13 June 2023

Attention: Chief Executive Officer
Douglas Shire Council
64-66 Front Street
Mossman QLD 4873
Our reference: 026-2201

Operational Works Application - Ocean Breeze Estate - Stages 3A2 & 3B

On behalf of Jonpa Pty Ltd, please find enclosed the Operational Works Application for the above-mentioned development for your consideration and approval:

- DA Form 1. – Development Application Details
- FNQROC Development Manual Statement of Compliance.
- Stormwater Calculations
- Engineering drawings.

Other items such as the potential acid sulphate soils report as well as water and sewer masterplanning has been provided in previous stages of the development.

We have calculated the application assessment fee in the amount of $16,156.00 ($4,100 + (24-2) x $548) based on Council's current schedule of fees and charges.

We trust the above meets with your approval and look forward to receipt of your approval. Should you require any additional information, please do not hesitate to me on 0402 568 698 or the email address below.

Yours sincerely

Craig Caplick
Principal Engineer | RPEng RPEQ 25102
craig@consultneon.com.au | 0402 568 698

DA Form 1

DA Form 1 – Development application details

Approved form (version 1.3 effective 28 September 2020) made under section 282 of the Planning Act 2016.

This form **must** be used to make a development application **involving code assessment or impact assessment**, except when applying for development involving only building work.

For a development application involving **building work only**, use *DA Form 2 – Building work details*.

For a development application involving **building work associated with any other type of assessable development (i.e. material change of use, operational work or reconfiguring a lot)**, use this form (*DA Form 1*) **and** parts 4 to 6 of *DA Form 2 – Building work details*.

Unless stated otherwise, all parts of this form **must** be completed in full and all required supporting information **must** accompany the development application.

One or more additional pages may be attached as a schedule to this development application if there is insufficient space on the form to include all the necessary information.

This form and any other form relevant to the development application must be used to make a development application relating to strategic port land and Brisbane core port land under the *Transport Infrastructure Act 1994*, and airport land under the *Airport Assets (Restructuring and Disposal) Act 2008.* For the purpose of assessing a development application relating to strategic port land and Brisbane core port land, any reference to a planning scheme is taken to mean a land use plan for the strategic port land, Brisbane port land use plan for Brisbane core port land, or a land use plan for airport land.

Note: *All terms used in this form have the meaning given under the Planning Act 2016, the Planning Regulation 2017, or the Development Assessment Rules (DA Rules).*

PART 1 – APPLICANT DETAILS

1) Applicant details	
Applicant name(s) (*individual or company full name*)	Jonpa Pty Ltd
Contact name *(only applicable for companies)*	
Postal address *(P.O. Box or street address)*	c-/ Neon Consulting – 11 Rosemont Court
Suburb	Mooroobool
State	Queensland
Postcode	4870
Country	Australia
Contact number	0402 568 698
Email address *(non-mandatory)*	Craig@ConsultNeon.com.au
Mobile number *(non-mandatory)*	
Fax number *(non-mandatory)*	
Applicant's reference number(s) *(if applicable)*	026-2201

2) Owner's consent
2.1) Is written consent of the owner required for this development application?
☐ Yes – the written consent of the owner(s) is attached to this development application ☒ No – proceed to 3)

PART 2 – LOCATION DETAILS

3) Location of the premises *(complete 3.1) or 3.2), and 3.3) as applicable)*

***Note**: Provide details below and attach a site plan for any or all premises part of the development application. For further information, see DA Forms Guide: Relevant plans.*

3.1) Street address and lot on plan

☒ Street address **AND** lot on plan (*all lots must be listed*), ***or***

☐ Street address **AND** lot on plan for an adjoining or adjacent property of the premises *(appropriate for development in water but adjoining or adjacent to land e.g. jetty, pontoon. All lots must be listed).*

	Unit No.	Street No.	Street Name and Type	Suburb
a)			Bayil Road	Bonnie Doon
	Postcode	Lot No.	Plan Type and Number *(e.g. RP, SP)*	Local Government Area(s)
	4873	905	SP285536	Douglas Shire Council
b)	Unit No.	Street No.	Street Name and Type	Suburb
	Postcode	Lot No.	Plan Type and Number *(e.g. RP, SP)*	Local Government Area(s)

3.2) Coordinates of premises *(appropriate for development in remote areas, over part of a lot or in water not adjoining or adjacent to land e.g. channel dredging in Moreton Bay)*

***Note**: Place each set of coordinates in a separate row.*

☐ Coordinates of premises by longitude and latitude

Longitude(s)	Latitude(s)	Datum	Local Government Area(s) *(if applicable)*
		☐ WGS84 ☐ GDA94 ☐ Other:	

☐ Coordinates of premises by easting and northing

Easting(s)	Northing(s)	Zone Ref.	Datum	Local Government Area(s) *(if applicable)*
		☐ 54 ☐ 55 ☐ 56	☐ WGS84 ☐ GDA94 ☐ Other:	

3.3) Additional premises

☐ Additional premises are relevant to this development application and the details of these premises have been attached in a schedule to this development application

☒ Not required

4) Identify any of the following that apply to the premises and provide any relevant details

☐ In or adjacent to a water body or watercourse or in or above an aquifer

Name of water body, watercourse or aquifer:

☐ On strategic port land under the *Transport Infrastructure Act 1994*

Lot on plan description of strategic port land:

Name of port authority for the lot:

☐ In a tidal area

Name of local government for the tidal area *(if applicable)*:

Name of port authority for tidal area *(if applicable)*:

☐ On airport land under the *Airport Assets (Restructuring and Disposal) Act 2008*

Name of airport:

☐ Listed on the Environmental Management Register (EMR) under the *Environmental Protection Act 1994*	
EMR site identification:	
☐ Listed on the Contaminated Land Register (CLR) under the *Environmental Protection Act 1994*	
CLR site identification:	

5) Are there any existing easements over the premises?

Note: Easement uses vary throughout Queensland and are to be identified correctly and accurately. For further information on easements and how they may affect the proposed development, see DA Forms Guide.

☒ Yes – All easement locations, types and dimensions are included in plans submitted with this development application

☐ No

PART 3 – DEVELOPMENT DETAILS

Section 1 – Aspects of development

6.1) Provide details about the first development aspect

a) What is the type of development? *(tick only one box)*

☐ Material change of use ☐ Reconfiguring a lot ☒ Operational work ☐ Building work

b) What is the approval type? *(tick only one box)*

☒ Development permit ☐ Preliminary approval ☐ Preliminary approval that includes a variation approval

c) What is the level of assessment?

☒ Code assessment ☐ Impact assessment *(requires public notification)*

d) Provide a brief description of the proposal *(e.g. 6 unit apartment building defined as multi-unit dwelling, reconfiguration of 1 lot into 3 lots)*:

Roadworks, earthworks, stormwater, water reticulation, sewer reticulation for 24 lot subdivision (Stages 3A2 and 3B)

e) Relevant plans

***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms guide: Relevant plans.*

☒ Relevant plans of the proposed development are attached to the development application

6.2) Provide details about the second development aspect

a) What is the type of development? *(tick only one box)*

☐ Material change of use ☐ Reconfiguring a lot ☐ Operational work ☐ Building work

b) What is the approval type? *(tick only one box)*

☐ Development permit ☐ Preliminary approval ☐ Preliminary approval that includes a variation approval

c) What is the level of assessment?

☐ Code assessment ☐ Impact assessment *(requires public notification)*

d) Provide a brief description of the proposal *(e.g. 6 unit apartment building defined as multi-unit dwelling, reconfiguration of 1 lot into 3 lots)*:

e) Relevant plans

***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms Guide: Relevant plans.*

☒ Relevant plans of the proposed development are attached to the development application

6.3) Additional aspects of development

☐ Additional aspects of development are relevant to this development application and the details for these aspects that would be required under Part 3 Section 1 of this form have been attached to this development application

☒ Not required

Section 2 – Further development details

7) Does the proposed development application involve any of the following?	
Material change of use	☐ Yes – complete division 1 if assessable against a local planning instrument
Reconfiguring a lot	☐ Yes – complete division 2
Operational work	☒ Yes – complete division 3
Building work	☐ Yes – complete *DA Form 2 – Building work details*

Division 1 – Material change of use

***Note**: This division is only required to be completed if any part of the development application involves a material change of use assessable against a local planning instrument.*

8.1) Describe the proposed material change of use			
Provide a general description of the proposed use	Provide the planning scheme definition *(include each definition in a new row)*	Number of dwelling units *(if applicable)*	Gross floor area (m^2) *(if applicable)*

8.2) Does the proposed use involve the use of existing buildings on the premises?
☐ Yes
☐ No

Division 2 – Reconfiguring a lot

***Note**: This division is only required to be completed if any part of the development application involves reconfiguring a lot.*

9.1) What is the total number of existing lots making up the premises?

9.2) What is the nature of the lot reconfiguration? *(tick all applicable boxes)*	
☐ Subdivision *(complete 10))*	☐ Dividing land into parts by agreement *(complete 11))*
☐ Boundary realignment *(complete 12))*	☐ Creating or changing an easement giving access to a lot from a constructed road *(complete 13))*

10) Subdivision				
10.1) For this development, how many lots are being created and what is the intended use of those lots:				
Intended use of lots created	Residential	Commercial	Industrial	Other, please specify:
Number of lots created				

10.2) Will the subdivision be staged?	
☐ Yes – provide additional details below ☐ No	
How many stages will the works include?	
What stage(s) will this development application apply to?	

11) Dividing land into parts by agreement – how many parts are being created and what is the intended use of the parts?				
Intended use of parts created	Residential	Commercial	Industrial	Other, please specify:

Number of parts created				

12) Boundary realignment

12.1) What are the current and proposed areas for each lot comprising the premises?

Current lot		Proposed lot	
Lot on plan description	Area (m^2)	Lot on plan description	Area (m^2)

12.2) What is the reason for the boundary realignment?

13) What are the dimensions and nature of any existing easements being changed and/or any proposed easement? *(attach schedule if there are more than two easements)*

Existing or proposed?	Width (m)	Length (m)	Purpose of the easement? *(e.g. pedestrian access)*	Identify the land/lot(s) benefitted by the easement

Division 3 – Operational work

***Note**: This division is only required to be completed if any part of the development application involves operational work.*

14.1) What is the nature of the operational work?

☒ Road work	☒ Stormwater	☒ Water infrastructure
☒ Drainage work	☒ Earthworks	☒ Sewage infrastructure
☐ Landscaping	☒ Signage	☒ Clearing vegetation
☐ Other – please specify:		

14.2) Is the operational work necessary to facilitate the creation of new lots? *(e.g. subdivision)*

☒ Yes – specify number of new lots:	24
☐ No	

14.3) What is the monetary value of the proposed operational work? *(include GST, materials and labour)*

PART 4 – ASSESSMENT MANAGER DETAILS

15) Identify the assessment manager(s) who will be assessing this development application

Douglas Shire Council

16) Has the local government agreed to apply a superseded planning scheme for this development application?

☐ Yes – a copy of the decision notice is attached to this development application
☐ The local government is taken to have agreed to the superseded planning scheme request – relevant documents attached
☒ No

PART 5 – REFERRAL DETAILS

17) Does this development application include any aspects that have any referral requirements?
***Note**: A development application will require referral if prescribed by the* Planning Regulation 2017.

☐ No, there are no referral requirements relevant to any development aspects identified in this development application – proceed to Part 6

Matters requiring referral to the **Chief Executive of the *Planning Act 2016*:**

☐ Clearing native vegetation
☐ Contaminated land *(unexploded ordnance)*
☐ Environmentally relevant activities (ERA) *(only if the ERA has not been devolved to a local government)*
☐ Fisheries – aquaculture
☐ Fisheries – declared fish habitat area
☐ Fisheries – marine plants
☐ Fisheries – waterway barrier works
☐ Hazardous chemical facilities
☐ Heritage places – Queensland heritage place *(on or near a Queensland heritage place)*
☐ Infrastructure-related referrals – designated premises
☒ Infrastructure-related referrals – state transport infrastructure
☐ Infrastructure-related referrals – State transport corridor and future State transport corridor
☐ Infrastructure-related referrals – State-controlled transport tunnels and future state-controlled transport tunnels
☐ Infrastructure-related referrals – near a state-controlled road intersection
☐ Koala habitat in SEQ region – interfering with koala habitat in koala habitat areas outside koala priority areas
☐ Koala habitat in SEQ region – key resource areas
☐ Ports – Brisbane core port land – near a State transport corridor or future State transport corridor
☐ Ports – Brisbane core port land – environmentally relevant activity (ERA)
☐ Ports – Brisbane core port land – tidal works or work in a coastal management district
☐ Ports – Brisbane core port land – hazardous chemical facility
☐ Ports – Brisbane core port land – taking or interfering with water
☐ Ports – Brisbane core port land – referable dams
☐ Ports – Brisbane core port land – fisheries
☐ Ports – Land within Port of Brisbane's port limits *(below high-water mark)*
☐ SEQ development area
☐ SEQ regional landscape and rural production area or SEQ rural living area – tourist activity or sport and recreation activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – community activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – indoor recreation
☐ SEQ regional landscape and rural production area or SEQ rural living area – urban activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – combined use
☐ Tidal works or works in a coastal management district
☐ Reconfiguring a lot in a coastal management district or for a canal
☐ Erosion prone area in a coastal management district
☐ Urban design
☐ Water-related development – taking or interfering with water
☐ Water-related development – removing quarry material *(from a watercourse or lake)*
☐ Water-related development – referable dams
☐ Water-related development –levees *(category 3 levees only)*
☐ Wetland protection area

Matters requiring referral to the **local government:**

☐ Airport land
☐ Environmentally relevant activities (ERA) (*only if the ERA has been devolved to local government)*
☐ Heritage places – Local heritage places

Matters requiring referral to the **Chief Executive of the distribution entity or transmission entity:**

☐ Infrastructure-related referrals – Electricity infrastructure

Matters requiring referral to: • The **Chief Executive of the holder of the licence**, if not an individual • The **holder of the licence**, if the holder of the licence is an individual ☐ Infrastructure-related referrals – Oil and gas infrastructure
Matters requiring referral to the **Brisbane City Council:** ☐ Ports – Brisbane core port land
Matters requiring referral to the **Minister responsible for administering the *Transport Infrastructure Act 1994*:** ☐ Ports – Brisbane core port land *(where inconsistent with the Brisbane port LUP for transport reasons)* ☐ Ports – Strategic port land
Matters requiring referral to the **relevant port operator**, if applicant is not port operator**:** ☐ Ports – Land within Port of Brisbane's port limits *(below high-water mark)*
Matters requiring referral to the **Chief Executive of the relevant port authority:** ☐ Ports – Land within limits of another port *(below high-water mark)*
Matters requiring referral to the **Gold Coast Waterways Authority:** ☐ Tidal works or work in a coastal management district *(in Gold Coast waters)*
Matters requiring referral to the **Queensland Fire and Emergency Service:** ☐ Tidal works or work in a coastal management district *(involving a marina (more than six vessel berths))*

18) Has any referral agency provided a referral response for this development application?		
☒ Yes – referral response(s) received and listed below are attached to this development application ☐ No		
Referral requirement	Referral agency	Date of referral response
Identify and describe any changes made to the proposed development application that was the subject of the referral response and this development application, or include details in a schedule to this development application *(if applicable)*.		

PART 6 – INFORMATION REQUEST

19) Information request under Part 3 of the DA Rules
☒ I agree to receive an information request if determined necessary for this development application ☐ I do not agree to accept an information request for this development application ***Note**: By not agreeing to accept an information request I, the applicant, acknowledge:* • *that this development application will be assessed and decided based on the information provided when making this development application and the assessment manager and any referral agencies relevant to the development application are not obligated under the DA Rules to accept any additional information provided by the applicant for the development application unless agreed to by the relevant parties* • *Part 3 of the DA Rules will still apply if the application is an application listed under section 11.3 of the DA Rules.* *Further advice about information requests is contained in the DA Forms Guide.*

PART 7 – FURTHER DETAILS

20) Are there any associated development applications or current approvals? *(e.g. a preliminary approval)*			
☒ Yes – provide details below or include details in a schedule to this development application ☐ No			
List of approval/development application references	Reference number	Date	Assessment manager

☒ Approval ☐ Development application	CA46	7 September 2007	Douglas Shire Council
☐ Approval ☐ Development application			

21) Has the portable long service leave levy been paid? *(only applicable to development applications involving building work or operational work)*

☐ Yes – a copy of the receipted QLeave form is attached to this development application
☒ No – I, the applicant will provide evidence that the portable long service leave levy has been paid before the assessment manager decides the development application. I acknowledge that the assessment manager may give a development approval only if I provide evidence that the portable long service leave levy has been paid
☐ Not applicable *(e.g. building and construction work is less than $150,000 excluding GST)*

Amount paid	Date paid (dd/mm/yy)	QLeave levy number (A, B or E)
$		

22) Is this development application in response to a show cause notice or required as a result of an enforcement notice?

☐ Yes – show cause or enforcement notice is attached
☒ No

23) Further legislative requirements

Environmentally relevant activities

23.1) Is this development application also taken to be an application for an environmental authority for an **Environmentally Relevant Activity (ERA)** under section 115 of the *Environmental Protection Act 1994*?

☐ Yes – the required attachment (form ESR/2015/1791) for an application for an environmental authority accompanies this development application, and details are provided in the table below
☒ No

***Note**: Application for an environmental authority can be found by searching "ESR/2015/1791" as a search term at www.qld.gov.au. An ERA requires an environmental authority to operate. See www.business.qld.gov.au for further information.*

Proposed ERA number:		Proposed ERA threshold:	
Proposed ERA name:			

☐ Multiple ERAs are applicable to this development application and the details have been attached in a schedule to this development application.

Hazardous chemical facilities

23.2) Is this development application for a **hazardous chemical facility**?

☐ Yes – *Form 69: Notification of a facility exceeding 10% of schedule 15 threshold* is attached to this development application
☒ No

***Note**: See www.business.qld.gov.au for further information about hazardous chemical notifications.*

Clearing native vegetation

23.3) Does this development application involve **clearing native vegetation** that requires written confirmation that the chief executive of the *Vegetation Management Act 1999* is satisfied the clearing is for a relevant purpose under section 22A of the *Vegetation Management Act 1999*?

☐ Yes – this development application includes written confirmation from the chief executive of the *Vegetation Management Act 1999* (s22A determination)
☒ No

***Note**: 1. Where a development application for operational work or material change of use requires a s22A determination and this is not included, the development application is prohibited development.*
2. See https://www.qld.gov.au/environment/land/vegetation/applying for further information on how to obtain a s22A determination.

Environmental offsets

23.4) Is this development application taken to be a prescribed activity that may have a significant residual impact on a **prescribed environmental matter** under the *Environmental Offsets Act 2014*?

☐ Yes – I acknowledge that an environmental offset must be provided for any prescribed activity assessed as having a significant residual impact on a prescribed environmental matter

☒ No

***Note**: The environmental offset section of the Queensland Government's website can be accessed at www.qld.gov.au for further information on environmental offsets.*

Koala habitat in SEQ Region

23.5) Does this development application involve a material change of use, reconfiguring a lot or operational work which is assessable development under Schedule 10, Part 10 of the Planning Regulation 2017?

☐ Yes – the development application involves premises in the koala habitat area in the koala priority area

☐ Yes – the development application involves premises in the koala habitat area outside the koala priority area

☒ No

***Note**: If a koala habitat area determination has been obtained for this premises and is current over the land, it should be provided as part of this development application. See koala habitat area guidance materials at www.des.qld.gov.au for further information.*

Water resources

23.6) Does this development application involve **taking or interfering with underground water through an artesian or subartesian bore, taking or interfering with water in a watercourse, lake or spring, or taking overland flow water under the *Water Act 2000***?

☐ Yes – the relevant template is completed and attached to this development application and I acknowledge that a relevant authorisation or licence under the *Water Act 2000* may be required prior to commencing development

☒ No

***Note**: Contact the Department of Natural Resources, Mines and Energy at www.dnrme.qld.gov.au for further information.*

DA templates are available from https://planning.dsdmip.qld.gov.au/. If the development application involves:

- *Taking or interfering with underground water through an artesian or subartesian bore: complete DA Form 1 Template 1*
- *Taking or interfering with water in a watercourse, lake or spring: complete DA Form1 Template 2*
- *Taking overland flow water: complete DA Form 1 Template 3.*

Waterway barrier works

23.7) Does this application involve **waterway barrier works?**

☐ Yes – the relevant template is completed and attached to this development application

☒ No

DA templates are available from https://planning.dsdmip.qld.gov.au/. For a development application involving waterway barrier works, complete DA Form 1 Template 4.

Marine activities

23.8) Does this development application involve **aquaculture, works within a declared fish habitat area or removal, disturbance or destruction of marine plants?**

☐ Yes – an associated *resource* allocation authority is attached to this development application, if required under the *Fisheries Act 1994*

☒ No

***Note**: See guidance materials at www.daf.qld.gov.au for further information.*

Quarry materials from a watercourse or lake

23.9) Does this development application involve the **removal of quarry materials from a watercourse or lake** under the *Water Act 2000?*

☐ Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development

☒ No

***Note**: Contact the Department of Natural Resources, Mines and Energy at www.dnrme.qld.gov.au and www.business.qld.gov.au for further information.*

Quarry materials from land under tidal waters

23.10) Does this development application involve the **removal of quarry materials from land under tidal water** under the *Coastal Protection and Management Act 1995?*

☐ Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development
☒ No

***Note**: Contact the Department of Environment and Science at www.des.qld.gov.au for further information.*

Referable dams

23.11) Does this development application involve a **referable dam** required to be failure impact assessed under section 343 of the *Water Supply (Safety and Reliability) Act 2008* (the Water Supply Act)?

☐ Yes – the 'Notice Accepting a Failure Impact Assessment' from the chief executive administering the Water Supply Act is attached to this development application
☒ No

***Note**: See guidance materials at www.dnrme.qld.gov.au for further information.*

Tidal work or development within a coastal management district

23.12) Does this development application involve **tidal work or development in a coastal management district**?

☐ Yes – the following is included with this development application:
- ☐ Evidence the proposal meets the code for assessable development that is prescribed tidal work *(only required if application involves prescribed tidal work)*
- ☐ A certificate of title

☒ No

***Note**: See guidance materials at www.des.qld.gov.au for further information.*

Queensland and local heritage places

23.13) Does this development application propose development on or adjoining a place entered in the **Queensland heritage register** or on a place entered in a local government's **Local Heritage Register**?

☐ Yes – details of the heritage place are provided in the table below
☒ No

***Note**: See guidance materials at www.des.qld.gov.au for information requirements regarding development of Queensland heritage places.*

Name of the heritage place:		Place ID:	

Brothels

23.14) Does this development application involve a **material change of use for a brothel**?

☐ Yes – this development application demonstrates how the proposal meets the code for a development application for a brothel under Schedule 3 of the *Prostitution Regulation 2014*
☒ No

Decision under section 62 of the *Transport Infrastructure Act 1994*

23.15) Does this development application involve new or changed access to a state-controlled road?

☐ Yes – this application will be taken to be an application for a decision under section 62 of the *Transport Infrastructure Act 1994* (subject to the conditions in section 75 of the *Transport Infrastructure Act 1994* being satisfied)
☒ No

Walkable neighbourhoods assessment benchmarks under Schedule 12A of the Planning Regulation

23.16) Does this development application involve reconfiguring a lot into 2 or more lots in certain residential zones (except rural residential zones), where at least one road is created or extended?

☐ Yes – Schedule 12A is applicable to the development application and the assessment benchmarks contained in schedule 12A have been considered
☒ No

***Note**: See guidance materials at www.planning.dsdmip.qld.gov.au for further information.*

PART 8 – CHECKLIST AND APPLICANT DECLARATION

24) Development application checklist	
I have identified the assessment manager in question 15 and all relevant referral requirement(s) in question 17 ***Note**: See the Planning Regulation 2017 for referral requirements*	☒ Yes
If building work is associated with the proposed development, Parts 4 to 6 of *DA Form 2 – Building work details* have been completed and attached to this development application	☐ Yes ☒ Not applicable
Supporting information addressing any applicable assessment benchmarks is with the development application ***Note**: This is a mandatory requirement and includes any relevant templates under question 23, a planning report and any technical reports required by the relevant categorising instruments (e.g. local government planning schemes, State Planning Policy, State Development Assessment Provisions). For further information, see DA Forms Guide: Planning Report Template.*	☒ Yes
Relevant plans of the development are attached to this development application ***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms Guide: Relevant plans.*	☒ Yes
The portable long service leave levy for QLeave has been paid, or will be paid before a development permit is issued (*see 21*)	☒ Yes ☐ Not applicable

25) Applicant declaration
☒ By making this development application, I declare that all information in this development application is true and correct ☒ Where an email address is provided in Part 1 of this form, I consent to receive future electronic communications from the assessment manager and any referral agency for the development application where written information is required or permitted pursuant to sections 11 and 12 of the *Electronic Transactions Act 2001* ***Note**: It is unlawful to intentionally provide false or misleading information.*
Privacy – Personal information collected in this form will be used by the assessment manager and/or chosen assessment manager, any relevant referral agency and/or building certifier (including any professional advisers which may be engaged by those entities) while processing, assessing and deciding the development application. All information relating to this development application may be available for inspection and purchase, and/or published on the assessment manager's and/or referral agency's website. Personal information will not be disclosed for a purpose unrelated to the *Planning Act 2016*, Planning Regulation 2017 and the DA Rules except where: • such disclosure is in accordance with the provisions about public access to documents contained in the *Planning Act 2016* and the Planning Regulation 2017, and the access rules made under the *Planning Act 2016* and Planning Regulation 2017; or • required by other legislation (including the *Right to Information Act 2009*); or • otherwise required by law. This information may be stored in relevant databases. The information collected will be retained as required by the *Public Records Act 2002.*

PART 9 – FOR COMPLETION OF THE ASSESSMENT MANAGER – FOR OFFICE USE ONLY

Date received: | | Reference number(s): | |

Notification of engagement of alternative assessment manager	
Prescribed assessment manager	
Name of chosen assessment manager	
Date chosen assessment manager engaged	
Contact number of chosen assessment manager	
Relevant licence number(s) of chosen assessment manager	

QLeave notification and payment *Note: For completion by assessment manager if applicable*			
Description of the work			
QLeave project number			
Amount paid ($)		Date paid (dd/mm/yy)	
Date receipted form sighted by assessment manager			
Name of officer who sighted the form			

Statement of Compliance

FNQROC DEVELOPMENT MANUAL

Council Douglas Shire Council
(INSERT COUNCIL NAME)

STATEMENT OF COMPLIANCE
OPERATIONAL WORKS DESIGN

This form duly completed and signed by an authorised agent of the Designer shall be submitted with the Operational Works Application for Council Approval.

Name of Development Ocean Breeze Estate - Stages 3A2 and 3B

Location of Development Cooya Beach

Applicant Jonpa Pty Ltd

Designer Neon Consulting

It is hereby certified that the Calculations, Drawings, Specifications and related documents submitted herewith have been prepared, checked and amended in accordance with the requirements of the FNQROC Development Manual and that the completed works comply with the requirements therein, **except** as noted below.

Compliance with the requirements of the Operational Works Design Guidelines	Non-Compliance refer to non-compliance report / drawing number
Plan Presentation	Yes, generally complies
Geotechnical requirements	n/a
Geometric Road Design	Yes, generally complies
Pavements	Yes, generally complies
Structures / Bridges	n/a
Subsurface Drainage	Yes, generally complies
Stormwater Drainage	Yes, generally complies
Site Re-grading	Yes, generally complies
Erosion Control and Stormwater Management	Yes, generally complies
Pest Plant Management	n/a
Cycleway / Pathways	Yes, generally complies

Landscaping	n/a
Water Source and Disinfection/Treatment Infrastructure (if applicable)	n/a
Water Reticulation, Pump Stations and water storages	Yes, generally complies
Sewer Reticulation and Pump Stations	Yes, generally complies
Electrical Reticulation and Street Lighting	n/a
Public Transport	n/a
Associated Documentation/ Specification	Yes, generally complies
Priced Schedule of Quantities	n/a
Referral Agency Conditions	n/a
Supporting Information (AP1.08)	Yes, generally complies
Other	n/a

Conscientiously believing the above statements to be true and correct, signed on behalf of:

Designer Neon Consulting **RPEQ No** 25102

Name in Full Craig John Caplick

Signature  **Date** 13/06/2023

Stormwater Calculations

1. Stormwater System

Overview

The stormwater system for Stage 3 of the Ocean Breeze Estate development has been designed to cater for the relevant minor and major storm events in accordance with the FNQROC & QUDM guidelines. The internal subdivision roads have been designed for a 18% AEP minor storm event and 1% AEP major event. The designed network complies with the FNQROC Development Manual and QUDM requirements for, flow widths, freeboard, pipe grades & velocities.

Design Philosophy using Dynamic and Rational Analysis

A critical location for determining infrastructure requirements is Melaleuca Dr in the vicinity of proposed Lot 16. The following methodology has been used to inform the proposed design.

The stormwater system has been analysed using 12d model software using both 'rational' and 'dynamic' methods.

The dynamic method helps to understand the routing of bifurcating flows in the vicinity of Melaleuca Dr / Lot 16, that is, some portion of flow is conveyed by pipe+overland to the north, and some portion of flow is conveyed overland to the east.

The rational method has been used as the traditional method of estimating stormwater flows to calculate sizing of the overland and pipe elements. The dynamic analysis has been used to assist and compliment the rational analysis.

The system as proposed complies with QUDM criteria for both methods, with the results of the rational method presented on the long sections drawings within this package of works. During the analysis both methods resulted in similar peak flow rates, with the higher flows of the rational method adopted.

Base line for the exiting case

For the minor and major events, the existing case peak flows are estimated as follows:

Event	North (via 900x300RCBC + overland)	East (via overland)	Total
1% AEP (dynamic)	1.89 m^3/s	1.23 m^3/s	3.12 m^3/s
1% AEP (rational)	2.14 m^3/s	1.48 m^3/s	3.62 m^3/s

Furthermore, analysis of Melaleuca Dr using Izzards equation shows that a limiting capacity for overland flow to the east occurs at the common boundary of 29/31 Maleleuca Dr. The overland capacity at this location is 1.12m^3/s, and has been selected as the hard limit for flows allowable to be conveyed via Melaleuca Dr in the post development scenario. Ie, For the post development scenario flows in excess of 1.12 m^3/s at Melaleuca Dr are to be conveyed north via pipes through the development site.

2. Catchment Hydrology Inputs

Time of Concentration (ToC) Internal Catchments

The calculated times are also in accordance with QUDM section 4.6.4.

Coefficient of runoff

A C10 of 0.70 has been adopted for the external catchments.

A C10 of 0.8 has been adopted for the internal catchments.

These are in-line with all previous stages of this development.

Rainfall Intensity

Rainfall intensities have been adopted from 2016 BOM data.

Catchment Area

Catchment areas have been determined from available detail survey and topographical information.

Refer Appendix B for catchment areas.

3. Gross Pollutant Trap

A GPT has been designed to treat the 3 month event with a flow rate calculated at 1.05m^3/s.

GPTs from various manufacturers were considered with the Humes Humeguard HG24 being to best fir for the treatment from and site specific space.

4. Overland flow

Critical location: Melaleuca Dr / Lot 16

The total 1%AEP flow is calculated at 3.62 m^3/s. In this scenario the underground system pipes 2.51 m^3/s to the north, with a balance of 1.11 m^3/s flowing overland to the east via Melaleuca Dr. This is within the bounds of the limiting capacity of Melaleuca Dr.

Critical location: Lot 6

The total 1%AEP flow in the vicinity of Lot 6 is calculated at 5.89m^3/s. In this scenario the underground system flows 4.51m3/s, and the overland system flows 1.38m3/s (198mm flow depth & 0.34m^2/s DxV).

Minor event non-compliance

Flow on the approach to kerb inlet pits slightly overtops the crown in the following locations and a dispensation is sort for the minor event:

- Prior to pit 7/1 : flow depth of 120mm overtops the crown by 18mm.
- Prior to pit 1/4 : flow depth of 112mm overtops the crown by 11mm.

A number of options were optioned and considered to meet the 'no crown overtopping' requirement for a minor event at these 2 locations such as the following:

- Additional pits were considered, however the road is well populated with kerb inlet pits, and additional pits compound the cost of construction and maintenance.
- Additional crossfall (ie 4%) was considered to raise the crown to equal the kerb height, thus a flow depth of 130mm would be possible for the minor event. Doing this would achieve similar flow depths to the depths noted above requesting a dispensation.

5. Severe Impact Statement

The design of the development has considered the effects of a severe drainage event where all underground drainage infrastructure is blocked. To mitigate against such a scenario:

The allotments are typically all built up and drain towards the road frontages. No allotments rely on underground infrastructure to be free draining.

Appendix A

Drainage Drawings

LEGEND

- 2/1 — LINE NUMBER / STRUCTURE No.
- STORMWATER DRAINAGE PIPE & MANHOLE
- SUBSURFACE DRAINAGE
- KERB INLET PIT
- HEADWALL
- FALL OF LOTS
- BATTER
- STAGE BOUNDARY
- 57.0 — DESIGN SURFACE CONTOURS (0.2m INTERVAL)
- 57.0 — EXISTING SURFACE CONTOURS (0.2m INTERVAL)
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING WATER
- RETAINING WALL
- GROUTED STONE PITCHING SCOUR PROTECTION (10m² NOMINAL)
- EASEMENT BOUNDARY
- PROVIDE 3x100Ø uPVC ROOFWATER PIPES AS PER FNQROC STD DRG 1035
- FP — FLUSHING POINT

NOTE

FOR PROJECT NOTES REFER TO DRG-0102.

BAYIL DRIVE

MELALEUCA DRIVE

COOYA BEACH ROAD

ROAD F

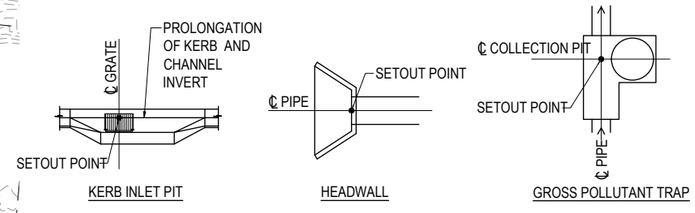
STAGE 3B

STAGE 3A2

CONNECT TO EX SUBSOIL

FOR DETAILS OF OUTLET SEE DRG-0402

EXISTING PIPE TO BE PLUGGED/GROUT FILLED AND ABANDONED



STRUCTURE SETOUT POINTS

N.T.S.

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STORMWATER DRAINAGE PLAN

Drawn	Design	Check'd	Apprv'd	2S102
PAM	PAM	CJC	CJC	C.J.CAPLICK

A3 Full Size (Scale as shown) 05.06.23

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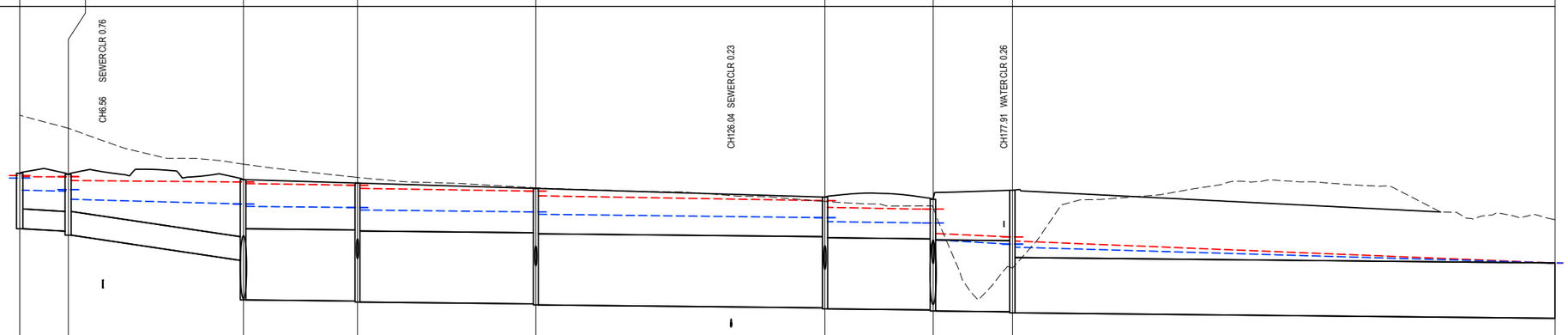
LEGEND

1%AEP FLOW RATES
18%AEP FLOW RATES

STRUCTURE NAME	9/1	8/1	7/1	6/1	5/1	4/1	3/1	2/1	1/1
STRUCTURE DESCRIPTION	ON-GRADE KERB INLET PIT; LINTEL TYPE L	ON-GRADE KERB INLET PIT; LINTEL TYPE M	ON-GRADE KERB INLET PIT; LINTEL TYPE L	ON-GRADE KERB INLET PIT; LINTEL TYPE M	ON-GRADE KERB INLET PIT; LINTEL TYPE S	ON-GRADE KERB INLET PIT; LINTEL TYPE S	SAG KERB INLET PIT; LINTEL TYPE S	MANHOLE	GPT OUTLET



PIPE SIZE (mm)	375	450	1350	1350	1350	1350	1350	(2x)1050	
PIPE CLASS	PP	PP	RCP (2)	RCP (2)	RCP (2)	RCP (2)	RCP (2)	RCP (2)	
PIPE GRADE (%)	0.51%	1.44%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	
PIPE SLOPE (1 in X)	195.39	69.65	1000.00	1000.00	1000.00	999.99	1000.03	1000.00	
FULL PIPE VELOCITY (m/s)	0.97	1.21	1.53	1.61	1.66	1.72	2.68	2.21	
PART FULL VELOCITY (m/s)	1.58	2.69	1.75	1.74	1.66	1.72	2.68	2.21	
DATUM RL -3.0									
H.G.L IN PIPE & W.S.E IN STRUCTURE	3.594 / 3.364 / 3.344 3.374	3.191 / 3.102 3.102	3.056 / 3.035 3.035	2.988 / 2.951 2.951	2.907 / 2.842 2.842	2.766 / 2.740 2.742	2.420 / 2.339 2.339	2.283 / 1.982 1.982	1.982
PIPE FLOW (Cumecs)	0.107 0.035	0.192 0.107	2.193 2.645	2.300 2.705	2.374 2.828	2.468 2.961	3.840 4.522	3.834 4.513	
PIPE CAPACITY AT GRADE (Cumecs)	0.163	0.444	2.195	2.195	2.195	2.195	2.195	2.246	
DEPTH TO INVERT	1.053 / 1.079	1.154 / 1.533	2.283 / 2.239	2.259 / 2.191	2.211 / 2.102	2.122 / 2.100	2.120 / 2.307	2.327 / 0.000	0.000
INVERT LEVEL OF DRAIN	2.632 / 2.585	2.510 / 2.031	1.281 / 1.260	1.240 / 1.206	1.186 / 1.131	1.111 / 1.090	1.070 / 1.055	1.035 / 0.932	0.932
DESIGN SURFACE LEVEL	3.685 / 3.664	3.564	3.499	3.397	3.232	3.190	3.363	0.932	
SETOUT COORDINATES	E 9447.820 N 80127.381 / E 9454.271	N 80120.759 / E 9478.128	N 80144.002 / E 9480.130	N 80165.589 / E 9483.262	N 80199.359 / E 9488.338	N 80254.089 / E 9481.207	N 80273.386 / E 9483.028	N 80288.379	E 9441.348 N 80382.739
CHAINAGE	-9.245 / 9.245 / 0.000	33.307 / 33.307	21.680 / 54.987	33.915 / 88.902	54.965 / 143.867	20.572 / 164.439	15.103 / 179.543	103.155 / 282.698	

LINE 1

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

STORMWATER DRAINAGE LONGITUDINAL SECTIONS
SHEET 1 OF 2

Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)	
PAM	PAM	CJC	CJC	C.J.CAPLICK	05.06.23	026-2201-03-DRG-0403 A

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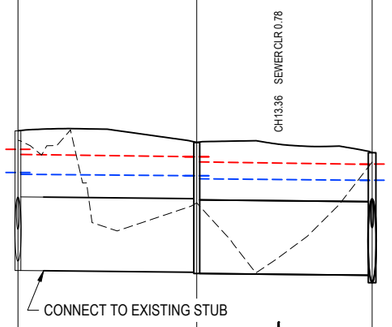
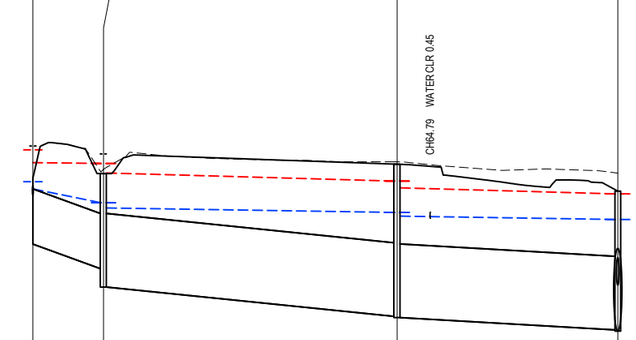
LEGEND

1%AEP FLOW RATES
18%AEP FLOW RATES





STRUCTURE NAME	2/2	1/2	3/1	1/3	3/1	1/4	4/1	1/5	6/1	3/6	2/6	1/6	7/1	1/7	5/1
STRUCTURE DESCRIPTION	ON-GRADE KERB INLET PIT; LINTEL TYPE S	ON-GRADE KERB INLET PIT; LINTEL TYPE S	SAG KERB INLET PIT; LINTEL TYPE S	SAG KERB INLET PIT; LINTEL TYPE S	SAG KERB INLET PIT; LINTEL TYPE S	ON-GRADE KERB INLET PIT; LINTEL TYPE S	ON-GRADE KERB INLET PIT; LINTEL TYPE S	ON-GRADE KERB INLET PIT; LINTEL TYPE M	ON-GRADE KERB INLET PIT; LINTEL TYPE M	HEADWALL	FIELD INLET PIT; TYPE B - 900 x 900 mm GRATE	MANHOLE	ON-GRADE KERB INLET PIT; LINTEL TYPE L	ON-GRADE KERB INLET PIT; LINTEL TYPE S	ON-GRADE KERB INLET PIT; LINTEL TYPE S
PIPE SIZE (mm)		1200	1200		450		450		375	1800x900	1200		1200		375
PIPE CLASS		RCP (2)	RCP (2)		PP		PP		PP	RCBC	RCP (2)		RCP (2)		PP
PIPE GRADE (%)		0.10%	0.10%		1.64%		3.81%		4.88%	3.47%	1.00%		0.56%		0.40%
PIPE SLOPE (1 in X)		999.97	1000.01		61.11		26.22		20.50	28.80	100.27		179.06		249.99
FULL PIPE VELOCITY (m/s)		1.28	1.32		0.32		0.42		0.57	1.16	1.75		1.74		0.52
PART FULL VELOCITY (m/s)		1.60	1.61		1.94		2.85		3.11	5.45	4.20		3.38		1.23
DATUM RL	-4.0			-4.0		-4.0		-4.0		-3.0				-4.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	2.868 / 2.838	2.815 / 2.815	2.765 / 2.740 / 2.742 / 2.420	2.790 / 2.741	2.740 / 2.742 / 2.420	2.919 / 2.845	2.842 / 2.842 / 2.766	3.167 / 3.041	3.035 / 3.035 / 2.988	3.717 / 3.600	3.375 / 3.375 / 3.290	3.217 / 3.217 / 3.156	3.102 / 3.102 / 3.056	3.013 / 2.956	2.951 / 2.951 / 2.907
PIPE FLOW (Cumecs)		1.444 / 1.822	1.491 / 1.891		0.051 / 0.051		0.067 / 0.076		0.063 / 0.029		1.882 / 2.508	1.977 / 2.667	1.968 / 2.651		0.057 / 0.034
PIPE CAPACITY AT GRADE (Cumecs)		1.603	1.603		0.474		0.724		0.504		13.527	5.064	3.789		0.144
DEPTH TO INVERT	2.277	2.117	2.137 / 1.998	2.120	1.104 / 1.220	2.120	1.126 / 1.372	2.122	1.052 / 1.434	2.259	1.074 / 1.550	1.850 / 2.480	2.500 / 2.263	2.283	1.452 / 1.468
INVERT LEVEL OF DRAIN	1.270	1.241	1.221 / 1.192	1.070	2.088 / 1.970	1.070	2.114 / 1.861	1.111	2.464 / 2.065	1.240	2.700 / 2.300	2.000 / 1.522	1.502 / 1.301	1.281	1.961 / 1.929
DESIGN SURFACE LEVEL	3.547	3.358	3.190	3.192	3.190	3.241	3.232	3.516	3.499	3.774	3.850	4.003	3.564	3.412	3.397
SETOUT COORDINATES	E 9429.067 / N 80253.502	E 9452.746 / N 80270.523	E 9481.207 / N 80273.386	E 9477.009 / N 80267.550	E 9481.207 / N 80273.386	E 9482.098 / N 80251.784	E 9488.338 / N 80254.089	E 9473.643 / N 80160.609	E 9480.130 / N 80165.589	E 9504.009 / N 80055.862	E 9504.009 / N 80067.384	E 9478.659 / N 80108.015	E 9478.128 / N 80144.002	E 9476.819 / N 80194.864	E 9483.262 / N 80199.359
CHAINAGE	-29.162	29.162 / 0.000	28.604 / 28.604	0.000	7.189 / 7.189	0.000	6.652 / 6.652	0.000	8.179 / 8.179	0.000	11.522 / 11.522	47.891 / 59.412	35.990 / 95.403	0.000	7.856 / 7.856
LINE		2			3		4		5			6			7

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STORMWATER DRAINAGE LONGITUDINAL SECTIONS
SHEET 2 OF 2

Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)	
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NOTE

FOR PROJECT NOTES REFER TO DRG-0102.

LEGEND

- 18.70 — FINISHED SURFACE LEVEL
- 18.68 — NATURAL SURFACE LEVEL
- FALL OF LOTS
- CONCRETE PATHWAY (2m WIDE U.N.O.)
- BATTER
- STAGE BOUNDARY
- 57.0 — DESIGN SURFACE CONTOURS (0.2m INTERVAL)
- 57.0 — EXISTING SURFACE CONTOURS (0.2m INTERVAL)
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING WATER
- TIMBER FENCE
- RETAINING WALL

BAYIL DRIVE

MELALEUCA DRIVE

COOYA BEACH ROAD

ROAD F

STAGE 3B

STAGE 3A2

EXISTING DRAINAGE OUTLET WITHIN '24 COOYA BEACH RD' TO BE REINSTATED TO PRE-DEVELOPMENT LVELS. OBTAIN LAND OWNERS CONSENT PRIOR TO EARTHWORKS COMMENCING.

LEGEND - DEPTH OF EARTHWORKS

DEPTH OF CUT		DEPTH OF FILL
	LESS THAN 0.5m	
	0.5m TO 1.0m	
	1.0m TO 1.5m	
	1.5m TO 2.0m	
	2.0m TO 2.5m	
	2.5m TO 3.0m	
	MORE THAN 3.0m	

NOTE: DEPTHS ARE MEASURED BETWEEN EXISTING AND FINISHED SURFACES

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EARTHWORKS PLAN

Drawn	Design	Check'd	Appn'd	25102	A3 Full Size (Scale as shown)	
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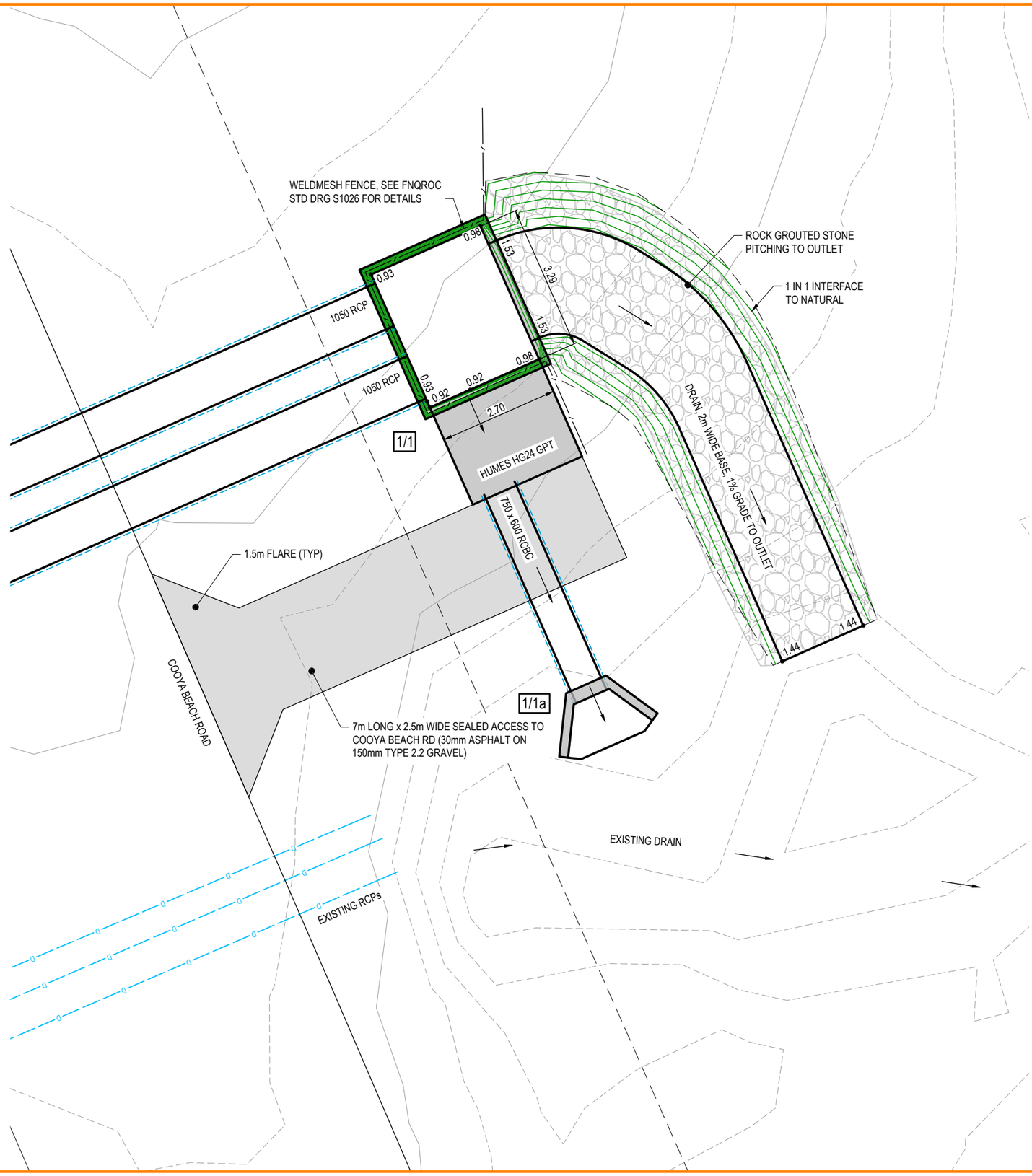

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EARTHWORKS DETAIL PLAN
SHEET 1 OF 2

Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)		
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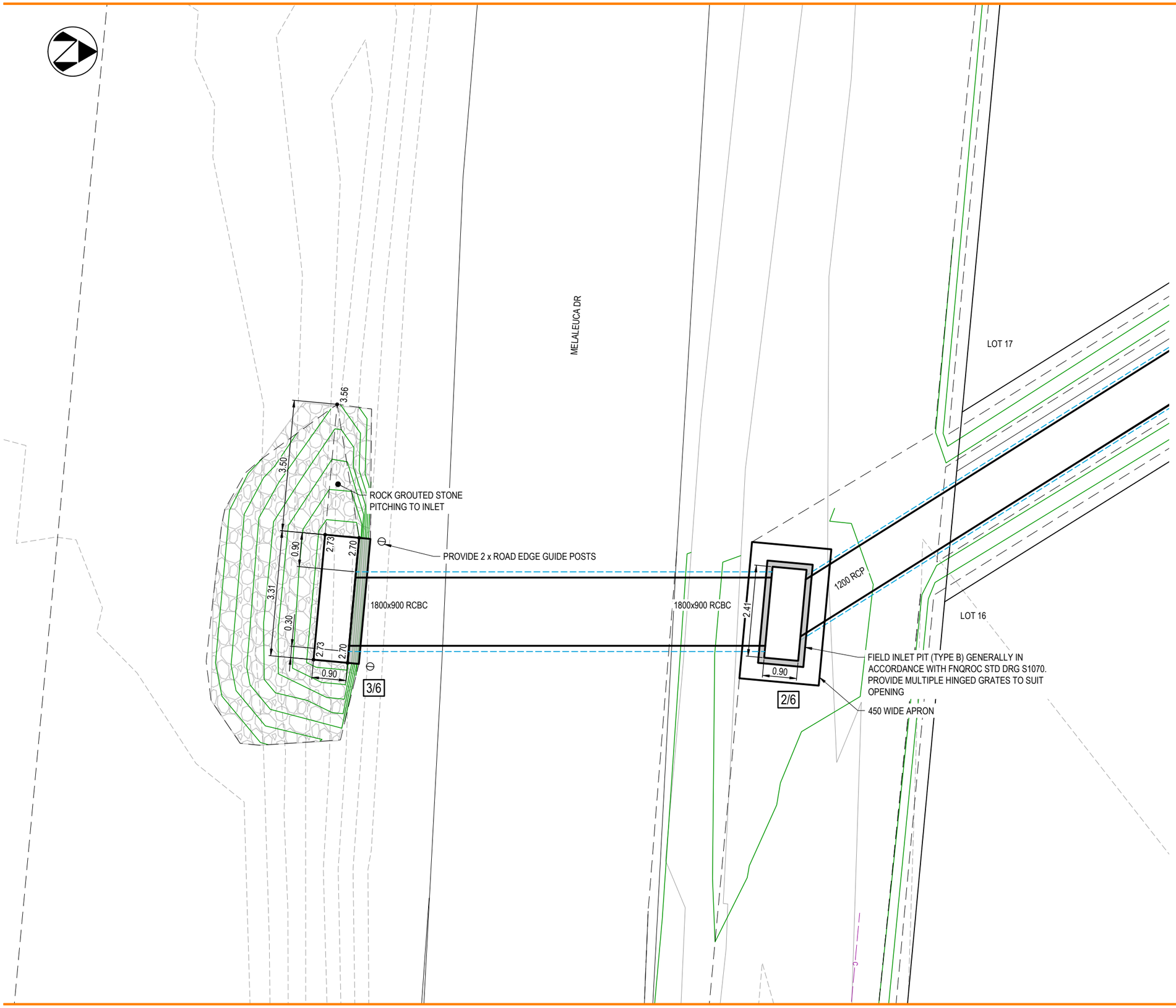

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Rev	Date	Revision Notes
A	05.06.23	INITIAL ISSUE

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

EARTHWORKS DETAIL PLAN
SHEET 2 OF 2

Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)	
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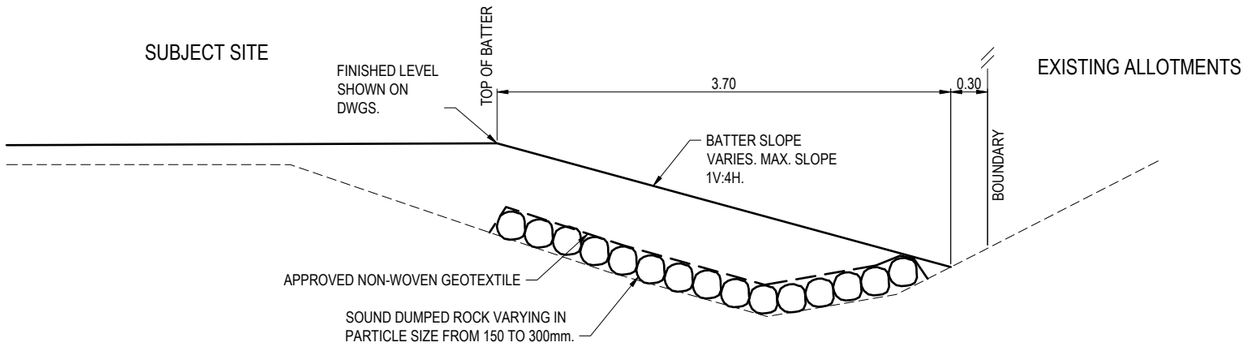
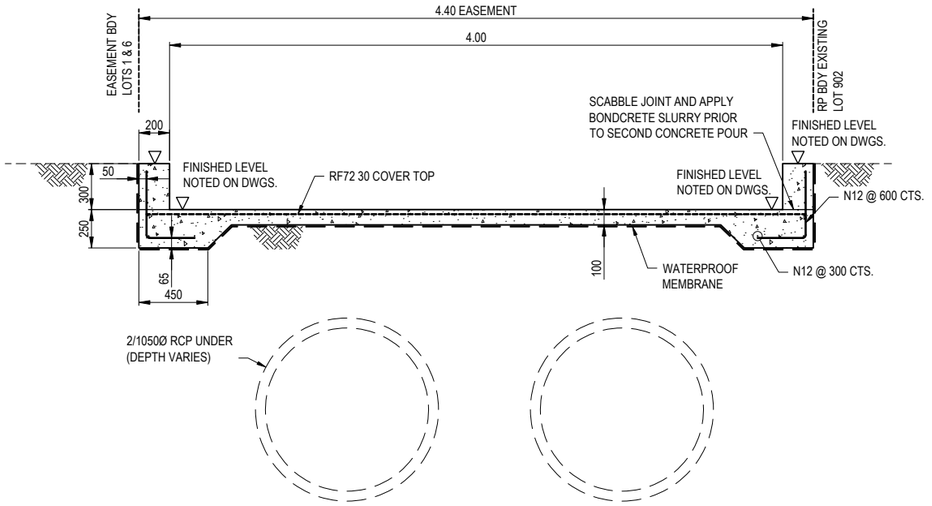


NOTES

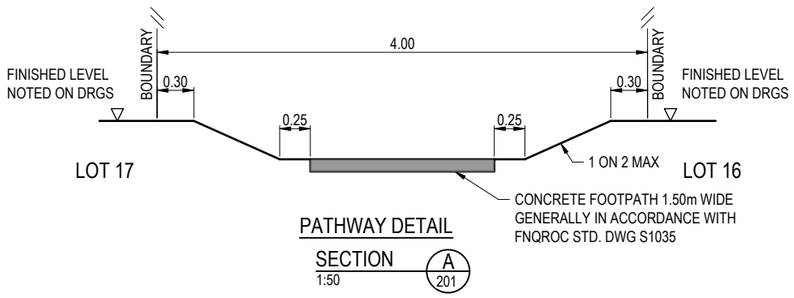
1. CLEAR AREA OF VEGETATION AND TOP SOIL AS NOTED IN "BULK EARTHWORKS"
2. IDENTIFY AREAS OF UNSUITABLE MATERIAL ALONG SITE BOUNDARY AND REMOVE AND DISPOSE OF ALL SUCH MATERIAL IF AND AS DIRECTED.
3. DUMP ROCK AND COMPACT TO FORM A SUITABLE MECHANICAL INTERLOCKED BASE FOR FUTURE COMPACTION. ROCK SHALL BE SOUND VARYING IN PARTICLE SIZE FROM 150 TO 300mm.
4. PLACE APPROVED NON-WOVEN GEOTEXTILE OVER DUMPED ROCK.
5. PLACE SUITABLE APPROVED FILL MATERIAL IN LAYERS AND COMPACT AS NOTED IN "BULK EARTHWORKS".
6. TRIM AND GRADE TO FINISH.
7. CARE SHALL BE TAKEN TO ENSURE THAT ANY VIBRATORY ROLLING OR CONSTRUCTION ACTIVITIES DO NOT CAUSE DISTRESS (BY WAY OF INDUCED SETTLEMENT) TO ANY ADJACENT MOVEMENT-SENSITIVE FEATURES STRUCTURES ETC.

DETAIL AT EASTERN SITE BOUNDARY

SECTION B 201
1:50



SECTION C 201
1:40



PATHWAY DETAIL

SECTION A 201
1:50

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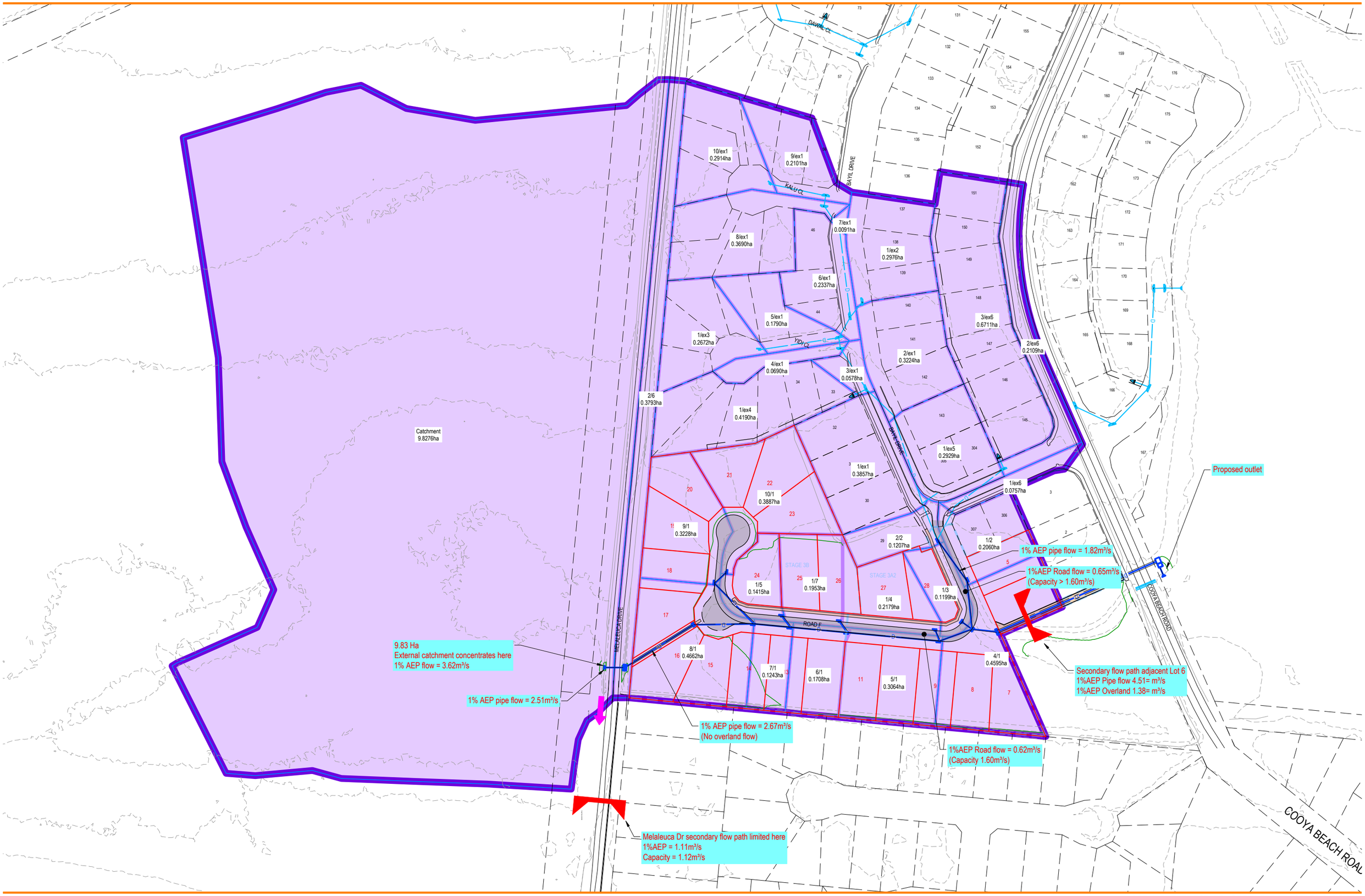
TYPICAL SECTIONS AND DETAILS
SHEET 2 OF 2

Drawn	Design	Check'd	Appv'd	25102	A3 Full Size (Scale as shown)	
PAM	PAM	CJC	CJC	C.J.CAPLICK	05.06.23	026-2201-03-DRG-0301 A

Appendix B

Catchment Plan



A 05.06.23 INITIAL ISSUE

Rev Date Revision Notes

OCEAN BREEZE estate

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

STORMWATER CATCHMENT PLAN

Drawn	Design	Check'd	Appov'd	A3 Full Size (Scale as shown)	
PAM	PAM	CJC	CJC	05.06.23	026-2201-03-DRG-1001 A

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Appendix C

Calculations

Project Description							
File name		Xsectn		Method	Mannings Formula	Solve for	Channel Depth

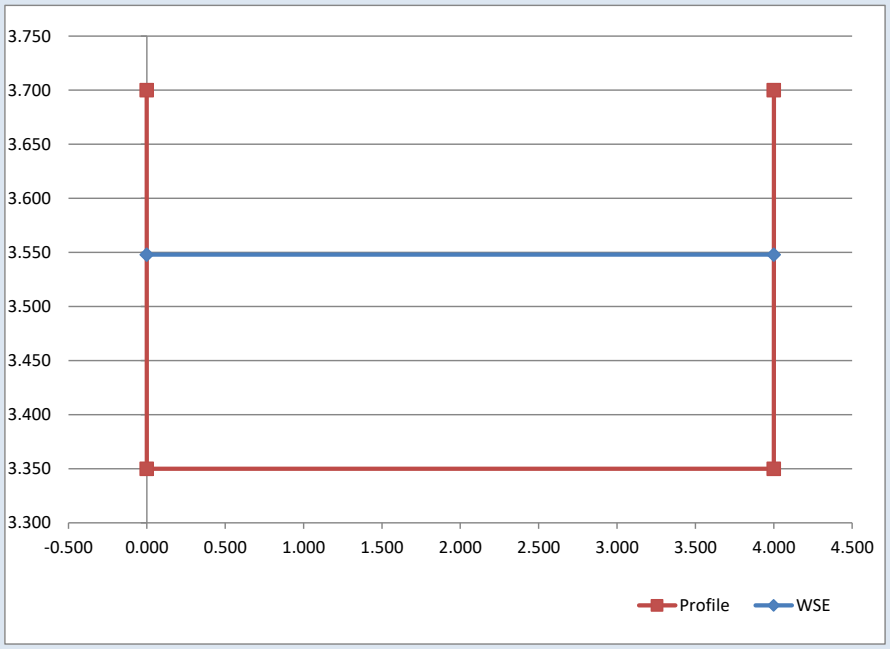
Irregular Channel Details

Xsectn	Offset	Height	Man N
	-0.001	3.700	0.013
	0.000	3.350	
	4.000	3.350	
	4.001	3.700	

Input		
Flow	1.38	m^3/s
Slope	0.5	%

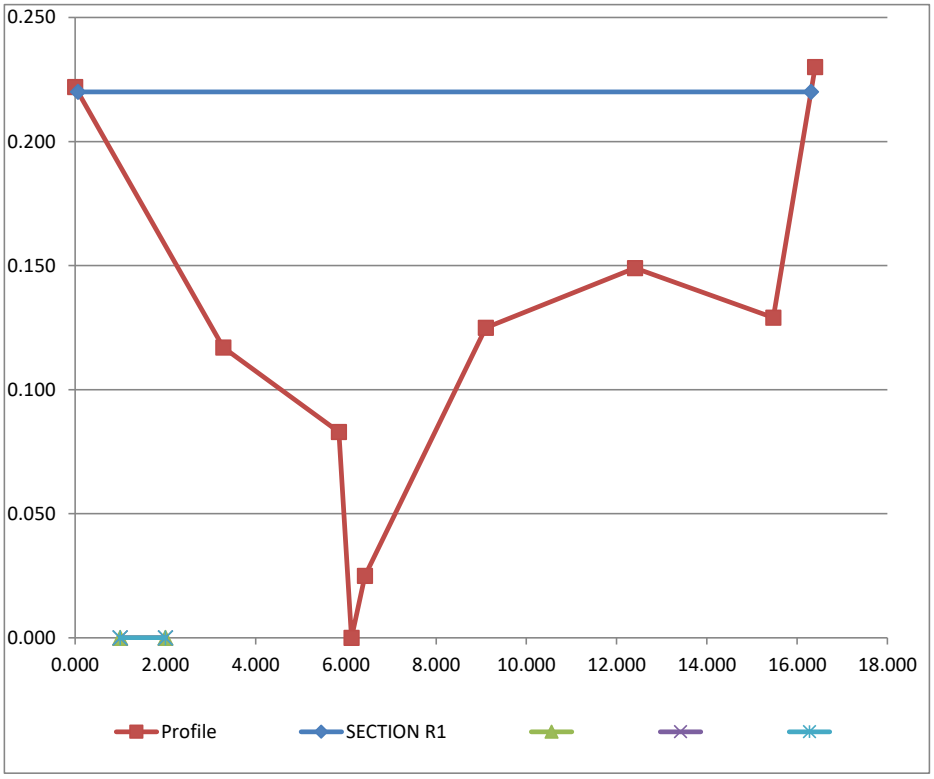
Results		
Hydraulic String	NAME=^SHAI	
Flowrate	1.380	m3/s
Normal Depth	0.198	m
TWL	3.548	
Flow Area	0.794	m2
Wetted Perimeter	4.397	m
Top Width	4.001	m
Composite Mannings N	0.0130	
Critical Depth	0.230	m
Critical Slope	0.313	%
Velocity	1.738	m/s
Velocity Head	0.154	m
D*V Product	0.345	m2/s
Froude	1.246	
Is Sub Critical	FALSE	

Water Surface	
Chain	TWL
-0.001	3.548
4.001	3.548



Section: Melaleuca Dr Limit (Road Width = 5.5m / Road Crossfall = 3% / Verge Crossfall = 3% / Reserve Width = 14.5m)

Irregular Channel Details		
Offset (m)	Height (m)	Man (n)
0.000	0.222	0.025
3.283	0.117	
5.847	0.083	0.013
6.126	0.000	
6.421	0.025	0.015
9.103	0.125	
12.406	0.149	0.030
15.473	0.129	
16.399	0.230	



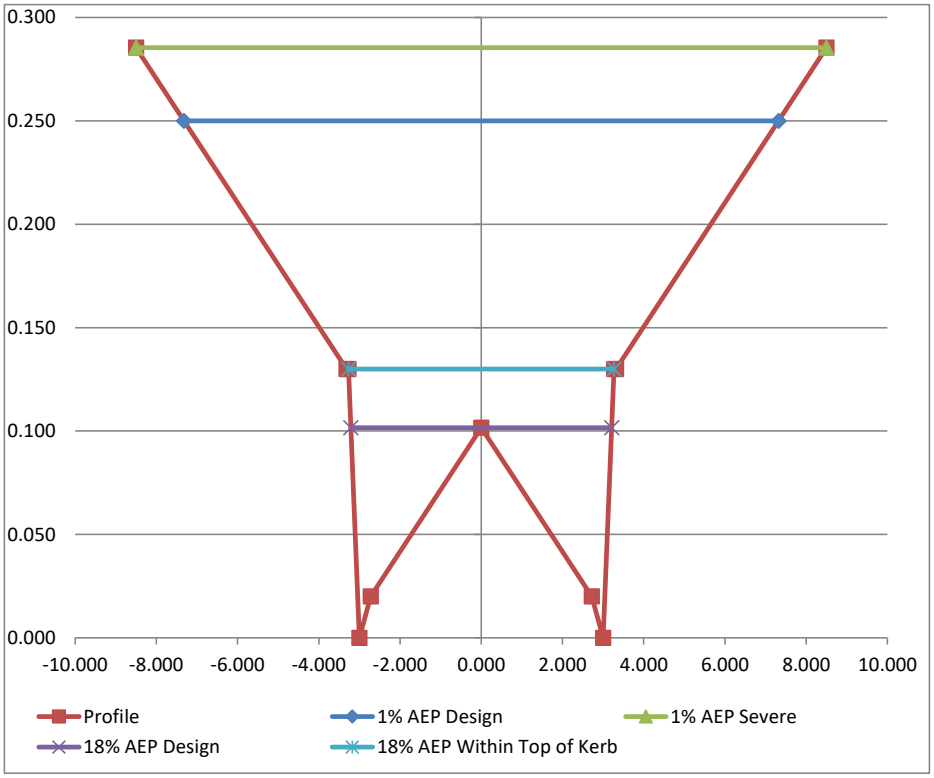
Description	Long Slope (%)	Flow Depth (m)	Flow (m^3/s)	Velocity (m/s)	dxV	
SECTION R1	0.4	0.220	1.112	0.725	0.159	Capacity for flow that is 220mm deep

CALCULATION - IZZARDS EQUATION

COOYA BEACH STAGE 3

Section: ROAD F (Road Width = 6m / Road Crossfall = 3% / Verge Crossfall = 3% / Reserve Width = 17m)

Irregular Channel Details		
Offset (m)	Height (m)	Man (n)
-8.500	0.285	0.030
-3.320	0.130	0.013
-3.270	0.130	
-3.000	0.000	
-2.720	0.020	0.015
0.000	0.102	
2.720	0.020	0.013
3.000	0.000	
3.270	0.130	
3.320	0.130	0.030
8.500	0.285	



Description	Long Slope (%)	Flow Depth (m)	Flow (m^3/s)	Velocity (m/s)	dxV	
1% AEP Design	0.3	0.250	1.602	0.913	0.228	Capacity for major event, 250mm depth limited
1% AEP Severe	0.3	0.285	2.211	0.955	0.273	Capacity for severe event, full road reserve
18% AEP Design	0.3	0.102	0.156	0.529	0.054	Minor event limit to crown (0.078m3/s each side)
18% AEP Within Top of Kerb	0.3	0.130	0.310	0.647	0.084	Minor event limit to top of kerb (0.155m3/s each sid
18% AEP at 7/1	0.3	0.120	0.249	0.603	0.072	Minor event,at pit 7/1 flow is 18mm above crown (0
18% AEP at 4/1	0.3	0.113	0.211	0.573	0.065	Minor event,at pit 4/1 flow is 11mm above crown (0

Civil Engineering Drawings

RESIDENTIAL SUBDIVISION AT
OCEAN BREEZE ESTATE
STAGES 3A2 & 3B

LOCALITY PLAN

DRAWING INDEX

DRAWING No.	DRAWING TITLE
026-2201-03-DRG-0101	LOCALITY PLAN & DRAWING INDEX
026-2201-03-DRG-0102	PROJECT NOTES
026-2201-03-DRG-0103	GENERAL ARRANGEMENT
026-2201-03-DRG-0201	EARTHWORKS PLAN
026-2201-03-DRG-0202	EARTHWORKS DETAILS - SHEET 1 OF 2
026-2201-03-DRG-0203	EARTHWORKS DETAILS - SHEET 2 OF 2
026-2201-03-DRG-0301	TYPICAL SECTIONS AND DETAILS - SHEET 1 OF 2
026-2201-03-DRG-0302	TYPICAL SECTIONS AND DETAILS - SHEET 2 OF 2
026-2201-03-DRG-0303	INTERSECTION DETAILS - SHEET 1 OF 2
026-2201-03-DRG-0304	INTERSECTION DETAILS - SHEET 2 OF 2
026-2201-03-DRG-0305	INTERSECTION LINEMARKING DETAILS
026-2201-03-DRG-0401	STORMWATER DRAINAGE PLAN
026-2201-03-DRG-0402	STORMWATER DRAINAGE LONGITUDINAL SECTIONS - SHEET 1 OF 2
026-2201-03-DRG-0403	STORMWATER DRAINAGE LONGITUDINAL SECTIONS - SHEET 2 OF 2
026-2201-03-DRG-0404	STORMWATER PIT DETAILS - SHEET 1 OF 2
026-2201-03-DRG-0405	STORMWATER PIT DETAILS - SHEET 2 OF 2
026-2201-03-DRG-0501	SEWERAGE PLAN
026-2201-03-DRG-0502	SEWERAGE LONGITUDINAL SECTIONS - SHEET 1 OF 2
026-2201-03-DRG-0503	SEWERAGE LONGITUDINAL SECTIONS - SHEET 2 OF 2
026-2201-03-DRG-0601	WATER RETICULATION
026-2201-03-DRG-0701	SITE BASED STORMWATER MANAGEMENT PLAN - PHASE 1: TOPSOIL STRIPPING
026-2201-03-DRG-0702	SITE BASED STORMWATER MANAGEMENT PLAN - PHASE 2: EARTHWORKS
026-2201-03-DRG-0703	SITE BASED STORMWATER MANAGEMENT PLAN - PHASE 3: ROADWORKS
026-2201-03-DRG-0801	MASTER SERVICES PLAN
026-2201-03-DRG-0901	ROAD LONGITUDINAL SECTIONS
026-2201-03-DRG-0902	ROAD CROSS SECTIONS

FNQROC STANDARD DRAWINGS

DRAWING No.	DRAWING TITLE
S1000 - S1110	ROADWORKS AND DRAINAGE
S2000 - S2025	WATER
S3000 - S3015	SEWERAGE

INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALIA STANDARD DRAWINGS

DRAWING No.	DRAWING TITLE
D-0040	SEDIMENT CONTROL DEVICES - SEDIMENT FENCE, ENTRY/EXIT SEDIMENT TRAP
D-0041	SEDIMENT CONTROL DEVICES - KERB AND FIELD INLETS, CHECK DAMS & STRAW BALE BANKS

Rev	Date	Revision Notes
A	11.06.23	INITIAL ISSUE

NEON CONSULTING

JONPA PTY LTD

OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

LOCALITY PLAN

Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)		
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0101	A

GENERAL ARRANGEMENT

GENERAL

G1. ALL WORKS ARE TO BE IN ACCORDANCE WITH THE FNQROC DEVELOPMENT MANUAL SPECIFICATIONS S1 TO S8.

G2. CONTRACTOR TO PROVIDE PUBLIC NOTIFICATION/SIGNS (REFER FNQROC DEVELOPMENT MANUAL CP1.11).

G3. CLEARED VEGETATION SHALL BE MULCHED ON SITE BY THE CONTRACTOR.

G4. FOR KERB PROFILE DETAILS REFER FNQROC STD DRG S1000.

G5. FOR KERB RAMP DETAILS REFER FNQROC STD DRG S1016. KERB RAMPS ARE TO ALIGN DIRECTIONALLY WITH THE RAMP ON THE OPPOSING SIDE OF THE ROAD.

G6. FOR STREET NAME POST DETAILS REFER FNQROC STD DRG S1040.

G7. FOR CONCRETE PATHWAY DETAILS REFER FNQROC STD DRG S1035.

G8. FOR CONCRETE DRIVEWAY DETAILS REFER FNQROC STD DRG S1110.

G9. FOR JOIN TO EXISTING ROADS REFER DETAIL ON DRG-0301.

EXISTING SERVICES

ES1. EXISTING SERVICES ARE PLOTTED FROM THE BEST INFORMATION AVAILABLE. NO RESPONSIBILITY IS TAKEN BY THE PRINCIPAL OR SUPERINTENDENT FOR THE ACCURACY AND COMPLETENESS OF THE INFORMATION SHOWN.

ES2. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION THE CONTRACTOR IS TO ESTABLISH ON SITE THE EXACT POSITION OF ALL UNDERGROUND SERVICES IN THE PROPOSED WORKS AREA. METHODS FOR ACHIEVING THIS WILL INCLUDE BUT NOT BE LIMITED TO:-
- CAREFUL EXAMINATION OF THE CONTRACT DRAWINGS.
- CONSULTATION WITH THE RELEVANT SERVICE AUTHORITIES.
- COMPREHENSIVELY SCANNING THE AFFECTED AREAS WITH A CABLE DETECTOR AND MARKING ON THE GROUND THE POSITION OF ALL SERVICES.
- HAND EXCAVATING TO EXPOSE ALL SUCH SERVICES WHICH MAY BE AFFECTED BY THE PROPOSED WORKS UNDER THE DIRECTION OF THE RELEVANT SERVICE AUTHORITY.

ES3. THE CONTRACTOR IS TO BRING TO THE SUPERINTENDENT'S ATTENTION ANY DISCREPANCIES BETWEEN THE EXISTING SERVICES THUS IDENTIFIED AND DOCUMENTED SERVICES WHICH MIGHT AFFECT THE PROPOSED WORKS. APPROPRIATE MEASURES TO RESOLVE ANY CONFLICTS WILL BE DOCUMENTED BY THE SUPERINTENDENT.

VEGETATION & CLEARING

VC1. PRIOR TO THE REMOVAL OF ANY TREE. AN INSPECTION MUST BE CARRIED OUT OF ANY SIGNS OF PROTECTED WILDLIFE INCLUDING NESTS AND ANIMAL HABITATS. SHOULD ANY RECENT WILDLIFE ACTIVITY BE IDENTIFIED, REMOVAL OF THE TREE MUST NOT OCCUR UNTIL THE ANIMAL HAS VACATED THE AREA OF IMMEDIATE DANGER. IF THE ANIMAL DOES NOT MOVE FROM THE AREA OF DANGER, THE QUEENSLAND PARKS AND WILDLIFE MUST BE CONTACTED FOR ADVICE.

VC2. COUNCIL MUST BE NOTIFIED TWO DAYS PRIOR TO THE PROPOSED DATE OF COMMENCEMENT OF ANY APPROVED VEGETATION CLEARING TO FACILITATE COMMUNITY AWARENESS OF SUCH WORKS.

VC3. VEGETATION TO BE RETAINED MUST BE ADEQUATELY DEFINED BY FENCING, FLAGGING OR BARRIER MESH FOR PROTECTION PURPOSES PRIOR TO CONSTRUCTION COMMENCING ON SITE.

VC4. A MINIMUM 2m WIDE BUFFER SHALL BE PROVIDED AROUND THE VEGETATION TO BE RETAINED. THIS BUFFER MUST CONSIST OF SUITABLE FENCING, FLAGGING OR BARRIER MESH TO ENSURE THAT MACHINERY, EQUIPMENT OR CONSTRUCTION MATERIALS ARE NOT STORED OR USED WITHIN THIS AREA. THIS BUFFER IS TO BE ESTABLISHED PRIOR TO THE COMMENCEMENT OF ANY WORKS ON SITE AND MUST BE MAINTAINED AT ALL TIMES FOR THE DURATION OF CONSTRUCTION.

VC5. CLEARED VEGETATION TO BE MULCHED AND SPREAD OVER THE CLEARED AREA FOR EROSION AND SEDIMENT CONTROL OR LANDSCAPING PURPOSES.

EARTHWORKS

E1. ALL BATTERS TO ROAD FRONTAGES OF LOTS ARE 1 ON 4 OR FLATTER. ALL OTHER BATTERS ARE 1 0N 1 U.N.O.

E2. UPON COMPLETION ALL BATTERS STEEPER THAN 1 IN 2 AND HIGHER THAN 1.5m SHALL REQUIRE CERTIFICATION BY A GEOTECHNICAL ENGINEER.

E3. BATTERS TO BE ADJUSTED LOCALLY AROUND SEWER MANHOLES. REFER DRG-0501 FOR DETAILS.

INTERSECTION DETAILS

I1. ALL KERB SETOUT DETAILS REFER TO THE LIP OF KERB AND CHANNEL OR FACE OF KERB, AS APPLICABLE.

I2. KERB RAMPS TO BE INSTALLED DIRECTIONALLY IN LINE WITH THE OPPOSING KERB RAMP.

I3. ALL TRAFFIC SIGNS AND PAVEMENT MARKING TO BE IN ACCORDANCE WITH 'T.M.R. MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES' PARTS 1-15.

I4. ALL REGULATORY, WARNING AND HAZARD SIGNS TO BE SIZE 'A' UNLESS NOTED OTHERWISE.

I5. NEW LINEMARKING WORKS TO BE 2 COAT APPLICATION OF WATERBORNE PAINT AS PER DTMR STANDARDS (MRTS45 CLAUSE 6.1.2)

STORMWATER DRAINAGE

D1. FOR STANDARD STORMWATER DRAINAGE DETAILS REFER FNQROC STD. DRGS. S1045-S1100 INCLUSIVE.

D2. THE CONTRACTOR IS TO LOCATE ALL EXISTING SERVICES IN THE WORKS AREA PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. FOR NOTES REGARDING EXISTING SERVICES REFER DG-0001.

D3. SUBSURFACE DRAINS TO BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATION, FLUSHING POINTS IN ACCORDANCE WITH FNQROC STD DRG S1095.

D4. PRIOR TO COMMENCEMENT OF PIPEWORK, THE CONTRACTOR IS TO CONFIRM THE INVERT LEVEL OF DOWNSTREAM DRAINAGE TO ENSURE THE STORMWATER SYSTEM CAN DRAIN SATISFACTORILY. REFER ANY DISCREPANCY TO THE SUPERINTENDENT.

D5. CCTV INSPECTIONS ARE TO BE CONDUCTED FOR ALL NEW STORMWATER PIPES FOR COUNCIL ASSESSMENT.

D6. ALL STORMWATER PIPES SHALL BE EITHER REINFORCED CONCRETE PIPE (RCP) OR POLYPROPOLENE (PP). RCP PIPES SHALL BE CLASS 2 FJ UNLESS NOTED OTHERWISE. PP PIPES SHALL BE BLACKMAX OR STORMPRO. REFER DRG-0301 FOR PP BEDDING DETAILS. CONCRETE PIPES BELOW RL 1.80 ARE TO HAVE SALTWATER COVER TO REINFORCEMENT.

D7. PRIOR TO ORDERING THE GPT, THE CONTRACTOR SHALL CONFIRM THE FINISHED SURFACE LEVEL TAKING INTO ACCOUNT VERGE CROSS FALL AND ADVISE THE SUPERINTENDENT OF ANY DISCREPANCIES.

D8. WHERE ANY PART OF THE STORMWATER PIT IS BELOW RL 1.80 THE CONCRETE GRADE AND COVER TO REINFORCEMENT SHALL BE IN ACCORDANCE WITH FNQROC REQUIREMENTS.

SEWERAGE

S1. ALL SEWER PIPES SHALL BE 150Ø uPVC CLASS 'S.N.8.' (U.N.O.).

S2. FOR STANDARD DETAILS OF SEWER MAINS, ETC. REFER FNQROC STD. DRGS. S3000 TO S3015 INCLUSIVE.

S3. ALL WORKS ARE TO BE IN ACCORDANCE WITH FNQROC DEVELOPMENT MANUAL SPECIFICATION S6.

S4. CONNECTIONS TO EXISTING COUNCIL MAINS TO BE MADE BY COUNCIL.

S5. CCTV INSPECTIONS ARE TO BE CONDUCTED FOR ALL NEW SEWERS FOR COUNCIL ASSESSMENT.

S6. MANHOLES ADJACENT ROAD BOUNDARIES SHALL BE ON A 1.5m ALIGNMENT U.N.O. MANHOLES ADJACENT SIDE AND REAR BOUNDARIES SHALL BE ON A 0.8m ALIGNMENT U.N.O.

S7. SEWER MANHOLES SHALL BE FINISHED 50mm MAX ABOVE FINISHED SURFACE LEVEL IN ALLOTMENTS AND FLUSH IN ROAD RESERVES.

S8. HOUSE DRAINS ARE TO EXTEND 1.5m CLEAR OF ANY EARTHWORKS BATTER THAT IS STEEPER THAN 1 ON 2 AND OVER 1.5m HIGH. AN INSPECTION OPENING IS TO BE PROVIDED AT THE DOWNSTREAM END OF ANY EXTENDED HOUSE DRAIN.

S9. ALL VERTICAL DROPS SHALL BE CONSTRUCTED USING FIBREGLASS HEAVY DUTY DEEP SEWER DROPS.

S10. STAINLESS STEEL 'WYE' JUNCTION TO BE USED FOR HOUSE CONNECTION BRANCHES TO EXISTING LINES, IF REQUIRED.

WATER

W1. ALL WATER MAINS ARE ON A 2.8m ALIGNMENT FROM BOUNDARY U.N.O.

W2. FOR STANDARD DETAILS REFER FNQROC. STD. DRGS. S2000 TO S2035 INCLUSIVE.

W3. ALL WORKS ARE TO BE IN ACCORDANCE WITH FNQROC DEVELOPMENT MANUAL SPECIFICATION S5.

W4. CONNECTIONS TO EXISTING COUNCIL MAINS TO BE MADE BY COUNCIL AND REQUIRE 30 DAYS NOTICE.

W5. PROVIDE 80mm PVC-U CLASS 6 CONDUIT UNDER CONCRETE FOOTPATH FOR WATER SERVICES AS PER FNQROC STD DRG S2038. FINAL LOCATION OF CONDUITS TO BE CONFIRMED ONCE ERGON PILLAR BOX LOCATIONS ARE AVAILABLE.

W6. ALL 63 OD PE 100 WATER MAINS LOCATED UNDER CONCRETE FOOTPATHS, DRIVEWAYS OR HARDSTANDS ARE TO HAVE A 100 DIA uPVC ENVELOPING PIPE.

W7. TEARDROP MARKERS AND BLUE RETRO REFLECTIVE MARKERS TO BE IN ACCORDANCE WITH FNQROC STD DRG S2010 REVISION B.

W8. PROVIDE A COMPRESSIBLE LAYER BETWEEN ALL EXISTING AND PROPOSED HYDRANT OR VALVE SURROUNDS WITHIN AREAS OF CONCRETE.

W9. THRUST BLOCKS ARE TO BE INSTALLED AT VALVES IN ACCORDANCE WITH WSA STANDARD DRAWING SEQ-WAT-1206-1.

EROSION AND SEDIMENT CONTROL STRATEGY

SC1. SEQUENCING OF CONTROL MEASURES
a) INSTALL STABLE POINT OF ENTRY
b) INSTALL SILT FENCES
c) PROTECT TOPSOIL STOCKPILES
d) CONSTRUCT TEMPORARY SEDIMENT BASINS
e) INSTALL STORMWATER PIPES
f) IMPLEMENT PROTECTION MEASURES TO STORMWATER PITS
g) REVEGETATE BARE AREAS UPON COMPLETION OF EARTHWORKS
h) THE SEDIMENT CONTROL STRUCTURES ARE TO BE CLEANED & MAINTAINED AFTER EVERY SIGNIFICANT RAIN EVENT. ERODED SOILS SHALL BE STOCKPILED AS DIRECTED.

SC2. THE AMOUNT OF DISTURBANCE TO EXISTING VEGETATION BE KEPT TO A MINIMUM.

SC3. EXACT LOCATION OF SEDIMENT CONTROL STRUCTURES TO BE DETERMINED ON SITE BY COUNCIL & SUPERINTENDENT.

SC4. STOCKPILE LOCATIONS TO BE AGREED WITH COUNCIL & THE SUPERINTENDENT. STOCKPILES TO BE PROTECTED VIA DIVERSION DRAIN ON THE UPSLOPE & SILT FENCE ON THE DOWNSLOPE.

SC5. RETURNS IN SILT FENCE TO BE AT 20m INTERVALS WHEN INSTALLED ALONG THE CONTOUR. SPACING IS TO DECREASE TO 5-10m DEPENDING ON SLOPE IF THE SILT FENCE IS INSTALLED AT AN ANGLE TO THE CONTOUR. THE RETURN SHALL CONSIST OF EITHER:
- V-SHAPED SECTION EXTENDING AT LEAST 1.5m UP THE SLOPE; OR
- SANDBAG OR ROCK/AGGREGATE CHECK DAM A MINIMUM OF 1/3 AND MAXIMUM OF 1/2 FENCE HEIGHT, AND EXTENDING AT LEAST 1.5m UP THE SLOPE.

SC6. STORMWATER PIPES TO HAVE PIT PROTECTION MEASURES AS DETAILED IN FNQROC DEVELOPMENT MANUAL.

SC7. ALL SEDIMENT CONTROL MEASURES TO BE IN ACCORDANCE WITH THE CONTRACTORS ESC PLAN.

SC8. THE FOLLOWING REVEGETATION MEASURES ARE TO BE UNDERTAKEN IMMEDIATELY UPON COMPLETION OF EARTHWORKS.
a) CUT & FILL BATTERS STEEPER THAN 1 IN 4 TO BE HYDROMULCHED.
b) VERGES & ALLOTMENTS TO BE GRASS SEEDED.
c) PLACE TURF STRIPS BEHIND ALL KERB LINES.

SC9. REVEGETATION IS TO BE WATERED & MAINTAINED UNTIL GROWTH IS ESTABLISHED.

SC10. CONTRACTOR MUST IMPLEMENT A SUITABLE DUST MANAGEMENT STRATEGY TO MINIMISE DUST NUISANCE ON ADJACENT PROPERTIES. DETAILS OF THE DUST MANAGEMENT STRATEGY TO BE INCORPORATED INTO EROSION AND SEDIMENT CONTROL STRATEGY.

SC11. SEDIMENT BASIN
a) INLET PROTECTION TO MINIMISE SCOUR & EVENLY DISTRIBUTE FLOW THROUGH BASIN.
b) A MARKER PEG SHOULD BE INSTALLED TO SHOW THE STORAGE DEPTH. SEDIMENT SHALL BE REMOVED FROM BASIN WHEN 30% STORAGE DEPTH IS ENCROACHED & APPROPRIATELY DISPOSED ON SITE BY RESPREADING IN AREAS OF NON-EROSIVE FLOWS.

SC12. WATER QUALITY MONITORING SHOULD BE UNDERTAKEN DURING SIGNIFICANT RAINFALL EVENTS (I.E. > 10mm).

SC13. DESIGN CRITERIA FOR CONTRACTOR'S EROSION & SEDIMENT CONTROL PLAN TO BE IN ACCORDANCE WITH SECTION CP1.05 OF THE FNQROC DEVELOPMENT MANUAL.

SURVEY AND SETOUT

SS1. SURVEY, DATUM, LEVELS & SERVICES HAVE BEEN DERIVED FROM RPS CAD FILES. THE EXISTING SURFACE HAS BEEN COMPILED FROM VARIOUS SURVEYS AND AS-CONSTRUCTED STAGES.

HORIZONTAL DATUM: ARBITRARY
VERTICAL DATUM: AHD

SS2. DIGITAL CAD FILES OF THE CIVIL WORKS WILL BE PROVIDED FOR SETOUT PURPOSES.

ENVIRONMENTAL MANAGEMENT PLAN FOR POTENTIAL ACID SULFATE SOILS(PASS)

TASKS/ACTIONS
- AN ACID SULFATE SOIL INVESTIGATION OF THE SITE (C&B GROUP, SEPTEMBER 2003) INDICATES POTENTIAL ACID SULFATE SOILS (PASS) MAY OCCUR BELOW 0.5m AHD. THE INVESTIGATION WAS CONFINED TO A MAXIMUM EXCAVATIONDEPTH OF -0.4m AHD. ANY PROPOSED EXCAVATION WORKS BELOW –0.4METRES AHD SHALL BE SUBJECT TO FURTHER INVESTIGATION PRIOR TO COMMENCEMENT OF WORKS.
- IN THE EVENT THAT SOILS WITH PASS OR ASS CHARACTERISTICS ARE DISTURBED AND REMAIN EXPOSED TO THE ATMOSPHERE, THE AREA SHALL BE TREATED WITHUP TO 15 Kg/m² (TO BE CONFIRMED THROUGH LABORATORY ANALYSIS) FINE AGRICULTURAL LIME. THIS FIGURE WAS CALCULATED FROM THE HIGHEST %S FOUND IN THE TEST PIT AT WAYPOINT 16 BETWEEN –0.22 TO –0.4 M AHD. THE CALCULATIONS ARE IN ACCORDANCE WITH THE QUEENSLAND ACID SULFATE TECHNICAL MANUAL SOIL MANAGEMENT GUIDELINES (VERSION 3.8)
- PREVENT ANY LOWERING OF THE PERMANENT GROUNDWATER TABLE HEIGHT THAT MAY BE CAUSED BY THE PROPOSED ACTIVITY. IF GROUNDWATER TABLE HEIGHT IS EXPECTED TO BE LOWERED BY ACTIVITIES SUCH AS TEMPORARY DEWATERING, IMPLEMENT GROUNDWATER MONITORING. AS A MINIMUM pH, EC AND THE CHLORIDE AND SULFATE CONCENTRATION SHOULD BE MONITORED FOR EACH AQUIFER. THIS ACTIVITY SHOULD BE CONTINUED SHOULD THE pH DROP BY GREATER THAN 1pH UNIT, OR EC INCREASE BY 10 % OR MORE.
- ANY SUSPECTED PASS MATERIAL DISTURBED SHALL BE STOCKPILED SEPARATELY AND TESTED USING pH FIELD OXIDATION TESTS AND LABORATORY ANALYSIS TO CONFIRM IF THE SOIL IS PASS. BUNDING, DIVERSION DRAINS, AND CONTAMINATED WATER TREATMENT IMPOUNDMENTS SHALL BE USED TO CONTAIN RUN OFF FROM THE STORAGE AREA.
- PRIOR TO RELEASE, IMPOUNDED STORMWATER FROM THE BUNDED AREA WILL BE MONITORED TO ENSURE ACCEPTABLE TURBIDITY AND pH CONCENTRATIONS (TOTAL SUSPENDED SOLIDS (TSS) 50MG/L AND pH 6.0-8.5)
- AS AN ALTERNATIVE TO LIMING TREATMENT, PASS MAY BE BURIED BELOW THE WATER TABLE. HOWEVER, AASS (ACTUAL ACID SULFATE SOIL) WILL REQUIRE NEUTRALISATION PRIOR TO BURIAL UNDER THE WATER TABLE.
- MINIMISE THE DEPTH IN ESSENTIAL DRAINAGE STRUCTURES. MANAGE DRAINAGE TO MAINTAIN THE WATERTABLE SURROUNDING DRAINAGE STRUCTURES ABOVE ANY SULFIDIC LAYER (IE ABOVE 0.5 METRES AHD) IN THE SOIL (EG. SHALLOW GRASSED DRAINS)
- IN THE EVENT THAT AN ALTERNATIVE PROCEDURE TO NEUTRALISATION BY LIME IS TO BE UNDERTAKEN, THE EFFICIENCY OF THE TECHNIQUES SHALL BE TRIALED USING MATERIAL FROM THE SITE. IF THE TECHNIQUES ARE FOUND TO BE SUITABLE, THE USE SHALL BE APPROVED IN WRITING BY THE EPA AND DERM PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- REMOVAL OF ANY NEUTRALISED PASS MATERIAL OFFSITE SHALL BE APPROVED BY THE CAIRNS REGIONAL COUNCIL, ENVIRONMENTAL PROTECTION AGENCY AND OR THE DEPARTMENT OF ENVIRONMENT AND RESOURCE MANAGEMENT
- EARTHWORK CONTRACTORS (IF REQUIRED) SHALL BE BRIEFED IN RELATION TO THE IDENTIFICATION AND POTENTIAL ENVIRONMENTAL RISKS ASSOCIATED WITH PASS.

PERFORMANCE INDICATORS
- THE pH OF ANY OFF SITE DISCHARGE OR RUNOFF FROM ANY EXCAVATIONS BELOW 0.5m AHD OR STOCKPILED PASS SHALL BE WITHIN QASSIT GUIDELINES (6.0-8.5 pH UNITS) OR ABOVE BACKGROUND SURFACE WATER pH.

MONITORING

VISUAL MONITORING SHOULD BE UNDERTAKEN TO IDENTIFY SIGNS OF ASS OXIDATION, INCLUDING:
- RUST COLOURED DEPOSITS ON PLANTS AND ON BANKS OF DRAINS, WATER BODIES AND WATERCOURSES INDICATING IRON PRECIPITATES;
- AREAS OF GREEN-BLUE WATER OR EXTREMELY CLEAR WATER INDICATING HIGH CONCENTRATIONS OF DISSOLVED METALS IN SOLUTION;
- SULFUROUS SMELLS (EG. MANGROVE MUD SMELL);
- FORMATION OF THE MINERAL JAROSITE AND OTHER ACIDIC SALTS IN EXPOSED OR EXCAVATED SOILS;
- BLACK OR ODOROUS WATERS INDICATING DE-OXYGENATION;
- UNEXPLAINED SCALDING, DEGRADATION OR DEATH OF VEGETATION;
- UNEXPLAINED DEATH OR DISEASE IN AQUATIC ORGANISMS;
- A TRANSITION TO, OR ESTABLISHMENT OF, A COMMUNITY DOMINATED BY ACID TOLERANT SPECIES;
- INVASION OF A COMMUNITY OR AREA BY ACID TOLERANT SPECIES;
- CORROSION OF CONCRETE AND/OR STEEL STRUCTURES IN CONTACT WITH SOIL OR WATER;
- MONITORING THE pH OF SOIL AND RUNOFF, TO BE UNDERTAKEN AS REQUIRED.

RESPONSIBLE PERSON/ORGANISATION
- THE EARTHWORK CONTRACTOR SHALL BE RESPONSIBLE FOR THE APPOINTMENT OF SUITABLY QUALIFIED PERSONNEL TO UNDERTAKE PASS TESTING OF ANY SUSPICIOUS SOILS AND ROUTINE MONITORING OF SITE RUNOFF AND STOCKPILES.

CORRECTIVE ACTION
- IN THE EVENT THAT MONITORING INDICATES THE PRESENCE OF PASS OR ACIDIC RUNOFF, APPLICATION OF AGRICULTURAL OR HYDRATED LIME (WATER) AT RATES APPROPRIATE TO NEUTRALISE ACIDIC SOILS OR RUNOFF SHALL BE IMMEDIATELY UNDERTAKEN.

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OCEAN BREEZE estate

NEON CONSULTING

JONPA PTY LTD

OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

PROJECT NOTES

Drawn	Design	Check'd	Appv'd	25102	A3 Full Size (Scale as shown)	
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0102 A

NOTE

FOR PROJECT NOTES REFER TO DRG-0102.

LEGEND

- ASPHALT SEALED PAVEMENT
- CONCRETE PATHWAY (2m WIDE U.N.O.)
- CONCRETE DRIVEWAY (2.5m WIDE U.N.O.)
- KERB RAMP
- ACCESS CROSSOVER
- STAGE BOUNDARY
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING WATER
- TIMBER FENCE
- RETAINING WALL

BAYIL DRIVE

MELALEUCA DRIVE

COOYA BEACH ROAD

ROAD F

STAGE 3B

STAGE 3A2

JOIN SMOOTHLY TO EXISTING PATHWAY

29 EX PADMOUNT

KERB RAMP, REFER TO FNQROC STD DRG S1016 FOR DETAILS

CONCRETE PATHWAY, REFER TO FNQROC STD DRG S1035 FOR DETAILS

CONCRETE OVERLAND FLOWPATH

RESIDENTIAL CROSSOVER, REFER TO FNQROC STD DRG S1015 FOR DETAILS

CONCRETE DRIVEWAY TYPE 1, REFER TO FNQROC STD DRG S1110 FOR DETAILS

1:1000 0 10 20 30 40

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

GENERAL ARRANGEMENT

Drawn	Design	Check'd	Apprv'd	25102
PAM	PAM	CJC	CJC	C.J.CAPLICK

A3 Full Size (Scale as shown) 11.06.23

026-2201-03-DRG-0103 A

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NOTE

FOR PROJECT NOTES REFER TO DRG-0102.

LEGEND

- 18.70 — FINISHED SURFACE LEVEL
- 18.68 — NATURAL SURFACE LEVEL
- FALL OF LOTS
- CONCRETE PATHWAY (2m WIDE U.N.O.)
- BATTER
- STAGE BOUNDARY
- 57.0 — DESIGN SURFACE CONTOURS (0.2m INTERVAL)
- 57.0 — EXISTING SURFACE CONTOURS (0.2m INTERVAL)
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING WATER
- TIMBER FENCE
- RETAINING WALL

BAYIL DRIVE

MELALEUCA DRIVE

COOYA BEACH ROAD

ROAD F

STAGE 3B

STAGE 3A2

E 302

A 302

B 302

C 302

D 302

LEGEND - DEPTH OF EARTHWORKS

DEPTH OF CUT		DEPTH OF FILL
	LESS THAN 0.5m	
	0.5m TO 1.0m	
	1.0m TO 1.5m	
	1.5m TO 2.0m	
	2.0m TO 2.5m	
	2.5m TO 3.0m	
	MORE THAN 3.0m	

NOTE: DEPTHS ARE MEASURED BETWEEN EXISTING AND FINISHED SURFACES

1:1000 0 10 20 30 40

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EARTHWORKS PLAN

Drawn	Design	Check'd	Appn'd	25102	A3 Full Size (Scale as shown)	
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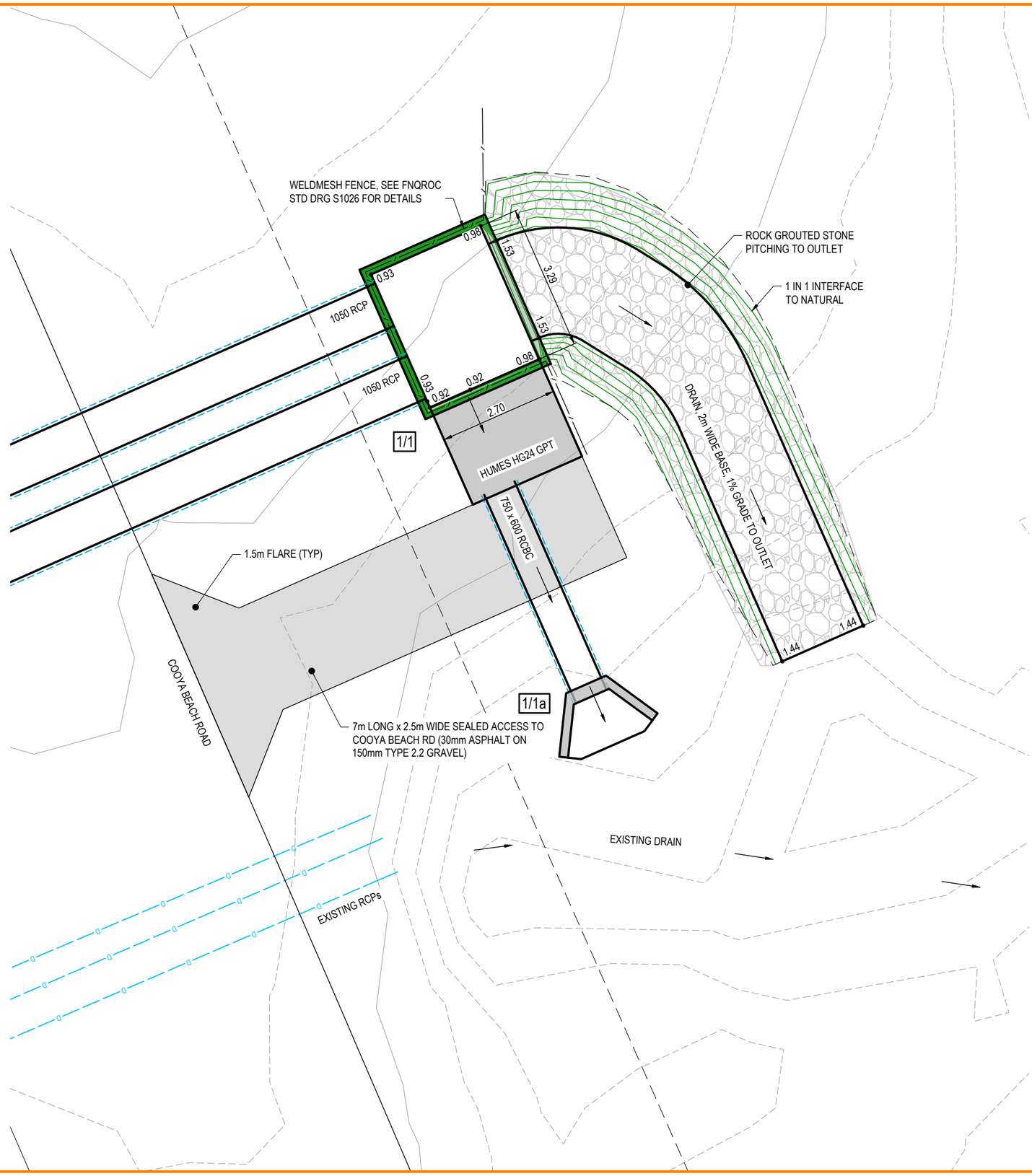
13/06/2023 1:09:52 PM File: S:\Working\Drawings\026\026-2201\01 Drawings\03 Drawings\026-2201-03-DRG-0201_Earthworks.dwg



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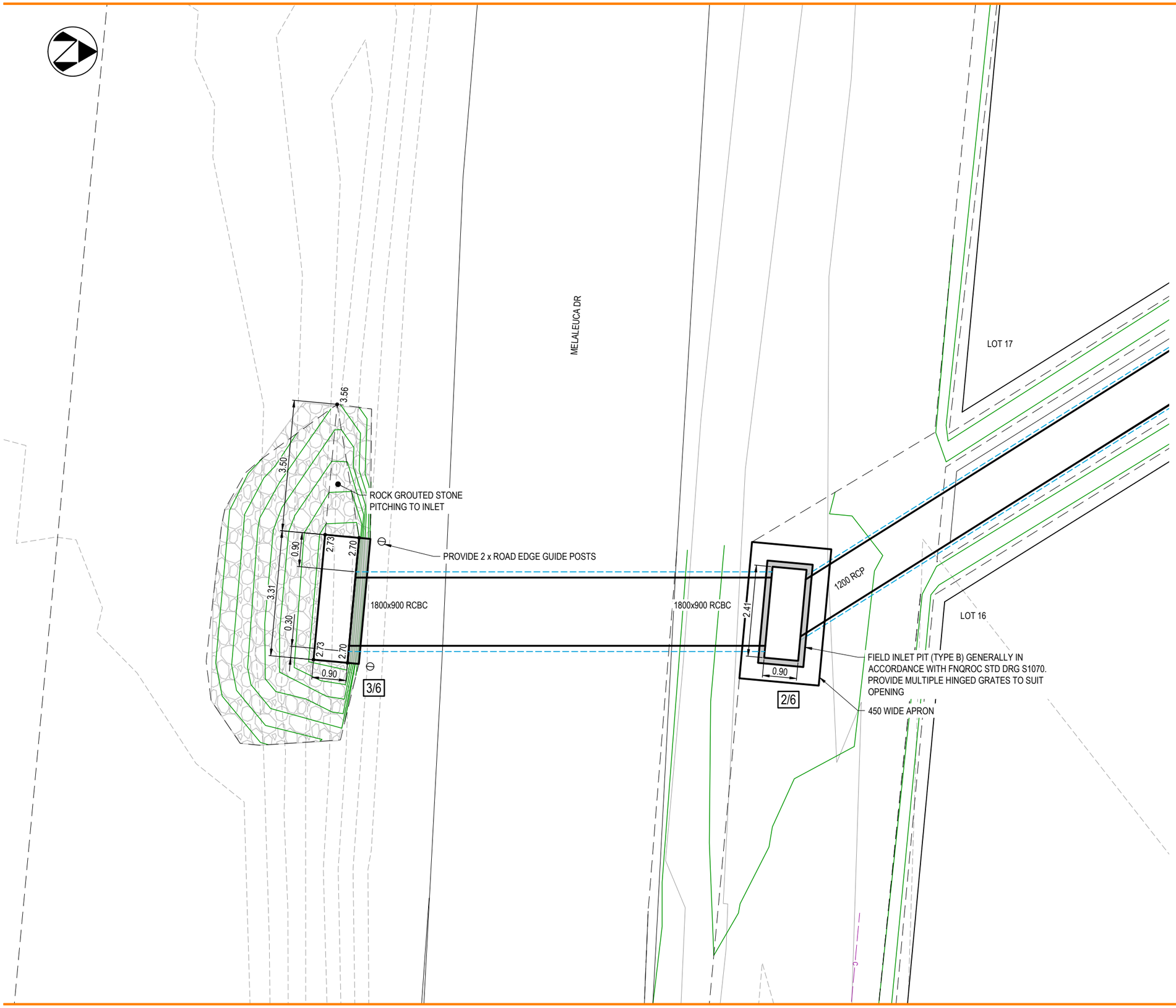
OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

EARTHWORKS DETAIL PLAN
SHEET 1 OF 2

Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)		
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0203	A



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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

EARTHWORKS DETAIL PLAN
SHEET 2 OF 2

Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)	
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0203 A

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CONTROL LINE ROAD F SETOUT

CHAINAGE	COORDINATES		BEARING	RADIUS OF	TANGENT	ARC
	EASTING	NORTHING	DEG MIN SEC	CURVATURE	LENGTH	LENGTH
0.000	9405.909	80253.775	93° 31' 17"	STRAIGHT		
10.971	9416.860	80253.101	93° 31' 17"	-14.000		
IP 14.313	9420.260	80252.892	-	-14.000	3.407	6.684
17.656	9423.377	80254.269	66° 9' 54"	STRAIGHT		
62.759	9464.633	80272.495	66° 9' 54"	15.000		
IP 78.353	9487.989	80282.813	-	15.000	25.533	31.189
93.948	9485.631	80257.389	185° 17' 54"	STRAIGHT		
211.889	9474.740	80139.951	185° 17' 54"	18.000		
IP 226.024	9473.078	80122.033	-	18.000	17.995	28.269
240.158	9455.159	80123.690	275° 16' 55"	STRAIGHT		
254.450	9440.928	80125.006	275° 16' 55"	35.000		
IP 263.919	9431.262	80125.899	-	35.000	9.707	18.938
273.389	9423.437	80131.644	306° 17' 4"	STRAIGHT		

TABLE OF WIDTHS

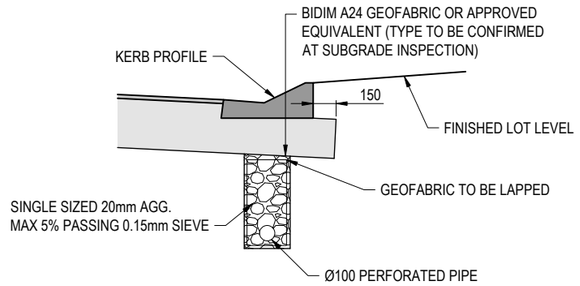
ROAD	CARRIAGEWAY WIDTH (m)	VERGE WIDTH (m)		RESERVE WIDTH (m)
		LHS	RHS	
ROAD F (START TO CH210)	6.00	5.50	5.50	17.00
ROAD F (CH210 TO END)	6.00	4.50	4.50	15.00

PROVISIONAL PAVEMENT DETAILS

LOCATION	SURFACING	BASE COURSE	SUBBASE COURSE
ROAD F	30mm ASPHALT	100mm THICK CBR 60 MIN	100mm THICK CBR 45 MIN

NOTES
PROVISIONAL PAVEMENT DESIGN IS BASED ON AN ASSUMED SUBGRADE SOAKED CBR OF 10. THE CONTRACTOR IS TO CONFIRM SUBGRADE CBR DURING CONSTRUCTION AND THE PAVEMENT DESIGN MAY BE AMENDED ACCORDINGLY BY THE COUNCIL.

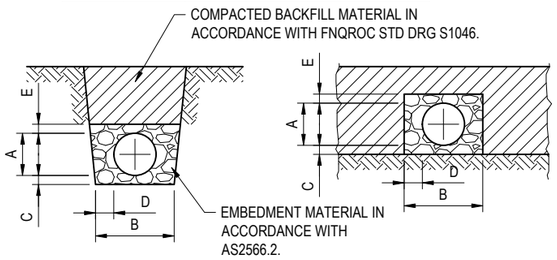
ASPHALT SURFACING TO BE INCREASED TO 50mm AT CUL-DE-SACS. REFER TO INTERESECTION DETAIL PLANS FOR LOCATIONS.



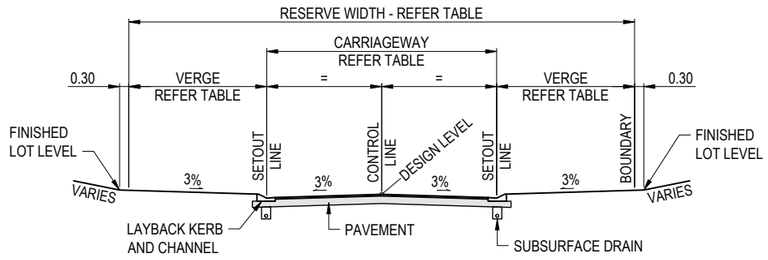
SUB SURFACE DRAINAGE DETAIL
N.T.S.

POLYPROPYLENE PIPE BEDDING DIMENSIONS

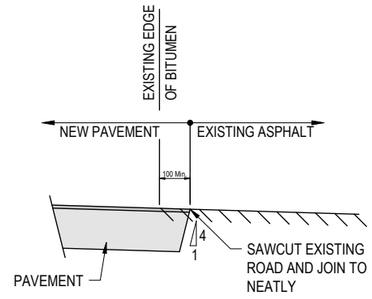
DN	DIMENSIONS (mm)				
	A	B	C	D	E
225	259	560	100	150	150
300	344	645	100	150	150
375	428	830	100	200	150
450	514	915	100	200	150
525	600	1200	150	300	150
600	682	1285	150	300	150
750	835	1435	150	300	150
900	999	1700	150	300	200



BLACKMAX PIPE BEDDING DETAILS
N.T.S.



TYPICAL ROAD CROSS SECTION
N.T.S.



TYPICAL JOIN TO EXISTING ROAD
N.T.S.

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

TYPICAL SECTIONS AND DETAILS
SHEET 1 OF 2

Drawn	Design	Check'd	Appv'd	25102	A3 Full Size (Scale as shown)	
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0301 A

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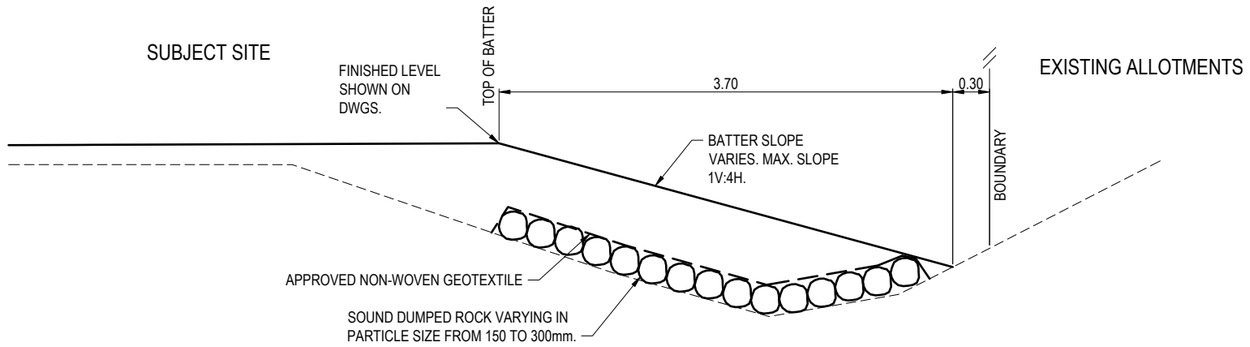
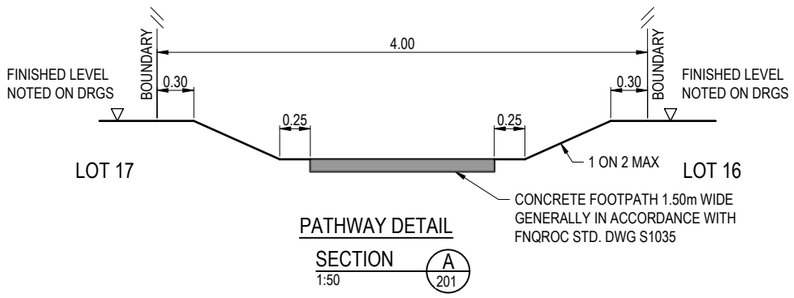


NOTES

1. CLEAR AREA OF VEGETATION AND TOP SOIL AS NOTED IN "BULK EARTHWORKS"
2. IDENTIFY AREAS OF UNSUITABLE MATERIAL ALONG SITE BOUNDARY AND REMOVE AND DISPOSE OF ALL SUCH MATERIAL IF AND AS DIRECTED.
3. DUMP ROCK AND COMPACT TO FORM A SUITABLE MECHANICAL INTERLOCKED BASE FOR FUTURE COMPACTION. ROCK SHALL BE SOUND VARYING IN PARTICLE SIZE FROM 150 TO 300mm.
4. PLACE APPROVED NON-WOVEN GEOTEXTILE OVER DUMPED ROCK.
5. PLACE SUITABLE APPROVED FILL MATERIAL IN LAYERS AND COMPACT AS NOTED IN "BULK EARTHWORKS".
6. TRIM AND GRADE TO FINISH.
7. CARE SHALL BE TAKEN TO ENSURE THAT ANY VIBRATORY ROLLING OR CONSTRUCTION ACTIVITIES DO NOT CAUSE DISTRESS (BY WAY OF INDUCED SETTLEMENT) TO ANY ADJACENT MOVEMENT-SENSITIVE FEATURES STRUCTURES ETC.

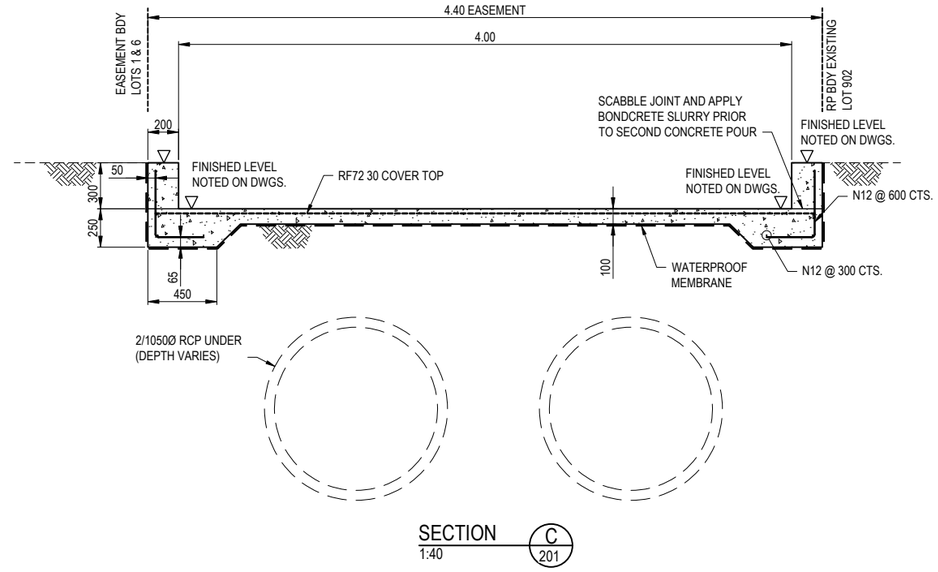
DETAIL AT EASTERN SITE BOUNDARY

SECTION 1:50 — B 201



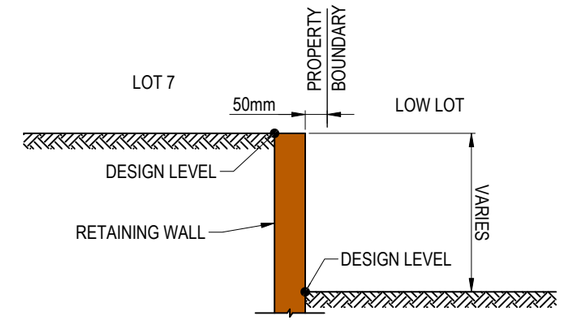
PATHWAY DETAIL

SECTION 1:50 — A 201

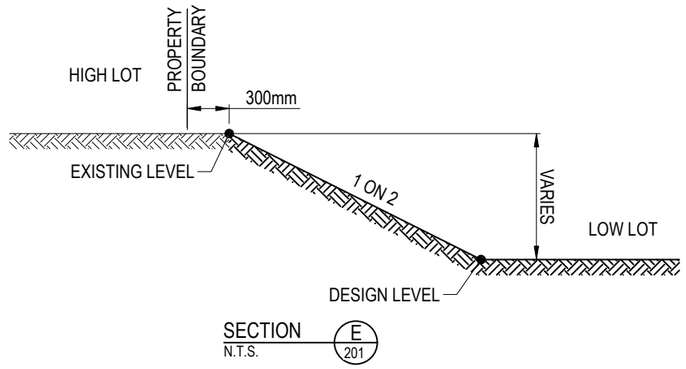


SECTION 1:40 — C 201

NOTE:
RETAINING WALLS ARE TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES AND STRUCTURAL DETAILS. CONTRACTOR IS TO OBTAIN STRUCTURAL DESIGN AND FORM 15/16 CERTIFICATES.



SECTION N.T.S. — D 201



SECTION N.T.S. — E 201

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

TYPICAL SECTIONS AND DETAILS
SHEET 2 OF 2

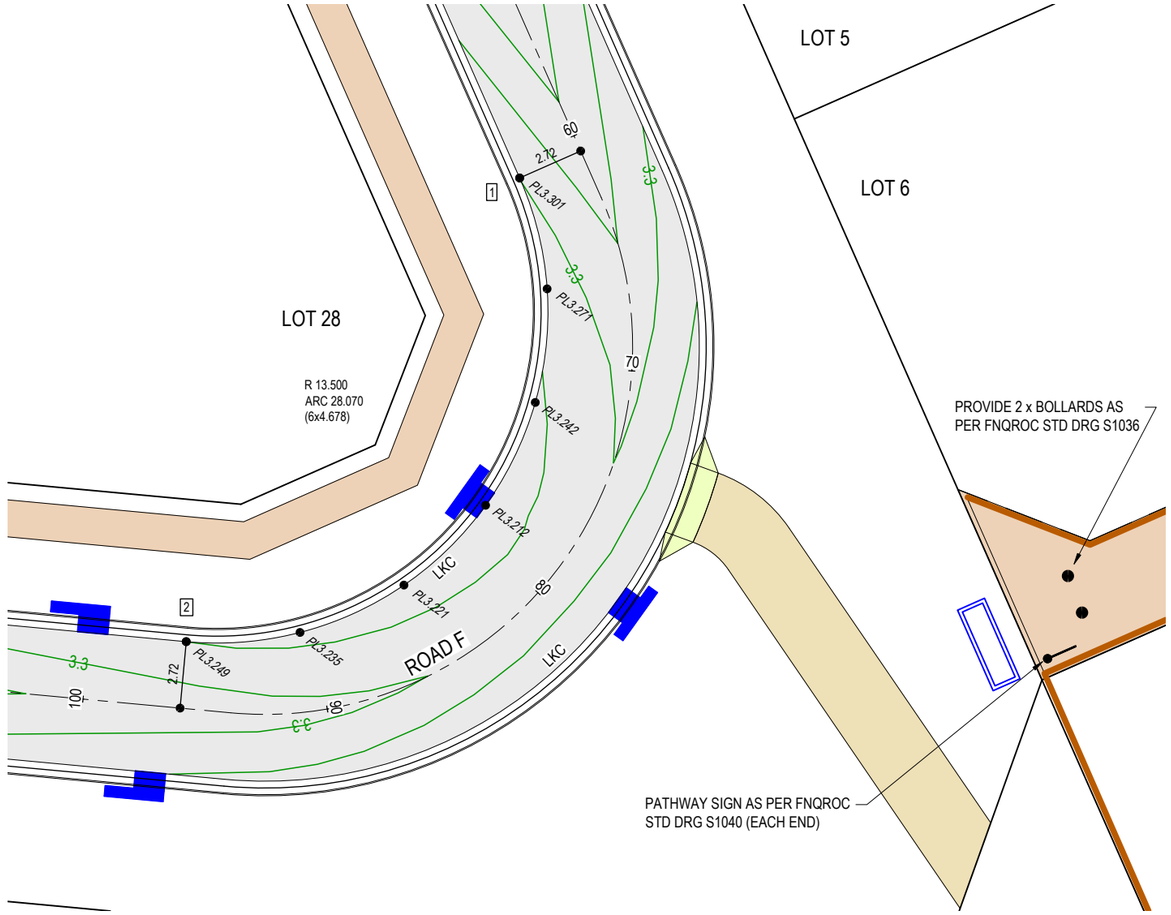
Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)	
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0301 A

NOTE

FOR PROJECT NOTES REFER TO DRG-0102.

LEGEND

- PL44.956 — PAVEMENT LEVEL OF KERB & TRAY
- 2 — SETOUT POINT
- LKC — LAYBACK KERB AND CHANNEL
- LKT — LAYBACK KERB AND TRAY
- INV — CONCRETE INVERT (TYPE 1)
- 57.0 — DESIGN SURFACE CONTOURS (0.05m INTERVAL)
- STREET SIGN
- KERB RAMP
- ACCESS CROSSOVER
- CONCRETE PATHWAY (1.5m WIDE U.N.O.)
- 30mm ASPHALT SURFACE
- 50mm ASPHALT SURFACE
- CONCRETE DRIVEWAY
- KERB INLET PIT



1:250 0 2.5 5 7.5 10

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

INTERSECTION DETAILS
SHEET 1 OF 2

Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)	
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0302 A

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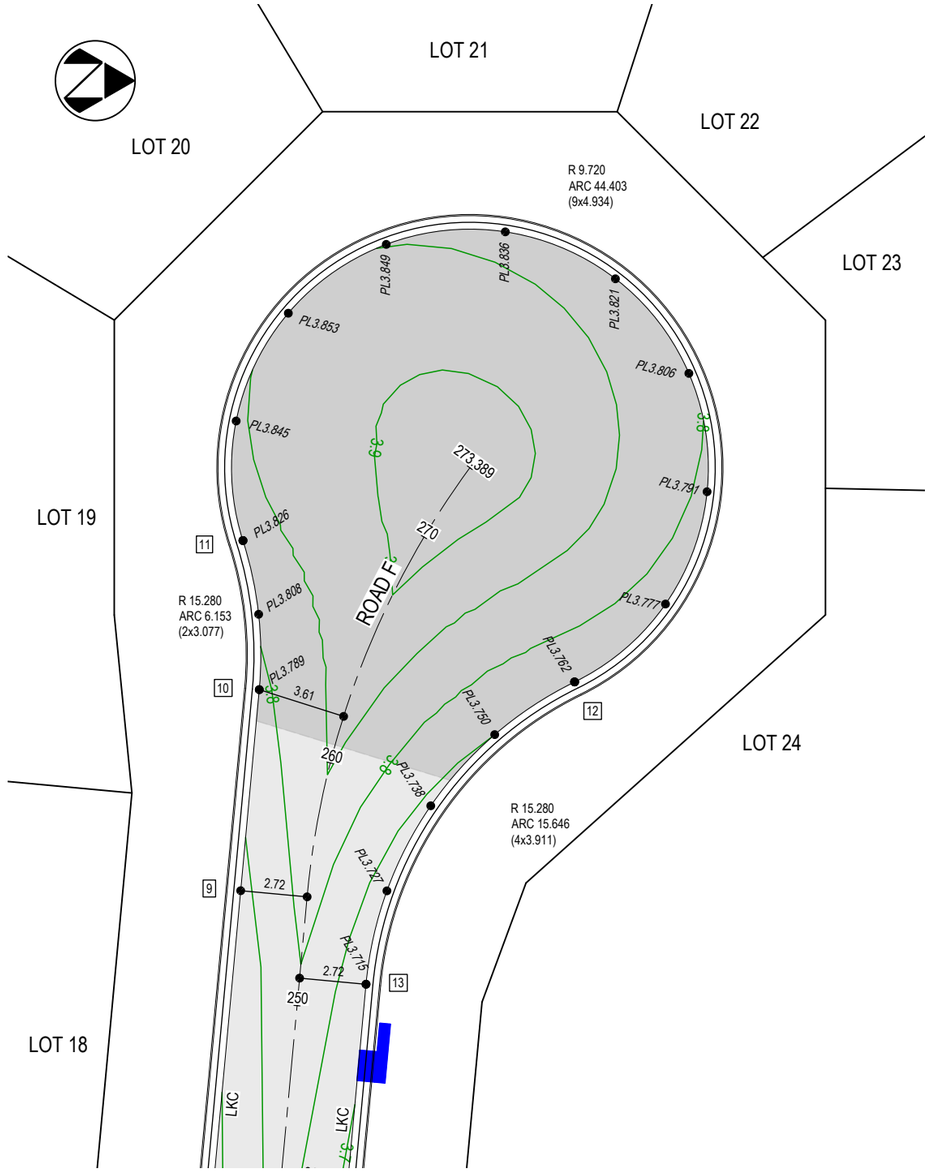
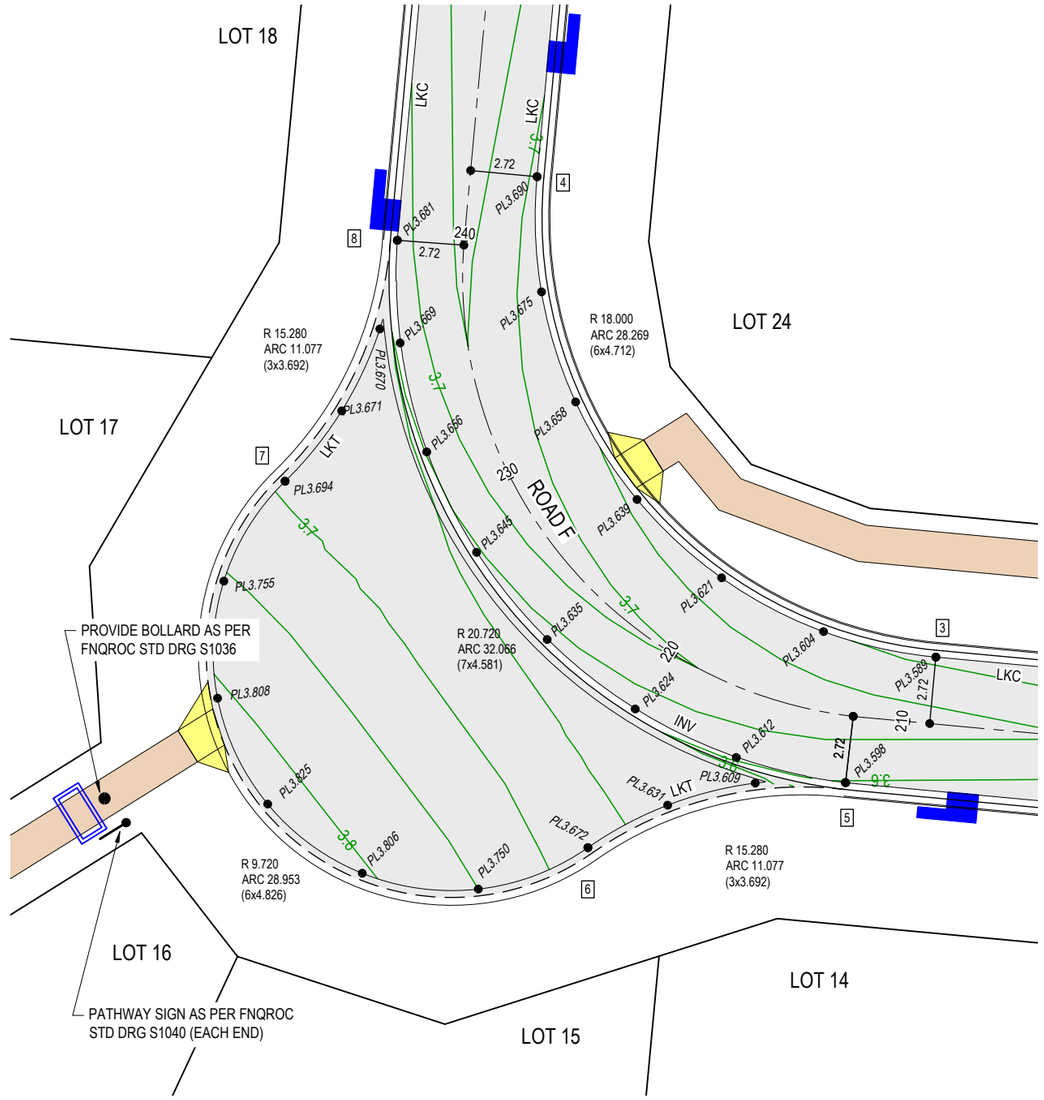
NOTE

FOR NOTES AND LEGEND REFER SHEET 1.





A 11.06.23 INITIAL ISSUE

Rev Date Revision Notes

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INTERSECTION DETAILS
SHEET 2 OF 2

Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)	026-2201-03-DRG-0303	A
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23		

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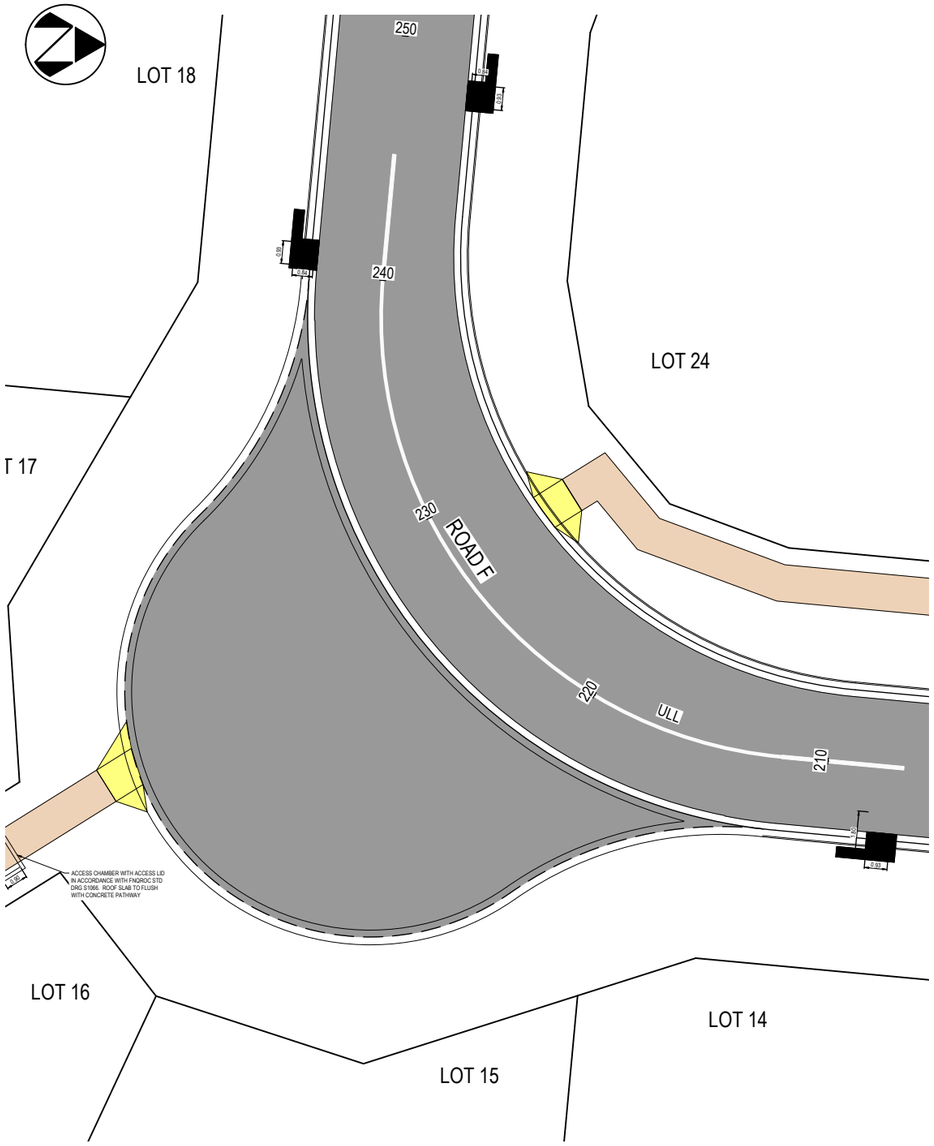
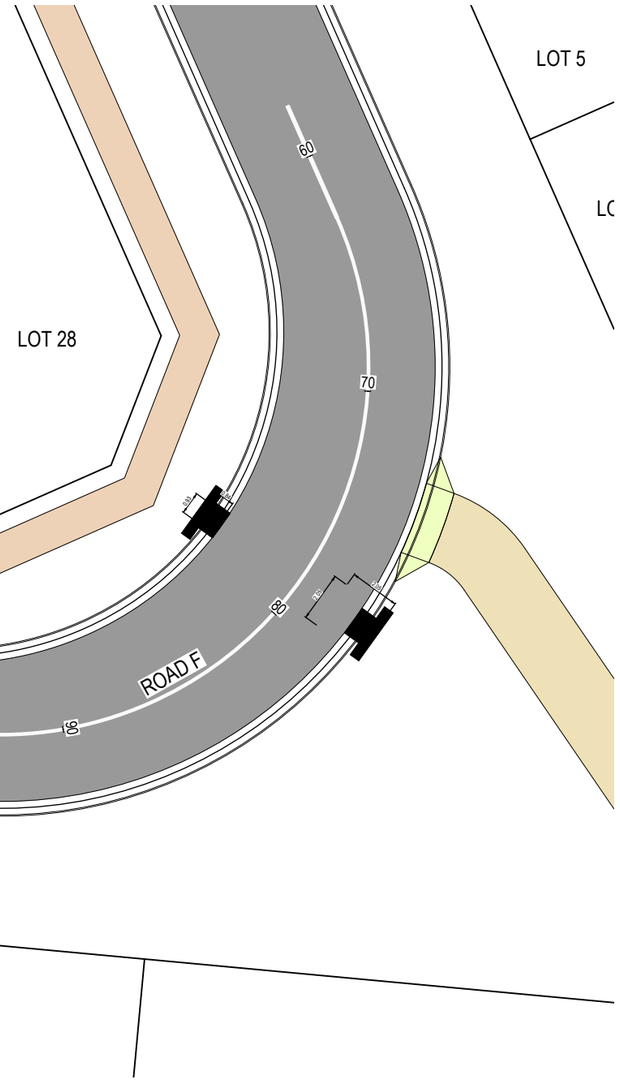
NOTE

FOR PROJECT NOTES REFER TO DRG-0102.

LEGEND FOR PAVEMENT MARKING

UNBROKEN LANE LINE — ULL — 80mm





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LINEMARKING DETAILS

Drawn	Design	Check'd	Appov'd	25102	A3 Full Size (Scale as shown)		
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0304	A

LEGEND

- 2/1 — LINE NUMBER / STRUCTURE No.
- STORMWATER DRAINAGE PIPE & MANHOLE
- SUBSURFACE DRAINAGE
- KERB INLET PIT
- HEADWALL
- FALL OF LOTS
- BATTER
- STAGE BOUNDARY
- 57.0 — DESIGN SURFACE CONTOURS (0.2m INTERVAL)
- 57.0 — EXISTING SURFACE CONTOURS (0.2m INTERVAL)
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING WATER
- RETAINING WALL
- GROUTED STONE PITCHING SCOUR PROTECTION (10m² NOMINAL)
- EASEMENT BOUNDARY
- PROVIDE 3x100Ø uPVC ROOFWATER PIPES AS PER FNQROC STD DRG 1035
- FP — FLUSHING POINT

NOTE

FOR PROJECT NOTES REFER TO DRG-0102.

BAYIL DRIVE

MELALEUCA DRIVE

COOYA BEACH ROAD

ROAD F

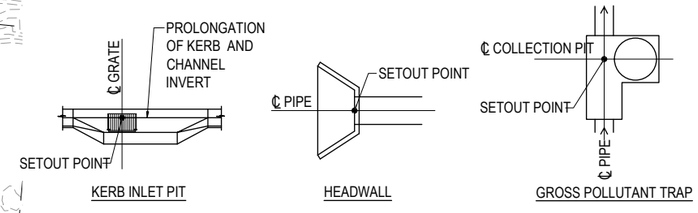
STAGE 3B

STAGE 3A2

CONNECT TO EX SUBSOIL

FOR DETAILS OF OUTLET SEE DRG-0402

EXISTING PIPE TO BE PLUGGED/GROUT FILLED AND ABANDONED



STRUCTURE SETOUT POINTS

N.T.S.

1:1000 0 10 20 30 40

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

STORMWATER DRAINAGE PLAN

Drawn	Design	Check'd	Apprv'd	25102
PAM	PAM	CJC	CJC	C.J.CAPLICK

A3 Full Size (Scale as shown) 11.06.23

026-2201-03-DRG-0401 A

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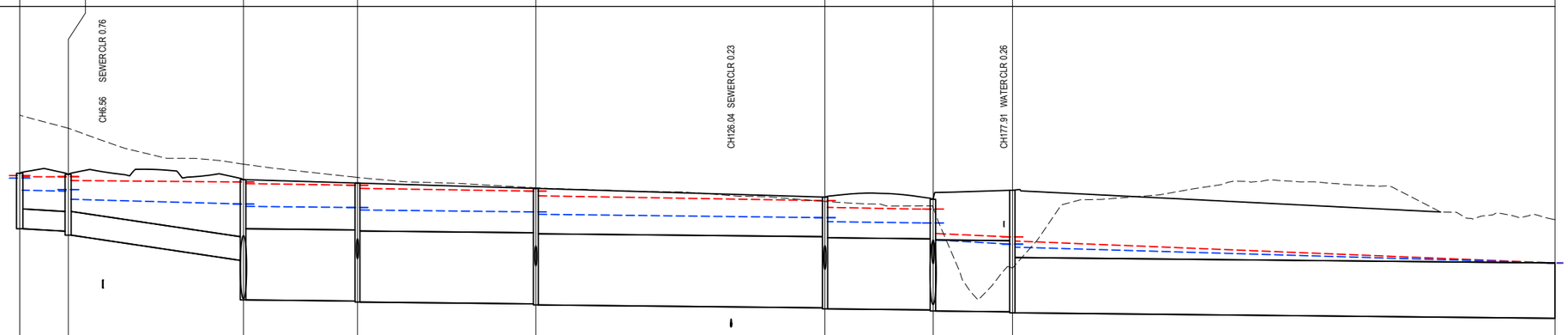
LEGEND

1%AEP FLOW RATES
18%AEP FLOW RATES



STRUCTURE NAME	9/1	8/1	7/1	6/1	5/1	4/1	3/1	2/1	1/1
STRUCTURE DESCRIPTION	ON-GRADE KERB INLET PIT; LINTEL TYPE L	ON-GRADE KERB INLET PIT; LINTEL TYPE M	ON-GRADE KERB INLET PIT; LINTEL TYPE L	ON-GRADE KERB INLET PIT; LINTEL TYPE M	ON-GRADE KERB INLET PIT; LINTEL TYPE S	ON-GRADE KERB INLET PIT; LINTEL TYPE S	SAG KERB INLET PIT; LINTEL TYPE S	MANHOLE	GPT OUTLET
PIPE SIZE (mm)		375	450	1350	1350	1350	1350	1350	(2x)1050
PIPE CLASS		PP	PP	RCP (2)	RCP (2)	RCP (2)	RCP (2)	RCP (2)	RCP (2)
PIPE GRADE (%)		0.51%	1.44%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
PIPE SLOPE (1 in X)		195.39	69.65	1000.00	1000.00	1000.00	999.99	1000.03	1000.00
FULL PIPE VELOCITY (m/s)		0.97	1.21	1.53	1.61	1.66	1.72	2.68	2.21
PART FULL VELOCITY (m/s)		1.58	2.69	1.75	1.74	1.66	1.72	2.68	2.21
DATUM RL	-3.0								
H.G.L IN PIPE & W.S.E IN STRUCTURE	3.594	3.364 / 3.374	3.191 / 3.102	3.056 / 3.035	2.988 / 2.951	2.907 / 2.842	2.766 / 2.740	2.420 / 2.339	2.283 / 1.982 / 1.982
PIPE FLOW (Cumecs)		0.107 / 0.035	0.192 / 0.107	2.193 / 2.645	2.300 / 2.705	2.374 / 2.828	2.468 / 2.961	3.840 / 4.522	3.834 / 4.513
PIPE CAPACITY AT GRADE (Cumecs)		0.163	0.444	2.195	2.195	2.195	2.195	2.195	2.246
DEPTH TO INVERT		1.053 / 1.079	1.154 / 1.533	2.283 / 2.239	2.259 / 2.191	2.211 / 2.102	2.122 / 2.100	2.120 / 2.307	2.327 / 0.000 / 0.000
INVERT LEVEL OF DRAIN		2.632 / 2.585	2.510 / 2.031	1.281 / 1.260	1.240 / 1.206	1.186 / 1.131	1.111 / 1.090	1.070 / 1.055	1.035 / 0.932 / 0.932
DESIGN SURFACE LEVEL	3.685	3.664	3.564	3.499	3.397	3.232	3.190	3.363	0.932
SETOUT COORDINATES	E 9447.820 N 80127.381	E 9454.271 N 80120.759	E 9478.128 N 80144.002	E 9480.130 N 80165.589	E 9483.262 N 80199.359	E 9488.338 N 80254.089	E 9481.207 N 80273.386	E 9483.028 N 80288.379	E 9441.348 N 80382.739
CHAINAGE	-9.245	9.245 / 0.000	33.307 / 33.307	21.680 / 54.987	33.915 / 88.902	54.965 / 143.867	20.572 / 164.439	15.103 / 179.543	103.155 / 282.698
LINE					1				

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A 11.06.23 INITIAL ISSUE

Rev Date Revision Notes

JONPA PTY LTD

OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

STORMWATER DRAINAGE LONGITUDINAL SECTIONS
SHEET 1 OF 2

Drawn	Design	Check'd	Apprv'd	25102
PAM	PAM	CJC	CJC	C.J.CAPLICK

A3 Full Size (Scale as shown) 11.06.23

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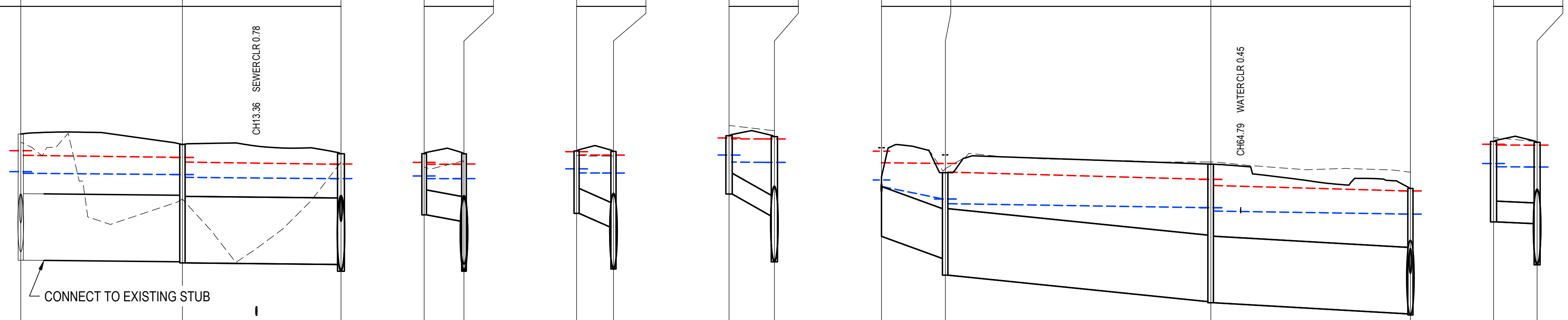
LEGEND

1%AEP FLOW RATES
18%AEP FLOW RATES



LINE 2

STRUCTURE NAME	2/2			1/2			3/1	
STRUCTURE DESCRIPTION	ON-GRADE KERB INLET PIT; LINTEL TYPE S			ON-GRADE KERB INLET PIT; LINTEL TYPE S			SAG KERB INLET PIT; LINTEL TYPE S	
PIPE SIZE (mm)			1200			1200		
PIPE CLASS			RCP (2)			RCP (2)		
PIPE GRADE (%)			0.10%			0.10%		
PIPE SLOPE (1 in X)			999.97			1000.01		
FULL PIPE VELOCITY (m/s)			1.28			1.32		
PART FULL VELOCITY (m/s)			1.60			1.61		
DATUM RL		-4.0						
H.G.L IN PIPE & W.S.E IN STRUCTURE	2.868	2.838		2.815 2.815	2.765		2.740 2.742	2.420
PIPE FLOW (Cumecs)			1.444 1.822			1.491 1.891		
PIPE CAPACITY AT GRADE (Cumecs)			1.603			1.603		
DEPTH TO INVERT		2.277		2.117	2.137		1.998	2.120
INVERT LEVEL OF DRAIN		1.270		1.241	1.221		1.192	1.070
DESIGN SURFACE LEVEL	3.547			3.358			3.190	
SETOUT COORDINATES	E 9429.067	N 80253.502		E 9452.746	N 80270.523		E 9481.207	N 80273.386
CHAINAGE	-29.162		29.162	0.000		28.604	28.604	

LINE 3

STRUCTURE NAME	1/3			3/1	
STRUCTURE DESCRIPTION	SAG KERB INLET PIT; LINTEL TYPE S			SAG KERB INLET PIT; LINTEL TYPE S	
PIPE SIZE (mm)			450		
PIPE CLASS			PP		
PIPE GRADE (%)			1.64%		
PIPE SLOPE (1 in X)			61.11		
FULL PIPE VELOCITY (m/s)			0.32		
PART FULL VELOCITY (m/s)			1.94		
DATUM RL		-4.0			
H.G.L IN PIPE & W.S.E IN STRUCTURE	2.790	2.741		2.740 2.742	2.420
PIPE FLOW (Cumecs)			0.051 0.051		
PIPE CAPACITY AT GRADE (Cumecs)			0.474		
DEPTH TO INVERT		1.104		1.220	2.120
INVERT LEVEL OF DRAIN		2.088		1.970	1.070
DESIGN SURFACE LEVEL	3.192			3.190	
SETOUT COORDINATES	E 9477.009	N 80267.550		E 9481.207	N 80273.386
CHAINAGE	0.000		7.189	7.189	

LINE 4

STRUCTURE NAME	1/4			4/1	
STRUCTURE DESCRIPTION	ON-GRADE KERB INLET PIT; LINTEL TYPE S			ON-GRADE KERB INLET PIT; LINTEL TYPE S	
PIPE SIZE (mm)			450		
PIPE CLASS			PP		
PIPE GRADE (%)			3.81%		
PIPE SLOPE (1 in X)			26.22		
FULL PIPE VELOCITY (m/s)			0.42		
PART FULL VELOCITY (m/s)			2.85		
DATUM RL		-4.0			
H.G.L IN PIPE & W.S.E IN STRUCTURE	2.919	2.845		2.842 2.842	2.766
PIPE FLOW (Cumecs)			0.067 0.076		
PIPE CAPACITY AT GRADE (Cumecs)			0.724		
DEPTH TO INVERT		1.126		1.372	2.122
INVERT LEVEL OF DRAIN		2.114		1.861	1.111
DESIGN SURFACE LEVEL	3.241			3.232	
SETOUT COORDINATES	E 9482.098	N 80251.784		E 9488.338	N 80254.089
CHAINAGE	0.000		6.652	6.652	

LINE 5

STRUCTURE NAME	1/5			6/1	
STRUCTURE DESCRIPTION	ON-GRADE KERB INLET PIT; LINTEL TYPE M			ON-GRADE KERB INLET PIT; LINTEL TYPE M	
PIPE SIZE (mm)			375		
PIPE CLASS			PP		
PIPE GRADE (%)			4.88%		
PIPE SLOPE (1 in X)			20.50		
FULL PIPE VELOCITY (m/s)			0.57		
PART FULL VELOCITY (m/s)			3.11		
DATUM RL		-4.0			
H.G.L IN PIPE & W.S.E IN STRUCTURE	3.167	3.041		3.035 3.035	2.988
PIPE FLOW (Cumecs)			0.063 0.029		
PIPE CAPACITY AT GRADE (Cumecs)			0.504		
DEPTH TO INVERT		1.052		1.434	2.259
INVERT LEVEL OF DRAIN		2.464		2.065	1.240
DESIGN SURFACE LEVEL	3.516			3.499	
SETOUT COORDINATES	E 9473.643	N 80160.609		E 9480.130	N 80165.589
CHAINAGE	0.000		8.179	8.179	

LINE 6

STRUCTURE NAME	3/6			2/6			1/6			7/1	
STRUCTURE DESCRIPTION	HEADWALL			FIELD INLET PIT; TYPE B - 900 x 900 mm GRATE			MANHOLE			ON-GRADE KERB INLET PIT; LINTEL TYPE L	
PIPE SIZE (mm)			1800x900			1200			1200		
PIPE CLASS			RCBC			RCP (2)			RCP (2)		
PIPE GRADE (%)			3.47%			1.00%			0.56%		
PIPE SLOPE (1 in X)			28.80			100.27			179.06		
FULL PIPE VELOCITY (m/s)			1.16			1.75			1.74		
PART FULL VELOCITY (m/s)			5.45			4.20			3.38		
DATUM RL		-3.0									
H.G.L IN PIPE & W.S.E IN STRUCTURE	3.717	3.600		3.375 3.375	3.290		3.217 3.217	3.156		3.102 3.102	3.056
PIPE FLOW (Cumecs)			1.882 2.508			1.977 2.667			1.968 2.651		
PIPE CAPACITY AT GRADE (Cumecs)			13.527			5.064			3.789		
DEPTH TO INVERT		1.074		1.550	1.850		2.480	2.500		2.263	2.283
INVERT LEVEL OF DRAIN		2.700		2.300	2.000		1.522	1.502		1.301	1.281
DESIGN SURFACE LEVEL	3.774			3.850			4.003			3.564	
SETOUT COORDINATES	E 9504.009	N 80055.862		E 9504.009	N 80067.384		E 9478.659	N 80108.015		E 9478.128	N 80144.002
CHAINAGE	0.000		11.522	11.522		47.891	59.412		35.990	95.403	

LINE 7

STRUCTURE NAME	1/7			5/1	
STRUCTURE DESCRIPTION	ON-GRADE KERB INLET PIT; LINTEL TYPE S			ON-GRADE KERB INLET PIT; LINTEL TYPE S	
PIPE SIZE (mm)			375		
PIPE CLASS			PP		
PIPE GRADE (%)			0.40%		
PIPE SLOPE (1 in X)			249.99		
FULL PIPE VELOCITY (m/s)			0.52		
PART FULL VELOCITY (m/s)			1.23		
DATUM RL		-4.0			
H.G.L IN PIPE & W.S.E IN STRUCTURE	3.013	2.956		2.951 2.951	2.907
PIPE FLOW (Cumecs)			0.057 0.034		
PIPE CAPACITY AT GRADE (Cumecs)			0.144		
DEPTH TO INVERT		1.452		1.468	2.211
INVERT LEVEL OF DRAIN		1.961		1.929	1.186
DESIGN SURFACE LEVEL	3.412			3.397	
SETOUT COORDINATES	E 9476.819	N 80194.864		E 9483.262	N 80199.359
CHAINAGE	0.000		7.856	7.856	

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1:1000 0 10 20 30 40

Rev	Date	Revision Notes
A	11.06.23	INITIAL ISSUE

OCEAN BREEZE estate

NEON CONSULTING

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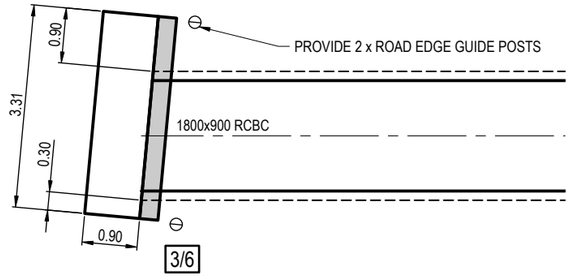
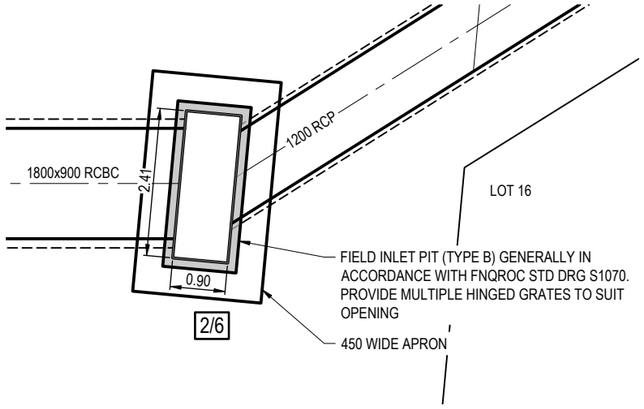
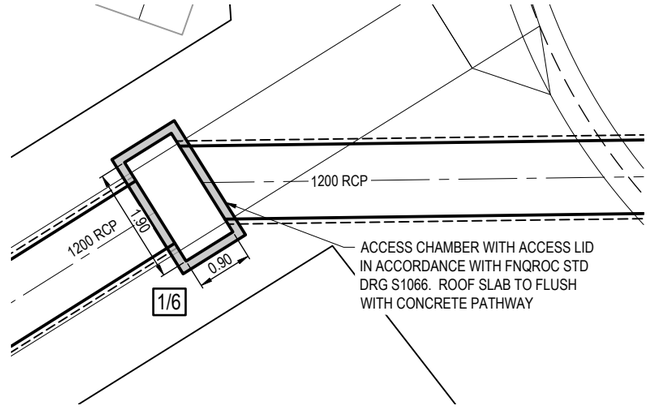
OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

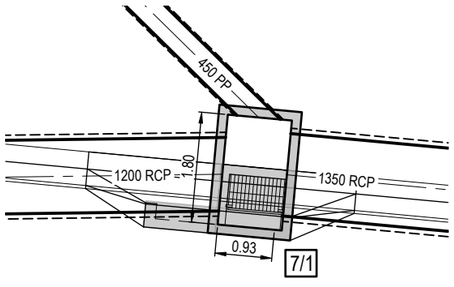
STORMWATER DRAINAGE LONGITUDINAL SECTIONS
SHEET 2 OF 2

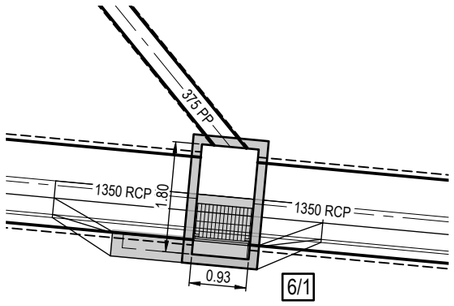
Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)		
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0404	A

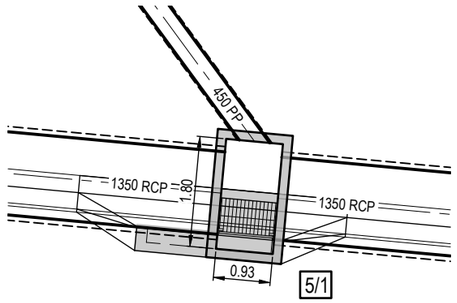


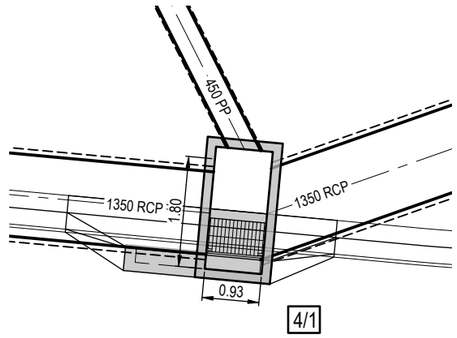


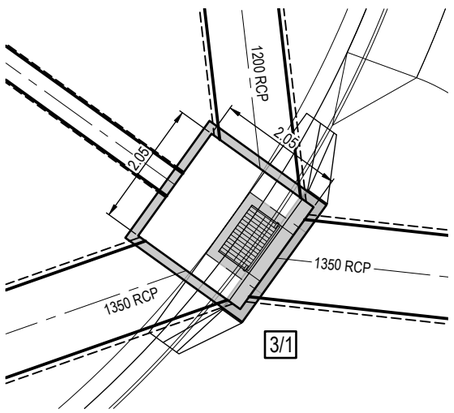


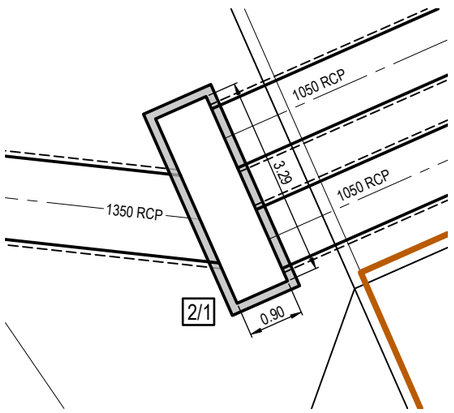


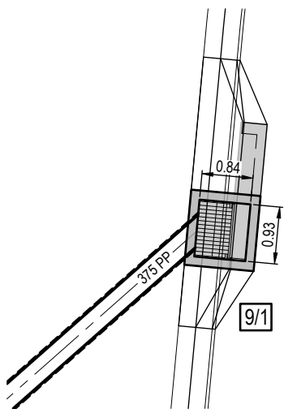


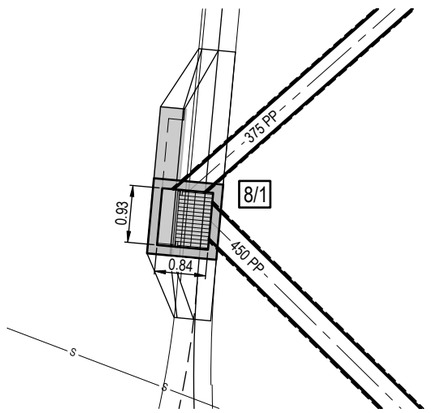












Rev	Date	Revision Notes
A	11.06.23	INITIAL ISSUE

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OCEAN BREEZE estate

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

STORMWATER DRAINAGE PIT DETAILS
SHEET 1 OF 2

Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)	026-2201-03-DRG-0405	A
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23		

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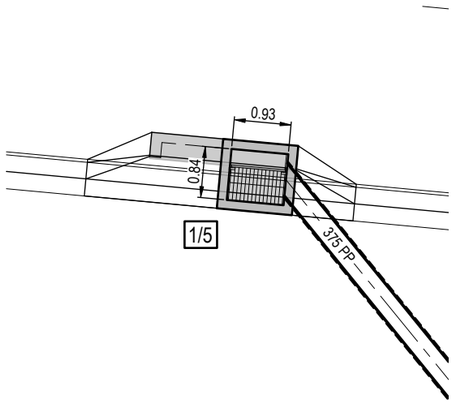

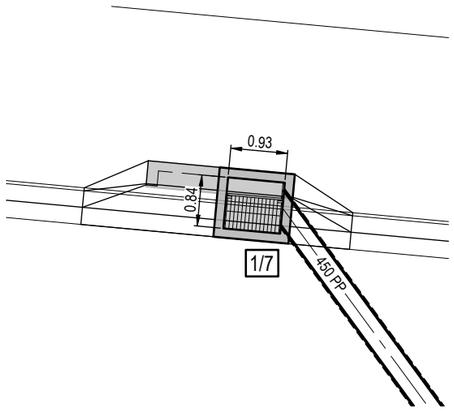

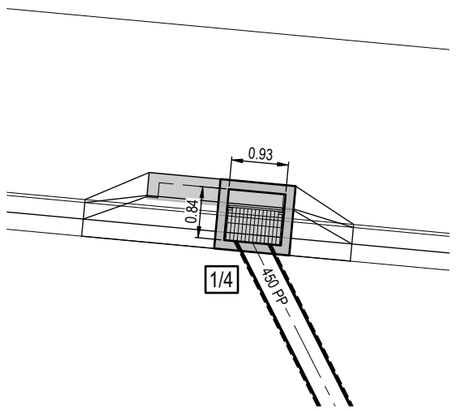

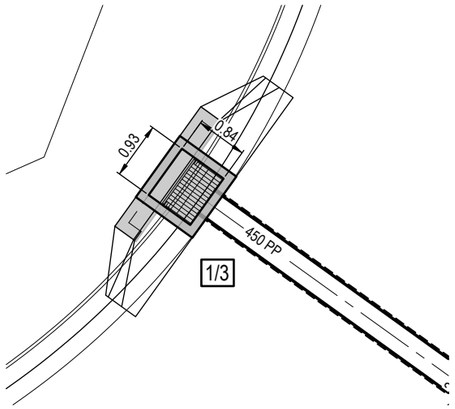

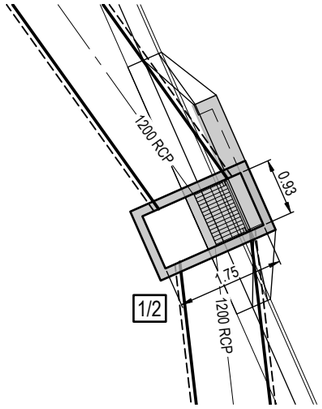

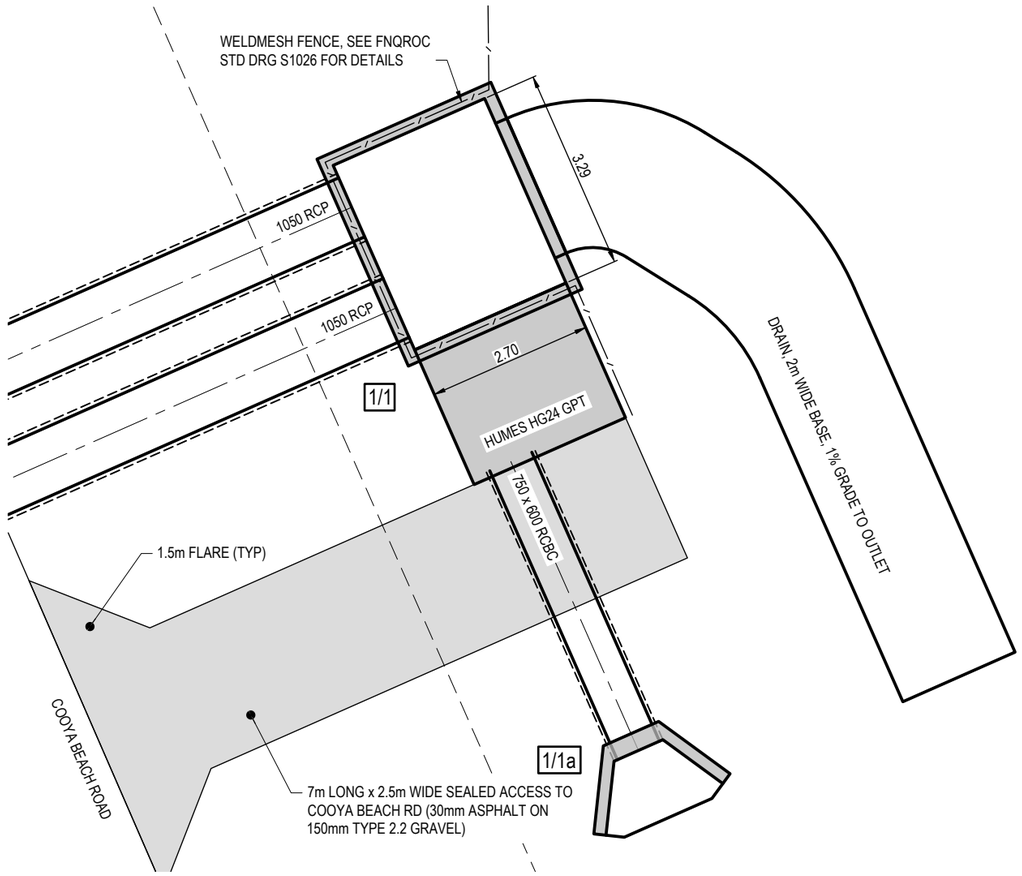

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Rev	Date	Revision Notes
A	11.06.23	INITIAL ISSUE

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

STORMWATER DRAINAGE PIT DETAILS
SHEET 2 OF 2

Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)		
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0406	A

NOTE

FOR PROJECT NOTES REFER TO DRG-0102.

LEGEND

- 2/1 — LINE NUMBER / STRUCTURE No.
- SEWER MAIN, MANHOLE AND ENDCAP
- HOUSE CONNECTION BRANCH / TYPE
- E1 — BATTER
- STAGE BOUNDARY
- 57.0 — DESIGN SURFACE CONTOURS (0.2m INTERVAL)
- 57.0 — EXISTING SURFACE CONTOURS (0.2m INTERVAL)
- RETAINING WALL

BAYIL DRIVE

MELALEUCA DRIVE

COOYA BEACH ROAD

ROAD F

STAGE 3B

STAGE 3A2

ENSURE FINISHED SURFACE IS NO GREATER THAN 1.5m ABOVE INVERTS AT END OF LINES

CONNECT TO EXISTING STUB (CONFIRM IL -0.060 FROM ASCON)

CONFIRM HCB'S EXISTS TO SERVICE LOTS 5 & 6

EX HCB

EX 3/1

EX 4/1

EX 1/6

5/1E

4/2E

4/1

1/5

1/4

1/6E

2/3

2/2

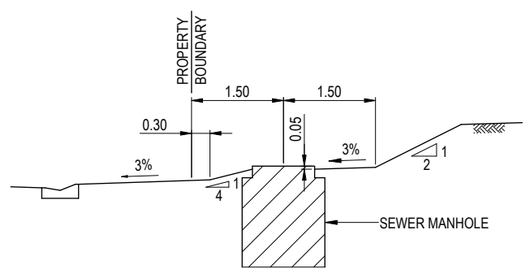
2/1

1/3

1/2

1/1

3/1



TYPICAL SEWER MANHOLE IN BATTER ARRANGEMENT
N.T.S.

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Rev	Date	Revision Notes
A	11.06.23	INITIAL ISSUE

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

SEWERAGE PLAN

Drawn	Design	Check'd	Appr'd	25102	A3 Full Size (Scale as shown)		
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0501	A

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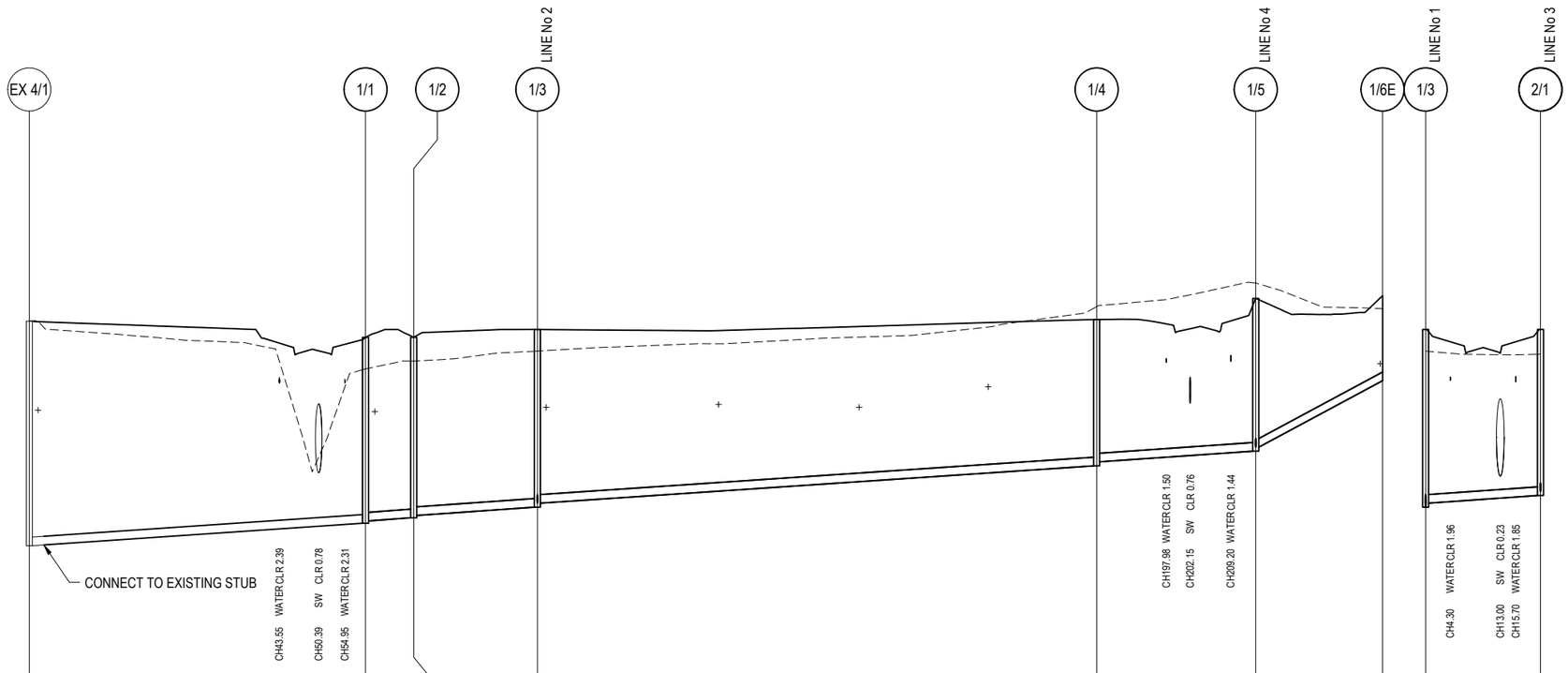
LEGEND

\+ HOUSE CONNECTION BRANCH

NOTES

1. ALL MANHOLE DIAMETERS, DROP TYPES AND COVERS TO BE IN ACCORDANCE WITH FNQROC STD DRG S3000.
2. FINISHED SURFACE AT ENDCAPS IS TO BE NO GREATER THAN 1.5m ABOVE INVERT.



	EX 4/1	1/1	1/2	1/3	1/4	1/5	1/6E	1/3	2/1
GRADE (1 in "X")		150	150	150	150	150	19.1	150	
PIPE SIZE (mm)		150	150	150	150	150	150	150	
DATUM RL	-4.0							-4.0	
DEPTH TO INVERT	3.91	3.23	3.19	3.14	3.10	3.09	3.02	2.54	2.47	2.66	2.59	1.48	3.09	3.02	2.89
INVERT LEVEL	-0.060	0.330	0.370	0.426	0.466	0.610	0.680	1.329	1.399	1.584	1.654	2.810	0.610	0.680	0.813
DESIGN SURFACE LEVEL	3.85		3.56		3.56		3.70		3.87		4.24		4.29	3.70	3.70
EXISTING SURFACE LEVEL	3.85		3.01		3.15		3.32		4.10		4.51		4.06	3.32	3.27
SETOUT COORDINATES	E 9445.740 N 80317.984		E 9469.322 N 80264.396	E 9475.734 N 80258.982	E 9473.744 N 80237.539			E 9464.746 N 80140.570		E 9454.923 N 80114.670		E 9475.762 N 80107.362	E 9473.744 N 80237.539		E 9493.659 N 80235.691
CHAINAGE	0.00	58.55	58.55	8.39	66.94	21.54	88.47	97.39	185.86	27.70	213.56	22.08	235.64	0.00	20.00	20.00

LINE 1 LINE 2

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Rev	Date	Revision Notes
A	11.06.23	INITIAL ISSUE

OCEAN BREEZE estate

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

SEWERAGE LONGITUDINAL SECTIONS
SHEET 1 OF 2

Drawn	Design	Check'd	Appr'd	25102	A3 Full Size (Scale as shown)		
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0502	A

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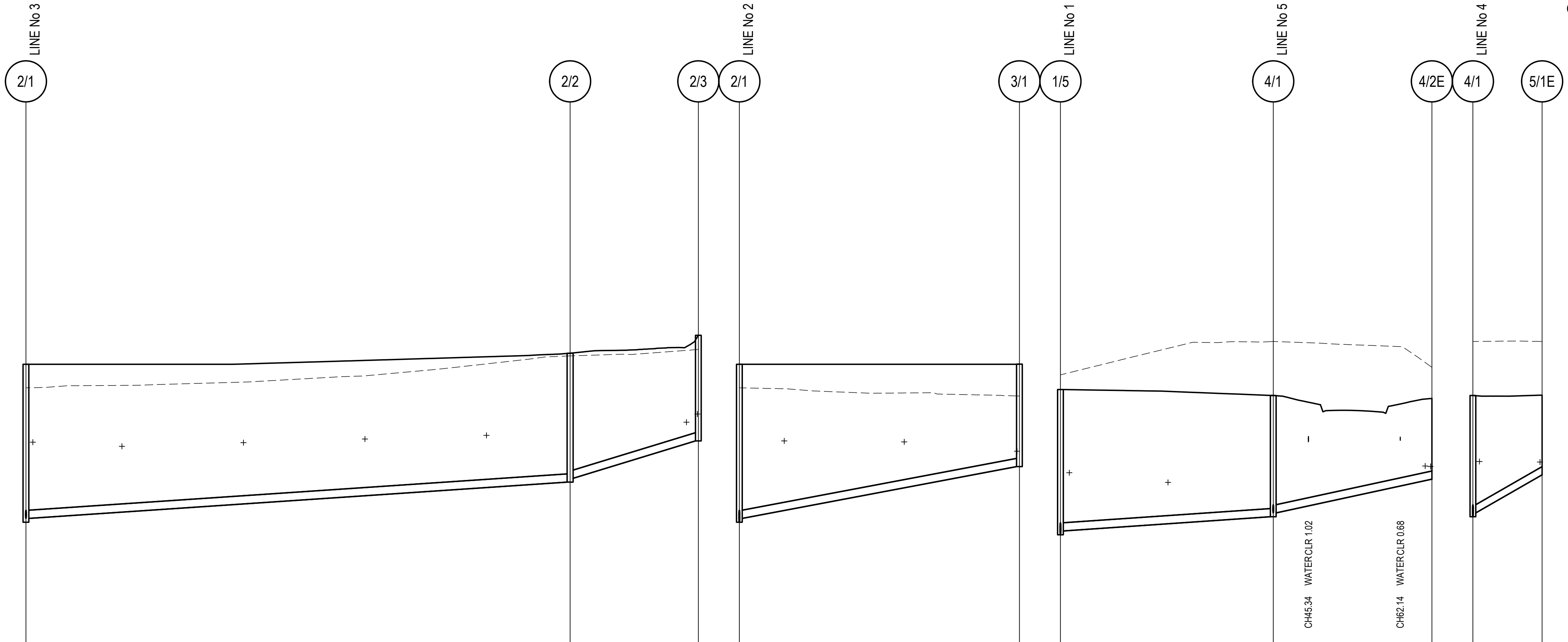
LEGEND

\+ HOUSE CONNECTION BRANCH

NOTES

1. ALL MANHOLE DIAMETERS, DROP TYPES AND COVERS TO BE IN ACCORDANCE WITH FNQROC STD DRG S3000.
2. FINISHED SURFACE AT ENDCAPS IS TO BE NO GREATER THAN 1.5m ABOVE INVERT.



LINE 2

	2/1	2/1 – 2/2	2/2	2/2 – 2/3	2/3
GRADE (1 in "X")		150		34.3	
PIPE SIZE (mm)		150		150	
DATUM RL	-3.0				
DEPTH TO INVERT	2.89 / 2.82		2.36 / 2.29		1.93
INVERT LEVEL	0.813 / 0.883		1.547 / 1.617		2.300
DESIGN SURFACE LEVEL	3.70		3.90		4.23
EXISTING SURFACE LEVEL	3.27		3.85		3.97
SETOUT COORDINATES	E 9493.659 N 80235.691		E 9484.464 N 80136.603		E 9485.303 N 80113.168
CHAINAGE	20.00	99.51	119.51	23.45	142.96

LINE 3

	2/1	2/1 – 3/1	3/1
GRADE (1 in "X")		54.1	
PIPE SIZE (mm)		150	
DATUM RL	-3.0		
DEPTH TO INVERT	2.89 / 2.82		1.87
INVERT LEVEL	0.813 / 0.883		1.830
DESIGN SURFACE LEVEL	3.70		3.70
EXISTING SURFACE LEVEL	3.27		3.12
SETOUT COORDINATES	E 9493.659 N 80235.691		E 9498.391 N 80286.686
CHAINAGE	0.00	51.21	51.21

LINE 4

	1/5	1/5 – 4/1	4/1	4/1 – 4/2E	4/2E
GRADE (1 in "X")		150		47.0	
PIPE SIZE (mm)		150		150	
DATUM RL	-2.0				
DEPTH TO INVERT	2.66 / 2.59		2.22 / 2.15		1.48
INVERT LEVEL	1.584 / 1.654		1.913 / 1.983		2.600
DESIGN SURFACE LEVEL	4.24		4.13		4.08
EXISTING SURFACE LEVEL	4.51		5.12		4.65
SETOUT COORDINATES	E 9454.923 N 80114.670		E 9416.043 N 80116.400		E 9414.531 N 80145.371
CHAINAGE	0.00	38.92	38.92	29.01	67.93

LINE 5

	4/1	4/1 – 5/1E	5/1E
GRADE (1 in "X")		18.2	
PIPE SIZE (mm)		150	
DATUM RL	-2.0		
DEPTH TO INVERT	2.22 / 2.15		1.46
INVERT LEVEL	1.913 / 1.983		2.680
DESIGN SURFACE LEVEL	4.13		4.14
EXISTING SURFACE LEVEL	5.12		5.12
SETOUT COORDINATES	E 9416.043 N 80116.400		E 9407.428 N 80125.671
CHAINAGE	0.00	12.66	12.66

1:100 0 1 2 3 4

1:1000 0 10 20 30 40

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

SEWERAGE LONGITUDINAL SECTIONS
SHEET 2 OF 2

Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)		
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0503	A

NOTE

FOR PROJECT NOTES REFER TO DRG-0102.

LEGEND

STAGE BOUNDARY

EXISTING WATER

FUTURE WATER SERVICE LOCATION (REFER NOTE 5)

BAYIL DRIVE

MELALEUCA DRIVE

COOYA BEACH ROAD

ROAD F

EX HYDRANTS

CONNECT TO EXISTING 50Ø MAIN

CONNECT TO EXISTING 100Ø MAIN

PROVIDE VALVES AND ENDCAPS IF WORKS ARE STAGED

PROVIDE VALVES AND ENDCAPS IF WORKS ARE STAGED

2.80 TYPICAL

STAGE 3B

STAGE 3A2

WATER SUPPLY PIPE AND FITTINGS LIST

REF.	CODE	DESCRIPTION
1		SLUICE VALVE CLASS `14' COMPLETE WITH C.I. COVER BOX, CONCRETE MARGIN AND MARKER
2		50 BRONZE GATE VALVE COMPLETE WITH C.I. COVER BOX, CONCRETE MARGIN AND MARKER
3		80 SPRING HYDRANT COMPLETE WITH RISER, TEE, C.I. COVER BOX, CONCRETE MARGIN AND MARKER
4		TEE WITH CONCRETE THRUST BLOCK
6		BEND TO SUIT WITH CONCRETE THRUST BLOCK
7		SERVICE MAIN CONNECTION
8		DEAD END CAP WITH CONCRETE THRUST BLOCK
	W	100Ø uPVC WATER MAIN CLASS '16' RUBBER RING JOINTED
	W	63 OD PE 100 PN 16

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

WATER RETICULATION

Rev	Date	Revision Notes
A	11.06.23	INITIAL ISSUE

Drawn	Design	Check'd	Appv'd	25102	A3 Full Size (Scale as shown)	
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0601 A

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NOTE

FOR PROJECT NOTES REFER TO DRG-0102.

LEGEND

- SILT FENCE
- STAGE BOUNDARY
- EXISTING SURFACE CONTOURS (0.2m INTERVAL)
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING WATER
- ROCK CHECK DAM

BAYIL DRIVE

MELALEUCA DRIVE

COOYA BEACH ROAD

ROAD F

STAGE 3B

STAGE 3A2

SITE ACCESS SHAKER GRID 5m LONG x 3m WIDE

SEDIMENT BASIN

1:1000 0 10 20 30 40

Rev	Date	Revision Notes
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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

SITE BASED STORMWATER MANAGEMENT PLAN
PHASE 1: TOPSOIL STRIPPING

Drawn	Design	Check'd	Appr'd	26102	A3 Full Size (Scale as shown)	
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0701 A

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NOTE

FOR PROJECT NOTES REFER TO DRG-0102.

BAYIL DRIVE

MELALEUCA DRIVE

COOYA BEACH ROAD

ROAD F

STAGE 3B

STAGE 3A2

SITE ACCESS SHAKER GRID 5m LONG x 3m WIDE

SEDIMENT BASIN

LEGEND

- SILT FENCE
- FALL OF LOTS
- BATTER
- STAGE BOUNDARY
- DESIGN SURFACE CONTOURS (0.2m INTERVAL)
- EXISTING SURFACE CONTOURS (0.2m INTERVAL)
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING WATER
- GROUTED STONE PITCHING SCOUR PROTECTION (10m² NOMINAL)
- ROCK CHECK DAM
- PIT PROTECTION MEASURES
- BATTER BUND
- VISQUEEN LINED BATTER CHUTE

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Rev	Date	Revision Notes
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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

SITE BASED STORMWATER MANAGEMENT PLAN
PHASE 2: EARTHWORKS

Drawn	Design	Check'd	Appr'd	26102	A3 Full Size (Scale as shown)
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23

026-2201-03-DRG-0702 A

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NOTE

FOR PROJECT NOTES REFER TO DRG-0102.

LEGEND

- SILT FENCE
- PIT PROTECTION MEASURES
- STORMWATER DRAINAGE PIPE
- KERB INLET PIT
- HEADWALL
- FALL OF LOTS
- BATTER
- STAGE BOUNDARY
- DESIGN SURFACE CONTOURS (0.2m INTERVAL)
- EXISTING SURFACE CONTOURS (0.2m INTERVAL)
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING WATER
- TIMBER FENCE
- GROUTED STONE PITCHING SCOUR PROTECTION (10m² NOMINAL)
- ROCK CHECK DAM
- BATTER BUND
- TURF STRIPS
- VISQUEEN LINED BATTER CHUTE

BAYIL DRIVE

MELALEUCA DRIVE

COOYA BEACH ROAD

ROAD F

STAGE 3B

STAGE 3A2

SITE ACCESS SHAKER GRID 5m LONG x 3m WIDE

SEDIMENT BASIN

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

SITE BASED STORMWATER MANAGEMENT PLAN
PHASE 3: ROADWORKS

Drawn	Design	Check'd	Appr'd	2D/3D	A3 Full Size (Scale as shown)		
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0703	A

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NOTE

FOR PROJECT NOTES REFER TO DRG-0102.

LEGEND

- STAGE BOUNDARY
- PROPOSED STORMWATER DRAINAGE
- PROPOSED SEWER
- PROPOSED WATER MAIN
- PROPOSED ELECTRICAL (TBA)
- EXISTING WATER
- EXISTING STORMWATER
- EXISTING SEWER

BAYIL DRIVE

MELALEUCA DRIVE

COOYA BEACH ROAD

ROAD F

STAGE 3B

STAGE 3A2

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

MASTER SERVICES PLAN

Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)		
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0801	A

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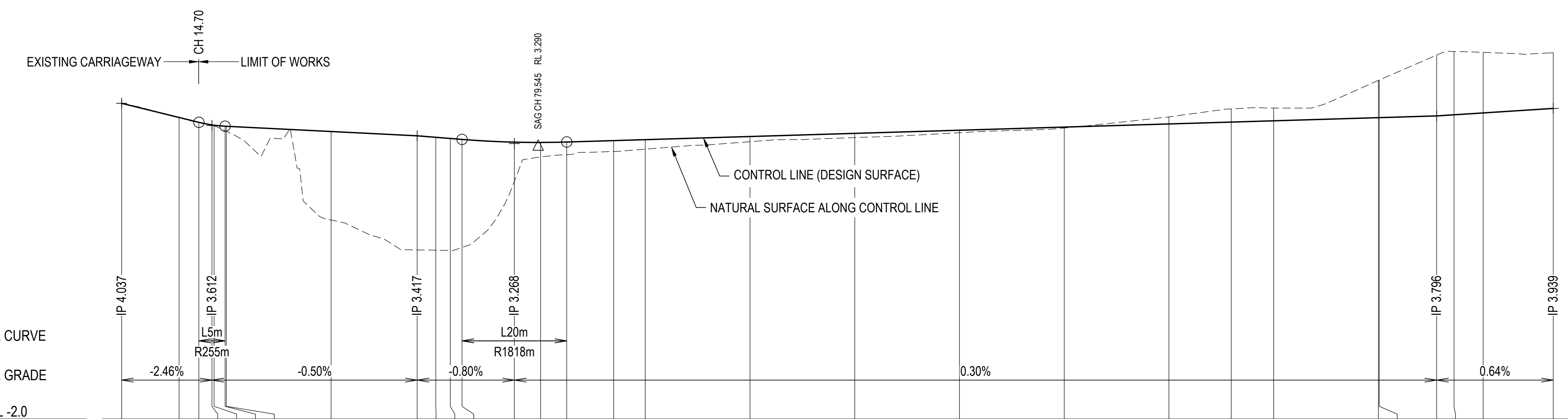

CHAINAGE	CUT - FILL +	DESIGN SURFACE LEVEL	EXISTING SURFACE LEVEL
0.000	-0.001	4.037	4.039
10.971	0.004	3.767	3.763
14.749	0.006	3.674	3.668
17.249	0.009	3.625	3.615
17.656	0.014	3.619	3.605
19.749	0.086	3.600	3.514
20.000	0.096	3.599	3.502
40.000	1.690	3.499	1.809
56.434	2.179	3.417	1.237
60.000	2.156	3.388	1.232
62.759	2.139	3.366	1.227
65.000	2.085	3.348	1.263
75.000	0.765	3.295	2.530
80.000	0.275	3.290	3.015
85.000	0.239	3.298	3.059
93.948	0.208	3.325	3.117
100.000	0.182	3.343	3.161
120.000	0.099	3.403	3.304
140.000	0.080	3.463	3.383
160.000	0.047	3.523	3.476
180.000	0.018	3.583	3.565
200.000	-0.135	3.643	3.778
211.889	-0.252	3.679	3.931
220.000	-0.244	3.703	3.947
240.000	-0.711	3.763	4.474
240.158	-0.718	3.763	4.481
251.124	-1.162	3.796	4.958
254.450	-1.210	3.818	5.027
260.000	-1.159	3.853	5.012
273.389	-1.064	3.939	5.003

HORIZONTAL DATA: R-14m (10.971–17.656); R15m (62.759–93.948); R18m (211.889–240.158); R35m (254.450–273.389)

LONGITUDINAL SECTION ROAD F

SCALE 1:1000H
1:100V

1:100 0 1 2 3 4
1:1000 0 10 20 30 40

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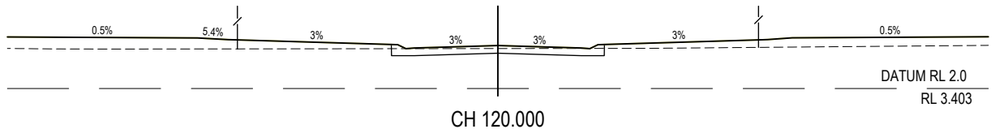
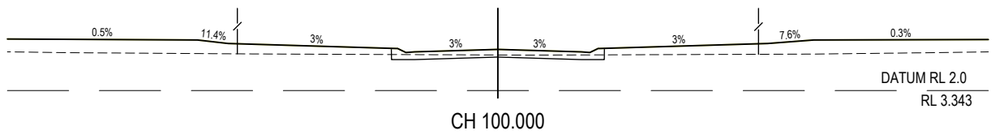
OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

ROAD LONGITUDINAL SECTION
ROAD F

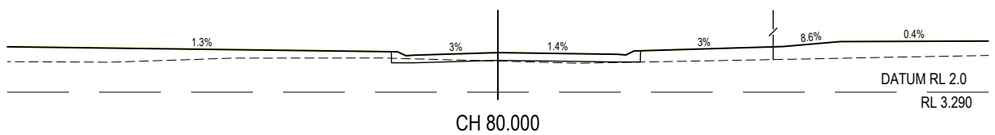
Drawn	Design	Check'd	Apprv'd	25102	A3 Full Size (Scale as shown)		
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0901	A



CH 120.000



CH 100.000



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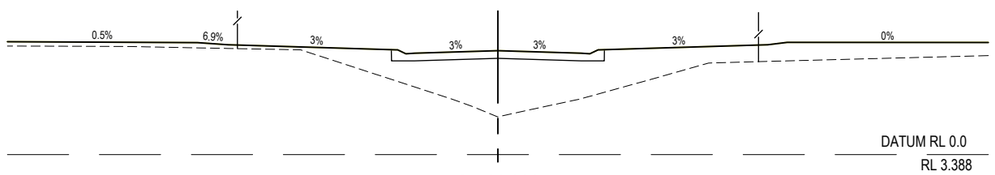

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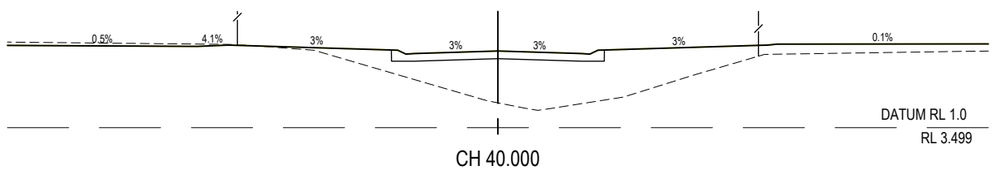

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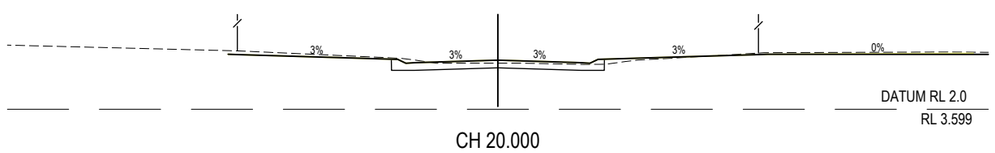

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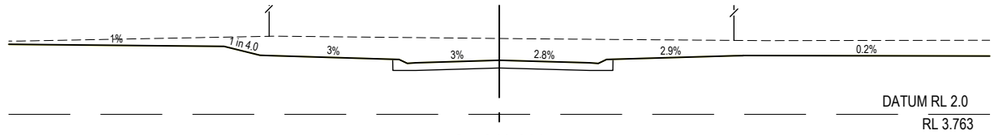
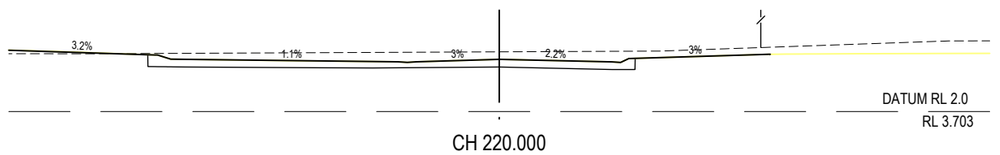


CH 240.000



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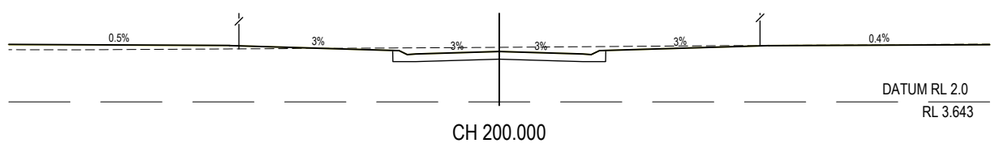

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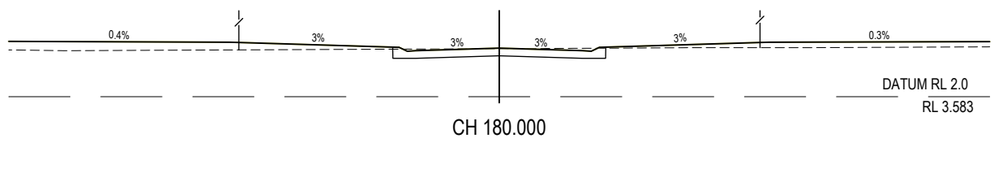

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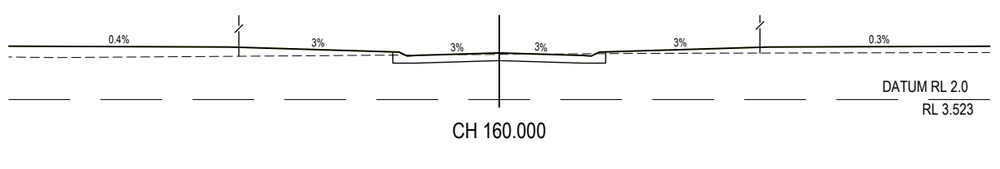

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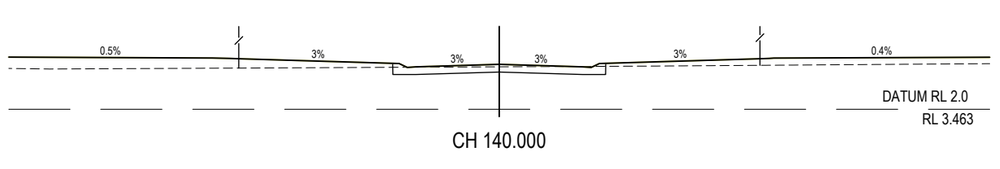

CH 140.000

1:200 0 2 4 6 8

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OCEAN BREEZE ESTATE - COOYA BEACH - STAGE 3A2 & 3B

ROAD CROSS SECTIONS
ROAD F

Drawn	Design	Check'd	Appov'd	25102	A3 Full Size (Scale as shown)	
PAM	PAM	CJC	CJC	C.J.CAPLICK	11.06.23	026-2201-03-DRG-0902 A

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