdings Pty Ltd
Registered 21-June-2024 at 12.01 pm[N280782](#) MORTGAGE to RCCC Civil Contracting Pty Ltd
Registered 11-Oct-2025 at noon[E380291](#) AGREEMENT pursuant to Section 78 of the Land Use
Planning and Approvals Act 1993 Registered
01-Apr-2026 at noonUNREGISTERED DEALINGS AND NOTATIONS[N104005](#) CAVEAT by Manda Capital Holdings Pty Ltd Lodged by
PAGE SEAGER [Merged] on 16-Dec-2025 BP: N104005

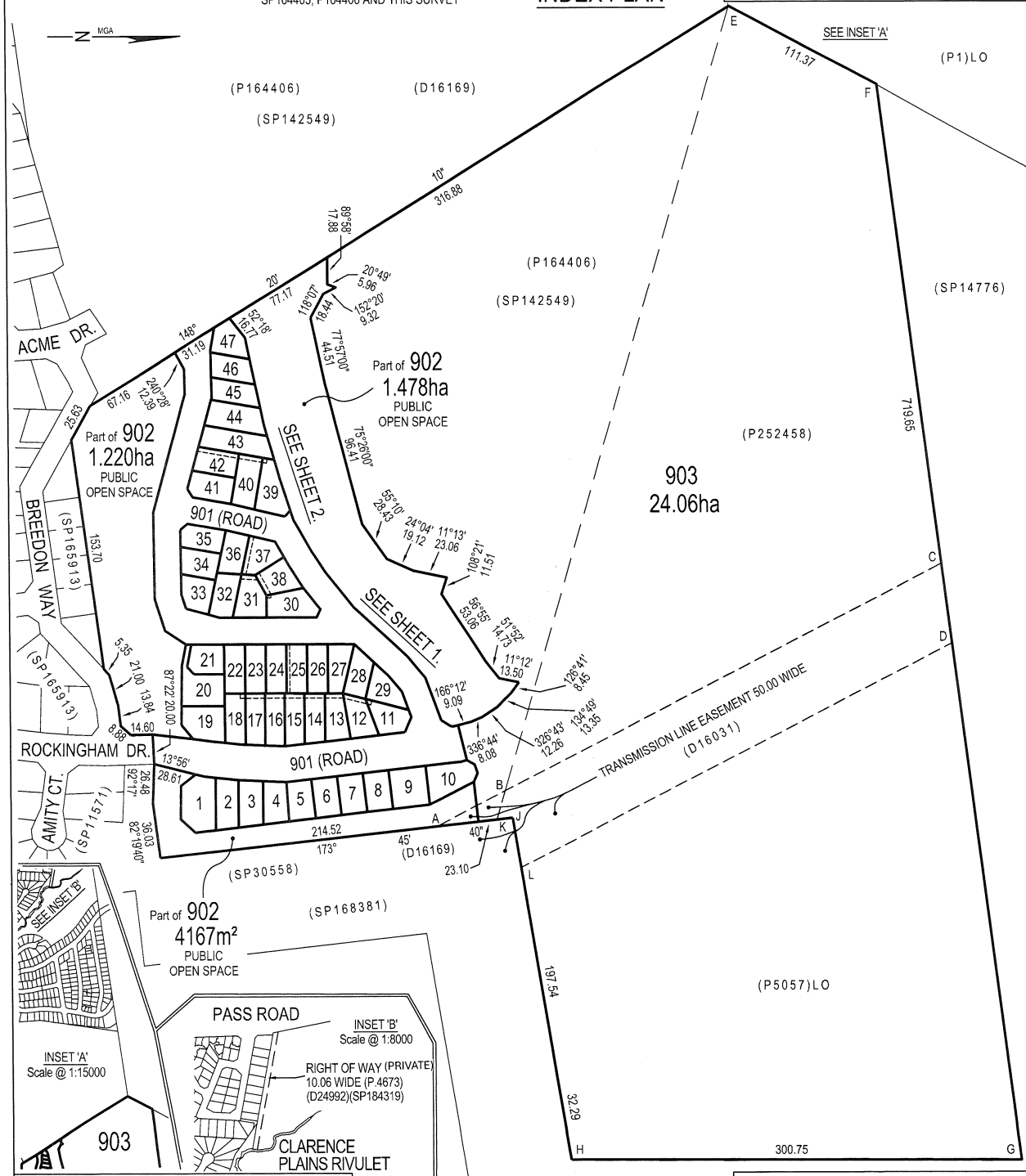
OWNER: ORIGINAL INSIGHT PTY LTD FOLIO REFERENCE: 164406/3 GRANTEE: Part of Lot 37617 (56.81ha) and Part of Lot 37843, (18.21ha) Gtd to The Director-General of Housing & Construction	NEW PLAN OF SURVEY BY SURVEYOR: N. J. SWARDS of LEARY COX & CRIPPS SURVEYORS Unit G04 40 Mole Street, HOBART TAS 7000 P 03 6118 2030 E admin@lccsurvey.com LOCATION: City of CLARENCE SCALE 1: 2500 LENGTHS IN METRES	Registered Number SP 189872 APPROVED EFFECTIVE FROM - 1 APR 2026  Recorder of Titles
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PRIORITY FINAL PLAN

LOTS 902 & 903 HAVE BEEN COMPILED FROM SP164405, P164406 AND THIS SURVEY

INDEX PLAN

ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN



INSET 'A'
Scale @ 1:15000

INSET 'B'
Scale @ 1:8000

RIGHT OF WAY (PRIVATE)
10.06 WIDE (P 4673)
(D24992)(SP184319)

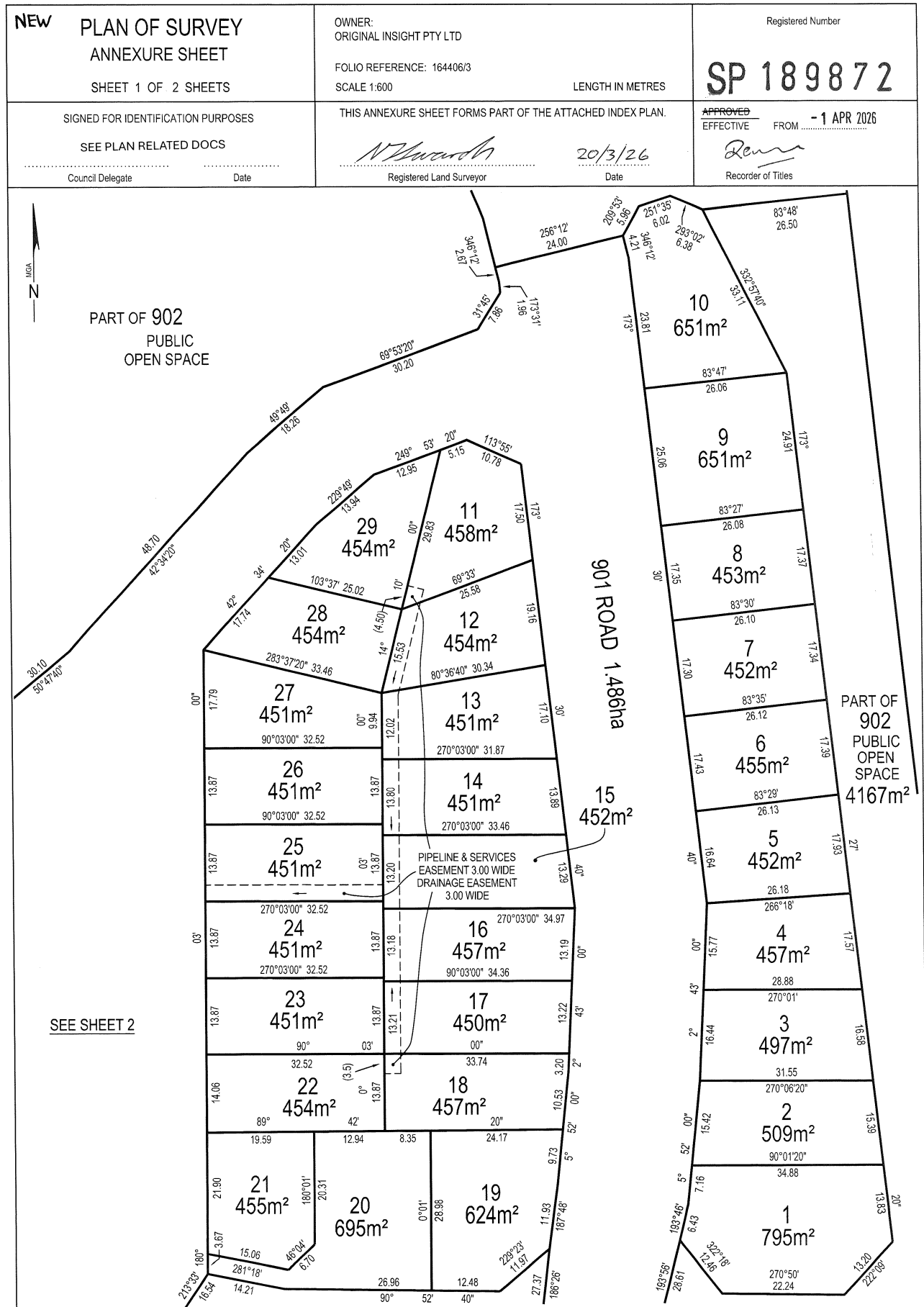
CLARENCE PLAINS RIVULET

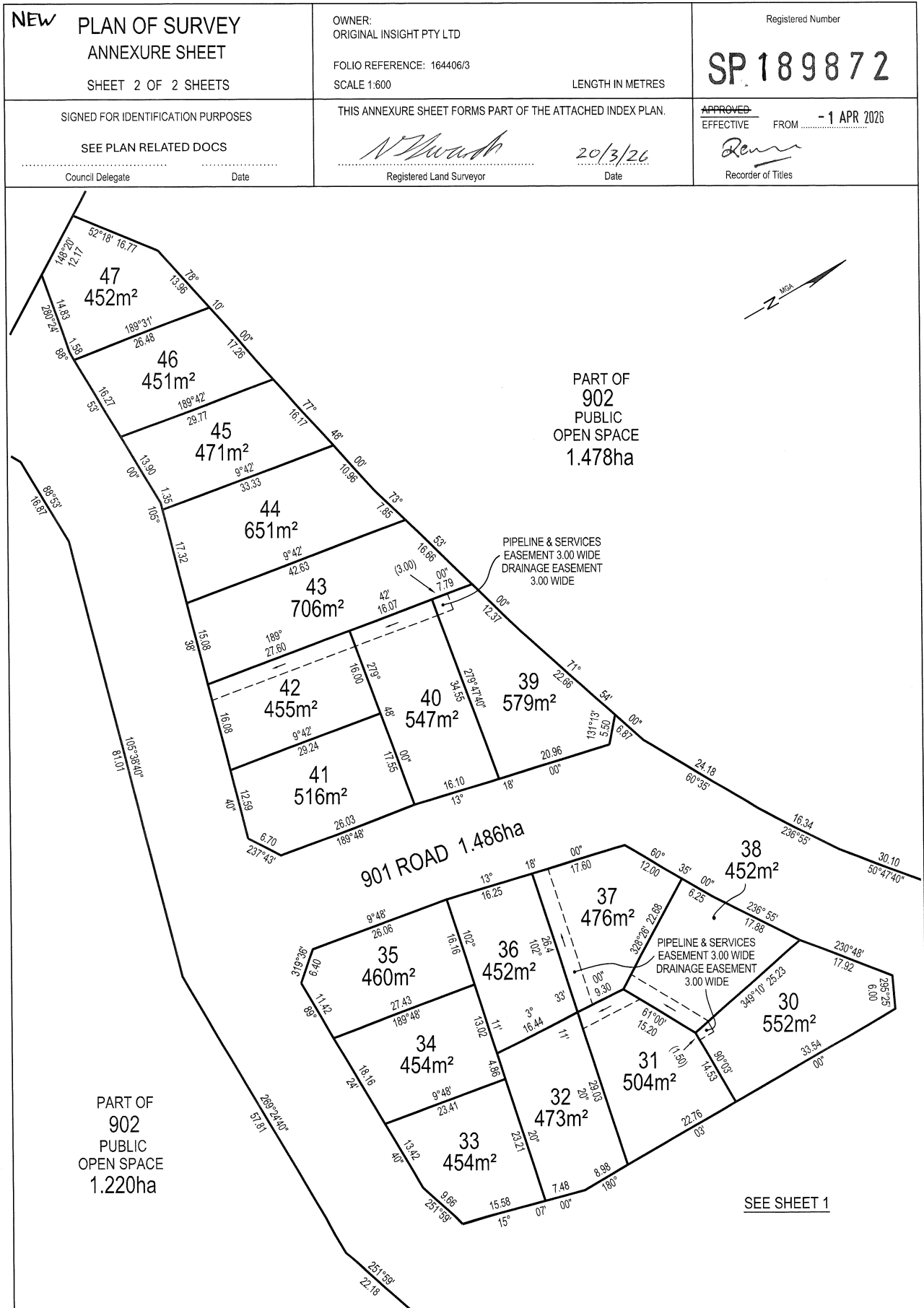
SEE PLAN RELATED DOCS

Council Delegate _____ Date _____


Registered Land Surveyor

20/3/26
Date





SCHEDULE OF EASEMENTS	Registered Number
NOTE: THE SCHEDULE MUST BE SIGNED BY THE OWNERS & MORTGAGEES OF THE LAND AFFECTED. SIGNATURES MUST BE ATTESTED.	SP 189872

PAGE 1 OF 7 PAGES

EASEMENTS AND PROFITS

Each lot on the plan is together with:-

- (1) such rights of drainage over the drainage easements shown on the plan (if any) as may be necessary to drain the stormwater and other surplus water from such lot; and
- (2) any easements or profits a prendre described hereunder.

Each lot on the plan is subject to:-

- (1) such rights of drainage over the drainage easements shown on the plan (if any) as passing through such lot as may be necessary to drain the stormwater and other surplus water from any other lot on the plan; and
- (2) any easements or profits a prendre described hereunder.

The direction of the flow of water through the drainage easements shown on the plan is indicated by arrows.

NEW EASEMENTS

Lots 11 to 18 (inclusive), 25, 30, 31, 37, 38, 39, 40 and 42 on the Plan are each SUBJECT TO a Pipeline and Services Easement (as defined herein) in gross in favour of the Tasmanian Water and Sewerage Corporation Pty Limited, its successors and assigns ("TasWater") over that part of the respective Lot marked "PIPELINE & SERVICES EASEMENT 3.00 WIDE DRAINAGE EASEMENT 3.00 WIDE" on the Plan ("the Easement Land").

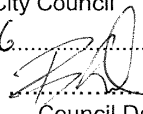
Lots 11 to 18 (inclusive), 25, 30, 31, 37, 38, 39, 40 and 42 on the Plan are each SUBJECT TO a right of drainage in gross in favour of Clarence City Council over that part of the respective Lot marked "PIPELINE & SERVICES EASEMENT 3.00 WIDE DRAINAGE EASEMENT 3.00 WIDE" on the Plan.

EXISTING EASEMENTS

Each Lot on the Plan (but excluding that part of Lot 903 marked "EFGHJK") is TOGETHER WITH a right of way over the area marked "RIGHT OF WAY 10.06 WIDE" on the Plan more fully defined in SP142549. (PRIVATE)

Lots 902 & 903 are
~~Lot 902~~ on the Plan is SUBJECT TO a Transmission Line Easement (in favour of the Hydro Electric Commission) over that part of the Lot marked "TRANSMISSION LINE EASEMENT 50.00 WIDE" on the Plan and as created by and more fully set forth in SP142549.

(USE ANNEXURE PAGES FOR CONTINUATION)

SUBDIVIDER: Original Insight Pty Ltd (ACN 168 660 786) FOLIO REF: Volume 164406 Folio 3 SOLICITOR & REFERENCE: Butler, McIntyre & Butler: 250343	PLAN SEALED BY: Clarence City Council DATE: 3 MAR 2026 PPPLAN/PMTD - REF NO. 2021/024236 Stage 1-3 Council Delegate  Peter Hembrow - ACN 15017565
NOTE: The Council Delegate must sign the Certificate for the purposes of identification.	

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ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 2 OF 7 PAGES	Registered Number SP 189872
SUBDIVIDER: Original Insight Pty Ltd (ACN 168 660 786) FOLIO REFERENCE: Volume 164406 Folio 3	

EXISTING COVENANTS

Each Lot on the Plan is burdened by the restrictive covenants created by and more fully set forth in SP142549.

FENCING COVENANT

The owner of each Lot on the Plan covenants with Original Insight Pty Ltd (ACN 168 660 786) ("the Vendor") that the Vendor shall not be required to fence.

DEFINITIONS

"Pipeline and Services Easement" means:-

THE FULL RIGHT AND LIBERTY for TasWater at all times to:

- (1) enter and remain upon the Easement Land with or without employees, contractors, agents and all other persons duly authorised by it and with or without machinery, vehicles, plant and equipment;
- (2) investigate, take soil, rock and other samples, survey, open and break up and excavate the Easement Land for any purpose or activity that TasWater is authorised to do or undertake;
- (3) install, retain, operate, modify, relocate, maintain, inspect, cleanse and repair the Infrastructure;
- (4) remove and replace the Infrastructure;
- (5) run and pass sewage, water and electricity through and along the Infrastructure;
- (6) do all works reasonably required in connection with such activities or as may be authorised or required by any law:
 - (1) without doing unnecessary damage to the Easement Land; and
 - (2) leaving the Easement Land in a clean and tidy condition; and
- (7) if the Easement Land is not directly accessible from a highway, then for the purpose of undertaking any of the preceding activities TasWater may with or without employees, contractors, agents and all other persons authorised by it, and with or without machinery, vehicles, plant and equipment enter the Lots from the highway at any then existing vehicle entry and cross the Lots to the Easement Land; and

NOTE: Every annexed page must be signed by the parties to the dealing or where the party is a corporate body be signed by the persons who have attested the affixing of the seal of that body to the dealing.

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ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 3 OF 7 PAGES	Registered Number SP 189872
SUBDIVIDER: Original Insight Pty Ltd (ACN 168 660 786) FOLIO REFERENCE: Volume 164406 Folio 3	

- (8) use the Easement Land as a right of carriageway for the purpose of undertaking any of the preceding purposes on other land, TasWater reinstating any damage that it causes in doing so to any boundary fence of the Lots.

PROVIDED ALWAYS THAT:

- (1) The registered proprietors of the Lots in the folio of the Register ("the Owner") must not without the written consent of TasWater first had and obtained and only in compliance with any conditions which form the consent:
- (a) alter, excavate, plough, drill or otherwise penetrate the ground level of the Easement Land;
 - (b) install, erect or plant any building, structure, fence, pit, well, footing, pipeline, paving, tree, shrub or other object on or in the Easement Land;
 - (c) remove any thing that supports, protects or covers any Infrastructure on or in the Easement Land;
 - (d) do any thing which will or might damage or contribute to damage to any of the Infrastructure on or in the Easement Land;
 - (e) in any way prevent or interfere with the proper exercise and benefit of the Easement Land by TasWater or its employees, contractors, agents and all other persons duly authorised by it; or
 - (f) permit or allow any action which the Owner must not do or acquiesce in that action.
- (2) TasWater is not required to fence any part of the Easement Land.
- (3) The Owner may erect a fence across the Easement Land at the boundaries of the Lots.
- (4) The Owner may erect a gate across any part of the Easement Land subject to these conditions:
- (a) the Owner must provide TasWater with a key to any lock which would prevent the opening of the gate; and
 - (b) if the Owner does not provide TasWater with that key or the key provided does not fit the lock, TasWater may cut the lock from the gate.
- (5) If the Owner causes damage to any of the Infrastructure, the Owner is liable for the actual cost to TasWater of the repair of the Infrastructure damaged.

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ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 4 OF 7 PAGES	Registered Number SP 189872
SUBDIVIDER: Original Insight Pty Ltd (ACN 168 660 786) FOLIO REFERENCE: Volume 164406 Folio 3	

- (6) If the Owner fails to comply with any of the preceding conditions, without forfeiting any right of action, damages or otherwise against the Owner, TasWater may:
- (a) reinstate the ground level of the Easement Land; or
 - (b) remove from the Easement Land any building, structure, pit, well, footing, pipeline, paving, tree, shrub or other object; or
 - (c) replace any thing that supported, protected or covered the Infrastructure.

"Infrastructure" means infrastructure owned or for which TasWater is responsible and includes but is not limited to:

- (a) sewer pipes and water pipes and associated valves;
- (b) telemetry and monitoring devices;
- (c) inspection and access pits;
- (d) power poles and lines, electrical wires, electrical cables and other conducting media (excluding telemetry and monitoring devices);
- (e) markers or signs indicating the location of the Easement Land, the Infrastructure or any warnings or restrictions with respect to the Easement Land or the Infrastructure;
- (f) any thing reasonably required to support, protect or cover any of the Infrastructure;
- (g) any other infrastructure whether of a similar nature or not to the preceding which is reasonably required for the piping of sewage or water, or the running of electricity, through the Easement Land or monitoring or managing that activity; and
- (h) where the context permits, any part of the Infrastructure.

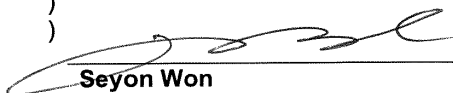


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ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 5 OF 7 PAGES	Registered Number SP 189872
SUBDIVIDER: Original Insight Pty Ltd (ACN 168 660 786) FOLIO REFERENCE: Volume 164406 Folio 3	

Executed by **Original Insight Pty Ltd (ACN 168 660 786)**, the Registered Proprietor of the land contained in Certificate of Title Volume 164406 Folio 3 in accordance with section 127 of the Corporations Act 2001 (Cth) by being signed by:

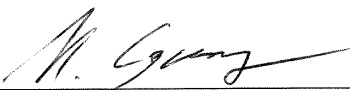
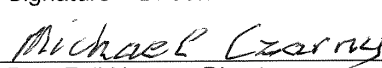

Seyon Won
Sole Director and Company Secretary

NOTE: Every annexed page must be signed by the parties to the dealing or where the party is a corporate body be signed by the persons who have attested the affixing of the seal of that body to the dealing.

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ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 6 OF 7 PAGES	Registered Number SP 189872
SUBDIVIDER: Original Insight Pty Ltd (ACN 168 660 786) FOLIO REFERENCE: Volume 164406 Folio 3	

Executed by **Manda Capital Holdings Pty Ltd (ACN 168 795 088)**, the Registered Mortgagee of the land contained in Certificate of Title Volume 164406 Folio 3 under Mortgage N194698 in accordance with section 127 of the Corporations Act 2001 (Cth) by being signed by:


 Signature – Director

 Print Full Name – Director

 Signature – Director/Company Secretary*
 Print Full Name – Director/Company Secretary*
 *Delete whichever is inapplicable

30/03/26
 30/03/26

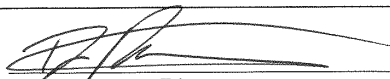
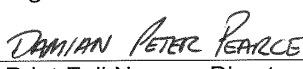
* STANLEY JOHN WALSH
 SOLICITOR FOR THE VENDOR

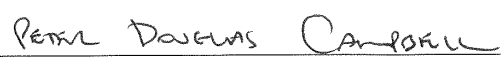
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ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 7 OF 7 PAGES	Registered Number SP 189872
SUBDIVIDER: Original Insight Pty Ltd (ACN 168 660 786) FOLIO REFERENCE: Volume 164406 Folio 3	

Executed by **RCCC Civil Contracting Pty Ltd (ACN 097 095 611)**, the Registered Mortgagee of the land contained in Certificate of Title Volume 164406 Folio 3 under Mortgage N280782 in accordance with section 127 of the Corporations Act 2001 (Cth) by being signed by:


 Signature – Director

 Print Full Name – Director

 Signature – Director/~~Company Secretary~~*

 Print Full Name – Director/~~Company Secretary~~*

*Delete whichever is inapplicable

NOTE: Every annexed page must be signed by the parties to the dealing or where the party is a corporate body be signed by the persons who have attested the affixing of the seal of that body to the dealing.

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SCHEDULE OF EASEMENTS	Registered Number SP142549
NOTE: THE SCHEDULE MUST BE SIGNED BY THE OWNERS & MORTGAGEES OF THE LAND AFFECTED. SIGNATURES MUST BE ATTESTED.	

PAGE 1 OF 4 PAGE/S

EASEMENTS AND PROFITS

Each lot on the plan is together with:-

- (1) such rights of drainage over the drainage easements shown on the plan (if any) as may be necessary to drain the stormwater and other surplus water from such lot; and
- (2) any easements or profits a prendre described hereunder.

Each lot on the plan is subject to:-

- (1) such rights of drainage over the drainage easements shown on the plan (if any) as passing through such lot as may be necessary to drain the stormwater and other surplus water from any other lot on the plan; and
- (2) any easements or profits a prendre described hereunder.

The direction of the flow of water through the drainage easements shown on the plan is indicated by arrows.

Rights of carriageway hereon deleted by me pursuant to Request to Amend No. E296066 made under Section 103 of the Local Government (Building & Miscellaneous Provisions) Act 1993

EASEMENTS

Ren
Recorder of Titles 13 SEP 2022
Date

Lot 1 and Lot 2 are together with a right of way over the Right of Way (Private) 10.06 metres wide shown on the plan.

Lot 3 (but excluding that part of Lot 3 marked "EFGHJK") is together with a right of way over the Right of Way (Private) 10.06 metres wide shown on the plan.

~~Lot 2 is together with a right of carriageway over that portion of the Right of Way (Private) 6.00 metres wide showing passing through Lot 1.~~

~~Lot 3 is together with a right of carriageway over that portion of the Right of Way (Private) 6.00 metres wide shown passing through Lot 1 and Lot 2.~~

~~Lot 1 is subject to a right of carriageway over that portion of the Right of Way (Private) 6.00 metres wide shown passing through Lot 1, appurtenant to Lot 2 and Lot 3.~~

~~Lot 2 is subject to a right of carriageway over that portion of the Right of Way (Private) 6.00 metres wide shown passing through Lot 2, appurtenant to Lot 3.~~

Lot 3 is subject to a Transmission Line Easement for the Hydro Electric Commission over that portion of the Transmission Line Easement 50.00 metres wide shown on Lot 3 outside that part of Lot 3 marked "EFGHJK", as shown on the plan.

Lot 3 is subject to a Transmission Line Easement for the Hydro Electric Commission in the terms created by and more fully set out in A751455 over that portion of the Transmission Line Easement 50.00 metres wide shown within that part of Lot 3 marked "EFGHJK", as shown on the plan.

Signed by the Vendor

Robert Duncan Drewe
Robert Duncan Drewe

Ann Candida Baker
Ann Candida Baker

(USE ANNEXURE PAGES FOR CONTINUATION)

SUBDIVIDER: Ann Candida Baker and Robert Duncan Drewe FOLIO REF: 252324/1 and 252458/1 SOLICITOR & REFERENCE: Peter Worrall Lawyers (Matthew Pawson)	PLAN SEALED BY: Clarence City Council DATE: 4 DECEMBER 2003 10-2003/100 REF NO. CORPORATE SECRETARY CLARENCE CITY COUNCIL
NOTE: The Council Delegate must sign the Certificate for the purposes of identification.	

ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 2 OF 4 PAGES	Registered Number SP 142549
SUBDIVIDER: Ann Candida Baker and Robert Duncan Drewe FOLIO REFERENCE: 252324/1 and 252458/1	

COVENANTS

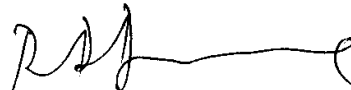
The Owner of each Lot covenants with ROBERT DUNCAN DREWE and ANN CANDIDA BAKER and the Owner or Owners for the time being of every other Lot shown on the plan to the intent that the burden of these covenants may run with and bind the covenantor's Lot and every part thereof and that the benefit thereof shall be annexed to and devolve with each and every part of every other Lot shown on the plan to observe the following stipulations:

1. Not to subdivide that Lot at any time without the prior consent in writing of the Corporation;
2. Not to erect on that Lot more than a single residence, which may include an ancillary apartment together with usual outbuildings as may be permitted by the Corporation, without the consent of the Corporation;
3. Not to use the land for any purpose except as a residence or for the purpose of house occupation without the prior consent of the Corporation in writing.
4. Not to use any engine or machinery in any trade or business, nor erect or use or permit to be used on any part of any lot shown on the Plan nor to conduct or permit to be conducted any trade or business on or from any part of the same, including but not limited to mining, quarrying or market gardening. The leasing of the property for private residential purposes is not deemed to be a breach of this covenant.
- 5.. Not to keep any animals other than domestic pets on any lot shown on the Plan and not to make any application for a kennel licence in respect of any lot shown on the Plan nor to keep or establish or permit to be kept or established any licensed kennel upon any lot or any part of any lot shown on the Plan nor to keep at one time more than two adult canines on any lot shown on the Plan.
6. The Vendor may, at the Vendor's absolute discretion, waive the burden of any covenant contained in this Schedule of Easements in favour of any lot by notice in writing to the registered proprietor of that lot.

FENCING COVENANT

In respect of each Lot shown on the plan, the Vendor ROBERT DUNCAN DREWE and ANN CANDIDA BAKER shall not be required to fence.

Signed by the Vendor


 Robert Duncan Drewe


 Ann Candida Baker

NOTE: Every annexed page must be signed by the parties to the dealing or where the party is a corporate body be signed by the persons who have attested the affixing of the seal of that body to the dealing.

ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 3 OF 4 PAGES	Registered Number SP142549
SUBDIVIDER: Ann Candida Baker and Robert Duncan Drewe FOLIO REFERENCE: 252324/1 and 252458/1	

INTERPRETATION

"right of way over the Right of Way (Private) 10.06 metres wide" means the right and liberty for Reginald Chipman the owner of the said land within described his successors in title his and their executors administrators and assigns his and their servants and workmen and all other by his or their permission full right and liberty at all times by day or by night and for all purposes with or without horses carts carriages waggons and other vehicles laden or unladen to go pass and repass and to drive cattle sheep and other animals along over and upon all that strip of land marked A.B.C.D. on Diagram No. 24992 and shown as Right of Way (Private) 10.06 wide on the plan.

"right of carriageway over the Right of Way (Private) 6.00 metres wide" is defined in the Schedule 8 of the *Conveyancing Law and Property Act 1884*.

"Transmission Line Easement" means the full and free right and liberty for the Hydro Electric Commission and its successors and its and their servants agents and workmen at all times hereafter:

- (a) to clear the lands marked "Transmission Line Easement 50.00 wide on Diagram No. 16169 (the said lands being portion of the said land within described and being hereinafter called "the servient land") and to erect place inspect alter and repair renew maintain and use in upon and over and along and remove from the servient land towers poles wires cables apparatus appliances and other ancillary works (all of which are hereinafter collectively referred to as "the said lines") for the transmission and distribution of electrical energy and for purposes incidental thereto;
- (b) to cause or permit energy to flow or be transmitted through and along the said lines;
- (c) to cut away remove and keep clear of the said lines all trees and all other obstructions or erections of any nature whatsoever which may at any time overhang encroach or be in or on the servient land and which may in any way endanger or interfere with the proper operation of the said lines; and
- (d) to enter into and upon the servient land for all or any of the above purposes with or without all necessary plant equipment machinery and vehicles of every kind.

"Corporation" means the Warden Councillors and Electors of the City of Clarence.

SEE OVER FOR EXECUTION

Signed by the Vendor

Robert Duncan Drewe

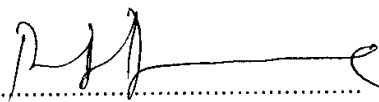
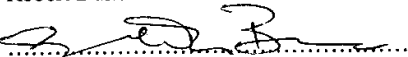
Ann Candida Baker

NOTE: Every annexed page must be signed by the parties to the dealing or where the party is a corporate body be signed by the persons who have attested the affixing of the seal of that body to the dealing.

ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 4 OF 4 PAGES	Registered Number SP 142549
SUBDIVIDER: Ann Candida Baker and Robert Duncan Drewe FOLIO REFERENCE: 252324/1 and 252458/1	

EXECUTION

Signed by the Vendor)
 ROBERT DUNCAN DREWE and)
 ANN CANDIDA BAKER)
 in the presence of)


 Robert Duncan Drewe

 Ann Candida Baker

Witness Signature.....

Witness Name..... *Beverley Allison*

Witness Address..... *73 HIGHWAY RD. PRETTY BAY 2267*

Witness Occupation..... *PERFORMER / TEACHER*

Signed for an on behalf of)
 NATIONAL AUSTRALIA BANK)
 as mortgagee of Folios of the Register)
 Volume 252324 Folio 1 and)
 Volume 252458 Folio 1)
 by its authorised officer(s))
 in the presence of)

Witness Signature.....
 Witness Name.....
 Witness Address.....
 Witness Occupation.....

Executed by NATIONAL AUSTRALIA BANK LIMITED)
 by its Attorney Andrew Michael Downie under Power of)
 Attorney No. 67/0241 and amended by 71/5033 (who)
 states that he holds the office in the NATIONAL AUSTRALIA)
 BANK LIMITED indicated under his signature and who declares)
 he has received no notice of revocation of the said Power) in the)
 presence of:)


 Mobile Manager Manager



Jenny Doran, Bank Officer
 76 Liverpool Street, Hobart

NOTE: Every annexed page must be signed by the parties to the dealing or where the party is a corporate body be signed by the persons who have attested the affixing of the seal of that body to the dealing.

PROPOSED NEW RESIDENCE

LOT 28 TASMAN RISE

ROKEBY

KNEST

PD26026

BUILDING DRAWINGS

<u>No</u>	<u>DRAWING</u>
01	SITE PLAN
02	SITE DRAINAGE PLAN
03	LOCALITY PLAN
04	FLOOR PLAN
05	DOOR AND WINDOW SCHEDULES
06	ELEVATIONS
07	ELEVATIONS
08	ROOF PLAN
09	PERSPECTIVES



GARAGE AREA	38.62	m2	(4.16	SQUARES)
FLOOR AREA	108.69	m2	(11.70	SQUARES)
TOTAL AREA	147.31	m2	15.86	SQUARES

GENERAL PROJECT INFORMATION
TITLE REFERENCE: 189872/28
SITE AREA: 454m²
DESIGN WIND SPEED:N2
SOIL CLASSIFICATION: P (PLUMBING TO BE INSTALLED USING CLASS H1, REFER TO SOIL REPORT BY DOYLE SOIL CONSULTING)
CLIMATE ZONE: 7
ALPINE AREA: NO
CORROSIVE ENVIRONMENT: N/A
BAL RATING: BAL-12.5
OTHER KNOWN HAZARDS: BUSHFIRE-PRONE AREAS, AIRPORT
OBSTACLE LIMITATION AREA, FLOOD-PRONE AREAS

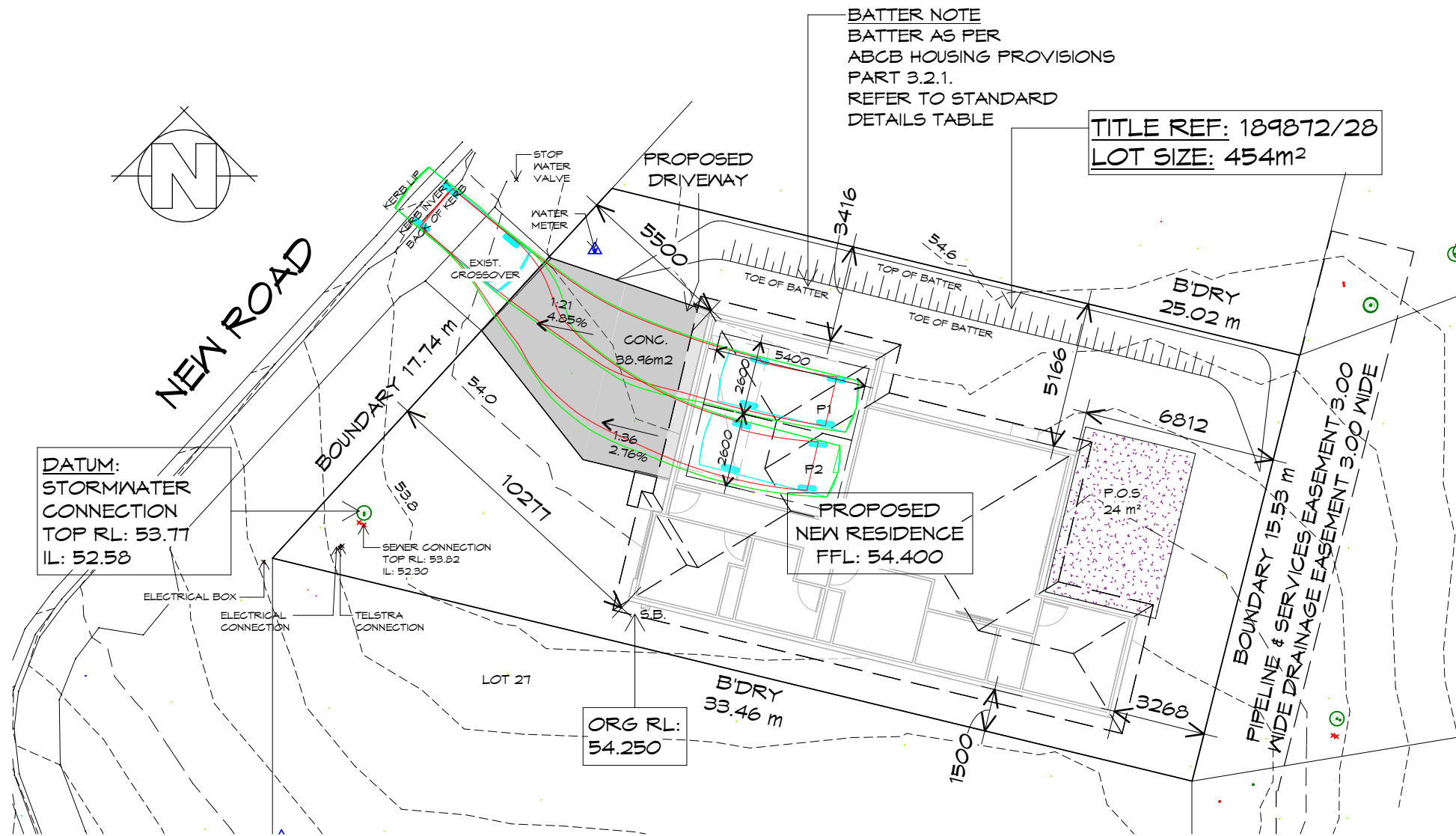
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p(0) + 03 6332 3790
H: Shop 9, 105-111 Main Road, Moonah, 7009
p(h)+03 6228 4575
info@primedesigntas.com.au
Accredited Building Practitioner:
 **bdqa**
BUILDING DESIGNERS
ASSOCIATION OF AUSTRALIA
primedesigntas.com.au
Frank Geskus -No CC246A

AUGUST 2026
PLANNING



- GENERAL NOTES**
- CHECK & VERIFY ALL DIMENSIONS & LEVELS ON SITE
 - WRITTEN DIMENSIONS TO TAKE PREFERENCE OVER SCALED
 - ALL WORK TO BE STRICTLY IN ACCORDANCE WITH NCC 2022, ALL S.A.A. CODES & LOCAL AUTHORITY BY-LAWS
 - ALL DIMENSIONS INDICATED ARE FRAME TO FRAME AND DO NOT ALLOW FOR WALL LININGS
 - CONFIRM ALL FLOOR AREAS
 - ALL PLUMBING WORKS TO BE STRICTLY IN ACCORDANCE WITH A.S. 3500, NCC 2022 & APPROVED BY COUNCIL INSPECTOR
 - BUILDER/PLUMBER TO ENSURE ADEQUATE FALL TO SITE CONNECTION POINTS IN ACCORDANCE WITH A.S. 3500 FOR STORMWATER AND SEWER BEFORE CONSTRUCTION COMMENCES
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ENGINEER'S STRUCTURAL DRAWINGS
 - ALL WINDOWS AND GLAZING TO COMPLY WITH A.S. 1288 & A.S. 2047
 - ALL SET OUT OF BUILDINGS & STRUCTURES TO BE CARRIED OUT BY A REGISTERED LAND SURVEYOR AND CHECKED PRIOR TO CONSTRUCTION
 - IF CONSTRUCTION OF THE DESIGN IN THIS SET OF DRAWINGS DIFFER FROM THE DESIGN AND DETAIL IN THESE AND ANY ASSOCIATED DOCUMENTS BUILDER AND OWNER ARE TO NOTIFY DESIGNER
 - BUILDER'S RESPONSIBILITY TO COMPLY WITH ALL PLANNING CONDITIONS
 - BUILDER TO HAVE STAMPED BUILDING APPROVAL DRAWINGS AND PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION
 - CONSTRUCTION TO COMPLY WITH AS 3959, READ IN CONJUNCTION WITH BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT REPORT.
 - DRAWINGS ARE REQUIRED TO BE VIEWED OR PRINTED IN COLOUR.

- SURVEYORS NOTES**
- IMPORTANT NOTE:
 - THIS PLAN HAS BEEN PREPARED FOR KNEST FROM A COMBINATION OF FIELD SURVEY AND EXISTING RECORDS FOR THE PURPOSE OF DESIGNING NEW CONSTRUCTIONS ON THE LAND AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.
 - UNDERGROUND SERVICES HAVE BEEN LOCATED BY THEIR ABOVE GROUND INDICATORS ONLY.
 - THE RELEVANT AUTHORITIES SHOULD BE CONTACTED REGARDING THE LOCATION OF UNDERGROUND UTILITIES (TELSTRA, WATER MAINS, SEWER, DRAINAGE, GAS) WHICH REQUIRE VERIFICATION ON SITE BEFORE CONSTRUCTION.
 - THIS DATA IS ON A PLANE COORDINATE SYSTEM -
 - DISTANCES ARE WHAT WOULD BE MEASURED ON THE GROUND USING A TAPE MEASURE. THE COORDINATES HAVE AN MGA ORIGIN AT SPM7488(E:522010.727 N:5265613.122 RL:32.90)
 - THE COMBINED SCALE FACTOR (CSF) TO BE APPLIED TO CONVERT TO MGA COORDINATE SYSTEM IS 0.99960079 USING SPM7488 AS THE SCALE ORIGIN POINT.
 - CONTOUR INTERVAL: 200mm
 - DATUM: PLANE MGA2020 BASED ON SPM7488
 - IMPORTANT NOTE:
 - BOUNDARY COMPILATION HAS BEEN CERTIFIED BY NICK CREESE OF LARKE & CREESE.

- SEWER AND WATER SERVICES**
- ALL WORKS IN ACCORDANCE WITH WATER SUPPLY CODE OF AUSTRALIA AND TASWATER SUPPLEMENTS
 - WORKS TO BE DONE BY TASWATER AT DEVELOPERS COST

SITE PLAN

1 : 200

DRIVEWAY GRADIENT
MAXIMUM GRADIENT 1:4 (25%)
TO AS 2890

CAR PARKING GRADIENT
PARALLEL TO PARKING ANGLE 1:20 (5%)
CROSSFALL 1:16 (6.25%)

NOTE: DIMENSIONED BOUNDARY OFFSETS TO THE PROPOSED BUILDING ARE TO THE EXTERNAL CLADDING U.N.O.

THIS PROJECT HAS BEEN DETERMINED TO HAVE A BUSHFIRE ATTACK LEVEL (BAL) OF BAL-12.5 REFER TO ASSESSMENT FOR FURTHER DETAILS. ALL CONSTRUCTION MUST COMPLY WITH AS3959.

SETBACKS
REFER TO DIMENSIONS AND ELEVATIONS FOR FURTHER DETAILS.

GARAGE IS LOCATED WITHIN 12m OF THE PRIMARY FRONTAGE, OPENING WIDTH IS 4.8m

SITE COVERAGE
BUILDING FOOTPRINT 149.51 /SITE AREA 453.9 = 0.329
TOTAL SITE COVERAGE 32.9%

PRIVATE OPEN SPACE
24m² MINIMUM,
WITH A MINIMUM DIMENSION OF 4m
GRADIENT NO STEEPER THAN 1:10



REV. DATE DESCRIPTION

Client name:
KNEST

PLANNING
NOTE: DO NOT SCALE OFF DRAWINGS

Project:
PROPOSED NEW RESIDENCE
LOT 28 TASMAN RISE
ROKEBY

Drawing:
SITE PLAN



L: 10 Goodman Court, Invermay, 7248 - p+ 03 6332 3790
H: Shop 9, 105-111 Main Road, Moonah, 7009 - p+ 03 6228 4575
info@primedesigntas.com.au primedesigntas.com.au

Date: 14.08.2026 Drafted by: T.W. Approved by: Approver

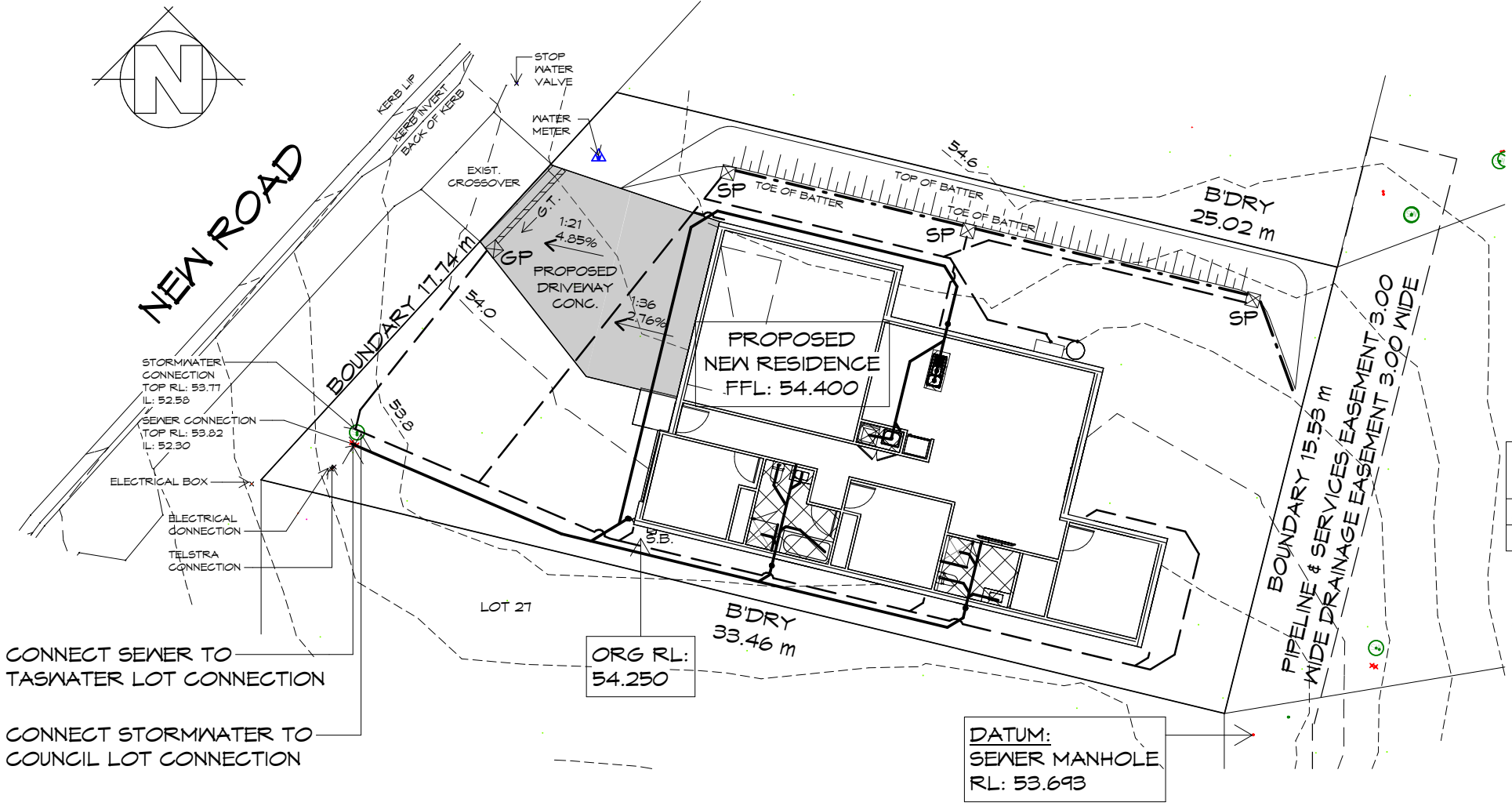
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- SEWER AND WATER SERVICES
- ALL WORKS IN ACCORDANCE WITH WATER SUPPLY CODE OF AUSTRALIA AND TASWATER SUPPLEMENTS
 - WORKS TO BE DONE BY TASWATER AT DEVELOPERS COST

LEGEND

- SP  SEDIMENT PIT - 300X300 EVERHART SURFACE DRAINAGE PIT
- GP  GRATED PIT - 450X450 SURFACE DRAINAGE PIT AT LOCATION OF DRIVEWAY/BATTERS
-  WET AREAS
-  SEWER LINE
-  STORMWATER LINE
-  100mm AG DRAIN
- G.T. 150 WIDE GRATED TRENCH



TRENCH BACKFILL PER SITE CLASS TO COMPLY WITH AS2870 PART 5.6.3

SOIL CLASS	BACKFILL MATERIAL
A-S	CRUSHED DRAINAGE ROCK
M-E	COMPACTED CLAY

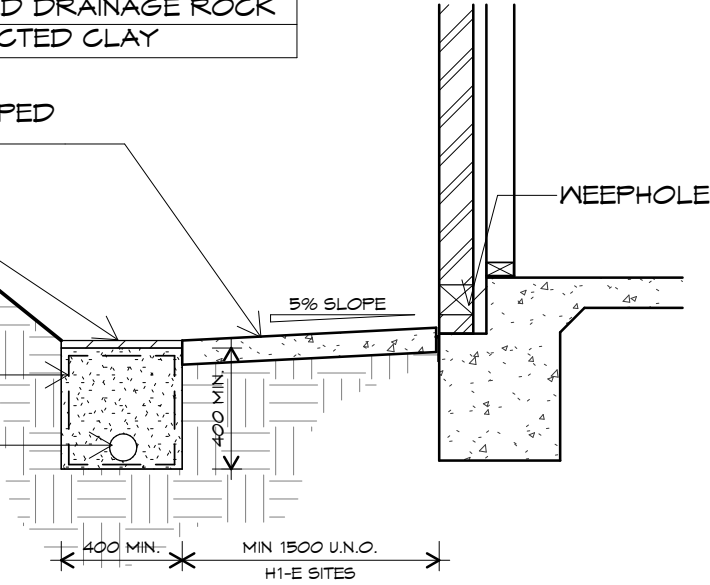
IMPERVIOUS SURFACE SLOPED AWAY FROM BUILDING

TRENCH BACKFILL PER TABLE

EMBANKMENT

GEOTEXTILE FILTER

AG DRAIN @ MIN. 1% GRADIENT



SITE DRAINAGE PLAN

1 : 200

- PITS:** ALL GRATED PITS SIZED AND INSTALLED PER AS/NZS 3500.2021 PART 3
- ORGS:** OVERFLOW RELIEF GULLYS TO BE BRANCHED SEPERATE AND NOT PASS THROUGH. REFER AS/NZS 3500.2021 PART 2
- S/W:** STORMWATER PIPES TO BE SIZED PER ASNZS 3500.2021 PART 3
- VENTS:** DRAINAGE VENTS TO BE LOCATED BEFORE LAST FITTING AT THE END OF THE LINE PER AS/NZS 3500.2021 PART 2

PLUMBING NOTES:
ALL DRAINAGE WORK SHOWN IS PROVISIONAL ONLY AND IS SUBJECT TO AMENDMENT TO COMPLY WITH THE REQUIREMENTS OF THE LOCAL AUTHORITIES.
ALL WORK IS TO COMPLY WITH THE REQUIREMENTS OF AS 3500.2021 & THE TASMANIAN PLUMBING CODE. AND MUST BE CARRIED OUT BY A LICENCED TRADESMAN ONLY.

TYPICAL AG DRAIN DETAIL

N.T.S.



L: 10 Goodman Court, Invermay, 7248 - p+ 03 6332 3790
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Client name:
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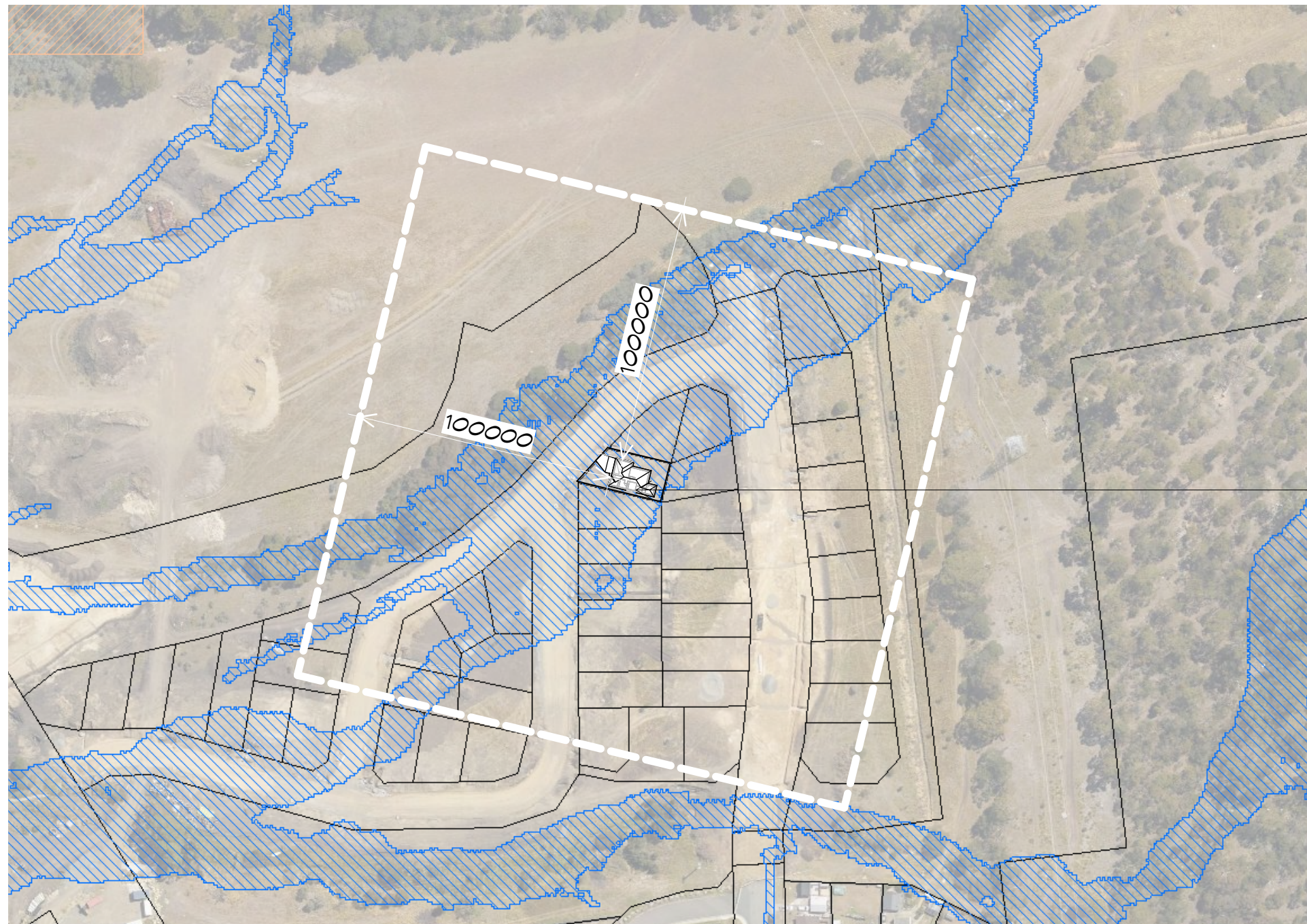
Project:
PROPOSED NEW RESIDENCE
LOT 28 TASMAN RISE
ROKEBY

Drawing:
SITE DRAINAGE PLAN

Date: 14.08.2026
Drafted by: T.W.
Approved by: Approver

Project/Drawing no: PD26026 - 02
Scale: As indicated
Revision: 02

Accredited building practitioner: Frank Gekus -No CC246A
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PROPOSED NEW RESIDENCE
LOT 28 TASMAN RISE,
ROKEBY

LOCALITY PLAN

1 : 2000

THIS SITE IS ZONED **GENERAL RESIDENTIAL** AND **REQUIRES** A BUSHFIRE ASSESSMENT.
RESIDENCE IS NOT OVER 100m FROM UNMANAGED BUSH/GRASSLANDS GREATER THAN 1 HECTARE.

REFER TO BUSHFIRE ASSESSMENT REPORT FOR MANAGMENT PLAN

THIS PROJECT HAS BEEN DETERMINED TO HAVE A
BUSHFIRE ATTACK LEVEL (BAL) OF BAL-12.5
REFER TO ASSESSMENT FOR FURTHER DETAILS.
ALL CONSTRUCTION MUST COMPLY WITH AS3959.



REV.	DATE	DESCRIPTION
------	------	-------------

Client name:
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Project:
PROPOSED NEW RESIDENCE
LOT 28 TASMAN RISE
ROKEBY

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LOCALITY PLAN



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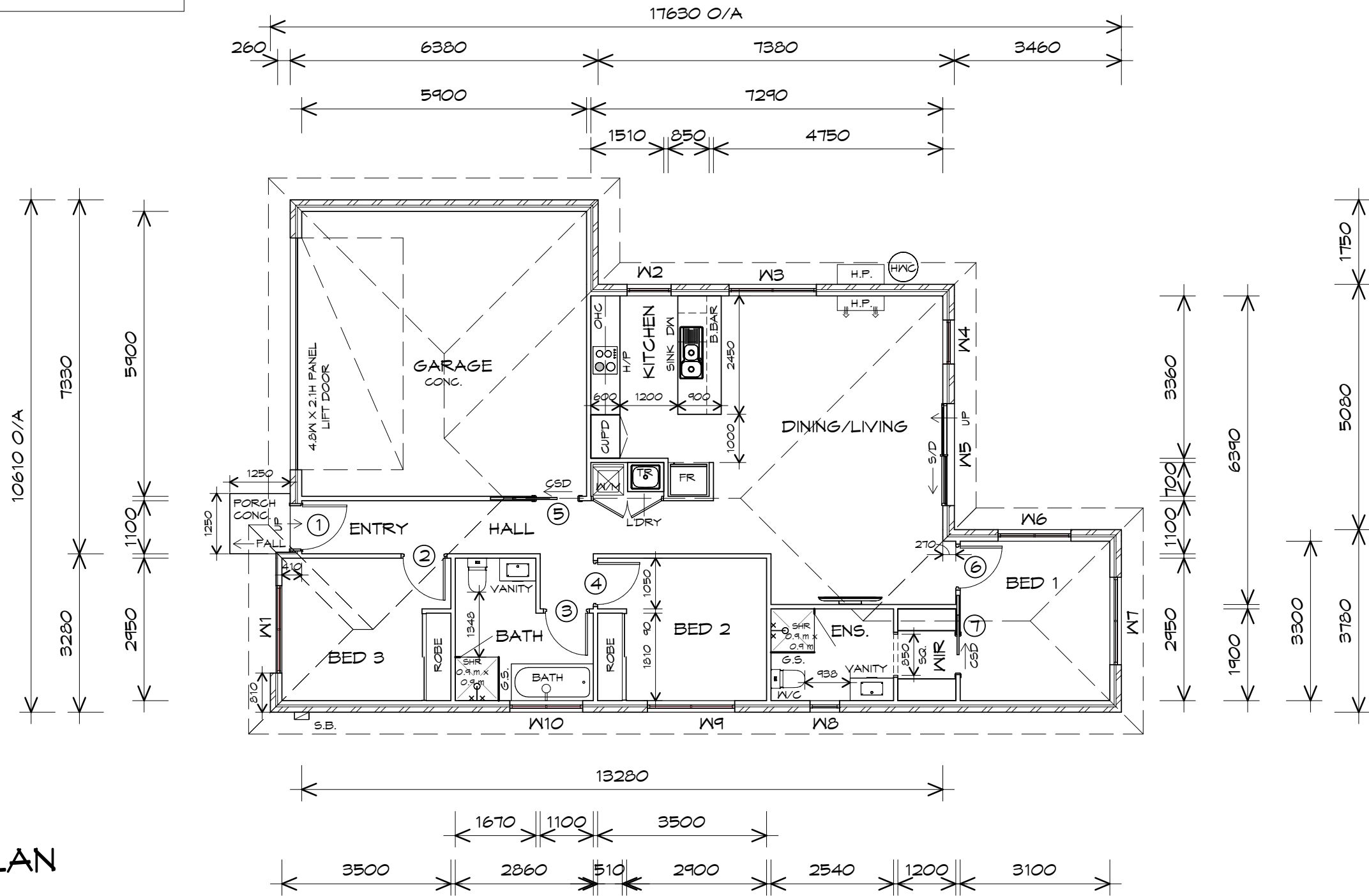
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14.08.2026	Author	Approver

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PD26026 - 03	1 : 2000	02

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NOTE:
WHERE LIGHT WEIGHT CLADDING IS
USED DIMENSIONS ARE TO FRAME ONLY
AND DO NOT INCLUDE LIGHT WEIGHT
CLADDING

- LEGEND
- CS CAVITY SLIDING DOOR
 - S/D SLIDING DOOR
 - G.S GLASS SCREEN
 - OH OVERHEAD CUPBOARDS
 - S.Q SQUARE STOP



FLOOR PLAN

1 : 100

GARAGE AREA	38.62	m2	(4.16 SQUARES)
FLOOR AREA	108.69	m2	(11.70 SQUARES)
TOTAL AREA	147.31		15.86

NOTE:
FLOOR AREAS INCLUDE TO EXTERNAL FACE OF
BUILDING AND GARAGE, UNLESS OTHERWISE STATED.
DECKS AND OUTDOOR AREAS ARE CALCULATED
SEPARATELY.

THIS PROJECT HAS BEEN DETERMINED TO HAVE A
BUSHFIRE ATTACK LEVEL (BAL) OF - 12.5
REFER TO ASSESSMENT FOR FURTHER DETAILS.
ALL CONSTRUCTION MUST COMPLY WITH AS3959.



REV. DATE DESCRIPTION

Client name:
KNEST

PLANNING
NOTE: DO NOT SCALE OFF DRAWINGS

Project:
PROPOSED NEW RESIDENCE
LOT 28 TASMAN RISE
ROKEBY
Drawing:
FLOOR PLAN



L: 10 Goodman Court, Invermay, 7248 - p+ 03 6332 3790
H: Shop 9, 105-111 Main Road, Moonah, 7009 - p+ 03 6228 4575
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DOOR SCHEDULE			
MARK	WIDTH	TYPE	REMARKS
1	920	EXTERNAL ENTRY DOOR	
2	870	INTERNAL TIMBER DOOR	
3	870	INTERNAL TIMBER DOOR	
4	870	INTERNAL TIMBER DOOR	
5	920	CAVITY SLIDING DOOR	
6	870	INTERNAL TIMBER DOOR	
7	820	CAVITY SLIDING DOOR	

WINDOW SCHEDULE				
MARK	HEIGHT	WIDTH	TYPE	REMARKS
W1	1800	1810	AWNING WINDOW	
W2	1800	910	AWNING WINDOW	
W3	1800	1810	AWNING WINDOW	
W4	1800	910	AWNING WINDOW	
W5	2100	2110	SLIDING DOOR	
W6	600	1510	AWNING WINDOW	
W7	1800	1810	AWNING WINDOW	
W8	900	610	AWNING WINDOW	OPAQUE
W9	1200	1810	AWNING WINDOW	
W10	1000	1510	AWNING WINDOW	OPAQUE

ALUMINIUM WINDOWS **DOUBLE GLAZING** COMPLETE
WITH FLY SCREENS TO SUIT **BAL-12.5** RATING.
ALL WINDOW MEASUREMENTS TO BE VERIFIED ON SITE
PRIOR TO ORDERING

NOTE:
LOW REFLECTANCE GLASS TO BE USED ON ALL THE
EXTERNAL WINDOWS TO COMPLY WITH **CLA-S4.7.1**
BIRD STRIKE; PARANVILLE SPECIFIC AREA PLAN



REV.	DATE	DESCRIPTION
------	------	-------------

Client name:
KNEST

PLANNING

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Project:
PROPOSED NEW RESIDENCE
LOT 28 TASMAN RISE
ROKEBY

Drawing:
DOOR AND WINDOW SCHEDULES



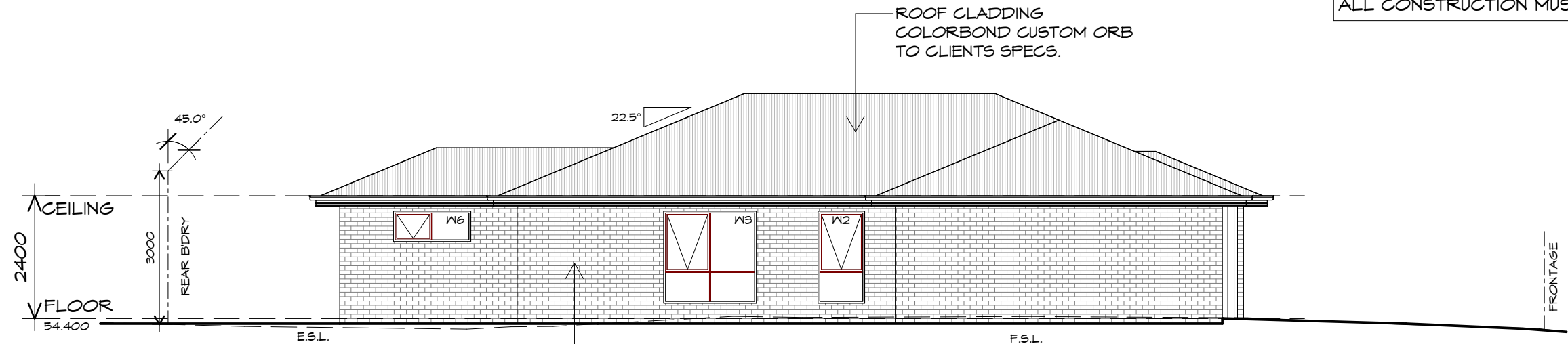
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bdca
BUILDING DESIGNERS
ASSOCIATION OF AUSTRALIA

Date: 14.08.2026	Drafted by: T.W.	Approved by: Approver
Project/Drawing no: PD26026 - 05	Scale:	Revision: 02

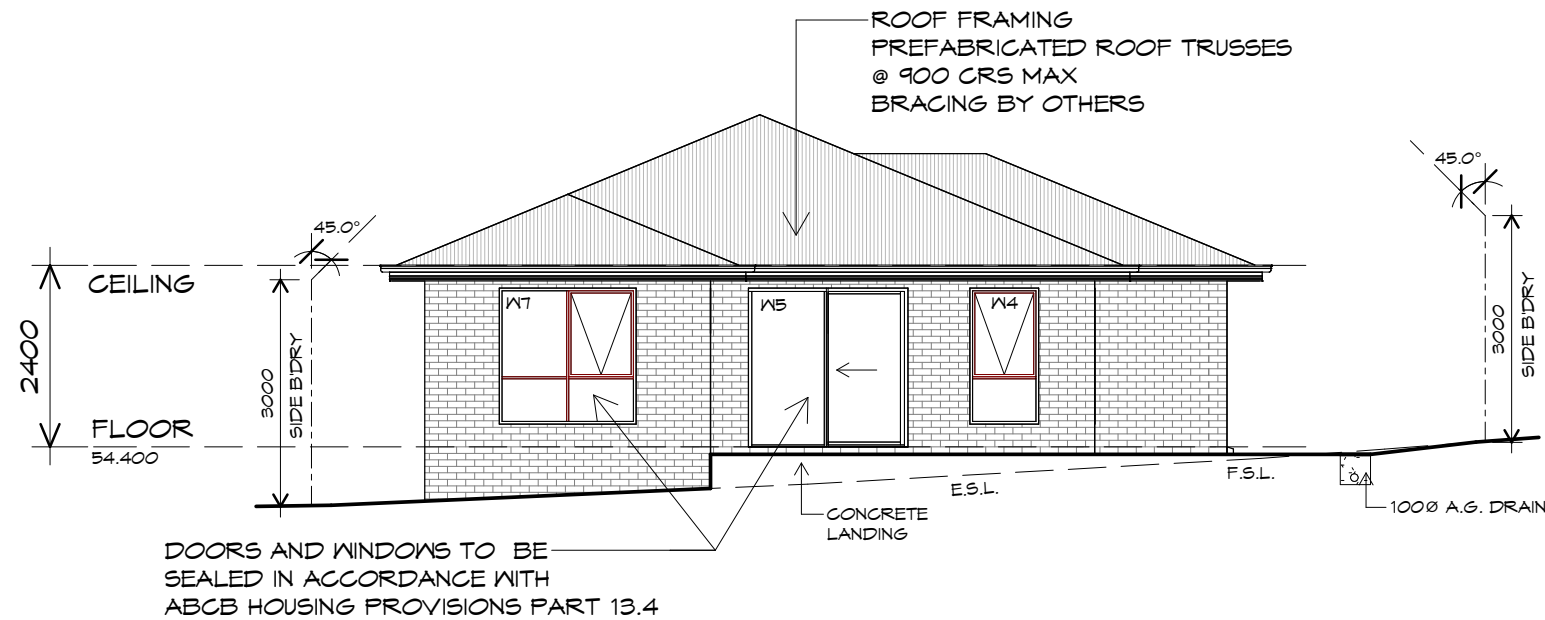
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REFER TO ASSESSMENT FOR FURTHER DETAILS.
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BRICKWORK
SELECTED FIRED CLAY
FACE BRICKS.
RAKED JOINTS, STRETCHER BOND
REFER ENGINEER FOR
ARTICULATION JOINTS
ALL MASONRY TO COMPLY
WITH ABCB HOUSING PROVISIONS PART 5

NORTHERN ELEVATION
1 : 100



DOORS AND WINDOWS TO BE
SEALED IN ACCORDANCE WITH
ABCB HOUSING PROVISIONS PART 13.4

EASTERN ELEVATION
1 : 100

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H: Shop 9, 105-111 Main Road, Moonah, 7009 - p+ 03 6228 4575
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bdaa
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ASSOCIATION OF AUSTRALIA

knest

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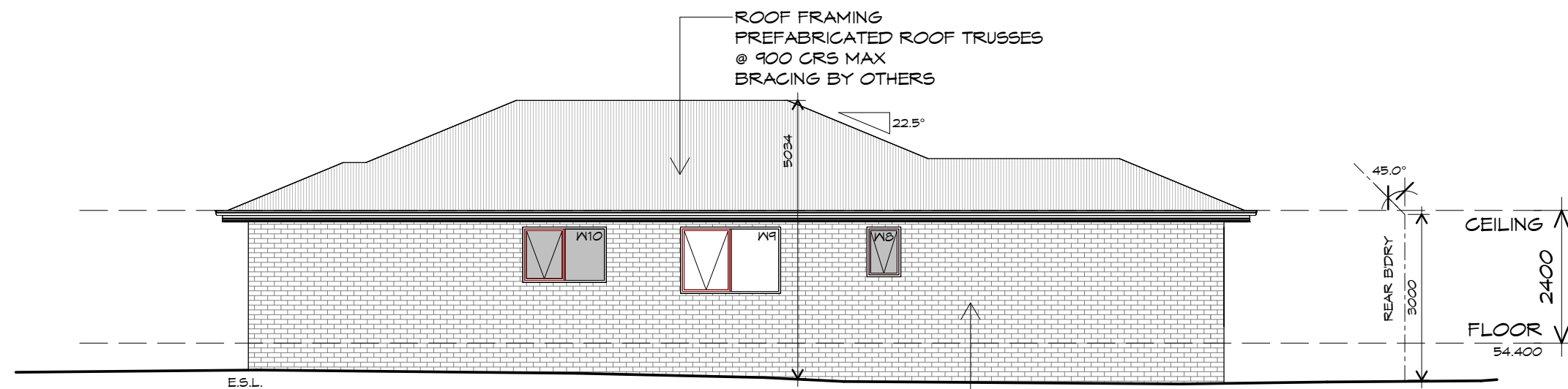
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PLANNING
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Project:
PROPOSED NEW RESIDENCE
LOT 28 TASMAN RISE
ROKEBY
Drawing:
ELEVATIONS

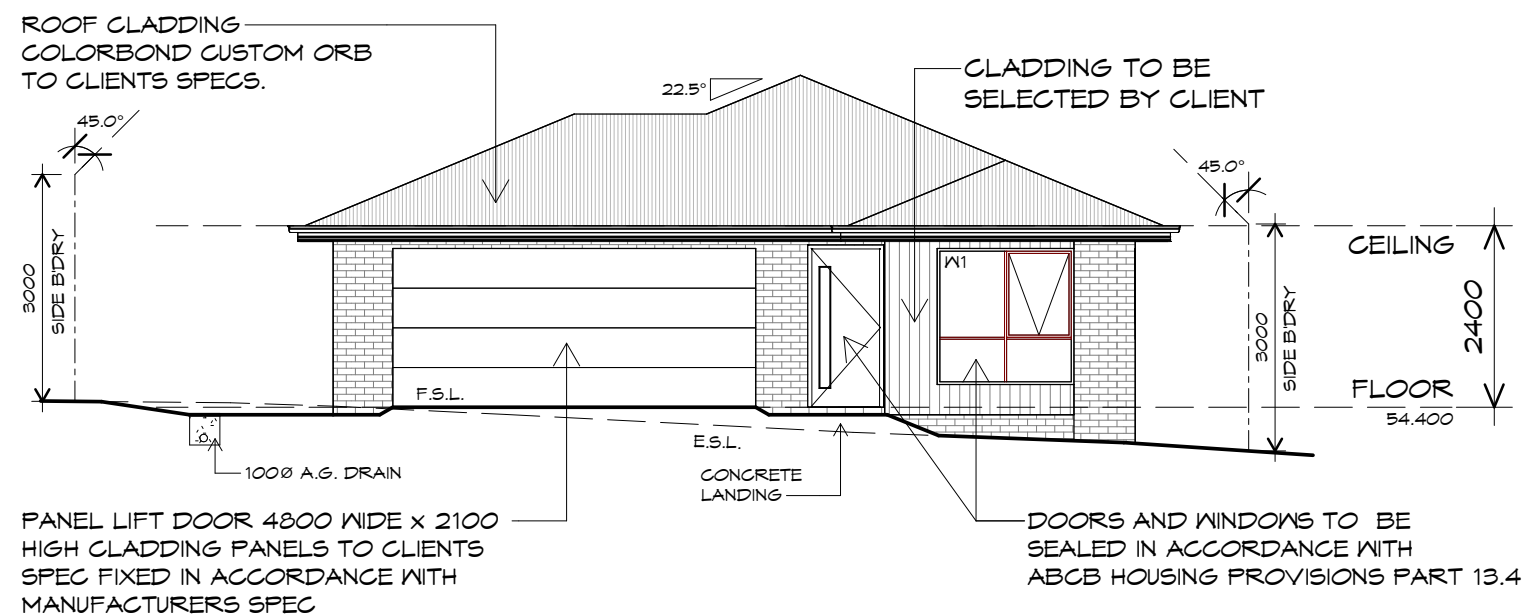
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SOUTHERN ELEVATION

1 : 100



WESTERN ELEVATION

1 : 100



REV. DATE DESCRIPTION

Client name:
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Project:
PROPOSED NEW RESIDENCE
LOT 28 TASMAN RISE
ROKEBY

Drawing:
ELEVATIONS

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H: Shop 9, 105-111 Main Road, Moonah, 7009 - p+ 03 6228 4575
info@primedesigntas.com.au primedesigntas.com.au

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Project/Drawing no: PD26026 - 07 Scale: 1 : 100 Revision: 02

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ROOF PLUMBING NOTES:

GUTTER INSTALLATION
TO BE IN ACCORDANCE WITH
ABCB HOUSING PROVISIONS PART 7.4.4
WITH FALL NO LESS THAN
1:500 FOR EAVES GUTTER
BOX GUTTERS IN ACCORDANCE WITH
AS33500.3:2021

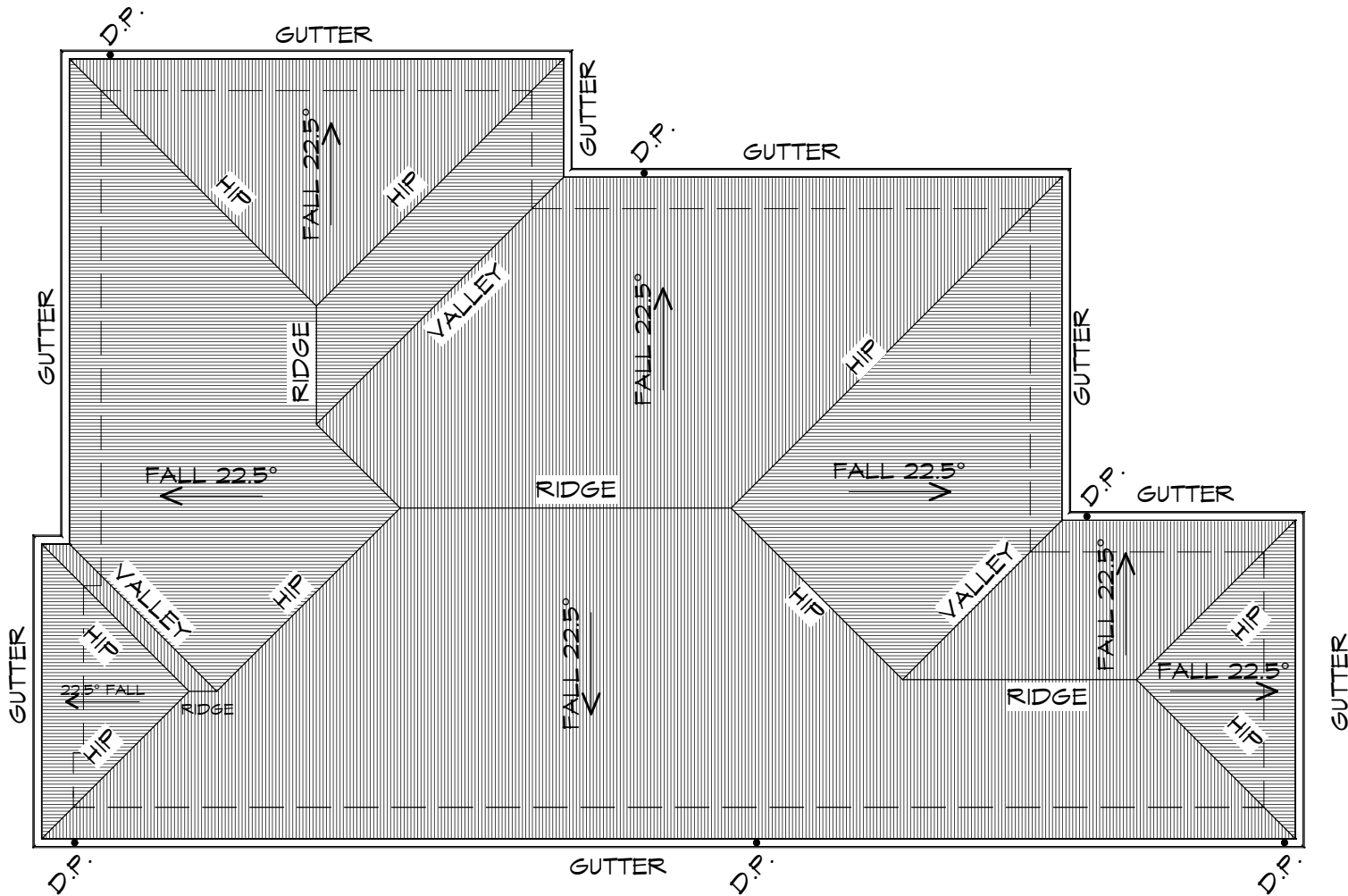
UNLESS FIXED TO METAL FASCIA
EAVES GUTTER TO BE FIXED
@ 1200 CRS MAX.

VALLEY GUTTERS ON A ROOF WITH A PITCH:
A) MORE THAN 12.5° DEGREES - MUST
HAVE A WIDTH OF NOT LESS THAN
400mm AND ROOF OVERHANG OF NOT
LESS THAN 150mm EACH SIDE OF VALLEY
GUTTER.
B) LESS THAN 12.5° DEGREES, MUST BE
DESIGNED AS A BOX GUTTER.

LAP GUTTERS 75mm IN THE DIRECTION
OF FLOW, RIVET & SEAL WITH AN
APPROVED SILICONE SEALANT.

DOWNPIPE POSITIONS SHOWN ON THIS
PLAN ARE NOMINAL ONLY.
EXACT LOCATION & NUMBER OF D.P.'S
REQUIRED ARE TO BE IN ACCORDANCE
WITH ABCB HOUSING PROVISIONS PART 7.4.5
REQUIREMENTS.
SPACING BETWEEN DOWNPIPES MUST NOT
BE MORE THAN 12m & LOCATED AS CLOSE AS
POSSIBLE TO VALLEY GUTTERS

METAL ROOF
METAL SHEETING ROOF TO BE INSTALLED IN
ACCORDANCE WITH ABCB HOUSING PROVISIONS PART
7.2. REFER TO TABLE 7.2.2a FOR ACCEPTABLE
CORROSION PROTECTION FOR SHEET ROOFING,
REFER TO TABLE 7.2.2b-7.2.2e FOR ACCEPTABILITY
OF CONTACT BETWEEN DIFFERENT ROOFING
MATERIALS. FOR FIXING, SHEET LAYING SEQUENCE,
FASTENER FREQUENCY FOR TRANVERSE FLASHINGS
AND CAPPINGS, ANTI CAPILLARY BREAKS, FLASHING
DETAILS REFER TO ABCB HOUSING PROVISIONS PART
7.2.5- 7.2.7. ROOF PENETRATION FLASHING DETAILS.
REFER TO TO ABCB HOUSING PROVISIONS PART
7.2.5- 7.2.7. ROOF SHEETING MUST OVERHANG MIN
35mm AS PER ABCB HOUSING PROVISIONS PART 7.2.8



ROOF PLAN

1 : 100

ADDITIONAL ROOF LOAD
NO SOLAR P.V. SYSTEM HAS BEEN ALLOWED FOR,
NO SOLAR HOT WATER HAS BEEN ALLOWED FOR.

THIS PROJECT HAS BEEN DETERMINED TO HAVE A
BUSHFIRE ATTACK LEVEL (BAL) OF - 12.5
REFER TO ASSESSMENT FOR FURTHER DETAILS.
ALL CONSTRUCTION MUST COMPLY WITH AS3959.



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H: Shop 9, 105-111 Main Road, Moonah, 7009 - p+ 03 6228 4575
info@primedesigntas.com.au primedesigntas.com.au



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Project:
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LOT 28 TASMAN RISE
ROKEBY

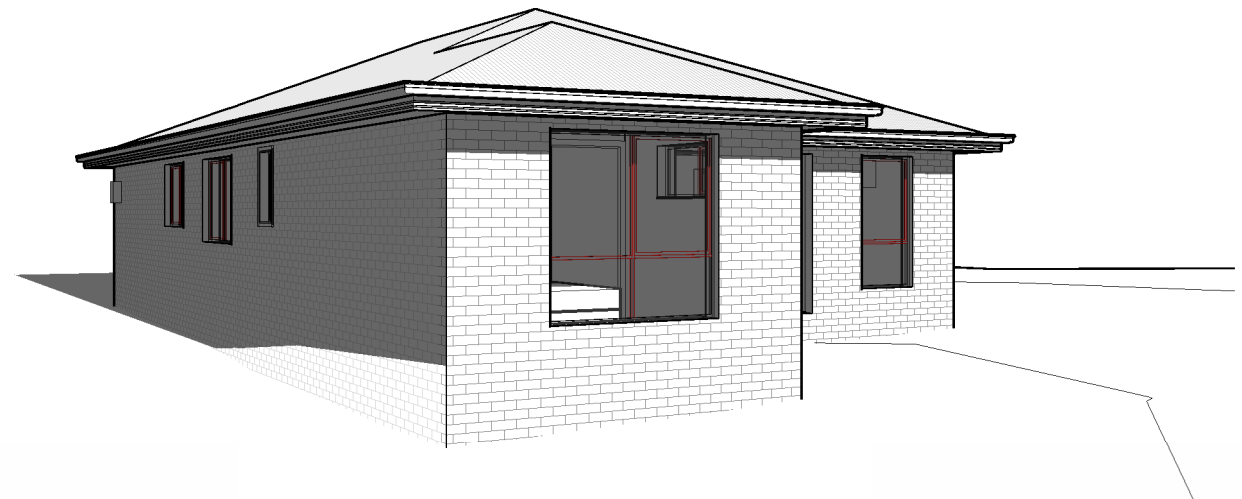
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Date: 14.08.2026
Drafted by: T.W.
Approved by: Approver

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PERSPECTIVES



L: 10 Goodman Court, Invermay, 7248 - p+ 03 6332 3790
H: Shop 9, 105-111 Main Road, Moonah, 7009 - p+ 03 6228 4575
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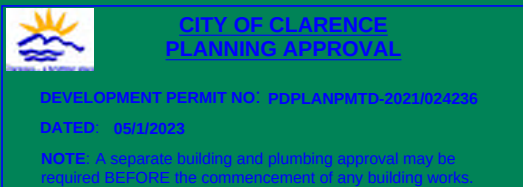
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STORMWATER REPORT

FOR ORIGINAL INSIGHT PTY LTD
93 PASS ROAD, ROKEBY



October 2022

JMG Project No. J220268CS

HOBART OFFICE
117 Harrington Street
Hobart TAS 7000
Phone (03) 6231 2555
infohbt@jmg.net.au

LAUNCESTON OFFICE
49-51 Elizabeth Street
Launceston TAS 7250
Phone (03) 6334 5548
infohbt@jmg.net.au

Issuing Office: 117 Harrington Street, Hobart 7000
JMG Project No. J220268CS

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**CITY OF CLARENCE
PLANNING APPROVAL**

DEVELOPMENT PERMIT NO: PDPLANPMTD-2021/024236

DATED: 05/1/2023

NOTE: A separate building and plumbing approval may be required BEFORE the commencement of any building works.

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Appendix A - Development Site Plan

Appendix B - Pre-Development Catchments

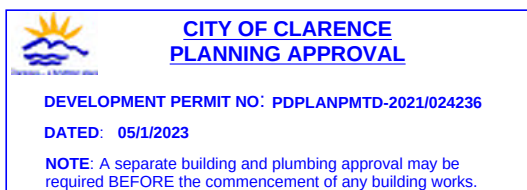
Appendix C - Post Development Catchments

Appendix D - Forebay and Wetland Cross Section

Appendix E - Hutchings Spurr Swale Design

Appendix F - Watercourse and wetland drawings

Appendix G - Landscaping plans



1. Introduction

A 130 Lot subdivision is planned for 93 Pass Road, Rokeby. Hutchings Spurr (HS) consulting engineers are undertaking detailed design for the development and have engaged JMG Engineers & Planners to assist with stormwater design.

The development is to be assessed under the Tasmanian Planning Scheme, which requires stormwater design to be compliant with Council's publication *Stormwater Management Procedure for New Development*. This report addresses the following aspects of this Procedure:

Stormwater Quantity:

- The minor stormwater drainage system shall be designed for the 5% AEP flooding event.
- The increase in runoff due to the development shall be accommodated within on-site detention as there is insufficient capacity in the receiving waterways.
- The major stormwater drainage system in new developments shall be designed for the safe conveyance of the 1% AEP storm event with an allowance for climate change (RCP 8.5 for the year 2090). Existing waterways are to be maintained and enhanced where possible.

Stormwater Quality:

- Water Sensitive Urban Design principles shall be incorporated into the design to achieve the following targets:
 - 90% reduction in the average annual load of gross pollutants based on typical urban stormwater concentrations
 - 80% reduction in the average annual load of total suspended solids (TSS) based on typical urban stormwater concentrations
 - 45% reduction in the average annual load of total phosphorous (TP) based on typical urban stormwater concentrations
 - 45% reduction in the average annual load of total nitrogen (TN) based on typical urban stormwater concentrations

2. Proposed Development

The proposal comprises a standard urban residential sub-division and is a natural extension to previously approved developments to the west (at 91 Pass Road) and constructed developments to the south at Rockingham Drive, Clarendon Vale. Refer Figure 1.

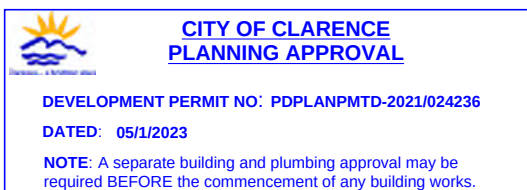




Figure 1 - Subject site locality plan

The proposal is for a 130 lot development across the south western portion of the property with a potential further approximate 38 lots (4.4Ha) to the east and 46 lots (6.2Ha) to the north (refer Appendix A- Development site plan). The potential future lots have been included in the assessment to allow for future development should they proceed.

2.1 Proposed Stormwater Infrastructure

Impervious areas will be serviced with standard urban residential pits and pipes sized for the 5% AEP rainfall event in accordance with Council requirements.

Additional runoff caused by the increase in impervious area will be detained in a detention basin sized to limit flows to pre-development levels.

Stormwater quality will be managed through Gross Pollutant Traps (GPT's), the detention basin and a wetland.

Refer to the sections below for detailed analysis of the required infrastructure.

3. Stormwater Quantity Control

Runoff from the site drains directly into Sawpit Gully, which subsequently drains to Stokell Creek and Clarence Plains Rivulet. Council have undertaken flood studies on this catchment and advise that there are currently flooding issues downstream that should not be exacerbated by the development. Therefore, it is required to detain runoff to limit flows to pre-development levels for the 5% AEP rainfall event.

3.1 Pre-Development runoff

Pre-development runoff flows were calculated using Watercom Drains software (Drains) with the following inputs.

Hydrological Model

A RAFTS model was adopted for the pre-development scenario with inputs derived from the ARR Data Hub and ARR Book 9 Chapter 6 (or as noted otherwise), specifically:

- Impervious Area Initial Loss = 1mm
- Impervious Area Continuing Loss = 0mm/hr
- Pervious Area Initial Loss = 28mm
- Pervious Area Continuing Loss = 2.0mm/hr (reduced from recommended loss of 3.7mm/hr from the data hub due to guidance from Council)
- BX = 1
- Climate change factor for RCP 8.5 for year 2090 = 16.3%

Catchments

The proposed development area was broken into its respective catchments with characteristics provided in Appendix B. Note that flow path lengths and grades are from the centroid of the catchment, per recommendations for RAFTS modelling.

Rainfall Ensembles

In line with ARR 2019 recommendations, the model was run with a full ensemble of rainfall events including:

- Temporal patterns from the ARR Data Hub,
- Intensity Frequency Duration (IFD) depths from the BOM website, and
- Pre burst rainfall for the median case also from the ARR Data Hub.

Results

The maximum 5% AEP flow occurred during the modelled 6 hour burst for pattern 5 and is estimated at 820l/s. Refer Figure 2 and 3 below.

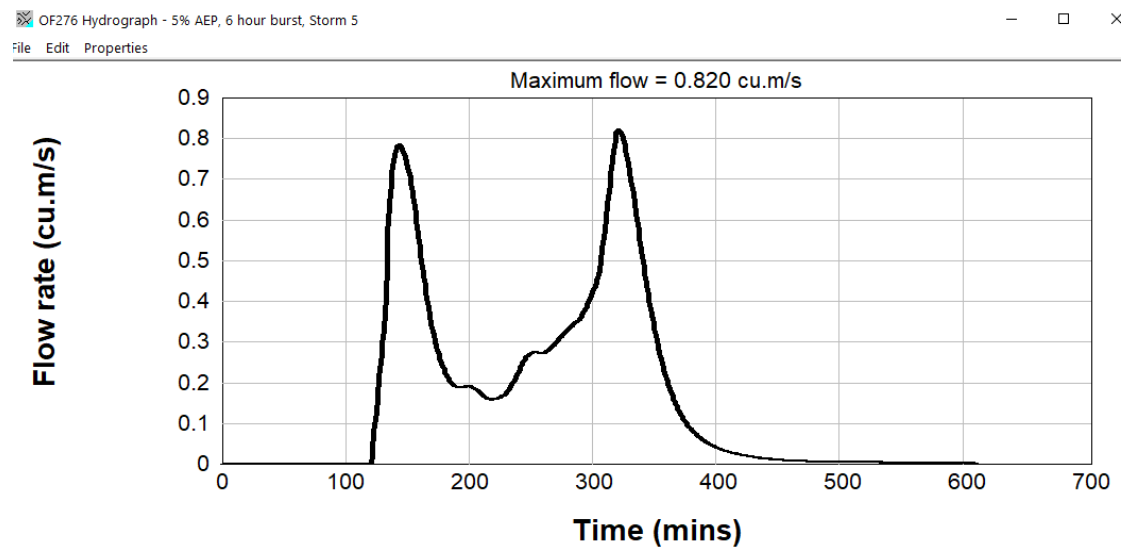


Figure 2 - Pre-development runoff hydrograph for the critical storm for the proposed development areas.



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Maximum flow in OF276 for each storm

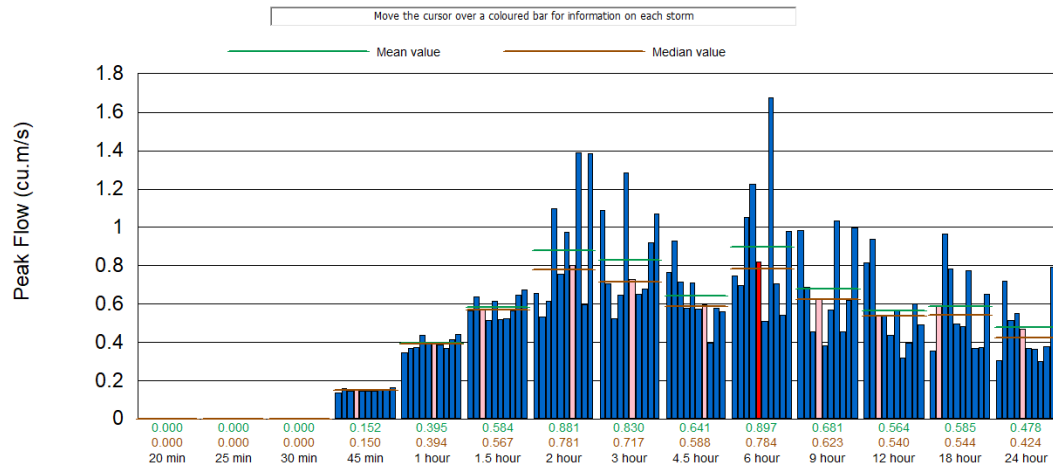


Figure 3 - Pre-development runoff for the various storms modelled.

Calibration Analysis

As a cross check, the 5% AEP pre development runoff was also calculated using the Rational Method with the following inputs:

Time of Concentration (ToC)

- Overland flow path length = 600m
- Overland flow path slope = 5%
- Surface roughness = 0.05 (sparse vegetation)
- Rainfall intensity = Approximately 35mm/hr
- Calculated Time of Concentration based on Kinematic Wave Equation

$$t = \frac{6.94 (L \cdot n^*)^{0.8}}{I^{0.4} \cdot S^{0.3}}$$

where t is the overland flow travel time (minutes)
 L is the flow path length (m)
 n* is a surface roughness or retardance factor
 I is rainfall intensity (mm/h), and
 S is the surface slope (m/m).

t = 32 minutes, rounded to 30 minutes.



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Flow estimation

- Rainfall intensity, I = 34.9mm/hr (30 minute ToC)
- Area, A = 180,483m² (18.048Ha)
- Runoff coefficient, C = 0.40 (For medium soil and 35mm/hr rainfall intensity)
- Climate change factor = 16.3%
- Peak 5% AEP flow, Q = 1.163*2.78*C*I*A
- = 1.163*2.78*0.40*34.9*18.048
- = 815 l/s

The correlation is very good. Therefore, a maximum pre-development 5% AEP runoff including climate change of 820l/s has been adopted.

3.2 *Post Development Runoff*

Post development runoff analysis has been done using Drains in a similar fashion to predevelopment runoff.

Hydrological Model

The Initial Loss - Continuing Loss (IL-CL) model was used to analyse the developed catchment with the following inputs.

- Impervious Area Initial Loss = 1mm
- Impervious Area Continuing Loss = 0mm/hr
- Pervious Area Initial Loss = 28mm
- Pervious Area Continuing Loss = 2.0mm/hr
- Climate change factor for RCP 8.5 for year 2090 = 16.3%

Catchments

The detention volume required has been calculated by analysing three separate sub-basins within the overall catchment. A sensitivity analysis was done by further delineating the sub-basins into smaller areas, but this was found to make very little difference. The Manning's n-value of the catchments and other flow path characteristics were also varied to investigate the possible impact, but changes were also found to be negligible.

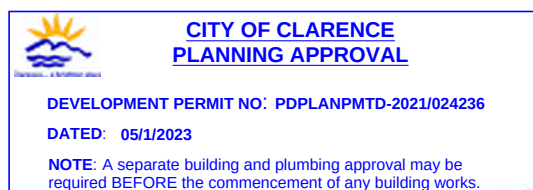
The adopted catchment characteristics are detailed in Appendix C. Note that the impervious areas used in the IL-CL model are divided into Effective and Remaining. The Effective Impervious Area (EIA) is that which is directly connected to the downstream drainage network. This has been conservatively taken as 85% of the Total Impervious Area, which has been assumed to be 70% of the total development area. Therefore, the EIA adopted is 60% of total area, the RIA is 10% and the Pervious Area is 30%.

Hydraulic Model

The Drains model was set up with the developed catchment draining to a forebay/detention basin of approximately 2200m³. The forebay has two outlets, a low flow outlet to the wetland and a high flow outlet direct to the creek. The low flow outlet is set 500mm below the high flow outlet to ensure that all low flows are directed to the wetland for treatment.

The wetland has approximately 4000m³ capacity with a treatment surface area of approximately 1000m² and has a small orifice outlet to ensure adequate detention time for treatment. The total outflow from the forebay and wetland combined is no greater than pre-development levels.

A schematic profile is shown in Figure 4 and also included in Appendix D. Note that the wetland batter slopes are shown schematically only. Surface areas and volumes have been based on best practice batter slopes to provide safety benching and shallow batters.



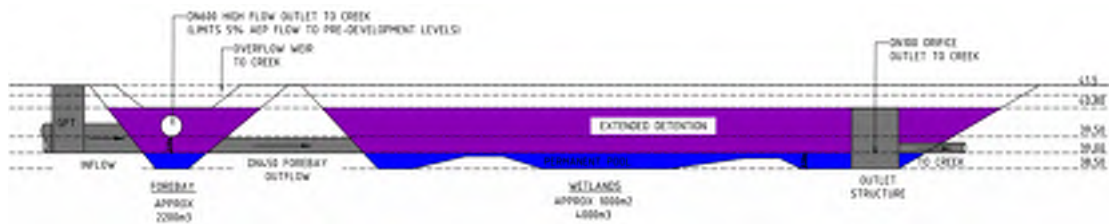


Figure 4 - Profile schematic of forebay and wetland

Results

The maximum 5% AEP inflow to the forebay occurs during a 15 minute storm burst, which would be expected for an urban development of this scale. The total inflow peaks at around 1.87m³/s for the critical median storm event. Refer Figure 5.



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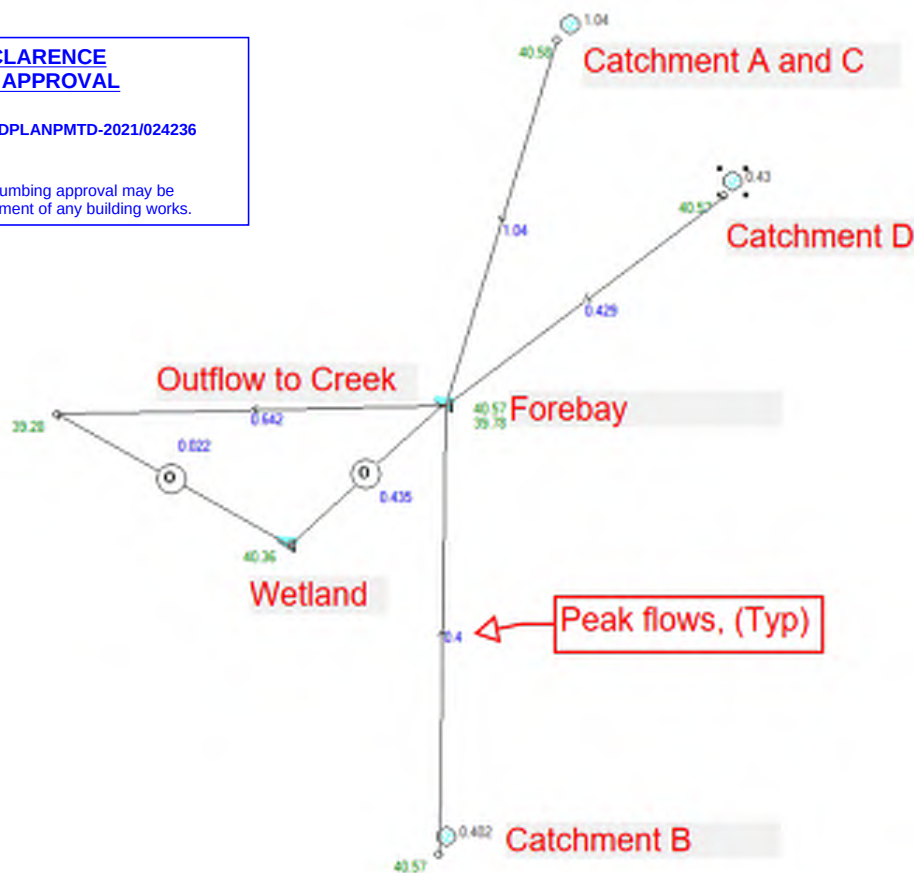


Figure 5 - Drains model showing maximum inflow (for median storm event) to wetland forebay (accumulation of 1.04m³/s from catchments A and C, 0.429m³/s from catchment D and 0.400m³/s from catchment B).

The maximum 5% AEP outflow from the forebay to the adjacent creek (bypassing the wetland) occurs during a 1 hour storm burst and is approximately 642l/s as shown in Figure 6 and 7. This flow is less than the pre-development 5% AEP flow of 820l/s and therefore complies with Council requirements (noting that there is a very small additional flow from the wetland of approximately 15l/s at the 60 minute time step, refer Figure 9).



Pipe to Creek Hydrograph - 5% AEP, 1 hour burst, Storm 9
File Edit Properties

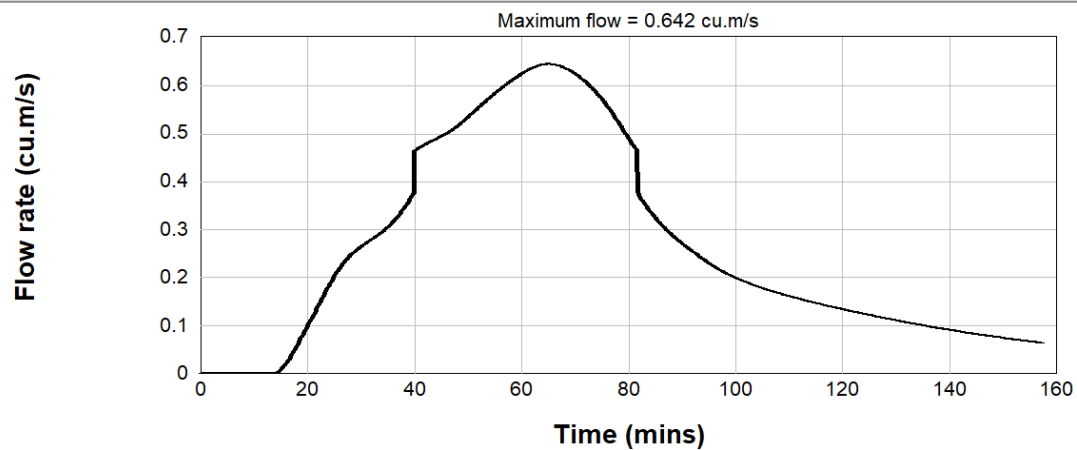


Figure 6 - High flow bypass median 5% AEP hydrograph

Maximum flow in Pipe to Creek for each storm

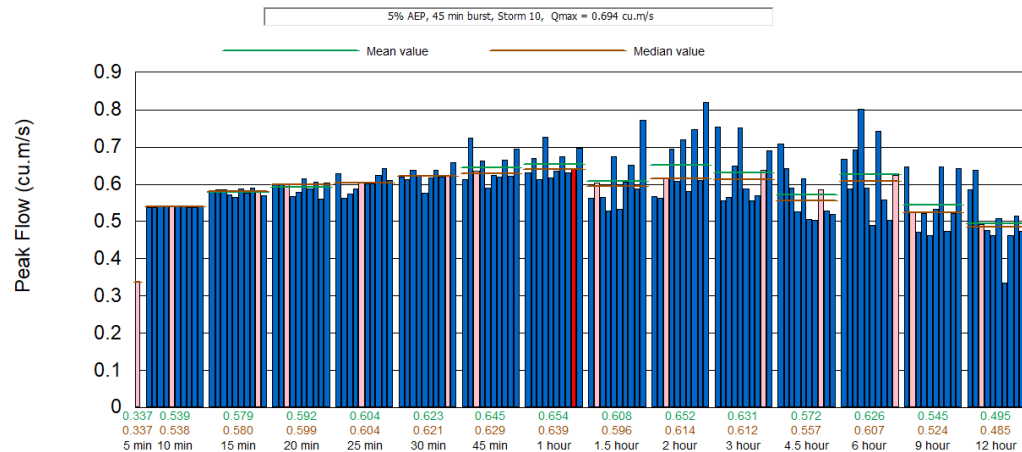


Figure 7 - High flow bypass flows for various storms modelled.

Other pertinent outputs from the Drains model are shown in the following figures.

To Wetland Hydrograph - 5% AEP, 15 min burst, Storm 4
File Edit Properties

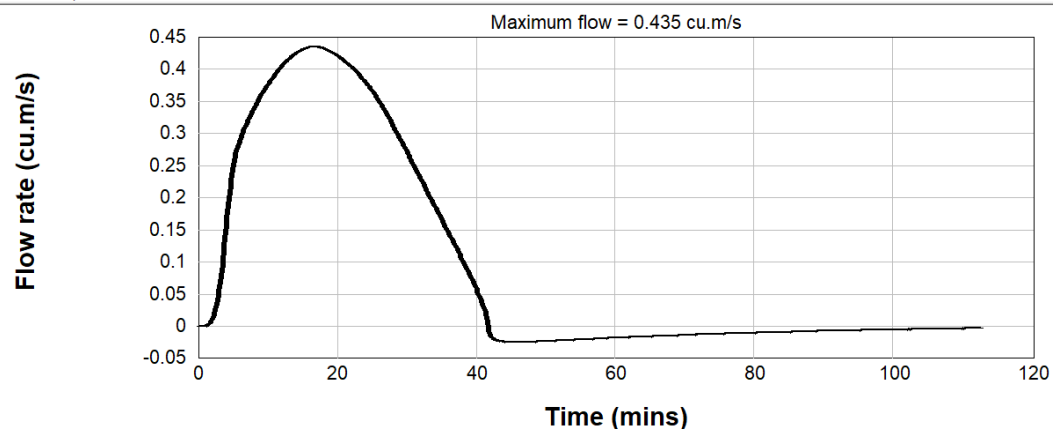


Figure 8 - 5% AEP median hydrograph for flows from the forebay to the wetland.

From wetland Hydrograph - 5% AEP, 3 hour burst, Storm 8

File Edit Properties

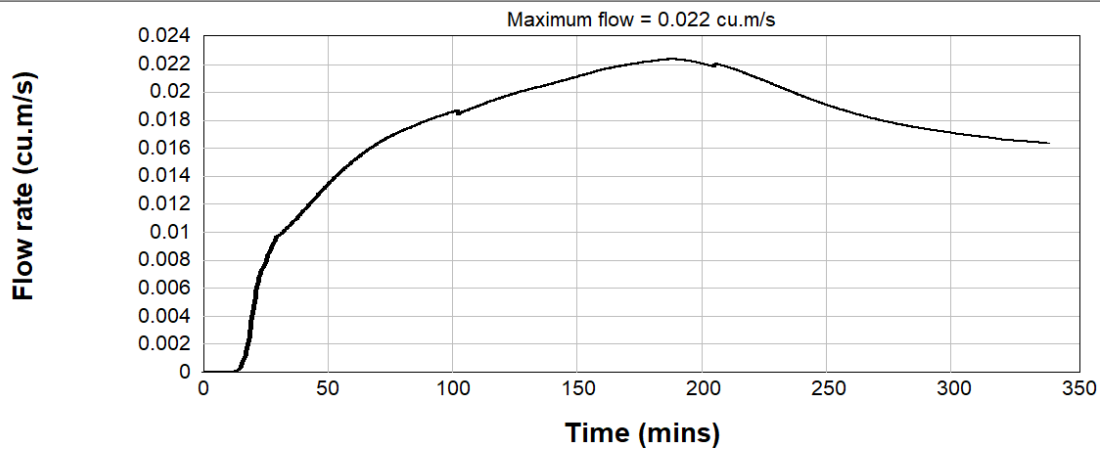


Figure 9 - 5% AEP median hydrograph for flows from the wetland to the creek.

Calibration Analysis

Runoff from the developed areas has been checked using the Rational Method with the following inputs:

Time of Concentration estimated at 8 mins (5mins from property to pipe plus 3mins in pipe to wetland), rounded to 10mins.

Rainfall intensity, I = 64.4mm/hr

Area, A = 180,483m² (18.048Ha)

Runoff coefficient, C = 0.7

Climate change factor = 16.3%

Peak 5% AEP flow, Q = 1.163*2.78*C*I*A
 = 1.163*2.78*0.7*64.4*18.048
 = 2630l/s

The Drains model runoff is approximately 40% less than the estimated Rational Method runoff. This is likely to do with the assumed losses and attenuation of flow through the Drains model. Given that there isn't any flow data to calibrate the model from, it is assumed sufficiently accurate for infrastructure sizing.

3.3 Major Drainage System Analysis

Council have requested an analysis of the 1% AEP+CC flooding extent within the minor drainage channels that pass through the site for the following purposes:

1. To ensure that the major drainage system has sufficient capacity to convey the 1% AEP+CC flood flow in accordance with the following clause in their Management Procedure:
 - a. *The major stormwater drainage system in new developments shall be designed for the safe conveyance of the 1% AEP storm event with an allowance for climate change (RCP 8.5 for the year 2090). Existing waterways are to be maintained and enhanced where possible.*

2. To ascertain the amount of unencumbered Public Open Space (POS).

It is proposed to fully address this requirement as part of detailed design depending on Council's preference for the balance between maintaining the existing waterways, the provision for usable POS and ensuring sufficient hydraulic capacity. To this extent it is proposed to ensure that the mainstream channel has capacity for the 1% AEP flood flow with a proportion of the remaining POS being used for conveyance of larger flooding events and landscaping.

The minimum swale dimensions to effectively convey the 1% AEP flood extent have been established as part of the Development Application for 91 Pass Road. Refer to JMG's Stormwater Report for HBA Daesung Pty Ltd, 91 Pass Road, Rokeby (2020) for details. In summary, a swale with base width 7.5m and 4:1 batter slope will run approximately 600mm deep in the northern water course and 500mm deep in the southern water course with the 1% AEP flow. These swales are notated as B and C in Appendix E. Note that it is not proposed to develop trapezoidal swales to convey the flow. Rather, these dimensions have been used to provide guidance on any work to be done on the watercourses.

Additional analysis has been done to investigate the capacity of the current creek profile (refer Appendix F drawing SW1). The northern water course has sufficient capacity to take the 1% AEP flood flow through the proposed development area. However, water currently breaks out of the channel under the transmission lines and flows across to the southern water course. Some work will be required in this area to prevent this break out. Work will also be required to train the flow under proposed bridges and around the wetland. If this work is done, the approximate area of POS inundated during a 1% AEP flood event is 9885m². The total POS area is 27,000m², leaving approximately 17,115m² unencumbered area. Refer to the Landscaping plans (Appendix G) for further information on proposed treatment of the watercourses to provide for effective overland flow whilst maintaining natural values as far as possible.

Flow paths A and B in Appendix F drawing SW1 will be treated as follows:

- Flow path A will be redirected west to 91 Pass Road via a cut off drain. Council have provided a 1% AEP flow of 123l/s for this catchment. A standard earth V drain with 2:1 side batters and 1% grade will run approximately 330mm deep conveying this flow.
- Flow path B will be cut off by the proposed road. Council have provided a 1% AEP flow of 229l/s for this catchment. The road will have a grade of approximately 2.3% in this area and a standard kerb and gutter will run approximately 144mm deep to convey this flow. Whilst the gutter has just enough capacity, the downstream overland flow path should be carefully considered during detailed design to ensure safe conveyance of overland flows.

3.4 Stormwater Quantity Control Summary

The above analysis shows that the development is likely to comply with the stormwater quantity requirements as follows:

- The minor drainage system (pits and pipes) will be designed to contain the 5% AEP rainfall event as part of detailed design.
- The increase in runoff as a result of the development will be detained in a detention basin with sufficient capacity to reduce the 5% AEP runoff to pre-development levels.
- The major drainage system will provide capacity for the 1% AEP flood flow inclusive of climate change allowance.

4. Stormwater Quality Control

The required stormwater quality targets will be achieved through a treatment train approach consisting of GPT's, detention basin and wetland. These are described in detail below.

4.1 Gross Pollutant Traps (GPT's)

It is likely that two GPT's will be required, one for the northern and eastern catchment and one for the southern catchment. These have been initially sized to treat the 4EY rainfall event per Table 1. Note that Rocla CDS units have been specified, however any approved equivalent with the required treatable flow rate could be used.

Table 1 - Proposed GPT's (or equivalent).

Catchment	4EY flow	Proposed GPT
Northern and Eastern	280 l/s	Rocla CDS 1518
Southern	77 l/s	Rocla CDS 1009

4.2 Detention Basin

A 2.3m deep detention basin of approximately 1400m³ volume is required for stormwater quantity control (note that the proposed basin is larger than this to allow for safe freeboard heights above the overflow weir level). This basin will double as a sediment pond and high flow diversion structure to protect the wetland downstream. The detention basin has been modelled assuming a high flow bypass flow rate of 0.7m³/s, which is equivalent to the pre development 5% AEP flow rate. Low flows will carry on through to the wetland for further treatment.

4.3 Wetland

A 1000m² base area wetland has been specified. The wetland will be designed in accordance with industry best practice during detailed design but is expected to have the following attributes:

- Extended detention depth of 1.8m.
- Permanent pool volume approximately 700m³.
- Equivalent outlet orifice diameter of 100mm. Note that this may be revised to multiple smaller orifices to provide for greater detention time during low flows.

4.4 Treatment Train Effectiveness (MUSIC)

The proposed treatment train has been modelled using MUSIC (Model for Urban Stormwater Improvement Conceptualisation). Developed areas have been assumed at 70% impervious with results presented in Figure 10.

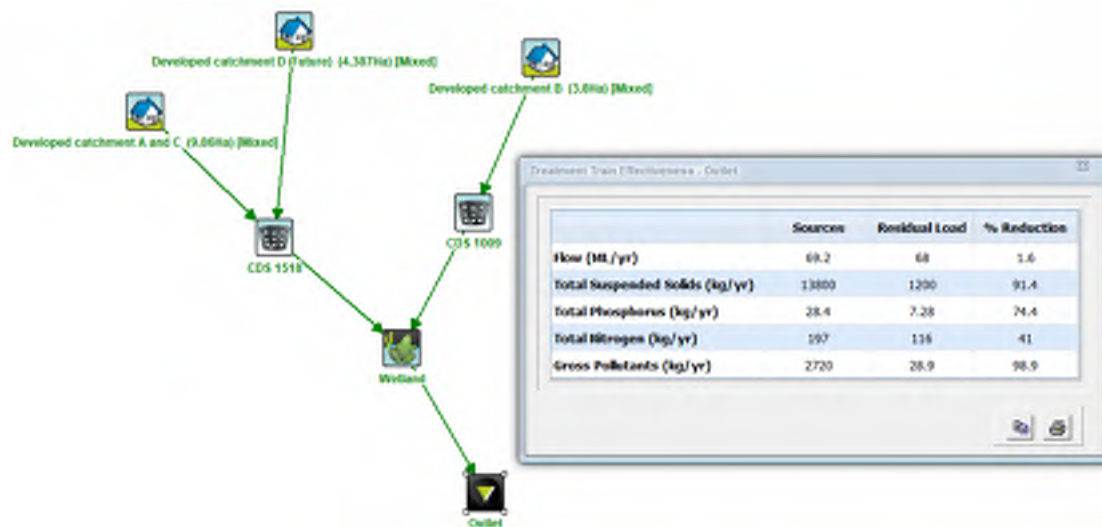


Figure 10 - MUSIC model and treatment train effectiveness

The MUSIC model shows that the minimum pollutant reductions of 80/45/45 (TSS/TP/TN) are almost achieved. The percent reduction of Total Nitrogen is not quite achieved. However, it should be noted that the model includes all future potential areas to the north (catchment C) and east (catchment D), which are not part of this application but included for completeness in the event that the development occurs.

If Catchment D is removed from the model, compliance is achieved (refer Figure 11).

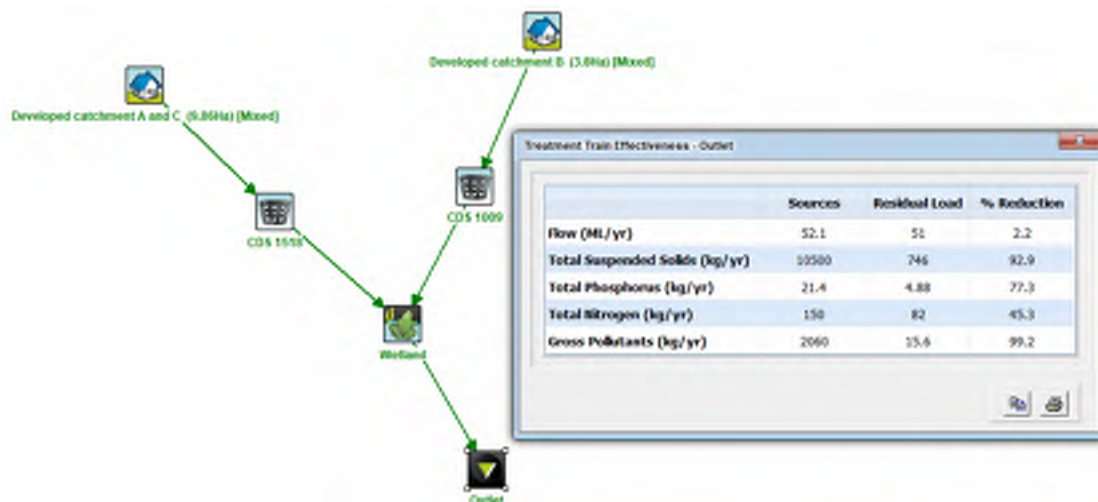


Figure 11 - MUSIC model and treatment train effectiveness for Catchments A,C and B only.

5. Conclusions and Recommendations

The proposed stormwater system inclusive of GPT's, detention storage and wetland comply with best practice and Council requirements. There is further scope to refine the design with consideration to public amenity, maintenance, landscaping, and natural value issues during detailed design. It is noted that all infrastructure has been oversized at this stage to allow for these requirements together with potential further development upstream within 93 Pass Road.



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APPENDIX A

Development Site Plan



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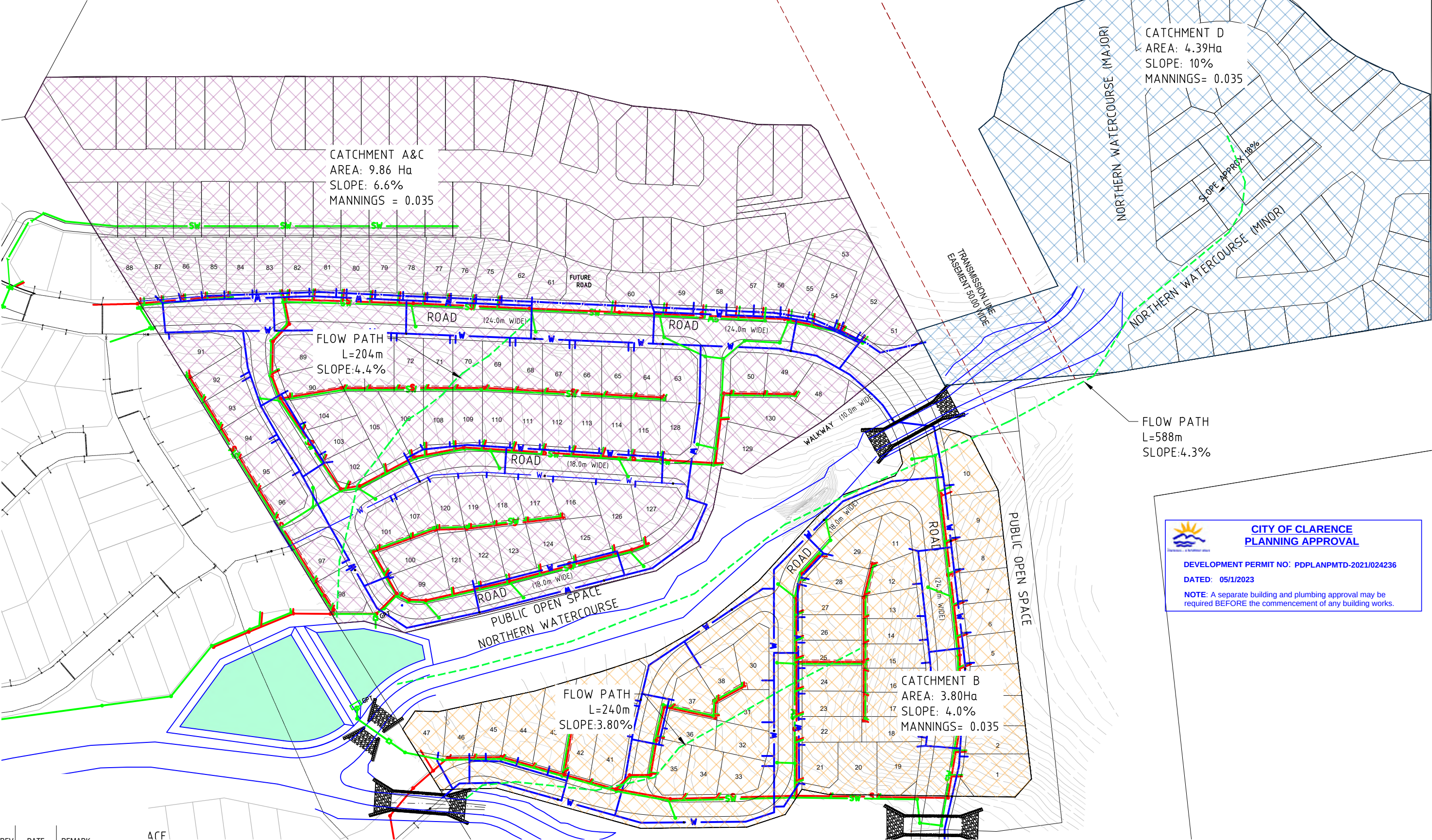
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APPENDIX B

Pre-Development Catchments

SAFETY IN DESIGN REPORT
In accordance with the Workplace Health & Safety Acts and Regulations JMG have considered the potential hazards and risks that are specific to this design.

The following risks which are unique to this design have been identified:	NIL
This report does not relieve contractors from their responsibilities under the Act to identify, report, mitigate and manage all aspects of risk and safety.	





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Johnstone McGee & Gandy Pty. Ltd.
ACN 009 547 139 ABN 76 473 834 852
117 Harrington Street, Hobart, Tas (03) 6231 2555
49-51 Elizabeth Street, Launceston, Tas (03) 6334 5548
www.jmg.net.au infohbt@jmg.net.au infofn@jmg.net.au

PROJECT
**93 PASS ROAD
CLARENDON VALE
STAGES 1-13**

TITLE
**APPENDIX B
PRE DEVELOPMENT
CATCHMENTS**

PROJECT NO.	J220268CS
DWG NO.	C02
REVISION	P1
PLOT DETAILS	APPENDIX DRGS.DWG



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PLANNING APPROVAL**

DEVELOPMENT PERMIT NO.: PDPLANPMTD-2021/024236

DATED: 05/1/2023

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APPENDIX C

Post Development Catchments

SAFETY IN DESIGN REPORT

In accordance with the Workplace Health & Safety Acts and Regulations JMG have considered the potential hazards and risks that are specific to this design.

The following risks which are unique to this design have been identified:	NIL
This report does not relieve contractors from their responsibilities under the Act to identify, report, mitigate and manage all aspects of risk and safety.	

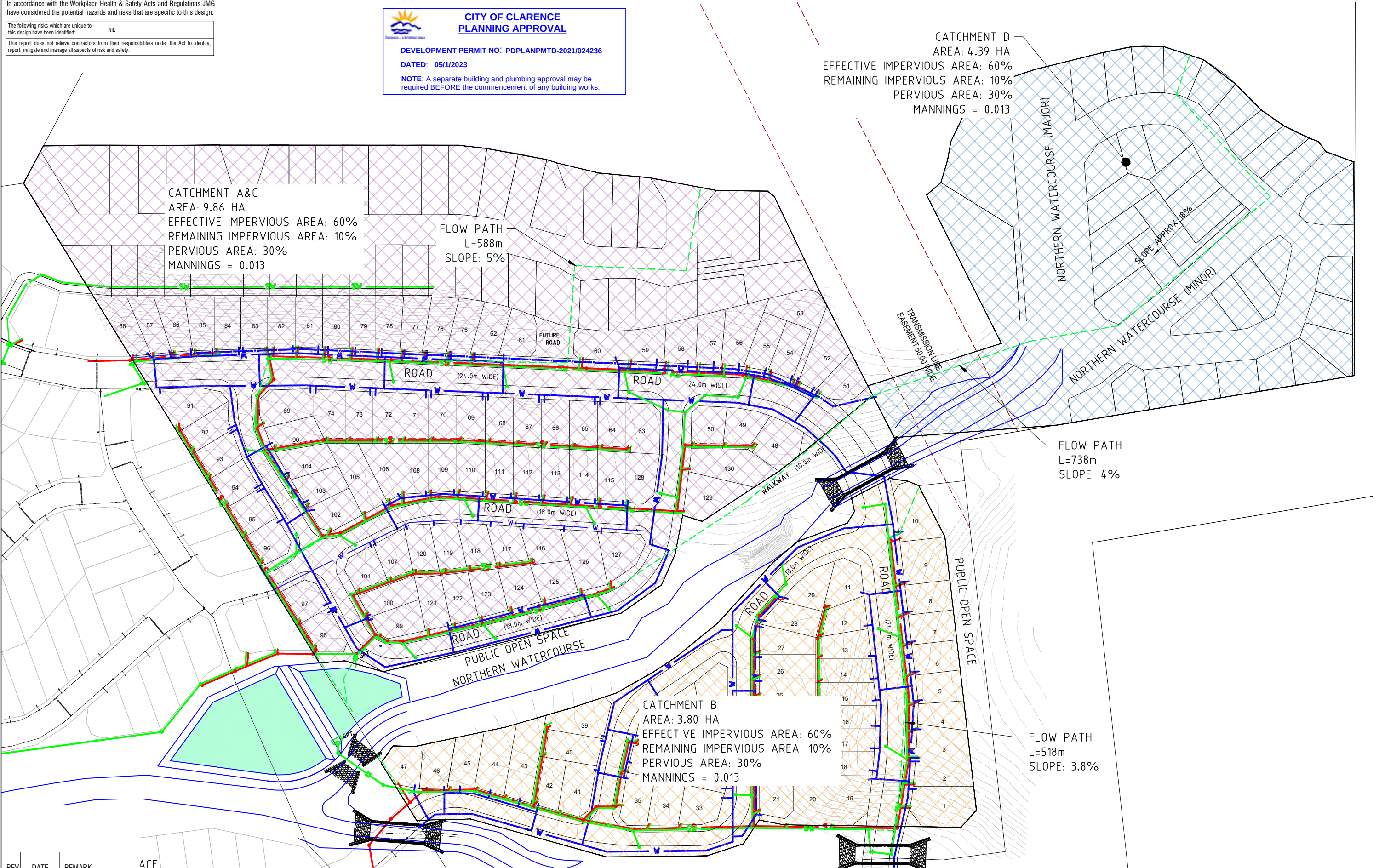


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117 Harrington Street, Hobart, Tas (03) 6231 2555
49-51 Elizabeth Street, Launceston, Tas (03) 6334 5548
www.jmg.net.au infohbt@jmg.net.au infofn@jmg.net.au

PROJECT
93 PASS ROAD
CLARENDON VALE
STAGES 1-13

TITLE
APPENDIX C
POST DEVELOPMENT
CATCHMENTS

PROJECT NO.	J220268CS
DWG NO.	C03
REVISION	P1
PLOT DETAILS	APPENDIX DRGS.DWG



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DATED: 05/1/2023

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APPENDIX D

Forebay and Wetland Cross Section

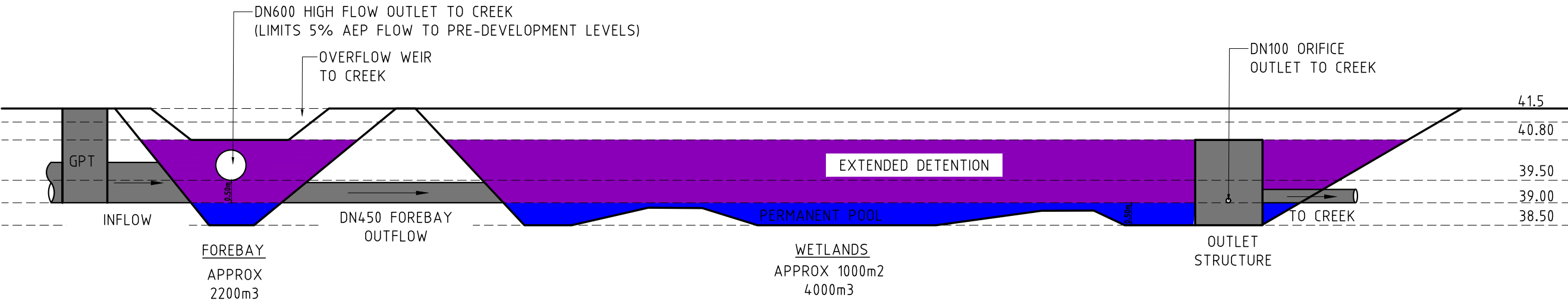


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P1 31.08.2022 PRELIMINARY ISSUE

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SAFETY IN DESIGN REPORT	
In accordance with the Workplace Health & Safety Acts and Regulations JMG have considered the potential hazards and risks that are specific to this design.	
The following risks which are unique to this design have been identified:	
Nil.	
This report does not relieve contractors from their responsibilities under the Act to identify, report, manage and manage all aspects of risk and safety.	

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117 Harrington Street, Hobart, Tas (03) 6331 2555
49-51 Elizabeth Street, Launceston, Tas (03) 6331 7044
www.jmg.net.au info@jmg.net.au info@jmg.net.au

PROJECT
93 PASS ROAD, ROKEBY
INUNDATION ANALYSIS

TITLE
FOREBAY & WETLANDS
CROSS SECTION

PROJECT NO.	J220268CS
DWG NO.	C04
REVISION	P1
PLOT DETAILS WETLANDS SECTION.DWG	



**CITY OF CLARENCE
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DEVELOPMENT PERMIT NO: PDPLANPMTD-2021/024236

DATED: 05/1/2023

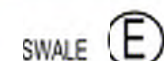
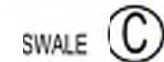
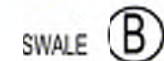
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APPENDIX E

Hutchings Spurr Swale Design



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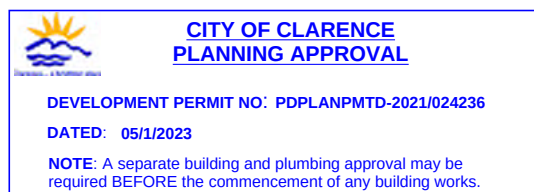
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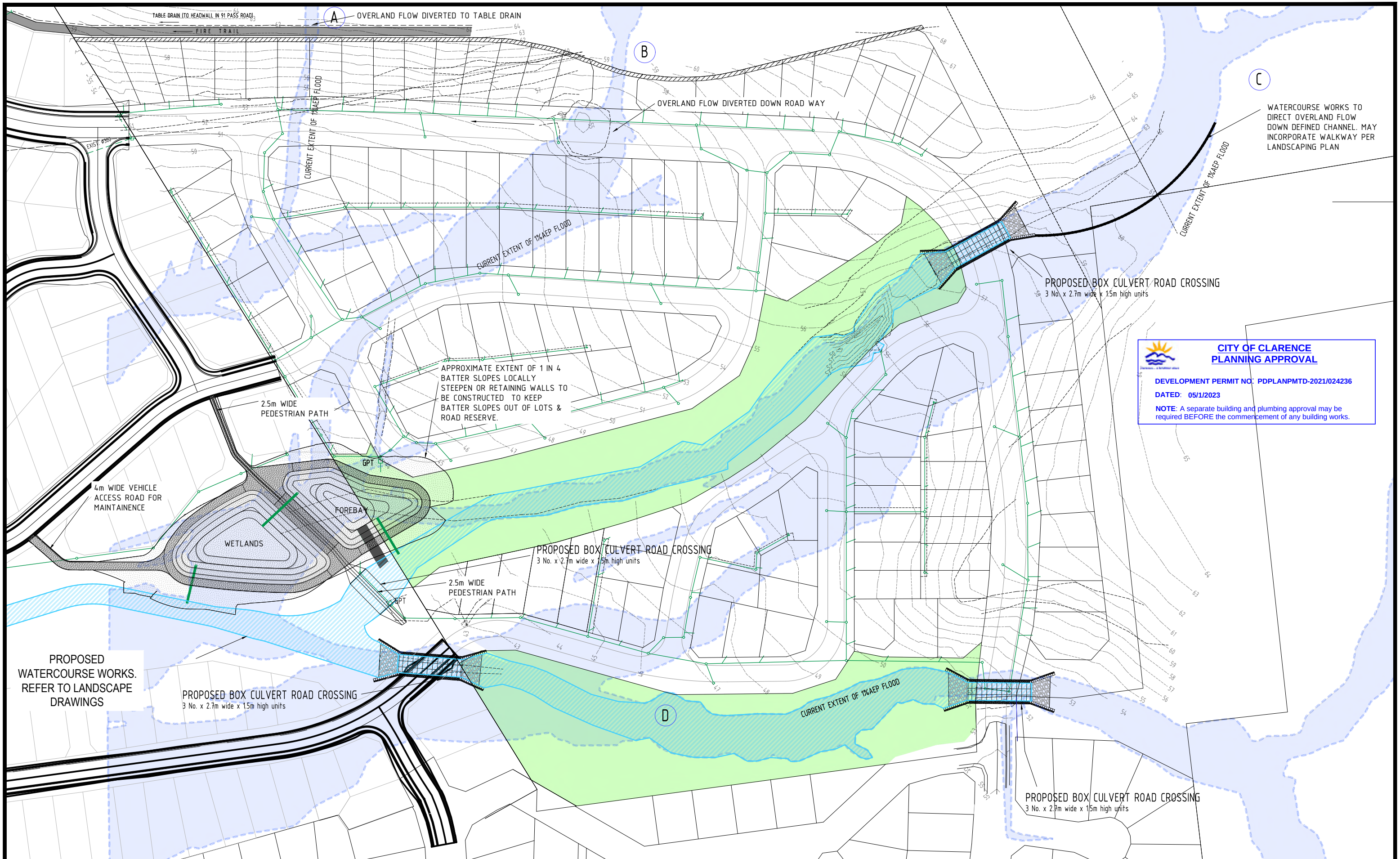
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CLIENT		DAESUNG T&S PTY LTD		 BUTCHINGS SPURR PTY. LTD. CONSULTING ENGINEERS 3 ANTILL STREET THORNTON, 7000, A.C.N. 609089 PHONE 08 8222 1000 FAX 08 8222 1007		• STRUCTURAL • CIVIL • MECHANICAL • ELECTRICAL • MARINE	
PROJECT		REFERENCE		91 PAST ROAD, ROKEBY		DRAWING NO.	
NO.		DATE		170 LG'S		REVISION	
1. ISSUE TO COUNCIL AND OWNER		18.03.2018		STORMWATER STRATEGY		173.9/SW (A)	
				SCALE NOT TO SCALE			
				DRAWN BY STAFFORD DATE 18.03.18			
				APPROVED			
						No. OF SHEETS	

APPENDIX F

Watercourse and wetland drawings







**CITY OF CLARENCE
PLANNING APPROVAL**

DEVELOPMENT PERMIT NO: PDPLANMTD-2021/024236
DATED: 05/1/2023
NOTE: A separate building and plumbing approval may be required BEFORE the commencement of any building works.

- NEW STORMWATER RETICULATION
PIPE SIZES TO BE CONFIRMED IN DESIGN PHASE
- CURRENT EXTENT OF 1% AEP FLOOD
AS PER CLARENCE CITY COUNCIL FLOOD MAPS
- PUBLIC OPEN SPACE AREA
TOTAL AREA = 27,000 m²

- WATERCOURSE/ POND AREA
TOTAL AREA = 9885 m²
- 64% P.O.S USEABLE SPACE

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No.	AMENDMENT	DATE	DRG No.	REFERENCE
G	AMENDED WETLANDS & PONDS	19.10.2022		
B	GENERAL REVISION	30.11.2021		
C	REVISED LOT LAYOUT / SERVICES	02.02.2022		
D	SWALE EXTENT ADDED	11.03.2022		
E	POND SIZED INCREASED	28.04.2022		
F	POND LOCATION ALTERED	04.05.2022		



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93 PASS ROAD STAGES 1-13
ROKEBY
PROPOSED STORMWATER SERVICES PLAN

SCALE: NTS

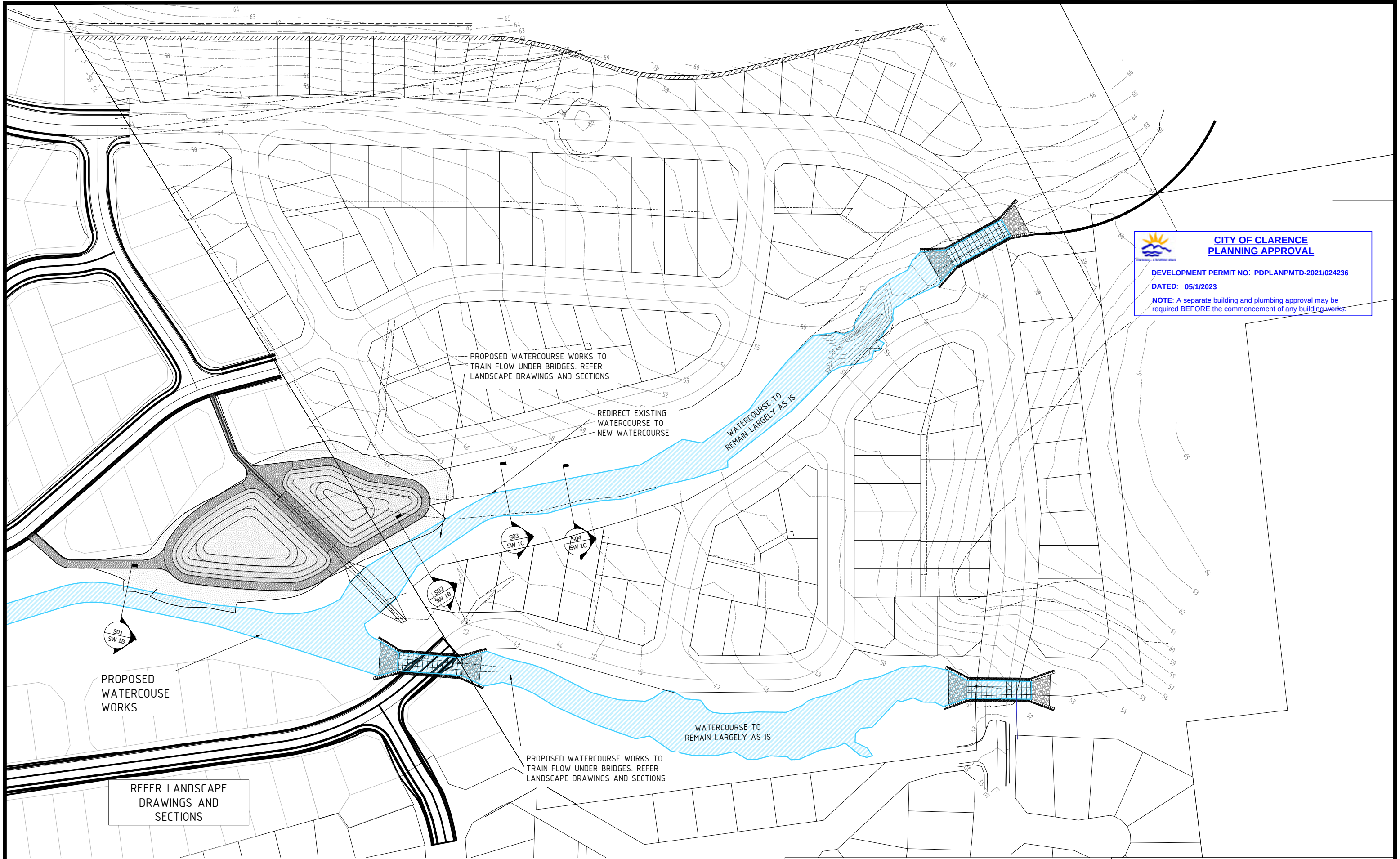
DRAWN: B. STANFORD DATE: NOV '21

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DRAWING No. 21281 SW 1

REVISION: G

No. OF SHEETS





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DEVELOPMENT PERMIT NO: PDPLANMTD-2021/024236
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 APPROXIMATE EXTENT OF FUTURE 1% AEP FLOOD EXTENT

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AMENDMENT		DATE	DRG No.	REFERENCE		93 PASS ROAD STAGES 1-13 ROKEBY PROPOSED WATERWAY CROSS SECTIONS SHEET 1 SCALE NTS DRAWING No. REVISION DRAWN M. FRAWLEY DATE OCT' 22 21281 SW 1B A No. OF SHEETS
No.						
A	ISSUED TO CLIENT	19.10.2022				



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SUB DIVISIONS

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No.		AMENDMENT		DATE	DRG No.	REFERENCE
A	ISSUED TO CLIENT			19.10.2022		

93 PASS ROAD STAGES 1-13
ROKEBY
PROPOSED WATERWAY CROSS SECTIONS SHEET 2

SCALE

NTS

DRAWN

M. FRAWLEY

DATE

OCT' 22

APPROVED

DRAWING No.

21281 SW 1C

No. OF SHEETS

REVISION

(A)

APPENDIX G

Landscaping Plans



CITY OF CLARENCE PLANNING APPROVAL

DEVELOPMENT PERMIT NO: PDPLANMTD-2021/024236

DATED: 05/1/2023

NOTE: A separate building and plumbing approval may be required BEFORE the commencement of any building works.

OPEN SPACE SYSTEM

The two waterway reserves each have a distinctive suite of recreation roles and rehabilitation opportunities:

North waterway POS - the deeper stream bed provides opportunities for rehabilitation, anticipated use primarily for passive enjoyment

South waterway POS - a relatively flat area at the rear of Breedon Way and with overhead powerline near Breedon back fences. A more open character is proposed with isolated clean stem trees, allowing for some informal sports and incidental active play and retaining opportunities for future more formalised recreation areas to be provided at a later stage. Plantings balance providing informal surveillance with visually distracting from the powerlines but being located for a suitable separation.

The final landscape works plans - would reflect any re-profiling required for flood hazard mitigation, safety of park users and to facilitate land management maintenance and access. Where earth shaping is required it should be undertaken with consideration of any opportunities to provide flatter areas suitable for recreation.

Rehabilitation of watercourses - retain existing indigenous species where practical and any new plantings/seedings to use local riparian species selected to provide a vegetation structure consistent with a low fire hazard threat, i.e. a discontinuous strip less than 20m wide and more than 20m from lot boundaries would establish a park-like open character.

The final selection of trees for retention, species for planting and the structure and location of vegetation on the Works Landscape Plans to reflect advice from project arborist, fire and biodiversity consultants, current fire and weed management plans, good practice for practical maintenance and liaison with Council and infrastructure authorities.

- 1 Multiple use all weather emergency and maintenance accessway and recreational use, key POS connections
- 2 Minor POS trails for recreation, walking
- 3 Prominent entrances into parkland from adjacent roads, alert drivers to likelihood of pedestrians
- 4 Retain, re-establish an allusion to the original riparian woodland along waterways
- 5 Open relatively level parkland area suitable for active or informal play
- 6 Retain options for future more formalised recreation area
- 7 Possible future incidental seating and play opportunities
- 8 Wetland ponds refer Ferndene Studio drawing Wetlands Ponds and Environs

Retained open woodland - northern slopes balance area
The open grassy woodland vegetation is to be retained as a bushland park, except where fire hazard management is required (refer BHMP Menadue 2021).

Following finalisation of investigation into options for future residential use, gravel paths through the woodland will be constructed to connect to nearby POS areas to the north the west (145 and 91 Pass Road).

Fences alongside POS Where lots adjoin public open space areas on rear or side boundaries fences that allow some views into the adjacent open space from residences or their grounds will be constructed as part of subdivision works. Those fences will be solid, opaque (and of low visual prominence) up to a height of 1.2m with the views into the open space being through an upper section of at least 300mm depth of lattice or a comparable visually permeable construction.



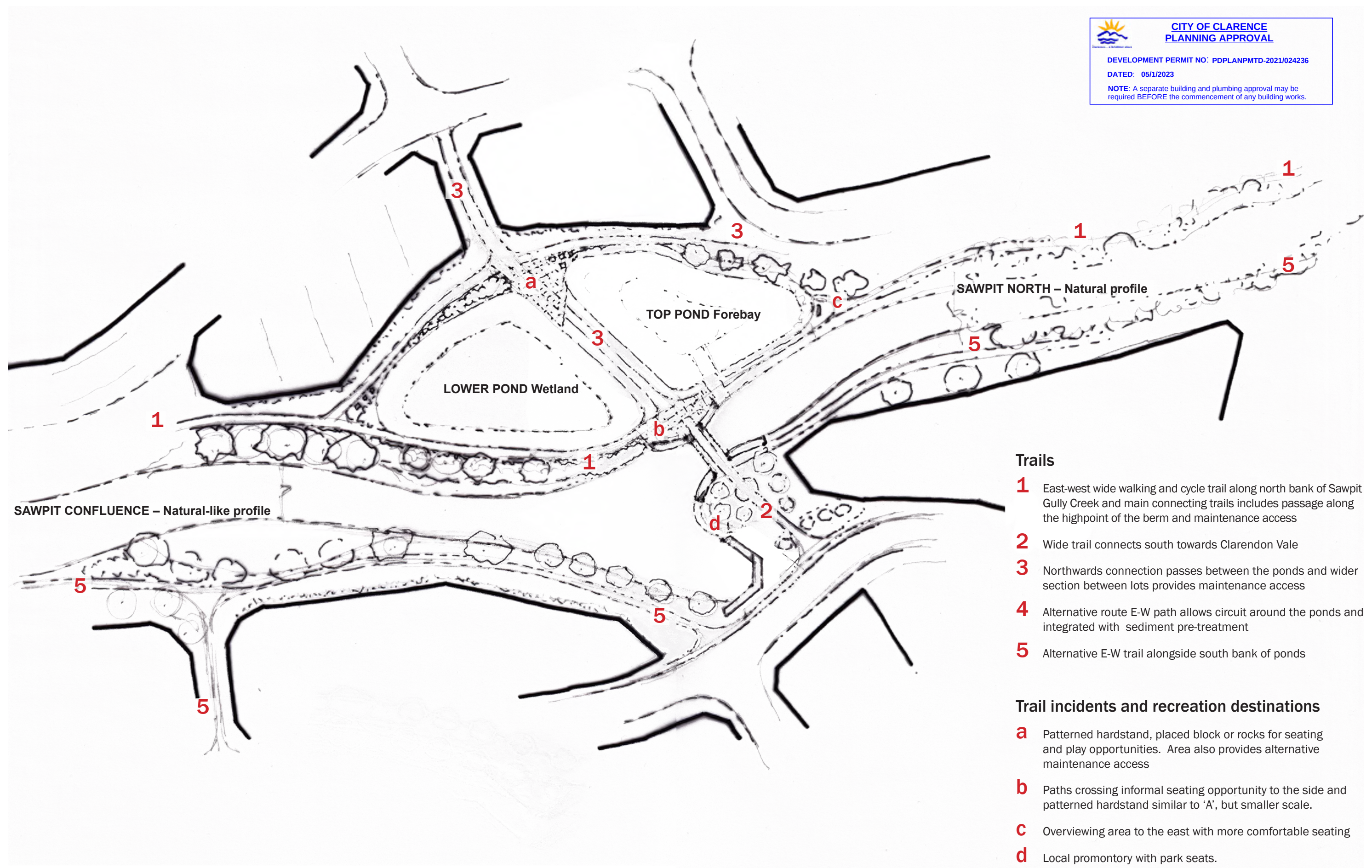


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Trails

- 1** East-west wide walking and cycle trail along north bank of Sawpit Gully Creek and main connecting trails includes passage along the highpoint of the berm and maintenance access
- 2** Wide trail connects south towards Clarendon Vale
- 3** Northwards connection passes between the ponds and wider section between lots provides maintenance access
- 4** Alternative route E-W path allows circuit around the ponds and integrated with sediment pre-treatment
- 5** Alternative E-W trail alongside south bank of ponds

Trail incidents and recreation destinations

- a** Patterned hardstand, placed block or rocks for seating and play opportunities. Area also provides alternative maintenance access
- b** Paths crossing informal seating opportunity to the side and patterned hardstand similar to 'A', but smaller scale.
- c** Overlooking area to the east with more comfortable seating
- d** Local promontory with park seats.

PARANVILLE WATERWAY SWALES: - emerging directions
Principles for establishing natural landscape character where reshaping is required

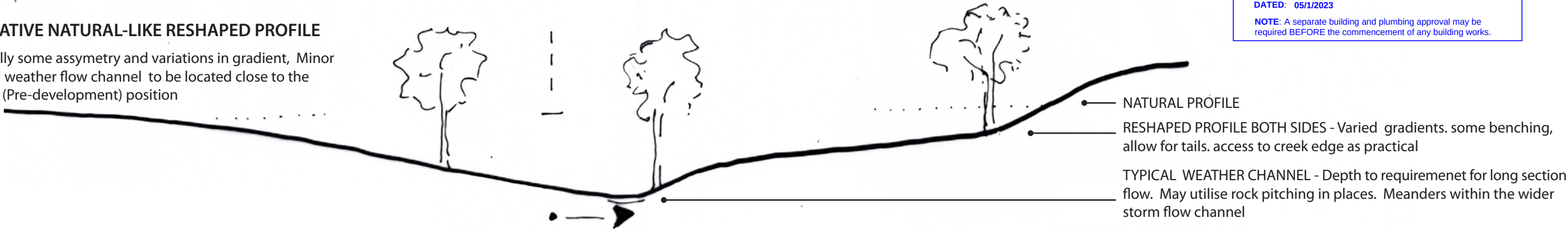


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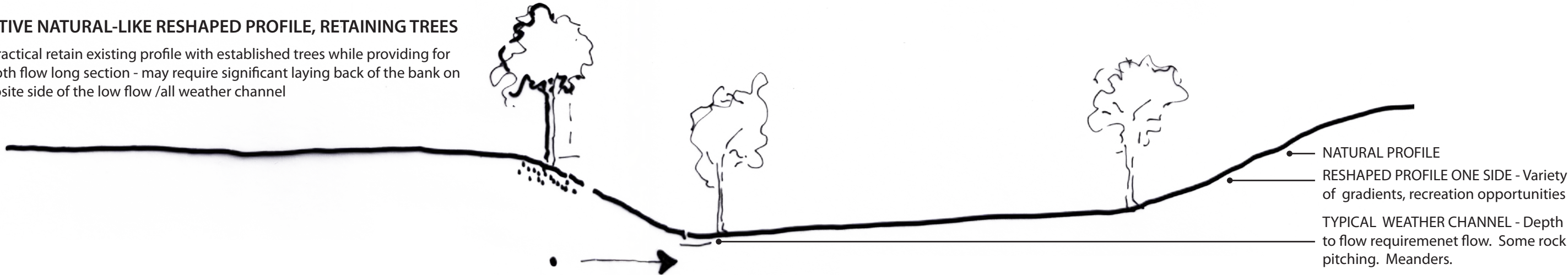
INDICATIVE NATURAL-LIKE RESHAPED PROFILE

Generally some assymetry and variations in gradient, Minor flow/all weather flow channel to be located close to the natural (Pre-development) position



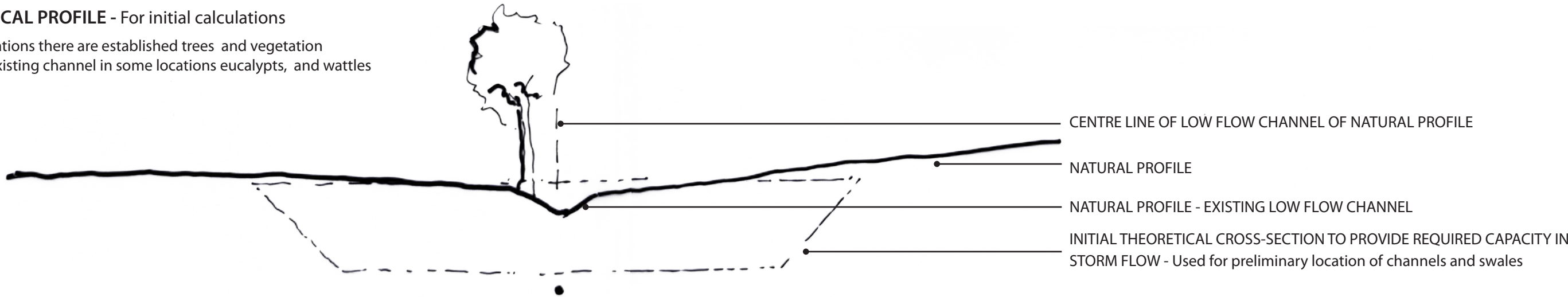
INDICATIVE NATURAL-LIKE RESHAPED PROFILE, RETAINING TREES

Where practical retain existing profile with established trees while providing for the smooth flow long section - may require significant laying back of the bank on the opposite side of the low flow /all weather channel



THEORETICAL PROFILE - For initial calculations

In some locations there are established trees and vegetation alongside existing channel in some locations eucalypts, and wattles



NOTES

Retain existing profile and vegetation (with weeds management). Balance minimising area of disturbance with gradients of banks to either side to provide recreation and passive enjoyment of a natural setting. Reshaping anticipated in the area below 91/93 boundary ponds and also to a less extent Stokell Creek south of Winterborne Drive. The section of Sawpit east of the ponds has been assessed HSCE/JMG as having sufficient capacity to not require changes to the channel - but may need consideration of the nature and extent of the vegetation retained.

Where trees are retained in the storm event flowwqy they are to be configured as intermittent isolated stems in line with in the direction of the flow to limit opportunities for obstruction (dams). If shrubs and groundcovers are anticipated the storm flow cross section would need to be expanded accordingly. Other considerations - safety including gradient and informal surveillance, practical for Council to maintain, and avoiding washouts during construction and plant establishment.



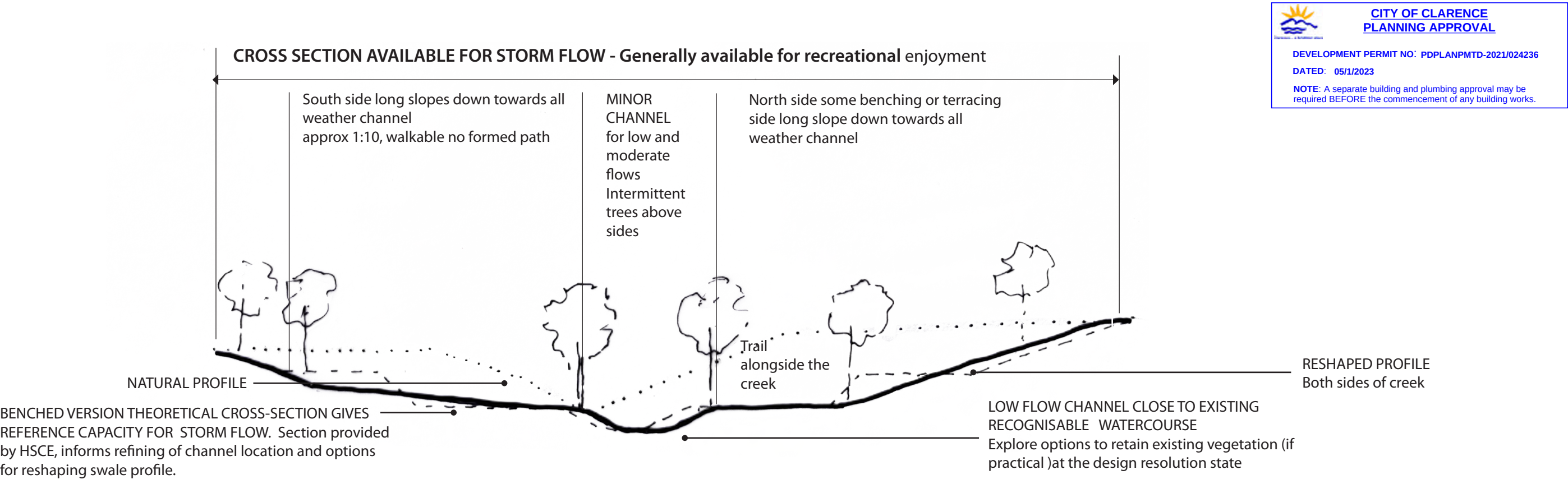
Landscape Architecture & Planning
 PO Box 156 South Hobart TAS 7004
 Telephone 03 6239 1302
 studio@ferndenestudio.com.au
 www.ferndenestudio.com.au

PRELIMINARY WATERWAY SWALES
Wetlands Ponds and Environs. 93/91 Pass Road
 Subdivision, 93 Pass Road Rokeby

Dwg No: 91/93 Swale Sawpit LPDetail v3
 Sheet 1/2
 Scale: NTS at A3
 Date: 17-10-2022

Lesley Gulson
 Landscape Architect Planner
 Ferndene Studio
 For: HOTAS Pty Ltd

PARANVILLE WATERWAY SWALES: - emerging directions
 Indicative preliminary profile looking westwards around 30m west of the proposed ponds



Refer also HSCE 21281 Drawing set



WATERWAY CROSSINGS FOR WALKING AND CYCLE TRAILS
 Generally these crossings are to be low key, causeways or similar. Height and detail to allow for storm flow, easy access for trail users and connections of services where required. *Photo - crossing of Sorell Rivulet below Parsonage Place, Sorell*

Natural Values Report

For subdivision development
93 Pass Road, Rokeby

Client: Hotas Holding
Prepared by: Amber Button and Andy Welling

23 FEBRUARY 2022

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**CITY OF CLARENCE
PLANNING APPROVAL**

DEVELOPMENT PERMIT NO: PDPLANPMTD-2021/024236

DATED: 05/1/2023

NOTE: A separate building and plumbing approval may be
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1 Introduction

This Natural Values Report has been prepared as a requirement of a development application under the Tasmanian Planning Scheme – Clarence (TPS) and Clarence Local Provisions Schedule. The site at 93 Pass Road, Rokeby is zoned as Landscape Conservation General Residential and Open Space under the TPS. The entire site is subject to a Bushfire Prone Area overlay, and to a Specific Area Plan (the Paraville Specific Area Plan, CLA-S4.0). Under the Natural Assets Code, there is a Waterway and Coastal Protection Area (WCPA) buffer zone of 30 m either side of major streams; and 10 m of minor tributaries. The Priority Vegetation Area (PVA) overlay exists in the forested portions of the site to the north and north-east, and within a 25 m buffer of known records of threatened species. A 60 m Electricity Transmission Infrastructure Protection buffer exists around the electricity transmission line at the site. A Landslide Hazard Area overlay (Low) occurs in areas of the site where the slope ranges from 11-20°. As the proposed subdivision has the potential to impact on natural values within the WCPA and PVA, a natural values assessment has been undertaken.

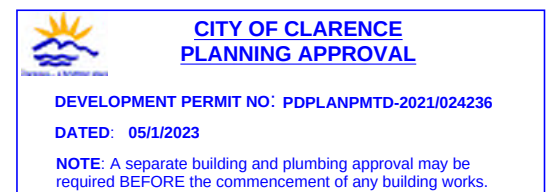
Enviro-dynamics has been contracted to undertake this natural values assessment on behalf of the proponents. The assessment identifies the natural values of the site including the type and extent of vegetation communities, presence of threatened species and threatened fauna habitat. It also maps weed infestations and identify any other threats present. Any potential impacts to natural values posed by the development are then analysed against the requirements of the planning scheme, State and Commonwealth legislation.

2 Background

2.1 Site Description

The 31 hectare property is situated on the northern side of Clarendon Vale, immediately west of the Meehan Range. It is approximately 1.2 km east from Pass Road (Figure 1).

The property does not currently contain any buildings, power or water infrastructure. A powerline easement extends north-south near the centre of the property. An unnamed minor stream and tributary runs through the property. The vegetation is a combination of exotic grassland, native forest and woodland, and regenerating cleared land (Figure 2). The adjacent properties to the east and north are undeveloped and contain native forest vegetation, there is residential development to the south and cleared land to the west. The adjoining property to the northeast is currently undergoing development.



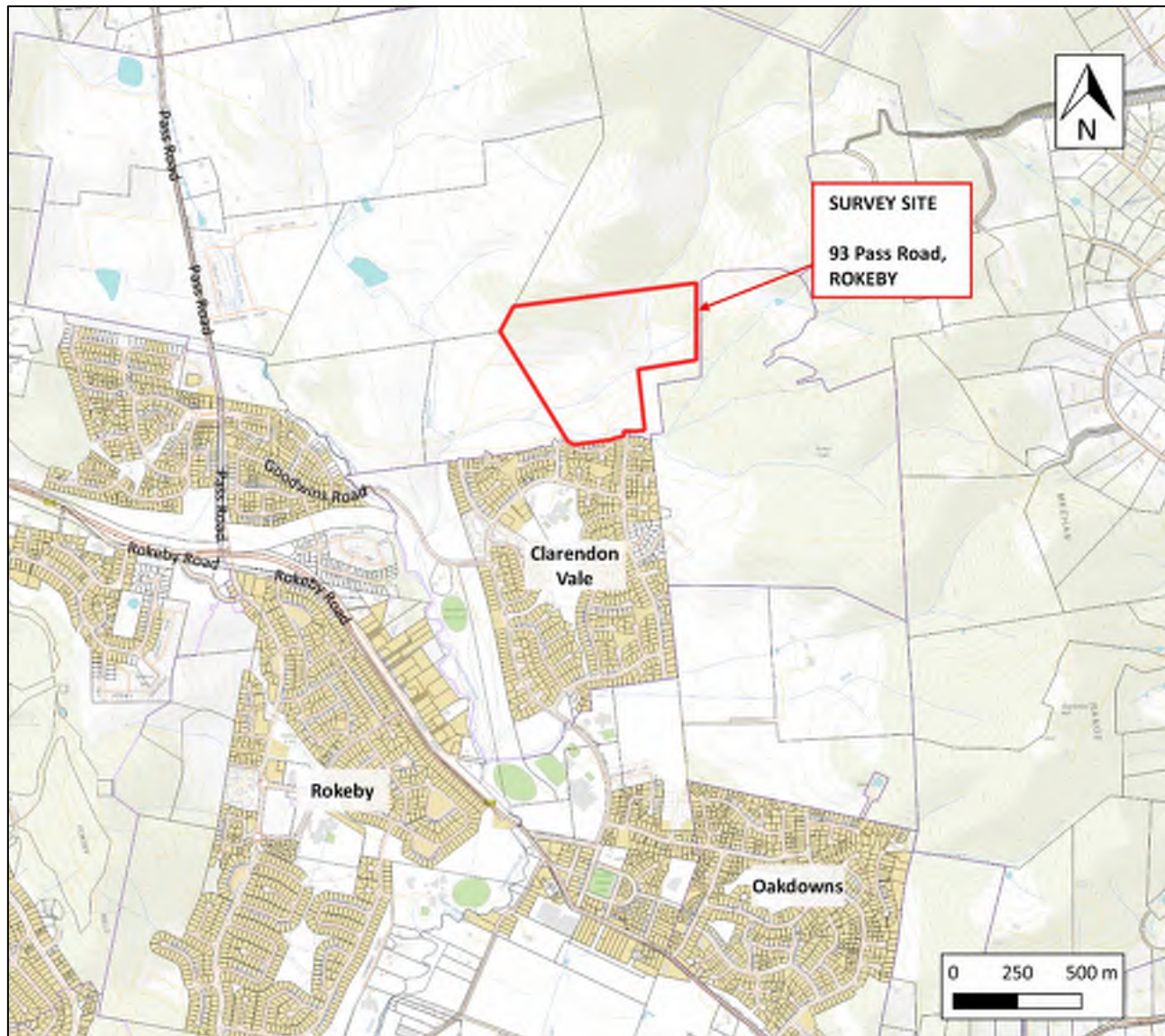


Figure 1 – Site Location Plan (Image source: LISTmap 2021)

The proposal is to develop the property into a 130-lot residential subdivision (refer to Appendix 2 for site plan).

**CITY OF CLARENCE
PLANNING APPROVAL**

DEVELOPMENT PERMIT NO: PDPLANMTD-2021/024236
DATED: 05/1/2023
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3 Methods

The natural values assessment was undertaken in two stages: desktop analysis and field survey.

3.1 Desktop analysis

The desktop analysis involved extracting data from a variety of sources, including:

- Natural Values Atlas (DNRE 2021)
- Protected Matters Search Tool (DAWE 2021)
- LIST map

3.2 Field survey

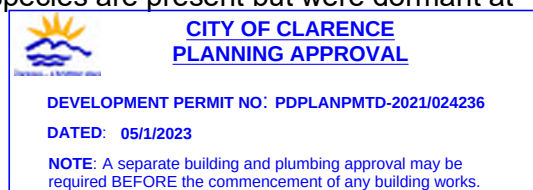
The initial field survey was undertaken by two observers on 23 September 2021. An additional survey to confirm presence of threatened flora species was undertaken on the 4 November 2021. The overall vegetation communities on the site were assessed and classified according to TASVEG 4.0. All vascular plant species encountered were recorded, with an emphasis on detecting rare and threatened species. Searches for potential threatened fauna habitat e.g. tree hollows and den sites, and other evidence e.g. scats, diggings and tracks were also undertaken. No detailed fauna surveys were conducted.

Locations of threatened flora, fauna habitat and significant weeds were mapped with a handheld GPS and population data was captured e.g. numbers of individuals, area occupied etc. Geographic datum used was GDA94 Zone 55.

Taxonomic nomenclature for flora follows the latest Census of Vascular Plants of Tasmania (Baker & de Salas 2020). Classification of vegetation communities is in accordance with Kitchener and Harris (2013) and TASVEG 4.0.

3.3 Limitation of the survey

Whilst every effort was made to compile a complete list of vascular plants for the property, a single survey is unlikely to detect all species present due to seasonal/temporal variations. Some plants could not be identified to a species level and some species may have been overlooked due to a lack of fertile material. It is also possible that additional species are present but were dormant at the time of survey e.g. annuals, ephemerals.



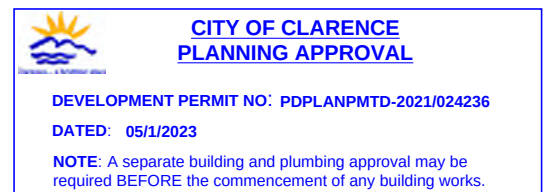
4 Natural Values Assessment

This section outlines the findings of the desktop analysis and field survey, including a description of the vegetation communities, threatened flora, fauna habitat values and weeds.

4.1 Vegetation Communities

Five native vegetation communities and two modified communities were recorded during the desktop analysis, as per the TASVEG 4.0 classification system:

- *Eucalyptus globulus* dry forest and woodland (DGL)
- *Eucalyptus viminalis* grassy forest and woodland (DVG)
- *Eucalyptus pulchella* forest and woodland (DPU)
- *Allocasuarina verticillata* forest (NAV)
- *Bursaria* – *Acacia* woodland and scrub (NBA)
- Lowland grassland complex (GCL)
- Regenerating cleared land (FRG)
- Permanent easement (FPE)
- Agricultural land (FAG)



Vegetation communities are mapped in Figure 2 and described briefly below.

Eucalyptus globulus dry forest and woodland (DGL)

This vegetation community occurs on the northern hillside of the property and along the margins of the creek. Blue gum (*E. globulus*) is the dominant tree species, with scattered white gums (*E. viminalis*) and white peppermint (*E. pulchella*) trees also present. There were a range of native shrubs and groundcovers recorded during the survey including broadleaf hopbush (*Dodonaea viscosa*), prickly moses (*Acacia verticillata*), buttonleaf everlastingbush (*Ozothamnus scutellifolius*), tussock grass (*Poa labillardierei*), velvet tussockgrass (*Poa rodwayi*) and tall sedge (*Carex appressa*). The DGL to the north is in good condition with large remnant blue gum trees and few weeds, although some spear thistle (*Cirsium vulgare*) and briar rose (*Rosa rubiginosa*) were recorded. The remnant along the main waterway is heavily degraded by weeds and domestic rubbish and car bodies. Serrated tussock (*Nassella trichotoma*) was also found at the forest margins towards the powerline easement. Refer to Appendix 1 for a complete species list, including introduced species.

Eucalyptus viminalis grassy forest (DVG)

The vegetation community is found west of the transmission line, on the slope in the northern portion of the property. White gum is the dominant tree species, with subdominant blue gum trees also present. Understorey species are very similar to those of DGL, including black wattle (*Acacia mearnsii*), native cherry (*Exocarpos cupressiformis*), prickly moses, drooping sheoak (*Allocasuarina verticillata*), broadleaf hopbush, sagg (*Lomandra longifolia*), native cranberry (*Styphelia humifusa*), creeping bossia (*Bossiaea prostrata*) and tussockgrass. The vegetation is in good condition, with minor occurrences of scotch thistle and scarlet pimpernel (*Lysimachia arvensis*).

Eucalyptus pulchella forest and woodland (DPU)

White peppermint forest occurs to the far north-east of the property. The forest is dominated by white peppermint, with subdominant white gums and scattered blue gum trees also found. The understorey is dominated by prickly box (*Bursaria spinosa*), broadleaf hopbush and sagg. Other shrub and ground layer species include wallaby grass (*Rytidosperma* sp.), drooping sheoak, native cherry, prickly moses and tussockgrass. The forest is in fair condition, with some occurrences of weeds and evidence of firewood harvesting. Serrated tussock is found along the margins of the community and along vehicle tracks through it.

Allocasuarina verticillata forest (NAV)

The small area of this vegetation community is found in the north-eastern corner of the site on rock plates. Drooping sheoak is the dominant tree species, with scattered prickly box. The shrub layer is dominated by buttonleaf everlastingbush. The ground layer is comprised mainly of grasses and herbs, including velvet tussockgrass, speargrass (*Austrostipa* sp.), and wallaby grass.

Bursaria – Acacia woodland and scrub (NBA)

This community is found in the northwest and southeastern edges of the site property and is likely to have developed after clearing of a grassy eucalypt forest and is in a degraded condition. The community contains prickly box, black wattle, broadleaf hopbush and buttonleaf everlastingbush in the shrub layer. The ground layer is dominated by sedges and grasses, including variable swordedge (*Lepidosperma laterale*), sagg, speargrass and tussockgrass. Blue gums and white peppermint trees are found at the edges of the community. Serrated tussock is also found in the understorey layer.

Lowland grassland complex (GCL)

This grassland community occurs east of the powerline easement on the property. The community contains a range of native grass and herbs species with emergent native shrubs. It is likely that this community has developed into a native grassland following the removal of trees and shrubs in the past. Serrated tussock is common in the community and in some area is the dominant species.. Species recorded in the community included tussockgrass, kangaroo grass (*Themeda triandra*), speargrass, tall sedge (*Carex appressa*), wallaby grass, spiny sheepsburr (*Acaena echinata*) and groundsel (*Senecio sp.*).

Regenerating cleared land (FRG)

The southern part of the property has been previously cleared and neglected and is regenerating with a range of native species. The area consists of a mosaic native and exotic grasses, shrubs and small trees. The land is degraded and littered with rubbish and car bodies. Weeds in the area include slender thistle (*Carduus sp.*), dock (*Rumex sp.*), briar rose (*Rosa rubiginosa*), blackberry (*Rubus fruticosus sp. agg.*) and serrated tussock. Other species found include native cherry, black wattle, dollybush (*Cassinia aculeata* subsp. *aculeata*), common buzzy (*Acaena novae-zelandiae*), variable swordsgel and tussockgrass.

Agricultural land (FAG)

The southwestern portion of the subject land is cleared and has been frequently burnt. The land is dominated by serrated tussock, often forming monocultures. In areas dominated by serrated tussock the community could be classified as 'Weed Infestation (FWU)'.

Permanent easement (FPE)

A powerline easement runs north-south through the property. Vegetation under the line has been cleared of trees and tall shrubs, resulting in a community that is dominated by grasses and shrubs. Species found in the easement include serrated tussock, black wattle, tussockgrass and peachberry heath (*Lissanthe strigosa*).

4.1.1 Conservation status of the vegetation communities

One vegetation community listed as threatened under Schedule 3A of the *Nature Conservation Act 2002* is present on the property: *Eucalyptus globulus* dry forest and woodland (DGL).

DGL is also listed as priority vegetation under the Natural Assets Code (LP1.7.5) of the Tasmanian Planning Scheme 2021, as it is a threatened community and provides habitat for the endangered swift parrot.

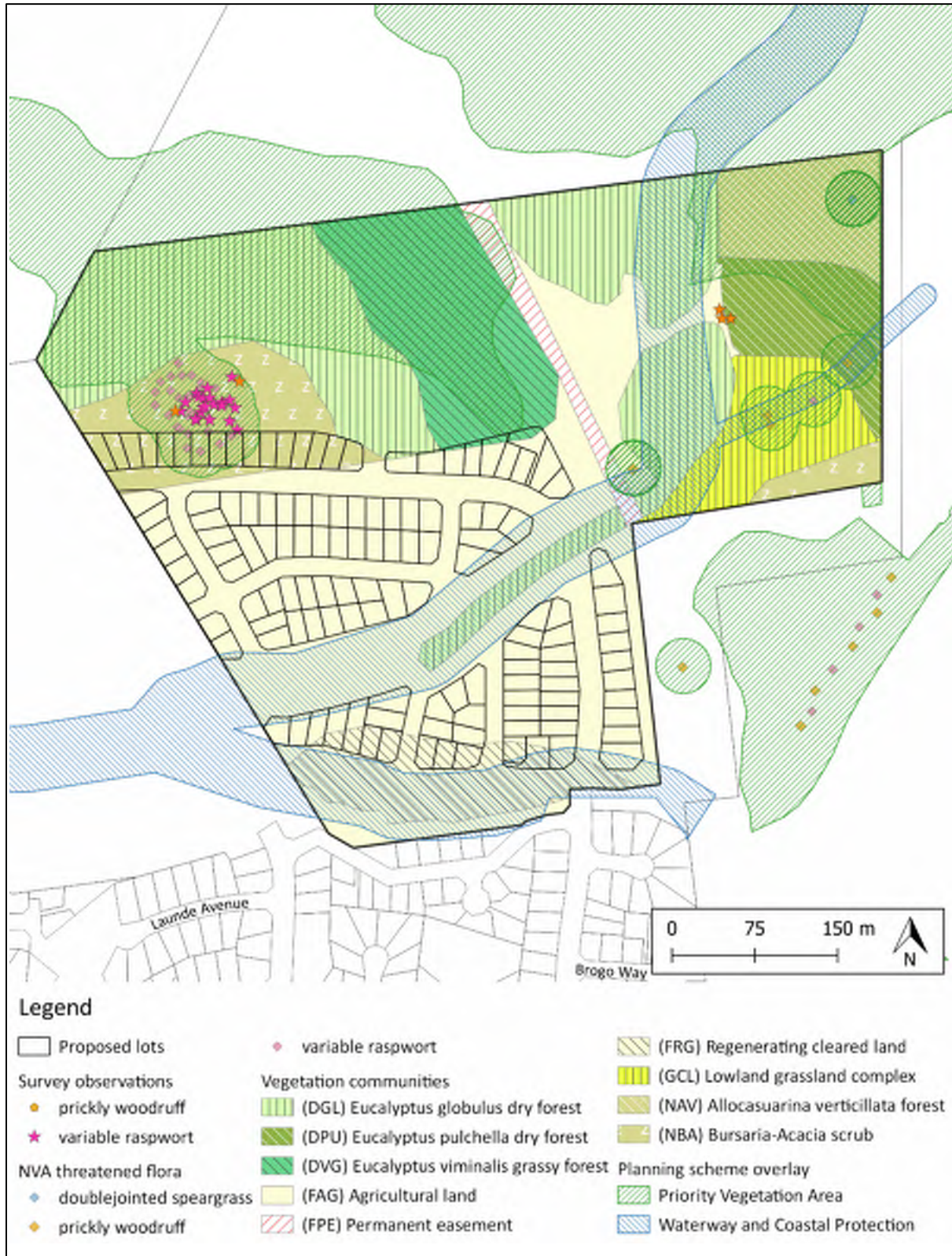


Figure 2 - Vegetation communities, threatened flora and significant trees at the site

4.2 Flora

A total of 73 vascular plants were recorded during the survey, of which 15 are introduced species. Additional flora species are likely to occur within the site in other areas not surveyed, and some plants could have overlooked due to the inherent limitations of the survey e.g., timing, timed meander method.

4.2.1 Threatened flora

Two threatened flora species listed under the *Threatened Species Protection Act 1995* or the *Environmental Protection and Biodiversity Conservation Act 1999* was recorded during the survey. Scattered prickly woodruff (*Asperula scoparia* subsp. *scoparia*) plants were recorded approximately 150 m east of the powerline easement, close to the western edge of *Eucalyptus pulchella* dry forest and isolated plants were recorded amongst the regenerating clear land on the hillside at the north end of the site. Variable raspwort (*Haloragis heterophylla*) plants (est.1000-1500 plants) were recorded in the same area of regenerating land. This population was identified during previous survey of the site and recorded in the NVA.

Prickly woodruff, variable raspwort (*Haloragis heterophylla*) and doublejointed speargrass (*Austrostipa bigeniculata*) were previously recorded from the property in 2005 (North Barker Ecosystem Services). It is likely that additional prickly woodruff plants occur on the site but were not detected during the surveys (due to their cryptic nature and the size of the site). The area containing most records from the 2005 survey is now dominated by serrated tussock. This area appears to have been burnt on a regular basis over the past 10 – 15 years which has favoured the serrated tussock and is likely to have led to the loss of many of the prickly woodruff plants.

Speargrass plants were detected during the September survey but could not be identified to species level. The existing record is for plants in the north east corner outside the development area and will not be impacted. Other speargrass plants recorded were predominantly amongst remnant vegetation with no plants record amongst the degraded grassland or pasture areas.

A search of the Natural Values Atlas (DPIPWE database) revealed that six threatened flora species have been recorded within 500 m of the site and further 22 species within 5km. These species are listed in Table 1 along with a comment about the likelihood of them occurring at the site.

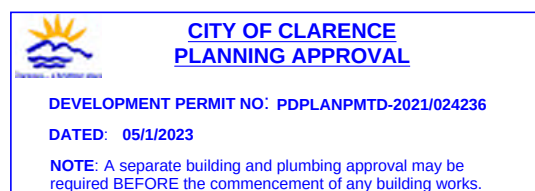


Table 1 – Threatened flora species recorded within 500 m of the site.

Species	Status TSPA	Status EPBCA	Comment
Records within 500 m			
<i>Asperula scoparia</i> subsp. <i>scoparia</i> prickly woodruff	r		Mainly found in native grasslands and grassy forests, often on fertile substrates such as dolerite-derived soils. At lower elevations, forested sites are usually dominated by <i>Eucalyptus globulus</i> and <i>E. viminalis</i> (lower elevations). Suitable habitat and previously recorded at the site (2005). Recorded during the survey.
<i>Austrostipa bigeniculata</i> doublejointed speargrass	r		Suitable habitat, and previously recorded at the site. Likely to be present. Surveyed outside of the flowering/seeding period so plants may have been overlooked.
<i>Carex longibrachiata</i> drooping sedge	r		Grows along riverbanks, in rough grassland and pastures, in damp drainage depressions and on moist slopes amongst forest, often dominated by <i>Eucalyptus viminalis</i> , <i>E. ovata</i> or <i>E. rodwayi</i> . No suitable habitat in degraded impact area.
<i>Haloragis heterophylla</i> variable raspwort	r		Several previous records at the site in discrete area on the north slope amongst regenerating cleared land. Recorded during the survey.
<i>Vittadinia muelleri</i> narrowleaf new-holland daisy	r		Occurs in native grassland and grassy woodland. Suitable habitat present at the site however species not recorded during the survey.
Records within 5 km			
<i>Acacia ulicifolia</i> juniper wattle	r		Not recorded, no suitable habitat.
<i>Bolboschoenus caldwellii</i> sea clubsedge	r		Not recorded, no suitable habitat.
<i>Caladenia caudata</i> tailed spider-orchid	v	VU	No suitable habitat in degraded impact area.
<i>Caladenia filamentosa</i> daddy longlegs	r		Occurs in lowland heathy and sedgey eucalypt forest and woodland on sandy soils. No suitable habitat in degraded impact area.

Species	Status TSPA	Status EPBCA	Comment
<i>Dianella amoena</i> grassland flaxlily	r	EN	Not recorded, marginal habitat in degraded impact area.
<i>Eryngium ovinum</i> blue devil	v		Occurs in a range of lowland vegetation types most often on fertile heavy clay soils derived from dolerite. Vegetation types include open grasslands usually dominated by <i>Themeda triandra</i> (kangaroo grass), grassy forests and woodlands on slopes, ridges and broad flats, and roadside verges (representing remnant populations). Some potential habitat on site however not recorded.
<i>Eucalyptus risdonii</i> risdon peppermint	r	e	Not recorded, no suitable habitat.
<i>Eutaxia microphylla</i> spiny bushpea	r		Not recorded, no suitable habitat.
<i>Lachnagrostis robusta</i> tall blowgrass	r		Not recorded, no suitable habitat.
<i>Lepidium hyssopifolium</i> soft peppergrass	e	EN	Found primarily under large exotic trees on roadsides and home yards on farms. It occurs in the eastern part of Tasmania between sea-level to 500 metres above sea level in dry, warm and fertile areas on flat ground on weakly acid to alkaline soils derived from a range of rock types. It can also occur on frequently slashed grassy/weedy roadside verges where shade trees are absent. Not recorded during survey, marginal habitat on site.
<i>Limonium australe</i> var. <i>australe</i> yellow sea-lavender	r		Not recorded, no suitable habitat.
<i>Olearia hookeri</i> crimsontip daisybush	r		Not recorded, no suitable habitat.
<i>Ruppia megacarpa</i> largefruit seatassel	r		No suitable habitat (no estuaries or lagoons).
<i>Scleranthus diander</i> tufted knawel	v		This species inhabits grassy woodland and is associated with dolerite and basalt substrates. Not recorded, no suitable habitat.

Species	Status TSPA	Status EPBCA	Comment
<i>Scleranthus fasciculatus</i> spreading knawel	v		Known from <i>Poa</i> grassland/grassy woodland where species occurs in gaps between the tussock spaces. Often found in areas protected from grazing such as fallen trees and branches. Some suitable habitat on site however not recorded.
<i>Senecio squarrosus</i> leafy fireweed	r		Potential habitat occurs on site however not recorded. Survey outside flowering period so may have been overlooked amongst the remnant forest.
<i>Stuckenia ectinate</i> fennel pondweed	r		Saline aquatic species. No suitable habitat.
<i>Triglochin minutissima</i> tiny arrowgrass	r		Occurs in fresh or brackish mudflats or margins of swamps in lowland, mostly coastal areas. No suitable habitat.
<i>Velleia paradoxa</i> spur velleia	v		<i>Velleia paradoxa</i> occurs in grassy woodlands or grasslands on dry sites. Potential habitat occurs the site although species not recorded
<i>Vittadinia cuneata</i> var. <i>cuneata</i> fuzzy new-holland-daisy	r		<i>Vittadinia cuneata</i> var. <i>cuneata</i> occurs in native grassland and grassy woodland. Some suitable habitat occurs on site however species not recorded.
<i>Vittadinia gracilis</i> woolly new-holland-daisy	r		<i>Vittadinia gracilis</i> occurs in native grassland and grassy woodland. Some suitable habitat occurs on site however species not recorded.
<i>Wilsonia rotundifolia</i> roundleaf wilsonia	r		No suitable habitat.
<i>Xerochrysum palustre</i> swamp everlasting	v	VU	Occurs in wetlands, grassy to sedgy wet heathlands and extends to associated heathy <i>Eucalyptus ovata</i> woodlands. Sites are usually inundated for part of the year. No suitable habitat.



**CITY OF CLARENCE
PLANNING APPROVAL**

DEVELOPMENT PERMIT NO: PDPLANPMTD-2021/024236

DATED: 05/1/2023

NOTE: A separate building and plumbing approval may be required BEFORE the commencement of any building works.

4.2.2 Significant trees

There are several large blue gums scattered across the site including along sections of the degraded waterways. Most of the trees are outside the impacts area although some trees occur within the general residential zoning and may be impacted by the development. Trees that are located within the bushfire hazard management areas can potentially be retained subject to requirement of the bushfire hazard management plan (Bushfire Prone Development Solutions, 2021).

4.2.3 Introduced plants

Five weed species listed as declared weeds under the *Weed Management Act 1999* were recorded:

- blackberry (*Rubus fruticosus* sp. agg.) – blackberry is abundant in the wetter parts of the site, particularly along drainage lines and is scattered amongst areas of degraded native vegetation.
- boneseed (*Chrysanthemoides monilifera*) - isolated occurrences of boneseed are found in the creekline and under regenerating scrub.
- slender thistle (*Carduus pycnocephalus*) - recorded under the powerline easement, in scattered in areas of open pasture.
- serrated tussock (*Nassella trichotoma*) - serrated tussock is abundant and widespread across the site, forming monocultures in some areas of cleared land that have been repeatedly burnt
- Spanish heath (*Erica lusitanica*) - Spanish heath is abundant in the hillside clearing to the east of the site and is scattered under the powerline easement and through the cleared land.
- Gorse (*Ulex europaeus*) – clusters recorded just outside the site's western boundary in degraded pasture.

Their broad distribution of declared weeds across the site is shown in Figure 3.

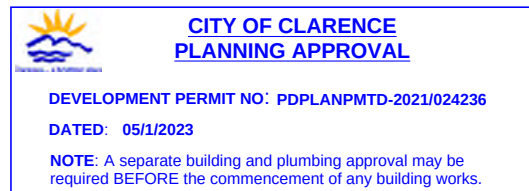
Environmental weeds species are common across the cleared land and amongst degraded portions of the site such as the drainage lines.

Briar rose is widespread, forming thickets in some parts of the site and frequently co-occurring with blackberry and Spanish heath. Two large radiata pines (*Pinus radiata*) were recorded in the far south of the site. Scotch thistle (*Cirsium vulgare*) and variegated thistle (*Silybum marianum*) are found scattered throughout the site, particularly in disturbed areas. Cumbungi (*Typha latifolia*) is

abundant in the southernmost creekline on the property. An isolated occurrence of sweet pittosporum (*Pittosporum undulatum*) was also recorded at the site.

Other introduced flora present are minor weeds of pasture and disturbed ground with little environmental impact.

Under the *Weed Management Act 1999*, landowners are required to prevent the spread of declared weeds into un-infested areas or onto neighbouring land.



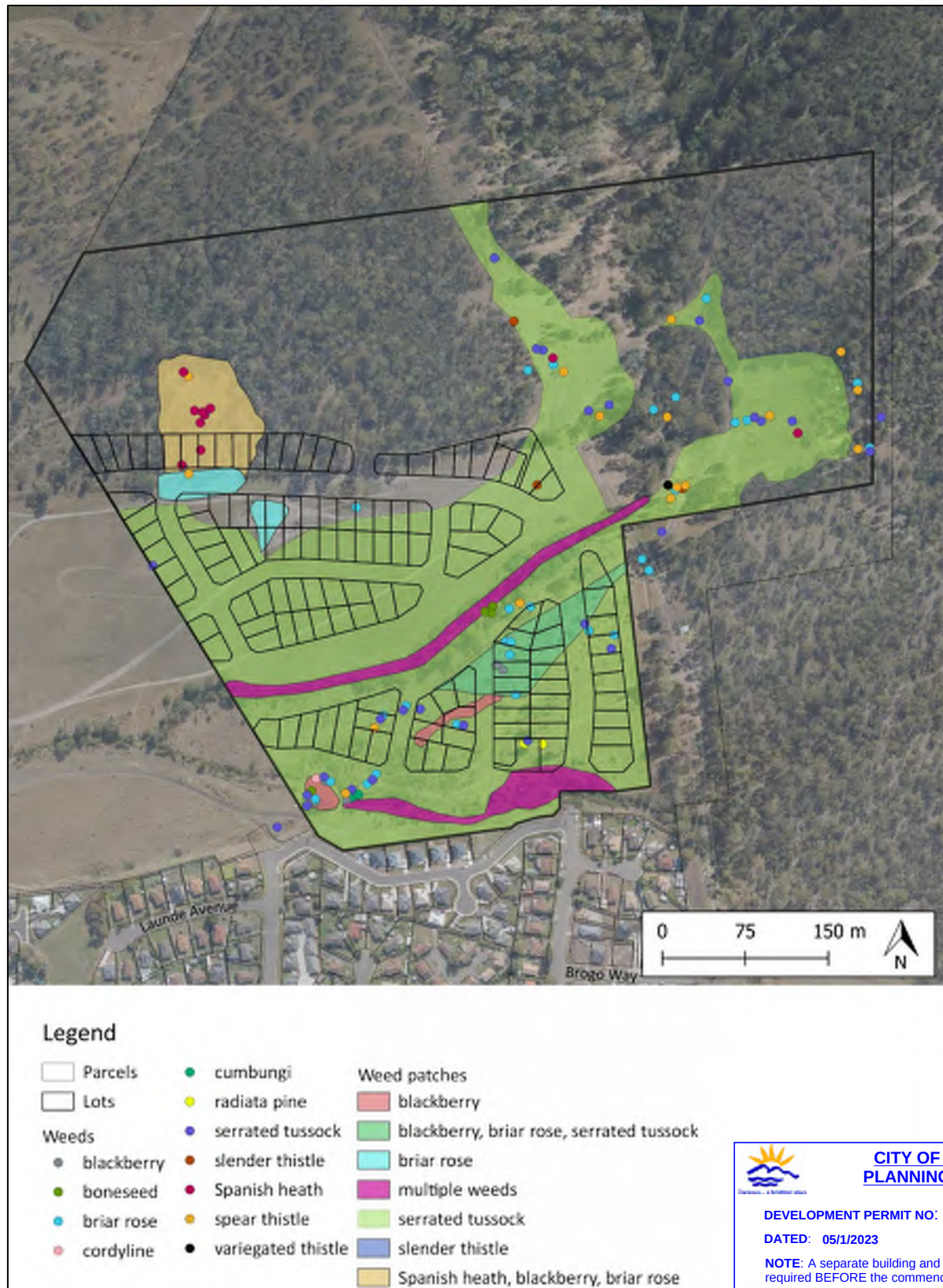


Figure 3 – Indicative weed distribution across site.



4.3 Fauna

4.3.1 Threatened fauna

No threatened fauna species listed under Schedule 3, 4 or 5 of the *Threatened Species Protection Act 1995* or under the *Environment Protection and Biodiversity Conservation Act 1999* were recorded during the survey. However, bandicoot diggings were observed in the far east of the property (potentially eastern barred bandicoots - *Perameles gunnii*).

The search of the Natural Values Atlas revealed that one threatened fauna species (swift parrot) has been recorded within a 500 m radius of the site. Several other threatened fauna species have been recorded in a 5 km radius. These species are listed in Table 2 including a comment on the likelihood of them occurring at this site (marine species not included). Three raptor nests have been recorded within 2 km.

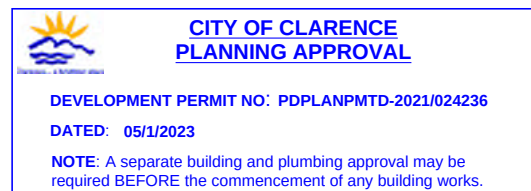
Table 2 – Threatened non-marine fauna species recorded within a 2 km radius of site, with comments on habitat suitability of the survey area. Records prior to 1950 omitted

Species	Status TSPA	Status EPBCA	Comments
Threatened fauna recorded within 500 m of the site			
<i>Lathamus discolor</i> swift parrot	v		Species has strong association with blue gum and black gum. These trees provide potential foraging habitat. Blue gums are present at the site, which provide foraging habitat for the swift parrot when they flower during the breeding season.
Threatened fauna recorded within 2 km of the site			
<i>Accipiter novae-hollandiae</i> grey goshawk	e		Nests in wet forest, typically in riparian areas. No suitable nesting habitat on the property, although birds may forage over site.
<i>Aquila audax subsp. fleayi</i> Tasmanian wedge-tailed eagle	e	EN	Species likely to forage across the site. Nests in tall trees on sheltered slopes. Three eagle nests recorded within 2 km of site on other side of Mt Rumney hills. No suitable nesting habitat on the site although birds likely to forage over site.
<i>Dasyurus viverrinus</i> eastern quoll		EN	Species likely to forage across the site. Prefers dry forest and native grassland mosaics bounded by agricultural land. No denning habitat recorded during site surveys however intact vegetation on site provides potential foraging.
<i>Haliastur leucogaster</i>	v		Species may forage over the site however unlikely to nest on the property.

Species	Status TSPA	Status EPBCA	Comments
white-bellied sea eagle			
<i>Perameles gunnii</i> eastern barred bandicoot		VU	Potential habitat (a mosaic of open and remnant bushland habitats, woodlands with a grassy understorey) present at the site. Bandicoot diggings observed during the survey and species likely to be present
<i>Sarcophilus harrisii</i> Tasmanian devil	e	EN	No denning habitat recorded during site surveys however potential foraging habitat present at the site.
<i>Tyto novaehollandiae</i> Masked owl	pe	PVU	Old growth trees present at the site, although none with hollows suitable for nesting observed. Likely to forage across the site.

4.3.2 Threatened fauna habitat

The blue gums on the site provide potential foraging habitat for the critically endangered swift parrot when the flower during the breeding season. The intact vegetation on the site provide habitat for wide roaming mammal species such as bandicoots, quolls and devils and these species may utilise the site for foraging and/or denning/nesting. The areas of forest and treed vegetation on the property and along the waterways provide important landscape-scale connectivity, joining the Meehan Range from the east to Glebe Hill to the west, via vegetation along the Clarence Plains Rivulet.



5 Development Impacts

The following section outlines the impacts of the proposed development on natural values and provides an assessment of the proposal against the relevant provisions of the Natural Assets Code (C7.0) of the TPS 2021.

Proposed subdivision

The proposal involves subdivision of an existing land title to create 130 residential lots ranging in size from 433 to 812 m² with a large balance lot. The residential lots are limited to areas zoned as General Residential under the Paranville Specific Area Plan within the remainder of the site zoned as Open Space. As the development site is located in a Bushfire Prone Area it requires the establishment and maintenance of a bushfire hazard management area (HMA) around the proposed lots as detailed in the bushfire hazard management plan for the site (by others).

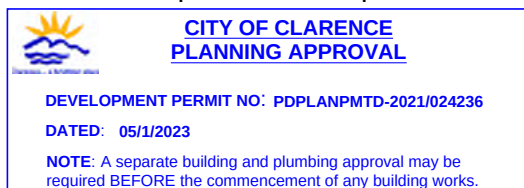
Impacts on native vegetation

The majority of the development is located in an area of the site that has already been cleared, consisting either of paddock or regenerating cleared land that is heavily infested with weed species, and thus, the impacts upon natural values are limited. However, some of the lots extend into priority vegetation area (Lots 61, 62, 66 to 68 and 79 to 85) or waterway and coastal protection area overlays (Lots 1, 10, 19 to 21, 39, 43 to 48, 129 and 130) and therefore are subject to the relevant provisions of the Natural Assets Code. Some clearance of vegetation within the creekline will also occur to the north of lots 29, 30, 27 and 38 for landscaping and the construction of the Stage 2 road.

Development of the lots to the north (Lots 53 to 62 and 75 to 88) will require clearance of native vegetation along the rear of the lots for a fire break and bushfire hazard management areas. This will also include an area of threatened vegetation community (DGL).

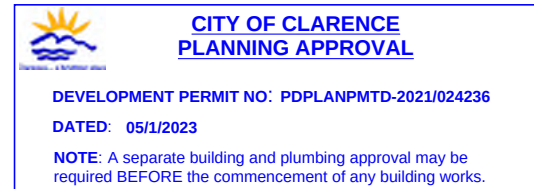
Impacts on Threatened Species

The eastern barred bandicoot is likely to inhabit the area as evidence of bandicoot diggings was found during the survey. As the bandicoot is widespread and secure in Tasmania and commonly occurs on the urban fringe, the development will not affect the species' viability and will have limited impact on the species. Urban development adjacent to intact vegetation is likely to lead to an increase in domestic cat numbers in the area which has the potential to impact on native species such as bandicoots.



The development will impact an area of blue gum forest which contains forging habitat for the endangered swift parrot. The loss of some blue trees along the edge of the subdivision is unlikely to significantly reduce the available foraging habitat in the local area however it does contribute to the incremental loss of habitat at the urban interface and has the potential to increase the bird strike risk (with new houses).

Two threatened flora species are known from the development impact area. Several existing observations of the variable raspwort (*Haloragis heterophylla*) were made in 2005 and additional observations were made during 2021 surveys. Some of the plants occur within the development footprint for lots 80 to 83 and within the bushfire hazard management areas for these lots. All plants within the lot boundaries are likely to be impacted by the development however plants within the HMA can be retained provided that clearance to reduce fuel loads is carried out to minimise impacts on the ground layer. The control of Spanish heath in this area will improve conditions for the species and will contribute to its continued persistence at the site.



6 Legislative and Planning Scheme Requirements

This section outlines the environmental legislation and environmental codes of the planning scheme relevant to impact of the proposed subdivision on natural values.

6.1 Environmental Protection and Biodiversity Conservation Act 1999

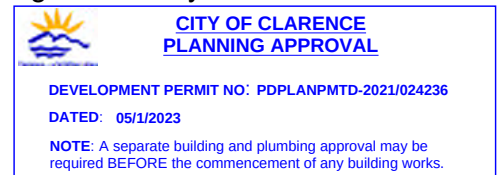
Development proposals that involve Matters of National Environmental Significance, including threatened species listed under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act), may require Commonwealth approval. Potential impacts need to be assessed against the EPBC Act significant impact criteria.

The potential impacts of the development on the Nationally listed eastern barred bandicoot and swift parrot are unlikely to constitute a significant impact under the criteria of the EPBC Act. The proposal does not warrant Commonwealth referral.

6.2 Threatened Species Protection Act 1995

Two flora species listed on the *Threatened Species Protection Act 1995* (TSP Act) is known to occur within the proposed development area. The area where variable raspwort and prickly woodruff occurs amongst regenerating vegetation on the northern slope will be impacted by some new lots and associated bushfire hazard management areas. Plants that occur within the lots will likely be destroyed. Plants that occur within the bushfire hazard management area may be

retained provided the HMA is established in a manner that causes minimal disturbance to the ground layer (i.e. hand removal of shrubs and slashing of ground layer). A Permit to Take, issued by DNRE, will be required prior to undertaking any works that will damage or destroy the listed species.



6.3 Tasmanian Planning Scheme 2021

The property is zoned as General Residential, Open Space and Landscape Conservation under the Clarence Local Provisions Schedule. The Paranville Specific Area Plan overlay applies across the entire site. A Waterway and Coastal Protection Area overlay apply as a 30 m buffer from onsite waterways and the Priority Vegetation Area overlay extends over the north of the site and within 30 m buffer around threatened flora records.

The development complies with standards for subdivision under CLA-S4.8.1, and all proposed lots are within the General Residential zoning. However, some lots occur within the boundaries of Priority Vegetation and Waterway Protection Area overlays and as such the provisions of the planning scheme will need to be addressed.

6.3.1 Requirements of Natural Assets Code: C7.7.1 Subdivision within a waterway and coastal protection area or future coastal refugia area.

Lots 1, 10, 19 to 21, 39, 43 to 48, 129 and 130 of the proposed subdivision are partially within the WCPA and as such an assessment against the Code is required. Additionally, a section of WCPA will be impacted by the roadways associated with Stages 1 to 4, 8 and 10. The proposal does not satisfy the Acceptable Solutions (A1) and therefore is assessed against the Performance Criteria (P1) for subdivision (C7.7.1).

Each lot, or a lot proposed in a plan of subdivision, within a waterway and coastal protection area or a future coastal refugia area, must minimise adverse impacts on natural assets, having regard to:

(a) the need to locate building areas and any associated bushfire hazard management area to be outside a waterway and coastal protection area or a future coastal refugia area;

The area of the lots that encroaches upon the WCPA contains degraded cleared agricultural land with limited natural values and significant weed infestations. Building areas for these lots will be largely outside the WCPA. The bushfire hazard management plan for lots adjoining the WCPA and the roadway and HMA between Lots 10 and 51 will rely on the waterway areas being managed in a low fuel condition with the retention of limited unmanaged vegetation. Along the main waterway through the centre of the site there is some remnant blue gum forest (Figure 2). The establishment

of the bushfire hazard management will require the thinning of some vegetation within the WCPA however this can largely be restricted to the control of woody weeds. The landscaping plan for the development includes the landscaping of the open space along the waterway and may include some reshaping of the banks where there are steep banks or significant erosion. The landscaping will also include the removal of weeds and rubbish and construction of walking trails (Refer to Landscape plan). Retention of mature blue gums and white gums along the waterways is recommended within the constraints of the bushfire requirements. Mature trees may need to have limbs pruned and adjacent ladder fuels removed to achieve fuel modified conditions in particular adjacent to lots 10, 48, 51 129 and 130.

Any modifications within the waterways for the landscaping plan are to be carried out to prevent erosion and sedimentation of the waterway.

(b) future development likely to be facilitated by the subdivision.

Future development of the subdivision will be of residential dwellings on small residential blocks. Consequently, future development and establishment of associated hazard management areas will occupy the entirety of the block and it will not be possible to retain native vegetation.

6.3.2 C7.7.2 Subdivision within a priority vegetation area (PVA).

Building areas on lots 79 to 85 and part of the bushfire hazard management area for these lots and bushfire hazard management areas of lots 53 and 56 are within a priority vegetation area (due to threatened flora records) and as such an assessment against the Code is required. The proposal does not satisfy the Acceptable Solutions (A1) and therefore is assessed against the Performance Criteria (P1) for subdivision (C7.7.2).

P1.1

Each lot, or a lot proposed in a plan of subdivision, within a priority vegetation area must be for:

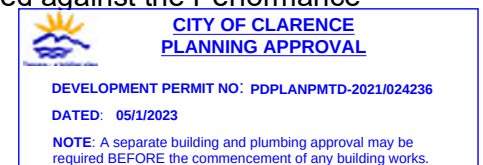
(c) subdivision in the General Residential Zone or Low Density Residential Zone;

The subdivision of lots within the Priority Vegetation Areas occurs only in the General Residential Zone for all lots. The impacts on the PVA from bushfire hazard management is within the Open Space zoning on the site.

P1.2

Works associated with subdivision within a priority vegetation area must minimise adverse impacts on priority vegetation, having regard to:

(a) the design and location of any works, future development likely to be facilitated by the subdivision, and any constraints such as topography or land hazards;



Future development of the subdivision will be of residential dwellings on small residential blocks. The size of the lots and the requirement to establish associated bushfire hazard management areas (HMA) means that no native vegetation can be retained on the lots and limited vegetation can be retained within the HMA. The impacts on the priority vegetation areas are as follows:

1. *Clearance for threatened flora on Lots 79 to 85.*

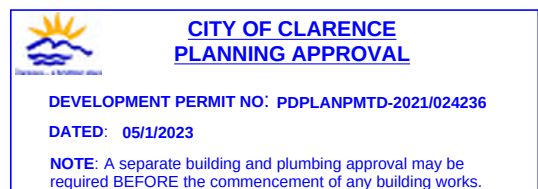
These lots are located on a south-facing slope in an area of Bursaria-Acacia woodland containing threatened flora species, variable raspwort (*Haloragis heterophylla*). No plants were recorded within the proposed lots during recent surveys however due to the small size of the plants and its cryptic nature some plants may have been overlooked. Development of the lots in this area will result in the clearance of all vegetation from the lots and as such it is likely that some plants will be destroyed. A permit to destroy the species will be required.

2. *Clearance of vegetation for the HMA for Lots 79 to 85.*

A 30m wide HMA will be established behind these lots to meet bushfire hazard management requirements. Variable raspwort plants (est +1000 with additional plants beyond the HMA) and prickly woodruff (est 10-20 plants) occur within this area which may be impacted. It is possible that both species can persist in this area if the ground layer is not disturbed during the establishment of the HMA, due to the low habitat. A specific management plan for the protection of these populations should be developed to ensure impacts are minimised.

3. *Clearance of vegetation for the HMA for Lots 53 and 56*

The management of vegetation for the HMA behind lots 53 and 56 and Lots 79 to 85 will require the thinning of dry blue gum forest (DGL) which is a threatened vegetation community (estimated 3000m²). The community is degraded by weeds and rubbish in this area (Photo 15) however there are large intact trees that provide foraging habitat for the swift parrot. The impact on the PVA can be limited by the retention of the large trees. This will be subject to the bushfire plan requirements and may require the removal of all vegetation around the base of the trees and the pruning of lower branches. As there is also a fire trail to be established around the rear of the lots in this area the loss of some mature blue gums may be unavoidable.



(b) any particular requirements for the works and future development likely to be facilitated by the subdivision

The majority of the infrastructure associated with the subdivision such as roads and services and will be contained within the land zoned as general residential and have negligible impacts on natural values.

The establishment of hazard management zones along the edge of the northern lots will impacts an area of priority vegetation and potentially a threatened species.

(c) the need to minimise impacts resulting from bushfire hazard management measures through siting and fire-resistant design of any future habitable buildings;

Buildings adjoining bushfire-prone vegetation will be constructed to BAL 19 – still requires the construction of a vegetation fuel buffer zone along the northern boundary of the site within priority vegetation. The retention of mature blue gums and the threatened flora population within the HMA will minimise impacts.

(d) any mitigation measures implemented to minimise the residual impacts on priority vegetation;

Mitigation measures to minimise ongoing impacts on priority vegetation associated with the development will include weed management within the land zoned as general residential to minimise the spread of weeds into the intact vegetation. Rehabilitation of the waterways will also provide a mitigation measure for the loss of some priority values by increasing the area of native vegetation, reducing erosion and providing connectivity for native fauna across the site and strengthening landscape links for other areas of vegetation such as the Glebe Hills.

Management of cats within subdivision should be implemented in line with the Council cat management policy and the State cat management regulations to minimise potential impacts on native fauna species in revegetation adjoining the development.

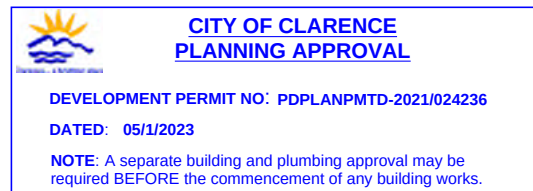
(e) any on-site biodiversity offsets; and

The majority of the priority vegetation on the site is outside the development area. The area of DGL can be minimised by retention of mature habitat trees and the loss of values can be offset through weed management across all retain vegetation. The rehabilitation of the heavily degraded waterways within the development will provide improved connection across the site and to waterway to the west and ultimately to the Glebe Hills. Whilst the level of native vegetation planting within the waterways will be limited by bushfire requirements and ongoing management of the open space there is scope to incorporate biodiversity values in the landscaping and control the widespread weeds. The control of the spanish heath and blackberry infestations in the areas

containing the threatened flora populations can also mitigate impacts of the development and act as an offset to the development impacts.

(f) any existing cleared areas on the site.

All existing cleared and degraded land on the site is being utilised for the subdivision development in line with the Paraville Specific Area Plan which is based on previous assessment of the natural value on the land.



7 Conclusion and Recommendations

The natural values of land at 93 Pass Road, Rokeby were assessed as part of a development application for a 130 lot subdivision. The proposed development occurs within the General Residential zone and complies with the Paraville Specific Area Plan.

Four native vegetation communities and three modified communities occur within the site: *Eucalyptus globulus* dry forest (DGL) is listed as a threatened vegetation community under Schedule 3A of the *Nature Conservation Act 2002*. The position of the site to be developed is largely disturbed with only scattered regrowth native species occurring amongst exotic grass and herbs and a range of environmental weed species. The area of the site zoned as Open Space contains relatively intact blue gum, white gum and white peppermint forest. Three threatened flora species have been recorded at the site, with two known from area to be managed for bushfire (*Haloragis heterophylla* and *Asperula scoparia* subsp. *scoparia*). The blue gums on the site provide foraging habitat for the critically endangered swift parrot, which has been recorded within 500 m of the property.

Some of the lots overlap with areas of Priority Vegetation and Waterway and Coastal Protection Area overlays and therefore are subject to the requirements of the Natural Assets Code of the Tasmanian Planning Scheme 2021. Most of the lots occur within a previously cleared area of agricultural land and regenerating cleared land, and consequently the impacts are limited to small areas.

The development is partially within the Waterway and Coastal Protection Area adjacent to an unnamed stream. Whilst the boundaries of some lots will extend into the designated WCPA the overlap areas are cleared and contain predominantly exotic species including serrated tussock, and consequently the impact on natural values will be minimal.

Lots 79 to 85 and the bushfire Hazard Management Areas of lots 53 and 56 encroach upon priority vegetation areas including a small area of DGL forest (approximately 3000m²). The bushfire hazard management area associated with the northern lots also encroaches into the DGL and DVG and impacts on approximately 6000m² of native vegetation although some of the vegetation is outside the PVA.



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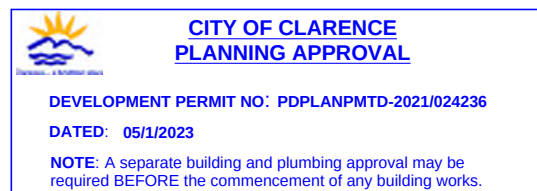
DATED: 05/1/2023

NOTE: A separate building and plumbing approval may be required BEFORE the commencement of any building works.

The following recommendations are provided regarding the development.

Recommendations

- Minimise vegetation clearance and disturbance of intact vegetation and mature trees within the Waterway and Coastal Protection Area and Priority Vegetation Area within the constraints of bushfire hazard management requirements.
- Retain mature blue gums within bushfire hazard management area where possible within constraints of bushfire hazard management plan.
- Develop and implement a weed management plan for declared weeds and environmental weeds. Plan to include control prior to and during construction and ongoing maintenance plan for all public areas.
- A 'Permit to Take' is required prior to any works that may damage or destroy variable raspwort or prickly woodruff plants.
- All works within the waterways for the landscaping plan are to be carried out to prevent erosion and sedimentation of the waterway.
- Weed control works and landscaping and rehabilitation of the waterway can provide an on-site biodiversity offset for the loss of values associated with the development.
- Any soil or gravel imported to the site for construction or landscaping purposes should be from a weed free source to prevent the establishment of further introduced species on the site.



8 References

Bushfire Prone Development Solutions, 2021. Bushfire Hazard Management Plan Report, Subdivision 93 Pass Road, Rokeby. Draft report.

Nature Conservation Act 2002. Available at

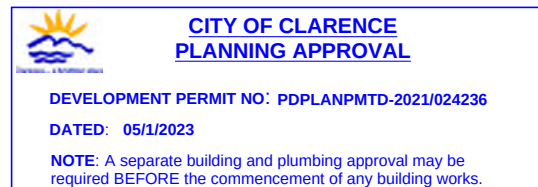
<https://www.legislation.tas.gov.au/view/html/inforce/current/act-2002-063>

Threatened Species Protection Act 1995. Available at

<https://www.legislation.tas.gov.au/view/html/inforce/current/act-1995-083>

Weed Management Act 1999. Available at

<https://www.legislation.tas.gov.au/view/html/inforce/current/act-1999-105>



Appendix 1 – Plant species list for 93 Pass Road, Rokeby

Recorders: Andy Welling, Amber Button

Date: 23/09/2021 and 09/11/2021

Dicotyledons

AMARANTHACEAE

Einadia nutans subsp. *nutans* climbing saltbush

ASTERACEAE

Carduus pycnocephalus slender thistle i d

Cassinia aculeata subsp. *aculeata* common dollybush

Chrysanthemoides monilifera subsp. boneseed i d

Cirsium vulgare spear thistle i

Hypochoeris radicata rough catsear i

Ozothamnus scutellifolius buttonleaf everlastingbush end

Senecio glomeratus purple fireweed

Senecio linearifolius fireweed groundsel

Senecio sp.

CASUARINACEAE

Allocasuarina verticillata drooping sheoak

DILLENIACEAE

Hibbertia hirsuta hairy guineaflower

Hibbertia riparia erect guineaflower

DROSERACEAE

Drosera peltata pale sundew

Drosera sp.

ERICACEAE

Lissanthe strigosa subsp. *subulata* peachberry heath

Styphelia humifusa native cranberry

FABACEAE

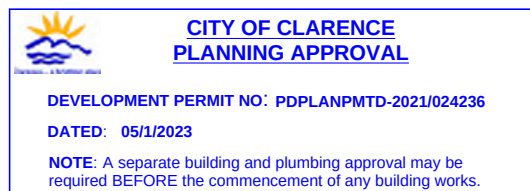
Acacia dealbata subsp. *dealbata* silver wattle

Acacia mearnsii black wattle

Acacia melanoxylon blackwood

Acacia verticillata prickly moses

Bossiaea prostrata creeping bossia



Pultenaea sp.

Trifolium subterraneum subterranean clover i

GENTIANACEAE

Centaurium erythraea common centaury

GERANIACEAE

Geranium sp.

HALORAGACEAE

Gonocarpus tetragynus common raspwort

Gonocarpus teucroides forest raspwort

Haloragis heterophylla variable raspwort r

MYRSINACEAE

Lysimachia arvensis scarlet pimpernel i

MYRTACEAE

Eucalyptus globulus subsp. *globulus* tasmanian blue gum

Eucalyptus pulchella white peppermint end

Eucalyptus viminalis subsp. *hentyensis* henty white gumend

OXALIDACEAE

Oxalis perennans grassland woodsorrel

PHYLLANTHACEAE

Poranthera microphylla small poranthera

PITTOSPORACEAE

Bursaria spinosa subsp. *spinosa* prickly box

Pittosporum undulatum sweet pittosporum i

PLANTAGINACEAE

Plantago coronopus subsp. *commutata* stout buckshorn plantain

i

Plantago lanceolata ribwort plantain i

Plantago major great plantain i

POLYGALACEAE

Comesperma volubile blue lovecreeper

POLYGONACEAE

Rumex sp.



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RANUNCULACEAE

Clematis aristata mountain clematis

RESEDACEAE

Reseda lutea cutleaf mignonette i

RHAMNACEAE

Pomaderris apetala subsp. *apetala* common dogwood

ROSACEAE

Acaena echinata shiny sheepsburr

Acaena novae-zelandiae common buzzy

Crataegus monogyna hawthorn i

Rosa rubiginosa sweet briar i

Rubus fruticosus agg. blackberry i

RUBIACEAE

Asperula scoparia subsp. *scoparia* prickly woodruff r

Coprosma quadrifida native currant

SANTALACEAE

Exocarpos cupressiformis common native-cherry

SAPINDACEAE

Dodonaea viscosa subsp. *spatulata* broadleaf hopbush

SCROPHULARIACEAE

Veronica gracilis slender speedwell

VIOLACEAE

Viola hederacea subsp. *hederacea* ivyleaf violet

Monocotyledons

ASPARAGACEAE

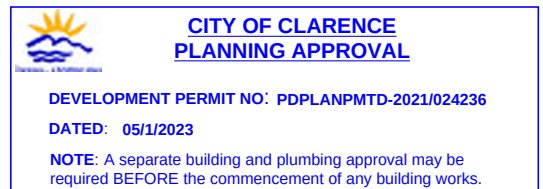
Lomandra longifolia sagg

COLCHICACEAE

Wurmbea dioica subsp. *dioica* early nancy

CYPERACEAE

Carex appressa tall sedge



Carex sp.

Lepidosperma laterale variable swordedge

JUNCACEAE

Juncus sp.

JUNCAECEAE

Juncus pallidus pale rush

LAXMANNIACEAE

Cordyline australis cabbage tree

POACEAE

Anthosachne scabra rough wheatgrass

Austrostipa sp.

Briza minor lesser quaking-grass i

Dactylis glomerata cocksfoot i

Nassella trichotoma serrated tussock i d

Phalaris aquatica toowoomba canarygrass l

Poa labillardierei var. *acris* blue tussockgrass

Poa rodwayi velvet tussockgrass

Rytidosperma sp.

Themeda triandra kangaroo grass

Pteridophytes

ADIANTACEAE

Cheilanthes sieberi subsp. *sieberi* narrow rockfern

DENNSTAEDTIACEAE

Pteridium esculentum subsp. *esculentum* bracken

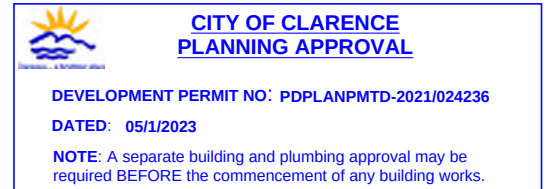
end = Tasmanian endemic i = introduced

d = declared weed ~ (Weed Management Act 1999)

CR = Critically Endangered, EN = Endangered, VU = ~ (Environment Protection and Biodiversity Conservation Act 1999)

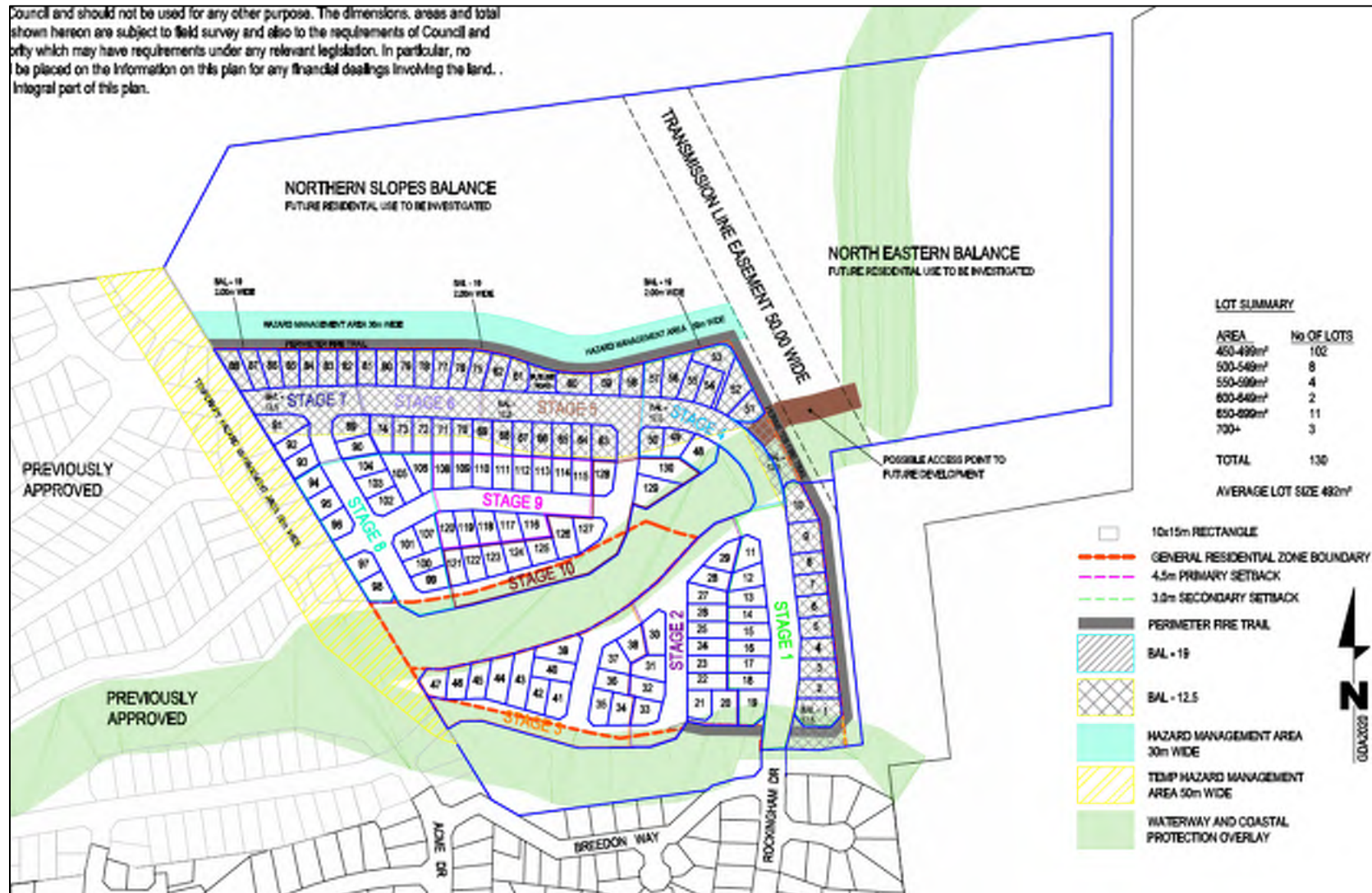
Vulnerable Act 1999)

e = endangered v = vulnerable r = rare ~ (Tasmanian Threatened Species Protection Act 1995)





Appendix 2 – Site plan



Appendix 3 – Photos



Photo 1 - Looking south from the powerline easement.



Photo 2 - Eucalyptus viminalis dry forest to the north of the site.

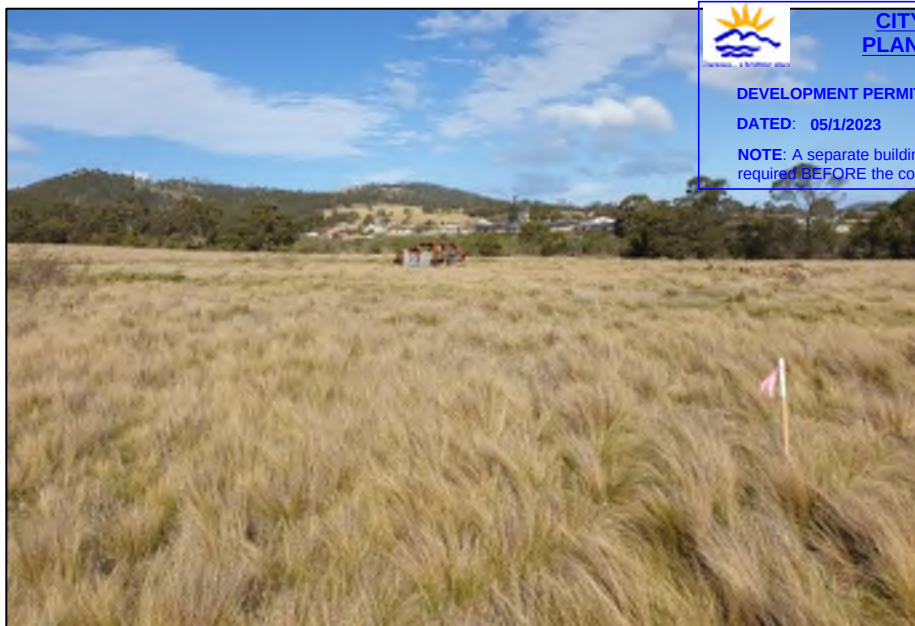


Photo 3 - Agricultural land (FAG) dominated by serrated tussock.

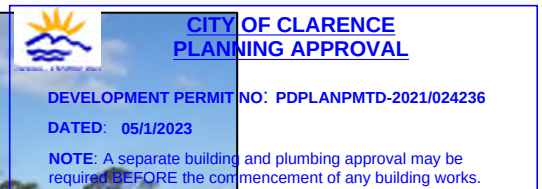




Photo 4 - Regenerating cleared land (FRG) with serrated tussock and briar rose amongst dollybush in the south of the property.



Photo 5 - Agricultural land (FAG) dominated by serrated tussock



Photo 6 - Eucalyptus globulus dry forest (DGL) remnant in creekline.



Photo 7 - Blackberry and briar rose infestation in creekline among degraded blue gum forest.



Photo 8 - Serrated tussock infestation and dumped car bodies between eucalypt forest remnants.



Photo 9 - Blackberry and serrated tussock in agricultural land.



Photo 10 - Dumped rubbish, serrated tussock and thistles between eucalypt forest remnants.



Photo 11 - Lowland grassland complex (GCL) with scattered serrated tussock east of the powerline easement.



Photo 12 - Bursaria-Acacia woodland (NBA) in the southeastern corner of the site.



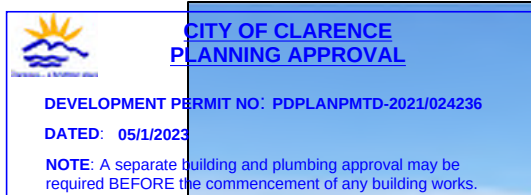


Photo 13 - Looking east from the powerline easement towards dry blue gum forest.



Photo 14 - Sheoak forest (NAV) rockplate community in the northeast of the property.



Photo 15 – Degraded blue gum forest behind lots 53-62 to be managed as a HMA.



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HUTCHINGS SPURR PTY. LTD.
CONSULTING CHARTERED
ENGINEERS

23 ANTILL STREET, HOBART, 7000.

PHONE (03) 6223 5020

e-mail :bill@hsce.com.au

A.B.N. 71437719273

A.C.N. 009508525

- STRUCTURAL
- CIVIL
- MUNICIPAL

2nd February 2022

Our Ref:- 21281 B

Mr Frazer Read
19 Mawhera Ave,
SANDY BAY TAS 7005

Dear Frazer,

**Re: Revised Hydraulic Capacity Report for Proposed 130 Lot Subdivision
at 93 Pass Road**

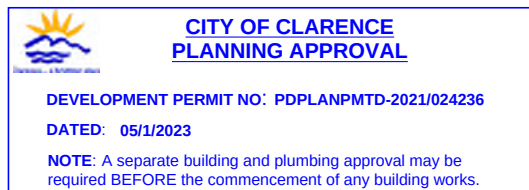
Please find attached the revised Hydraulic Report prepared by Hutchings Spurr Consulting Engineers. This report outlines the stormwater, water and sewer aspects of the proposed 130 Lot Subdivision – 93 Pass Road.

I trust this is sufficient for your needs at this time. Please feel free to contact me if you need any clarification or additional advice.

Yours Sincerely,

Bill Stanford

For Hutchings Spurr Consulting Engineers





HUTCHINGS SPURR PTY. LTD.
CONSULTING ENGINEERS

A.B.N. 71437719273

23 ANTILL STREET, HOBART, 7000.

PHONE (03) 6223 5020

e-mail : bill@gmail.com ; www.hsce.com.au

A.C.N. 009508525

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Preliminary Storm Water Analysis / Design – Up Stream – Down Stream Catchment

Storm Water Design – Residential

It is assumed the permit conditions for this developments will be similar to that of 91 Pass Road in which Council standards require a piped system to cater for a 20yr Average Recurrence Interval (ARI) 5% AEP storm in urban areas. It is proposed to use a pit and pipe system with discharge to the proposed fore-bay/ wetlands and settlement / treatment pond. Refer Drg. No. 21281 SW REV C.

Storm Water Design – Wetlands/ Treatment Ponds

As mention in the previously submitted report for 93 Pas Road, due to site constraints construction of a wetland for storm water treatment was not viable, apart from the provision of the proprietary Gross pollution traps. However the optimum placement of a proposed wetlands is in the neighbouring property of 91 Pass Road. This will require consent from the owners. Initial contact with them, at the time of this report, was positive with the suggestion that shared costs for construction of both treatment ponds could also be negotiated. The number of proposed lots in 93 Pass Road is very similar in area to the lots in 91 Pass Road, hence the construction of a wetland system would most likely be identical to the proposed design for 91 Pass Road. See attachment F. It should also be noted that the installation of the box culverts for the road crossing, located on the southern -most Saw Pit Gully contributory, also requires mutual consent and co-ordination.

The other possibility, for Council's consideration, is that until such time as the area becomes the property of Council, as public open space, (refer staging plan for 91 Pass Road), that timing of the construction of the treatment pond could be conditioned based on the creation of the P.O.S.

There is also a second option, that the proposed pond in 91 Pass Road, also treats the flows from 93 Pass Road. The level of treatment achieved by this combination could be determined with further detailed analysis, once again for Council's consideration. Both of these proposals require detailed hydraulic analysis, and this will be undertaken by JMG Pty Ltd, including reports provided for Council assessment. This work will be completed prior to the final submission for engineering approval so the preferred treatment system is already agreed upon by all parties.



Storm Water Design – Saw Pit Gully

BOX CULVERTS – Southern Watercourse

With reference to Attachment A, the Saw Pit Gully 3 x Box Culverts to be installed as part of the works in 91 Pass Road has been sized at 2.7m wide x 1.5m high precast units. It is by extension of that analysis that the proposed Road Crossing culverts for Rockingham Drive, upstream in 93 Pass Road, to be of similar or slightly less in size. Refer Dwg. No. 21281 SW Rev C

BOX CULVERTS – Northern Watercourse

With reference to Attachment B, the combined flows from Q13 + Q14 (Southern Watercourse) equal 11 m³/s. Q15 (Northern Watercourse) indicates a flow of 10.41 m³/s it therefore follows by extension again that the size of the proposed Box Culvert road crossing be 3 No. 2.7m wide x 1.5m high precast units.

WATERCOURSES/ SWALES

As noted on Dwg. No. 21281 SW Rev C, retention of vegetation of value must be taken into consideration when analysing the watercourses capacity for the 1 %AEP flows. JMG Pty Ltd have been engaged to provide the reports to confirm all of the above.

Sewer Design – Residential

The whole site can be served by a gravity sewerage system connected to the existing sewerage infrastructure in Rokeby. There will be a requirement to extend the sewer reticulation from Rokeby, namely Holmfield Ave, of various sizes, mainly a 300 - 225 dia. within the Stokell Creek reserve. This main will ultimately cater for portions of 89, 91 & 145 Pass Road during the design documentation phase. Refer Attachment 'D' - Drg. No. 17285/201 Rev P2

Downstream of the Stokell Creek & Clarence Plains Rivulet sewer junction, pipes join into a 375mm – 450mm trunk mains which has a capacity in excess of a 1000 lots.

Water Design – Residential

After extensive consultation with TASWATER, and as reflected in the submitted supporting engineering plans and EPANET documentation, a trunk main, of various diameters, will provide the water supply demand for the 170 Lots of the 91 Pass Road development. The critical link will be the 150 dia. Pipe to Acme Drive. Refer Attachment 'E'. Refer Drg. No. 17285/CW1 Rev A.

Stormwater Schematic Plan and Supporting Documentation

ATTACHMENT 'A'



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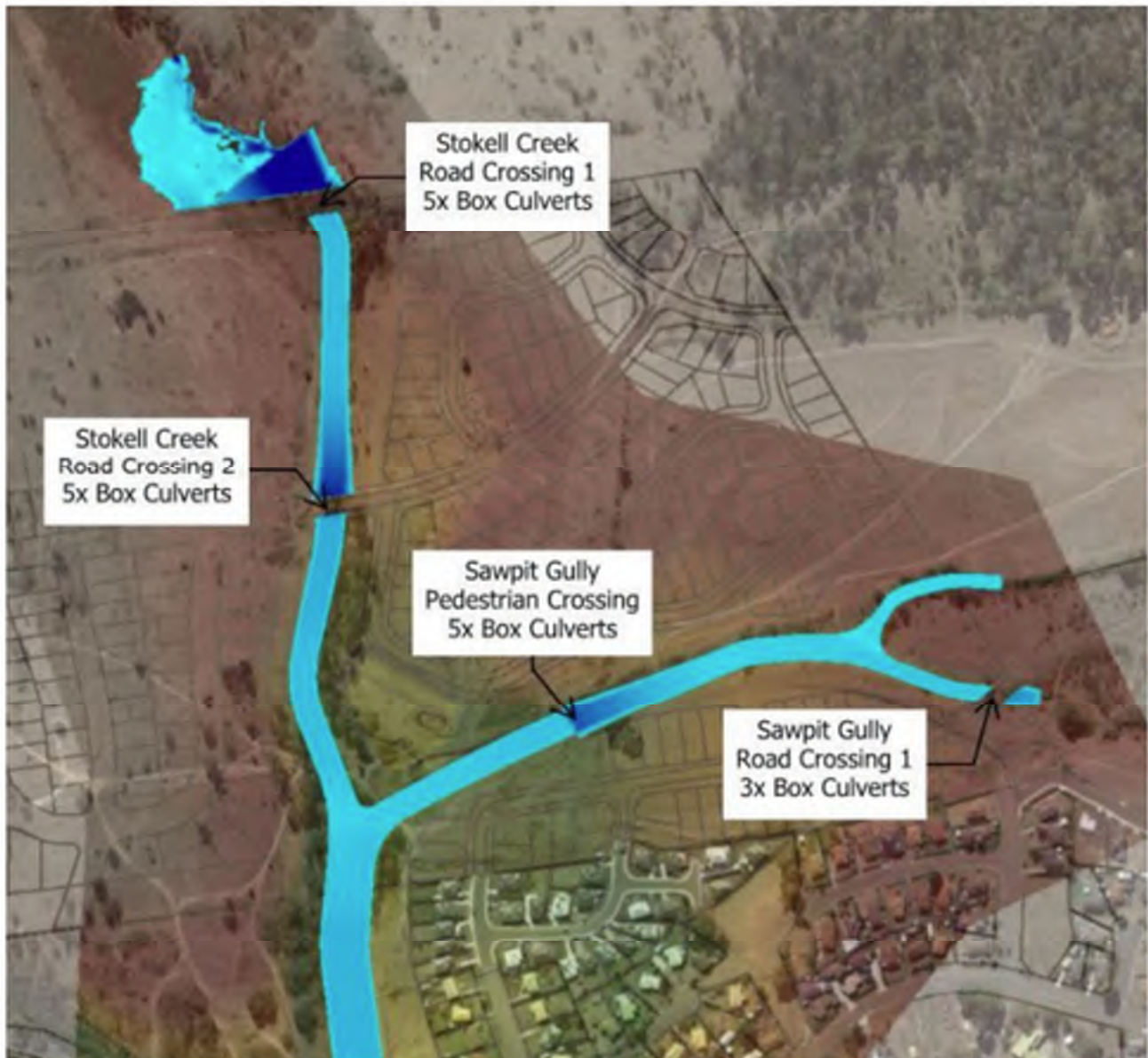


Figure 5 - 1% AEP, 540-minute Storm Duration Flood Inundation & specific details of Box Culverts under road crossings/pedestrian bridges

Extract from Stormwater Report for 91 Pass Road by JMG Pty Ltd



ATTACHMENT 'B'

- Maximum Flow (m³/s) for interested location

Table 2 Reported Flow (m³/s) for 100 year ARI storm event – refer to Figure 2 for locations

	Flow (m ³ /s)														
	Q_01	Q_02	Q_03	Q_04	Q_05	Q_06	Q_07	Q_08	Q_09	Q_10	Q_11	Q_12	Q_13	Q_14	Q_15
15 min	4.98	7.24	1.62	1.80	6.44	6.43	7.68	6.43	3.95	2.71	1.53	3.88	0.80	3.47	4.82
30 min	7.56	11.83	1.41	1.52	13.62	13.53	15.47	10.22	5.96	4.16	3.68	6.10	1.58	6.38	7.57
45 min	9.40	13.72	1.19	1.29	19.60	19.27	20.96	12.05	7.17	4.79	4.94	7.06	1.95	7.78	9.04
60 min	10.29	15.16	1.43	1.55	23.07	23.06	23.98	13.05	7.96	5.16	5.66	7.73	2.29	8.38	9.70
90 min	9.96	15.11	1.40	1.57	24.12	24.39	26.87	13.05	7.81	5.13	5.67	7.63	2.25	8.35	9.59
120 min	10.64	15.69	1.62	1.78	25.95	26.38	28.80	13.80	8.37	5.36	6.18	8.00	2.45	8.61	10.21
180 min	8.94	13.08	1.09	1.22	23.03	23.73	26.07	11.72	6.93	4.70	4.75	6.65	1.89	7.21	8.15
360 min	10.86	14.57	0.74	1.02	27.73	28.59	30.93	12.88	7.66	5.14	5.67	7.36	2.19	8.34	9.13
540 min	12.35	13.37	0.67	0.92	28.94	29.85	32.00	12.07	7.09	4.85	5.07	6.73	1.93	7.69	8.31
720 min	12.12	13.07	0.68	0.96	26.53	26.99	29.22	11.86	6.97	4.79	4.94	6.68	1.86	7.75	8.35
1080 min	8.88	9.74	0.45	0.66	20.26	20.71	22.91	9.29	5.31	3.93	3.31	5.09	1.30	5.74	6.16
1440 min	9.13	9.50	0.43	0.62	20.79	21.48	23.69	9.16	5.22	3.84	3.21	4.95	1.24	5.58	5.93
Maximum	12.35	15.69	1.62	1.80	28.94	29.85	32.00	13.80	8.37	5.36	6.18	8.00	2.45	8.61	10.21

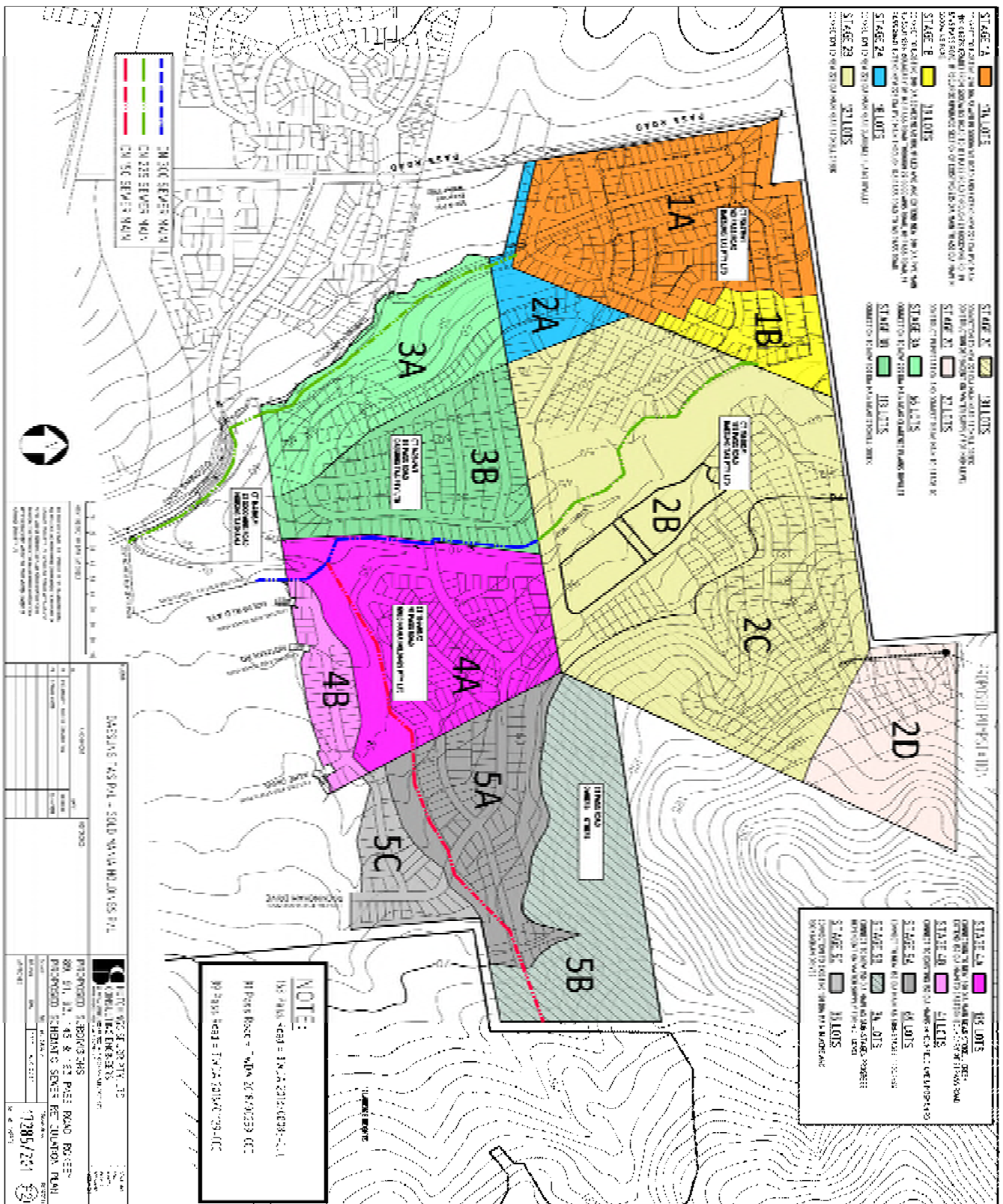


Extracts from GHD Pty LTD flood study analysis.



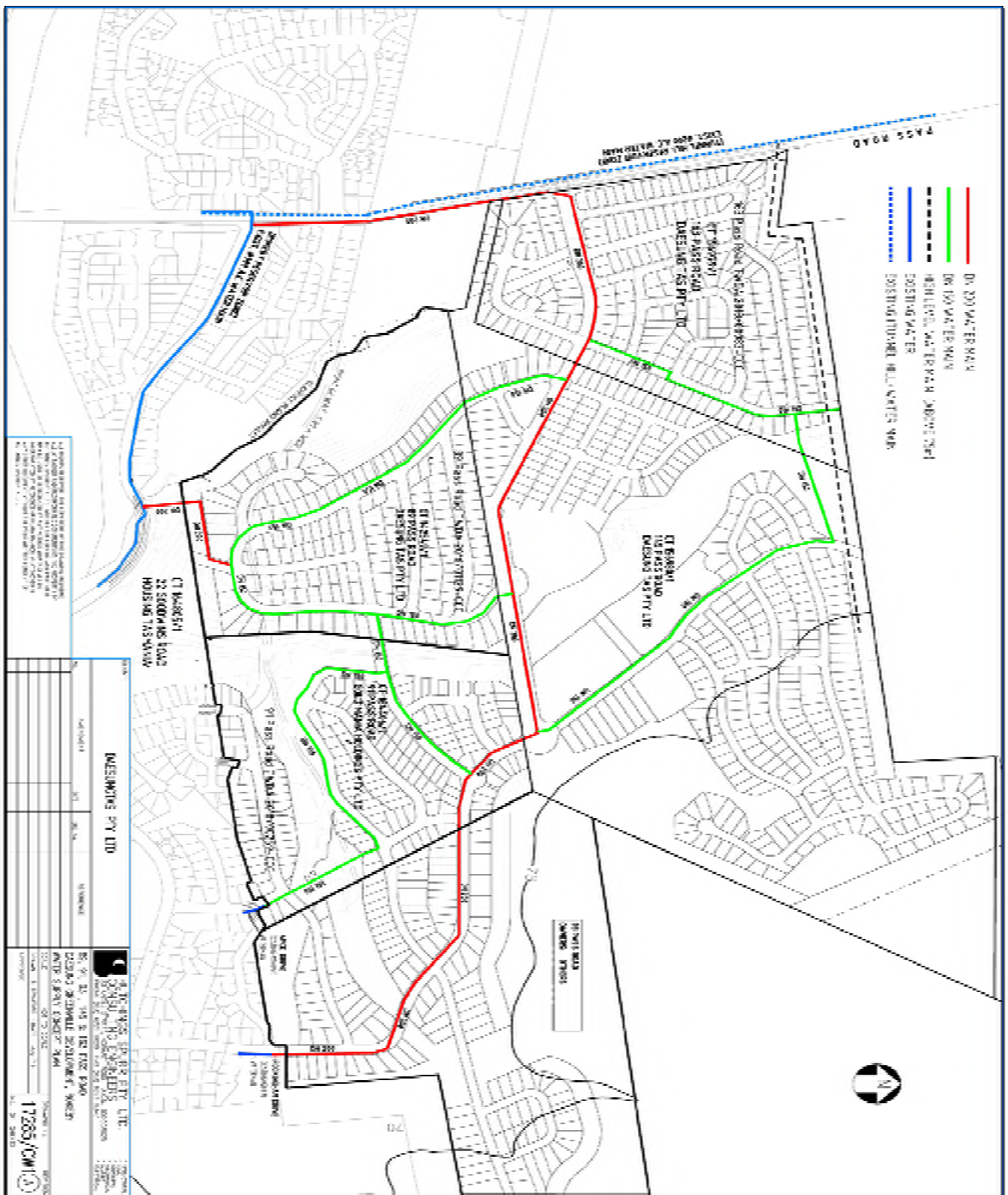
ATTACHMENT 'C'

Sewer Schematic Plan



ATTACHMENT 'E'

Water Schematic Plan



ATTACHMENT 'F'

Potential Wetlands Cross Section



CITY OF CLARENCE PLANNING APPROVAL

DEVELOPMENT PERMIT NO: PDPLANMTD-2021/024236

DATED: 05/1/2023

NOTE: A separate building and plumbing approval may be required BEFORE the commencement of any building works.

