



AGENDA

GENERAL MEETING

**Wednesday, 16 March 2022
commencing at 9:30am**

**The Council Chambers
91 - 93 Bloomfield Street
CLEVELAND QLD**

Due to the current COVID-19 situation in Queensland, Council will exercise the provisions under Chapter 8 - Part 2, Division 4 of the Local Government Regulation 2012, which allows for some or all Councillors to attend Statutory Meetings of Council by audio visual arrangements to minimise serious risks to the health and safety of persons caused by the public health emergency involving COVID-19.

Statutory Meetings of Council will remain closed to the public, with the exception of Public Participation. Any members of the public wishing to address Council will need to apply via the Public Participation form on Council's website.

The audio/video of each Statutory Meeting of Council will be available on Council's website as soon as possible after the conclusion of each meeting.

Order Of Business

| | | |
|-----------|---|------------|
| 1 | Declaration of Opening..... | 4 |
| 2 | Record of Attendance and Leave of Absence..... | 5 |
| 3 | Devotional Segment | 6 |
| 4 | Recognition of Achievement..... | 7 |
| 5 | Receipt and Confirmation of Minutes | 8 |
| 6 | Declaration of Prescribed Conflict of Interests and Declarable Conflict of Interests..... | 9 |
| 7 | Matters Outstanding from Previous Council Meetings | 12 |
| 7.1 | Expressions of Interest Campaign - Redlands Coast Tourist and Community Destination, MacArthur St, Alexandra Hills..... | 12 |
| 7.2 | Notice of Motion - Cr Julie Talty - Investigation into the Purchase and Dispersal of Land on Russell Island | 13 |
| 7.3 | MCU17/0108 Shoreline Morris - Preliminary Approval (Variation Request) for a MCU to Vary Effect of RPS v7.1 | 14 |
| 8 | Mayoral Minute | 15 |
| 9 | Public Participation | 16 |
| 10 | Petitions and Presentations..... | 17 |
| 10.1 | Petition Cr Wendy Boglary - Request to Deny Vehicular Access Between Gloucester and Oak Streets, Ormiston..... | 17 |
| 11 | Motion to Alter the Order of Business | 18 |
| 12 | Reports from the Office of the CEO | 19 |
| 13 | Reports from Organisational Services | 20 |
| 13.1 | February 2022 Monthly Financial Report..... | 20 |
| 13.2 | Operational Plan Quarterly Performance Report December 2021..... | 37 |
| 14 | Reports from Community & Customer Services..... | 100 |
| 14.1 | MCU17/0108 Shoreline Morris - Preliminary Approval (Variation Request) for a MCU to Vary Effect of RPS v7.1 | 100 |
| 15 | Reports from Infrastructure & Operations | 462 |
| 15.1 | Waste Reduction and Recycling Plan 2021-2030..... | 462 |
| 16 | Notices of Intention to Repeal or Amend a Resolution | 511 |
| 17 | Notices of Motion..... | 512 |
| 18 | Urgent Business Without Notice | 513 |
| 19 | Confidential Items | 514 |
| 19.1 | Sale of Land for Overdue Rates and Charges | 514 |
| 19.2 | Quandamooka Coast Native Title Federal Court Update..... | 514 |
| 19.3 | Class Action Kozik - Update | 514 |

| | | |
|------|---|-----|
| 19.4 | Proposed Stormwater Improvement Works Program | 514 |
| 20 | Meeting Closure | 515 |

1 DECLARATION OF OPENING

On establishing there is a quorum, the Mayor will declare the meeting open.

Recognition of the Traditional Owners

Council acknowledges the Quandamooka people who are the traditional custodians of the land on which we meet. Council also pays respect to their elders, past and present, and extends that respect to other indigenous Australians who are present.

2 RECORD OF ATTENDANCE AND LEAVE OF ABSENCE

Motion is required to approve leave of absence for any Councillor absent from today's meeting.

3 DEVOTIONAL SEGMENT

Member of the Ministers' Fellowship will lead Council in a brief devotional segment.

4 RECOGNITION OF ACHIEVEMENT

Mayor to present any recognition of achievement items.

5 RECEIPT AND CONFIRMATION OF MINUTES

General Meeting - 16 February 2022.

6 DECLARATION OF PRESCRIBED CONFLICT OF INTERESTS AND DECLARABLE CONFLICT OF INTERESTS

Councillors are reminded of their responsibilities in relation to a Councillor's Prescribed Conflict of Interest and Declarable Conflict of Interest at a meeting. For full details see Chapter 5B of the *Local Government Act 2009*.

In summary:

Obligation of Councillor with Prescribed Conflict of Interest

Section 150EL of the *Local Government Act 2009* requires Councillors to declare a Prescribed Conflict of Interest in a matter as soon as they become aware of their interest in the matter, either:

- (1) *at a local government meeting, or*
- (2) *as soon as practicable, by giving the Chief Executive Officer written notice of the prescribed conflict of interest.*
- (3) The declaration must include the following particulars:
 - (a) *For a gift, loan or contract – the value of the gift, loan or contract;*
 - (b) *For an application for which a submission has been made – the matters the subject of the application and submission;*
 - (c) *The name of any entity, other than the Councillor, that has an interest in the matter;*
 - (d) *The nature of the Councillor's relationship with the entity mentioned in (c) above;*
 - (e) *Details of the Councillor's, and any other entity's, interest in the matter.*

Dealing with Prescribed Conflict of Interest at a Meeting

Pursuant to section 150EM of the *Local Government Act 2009*, if a Councillor declares a Prescribed Conflict of Interest in a matter, ***the Councillor must leave the place at which the meeting is being held, including any area set aside for the public, and stay away from the place while the matter is discussed and voted on.***

Obligation of Councillor with Declarable Conflict of Interest

Section 150EQ of the *Local Government Act 2009* requires Councillors to declare a Declarable Conflict of Interest in a matter as soon as they become aware of their interest in the matter, either:

- (1) *at a local government meeting, or*
- (2) *as soon as practicable, by giving the Chief Executive Officer written notice of the declarable conflict of interest.*
- (3) The declaration must include the following particulars:
 - (a) *The nature of the declarable conflict of interest;*
 - (b) *If the declarable conflict of interest arises because of the councillor's relationship with a related party:*
 - (i) *The name of the related party; and*
 - (ii) *The nature of the relationship of the related party to the Councillor; and*
 - (iii) *The nature of the related party's interests in the matter;*

- (c) *If the Councillor's or related party's personal interests arise because of the receipt of a gift or loan from another person:*
- (i) *The name of the other person; and*
 - (ii) *The nature of the relationship of the other person to the Councillor or related party; and*
 - (iii) *The nature of the other person's interests in the matter; and*
 - (iv) *The value of the gift or loan, and the date the gift was given or loan was made.*

Procedure if Councillor has Declarable Conflict of Interest

Pursuant to Section 150ES of the *Local Government Act 2009*, eligible Councillors at the meeting must, by resolution, decide whether the Councillor who has declared the interest:

- (1) *May participate in a decision about the matter at the meeting, including by voting on the matter; or*
- (2) *Must leave the place at which the meeting is being held, including any area set aside for the public, and stay away from the place while the eligible Councillors discuss and vote on the matter.*

Duty to report another Councillor's Prescribed Conflict of Interest or Declarable Conflict of Interest

Pursuant to section 150EW of the *Local Government Act 2009*, a Councillor who reasonably believes or reasonably suspects another Councillor has a Prescribed Conflict of Interest or a Declarable Conflict of Interest in a matter must:

- (1) *Immediately inform the person who is presiding at the meeting about the belief or suspicion; or*
- (2) *As soon as practicable, inform the Chief Executive Officer of the belief or suspicion.*

The Councillor must also inform the person presiding, or the Chief Executive Officer, of the facts and circumstances forming the basis of the belief or suspicion.

Record of Prescribed and Declarable Conflicts of Interest

Where a Councillor informs the meeting of a Prescribed or Declarable Conflict of Interest, section 150FA of the *Local Government Act 2009* requires the following information to be recorded in the minutes of the meeting:

- (1) The name of the Councillor who may have a prescribed or declarable conflict of interest in the matter;
- (2) The particulars of the prescribed or declarable conflict of interest;
- (3) If another Councillor informs the meeting of a belief of suspicion, about another Councillor's Conflict of Interest:
 - (a) The action the Councillor takes;
 - (b) Any decision by eligible Councillors; and
 - (c) The name of each eligible Councillor who voted in relation to whether the Councillor has a declarable conflict of Interest, and how each eligible Councillor voted.
- (4) Whether the Councillor participated in deciding the matter, or was present for deciding the matter;
- (5) For a matter to which the Prescribed or Declarable Conflict of Interest relates:
 - (a) *The name of the Councillor who has declared the conflict of interest;*

- (b) The nature of the personal interest, as described by the Councillor;*
 - (c) The decision made;*
 - (d) Whether the Councillor participated in the meeting under an approval by the Minister;*
 - (e) If the Councillor voted on the matter, how they voted; and*
 - (f) How the majority of Councillors voted on the matter.*
- (6) If the Councillor has a Declarable Conflict of Interest, in addition to the information above, the following information must be recorded in the minutes:
- (a) The decision and reasons for the decision as to whether the Councillor with the Declarable Conflict of Interest may participate in the decision, or must not participate in the decision; and
 - (b) The name of each eligible Councillor who voted on the decision, and how the eligible Councillor voted.

7 MATTERS OUTSTANDING FROM PREVIOUS COUNCIL MEETINGS

7.1 EXPRESSIONS OF INTEREST CAMPAIGN - REDLANDS COAST TOURIST AND COMMUNITY DESTINATION, MACARTHUR ST, ALEXANDRA HILLS

At the General Meeting 2 December 2020 (Item 19.2 refers), Council resolved as follows:

That Council resolves as follows:

- 1. To note the outcomes of the Expressions of Interest Campaign for a Tourist Park and associated community uses that has now finished, and that no tourism-related proposals were received.*
- 2. To hold discussions with proponents of non-tourism related purposes to understand how other proposals may fit into the planning for development of the land that align with Council's policies and plans.*
- 3. To workshop with Councillors, the outcome of these discussions.*
- 4. To provide a further report to Council in regards to the site upon completion of item 3 above.*
- 5. That this report and attachments remain confidential to ensure proposed commercial arrangements and details pertaining to individuals are kept private, subject to maintaining the confidentiality of legally privileged and commercial in confidence information.*

A report will be brought to a future meeting of Council.

7.2 NOTICE OF MOTION - CR JULIE TALTY - INVESTIGATION INTO THE PURCHASE AND DISPERSAL OF LAND ON RUSSELL ISLAND

At the General Meeting 19 January 2022 (Item 17.2 refers), Council resolved as follows:

That Council resolves that a confidential report be tabled at a future General Meeting of Council, investigating the purchase and dispersal of land on Russell Island.

A report will be brought to a future meeting of Council.

**7.3 MCU17/0108 SHORELINE MORRIS - PRELIMINARY APPROVAL (VARIATION REQUEST)
FOR A MCU TO VARY EFFECT OF RPS V7.1**

At the General Meeting 16 February 2022 (Item 14.1 refers), Council resolved as follows:

That the matter be deferred to the General Meeting 16 March 2022.

A report addressing this matter is listed as Item 14.1 of this agenda.

8 MAYORAL MINUTE

In accordance with s.6.9 of Council Meeting Standing Orders, the Mayor may put to the meeting a written motion called a 'Mayoral Minute', on any matter. Such motion may be put to the meeting without being seconded, may be put at that stage in the meeting considered appropriate by the Mayor and once passed becomes a resolution of Council.

9 PUBLIC PARTICIPATION

In accordance with s.6.10 Council Meeting Standing Orders:

1. In each meeting (other than special meetings), a period of 15 minutes may be made available by resolution to permit members of the public to address the local government on matters of public interest relating to the local government. This period may be extended by resolution.
2. Written applications to the CEO must be received no later than midday on the Monday preceding the meeting.
3. The time allocated to each speaker shall be a maximum of five minutes. The chairperson, at his/her discretion, has authority to withdraw the approval to address Council before the time period has elapsed.
4. The chairperson will consider each application on its merits and may consider any relevant matter in his/her decision to allow or disallow a person to address the local government, e.g.
 - a) Whether the matter is of public interest;
 - b) The number of people who wish to address the meeting about the same subject
 - c) The number of times that a person, or anyone else, has addressed the local government previously about the matter;
 - d) The person's behaviour at that or a previous meeting; and
 - e) If the person has made a written application to address the meeting.
5. Any person invited to address the meeting must:
 - a) State their name and suburb, or organisation they represent and the subject they wish to speak about;
 - b) Stand (unless unable to do so);
 - c) Act and speak with decorum;
 - d) Be respectful and courteous; and
 - e) Make no comments directed at any individual Council employee, Councillor or member of the public, ensuring that all comments relate to Council as a whole.

10 PETITIONS AND PRESENTATIONS

Councillors may present petitions or make presentations under this section.

10.1 PETITION CR WENDY BOGLARY - REQUEST TO DENY VEHICULAR ACCESS BETWEEN GLOUCESTER AND OAK STREETS, ORMISTON

In accordance with s6.1.1 of Council Meeting Standing Orders, Cr Wendy Boglary will present the petition and motion as follows:

That the petition is of an operational nature and be received and referred to the Chief Executive Officer for consideration.

11 MOTION TO ALTER THE ORDER OF BUSINESS

The order of business may be altered for a particular meeting where the Councillors at that meeting pass a motion to that effect. Any motion to alter the order of business may be moved without notice.

12 REPORTS FROM THE OFFICE OF THE CEO

Nil

13 REPORTS FROM ORGANISATIONAL SERVICES

13.1 FEBRUARY 2022 MONTHLY FINANCIAL REPORT

Objective Reference: A6481304

Authorising Officer: Deborah Corbett-Hall, Chief Financial Officer

Responsible Officer: Deborah Corbett-Hall, Chief Financial Officer

Report Author: Udaya Panambala Arachchilage, Corporate Financial Reporting Manager

Attachments: 1. Monthly Financial Report RCC Feb 22 [↓](#)

PURPOSE

To note the year to date financial results as at 28 February 2022.

BACKGROUND

Council adopts an annual budget and then reports on performance against the budget on a monthly basis. This is not only a legislative requirement but enables the organisation to periodically review its financial performance and position and respond to changes in community requirements, market forces or other outside influences.

ISSUES

Monitoring of the capital program progress

As mentioned in the risk management section below, the Executive Leadership Team reviews the progress of the capital program on a regular basis. For nearly two years, the global pandemic has played a role in the procurement lead time, availability of contractors and price of materials. Constant focus, review and mitigation where possible is occurring by the organisation's senior leaders and these factors are considerations when management reviews the organisation risk registers.

2021-22 Budget review

Council adopted its revised budget at the General Meeting on 16 February 2022 and the revised budget numbers are reflected in this report.

Interim audit 2021-2022

The 2021-2022 Queensland Audit Office (QAO) interim audit commenced on 7 March and is expected to be completed by 25 March. As per previous years, this visit affords the opportunity for interim reviews to be undertaken on Council's systems and controls. The interim management report will be reviewed as part of the 2021-2022 year-end audit.

STRATEGIC IMPLICATIONS

Council has either achieved or favourably exceeded the following key financial stability and sustainability ratios as at the end of February 2022.

- Operating surplus ratio
- Net financial liabilities
- Level of dependence on general rate revenue
- Ability to pay our bills – current ratio

- Ability to repay our debt – debt servicing ratio
- Cash balance
- Cash balances – cash capacity in months
- Longer term financial stability – debt to asset ratio
- Interest coverage ratio
- Operating performance

The following ratio did not meet the target at the end of February 2022:

- Asset sustainability ratio

The asset sustainability ratio continues to be a stretch target for Council with renewal spends of \$17.95M and depreciation expense of \$38.8M year to date on infrastructure assets. This ratio is an indication of how Council currently maintains, replaces and renews its existing infrastructure assets as they reach the end of their useful lives. Capital spend on non-renewal projects increases the asset base and therefore increases depreciation expense, resulting in a lower asset sustainability ratio.

Council's Capital Portfolio Prioritisation Administrative Directive demonstrates its commitment to maintaining existing infrastructure and the adoption of a renewal strategy for its existing assets ahead of 'upgrade' and/or 'new' works.

Legislative Requirements

The February 2022 financial report is presented in accordance with the legislative requirement of section 204(2) of the *Local Government Regulation 2012*, requiring the Chief Executive Officer to present the financial report to a monthly Council meeting.

Risk Management

The February 2022 financial report has been noted by the Executive Leadership Team and relevant officers who can provide further clarification and advice around actual to budget variances.

Financial

There is no direct financial impact to Council as a result of this report; however it provides an indication of financial outcomes at the end of February 2022.

People

Nil impact expected as the purpose of the attached report is to provide financial information to Council based upon actual versus budgeted financial activity.

Environmental

Nil impact expected as the purpose of the attached report is to provide financial information to Council based upon actual versus budgeted financial activity.

Social

Nil impact expected as the purpose of the attached report is to provide financial information to Council based upon actual versus budgeted financial activity.

Human Rights

There are no human rights implications for this report as the purpose of the attached report is to provide financial information to Council based upon actual versus budgeted financial activity.

Alignment with Council's Policy and Plans

This report has a relationship with the following items of Council's *Our Future Redlands – A Corporate Plan to 2026 and Beyond*:

Efficient and effective organisation objectives

- 7.1 Improve the efficiency and effectiveness of Council's service delivery to decrease costs, and enhance customer experience and community outcomes.
- 7.4 Demonstrate good governance through transparent, accountable processes and sustainable practices and asset management.

CONSULTATION

| Consulted | Date | Comment |
|--|----------------------------|---|
| Council departmental officers | Year to date February 2022 | Consulted on financial results and outcomes. |
| Financial Services Group officers | Year to date February 2022 | Consulted on financial results and outcomes. |
| Executive Leadership Team and Senior Leadership Team | Year to date February 2022 | Recipients of variance analysis between actual and budget. Consulted as required. |

OPTIONS**Option One**

That Council resolves to note the financial position, results and ratios for February 2022 as presented in the attached Monthly Financial Report.

Option Two

That Council resolves to request additional information.

OFFICER'S RECOMMENDATION

That Council resolves to note the financial position, results and ratios for February 2022 as presented in the attached Monthly Financial Report.

Monthly Financial Report



Monthly Financial Report

February 2022



Monthly Financial Report

CONTENTS

| | |
|--|----|
| 1. Executive Summary | 2 |
| 2. Key Performance Indicators | 3 |
| 3. Statement of Comprehensive Income | 4 |
| 4. Statement of Financial Position | 6 |
| 5. Statement of Cash Flows | 8 |
| 6. Capital Expenditure | 9 |
| 7. Program and Project Update | 9 |
| 8. Investment & Borrowings Report | 10 |
| 9. Constrained Cash Reserves | 11 |
| 10. City Water Statements | 12 |
| 11. City Waste Statements | 12 |
| 12. Appendix: Additional and Non-financial Information | 13 |
| 13. Glossary | 14 |

1. EXECUTIVE SUMMARY

This monthly report illustrates the financial performance and position of Redland City Council compared to its adopted budget at an organisational level for the period ended 28 February 2022. The year to date annual revised budget referred to in this report incorporates the changes from budget review adopted by Council on 16 February 2022.

Key Financial Highlights and Overview

| Key Financial Results (\$000) | Annual Revised Budget | YTD Budget | YTD Actual | YTD Variance | YTD Variance % | Status Favourable ✓ Unfavourable ✗ |
|---------------------------------|-----------------------|------------|----------------|--------------|----------------|--|
| Operating Surplus / (Deficit) | (386) | 22,180 | 27,950 | 5,770 | 26% | ✓ |
| Recurrent Revenue | 314,224 | 226,052 | 223,659 | (2,393) | -1% | ✗ |
| Recurrent Expenditure | 314,610 | 203,872 | 195,709 | (8,163) | -4% | ✓ |
| Capital Works Expenditure | 106,621 | 55,904 | 35,873 | (20,031) | -36% | ✓ |
| Closing Cash & Cash Equivalents | 195,979 | 220,050 | 226,504 | 6,454 | 3% | ✓ |

Council reported a year to date operating surplus of \$27.95M which is favourable to budget by \$5.77M mainly on account of lower than budgeted expenditure on materials and services and lower depreciation due to timing of asset capitalisations, offset by lower levies and utility charges.

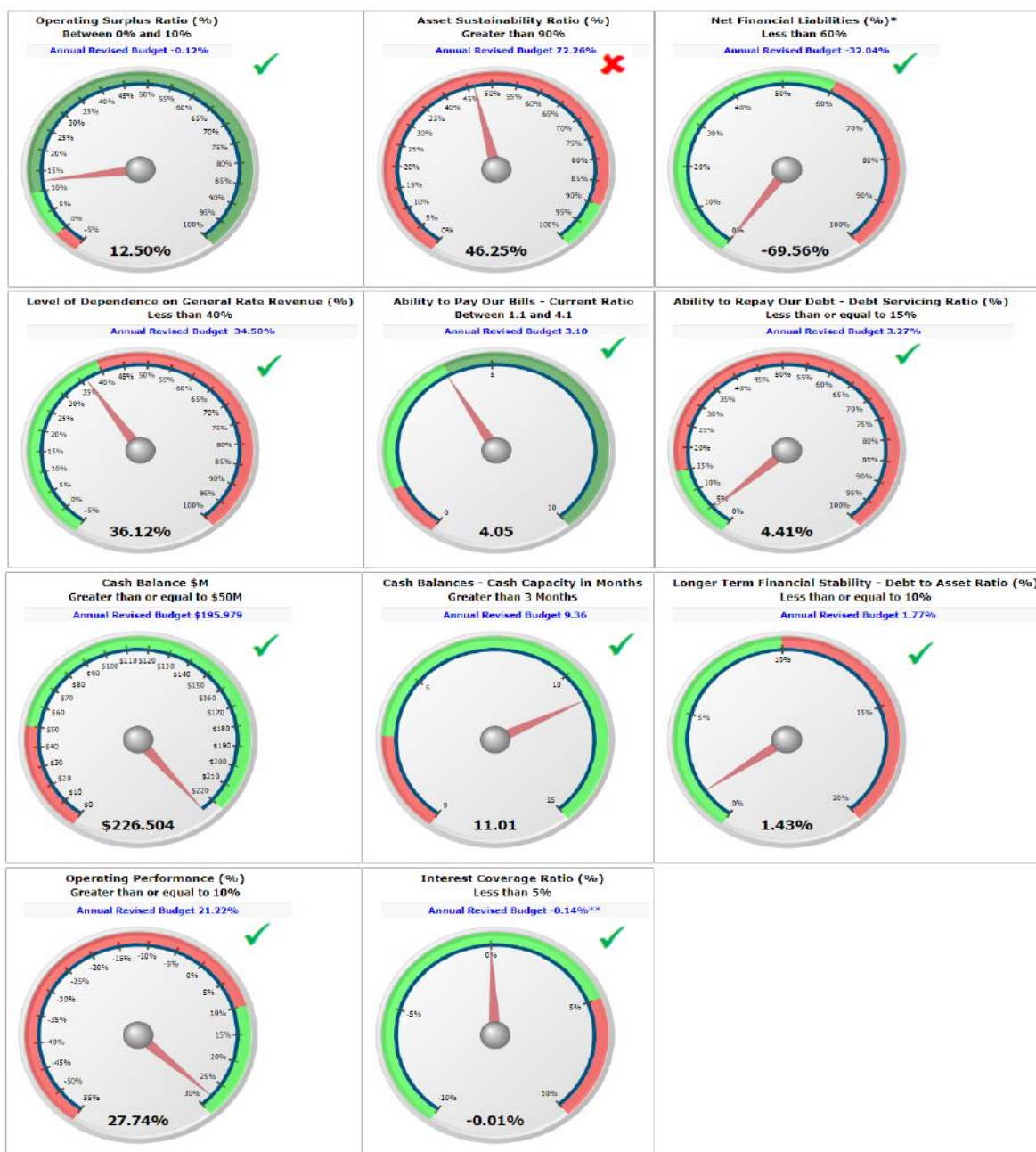
The Infrastructure and Operations (I&O) Department presented a briefing to Council that addressed the supply chain issues that are contributing to forecast underspends to the FY2021-22 capital works portfolio. This briefing included mitigation strategies that addressed the risks to delivering the capital works which was agreed to and resolved by Council at the General Meeting held on 20 October 2021.

Council's cash balance is over budget mainly due to higher capital grants, subsidies and contributions, lower payments for property, plant and equipment, offset by lower than expected receipts from the customers and higher than expected payments to suppliers. Constrained cash reserves represent 52% of the cash balance.

Monthly Financial Report

2. KEY PERFORMANCE INDICATORS

■ Target met
 ■ Target exceeded
 ■ Target not met



* The net financial liabilities ratio exceeds the target range when current assets are greater than total liabilities (and the ratio is negative)

** The interest coverage ratio exceeds the target range when interest revenue is greater than interest expense (and the ratio is negative)

Monthly Financial Report

3. STATEMENT OF COMPREHENSIVE INCOME

| STATEMENT OF COMPREHENSIVE INCOME | | | | | |
|---|---------------------------------------|--------------------------------------|------------------------|------------------------|--------------------------|
| For the period ending 28 February 2022 | | | | | |
| | Annual Original Budget \$000 | Annual Revised Budget \$000 | YTD Budget \$000 | YTD Actual \$000 | YTD Variance \$000 |
| Recurrent revenue | | | | | |
| Rates charges | 111,574 | 111,650 | 83,377 | 83,081 | (296) |
| Levies and utility charges | 170,378 | 170,378 | 120,387 | 118,005 | (2,382) |
| Less: Pensioner remissions and rebates | (3,486) | (3,486) | (2,579) | (2,654) | (75) |
| Fees | 15,337 | 17,797 | 11,897 | 12,037 | 140 |
| Rental income | 1,067 | 1,214 | 846 | 931 | 85 |
| Interest received | 2,037 | 2,016 | 1,277 | 1,091 | (186) |
| Sales revenue | 3,682 | 4,147 | 2,900 | 3,235 | 335 |
| Other income | 469 | 546 | 482 | 622 | 140 |
| Grants, subsidies and contributions | 9,496 | 9,962 | 7,465 | 7,311 | (154) |
| Total recurrent revenue | 310,554 | 314,224 | 226,052 | 223,659 | (2,393) |
| Recurrent expenses | | | | | |
| Employee benefits | 97,172 | 97,872 | 64,309 | 64,125 | (184) |
| Materials and services | 145,459 | 148,858 | 94,347 | 88,334 | (6,013) |
| Finance costs | 2,007 | 2,007 | 1,273 | 1,240 | (33) |
| Depreciation and amortisation | 67,563 | 67,563 | 45,044 | 43,141 | (1,903) |
| Other expenditure | 522 | 522 | 342 | 349 | 7 |
| Net internal costs | (2,213) | (2,213) | (1,443) | (1,480) | (37) |
| Total recurrent expenses | 310,511 | 314,610 | 203,872 | 195,709 | (8,163) |
| OPERATING SURPLUS / (DEFICIT) | 43 | (386) | 22,180 | 27,950 | 5,770 |
| Capital revenue | | | | | |
| Grants, subsidies and contributions | 22,133 | 30,721 | 10,061 | 11,698 | 1,637 |
| Non-cash contributions | 2,461 | 2,461 | 1,602 | 30 | (1,572) |
| Total capital revenue | 24,594 | 33,182 | 11,663 | 11,728 | 65 |
| Capital expenses | | | | | |
| (Gain) / loss on disposal of non-current assets | 289 | (50) | (243) | 322 | 565 |
| Total capital expenses | 289 | (50) | (243) | 322 | 565 |
| TOTAL INCOME | 335,148 | 347,407 | 237,715 | 235,387 | (2,328) |
| TOTAL EXPENSES | 310,799 | 314,560 | 203,629 | 196,031 | (7,598) |
| NET RESULT | 24,349 | 32,847 | 34,086 | 39,356 | 5,270 |
| Other comprehensive income / (loss) | | | | | |
| Items that will not be reclassified to a net result | | | | | |
| Revaluation of property, plant and equipment | - | - | - | - | - |
| TOTAL COMPREHENSIVE INCOME | 24,349 | 32,847 | 34,086 | 39,356 | 5,270 |

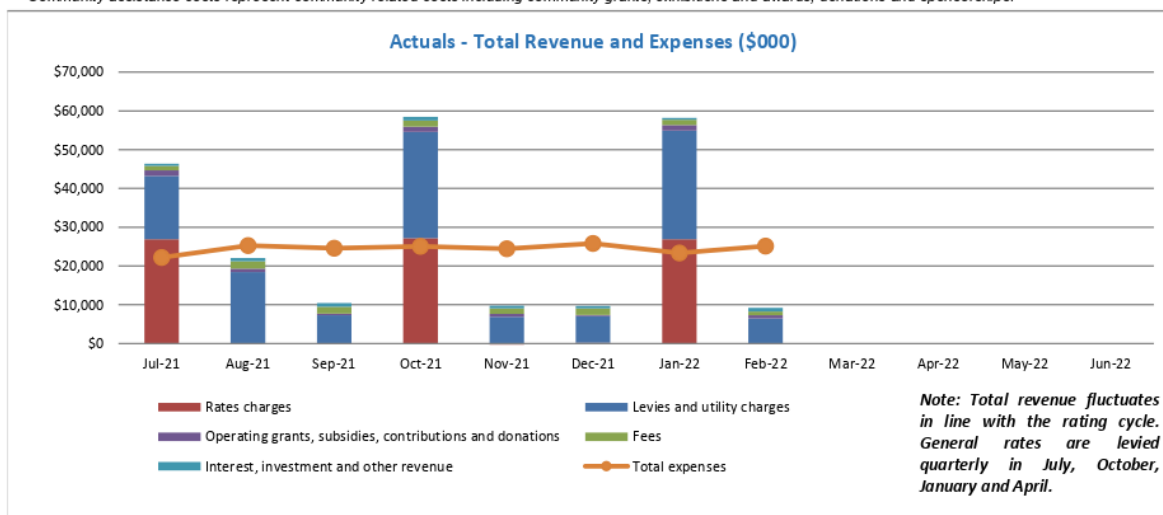
Monthly Financial Report

3. STATEMENT OF COMPREHENSIVE INCOME - CONTINUED

| LEVIES AND UTILITY CHARGES ANALYSIS | | | | | |
|---|----------------|----------------|----------------|----------------|----------------|
| For the period ending 28 February 2022 | | | | | |
| | Annual | Annual | YTD | YTD | YTD |
| | Original | Revised | Budget | Actual | Variance |
| | Budget | Budget | \$000 | \$000 | \$000 |
| | \$000 | \$000 | | | |
| Levies and utility charges | | | | | |
| Refuse collection rate charge | 30,931 | 30,931 | 20,526 | 20,613 | 87 |
| SES separate charge | 514 | 514 | 385 | 384 | (1) |
| Environment separate charge | 10,802 | 10,802 | 8,006 | 8,057 | 51 |
| Separate charge landfill remediation | 3,473 | 3,473 | 2,605 | 2,590 | (15) |
| Wastewater charges | 50,354 | 50,354 | 37,614 | 37,705 | 91 |
| Water access charges | 20,949 | 20,949 | 15,690 | 15,630 | (60) |
| Water consumption charges | 53,355 | 53,355 | 35,561 | 33,026 | (2,535) |
| Total levies and utility charges | 170,378 | 170,378 | 120,387 | 118,005 | (2,382) |
| MATERIALS AND SERVICES ANALYSIS | | | | | |
| For the period ending 28 February 2022 | | | | | |
| | Annual | Annual | YTD | YTD | YTD |
| | Original | Revised | Budget | Actual | Variance |
| | Budget | Budget | \$000 | \$000 | \$000 |
| | \$000 | \$000 | | | |
| Materials and services | | | | | |
| Contractors | 37,447 | 39,148 | 20,584 | 20,590 | 6 |
| Consultants | 2,775 | 4,654 | 2,578 | 1,450 | (1,128) |
| Other Council outsourcing costs* | 26,444 | 24,749 | 15,448 | 13,941 | (1,507) |
| Purchase of materials | 54,490 | 55,823 | 36,204 | 33,866 | (2,338) |
| Office administration costs | 7,194 | 7,376 | 8,124 | 7,558 | (566) |
| Electricity charges | 5,723 | 5,750 | 3,829 | 3,693 | (136) |
| Plant operations | 3,458 | 3,481 | 2,203 | 2,202 | (1) |
| Information technology resources | 3,685 | 3,685 | 2,628 | 2,572 | (56) |
| General insurance | 1,467 | 1,399 | 910 | 932 | 22 |
| Community assistance** | 1,716 | 1,736 | 1,146 | 835 | (311) |
| Other material and service expenses | 1,057 | 1,057 | 693 | 695 | 2 |
| Total materials and services | 145,459 | 148,858 | 94,347 | 88,334 | (6,013) |

* Other Council outsourcing costs are various outsourced costs including refuse collection and disposal, waste disposal, legal services, traffic control, external training, valuation fees, etc.

** Community assistance costs represent community related costs including community grants, exhibitions and awards, donations and sponsorships.



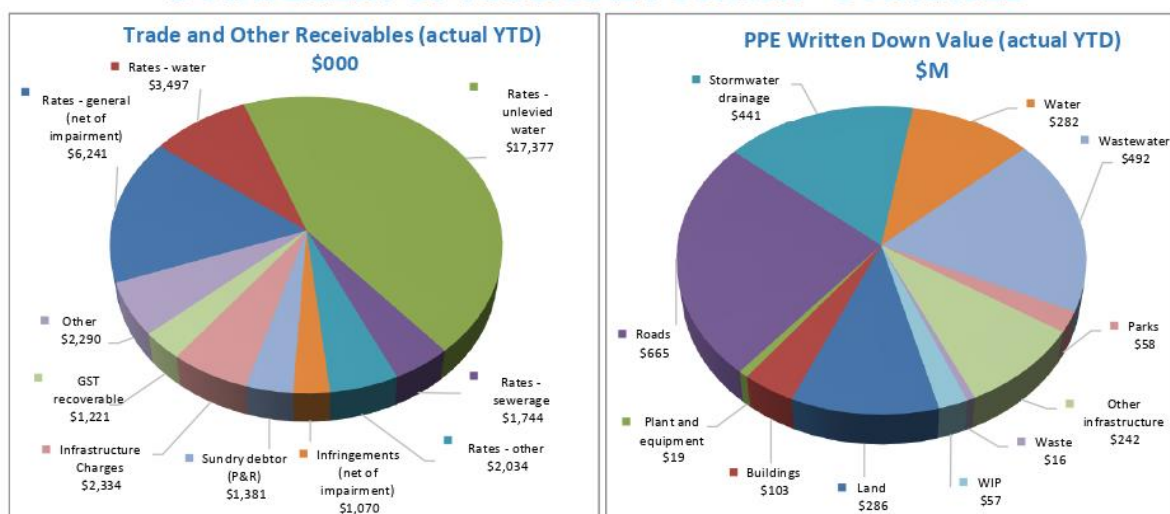
Monthly Financial Report

4. STATEMENT OF FINANCIAL POSITION

| STATEMENT OF FINANCIAL POSITION As at 28 February 2022 | | | | |
|---|-----------------------------|----------------------------|------------------|------------------|
| | Annual | Annual | YTD | YTD |
| | Original Budget \$000 | Revised Budget \$000 | Budget \$000 | Actual \$000 |
| CURRENT ASSETS | | | | |
| Cash and cash equivalents | 198,990 | 195,979 | 220,050 | 226,504 |
| Short-term investment - CBA | - | - | 10,000 | 10,068 |
| Trade and other receivables | 42,672 | 43,012 | 44,143 | 39,189 |
| Inventories | 916 | 1,024 | 971 | 765 |
| Other current assets | 1,810 | 4,967 | 4,967 | 3,284 |
| Total current assets | 244,389 | 244,982 | 280,131 | 279,810 |
| NON-CURRENT ASSETS | | | | |
| Investment property | 1,225 | 1,225 | 1,225 | 1,225 |
| Property, plant and equipment | 2,619,909 | 2,709,572 | 2,680,545 | 2,660,643 |
| Intangible assets | 1,135 | 1,160 | 1,341 | 1,345 |
| Right-of-use assets | 4,723 | 4,984 | 5,330 | 5,324 |
| Other financial assets | 73 | 73 | 73 | 73 |
| Investment in other entities | 12,657 | 12,657 | 12,657 | 12,657 |
| Total non-current assets | 2,639,722 | 2,729,671 | 2,701,171 | 2,681,267 |
| TOTAL ASSETS | 2,884,111 | 2,974,652 | 2,981,302 | 2,961,077 |
| CURRENT LIABILITIES | | | | |
| Trade and other payables | 37,171 | 45,927 | 50,140 | 32,970 |
| Borrowings - current | 8,326 | 8,919 | 8,919 | 8,919 |
| Lease liability - current | 1,294 | 1,130 | 1,130 | 1,130 |
| Provisions - current | 15,270 | 17,207 | 14,971 | 15,269 |
| Other current liabilities | 1,911 | 5,758 | 20,777 | 10,815 |
| Total current liabilities | 63,972 | 78,941 | 95,937 | 69,103 |
| NON-CURRENT LIABILITIES | | | | |
| Borrowings - non-current | 38,659 | 37,990 | 27,254 | 27,215 |
| Lease liability - non-current | 4,377 | 4,704 | 5,084 | 5,066 |
| Provisions - non-current | 21,539 | 22,675 | 21,446 | 22,840 |
| Total non-current liabilities | 64,576 | 65,370 | 53,784 | 55,121 |
| TOTAL LIABILITIES | 128,547 | 144,311 | 149,721 | 124,224 |
| NET COMMUNITY ASSETS | 2,755,563 | 2,830,341 | 2,831,581 | 2,836,853 |
| COMMUNITY EQUITY | | | | |
| Asset revaluation surplus | 1,035,840 | 1,106,353 | 1,106,353 | 1,106,353 |
| Retained surplus | 1,619,513 | 1,620,669 | 1,615,853 | 1,611,671 |
| Constrained cash reserves | 100,210 | 103,319 | 109,375 | 118,829 |
| TOTAL COMMUNITY EQUITY | 2,755,563 | 2,830,341 | 2,831,581 | 2,836,853 |

Monthly Financial Report

4. STATEMENT OF FINANCIAL POSITION - CONTINUED



| RIGHT-OF-USE ASSETS | | | | |
|--|---------------------------------------|--------------------------------------|------------------------|-----------------------------------|
| For the period ending 28 February 2022 | | | | |
| | Annual Original Budget \$000 | Annual Revised Budget \$000 | YTD Budget \$000 | YTD Actual Balance \$000 |
| Right-of-use asset | | | | |
| Buildings | 2,109 | 2,152 | 2,345 | 2,338 |
| Land | 2,435 | 2,508 | 2,647 | 2,649 |
| Plant and Equipment | 179 | 324 | 338 | 337 |
| Closing balance | 4,723 | 4,984 | 5,330 | 5,324 |

| PROPERTY, PLANT AND EQUIPMENT (PPE) MOVEMENT* | | | | |
|--|---------------------------------------|--------------------------------------|------------------------|-----------------------------------|
| For the period ending 28 February 2022 | | | | |
| | Annual Original Budget \$000 | Annual Revised Budget \$000 | YTD Budget \$000 | YTD Actual Balance \$000 |
| PPE movement | | | | |
| Opening balance (includes WIP from previous years) | 2,614,439 | 2,667,979 | 2,667,979 | 2,667,979 |
| Acquisitions and WIP in year movement | 72,958 | 109,081 | 57,507 | 35,903 |
| Depreciation in year | (65,977) | (65,977) | (43,985) | (42,079) |
| Disposals | (1,511) | (1,511) | (956) | (1,179) |
| Other adjustments** | - | - | - | 19 |
| Closing balance | 2,619,909 | 2,709,572 | 2,680,545 | 2,660,643 |

* This table includes movement relating to property, plant and equipment only and is exclusive of intangible assets.

** Other adjustments include transfers between asset classes, revaluation adjustments, prior period adjustments and depreciation thereon.

Monthly Financial Report

5. STATEMENT OF CASH FLOWS

| STATEMENT OF CASH FLOWS For the period ending 28 February 2022 | | | | |
|--|--|---------------------------------------|-------------------------|-------------------------|
| | Annual Original Budget \$'000 | Annual Revised Budget \$'000 | YTD Budget \$'000 | YTD Actual \$'000 |
| CASH FLOWS FROM OPERATING ACTIVITIES | | | | |
| Receipts from customers | 297,941 | 301,019 | 229,916 | 218,321 |
| Payments to suppliers and employees | (246,606) | (249,290) | (155,728) | (162,661) |
| | 51,334 | 51,729 | 74,188 | 55,660 |
| Interest received | 2,037 | 2,016 | 1,277 | 1,051 |
| Rental income | 1,067 | 1,214 | 846 | 931 |
| Non-capital grants and contributions | 14,109 | 14,575 | 7,456 | 7,378 |
| Borrowing costs | (1,763) | (1,763) | (1,749) | (1,770) |
| Right-of-use assets interest expense | (131) | (131) | (87) | (84) |
| Net cash inflow / (outflow) from operating activities | 66,654 | 67,641 | 81,931 | 63,166 |
| CASH FLOWS FROM INVESTING ACTIVITIES | | | | |
| Payments for property, plant and equipment | (70,498) | (106,620) | (55,904) | (34,472) |
| Proceeds from sale of property, plant and equipment | 1,222 | 1,562 | 1,199 | 858 |
| Capital grants, subsidies and contributions | 22,133 | 30,721 | 10,061 | 14,225 |
| Other cash flows from investing activities* | 3,500 | 3,500 | 3,500 | 3,500 |
| Net cash inflow / (outflow) from investing activities | (43,642) | (70,838) | (41,144) | (15,889) |
| CASH FLOWS FROM FINANCING ACTIVITIES | | | | |
| Proceeds of borrowings | 10,324 | 10,324 | - | - |
| Repayment of borrowings | (7,243) | (7,243) | (7,212) | (7,230) |
| Right-of-use lease payment | (1,145) | (1,145) | (765) | (783) |
| Net cash inflow / (outflow) from financing activities | 1,936 | 1,936 | (7,977) | (8,013) |
| Net increase / (decrease) in cash held | 24,947 | (1,261) | 32,810 | 39,264 |
| Cash and cash equivalents at the beginning of the year | 174,043 | 197,240 | 187,240 | 187,240 |
| Cash and cash equivalents at the end of the financial year / period | 198,990 | 195,979 | 220,050 | 226,504 |

Cash Inflow (actual YTD)

| Category | Percentage |
|---|------------|
| Utility charges | 49% |
| Rates charges | 32% |
| Fees | 6% |
| Capital grants, subsidies and contributions | 6% |
| Other cash receipts | 4% |
| Operating grants and contributions | 3% |
| Interest received | 0% |

Cash Outflow (actual YTD)

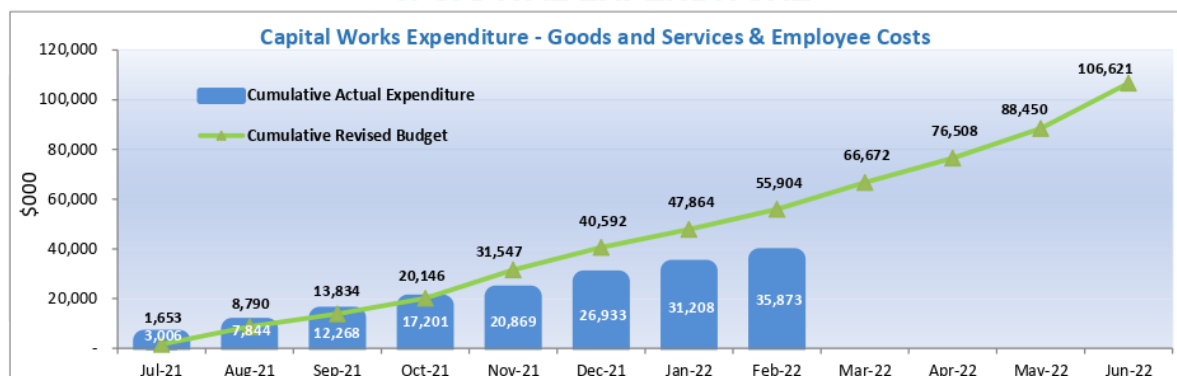
| Category | Percentage |
|--|------------|
| Materials and services | 46% |
| Employee costs | 32% |
| Payments for property, plant and equipment | 17% |
| Repayment of borrowings | 4% |
| Borrowing costs | 1% |

| | | | |
|--|----------------|--|----------------|
| Total Cash Funding (Actual YTD) | 246,264 | Total Cash Expenditure (Actual YTD) | 207,000 |
| Total Cash Funding (Annual Revised Budget) | 364,931 | Total Cash Expenditure (Annual Revised Budget) | 366,192 |
| % of Budget Achieved YTD | 67% | % of Budget Achieved YTD | 57% |

* Loan drawn down by RIC from February to June 2021 has been repaid in July 2021.

Monthly Financial Report

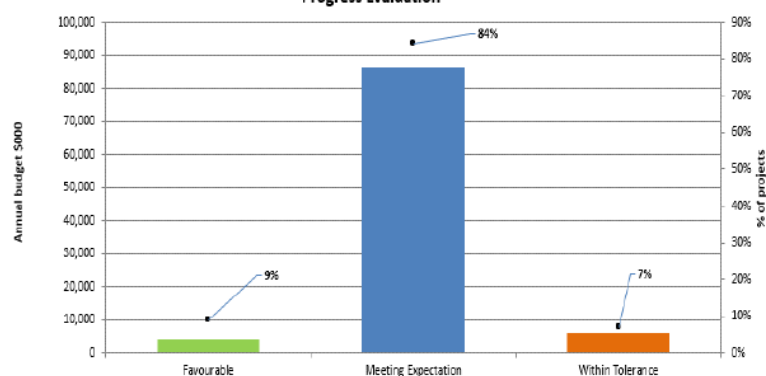
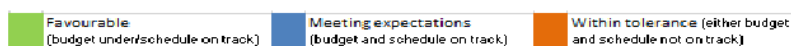
6. CAPITAL EXPENDITURE



| | Annual Revised Budget \$000 | YTD Budget \$000 | YTD Actual \$000 | YTD Variance \$000 |
|---------------------------------|-----------------------------|------------------|------------------|--------------------|
| Capitalised goods and services* | 98,763 | 50,131 | 30,660 | (19,471) |
| Capitalised employee costs | 7,858 | 5,773 | 5,213 | (560) |
| Total | 106,621 | 55,904 | 35,873 | (20,031) |

* Excludes capital prepayments.

7. PROGRAM AND PROJECT UPDATE



Programs and projects are what Council uses to introduce change to achieve corporate outcomes. They allow new infrastructure, products, systems, procedures and services to be delivered. Projects may be undertaken on a standalone basis or as part of a program. Programs and projects may span multiple financial years.

Council is currently progressing more than 100 programs and projects.

Notable Projects

The status of two notable projects are as follows:

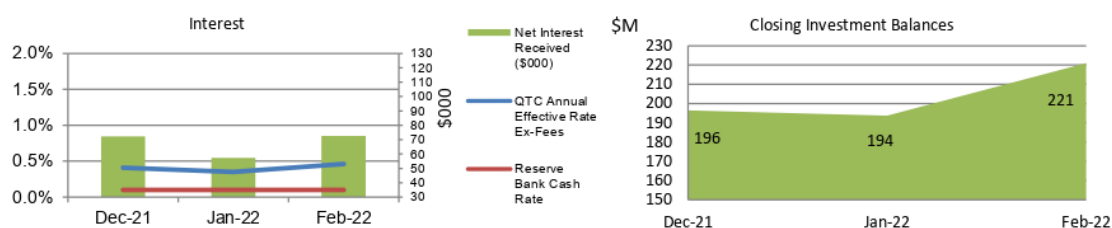
| Project description | Progress |
|--|----------------------|
| Cleveland CBD Bus Shelter Upgrades Program-To upgrade bus shelters that do not meet current operating and design standards. | Meeting Expectations |
| Bus Stops Upgrade & Expansion Program-To achieve a practical level Disability Discrimination Act compliance across the TransLink bus stop network for boarding points and provide for new shelter and seat installations. Works are co-funded by the TransLink division of the Department of Transport and Main Roads under the Passenger Transport Accessible Infrastructure Program. | Meeting Expectations |

Monthly Financial Report

8. INVESTMENT & BORROWINGS REPORT

For the period ending 28 February 2022

INVESTMENT RETURNS - QUEENSLAND TREASURY CORPORATION (QTC)



Total QTC Investment at End of Month was \$220.97M

Council investments are currently held predominantly in the Capital Guaranteed Cash Fund, which is a fund operated by the Queensland Treasury Corporation (QTC). In October 2021 \$10.068M was re-invested in a term deposit of Commonwealth Bank of Australia (CBA) to maximise interest earnings.

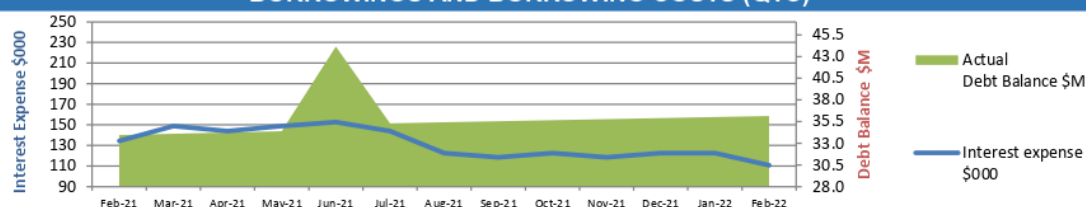
The movement in interest earned is indicative of both the interest rate and the surplus cash balances held, the latter of which is affected by business cash flow requirements on a monthly basis as well as the rating cycle.

Note: the Reserve Bank reduced the cash rate down to 0.10% during November 2020.

On a daily basis, cash surplus to requirements is deposited with QTC to earn higher interest as QTC is offering a higher rate than what is achieved from Council's transactional bank accounts. The current annual effective interest rate paid by QTC is 0.46%. Term deposit rates are being monitored to identify investment opportunities to ensure Council maximises its interest earnings.

Council adopted its Investment Policy (FIN-001-P) in June 2021 for the 2021/2022 financial year

BORROWINGS AND BORROWING COSTS (QTC)



The existing loan accounts were converted to fixed rate loans on 1 April 2016 following a QTC restructure of loans and policies. In line with Council's debt policy, debt repayment of \$9.00M, being \$7.23M principal and \$1.77M interest has been made in July 2021, for 2021/2022, which will result in the loans being repaid approximately one year earlier.

The debt balance increased in June 2021 due to new borrowings of \$9.61M as part of Council's Capital Works Plan.

In July 2021 the debt balance shows a decrease due to the Annual Debt Service Payment (ADSP). Interest will accrue monthly on a daily balance until next ADSP in July 2022 which is reflected in the increasing debt balance.

Total Borrowings at End of Month were \$36.13M

Council adopted its Debt Policy (FIN-009-P) in June 2021 for the 2021/2022 financial year

BORROWINGS

For the period ending 28 February 2022

| | Annual Original Budget \$'000 | Annual Revised Budget \$'000 | YTD Budget \$'000 | YTD Actual Balance \$'000 |
|--------------------------------|--|---------------------------------------|-------------------------|------------------------------------|
| Borrowings | | | | |
| Opening balance | (44,228) | (44,153) | (44,153) | (44,153) |
| Accrued interest on borrowings | (1,439) | (1,438) | (982) | (982) |
| Interest paid on borrowings | 1,763 | 1,763 | 1,749 | 1,769 |
| Principal repaid | 7,243 | 7,243 | 7,213 | 7,232 |
| Loan drawdown | (10,324) | (10,324) | - | - |
| Closing balance | (46,985) | (46,909) | (36,173) | (36,134) |

Monthly Financial Report

9. CONSTRAINED CASH RESERVES

| Reserves as at 28 February 2022 | Purpose of reserve | Opening Balance \$000 | To Reserve \$000 | From Reserve \$000 | Closing Balance \$000 |
|--|--|--------------------------|---------------------|-----------------------|---|
| Special Projects Reserve: | | | | | |
| Aquatic Paradise Revetment Wall Reserve | To fund Aquatic Paradise revetment wall works program | - | 20 | (14) | 6 |
| Weinam Creek Reserve | Maintenance and improvements associated with Weinam Creek projects | - | 332 | (2) | 330 |
| Waste Levy Reserve | To fund Waste Levy Program | - | 3,951 | (3,416) | 535 |
| Raby Bay Revetment Wall Reserve | To fund Raby Bay revetment wall works program | 4,265 | 2,062 | (1,334) | 4,993 |
| Fleet Plant & Capital Equipment Reserve | To support the long term fleet replacement program | 3,716 | 1,730 | (623) | 4,823 |
| | | 7,981 | 8,095 | (5,389) | 10,687 |
| Constrained Works Reserve: | | | | | |
| Public Parks Trunk Infrastructure Reserve | Capital projects for public parks trunk infrastructure | 6,148 | 2,703 | (2,730) | 6,121 |
| Land for Community Facilities Trunk Infrastructure Reserve | Land for community facilities trunk infrastructure | 4,829 | 97 | - | 4,926 |
| Water Supply Trunk Infrastructure Reserve | Upgrade, expansion or new projects for water supply trunk infrastructure | 14,760 | 138 | - | 14,898 |
| Sewerage Trunk Infrastructure Reserve | Upgrade, expansion or new projects for sewerage trunk infrastructure | 11,165 | 2,438 | (1,384) | 12,219 |
| Local Roads Trunk Infrastructure Reserve | Capital projects for local roads trunk infrastructure | 36,517 | 4,212 | (520) | 40,209 |
| Cycleways Trunk Infrastructure Reserve | Capital projects for cycleways trunk infrastructure | 13,288 | 1,448 | (434) | 14,302 |
| Stormwater Trunk Infrastructure Reserve | Capital projects for stormwater trunk infrastructure | 9,898 | 445 | - | 10,343 |
| Tree Planting Reserve | Acquisition and planting of trees on footpaths | 169 | 67 | (11) | 225 |
| Koala Tree off-set Planting Reserve | Acquisition and planting of trees for koala habitat | 226 | 22 | (53) | 195 |
| Special Property Reserve | Acquisition of property in line with the strategic property framework | - | 1,165 | - | 1,165 |
| | | 97,000 | 12,735 | (5,132) | 104,603 |
| Separate Charge Reserve: | | | | | |
| Environment Charge Maintenance Reserve | Ongoing conservation and maintenance operations | - | 8,057 | (5,559) | 2,498 |
| SES Separate Charge Reserve | On-going costs of maintaining the Redland SES | 70 | 384 | (270) | 184 |
| | | 70 | 8,441 | (5,829) | 2,682 |
| Special Charge Reserve - Canals: | | | | | |
| Aquatic Paradise Canal Reserve* | Maintenance and repairs of Aquatic Paradise canals | 758 | - | - | 758 |
| Sovereign Waters Lake Reserve* | Maintenance and repairs of Sovereign Lake | 431 | - | - | 431 |
| 1718 Raby Bay Canal Reserve | Service, facility or activity of works in respect of the canals of the Raby Bay canal estate | 219 | - | - | 219 |
| 1718 Aquatic Paradise Canal Reserve | Service, facility or activity of works in respect of the canals of the Aquatic Paradise canal estate | (495) | - | - | (495) |
| 1718 Sovereign Waters Lake Reserve | Service, facility or activity of works in respect of the lake | (56) | - | - | (56) |
| | | 857 | - | - | 857 |
| TOTALS | | 105,908 | 29,271 | (16,350) | 118,829 |
| | | | | | Closing cash and cash equivalents 226,504 |
| | | | | | Reserves as percentage of cash balance 52% |

*No interest charged for these reserves in February 2022 year to date due to low prevailing interest rate.

Monthly Financial Report

10. CITY WATER STATEMENTS

| CITY WATER SUMMARY OPERATING STATEMENT | | | | | |
|--|---------------------------------------|--------------------------------------|------------------------|------------------------|--------------------------|
| For the period ending 28 February 2022 | | | | | |
| | Annual Original Budget \$000 | Annual Revised Budget \$000 | YTD Budget \$000 | YTD Actual \$000 | YTD Variance \$000 |
| Total revenue | 128,167 | 128,331 | 91,282 | 88,968 | (2,314) |
| Total expenses | 75,785 | 76,235 | 48,726 | 46,493 | (2,233) |
| Earnings before interest, tax and depreciation (EBITD) | 52,382 | 52,096 | 42,556 | 42,475 | (81) |
| External interest expense | 224 | 224 | 161 | 158 | (3) |
| Internal interest expense | 15,139 | 15,139 | 10,092 | 10,092 | - |
| Depreciation | 24,711 | 24,711 | 16,474 | 16,269 | (205) |
| Operating surplus / (deficit) | 12,309 | 12,022 | 15,829 | 15,956 | 127 |
| CITY WATER CAPITAL FUNDING STATEMENT | | | | | |
| For the period ending 28 February 2022 | | | | | |
| | Annual Original Budget \$000 | Annual Revised Budget \$000 | YTD Budget \$000 | YTD Actual \$000 | YTD Variance \$000 |
| Capital contributions, donations, grants and subsidies | 2,956 | 2,956 | 1,971 | 2,576 | 605 |
| Net transfer (to) / from constrained capital reserves | 1,019 | (1,498) | (1,325) | (2,532) | (1,207) |
| Non-cash contributions | 5,747 | 5,747 | 1,586 | - | (1,586) |
| Funding from utility revenue | (2,699) | 7,529 | 5,668 | 3,235 | (2,433) |
| Total sources of capital funding | 7,023 | 14,733 | 7,900 | 3,279 | (4,621) |
| Contributed assets | 2,379 | 2,379 | 1,586 | - | (1,586) |
| Capitalised expenditure | 3,982 | 11,692 | 5,794 | 2,696 | (3,098) |
| Loan redemption | 662 | 662 | 520 | 583 | 63 |
| Total application of capital funds | 7,023 | 14,733 | 7,900 | 3,279 | (4,621) |

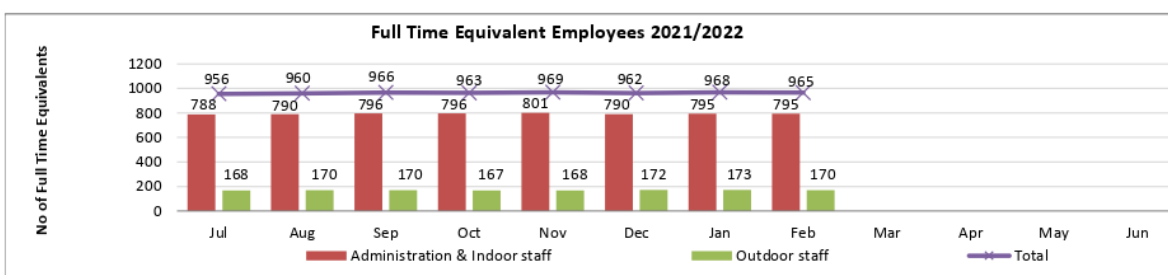
11. CITY WASTE STATEMENTS

| CITY WASTE OPERATING STATEMENT | | | | | |
|--|---------------------------------------|--------------------------------------|------------------------|------------------------|--------------------------|
| For the period ending 28 February 2022 | | | | | |
| | Annual Original Budget \$000 | Annual Revised Budget \$000 | YTD Budget \$000 | YTD Actual \$000 | YTD Variance \$000 |
| Total revenue | 32,893 | 32,904 | 25,633 | 25,788 | 155 |
| Total expenses | 23,973 | 24,033 | 19,264 | 18,947 | (317) |
| Earnings before interest, tax and depreciation (EBITD) | 8,920 | 8,870 | 6,369 | 6,841 | 472 |
| External interest expense | 7 | 7 | 5 | 5 | - |
| Depreciation | 423 | 423 | 282 | 257 | (25) |
| Operating surplus / (deficit) | 8,490 | 8,440 | 6,082 | 6,579 | 497 |
| CITY WASTE CAPITAL FUNDING STATEMENT | | | | | |
| For the period ending 28 February 2022 | | | | | |
| | Annual Original Budget \$000 | Annual Revised Budget \$000 | YTD Budget \$000 | YTD Actual \$000 | YTD Variance \$000 |
| Funding from utility revenue | 755 | 1,329 | 624 | 496 | (128) |
| Total sources of capital funding | 755 | 1,329 | 624 | 496 | (128) |
| Capitalised expenditure | 600 | 1,174 | 482 | 385 | (97) |
| Loan redemption | 155 | 155 | 142 | 111 | (31) |
| Total application of capital funds | 755 | 1,329 | 624 | 496 | (128) |

Monthly Financial Report

12. APPENDIX: ADDITIONAL AND NON-FINANCIAL INFORMATION

Workforce Reporting



| February 2022: Headcount | | Employee Type | | | |
|--------------------------------------|-----------|---------------|------------|--------------|--|
| Department Level | Casual | Full Time | Part Time | Total | |
| Office of CEO and People and Culture | 2 | 42 | 11 | 55 | |
| Organisational Services | 3 | 208 | 23 | 234 | |
| Community and Customer Services | 41 | 284 | 63 | 388 | |
| Infrastructure and Operations | 8 | 350 | 18 | 376 | |
| Total | 54 | 884 | 115 | 1,053 | |

Note: Full Time Equivalent Employees includes all full time employees at a value of 1 and all other employees, at a value less than 1. The table above demonstrates the headcount by department. Following Ourspace, the table includes contract of service and temporary personnel. It includes casual staff in their non-substantive roles as at the end of the period where relevant.

Overdue Rates Debtors & Statistics

| Comparison February 2022 to February 2021 | | | | | | | | | |
|---|---------------------|-------------|---------------------|-------------|---------------------|--------------|---|----------------------|----------------------|
| Days Overdue | Feb-22 | % Overdue | Feb-21 | % Overdue | \$ | % Variance | Rates & Charges Statistics | | |
| 0 - 30 | \$7,561,688 | 3.3% | \$7,411,763 | 3.3% | \$149,925 | -0.1% | Levied (Billed) Rates & Charges since 1 July 2021 | \$221,458,725 | \$211,269,225 |
| 31 - 60 | \$401 | 0.0% | \$0 | 0.0% | \$401 | 0.0% | Rate arrears b/fwd 1 July 2021 | \$10,693,344 | \$12,988,652 |
| 61 - 90 | \$728 | 0.0% | \$0 | 0.0% | \$728 | 0.0% | Total | \$232,152,069 | \$224,257,877 |
| 91 - 180 | \$2,036,724 | 0.9% | \$2,156,052 | 1.0% | -\$119,328 | -0.1% | Balance of overdue rates & charges | \$13,609,103 | \$14,709,877 |
| >180 | \$4,009,562 | 1.7% | \$5,142,062 | 2.3% | -\$1,132,500 | -0.5% | Percentage Overdue | 5.9% | 6.6% |
| Total | \$13,609,103 | 5.9% | \$14,709,877 | 6.6% | -\$1,100,774 | -0.7% | | | |

Monthly Financial Report

13. GLOSSARY

Key Terms

Written Down Value:

This is the value of an asset after accounting for depreciation or amortisation, and it is also called book value or net book value.

Work In Progress:

This represents an unfinished project that costs are still being added to. When a project is completed, the costs will be either capitalised (allocated to relevant asset class) or written off.

Definition of Ratios

Operating Surplus Ratio*:

This is an indicator of the extent to which revenues raised cover operational expenses only or are available for capital funding purposes

Net Operating Surplus
Total Operating Revenue

Asset Sustainability Ratio*:

This ratio indicates whether Council is renewing or replacing existing non-financial assets at the same rate that its overall stock of assets is wearing out

Capital Expenditure on Replacement of Infrastructure Assets (Renewals)
Depreciation Expenditure on Infrastructure Assets

Net Financial Liabilities*:

This is an indicator of the extent to which the net financial liabilities of Council can be serviced by operating revenues

Total Liabilities - Current Assets
Total Operating Revenue

Level of Dependence on General Rate Revenue:

This ratio measures Council's reliance on operating revenue from general rates (excludes utility revenues)

General Rates - Pensioner Remissions
Total Operating Revenue - Gain on Sale of Developed Land

Current Ratio:

This measures the extent to which Council has liquid assets available to meet short term financial obligations

Current Assets
Current Liabilities

Debt Servicing Ratio:

This indicates Council's ability to meet current debt instalments with recurrent revenue

Interest Expense*** + Loan Redemption^
Total Operating Revenue - Gain on Sale of Developed Land

Cash Balance - \$M:

Cash balance includes cash on hand, cash at bank and other short term investments.

Cash Held at Period End

Cash Capacity in Months:

This provides an indication as to the number of months cash held at period end would cover operating cash outflows

Cash Held at Period End
[[Cash Operating Costs + Interest Expense] / Period in Year]

Longer Term Financial Stability - Debt to Asset Ratio:

This is total debt as a percentage of total assets, i.e. to what extent will our long term debt be covered by total assets

Current and Non-current Debt**
Total Assets

Operating Performance:

This ratio provides an indication of Council's cash flow capabilities

Net Cash from Operations + Interest Revenue and Expense
Cash Operating Revenue + Interest Revenue

Interest Coverage Ratio:

This ratio demonstrates the extent to which operating revenues are being used to meet the financing charges

Net Interest Expense on Debt Service***
Total Operating Revenue

* These targets are set to be achieved on average over the longer term and therefore are not necessarily expected to be met on a monthly basis.

** Debt includes lease liabilities.

*** Interest expense includes interest on leases.

^ Loan redemption includes lease redemption.

13.2 OPERATIONAL PLAN QUARTERLY PERFORMANCE REPORT DECEMBER 2021**Objective Reference:** A6426865**Authorising Officer:** Amanda Pafumi, Acting General Manager Organisational Services**Responsible Officer:** Tony Beynon, Group Manager Corporate Governance**Report Author:** Lorraine Lee, Senior Adviser Corporate Planning & Performance**Attachments:** 1. **Operational Plan 2021-2022 Performance Report October to December Quarter Two 2021** [↓](#)**PURPOSE**

To provide an update on the progress of the Operational Plan 2021-2022 from 1 October to 31 December 2021.

BACKGROUND

The *Local Government Act 2009* requires Council to adopt an operational plan each year. The Operational Plan 2021-2022 (the Plan) is an important planning document which sets out how Council intends to implement the Corporate Plan *Our Future Redlands – A Corporate Plan to 2026 and Beyond*.

The Plan is structured to reflect the seven goals (themes) of the Corporate Plan, and outlines 30 catalyst project activities and 37 key initiative activities that are planned to be delivered in the 2021-2022 financial year.

The *Local Government Regulation 2012* requires the Chief Executive Officer to present a written assessment of Council's progress towards implementing the annual operational plan at meetings of Council, at least quarterly.

ISSUES

The attached Operational Plan 2021-2022 Performance Report October to December Quarter Two 2021 includes a progress and status update for each activity for catalyst projects and key initiatives outlined in the Plan.

The report provides commentary by exception on activity tasks that have a monitor or concern. In addition, the report provides Key Activities and Highlights under each goal (theme) of the Corporate Plan and links to resources which provide further information and updates for the community.

The information in the report has been provided by the Council business area accountable for each activity.

The following summarises the status of the 67 activities outlined in the Plan:

| | |
|--------------|-----------|
| On Track | 60 |
| Monitor | 6 |
| Concern | 0 |
| Completed | 1 |
| Total | 67 |

STRATEGIC IMPLICATIONS

Legislative Requirements

This report has been prepared in compliance with section 174(3) of the *Local Government Regulation 2012* which states that the “*chief executive officer must present a written assessment of the local government’s progress towards implementing the annual operational plan at meetings of the local government held at regular intervals of not more than 3 months*”.

Risk Management

The risk of not delivering the Plan is that Council does not achieve the commitments set out in the longer term Corporate Plan. Each activity has associated risks which are managed by the relevant area of Council.

Financial

The Plan is funded by the 2021-2022 Annual Budget adopted by Council on 24 June 2021.

People

Although delivery of the Plan itself is dependent on staff resources, there are no direct impacts on people resulting from this report.

Environmental

Some activities within the Plan directly contribute to Council’s environmental commitments. However, this report does not have any direct environmental impacts.

Social

Some activities within the Plan directly contribute to Council’s social commitment. However, this report does not have any direct social impacts.

Human Rights

There are no human rights implications associated with this report.

Alignment with Council's Policy and Plans

The Plan outlines activities against the seven goals (themes) in the Corporate Plan that Council plans to deliver in 2021-2022. As such, it is a key planning document and consistent with Council’s current Corporate Plan *Our Future Redlands – A Corporate Plan to 2026 and Beyond*.

Council adopted its Corporate Plan on 16 December 2020, for commencement on 1 July 2021. The Corporate Plan provides Council with a framework for forward planning and future delivery of services and infrastructure.

This performance report is in response to Council’s Corporate Plan.

CONSULTATION

| Consulted | Date | Comments |
|--|--------------|---|
| Office of CEO Head of People, Culture and Organisational Performance | January 2022 | The activity progress and comments have been provided by the officers involved in delivering the particular activities within the Operational Plan 2021-2022. |
| Organisational Services General Manager Organisational Services | January 2022 | The activity progress and comments have been provided by the officers involved in delivering the particular activities within the Operational Plan 2021-2022. |
| Community and Customer Services General Manager Community and Customer Services | January 2022 | The activity progress and comments have been provided by the officers involved in delivering the particular activities within the Operational Plan 2021-2022. |
| Infrastructure and Operations General Manager Infrastructure and Operations | January 2022 | The activity progress and comments have been provided by the officers involved in delivering the particular activities within the Operational Plan 2021-2022. |

OPTIONS**Option One**

That Council resolves to note the Operational Plan 2021-2022 Performance Report October to December Quarter Two 2021, as attached to this report.

Option Two

That Council resolves to note this report and requests additional information.

OFFICER'S RECOMMENDATION

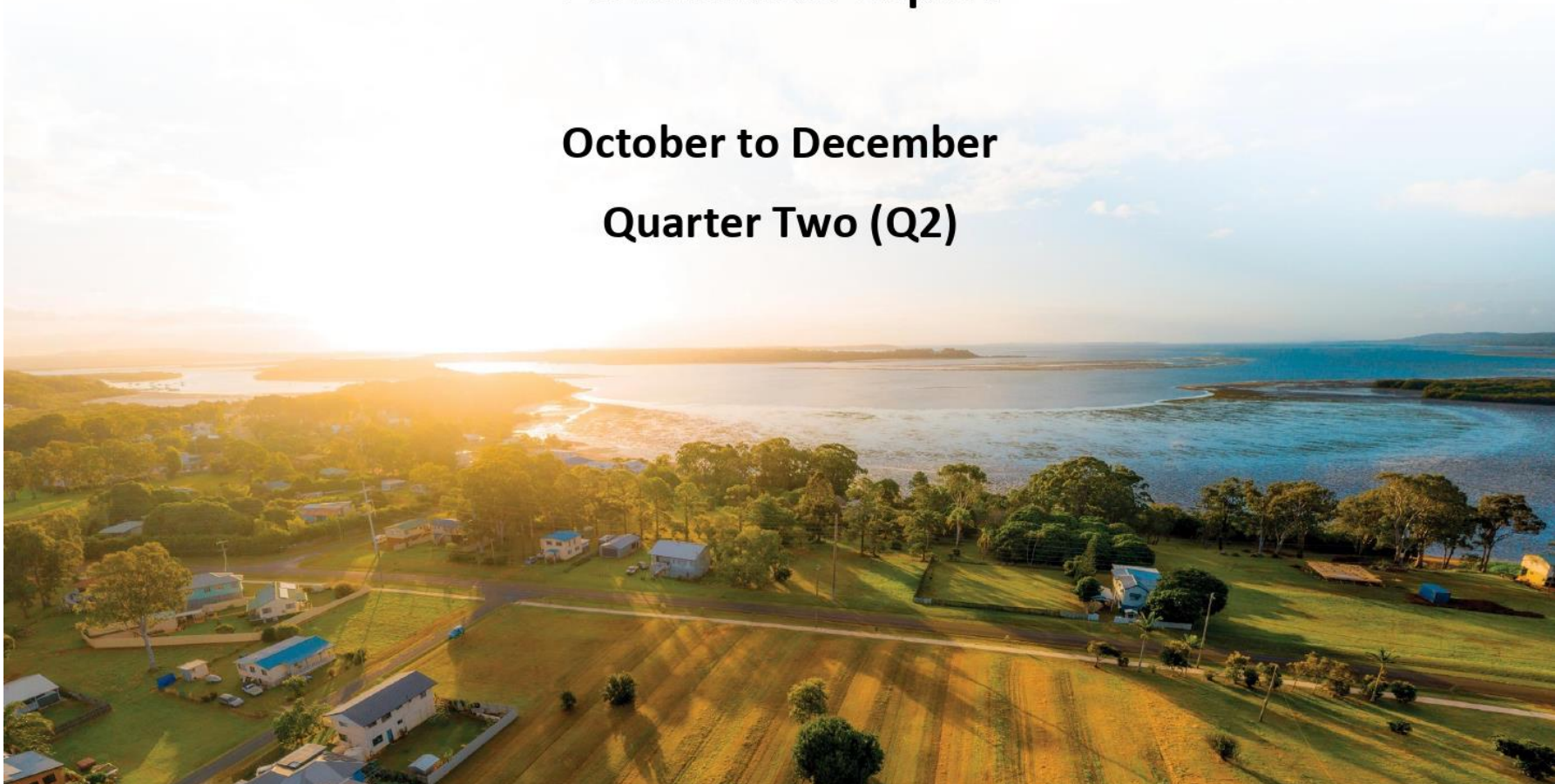
That Council resolves to note the Operational Plan 2021-2022 Performance Report October to December Quarter Two 2021, as attached to this report.



Operational Plan 2021-2022

Performance Report

October to December
Quarter Two (Q2)



Operational Plan Performance Reporting















The *Local Government Act 2009* requires Council to adopt an operational plan each year. The Operational Plan 2021-2022 (the Plan) is an important planning document which sets out how Council intends to implement the Corporate Plan 'Our Future Redlands – A Corporate Plan to 2026 and Beyond'.

The Plan is structured to reflect the seven goals (themes) of the Corporate Plan, and outlines 30 catalyst project activities and 37 key initiative activities that are planned to be delivered in the 2021-2022 financial year.

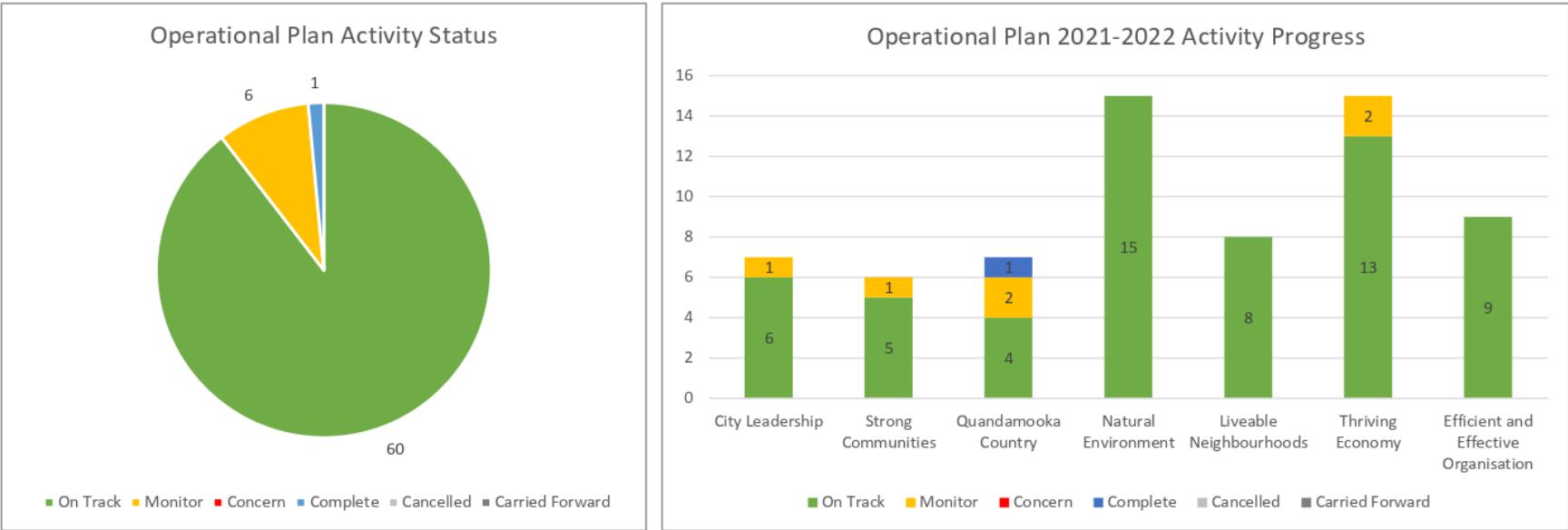
The *Local Government Regulation 2012* requires the Chief Executive Officer to present a written assessment of Council's progress towards implementing the annual operational plan at meetings of Council, at least quarterly.

The Operational Plan Quarterly Performance Report includes a progress and status update for each activity for catalyst projects and key initiatives outlined in the Plan. The report provides commentary by exception on activity tasks that have a monitor or concern status. In addition, the report provides Key Activities and Highlights under each goal (theme) of the Corporate Plan and links to resources which provide further information and updates for the community.

What's in the Operational Plan 2021-2022?

| Goals (Themes) | Catalyst Project Activities | 2021-2026 Key Initiative Activities | Status Year to Date |
|--|-----------------------------|-------------------------------------|---|
|  CITY LEADERSHIP | 3 | 4 |  |
|  STRONG COMMUNITIES | 3 | 3 |  |
|  QUANDAMOOKA COUNTRY | 3 | 4 |  |
|  NATURAL ENVIRONMENT | 4 | 11 |  |
|  LIVEABLE NEIGHBOURHOODS | 4 | 4 |  |
|  THRIVING ECONOMY | 8 | 7 |  |
|  EFFICIENT AND EFFECTIVE ORGANISATION | 5 | 4 |  |

Operational Plan 2021-2022 Activity Progress

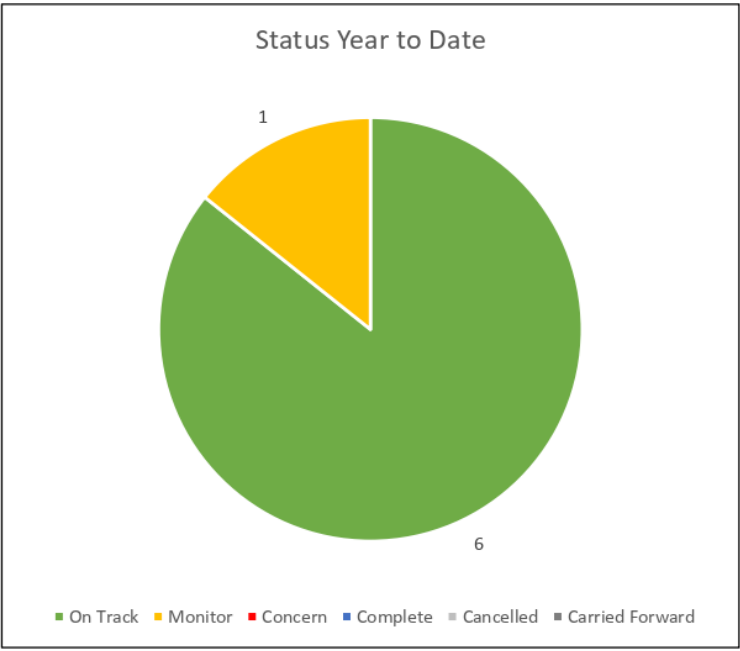
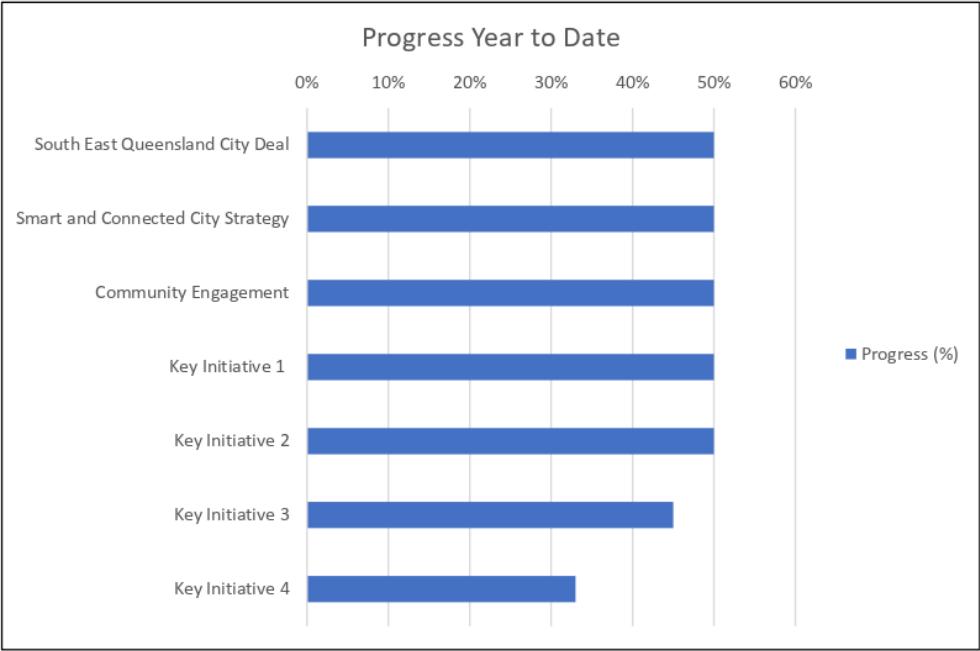


Operational Plan 2021-2022 Activity Progress Organisational Performance

| Department/Key Accountable | On Track | Monitor | Concern | Completed | Cancelled | Carried Forward | Total |
|---------------------------------|-----------|----------|----------|-----------|-----------|-----------------|-----------|
| Office of the CEO | 3 | - | - | - | - | - | 3 |
| Community and Customer Services | 30 | - | - | - | - | - | 30 |
| Infrastructure and Operations | 11 | 1 | - | - | - | - | 12 |
| Organisational Services | 16 | 5 | - | 1 | - | - | 22 |
| Total | 60 | 6 | - | 1 | - | - | 67 |

| Group/Lead | On Track | Monitor | Concern | Completed | Cancelled | Carried Forward | Total |
|---|-----------|----------|----------|-----------|-----------|-----------------|-----------|
| People, Culture and Organisational Performance | 3 | - | - | - | - | - | 3 |
| City Planning and Assessment | 3 | - | - | - | - | - | 3 |
| Community and Economic Development | 15 | - | - | - | - | - | 15 |
| Customer and Cultural Services | 2 | - | - | - | - | - | 2 |
| Environment and Regulation | 10 | - | - | - | - | - | 10 |
| City Assets | 10 | 1 | - | - | - | - | 11 |
| City Operations | 1 | - | - | - | - | - | 1 |
| Communications, Engagement and Tourism | 6 | - | - | 1 | - | - | 7 |
| Corporate Governance | 4 | 3 | - | - | - | - | 7 |
| Corporate Services | 3 | - | - | - | - | - | 3 |
| General Counsel | 1 | - | - | - | - | - | 1 |
| Office of the General Manager Organisational Services | 1 | 2 | - | - | - | - | 3 |
| Strategic Asset and Portfolio Management | 1 | - | - | - | - | - | 1 |
| Total | 60 | 6 | - | 1 | - | - | 67 |

City Leadership



For details on City Leadership Key Initiatives 1-4 refer pages 7 to 8 of this attachment.

City Leadership



Catalyst Project CP1.1 South East Queensland City Deal - Support agreement between the three levels of government to deliver investment in regionally transformative infrastructure which provides long term benefits for Redlands Coast.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------------|------------|
| CP1.1.1 Represent Redlands Coast interests in the development and implementation of the South East Queensland City Deal. | | | Community and Economic Development | |
| a) Contribute through regional collaboration initiatives and targeted advocacy, including participation in Council of Mayors (SEQ) advocacy and economic development working groups. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Promote collaborative economic outcomes through participation in local government working groups. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| c) Develop a Redlands Coast advocacy plan for key city building infrastructure. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |





Catalyst Project CP1.2 Smart and Connected City Strategy - Implement the Smart and Connected City Strategy to deliver smart local and regional solutions that improve the liveability, productivity and sustainability of the city.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|------------------------------------|------------|
| CP1.2.1 Enhance Redlands Coast liveability, sustainability and attractiveness as a place for business through smart and connected city initiatives. | | | Community and Economic Development | |
| a) Finalise and commence implementation of the Smart and Connected City Strategy. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Promote opportunities for driving innovation through initiatives for business and community. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |





Catalyst Project CP1.3 Community Engagement - Strengthen Council's internal capacity to undertake meaningful community engagement using a broad range of tools and deliver enhanced promotion of engagement activities.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|---------------------------------------|------------|
| CP1.3.1 Investigate Council's capacity to deliver meaningful engagement. | | | Communication, Engagement and Tourism | |
| a) Review internal engagement processes, resources, skills and budget requirements. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |





Key Initiative KI1.1 Key Initiative 1 - Improve ways of engaging with our community to encourage diverse participation in local decision making, and co-design of community outcomes.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|---------------------------------------|------------|
| KI1.1.1 Investigate new and improved ways of engaging with the Redlands Coast community. | | | Communication, Engagement and Tourism | |
| a) Review engagement activities delivered across Council and other agencies including engagement models and innovations. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Implement improved engagement activities. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |







Key Initiative KI1.2 Key Initiative 2 - Improve communication with our community to increase awareness and transparency around Council operations.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|---------------------------------------|------------|
| KI1.2.1 Investigate new and improved ways of communicating with the Redlands Coast community. | | | Communication, Engagement and Tourism | |
| a) Review communication processes, resources and skills including market researching best practice and innovative processes being utilised by other organisations. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Implement improved communication activities. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Key Initiative KI1.3 Key Initiative 3 - Develop a strategic framework to guide Council's advocacy efforts with both the Commonwealth and State Governments for the betterment of Redlands Coast.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|----------------------|--|
| KI1.3.1 Develop a strategic framework to guide Council's advocacy efforts with other governments. | | | Corporate Governance | |
| a) Define the project scope, key milestones and identify resourcing required. | Q1 |  | 20.0% | |
| | Q2 |  | 60.0% | |
| b) Develop a process and criteria for nominating key projects and initiatives to be included in Council's advocacy framework. | Q1 |  | 20.0% | |
| | Q2 |  | 30.0% | Initial scoping work for the process and criteria has been undertaken. Approval of the scoping document to be confirmed. |

Key Initiative KI1.4 Key Initiative 4 - Advocate for all islands to be recognised in a regional status to create greater funding opportunities.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|--|----------------------|---|
| KI1.4.1 Undertake research to support advocacy efforts for all islands to be recognised as a regional status. | | | Corporate Governance | |
| a) Conduct a needs assessment for our island communities. | Q1 |  | 20.0% | |
| | Q2 |  | 40.0% | |
| b) Analyse island eligibility for State and Federal regional and remote grant allocations. | Q1 |  | 20.0% | |
| | Q2 |  | 30.0% | A further analysis of Queensland Government funding streams required. |
| c) Identify specific projects and initiatives that would benefit from State and Federal regional funding. | Q1 |  | 20.0% | |
| | Q2 |  | 30.0% | Projects and initiatives to be investigated through Council's budget development. |

City Leadership - Key Activities and Highlights

Enhance Redlands Coast liveability, sustainability and attractiveness as a place for business through smart and connected city initiatives.

Work continued on the Draft Smart and Connected City Strategy.

Investigate new and improved ways of engaging with the Redlands Coast community.

Cross-departmental planning occurred to improve community engagement for a range of projects. Council also participated in professional development training delivered by the International Association for Public Participation.

Investigate new and improved ways of communicating with the Redlands Coast community.

Council continued to review its communications systems and processes.

Develop a strategic framework to guide Council's advocacy efforts with other governments.

The scoping document was completed and will require internal approval prior to workshopping with Council's elected members.

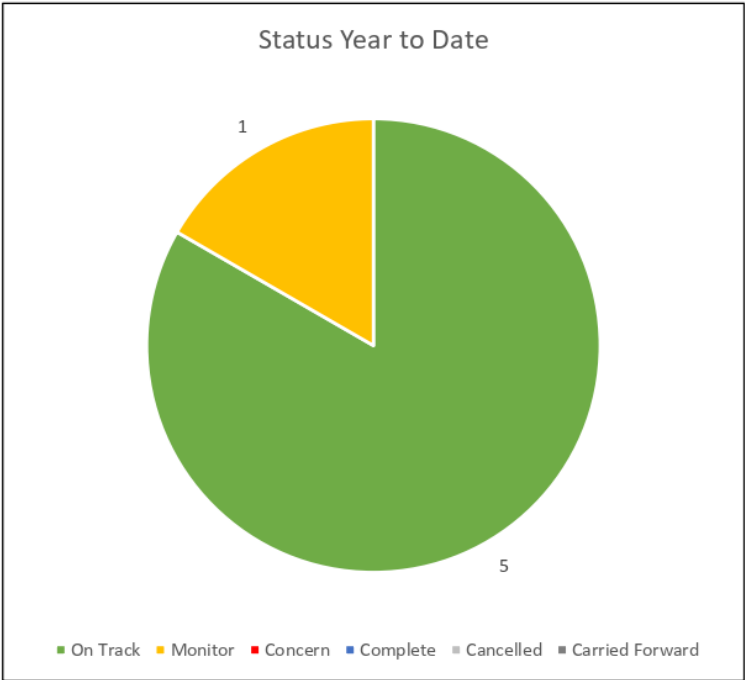
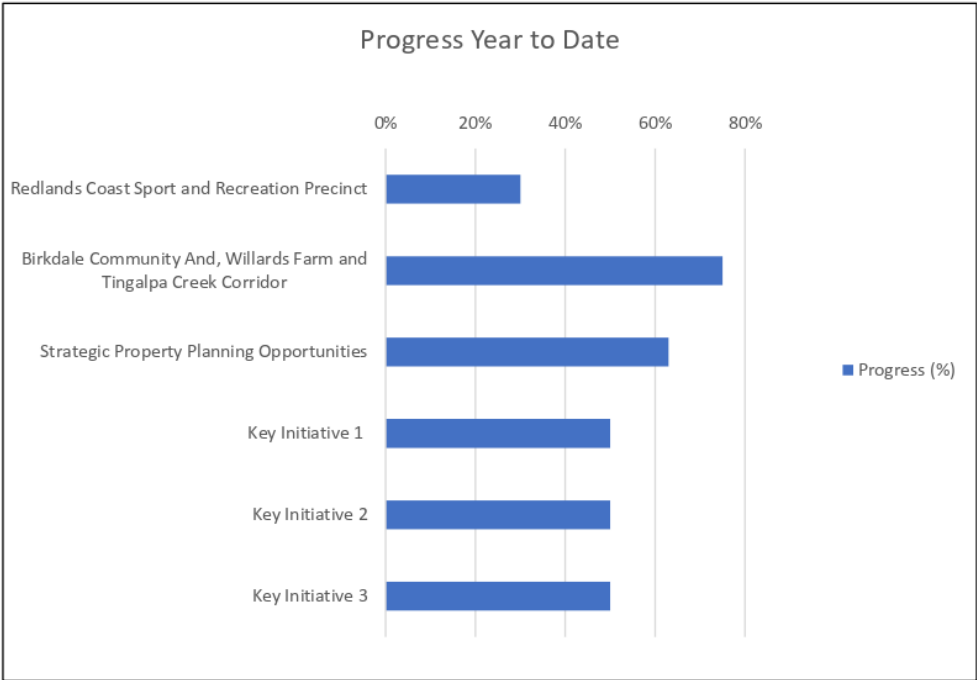
Undertake research to support advocacy efforts for all islands to be recognised as a regional status.

Initial internal data gathering commenced with further assessment required. The next steps include a gap analysis of the data and further needs assessment of the islands to then allow a full advocacy plan to be drafted.

Investigate Council's capacity to deliver meaningful engagement.

Council began reviewing its 'Your Say' community engagement platform, with a view to optimising usability and accessibility.



Strong Communities





For details on Strong Communities Key Initiatives 1-3 refer pages 14 to 16 of this attachment.





Strong Communities

Catalyst Project CP2.1 Redlands Coast Sport and Recreation Precinct - Progress Council's staged master-plan including sporting fields, club buildings, car parking, cycling tracks, recreation trails and spaces to play and explore.





| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|-------------|---|
| CP2.1.1 Plan for effective sport and recreation at Heinemann Road, Redland Bay. | | | City Assets | |
| a) Continue to develop the Redlands Coast Regional Sport and Recreation Precinct through preliminary design and construction programming. | Q1 |  | 25.0% | Major activities were achieved with additional value management workshops being required to resolve the priority of values to be explored in the next design phase. This delayed slightly the preliminary design commencement. The engagement of Cultural Heritage and receipt of Cultural Heritage Risk Assessment report was delayed slightly due to later engagement of consultant and internal officer resources. |
| | Q2 |  | 30.0% | |

| | | | | |
|---|----|---|-------|---|
| b) Commence implementing the action plan. | Q1 |  | 25.0% | |
| | Q2 |  | 30.0% | <p><u>Transformation project/s:</u> Pinklands - change room/public toilets grant funding transfer still in assessment by the Queensland Government. Minor progress on other transformation sites due to other resource allocation priorities.</p> <p><u>Optimisation:</u> A brief to undertake a lighting audit is due to commence. Support was provided to community sports to improve facilities, however grant outcomes are not known yet. Improvements to optimising the use of existing sport facilities is limited to resource allocation and budget approval.</p> <p><u>Land acquisition:</u> A Council land update report was deferred to January 2022.</p> <p><u>Redlands Coast Sport and Recreation Precinct:</u> Monitor due to a slight delay in some key activities. An Expression of Interest for early contractor involvement was approved at the General Meeting 15 December 2021. This will allow efficiencies in bringing forward the delivery of the infrastructure.</p> |

Catalyst Project CP2.2 Birkdale Community Land, Willards Farm and Tingalpa Creek Corridor - Create a shared vision for the end use of the land recognising the rich and diverse history of the site, building those values into creating an iconic landmark for the Redlands Coast.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|----------------------------|------------|
| CP2.2.1 Create a shared vision for the end use of Birkdale Community Land, Willards Farm and the Tingalpa Creek Corridor. | | | Environment and Regulation | |
| a) Develop a shared vision for the Birkdale Community Precinct, based on the previous community consultation process. | Q1 |  | 100.0% | |
| | Q2 |  | 100.0% | |
| b) Commence development of the draft Birkdale Community Precinct master-plan and planning for future community consultation on the master-plan for the Precinct. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |







Catalyst Project CP2.3 Strategic Property Planning Opportunities - Generate enhanced community outcomes through strategic alignment and transitioning of Council's property portfolio to embrace sustainable opportunities to deliver physical and natural assets that respond to current and future needs in regards to social, environmental and economic outcomes.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|----------------------------|------------|
| CP2.3.1 Generate enhanced community outcomes through strategic alignment and transitioning of Council's property portfolio. | | | Environment and Regulation | |
| a) Complete Council's strategic property framework. | Q1 |  | 65.0% | |
| | Q2 |  | 75.0% | |
| b) Complete investigations into options for industrial land on Macleay Island. | Q1 |  | 45.0% | |
| | Q2 |  | 50.0% | |

Key Initiative KI2.1 Key Initiative 1 - Stronger Communities Strategy – Implement the Stronger Communities Strategy and Action Plans to help ensure the city has services and social infrastructure to support the health and wellbeing of people of all ages and abilities.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------------|------------|
| KI2.1.1 Undertake planning and implement initiatives that support community wellbeing and build community resilience, and investigate new and improved ways of engaging with the Redlands Coast community. | | | Community and Economic Development | |
| a) Finalise and commence implementation of the Redlands Coast Stronger Communities Strategy 2021-2041. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Implement the Redlands Coast Age-friendly Action Plan 2021-2026. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| c) Develop the Redlands Coast Youth Action Plan 2022-2027. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| d) Develop the Redlands Coast Community Facilities Action Plan 2022-2027. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| e) Deliver initiatives that target vulnerabilities and build community capacity and resilience. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| f) Deliver the Grants and Sponsorship Program to achieve strong community investment outcomes. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| g) Deliver initiatives that aim to reduce crime and improve community safety. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |

Key Initiative KI2.2 Key Initiative 2 - Develop and deliver initiatives to recognise and celebrate our local heritage and diverse cultures through the arts and events that promote connectivity.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|--------------------------------|------------|
| KI2.2.1 Develop and deliver initiatives to recognise and celebrate our local heritage and diverse cultures through the arts and events that promote connectivity. | | | Customer and Cultural Services | |
| a) Revise Council's cultural policy to align with Our Future Redlands – A Corporate Plan to 2026 and beyond. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Engage the Redlands Coast creative community to develop a one to five year culture plan. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| c) Review the Redland Performing Arts Centre and Redland Art Gallery facility and site utilisation in the delivery of arts activities and events. | Q1 |  | 50.0% | |
| | Q2 |  | 50.0% | |

Key Initiative KI2.3 Key Initiative 3 - Advocate for lifelong learning and capacity building opportunities to enable social, cultural and economic participation and enhance productivity.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------------|------------|
| KI2.3.1 Collaborate with schools, tertiary education providers, businesses, industries and communities to advance education opportunities in Redlands Coast. | | | Community and Economic Development | |
| a) Continue to facilitate and develop employment and training initiatives for Indigenous and island residents. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Advocate for education investment opportunities and initiatives from the Education and Training Network. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| c) Continue to explore higher education models and options. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| d) Continue to investigate the development of a Centre of Excellence in Education for the Ageing. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| e) Investigate opportunities and feasibility to develop an international education cluster and partnerships with international institutes. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |

Strong Communities - Key Activities and Highlights

Undertake planning and implement initiatives that support community wellbeing and build community resilience, and investigate new and improved ways of engaging with the Redlands Coast community.

Four community grant rounds were awarded including Conservation, Project Support, Sponsorship and Capital Infrastructure. Under Council's first Seniors Month Grants Program 12 community groups delivered social participation activities. Council undertook Social Impact Measurement training to facilitate enhanced evaluation of Council's capacity-building initiatives.

Create a shared vision for the end use of Birkdale Community Land, Willards Farm and the Tingalpa Creek Corridor.

Work commenced on the Draft Master Plan for the Birkdale Community Precinct. Over the last quarter work has been specifically focussed on infrastructure and servicing, draft concept plans and preparation for future community consultation.

Plan for effective sport and recreation at Heinemann Road, Redland Bay.

Activities completed include: Major Value Management workshop received 2 December 2021; Regional Play Precinct and Play Node Design Workshop received 8 December 2021; various contacts made with primary tenant clubs regarding the design development as a result of the Value Management Workshop including multi-sports, cycling and BMX on 10 December 2021; 20% of the design documentation was received 13 December 2021 and distributed for comment to internal stakeholders; Civil and Environment independent peer review contractor (Cardno) was appointed 15 December 2021; on 3 December 2021 a cultural heritage risk assessment was conducted on site and the report was received 17 December 2021.

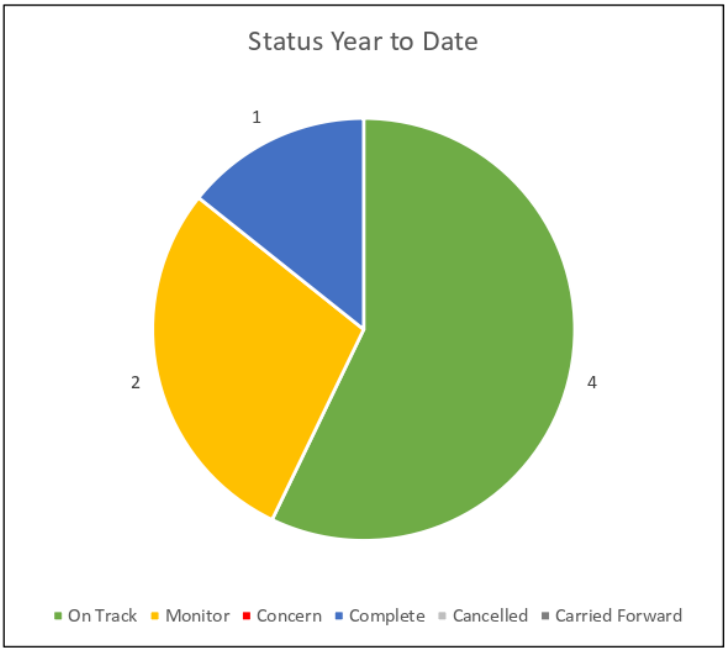
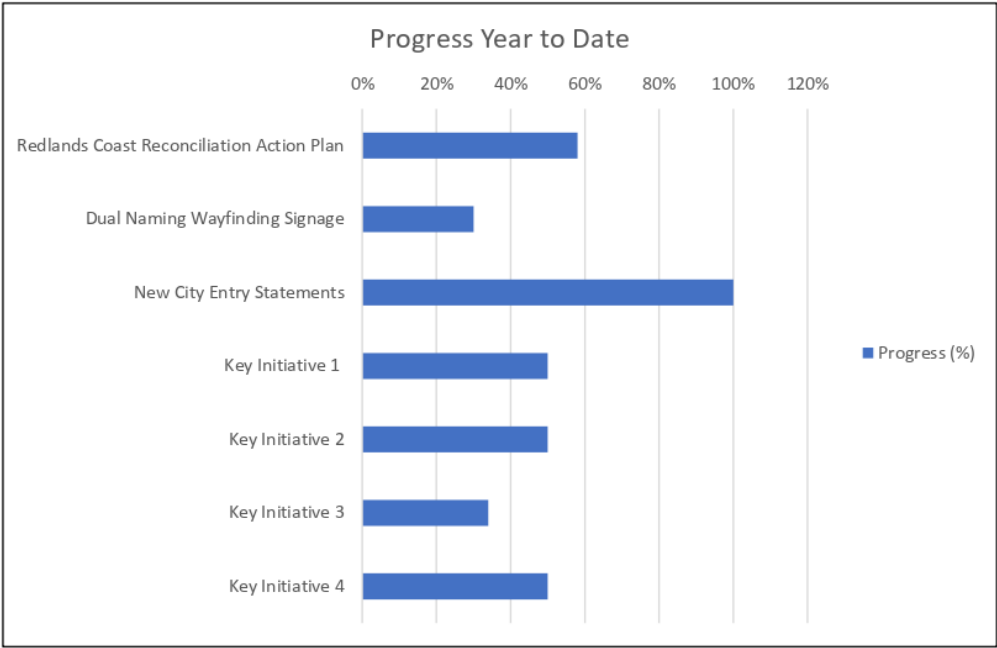
Council resolved at the General Meeting 15 December 2021 to conduct the Expressions of Interest (EOI) process with the aim to achieve early contractor involvement for seamless transition to construction phase for the project.

Generate enhanced community outcomes through strategic alignment and transitioning of Council's property portfolio.

Work commenced on subsequent policies, guidelines and cross-Council activities including the identification of a pilot area for trialling application of the Strategic Property Framework.

Council's investigations into options for the industrial land on Macleay Island saw an EOI process for the land completed. This allowed Council to progress toward releasing invitations to tender and carrying out preliminary planning toward the scope and timeframe for the transfer of land.





Quandamooka Country





For details on Quandamooka Country Key Initiatives 1-4 refer pages 20 to 22 of this attachment.

Quandamooka Country



Catalyst Project CP3.1 Redlands Coast Reconciliation Action Plan - Progress our reconciliation journey through the development of an externally facing Redlands Coast Reconciliation Action Plan.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|----------------------|---|
| CP3.1.1 Implement and establish reconciliation action plans. | | | Corporate Governance | |
| a) Continue to implement the Kanara Malara - One People 2019-2021 Redland City Council Reconciliation Action Plan. | Q1 |  | 90.0% | |
| | Q2 |  | 90.0% | |
| b) Develop an externally facing Redlands Coast reconciliation action plan through Reconciliation Australia. | Q1 |  | 25.0% | |
| | Q2 |  | 25.0% | Council has been working with stakeholders in the community. Engagement has been delayed due to COVID-19. |







Catalyst Project CP3.2 Dual Naming Wayfinding Signage - Progress roll-out of dual naming wayfinding signage across the Redlands Coast that incorporates Quandamooka Jandai language.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|----------------------|--|
| CP3.2.1 Develop a dual naming policy for Council. | | | Corporate Governance | |
| a) Investigate and research other local governments in Australia that have dual naming protocols for local Indigenous languages. | Q1 |  | 25.0% | |
| | Q2 |  | 30.0% | Investigations have commenced. Further research is required on Queensland Government's legislative requirements. |





Catalyst Project CP3.3 New City Entry Statements - Installation of new city entry statements that include acknowledgement of Quandamooka Country.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|---------------------------------------|------------|
| CP3.3.1 Deliver City Entry Statements. | | | Communication, Engagement and Tourism | |
| a) Promote the installation of six new City Entry Statements across Redlands Coast. | Q1 |  | 100.0% | |
| | Q2 |  | 100.0% | |





Key Initiative KI3.1 Key Initiative 1 - Work closely with the Traditional Owners of much of Redlands Coast, the Quandamooka People, and representative body Quandamooka Yoolooburrabee Aboriginal Corporation, to foster a positive, mutually respectful working relationship.



| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|----------------------|---|
| KI3.1.1 Support delivery of Indigenous Land Use Agreement (ILUA) commitments. | | | Corporate Governance | |
| a) Manage Council's commitments under the ILUA by coordinating with the ILUA Consultative Committee and Protecting Sea, Land and Environment Committee. | Q1 |  | 10.0% | Despite a number of attempts to arrange meetings of the Consultative Committee and Protecting Sea, Land & Environment Committee, this commitment has not been able to be met due to the unavailability of key QYAC personnel. Attempts by Council to meet with QYAC will continue to be made. |
| | Q2 |  | 50.0% | |
| b) Monitor progress of ILUA activities delivered by key internal stakeholders and report to Council's Executive Leadership Team quarterly. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| c) Continue to work collaboratively with Quandamooka Yoolooburrabee Aboriginal Corporation (QYAC). | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Key Initiative KI3.2 Key Initiative 2 - Continue to improve Council's capacity to deliver positive outcomes for the Traditional Owners of much of Redlands Coast, the Quandamooka People, and all Aboriginal and Torres Strait Islander people living on Redlands Coast, through policy as well as cultural awareness and heritage training for elected representatives and Council employees.



| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|----------------------|------------|
| KI3.2.1 Implement culturally appropriate protocols and promote traditional knowledge. | | | Corporate Governance | |
| a) Implement and monitor cultural heritage and cultural awareness training to employees and elected members. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Promote cultural awareness to staff and celebrate Quandamooka and Aboriginal and Torres Strait Islander culture through key events such as the National Aborigines and Islanders Day Observance Committee (NAIDOC) and National Reconciliation Week. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Key Initiative KI3.3 Key Initiative 3 - Work with the Quandamooka People to promote respect and understanding of Quandamooka culture and Native Title within the Redlands Coast community.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|----------------------|--|
| KI3.3.1 Engage key stakeholders for the preparation of the determination of Native Title on the Redlands Coast mainland. | | | Corporate Governance | |
| a) Work with Traditional Owners and the Queensland Government on Native Title claim requirements. | Q1 |  | 15.0% | Council has undertaken preparatory work in relation to the mainland Native Title Claim. This has involved the identification of over 1,100 parcels of land currently under Council's control or with Council assets built thereon. An initial meeting between Council and the claimants has taken place during the reporting period. |
| | Q2 |  | 30.0% | Council undertook preparatory work in relation to the mainland Native Title Claim. This involved the identification of over 3,000 parcels of land currently under Council control or with Council assets built thereon. Court mediation will recommence in February 2022 to discuss a process to move forward. |
| b) Develop a mainland Indigenous Land Use Agreement for both Traditional Owner groups. | Q1 |  | 5.0% | No progress on the development of the ILUA at the time of reporting due to extended Court timetable for the two Mainland Native Title Applications. |
| | Q2 |  | 5.0% | No progress on the development of the ILUA at the time of reporting due to extended Court timetable for the two Mainland Native Title Applications. |

| | | | | |
|--|----|---|---------------------------------------|--|
| KI3.3.2 Promote Quandamooka culture and information to improve understanding of Native Title. | | | Communication, Engagement and Tourism | |
| a) Provide information through Council's communication channels including Our Redlands magazine, social media and website. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Key Initiative KI3.4 Key Initiative 4 - Work collaboratively with the Quandamooka People to help achieve a positive future for North Stradbroke Island/Minjerribah post sandmining, including advocacy for local planning.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|------------------------------------|------------|
| KI3.4.1 Strengthen the local North Stradbroke Island (Minjerribah) economy. | | | Community and Economic Development | |
| a) Engage with key stakeholders on Minjerribah to identify and deliver initiatives to strengthen the local economy. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Quandamooka Country - Key Activities and Highlights

Promote Quandamooka culture and information to improve understanding of Native Title.

Council promoted Quandamooka culture information in Our Redlands Coast magazine, delivered an Ekka long weekend tourism campaign across South East Queensland that heavily promoted Quandamooka cultural experiences, and Jandai dual names (where known) were included in all internal and external communications.

Council's cultural 'Look, Listen, Understand' education program for staff won a national training award, and Council attended a Destination IQ (Indigenous Queensland) statewide forum. Quandamooka elders presented Welcome to Country at numerous Council delivered events, including Christmas on the Coast, Dîner en Rouge and citizenship ceremonies.

Develop a dual naming policy for Council.

Council is investigating how to work within the Queensland Government's legislative requirements.

Support delivery of Indigenous Land Use Agreement (ILUA) commitments.

Council continued to manage the ILUA sub-committees and monitor progress of ILUA activities. The quarter one ILUA report for 2021-2022 was presented to Council's Executive Leadership Team in October 2021.

Engage key stakeholders for the preparation of the determination of Native Title on the Redlands Coast mainland.

The Indigenous Land Use Agreement for mainland claim is on hold due to court proceeding with land tenure discussions.

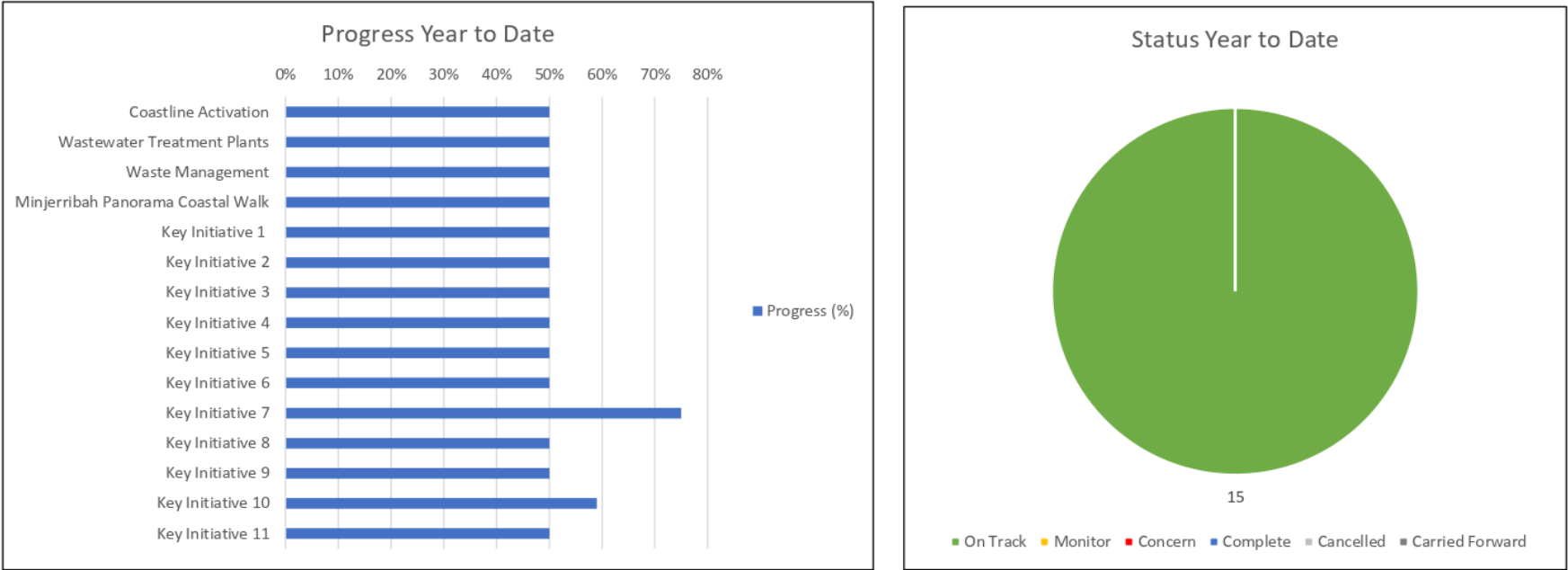
Implement culturally appropriate protocols and promote traditional knowledge.

Council's cultural awareness training program won the category of Best Diversity and Inclusion Program in the Australian Institute of Training and Development Excellence Awards 2021. Council continued to run Indigenous cultural training and information sessions within the organisation.

Implement and establish reconciliation action plans.

Council continued to implement actions in the Kanara Malara - One People 2019-2021 Internal Redland City Council Reconciliation Action Plan. The Plan has 55 actions and 51 of these have been completed. Council has registered with Reconciliation Australia to develop an external reconciliation action plan.



Natural Environment







For details on Natural Environment Key Initiatives 1-11 refer pages 26 to 32 of this attachment.

Natural Environment



Catalyst Project CP4.1 Coastline Activation - Finalise a strategy to activate the Redlands coastline, including Cleveland Point land access improvements and other landside improvements across the city, to encourage appreciation, recreation and utilisation of our unique natural bay and creek waterfront spaces and places.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|----------------------------|------------|
| CP4.1.1 Commence scoping a strategy to activate the Redlands Coast coastline. | | | Environment and Regulation | |
| a) Establish a working group for pre-planning of the strategy. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Catalyst Project CP4.2 Wastewater Treatment Plants - Develop a strategy to review opportunities associated with Council's wastewater treatment plants including new forms of energy.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|-------------|------------|
| CP4.2.1 Develop an overall strategy for wastewater treatment plants. | | | City Assets | |
| a) Review release to environment requirements based on proposed strategy options for treatment plants. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Finalise the strategy based on preferred options for treatment plants. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Catalyst Project CP4.3 Waste Management - Participate in the development of a regional waste plan, and develop a local Waste Recycling and Reduction Plan to move towards a zero waste future.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|-------------|------------|
| CP4.3.1 Participate in the development of a regional waste plan. | | | City Assets | |
| a) Continue to participate in regional forums. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

| | | | | |
|---|----|---|-------------|--|
| CP4.3.2 Develop a local waste recycling and reduction plan to move towards a zero waste future. | | | City Assets | |
| a) Consolidate community feedback and finalise the plan. | Q1 | ● | 30.0% | |
| | Q2 | ● | 50.0% | |
| b) Seek Council endorsement of the plan. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| c) Implement actions from the plan. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |

Catalyst Project CP4.4 Minjerribah Panorama Coastal Walk - Progress next stages of this unique connection to enhance visitors' experiences, by harnessing key views and completing a safe pedestrian link between Point Lookout Village and Cylinder Beach.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|-------------|------------|
| CP4.4.1 Plan for the Minjerribah Panorama Coastal Walk Project on North Stradbroke Island (Minjerribah). | | | City Assets | |
| a) Continue to deliver stages of Minjerribah Panorama Coastal Walk works. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |





Key Initiative KI4.1 Key Initiative 1 - Continue to target rehabilitation, regeneration and habitat management works in key priority areas, based on strategic mapping and research through the delivery of the Redlands Wildlife Connections Action Plan.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|----------------------------|------------|
| KI4.1.1 Implement the Wildlife Connections Action Plan 2018-2023. | | | Environment and Regulation | |
| a) Improve corridor habitat by identifying strategic areas for native vegetation planting, threat management and extension programs in identified corridor gaps and pinch points. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Reduce impacts on corridors by enhancing buffers on freehold land and supporting landholders in creating buffers of native vegetation to reduce the risk of edge effects along priority corridors. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| c) Reduce impacts on corridors by reviewing conservation land acquisition priorities. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |







Key Initiative KI4.2 Key Initiative 2 - Deliver Council's Koala Conservation Strategy and review and update the Koala Conservation Action Plan to commit to proactively preserve our koala population.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|----------------------------|------------|
| KI4.2.1 Implement the Koala Conservation Strategy 2016 and review the Koala Conservation Action Plan 2016-2021. | | | Environment and Regulation | |
| a) Continue to collaborate with research bodies, government agencies and the Redlands Coast community to develop a robust understanding of koala population, health, ecology and movement to inform and strengthen koala conservation planning. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Continue to support the creation of a connected, high quality network of koala habitats capable of supporting a long term, viable and sustainable population of koalas. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| c) Manage the impacts of threatening processes on koala populations by undertaking on-ground works that reduce koala mortality. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| d) Increase understanding, connection to and participation in koala conservation actions and behaviours with the Redlands Coast community. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| e) Review the Koala Conservation Action Plan 2016. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |







Key Initiative KI4.3 Key Initiative 3 - Partner with the community to manage fire risk through Council's fire management program.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|-----------------|--|
| KI4.3.1 Implement Council's fire management program. | | | City Operations | |
| a) Plan and review key areas for mitigation of fire risk rate and carry out maintenance programs as required. | Q1 |  | 25.0% | Fire risk management activities have included planned burns and vegetation management in fire access trails and community engagement sessions. |
| | Q2 |  | 50.0% | |
| b) Continue to deliver community education events. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |



Key Initiative KI4.4 Key Initiative 4 - Explore and implement opportunities to proactively reduce Council's carbon footprint.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|----------------------------|------------|
| KI4.4.1 Explore and implement opportunities to proactively reduce Council's carbon footprint. | | | Environment and Regulation | |
| a) Continue to maintain and improve Council's carbon and energy dashboard. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Continue to investigate renewable energy opportunities on Council buildings. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| c) Deliver information promoting sustainable living options including alternative energy usage to the Redlands Coast community. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |





Key Initiative KI4.5 Key Initiative 5 - Continue to implement the Coastal Hazard Adaptation Strategy to proactively manage the impact of climate change on our foreshores.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|-------------|------------|
| KI4.5.1 Implement the Coastal Hazards Adaptation Strategy across Redlands Coast. | | | City Assets | |
| a) Continue to implement actions in accordance with the Strategy including coastal monitoring and protection work. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Implement knowledge sharing actions recommended in the Strategy including working with community groups, providing fact sheets and collaborating with infrastructure providers. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| c) Embed hazard modelling in asset management practices across relevant asset classes. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Key Initiative KI4.6 Key Initiative 6 - Support the transition to a circular economy for waste and participate in regional collaboration and other partnership opportunities to improve resource efficiency.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|-------------|--|
| KI4.6.1 Continue to implement the Sub Regional Waste Procurement Process. | | | City Assets | |
| a) Continue as part of the external working group and provide status updates. | Q1 |  | 25.0% | Council collaboration with working group on procurement process. |
| | Q2 |  | 50.0% | |

Key Initiative KI4.7 Key Initiative 7 - Partner with Seqwater and other water service providers to contribute to the development of the Water 4 SEQ Plan – an integrated plan for water cycle management in South East Queensland, supporting drought preparedness for the region.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|-------------|------------|
| KI4.7.1 Partner with Seqwater and other water service providers. | | | City Assets | |
| a) Continue participation with Seqwater and other water service providers in regular forums. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Contribute to the development of the Water for South East Queensland: Planning for our future Annual Report 2021. | Q1 |  | 25.0% | |
| | Q2 |  | 100.0% | |















Key Initiative KI4.8 Key Initiative 8 - Deliver the Redlands Coast Biosecurity Plan to proactively manage the impacts to Redlands Coast environmental assets and community lifestyle posed by biosecurity risks.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|----------------------------|------------|
| KI4.8.1 Deliver the Redlands Coast Biosecurity Plan 2018-2021. | | | Environment and Regulation | |
| a) Prevent and detect invasive biosecurity matter. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Promote awareness and education of biosecurity and pest management. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| c) Manage systems to provide effective pest control and enforcement activities. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |

Key Initiative KI4.9 Key Initiative 9 - Work with the community to provide education opportunities to support, enhance and encourage environmental understanding and grow environmental connections.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|----------------------------|------------|
| KI4.9.1 Provide education opportunities to the Redlands Coast community to support, enhance and encourage environmental understanding and grow environmental connections. | | | Environment and Regulation | |
| a) Develop and deliver a wildlife education program through scheduled workshops, events, social media and online resources which includes endangered, threatened and iconic species. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Deliver the IndigiScapes workshop and event schedule to align with environmental strategies and plans, and respond to the community. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| c) Provide extension services with private land owners and the community in accordance with identified priority areas. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| d) Deliver community Bushcare programs in identified priority areas. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |

Key Initiative KI4.10 Key Initiative 10 - Implement programs to address the impacts of land uses on waterways by delivering a coordinated approach to catchment management.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|----------------------------|------------|
| KI4.10.1 Implement waterway catchment management programs. | | | Environment and Regulation | |
| a) Finalise the Redlands Coast Bay and Creeks Plan. | Q1 |  | 100.0% | |
| | Q2 |  | 100.0% | |
| b) Contribute to the Lower Brisbane - Redlands Coastal Catchment Action Plan 2018-2021. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| c) Participate in relevant partnerships and networks that foster catchment management and improved water quality. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| d) Undertake catchment water quality monitoring. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| e) Monitor recreational water quality. | Q1 |  | 25.0% | |
| | Q2 |  | 60.0% | |
| f) Respond to and investigate customer service requests for erosion and sediment control matters. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| g) Monitor compliance with development approvals for sediment and erosion control matters. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Key Initiative KI4.11 Key Initiative 11 - Partner with industry leaders to investigate alternative sources of energy that provide environmental, community and economic benefits.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------------|------------|
| KI4.11.1 Support initiatives that advance alternative sources of energy for Redlands Coast. | | | Community and Economic Development | |
| a) Investigate opportunities to advance a green hydrogen economy for Redlands Coast. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Facilitate partnerships with industry and all levels of government to externally fund green hydrogen projects. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| c) Promote opportunities to partner with governments, industry and research sectors on green energy initiatives to secure economic, environmental and social opportunities for Redlands Coast. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |

Natural Environment - Key Activities and Highlights

Implement the Koala Conservation Strategy 2016 and review the Koala Conservation Action Plan 2016-2021.

Council worked with Queensland Rail and researchers on a project to better understand koala movement patterns across the rail corridor, which will assist in prioritising fence upgrades and vegetation management. Queensland Rail collaborated with Council to plan the installation of Artificial Intelligence (AI) cameras at strategic locations along the rail corridor between Birkdale and Cleveland, with footage captured of a koala using the existing underpass at Birkdale.

Council presented at the Restoring Nutritional Landscapes Conference, KoalaCollab Conference, contributed to the Department of Environment and Science (DES) Post Implementation Review of the Koala Habitat regulations, and provided advice for the Heinemann Road, Northern Greenway Project and Wellington Road upgrades.

Communication and engagement activities included promoting Koala Watch, supporting Koala Safe Neighbourhoods and working with Griffith University to deliver the Dogfest event, which attracted 2,500 attendees and 1,700 dogs at Capalaba Regional Park. Hosted by Griffith University's Social Marketing Research team and funded by DES, Dogfest aims to bring the community together to learn more about responsible pet ownership and animal welfare.

Newsletters were distributed to approximately 10,500 residents across the four koala conservation safe neighbourhoods of Birkdale, Thornlands, Mount Cotton and Ormiston.

Council conducted an annual Minjerribah (NSI) Urban Koala Survey, and led a group of 29 volunteers including community members, University of Queensland, University of Sunshine Coast and koala conservation groups, to observe 76 koalas (including 12 joeys).

The *Redlands Coast Koala Conservation Plan and Action Plan 2022-2027* was adopted by Council in December 2021. The new Plan and Action Plan build on a robust scientific base, aiming to improve the health and viability of Redlands Coast's koala population.

Implement Council's fire management program.

Fire risk management activities have included proactive vegetation management, post burn weed control, construction of fire trails and community engagement sessions.

Develop a local waste recycling and reduction plan to move towards a zero waste future.

The Waste Reduction and Recycling Plan is being finalised for adoption. The South East Queensland Waste Plan has been published.

Implement waterway catchment management programs.

The *Redlands Coast Bay and Creeks Plan 2021-2031* and the associated *Redlands Coast Bay and Creeks Action Plan* were adopted by Council at the 16 June 2021 General Meeting. Key points and actions from *Lower Brisbane - Redlands Coastal Catchment Action Plan 2018-2021* have been incorporated into the *Redlands Coast Bay and Creeks Plan 2021-2031*. Council participated in the SEQ Water by Design Steering Committee meeting and contributed to the Healthy Land and Water Monitoring and Evaluation Steering Committee. Officers provided expert input and consulted with the Department of Environment and Science regarding the proposed water quality objectives for Redlands Coast. Healthy Land and Water released their Annual Report Card, with Redland City receiving a C+ for environmental condition and 3 star community benefit.

Council conducted recreational water quality monitoring including 128 inspections and collection of routine samples.

Council received 27 reactive erosion and sediment control requests, with 20 investigations concluded, and seven remaining current for ongoing compliance monitoring. Eight proactive investigations were raised, with five remaining current for ongoing monitoring. Nine requests have been actioned for developed approval sites.

Provide education opportunities to the Redlands Coast community to support, enhance and encourage environmental understanding and grow environmental connections.

Council's Community and Environment Education Program (CEEP) Framework was developed, which focuses on the Redlands Coast. Drawing on Council's plans, strategies and policies. This will allow Council to offer a multi-channel delivery of programs focused on one key species, area or aspect of the natural environment of Redlands Coast.

Council delivered a workshop program that included growing native orchids, native bees, eco-living, STEAM (science, technology, engineering, arts and mathematics) activities, wildlife education and awareness, bryophytes, terrestrial and freshwater ecology, beneficial insects, creating backyard ponds and propagating native plants.

Council supported the Redlands Coast Community Bushcare Program and Bushcare Seed Collection Group, and held community planting days, seed collection days, and a *Care for Coast* event that gave participants an opportunity to learn more about coastal habitats and shorebirds.

During December 2021, Coochiemudlo Native Nursery volunteers took part in a tour and information exchange with Council officers at the Redland's IndigiScapes Community Native Plant Nursery.

Implement the Wildlife Connections Action Plan 2018-2023.

Council completed mapping utilising the *Wildlife Connections Plan 2018-2028* and priority area mapping as the base for the analysis of land acquisitions and dedications in order to prioritise those located within wildlife corridors and/or priority areas.

Council officers analysed spatial data and priority mapping from the *Wildlife Connections Plan 2018-2028* to more closely align environmental programs to manage, enhance and protect the identified core habitat and corridors. This has enabled a continual review of the conservation land watch list.

Council's Environmental Partnerships Program delivered environmental education workshops including bushfire ecology, biosecurity and understanding native plants. Council helped residents to plant more than 5000 native plants within or adjacent to identified environmental corridors/priority areas, and apply control and management measures for pests, weed species and erosion control across Redlands Coast.

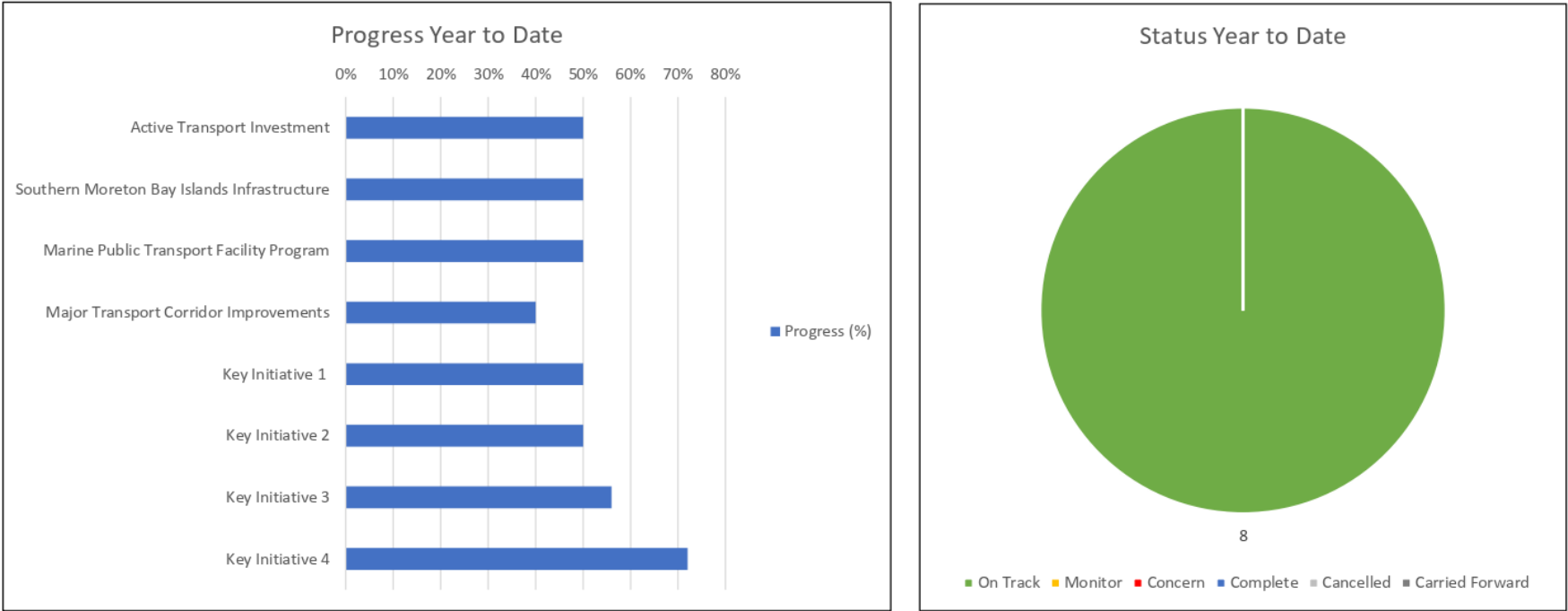
Deliver the Redlands Coast Biosecurity Plan 2018-2021.

Council visited 1,000 properties, inspecting 353 hectares. As a result 15 advisory notices for declared plants, four general biosecurity orders and one biosecurity order was issued.

Council engaged with local businesses and organisations to raise awareness of invasive plants and animals and attended the Local Government Biosecurity Reference Group Meeting.

Council supported the Community Bushcare Group, attended the Nursery Agricultural Trade Day, delivered environmental education workshops about bushfire ecology, biosecurity and understanding native plants, and helped residents to plant more than 5,000 native plants within or adjacent to identified environmental corridors/priority areas to apply control and management measures for pests, weed species and erosion control across Redlands Coast.







Liveable Neighbourhoods





For details on Liveable Neighbourhoods Key Initiatives 1-4 refer pages 39 to 40 of this attachment.

Liveable Neighbourhoods





Catalyst Project CP5.1 Active Transport Investment - Pivot Council's existing transport expenditure to deliver a step-change in active transport connectivity across the city, through improving cycling and pedestrian facilities.

| Operational Plan 2021-2022 Activity | | | | Progress | Commentary |
|--|----|---|-------|-------------|------------|
| CP5.1.1 Continue to provide transport connectivity across Redlands Coast by improving cycling and pedestrian facilities. | | | | City Assets | |
| a) Develop capital works program planning to improve connectivity of footpaths and cycleways. | Q1 |  | 25.0% | | |
| | Q2 |  | 50.0% | | |
| b) Deliver the capital works program to construct footpaths and cycleways. | Q1 |  | 25.0% | | |
| | Q2 |  | 50.0% | | |
| c) Continue to advocate with funding partners to align existing and future projects to targeted funding opportunities. | Q1 |  | 25.0% | | |
| | Q2 |  | 50.0% | | |



Catalyst Project CP5.2 Southern Moreton Bay Islands Infrastructure - Consolidate existing plans and strategies to develop a roadmap to improve infrastructure on the islands.

| Operational Plan 2021-2022 Activity | | | | Progress | Commentary |
|---|----|---|-------|-------------|------------|
| CP5.2.1 Consolidate existing plans and strategies for infrastructure across the Southern Moreton Bay Islands. | | | | City Assets | |
| a) Define the project scope and identify resourcing required to consolidate strategies and plans from a planning, social, infrastructure and environmental perspective. | Q1 |  | 20.0% | | |
| | Q2 |  | 50.0% | | |





Catalyst Project CP5.3 Marine Public Transport Facility Program - Progress the upgrade of the four Southern Moreton Bay Islands ferry terminals and review development opportunities both on adjoining land and through the repurposing of existing structures for recreational purposes.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|-------------|------------|
| CP5.3.1 Deliver Southern Moreton Bay Island jetty upgrades in partnership with the Queensland Government. | | | City Assets | |
| a) Collaborate with the Queensland Government to deliver stages of nominated sites. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Monitor project progression including expenditure of the overall project. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |











Catalyst Project CP5.4 Major Transport Corridor Improvements - Including Wellington Street and Panorama Drive Upgrade Program – Deliver Stage 1 of the multi-stage upgrade of this major transport corridor.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|-------------|---|
| CP5.4.1 Deliver the Wellington Street and Panorama Drive Upgrade Program Stage 1 in partnership with the Federal Government. | | | City Assets | |
| a) Complete service relocations and commence civil construction works. | Q1 |  | 15.0% | Planning for service relocations has been completed, on-site works have not commenced and expect to release multi-year construction tender to market in late quarter two. |
| | Q2 |  | 40.0% | |









Key Initiative KI5.1 Key Initiative 1 - Undertake planning to create attractive and vibrant city centres where people can live and work locally.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------------|------------|
| KI5.1.1 Leverage the centres management approach to support mixed-use centres that provide opportunities for living and working locally. | | | Community and Economic Development | |
| a) Identify development and investment opportunities. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Coordinate local activity to improve and promote liveability of centres. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |







Key Initiative KI5.2 Key Initiative 2 - Develop a framework for an ongoing local area planning program to provide solutions to meet the specific needs of individual local areas and support their unique character and identity.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------|------------|
| KI5.2.1 Develop a framework for an ongoing local area planning program. | | | City Planning and Assessment | |
| a) Define local area planning, identify key locations that require finer grade planning, establish a level of significance and priority, and prepare a work program. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Commence a statutory review of the Local Government Infrastructure Plan. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| c) Continue collaboration and input into the review of planning provisions for the City's canal and lakeside estates. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| d) Finalise Major Amendment 05/19 – South West Victoria Point Local Plan. | Q1 |  | 50.0% | |
| | Q2 |  | 50.0% | |
| e) Continue to progress land use investigations of the Southern Thornlands Potential Future Growth Area including drafting any required amendments to City Plan. | Q1 |  | 50.0% | |
| | Q2 |  | 50.0% | |

Key Initiative KI5.3 Key Initiative 3 - Engage our community to co-design the liveability of their neighbourhoods through planning, placemaking, and the management of community assets.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------|------------|
| KI5.3.1 Engage the Redlands Coast community to co-design the liveability of their neighbourhoods through planning, placemaking, and the management of community assets. | | | City Planning and Assessment | |
| a) Progress two minor/administrative amendments and Major Amendment 02/20- General. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Commence implementation of Major Amendment 03/19 – Heritage with a supporting incentives package and implement Temporary Local Planning Instrument 01/21 – Protection of Local Heritage Places (TLPI 01/21) as an interim protection measure. | Q1 |  | 75.0% | |
| | Q2 |  | 75.0% | |
| c) Finalise Major Amendment 04/20 - Medium Density Residential Zone Code Amendment. | Q1 |  | 50.0% | |
| | Q2 |  | 50.0% | |
| d) Finalise Major Amendment 01/21 Environmental. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Key Initiative KI5.4 Key Initiative 4 - Deliver the Redlands Coast Transport Strategy, to create a more efficient, accessible and safer integrated transport system.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|------------------------------|------------|
| KI5.4.1 Deliver the Redlands Coast Transport Strategy 2041. | | | City Planning and Assessment | |
| a) Commence development of the Redlands Coast Active Transport Plan. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Implement the Weinam Creek car share initiative. | Q1 |  | 100.0% | |
| | Q2 |  | 100.0% | |
| c) Commence an options analysis for the Northern Greenway Transport Corridor. | Q1 |  | 40.0% | |
| | Q2 |  | 65.0% | |

Liveable Neighbourhoods - Key Activities and Highlights

Develop a framework for an ongoing local area planning program.

Consultants were appointed to assist Council with its review of the Local Government Infrastructure Plan.

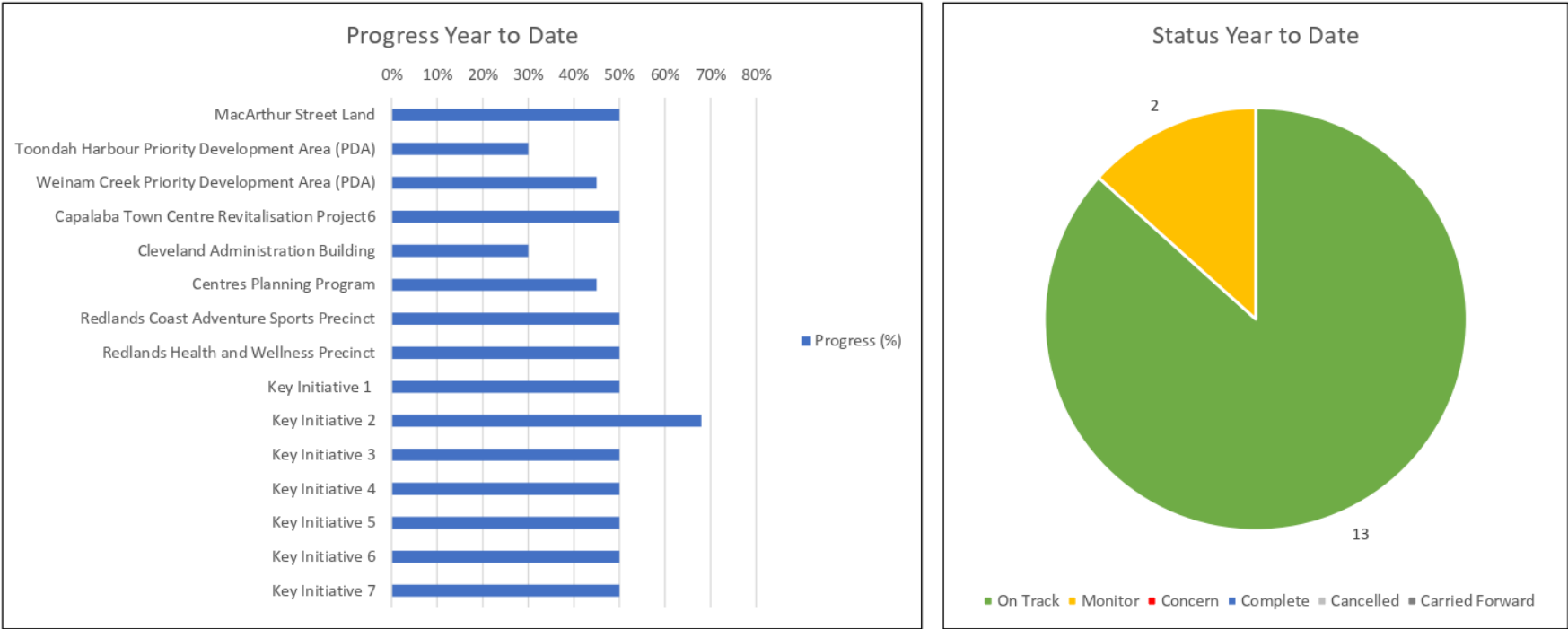
Leverage the centres management approach to support mixed-use centres that provide opportunities for living and working locally.

The Cleveland Productive Precinct Prospectus is being used to promote the Cleveland offer and generate investment interest in the centre. Initiatives are being explored in partnership with industry to boost commercial occupancy in Cleveland by providing small business growth space, subject to leveraging external resources.

Deliver the Redlands Coast Transport Strategy 2041.

The Weinam Creek Car Share Scheme is now operational. Scoping work has progressed to develop a Draft Redlands Coast Active Transport Plan. An options analysis was progressed for the Northern Greenway.



Thriving Economy




For details on Thriving Economy Key Initiatives 1-7 refer pages 48 to 50 of this attachment.




Thriving Economy

Catalyst Project CP6.1 MacArthur Street land - Seek partnerships for investment in infrastructure and facilities that balance enhanced social and economic opportunities.





| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|----------------------------|------------|
| CP6.1.1 Seek partnerships for investment in infrastructure and facilities for MacArthur Street Land. | | | Environment and Regulation | |
| a) Finalise recommendations in relation to the social and economic opportunities for the land. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Catalyst Project CP6.2 Toondah Harbour Priority Development Area (PDA) - Progress Council's obligations under its Development Agreement with Economic Development Queensland and Walker Corporation to support the commitment to reinforce Toondah Harbour as the regional gateway to Moreton Bay and the islands.





| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|---|---|
| CP6.2.1 Progress the delivery of the Toondah Harbour PDA. | | | Office of the General Manager Organisational Services | |
| a) Report on progress of the development of the Environmental Impact Statement (EIS) covering coastal processes, water quality, aquatic ecology, fisheries, shorebirds, koalas and cultural heritage. | Q1 |  | 15.0% | The draft EIS has been submitted to the Department of Agriculture, Water and Environment and is in the adequacy review stage. |

| | | | | |
|---|----|---|-------|--|
| a) Report on progress of the development of the Environmental Impact Statement (EIS) covering coastal processes, water quality, aquatic ecology, fisheries, shorebirds, koalas and cultural heritage. | Q2 |  | 30.0% | Redland Investment Corporation continued to work closely with Walker Group and Economic Development Queensland to progress the Toondah Harbour PDA redevelopment progress. The Draft Environmental Impact Studies is currently in the adequacy review stage with the Australian Government Department of Agriculture, Water and the Environment. |
| b) Report on the implementation of a public consultation process on the final EIS. | Q1 |  | 15.0% | Public Notice period (40 business days) will commence when the Department of Agriculture, Water and Environment approves the release of the draft EIS to the community. |
| | Q2 |  | 30.0% | Public Notice period (40 business days) will commence when the Department of Agriculture, Water and Environment approves the release of the draft EIS to the community. |



Catalyst Project CP6.3 Weinam Creek Priority Development Area (PDA) - Progress Council's staged master-plan that will transform the waterfront of Redland Bay, provide community infrastructure for local families, improve the usability of the transport hub, attract visitors, create jobs and drive economic development in the area.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|---|---|
| CP6.3.1 Progress the delivery of the Weinam Creek PDA. | | | Office of the General Manager Organisational Services | |
| a) Finalise the PDA master-plan with Economic Development Queensland. | Q1 |  | 25.0% | The master-plan for the Weinam Creek Priority Development area has been submitted to Economic Development Queensland for assessment. The master-plan was available for public consultation in quarter one of 2021-2022. The next step is for Economic Development Queensland to review the application and submissions made during the public consultation period and make a decision on the application. |
| | Q2 |  | 50.0% | |
| b) Progress Stage 3 of the Weinam Creek PDA project involving civil works on the northern side of Weinam Creek, and investigate boat ramp changes and carpark alterations. | Q1 |  | 15.0% | |
| | Q2 |  | 40.0% | |







Catalyst Project CP6.4 Capalaba Town Centre Revitalisation Project - Progress the revitalisation of Capalaba Town Centre to create a vibrant mixed-use centre anchored by community, commercial, and retail facilities, and activated public spaces with integrated transport.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------------|------------|
| CP6.4.1 Progress the Capalaba Town Centre Revitalisation Project. | | | Community and Economic Development | |
| a) Coordinate the project steering committee and maintain oversight over deliverables. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Leverage wider investment opportunities for the Capalaba Town Centre. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Catalyst Project CP6.5 Cleveland Administration Building - Undertake a review of Council's Cleveland accommodation requirements.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|---|---|
| CP6.5.1 Commence a review of Council's Cleveland accommodation. | | | Office of the General Manager Organisational Services | |
| a) Undertake pre-planning activities to determine options for Council's office footprint in Cleveland. | Q1 |  | 25.0% | Work is underway to appoint a Project Manager to guide Council's efforts and to develop a detailed business case for Council's consideration of the next steps. |
| | Q2 |  | 30.0% | |

Catalyst Project CP6.6 Centres Planning Program - Accelerate a centres planning program to enhance the city's productive precincts including the Cleveland CBD, creating opportunity for business investment, and increase in skills and capacity for employment.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------------|--|
| CP6.6.1 Implement a centre management approach to enhance Redlands Coast key economic and lifestyle precincts. | | | Community and Economic Development | |
| a) Establish a place management governance and delivery model with an initial focus on Cleveland CBD. | Q1 |  | 25.0% | Governance and delivery model options are being refined, following recruitment of a permanent Place Manager, for rollout in quarter three. |
| | Q2 |  | 35.0% | |
| b) Deliver priority projects focused on economic impact, activations and placemaking. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| c) Review progress in Cleveland and apply learnings to the implementation of other centres. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Catalyst Project CP6.7 Redlands Coast Adventure Sports Precinct - Progress the new Redlands Coast integrated Aquatic Centre and Olympic standard Canoe-Kayak Slalom facility to provide additional sport, recreation and emergency services education and training facilities.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------------|------------|
| CP6.7.1 Undertake planning for integrated aquatic and canoe/kayak slalom facilities. | | | Community and Economic Development | |
| a) Progress detailed master-planning for an integrated aquatic Olympic standard whitewater facility. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Continue planning and advocacy for the 2032 Olympic and Paralympic Games. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| c) Leverage opportunities connected to the broader Birkdale Community Precinct. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |

Catalyst Project CP6.8 Redlands Health and Wellness Precinct - Facilitate the delivery of the Redlands Health and Wellness Precinct as a catalyst economic opportunity to create an expanded health, social services, education and allied health cluster that can generate employment growth, and promote higher order specialist and tertiary health services.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------------|------------|
| CP6.8.1 Collaborate with industry and government to advance the Redlands Health and Wellness Precinct. | | | Community and Economic Development | |
| a) Collaborate with project partners for delivery of the Redlands Health and Wellness Precinct and establish a Memorandum of Understanding with key stakeholders and other relevant parties. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Contribute to activating a legislative pathway for delivering the Redlands Health and Wellness Precinct Master Plan. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |

Key Initiative KI6.1 Key Initiative 1 - Continue to implement the Redlands Economic Development Framework 2041 and key industry sector plans to grow the city's economy in key sectors:





- Health Care and Social Assistance
- Education and Training
- Rural Enterprise
- Manufacturing
- Tourism

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------------|------------|
| KI6.1.1 Implement plans to grow the Redlands Coast economy in key economic industry sectors. | | | Community and Economic Development | |
| a) Finalise and commence implementation of the Redland City Manufacturing Industry Sector Plan 2021-2026. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Contribute to implementation of the Redlands Coast Destination Management Plan 2021-2026. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| c) Continue to implement industry sector plans for health care and social assistance, the education and training industry, and the rural enterprises industry. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |



Key Initiative KI6.2 Key Initiative 2 - Promote Redlands Coast as a destination of choice through the delivery of the Redlands Coast Destination Management Plan.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|---------------------------------------|------------|
| KI6.2.1 Deliver the Redlands Coast Destination Management Plan 2021-2026. | | | Communication, Engagement and Tourism | |
| a) Finalise the Redlands Coast Destination Management Plan 2021-2026. | Q1 | ● | 85.0% | |
| | Q2 | ● | 85.0% | |
| b) Implement actions of the Redlands Coast Destination Management Plan 2021-2026. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |

Key Initiative KI6.3 Key Initiative 3 - Advocate for improved digital infrastructure to enhance the city's capacity to attract business investment and growth and enhance productivity.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------------|------------|
| KI6.3.1 Undertake advocacy with all levels of government and industry for improved data and communications infrastructure to support Redlands Coast current and future business needs. | | | Community and Economic Development | |
| a) Advocate for expansion of the national broadband network business grade fibre zone in key business precincts across Redlands Coast. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Support identification of funding opportunities for expansion of Council's dark fibre project and opportunities for businesses to connect. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Key Initiative KI6.4 Key Initiative 4 - Collaborate with community, industry, local businesses, and entrepreneurs to realise opportunities in the circular economy.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|------------------------------------|------------|
| KI6.4.1 Promote opportunities in the circular economy. | | | Community and Economic Development | |
| a) Facilitate partnerships that encourage industry and business to participate in the circular economy. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Key Initiative KI6.5 Key Initiative 5 - Deliver initiatives to attract investment to Redlands Coast across key industry sectors, and support local businesses.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|------------------------------------|------------|
| KI6.5.1 Boost the Redlands Coast investment profile through targeted proactive strategy, marketing and focused implementation. | | | Community and Economic Development | |
| a) Develop an investment attraction plan to support growth of the Redlands Coast economy, based on sound economic analysis. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Produce an investment prospectus that captures the current pipeline of investment, local success stories, specific opportunities and identifies new incentives. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| c) Develop a marketing plan that drives implementation and supports a seamless customer experience. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |

Key Initiative KI6.6 Key Initiative 6 - Support the attraction and delivery of events through improved infrastructure at event locations across the city.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|---------------------------------------|------------|
| KI6.6.1 Review events infrastructure requirements at Council venues. | | | Communication, Engagement and Tourism | |
| a) Investigate event infrastructure requirements at key Council venues, such as parks and the showground, to maximise event attraction. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |

Key Initiative KI6.7 Key Initiative 7 - Support key festivals that drive visitors to Redlands Coast.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|---------------------------------------|------------|
| KI6.7.1 Deliver actions from the Redland City Events Strategy and Action Plan 2017- 2022. | | | Communication, Engagement and Tourism | |
| a) Attract and retain key festivals and events on Redlands Coast. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |

Thriving Economy - Key Activities and Highlights

Implement plans to grow the Redlands Coast economy in key economic industry sectors.

The development of the Manufacturing Industry Sector Plan (MISP) continued to be progressed with feedback on KPMG Consultant's Draft MISP considered by Council. A further network event of manufacturing businesses (Business Brews) was held in October with a key note speaker from TAFE engaging with attendees. Diverse education and employment pathways under the Redland City Education and Training Industry Sector Plan are being explored with Council participating in the Redlands Regional Jobs Committee, Redlands Young Futures Advisory Group and Local Jobs and Skills Taskforce.

Progress the Capalaba Town Centre Revitalisation Project.

Redland Investment Corporation continued to work closely with preferred development partner Shayher Group to progress the Draft Master Plan and finalise commercial agreements.

Implement a centre management approach to enhance Redlands Coast key economic and lifestyle precincts.

Key initiatives are progressing including project development of an industry-driven small business growth centre, bringing together local start-ups and investors and development of a Village Events and Activation Grants Program to be implemented in quarter three.

Undertake planning for integrated aquatic and canoe/kayak slalom facilities.

Following confirmation of the Birkdale Community Precinct as the location for the Olympic canoe slalom venue, detailed project planning for the Redlands Coast Adventure Sports Precinct progressed. As arrangements for delivery of the Brisbane Olympic and Paralympic Games evolved, Mayor Karen Williams was confirmed as a member of the Organising Committee of the Olympic Games (OCOG).

Boost the Redlands Coast investment profile through targeted proactive strategy, marketing and focused implementation.

Council forged a strong partnership with Trade & Investment Queensland and successfully delivered the 'Business Breakfast - Redlands Coast & New Zealand' breakfast event, which is the first in a series of collaborative events. Relationships were also developed with local industries to assist with their growth as well as gain knowledge of current market challenges to help devise solutions. Support was provided to local businesses to connect them to global investment opportunities. Work commenced to develop a new Invest Redlands Coast microsite.

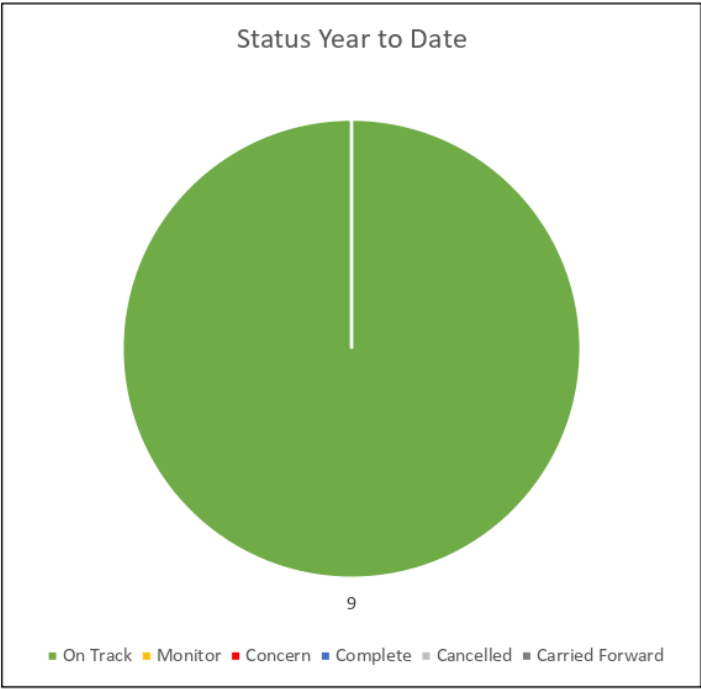
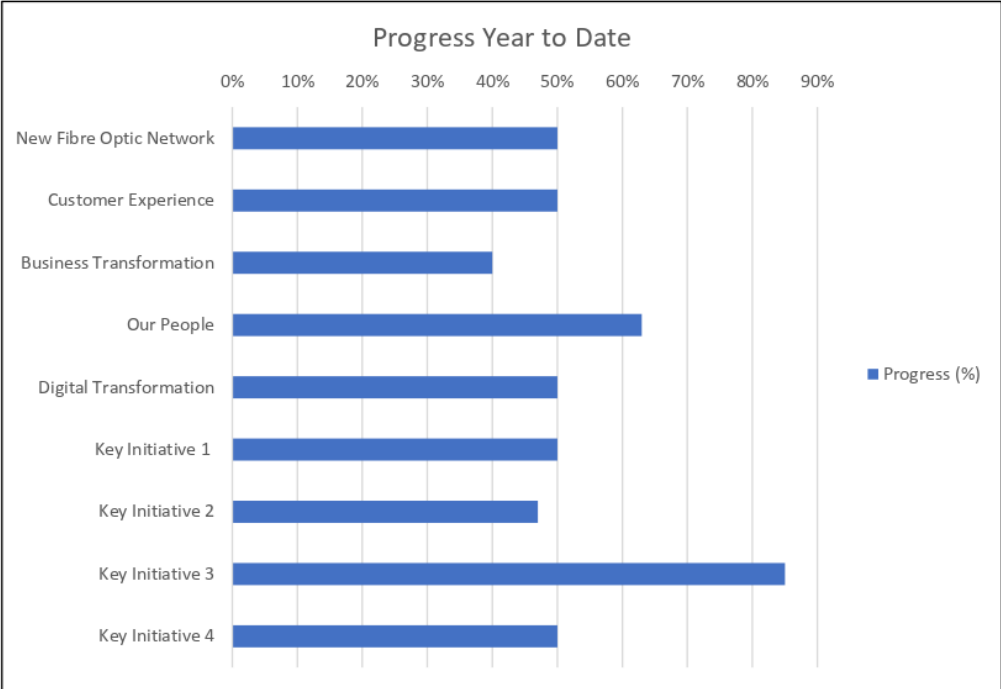
Deliver the Redlands Coast Destination Management Plan 2021-2026.

Further work has been undertaken on the Draft Destination Management Plan to strategically align the key actions with the opportunities presented by the upcoming Brisbane 2032 Olympics and Paralympic Games and to ensure a stronger focus on First Nations tourism, as the Draft Plan was focused around COVID-19 and industry recovery.

Progress the delivery of the Weinam Creek PDA.

Following public consultation, the Draft Master Plan for the Weinam Creek Priority Development Area was submitted to Economic Development Queensland for assessment.

Efficient and Effective Organisation



For details on Efficient and Effective Organisation Key Initiatives 1-4 refer pages 57 to 58 of this attachment.

Efficient and Effective Organisation





Catalyst Project CP7.1 New Fibre Optic Network - Deliver Council's fast fibre optic network to provide savings for Council's own existing operating costs, improve connectivity between Council sites, while also offering capacity to improve services for local businesses.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|--------------------|------------|
| CP7.1.1 Progress the Redlands Coast Fibre Optic Network. | | | Corporate Services | |
| a) Continue to build the fibre optic network across Redlands Coast including connecting Council sites to the network. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| b) Investigate opportunities to optimise the fibre optic network for community benefit. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |





Catalyst Project CP7.2 Customer Experience - Deliver Council's Customer Experience Strategy to enable customer centric service delivery which meets the community's changing needs, making it easier to work with Council and provides quality customer outcomes consistently. By engaging with our community we will work to enhance our digital first capabilities.





| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|--------------------------------|------------|
| CP7.2.1 Deliver Council's Customer Experience Strategy to enable customer centric service delivery. | | | Customer and Cultural Services | |
| a) Investigate options to establish a 'voice of customer' program. | Q1 | ● | 20.0% | |
| | Q2 | ● | 50.0% | |
| b) Identify and review options to implement customer experience measures. | Q1 | ● | 25.0% | |
| | Q2 | ● | 50.0% | |
| c) Identify customer experience training needs for employees and review training implementation options. | Q1 | ● | 20.0% | |
| | Q2 | ● | 50.0% | |

Catalyst Project CP7.3 Business Transformation - Deliver a Business Transformation Strategy to enable changes which reduce red tape, save money, and improve community outcomes.





| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|--|--|
| CP7.3.1 Deliver the Business Transformation Strategy. | | | People, Culture and Organisational Performance | |
| a) Finalise the draft Strategy. | Q1 |  | 13.0% | Pre-engagement with key stakeholders across Council was undertaken to discuss the facilitation of Business Transformation Strategy development workshops. |
| | Q2 |  | 50.0% | |
| b) Implement the Strategy including engagement with key stakeholders and benchmarking with other organisations. | Q1 |  | 13.0% | Pre-engagement with key stakeholders across Council was undertaken to discuss the facilitation of Business Transformation Strategy development workshops. |
| | Q2 |  | 30.0% | A Draft Transformation Strategy has been developed based on five pillars: balanced expectations, useful technology, innovative organisation, sustainable value and real change. The Draft Strategy will undergo stakeholder engagement prior to finalisation, and will be supported by an implementation plan. |

Catalyst Project CP7.4 Our People - Deliver Council's People Strategy to enable a thriving organisation, supported by a healthy and inclusive work environment, organisational agility, cultural integrity and responsible leadership.



| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|--|------------|
| CP7.4.1 Embed and promote the Redland City Council employer brand. | | | People, Culture and Organisational Performance | |
| a) Embed the employee value proposition in all people practices within Council. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Deliver targeted and ad-hoc communications both internally and externally. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

| | | | | |
|---|----|---|--|--|
| CP7.4.2 Embed Council's organisational values. | | | People, Culture and Organisational Performance | |
| a) Enable delivery of 'our team, our values' workshops to articulate team behaviours to values. | Q1 |  | 100.0% | |
| | Q2 |  | 100.0% | |
| b) Promote and celebrate outcomes of 'our team, our values' and continue the conversation. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |







Catalyst Project CP7.5 Digital Transformation - Review and modernise Council's systems and implement digital processes to enable contemporary and easier ways to access and interact with Council information and services.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|--|--------------------|------------|
| CP7.5.1 Develop an information management strategy for Council. | | | Corporate Services | |
| a) Identify opportunities to improve business process through automation and technology. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Identify ways to modernise Council's systems and implement digital processes. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |





Key Initiative KI7.1 Key Initiative 1 - Review Council services to ensure we have the right offering, to meet our community needs and remain financially sustainable.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|--|----|---|--|------------|
| KI7.1.1 Review Council's services. | | | People, Culture and Organisational Performance | |
| a) Implement a self-service approach and service catalogue via Council's new intranet. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |











Key Initiative KI7.2 Key Initiative 2 - Continue our transformation toward asset management best practice by using improved data to shift from reactive to planned maintenance.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|--|------------|
| KI7.2.1 Continue to improve Council's asset management. | | | Strategic Asset and Portfolio Management | |
| a) Invest in data improvements. | Q1 |  | 25.0% | |
| | Q2 |  | 40.0% | |
| b) Strengthen the culture, increase the skills and knowledge of key stakeholders. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| c) Develop a maintenance management strategy. | Q1 |  | 20.0% | |
| | Q2 |  | 50.0% | |

Key Initiative KI7.3 Key Initiative 3 - Improve our value for money delivery through the upgrade of our financial management system.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|--------------------|------------|
| KI7.3.1 Improve Council's financial management system. | | | Corporate Services | |
| a) Implement Council's new financial management system. | Q1 |  | 60.0% | |
| | Q2 |  | 85.0% | |
| b) Optimise Council's financial business processes to enhance efficiency. | Q1 |  | 60.0% | |
| | Q2 |  | 85.0% | |

Key Initiative KI7.4 Key Initiative 4 - Strengthen internal efficiencies, external savings and Council's long-term sustainability to deliver on the Corporate Plan through implementation of strategic procurement practices and initiatives which improve opportunities for local, social, sustainable and good governance purchasing outcomes.

| Operational Plan 2021-2022 Activity | | | Progress | Commentary |
|---|----|---|-----------------|------------|
| KI7.4.1 Deliver the Procurement Transformation Program and continue to implement strategic contracting procedures including a forward contracting plan. | | | General Counsel | |
| a) Implement phase two of the MyBuy portal. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| b) Continue to develop ArcBlue dashboards to align with categories. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| c) Continue to scope out and implement the contract management system. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| d) Deliver category management training. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |
| e) Increase local benefit and maintain a positive trend. | Q1 |  | 25.0% | |
| | Q2 |  | 50.0% | |

Efficient and Effective Organisation - Key Activities and Highlights

Deliver the Procurement Transformation Program and continue to implement strategic contracting procedures including a forward contracting plan.

Quarter two saw a slightly reduced level in local spend activity at approximately 20%, or just over \$6M, spent directly with local based suppliers. However, the broader benefits with principal suppliers employing locals and working directly with local subcontractors and goods and service providers was still being delivered to the Redland Local Government Area. Council supported a major business and jobs expo in November 2021 to help local businesses thrive and to foster more employment opportunities. The Procurement and Contracts Unit were an exhibitor at the expo and provided guidance and advice to many businesses that sought information on how to work with Council. Council's new modernised contract management system has been implemented and commenced rollout during this quarter.

Progress the Redlands Coast Fibre Optic Network.

The commercialisation contract was sent to an external consultant for review.

Deliver the Business Transformation Strategy.

Drafting of a Transformation Strategy commenced based on five pillars of transformation: balanced expectations, useful technology, innovative organisation, sustainable value, and real change. The Draft Strategy will undergo stakeholder engagement prior to finalisation, and will be supported by an implementation plan.

Links to resources that support Operational Plan activities

City Leadership

[Redlands Coast Smart and Connected City Strategy](#)
[Your Say Redlands Coast](#)

Quandamooka Country

[Calendar of Significant Events](#)
[Native Title in the Redlands](#)
[North Stradbroke Island Economic Transition Strategy](#)

Liveable Neighbourhoods

[Southern Moreton Bay Islands Ferry Terminals Upgrade](#)
[Redland City Plan](#)
[Redland City Plan amendments](#)
[Redlands Coast Transport Strategy](#)

Thriving Economy

[Weinam Creek Priority Development Area Project](#)
[Capalaba Town Centre Revitalisation Project](#)
[Cleveland Centre Master Plan](#)
[Redlands Coast Adventure Sports Precinct](#)
[Future Planning and Development](#)
[ASPIRE Circular Economy Business Platform](#)

Strong Communities

[Redlands Coast Regional Sport and Recreation Precinct](#)
[Birkdale Community Precinct](#)
[Age-friendly Action Plan 2021-2026](#)
[Grants and Sponsorship Program](#)
[Community Safety Initiatives](#)
[Redland City Education and Training Industry Sector Plan 2018-2023](#)

Natural Environment

[Minjerribah Panorama Coastal Walk, Point Lookout Connection](#)
[Wildlife Connections Plan](#)
[Wildlife in the Redlands - Koala](#)
[Koala Conservation Plan](#)
[Coastal Hazard Adaptation Strategy](#)
[Seqwater](#)
[About City Water](#)
[Redlands Coast Biosecurity Plan](#)
[Indigiscapes](#)
[Waterway Management](#)
[Recreational Water Quality](#)

Efficient and Effective Organisation

[Working for Redland City Council](#)
[Tenders and Contracting](#)

14 REPORTS FROM COMMUNITY & CUSTOMER SERVICES

14.1 MCU17/0108 SHORELINE MORRIS - PRELIMINARY APPROVAL (VARIATION REQUEST) FOR A MCU TO VARY EFFECT OF RPS V7.1

Objective Reference: A6481474

Authorising Officer: Louise Rusan, General Manager Community & Customer Services

Responsible Officer: David Jeanes, Group Manager, City Planning & Assessment

Report Author: Brett Dibden, Principal Planner

Attachments:

1. MCU17/0108 - Approved Shoreline Master Plan [↓](#)
2. MCU17/0108 - Aerial View of Subject Site [↓](#)
3. MCU17/0108 - Bayhill Estate Precinct Plan [↓](#)
4. MCU17/0108 - Zone Plan [↓](#)
5. MCU17/0108 - Shoreline (Bayhill Estate) Plan of Development [↓](#)
6. MCU17/0108 - Biting Insect Management Plan [↓](#)
7. MCU17/0108 - Addendum to Biting Insect Management Plan [↓](#)
8. MCU17/0108 - Bushfire Management Plan [↓](#)
9. MCU17/0108 - Stormwater Management Plan [↓](#)
10. MCU17/0108 - Conditions [↓](#)
11. MCU17/0108 - Bayhill Estate Executed Consolidated Infrastructure Agreement [↓](#)

PURPOSE

To refer this application to a General Meeting of Council for determination, as variation requests cannot be decided under delegated authority. The proposed development is to vary version 7.1 of the Redlands Planning Scheme to apply a plan of development consistent with the Shoreline plan of development that applies to the adjoining land.

BACKGROUND

Shoreline

The subject site adjoins land subject to the 2015 Shoreline approval (Council reference MCU01/3287) that established a precinct master plan (refer Attachment 1) approving a number of precincts (residential, town centre and open space) and a suite of codes to form a plan of development (POD) to override version 6.2 of the Redlands Planning Scheme (RPS). This approval was amended in 2019 to make a number of changes to the original approval, including the removal of redundant conditions, which were satisfied through lodgement of additional plans and reports (Council reference MCU18/0220).

The Shoreline approval is relevant to the subject development in a number of ways. The subject site will benefit from water and sewer infrastructure that will be facilitated through the Shoreline Infrastructure Agreement (IA). Changes made to the South East Queensland (SEQ) regional plan in 2017 resulted in additional land being included in the urban footprint, including the subject land (refer green circled area in Figure 1). Sewerage treatment for both the Shoreline development and the subject site will be facilitated by the 13,500 equivalent person membrane reactor Wastewater Treatment Plant (WTP) that will be located at 38 Longland Road, Redland Bay.

Secondly, the Shoreline approval provides for a suite of open space and recreation uses that includes an even spread of activities across the whole of the Shoreline area, dependent on park size and location. The subject site is not part of the Shoreline approval and therefore does not need to contribute to the Shoreline open space strategy. However, the open space proposed within the subject development has been designed to align with the primary east-west open space corridor, and the foreshore open space corridor, established under Shoreline. It should be noted that the combined Shoreline recreation parks will meet the demand for park embellishments, with the subject site providing an extension of the Moreton Bay Cycleway and associated infrastructure, which is discussed further below.

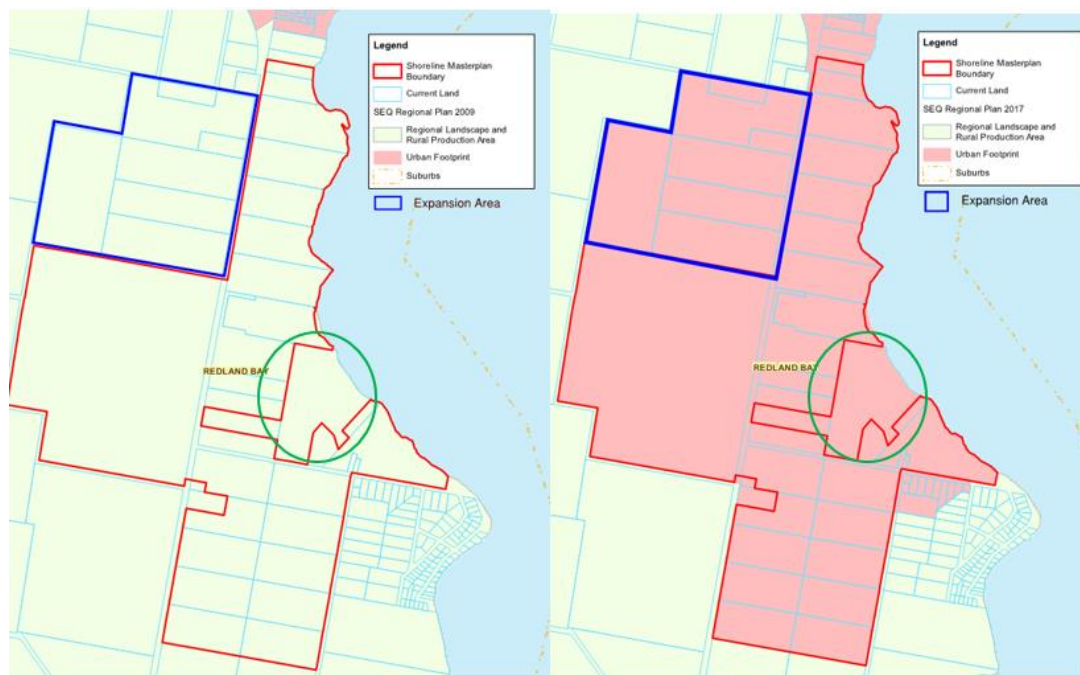


Figure 1 – Shoreline masterplan (including expansion area) superimposed with changes to the urban footprint

ISSUES

Proposal

The proposed development being a preliminary approval including a variation request, is in two parts. The first part consists of a precinct plan that is intended to align with the approved Shoreline precincts that abut the subject site. The second part comprises a plan of development that is intended to vary version 7.1 of the RPS. A summary of each part is included below:

Part A – preliminary approval

The preliminary approval part is to consider a precinct plan (refer Attachment 3) which nominates four precincts, being:

- Town centre frame precinct
- Residential precinct
- Open space precinct
- Foreshore open space precinct

Additionally, the precinct plan shows a conceptual minor collector road that extends along the west side boundary before turning towards the coast, linking up with an esplanade road that separates the residential precinct from the foreshore open space precinct. A conceptual bus stop location is noted on the opposite side of Scenic Road.

The proposed preliminary approval is intended to integrate with the approved Shoreline POD and precinct masterplan.

Part B – variation request

The variation request seeks to vary the effect of the RPS version 7.1 as follows:

- Establish the Bayhill estate POD, which would be applicable to future development applications lodged under the preliminary approval.
- Varying the levels of assessment and assessment benchmarks for the proposed precincts that are modelled upon the following RPS zone codes:
 - Urban residential zone code
 - Medium density residential zone code
 - Open space zone code
 - Environmental protection zone

It is important to note that any part of the RPS v7.1 not proposed to be amended by this application will remain extant for the life of any approval and will be applicable to any development application.

Changes to the application

The applicant has made a number of changes to the application during the assessment period including:

- Change of applicant details. The new applicant is not the landowner, therefore owner's consent was provided with the notification.
- A reduction in the foreshore open space precinct (4.76ha to 3.99ha) and corresponding extension of the residential precinct (8.65ha to 9.92ha) (refer Figure 2).
- Changes to the alignment of the proposed conceptual minor collector road to reflect the proposed road crossing location, as varied in response to the State Assessment and Referral Agency (SARA) further advice notice.
- Renaming the 'conceptual minor collector road' to 'conceptual collector road' to align with the Shoreline preliminary approval (approved conceptual road and cycle hierarchy plan).
- Amending the precinct layout to provide a more logical location for the town centre frame precinct.

The changes are considered to meet the definition of a minor change under schedule 2 of the *Planning Act 2016* (PAct). Specifically, the change:

- Does not result in substantially different development
 - The Bayhill Estate biting insect management plan (BIMP) relies upon a 100m buffer between the proposed development and the highest astronomical tide (HAT), to assist in reducing the impact of both mosquitos and biting midge. The change to the layout will result in a reduction in this buffer to a minimum of 59.5m (inclusive of the esplanade road). An addendum to the BIMP by the report's original author noted that the original BIMP supported a buffer of between 20m and 100m, and recommends that a buffer of, *"approximately 59.5m, but more typically 75.5m, will have the negligible if any effect on the prevalence of mosquitos within the residential precinct."* Accordingly it is considered that the changed application will not result in an increase of the severity of known impacts.

- Does not include prohibited development
- Does not result in additional referral agencies or require additional referral assessment
- Does not change the level of assessment

Therefore, there is no effect on the assessment stages identified in accordance with the PACT and the development assessment rules.

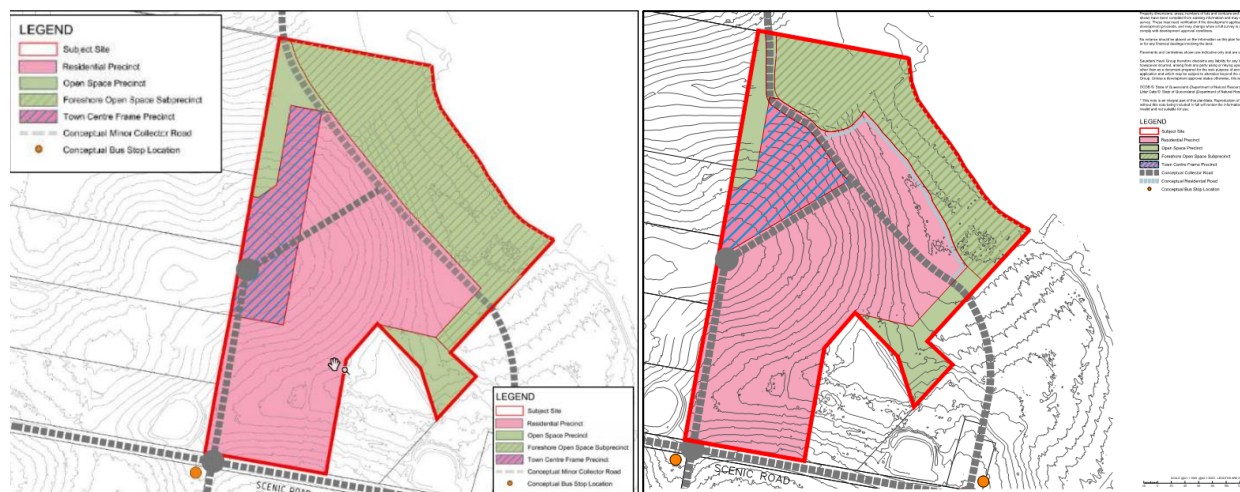


Figure 2 – Previous and amended precinct plans (Source: Saunders Havill 26 August 2021)

The application has been made in accordance with the *PACT Development Assessment Rules* and is assessed in two parts. Part A will consider the application for a preliminary approval for a material change of use. Part B will then consider the variation request.

Site & Locality

The subject site is 17.45ha, irregular in shape, and adjoins Moreton Bay to the east (refer Attachment 2). The topography is quite steep with a ridge spur extending into the site in the middle section with a moderate fall of approximately 6% towards the coast, before levelling approaching the coast. The southern section includes a shallow valley between ridge spurs approaching Scenic Road.

Currently the site is improved by a single dwelling and associated outbuildings, and is accessed by a single driveway that continues through the site beyond the coast-side boundary. The site is mostly grassed with scattered vegetation that thickens towards the north-west boundary.

The site is not encumbered with easements or covenants. Surrounding uses include a mix of agricultural uses and large lot residential development. However, with the Shoreline approval in place for land adjoining the subject site, the development pattern will change to a more typical urban form including a mix of low density residential (LDR), medium density residential (MDR), open space and centre type development. Currently the western side of Serpentine Creek Road is developing in line with the Shoreline approval.

Planning History

Refer to the “background” section of the report.

Assessment Framework

Part A – Preliminary Approval

Assessment Framework

In accordance with section 45 of the PACT

*'(5) An **impact assessment** is an assessment that—*

(a) must be carried out—

- (i) against the assessment benchmarks in a categorising instrument for the development; and*
- (ii) having regard to any matters prescribed by regulation for this subparagraph; and*

(b) may be carried out against, or having regard to, any other relevant matter, other than a person's personal circumstances, financial or otherwise.

Examples of another relevant matter—

- a planning need*
- the current relevance of the assessment benchmarks in the light of changed circumstances*
- whether assessment benchmarks or other prescribed matters were based on material errors*

(6) Subsections (7) and (8) apply if an assessment manager is, under subsection (3) or (5), assessing a development application against or having regard to—

(a) a statutory instrument; or

(b) another document applied, adopted or incorporated (with or without changes) in a statutory instrument.

(7) The assessment manager must assess the development application against or having regard to the statutory instrument, or other document, as in effect when the development application was properly made.

(8) However, the assessment manager may give the weight the assessment manager considers is appropriate, in the circumstances, to—

(a) if the statutory instrument or other document is amended or replaced after the development application is properly made but before it is decided by the assessment manager—the amended or replacement instrument or document; or

(b) another statutory instrument—

- (i) that comes into effect after the development application is properly made but before it is decided by the assessment manager; and*
- (ii) that the assessment manager would have been required to assess, or could have assessed, the development application against, or having regard to, if the instrument had been in effect when the application was properly made.'*

Section 30 of the *Planning Regulation 2017* (PRegs), relevantly, identifies that:

'(1) For section 45(5)(a)(i) of the Act, the impact assessment must be carried out against the assessment benchmarks for the development stated in schedules 9 and 10.

(2) Also, if the prescribed assessment manager is the local government, the impact assessment must be carried out against the following assessment benchmarks—

(a) the assessment benchmarks stated in—

- (i) the regional plan for a region; and*

- (ii) *the State Planning Policy, part E, to the extent part E is not identified in the planning scheme as being appropriately integrated in the planning scheme; and*
 - (iii) *a temporary State planning policy applying to the premises;*
- (b) *if the development is not in a local government area—any local planning instrument for a local government area that may be materially affected by the development;*
- (c) *if the local government is an infrastructure provider—the local government’s LGIP.*
- (3) *However, an assessment manager may, in assessing development requiring impact assessment, consider an assessment benchmark only to the extent the assessment benchmark is relevant to the development.’*

Section 31 of the PRegs identifies that:

- ‘(1) For section 45(5)(a)(ii) of the Act, the impact assessment must be carried out having regard to—*
 - (a) the matters stated in schedules 9 and 10 for the development; and*
 - (d) if the prescribed assessment manager is a person other than the chief executive—*
 - (i) the regional plan for a region; and*
 - (ii) the State Planning Policy, to the extent the State Planning Policy is not identified in the planning scheme as being appropriately integrated in the planning scheme; and*
 - (iii) for designated premises—the designation for the premises; and*
 - (e) any temporary State planning policy applying to the premises; and*
 - (f) development approval for, and any lawful use of, the premises or adjacent premises; and*
 - (g) common material.*
- (2) However—*
 - (a) an assessment manager may, in assessing development requiring impact assessment, consider a matter mentioned in subsection (1) only to the extent the assessment manager considers the matter is relevant to the development; and*
 - (b) if an assessment manager is required to carry out code assessment against assessment benchmarks in an instrument stated in subsection (1), this section does not require the assessment manager to also have regard to the assessment benchmarks.’*

common material, for a development application, means—

- ‘(a) all the material about the application that the assessment manager receives before the application is decided, including—*
 - (i) any material relating to a proposed development application that is substantially similar to the development application as made; and*

- (ii) any material attached to, or given with, the development application; and*
- (iii) any material relating to the application given to the assessment manager after the application is made; and*
- (iv) any referral agency's response, including any advice or comment given by a referral agency and any response given under section 57 of the Act; and*
- (v) any properly made submissions about the application, other than a submission that is withdrawn; and*
- (vi) any other submission about the application that the assessment manager has accepted; and*
- (vii) any other advice or comment about the application that a person gives to the assessment manager; and*
- (b) if a development approval for the development is in effect—the approval; and*
- (c) an infrastructure agreement applying to the premises.'*

Pursuant to section 45(5) of the PAct, part A of the application was assessed against the following applicable assessment benchmarks.

- RPS version 7.1
 - Investigation zone code
 - Acid sulfate soils overlay code
 - Bushfire hazard overlay code
 - Flood prone, storm tide and drainage constrained land overlay code
 - Habitat protection overlay code
 - Landslide hazard overlay code
 - Waterways, wetlands and Moreton Bay overlay code
 - Access and parking code
 - Excavation and fill code
 - Infrastructure works code
 - Landscape code
 - Stormwater management code
- *State Planning Policy 2017, Part E*
- *South East Queensland Regional Plan 2017*
- *Planning Regulation 2017, Schedule 11*
- Local Government Infrastructure Plan

Pursuant to section 45(5) of the PAct, Council had regard to the following matters in its assessment of the application.

- Existing approvals on adjoining land (Shoreline)

Comments received

Council has received comments that form part of the common material to the application. Council has had regard to this information in the assessment of the application, as outlined above.

State Assessment & Referral Agency (SARA)

SARA provided a referral agency response dated 30 August 2021 in regards to development in a coastal management district. The Department indicated no objection to the proposed development subject to referral agency conditions in regards to restricting development within the foreshore open space precinct (road and non-habitable structures permitted); stormwater management; coastal contamination; and erosion and sediment control. The Department's referral response, including conditions, will be attached to Council's decision notice.

Public notification

The application was publicly notified for 31 business days from 6 November 2019 to 19 December 2019. A notice of compliance for public notification was received on 20 December 2019. There were no properly made submissions received in relation to the application during the notification period and no informal submissions accepted as common material to the application.

Internal comments received

The assessment manager has received assessment advice from the following Council teams/officers:

- Engineering assessment
- Environmental assessment
- Landscaping
- Arborist
- Health and environment
- Infrastructure planning and charging
- Civic and open space management

The assessment advice received has been considered by the assessment manager in assessing the development application.

Decision making framework

Section 60 of the PAct is relevant to the assessment of the preliminary approval part of the assessment, and states:

- '(1) This section applies to a properly made application, other than a part of a development application that is a variation request.*
- (3) To the extent the application involves development that requires **impact assessment**, and subject to section 62, the assessment manager, after carrying out the assessment, must decide—*
 - (a) to approve all or part of the application; or*
 - (b) to approve all or part of the application, but impose development conditions on the approval; or*
 - (c) to refuse the application.*
- (6) If an assessment manager approves only part of a development application, the rest is taken to be refused.'*

Section 49(2) of the PAct is relevant to a preliminary approval, providing that:

- '(2) A preliminary approval is the part of a decision notice for a development application that—*

- (a) *approves the development to the extent stated in the decision notice; but*
- (b) *does not authorise the carrying out of assessable development.'*

As such, a preliminary approval may be conceptual in nature, and does not require detailed assessment of plans required as part of a request for a development permit. In this instance the applicant has provided a precinct plan in addition to various conceptual plans.

Application Assessment

Land use

The subject site is located within the investigation zone in the RPS and therefore the investigation zone code is relevant to the assessment of the application (refer Attachment 4). Overall outcome 4.8.7(2)(a) of this code seeks the following for development:

- (i) *Provide for a limited range of uses that -*
 - d. *Restrict development, including reconfiguration, until such time as the suitability or otherwise of the land for possible urban purposes is established."*

The 2015 Shoreline approval discussed in the background section of this report established the need for, and suitability of, land within the investigation zone for urban development. The pattern of land uses within the investigation zone were established through the Shoreline plan of development and approved precinct plan and the proposal demonstrates aligned land use outcomes with the Shoreline approval. In this regard, it is considered that the development meets this overall outcome.

Precinct layout

The proposed precinct layout is intended to align with the precincts of the approved adjoining Shoreline development. These precincts function in the same way as zones under the RPS. Table 1 provides the intended land area for the precincts.

| Precinct | Area |
|----------------------------|---------------|
| Residential precinct | 10.1ha |
| Open space precinct | 5.7ha |
| Town centre frame precinct | 1.8ha |
| Total | 17.6ha |

Table 1 – Land area within each precinct

A summary of the purpose for each precinct is included:

Residential precinct

This precinct is modelled on the urban residential (UR) zone in the RPS. It is intended to establish walkable neighbourhoods with a mix of housing choice and access to leisure opportunities within the open space network. Development within 100m of a bus stop will also provide medium density housing options.

Open space precinct and foreshore open space sub-precinct

The open space precinct is modelled on the open space zone in the RPS. It is intended to provide a network of environmental and open space corridors that will incorporate improved habitat connectivity for safer fauna movement for the wider Shoreline development. The network will also accommodate stormwater management facilities, cycleways and footpaths.

The foreshore open space sub-precinct is intended to comprise a community and destination park, with opportunities to view Moreton Bay and engage with the water, whilst protecting and conserving remnant coastal vegetation. It is also intended that the sub-precinct provides an event space for public and private gatherings generally in the vicinity of the tourism/recreation activity areas identified on the Shoreline precinct plan, which may include a variety of leisure and recreation activities, including restaurant/café/bar, sporting facilities, informal open spaces and a playground.

Town centre frame precinct

This sub-precinct is modelled on the medium density residential zone MDR1 sub-area in the RPS, by generally providing for permanent residential and temporary visitor uses such as apartment buildings and tourist accommodation. However, as a departure to the MDR1 sub-area, the sub-precinct is intended to also provide lower-density housing options, predominantly dwelling houses and dual occupancies. Other uses such as aged persons and special needs housing, apartment buildings and multiple dwellings are anticipated where located within 100m of a public transport stop and where the building height is 14m or less. The precinct will align with the Shoreline development to the west, and will be bounded by the two collector roads to the south and east on the subject site, to provide a buffer to the residential precinct, and ensure a legible streetscape can be achieved for the development.

The precincts are appropriately sized and shaped to permit the intended land uses, and align with the adjoining Shoreline precincts. The width of the open space adjacent to the town centre frame precinct is a minimum of 100m, which is consistent with the minimum corridor width throughout Shoreline, and is therefore considered adequate to provide a fauna corridor function and protects the matters of state environmental significance (MSES) high ecological significance wetlands.

The foreshore open space precinct provides linear greenspace intended primarily for pedestrian and cycle connectivity providing continuous access to the broader open space network, and does not provide a recreation park, or open space grassed areas that could be easily converted to a recreation park. This linear greenspace will include the Moreton Bay Cycleway (MBC) route that will be appropriately designed and sited as follows:

- Achieves a minimum width of 3.0m wide.
- Is located above the 1% Annual Exceedance Probability (AEP) 2016 storm tide and flood prone area or achieves an appropriate level of flood immunity in accordance with Council's adopted standards identified in Planning Scheme Policy 2 - Infrastructure Works.
- Provides seamless connection with the adjoining MBC network along the foreshore facilitating easy pedestrian and cycle access to recreation parks to the north and south.
- Has a minimum grade that is not less than 0.4% and avoids grades of more than 8% over an extended path length.
- Supported by minor infrastructure including bollards, wayfinding signage indicating the distance to adjoining recreation parks and a resting point including a seat, tap and shade.

MBC and supporting minor infrastructure does not adversely impact on the environmental values of the foreshore including the coastal management district and erosion prone area, and is designed to withstand the impacts of flooding and this foreshore environment.

It should be noted that no open space is proposed along the Scenic Road frontage despite the Shoreline approval including open space on the western and eastern boundaries in this location.

These areas are required for stormwater purposes within the Shoreline POD, and is not required on the subject land as the mapped overland flow path will have a piped solution.

The internal road layout is conceptual only, and is intended to link up with the Shoreline road network. The design of each road will be assessed in detail during the detailed application stages.

Environmental values

Regulated vegetation

The subject site contains category B regulated vegetation along the coastal strip and touching the northern boundary (refer Figure 3) and is proposed to be contained within the proposed foreshore open space sub-precinct. This vegetation is remnant vegetation and involves a “least concern” regional ecosystem 12.3.6. This matter has been assessed and approved by SARA as part of their referral assessment. Conditions of SARA’s referral response require that the foreshore open space sub-precinct is maintained as a development-free buffer, with the exception of infrastructure (which would include road and pathway infrastructure).



Figure 3 – Regulated vegetation (Source: State mapping 2021)

Koala habitat

Despite current State koala mapping including core koala habitat in several sections (refer Figure 4), any interference with this vegetation will not result in prohibited development as the application was properly made before 7 February 2020.

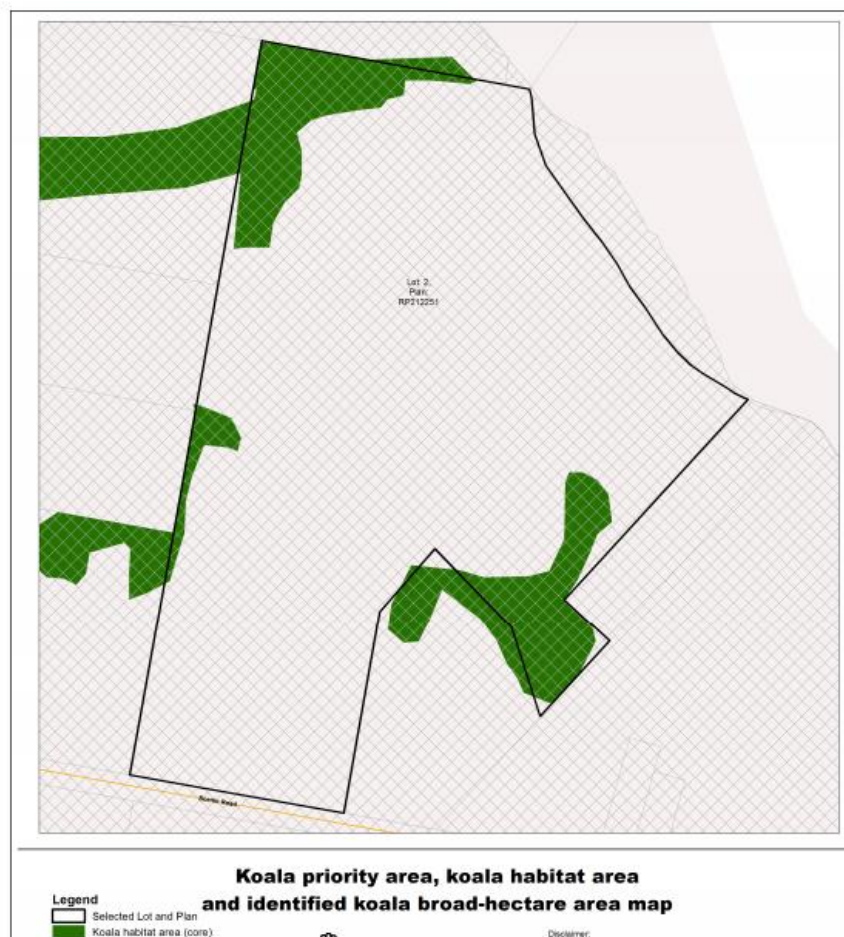


Figure 4 – Koala habitat mapping (Source: State mapping 2021)

Section 45(7) of the PAct requires that the assessment manager must assess a development application against the statutory instrument in effect when the document was properly made. Sub-section (8) allows the assessment manager to give appropriate weight where relevant to a statutory instrument in place after an application is properly made but before it is decided.

Under the PRegs at the time the application was properly made, the subject site was located within the priority koala assessable development area, and mapped as containing areas of medium value rehabilitation. The site is mostly cleared except for scattered vegetation in the middle of the site, and some denser vegetation in the north-west and south-eastern sections. Future development will protect vegetation in the denser sections by designating these areas within the open space precinct, apart from areas where bio-basins and other embellishment are proposed. The balance of the site where scattered vegetation will be located is within the residential precinct. This vegetation has isolated habitat value and cannot be avoided given the scattered nature. Schedule 11 part 3 section 7 requires that any removal of non-juvenile koala habitat trees in an area mapped as containing medium value rehabilitation is offset. The exact number of trees removed and offsets will be determined as part of subsequent development applications.

Should Council approve the preliminary approval and variation request, subsequent development applications will not be subject to these offset requirements. To ensure offset requirements are applicable to future applications for any removed koala habitat conditions of approval are recommended.

Wildlife connections

The greater Shoreline development, which connects with the subject site, establishes a network of wildlife corridors that will protect the areas of highest environmental value and connect them to larger conservation areas to the west of the Shoreline development area. A major central wildlife corridor will be established with the Shoreline development and connected via a fauna crossing on Serpentine Creek Road (refer indicative red arrows in Figure 5 below). The subject site forms part of this intended corridor, and the proposal includes this area in the open space precinct, achieving a minimum 100 metre wide corridor in this location. Conditions are recommended to ensure this area is rehabilitated to achieve the outcomes intended for the wildlife corridor.

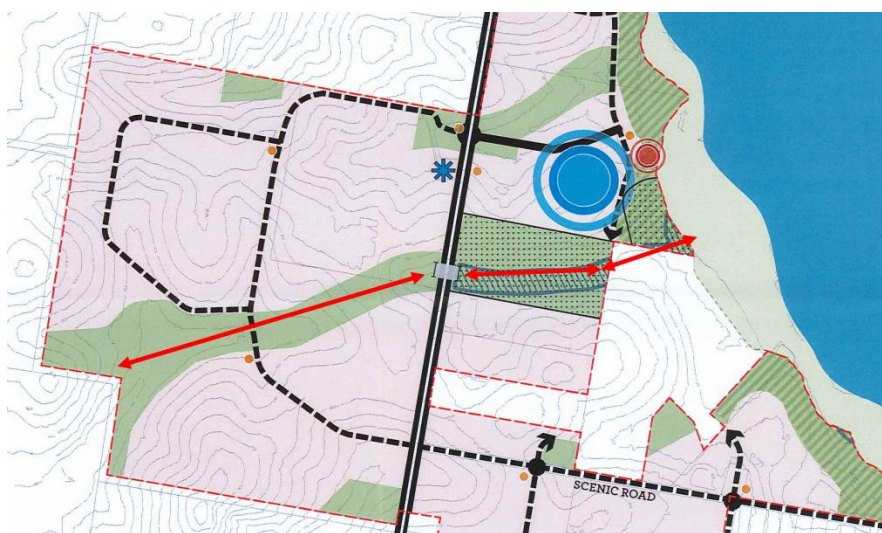


Figure 5 – Central wildlife corridor in Shoreline development

Waterways

Noting that a preliminary approval does not authorise development, and subsequent applications will include a detailed assessment against the assessment benchmarks of the waterways, wetlands and Moreton Bay overlay, a high level assessment against the overall outcomes in section 5.12.7(2) of the overlay code was undertaken:

- “(a) uses and other development protect, enhance, manage and minimise impacts on the environmental values of waterways, wetlands, coastal drainage areas, Moreton Bay and natural drainage lines and their associated ecological, recreation, economic and scenic values by –*
- (i) maintaining and enhancing the hydrological function of waterway corridors and the City’s water cycle as a whole;*
 - (ii) retaining habitat links;*
 - (iii) protecting marine, tidal and riparian vegetation;*
 - (iv) retaining access for maintenance purposes;*
 - (v) maintaining and enhancing water quality and hydrological balance;*
 - (vi) retaining biodiversity;*
 - (vii) retaining bank stability;*
 - (viii) providing public access to open space where under local government ownership or control.”*

The site is mapped as containing natural drainage lines traversing the northern and southern sections, plus the Moreton Bay foreshore buffer to the Bay (refer Figure 6). Both drainage lines have very limited ecological value in and of themselves; they simply follow small depressions in the landscape that discharge water from existing farm dams. The northern drainage line does, however, have value as part of the broader wildlife corridor discussed earlier in this report. The southern drainage line does not have this corridor value. The drainage line is ephemeral and contains no riparian vegetation. Drainage is proposed to be achieved by a piped solution. The width of the proposed open space precinct will allow for a 40 metre wide foreshore buffer, consistent with the deemed to comply solution in Table 1 of the overlay code, therefore achieving the broader outcomes of this code.

Treatment of stormwater will ensure water quality is achieved before discharge to Moreton Bay. Overall, the proposal is considered to achieve the overall outcomes of this code.



Figure 6 – Waterways, wetlands and Moreton Bay overlay mapping (Source: Red-e-map 2021)

Landscaping

The open space precinct aligns with the wider Shoreline open space strategy by continuing the main east-west wildlife corridor through to Moreton Bay, and ‘filling in’ the gap in the foreshore open space (community and destination park), while maintaining vegetated areas in the south-eastern section adjacent to the foreshore open space.

Overall outcome 4.16.7(2)(d) of the landscape code states:

“uses and other development achieve a high standard of amenity by – (d) providing a landscape setting that complements the specific open space function of the site.”

A concept embellishment plan has been provided to assist with interpreting the infrastructure agreement (refer Figure 7). Minimum embellishments include a continuation of the Moreton Bay Cycleway (MBC), seating, water fountain, shade trees every 500m, wayfinding signage and bollards. The level of embellishment is considered appropriate with the land area proposed, and with the coastal open space precinct land adjacent to the proposed centre to the north considered the more appropriate location for a higher level of embellishment under the current Shoreline approval. As discussed earlier in the report, a greater level of rehabilitation planting is required in the area representing the 100m wide corridor through the site.

This is included as a condition of approval, with changes to the POD required to achieve this through future development applications.

The ultimate open space and landscape design will be subject to detailed design in future applications, and will be assessed at that time.



Figure 7 – Open space embellishment plan (Source: Vee 2021)

Traffic

Specific outcome S7 of the infrastructure works code is relevant to the assessment of road provision and design:

“(1) Uses or reconfiguration that create new public roads or require the upgrading of a public road reserve –

- (a) maintain or improve the safe and efficient operation of roads having regard to –*
 - (i) the functional classification of the road from which it gains access;*
 - (ii) the location and design of access points;*
 - (iii) facilitating links between the use or other development and other high activity nodes such as educational facilities, communal facilities, centres and open space;*
 - (iv) the potential for conflict between vehicles, pedestrians and cyclists;*
 - (v) the location, construction and maintenance of utility infrastructure;*
 - (vi) the location of activities within the site and their relationship with adjacent public roads;*
 - (vii) the nature and intensity of traffic generated by the use or other development;*
 - (viii) the number of vehicles likely to be attracted to the site at any one time, whether due to the use or other uses;*
 - (ix) the location, capacity and configuration of any existing or proposed car parking areas associated with the use;*
 - (x) if located in a centre zone, the predominantly pedestrian orientated nature of public spaces in that zone;*
- (b) are provided with a road reserve and verge width sufficient to accommodate the –*

- (i) *safe and efficient movement of all users, including pedestrians and cyclists;*
 - (ii) *on-street parking;*
 - (iii) *street tree planting;*
 - (iv) *utility infrastructure, including stormwater management and run-off from road surfaces;*
- (c) *facilitate safety by providing –*
 - (i) *safe sight distances based on –*
 - a. *road classification;*
 - b. *target speed;*
 - c. *expected access points;*
 - (ii) *pedestrian and cyclist crossings at intersections or where required to access –*
 - a. *high activity nodes;*
 - b. *public transport;*
 - c. *centres;*
 - (iii) *an alignment that does not result in excessive speeds;*
 - (iv) *a combination of speed reduction techniques to achieve desired speeds including –*
 - a. *speed platforms;*
 - b. *t-junction with splitter islands;*
 - c. *modified intersections;*
 - d. *roundabouts; or*
 - e. *other speed control devices.”*

The indicative road layout and public transport/active transport connection plans are provided in Figures 8 to 10. The concept plans align with the relevant approved Shoreline plans; being the cycleway and path network plan and the conceptual road and cycle hierarchy plan. It should be noted that the proposed road network is indicative only and will be required to be constructed with consideration of the adjoining land, when it develops. However the proposed layout is considered to align with the indicative Shoreline layout.

Primary access to the site is gained from Scenic Road, which connect with the higher order road at intersection D (Figure 8). Secondary access will be provided off an internal connection road connecting to Serpentine Creek Road at intersection C. Intersection D is currently being upgraded subsequent to sealing of the first Shoreline lots on the western side of Serpentine Creek Road. The design of the future road connection is considered able to adequately service future public transport connections, while providing a high level of connectivity for residents. Intersection C will be upgraded upon sealing of the 1,000th lot in the Shoreline development. No other external intersection upgrades will be required as a result of the additional residential development from the subject site.

The development will accommodate approved active transport routes through the wider Shoreline development. Detailed design of shared footpath and cycle lanes can be considered as part of the detailed design for subsequent applications. The concept design is considered to align with the ultimate strategy to provide active transport opportunities and walkable neighbourhoods.

Should the development occur out of sync, then an upgrade of Scenic Road would be required to ensure the transport network safely and efficiently services the subject lot. However, given the State is responsible for the intersection upgrade with Serpentine Creek Road, which is currently underway, and with Education Queensland intending to operate a school on the adjoining lots to

the west (and fronting Scenic Road), the risk to the development is considered low given subsequent reconfiguration of lot applications will also consider this matter. The infrastructure works code, access and parking code, and reconfiguration code are all still applicable and acceptable for assessing the subsequent development.

It is noted that the submitted traffic report for the development indicates that Scenic Road is a major collector as per Figure 8. However, based on estimated traffic volumes not exceeding 3000 vehicles per day and the overall Shoreline modelling for traffic movement, Scenic Road should be designed to a collector standard and not a major collector standard for the frontage of the Lot. Given that the discrepancy between the traffic reports provided by the applicant and Council's traffic modelling on file, the applicant's traffic report will not be approved. Works to Scenic Road can be conditioned as part of the subsequent development applications.



Figure 8 – Indicative road layout (Source: SLR 2019)



Figure 9 – Indicative public transport connections (Source: SLR 2019)



Figure 10 – Indicative active transport connections (Source: SLR 2019)

Stormwater management

The site is affected by two main catchments (refer Figure 11). Flows from the northern drainage path discharges to a small farm dam located in the north of the site. Flows from the southern drainage path flow to an existing farm dam located on the downstream property (lot 1 on RP212251). Both flow paths ultimately drain to Moreton Bay.

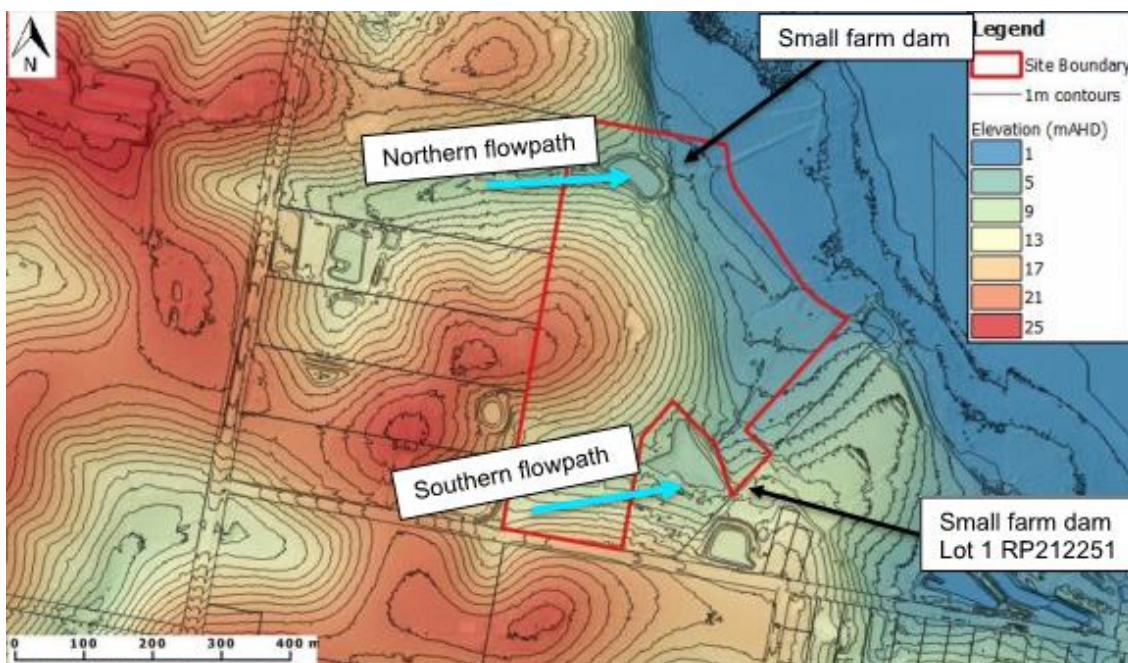


Figure 11 – Stormwater flow paths (source: water Technology 2019)

Flows discharging directly to Moreton Bay do not require onsite detention.

It is noted that the northern catchment can be managed through the open space network, and that the southern catchment is of a small enough size that it can be managed by engineering design and/or downstream owners consent, which can be addressed as part of subsequent applications. The ultimate stormwater design can be determined as part of subsequent development applications, though it is important to note that a lawful point of discharge can be achieved for the development.

End of line on-site bio-retention is conceptually shown to manage stormwater quality. A conceptual basin sizing is provided to treat stormwater from the site, with approximately 1,120m² of filter media required to treat the site, with the devices able to be located above HAT. Further detail will be required as part of subsequent development applications to assess the required basin sizes to treat the proposed developed catchment. At the conceptual level, the development is consistent with the stormwater management code. Subsequent applications will be subject to assessment against this code.

Biting insects

A biting insect management plan was provided, which is consistent with that approved as part of the Shoreline development. The plan identifies potential breeding and transmission areas for biting insects on and surrounding the site, which includes the ephemeral drainage lines and small area of potential standing water.

Within the Redlands, a variety of species of mosquito and biting midge occur in association with marine, brackish and fresh waters. Marine and brackish water species are commonly associated with both a higher incidence of 'nuisance' complaints, and arbovirus infection, and consequently have been the primary focus for both research and control efforts throughout South East Queensland.

The submitted plan states that there is the opportunity to minimise the breeding of both mosquitoes and biting midges on the site through appropriate site planning, engineering design, building design and on-going site management. The report states that the incidence of biting midges and mosquitoes can be minimised by providing sparsely vegetated buffer zones between known breeding sites and residential areas. Well-lit, sealed areas (such as roads) also assist in providing a reduction and appropriate buffers to biting midge breeding sites.

Biting midge breeding sites can be minimised through landscaping and drainage design. The report states that heavy mulching and watering should be avoided within open space areas. The report also states that breaks in vegetation corridors should be provided between breeding sites and high activity areas. Minimising vegetation density near proposed residential areas and appropriate building design also assists.

Re-profiling of the site is required to manage the already compromised drainage of the subject site. Landscape planting will minimise the use of groundcovers, shrubs and small trees that may serve as biting insect roosting areas. Careful selection of planting palettes, the use of organic mulch and reduced need for heavy watering will also minimise breeding of biting insects.

New waterbodies or stormwater treatment wetlands/detention basins will be designed to minimise the potential breeding opportunities for biting insects. However the plan requires that pond edges are to be steep and free of dense vegetation, which may cause a safety risk and conflicts with current council standards, although bio-basins are designed not to hold water for long periods of time and will fluctuate with rain events. Design issues can be resolved at detailed design stage with future development applications.

With recent Shoreline operational works approvals a combination of safety fencing and appropriate landscaping have been used to ensure bio-basins do not provide breeding opportunities for biting insects, noting such basins are not intended to hold water for long periods of time and will fluctuate with rain events.

Further, future development will be guided by the building design code for biting insects that is included within the POD, to ensure future development, including sensitive uses, is appropriately designed to reduce the exposure risk to biting insects.

Flood prone land

The subject site is mapped as containing flood prone land, which correlates with the drainage flow paths discussed previously. There is no proposed residential land affected by this overlay and only proposed open space zoned land is burdened by the overlay (refer Figure 12). The site is also mapped under the State Planning Policy (SPP) as containing medium and high storm tide inundation, with this mapped area located within the mapped overlay area. Accordingly, the relevant assessment benchmarks within part E of the SPP and the flood prone, storm tide and drainage constrained land overlay code are relevant to the assessment.

The relevant SPP assessment benchmarks are:

- “(4) Development in natural hazard areas supports, and does not hinder disaster management capacity and capabilities.”*
- “(5) Development directly, indirectly and cumulatively avoids an increase in the exposure or severity of the natural hazard and the potential for damage on the site or to other properties.”*
- “(6) Risks to public safety and the environment from the location of the storage of hazardous materials and the release of these materials as a result of a natural hazard are avoided.”*
- “(7) The natural processes and the protective function of landforms and vegetation that can mitigate risks associated with the natural hazard are maintained or enhanced.”*

The precinct plan limits development in the storm tide affected area through designating this part of the site as part of the open space precinct. It is noted that Council has completed a more detailed model for storm tide along the Redland coastline, with this included in the City Plan. The City Plan identifies that the site may be affected by storm tide up to the 3.81m Australian Height Datum (AHD) by 2100. A small portion of land proposed to be contained within the residential precinct is below the 3.81m AHD level. To ensure the safety of people and property in the future a condition is recommended to ensure future development will achieve a minimum level of 3.81m AHD, by including this as the defined flood level in the POD.



Figure 12 – Storm tide & flood prone land (Source: Red-e-map 2021).

Sewer infrastructure

Based on the master planning for the southern Redland Bay area, this development will be serviced by the proposed Southern Redland Bay WTP located south of the Shoreline area, as discussed in the background section of the report.

The WTP will be designed and constructed by Lendlease and owned/operated by Redland City Council. The WTP will be located at 38 Longland Road, Redland Bay, formally described as Lots 2 and 3 on RP223470, Lot 1 on SL3427 and Lot 254 on S31102. The WTP will treat incoming wastewater piped from the Southern Redland Bay catchment via a membrane reactor treatment plant, which will either be re-used at the Shoreline development site or discharged to a freshwater storage lagoon and then to a constructed wetland including new mangrove and salt marsh habitat.

The WTP shall be delivered in stages with a capacity of 13,500 equivalent population (the ultimate capacity of the WTP).

Two collection options have been endorsed contingent on geotechnical investigations of the foreshore area. Both options will service the subject land in a similar way. The detailed design of the collection network including sewer pump stations will be assessed through subsequent reconfiguring a lot and operational works applications by Council.

The ultimate sewer strategy is agreed to by Council. A stand-alone strategy is not supported by Council as Victoria Point WTP does not have capacity for additional flows. That capacity is already utilised by the existing Shoreline Development (RAL19/0061) west of Serpentine Creek Road. An infrastructure agreement addresses this matter through a tankering solution as outlined below.

The IA includes a clause for tankering for up to the first 200 lots to be facilitated throughout the greater Shoreline area including the subject land. Currently the Shoreline IA allows for tankering

for up to 200 lots, however once the WTP comes on line in stages, this 200 lot figure can be transferred to the subject land. The IA includes a schedule item for provision of a tankering management plan to be provided prior to approval of a plan of subdivision or commencement of use of a developed lot.

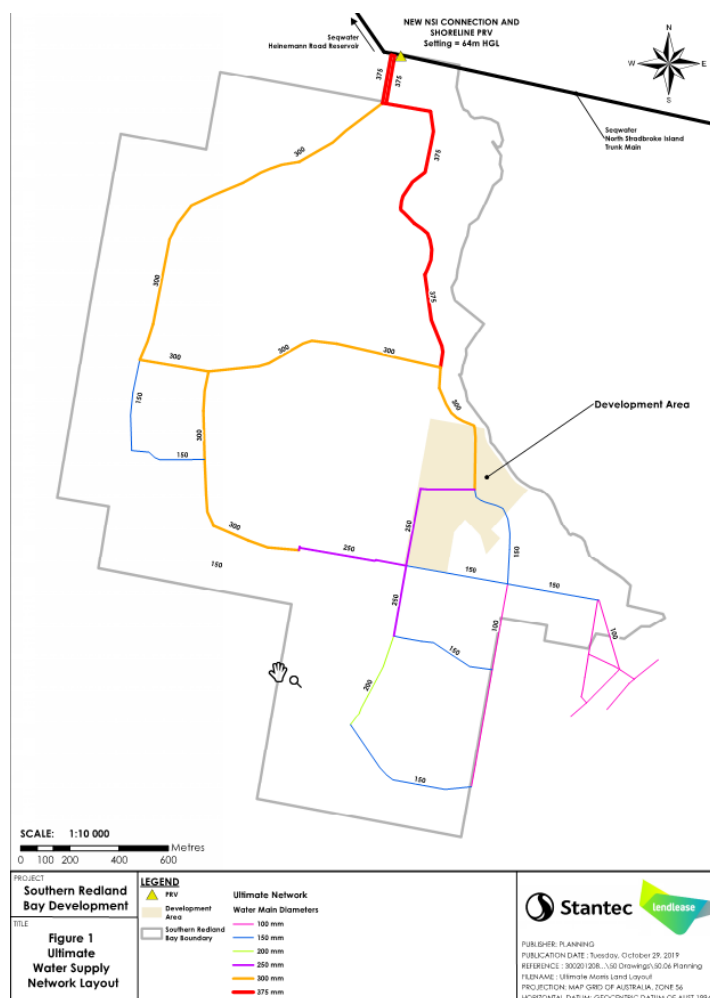
Water infrastructure

The applicant has stated that the long term, ultimate water servicing of the land will be in accordance with the Shoreline development master plan as detailed in the Southern Redland Bay – Infrastructure Master Plan for Water Supply and Sewerage submitted to Council in September 2019, subsequent to the Shoreline approval and includes servicing the subject land.

If the development was to be served as a stand-alone development, for example prior to the implementation of the ultimate strategy, water supply would be provided via the existing water mains in Serpentine Road and Scenic Road. The stand-alone option will incorporate all water mains required under the ultimate layout as shown in Figure 13, and would therefore have no additional cost burden to Council.

Hydraulic modelling indicates that the existing water supply system in Serpentine Road and Scenic Road can supply the proposed development under both peak hour and fire flow conditions, based on the requirements of the SEQ Water Supply and Sewerage Design and Construction Code.

Based on the submitted information, the development can be serviced in both stand-alone and ultimate scenarios.



Electricity/telecommunications infrastructure

Future development on the site can be serviced by existing electrical and telecommunications infrastructure.

Earthworks

Some filling will be required to provide storm tide immunity in land affected by that overlay, in the vicinity of 600-800mm.

Earthworks will be assessed as part of future applications, however given the above estimates, it is considered that future earthworks will be minimised in accordance with specific outcome S1 of the excavation and fill code.

Acid sulfate soils

Parts of the site are below the level where acid sulfate or other acidic material could form. The submitted geotechnical report has determined that some material tested onsite is regarded as naturally acidic, non-acid sulfate soils. Based on this result there would still be a requirement for some lime treatment in any areas where disturbance is proposed. The report provides the calculated appropriate liming rates to be used if they are needed. A more detailed assessment will be applicable as part of future development applications.

Conclusion

The key issue for the assessment of Part A is that future development can occur in a logical pattern, on land that is unconstrained for the intended purpose of the precincts, and is able to be serviced with appropriate infrastructure. The development is intended to align with the Shoreline approval and precincts that adjoins the subject site on all land boundaries. The applicant has provided concept plans and detailed reports, which demonstrate that the proposed development can be achieved as proposed by the precincts, subject to detailed design when future applications are lodged for development permits.

The more constrained parts of the site are contained within the open space/foreshore precinct where development is limited. Accordingly, it is considered that the development is appropriate for the site, and integrates well with the Shoreline development.

Part B – Variation request

Assessment Framework

Section 61 of the PAct is relevant to the variation request part of the assessment, and states:

(2) When assessing the variation request, the assessment manager must consider—

- (a) the result of the assessment of that part of the development application that is not the variation request; and*
- (b) the consistency of the variations sought with the rest of the local planning instrument that is sought to be varied; and*
- (c) the effect the variations would have on submission rights for later development applications, particularly considering the amount and detail of information included in, attached to, or given with the application and available to submitters; and*
- (d) any other matter prescribed by regulation.*

(3) The assessment manager must decide—

- (a) to approve—
 - (i) all or some of the variations sought; or
 - (ii) different variations from those sought; or
- (b) to refuse the variations sought.'

S61(2)(a)-(c) are considered in the next section, whereas sub-section (d) was considered in Part A of the application assessment.

Variation Assessment

The variation part of the application is assessed against the assessment benchmarks given in section 61 of the PAct, as listed above and discussed below:

Result of the assessment of that part of the development application that is not the variation request.

Part A of this report (preliminary approval) concludes that a mixed use development is considered appropriate for the site, and is generally consistent with the unvaried RPS and the wider Shoreline masterplan approval. Assessment of the detailed design will be required for an application seeking a development permit, with these to be submitted.

Consistency of the variations sought with the rest of the local planning instrument that is sought to be varied.

Subject to s61 and s43(7) of the PAct, a variation approval may only vary the following for development that is the subject of the variation approval, or development that is the natural or ordinary consequence of the development the subject of the variation approval:

- Vary the category of assessment (prohibited, assessable or accepted development). Note: in accordance with s43(5) of the PAct, a local planning instrument, which includes a variation request, cannot make development prohibited unless a regulation allows the local planning instrument to do so. The POD does not propose any such variations.
- Vary the level of assessment (code or impact).
- Vary the assessment benchmarks.

The RPS v7.1, unless varied by the POD, applies to the subject land. Where there is an inconsistency between the POD and the RPS v7.1, the POD prevails to the extent of any inconsistency. The POD has been designed to integrate with approved Shoreline masterplan POD, and borrows almost exclusively from this document. The POD, if approved, is intended to establish the framework under which future development applications relating to the subject land would be assessed. It is important to note that any part of the RPS not proposed to be amended by this application will remain extant for the life of any approval and will be applicable to any development. The POD comprises the following:

- Shoreline (Bayhill Estate) POD precinct plan
- Desired environmental outcomes
- Precinct overall outcomes
- Precinct tables of assessment for each precinct
- Precinct codes
- Overlays codes
- Use, other development and general codes

- General codes
- Schedules

Proposed variations

The POD incorporates three precincts within the development area to guide future development. These are the town centre frame precinct, the residential precinct and the open space precinct. These precincts have been modelled on the medium density residential zone code sub-area MDR1; urban residential zone code; and the open space zone code in version 7.1 of the RPS, respectively. The majority of the objectives of these zones have been carried forward into the POD. However, there are a number of proposed alterations detailed in the POD, including:

1. Town centre frame precinct

- a. Variations to categories of assessment – the POD makes a number of uses accepted development (subject to requirements) that would otherwise be assessable development in sub-area MDR1. These uses include:
- Bed and breakfast
 - Dwelling house

The unvaried MDR zone code does not allow these uses to be accepted development in sub-area MDR1. However, as noted previously, the sub-precinct is intended to provide for a wide variety of housing types within a short walk of shopping, employment, leisure activities and public transport, while still offering residents a more traditional residential lifestyle, whereas sub-area MDR1 is intended for higher density residential development only. The assessment benchmarks include density targets that future development applications will be assessed against, to ensure an appropriate mix of residential dwellings is provided in the sub-precinct. The proposed variations are consistent with the approved Shoreline POD, therefore it is recommended that they be approved.

Display dwelling use is accepted subject to requirements, or code assessable in the sub-precinct, whereas this use is code assessable only in the MDR zone. This is consistent with the Shoreline approval and the current City Plan.

Outdoor recreation is removed as a use given this use is anticipated in sub-area MDR3, which is not relevant to this development.

Telecommunications facilities are removed from the sub-precinct consistent with the Shoreline approval.

Park is accepted development in the POD, in contrast with the MDR zone code where a park is only accepted development where being undertaken by Council; located on Council controlled or owner land; and meets the acceptable solutions for self-assessable development. Again, this variation is consistent with the Shoreline approval, and in line with the current planning scheme.

Advertising devices have been removed from the POD as this form of development is now regulated under Council's local law.

Other changes are administrative, for example "accepted development" replaces "self-assessable development" as a category of assessment, consistent with the terminology used in the current planning legislation.

- b. Variations to level of assessment – The POD varies the level of assessment in the MDR zone code (RPS v7.1) as such:

Bold: different to RPS

Italics: same as Shoreline

Underline: different to Shoreline

Blank: no change to level of assessment

| Use | Limitations on development being code assessable |
|--|---|
| Aged Persons and Special Needs Housing | <ul style="list-style-type: none"> • <i>Building height is 14m or less; or</i> • <i>where within 100m of a bus stop; and less than 14m height</i> |
| Apartment Building | <ul style="list-style-type: none"> • <i>within 100m of a bus stop; and less than 14m height; and</i> • <i>3 storeys or less; and</i> • <i>800m² or more in area and with a frontage of 20m</i> |
| Bed and breakfast | |
| Caretakers Dwelling | |
| Commercial Office | |
| Community facility | |
| Display Dwelling | |
| Dual Occupancy | <ul style="list-style-type: none"> • <i>700m²+ lot; and</i> • <i>20m frontage; and</i> • <i>9.5m height</i> and 2 storeys or less; and • <i>built to boundary wall 9m in length; 3m in height; with no openings to the boundary</i> |
| Dwelling House | |
| Education Facility | <ul style="list-style-type: none"> • <i>Code assessable</i> |
| Estate Sales Office | |
| Health Care Centre | <ul style="list-style-type: none"> • <i>If not undertaken as part of a mixed use development</i> |
| Home Business | |
| Indoor Recreation Facility | <ul style="list-style-type: none"> • <i>If not undertaken as part of a mixed use development</i> |
| Multiple Dwelling | <ul style="list-style-type: none"> • <i>Building height is 14m or less</i> |
| Park | |
| Refreshment Establishment | <ul style="list-style-type: none"> • <i>Undertaken as part of mixed use development;</i> • <i>Having 400m² or less GFA</i> |
| Road | |
| Shop | <ul style="list-style-type: none"> • <i>Undertaken as part of mixed use development;</i> • <i>Having 250m² or less GFA</i> |
| Tourist Accommodation | <ul style="list-style-type: none"> • <i>Height does not exceed 14m</i> |
| Utility Installation | |

Table 2 – Town centre frame precinct level of assessment

Changes to the table of assessment with respect to reconfiguring a lot, building work and operational work are administrative only, and require no further assessment.

Summary of Shoreline variations - the following were considered the most notable, where relevant to the subject development:

- Minimum lot sizes reduced:
 - Dwelling House 400m²
 - Dual Occupancy 700m² (with 20m frontage)
 - 800m² in all other circumstances

The reduction of the minimum lot size to 800m² is considered acceptable. It is sufficient to deliver the predominant land uses for this precinct, being multiple dwellings, aged persons and special needs housing and apartment buildings. It is noted that this minimum lot size is consistent with the minimum lot size in the equivalent MDR zone in the City Plan.

- c. Variations to assessment benchmarks - the POD varies the assessment benchmarks as such:
- Overall outcomes – the POD is substantially the same as the overall outcomes of the MDR zone code, with mostly administrative changes to remove those outcomes that reference the six MDR sub-areas that are not relevant to the development.
 - Specific outcomes –
 - Specific Outcome S5.6 is varied slightly to require a road to adjoin all open space corridors and foreshore open space as shown on the POD precinct plan, in accordance with the (approved) biting insect management plan. The wording change does not change the intent of the Shoreline POD, which is to ensure development is sufficiently separated from the habitat of biting insects.

2. Residential precinct

- a. Variations to categories of assessment - the POD varies the category of assessment as such:
- An apartment building use is included as a use consistent with the Shoreline approval. The Shoreline residential precinct is intended to provide other opportunities within the subject site to ensure the most efficient use of the land by increasing density in suitable locations. As such it is considered appropriate to apply a similar trigger where development is located in close proximity to bus stops.
 - Other variations to categories of assessment are the same as for the town centre frame precinct except for telecommunications facilities, which are not anticipated in either the UR zone or residential precinct. The variations are considered appropriate.
 - Administrative changes include removal of non-relevant sub-area references, updated references to documents and PAct category of assessment terms.
- b. Variations to levels of assessment - The POD varies the level of assessment in the UR zone code (RPS v7.1) as such:

Bold: different to RPS (bold text for use = new use)

Italics: same as Shoreline

Underline: different to Shoreline

Blank: no change

| Use | Limitations on development being code assessable |
|--|---|
| Aged Persons and Special Needs Housing | <ul style="list-style-type: none"> • <i>If 9.5m height;</i> • <i>2 storeys or less; or</i> • <i>within 100m of a bus stop; and less than 14m height;</i> |
| <i>Apartment Building</i> | <ul style="list-style-type: none"> • <i>Within 100m of a bus stop; and</i> • <i>14m height</i> • <i>3 storeys or less</i> • <i>800m²+ lot and 20m frontage</i> |
| Bed and Breakfast | |
| Caretakers Dwelling | |

| Use | Limitations on development being code assessable |
|---------------------------|--|
| Community facility | <ul style="list-style-type: none"> • GFA does not exceed 250m² |
| Display Dwelling | |
| Dual Occupancy | <ul style="list-style-type: none"> • 700m²+ lot; and • 20m frontage; and • 9.5m height and 2 storeys or less; and • built to boundary wall 9m in length; 3m in height; with no openings to the boundary |
| Dwelling House | |
| Estate Sales Office | |
| Home Business | |
| Minor utility | |
| Multiple Dwelling | <ul style="list-style-type: none"> • Within 100m of a bus stop and the building height is – • 14m or less; • 3 storeys or less; • 800m²+ lot with 20m frontage |
| Park | |
| Road | |
| Utility installation | |

Table 3 – Town centre frame precinct level of assessment

Changes to the table of assessment with respect to reconfiguring a lot, building work and operational work are administrative only, and require no further assessment.

Summary of Shoreline variation - the following were considered the most notable, where relevant to the subject development:

- Height in the rest of the precinct raised from 8.5m in the UR zone to 9.5m.

As a master planned community it is considered that increasing building height limits by 1m has little impact. The expectations for the areas are established before development is commenced in the area and therefore the conflicts that would be more likely to occur for infill development are not a concern. It is considered an acceptable variation. It is however noted that the Queensland Development Code identifies a maximum building height for dwelling houses of 8.5m, therefore in order to ensure that dwelling houses do not require concurrence agency referral to Council on this matter an amendment to the POD will need to be conditioned making dwelling houses self-assessable and identifying this as an alternative provision under section 33 of the Building Act. The subject POD includes accepted development and alternative Building Act provisions.

- Dual occupancy minimum lot size reduced from 800m² in the UR zone to 700m².

700m² is considered sufficient space to accommodate two dwelling units on a single lot, particularly given dual occupancies share service access. This proposal would result in a density of 1 per 350m². This allows a greater housing mix on the subject site and provides an alternative affordable housing option to multiple dwelling units. Moreover the urban residential zone in the Redlands Planning Scheme currently supports such a density in large scale subdivisions where impacts on existing neighbours can be mitigated. This proposal is part of a master planned community and these provisions establish the intent and character objectives for the areas. It is considered an appropriate variation to the Redlands Planning Scheme.

- Reconfiguration achieves a density of up to 15 dwellings per hectare (dph) (the UR zone code requires 12-15 dph).

“This proposed amendment has removed the lower limit of the density target for the zone and maintains the upper limit. This has been proposed in order to provide some flexibility and allow some areas of the precinct to provide a selection of larger lots. This is not expected to have a significant impact on the overall density achieved in the precinct and is considered appropriate.”

- c. Variations to assessment benchmarks - the POD varies the assessment benchmarks as such:
 - Overall outcomes – The POD is substantially the same as the overall outcomes of the UR zone code, with mostly administrative changes to remove references to sub-areas and Shoreline-specific precinct. However, overall outcome 4.3.3(2)(a)e is deleted. This outcome states:

“uses and other developments – provide for a range of residential uses that – where in the vicinity of the Tourism/Recreation Activity Area or a public transport stop, as indicated on the Shoreline (Bayhill estate) POD Precinct Plan, may include higher density development.”

The subject site is not within the vicinity of the tourism/recreation activity area, approved under Shoreline, and the Shoreline POD precinct plan does not include any indicative public transport stops. However, the submitted traffic study includes two possible bus stops on the future connector road, to be located within the subject site to ensure all residential lots are located within a 400m radius of public transport, while minimising busy activity on local streets. This outcome is consistent with specific outcome S1.2 of the urban residential zone code for the UR2 sub-area, which is generally consistent with the increased range of residential uses anticipated in the residential precinct code. However, the tables of assessment and specific outcome S1.1 of the residential precinct code facilitates higher density development where within 100m of a bus stop, so removal of this outcome for administrative purposes will not result in a negative development outcome.

- Specific outcomes –
 - Specific outcome S1.1, S2.1 and S2.4 – the subject site is not located within 250m of the Shoreline tourism/recreation activity area, therefore amending this Shoreline outcome is administrative.
 - Other administrative changes include referencing the POD document title in lieu of the Shoreline POD.
 - Specific outcome S3.11 was added to the Shoreline POD to require an acoustic barrier along Serpentine Creek Road to mitigate road noise for future development. This outcome is removed from the POD given the Shoreline development is located between the subject site and Serpentine Creek Road.
 - Specific Outcome S5.10 is varied slightly to require a road to adjoin all open space corridors and foreshore open space as shown on the POD precinct plan, in accordance with the (approved) biting insect management plan. The wording change does not change the intent of the Shoreline POD, which is to ensure development is sufficiently separated from biting insects' habitat.
- Probable solutions – changes to probable solutions correspond with changes to specific outcomes where relevant.

3. Open space precinct

- a. Variations to categories of assessment – the POD varies the category of assessment as such:
- A community facilities use includes both accepted and assessable development thresholds. The Shoreline POD included community facilities as a consistent use for the purposes of specific outcome S1.1, which has been removed from the subject POD. There are similar conflicts with refreshment establishment and outdoor recreation uses in the precinct. The rationale for the change is to reflect the landscape plan submitted that shows a relatively minor level of embellishment. This plan is indicative and detailed design would be required as part of subsequent reconfiguration applications, and the uses and design may change through that further process.
 - Other variations to categories of assessment are the same as for the town centre frame precinct and residential precinct except for telecommunications facilities, which are not anticipated in either the open space zone or the open space/frame precinct. For the reasons given previously, the variations are considered appropriate.
 - Administrative changes include updated references to documents and PAct category of assessment terms.
- b. Variations to level of assessment - the POD varies the level of assessment in the open space zone code (v7.1 RPS) as such:

Bold: different to RPS

Italics: same as Shoreline

Underline: different to Shoreline

Blank: no change

| Use | Limitations on development being code assessable |
|-----------------------------|---|
| Caretakers Dwelling | |
| Community Facility | <ul style="list-style-type: none"> • <i>Accepted if undertaken by Council;</i> • <i>Otherwise – code assessable</i> |
| Emergency Services | <ul style="list-style-type: none"> • <i>Accepted if undertaken by Council;</i> • <i>Otherwise – code assessable</i> |
| Minor utility | |
| Outdoor Recreation Facility | <ul style="list-style-type: none"> • <i>Accepted if undertaken by Council;</i> • <i>Otherwise – code assessable</i> |
| Park | |
| Refreshment Establishment | <ul style="list-style-type: none"> • <i>Accepted if undertaken by Council; or</i> • <i>Code assessable if not accepted and 150m² or less</i> |
| Road | |
| Utility Installation | |

Table 4 – Town centre frame precinct level of assessment

Changes to the table of assessment with respect to reconfiguring a lot, building work and operational work are administrative only, and require no further assessment.

- c. Variations to assessment benchmarks - the POD varies the assessment benchmarks as such:

- Overall outcomes – a number of administrative variations are made to reflect the POD document and remove references to Shoreline-specific locations and documents. The other change is to overall outcome 4.4.3(2)(a) that defines the foreshore open space precinct as open space in lieu of community and destination park. This is considered appropriate given the activities desired for this location are consistent with a linear park, and include an extension of the MBC and associated embellishments (resting point, seat, bubbler, shade shelters, and wayfinding signage). The balance of the sub-precinct on the Shoreline land, having more width and a significantly greater land area, will include the mix of embellishments desired for a community and destination park. The amended overall outcome makes specific reference to walking and cycling opportunities, informal open spaces for picnics, and resting points.
- Specific outcomes –
 - Specific outcome S1.1 is varied in line with the amended overall outcome to reflect the intended use of the linear open space. This is considered appropriate, and does not mean that the deleted uses (community facility, emergency services, outdoor recreation facility, and refreshment establishment) will result in inconsistent development, if part of a later application. The tables of assessment still allow for these uses to be accepted development (if undertaken by Council), otherwise code assessable.
 - Other changes include references to Shoreline-specific documents that are not relevant.
 - Specific Outcome S4.9 is varied slightly to require a road to adjoin all open space corridors and foreshore open space as shown on the POD precinct plan, in accordance with the (approved) biting insect management plan. The wording change does not change the intent of the Shoreline POD, which is to ensure development is sufficiently separated from biting insect's habitat.
- Probable solutions – changes to probable solutions correspond with changes to specific outcomes where relevant.

Changes to other codes

- Overlays: variations to overlays are relatively minor, and include:
 - Acid sulfate soils overlay code – no variations other than administrative.
 - Bushfire hazard overlay code – no variations other than administrative. Development within the POD precinct plan is as per the approved bushfire management plan (discussed in Part A of the report).
 - Flood prone, storm tide and drainage constrained land overlay code - no variations other than administrative. However, It is noted that there is a significant variation in the storm tide level between the RPS (2.4m AHD as the 1% AEP) and current storm tide levels (3.81m AHD). A condition is recommended to require the POD to be amended to the current level to avoid any inconsistency with the 1% AEP future building application will be required to address.

- Habitat protection overlay code – The overlay mapping is intended to be removed, which will result in the overlay not applying to future development. The rationale for removing the habitat overlay mapping is that the mapping is cadastrally focused, and the extent of environmental values has been more accurately reflected in the environmental reporting submitted with the Shoreline application. However, the overlay mapping was not removed for Lot 1 on SP289245, which is the heavily vegetated lot adjoining the subject site to the north-west. Given the interface and the significant vegetation and wetland features in the northern part of the subject site, removal of the overlay mapping would otherwise not be supported, however given the significant vegetation and wetland area will be located in the open space precinct, which restricts inappropriate development, it is considered reasonable to remove the overlay mapping, and thus the application of the overlay to subsequent development.
- Waterways, wetland and Moreton Bay overlay code – The overlay is varied so as to not apply to the site. This is supported because the SPP mapping identifies the same constraints, and can be addressed as part of future reconfiguration of lot applications. This matter has also been addressed in Part A of the report.
- Landslide hazard overlay code - variations to the landslide hazard overlay code to not apply the mapping in the POD are supported because the hazard level is identified as low, and the risk can be mitigated through appropriate building design during the building approval process.
- Use codes – variations to the use codes are administrative only and include referencing the updated POD document and the relevant version of the RPS to be amended. The exception is the service station code, with variations included in the Shoreline approval to be removed, to revert back to the RPS v7.1. This is because the Shoreline approval included a service centre on the western side of Serpentine Creek Road, adjacent to the town centre, with the service centre to include a service station. The subject POD does not intend for this use to be located in the POD area, and would require impact assessment. The variation will have no bearing on this requirement.
- Other development codes: there are no changes from the Shoreline POD proposed.
- General codes:
 - The advertising devices code is deleted as discussed previously. There are no implications for assessment given advertising devices are now regulated under a local law.
 - The centre activity code is varied to reference the POD document.
 - Administrative changes to the centre design code, stormwater management code and the (Shoreline) new 'building design code to reduce the incidence of biting insects'.
- Schedules – administrative changes to planning scheme schedules to reference the POD document and remove the specific advertising devices schedule.

The effect the variations would have on submission rights for later development applications, particularly considering the amount and detail of information included in, attached to, or given with the application and available to submitters.

The variations do not vary the level of assessment from impact to code assessment, therefore there will be no impacts on submitter rights for subsequent development applications.

City Plan

Appropriate weight is given to City plan under section 45(8) of the PAct to consider potential conflicts between categories of assessment and levels of assessment are considered where relevant to the assessment. Given City Plan has commenced in the period between when the application was lodged and before it was decided, appropriate weight is given to consider the consistency of the variations with City Plan.

Town centre frame precinct - as noted previously, this precinct is loosely modelled on the medium density residential zone MDR1 sub-area in the RPS, but also includes opportunities for small commercial development and mixed-use development. The precinct best aligns with MDR zone code in City Plan. The POD is more stringent for a dual occupancy use, where the use is code (where meeting requirements), otherwise impact assessable. The use is accepted subject to requirements in the MDR zone in City Plan, otherwise concurrence agency referral is required to Council under Schedule 9 of the Planning Regulation. The POD requirements are considered appropriate in this instance as they are consistent with the other POD precinct requirements, and the Shoreline approval.

There is a potential disconnect between the levels of assessment and assessment benchmarks for LDR development in the town centre frame precinct. This has been carried over from the Shoreline approval. In section 2.3.2 of the POD it is noted that the overall outcomes of the precinct are to provide for a wide variety of housing types in close proximity to centre uses, while allowing residents a more traditional lifestyle. The level of assessment table provides for low density housing types and higher density living, whereas the predominant built form is intended to be mid-rise housing, while also allowing for dwelling houses. It is considered that there is sufficient intent in the benchmarks for residential development to be predominantly mid-rise while allowing some scope for low density living that is representative of the 'buffer' zone the precinct is intended to perform.

Residential precinct – this precinct is based upon the LDR zone in City Plan but does allow for higher density residential and aged care where within 100m of a public transport stop. Otherwise, the categories and levels of assessment for equivalent uses generally align with City plan. A caretakers dwelling is code assessable in the POD, and the equivalent use (caretaker's residence) is impact assessable in the LDR zone code in City Plan. Caretaker's accommodation is defined in schedule 24 of the Planning Regulation as the use of premises for a dwelling for a caretaker of a non-residential use on the same premises. Given that non-residential uses would be impact assessable in the residential precinct, and unlikely to be supported given the development intent for the zone, that changing the level of assessment from code to impact is moot.

Open space precinct – this precinct aligns with the recreation and open space precinct in City Plan. Both precinct and zone codes anticipate similar uses with no significant change to categories or levels of assessment.

CONCLUSION

The primary consideration of the variation request is variations to the urban residential, medium density residential (sub-area MDR1) and open space zone codes in adopting the POD precincts: town centre frame precinct, residential precinct and open space precinct.

The variations to v7.1 of the RPS are consistent with the variations approved in the Shoreline approval, which varied 6.2 of the RPS. There are no changes in assessment benchmarks between v6.2 and v7.1 of the RPS that are relevant to the assessment. The variations are considered consistent with zone codes being varied, and the land use intent for the investigation zone, which is to limit development until such time as the suitability for urban purposes is established.

INFRASTRUCTURE CHARGES

Infrastructure Agreement

An infrastructure agreement is required to manage the delivery of a proposed neighbourhood trunk park and an extension to the trunk Moreton Bay Cycleway. A special condition is included to facilitate a future water play park option should Council require such infrastructure.

The proposed trunk works and offsets are listed below:

- **Schedule 5 – Item 4.1.1 & 4.1.2 Transport Infrastructure**

The land and works contribution for a 3 metre wide shared bicycle and pedestrian pathway for a length of 570 metres, as indicatively identified on the Bayhill Park Basic Embellishment Plan Schedule 4 of the IA. The agreed land value is \$28,500.00 and works offset \$293,872.15. The \$28,500.00 is for the footprint of the MBC and is able to be offset. The park and balance of the open space is at no cost to Council.

- **Schedule 5 – Item 4.2.1 & 4.2.2 Parks Infrastructure**

The land and works contribution for a recreation park to a value of \$1,378,656.96, and includes a \$28,500.00 land cost, and a \$1,350,156.96 works cost.

The land is to be at no cost to Council and no offset applies (for the land). The embellishment cost is likely to equate to a full offset of the parks network infrastructure charges based on the concept yield for the subject site, currently at 225 lots (but subject to further development applications).

- **Special Condition 1.4 provides for Council to request additional land and works for a water-play park facility subject to a refund or other monetary payment to Lendlease.**

- **Schedule 5 – Item 4.3.1 & 4.3.2 Stormwater Infrastructure**

The land and works contribution equates to a full offset of the stormwater network infrastructure charges.

- **Schedule 5 – Item 4.5.1 to 4.5.4 Tankering Infrastructure**

The land and works contribution is to comprise a Tankering Facility in accordance with a Tankering Management Plan, to service up to 200 dwellings at any one time collectively within the subject site and Shoreline land. This is to be at no cost to Council and utility charges will be applied for receipt and treatment of the waste.

- **Schedule 5 – Item 4.5.5 & 4.5.6 Sewerage Infrastructure**

The land and work contribution is to comprise the design and construction of a sewerage collection, treatment and disposal system to service the development. This will form part of the broader Shoreline sewer solution where development management is undertaken by Lendlease Communities (Shoreline) and not a third party. Sewer network infrastructure charges would subsequently be fully offset for the Bayhill Estate. Any land required is at no cost to Council.

- **Schedule 5 – Item 4.6 Marine Infrastructure**

This financial contribution is required to satisfy the requirements of the 2015 Shoreline Redlands preliminary approval IA as it relates to refunding this contribution received from the Benefitted Area (balance investigation zoned land not under Lendlease's control) to Lendlease.

Infrastructure Charges

Infrastructure charges are not levied on a preliminary approval. If the application is approved, infrastructure charges will be levied on subsequent development permits in accordance with the Infrastructure Agreement and the Redland City Council Adopted Infrastructure Charges Resolution.

STRATEGIC IMPLICATIONS

Legislative Requirements

The Development Application has been assessed in accordance with the *Planning Act 2016*.

Risk Management

Standard development application risks apply. In accordance with the *Planning Act 2016* the applicant may appeal a condition of approval or a decision to refuse the application. A person that made a properly made submission may appeal the decision on the application.

Financial

Should an appeal be filed against the decision of Council, subsequent legal costs will apply.

People

There are no implications for staff associated with this report.

Environmental

Environmental impacts are discussed in the 'Issues' section of this report where relevant.

Social

Social impacts are discussed in the 'Issues' section of this report where relevant.

Human Rights

There are no known human rights implications associated with this report.

Alignment with Council's Policy and Plans

The assessment and officer's recommendation align with Council's policies and plans as described within the 'Issues' section of this report.

Decision Urgency

The applicant has requested that the application be decided as a matter of urgency.

CONSULTATION

| Consulted | Consultation Date | Comments/Actions |
|-----------------------|-------------------------------------|--|
| Councillor Division 6 | 22 November 2021 30 October 2017 | Referral to Councillor in accordance with standard practice. |

OPTIONS

Option One

That Council resolves as follows:

1. To issue a preliminary approval for a material change of use for a mixed use development on land described as Lot 2 on RP 212251, and situated at 48-66 Scenic Road, Redland Bay, subject to the conditions outlined in Attachment 10.
2. To approve the variations sought to vary the effect of the Redlands Planning Scheme version 7.1 in accordance with Section 61 of the *Planning Act 2016*, on land described as Lot 2 on RP212251, and situated at 48-66 Scenic Road, Redland Bay, subject to conditions outlined in Attachment 10.

Option Two

That Council resolves as follows:

1. To issue a preliminary approval subject to different conditions.
2. To approve different variations to the Redlands Planning Scheme version 7.1 to those requested.

Option Three

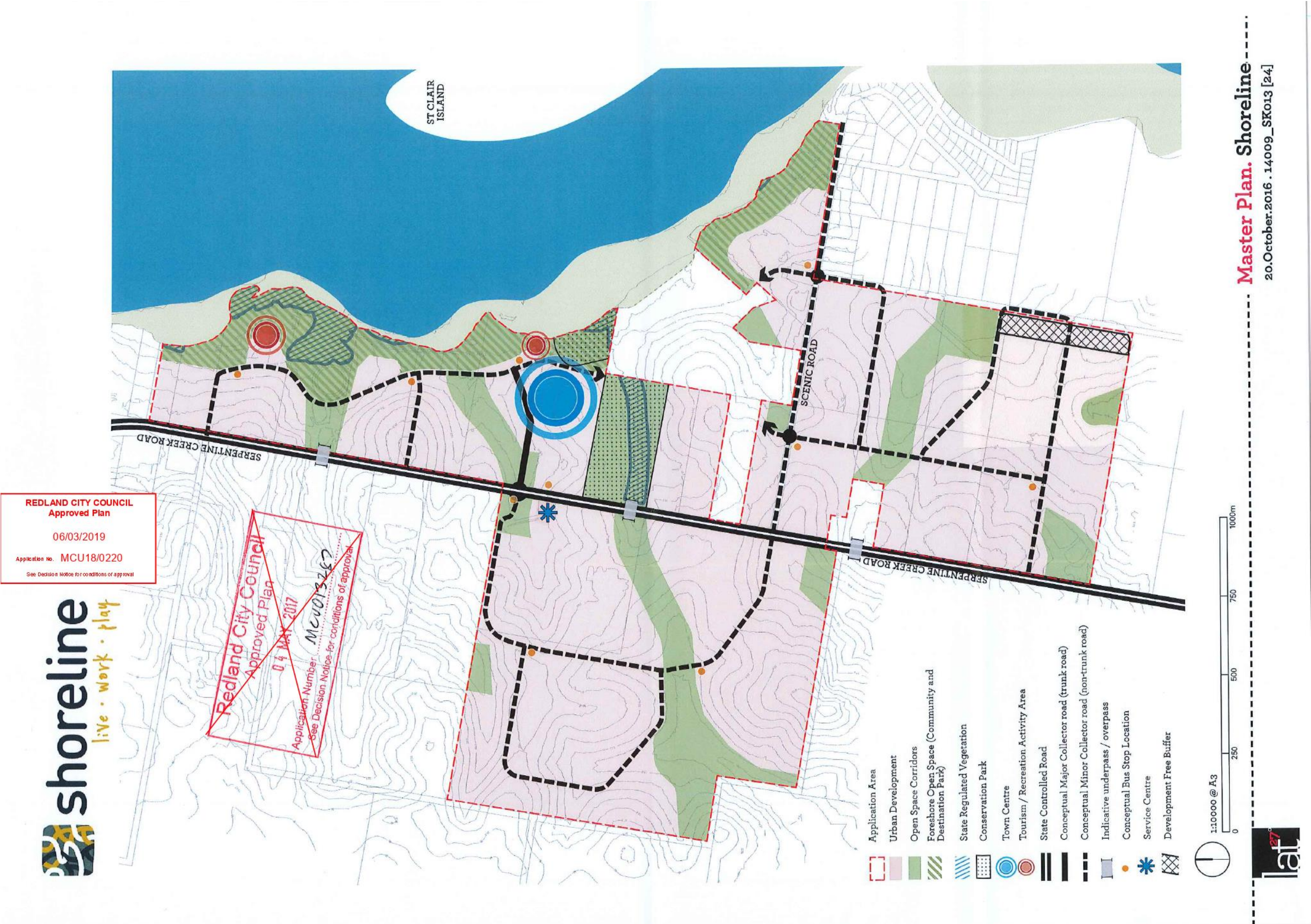
That Council resolves as follows:

1. To refuse the preliminary approval (reasons for refusal must be identified).
2. To refuse the variations requested (reasons for refusal must be identified).

OFFICER'S RECOMMENDATION

That Council resolves as follows:

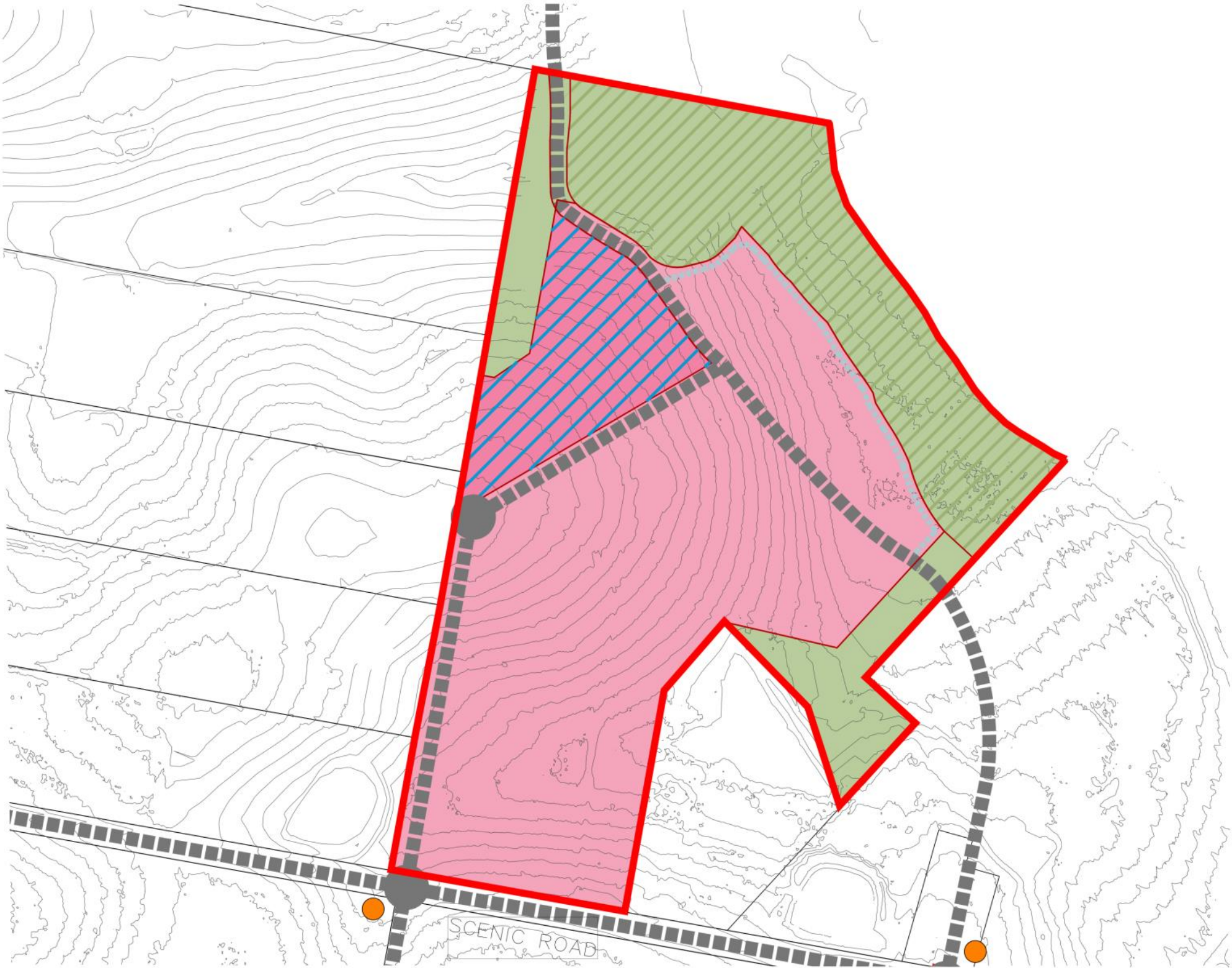
1. To issue a preliminary approval for a material change of use for a mixed use development on land described as Lot 2 on RP 212251, and situated at 48-66 Scenic Road, Redland Bay, subject to the conditions outlined in Attachment 10.
2. To approve the variations sought to vary the effect of the Redlands Planning Scheme version 7.1 in accordance with Section 61 of the *Planning Act 2016*, on land described as Lot 2 on RP212251, and situated at 48-66 Scenic Road, Redland Bay, subject to conditions outlined in Attachment 10.





Aerial view of subject site

SHORELINE (BAYHILL ESTATE) PRECINCT PLAN



NOT TO BE USED FOR ENGINEERING DESIGN
OR CONSTRUCTION

NOTES

This plan was prepared as a provisional layout to accompany a development application. The information on this plan is not suitable for any other purpose.

Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions.

No reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

Pavements and centrelines shown are indicative only and are subject to Engineering Design.

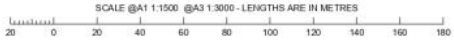
Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

DCDB © State of Queensland (Department of Natural Resources and Mines) 2018.
Lidar Data © State of Queensland (Department of Natural Resources and Mines) 2018.

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

- LEGEND**
- Subject Site
 - Residential Precinct
 - Open Space Precinct
 - Foreshore Open Space Subprecinct
 - Town Centre Frame Precinct
 - Conceptual Collector Road
 - Conceptual Residential Road
 - Conceptual Bus Stop Location

| PRECINCT AREA | AREA |
|----------------------------|---------|
| Residential Precinct | 10.1 Ha |
| Open Space Precinct | 5.7 Ha |
| Town Centre Frame Precinct | 1.8 Ha |
| TOTAL | 17.6 Ha |



CENTHEAD PTY LTD

07/12/2021 9401 P 10 Rev I -SKE 01



Zone map



**“Shoreline (Bayhill Estate) Urban Village”
Scenic Road
Redland Bay, Redland City**



PLAN OF DEVELOPMENT

**Development Application for MCU For a Preliminary Approval
(Variation Request) for Urban and Other Uses & to Vary the Effect of
the RPS V7.1**

Prepared for Centhead Pty Ltd
27 October 2021

VERSION J (DRAFT A)

CONTENTS

1. INTRODUCTION

- 1.1 PREFACE
- 1.2 APPLICATION
- 1.3 PURPOSE AND RELATIONSHIP TO THE PACT 2016
- 1.4 STRUCTURE

2. OVERALL OUTCOMES

- 2.1 INTRODUCTION
- 2.2 DESIRED ENVIRONMENTAL OUTCOMES
- 2.3 PRECINCT OVERALL OUTCOMES

3. PRECINCTS & TABLES OF ASSESSMENT

- 3.1 INTRODUCTION
- 3.2 SHORELINE (BAYHILL ESTATE) TOWN CENTRE FRAME PRECINCT TABLES OF ASSESSMENT
- 3.3 SHORELINE (BAYHILL ESTATE) RESIDENTIAL PRECINCT TABLES OF ASSESSMENT
- 3.4 SHORELINE (BAYHILL ESTATE) OPEN SPACE PRECINCT TABLES OF ASSESSMENT

4. PRECINCT CODES

- 4.1 SHORELINE (BAYHILL ESTATE) TOWN CENTRE FRAME
- 4.2 SHORELINE (BAYHILL ESTATE) RESIDENTIAL
- 4.3 SHORELINE (BAYHILL ESTATE) OPEN SPACE

5. OVERLAYS & OVERLAY CODES

- 5.1 INTRODUCTION
- 5.2 ACID SULFATE SOILS OVERLAY
- 5.3 BUSHFIRE HAZARD OVERLAY
- 5.4 FLOOD PRONE, STORM TIDE AND DRAINAGE CONSTRAINED LAND OVERLAY
- 5.5 HABITAT PROTECTION OVERLAY
- 5.6 HERITAGE PLACE AND CHARACTER PRECINCT OVERLAY
- 5.7 PROTECTION OF THE POULTRY INDUSTRY OVERLAY
- 5.8 ROAD AND RAIL NOISE IMPACTS OVERLAY
- 5.9 WATERWAYS, WETLANDS AND MORETON BAY OVERLAY
- 5.10 LANDSLIDE HAZARD OVERLAY

6. USE CODES

- 6.1 INTRODUCTION
- 7.1 VARIATION TO USE CODES

7. OTHER DEVELOPMENT CODES

- 7.1 INTRODUCTION
- 7.2 VARIATION TO OTHER DEVELOPMENT CODES

8. GENERAL CODES

- 8.1 INTRODUCTION
- 8.2 VARIATION TO GENERAL CODES
- 8.3 BUILDING DESIGN CODE TO REDUCE BITING INSECT NUISANCE

9. SCHEDULES

- 9.1 INTRODUCTION
- 9.2 VARIATION TO SCHEDULES

FIGURES

Figure 1 – Shoreline (Bayhill Estate) POD Precinct Plan

Figure 2 – Aerial Photo of the Shoreline (Bayhill Estate) site showing extent of land to which the Shoreline (Bayhill Estate) POD applies

Figure 3 – Shoreline (Bayhill Estate) POD Precinct Plan

Document Issue

| Issue | Date | Prepared By | Checked By |
|---------------------|-------------|--------------------|-------------------|
| Version H (Draft A) | 12/11/2018 | Sam Evans | Ashley Lovell |
| Version H (Draft B) | 16/11/2018 | Sam Evans | Ashley Lovell |
| Version H (Draft C) | 27/11/2018 | Sam Evans | Ashley Lovell |
| Version H (Draft D) | 29/01/2019 | Sam Evans | Ashley Lovell |
| Version I (Draft A) | 5/11/2019 | Sam Evans | Ashley Lovell |
| Version J (Draft A) | 27/10/2021 | Jack Briant | Michael Forwood |

The persons responsible for this report are:

VERSION J (Draft A)**Michael Forwood**

Director
 Saunders Havill Group Pty Ltd
 Ph: 1300 123 SHG
 Email: michaelforwood@saundershavill.com
 Postal Address: 9 Thompson St Bowen Hills Q 4006
 Web: www.saundershavill.com

VERSION J (Draft A)**Jack Briant**

Senior Town Planner
 Saunders Havill Group Pty Ltd
 Ph: 1300 123 SHG
 Email: jackbriant@saundershavill.com
 Postal Address: 9 Thompson St Bowen Hills Q 4006
 Web: www.saundershavill.com

* Please note; the front cover illustration shows all land within southern Redland Bay though not all subject to this Preliminary Approval.

1. INTRODUCTION

1.1 PREFACE

The Shoreline (Bayhill Estate) Plan of Development (POD) is the component of the Preliminary Approval (Variation Request) for the Shoreline (Bayhill Estate) Urban Village project which, as provided for by s43 of the *Planning Act 2016* (PACT), varies the effect of any local planning instrument in effect for the premises.

The Redlands Planning Scheme Version 7.1 (RPS V7.1), unless varied by the Shoreline (Bayhill Estate) POD, applies over the premises. The Shoreline (Bayhill Estate) POD contains varied and additional assessment benchmarks and provisions to those set out within the RPS V7.1. Where there is any inconsistency between the RPS V7.1 and the Shoreline (Bayhill Estate) POD, the Shoreline (Bayhill Estate) POD prevails.

To remove any doubt, the Preliminary Approval (Variation Request), including the Shoreline (Bayhill Estate) POD, varies the effect of the Redland City Plan (including any amendments) and any subsequent local planning instrument in effect for the premises.

The Preliminary Approval (Variation Request) - including the Shoreline (Bayhill Estate) POD - has effect until the development is completed, or the Preliminary Approval (Variation Request) lapses.

The Shoreline (Bayhill Estate) POD provides for the future and on-going development of the site generally in accordance with the Bayhill Estate Precinct Plan; the approved conceptual development for the Bayhill Estate site pursuant to the Preliminary Approval (Variation Request) issued by Council for the Shoreline (Bayhill Estate) Urban Village. The Bayhill Estate Precinct Plan is shown at Figure 1.

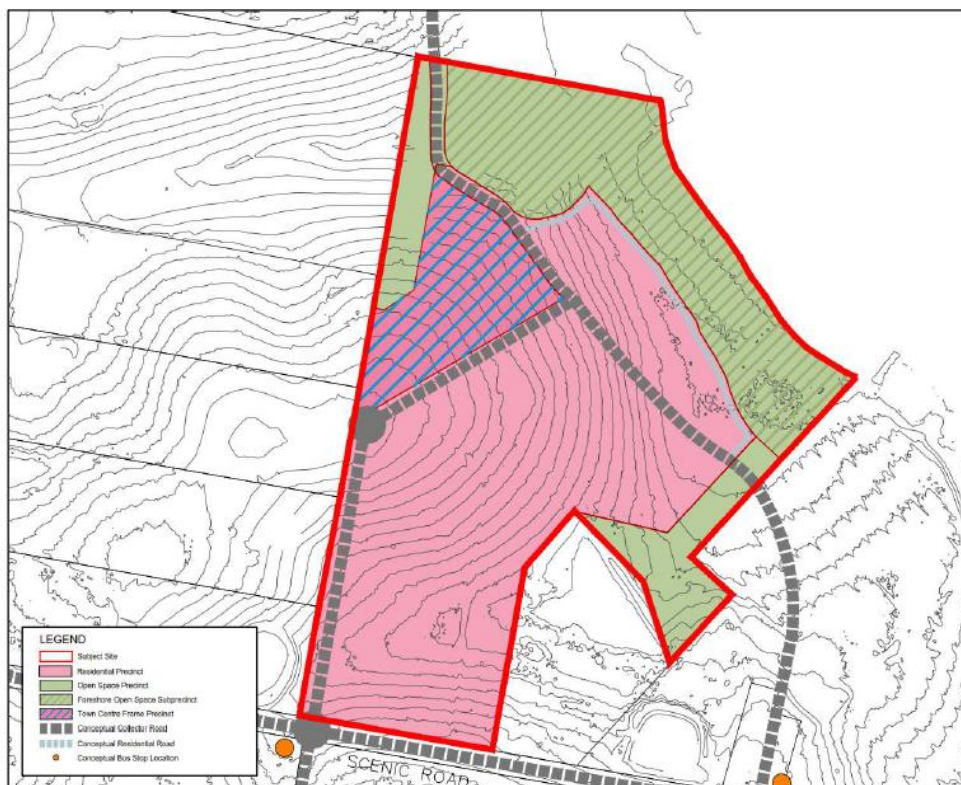


Figure 1 – Shoreline (Bayhill Estate) POD Precinct Plan

1.2 APPLICATION

The Shoreline (Bayhill Estate) POD applies to the land identified as Lot 2 on RP212251. Also, Figure 2 shows an aerial photograph overlaid with cadastral boundaries (courtesy of the state government's Qld Globe) and an outline of the land (in pink) to which this POD applies. Note, for reference, the land subject to the adjoining Shoreline Urban Village approval is outlined in orange.

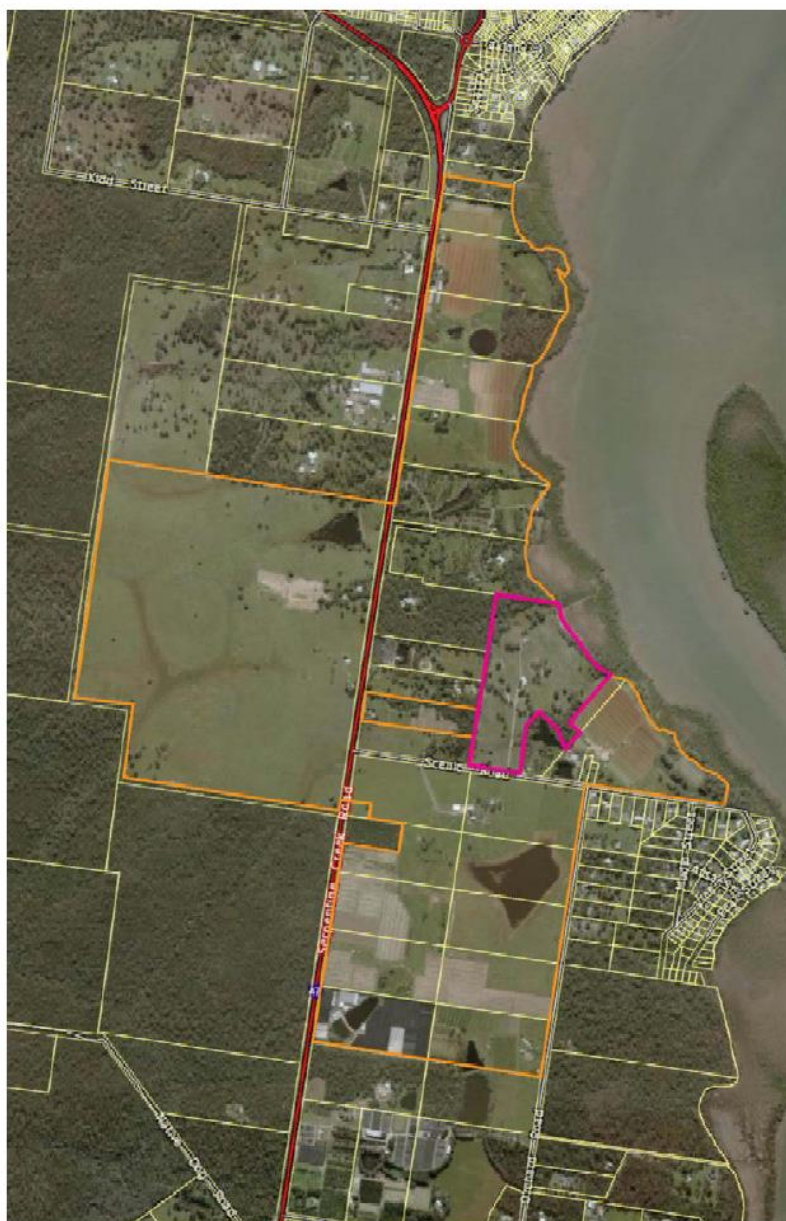


Figure 2 – Aerial Photograph of the Bayhill Estate site showing extent of land to which the Shoreline (Bayhill Estate) POD applies

1.3 PURPOSE AND RELATIONSHIP TO THE PLANNING ACT 2016

The Shoreline (Bayhill Estate) POD sets out how the Preliminary Approval (Variation Request) for the Shoreline (Bayhill Estate) Urban Village - in accordance with s43 of the PACT - categorises development, specifies categories of assessment for assessable development, and what matters (the *assessment benchmarks*) the Council as assessment manager must assess assessable development against.

The following elements of the Shoreline (Bayhill Estate) POD implement its regulatory function:

- The Overall Outcomes for the Shoreline (Bayhill Estate) POD.
- The unique Tables of Assessment applicable to each precinct within the Shoreline (Bayhill Estate) POD.
- The unique Precinct Codes applicable to each precinct within the Shoreline (Bayhill Estate) POD.
- Other Codes (being overlay codes, use codes, other development codes and general codes) and other parts of the RPS V7.1 applicable to development within the Shoreline (Bayhill Estate) POD, together with any variations and additions to those codes.

The RPS V7.1, unless varied by the Shoreline (Bayhill Estate) POD, applies over the premises. The POD contains varied and additional assessment benchmarks and provisions to those set out within the RPS V7.1. Where there is an inconsistency between the RPS V7.1 and the Shoreline (Bayhill Estate) POD, the Shoreline (Bayhill Estate) POD prevails.

To remove any doubt, the Preliminary Approval (Variation Request), including the Shoreline (Bayhill Estate) POD, varies the effect of the Redland City Plan (including any amendments) and any subsequent local planning instrument in effect for the premises.

The Preliminary Approval (Variation Request) - including the Shoreline (Bayhill Estate) POD - has effect until the development is completed, or the Preliminary Approval (Variation Request) lapses.

The Shoreline (Bayhill Estate) POD Precinct Plan shows the Shoreline (Bayhill Estate) Urban Village conceptual road layout, residential areas and open space / foreshore open space corridors in relation to the adjoining approval. The Shoreline (Bayhill Estate) POD Precinct Plan is shown at Figure 1. The land to which the Shoreline (Bayhill Estate) POD applies and the spatial extent of the precincts contained within the Shoreline (Bayhill Estate) POD is identified in Figure 3 – Shoreline (Bayhill Estate) Precinct Plan.

1.4 STRUCTURE

The Shoreline (Bayhill Estate) POD includes:

- The Shoreline (Bayhill Estate) Precinct Plan (Figure 1), which identifies:
 - Shoreline (Bayhill Estate) Town Centre Frame Precinct.
 - Shoreline (Bayhill Estate) Residential Precinct.
 - Shoreline (Bayhill Estate) Open Space Precinct and Foreshore Sub-precinct.
- Tables of Assessment for each Precinct.
- Precinct Codes for each Precinct.
- Codes for which subsequent development applications within the POD Area will be assessed.

Editor's notes in **[bold]** are included through the POD to explain the nature and or reasoning for the variations to the RPS V7.1 where relevant. As per Part 2 of the RPS V7.1 (and the Queensland Planning Provisions), such notes are extrinsic material and do not have the force of law. The RPS V7.1 applies to assessable development on the Shoreline (Bayhill Estate) site to the extent the provisions of the planning scheme are not varied by this POD.

Also, as per the Queensland Planning Provisions, this POD is based on the approach that the overlays should not automatically change the level of assessment and there should be few instances where this would occur. Rather, they typically require the application of additional assessment criteria.

Therefore, overlays where used usually trigger assessment against an overlay code or an overlay map rather than increase the level of assessment.

For convenience, Appendix II to this POD contains the full suite of relevant RPS V7.1 parts (including maps, codes and policies) as varied by this POD.

The parts of the RPS V7.1 that are *varied* by the Shoreline (Bayhill Estate) POD includes the following documents and maps:

Part 4 – Zones

Division 8 – Investigation Zone

Note, new precincts have been created for the Shoreline (Bayhill Estate) POD, which include their own unique tables of assessment and precinct codes:

- Shoreline (Bayhill Estate) Town Centre Frame Precinct
- Shoreline (Bayhill Estate) Residential Precinct
- Shoreline (Bayhill Estate) Open Space Precinct

Part 5 – Overlays & Overlay Codes

Division 1 – Acid Sulfate Soils Overlay

Division 3 – Bushfire Hazard Overlay

Division 6 – Flood Prone, Storm Tide and Drainage Constrained Land Overlay

Division 7 – Habitat Protection Overlay

Division 12 – Waterways, Wetlands and Moreton Bay Overlay

Division 13 – Landslide Hazard Overlay

Part 6 – Use Codes

Division 1 – Aged Persons and Special Needs Housing

Division 4 – Apartment Building

Division 7 – Child Care Centre

Division 8 – Display Dwelling

Division 9 – Drive Through Restaurant

Division 10 – Dual Occupancy

Division 11 – Dwelling House

Division 12 – Estate Sales Office

Division 18 – Multiple Dwelling

Division 20 – Park

Division 24 – Service Station

Division 28 – Tourist Accommodation

Part 7 – Other Development Codes

Division 11 - Reconfiguration

Part 8 – General Codes

Division 2 – Centre Activity

Division 3 – Centre Design

Division 9 – Stormwater Management

Part 9 – Schedules

Schedule 3 – Dictionary
Schedule 5 – Lot Sizes
Schedule 6 – Movement Network and Road Design
Schedule 11 – Water Quality Objectives

2. OVERALL OUTCOMES

2.1 INTRODUCTION

The Desired Environmental Outcomes at Part 3 of the RPS V7.1 are applicable to the Shoreline (Bayhill Estate) POD to the extent relevant, and are varied by the inclusion of the following additional Desired Environmental Outcomes.

2.2 SHORELINE (BAYHILL ESTATE) POD DESIRED ENVIRONMENTAL OUTCOMES

The Desired Environmental Outcomes of the Shoreline (Bayhill Estate) POD are to:

- Create a vital, self-contained urban village that offers high quality lifestyle opportunities for residents and the wider southern Redland Bay community and responds to the extraordinary natural setting.
- Deliver a variety of distinctive places, ranging from an active village centre heart where people work, shop and recreate, to low density neighbourhoods that cater for the majority of residents' daily needs in their local community.

2.3 PRECINCT OVERALL OUTCOMES

The following apply to the various Precincts in the Shoreline (Bayhill Estate) POD in addition to the Overall Outcomes discussed at Section 4 of this POD.

2.3.2 Shoreline (Bayhill Estate) Town Centre Frame Precinct

The Overall Outcomes of the Shoreline (Bayhill Estate) Town Centre Frame Precinct is to:

- Provide a wide variety of housing types within a short walk of shopping, employment, leisure activities and public transport, while still offering residents a more traditional residential lifestyle.

2.3.3 Shoreline (Bayhill Estate) Residential Precinct

The Overall Outcomes of the Shoreline (Bayhill Estate) Residential Precinct is to:

- Establish safe, conveniently accessible, walkable and attractive neighbourhoods that meet the diverse and changing needs of the community and offer a wide choice of housing, leisure, access to local employment opportunities and associated community and commercial facilities.

2.3.4 Shoreline (Bayhill Estate) Open Space Precinct

The Overall Outcomes of the Shoreline (Bayhill Estate) Open Space Precinct is to:

- Provide a broad range of environmental, formal and informal recreation settings and community spaces that provide an attractive, linear greenspace for Shoreline (Bayhill Estate) and Redland City residents.
- Create and recreation activity destinations, sensitively set within the foreshore landscape, which provides a variety of casual recreation and leisure activities, appealing to both the local community and visitors.
- Provide for a network of open spaces which will integrate and enhance local hydrology, habitat and fauna movement.
- Enhance the foreshore and provide opportunities to view the bay and engage with the water.

3. PRECINCTS & TABLES OF ASSESSMENT

3.1 INTRODUCTION

The Shoreline (Bayhill Estate) POD contains the following precincts:

- Shoreline (Bayhill Estate) Town Centre Frame Precinct
- Shoreline (Bayhill Estate) Residential Precinct
- Shoreline (Bayhill Estate) Open Space Precinct, including the Foreshore Open Space Sub-precinct.

Unlike the Shoreline Estate POD, the Bayhill Estate does not contain a sub-area 1, in which relevant provisions of the Building Design Code to Reduce Biting Insect Nuisance would apply. Therefore, the Building Design Code is to apply to the whole of the Residential Precinct & Town Centre Frame Precinct.

The unique Tables of Assessment detailed in the following sub-sections replace the Table of Assessment for Material Change of Use of Premises for the Investigation Zone contained in Part 4, Division 8, Section 4.8.4 of the RPS V7.1 and the Table of Assessment for Other Development not associated with a Material Change of Use of Premises for the Investigation Zone contained in Part 4, Division 8, Section 4.8.5 of the RPS V7.1 and apply variously to all the land within the Shoreline (Bayhill Estate) POD area in accordance with the Precinct Plan at Figure 1.

Any other level of assessment prescribed under a planning scheme, including any overlay level of assessment criteria, does not apply to the premises.

Where the applicable code in Column 3 of the Tables of Assessment for a particular use or other development is a code varied by this POD, that code is identified by an asterisk.

3.2 TEMPORARY USES

A 'temporary use' as defined in Schedule 3, any activity is accepted development in all precincts and overlays where it does not exceed 21 days in any 12-month period, with no one single period exceeding 10 days duration.

In any situation, a use/activity may be deemed to be temporary, subject to written agreement from Council.

Editor's note – While such activities are accepted development for the purposes of the planning scheme, they may be regulated by local laws or other statutes.

3.3 SHORELINE (Bayhill Estate) TOWN CENTRE FRAME PRECINCT TABLES OF ASSESSMENT

The Shoreline (Bayhill Estate) Town Centre Frame Precinct Tables of Assessment are included at section 3.3.1 and 3.3.2.

Note, all land included in the Town Centre Frame Precinct is taken to be included in the MDR1 Sub-area.

In addition, when applying any other aspect of the RPS V7.1 (e.g. Use Codes) to development on land in this precinct, such development is to be read as being in the Medium Density Residential Zone – MDR1 sub-area, unless varied by this POD.

The Shoreline (Bayhill Estate) Town Centre Frame Precinct is depicted on the Shoreline (Bayhill Estate) Precinct Plan.

3.3.1 Shoreline (Bayhill Estate) Town Centre Frame Precinct - Table of Assessment for Material Change of Use of Premises¹

Shoreline (Bayhill Estate) Town Centre Frame Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|---|--|---|
| Use ^{4.114} | Categories of development and assessment ¹¹⁵ | Assessment benchmarks for assessable development and requirements for accepted development |
| Aged Persons and Special Needs Housing | <u>Code Assessable</u> If – (1) The building height is 14 metres or less. Otherwise – <u>Impact Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Aged Persons and Special Needs Housing Code* ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* ■ Building Design Code to Reduce Incidence of Biting Insects |
| Apartment Building | <u>Code-Assessable</u> If – (1) The building height is 14 metres or less. Otherwise – <u>Impact Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Apartment Building Code* ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* ■ Building Design Code to Reduce Incidence of Biting Insects |

¹ Where the applicable code in Column 3 of the Tables of Assessment for a particular use or other development is a code varied by this POD, that code is identified by an asterisk.

^{4.114} See Schedule 3 of RPS V7.1 - Dictionary*, Division 1 - Uses.

Shoreline (Bayhill Estate) Town Centre Frame Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|----------------------------|--|--|
| Use ^{4.114} | Categories of development and assessment ^{4.115} | Assessment benchmarks for assessable development and requirements for accepted development |
| | | |
| Bed and Breakfast | <p><u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3</p> <p><u>Code Assessable</u> If otherwise not accepted subject to requirements</p> | <ul style="list-style-type: none"> Acceptable Solutions in section 6.5.4 of the Bed and Breakfast Code Building Design Code to Reduce Incidence of Biting Insects Shoreline (Bayhill Estate) Town Centre Frame Precinct Code Bed and Breakfast Code Infrastructure Works Code Landscape Code Building Design Code to Reduce Incidence of Biting Insects |
| Caretakers Dwelling | <p><u>Code Assessable</u></p> | <ul style="list-style-type: none"> Shoreline (Bayhill Estate) Town Centre Frame Precinct Code Caretakers Dwelling Code Building Design Code to Reduce Incidence of Biting Insects |
| Commercial Office | <p><u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3</p> <p><u>Code Assessable</u> If – (1) the use is undertaken as part of a mixed use development; and (2) Having 400m² or less gross floor area</p> | <ul style="list-style-type: none"> Acceptable Solutions in section 8.2.4 of the Centre Activity Code* Shoreline (Bayhill Estate) Town Centre Frame Precinct Code Access and Parking Code Erosion Prevention and Sediment Control Code Excavation and Fill Code Infrastructure Works Code Landscape Code Stormwater Management Code* |

12 | Shoreline (Bayhill Estate) POD Version J (Draft A)
Serpentine Creek, Scenic and Orchard Roads, Redland Bay

Shoreline (Bayhill Estate) Town Centre Frame Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|---------------------------|--|---|
| Use ^{4.114} | Categories of development and assessment ^{4.115} | Assessment benchmarks for assessable development and requirements for accepted development |
| | Otherwise - <u>Impact Assessable</u> | |
| Community Facility | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* ■ Building Design Code to Reduce Incidence of Biting Insects |
| Display Dwelling | <u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not accepted subject to requirements | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 6.8.4 of the Display Dwelling Code* ■ Building Design Code to Reduce Incidence of Biting Insects ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Display Dwelling Code* ■ Building Design Code to Reduce Incidence of Biting Insects (if in Sub-area 1) |
| Dual Occupancy | <u>Code Assessable</u> If - (1) The use is located on a premises that - (a) is 700m ² or more in area; (b) has a frontage of 20 metres or more; (2) The building height is - (a) 9.5 metres or less above ground level; (b) 2 storey or less; and (3) Any built to boundary wall - (a) is 9 metres or less in total length; (b) is 3 metres or less in height; (c) does not have windows or doors. | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Dual Occupancy Code * ■ Domestic Driveway Crossover Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* ■ Building Design Code to Reduce Incidence of Biting Insects |

Shoreline (Bayhill Estate) Town Centre Frame Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|----------------------------|---|---|
| Use ^{4.114} | Categories of development and assessment ^{4.115} | Assessment benchmarks for assessable development and requirements for accepted development |
| | Otherwise - <u>Impact Assessable</u> | |
| Dwelling House | <u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not accepted subject to requirements | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 6.11.5 of the Dwelling House Code* ■ Building Design Code to Reduce Incidence of Biting Insects (if in Sub-area 1) ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Dwelling House Code* ■ Domestic Driveway Crossover Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Stormwater Management Code* |
| Education Facility | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* ■ Building Design Code to Reduce Incidence of Biting Insects (if in Sub-area 1) |
| Estate Sales Office | <u>Accepted</u> | |

Shoreline (Bayhill Estate) Town Centre Frame Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|-----------------------------------|--|---|
| Use ^{4.114} | Categories of development and assessment ^{4.115} | Assessment benchmarks for assessable development and requirements for accepted development |
| Health Care Centre | <p><u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions in column 3</p> <p><u>Code Assessable</u> If not accepted subject to requirements and the use is undertaken as part of a mixed use development</p> <p>Otherwise - <u>Impact Assessable</u></p> | <ul style="list-style-type: none"> Acceptable Solutions in section 8.2.4 of the Centre Activity Code* Building Design Code to Reduce Incidence of Biting Insects Shoreline (Bayhill Estate) Town Centre Frame Precinct Code Access and Parking Code Erosion Prevention and Sediment Control Code Excavation and Fill Code Infrastructure Works Code Landscape Code Stormwater Management Code* Building Design Code to Reduce Incidence of Biting Insects |
| Home Business | <p><u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3</p> <p><u>Code Assessable</u> If not accepted subject to requirements</p> | <ul style="list-style-type: none"> Acceptable Solutions in section 6.15.4 of the Home Business Code Building Design Code to Reduce Incidence of Biting Insects Shoreline (Bayhill Estate) Town Centre Frame Precinct Code Home Business Code Access and Parking Code Building Design Code to Reduce Incidence of Biting Insects |
| Indoor Recreation Facility | <p><u>Code Assessable</u> If the use is undertaken as part of a mixed use development</p> <p>Otherwise - <u>Impact Assessable</u></p> | <ul style="list-style-type: none"> Shoreline (Bayhill Estate) Town Centre Frame Precinct Code Access and Parking Code Erosion Prevention and Sediment Control Code Excavation and Fill Code Infrastructure Works Code Landscape Code Stormwater Management Code* Building Design Code to Reduce Incidence of Biting Insects |

Shoreline (Bayhill Estate) Town Centre Frame Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|---------------------------|--|--|
| Use ^{4.114} | Categories of development and assessment ^{4.115} | Assessment benchmarks for assessable development and requirements for accepted development |
| Minor Utility | <u>Accepted</u> | |
| Multiple Dwelling | <u>Code Assessable</u> If - The building height is 14 metres or less Otherwise - <u>Impact Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Multiple Dwelling Code* ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* ■ Building Design Code to Reduce Incidence of Biting Insects |
| Park | <u>Accepted</u> | |
| Refreshment Establishment | <u>Accepted subject to requirements -</u> If complying with the assessment criteria being the acceptable solutions in column 3 <u>Code Assessable</u> If - (1) The use is undertaken as part of a mixed use development; (2) Having 400m ² or less gross floor area Otherwise - <u>Impact Assessable</u> | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 8.2.4 of the Centre Activity Code* ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* |
| Road | <u>Accepted</u> | |
| Shop | <u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3 | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 8.2.4 of the Centre Activity Code* |

Shoreline (Bayhill Estate) Town Centre Frame Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|---|---|---|
| Use ^{4.114} | Categories of development and assessment ^{4.115} | Assessment benchmarks for assessable development and requirements for accepted development |
| | <u>Code Assessable</u> If - (1) The use is undertaken as part of a mixed use development; (2) Having less than 250m2 gross floor area Otherwise - <u>Impact Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* |
| Tourist Accommodation | <u>Code Assessable</u> If the building height does not exceed 14 metres Otherwise - <u>Impact Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Tourist Accommodation Code * ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* ■ Building Design Code to Reduce Incidence of Biting Insects |
| Utility Installation | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Landscape Code ■ Stormwater Management Code* |
| Defined uses not listed in column 1 | <u>Impact Assessable</u> | |
| Defined uses listed in column 1 that do not comply with the level of assessment qualifications in column 2 | <u>Impact Assessable</u> | |
| Uses not defined in Part 9 - Schedule 3 - Dictionary*, Division 1 - Uses | <u>Impact Assessable</u> | |

3.3.2 Shoreline (Bayhill Estate) Town Centre Frame Precinct – Table of Assessment for Other Development not associated with a Material Change of Use of Premises²

Shoreline (Bayhill Estate) Town Centre Frame Precinct - Categories of development and assessment for Other Development

| column 1 | column 2 | column 3 |
|--|---|---|
| Other Development | Categories of development and assessment ^{4.117} | Assessment benchmarks for assessable development and requirements for accepted development |
| Reconfiguration for - | | |
| Creating lots by subdividing another lot by Standard Format Plan ^{4.118} | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Reconfiguration Code* ■ Development Near Underground Infrastructure Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Stormwater Management Code* |
| Creating lots by subdividing another lot by – <ul style="list-style-type: none"> ■ Volumetric Format Plan; or | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Town Centre Frame Precinct Code ■ Reconfiguration Code* |

² Where the applicable code in Column 3 of the Tables of Assessment for a particular use or other development is a code varied by this POD, that code is identified by an asterisk.

^{4.117} See Schedule 3 - Dictionary*, Division 2 - Administrative Terms for a definition of level of assessment.

^{4.118} Whether or not having a Community Management Statement.

Shoreline (Bayhill Estate) Town Centre Frame Precinct - Categories of development and assessment for Other Development

| column 1 | column 2 | column 3 |
|--|---|---|
| Other Development | Categories of development and assessment ^{4.117} | Assessment benchmarks for assessable development and requirements for accepted development |
| <ul style="list-style-type: none"> ■ Rearranging the boundaries of a lot by registering a plan of subdivision; or ■ Dividing land into parts by Agreement; or ■ Creating an easement giving access to a lot from a constructed road | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Reconfiguration Code* |
| Building Work for - | | |
| Communications Structures | <u>Accepted</u> If minor building work ^{4.119} <u>Accepted subject to requirements</u> If - (1) Not accepted; (2) Complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not accepted subject to requirements | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 7.2.4 of the Communications Structures Code ■ Communications Structures Code |
| Operational Work for - | | |
| Constructing a Domestic Driveway Crossover | <u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not accepted subject to requirements | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 7.4.4 of the Domestic Driveway Crossover Code ■ Domestic Driveway Crossover Code |

^{4.119} See Schedule 3 - Dictionary*, Division 2 - Administrative Terms for a definition of minor building work

Shoreline (Bayhill Estate) Town Centre Frame Precinct - Categories of development and assessment for Other Development

| column 1 | column 2 | column 3 |
|--|---|---|
| Other Development | Categories of development and assessment ^{4.117} | Assessment benchmarks for assessable development and requirements for accepted development |
| Excavation and Fill | <u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not accepted subject to requirements | <ul style="list-style-type: none"> Acceptable Solutions in section 8.6.4 of the Erosion Prevention and Sediment Control Code Acceptable Solutions A1.(1) (b),(c),(d) (e) in section 7.6.4 of the Excavation and Fill Code Erosion Prevention and Sediment Control Code Excavation and Fill Code |
| Operational Work for Reconfiguring a Lot (by Standard Format Plan) | <u>Code Assessable</u> | <ul style="list-style-type: none"> Reconfiguration Code* Development Near Underground Infrastructure Erosion Prevention and Sediment Control Code Excavation and Fill Code Infrastructure Works Code Landscape Code Stormwater Management Code* |
| Private Waterfront Structure | <u>Code Assessable</u> | <ul style="list-style-type: none"> Private Waterfront Structure Code Development Near Underground Infrastructure Code Erosion Prevention and Sediment Control Code Excavation and Fill Code |
| All other development not listed in column 1 | <u>Accepted</u> | |

3.4 SHORELINE (BAYHILL ESTATE) RESIDENTIAL PRECINCT TABLES OF ASSESSMENT

The Shoreline (Bayhill Estate) Residential Precinct Tables of Assessment are included at sections 3.4.1 and 3.4.2.

All land included in the Shoreline (Bayhill Estate) Residential Precinct is taken to be included in the UR1 Sub-area.

In addition, when applying any other aspect of the RPS V7.1 (e.g. Use Codes) to development on land in this precinct, such development is to be read as being in the Urban Residential Zone – UR1 sub-area, unless varied by this POD.

The Shoreline (Bayhill Estate) Residential Precinct is depicted on the Shoreline (Bayhill Estate) Precinct Plan.

3.4.1 Shoreline (Bayhill Estate) Residential Precinct - Table of Assessment for Material Change of Use of Premises³

Shoreline (Bayhill Estate) Residential Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|---|---|---|
| Use ^{4.199} | Categories of development and assessment ^{4.200} | Assessment benchmarks for assessable development and requirements for accepted development |
| Aged Persons and Special Needs Housing | <p><u>Code Assessable</u></p> <p>If –</p> <p>(1) The building height is 9.5 metres or less; and</p> <p>(2) 2 storeys or less</p> <p>Or</p> <p>(3) Located within 100 metres of a public transport stop; and</p> <p>(4) The building height is 14 metres or less</p> <p>Otherwise – <u>Impact Assessable</u></p> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Residential Precinct Code ■ Aged Persons and Special Needs Housing Code* ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* ■ Building Design Code to Reduce Incidence of Biting Insects |
| Apartment Building | <p><u>Code Assessable</u></p> <p>If within 100 metres of a public transport stop and the building height is –</p> <p>(1) 14 metres or less above ground level; and</p> <p>(2) 3 storeys or less; and</p> <p>(3) The premises is –</p> <p>(a) 800 m² or more in area; and</p> <p>(b) Has a frontage of 20 metres or more.</p> <p>Otherwise – <u>Impact Assessable</u></p> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Residential Precinct Code ■ Apartment Building Code* ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* ■ Building Design Code to Reduce Incidence of Biting Insects |

³ Where the applicable code in Column 3 of the Tables of Assessment for a particular use or other development is a code varied by this POD, that code is identified by an asterisk.

^{4.199} See Schedule 3 of RPS V7.1 - Dictionary*, Division 1 - Uses.

^{4.200} See Schedule 3 of RPS V7.1 - Dictionary*, Division 2 - Administrative Terms for a definition of level of assessment.

Shoreline (Bayhill Estate) Residential Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|----------------------------|---|---|
| Use ^{4.199} | Categories of development and assessment ^{4.200} | Assessment benchmarks for assessable development and requirements for accepted development |
| Bed and Breakfast | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Residential Precinct Code ■ Bed and Breakfast Code ■ Infrastructure Works Code ■ Landscape Code ■ Building Design Code to Reduce Incidence of Biting Insects |
| Caretakers Dwelling | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Residential Precinct Code ■ Caretakers Dwelling Code ■ Building Design Code to Reduce Incidence of Biting Insects |
| Community Facility | <u>Code Assessable</u> If total gross floor area of the proposed use and any existing community use does not exceed 250m ² | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Residential Precinct Code ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* ■ Building Design Code to Reduce Incidence of Biting Insects |
| Display Dwelling | <u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not accepted subject to requirements | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 6.8.4 of the Display Dwelling Code* ■ Building Design Code to Reduce Incidence of Biting Insects ■ Shoreline (Bayhill Estate) Residential Precinct Code ■ Display Dwelling Code* ■ Building Design Code to Reduce Incidence of Biting Insects |
| Dual Occupancy | <u>Code Assessable</u> If - (1) The use is located on a premises that - (a) is 700m ² or more in area; (b) has a frontage of 20 metres or more; (2) The building height is - (a) 9.5 metres or less above ground level; (b) 2 storey or less; | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Residential Precinct Code ■ Dual Occupancy Code * ■ Domestic Driveway Crossover Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* |

Shoreline (Bayhill Estate) Residential Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|----------------------------|---|--|
| Use ^{4.199} | Categories of development and assessment ^{4.200} | Assessment benchmarks for assessable development and requirements for accepted development |
| | <p>(3) Any built to boundary wall - (a) is 9 metres or less in total length; (b) is 3 metres or less in height; (c) does not have windows or doors.</p> <p>Otherwise - <u>Impact Assessable</u></p> | <ul style="list-style-type: none"> ■ Building Design Code to Reduce Incidence of Biting Insects |
| Dwelling House | <p><u>Accepted subject to requirements</u></p> <p><u>Code Assessable</u> If not accepted subject to requirements</p> | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 6.11.5 of the Dwelling House Code* ■ Building Design Code to Reduce Incidence of Biting Insects (if in Sub-area 1) ■ Shoreline (Bayhill Estate) Residential Precinct Code ■ Dwelling House Code* ■ Domestic Driveway Crossover Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Stormwater Management Code* |
| Estate Sales Office | Accepted | |
| Home Business | <p><u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3</p> <p><u>Code Assessable</u> If not accepted subject to requirements</p> | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 6.15.4 of the Home Business Code ■ Building Design Code to Reduce Incidence of Biting Insects ■ Shoreline (Bayhill Estate) Residential Precinct Code ■ Home Business Code ■ Access and Parking Code ■ Building Design Code to Reduce Incidence of Biting Insects <p>And where being carried out in a Domestic Outbuilding -</p> <ul style="list-style-type: none"> ■ Domestic Outbuilding Code ■ Erosion Prevention and Sediment Control Code |

Shoreline (Bayhill Estate) Residential Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|---|--|--|
| Use^{4.199} | Categories of development and assessment^{4.200} | Assessment benchmarks for assessable development and requirements for accepted development |
| | | <ul style="list-style-type: none"> ■ Excavation and Fill Code |
| Minor Utility | <u>Accepted</u> | |
| Multiple Dwelling | <p><u>Code Assessable</u> If within 100 metres of a public transport stop and the building height is -</p> <p>(1) 14 metres or less above ground level; and</p> <p>(2) 3 storeys or less; and</p> <p>(3) The premises is -</p> <p>(a) 800 m² or more in area; and</p> <p>(b) Has a frontage of 20 metres or more.</p> <p>Otherwise – <u>Impact Assessable</u></p> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Residential Precinct Code ■ Multiple Dwelling Code* ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* ■ Building Design Code to Reduce Incidence of Biting Insects |
| Park | <u>Accepted</u> | |
| Road | <u>Accepted</u> | |
| Utility Installation | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Residential Precinct Code ■ Access and Parking Code ■ Development Near Underground Infrastructure Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Landscape Code ■ Stormwater Management Code* |
| Defined uses not listed in column 1 | <u>Impact Assessable</u> | |
| Defined uses listed in column 1 that do not comply with the level of assessment qualifications in column 2 | <u>Impact Assessable</u> | |

Shoreline (Bayhill Estate) Residential Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|--|---|--|
| Use ^{4.199} | Categories of development and assessment ^{4.200} | Assessment benchmarks for assessable development and requirements for accepted development |
| Uses not defined in Part 9 - Schedule 3 - Dictionary*, Division 1 - Uses | <u>Impact Assessable</u> | |

3.4.2 Shoreline (Bayhill Estate) Residential Precinct - Table of Assessment for Other Development not associated with a Material Change of Use of Premises⁴

Shoreline (Bayhill Estate) Residential Precinct - Categories of development and assessment for Other Development

| column 1 | column 2 | column 3 |
|--|--|---|
| Other Development | Categories of development and assessment ^{4.202} | Assessment benchmarks for assessable development and requirements for accepted development |
| Reconfiguration for - | | |
| Creating lots by subdividing another lot by Standard Format Plan ^{4.203} | <u>Code Assessable</u> | <ul style="list-style-type: none"> Shoreline (Bayhill Estate) Residential Precinct Code Reconfiguration Code* Development Near Underground Infrastructure Code Excavation and Fill Code Infrastructure Works Code Stormwater Management Code* |
| Creating lots by subdividing another lot by – <ul style="list-style-type: none"> Volumetric Format Plan; or | <u>Code Assessable</u> | <ul style="list-style-type: none"> Shoreline (Bayhill Estate) Residential Precinct Code Reconfiguration Code* |
| <ul style="list-style-type: none"> Rearranging the boundaries of a lot by registering a plan of subdivision; or Dividing land into parts by Agreement; or Creating an easement giving access to a lot from a constructed road | <u>Code Assessable</u> | <ul style="list-style-type: none"> Reconfiguration Code* |
| Building Work for - | | |
| Communications Structures | <u>Accepted</u> If minor building work ^{4.204} | |

⁴ Where the applicable code in Column 3 of the Tables of Assessment for a particular use or other development is a RPS code varied by this POD, that code is identified by an asterisk.

^{4.202} See Part 9 - Schedule 3 - Dictionary*, Division 2 - Administrative Terms for a definition of level of assessment.

^{4.203} Whether or not having a Community Management Statement.

^{4.204} See Part 9 - Schedule 3 - Dictionary*, Division 2 - Administrative Terms for a definition of minor building work.

Shoreline (Bayhill Estate) Residential Precinct - Categories of development and assessment for Other Development

| column 1 | column 2 | column 3 |
|---|---|---|
| Other Development | Categories of development and assessment ^{4.202} | Assessment benchmarks for assessable development and requirements for accepted development |
| | <u>Accepted subject to requirements</u> If - (1) Not accepted; (2) Complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not accepted subject to requirements | <ul style="list-style-type: none"> Acceptable Solutions in section 7.2.4 of the Communications Structures Code Communications Structures Code |
| Operational Work for - | | |
| Constructing a Domestic Driveway Crossover | <u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not accepted subject to requirements | <ul style="list-style-type: none"> Acceptable Solutions in section 7.4.4 of the Domestic Driveway Crossover Code Domestic Driveway Crossover Code |
| Excavation and Fill | <u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not accepted subject to requirements | <ul style="list-style-type: none"> Acceptable Solutions in section 8.6.4 of the Erosion Prevention and Sediment Control Code Acceptable Solutions A1.(1) (b),(c),(d) (e) in section 7.6.4 of the Excavation and Fill Code Erosion Prevention and Sediment Control Code Excavation and Fill Code |
| Operational Work for Reconfiguring a Lot (by Standard Format Plan) | <u>Code Assessable</u> | <ul style="list-style-type: none"> Reconfiguration Code* Development Near Underground Infrastructure Code Erosion Prevention and Sediment Control Code Excavation and Fill Code Infrastructure Works Code Landscape Code Stormwater Management Code* |

Shoreline (Bayhill Estate) Residential Precinct - Categories of development and assessment for Other Development

| column 1 | column 2 | column 3 |
|--|---|---|
| Other Development | Categories of development and assessment ^{4.202} | Assessment benchmarks for assessable development and requirements for accepted development |
| Private Waterfront Structure | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Private Waterfront Structure Code ■ Development Near Underground Infrastructure Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code |
| All other development not listed in column 1 | <u>Accepted</u> | |

3.5 SHORELINE (BAYHILL ESTATE) OPEN SPACE PRECINCT TABLES OF ASSESSMENT

The Shoreline (Bayhill Estate) Open Space Precinct Tables of Assessment are included at sections 3.5.1 and 3.5.2.

In addition, when applying any other aspect of the RPS V7.1 (e.g. Use Codes) to development on land in this precinct, such development is to be read as being in the Open Space Zone, unless varied by this POD.

The Shoreline (Bayhill Estate) Open Space Precinct & Foreshore Open Space Subprecinct is depicted on the Shoreline (Bayhill Estate) Precinct Plan.

3.5.1 Shoreline (Bayhill Estate) Open Space Precinct - Table of Assessment for Material Change of Use of Premises⁵

Shoreline (Bayhill Estate) Open Space Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|----------------------|---|--|
| Use ^{4.131} | Categories of development and assessment ^{4.132} | Assessment benchmarks for assessable development and requirements for accepted development |
| Caretakers Dwelling | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Open Space Precinct Code ■ Caretakers Dwelling Code ■ Building Design Code to Reduce Incidence of Biting Insects |
| Community Facility | <u>Accepted</u> If undertaken by Redland City Council <u>Code Assessable</u> If not accepted | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Open Space Precinct Code ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* ■ Building Design Code to Reduce Incidence of Biting Insects |
| Emergency Services | <u>Accepted</u> If undertaken by Redland City Council <u>Code Assessable</u> If not accepted | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Open Space Precinct Code ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* |
| Minor Utility | <u>Accepted</u> | |

⁵ Where the applicable code in Column 3 of the Tables of Assessment for a particular use or other development is a code varied by this POD, that code is identified by an asterisk.

^{4.131} See Part 9 - Schedule 3 of RPS V7.1 - Dictionary*, Division 1 - Uses.

^{4.132} See Part 9 - Schedule 3 of RPS V7.1 - Dictionary*, Division 2 - Administrative Terms for a definition of level of assessment.

Shoreline (Bayhill Estate) Open Space Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|--|--|--|
| Use ^{4.131} | Categories of development and assessment ^{4.132} | Assessment benchmarks for assessable development and requirements for accepted development |
| Outdoor Recreation Facility | <u>Accepted</u> If undertaken by Redland City Council <u>Code Assessable</u> If not accepted | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Open Space Precinct Code ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* |
| Park | <u>Accepted</u> | |
| Refreshment Establishment | <u>Accepted subject to requirements</u> If undertaken by Redland City Council <u>Code Assessable</u> If not accepted subject to requirements and 150m ² or less gross floor area Otherwise - <u>Impact Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Open Space Precinct Code ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* |
| Road | <u>Accepted</u> | |
| Utility Installation | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Open Space Precinct Code ■ Access and Parking Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Landscape Code ■ Stormwater Management Code* |
| Defined uses not listed in column 1 | <u>Impact Assessable</u> | |

Shoreline (Bayhill Estate) Open Space Precinct - Categories of development and assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|--|---|--|
| Use ^{4.131} | Categories of development and assessment ^{4.132} | Assessment benchmarks for assessable development and requirements for accepted development |
| Defined uses listed in column 1 that do not comply with the level of assessment qualifications in column 2 | <u>Impact Assessable</u> | |
| Uses not defined in Part 9 - Schedule 3 - Dictionary*, Division 1 - Uses | <u>Impact Assessable</u> | |

3.5.2 Shoreline (Bayhill Estate) Open Space Precinct - Table of Assessment for Other Development not associated with a Material Change of Use of Premises⁶

Shoreline (Bayhill Estate) Open Space Precinct - Categories of development and assessment for Other Development

| column 1 | column 2 | column 3 |
|--|---|--|
| Other Development | Categories of development and assessment ^{4,134} | Assessment benchmarks for assessable development and requirements for accepted development |
| Reconfiguration for - | | |
| Creating lots by subdividing another lot by Standard Format Plan^{4,135} | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Open Space Precinct Code ■ Reconfiguration Code* ■ Development Near Underground Infrastructure Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Stormwater Management Code* |
| Creating lots by subdividing another lot by - <ul style="list-style-type: none"> ■ Volumetric Format Plan | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Shoreline (Bayhill Estate) Open Space Precinct Code ■ Reconfiguration Code* |
| <ul style="list-style-type: none"> ■ Rearranging the boundaries of a lot by registering a plan of subdivision; or ■ Dividing land into parts by Agreement; or ■ Creating an easement giving access to a lot from a constructed road | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Reconfiguration Code* |
| Building Work for - | | |
| Communications Structures | <u>Accepted</u> If minor building work ^{4,136} <u>Accepted subject to requirements</u> If - | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 7.2.4 of the Communications Structures Code |

⁶ Where the applicable code in Column 3 of the Tables of Assessment for a particular use or other development is a code varied by this POD, that code is identified by an asterisk.

^{4,134} See Part 9 - Schedule 3 - Dictionary*, Division 2 - Administrative Terms for a definition of level of assessment.

^{4,135} Whether or not having a Community Management Statement.

^{4,136} See Part 9 - Schedule 3 - Dictionary*, Division 2 - Administrative Terms for a definition of minor building work.

Shoreline (Bayhill Estate) Open Space Precinct - Categories of development and assessment for Other Development

| column 1 | column 2 | column 3 |
|---|--|---|
| Other Development | Categories of development and assessment ^{4,134} | Assessment benchmarks for assessable development and requirements for accepted development |
| | <p>(1) Not accepted; (2) Complying with the assessment criteria being the acceptable solutions listed in column 3</p> <p><u>Code Assessable</u> If not accepted subject to requirements</p> | <ul style="list-style-type: none"> ■ Communications Structures Code |
| Operational Work for - | | |
| Constructing a Domestic Driveway Crossover | <p><u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3</p> <p><u>Code Assessable</u> If not accepted subject to requirements</p> | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 7.4.4 of the Domestic Driveway Crossover Code ■ Domestic Driveway Crossover Code |
| Excavation and Fill | <p><u>Accepted subject to requirements</u> If complying with the assessment criteria being the acceptable solutions listed in column 3</p> <p><u>Code Assessable</u> If not accepted subject to requirements</p> | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 8.6.4 of the Erosion Prevention and Sediment Control Code ■ Acceptable Solutions A1.(1) (b),(c),(d) (e) in section 7.6.4 of the Excavation and Fill Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code |
| Operational Work for Reconfiguring a Lot (by Standard Format Plan) | <p><u>Code Assessable</u></p> | <ul style="list-style-type: none"> ■ Reconfiguration Code* ■ Access and Parking Code ■ Development Near Underground Infrastructure ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code ■ Infrastructure Works Code ■ Landscape Code ■ Stormwater Management Code* |

Shoreline (Bayhill Estate) Open Space Precinct - Categories of development and assessment for Other Development

| column 1 | column 2 | column 3 |
|--|---|---|
| Other Development | Categories of development and assessment ^{4,134} | Assessment benchmarks for assessable development and requirements for accepted development |
| Private Waterfront Structures | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Private Waterfront Structure Code ■ Development Near Underground Infrastructure Code ■ Erosion Prevention and Sediment Control Code ■ Excavation and Fill Code |
| All other development not listed in column 1 | <u>Accepted</u> | |

4. PRECINCT CODES

4.1 SHORELINE (BAYHILL ESTATE) TOWN CENTRE FRAME PRECINCT CODE

4.1.1 Introduction

The Medium Density Residential Zone Code in the RPS V7.1 has been amended to create the unique Shoreline (Bayhill Estate) Town Centre Frame Precinct Code.

4.1.2 Compliance with Shoreline (Bayhill Estate) Town Centre Frame Precinct Code

- (1) Development that is consistent with the specific outcomes in section 4.2.4 complies with the Shoreline (Bayhill Estate) Town Centre Frame Precinct Code.

Editor's Note -

The following planning scheme policies will assist in achieving Specific Outcomes within the Shoreline (Bayhill Estate) Town Centre Frame Precinct Code -

- Planning Scheme Policy 5 - Environmental Emissions;
- Planning Scheme Policy 9 - Infrastructure Works;
- Planning Scheme Policy 12 - Social and Economic Impact Assessment.

4.2.3. Overall Outcomes for Shoreline (Bayhill Estate) Town Centre Frame Precinct Code

- (1) The overall outcomes are the purpose of the Shoreline (Bayhill Estate) Town Centre Frame Precinct Code.
- (2) The overall outcomes sought for the Shoreline (Bayhill Estate) Town Centre Frame Precinct Code are described by five key characteristics-
 - (a) Uses and Other Development;
 - (b) Built Form and Density;
 - (c) Amenity;
 - (d) Environment;
 - (e) Infrastructure.

Each of these is detailed below.

- (a) Uses and Other Development

Provide for a range of residential uses that -

- a. is predominantly mid-rise housing on lot sizes that offer opportunities for medium density living, including other residential development such as temporary accommodation and retirement living;
- b. accommodates opportunities for live and work dwellings and home-based businesses;
- c. provide a range of dwelling types that offer choice, affordability and adaptability;
- d. maximise the supply of dwelling units in close proximity to centres and public transport, to the general exclusion of other less compact forms of housing;
- e. encourages opportunities for working from home.

Provide for a range of limited non-residential uses that -

- f. provide opportunities for small commercial development and mixed-use buildings;
- g. fulfill a local community need and provide opportunities for social interaction and activity;
- h. are highly accessible to the residents served;
- i. do not compromise the role and function of centres;
- j. are not large land consumers that by their scale and nature will diminish the quantity of land within this zone;
- k. are located on the major road network rather than local residential streets;
- l. do not result in commercial ribbon development.

(b) Built Form and Density

The scale of uses and other development contribute to a predominantly medium density residential built form by -

- a. Providing a range of dwelling units that are predominately mid rise;
- b. buildings are sited, and of a width, depth and bulk that are consistent with the development type and a residential streetscape.

The density of uses and other development -

- a. utilise land efficiently through infill development that respect existing streetscapes in established areas;
- b. where aged persons and special needs housing provide a range of accommodation types that, in total, is consistent with the predominant density in the precinct.
- c. provides a "Transition Area" between conventional residential areas and the higher density Town Centre Frame. The Town Centre Frame has a higher density and predominantly attached housing and commercial uses to that of the Residential Precinct which has a larger portion of detached housing.

Lot layout is climatically responsive.

Buildings incorporate a mix of materials that are responsive to local conditions and styles.

(c) Amenity

Uses and other development achieve a high standard of amenity by -

- a. protecting and enhancing places of cultural significance or streetscape value;
- b. having access to natural light and ventilation, privacy, and private and communal open space commensurate with the use;
- c. maintaining a residential streetscape through housing that actively addresses the street;
- d. contributing to high quality useable public open space that meet the needs of the community in the vicinity of the use;
- e. maintaining the safety of people and property;
- f. eliminating or mitigating impacts associated with light, noise, air and traffic.

The scale, operational attributes and impacts of non-residential uses maintains a high standard of residential amenity.

(d) Environment

Uses and other development minimise adverse impacts on environmental and scenic values by -

- a. responding to topographical features;
- b. minimising the need for excavation and fill;
- c. protecting the site from erosion;
- d. maximising the retention of native plants;
- e. maximising the use of planting species that are native and characteristic to the area;
- f. incorporating best practice stormwater management and enhancing water quality.

(e) Infrastructure

Uses and other development -

- a. make efficient use of existing infrastructure;
- b. provide for the upgrade of infrastructure in an orderly and cost effective manner;
- c. do not result in unacceptable risk to community infrastructure.

Uses and other development are serviced by infrastructure including -

- d. reticulated water;
- e. reticulated sewerage;
- f. stormwater drainage;
- g. constructed road access;
- h. energy;
- i. telecommunications;
- j. waste and recycling collection.

Uses and other development reinforce an integrated, legible, efficient and movement network that -

- k. incorporate a full range of movement modes including public transport, passenger vehicles, walking and cycling;
- l. provide pedestrian, cycle and vehicle movement networks that maximise connectivity, permeability and ease of mobility.

4.2.4 Specific Outcome and Probable Solutions applicable to Assessable Development⁷

| Shoreline (Bayhill Estate) Town Centre Frame Precinct Code Assessable Development | | | |
|--|---|---|--|
| Specific Outcomes | | Probable Solutions | |
| | <u>Uses and Other Development -</u> | | |
| S1.1 | (1) Land in proximity to centres, services and facilities and public transport is maximised for dwelling units that result in a compact housing form. | P1.1 | (1) The precinct is primarily utilised for - (a) multiple dwellings in the form of townhouses, villas or the like; (b) aged persons and special needs housing that provide a mix of dependent, semi-dependent and independent accommodation; and (c) apartment buildings. |
| S1.2 | (1) The following uses are encouraged - (a) home-based businesses; (b) commercial and mixed use development; and (c) attached dwellings | P1.2 | (1) No probable solution identified. |
| | | Editor's Note - Refer to Part 6 - ■ Division 1 - Aged Persons and Special Needs Housing Code*; ■ Division 5 - Bed and Breakfast Code; | |

⁷ Where the applicable code in Column 2 Probable Solutions of the Precinct Code for a particular use or other development is a code varied by this POD, that code is identified by an asterisk.

| Shoreline (Bayhill Estate) Town Centre Frame Precinct Code | | | |
|--|---|--------------------|---|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | | | <div> <div></div> <div>Division 15 - Home Business Code;</div> </div> |
| | Built Form and Density - | | |
| S2.1 | <p>(1) The height of buildings and structures is equal to or less than 14 metres and 3 storeys;</p> <p>(2) Uses of a lesser height do not prejudice the preferred building form promoted through this precinct;</p> <p>(3) Where the Shoreline (Bayhill Estate) Town Centre Frame Precinct directly adjoins a precinct that requires a lesser building height - building height addresses streetscape, privacy and solar access of adjoining properties</p> | P2.1 | <p>(1) No probable solution identified;</p> <div> <div>Editor's Note -</div> <div>Refer to the relevant use code for specific assessment criteria.</div> </div> <p>(2) No probable solution identified;</p> <p>(3) No probable solution identified.</p> |
| S2.2 | <p>(1) Site coverage of buildings balance built and un-built areas to -</p> <p>(a) provide solar access to living and open space areas;</p> <p>(b) assist in retaining existing native plants;</p> <p>(c) enhance privacy between dwelling units within and external to the use;</p> <p>(d) provide useable communal and private open for the occupants;</p> <p>(e) provide space for service functions including car parking and clothes drying.</p> | P2.2 | <p>(1) Site coverage is 60 percent or less unless otherwise specified for the relevant use code.</p> <div> <div>Editor's Note -</div> <div>Refer to the relevant use code for specific site coverage assessment criteria.</div> </div> |
| S2.3 | <p>(1) Setbacks -</p> <p>(a) complement existing front setbacks in the street;</p> <p>(b) maximise the usability of side and rear setbacks for outdoor open space areas, privacy and solar access for the occupants and adjoining uses.</p> | P2.3 | <p>(1) No probable solution identified.</p> <div> <div>Editor's Note -</div> <div>Refer to the relevant use code for specific setback assessment criteria</div> </div> |
| S2.4 | <p>(1) Density -</p> <p>(a) Lot reconfiguration creates lot sizes that provide opportunities for medium density housing uses;</p> | P2.4 | <p>(1) Reconfiguration achieves -</p> <p>(a) Lots that are a minimum of 800m²;</p> <p>(b) No probable solution identified; and</p> |

| Shoreline (Bayhill Estate) Town Centre Frame Precinct Code | | | |
|--|---|--------------------|---|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | <ul style="list-style-type: none"> (b) On sub-arterial roads, consolidates lots to allow access to the development from alternative lower order roads to maximise high order road efficiency and safety; (c) Dwelling unit density is compatible with medium density living while providing land for private and communal open space, resident and visitor parking, landscaping and maintenance of a residential streetscape; and (2) For aged persons and special needs housing, density varies depending on the type of accommodation provided. | | <ul style="list-style-type: none"> (c) Residential uses achieve a density of 1 dwelling unit per 200m² of site area; (2) Reconfiguration achieves – <ul style="list-style-type: none"> (a) Lots that are a minimum of 400m² where a dwelling house and 700m² where a dual occupancy; and (b) Residential uses achieve a density of 1 dwelling unit per 200 m² of site area. (3) For aged persons and special needs housing achieves a density, based on accommodation type provided of - <ul style="list-style-type: none"> (a) independent units = 1 dwelling unit for 200m²; (b) semi-dependent units - 1 dwelling unit per 100m²; (c) dependent units = 1 bed per 50m². |
| S2.5 | <ul style="list-style-type: none"> (1) Building design incorporates architectural elements that - <ul style="list-style-type: none"> (a) exhibit a high degree of interest through the use of colour, angles, and materials; (b) include verandahs, decks, eaves, window hoods or similar elements to create shade and cast shadow; (c) minimise any adverse overshadowing, glare or reflection on adjoining properties; (d) promote an attractive streetscape and encourage safety and surveillance through orientating entrances towards the street; (e) provide physical connections and linkages between buildings, and between buildings and public places, including parks, to encourage pedestrian movement; (f) integrate with landscape planting and features. | P2.5 | <ul style="list-style-type: none"> (1) No probable solution identified. <p>Editor's Note -</p> <p>Refer to the relevant use code for specific built form assessment criteria.</p> |
| S2.6 | <ul style="list-style-type: none"> (1) Reconfiguration results in pleasant environments and reduced energy consumption through being climatically responsive by - | P2.6 | <ul style="list-style-type: none"> (1) No probable solution identified. <p>Editor's Note -</p> |

| Shoreline (Bayhill Estate) Town Centre Frame Precinct Code | | | |
|--|--|--------------------|--|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | (a) lots being orientated and of a length and width to – (i) maximise solar access to the north in winter; (ii) minimise solar access to the east and west in summer; (iii) having regard to the topography of the land. | | Refer to Part 7 - Division 11 - Reconfiguration Code* for specific climate control assessment criteria. |
| | <u>Amenity -</u> | | |
| S3.1 | (1) Uses and other development do not adversely impact on the cultural heritage values of a registered heritage place(s) or character precinct. | P3.1 | (1) No probable solution identified |
| S3.2 | (1) Uses are capable of - (a) receiving solar access; (b) maintaining solar access to the habitable rooms and open space areas of surrounding uses. | P3.2 | (1) No probable solution identified. Editor's Note - Refer to the relevant use code for specific solar access assessment criteria |
| S3.3 | (1) Building layout and design maximise privacy (visual and acoustic) through - (a) locating habitable rooms so they do not directly overlook habitable rooms of adjacent uses, either within or adjoining the use; (b) separating noise generating areas from sleeping areas. | P3.3 | (1) No probable solution identified. Editor's Note - Refer to the relevant use code for specific privacy assessment criteria. |
| S3.4 | (1) Private and communal open space areas are - (a) clearly defined for their intended user and use; (b) easily accessible from living or common areas; (c) useable in size and dimension; (d) of a suitable slope; (e) capable of receiving solar access. | P3.4 | (1) No probable solution identified. Editor's Note - Refer to the relevant use code for specific private and communal open space assessment criteria. |
| S3.5 | (1) Uses and other development are designed in accordance with the principles of Crime Prevention through Environmental Design (CPTED) to assist in crime prevention, including being - | P3.5 | (1) No probable solution identified. |

| Shoreline (Bayhill Estate) Town Centre Frame Precinct Code | | | |
|--|---|--------------------|---|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | (a) orientated towards the street or parkland to provide opportunities for casual surveillance of public places; (b) designed and well lit to ensure casual surveillance opportunities, particularly for open space, car parking areas and pedestrian and cycle paths. | | |
| S3.6 | (1) Due to the limited land resource within this precinct, public open space contributions for the purpose of embellishment of existing open space within easy proximity to the use is preferred over the dedication of land. | P3.6 | (1) No probable solution identified. Editor's Note - Refer to - ■ Part 11 - Planning Scheme Policy 3 - Contributions and Security Bonding Code; ■ Part 7 - Division 11 - Reconfiguration Code*. |
| S3.7 | (1) Artificial lighting does not result in unreasonable disturbance to any person or activity; (2) Glare and reflection from the sun are minimised through material and glazing choice. | P3.7 | (1) The vertical illumination resulting from direct, reflected or other incidental light emanating from the site does not exceed 8 lux when measured at any point 1.5 metres outside the boundary at or above ground level; (2) No probable solution identified. |
| S3.8 | Noise generated by the use or other development is compatible with that experienced in a residential environment. | P3.8 | The use achieves the acoustic quality objectives stated in Schedule 1 of the <i>Environmental Protection (Noise) Policy 2008</i> . |
| S3.9 | Air quality impacts are eliminated or mitigated to a level that is compatible with a residential environment by no emission of vibration, odour, fumes, smoke, vapour, steam, soot, ash, dust, grit, oil, radio or electrical interference beyond the premises. | P3.9 | No probable solution identified. Editor's Note - Refer to Part 11 - Planning Scheme Policy 5 - Environmental Emissions for further information on noise and air quality impacts. |
| S3.10 | (1) Traffic movements are compatible with that experienced in a residential environment; (2) Where a mixed use is proposed, traffic movement and car parking provision is commensurate with the nature of the use; (3) Where a mixed use is proposed service facilities, waste collection areas and unloading areas are located to minimise any adverse | P3.10 | (1) No probable solution identified; (2) No probable solution identified; (3) No probable solution identified. Editor's Note - Refer to Part 8 - Division 1 - Access and Parking Code for specific assessment criteria. |

| Shoreline (Bayhill Estate) Town Centre Frame Precinct Code | | | |
|--|--|--------------------|---|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | impacts on dwelling units within or adjoining the development. | | |
| | <u>Environment -</u> | | |
| S4.1 | (1) Protect the environment from impacts associated with the use or other development, including - (a) stormwater run-off; (b) water quality; (c) erosion and sediment run-off; (d) weed infestation; (e) where adjoining an Open Space Corridor or Conservation Area, edge effects, particularly from noise and light and bushfire clearance zones (these should be incorporated within the development site and should not result in vegetation clearing external to the site). | P4.1 | (1) No probable solution identified. |
| S4.2 | Uses and other development are designed to complement, rather than detract from the landscape. | P4.2 | No probable solution identified. |
| S4.3 | (1) Minimise the need for excavation and fill - (a) external to the building, basement car parking and facilities associated with the use; (b) by ensuring uses and other development are located and designed to – (i) prevent the unnecessary removal of native plants; (ii) protect overland drainage flows; (iii) protect the amenity of adjoining properties; (iv) reduce erosion and sediment run-off. | P4.3 | (1) No probable solution identified. |
| | | | Editor's Note - Refer to Part 7 - Division 6 - Excavation and Fill Code for assessment criteria where the site requires earthworks. |
| S4.4 | (1) Landscaping - (a) incorporates plant species that are native to the local area; (b) recognises and enhances the landscape character of the local area; | P4.4 | (1) Species used for landscaping are selected from the native plant species listed in - (a) Vegetation Enhancement Strategy; (b) Part 9 Schedule 9 - Street Trees, where within the road reserve. |

| Shoreline (Bayhill Estate) Town Centre Frame Precinct Code | | | |
|--|--|--------------------|--|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | (c) maximises use of permeable surfaces and landscaping to reduce stormwater run-off; (d) incorporates landscaping as a component of the stormwater management system. | | Editor's Note – For additional assessment criteria refer to Part 8 - ■ Division 8 - Landscape Code; ■ Division 9 - Stormwater Management Code*. |
| S4.5 | (1) Landscaping activities provide food, shelter and movement opportunities for koalas consistent with the site design. | P4.5 | (1) No probable solution identified. |
| S5.1 | <u>Infrastructure -</u> (1) All uses and other development are serviced by infrastructure including - (a) reticulated water; (b) reticulated sewerage; (c) stormwater drainage; (d) constructed road access; (e) energy; (f) telecommunications (including the National Broadband Network); (g) waste and recycling collection facilities. | P5.1 | (1) No probable solution identified. |
| S5.2 | (1) Uses and other development - maximise connectivity and movement by providing - (a) links to public transport routes and activity areas within and external to the use; (b) on-site and off-site pedestrian and cycle paths; (c) clear and direct vehicle access and movement areas within and external to the use. | P5.2 | (1) No probable solution identified. Editor's Note - Refer to Part 8 - ■ Division 1 - Access and Parking Code for further assessment criteria related to access and internal movement; ■ Division 7 - Infrastructure Works Code for further assessment criteria on provision, design and construction of utility infrastructure and pedestrian and cycle paths. |
| S5.3 | (1) Waste and recycling is managed to minimise impacts on the environment by - (a) locating waste and recycling storage areas to protect amenity and to provide safe manual handling of containers; (b) screening waste and recycling container storage areas from view; | P5.3 | (1) No probable solution identified. Editor's Note - Refer to Part 11 - Planning Scheme Policy 9 - Infrastructure Works – Chapter 16 – Waste Management for further information on waste and recycling container volume, storage, servicing, screening and cleansing. |

| Shoreline (Bayhill Estate) Town Centre Frame Precinct Code Assessable Development | | | |
|--|--|--------------------|--|
| Specific Outcomes | | Probable Solutions | |
| | (c) providing for the cleansing of containers in a manner that does not cause adverse environmental impacts. | | |
| S5.4 | Community infrastructure is able to function effectively during and immediately after flood events. | P5.4 | Community infrastructure is located at or above the recommended flood levels in Table 1 - Recommended Flood Levels for Community Infrastructure. |
| S5.5 | (1) Uses and other development (excluding dwelling house, dual occupancy or reconfiguring a lot for a dwelling house or dual occupancy) – a) Provide safe and efficient manoeuvring for waste collection vehicles; b) Ensure all bulk waste and recycling containers are serviced off-street and not on roads with public access; c) Ensure sufficient vertical clearance for container servicing; and d) Ensure unobstructed access to containers by collection vehicles. | P5.5 | (1) No probable solution identified. |
| S5.6 | (1) Development is designed to minimise the risk to public health from arboviruses. In accordance with the approved Biting Insect Management Plan, a road must adjoin all Open Space Corridors and Foreshore Open Space shown on the approved Shoreline (Bayhill Estate) Precinct Plan. | P5.6 | (1) No probable solution identified. |

Table 1 - Recommended Flood Levels for Community Infrastructure

| Type of Community Infrastructure | Recommended Flood Level AEP (ARI) |
|---|-----------------------------------|
| Emergency services, other than police facilities | 0.2% (1 in 500 year ARI) |
| Emergency shelters | 0.5% (1 in 200 year ARI) |
| Police facilities | 0.5% (1 in 200 year ARI) |
| Hospitals and associated facilities | 0.2% (1 in 500 year ARI) |
| Stores of valuable records or items of historic or cultural significance, such as galleries and libraries | 0.5% (1 in 200 year ARI) |
| Power stations | 0.2% (1 in 500 year ARI) |
| Major switch yards | 0.2% (1 in 500 year ARI) |
| Substations | 0.5% (1 in 200 year ARI) |
| Sewerage treatment plants | 1% (1 in 100 year ARI) |

| | |
|---|---|
| Water treatment plants | 0.5% (1 in 200year ARI) |
| <ul style="list-style-type: none"> ■ State-controlled roads ■ Works of an electricity entity not otherwise listed in this table ■ Railway lines, stations and associated facilities ■ Aviation facilities ■ Communication network facilities | No specific recommended flood level but development proponents should ensure that the infrastructure is optimally located and designed to achieve suitable levels of service, having regard to the processes and policies of the administering government agency. |

► *Reference - State Planning Policy Guideline 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide.*

4.3 SHORELINE (BAYHILL ESTATE) RESIDENTIAL PRECINCT CODE

4.3.1 Introduction

The Urban Residential Zone Code in the RPS V7.1 has been amended to create the unique Shoreline (Bayhill Estate) Residential Precinct Code.

4.3.2 Compliance with Shoreline (Bayhill Estate) Residential Precinct Code

- (1) Development that is consistent with the specific outcomes in section 4.4.4 complies with the Shoreline (Bayhill Estate) Residential Precinct Code.

Editor's Note -

The following planning scheme policies will assist in achieving specific outcomes within the Shoreline (Bayhill Estate) Residential Precinct Code -

- Planning Scheme Policy 5 - Environmental Emissions;
- Planning Scheme Policy 9 - Infrastructure Works;
- Planning Scheme Policy 12 - Social and Economic Impact Assessment.

4.3.3 Overall Outcomes for Shoreline (Bayhill Estate) Residential Precinct Code

- (1) The overall outcomes are the purpose of the Shoreline (Bayhill Estate) Residential Precinct Code.
- (2) The overall outcomes sought for the Shoreline (Bayhill Estate) Residential Precinct Code are described by five key characteristics-
- (a) Uses and Other Development;
 - (b) Built Form and Density;
 - (c) Amenity;
 - (d) Environment;
 - (e) Infrastructure.

Each of these is detailed below.

- (a) Uses and Other Development

Provide for a range of residential uses that -

- a. are predominantly low-rise detached houses on individual lots of various sizes;
- b. maximise the supply of residential land through infill development;
- c. provide for housing choice and affordability;
- d. encourage opportunities for working from home;

Provide for a limited range of non-residential uses that -

- e. fulfill a local community need and provide opportunities for social interaction and activity;
- f. are located on the major road network rather than local residential streets;
- g. do not compromise the role and function of centres;
- h. do not result in commercial ribbon development.

(b) Built Form and Density

The scale of uses and other development contribute to a predominantly detached residential built form by -

- a. limiting building height to maintain a low-rise appearance;
- b. buildings are sited and of a width, depth and bulk that are consistent with the lot size and a residential streetscape;
- c. for non-residential uses - being consistent with the preferred building types expected in the zone.

The density of uses and other development -

- d. utilise land efficiently through provision of a range of lot sizes and infill development that respects existing streetscapes in established areas;
- e. where aged persons and special needs housing provide a range of accommodation types that, in total, is consistent with the predominant density in the zone.

Lot layout is climatically responsive.

Buildings incorporate a mix of architectural elements and styles that are responsive to local conditions and styles.

(c) Amenity

Uses and other development achieves a high standard of amenity by -

- a. protecting and enhancing of places of cultural significance or streetscape value;
- b. having access to natural light and ventilation, privacy and private open space commensurate with the use;
- c. providing high quality useable public open space that meets the needs of the community;
- d. maintaining the safety of people and property;
- e. eliminating or mitigating impacts associated with light, noise, air and traffic.

The scale, operational attributes and impacts of non-residential uses maintains a high standard of residential amenity.

(d) Environment

Uses and other development minimise adverse impacts on environmental and scenic values by -

- a. responding to topographical features;
- b. minimising the need for excavation and fill;
- c. protecting the site from erosion;
- d. maximising the retention of native plants;
- e. maximising the use of native plants that are characteristic to the area;
- f. incorporating best practice stormwater management and enhancing water quality.

(e) Infrastructure

Uses and other development -

- a. make efficient use of existing infrastructure;
- b. provide for the extension of infrastructure in an orderly and cost effective manner;
- c. do not result unacceptable risk to community infrastructure;

- d. near major electricity infrastructure or a substation is compatible with the nature and potential impacts of the infrastructure and does not unduly impinge upon operations and access arrangements for major electricity infrastructure or substations.

Uses and other development are serviced by infrastructure including -

- e. reticulated water;
- f. reticulated sewerage;
- g. stormwater drainage;
- h. constructed road access;
- i. energy;
- j. telecommunications;
- k. waste and recycling collection;
- l. infrastructure is provided in accordance with any infrastructure agreement applying to the area.

Uses and other development reinforce an integrated, legible, efficient and safe movement network that -

- m. incorporate a full range of movement modes including public transport, passenger vehicles, walking and cycling;
- n. provide pedestrian, cycle and vehicle movement networks that maximise connectivity, permeability and ease of mobility.

4.3.4 Specific Outcomes and Probable Solutions applicable to Assessable Development⁸

| Shoreline (Bayhill Estate) Residential Precinct Code Assessable Development | | | |
|--|---|--------------------|--|
| Specific Outcomes | | Probable Solutions | |
| | <u>Uses and Other Development -</u> | | |
| S1.1 | (1) Incorporates an increased range of residential uses; (2) Where within 100 metres of a public transport stop, incorporates a greater range of medium and higher density residential uses. | P1.1 | (1) Is primarily utilised for dwelling houses and dual occupancy. (2) Where within 100 metres of a public transport stop, incorporates a range of housing types including apartment buildings and multiple dwellings. |
| S1.2 | (1) Non-residential uses such as local shopping, medical facilities, churches, child care centres and the like may be contemplated in appropriate locations and subject to detailed development requirements including - (a) being located on the major road network; (b) co-locating with other similar uses; (c) providing only for the identified convenience | P1.2 | (1) Non-residential uses - (a) locate on the corner of collector or higher order roads; (b) where of a - retail or commercial nature - a. are co-located with other similar uses; b. do not exceed 600m ² gross floor area, with no one tenancy exceeding 400m ² gross floor area; c. are not within 800 metres of any similar uses or a centre zone; |

⁸ Where the applicable code in Column 2 Probable Solutions of the Precinct Code for a particular use or other development is a code varied by this POD, that code is identified by an asterisk.

| Shoreline (Bayhill Estate) Residential Precinct Code | | | |
|--|--|--------------------|--|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | <p>needs of the local community;</p> <p>(d) not impacting on the role and function of the City's network of centres;</p> <p>(e) resulting in positive economic and social benefits for the local community.</p> <p>Editor's Note -</p> <p>Refer to Part 11 - Planning Scheme Policy 12 - Social and Economic Impact Assessment.</p> | | <p>community facilities, health care centres, childcare centres, or uses of a similar community service nature -</p> <p>d. are 400m² or less gross floor area per use;</p> <p>e. are co-located with other similar uses or retail or commercial uses.</p> |
| S1.3 | <p>(1) The following uses are encouraged –</p> <p>(a) bed and breakfast;</p> <p>(b) home business.</p> | P1.3 | <p>(1) No probable solution identified.</p> <p>Editor's Note -</p> <p>Refer to Part 6 -</p> <ul style="list-style-type: none"> ■ Division 5 - Bed and Breakfast Code; ■ Division 15 - Home Business Code; |
| S2.1 | <p>Built Form and Density -</p> <p>(1) The height of buildings and structures maintain a low-rise built by -</p> <p>(a) being compatible with the existing streetscape;</p> <p>(b) adopting the predominant height of surrounding buildings;</p> <p>(2) The height of buildings and structures maintain a mid-rise built form within 100 metres of a public transport stop;</p> <p>(3) Where a use proposes a building height greater than an adjoining building, site layout and building design minimises any potential impacts of overshadowing and loss of privacy.</p> | P2.1 | <p>(1) Overall building height is 9.5 metres or less above ground level;</p> <p>(2) Overall building height is 14 metres or less above ground level, where within 100 metres of a public transport stop;</p> <p>(3) No probable solution identified.</p> <p>Editor's Note -</p> <p>Refer to the relevant use code for specific building height assessment criteria.</p> |
| S2.2 | <p>(1) Site coverage of buildings balances built and un-built areas to -</p> <p>(a) provide solar access to living and open space areas;</p> | P2.2 | <p>(1) Site coverage is a maximum of 60 percent, unless otherwise specified in the relevant use code.</p> <p>Editor's Note -</p> |

| Shoreline (Bayhill Estate) Residential Precinct Code | | | |
|--|--|--------------------|---|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | (b) assist in retaining existing native plants; (c) enhance privacy between buildings; (d) provide useable open space for the occupants; (e) provide space for service functions including car parking and clothes drying. | | Refer to the relevant use code for specific site coverage assessment criteria. |
| S2.3 | (1) Setbacks - (a) complement existing front setbacks in the street; (b) maximise the usability of side and rear setbacks for outdoor open space areas, privacy and solar access for the occupants and adjoining uses. | P2.3 | (1) No probable solution identified. Editor's Note - Refer to the relevant use code for specific setback assessment criteria. |
| S2.4 | (1) Reconfiguration provides a mix of lot sizes to accommodate a variety of dwelling types; (2) Dwelling unit density is - (a) compatible with the detached low-rise character of the precinct; (b) compatible with a medium-rise character within 100 metres of a public transport stop. (3) For aged persons and special needs housing, density increases depending on the type of accommodation provided. | P2.4 | (1) Reconfiguration achieves an average net residential density of up to 15 dwellings per hectare; Editor's Note - An Overall Density Plan is to be prepared/updated and submitted with each reconfiguration application. The plan will monitor overall density, given a stage of development may be lower or higher than 15 dwellings per hectare, but the overall development is to achieve up to 15 dwellings per hectare. (2) Residential development achieves a density of - (a) not greater than 1 dwelling unit per 400m ² (b) up to 30 dwellings per hectare where within 100 metres of a public transport stop; (3) The density of aged persons and special needs housing is based on the accommodation type provided - (a) independent units = 1 dwelling unit per 400m ² ; (b) semi-dependent units = 1 dwelling per 200m ² ; (c) dependent units = 1 bed per 100m ² . |
| S2.5 | (1) Building design incorporates architectural elements that - | P2.5 | (1) No probable solution identified. |

| Shoreline (Bayhill Estate) Residential Precinct Code | | | |
|--|---|--------------------|---|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | (a) exhibit a high degree of interest through the use of colour, angles and materials; (b) include verandahs, decks, eaves, window hoods or similar elements to create shade and cast shadow; (c) promote an attractive streetscape and encourage safety and surveillance through orientating entrances towards the street; (d) minimise adverse overshadowing and reflective impacts on adjoining dwelling units; (e) integrate with landscape setting and natural environment features. | | Editor's Note - Refer to the relevant use code for specific built form assessment criteria. |
| S2.6 | (1) Building design incorporate architectural styles and elements that reduce the visual impacts of the built form and are responsive to the natural landscape setting. | P2.6 | (1) No probable solution identified. |
| S2.7 | (1) Reconfiguration results in pleasant environments and reduced energy consumption through being climatically responsive by - (a) lots being orientated and of a length and width to - (i) maximise solar access to the north in winter; (ii) minimise solar access to the east and west in summer; (iii) having regard to the topography of the land. | S2.7 | (1) No probable solution identified. Editor's Note - Refer to the relevant use code or Part 7- Division 11 - Reconfiguration Code* for specific climate control assessment criteria. |
| S3.1 | <u>Amenity -</u> Uses and other development do not adversely impact on the cultural heritage values of a registered heritage place(s) or character precinct. | P3.1 | No probable solution identified. |
| S3.2 | (1) Uses are capable of - (a) receiving solar access; (b) maintaining solar access to the habitable rooms and | P3.2 | (1) No probable solution identified. Editor's Note - |

| Shoreline (Bayhill Estate) Residential Precinct Code | | | |
|--|--|--------------------|---|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | open space areas of surrounding uses. | | Refer to the relevant use code for specific solar access assessment criteria. |
| S3.3 | (1) Building layout and design maximise privacy (visual and acoustic) through - (a) locating habitable rooms so they do not directly overlook habitable rooms of adjacent uses, either within or adjoining the use; (b) separating noise generating areas from sleeping areas. | P3.3 | (1) No probable solution identified. Editor's Note - Refer to the relevant use code for specific privacy assessment criteria. |
| S3.4 | (1) Private open space areas are - (a) clearly defined for private use; (b) easily accessible from living or common areas; (c) of a useable in size and dimension; (d) of a suitable slope; (e) capable of receiving solar access. | P3.4 | (1) No probable solution identified. Editor's Note - Refer to the relevant use code for specific private open space assessment criteria. |
| S3.5 | (1) Areas set aside for public open space - (a) provide for recreational, aesthetic and environmental needs; (b) incorporate stormwater management needs, while not hindering the function of the open space. | P3.5 | (1) No probable solution identified. Editor's Note - For additional assessment criteria for public open space refer - ■ Part 6 - Division 20 - Park Code*; ■ Part 7 - Division 11 - Reconfiguration Code*. |
| S3.6 | (1) Uses and other development are designed in accordance with the principles of Crime Prevention through Environmental Design (CPTED) to assist in crime prevention by being - (a) orientated towards the street or parkland to provide opportunities for casual surveillance of public places; (b) designed and well lit to ensure casual surveillance opportunities, particularly for open space, car parking and pedestrian and cycle paths. | P3.6 | (1) No probable solution identified. Editor's Note - To assist in achieving S3.6 refer to Planning Scheme Policy 16 - Safer By Design. |

| Shoreline (Bayhill Estate) Residential Precinct Code | | | |
|--|---|---|---|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| S3.7 | (1) Artificial lighting does not result in unreasonable disturbance to any person or activity; (2) Glare and reflection from the sun are minimised through material and glazing choice. | P3.7 | (1) The vertical illumination resulting from direct, reflected or other incidental light emanating from the site does not exceed 8 lux when measured at any point 1.5 metres outside the boundary at or above ground level; (2) No probable solution identified. |
| S3.8 | Noise generated by the use or other development is compatible with that experienced in a residential environment. | P3.8 | The use achieves the acoustic quality objectives stated in Schedule 1 of the <i>Environmental Protection (Noise) Policy 2008</i> . |
| S3.9 | Air quality impacts are eliminated or mitigated to a level that is compatible with a residential environment by not emitting vibration, odour, fumes, smoke, vapour, steam, soot, ash, dust, grit, oil, radio or electrical interference beyond the premises. | P3.9 | No probable solution identified. |
| S3.10 | (1) Traffic movements are compatible with that experienced in a residential environment. | P3.10 | (1) Non-residential uses for commercial/ retail, community facilities and services, or similar are - (a) located on collector or higher order roads; (b) do not gain access from local roads. |
| | | Editor's Note - Refer to Planning Scheme Policy 5 - Environmental Emissions for further information on air quality and noise impacts. | |
| S4.1 | <u>Environment -</u> (1) Protect the environment from impacts associated with the use or other development including - (a) stormwater run-off; (b) water quality; (c) erosion and sediment run-off; (d) weed infestation; (e) where adjoining an Open Space Corridor or Conservation Area, edge effects, particularly from noise and light and bushfire clearance zones (these should be incorporated | P4.1 | (1) No probable solution identified. |

| Shoreline (Bayhill Estate) Residential Precinct Code | | | |
|--|---|--------------------|--|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | within the development site and should not result in vegetation clearing external to the site). | | |
| S4.2 | <p>(1) Minimise the need for excavation and fill by uses and other development being located and designed to –</p> <ul style="list-style-type: none"> (a) prevent the unnecessary removal of native plants; (b) protect natural overland drainage systems; (c) protect the amenity of adjoining properties; (d) reduce erosion and sediment run-off. <p>(2) Where the topography or environmental values of a site result in the creation of larger lots or the dedication of land the net density requirements of P2.4 are achieved.</p> | P4.2 | <p>(1) No probable solution identified.</p> <p>Editor's Note -</p> <p>Refer to Part 7 - Division 6 - Excavation and Fill Code for specific assessment criteria.</p> <p>(2) No probable solution identified.</p> |
| S4.3 | <p>(1) Landscaping -</p> <ul style="list-style-type: none"> (a) incorporates plant species that are native to the local area; (b) recognises and enhances the landscape character of the local area; (c) supports the retention and rehabilitation of enhancement areas and corridors; (d) maximises use of permeable surfaces and landscaping to reduce stormwater run-off; (e) incorporate landscaping as a component of the stormwater management system. | P4.3 | <p>(1) Species used for landscaping are selected from the native plant species listed in -</p> <ul style="list-style-type: none"> (a) Schedule 9 - Street Trees where within the road reserve; (b) Vegetation Enhancement Strategy. <p>Editor's Note -</p> <p>For additional assessment criteria, refer to Part 8 -</p> <ul style="list-style-type: none"> ■ Division 8 - Landscape Code; ■ Division 9 - Stormwater Management Code*. |
| S4.4 | <p>(1) Landscaping activities provide food, shelter and movement opportunities for koalas consistent with the site design.</p> | P4.4 | <p>(1) No probable solution identified.</p> |
| S5.1 | <p><u>Infrastructure -</u></p> <p>(1) Uses and other development are serviced by infrastructure including -</p> <ul style="list-style-type: none"> (a) reticulated water; (b) reticulated sewerage; | P5.1 | <p>(1) No probable solution identified.</p> <p>Editor's Note -</p> |

| Shoreline (Bayhill Estate) Residential Precinct Code | | | |
|--|--|--------------------|--|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | (c) stormwater drainage; (d) constructed road access; (e) energy; (f) telecommunications (including the National Broadband Network); (g) waste and recycling collection facilities. | | For additional assessment requirements refer to Part 8 - ■ Division 7 - Infrastructure Works Code; ■ Division 9 - Stormwater Management Code*. |
| S5.2 | Road alignment and design do not adversely impact upon the environmental values of the area. | P5.2 | No probable solution identified. |
| S5.3 | (1) Uses and other development - (a) maximise opportunities to incorporate public transport; (b) provide and upgrade pedestrian and cycle paths; (c) provide a high level of internal accessibility and good external connections for vehicles through the use of a grid pattern layout; (d) minimise use of culs-de-sac. | P5.3 | (1) No probable solution identified. Editor's Note - Refer to - ■ Part 8 - Division 7 - Infrastructure Works Code for further information on provision, design and construction of infrastructure, roads and pedestrian and cycle paths; ■ Where creating new lots refer to Part 7 - Division 11 - Reconfiguration Code*. |
| S5.4 | (1) Waste and recycling is managed to minimise impacts on the environment by - (a) locating waste and recycling storage areas to protect amenity and to provide safe manual handling of containers; (b) screening waste and recycling container storage areas from view; (c) providing for the cleansing of containers in a manner that does not cause adverse environmental impacts. | P5.4 | (1) No probable solution identified. Editor's Note - Refer to Part 11 - Planning Scheme Policy 9 - Infrastructure Works – Chapter 16 – Waste Management for further information on waste and recycling container volume, storage, servicing, screening and cleansing. |
| S5.5 | (1) Uses and other development (excluding dwelling house, dual occupancy or reconfiguring a lot for a dwelling house or dual occupancy) – a) Provide safe and efficient manoeuvring for waste collection vehicles; b) Ensure all bulk waste and recycling containers are | P5.5 | (1) No probable solution identified. |

| Shoreline (Bayhill Estate) Residential Precinct Code | | | |
|--|--|--------------------|--|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | <p>served off-street and not on roads with public access;</p> <p>c) Ensure sufficient vertical clearance for container servicing; and</p> <p>d) Ensure unobstructed access to containers by collection vehicles.</p> | | |
| S5.6 | Community infrastructure is able to function effectively during and immediately after flood events. | P5.6 | Community infrastructure is located at or above the recommended flood levels in Table 1 - Recommended Flood Levels for Community Infrastructure. |
| S5.7 | Other than where they are separated from major electricity infrastructure or substations by a road, buildings are oriented to avoid direct overlooking of such infrastructure. | P5.7 | Other than where they are separated from major infrastructure sites or a substation site by a road, buildings are designed so that windows and balconies do not face infrastructure sites and any side views to infrastructure sites are screened by devices attached to the building (in addition to any landscaping on the site). |
| S5.8 | <p>(1) Development provides sufficient space within the site to establish landscaping which substantively assists in screening and softening structures and equipment associated with –</p> <p>(a) major electricity infrastructure; and</p> <p>(b) substations.</p> | P5.8 | <p>(1) Landscaping should comprise –</p> <p>(a) a minimum 3 metre wide densely planted landscape buffer is provided along the boundary adjoining major electricity infrastructure, (including provision for advanced trees and shrubs that will grow to a minimum height of 10 metres).</p> <p>(b) a minimum 3 metre wide densely planted landscape buffer is provided along the boundary adjoining a substation site, (including provision for advanced trees and shrubs that will grow to a minimum height of 5 metres).</p> |
| S5.9 | Development is located and designed to maintain access to major electricity infrastructure or sub-stations. | P5.9 | No probable solution identified. |
| S5.10 | Development is designed to minimise the risk to public health from arboviruses. In accordance with the approved Biting Insect Management Plan, roads must adjoin all Open Space Corridors | P5.10 | (1) No probable solution identified. |

| Shoreline (Bayhill Estate) Residential Precinct Code Assessable Development | | | |
|--|--|--------------------|--|
| Specific Outcomes | | Probable Solutions | |
| | and Foreshore Open Space shown on the approved Shoreline (Bayhill Estate) Precinct Plan. | | |

Table 1 - Recommended Flood Levels for Community Infrastructure

| Type of Community Infrastructure | Recommended Flood Level AEP (ARI) |
|---|---|
| Emergency services, other than police facilities | 0.2% (1 in 500 year ARI) |
| Emergency shelters | 0.5% (1 in 200 year ARI) |
| Police facilities | 0.5% (1 in 200 year ARI) |
| Hospitals and associated facilities | 0.2% (1 in 500 year ARI) |
| Stores of valuable records or items of historic or cultural significance such as galleries and libraries | 0.5% (1 in 200 year ARI) |
| Power stations | 0.2% (1 in 500 year ARI) |
| Major switch yards | 0.2% (1 in 500 year ARI) |
| Substations | 0.5% (1 in 200 year ARI) |
| Sewerage treatment plants | 1% (1 in 100 year ARI) |
| Water treatment plants | 0.5% (1 in 200 year ARI) |
| <ul style="list-style-type: none"> ■ State-controlled roads ■ Works of an electricity entity not otherwise listed in this table ■ Railway lines, stations and associated facilities ■ Aviation facilities ■ Communication network facilities | No specific recommended flood level but development proponents should ensure that the infrastructure is optimally located and designed to achieve suitable levels of service, having regard to the processes and policies of the administering government agency. |

Reference - State Planning Policy Guideline 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide.

4.4 SHORELINE (BAYHILL ESTATE) OPEN SPACE PRECINCT CODE

4.4.1 Introduction

The Open Space Zone Code in the RPS V7.1 has been amended to create the unique Shoreline (Bayhill Estate) Open Space Precinct Code.

4.4.2 Compliance with Shoreline (Bayhill Estate) Open Space Precinct Code

Development that is consistent with the specific outcomes in section 4.5.4 complies with the Shoreline (Bayhill Estate) Open Space Precinct Code.

Editor's Note -

The following planning scheme policy will assist in achieving specific outcomes within the Open Space Precinct Code -

- Planning Scheme Policy 5 - Environmental Emissions;
- Planning Scheme Policy 9 - Infrastructure Works.

4.4.3 Overall Outcomes for Shoreline (Bayhill Estate) Open Space Precinct Code

- (1) The overall outcomes are the purpose of the Shoreline (Bayhill Estate) Open Space Precinct Code.
- (2) The overall outcomes sought for the Shoreline (Bayhill Estate) Open Space Precinct Code are described by six key characteristics -
 - (a) Uses and Other Development;
 - (b) Open Space Design;
 - (c) Built Form;
 - (d) Amenity;
 - (e) Environment;
 - (f) Infrastructure.

Each of these is detailed below.

- (a) Uses and Other Development

In the Foreshore Open Space Sub-precinct –

- a. Comprises an open space area with opportunities to view Moreton Bay and engage with the water, whilst protecting and conserving remnant coastal vegetation; and
- b. Establishes a meeting place for the community and may include a variety of casual leisure and recreation activities, including walking and cycling opportunities, informal open spaces for picnics and resting points.

Provide for a range of open space and recreational uses that –

- a. Meet the active or passive recreational needs of residents and visitors to the City;
- b. Provide for recreation activities on land in public or private ownership;
- c. May include land used for activities not involving access by the general public;
- d. Does not inhibit the environmental values of Open Space Corridors, the primary objective of which must be habitat connectivity.

Provide for a limited range of other uses that –

- a. Fulfill ancillary functions that are required for the open space to function effectively;

- b. Do not impact on the amenity and landscape setting of the area.

Incorporates a network of east-west multi-functional environmental corridors, which integrate Water Sensitive Urban Design responses to stormwater, establish local fauna links between conservation and protection areas to the west of the Shoreline (Bayhill Estate) POD area and the Foreshore Sub-precinct and provide for pedestrian and cyclist movement.

Reconfiguration –

- a. Facilitates the dedication of open space land to Council as non-trunk or trunk infrastructure as identified in the Infrastructure Agreement;
- b. Does not prejudice the future use of this land for open space purposes.

(b) Open Space Design

Uses and other development are designed in a manner that complies with an approved Biting Insect Management Plan and the Infrastructure Agreement and -

- a. Contributes to the legibility and character of the local area;
- b. Provides adequate facilities that meet community needs and expectations based on the population density and demographic structure expected in the area;
- c. Provides for a range of passive and active recreational opportunities;
- d. Enhances opportunities for community interaction;
- e. Complement the broader open space network;
- f. Forms links between existing open space areas.

(c) Built Form

Uses and other development have a site layout that -

- a. utilise land efficiently;
- b. provide for vehicle access and parking commensurate with activities expected on the site;
- c. incorporate existing landscape and topographic features;
- d. retain and integrate existing native plants;
- e. support the retention and enhancement of habitats and corridors;
- f. assist in the identification of entry points and paths;
- g. maximise visibility of public and semi-public areas to encourage casual surveillance.

The scale of uses and other development -

- h. is compatible with that of the surrounding area;
- i. positively contributes to the visual amenity of the area;
- j. is consistent with the open space nature of the precinct and the specific function of the site.

Buildings design -

- k. facilitates the intended use while being compatible with the predominant built form in the surrounding area;
- l. is physically accessible for all the community;
- m. maximises Crime Prevention Through Environmental design (CPTED) principles;
- n. incorporates architectural elements and a mix of materials that are responsive to local conditions and styles.

(d) Amenity

Uses and other development achieve a high standard of amenity by -

- a. providing high quality useable public and private open space that meets the needs of community;
- b. creating open space areas that are safe and comfortable for users;
- c. contributing to the livability of the City through the provision of visual relief from the built environment;
- d. providing a landscape setting that complements the specific open space function of the site;
- e. eliminating or mitigating impacts associated with light, noise, air and traffic.

(e) Environment

Uses and other development minimise adverse impacts on environmental and scenic values by -

- a. responding to topographical features;
- b. minimising the need for excavation and fill;
- c. protecting the site from erosion;
- d. minimising the need to clear native plants;
- e. maximising the use of plant species that are native to the area (except in Conservation Areas and the central habitat core of the Open Space Corridors where 100% of planting must be native species);
- f. incorporating best practice stormwater management that minimises adverse impacts associated with excess run-off and contamination;
- g. enhancing water quality and minimise adverse impacts of potentially water and soil contaminating substances.

(f) Infrastructure

Uses and other development -

- a. maximise use of existing infrastructure;
- b. provide for the extension of infrastructure in an orderly and cost effective manner;
- c. do not result in unacceptable risk to community infrastructure.

Uses and other development are serviced by infrastructure including -

- d. reticulated water or adequate potable water supply;
- e. reticulated sewerage;
- f. stormwater drainage;
- g. constructed road access;
- h. energy;
- i. telecommunications (including the National Broadband Network);
- j. waste and recycling collection.

Uses and other development reinforce an integrated, legible, efficient and safe movement network that -

- k. incorporates and provides a range of movement modes including passenger vehicles, pedestrian and cycling and where possible public transport;
- l. provides for pedestrian, cycle and vehicle movement networks that maximise connectivity, permeability and ease of mobility throughout the site and to adjoining areas;
- m. minimises conflict between traffic generated by the use and adjoining land uses.

Uses manage the generation, storage and disposal of waste commensurate with the specific activities of the use.

4.4.4 Specific Outcomes and Probable Solutions applicable to Assessable Development⁹

| Shoreline (Bayhill Estate) Open Space Precinct Code | | | |
|---|--|--------------------|--------------------------------------|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | <u>Uses and Other Development -</u> | | |
| S1.1 | (1) The following activities are consistent in the precinct - <ul style="list-style-type: none"> (a) Casual leisure and recreation activities, such as restaurant/cafe/bar, walking and cycling, informal open space for picnics and resting points; (b) parks that - <ul style="list-style-type: none"> (i) complement environmental attributes such as nature based, water focused or the like; (ii) allow for pedestrian and cyclist movement; (c) community facilities such as cultural, social or community based uses such as halls, showgrounds or the like; (d) utility installations and minor utilities where necessary to - <ul style="list-style-type: none"> (i) protect the safety of people and property; (ii) provide essential services to the community. | P1.1 | (1) No probable solution identified. |
| S1.2 | (1) Reconfiguration - <ul style="list-style-type: none"> (a) facilitates the dedication of open space land to Council as non-trunk or trunk infrastructure as identified in the Infrastructure Agreement; (b) enhances social, cultural and recreational opportunities; (c) provides linkages between existing and/or open space areas; (d) does not prejudice the future use of this land for open space purposes. | P1.2 | (1) No probable solution identified. |
| | <u>Open Space Design -</u> | | |

⁹ Where the applicable code in Column 2 Probable Solutions of the Precinct Code for a particular use or other development is a code varied by this POD, that code is identified by an asterisk.

| Shoreline (Bayhill Estate) Open Space Precinct Code | | | |
|---|---|--------------------|--------------------------------------|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| S2 | <p>(1) The design of open space sites complies with the Biting Insect Management Strategy and the Infrastructure Agreement and -</p> <p>(a) contributes to the legibility and character of the local area through -</p> <p>facilitating movement networks, specifically pedestrians and cyclists; encouraging walking and cycling; being suited to the locational attributes of the area;</p> <p>(b) provides adequate facilities that meet community needs and expectations based on -</p> <p>(i) the demographic profiles of surrounding areas;</p> <p>(ii) the density of residential development in surrounding areas;</p> <p>(c) provides for a range of passive and active recreational opportunities, and preferably a mixture of varied activities within the site;</p> <p>(d) facilitates community interaction as a place to meet, socialise and recreate;</p> <p>(e) complements adjoining and nearby open space areas to facilitate an open space network that in combination offer a diversity of outdoor activities;</p> <p>(f) integrates with adjoining open space areas through -</p> <p>(i) interlinking pedestrian and cycle paths;</p> <p>(ii) providing complementary activities and facilities.</p> | P2 | (1) No probable solution identified. |
| S3.1 | <p><u>Built Form -</u></p> <p>(1) Site layout -</p> <p>(a) complements the existing landscape features of the site including -</p> <p>(i) topography;</p> <p>(ii) native plants;</p> <p>(iii) bushland habitats and corridors;</p> | P3.1 | (1) No probable solution identified. |

| Shoreline (Bayhill Estate) Open Space Precinct Code | | | |
|---|--|--------------------|--|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | <ul style="list-style-type: none"> (iv) foreshore areas, waterways and wetlands; (b) uses the site efficiently and allocates sufficient areas for all activities related to the use; (c) provides for vehicle access to the use, that does not adversely affect the function of the road from which the use is accessed; (d) locates parking areas and entries at visible locations that have easy and direct access to facilities or buildings associated with the use; (e) is designed to maximise personal safety of users; (f) provides sufficient areas for servicing, manoeuvring and loading/unloading as applicable to the specific use. | | |
| S3.2 | <ul style="list-style-type: none"> (1) Building height - <ul style="list-style-type: none"> (a) does not - <ul style="list-style-type: none"> (i) dominate the predominantly open space nature of the site; (ii) result in overshadowing of key outdoor areas; (b) respects the existing streetscape and adopts the predominant height of nearby buildings; (c) where a use involves a building or structure that is higher the predominant building height of nearby buildings all necessary measures are taken to mitigate the impact of overshadowing, loss of privacy or the like. | P3.2 | <ul style="list-style-type: none"> (1) Building height - <ul style="list-style-type: none"> (a) is 8.5 metres or less above ground level; or (b) for specific recreational activities - is a height appropriate to the function of the activity. |

| Shoreline (Bayhill Estate) Open Space Precinct Code | | | |
|---|--|--------------------|--------------------------------------|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| S3.3 | (1) Site coverage of buildings and any other hard surface areas minimise built areas to - <ul style="list-style-type: none"> (a) emphasise the function of this precinct as an open landscape that offers relief from the built environment; (b) assist in retaining existing native plants, habitat areas and corridors; (c) provide sufficient areas for access, parking, manoeuvring and service functions while designing these in a manner that - <ul style="list-style-type: none"> (i) maximise permeable surfaces; (ii) complements the open space nature of the precinct. (d) facilitate stormwater and flood management. | P3.3 | (1) No probable solution identified. |
| S3.4 | (1) Setbacks of buildings from property boundaries - <ul style="list-style-type: none"> (a) allow for the safe and efficient use of the site; (b) allow for planted landscaping to support built form; (c) provide car parking at visible locations that has easy and direct pedestrian access to building entries and recreation areas; (d) enable the effective location of overland flow paths and utility infrastructure; (e) minimise visual impacts on key scenic sight lines; (f) are increased where required to provide - <ul style="list-style-type: none"> (i) overland flow paths associated with flood and stormwater management, (ii) other infrastructure; (iii) car parking. | P3.4 | (1) No probable solution identified. |
| S3.5 | (1) Where the use incorporates buildings that are visible from public locations and are accessed by the public on a regular basis, they are designed to incorporate architectural elements that - | P3.5 | (1) No probable solution identified. |

| Shoreline (Bayhill Estate) Open Space Precinct Code | | | |
|---|--|--------------------|--|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | (a) exhibit a high degree of interest through the use of colour, angles, materials and shadows; (b) integrate with landscape planting and prevailing landscape features; (c) maintain human scale; (d) provide interesting, functional and attractive facades that contribute to the streetscape and open space setting and pedestrian experience; (e) minimise any adverse overshadowing and reflective impacts; (f) provide physical connections and linkages between buildings and outdoor areas; (g) are articulated to minimise appearance of building bulk and size. | | |
| S3.6 | (1) Uses and other development provide equitable access to all residents and visitors. | S3.6 | (1) Uses and other development - (a) provide non-discriminatory access to buildings and paths in accordance with <i>Australian Standard 1428 - Design for Access and Mobility</i> ; (b) are designed to be multi-purpose and easily adapted for future changes of use. |
| S4.1 | <u>Amenity -</u> Development does not adversely impact on the cultural heritage values of a registered heritage place(s) or character precinct. | P4.1 | No probable solution identified. |
| S4.2 | Buildings are located and designed to maintain the visual prominence of open spaces, significant landmarks and conserve important view corridors. | P4.2 | No probable solution identified. |
| S4.3 | (1) High quality landscape planting is provided to - (a) provide a focus for the open space nature of the precinct; (b) minimise the removal of existing native plants, habitat areas and corridors; | P4.3 | (1) Landscape planting is in accordance with the Approved Biting Insect Management Plan. Editor's Note - Refer to Part 8 - |

| Shoreline (Bayhill Estate) Open Space Precinct Code | | | |
|---|---|--------------------|--|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | (c) support buildings or structures associated with the use to maintain - (i) scale; (ii) screen outdoor, storage and service areas; (iii) create visual relief to the built form; (d) create visual relief and shade, particularly within car parking areas; (e) define - (i) activity areas; (ii) entrances; (iii) car parking areas; (iv) pedestrian and cycle paths. | | <ul style="list-style-type: none"> ■ Division 8 - Landscape Code for general landscaping assessment criteria; ■ Division 1 - Access and Parking Code for car parking landscape assessment criteria. |
| S4.4 | (1) Furniture and equipment - (a) satisfy the functional requirements of the specific activities of the site; (b) include, as appropriate shelters, play equipment, seating, waste containers, water fountains and the like; (c) are durable. | P4.4 | (1) No probable solution identified. |
| S4.5 | (1) Building design maximises use of the principles of Crime Prevention through Environmental Design (CPTED) to assist in crime prevention including - (a) being orientated towards the street or other active areas; (b) being well lit; (c) providing opportunities for casual surveillance. | P4.5 | (1) No probable solution identified. |
| S4.6 | (1) Uses and other development - (a) particularly where catering for night time activities and major spectator events, mitigate or eliminate lighting and noise impacts; (b) including design and orientation of artificial lighting, vehicular access points, car parking, spectator areas and other major noise sources, minimise noise and lighting impacts. | P4.6 | (1) No probable solution identified. Editor's Note - For an environmentally relevant activity, noise emissions comply with the requirements of any development approval issued under the <i>Environmental Protection Act 1994</i> . |

| Shoreline (Bayhill Estate) Open Space Precinct Code | | | |
|---|--|--------------------|---|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| S4.7 | (1) Artificial lighting does not result in unreasonable disturbance to any person or activity; (2) Glare and reflection from the sun are minimised through landscape and building material, and glazing choice. | P4.7 | (1) No probable solution identified; (2) No probable solution identified. Editor's Note - Refer to Part 11 - Planning Scheme Policy 5 - Environmental Emissions for further information on noise and air quality impacts. |
| S4.8 | (1) Signage clutter is minimised, especially to the external streetscape; (2) Where appropriate - (a) communal signage is provided, preferably in the form of an architectural and landscaped feature; (b) directional, interpretative or signage of a similar nature assist the user in navigating the site and gaining knowledge of the features of the site. | P4.8 | (1) No probable solution identified; (2) No probable solution identified. |
| Environment - | | | |
| S5.1 | (1) Protect the environment from impacts associated with the use or other development including - (a) stormwater run-off; (b) erosion and sediment run-off; (c) water quality; (d) weed infestation. (e) artificial lighting, ensuring it is directed away from the central habitat core of the Open Space Corridors and the Conservation Areas. | P5.1 | (1) No probable solution identified. |
| S5.2 | (1) Minimise the need for excavation and fill by activities being located and designed to - (a) prevent the unnecessary removal of native plants through site design that accommodates plant retention, particularly bushfire clearance zones (these should be incorporated within the development site and should not result in vegetation clearing external to the site); | P5.2 | (1) No probable solution identified. Editor's Note - Refer to Part 7 - Division 6 - Excavation and Fill Code for assessment criteria. |

| Shoreline (Bayhill Estate) Open Space Precinct Code | | | |
|---|--|--------------------|---|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| S5.3 | (b) protect overland drainage systems; (c) protect the amenity of adjoining properties; (d) reduce erosion and sediment run-off. Infrastructure is co-located in accordance with the relevant standards to minimise the need to remove native plants and adversely impact upon the environmental values of the area. | P5.3 | No probable solution identified. |
| S5.4 | (1) Landscaping - (a) incorporates plant species that are native to the local area; (b) recognises and enhances the landscape character of the local area; (c) supports the retention and rehabilitation of enhancement areas and corridors; (d) maximises use of permeable surfaces and landscaping to reduce stormwater run-off; (2) Incorporate landscaping as a component of the stormwater management system. Design to integrate with the central habitat core of the Open Space Corridors, Conservation Areas, pedestrian footpaths, cycleways and recreational uses and in accordance with a Biting Insect Management Plan. | P5.4 | (1) Species used for landscaping are selected from the native plant species listed in - (a) An Approved Biting Insect Management Plan; (b) Schedule 9 - Street Trees where within the road reserve. (2) No probable solution identified. |
| Editor's Note - <ul style="list-style-type: none"> ■ Note the approved Shoreline (Bayhill Estate) Open Space and Landscape Strategy prevails to the extent there is any inconsistency with the Vegetation Enhancement Strategy and / or Schedule 9 – Street Trees ■ For additional assessment criteria, refer to Part 8 - <ul style="list-style-type: none"> ► Division 8 - Landscape Code; ► Division 9 - Stormwater Management Code*. | | | |
| S5.5 | (1) Fences and non-building walls - (a) are minimised to those essential for - the safety of people; limiting access to service or outdoor storage areas or infrastructure; (b) generally consist of bollards or the like rather than solid or continuous fencing; (c) where required, they are visually attractive and contribute to or blend with planted landscaping and building materials; | P5.5 | (1) No probable solution identified. |

| Shoreline (Bayhill Estate) Open Space Precinct Code | | | |
|---|--|--------------------|---|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | (d) do not inhibit the movement of native animals. | | |
| | <u>Infrastructure -</u> | | |
| S6.1 | (1) All uses are serviced by infrastructure including - (a) reticulated water or adequate potable water supply; (b) reticulated sewerage; (c) stormwater drainage; (d) constructed road access; (e) energy; (f) telecommunications (including the National Broadband Network); (g) waste and recycling facilities. | P6.1 | (1) No probable solution identified. |
| S7.1 | (1) Uses and other development maximise the safe, convenient and comfortable movement of public transport passengers, pedestrians and cyclists by providing - (a) links to public transport routes and stops; (b) pedestrian and cycle paths; (c) pathways, building entrances, amenities and seating that support accessibility for people with special needs. | P7.1 | (1) No probable solution identified. |
| | | | Editor's Note - Refer to Part 8 - ■ Division 7 - Infrastructure Works Code for further assessment criteria on provision, design and construction of utility infrastructure and pedestrian and cycle path; ■ Division 1 - Access and Parking Code for further assessment criteria related to access and internal movement. |
| S6.3 | (1) Opportunities for cycling as a modal choice are provided through - (a) clearly defined cycle paths and facilities; (b) secure cycle storage areas and facilities for cyclists. | P6.3 | (1) No probable solution identified. |
| S6.4 | (1) Vehicular access and parking facilities - (a) are located to minimise disruption to traffic flow; (b) promote use of public transport; (c) minimise impact on adjoining areas; (d) are located and designed to - (i) minimise conflicts between pedestrians | P6.4 | (1) No probable solution identified. |

| Shoreline (Bayhill Estate) Open Space Precinct Code | | | |
|---|---|--------------------|---|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | <p>and cyclists with vehicles;</p> <p>(ii) maintain a high quality landscape and streetscape from along all road frontages.</p> | | |
| S6.5 | <p>(1) Waste and recycling is managed to minimise impacts on the environment and nearby premises by -</p> <p>(a) locating waste and recycling storage areas to protect amenity and to provide safe manual handling of containers;</p> <p>(b) screening waste and recycling container storage areas from view;</p> <p>(c) providing for the cleansing of containers in a manner that does not cause adverse environmental impacts;</p> <p>(2) Uses and other development -</p> <p>(a) provide safe and efficient manoeuvring for waste collection vehicles;</p> <p>(b) ensure all bulk waste and recycling containers are serviced off-street and not on roads with public access;</p> <p>(c) ensure sufficient vertical clearance for container servicing;</p> <p>(d) ensure unobstructed access to containers by collection vehicles;</p> <p>(3) Waste and recycling storage is designed and located to -</p> <p>(a) provide adequate container volume to contain the waste and recyclables;</p> <p>(b) provide recycle containers in an equivalent or greater volume to waste containers;</p> <p>(c) provide a dedicated waste and recycling container storage area that is convenient and safe to use;</p> <p>(d) ensure containers are located on impermeable surfaces.</p> | P6.5 | <p>(1) No probable solution identified.</p> <p>(2) No probable solution identified.</p> <p>(3) No probable solution identified.</p> <p>Editor's Note -</p> <p>Refer to Part 11 - Planning Scheme Policy 9 - Infrastructure Works – Chapter 16 – Waste Management for further information on waste and recycling container volume, storage, servicing, screening and cleansing.</p> <p>Refer to Part 8 - Division 1 - Access and Parking Code for waste collection vehicle servicing and manoeuvring assessment criteria.</p> |
| S6.6 | Community infrastructure is able to function effectively during and immediately after flood events. | P6.6 | Community infrastructure is located at or above the recommended flood levels in Table 1. |

| Shoreline (Bayhill Estate) Open Space Precinct Code | | | |
|---|--|--------------------|--|
| Assessable Development | | | |
| Specific Outcomes | | Probable Solutions | |
| | | | |

Table 1 - Recommended Flood Levels for Community Infrastructure

| Type of Community Infrastructure | Recommended Flood Level AEP (ARI) |
|---|---|
| Emergency services, other than police facilities | 0.2% (1 in 500 year ARI) |
| Emergency shelters | 0.5% (1 in 200 year ARI) |
| Police facilities | 0.5% (1 in 200 year ARI) |
| Hospitals and associated facilities | 0.2% (1 in 500 year ARI) |
| Stores of valuable records or items of historic or cultural significance, such as galleries and libraries | 0.5% (1 in 200 year ARI) |
| Power stations | 0.2% (1 in 500 year ARI) |
| Major switch yards | 0.2% (1 in 500 year ARI) |
| Substations | 0.5% (1 in 200 year ARI) |
| Sewerage treatment plants | 1% (1 in 100 year ARI) |
| Water treatment plants | 0.5% (1 in 200 year ARI) |
| <ul style="list-style-type: none"> ■ State-controlled roads ■ Works of an electricity entity not otherwise listed in this table ■ Railway lines, stations and associated facilities ■ Aviation facilities ■ Communication network facilities | No specific recommended flood level but development proponents should ensure that the infrastructure is optimally located and designed to achieve suitable levels of service, having regard to the processes and policies of the administering government agency. |

Reference - State Planning Policy Guideline 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide.

5. OVERLAYS & OVERLAY CODES

5.1 INTRODUCTION

The following overlays are currently mapped over the subject site under the RPS V7.1. The relevance of each overlay in relation to the Shoreline (Bayhill Estate) POD, together with the applicability of the relevant overlay code in the RPS V7.1, and any variation to these provisions, is as specified below.

5.2 ACID SULFATE SOILS OVERLAY

5.2.1 Spatial application of overlay

No variation to overlay mapping.

5.2.2 Level of assessment

No variation to the level of assessment specified in the RPS V7.1.

5.2.3 Code

No variation to code.

5.3 BUSHFIRE HAZARD OVERLAY

5.3.1 Spatial application of overlay

No variation to overlay mapping.

5.3.2 Level of assessment

No variation to the level of assessment specified in the RPS v7.1.

5.3.3 Code

The overlay code is varied so that uses and other development is in accordance with the Shoreline (Bayhill Estate) Precinct Plan and are sited, designed and maintained in accordance with an approved Bushfire Management Plan.

5.4 FLOOD PRONE, STORM TIDE AND DRAINAGE CONSTRAINED LAND OVERLAY

The significant proportion of all the storm tide will be in the Shoreline (Bayhill Estate) Open Space Precinct as will much of the flood prone land. Application of Overlay is therefore considered acceptable.

5.4.1 Spatial application of overlay

No variation to overlay mapping.

5.4.2 Level of assessment

No variation to the level of assessment specified in the RPS V7.1.

5.4.3 Code

No variation to code.

5.5 HABITAT PROTECTION OVERLAY

5.5.1 Spatial application of overlay

The Habitat Protection – Bushland Habitat Overlay Map in the RPS V7.1 is varied so as not to apply to land included in the Shoreline (Bayhill Estate) POD.

5.5.2 Level of assessment

The levels of assessment specified in the RPS V7.1 are varied so as not to apply to the Shoreline (Bayhill Estate) POD area.

5.5.3 Code

The Code is varied so as not to apply to the Shoreline (Bayhill Estate) POD area.

5.9 WATERWAYS, WETLANDS AND MORETON BAY OVERLAY

This overlay is varied so as not to apply in the Shoreline (Bayhill Estate) POD area. The Precinct Plan for the Shoreline (Bayhill Estate) POD has been developed based on Council's overlay mapping and mapped constraints.

5.10 LANDSLIDE HAZARD OVERLAY

5.10.1 Spatial application of overlay

The overlay mapping is varied so that areas identified as low landslide hazard do not apply in the Shoreline (Bayhill Estate) POD area.

5.10.2 Level of assessment

No variation to the level of assessment specified in the RPS V6.2.

5.10.3 Code

No variation to code.

6. USE CODES

6.1 INTRODUCTION

The Use Codes of the RPS V7.1 are:

- Aged Persons and Special Needs Housing
- Agriculture
- Animal Keeping
- Apartment Building
- Bed and Breakfast
- Caretakers Dwelling
- Child Care Centre
- Display Dwelling
- Drive Through Restaurant
- Dual Occupancy
- Dwelling House
- Estate Sales Office
- Extractive Industry
- Forestry
- Home Business
- Intensive Agriculture
- Mobile Home Park
- Multiple Dwelling
- Outdoor Dining
- Park
- Roadside Stall
- Rural Enterprise
- Service Station
- Telecommunications Facility
- Temporary Use
- Tourist Accommodation
- Tourist Park

6.2 VARIATION TO USE CODES

These Use Codes are applicable to the Shoreline (Bayhill Estate) POD to the extent relevant, and are varied as follows:

| Code | Outcome/Solution | Variation/Addition |
|--|------------------|---|
| Aged Persons and Special Needs Housing | P1. (1) | The use is located in the: (a) Shoreline (Bayhill Estate) Town Centre Frame Precinct; or (b) Shoreline (Bayhill Estate) Residential Precinct. |
| | P2. (1) (a) | The use has a minimum lot size of 800m ² and frontage width of 20m. |
| | P2. (1) (b) | The use density accords with the precinct and Shoreline (Bayhill Estate) Precinct Plan. |
| | P3. (1) (a) | The use: (a) building height is as specified in the relevant Precinct code of the Shoreline (Bayhill Estate) POD; |

| Code | Outcome/Solution | Variation/Addition |
|--------------------------|--|---|
| | P3. (1) (h) and P6. (1) (g) | (b) site coverage is as specified in the relevant Precinct code of the Shoreline (Bayhill Estate) POD. Relevant requirements of the Building Design Code to Reduce Incidence of Biting Insects are adopted. |
| Agriculture | - | No variation. |
| Animal Keeping | - | No variation. |
| Apartment Building | P1. (1) | The use is located (a) Shoreline Town Centre Frame Precinct; or (b) within 100 metres of a public transport stop. |
| | P2. (1) (a) | The use has a minimum lot size of 800m ² and frontage width of 20m. |
| | P2. (1) (b) | The use density accords with the precinct and Shoreline (Bayhill Estate) Precinct Plan. |
| | P3. (1) (a) | The use: (c) building height is as specified in the relevant Precinct code of the Shoreline (Bayhill Estate) POD; (d) Table 2 Maximum height to the top of the floor level of highest habitable room, is deleted. (e) site coverage is as specified in the relevant Precinct code of the Shoreline (Bayhill Estate) POD. |
| Bed and Breakfast | A1. (2) | Not applicable. [lot size approved at subdivision stage – no need to be min 800sqm] |
| Caretakers Dwelling | - | No variation. |
| Child Care Centre | P2. (4) added and P3. (1) (c) added | Relevant requirements of the Building Design Code to Reduce Incidence of Biting Insects are implemented. |
| Display Dwelling | A1. (1) (c) P1. (2) (a) | Is used as a dwelling unit within 5 years of being constructed. |
| Drive Through Restaurant | | No variation. |
| Dual Occupancy | P1. (1) | The use is located in the: (a) Shoreline (Bayhill Estate) Town Centre Frame Sub-precinct; or (b) Shoreline (Bayhill Estate) Residential Precinct. |

| Code | Outcome/Solution | Variation/Addition |
|-----------------------|--------------------|--|
| | P2. (1) (b) | The use density accords with the precinct and Shoreline (Bayhill Estate) Precinct Plan. |
| | P3. (1) (a) | The use: (a) building height is as specified in the relevant Precinct code of the Shoreline (Bayhill Estate) POD; (b) site coverage is as specified in the relevant Precinct code of the Shoreline (Bayhill Estate) POD; |
| Dwelling House | Section 6.11.5 A1 | (4) Building height in the Residential Precinct is 9.5 metres or less above ground level. (5) Building Act 1975 Alternative Provision to QDC MP1.1, MP1.2, A4 |
| | Section 6.11.6 | P1(3) Building height in the Residential Precinct is 9.5 metres or less above ground level. Building Act 1975 Alternative Provision to QDC MP1.1, MP1.2, A4 |
| | A1. (2) P1. (2) | Maximum site coverage is 60%. [replaces 50% applying to Medium Density Residential Zone and Urban Residential Zone] |
| Estate Sales Office | 6.12.14 A1. (1) | The use operates for a maximum of 5 years. |
| | P1. (1) (a) | The use operates for a maximum of 5 years. |
| Extractive Industry | - | No variation. |
| Forestry | - | No variation. |
| Home Business | - | No variation. |
| Intensive Agriculture | - | No variation. |
| Mobile Home Park | - | No variation. |
| Multiple Dwelling | P1. (1) | The use is located in the: (a) Shoreline (Bayhill Estate) Town Centre Frame Precinct or where within 100 metres of a public transport stop; |
| | P2. (1) (a) | The use has a minimum lot size of 800m ² and frontage width of 20m (this has been reflected in Part 9 – Schedule 5 Lot Sizes). |
| | P2. (1) (b) | The use density accords with the Precinct code of the Shoreline (Bayhill Estate) POD; |

| Code | Outcome/Solution | Variation/Addition |
|-----------------------------|------------------|--|
| | P3. (1) (a) | (a) building height is as specified in the relevant Precinct code of the Shoreline (Bayhill Estate) POD; (b) The Requirement in Table 1 for Table 2 Maximum height to the top of the floor level of highest habitable room to be a standard is deleted. (c) site coverage is as specified in the relevant Precinct code of the Shoreline (Bayhill Estate) POD; |
| | P7. (1) (b) | The trigger for communal open space is increased from 10 dwelling units to 20 dwelling units. |
| Outdoor Dining | - | Not used as no longer identified as a land use in the RPS V7.1. |
| Park | A1. (1) | Delete. The use is on land: (a) within a precinct where such a use is envisaged in the Table of Assessment; or (b) on land intended for that purpose in the Shoreline (Bayhill Estate) Precinct Plan; or otherwise (c) as for A1. (1) of the Park Code*. |
| Roadside Stall | - | No variation. |
| Rural Enterprise | - | No variation. |
| Service Station | | No variation. |
| Telecommunications Facility | - | No variation. |
| Temporary Use | - | Varied so as not to apply in the Shoreline (Bayhill Estate) POD area. |
| Tourist Accommodation | S1.1 (1) | The location of the use for urban based tourist accommodation is: (a) within a precinct where such a use is envisaged in the Table of Assessment; or (b) on land intended for that purpose in the Shoreline (Bayhill Estate) Precinct Plan; or otherwise (c) as for S1.1 (1) (a) (i) of the Tourist Accommodation Code *. |
| Tourist Park | - | No variation. |

7. OTHER DEVELOPMENT CODES

7.1 INTRODUCTION

The Other Development Codes of the RPS V7.1 are:

- Communication Structures
- Domestic Driveway Crossover
- Domestic Outbuilding
- Excavation and Fill
- On-site Raising or Relocation
- Private Tennis Court
- Private Waterfront Structures
- Reconfiguration

7.2 VARIATION TO OTHER DEVELOPMENT CODES

Variation is proposed to the Reconfiguration Code. The variation is to Table 1 of the Code, wherein the Minimum Lot Area Range and Minimum Lot Frontage / Width for the Medium Density Residential Zone, standard and corner lots is 800 m² and 20 metres respectively.

8. GENERAL CODES

8.1 INTRODUCTION

The General Codes of the RPS V7.1 are:

- Access and Parking
- Centre Activity
- Centre Design
- Commercial Industry Activity
- Development Near Underground Infrastructure
- Erosion Prevention and Sediment Control
- Infrastructure Works
- Landscape
- Stormwater Management

8.2 VARIATION TO GENERAL CODES

The General Codes are applicable to the Shoreline (Bayhill Estate) POD to the extent relevant, and are varied as follows:

| Code | Outcome/Solution | Variation/Addition |
|---|---------------------------------|--|
| Access and Parking | - | No variation. |
| Centre Activity | A1. (1) | The centre activity is located in the Shoreline (Bayhill Estate) Town Centre Frame Precinct. |
| Centre Design | Table 1 Maximum Building Height | Delete maximum height to the top floor level of highest habitable room/commercial storey column in Table 1. |
| Commercial Industry Activity | - | No variation. |
| Development Near Underground Infrastructure | - | No variation. |
| Erosion Prevention and Sediment Control | - | No variation. |
| Infrastructure Works | - | No variation. |
| Landscape | - | No variation. |
| Stormwater Management | Complete Code | <p>New Overall Outcome added –</p> <p>(v) stormwater management facilities are designed and located to provide a regional stormwater solution and where possible minimises whole of life costs.</p> <p>S1(1)(a) varied to read:</p> <p>(1)(a) protects and preserves land below the 1% AEP flood level.</p> <p>P1(1) varied to read:</p> |

| Code | Outcome/Solution | Variation/Addition |
|------|------------------|---|
| | | <p>(1) Stormwater drainage design:</p> <p>(b) maintains land below the 1% AEP in an undeveloped state</p> <p>(c) complies with the WSUD objectives</p> <p>(d) identifies and determines the 1 % AEP of natural overland drainage lines where the lot or premises:</p> <p>a. has an upstream catchment area greater than 5 hectares; or</p> <p>b. is 2,500 m2 or greater in area.</p> <p>(e) Maximizes the retention and use of natural overland drainage lines through their identification and minimizes earthworks in these areas.</p> <p>P2(1) varied to read:</p> <p>(1) Stormwater drainage design:</p> <p>(a) Meets the stormwater flow capacity requirements of the relevant design storm event:</p> <p>a. where for the minor system – as detailed in Table 1 – Minor System Design Storm Event by Road Frontage Classification and Precinct;</p> <p>b. where for the major system – 1% AEP.</p> <p>(b) Ensures the major system caters for 50% blockage in the minor system without causing inundation of building floor levels.</p> <p>P3(1) varied to read:</p> <p>(1) Stormwater management design:</p> <p>(a) for reconfiguration that will result in roofwater through adjoining properties:</p> <p>a. For residential configuration, a maximum of two lots are served by a pipe system that discharges roof water run off to the nearest downhill road reserve or lawful point of discharge; or;</p> |

| Code | Outcome/Solution | Variation/Addition |
|------|------------------|--|
| | | <ul style="list-style-type: none"> b. For other reconfiguration, an inter lot drainage system discharges roof and surface runoff to the nearest available downhill road reserve or awful point of discharge; c. Avoids the risk of flooding by ensuring that uses and other development are undertaken on land above the 1% AEP flood and storm tide level (2.4 meters AHD). |

An additional code has been added:

8.3 BUILDING DESIGN CODE TO REDUCE THE INCIDENCE OF BITING INSECTS

8.3.1 Application

This code applies to accepted and assessable development identified as required by the tables of assessment in **Part 3 (Tables of assessment)**.

8.3.2 Purpose and overall outcomes

- (1) The purpose of this code is to ensure development minimises:-
- (a) the exposure of people to health risks associated with arboviruses;
 - (b) the adverse impacts on an amenable lifestyle and the public's wellbeing from exposure to biting midges and mosquitoes; and
 - (c) the adverse impacts of biting midges and mosquitoes on human health, and long-term management costs to Council.
- (2) The purpose of the code will be achieved through the following overall outcomes:-
- (i) Within the Open Space Precinct
 - a) Development and other uses must ensure all external windows and doors are equipped with insect screens with a mesh aperture of not more than 1mm; and
 - b) Where a Child Care Centre must ensure outdoor play / entertainment areas are equipped with insect screens with a mesh aperture of not more than 1mm.
 - (ii) Where an Aged Person and Special Needs Housing or Child Care Centre use in any location, development ensures all external windows and doors are equipped with insect screens with a mesh aperture of not more than 1mm.

Editor's Note - Building Design Advice

Careful attention to elements of both conceptual and detailed design can significantly lessen the potential for mosquitoes (and biting midges) to enter buildings.

- Outdoor entertaining areas are encouraged to be equipped with insect screens with a mesh aperture of not more than 1mm to minimise mosquito entry to the area.

- Insect screens specifically designed to prevent the entry of smaller insects such as biting midge are recommended to be incorporated to minimise biting midge entry to the building.
- Locate the majority of windows on the windward side of the building to pressurise the building and reduce opportunities for biting insects to enter the preferred leeward side of the building.
- Ceiling fans and other air circulation devices are encouraged to increase airflow indoors and outdoors to minimise the ability for mosquitoes to travel inside the building.
- Outdoor lighting is encouraged to be directed towards the ground to minimise the attraction of biting insects. Mosquitoes will travel significant distance towards lit up areas.

8.3.3 Specific Outcome and Probable Solutions applicable to Assessable Development

| Specific Outcomes | | Probable Solutions | |
|-------------------|--|--------------------|---|
| S1.1 | <p>(1) In the Open Space Precinct -</p> <p>a) Development and other uses must ensure all external windows and doors are equipped with insect screens with a mesh aperture of not more than 1mm; and</p> <p>b) Where a Child Care Centre, must ensure outdoor play/entertainment areas are equipped with insect screens with a mesh aperture of not more than 1mm.</p> <p>(2) Where an Aged Person and Special Needs Housing or Child Care Centre use in any location, development ensures all external windows and doors are equipped with insect screens with a mesh aperture of not more than 1mm.</p> | P1.1 | <p>(1) No probable solution identified.</p> <p>(2) No probable solution identified.</p> |

9. SCHEDULES

9.1 INTRODUCTION

The Schedules to the RPS V7.1 are:

- Access and Parking
- Land Designated for Community Infrastructure
- Dictionary
- Heritage Places Register
- Lot Sizes
- Movement Network and Road Design
- Roof Colour Chart
- Street Trees
- Water Quality Objectives

9.2 VARIATION TO SCHEDULES

The Schedules are applicable to the Shoreline (Bayhill Estate) POD to the extent relevant, and are varied as follows:

| Schedule | Outcome/Solution | Variation/Addition |
|--|-------------------------|--|
| Access and Parking | - | No variation. |
| Land Designated for Community Infrastructure | - | No variation. |
| Dictionary | Definition of Shop | Varied so as to exclude Discount Department Store, which for the purpose of the Shoreline (Bayhill Estate) POD is an undefined use. |
| | Definition of Mixed Use | Varied so as to remove mandatory requirement for mixed use development to include tourist accommodation. |
| Heritage Places Register | - | No variation. |
| Lot Sizes | Table 1 Use Lot Sizes | Table 1 is amended so that the minimum lot size for Dual Occupancy use in the Urban Residential and Medium Residential Zones is 700 m ² . For Multiple Dwellings, Apartment Buildings and Aged Persons and Special Need Housing uses in the Urban Residential and Medium Density Residential Zones, the minimum lot size is 800m ² . |
| Roof Colour Chart | - | No variation. |
| Street Trees | - | No variation. |
| Water Quality Objectives | - | No variation. |



Bayhill Estate

Biting Insect Management Plan

Prepared for:

Centhead Pty Ltd

frc **environmental**

PO Box 2363, Wellington Point QLD 4160

Telephone: + 61 3286 3850

Facsimile: + 61 3821 7936

frc reference: 170506

☐ freshwater

☐ estuarine

☐ marine

frc [environmental](#)

Document Control Summary

Project No.: 170506
Status: Final
Project Director: John Thorogood
Project Manager: Madicyn McMahon
Title: Bayhill Estate – Biting Insect Management Plan
Project Team: Christoph Braun, Madicyn McMahon, Lauren Pratt, John Thorogood
Client: Centhead Pty Ltd
Client Contact: Philip Mann
Date: September 2019
Edition: 170506Riii
Checked by: Carol Conacher
Issued by: John Thorogood

Distribution Record

Centhead Pty Ltd: electronically as Word and PDF

This work is copyright.

A person using [frc environmental](#) documents or data accepts the risk of:

- 1 Using the documents or data in electronic form without requesting and checking them for accuracy against the original signed hard copy version; and
- 2 Using the documents or data for any purpose not agreed to in writing by [frc environmental](#).

Bayhill Estate – Biting Insect Management Plan

Contents

| | | |
|----------|--|-----------|
| 1 | Introduction | 2 |
| 1.1 | Purpose of this Management Plan | 2 |
| 1.2 | Structure of this Management Plan | 2 |
| 1.3 | Bayhill Estate, its Location and Context | 2 |
| 1.4 | Legislative and Regulatory Framework | 8 |
| 2 | Incidence of Mosquitoes and Biting Midge | 9 |
| 2.1 | Approach | 9 |
| 2.2 | Breeding and Roosting Habitat, Dominant Species and Pest Range | 9 |
| 3 | Incidence of Arboviruses | 14 |
| 4 | The Impact of Development | 15 |
| 4.1 | On Breeding Habitat | 15 |
| 4.2 | On Roosting Habitat | 16 |
| 5 | The Impact of Mosquitoes and Biting Midge on Residents and Visitors | 17 |
| 5.1 | Mosquitoes | 17 |
| 5.2 | Biting Midge | 18 |
| 6 | Management of Mosquitoes and Biting Midge | 19 |
| 6.1 | Current Monitoring of Mosquitoes and Biting Midge | 19 |
| 6.2 | Current Control Measures within the Redlands | 19 |
| 6.3 | A Framework for Management | 20 |
| 7 | Biting Insect Management Plan | 30 |
| 7.1 | Objective | 30 |
| 7.2 | Goals | 30 |
| 7.3 | Performance Indicators | 31 |

frc environmental

| | | |
|------------|--|-----------|
| 7.4 | Responsibilities | 31 |
| 7.5 | Design Refinement | 31 |
| 7.6 | During Development of the Site | 32 |
| 7.7 | Of the Developed Site | 35 |
| 7.8 | Training and Awareness | 35 |
| 7.9 | Record Keeping and Continual Improvement | 35 |
| 8 | References | 36 |
| | | |
| Appendix A | Guidelines to minimise mosquito and biting midge problems in new development areas | |

Tables

| | | |
|-----------|--|----|
| Table 2.1 | Relative adult abundance (%) data from Redland City Council (light trap) monitoring of salt water breeding mosquitoes. | 10 |
| Table 2.2 | Characteristics of biting midge recorded in south-east Queensland. | 12 |
| Table 6.1 | Native freshwater fish species recommended by QDAF for stocking to assist with mosquito control. | 28 |
| Table 7.1 | Purpose of this plan, for each stage of development. | 30 |
| Table 7.2 | Summary of factors influencing design refinement. | 32 |
| Table 7.3 | Summary of On-site Mosquito Management during Development. | 34 |

Figures

| | | |
|------------|--|----|
| Figure 1.1 | Bayhill Estate, located to the south of Redland Bay. | 3 |
| Figure 1.2 | Biting insect habitat associated with mangrove and saltmarsh / claypan. | 5 |
| Figure 1.3 | Biting insect habitat associated with mangrove and saltmarsh / claypan. | 5 |
| Figure 1.4 | Biting insect habitat at a dam on site. | 6 |
| Figure 1.5 | Biting insect habitat at a dam on site. | 6 |
| Figure 1.6 | Biting insect habitat at a drain on site. | 7 |
| Figure 1.7 | Biting insect habitat at a drain on site. | 7 |
| Figure 2.1 | Marine and brackish water breeding sites (yellow) adjacent to the Bayhill Estate site, based on (McGinn 2014). | 11 |
| Figure 4.1 | Bayhill Estate Precinct Plan. | 15 |
| Figure 6.1 | Bayhill Estate Precinct Plan showing a minimum 100m foreshore set-back. | 24 |

1 Introduction

1.1 Purpose of this Management Plan

This Biting Insect Management Plan has been developed to support the development of the Bayhill Estate at Redland Bay. The Plan informs the planning, design, construction and operational phases of the development, guiding the management of mosquito and biting midge breeding and roosting.

The Plan has been informed by the results of monitoring of mosquito and biting midge within the vicinity of the development site and more broadly within the Redland City local government area.

1.2 Structure of this Management Plan

The Biting Insect Management Plan *per se* is presented in Section 7.

Sections 1 – 5 provide context to the Plan in respect of:

- the location of the site and regulatory framework (Section 1);
- the incidence of mosquitoes and biting midge (Section 2);
- the incidence of arboviruses (Section 3);
- the likely impact of development (Section 4) and the likely impact of mosquitoes and biting midge on residents and visitors (Section 5).

Section 6 provides a framework for management.

1.3 Bayhill Estate, its Location and Context

Bayhill Estate is a 17 ha development site located to the south of Redland Bay and with a frontage to Moreton Bay (Figure 1.1). The line of Highest Astronomical Tide (HAT) separates the site from the Moreton Bay Marine Park.

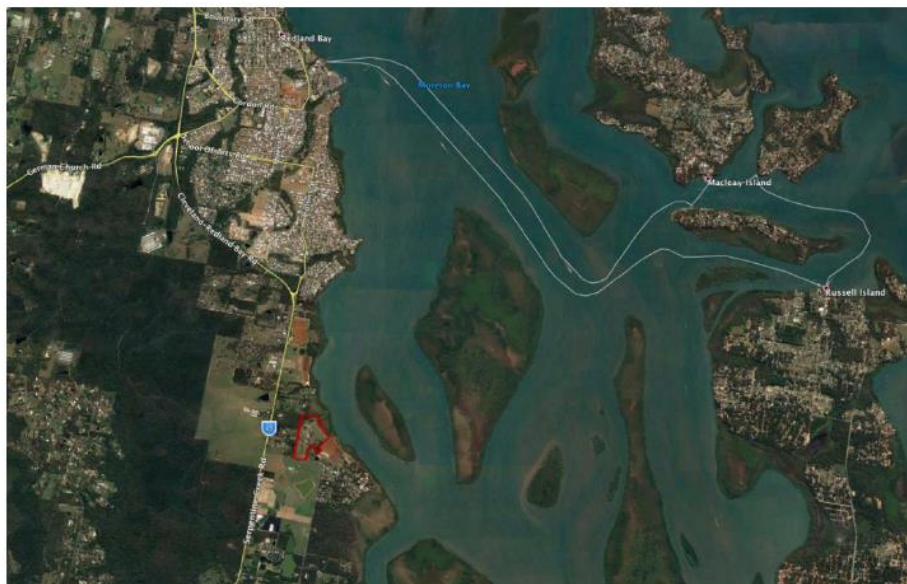


Figure 1.1 Bayhill Estate, located to the south of Redland Bay.

The site is surrounded by a mosaic of native bushland to the east, mangrove and saltmarsh to the north and east, and cleared grazing and agricultural land to the south and east. A number of farm dams are in close proximity of the site. Two 'unmapped' waterways dissect the site running from west to east. The southern watercourse drains to a dam located to the south-east of the site¹, while the northern watercourse drains to a small dam in the north – west corner of the site.

Biting insect breeding and / or roosting habitat on site is currently present in the form of:

- an area of mangrove and saltmarsh towards the northern end of the site (Figures 1.2 and 1.3). Tidal inundation and shallow pools with standing water and macrophytes such as beaded samphire (*Sacrocornia* sp.) provide breeding habitat for salt-marsh mosquitoes (*Aedes vigilax* and *Culex sitiens*) as well as a number of species of biting midge (*Cuilcoides* sp.). This habitat extends beyond the site and is the principal mosquito breeding and roosting habitat within the region.
- a dam supporting abundant native and exotic aquatic macrophytes (Figures 1.4 and 1.5). The dam walls slope at a low angle, affording a large extent of shallow water

¹ It is proposed to fill (remove) the southern watercourse and dam (Philip Mann, pers. comm.) – consequently, the southern watercourse will not be further referred to in this plan.

around the edge of the dam and proving breeding habitat for freshwater-breeding mosquitoes (*Aedes* sp., *Coquilletidia* sp., *Culex annulirostris*). Aquatic macrophytes such as flat-sedge (*Cyperus* sp.), knotweed (*Persicaria* sp.) and the exotic weed salvinia (*Salvinia molesta*) cover most of the water surface, further enhancing the breeding habitat. Roosting habitat is present in the form of a thick understorey of pastoral grasses and weeds (*Lantana* sp.).

- a shallow drainage channel near Scenic Road with a concrete pipe culvert running under an internal access track, overgrown with pastoral grasses and aquatic macrophytes creates shallow, slow moving and sheltered breeding habitat for freshwater mosquitoes (Figures 1.6 and 1.7). The exotic pest fish eastern gambusia (*Gambusia holbrooki*) was observed in the drain on the eastern side of the track.

Figure 1.2

Biting insect habitat
associated with
mangrove and
saltmarsh / claypan.



Facing northeast on an access track at the northern end of the site. Standing water in pools below the HAT line and macrophytes are breeding habitat for mosquitoes and biting midge.

Figure 1.3

Biting insect habitat
associated with
mangrove and
saltmarsh / claypan.



Saltmarsh / claypan with small ephemeral pools, facing southeast towards the site. The area is below the HAT line.

Figure 1.4

Biting insect habitat
at a dam on site.



Facing northeast on an access track at the northern end of the site. Standing water in pools below the HAT line and macrophytes are breeding habitat for mosquitoes and biting midge.

Figure 1.5

Biting insect habitat
at a dam on site.



Salvinia and knotweed (*Persicaria* sp.) at the edge of the dam in shallow water, enhancing breeding habitat for mosquitoes.

Figure 1.6

Biting insect habitat
at a drain on site.



The drain at the southern end of the property near Scenic Road, facing east. This drainage line flows into a dam located off site. The shallow water, gradual sloping bank and dense vegetation create favourable breeding habitat for mosquitoes.

Figure 1.7

Biting insect habitat
at a drain on site.



The drainage line on the western side of the access track. A small area of the paddock was covered with water at the time of the survey, but this site has the potential to hold water for a longer period of time after significant rainfall events.

Areas of mangrove, saltmarsh / claypan and unvegetated sediment characterise the intertidal flats adjoining the site. Bayhill Estate recognises the conservation significance of these marine plant communities, providing a buffer of approximately 100 m width between proposed development and HAT.

1.4 Legislative and Regulatory Framework

This Biting Insect Management Plan responds to the relevant requirements of the:

- Public Health Act 2005 and Public Health Regulation 2005
- Planning Act 2016
- Environmental Protection Act 1994
- Nature Conservation Act 1992 and Nature Conservation (Wildlife Management) Regulation 2006
- Marine Parks Act 2004
- Fisheries Act 1994 and Regulation 2008
- Agricultural Chemicals Distribution Control Act 1966; and
- Chemical Usage (Agricultural and Veterinary) Control Act 1998.

This Plan is also consistent with, and has been informed by, the :

- Mosquito Management Code of Practice, 2014
- Guidelines to Minimise Mosquito and Biting Midge Problems in New Developments, 2002
- Australian Mosquito Control Manual, 1998 (revised 2009); and
- Redland City Council's
 - Mosquito Management Policy;
 - Mosquito Management Plan 201 – 2022; and
 - Corporate Plan.

2 Incidence of Mosquitoes and Biting Midge

2.1 Approach

Integrated Mosquito Management relies on an understanding of the distribution and abundance of mosquitoes to support the development of a suite of appropriate management responses. A site-based survey of adult and larval occurrence may be required to achieve this. However, the location and characteristics of the Bayhill Estate site are such that both the distribution and abundance of key pest species (mosquito and biting midge) may be reliably inferred from existing data.

Council's monitoring of adult mosquito distribution and abundance, and of larval abundance across key breeding sites, augmented by the recent, more spatially intense monitoring of adult abundances on adjoining and adjacent land by frc environmental, serves to provide a robust basis for the development of a biting insect management plan. Queensland Health's monitoring of arbovirus incidence across the Redlands serves to underpin the need for effective mosquito management.

This approach also recognises that the development of the site will significantly alter its characteristics, including the distribution of existing on-site breeding and roosting habitat.

2.2 Breeding and Roosting Habitat, Dominant Species and Pest Range

Within the Redlands, a variety of species of mosquito and biting midge occur in association with marine, brackish and fresh waters. Marine and brackish water species are commonly associated with both a higher incidence of 'nuisance' complaints, and arbovirus infection, and consequently have been the primary focus for both research and control efforts throughout south-east Queensland.

Each of the individual species of mosquito and biting midge occurring within the region have specific breeding habitat requirements, dispersal capabilities, patterns of activity, and ability to act as vectors for diseases affecting humans and domestic animals.

Mosquitoes

Within the Redlands, mosquito management has historically focused primarily on 'saltmarsh' mosquitoes (FRC Coastal Resource & Environmental 1997; frc environmental 2016). Analysis of adult mosquito distribution in the Redlands (based on the identification of over 500,000 mosquitoes collected over 1194 trap nights) shows that adult mosquito

frc environmental

abundance varies significantly between years (for example mosquitoes were almost 7 times as abundant in 2001 than in 2000 (Ryan et al. 2004). *Aedes vigilax* is the dominant species, commonly representing over 40% of individuals collected in light traps, whilst *Culex annulirostris*, *Coquillettidia linealis*, *Coquillettidia xanthogaster*, *Culex sitiens*, *Aedes notoscriptus*, *Aedes procax*, *Aedes vittiger* and *Verrallina funerea* are also common (Dobson 2014; Ryan et al. 2004) (Table 2.1).

Table 2.1 Relative adult abundance (%) data from Redland City Council (light trap) monitoring of salt water breeding mosquitoes.

| Species | 2012 | 2013 | 2014 |
|------------------------------------|------|------|------|
| <i>Aedes alternans</i> | – | 0.1 | 2.0 |
| <i>Aedes vigilax</i> | 10.0 | 39.6 | 41.1 |
| <i>Aedes vittiger</i> | 5.9 | – | – |
| <i>Aedes kochi</i> | – | – | 0.4 |
| <i>Aedes multiplex</i> | – | 0.2 | – |
| <i>Aedes notoscriptus</i> | 29.4 | 2.5 | 5.6 |
| <i>Aedes procax</i> | 3.9 | – | – |
| <i>Anopheles annulipes</i> | 3.9 | 0.5 | – |
| <i>Culex sitiens</i> | 10.0 | 56.0 | 46.6 |
| <i>Culex orbostiensis</i> | – | – | 3.4 |
| <i>Coquillettidia xanthogaster</i> | 17.6 | 0.8 | – |

(Dobson 2014)

Monitoring of mosquito abundance over 2016 / 2017 on lands adjoining and adjacent to the Bayhill Estate by frc environmental (unpublished data) has confirmed both the dominance of *A. vigilax* and *C. sitiens*, and the high variability of abundances over a spatial scale of hundreds of meters and temporal scale of weeks.

The Redlands provides over 800 ha of salt marsh mosquito breeding habitat (Redland City Council 2014b), with brackish water breeding sites existing to the north, east and south of the Bayhill Estate site. The watercourses running through the site are characterised by small residual pools. A number of freshwater dams have been constructed to support agriculture on adjoin and adjacent properties.

Aedes vigilax is the most common and wide-spread (Ryan et al. 2004) mosquito encountered within the coastal region, breeding prolifically within pooled water of intertidal lands: *Aedes vigilax* is also the predominant larvae recorded by Council from salt marsh

breeding habitat within 5 km of Bayhill Estate, from its long-term larval monitoring program (Dobson 2014). *Culex sitiens* and *Aedes alternans* also breed in temporary brackish pools and salt marshes filled by spring tides, and have been recorded from saltmarsh breeding habitat within a 5 km radius of Bayhill Estate (Dobson 2014). The small pockets of brackish water breeding habitat adjoining and within the site are also likely to be used by these species. *Verrallina funerea*, which breeds in ponded areas under the cover of mangroves, melaleuca and emergent vegetation, is also likely to breed adjoining the site and on adjacent islands.

Council's long-term larval monitoring program shows significant inter-annual variation in average larval density: between 2001 and 2013, average *Aedes vigilax* larval density per standard dip ranged between approximately 12 and 20 (Dobson 2014).

These mosquito species have been widely implicated in the transmission of the debilitating disease Ross River virus (epidemic polyarthritis). *Aedes vigilax* is the most important vector of arboviruses in south east Queensland (Webb 2004), also being a suspected carrier of Barmah Forest virus and dog heart-worm. Laboratory trials indicate it may also be a carrier of Murray Valley encephalitis.

The adults of *Aedes vigilax* and *Culex sitiens* are capable of travelling over 30 km from breeding sites, often assisted by prevailing winds. Consequently, the entire Bayhill Estate site is likely to be subject to these species from time to time.

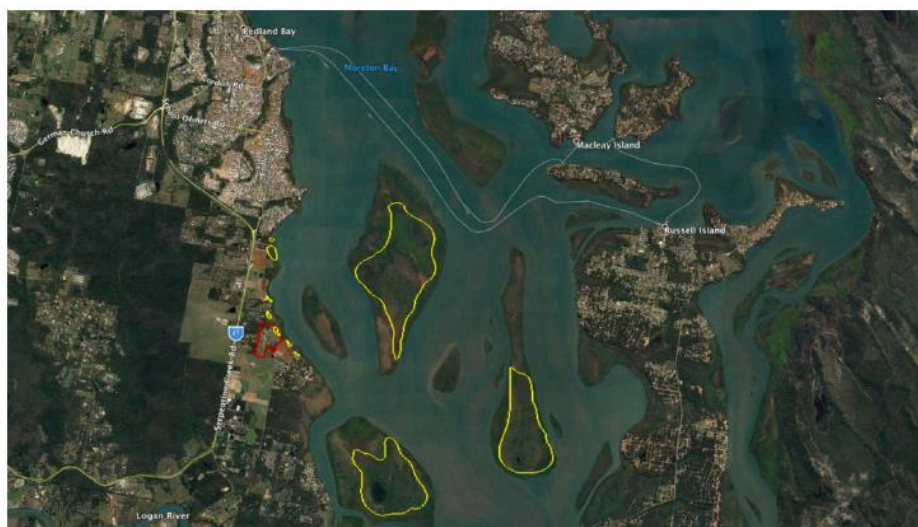


Figure 2.1 Marine and brackish water breeding sites (yellow) adjacent to the Bayhill Estate site, based on (McGinn 2014).

Other common marine and brackish water breeders include: *Aedes alternans* (the Scotch grey), which breeds in both tidal pools and rain-filled depressions; and *Anopheles annulipes*, which breeds in fresh or slightly brackish pools. Each of these species are also capable of travelling several kilometres from their breeding sites, and are potential vectors of Ross River virus.

Species that breed in freshwaters will use senescing pools and farm dams as well as rock pools, pot plant saucers, fallen palm fronds and discarded car tyres within domestic surroundings. *Aedes procax*, *Aedes notoscriptus*, *Aedes vittiger*, *Culex annulirostris*, *Coquillettidia xanthogaster* and *Coquillettidia linealis* are all commonly associated with freshwater breeding habitat in south-east Queensland. The distribution and abundance of these freshwater breeders are known to vary significantly between years (by a factor of at least 10), influenced by rainfall (Ryan et al. 2004).

During breeding, the eggs are laid by the female of each species, in mud or on vegetation associated with pooled water, and hatch when water levels rise (with the incidence of tidal inundation or heavy rainfall). The egg, larval and pupal stages together require approximately seven to ten days to hatch and develop under optimal conditions (Redland City Council 2014d). The adults of each species rest amongst dense foliage, and bite (man, mammals and birds) during both the day and night: dawn and dusk are favoured by *Aedes vigilax*, whilst *Culex sitiens* and *Culex annulirostris* bite predominantly at night.

Biting Midge

At least five species of biting midge are considered common within the region and are likely to occur in proximity to the Bayhill Estate site (Table 2.2). No species of biting midge is currently considered a vector of human disease in Australia, although some have been linked to the transmission of veterinary arboviruses such as 'bluetongue' and 'akabane'.

Table 2.2 Characteristics of biting midge recorded in south-east Queensland.

| Biting Midge Species | Breeding Habitat | Distance Travelled |
|--------------------------|--|---|
| <i>Culcoides ornatus</i> | Within a narrow band surrounding MHWS where there is no strong wave or current action. | Up to 16 km. |
| <i>C. marmoratus</i> | Algal covered mud in saltmarshes or below mangroves. Breeding area must remain moist. | Peak emergence is up to 10 days prior to spring tides and the range of this species is believed to be in excess of 15 km. |

frc environmental

| | | |
|----------------------------------|---|---|
| <i>C. molestus</i> | Prefers relatively clean sand along open beaches or inlets (light mangrove cover tolerated), will also inhabit sandy canal developments. Lives between MHWS & ML. | Adults emerge around spring tides & will travel up to 1.5 km from large breeding grounds. |
| <i>C. subimmaculatus</i> | Breeds in estuarine sand to sandy mud between the MHWS & MHWN, sheltered from wave action with sparse vegetation or open forest. | May travel up to 500 m from breeding sites. |
| <i>Lasiohelea townsvillensis</i> | Decaying vegetation & moist conditions of rainforests preferred, but will happily inhabit well watered & mulched tropical gardens. | |

MHWS Mean High Water Spring

MHWN Mean High Water Neaps

ML Mean Tide Level

(FRC Coastal Resource & Environmental 1997; Gold Coast City Council n.d.; Queensland Health 2002b; Watson & Watson 1982)

Culicoides lay their eggs within well-aerated wet areas commonly associated with the upper-half of the intertidal zone in either fresh or saline conditions, depending on the species. As breeding is commonly dependent upon monthly tidal inundation, the emergence of adults and the incidence of biting activity are commonly synchronous with phases of the moon (Rust & PPK Pty Ltd 1995). Apart from around the breeding site itself, *Culicoides* attack vertebrates (including man) primarily around sunset and sunrise, and infestations are usually the result of a number of species rather than an individual species (Marks & Reye 1982). *Culicoides ornatus* is a widespread species, commonly associated with significant pest problems along Queensland's east coast (Shivas & Whelan 2001, cited in Warchot 2004).

Lasiohelea townsvillensis breeds prolifically in leaf litter and well-watered urban gardens of the tropics and sub-tropics. It may be also be present (or become established post-development) at the Bayhill Estate site following prolonged rain or excessive watering. This species is known to bite all day.

3 Incidence of Arboviruses

Two arboviral infections are commonly contracted within the Redlands: Barmah Forest virus and Ross River virus. *Aedes vigilax* and *Culex annulirostris* are considered to be the most significant vectors of these diseases in the Redlands, although *Coquillettidia linealis* may also be a significant vector associated with the bay islands (Ryan et al. 2004).

Ross River virus (epidemic polyarthritis) is the most common human disease transmitted by mosquitoes in Queensland (Rust & PPK Pty Ltd 1995). Symptoms of the disease include polyarthritis, muscle tenderness, lethargy and fatigue. The disease is not fatal, but has no cure. The length of incapacity varies from 1 to 24 weeks, and symptoms may persist for up to 40 weeks (Rust & PPK Pty Ltd 1995). The disease usually occurs in seasonal outbreaks, due to increased mosquito breeding during periods of high rainfall or high tides (Queensland Health 2001). Therefore, the number of reported cases of Ross River virus varies widely from year to year, and probably from area to.

Barmah Forest virus may have similar symptoms to Ross River virus, although they are believed to be of a shorter duration (Queensland Health 2002b). The incidence of this disease appears to have increased across the state since the 1990's. Whilst 2013 saw a spike in reported infections from the Redlands (positively correlated with above average rainfall), this increase was not considered significant. There is also a lack of evidence to correlate reported incidence of disease with the location at which the disease was contracted (Kerr 2014).

Whilst both diseases are transmitted throughout the year, infection rates are highest between January and June, with a peak in March – April. Whilst reported cases of both Ross River Fever virus and Barmah Forest virus are likely to significantly under-estimate actual infection rates, as not all people that are infected show symptoms (Queensland Health 2001, 2002a), the incidence of Ross River virus and Barmah Forest virus in the Metro South region (that region of Queensland Health's arbovirus monitoring program encompassing the Redlands) is amongst the lowest in the state (Kerr 2014).

Lower rates of Ross River virus are consistently lower in local government areas that implement mosquito control programs that pre-empt mosquito outbreaks using routine surveillance and then reduce mosquito abundance using mosquito control (Tomerini 2007).

4.1 On Breeding Habitat

[illegible]

Figure 4.1 Bayhill Estate Precinct Plan.

Engineering works required to profile and shape the site in preparation for residential subdivision, roadways, storm water works and open spaces will permanently reduce the current opportunities for mosquito breeding. The positioning of internal roads contributes to the set back of dwellings from mosquito breeding habitat. Breeding habitat in the form of residual pools (vehicle ruts, etc.) will be reduced in extent, whilst care will need to be taken to ensure that stormwater drains and rainwater collected in man-made containers do not provide breeding sites for a number of species of mosquito, notably *Culex anulirostris*. Seepage, surface runoff, and silt inputs from stormwater have the potential to enhance or create breeding habitat (Rust & PPK Pty Ltd 1995).

frc environmental

The biting midge *Lasiohelea townsvillensis*, which breeds prolifically in leaf litter and well-watered urban gardens of the tropics and sub-tropics, is likely to establish populations within some gardens over summer. The use of sub-surface watering and drip lines in the gardens (as opposed to using mists and sprinklers) is likely to reduce the presence of biting midges in these areas.

4.2 On Roosting Habitat

The site currently supports dense grasses and low shrubs. Development of the site and the ongoing management of public open space will reduce roosting habitat for both mosquitoes and biting midge.

Foreshore Open Space will provide a 100 m wide, sparsely vegetated buffer between the shore and residential and community precincts.

5 The Impact of Mosquitoes and Biting Midge on Residents and Visitors

5.1 Mosquitoes

Development on the coast inevitably brings humans into contact with mosquitoes and biting midges. A variety of species of mosquito may breed in freshwater habitats of the site, and may be carried to the site by prevailing winds, having bred within nearby estuarine wetlands.

Guidelines prepared by the Queensland Department of Health (Queensland Health 2002a) provide a quantitative (though imprecise) assessment of the likely impacts due to mosquitoes:

- 15 – 20 km from breeding sites. This distance is greater than the flight range of most species of mosquito, *Aedes vigilax* being a notable exception. Pest problems will be sporadic and not severe.
- 10 – 15 km from breeding sites. *Aedes vigilax* is likely to be the only species encountered in moderate number, causing some discomfort. Monitoring should be undertaken, and control measures may be required.
- 2 – 10 km from breeding sites. Pest impact from mosquitoes, particularly *Aedes vigilax*, *Verrallina funereus* and *Culex sitiens* will be noticeable, with the intensity and frequency of attacks increasing as distance from the breeding site decreases. Regular monitoring and control measures will be required.

Within the Redlands, the majority of mosquito-associated problems are related to 'saltmarsh' mosquitoes, that breed within the estuarine wetlands of Moreton. Bayhill Estate's proximity to known breeding habitat infers that the entire site is likely to be subject to a noticeable presence of mosquitoes over the warmer months of the year. Regular monitoring and active management of particularly mosquito breeding on adjacent islands will be the cornerstone of any mosquito management program. Regular monitoring and active control of mosquito breeding on adjacent islands is currently undertaken by Council.

The limited extent of suitable on-site breeding habitat, makes it unlikely that extensive on-site mosquito control will be required for the developed site.

5.2 Biting Midge

The coastal nature of the Bayhill Estate site is likely to result in the presence of a number of species of biting midge from time to time. *Culcoides* spp. may travel to the site from estuarine breeding areas under the right conditions (Queensland Health 2002b). The biting midge *Lasiohelea townsvillensis* breeds may also breed in well-watered landscaped areas on site.

Whilst midges in Australia are not vectors of human disease, their bites can irritate the skin. In abundance, midges can significantly reduce the amenity of outdoor areas.

6 Management of Mosquitoes and Biting Midge

Opportunities exist to minimise both the breeding of mosquitoes and biting midge on site, and the impact of mosquitoes and biting midges breeding on adjacent lands, through appropriate site planning, engineering design, building design and on-going site management.

Optimal management of biting insects at Bayhill Estate will be achieved where proponent-initiated measures for on-site management support Council's off-site (local government area-wide) management of mosquitoes.

6.1 Current Monitoring of Mosquitoes and Biting Midge

Mosquitoes

Redland City Council's Pest Management Unit monitors the abundance of both larvae and adult mosquitoes throughout the city. This has provided a substantive understanding of the patterns of both larval and adult distribution and abundance (Ryan et al. 2004). Larval populations are typically monitored using dip net samples, with the results of monitoring used to determine whether chemical treatment of a breeding site is necessary. Adults are monitored using CO₂-baited light traps.

Midges

Redland City Council does not monitor the distribution or abundance of biting midge.

6.2 Current Control Measures within the Redlands

Mosquitoes

Council's Corporate Plan commits to the delivery of year-round mosquito management services to support strong, healthy communities, whilst its Mosquito Management Plan 2017 – 2022 seeks to balance the cost of mosquito management against public health benefits and potential environmental harm. Council's Pest Management Unit operates as a member of a Regional Mosquito Management Group, recognising commonalities in both the distribution of pest species and required management methods.

Proximity of the Bayhill Estate site to known and extensive marine and brackish water breeding habitat (on Crown land) underlines the importance of Council's aerial and ground-based mosquito control program. Council currently treats approximately 420 ha of salt marsh breeding habitat and a significantly lesser area of fresh water breeding habitat, within a 5 km radius of Bayhill Estate. Treatment is by a combination of aerial and ground-based application.

Located to the south of the township of Redland Bay, the Bayhill Estate site likely benefits substantially from the Contiguous Local Authorities' (of which both Redland City Council and Gold Coast City Council are members) current mosquito control program.

Most (90+%) of Council's control efforts are focused on saltmarsh mosquitoes, with only minor control activities undertaken in freshwater breeding habitat.

The mosquito control program uses two larvicides; s-methoprene as a growth hormone regulator and Bti (*Bacillus thuringiensis israelensis*) as a targeted biological control. These are distributed in spray or briquette form from helicopters after king tides or heavy rainfall. Peak breeding occurs between September and March, and ground investigations of larval abundance are conducted to determine when applications will have the greatest impact on larval mosquitoes. Eggs hatch within 48 hours and larvae emerge as pupae within 4 – 5 days of this in warm climates, so monitoring and treatment must occur within 2 – 3 days of high tides or significant rainfall events (Redland City Council 2014d).

s-methoprene and Bti are also used to control freshwater mosquitoes, typically distributed by hand or by motorised backpack sprayers.

Midges

Redland City Council does not control biting midge (Redland City Council 2014c).

6.3 A Framework for Management

Whilst the Redlands Planning Scheme does not include a Biting Insect Code, a practical framework for mosquito and biting midge management at Bayhill Estate is provided by the outcomes sought by the Biting Insect Code of the superseded Caloundra City Plan.

6.3.1 Siting and Design

Desired Outcome

Development is sited and designed to minimise the risk to public health from insect-borne arboviruses and nuisance caused by biting insects.

Considerations

Careful attention to elements of both conceptual and detailed design can significantly lessen the potential for mosquitoes and biting midges to breed and roost on site. The following guidelines have been adapted from: Queensland Health, 2002a; Easton, 1993; and Wheelan 1988, cited in Rust-PPK, 1995.

Siting of Sensitive Uses

Sensitive uses such as childcare and aged care facilities should be located distant from breeding and roosting sites.

Buffers

Dense vegetation corridors between mosquito / biting midge breeding sites and residential areas provide a dispersal conduit for the insects (Queensland Health 2002b). Dense vegetation adjoining known breeding sites, residential areas and public open space can provide roosting (resting) habitat for mosquitoes and biting midge. Consequently, the incidence of mosquitoes and biting midges within residential areas can be minimised by providing sparsely vegetated buffer zones between known breeding sites and residential areas. Choosing trees and shrubs with light foliage minimises the 'conduit' effect of vegetation corridors (Queensland Health 2002b). The duration of nuisance infestations will be lessened under conditions that cause the pest population to disperse widely: breezeways across known breeding sites and around residential areas should be incorporated *where practical*.

A significant reduction in the abundance of *Aedes vigilax* (the common salt marsh mosquito) and likely other species can be achieved with buffer distances ranging from 20 – 100 m (McGinn 2014); whilst a buffer of 25 m may very significantly reduce the incidence of other common coastal species (McGinn 2006).

Well-lit, sealed areas (such as roads) can also serve as buffers, especially adjacent to biting midge breeding sites.

Engineering and Landscape Design

The extent of suitable breeding habitat can be minimised through landscaping and drainage that minimises ponding. This is particularly applicable to open grassed areas. All site drainage should be designed and installed such that sediment cannot accumulate and water cannot pond (Queensland Health 2002b). Elements of stormwater infrastructure, including sedimentation basins, bio-retention and detention basins, should be designed and managed to drain within 48 hours. Where possible, drains should discharge into a flowing waterway with healthy ecological processes that may assist to control mosquito numbers (Queensland Health 2002b).

Increase drainage and access for larvivorous fish to adjoining marine and brackish water breeding habitat may be achieved through runneling (permit required under the Fisheries Act 1994).

Re-profiling of the site should not impede the drainage of land up-slope, and vehicle access should be provided to potential breeding sites (eg. stormwater infrastructure).

Landscaping of public open space and residential gardens, that involves heavy mulching and watering, may encourage the breeding of the biting midge *Lasiohelea townsvillensis*. Heavy mulching and watering should be avoided to reduce this risk.

Breaks in vegetation corridors should be provided between breeding sites and high activity areas. Minimising vegetation density near residential and evening activity areas will also reduce roosting of mosquitoes and midges near populated areas. Avoiding the use of heavy foliage plants and those that require frequent watering will also discourage mosquito and midge roosting and midge breeding. Trees with high canopies providing for good air circulation at ground level offer an obvious benefit.

Building Design

More open window area on the windward side of buildings, rather than the leeward, can be used to passively 'pressurise' the building, and reduce opportunities for biting insects to enter from the preferred leeward side. Furthermore, buildings should be fully screened to prevent insect entry. Ceiling fans and similar circulation devices can be incorporated to increase airflow.

Outdoor areas close to breeding grounds should incorporate screening.

Outdoor lighting directed towards the ground and the minimal use of lighting on balconies and near windows will likely minimise the attraction of a range of insects.

To minimise mosquito problems associated with rainwater tanks, WHO recommends that all tanks have screens or other devices to prevent adult mosquitoes from emerging (WHO 1997). All inlets, overflows and other openings should be covered with closely fitted, removable, mosquito-proof mesh to prevent access by adult mosquitoes, and if larvae are present, to prevent the escape of adult mosquitoes (Enhealth Council 2004). Queensland Regulations (1996) specify that screens should be brass, copper, aluminium or stainless steel gauze with mesh not coarser than 1 mm. Rainwater should not be allowed to pond in containers or on surfaces below tank outlets or taps, as this can also provide a breeding site.

Bayhill Estate's Response

Sensitive Uses

The Bayhill Estate will not incorporate 'sensitive uses'.

Buffers

Integral to the design of the Bayhill Estate is the approximately 100 m wide cleared open-space foreshore buffer between the shore (HAT) and the residential precinct (Figures 1.3 and 6.1), complying with the *Guidelines to minimise mosquito and biting midge problems in new development areas* published by Queensland Health attached at Appendix A. A 20 – 100 m, open-space buffer has been reported to significantly reduce the abundance of both mosquitoes (and in particular *Aedes vigilax*) and biting midge (McGinn 2014).



Figure 6.1 Bayhill Estate Precinct Plan showing a minimum 100m foreshore set-back .

Engineering and Landscape Design

The extent of breeding habitat will be minimised through landscaping and drainage that minimises ponding and the opportunity for roosting. Re-profiling of the site will be designed and managed to not impeded drainage. Stormwater infrastructure, including sedimentation basins, bio-retention and detention basins, will be designed to be free draining in accordance with the guidelines provided by the proponent's consulting engineers.

Landscape planting will minimise the use of groundcovers, shrubs and small trees that may serve as roosting areas. Through careful selection of planting palettes, the use of organic mulch combined with the need for heavy watering will also be minimised to reduce breeding of biting midge.

Vegetation density near residential areas will be minimised to discourage roosting of mosquitoes and midges.

Vehicle access will be provided to potential breeding sites (e.g. stormwater infrastructure).

Building Design

Careful attention to elements of both conceptual and detailed design can significantly lessen the potential for mosquitoes (and biting midges) to enter buildings.

Outdoor entertaining areas are encouraged to be equipped with insect screens with a mesh aperture of not more than 1mm to minimise mosquito entry to the area.

Insect screens specifically designed to prevent the entry of smaller insects such as biting midge are recommended to be incorporated to minimise biting midge entry to the building.

Locate the majority of windows on the windward side of the building to pressurise the building and reduce opportunities for biting insects to enter the preferred leeward side of the building.

Ceiling fans and other air circulation devices are encouraged to increase airflow indoors and outdoors to minimise the ability for mosquitoes to travel inside the building.

Outdoor lighting is encouraged to be directed towards the ground to minimise the attraction of biting insects. Mosquitoes will travel significant distance towards lit up areas.

Elements of the building design have been adapted from the *Guidelines to minimise mosquito and biting midge problems in new development areas published by Queensland Health* and are presented at Appendix A.

6.3.2 On-site Works**Desired Outcome**

Development does not intensify the presence of or expand breeding sites for mosquito larvae.

Considerations

Engineering works required to affect development of the site may permanently reduce the extent of breeding and roosting habitat on site.

Access roads should be fitted with culverts to prevent pooling of water.

Excavation, vehicle ruts, and temporary sediment control basins all have the potential to support mosquito breeding. Site-monitoring and prompt corrective action (such as filling ruts and draining or treating sediment control basins) should be undertaken as required. Application of larvicides should be undertaken only by a licenced pest controller.

Bayhill Estate's Response

Engineering works required to affect development of the site will permanently reduce the extent of breeding and roosting habitat on site.

Access roads will be fitted with culverts to prevent pooling of water.

Excavation, vehicle ruts, and temporary sediment control basins will be monitored. Prompt corrective action (filling ruts and draining or treating sediment control basins, etc) will be undertaken as required. Application of larvicides will be undertaken only by a licenced pest controller.

6.3.3 Design and Use of Wetlands and Waterways

Desired Outcome

New waterbodies or stormwater treatment wetlands / detention basins are designed to minimise the potential breeding opportunities for biting insects.

Considerations

Wetland Design and Operation

Mosquito breeding within dams, retention basins and water features can be minimised by reducing the 'soft' edges around ponds, and by ensuring that the edges are steep and free of dense emergent vegetation (whether planted or invasive), which supports mosquito breeding (Queensland Health 2002b). Increased bed depth (>3 m) and 1:3 batters effectively restrict the distribution of most emergent reeds and rushes around dam margins, minimising mosquito breeding habitat. The use of concrete revetment would reduce opportunities for mosquitoes and biting midge to breed. The suitability of breeding habitat can also be reduced by preventing water from stagnating with adequate circulation and the use of fountains.

Fluctuating water levels may both directly and indirectly influence mosquito and midge breeding. Depending on timing and periodicity, fluctuating water levels may either create

or destroy favourable breeding habitat for both mosquitoes and biting midges. For example, falling water levels may expose suitable moist substrate and leave shallow pools free from predators. Rising water levels may inundate drying substrate and both trigger hatching and provide habitat suitable for larval development. Fluctuating water levels commonly encourage the expansion of fringing macrophyte beds, indirectly providing increased habitat suitable for mosquito breeding. The use of concrete and rock revetments largely mitigates the effects of fluctuating water level.

Opportunities to increase the exposure lakes and wetlands to prevailing winds should be sought, as mosquito larvae require contact with a stable surface film for respiration.

Restricting aquatic macrophytes (either floating or emergent forms) to less than 60% of shallow waters (<500 mm), and clumping of plants with open space between will allow greater wind disturbance of the water surface.

While the initial design of water bodies may adhere to these requirements, the ongoing growth of vegetation, bank slumping, physical disturbance, accumulation of rubbish and debris, sedimentation, water quality deterioration, water management problems and general climatic conditions will all influence the production of mosquitoes (Russell 2001; Webb & Russell 2011).

Stormwater treatment wetlands by design will be shallow and densely planted. For these purpose-specific water bodies, a greater reliance must be placed on managing emerging larvae (see Native Fish as Control Agents below).

Bayhill Estate's Response

Development of the site will retain an existing dam and waterways. Bayhill Estate's WSUD Strategy incorporates planted wetlands and bioretention basins. Wetlands and dams will be designed / modified such that:

Wetland Design and Operation

Breeding habitat is minimised by the use of steep edges, maintaining water depths in excess of 600 mm, the judicious use of edge plantings and the orientation and exposure afforded all retained water bodies. Water quality, bank integrity and the distribution of aquatic plants will be managed to retain the integrity of the initial design(s).

Elements of Water Sensitive Urban Design including swales and bio-retention basins will be designed to minimise ponding (in accordance with Australian design guidelines), whilst planted wetlands will incorporate features to promote the effectiveness of larvivorous fish in controlling emerging larvae.

6.3.4 Biting Insect Control Measures

Considerations

Native Fish as Control Agents

Native larvivorous fish can be stocked in (fresh) waterbodies to contribute to mosquito control. The Queensland Department of Primary Industries & Fisheries list a number of species that are native to the region and likely to assist with mosquito control (DPI&F 2006). Recent work by Hurst et al. (2004) has found that of the species recommended, the crimson-spotted rainbowfish (*Melanotaenia duboulayi*) and the firetail gudgeon (*Hypseleotris galii*) are likely to be the most effective at controlling mosquito populations in freshwater lakes. Studies have shown that these species also prey on tadpoles (Hurst et al. 2004). These fish can be obtained from some aquariums and from registered fish hatcheries (DPI&F 2006); other species listed in Table 6.1 can also be stocked in the lake to enhance species diversity. (Redland City Council 2014a, b, c, d)

Previous studies have suggested that fish stocking densities of around 1 fish per m² of potential breeding habitat (i.e. the approximately 2m of shallow habitat around the margin of the lake that may support aquatic macrophytes) should be sufficient to control mosquito populations.

In order for stocked fishes to effectively control mosquito breeding, the fish must be allowed to develop sufficiently abundant populations, and must be able to get to locations used by mosquitoes for breeding. In effect, this requires permanent and relatively stable water (quality), and sufficient depth of water to allow the fish access to potential breeding habitats.

Table 6.1 Native freshwater fish species recommended by QDAF for stocking to assist with mosquito control.

| Species | Com. Name | Status | Key Characteristics |
|-------------------------------|-------------------------|--------|--|
| Chandidae | | | |
| <i>Ambassi agassizi</i> | olive perchlet | LC | Often reaches 60 mm in length; inhabits flowing and still water bodies; eats microcrustaceans and insects (larvae and adult.) |
| Melanotaeniidae | | | |
| <i>Melanotaenia duboulayi</i> | Duboulay's rainbow fish | LC | Reaches 75 – 90 mm in length; inhabit ponds, streams and reservoirs, diet includes insects (adult and larvae), microcrustaceans and algae. |

frc environmental

| Species | Com. Name | Status | Key Characteristics |
|---|-----------------------------------|--------|--|
| Eleotridae | | | |
| <i>Hypseleotris compressa</i> | empire gudgeon | LC | Reaches 100 mm in length; found in lower reaches of rivers; diet includes aquatic invertebrates – primarily cladocerans and insect larvae, algae and detritus. |
| <i>Hypseleotris galii</i> | firetail gudgeon | LC | Reaches 40 – 55 mm in length; occurs in coastal streams, rarely in lower reaches; feeds on aquatic invertebrates. |
| <i>Mogurnda adspersa</i> | southern purple – spotted gudgeon | LC | Commonly reaches 100 mm in length, inhabits clear and turbid environments; feeds on aquatic insects and crustaceans. |
| Atherinidae | | | |
| <i>Craterocephalus stercusmuscarum fulvus</i> | fly-specked hardyhead | LC | Reaches 100 mm in length; found in still or slow flowing water; diet includes mosquito larvae, aquatic insects and crustaceans. |
| Pseudomugilidae | | | |
| <i>Pseudomugil signifer</i> | Pacific blue eye | LC | Reaches 62 – 88 mm in length; widespread in fresh and brackish coastal waters; diet includes mosquito larvae and other insects. |

LC – Declared as 'Least Concern' wildlife under the Queensland Nature Conservation (Wildlife) Regulation 2006.

(DPI&F 2006; McDowall 1996; Merrick & Schmida 1984)

Bayhill Estate's Response

Bayhill Estate will stock retained water bodies with native larvivorous fishes in accordance with Fisheries Queensland guidelines.

7 Biting Insect Management Plan

7.1 Objective

This Biting Insect Management Plan has been developed to support the development of Bayhill Estate, located on the shores of Moreton Bay and consequently subject to mosquito and biting midge incidence, in a manner that balances the health and amenity of residents, visitors and neighbours, with cost and environmental harm.

Its purpose at each stage of development is summarised in Table 7.1

Table 7.1 Purpose of this plan, for each stage of development.

| Stage | Purpose |
|-----------------|--|
| Pre-Development | Inform the refinement of site layout, engineering and landscape design, and of water-body and building design. |
| Development | Inform the planning and conduct of on-site works; and of the monitoring and management of on-site mosquito breeding. |
| Operational | Inform on-going monitoring and management of mosquitoes both on- and off-site. |

7.2 Goals

This Biting Insect Management Plan is designed to:

- support the development of the site in a manner that does not increase the abundance of mosquitoes and biting midge, or the extent of breeding habitat;
- support the development of the site such that residents and visitors alike can enjoy the amenity of the site and not be unduly subjected to arboviruses;
- describe the responsibilities of the Proponent;
- identify appropriate on-site monitoring procedures, triggers for treatment and environmental safeguards;
- comply with the Mosquito Management Code of Practice; and
- support compliance with legislative and regulatory requirements.

7.3 Performance Indicators

The effectiveness of this Biting Insect Management Plan will ultimately be assessed against:

- the frequency of residents' complaints;
- the incidence of mosquito borne disease; and
- environmental harm.

Larval and adult abundance may also be used to provide a measure of the success of this management plan.

7.4 Responsibilities

The Proponent is responsible for developing site layout, and for engineering, landscape and water-body design. The Proponent may be responsible for the design of some buildings.

In general terms, the Proponent will be responsible for the management of mosquitoes and biting midge on land it owns.

7.5 Design Refinement

Site layout, engineering, landscape and water body design will be refined in accordance with Section 6 of this Plan, as summarised in Table 7.2.

Table 7.2 Summary of factors influencing design refinement.

| Issue | Key considerations to minimise the prevalence of mosquitoes and biting midge |
|---|--|
| Siting and Engineering, Landscape and Building Design | <p>Open-space buffers to separate off-site and on-site breeding habitat from residential and community precincts.</p> <p>Landscaping and drainage to minimise on-site breeding and roosting habitat.</p> <p>Building design to exclude biting insects.</p> |
| Waterways and Wetlands | <p>Open-space buffers to separate breeding habitat from residential and community precincts.</p> <p>Orientation to encourage wind exposure.</p> <p>Breeding habitat minimised through minimum depths, edge treatments and plantings.</p> |

7.6 During Development of the Site

Monitoring and management of mosquito and biting midge on site will be the responsibility of the Proponent's Site Development Manager. It will be the Site Development Manager's responsibility to:

- ensure all employees, contractors and sub-contractors are aware of their responsibilities regarding mosquito and biting midge management;
- implement routine monitoring of the site generally (pot holes, wheel ruts, temporary water storages and erosion control measures), and of temporary and permanent water bodies in particular. Monitoring of mosquito and biting midge breeding will be undertaken at least weekly over the period September – April. Records will be maintained digitally.
- implement and document corrective actions;
- recommend improvements to the Biting Insect Management Plan based on acquired experience and evolving best practice.

On-site Monitoring

Monitoring of adult mosquito incidence within the development footprint (recognising the site will be developed in stages) will be undertaken following significant rainfall events likely to lead to senescing waters.

On-site larval monitoring (of waterways and the dam), will be conducted where the results of adult monitoring indicate that freshwater species are a significant component of the mosquitoes recorded on-site.

The objectives of monitoring are to:

- determine the incidence of freshwater-breeding mosquitoes, to trigger (and assess the effectiveness of) treatment (or other management response) of on-site waterbodies; and
- provide an indication of the effectiveness of both on- and off-site (brackish water) larval management programs.

Larval monitoring will be conducted where it is assessed that freshwater species are a significant component of the adult mosquitoes caught by the light traps. Where larval monitoring triggers on-site treatment by the Proponent, monitoring will be continued to confirm the effectiveness of treatment. Treatment will be designed and effected by a licenced pest controller. A treatment register will be maintained and include:

- areas treated;
- date and time of treatment;
- treatment used (inc. dose, batch number, etc); and
- results of follow-up monitoring.

frc environmental

Table 7.3 Summary of On-site Mosquito Management during Development.

| Issue | KPIs | Routine Responsibilities | Responsible Entity | Required Outcomes | Corrective Actions |
|---|---|--|--|---|--|
| On-site breeding and roosting habitat (and breeding) is not increased | Extent of breeding habitat. Larval density. | Use of culverts to avoid pooling of water. Maintenance of the site, including: · regular mowing of grassed areas · monthly maintenance of gross pollution traps · weekly surveillance of the site (may include larval monitoring). | Proponent | The timely remediation of breeding habitat and prevention of adult emergence. | Filling of ruts, draining of detention basins, etc as appropriate to reduce breeding habitat and prevent emergence of adults. Treatment of breeding habitat that is unable to be remediated. Improved site management. |
| Education and Awareness | Published material Site induction manual | Broad-based community awareness. Site-based awareness and education. | Qld Health currently performs this role Proponent | Broad-based community awareness. Awareness of staff and contractors. | Improvement of induction manual / process. |
| Record Keeping, Reporting and Review | Records and Reports | Maintenance of records (site maintenance, breeding habitat surveillance, larval monitoring and corrective actions). | Proponent | Demonstrated diligence. | |

7.7 Of the Developed Site

The Proponent will undertake mosquito monitoring and management appropriate to infrastructure within its ownership and control (as per Table 7.1).

Where practical, on-site mosquito management will be co-ordinated with Council's off-site program.

7.8 Training and Awareness

The Proponent will provide appropriate training to its staff, contractors and sub-contractors such that they are aware of the risks to human health posed by mosquitoes and biting midge, what constitutes suitable breeding and roosting habitat, and as required by their individual responsibilities, how they are expected to contribute to on-site mosquito and biting midge management. Environmental and health risks associated with mosquito and biting midge control will be highlighted. A register of training will be maintained.

Council, together with Queensland Health currently develop, publish and promulgate material that serves to educate the community (and particularly those moving to the Redlands) as to the need for individuals to manage their exposure to mosquitoes and biting midge (Redland City Council 2014a, b, c, d).

7.9 Record Keeping and Continual Improvement

This Biting Insect Management Plan will be reviewed annually from the commencement of development of the site for the duration of development. Amendments will be made to reflect best practice. Where the Proponent retains elements of the site post-development, element-specific management plans will take on any required residual responsibility for biting insect management.

All Proponent-initiated activities will be documented, with records maintained by the Proponent. During the development phase, an annual summary of mosquito and biting midge management will be prepared by the Proponent and made available to relevant stakeholders.

8 References

Dobson, P. 2014. *RE: personal communication*.

DPI&F 2006. Stocking native fish for mosquito control in fresh waters, Guidelines for local governments, housing developers, community groups and private landowners.

Enhealth Council 2004. Guidance on use of rainwater tanks.

FRC Coastal Resource & Environmental 1997. *Southern Bay Islands Land Use and Planning Strategy – Mosquitoes and Biting Midge.*, Report to Gutteridge Haskins & Davey.

frc environmental 2016. Shoreline: Biting Insect Management Plan.

Gold Coast City Council n.d. Living With Midges on the Gold Coast. Pest Management Unit, Gold Coast City Council.

Hurst, T. P., Brown, M. D. & Kay, B. H. 2004. Laboratory evaluation of the predation efficacy of native Australian fish on *Culex annulirostris* (Diptera: Culicidae). *J Am Mosq Control Assoc*, 20, 286-91.

Kerr, J. 2014. Mozzie warning after rise in Barmah Forest. *Redland City Bulletin*, October 15th, 2014.

LandPartners 2017a. Bayhill Estate Concept Plan (Lot 2 on RP 212251). F ed.

LandPartners 2017b. Bayhill Estate: Proposal Plan with Overlaid Nearmap Image of Lot 2 on RP 212251. A ed.

Marks, E. N. & Reye, E. J. 1982. *An Atlas of Common Queensland Mosquitoes, With a Guide to Common Queensland Biting Midges, Revised edition.*, Queensland Institute of Medical Research.

McDowall, R. M. 1996. *Freshwater Fishes of South-Eastern Australia*, Reed Books, New South Wales.

McGinn, D. 2006. *Status Report: Skennars Head Coastal Village Section 54: Mosquito Impact Assessment*, Report prepared for LandPartners, Ballina. Mosquito Consulting Services Pty Ltd.

McGinn, D. 2014. *Shoreline Biting Insect Management Strategy*, report prepared for Shoreline Redlands Pty Ltd. Mosquito Consulting Services Pty Ltd.

- Merrick, J. R. & Schmida, G. E. 1984. *Australian Freshwater Fishes: Biology and Management*, Griffin Press., Adelaide.
- Queensland Health 2001. Ross River Virus, Public Health Fact Sheet, Communicable Disease Unit. Queensland Health.
- Queensland Health 2002a. *Barmah Forest Virus, Public Health Fact Sheet, Communicable Disease Unit*. Public Health Services, Queensland Health.
- Queensland Health 2002b. *Guidelines to Minimise Mosquito and Biting Midge Problems in New Development Areas*. Public Health Services, Queensland Health.
- Queensland Regulation 1996. Part 8 Mosquito Prevention and Destruction.
- Redland City Council 2014a. Fact Sheet: Biting Midges. Fact Sheet FS154.
- Redland City Council 2014b. Fact Sheet: Common Mosquitoes in the Redlands. Fact Sheet FS063.
- Redland City Council 2014c. Fact Sheet: Mosquito Control FAQs. Fact Sheet FS070.
- Redland City Council 2014d. Fact Sheet: The Mosquito Life Cycle. Fact Sheet FS068.
- Russell, R. C. 2001. Constructed wetlands in Australia: Concerns & constraints, compromises & complements for effective mosquito management. *Arbovirus Research in Australia*, 8, 314-323.
- Rust & PPK Pty Ltd 1995. *Redland Shire Council - Mosquito and Biting Midge Management Strategy (draft)*.
- Ryan, P. A., Lyons, S. A., Alsemgeest, D., Thomas, P. & Kay, B. H. 2004. Spatial statistical analysis of adult mosquito (Diptera: Culicidae) counts: an example using light trap data, in Redland Shire, southeastern Queensland, Australia. *Journal of medical entomology*, 41, 1143-1156.
- Tomerini, D. M. 2007. *The impact of local government mosquito control programs on Ross River virus disease in Queensland Australia. Honours Thesis.*, Griffith University.
- Warchot, A. W., P. 2004. Biting Insect Report for the Darwin City Waterfront Development. *Study undertaken on behalf of URS Australia Pty Ltd.*
- Watson, A. & Watson, S. J. 1982. The biting Midge Problem in Tweed Shire, New South Wales. Undescribed source document.

frc [environmental](#)

Webb, C. Assessing nuisance biting and public health risks associated with constructed and rehabilitated estuarine wetlands. Recent Techniques in Protection, Creation and Rehabilitation of Coastal Saltmarshes, Wetland Education and Training (WET) Programs Workshop, 3-4 June 2004, 2004 Sydney Olympic Park.

Webb, C. E. & Russell, R. C. 2011. *Mosquito Management Plan: Byron Shire Council*, report prepared for Byron Shire Council.

WHO 1997. Dengue haemorrhagic fever: diagnosis, treatment, prevention and control. *World Health Organisation*, Second Edition.

[frc environmental](#)

Appendix A Guidelines to minimise mosquito and biting midge problems in new development areas



Guidelines to minimise mosquito and biting midge problems in new development areas



Queensland Government
Queensland Health

March 2002

Foreword

Many community areas are located close to major natural breeding sites of mosquitoes and biting midges. Inappropriate construction practices within community areas also have the capacity to create new breeding sites.

It is well documented that residents who live close to breeding sites of these insects may be subjected to intense problems from their bites. More importantly, some species of mosquitoes are vectors of mosquito-borne diseases including Ross River virus (RRv). Studies indicate that residents who live within three kilometres of major breeding sites of the mosquito vector of RRv have a higher risk of contracting the disease than those residing further away.

These guidelines provide advice on ways to prevent or minimise the impact of mosquitoes and biting midges in new development areas. Local government and developers should find these useful when developing and implementing development plans and insect mitigation programs.

(Dr) John Scott
State Manager, Public Health Services
1 March 2002

Acknowledgements

These guidelines were compiled by Diseases Control Services, Communicable Diseases Unit, Queensland Health.

The following government departments, local councils and associations have provided invaluable assistance in the preparation of the guidelines:

Environmental Health Unit and Media and Communication Unit, Queensland Health

Environmental Protection Agency

Department of Local Government and Planning

Department of Primary Industries

Department of Natural Resources and Mines

Brisbane City Council

Caloundra City Council

Hervey Bay Town Council

Calliope Shire Council

Tweed Shire Council

Local Government Association of Queensland Inc.

Northern Territory Health Services.

Executive summary

Community areas, particularly residential developments, have been located in close proximity to major mosquito or biting midges major breeding sites. Some construction practices in development areas have also created new mosquito or biting midge breeding habitats.

These two factors have brought humans into closer contact with these biting insects leading to an increased incidence of Ross River virus diseases and other mosquito-borne diseases as well as intense pest problems.

These guidelines provide background information on the biology and public health importance of mosquitoes and biting midges.

The document outlines the consequences of locating residential areas at various distances from natural breeding sites of these insects.

Avoidance and mitigation measures, including practical information on the design of residential development areas and water impoundments within these sites, are detailed.

These measures should assist local government and developers in land use planning and development assessment.

Queensland Health has developed these preventative measures in consultation with other government departments and local government.

Contents

| | |
|---|----------|
| Foreword | 1 |
| Acknowledgements | 2 |
| Executive summary | 3 |
| Contents | 4 |
| 1.0 Introduction | 6 |
| 2.0 Aim of guidelines | 6 |
| 3.0 Information about mosquitoes and biting midges | 6 |
| 3.1 Common mosquito and biting midge species in Queensland | 6 |
| 3.2 Factors contributing to the impact of mosquitoes and biting midges on the community | 6 |
| 3.2.1 Meteorological conditions | 7 |
| 3.2.2 Location of populated areas | 7 |
| 3.2.3 Design of populated areas | 7 |
| 3.2.4 Habits of mosquitoes and biting midges | 7 |
| 4.0 Performance standard recommended for development of community areas to minimise arboviruses-related public health risks and problems from mosquitoes/biting midges | 8 |
| 4.1 Seek information on local mosquitoes and biting midges | 8 |
| 4.1.1 Local government | 8 |
| 4.1.2 Monitoring program | 8 |
| 4.2 Evaluate the significance of mosquito and biting midge breeding sites in the vicinity of proposed site | 8 |
| 4.3 Develop a plan to minimise mosquito and biting midge problems | 9 |
| 4.3.1 Avoidance through land use planning | 9 |
| 4.3.2 Mitigation approach within proposed site | 9 |
| 4.3.2.1 Residential area | 9 |
| 4.3.2.2 Artificial wetlands/water impoundments | 10 |
| 4.3.2.3 Drainage system | 10 |
| 4.3.2.4 Construction effect | 11 |
| 4.3.3 Breeding sites control programs | 11 |

| | |
|---|-----------|
| 5.0 Possible consequences following inappropriate measures | 12 |
| 5.1 Economic and social costs of mosquito-borne disease | 12 |
| 5.2 Vector control cost, application, resistance and impacts | 12 |
| 5.2.1 Larviciding | 12 |
| 5.2.2 Habitat modification | 13 |
| 5.3 Decrease in property value | 13 |
| 6.0 Consultation authorities | 13 |
| 6.1 Queensland Health | 13 |
| 6.2 Local governments | 13 |
| 6.3 Department of Primary Industries, Queensland Fisheries Service | 14 |
| 6.4 Environmental Protection Agency | 14 |
| 6.5 Department of Natural Resources and Mines | 14 |
| 6.6 Department of Local Government and Planning | 14 |
| 7.0 Glossary and abbreviations | 15 |
| 8.0 References | 16 |
| 9.0 Appendices | 17 |
| Appendix 1 Some mosquito species which are vectors or serious pests in Queensland (not including species which breed in containers) | 17 |
| Appendix 2 Some biting midge species which are serious pests in Queensland | 20 |
| Appendix 3 Distance from mosquito/biting midge breeding sites and its impact | 22 |

Table

| | | |
|---------|--|----|
| Table 1 | Combined annual budget for aerial larviciding programs, 1993 to 1998 | 13 |
|---------|--|----|

1.0 Introduction

Mosquito-borne diseases, such as Malaria, Ross River, Barmah Forest, Dengue, Australian Encephalitis, Japanese Encephalitis, Kunjin, Kokobera and Stratford viruses, occur in Queensland. Among these, Ross River virus (RRv) is the most prevalent disease comprising 90 per cent of total notification of mosquito-borne diseases.

Many development applications are approved without taking into consideration the direct effects and public health implications of mosquitoes and biting midges

after development. Developments in close proximity to wetlands, particularly within the coastal zone, have brought humans into closer contact with these biting insects in their natural habitats. Some construction practices have created new mosquito or biting midge breeding sites. The increased incidence of Ross River virus and other arbovirus diseases can be attributed to such factors. To prevent this situation worsening, it is therefore necessary to establish and implement appropriate planning and mitigation measures.

2.0 Aim of guidelines

These guidelines provide advice on measures to prevent or minimise the impact on the community of mosquitoes and biting midges. They should assist town planners, developers and engineers, during the review of planning schemes and design of development proposals, to minimise the effects of mosquitoes and biting midges. The guidelines may also be used by local governments and other organisations that need to assess the impact of mosquitoes and biting midges, with regard to proposed development projects.

These guidelines are relevant to development in the vicinity of wetland areas in coastal and inland regions. Also included are measures recommended for reducing the impacts of biting insect populations resulting from construction of recreational lakes, dams, stormwater drains, sewerage effluent and artificial wetlands for the treatment of sewage, and urban and rural stormwater run off.

Some recommendations stated in the guidelines, eg. the retention of some aquatic and riparian vegetation for water impoundments, differ from those recommended in conventional guidelines for mosquito control. These guidelines take environmental issues into consideration.

The guidelines contain:

- (a) avoidance measures for consideration by local governments in land-use planning and development assessment.
- (b) the mitigation approaches to be adopted on lands included in development proposals, where the development may expose significant numbers of people to insect vectors and pests.

Relevant proposals would include residential areas, tourist accommodation, recreational and commercial/industrial developments.

3.0 Information about mosquitoes and biting midges

3.1 Common mosquito and biting midge species in Queensland

Information on the biology, distribution and public health importance of common mosquitoes and biting midges in Queensland is described by Marks and Reye (1982) and Reye (1992). Some mosquito and biting midge species, which are vectors or serious pests in Queensland, are listed in Appendices 1 and 2.

The lists provide examples of mosquito and midge species of likely public health significance, if a mitigation approach to alleviate the problems is not adopted for new development areas.

Newcomers to an area frequently have greater sensitivity to the bite of local pest species. Hence, a reduction of house value and the loss in tourist

business are known to occur in areas where residential and tourist developments are developed in close proximity to mosquito and biting midge breeding sites.

3.2 Factors contributing to the impact of mosquitoes and biting midges on the community

Some factors which influence the density and dispersal of mosquito and midge populations, and cause them to become a problem, are meteorological conditions, location of populated areas, availability of shelter and specific habits of mosquito and biting midge species.

3.2.1 Meteorological conditions

Wind

Strong wind reduces the flight activity of mosquitoes and biting midges and hence reduces the chance of being bitten. On the other hand, strong wind may carry large numbers of mosquitoes and midges away from their breeding sites to populated areas, which are normally out of pest range.

Humidity

High humidity enhances mosquito and biting midge survival but reduces their flight activities. Normally, flight activity will cease when the relative humidity is above 90 per cent.

Temperature

In sub-tropical areas, most mosquitoes stop feeding when the temperature falls below 10°C. Prolonged extreme temperatures of 10°C and 35°C will greatly reduce the survival rate of most adult mosquitoes and biting midges. However, high temperatures will warm the water or substrate in breeding sites, resulting in shorter development periods for eggs, larvae and pupae. Hence, pest problems always occur during warmer times of the year.

Rainfall

High rainfall helps to maintain permanent mosquito breeding sites, such as swamps and ponds, as well as creating extensive breeding sites in low lying grassy areas. Heavy rain can also flush mosquito larvae out of their breeding sites and drown pupae.

High tides and storm surge

Salt marsh mosquito numbers usually are abundant following normal high tides. In addition, cyclones and sub-tropical depressions can induce high tide and storm surge, which may trigger salt marsh mosquito breeding.

3.2.2 Location of populated areas

Direction

Populated areas, which are in the path of the dominant prevailing wind from mosquito and biting midge breeding sites, may be regularly affected by biting insects that are carried by wind.

Distance

The pest problem and risk from mosquito borne disease are reduced if community areas are not located within the pest range of mosquitoes and biting midges. The impact that mosquitoes and biting midges will have on the community at different distances is summarised in Appendix 3.

Topography

Hilltops overlooking mosquito and biting midge breeding areas appear to attract these biting insects from a considerable distance. Harborage of biting insects on vegetated hilltops is common.

3.2.3 Design of populated areas

Landscape layout

The presence of vegetation corridors between community areas and mosquito/biting midge breeding sites provide a dispersal route for biting insects to community areas. Trees and shrubs with dense foliage, planted near dwellings, will provide harbourage sites for mosquitoes and biting midges.

Construction practice

Construction techniques and design of construction sites, such as the building of roads, drainage and canal developments, may create artificial breeding sites for mosquitoes and biting midges because of environmental modifications.

3.2.4 Habits of mosquitoes and biting midges

Mosquitoes and biting midges, which have a wide range of hosts or prefer to feed on vertebrates other than humans, will bite humans, less than species which feed solely on humans. Species that prefer to stay under the protection of vegetation in their breeding sites are less likely to become a pest problem. A medical entomologist can advise on the habits of mosquitoes/biting midges found locally.

4.0 Performance standard recommended for development of community areas to minimise arboviruses-related public health risks and problems from mosquitoes/biting midges

4.1 Seek information on local mosquitoes and biting midges

Information covering biting insects existing in areas proposed for rezoning or development, location of their breeding sites and the distance from known breeding sites to proposed development sites, should be obtained prior to any development being undertaken or planned.

Usually, the problems associated with mosquitoes or biting midges depend on the distance between the proposed development site and significant mosquito or biting midge breeding sites, such as tidally influenced creeks, extensive mangrove areas, salt marshes, paperbark swamps or any large natural wetlands. However, the intensity of the problem is ruled by other factors, as described in section 3.2.

Hence, before beginning the planning stage of large scale residential developments in the vicinity of wetlands, developers should obtain information to determine significance of the wetlands as breeding sites for mosquitoes/biting midges as well as the abundance of these biting insects on proposed sites. The information can be attained from:

4.1.1 Local government

Check with local governments in the area to determine if they have up-to-date information concerning the significance of those wetlands as mosquito/biting midge breeding sites.

4.1.2 Monitoring program

If the information is not available, a consultant medical entomologist should be engaged to carry out a monitoring program, to interpret the data from trapping and to determine the significance of each breeding site. This involves a 12 month trapping program to monitor the species diversity and density of adult mosquitoes and biting midges near potential breeding sites, such as salt marshes, mangrove areas, creeks, paperbark swamps and freshwater swamps.

A 12 month study period is preferable to cover the seasonal diversity and population fluctuations of mosquitoes and biting midges. However, if it is not possible to monitor for 12 months, trapping should be carried out for a minimum of four months during periods of warm climate (December to March) when mosquitoes and biting midges are likely to be abundant.

4.2 Evaluate the significance of mosquito and biting midge breeding sites in the vicinity of proposed site

During the monitoring period, special light traps with carbon dioxide (dry ice) bait should be set fortnightly at various points. At the end of the monitoring period, the degree of importance of each potential breeding site can be ranked according to:

- the average number of mosquitoes and/or biting midges per trap per night
- the species which bite humans
- the species which are vectors of disease.

The breeding sites which are in the first rank (the most significant) are those near the trapping sites where the highest number of vector and/or pest species were collected, while the least significant breeding sites are those in which the lowest numbers of vector and/or pest species were caught.

Some salt marsh mosquitoes may be taken by the wind for up to 50 km from their breeding sites. The number of mosquitoes or biting midges that disperse usually declines significantly with increasing distance from the breeding site.

Information on some biting insect species commonly found in Queensland is contained in Appendices 1 and 2.

From the information provided in Section 3, it is inferred that problems from mosquitoes and biting midges are likely to occur if the areas to be developed for land use will involve a significant concentration of people and are within five kilometres of their significant breeding sites. Within this distance, appropriate measures may become necessary to ensure that public health risks are minimised. Therefore local governments and developers should recognise these risks and include adequate measures to minimise interaction between vector/pest species and residents. They should also be aware that control measures may not be permitted if mosquito/biting midge breeding sites are in areas containing sensitive flora and fauna.

4.3 Develop a plan to minimise mosquito and biting midge problems

4.3.1 Avoidance through land use planning

If it is possible, lands which may expose significant numbers of people to biting insects should not be developed.

Inappropriate land uses include residential areas, tourist accommodation, night time recreational developments and commercial/ industrial developments.

If these types of land are to be used for eco-tourism, where temporary accommodation such as camping is allowed, advice should be provided to visitors regarding the risk of mosquito-borne diseases and pest problems from the areas. Preventive measures, such as the use of protective clothing and insect repellents, should be promoted.

4.3.2 Mitigation approach within proposed site

Avoidance measures described above are the preferred choice. However, if it is impossible or impractical to exclude the proposed site from development, the development should incorporate a management plan to reduce the potential impact of mosquitoes and/or biting midges.

Local governments and developers should also be aware that mitigation measures are a priority because control measures may not be permitted if mosquito/biting midge breeding sites are in areas containing sensitive flora and fauna.

Proposals should incorporate the following measures to minimise the impact of existing biting insects on the community and to avoid creating new breeding sites.

4.3.2.1 Residential area

On-site design

Before planning for large scale residential developments, developers must check with the relevant authorities to determine the prevalence of mosquitoes and biting midges in the proposed site. If this information is not available, it is recommended that a consultant medical entomologist be engaged to monitor the biting insect population at the site, preferably over a 12 month period. However, if

this is not possible, regular on-going monitoring programs during the mosquito breeding season (December to March) are required to determine the level of public health risk from biting insects population and to devise appropriate alleviation measures to be included in planning stage.

Alleviation measures

Recommended measures to minimise the problems caused by mosquitoes or biting midges include:

- **Creating a barrier zone**

If the proposed site is found to be infested with mosquitoes or biting midges which are vectors or pests (see Appendices 1 and 2), a barrier zone should be created inside the proposed site to act as a buffer between the large breeding site and residential areas. The width of the barrier zone is dependent on the species of biting insects, the prevailing wind, the existence of natural barrier zones, such as open grassland and woodland, and the design of development. This concept was devised and has been practised in the Northern Territory for different types of residential developments (Whelan, 1991).

The barrier zone created within the proposed site should be in an area exclusive of protected marine plants (eg. mangroves, saltwater couch), outside the boundaries of Fish Habitat Areas declared under the *Fisheries Act 1994* and not in areas where disturbance of natural vegetation is prohibited under *Environmental Protection Act (1994)*, *Nature Conservation Act, 1992*, *Nature Conservation (Wildlife) Regulation 1994* and *Land Act 1994*. Some of the dense vegetation in a barrier zone may have to be removed to ensure that there is no continuous line of dense vegetation connecting the breeding site and the community areas. This will interrupt the dispersal route of the biting insects from their breeding sites to residential area and reduce harbourage areas by removing the protection of vegetation for shelter. Hence, the impact of biting insects is reduced.

If the mosquitoes or biting midges that are prevalent in the proposed development site have a peak biting activity at dusk or dawn, daytime recreation areas such as golf courses, well maintained water impoundments, parking areas, parklands with small shrubs and flower beds, woodlands of tall trees with light foliage, or broad scale agricultural land can be used to

act as a barrier zone between breeding sites and residential areas.

In order to avoid any conflict of opinion among the different authorities, should these measures be adopted, it is essential that consultation among land developers, local government town planners, vector control officers, and other relevant authorities be carried out to decide on the appropriate design of barrier zones at the planning stage.

- **Avoid creating new breeding sites and sheltered sites**

New breeding sites will contribute to the mosquito or biting midge populations while shelter sites will provide harbourage places close to human habitation. These can be prevented by avoiding the creation of:

- Continuous belts of dense foliage trees, as part of the landscape, or by choosing trees and shrubs with light foliage. Ensure that removal and replacement of vegetation conform to the policies set by various government departments (see 6.0, consultation authorities).
- Inter-tidal sandy beach habitats suitable to some species of biting midges in canal estates. Other designs, such as coarse pebble beaches or rock walls, should be considered. If a rock wall is constructed, care must be taken to prevent it becoming a shelter for rats and other vermin.

4.3.2.2 Artificial wetlands/water impoundments

Mosquito breeding in artificial wetlands/water impoundments, such as lakes, dams, canals and ponds, can be minimised in the following ways.

Location

Consider locating artificial wetlands/water impoundments at sites where the wind direction will enhance wave action. Wave action prevents larvae from breathing and female mosquitoes from laying eggs.

Depth

Artificial wetlands/water impoundments should be more than 60 centimetres (or at least 30 centimetres) deep so that they are not suitable for mosquito breeding. Increasing the water depth may achieve other benefits, such as having fish as predators. Choose a design

that does not support rapid, extensive growth of emergent aquatic plants or the formation of vegetation hummocks during periods of low water level.

Vegetation

Prevent the dense growth of emergent vegetation in artificial wetlands/water impoundments, as this will reduce mosquito breeding, allow predators to reach mosquito larvae and increase wave action. Consult with the relevant government departments to ensure that these practices do not disturb the environment.

Bank

Plant suitable vegetation on the walls and banks of water impoundments to prevent erosion and run-off of nutrients. Choose vegetation that does not vigorously invade the water body and support mosquito breeding. Choose wall or bank gradient that minimises vigorous growth of vegetation and requires less maintenance.

Mosquito control management

- provide vehicle access around the shoreline of the impoundment for inspection and maintenance
- introduce native fish into the water impoundment after liaison with Queensland Fisheries Service. A current list of native fish suitable for each area should be obtained from Queensland Fisheries Service (DPI)
- have a control plan to minimise mosquitoes in artificial wetlands/water impoundments in case preventative measures are not adequate to stop mosquito breeding. A mosquito control plan must be in line with the *Code of Practice for Mosquito Management*. This Code can be obtained from the Environmental Protection Agency.

4.3.2.3 Drainage system

Drainage systems for irrigation, sewerage effluent and stormwater channels should be designed to minimise mosquito breeding.

Stormwater retention basins should be designed to exclude mosquito production and include provision for ongoing maintenance.

As topography, soil type and other environmental factors vary from one location to another, the actual design of the above structures should be done in consultation with an engineer.

The following recommended design features minimise biting insect breeding:

Design of drains

- drains should be designed so that silt does not accumulate in the drain and water does not pond in the drain
- erosion of the drain batters should be controlled by using appropriate slope batters and planting vegetation type suitable to stabilise the slopes but not to invade the water bodies
- sizing of drains should be such that access by suitable machinery to carry out maintenance is achieved
- all maintenance should be carried out in accordance with procedures which ensure that further habitats for mosquitoes or midges are not created by wheel ruts
- consider concrete channel 'low flow' drains within large earthen drains.

Discharge point

- avoid discharging water into mangrove, tea tree and vegetated wetlands, as this can help maintain permanent breeding sites for mosquitoes or biting midges. Discharged water may be enriched with nutrients which assist the growth of some types of vegetation, resulting in the restriction of the water flow and preventing natural predators reaching mosquito larvae
- avoid discharging large volumes of water into one location, as it can cause soil erosion and kill vegetation at the discharge point
- discharge should be by sheetflow rather than point source to minimise erosion.

Where to discharge

- into regularly flushed tidal areas, preferably at high tide
- if water is discharged to artificial or natural wetlands resulting in these wetlands retaining water for a period of longer than six days, effort should be made to ensure that viable ecosystems with predators exist to deal with the mosquitoes
- discharge into settling ponds to remove silt and rubbish, then to suitable natural streams. Suitable natural streams are those which have good riparian vegetation, at least 30 metres wide with diverse structure, not choked by exotic species and a viable instream habitat exhibiting healthy stream processes.

4.3.2.4 Construction effect

Construction practice may create mosquito/biting midge breeding sites. In order to minimise the problem the following concepts should be practised:

- Design landscaping and drainage so that no stagnant ponding occurs during and after construction. Ensure that all stream crossings allow for unrestricted passage of fish to maintain populations of natural predators.
- Have an ongoing program to:
 - fill potential breeding sites such as depressions, pot holes, borrow pits and wheel ruts in the development site during and after construction
 - prevent spoil materials, road embankments, access roads, or soil from blocking the flow of water and creating stagnant pools of water suitable for mosquito breeding

Note: Where potential breeding sites are in a tidal zone, a permit may be required from the Queensland Fisheries Service, DPI for disturbance of marine plants or for work to be performed in a declared Fish Habitat Area. For work in a national park, a permit may be required by the Beach Protection Authority, EPA prior to an alteration.

- If containment ponds are constructed during the construction stage to trap nutrient run off, check these ponds once a week for mosquito larvae. Apply larvicides if breeding is detected.

4.3.3 Breeding sites control programs

Control programs should be included in a development plan in case other mitigation measures fail to minimise mosquito/midge impact on residents.

Control programs should be devised in consultation with the vector control section of the local government in the area responsible for the proposed development site or with a consultant medical entomologist. Control plans must conform to the *Code of Practice for Mosquito Management*.

The potential effects of large-scale mosquito control programs on the environment and wetland-dependant industries, such as fisheries, render this mitigation approach far less desirable than one based on avoidance through land use planning. Development proposals advocating breeding site control programs as a means of accommodating a project in a high risk area should therefore confront both the immediate and

wider community cost, monetary or otherwise, of implementing such programs.

Specific attention should be given to development proposals which may require breeding site control programs to be conducted on lands designated for environmental protection purposes, such as declared fish habitat areas (previously fish habitat reserves and wetland reserves), environmental parks, conservation parks or national parks. Recognition must be given to the fact that breeding site control programs may be totally inconsistent with the intent of existing land-use designations, such as those under the *Fisheries Act 1994* and *Nature Conservation Act 1992*, and may, therefore, not always be permissible.

Applications for permits from the relevant authorities (DPI, EPA and DNRM) are statutory requirements before undertaking control programs within such protected areas. When permitted, breeding site control programs within protected areas will be subject to conditions stipulated by the relevant local or state authority.

Even outside existing protected areas, large-scale breeding site control programs may also involve environmentally sensitive wetlands. These programs must therefore be designed in consultation with the EPA, DPI and DNRM.

5.0 Possible consequences following inappropriate measures

These guidelines contain measures to minimise mosquito and biting midge problems. Such problems have occurred in several residential and tourist developments in coastal Queensland as these developments are located within the flight ranges of mosquitoes and/or biting midges.

Successful prevention of the same problems in future urban subdivisions, particularly residential and tourist developments, relies on the co-operation of all relevant parties and their willingness to implement the avoidance and mitigation measures recommended. If this is not achieved, and populated areas are allowed to be developed near pre-existing or potential mosquito and biting midge breeding sites, the following consequences are likely to occur.

5.1 Economic and social costs of mosquito-borne disease

High numbers of mosquito vectors in a developmental site increase risk of the community contracting mosquito-borne diseases resulting in loss of productivity and high costs of treatment.

During epidemics of RRv in Queensland in 1992 and 1996, a total of 4154 and 4935 cases respectively were serologically confirmed (Communicable Disease Intelligence, 1993, 1997). Based on the cost (\$3 million) of the 1983-84 outbreak of RRv in New South Wales (Hawkes *et al.*, 1985), it is estimated that the 1992 epidemic of RRv would have cost the Queensland economy approximately \$14 to 15 million. Costs include consultation fees for doctors, blood tests, drugs, absence from the workforce and domestic duties, and vector control (Dr J. Scott, unpublished data).

5.2 Vector control cost, application, resistance and impacts

Long term usage of control agents is expensive and can lead to chemical resistance in mosquitoes or biting midges.

Mosquito control must conform to the *Code of Practice for Mosquito Management*. The usual methods use for mosquito and/or biting midge control in Queensland are larviciding and habitat modification.

5.2.1 Larviciding

Temephos (Abate) is an organophosphorus larvicide which was previously used to control mosquito and biting midge larvae in Queensland before mosquito larvae in some locations developed resistance to this chemical. Currently, *Bacillus thuringiensis* var. *israelensis* (B.t.i.), a microbial insecticide and Methoprene, an insect growth regulator, are widely used to control mosquito larvae. The cost of these larvicides and application of them has been increasing every year. As a result, local governments along the Queensland coastline will have to cope with increasing expenses. This is evidenced by Table 1 which shows the five year cost of mosquito control from some local governments.

Table 1 Combined annual budget for aerial larviciding programs, 1993 to 1998

| Local government group | Budget (\$) (including the cost for treatment of private lands) | | | | |
|--|--|---------|---------|---------|-----------|
| | 1993/94 | 1994/95 | 1995/96 | 1996/97 | 1997/98 |
| North East Moreton Mosquito Organisation, comprising Brisbane City, Redcliffe City, Caboolture Shire and Pine River Shire Councils | 583,937 | 646,192 | 747,700 | 892,500 | 1,085,000 |

Further, the use of larvicides may not be permitted in breeding sites which are in or near environmental sensitive areas, such as fish habitat areas, environmental parks, conservation parks or national parks. Community groups, as well as some government agencies, are likely to object to the chemical treatment of biting midge breeding sites because of the much higher dosage of, eg. up to 20 fold of temephos is needed for control of biting midge larvae when compared with that needed for mosquito larvae.

5.2.2 Habitat modification

Alteration of saltmarsh mosquito breeding areas using habitat modification (runnelling) has been implemented by a number of local governments with the approval of relevant government agencies. The implementation of

habitat modification techniques has an initial cost but this is considered less than ongoing costs of alternate controls such as larviciding. Habitat modification programs may not be suitable in all situations and are unlikely to be supported in areas where problems associated with disturbance of acid sulfate soil cannot be managed appropriately or if it is likely to have an adverse effect on flora or fauna in the area.

5.3 Decrease in property value

Once problem areas gain a reputation for mosquitoes and biting midges, property values and business opportunities may be reduced.

The intense attack by mosquito and biting midge pests can make life miserable for residents and tourists.

6.0 Consultation authorities

6.1 Queensland Health

Responsibility

- prevention and control of mosquito-borne diseases and enacting legislation aimed at controlling mosquitoes throughout Queensland
- general information on insects which are vectors of disease or pests, their breeding habitats, their biology and available control methods as well as any enquiries about the guidelines.

Departmental documents relating to vector/pest control

- *Health Act 1937*
- *Health Regulation 1996*

Contact unit

Communicable Diseases Unit
Queensland Health Building
GPO Box 48
Brisbane Q 4001
Ph (07) 3234 1155

6.2 Local governments

Responsibility

- determine development proposals
- information on mosquito and biting midge problems in the area.

Local government documents relating to vector/pest control

Depends upon the individual council.

Contact unit

- town planning
- health services.

6.3 Department of Primary Industries, Queensland Fisheries Service

Responsibility

- management of fisheries resources, protection of fish habitats and marine plants
- declaration and management of Fish Habitat Areas
- granting of approvals under fisheries legislation
- information on fish species suitable for mosquito control and stocking of waterways.

Departmental documents relating to vector/pest control

- *Fisheries Act 1994 (S 51, S122, S123)*
- *Fisheries Regulation 1995*

Contact unit

Fisheries and Aquaculture Development
GPO Box 46
Brisbane Q 4001
Ph 132 523

6.4 Environmental Protection Agency

Responsibility

- environmental planning
- assist local governments in checking submitted information, if required and ensure appropriate standards are met.

Departmental documents relating to vector/pest control

- *Environmental Protection Act 1994*
- *Nature Conservation Act 1992*
- *Nature Conservation (Wildlife) Regulation 1994*
- *Code of Practice for Mosquito Management*

Contact unit

EPA Advisory Service
GPO Box 155
Albert St, Brisbane Q 4002
Ph (07) 3227 7111

6.5 Department of Natural Resources and Mines

Responsibility

Administration and allocation of all non-freehold land in Queensland including land between LWM and HWM. This responsibility does not include matters of public health on such lands.

Departmental documents relating to vector/pest control

- *State Land Practice Manual*
- *Land Planning Guidelines*

Contact unit

Integrated Resource Management
GPO Box 456
Albert St, Brisbane Q 4002
Ph (07) 3896 3111

6.6 Department of Local Government and Planning

Responsibility

- review planning schemes and amendments submitted by local governments
- provide policy guidance to local governments.

Documents relating to vector/pest control

- *Mixed Used Development Act 1993*
- *Integrated Planning Act 1997*
- *Integrated Resort Development Act 1987*

Contact unit

Planning Services
GPO Box 31
Albert St, Brisbane Q 4002
Ph (07) 3227 7111

7.0 Glossary and abbreviations

| | |
|----------------------------|--|
| Arbovirus Taskforce | A Taskforce established by Queensland Health in response to the 1992 epidemic of Ross River virus disease. The role of the Taskforce was to provide recommendations on how the risk and impact of future epidemics may be reduced. |
| Arboviruses | Viruses that are transmitted from animal to man or man to man by arthropods (eg. mosquitoes) and cause diseases, such as Dengue, Ross River and Barmah Forest. |
| Flight range | Distance where some adult female mosquitoes/biting midges can disperse from their breeding sites through their active flight or with the aid of wind. |
| Pest range | Distance from breeding sites which mosquitoes/biting midges regularly disperse from their breeding sites. The density of these biting insects within this distance are high and become intolerable to humans. |
| Pest species | Mosquito/biting midge species which do not transmit human diseases but their bites cause mild to severe skin reactions to humans. |
| Vector species | Mosquito/biting midge species which transmit disease(s) to humans/animals. |

Organisations

| | |
|------|---|
| DLGP | Department of Local Government and Planning |
| DNRM | Department of Natural Resources and Mines |
| DPI | Department of Primary Industries |
| EPA | Environmental Protection Agency |
| LGAQ | Local Government Association of Queensland Inc. |
| QH | Queensland Health |

Diseases

| | |
|-----|-------------------------|
| AE | Australian Encephalitis |
| BF | Barmah Forest |
| DF | Dengue Fever |
| JE | Japanese Encephalitis |
| RRv | Ross River virus |

Others

| | |
|------|------------------------------------|
| CDI | Communicable Diseases Intelligence |
| MHWS | Mean High Water Spring |
| MLW | Mean Low Water |
| MHWN | Mean High Water Neap |

8.0 References

- Australian Mosquito Control Manual (1998) Published by Australian Mosquito Control Association of Australia.
- Black, R.H. (1972) Malaria in Australia: School of Public Health and Tropical Medicine, The University of Sydney Science Publication No 9, Australian Government Publishing Service.
- Communicable Diseases Intelligence Bulletin* (1993) 1992 Annual report of the national notifiable diseases.. Commonwealth Department of Health and Family Services.
- Communicable Diseases Intelligence Bulletin* (1997) 1996 Annual report of the national notifiable diseases, Commonwealth Department of Health and Family Services.
- Doherty, R.I. (1977) Arthropod borne viruses in Australia 1973-1976. *Australian Journal of Experimental Biology*, 55: Part 2: 103-130.
- Easton, C. (1993) Development control plan - biting midge and control in Tweed. The Tweed Council Development Control Plan No 25: 80-106.
- Hawkes, R. A., Boughton, C. R. and Naim, H. M. (1986) Epidemiological aspects and socio-economic effects of arboviruses infecting man in New South Wales. *Arbovirus Research in Australia* 4: 21-22.
- Linsay, M.D.A. Jasinska, E. M. and Oliveira, N.M. (1998). Implications of a new strain of Ross River virus in the Peel Region, southwestern Australia. Abstract from the 3rd National Conference of the Mosquito Control Association of Australia. Surfers Paradise, Gold Coast, Australia.
- Marks, E.N. and Reye, E.J. (1982) (revised edition) An atlas of common Queensland mosquitoes with a guide to common Queensland biting midges. Queensland Institute of Medical Research, Herston, 76 pp.
- Mosquito Management Code of Practice for Queensland (2001) Published by Environmental Protection Agency.
- Muhar, A., Dale, P.E.R., Thalib, L. and Arito, E. (2000) The spatial distribution of Ross River virus infections in Brisbane: significance of residential location and relationship with vegetation types. *Environmental Health Preview Medicine* 4: 184-189.
- Muhar, A. and Dale, P.E.R. (2000) Minimizing impacts of mosquito management in ecologically sensitive urban areas: a multi-scale approach. pp 448-455 in: Nature Conservation in Production Environments, J.L. Craig, M. Mitchell and D.A. Saunders (eds), Surrey Beatty and Sons, Sydney.
- Reye, E.J. (1992) The Common Pest Species (of Biting Midges) *Bulletin of the Mosquito Control Association of Australia* 4 (3): 16- 24.
- Ritchie, S.A., Phillips, D., Brown, A., Mackenzie, J., Poidinger, M. and van den Hurk, A. (1997) Isolation of Japanese encephalitis virus from *Culex annulirostris* in Australia. *American Journal of Tropical Medicine and Hygiene* 56: 80-84.
- Russell, R.C. (2001) Constructed wetlands in Australia: Concerns and constraints, compromises and complements for effective mosquito management. *Arbovirus Research in Australia* 8: 314-323.
- Ryan, P. A. and Kay, B.H. (1996) Ross River virus ecology is complex. *Arbovirus Research in Australia* 7: 247-251.
- Whelan, P. I. (1986) Biting insects considerations for urban subdivision in the top end of the Northern Territory. Information sheet, Department of Health and Community Services, 2pp.
- Whelan, P. I. (1988) Construction practice near tidal areas in the Northern Territory- Guidelines to prevent mosquito breeding. A booklet produced for the Northern Territory Coastal Management Committee, 14 pp.
- Whelan, P. I. (1991) Murrumbidgee Gunn Point Peninsula area biting insect investigation. Report, Department of Health and Community Services, Northern Territory, 36 pp.
- Whelan, P. I., Barker-Hudson, P., Morgan, B., Ebery, B. and Gee, K. (1989) Mosquito control measures in Darwin, Task Force Review. Northern Territory Department of Health and Community.
- Whelan, P., Merianos, A., Hayes, G. and Krause, V. (1997) Ross River virus transmission in Darwin, Northern Territory, Australia. *Arbovirus Research in Australia* 7:337-345.

9.0 Appendices

Appendix 1 Some mosquito species which are vectors or serious pests in Queensland (not including species which breed in containers)

| Type | Species | Breeding site | Adult behaviour | Pest range | Public health importance |
|------------------------|-----------------------------|---|---|--|--|
| Salt water species | <i>Ochlerotatus vigilax</i> | <ul style="list-style-type: none"> temporary brackish pools and marshes which are flooded by the highest tides often associated with salt water couch grass (<i>Sporobolus</i>) and the succulent plants <i>Suaeda</i> and <i>Salicornia</i>. | <ul style="list-style-type: none"> rest among mangroves and their pneumatophores or other trees with dense foliage may travel up to 50km from breeding site bite humans, mammals and birds, day and night. | <ul style="list-style-type: none"> about 5km in conditions favourable for their dispersal, travelling up to 50km from the breeding site. | Vector of Ross River virus (RRv), Barmah Forest virus (BF) and heart-worm of dogs. |
| Brackish water species | <i>Verrallina funerea</i> | <ul style="list-style-type: none"> slightly brackish-fresh water pools which are well shaded in swampy areas of teatree and sedges adjoining tidal areas. | <ul style="list-style-type: none"> do not usually disperse far from their breeding site bite humans and mammals during the day in shaded areas and also at night their bites are painful. | <ul style="list-style-type: none"> about 2km | <ul style="list-style-type: none"> potential vector of RRv and BF adults are serious pests to residential areas close to mangrove, teatree or paperbark swamp. |
| | <i>Culex sitiens</i> | <ul style="list-style-type: none"> brackish pools left by high tides along the coast, occasionally in fresh water can also breed in irrigation areas containing salt heavy breeding commonly occurs in areas where the natural drainage and flow in tidal areas are blocked. | Bite humans, other mammals and birds, mainly at night. | <ul style="list-style-type: none"> about 3km may travel long distance (up to 35km) from breeding places. | <ul style="list-style-type: none"> shown to be a competent vector of RRv in the laboratory adults are serious pests to community in the residential areas close to breeding sites. |

17

18

| Type | Species | Breeding site | Adult behaviour | Pest range | Public health importance |
|---------------------|----------------------------|---|--|-------------|---|
| Fresh water species | <i>Anopheles annulipes</i> | <ul style="list-style-type: none"> all kinds of temporary and permanent ground pools, stream and swamp edges, and rock pools, usually sunlit or partly shaded also breed in large open artificial containers, such as drums and troughs may also be found in slightly brackish water. | Bite humans, cattle and rabbits by night, particularly at dusk and dawn. | about 1.5km | Adults may be serious pests in areas close to extensive swamps and lagoons. |
| | <i>Culex annulirostris</i> | <ul style="list-style-type: none"> fresh water swamps, pools, streams, usually with vegetation large numbers of larvae may be found in low-lying grassy areas where water lies two to three weeks after heavy rain heavy breeding is also associated with water from irrigation or organic effluent disposal plague numbers of adults usually emerge from temporary breeding site where natural predators are not abundant. | Bite humans, mammals and birds at night but can bite during the day if disturbed from their resting place. | about 5km | Vector of RRv, BF, Australian Encephalitis (AE), Japanese Encephalitis virus (JE) and heart-worm of dogs. |

Appendix 1
Some mosquito species which are vectors or serious pests in Queensland
(not including species which breed in containers)

19

| Type | Species | Breeding site | Adult behaviour | Pest range | Public health importance |
|------------------------------------|-----------------------------------|---|--|-------------|---|
| Fresh water species (continued) | <i>Culex quinquefasciatus</i> | <ul style="list-style-type: none"> • polluted water close to human habitation • also found in less polluted water in vases, tins and tyres • prolific breeding can occur in creeks or dams if polluted by sewage or other organic effluents. | Bite humans and birds at night. | about 1km | Vector of heart-worm of dogs. |
| | <i>Coquilleltida xanthogaster</i> | Permanent and semi-water permanent swamps and water holes in association with aquatic plan (water hyacinth, grasses, sedges, etc.) where larvae attached to roots of stem to obtain oxygen. | Bite humans, domestic animals and birds at night or during the day in shade. | 1.5km | Adults may be serious pests in areas close to extensive swamps and lagoons. |
| | <i>Mansonia uniformis</i> | Same type of habitats described for <i>Cq. xanthogaster</i> . | Similar to <i>Cq. xanthogaster</i> . | about 1.5km | Adults have been infected with RRV and AE in laboratory studies. |

Appendix 1
Some mosquito species which are vectors or serious pests in Queensland
(not including species which breed in containers)

20

| Type | Species | Breeding site | Adult behaviour | Pest range | Public health importance |
|--------------------------|----------------------------------|--|---|--|---|
| Rocky substrates species | <i>Culicoides immaculatus</i> | Boulder covered foreshores where the boulders lie on a mud-sand-shell base and wave action is moderate, in a band near high tide level. | Bite from dusk to early daylight. | about 400m | <ul style="list-style-type: none"> biting midges are not vectors of human disease in Australia can be a very severe pest if adults are abundant |
| Sandy substrate species | <i>Styloconops australiensis</i> | Clean sandy shores subject to moderate wave action such as in bays and estuaries, where beaches are protected from oceanic waves by offshore reefs or extensive shoals. | Bite from dawn to dusk. | about 50m | <ul style="list-style-type: none"> their bites can cause intense itching and skin reaction from their saliva in sensitive people, blister and weep serum may occur from the site of the bite. |
| | <i>Culicoides molestus</i> | <ul style="list-style-type: none"> natural breeding sites are clean sand and on open beaches, around creek or streamlet mouths, and on sand banks and beaches within larger streams the sand substrate is between MHWS and MLW sandy shores in canal estate developments (artificial breeding sites). | <ul style="list-style-type: none"> bite at dawn and dusk on overcast humid days, biting occurs all day and night. | <ul style="list-style-type: none"> about 400m from small natural breeding sites up to 1.5km from large, natural or artificial breeding habitats. | |

Appendix 2 Some biting midge species which are serious pests in Queensland

| Type | Species | Breeding site | Adult behaviour | Pest range | Public health importance |
|--------------------------------------|--|---|--|------------------|--|
| Sandy substrate species (continued) | <i>Culicoides</i> <i>sp near</i> <i>subimmaculatus</i> | <ul style="list-style-type: none"> in the surface feeding tunnels of the crab <i>Mictyris livingstonei</i> in tunnels which are above MHWN in artificial habitats created by sand pumping fill, by ditching in soils with sand underlay and by clearing mangroves so that the silt layer is eroded off. | <ul style="list-style-type: none"> bite throughout the day in or close to their breeding site at locations away from larval habitat will bite only at dusk will enter houses. | about 400 metres | <ul style="list-style-type: none"> biting midges are not vectors of human disease in Australia can be a very severe pest if adults are abundant their bites can cause intense itching and skin reaction from their saliva in sensitive people, blister and weep serum may occur from the site of the bite. |
| Species which breed in mud substrate | <i>Culicoides ornatus</i> | <ul style="list-style-type: none"> subterranean tunnels (some 15cm below the surface) of small crab, which inhabits the muddy area of River Mangrove (<i>Aegiceras corniculatum</i>) typical breeding habitat is within a narrow band about MHWN in areas where there is no strong wave or current action, such as creeklets, dead ends of creeks or in cut-off meanders. | <ul style="list-style-type: none"> bite at dusk and dawn can be very severe pests both indoors and outdoors. | about 1.6km | |
| | <i>Culicoides marmoratus</i> | Muddy sand to pure mud in areas above MHWS to just below MHWN. | <ul style="list-style-type: none"> feed readily on native marsupial, livestock and humans can be a serious pests to humans. | up to 16km | |

Appendix 2
Some biting midge species
which are serious pests in Queensland (continued)

Appendix 3 Distance from mosquito/biting midge breeding sites and its impact

| Distance from breeding site | Risk from arbovirus diseases | Pest impact | Control measures needed |
|--|---|--|--|
| up to 1.5km | very high | Intense from both mosquitoes and biting midges. | Regular monitoring and control measures for mosquitoes and biting midges at breeding sites and development sites. |
| >1.5 to 5km (without continuous corridor of dense vegetation between breeding site and populated areas) | significant, especially at the lower distance of this range | <ul style="list-style-type: none"> • unaffected from most biting midges • noticeable from mosquito species such as <i>Ochlerotatus vigilax</i>, <i>Verrallina funerea</i>, <i>Culex sitiens</i>, <i>Cx annulirostris</i>, <i>Coquillettia spp</i> and <i>Mansonia spp</i>. | Regular mosquito monitoring and control at breeding sites and development sites. |
| > 5 - 10km | moderate | <ul style="list-style-type: none"> • unlikely by brackish and fresh water mosquitoes and most biting midges • discomfort by a moderate numbers of <i>Oc. vigilax</i> adults. | <ul style="list-style-type: none"> • monitoring of mosquito population • control may be required to minimise the risk of mosquito-borne disease. |
| > 10 - 15km | low | <ul style="list-style-type: none"> • not severe and sporadic • a small proportion of mosquitoes may be carried by wind into development sites. | Unlikely to be needed. |



ACN 002 895 007
ABN 72 002 895 007

Unit 1/7 Grant Street
Cleveland Q 4163
Australia

PO Box 2363
Wellington Point Q 4160
Australia

P 07 3286 3850
F 07 3821 7936
E info@frcenv.com.au
www.frcenv.com.au

27 October, 2021

Our Ref: 170506_Addendum_Riii

Mr Philip Mann
Development Manager, Residential
Lend Lease
GPO Box 2777, Brisbane, QLD. 4001.

Philip.Mann@lendlease.com

Dear Philip,

Addendum to Bayhill Estate – Biting Insect Management Plan (2019)

The purpose of this addendum is to update aspects of the 'Bayhill Estate – Biting Insect Management Plan', prepared by frc environmental in September 2019.

Saunders Havill advise that the development footprint will come to within approx. 42.5 m of Highest Astronomical Tide (HAT) and that a road lying on the boundary of the development footprint, will provide a further 13 - 21 m of separation (dependant on the designation of the road). Allowing for the set-back of dwellings from the road (4 m), an overall *minimum* set-back of dwellings from HAT in the order of 59.5 m is consequently anticipated.

The 2019 Biting Insect Management Plan describes 'small pockets of brackish water breeding habitat adjoining and within the site' which are likely to be used by *Aedes vigilax*, *Ae. alternans* and *Culex sitiens*, the dominant species recorded from the area. These potential near-field brackish water breeding sites are shown in Figure 1. *Verrallina funerea* was also considered likely to breed in ponded areas under the cover of nearby mangroves.





Figure 1. Potential brackish water breeding habitat adjoining the development site.

However, the extent of near-field breeding habitat is minor (<0.2 ha) when compared with the >300 ha of brackish water breeding habitat identified on Pannikin, Long and Lagoon islands that lie within 2 – 5 km of the development site (Figure 2).



Figure 2. Brackish water breeding habitat within 5 km of the development site.

The 2019 Biting Insect Management Plan concluded: 'The adults of *Aedes vigilax* and *Culex sitiens* are capable of travelling over 30 km from breeding sites, often assisted by prevailing winds. Consequently, the entire Bayhill Estate site is likely to be subject to these species from time to time. Regular monitoring and active management of particularly mosquito breeding on adjacent islands will be the cornerstone of any mosquito management program. The limited extent of suitable on-site breeding habitat, makes it unlikely that extensive on-site mosquito control will be required for the developed site.' These conclusions are supported by the recently published research of Johnson and Devine (2020).

That is, the prevalence of mosquitoes over the developed Bayhill site will be principally determined by the breeding success of mosquitoes on the near-by islands and the success of Council's established mosquito management program. None-the-less, the Biting Insect Management Plan recommended that: 'Optimal management of biting insects at Bayhill Estate



will be achieved where proponent-initiated measures for on-site management support Council's off-site (local government area-wide) management of mosquitoes', going on to comment that: 'Opportunities exist to minimise both the breeding of mosquitoes and biting midge on site, and the impact of mosquitoes and biting midges breeding on adjacent lands, through appropriate site planning, engineering design, building design and on-going site management.'

An element of site planning relates to the set-back of dwellings and other sensitive receptors from breeding and / or roosting habitat. The Biting Insect Management Plan noted that: 'A significant reduction in the abundance of *Aedes vigilax* (the common salt marsh mosquito) and likely other species can be achieved with buffer distances ranging from 20 – 100 m (McGinn 2014); whilst a buffer of 25 m may very significantly reduce the incidence of other common coastal species (McGinn 2006). Well-lit, sealed areas (such as roads) can also serve as buffers, especially adjacent to biting midge breeding sites.'

The initial development plan for the site provided for a 100 m wide cleared open-space foreshore buffer (set-back) between HAT and the residential precinct. The proposed reduction in the width of set-back to a minimum of approx. 59.5 m, but more typically 75.5 m, will have negligible if any effect on the prevalence of mosquitoes within the residential precinct. Further, an increase in the extent of residential land has been shown to be negatively correlated with the abundance of mosquitoes (Claffin and Webb, 2017).

Claffin, S. B. and Webb, C. E. 2017. Surrounding land use significantly influences adult mosquito abundance and species richness in urban mangroves. *Wetlands Ecol Manage* 25:331–334.

Johnson, B. J. and Devine, G. J. 2020. Further evidence that development and buffer zones do little to reduce mosquito nuisance from neighboring habitat. *J. American Mosquito Control Assoc.* September 2020.

Johnson, B.J., Manby, R. and Devine, G. J. 2020. What happens on islands, doesn't stay on islands: Patterns of synchronicity in mosquito nuisance and host-seeking activity between mangrove island and adjacent coastal development. *bioRxiv*: <https://www.biorxiv.org/content/10.1101/2020.04.21.054262v1.full.pdf>.

McGinn, D. 2006. *Status Report: Skennars Head Coastal Village Section 54: Mosquito Impact Assessment*, Report prepared for LandPartners, Ballina. Mosquito Consulting Services Pty Ltd.



McGinn, D. 2014. *Shoreline Biting Insect Management Strategy*, report prepared for Shoreline Redlands Pty Ltd. Mosquito Consulting Services Pty Ltd.



THE CONSULTANCY BUREAU

**OVERALL
BUSHFIRE MANAGEMENT PLAN
“REDLAND SHORELINE DEVELOPMENT”
FOR
THE FOX AND BELL GROUP
AND FITENI HOMES**



by



**L.S. Hawkes, B.Sc.(For), M.I.F.A., FRFAQ
R.E. Pegg, M.Sc., B.Sc.For, Dip.For. M.I.F.A., FRFAQ
B. Trembath, G.C. App Mgt, FRFAQ
The Consultancy Bureau Pty Ltd
June 2014**

The Consultancy Bureau Pty Ltd ABN 35 010 873 346
PO Box 142 Northgate Qld 4013 Phone: 07 3256 8444 Facsimile: 07 3256 8944
Email: mail@consultancybureau.com.au www.consultancybureau.com.au

MANAGEMENT CONSULTANCY SERVICES

Table of Contents

| | |
|--|----|
| Executive Summary | i |
| 1. Introduction..... | 1 |
| 2. Description of the Site..... | 2 |
| 2.1 General..... | 2 |
| 2.2 Topography..... | 2 |
| 2.3 Vegetation and Fauna..... | 2 |
| 2.4 Surrounding Lands | 3 |
| 2.4.1 East..... | 3 |
| 2.4.2 North..... | 3 |
| 2.4.3 West, South and South-East..... | 3 |
| 3. Potential Bushfire Hazard Assessment..... | 4 |
| 3.1 General..... | 4 |
| 3.2 Subject Site..... | 4 |
| 3.3 Surrounding Areas | 5 |
| 3.3.1 West of Serpentine Creek Road..... | 5 |
| 3.3.2 East of Serpentine Creek Road..... | 6 |
| 4. Bushfire Risk Analysis | 7 |
| 5. Mitigating Actions | 8 |
| 5.1 Policy and Principles..... | 8 |
| 5.1.1 Roding (Access and Separation)..... | 8 |
| 5.1.2 Fuel Reduction Areas and Buffers | 9 |
| 5.1.3 Water Supply | 9 |
| 5.1.4 Environmental and Landscaping | 9 |
| 5.1.5 Community Awareness | 9 |
| 5.2 Specific Requirements for Shoreline Development..... | 10 |
| 5.2.1 Roding | 10 |
| 5.2.2 Fuel Reduction Areas and Buffers | 11 |
| 5.2.3 Water Supply | 11 |
| 5.2.4 Vegetation Management and Environmental Considerations | 11 |
| 5.2.5 Construction Standards under AS3959-2009..... | 12 |
| 6. Conclusion..... | 13 |



THE CONSULTANCY BUREAU

14-006 Report

Commercial-in-Confidence

Executive Summary

The development of a new village on the shores of Southern Moreton Bay requires the assessment of the potential for bushfire as one of the planning considerations.

This proposed "Shoreline" development enjoys a maritime climate influence and most of the proposed development area is subject to some form of existing development.

Vegetation clearing, water storage, infrastructure and residences are all existing features of the site.

The site is dissected by the north/south Serpentine Creek Road. The eastern section is further sub-divided by Scenic Road. The north-eastern section has small remnants of vegetation. These will require some separation from development but are not more than a low level risk from unplanned fires.

The south-eastern section has medium to high risk vegetation to the west and south-east with existing road separations.

The proposed open space link joining existing remnant through from west to east will require access and separations from any development. Again, this section is not a high risk area but the potential for some unplanned fires causing ember attack does exist and will require attention during the planning stage.

The entire eastern area can be designed with perimeter roading, manicured separations and the use of walking tracks, sporting and recreational facilities to ensure the safety of people and property.

The section west of Serpentine Creek Road, while a fully cleared area and of low risk itself, has medium to high risk lands to the west and south.

These retained vegetation areas are extensive and are sited such that any unplanned fire from the north and north-west, could threaten this part of the development. These vegetated areas are in long term conservation tenure and to date there is little evidence of active fire management on these areas.



THE CONSULTANCY BUREAU

14-006 Report

Commercial-in-Confidence

Page i

The development of this area will require a strong set of actions to ensure the inevitable unplanned fire from the west does not threaten people or property.

The actions will include:-

- The development of the 20 metre gazetted road for access and a suitable separation zone. This will require the clearing of the entire 20 metres with special attention to fire dangerous trees.
- The provision of water points along this interface for fire fighting purposes.
- Recognition that habitable buildings within 100 metres of the adjoining hazard will require Building Code assessment under AS3959-2009 at residence construction stage.
- The connecting open space corridor must be designed and managed recognising that this area will act as a “wick” for the hazardous vegetation to the west and south.
- The owners and management of the adjoining lands, while out of the control of this development, must recognise the risk that unplanned fires from these lands will threaten the development. This would be best dealt with by a Management Plan on these lands that includes periodic ecologically designed hazard reduction burns.
- The need for an awareness program for all residences along this risk interface.

Overall, bushfire will not be a limiting factor to this development. The mitigating actions in this Bushfire Management Plan must be designed into the development and followed through at the construction phase.

Management of the fuel in the hazardous adjoining vegetation should also be pursued with the landholders.



THE CONSULTANCY BUREAU

1. Introduction

A large, mostly cleared aggregation of land parcels totalling some 303ha is proposed for a discrete village development (see Aerial Overview and Master Plan). This includes a range of residential styles, open space, fauna corridors and public and private utilities.

The site has Moreton Bay as its eastern boundary with retained vegetation around the west, south and some south-eastern perimeters.

While the general area enjoys a maritime influence, sections of the native vegetation have the capacity to carry a threatening unplanned bushfire from time to time.

This Plan assesses these hazards and risks and provides direction via mitigating actions to ensure the safety of all people and property on the subject site.



THE CONSULTANCY BUREAU

14-006 Report

Commercial-in-Confidence

Page 1

2. Description of the Site

2.1 General

The Aerial Photograph shows the largely developed nature of the site including extensive grazing, plant nurseries, poultry farms and small cropping. These pursuits range from very active to abandoned and most of the current lands are seriously under-utilised.

The site is divided into eastern and western precincts by Serpentine Creek Road. Scenic Road divides the eastern precinct into northern and southern units.

2.2 Topography

The site and surrounds are gently undulating with a ridge line running from the north-west to the south-east dividing water flows from the west and those to the east into Moreton Bay (see Aerial Photograph). Many of these drainage lines have dams constructed for various rural pursuits. Several are large and are topographical features in their own right.

It is proposed for two corridors (minimum of 100m width) to traverse east to west. These are fauna corridors and not catchment corridors.

2.3 Vegetation and Fauna

The Regional Ecosystem Map shows only one internal unit of vegetation of Ecosystem 12.3.6. There is also a band of native vegetation along the water frontage. This is largely mangroves and other mixtures not normally associated with bushfire considerations.

The Koala Habitat Values Map shows some Koala Bushland fringing the RE 12.3.6. The Aerial Photograph and site inspection confirms this band of vegetation (some regrowth) has the potential to carry an unplanned fire in a dry time.

There is also a small unit of regrowth in the south-eastern precinct that could carry an unplanned fire.

The current position of vegetation will change with the inclusion of rehabilitation and enhancement of the proposed open space corridors (see Master Plan).



THE CONSULTANCY BUREAU

14-006 Report

Commercial-in-Confidence

Page 2

2.4 Surrounding Lands

2.4.1 East

Moreton Bay is fringed by vegetation that will be protected and enhanced as per the Master Plan.

2.4.2 North

This property, while partly vegetated, is largely managed with understorey slashing etc. with a mapped section of open dry sclerophyll forest (see Regional Ecosystem Map).

2.4.3 West, South and South-East

These lands are heavily vegetated with mature and regrowth areas. Most, upon inspection, are unmanaged from a bushfire perspective. It appears that the Regional Ecosystem mapping in the bulk of this area may be inaccurate. While this does not affect the bushfire hazard assessment, these vegetation associations should be correctly mapped.

The Koala Habitat Map also confirms they are rated as High Value Bushland which places their tenure as long term vegetation retention.

There is an existing residential development in the eastern and southern sections off Scenic Road and while this has normal landscaping and garden plantings, this is a bushfire safe area.



THE CONSULTANCY BUREAU

14-006 Report

Commercial-in-Confidence
Page 3

3. Potential Bushfire Hazard Assessment

3.1 General

In December 2013, a new State Planning Policy (SPP) was released, however this SPP is incomplete when it comes to determining the potential bushfire hazard for a site. The Department of State Development, Infrastructure and Planning have advised the Rural Fires Association of Queensland that the old SPP 1/03 should be used for this purpose until more appropriate hazard calculation methodology is produced. Thus SPP 1/03 provides a suitable methodology for assessing sites for their potential Bushfire Hazard status in this case. This system uses slope, aspect and vegetation type to rate any area (see Appendix 1).

Redlands Planning Scheme – Version 3 provides a Bushfire Hazard Overlay Map which shows three units of medium bushfire hazard and the remainder of the site as low hazard.

3.2 Subject Site

An onsite assessment confirmed that all the cleared pasture, farming and horticultural areas on the site have a low hazard status.

The three units of medium hazard on the overlay are also correctly rated with the most northern area of a much lower risk because of its size, position and proximity to the water.

Overall, the subject site has little bushfire hazard issues at present. The proposed open space links do provide some additional potential hazard as it is largely proposed to develop these back to pre-existing Regional Ecosystem status.

The three open space areas that basically dead-end at Serpentine Creek Road are not expected to rise above low hazard status but some separation may be prudent.

The two areas that connect from east to west will be of medium hazard status and they will require some mitigating actions to render them safe.



THE CONSULTANCY BUREAU

The three small areas on parts of the southern boundary and the two on the northern boundary (of the western area) have some potential from adjoining hazardous vegetation and this will require some design considerations.

3.3 Surrounding Areas

The Council's Overlay Map shows the adjoining vegetation to the north and west and along the south-east side as medium hazard status. Site inspection confirms the medium status of all these areas. Some of these areas have the potential to carry high intensity fires if fuel loads are not managed, especially on the extensive units of vegetation to the west.

3.3.1 West of Serpentine Creek Road

This unit has extensive regrowth forest to the south with high fuel loads (20 tonnes/ha) (see Photographs 1 & 2). This area has not been burnt for many years and would carry a high intensity fire.

There is a 20 metre gazetted road along this boundary and along the western edge. The vegetation along the west is more open and the fuel loads are lower; this area appears to have a more recent fire regime. It is still in the high range of medium hazard and without ongoing regular fire management will always pose a risk to the adjoining development.

The strip to the north is of much lower hazard status but requires recognition for the potential for a nuisance fire.

This external large expanse of hazardous vegetation will be provided with an internal wick by the rehabilitation of the gully system through to Serpentine Creek Road. It has to be assumed that these areas will burn infrequently and the severity of this fire will depend largely on the management of these lands over time i.e. if fuel loads are allowed to build up to where some parts are now, fires will be an issue for the proposed development.



THE CONSULTANCY BUREAU

3.3.2 East of Serpentine Creek Road

- **North of Scenic Road**

There will be a need to determine the exact purpose and use of the three dead end open space units. It is not envisaged that these will be any threat to the proposed development. There may be a need to recognise that these gully enhancements could have some hazard potential depending on extent of replantings, species used and proposed adjoining development style. The existing external vegetation to attach to these units is largely fire proof, narrow and will have separation in the form of walkways etc.

- **South of Scenic Road**

There is vegetation along the western, southern and half of the eastern boundaries.

The western area has been identified as in the high range medium hazard category and while there is a road separation, any construction along this edge will be subject to Australian Standard 3959-2009 standards.

The southern boundary is a mixture of medium hazard and low hazard with two small gully retention units. It will be necessary to recognise these constraints.

The vegetation to the east is separated by a road and will attract similar requirements to the western section.

Overall, the bushfire hazard status of the subject site is low but a large external section in the west and south has the potential to impact on the proposed development.



THE CONSULTANCY BUREAU

4. Bushfire Risk Analysis

The bushfire hazard status of any area is a measure of the physical attributes of the site. The risk of these hazards starting and developing into a threatening bushfire are about sources of ignition, prevailing climate, management of hazards etc.

The risk of a fire starting and developing on the subject sites is low to very low and restricted to small isolated units of retained vegetation, regrowth, and revegetated areas.

Externally, the risk from a large area of vegetation to the west and south (see Hazard Map) is medium to high. This is because our bad bushfire weather is often associated with NW to W winds which, when blowing across a large area containing an unbroken mass of fuel, gives the fire scope to intensify and threaten the entire proposed development with an ember attack. This ember attack could expand to direct fire front involvement in areas directly adjoining this vegetation.

This assessment applies to the western and southern boundaries of the west of the Serpentine Creek Road unit.

Overall, there is a low risk east of Serpentine Creek Road and a medium to high risk west of Serpentine Creek Road. The proposed development, including the linear units of open space protruding from these high risk areas, has the potential to introduce a risk into the residential areas.



THE CONSULTANCY BUREAU

5. Mitigating Actions

5.1 Policy and Principles

Redland City Council Planning Scheme provides a Bushfire Hazard Purpose Statement which confirms the need to ensure uses and development are sited, designed and managed to minimise the risk of bushfire to people and property.

Section 1.6 (d) lists the aspects to be addressed to recommend actions for any proposed development (Appendix 2).

They include:-

- Roading and lot layout.
- Fire trails and fire breaks.
- Fuel reduction areas and buffers.
- Water supply.
- Environmental considerations and landscaping.
- Education and awareness programs.

For a proposed development of the subject area's size and nature, the following principles should apply:-

5.1.1 Roading (Access and Separation)

- In all areas adjoining medium hazard vegetation, a perimeter road with a total of 20m fuel reduction area. It will be essential to ensure this road is connected to the trafficable tracks that exist through the expanse of adjoining forest.
- Where the hazardous adjoining vegetation is a small area, narrow, riparian and generally a lower risk situation, a 5m cleared zone with a compacted 3m trail will be provided. This will be strengthened by an appropriate slashed zone either side of the trail.
- All roads and fire trails adjoining hazardous vegetation are to have access at either end i.e. no dead ends or cul-de-sacs.
- Where cul-de-sac designs are used internally, they should not exceed 200m in length when they are within 50m of medium hazard areas.



THE CONSULTANCY BUREAU

14-006 Report

Commercial-in-Confidence

Page 8

5.1.2 Fuel Reduction Areas and Buffers

These fuel reduction zones provide separation from adjoining hazardous vegetation. They also provide low fuel levels to allow fire fighters the capacity to effect suppression activities. Table 1, page 14, of the Bushfire Hazard Overlay provides the acceptable requirements.

Some tree retention is allowed in these zones but these retained trees **cannot** be fire dangerous species i.e. fibrous barked species.

5.1.3 Water Supply

- All habitable buildings will be connected to a reticulated water supply with a minimum pressure and flow of 10 litres/sec at 200kpa.
- Provision of water points will be required at 400m intervals on external roads or firebreaks adjoining major areas of medium hazard. If reticulated water is not available, tanks, dams, swimming pools etc. should be detailed and marked on maps in the Bushfire Management Plan.

5.1.4 Environmental and Landscaping

- Fuel reduction areas will maximise the use of existing roads, tracks and natural breaks (e.g. fireproof riparian vegetation).
- Use of walking and cycling tracks as firebreaks along with landscaping, parks, stormwater retention and strategically located sporting fields to strengthen access and separation from hazardous vegetation.

5.1.5 Community Awareness

All residents within 100m of medium hazard areas should be provided with copies of the Bushfire Management Plan and other necessary requirements e.g. AS3959-2009.



THE CONSULTANCY BUREAU

5.2 Specific Requirements for Shoreline Development

5.2.1 Roading

Western Precinct

- The entire precinct needs an external 20m separation including a constructed road with access to Serpentine Creek Road at each end (as per Type 1 Fuel Reduction Area (FRA), page 8 of the Code). This would be best located on the existing gazetted road where available and on best location along the northern boundary (some reductions to Type 2 FRA can be considered against low hazard sections).
- The small retained area in the south-east could be incorporated in the vegetation to the south by locating the road on the edge of this retained zone. This should apply to the two small retention areas to the north.
- The open space connecting the western vegetation to the east will require access and separation as per Type 2 FRA, page 8 of the Code i.e. 10m slashed with access and 5m of fuel managed zone.
- For other small areas of open space, a Type 5 FRA will suffice.

Eastern Precinct

- The southern boundary including retained wetland areas should have a minimum of Type 2 FRA separation including a road.
- The two proposed open space corridors that join to the west should also have Type 2 FRA separation with access. The access could be a road or walking/cycling track which is wide enough for a 4x4 rural fire fighting appliance in cases of emergency.
- The remainder of the open space including the entire foreshore zone will need a Type 4 separation and would benefit from some access along each side where possible.
- The foreshore zone should receive treatment similar to the existing sub-division to the north (see Photographs 3, 4 & 5 and Figure 1). This is not a bushfire problem except in a couple of locations where forest species exist.
- The section in the south-east corner adjoining hazardous vegetation enjoys a road separation and provided this is a total of 20m, no further action is needed.



THE CONSULTANCY BUREAU

- For other small areas of open space, a Type 5 FRA will suffice.
- Any fire trails or other use access to be incorporated into the bushfire access system must have access at each end. These can be restricted access but available for emergency use (e.g. locked gates or bollards).

The location of the recommended FRA Types is illustrated in Figure 2.

5.2.2 Fuel Reduction Areas and Buffers

These zones must be slashed grass and not in private ownership i.e. they must form part of the managed open space and roading network.

Maximum use should be made of existing cleared areas for recreational uses to provide buffers from hazards.

Retained mature trees or replacement plantings must be of low flammability species i.e. non fibrous bark species will not increase the potential for ember attack. This is especially important along the western and southern interface where the risk is the highest.

5.2.3 Water Supply

The entire area will have reticulated water. Provision of water points with fittings compatible with the local Rural Fire Brigade should be located as per the draft Master Plan (i.e. 7 in total).

5.2.4 Vegetation Management and Environmental Considerations

The retained open space and proposed enhanced open space corridors should have management that minimises the bushfire risk to adjoining areas of development. This should include planting of low flammability plant species and include fuel load management in the design e.g. the riparian strip could be aimed to achieve canopy closure with low ground fuel loads.

These significant areas of vegetation to the west and south on lands in private ownership and reserves need a Fire Management Plan developed that desirably includes a long term recognition of fuel reduction across these areas.



THE CONSULTANCY BUREAU

14-006 Report

Commercial-in-Confidence

Page 11

They currently have poor access and little or no management. Fuel loads are already very high and it is inevitable that a high intensity wildfire will have the potential to cause enormous biodiversity damage including fauna losses.

The use of aerial ignition techniques should not be ruled out, but with proper planning these areas can be burnt on a rotational basis to create a mosaic of recovery times with little or no harm to the ecological biodiversity.

5.2.5 Construction Standards under AS3959-2009

The best possible planning outcome should be implemented during the development stage to minimise the impact of any unplanned fires. However, it is inevitable with such a large expanse of hazardous vegetation to the north-west, west and south that some threat will always be present.

All proposed habitable structures within 100m of these assessable sections of vegetation will require a Bushfire Attack Level (BAL) assessment to be conducted at the residence construction stage. This will provide the owner, builder and certifier with the appropriate construction standard required to deal with any assessed bushfire threat.



THE CONSULTANCY BUREAU

14-006 Report

Commercial-in-Confidence
Page 12

6. Conclusion

The subject site enjoys a maritime climatic influence and the area east of Serpentine Creek Road has a low risk of bushfire impact. Simple precautions providing access, separation and isolation of vegetated areas will provide a safe outcome.

The area west of Serpentine Creek Road has the potential for long term bushfire threat from the outside vegetation.

It is essential that high quality external access, fuel separation and water supply, combined with long term management of this external hazard, be implemented to provide a safe environment for people and property.

All this can be achieved, but it is recognised that the management of the adjoining lands is out of the control of the developer and future residents, therefore planning must anticipate the worst case scenario unless the proposed management can be negotiated.

It will be necessary to provide Stage Plans as the design of the development proceeds.

Submitted for your consideration and adaptation for particular units of development.



L.S. Hawkes, B.Sc.(For) M.I.F.A., FRFAQ

Senior Associate

for L.S. Hawkes, R.E. Pegg & B. Trembath

CVs attached



THE CONSULTANCY BUREAU

14-006 Report

Commercial-in-Confidence

Page 13

Photograph No. 1



Photograph No. 2

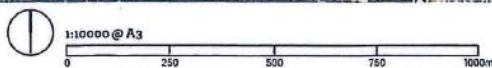
Photograph No. 3



Photograph No. 4

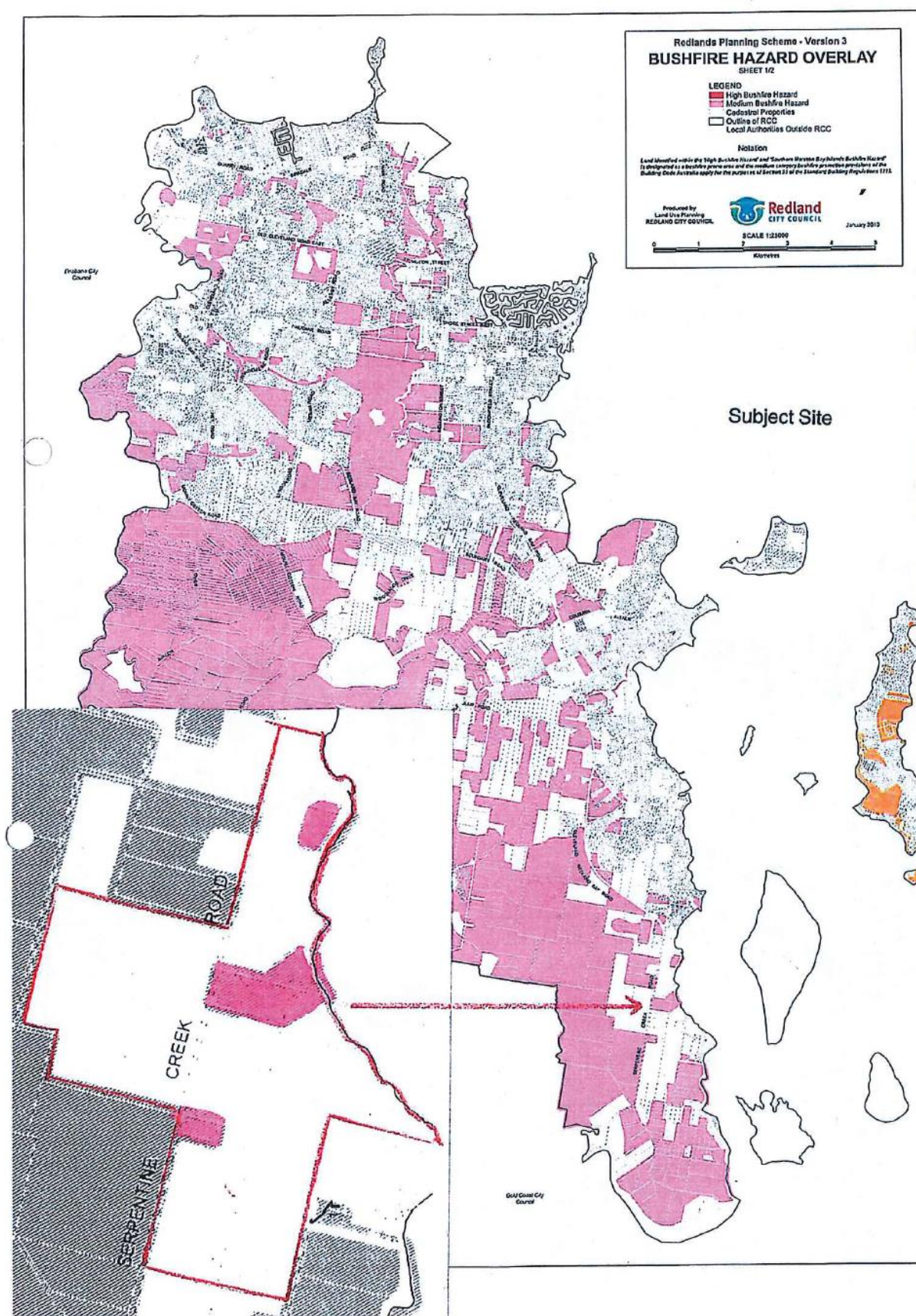
Photograph No. 5

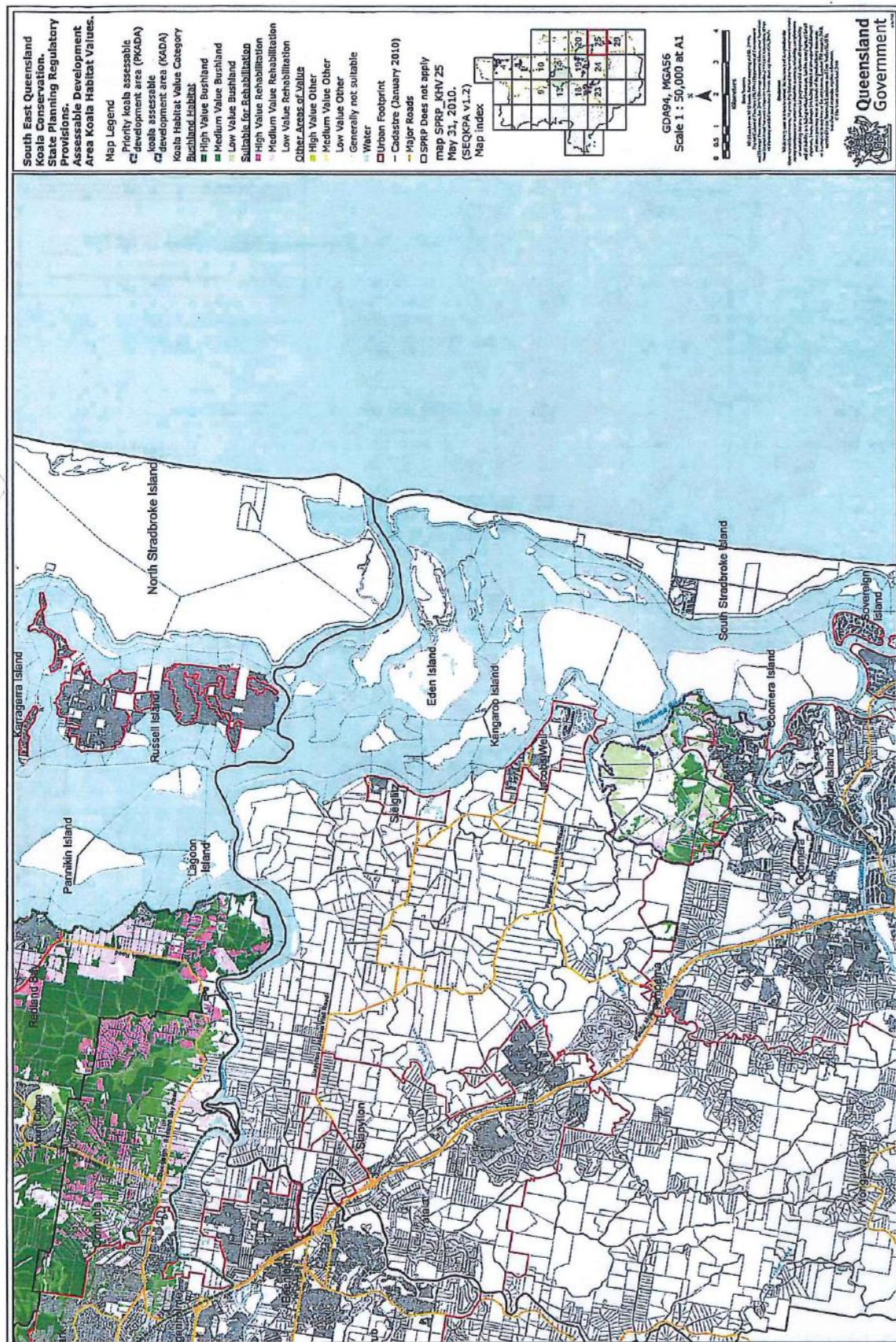


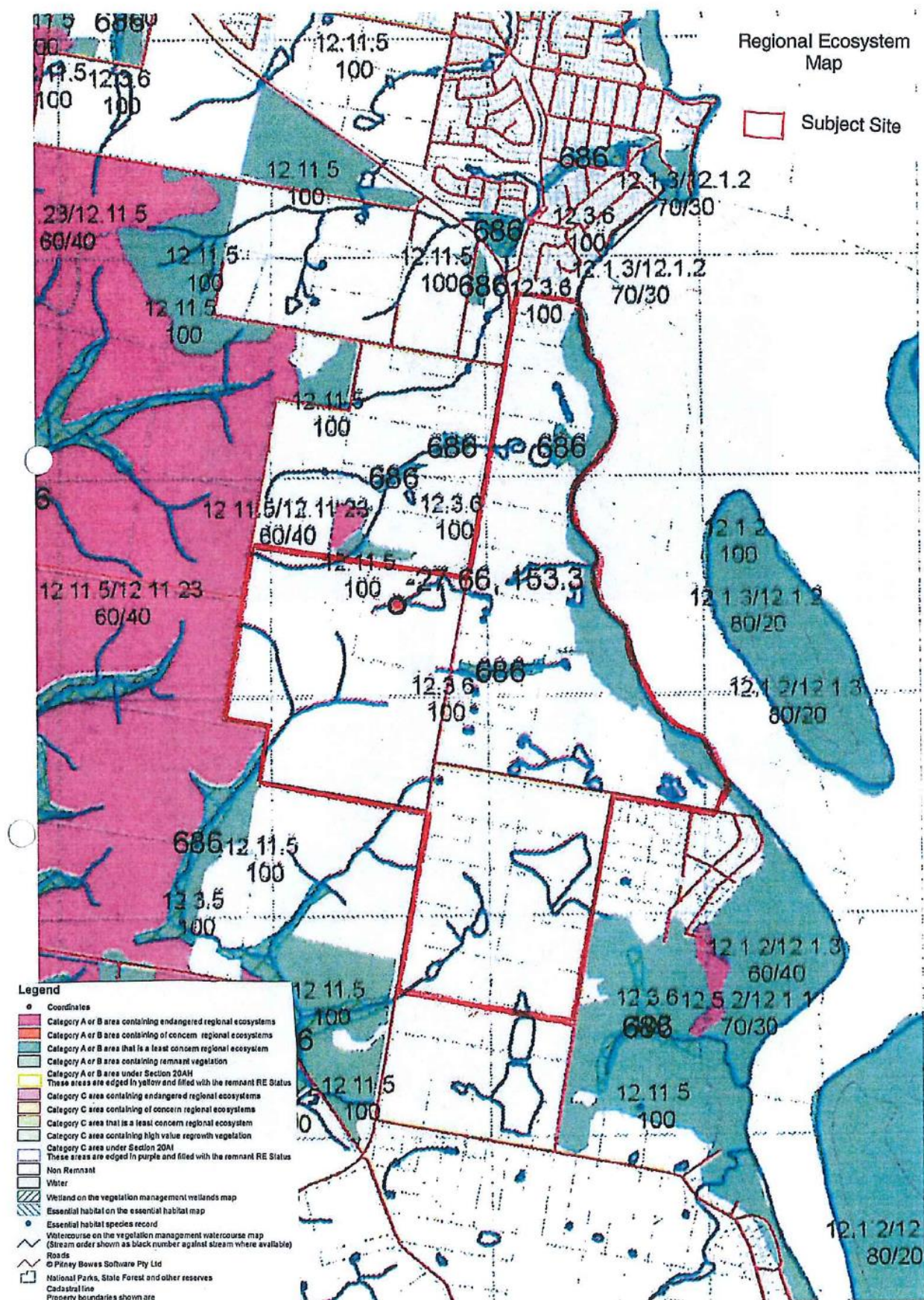


Unit 1, 35 Wyndra street, Newstead Q 4006
07 5552 5270
info@lat.com.au
COPYRIGHT LAT. ALL RIGHTS RESERVED

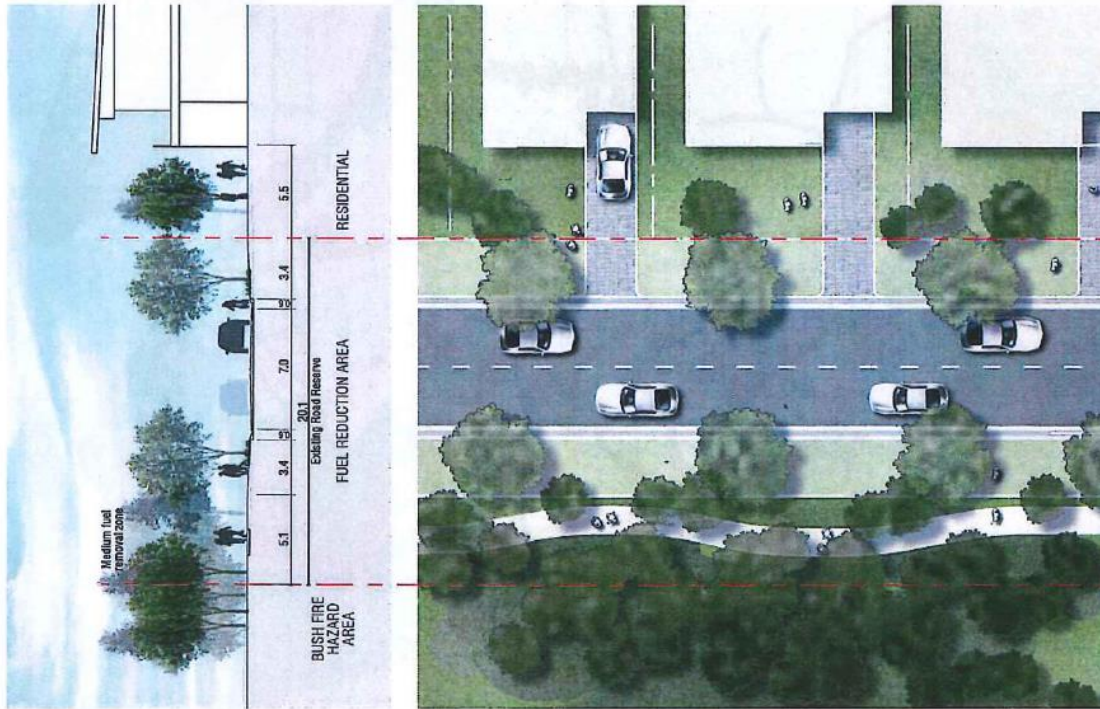
Aerial Photograph







Medium / High Fire Risk Residential Interface



Sample Imagery

Figure 1

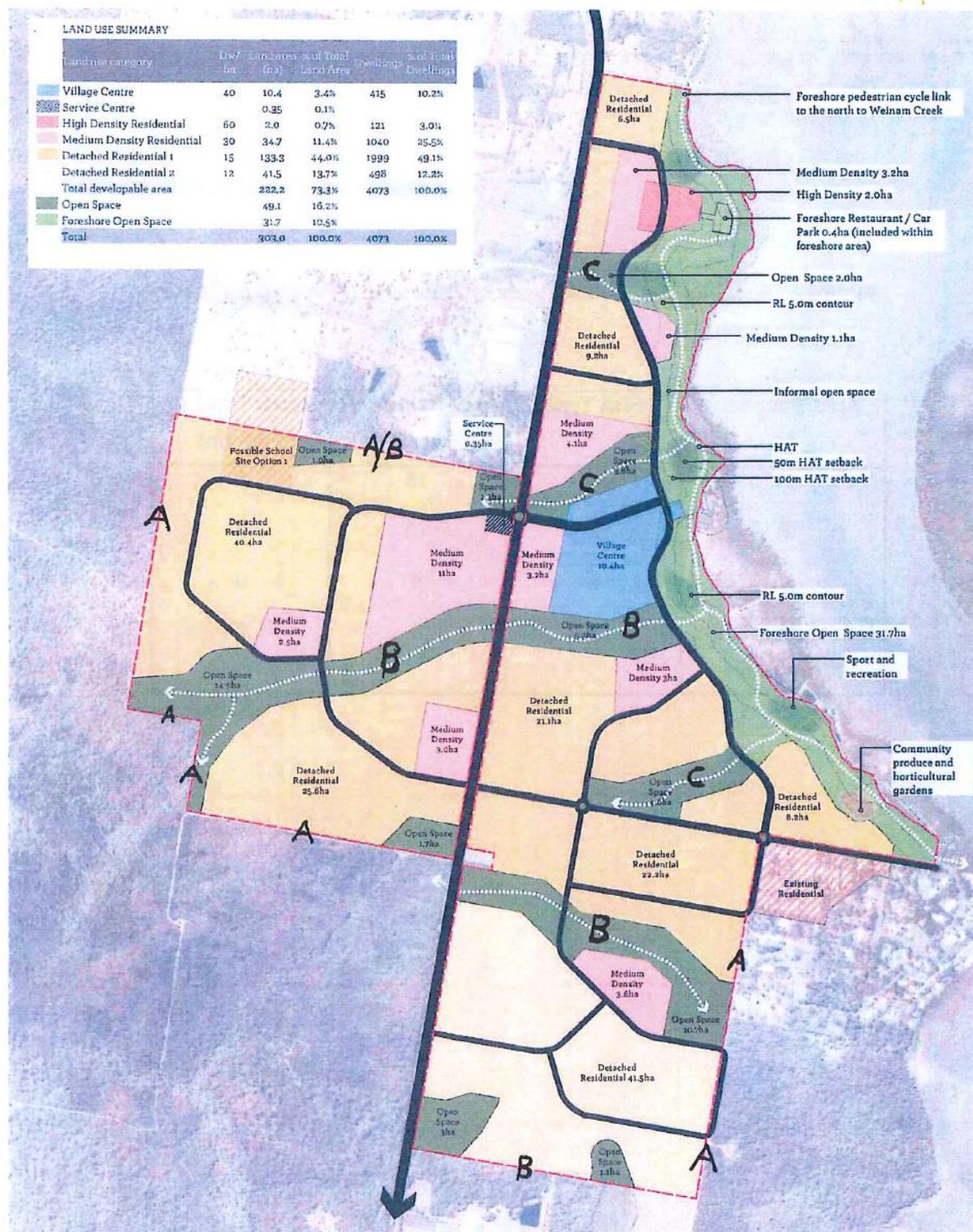
Proposed Typical Street Cross Sections, Shoreline Master Plan

09-June-2014.14009_SK001 [3]
www.lat27.com.au

lat
Unit 1, 26 Wynnum street, Newstead Q 4006
07 3852 5570
info@lat27.com.au
©COPYRIGHT LAT27 PTY LTD ALL RIGHTS RESERVED.

Figure 2**Figure 2. Specification of FRA Types on Shoreline (FRA as per Planning Scheme).**

| Area/Boundary | FRA Type | Fuel Reduction Zone (m) | Road, Track or Path (m) |
|--------------------------------|----------|-------------------------|-------------------------|
| A | 1 | 15 | 5 |
| B | 2 | 10 | 5 |
| C | 4 | 5 | 3 |
| Unmarked areas of revegetation | 5 | 3 | 2 |



1:10000 @ A3

0 250 500 750 1000m



Unit 1, 38 Wynders street, Newcastle NSW

07 9592 5570

adoption: 06/04/14

COPYRIGHT: ALL RIGHTS RESERVED

Preliminary Land Use Areas, Shoreline Master Plan

01.May.2014 : 14009_SK001 (13)

Appendix 1

**APPENDIX 3: UNDERTAKING NATURAL HAZARD ASSESSMENT –
BUSHFIRE****What is a bushfire?**

- A3.1** A bushfire is an uncontrolled fire burning in forest, scrub or grassland vegetation, also referred to as a wildfire.
- A3.2** Bushfire may occur on most vegetation and topography types in Queensland where there is a fuel path of sufficient dryness to be flammable.

Natural hazard management area (bushfire)

- A3.3** A natural hazard management area (bushfire) is described in Annex 3 of the SPP as follows:
- a) 'an area identified by a local government in its planning scheme consistent with the conclusions of a bushfire hazard assessment prepared in accordance with Appendix 3 of the SPP Guideline or other methodology approved by the Queensland Fire and Rescue Service (QFRS); or
 - b) where such a study has not been undertaken, an area identified by a local government in its planning scheme, reflecting the Medium and High hazard area of the Bushfire Risk Analysis maps produced by QFRS, suitably modified following a visual assessment of the accuracy of the maps; or
 - c) where an area has not been identified by a local government, the Medium and High hazard areas on the Bushfire Risk Analysis maps produced by QFRS.'
- A3.4** Outcome 4 of the SPP requires natural hazard management areas (bushfire) to be identified in planning schemes (except for those local government areas to which the SPP does not apply in relation to bushfires – refer to Annex 2 of the SPP). Natural hazard management areas (bushfire) trigger the development outcomes and development assessment requirements specified in Outcome 1 of the SPP, and are also required to enable the development of the planning strategies and detailed measures required by Outcomes 5 and 6 of the SPP.
- A3.5** The following methodology has been developed to assist local governments and developers to identify natural hazard management areas (bushfire). It is an appropriate method for land use planning purposes and is suitable for use by local governments when identifying natural hazard management areas (bushfire) as part of the plan making or amending process and also for site-specific bushfire hazard assessments.
- A3.6** However, other methodologies may also be appropriate. Local governments or their consultants should contact the QFRS to discuss alternative methodologies and ensure that they are acceptable.

Climate change impacts

- A3.7** Climate change is expected to cause a gradual change in vegetation health and vigour, and some species and vegetation communities will be advantaged over others. Climate change impacts will be reflected over time through changes to vegetation communities and fuel characteristics. These changes are difficult to predict and are likely to occur very gradually over a long timeframe. The changes to bushfire hazard associated with climate change impacts will generally be outweighed by changes caused by human activity in the short term. For these reasons it is not practicable to consider the impacts of climate change in bushfire hazard assessment studies at present.

Methodology for assessing bushfire hazard⁴³

- A3.8** The methodology involves quantitative and qualitative assessments. The quantitative element requires an assessment of three key characteristics of land that have been found to be the main determinants of the severity of bushfire hazard. These factors are vegetation communities, slope and aspect.
- A3.9** The area to be assessed should be disaggregated into sub-units according to vegetation communities, slope and aspect characteristics. Tables A3.1 to A3.3 provide the ranges that should be applied for the analysis of each of the three factors. These ranges will also help to determine the sub-units that should be used to conduct the assessment. The size of the sub-units, and level of accuracy of the resultant bushfire hazard map, may vary with the extent of the area being assessed, the characteristics of the land and vegetation communities, and the accuracy of the base information being used.
- A3.10** Each sub-unit is allocated a score for each of the three factors. The total score for each sub-unit determines the severity of bushfire hazard for that sub-unit. A qualitative review of these findings should then be undertaken to verify the results of the quantitative assessment.
- A3.11** The qualitative review should consider the known bushfire behaviour.
- A3.12** Finally, a safety buffer of land in close proximity to identified bushfire hazard areas needs to be included within the natural hazard management area (bushfire). The safety buffer is required because bushfires can affect unvegetated land in close proximity, particularly due to winds fanning flames, smoke, embers and radiant heat.

Step 1: Assessment of vegetation communities

- A3.13** The different types of vegetation communities determine the rate at which dry fuel accumulates. Some vegetation communities protect fuel from drying out in all but extreme bushfire seasons and can then be susceptible to very destructive bushfires. Alternatively, vegetation communities may expose fuels to drying and therefore be frequently available for burning. Frequent bushfires can result in the development of bushfire-tolerant grassy woodlands or grasslands and less destructive bushfire behaviour. The characteristics of different vegetation communities are reflected in Table A3.1. This

⁴³ Alternative methodologies may also be acceptable but should be referred to the QFRS for assessment and approval prior to implementation.

table also presents the hazard scores for a range of vegetation communities. Vegetation community data is available in digital map form from the Queensland Herbarium, Environmental Protection Agency, at a scale of 1:100,000.

Table A3.1: Hazard scores and associated fire behaviours for various vegetation communities

| Vegetation communities | Fire behaviour | Hazard score |
|---|--|--------------|
| Wet sclerophyll forest, tall eucalypts (>30 m), with grass and mixed shrub understorey. | Infrequent fires under severe conditions, flame lengths may exceed 40 m, floating embers attack structures for 1 hour, radiant heat and direct flame are destructive for 30 minutes. | 10 |
| Paperbark heath and swamps, eucalypt forest with dry-shrub ladder fuels. | Fire intensity depends on fuel accumulation, but can be severe, with flame lengths to 20 m, spot fires frequent across firebreaks, radiant heat and direct flame for 15 minutes. | 8 |
| Grassy eucalypt and acacia forest, exotic pine plantations, cypress pine forests, wallum heath. | Fire intensity may be severe with flame lengths to 20 m, but less attack from embers. | 6 |
| Native grasslands (ungrazed), open woodlands, canefields. | Fast moving fires, available to fire annually to 4 years. Usually no ember attack, radiant heat for >10 m, duration <2 minutes. | 5 |
| Intact acacia forests, with light grass to leaf litter, disturbed rainforest. | Fires infrequent, usually burn only under severe conditions, relatively slow fires, usually little ember attack. | 4 |
| Orchards, farmlands, kikuyu pastures. | Fires very infrequent, slow moving, may be difficult to extinguish, frequent fire breaks. | 2 |
| Grazed grasslands, slashed grass. | Grazing reduces intensity and rate of spread of fire, duration <2 minutes. | 2 |
| Desert lands (sparse fuels), mowed grass. | Gaps in fuel, usually slow fire spread. | 1 |
| Intact rainforest, mangrove forest, intact riverine rainforest. | Virtually fireproof. | 0 |

Note 1: Vegetation assessment should be based upon examination of the vegetation on the subject site and surrounding the subject site. Narrow strips of vegetation may be flammable; however, bushfires will not generally reach their full intensity where bushfire fronts are less than 100 metres wide. For this reason the following examples may be viewed as having the next lower hazard score (i.e. paperbark heath would have a score of 6 not 8, cypress pine forest 5 not 6):

- areas with a linear shape (e.g. roadside vegetation beside a cleared paddock); and
- units of vegetation less than 50 hectares in area and more than one kilometre from the nearest extensive vegetation.

A3.14 Where the vegetation community is assessed as having a vegetation community hazard score of zero, no other factors need to be taken into account and the relevant sub-units should be given a Low severity of overall bushfire hazard. No further action is required.

Step 2: Assessment of slope⁴⁴

- A3.15** Studies have shown that fires burn more quickly and with greater intensity up slopes, generally doubling every 10 degrees of slope. Also, the steeper the slope the more difficult it is to construct ring roads, firebreaks and provide access for emergency crews. Trees situated downhill from structures will have their crowns close to the structures. This presents bushfire hazards particularly for exposed structures such as timber decks. Table A3.2 presents the hazard scores for different categories of slope.

Table A3.2: Hazard scores for slope

| Slope | Hazard score |
|-----------------------------|--------------|
| Gorges and mountains (>30%) | 5 |
| Steep Hills (>20% to 30%) | 4 |
| Rolling Hills (>10% to 20%) | 3 |
| Undulating (>5% to 10%) | 2 |
| Plain (0% to 5%) | 1 |

[Note: For site-specific assessment of bushfire hazard, if the site is downhill from the hazard, the slope effect may be taken as zero as the fire intensity will be less. However, burning heavy fuels may roll downhill and trees may fall down, so recommended setbacks from the hazard still need to be observed.]

Step 3: Assessment of aspect

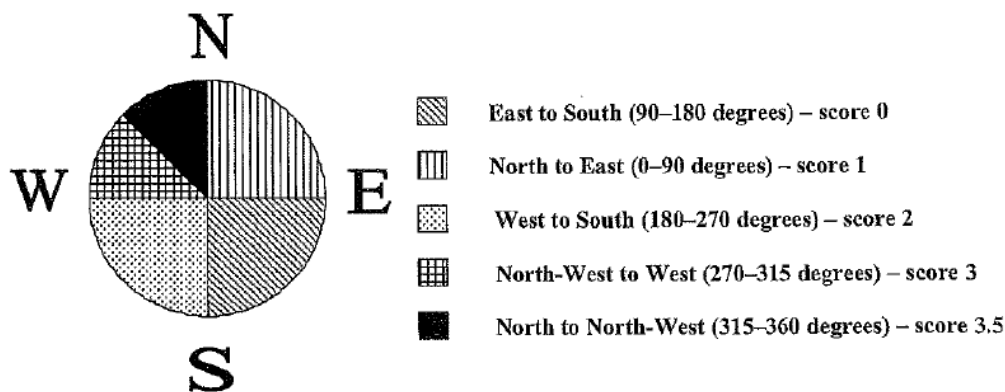
- A3.16** Aspect affects bushfire hazard due to the effects that exposure to direct sunlight has on different vegetation communities, including the drying rates of fuels. Aspect also correlates closely with exposure to low humidity winds that increase bushfire intensity. In extremely broken country where there is a variety of aspects, the predominant aspect should be used.
- A3.17** As aspect has only a minor influence on flatter land, aspect is not considered to be significant on land with a slope less than 5%. Table A3.2 lists the hazard score for different aspects and Figure A3.1 illustrates the compass degree ranges for each aspect category.

Table A3.2: Hazard score for aspect

| Aspect | Hazard score |
|---|--------------|
| North to North-West | 3.5 |
| North-West to West | 3 |
| West to South | 2 |
| North to East | 1 |
| East to South and all land under 5% slope | 0 |

⁴⁴ See Appendix 10 for the methodology for calculating slope.

Figure A3.1: Compass degree ranges for each aspect category

**Step 4: Combining scores to identify the severity of bushfire hazard**

- A3.18** The scores for the individual factors determined for vegetation communities, slope and aspect are added together to give a total for each sub-unit as follows:

Total hazard score = vegetation community hazard score + slope hazard score + aspect hazard score.

- A3.19** The total hazard score determines the severity of bushfire hazard for each sub-unit as set out in Table A3.4.

Table A3.4: Hazard score ranges to identify the severity of bushfire hazard

| Total hazard score | Severity of bushfire hazard |
|--------------------|-----------------------------|
| 13 or greater | High ⁴⁵ |
| 6 to 12.5 | Medium |
| 1 to 5.5 | Low |

⁴⁵ Buildings in High severity bushfire hazard areas should be constructed in accordance with the Level 1 requirements of AS 3959:1999 'Construction of Buildings in Bushfire-Prone Areas'.

Step 5: Field verification

- A3.20** Preliminary bushfire hazard maps should be prepared based on the results of Step 4 above by aggregating all sub-units with similar levels of bushfire hazard severity into High and Medium severity classifications.⁴⁶ Field verification or 'ground truthing' of these preliminary results should then be undertaken. A number of sample areas should be evaluated to test the accuracy of the preliminary bushfire hazard findings.

Step 6: Qualitative assessment

- A3.21** Known bushfire behaviour complements the quantitative assessment and should be considered as part of the qualitative review.
- A3.22** Known bushfire behaviour is extremely difficult to use as a quantitative planning tool. This is because the absence of bushfire, even for an extended period of time, does not mean that an area will not burn and may lead to massive fuel accumulation with dangerous bushfire behaviour if it does ignite. Known bushfire behaviour may identify sites where combinations of slope and wind have led to severe bushfire behaviour in the past, and where extra precautions to protect assets might be required. The reliability of known bushfire behaviour may be difficult to assess and QFRS should be consulted if problems are indicated.

Step 7: Safety buffers

- A3.23** The final step in identifying bushfire hazard areas is to add a safety buffer, as land adjacent to bushfire hazard areas is vulnerable to bushfire attack from these areas.
- A3.24** Any land within 100 metres of an area identified as having a High bushfire severity classification should be included in the High bushfire hazard area and any land within 50 metres of an area identified as having a Medium bushfire severity classification should be included in the Medium bushfire hazard area.⁴⁷ The safety buffers should be integrated into the preparation of maps identifying bushfire hazard areas. Table A3.5 shows the width of the safety buffers that apply to the various bushfire hazard severity classifications.

Table A3.5: Total hazard score and severity of bushfire hazard with safety buffers

| Total hazard score | Severity of bushfire hazard | Width of safety buffer |
|--------------------|-----------------------------|------------------------|
| 13 or greater | High | 100 metres |
| 6 to 12.5 | Medium | 50 metres |
| 1 to 5.5 | Low | Not applicable |

⁴⁶ Areas of Low bushfire hazard severity may also be mapped, but the natural hazard management area (bushfire) for the purposes of the SPP comprises only areas identified as being of High or Medium severity.

⁴⁷ Safety buffer areas on the boundary between High and Medium bushfire severity areas should be included in the High bushfire severity area.

Appendix 2

RPS V5.2 - 2013

Part 11 - Planning Scheme Policy 1 - Bushfire Hazard - Page 1

Part 11 - Planning Scheme Policies

Planning Scheme Policy 1 - Bushfire Hazard

1.1 Purpose

- (1) The purpose of this policy is to set out requirements for the preparation and submission of development applications, including technical reports, for premises subject to bushfire hazard to -
 - (a) minimise the density of uses or other development at risk from bushfire hazard so as to reduce the number of people and properties subject to the risk;
 - (b) ensure uses and other development are sited, designed and managed to minimise the risk of bushfire to people and property.

1.2 Applicability

This policy applies when a proposed development is situated on premises affected by the Bushfire Hazard Overlay Map and Code.

1.3 Formulating a Development Proposal

- (1) Bushfire hazard assessment and reporting should be undertaken before determination of a potential development scenario.
- (2) Recommendations of the reports are required to ensure the resulting development is compatible with the risk of bushfire and is fully understood by the applicant and premises operator/occupier.
- (3) It is strongly recommended that applicants arrange a pre-lodgement meeting to discuss matters to be included in any reports and the timing of lodgement of the report.

1.4 Bushfire Hazard Mapping

- (1) The Bushfire Hazard Overlay Map is based on hazard mapping developed for the mainland and Southern Moreton Bay Islands by the local government and the Queensland Fire and Rescue Service (QFRS).
- (2) The methodologies used for determination of the hazard is based on Appendix 3 of *SPP 1/03 - Guidelines - Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* and has been modified in accordance with QFRS recommendations for the local area.
- (3) The hazard mapping for North Stradbroke Island is based on mapping produced by the State Government.

1.5 Bushfire Hazard Assessment

- (1) In accordance with the Bushfire Hazard Overlay Code site specific bushfire hazard assessment is required when the premises is affected by medium or Southern Moreton Bay Islands bushfire hazard to ensure the proposal is located on land with the least risk and where management of the hazard is achievable.

Bushfire Hazard

- (2) Bushfire hazard assessment is conducted in accordance with the methodology described in Appendix 3 of *SPP 1/03 Guidelines - Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*.
- (3) The assessment manager should be consulted prior to undertaking any study using alternative methodologies.

1.6 Bushfire Management Plans

- (1) In accordance with the Bushfire Hazard Overlay Code site specific bushfire hazard assessment and a management plan is required when the premises is affected by -
 - (a) high bushfire hazard; or
 - (b) medium or Southern Moreton Bay Islands bushfire hazard and is for the purposes of community infrastructure; or
 - (c) high, medium or Southern Moreton Bay Islands bushfire hazard and involves the manufacture or storage of hazardous materials in bulk; or
 - (d) high bushfire hazard and for the purpose of reconfiguration or uses that involve numerous buildings.
- (2) The Bushfire Management Plan (BMP) identifies strategies for mitigating the impacts of bushfire on life, property and the environment. This includes identifying specific risk factors associated with the development, planning for the separation of at-risk elements and potential hazards and providing access and treatments to facilitate an effective response to bushfire.
- (3) Mitigation measures need to consider the four main factors of bushfire attack as detailed in *Protecting your Home Against Bushfire Attack* (DLGPS&R, 2000) -
 - (a) burning debris;
 - (b) radiant heat;
 - (c) direct flame contact;
 - (d) wind.
- (4) The BMP is prepared by a suitably qualified professional with technical expertise in the identification and mitigation of bushfire hazard. Suitable professionals may include those in the environmental management, landscape architecture, architecture, town planning and civil engineering fields.
- (5) Consultation with the local government, responsible Rural and/or Urban Fire Brigade, and managers of adjacent parks or reserves is necessary in the preparation of a BMP.
- (6) It is also desirable to consult other agencies or individuals, such as previous owners of the site or neighbours, who may have local knowledge of the severity and nature of the bushfire hazard.
- (7) A comprehensive BMP -
 - (a) includes an assessment of the nature and severity of the bushfire hazard affecting the site. This should comprise a detailed site specific bushfire hazard assessment using methodology set out in Appendix 3 of *SPP 1/03 Guideline Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*;
 - (b) addresses other site specific factors that are important in devising suitable bushfire mitigation strategies. These factors could include matters such as -
 - (i) likely direction of bushfire attack;
 - (ii) environmental values that may limit mitigation options;
 - (iii) locations of evacuation routes and/or safety zones;

Bushfire Hazard



RPS V5.2 - 2013

Part 11 - Planning Scheme Policy 1 - Bushfire Hazard - Page 3

- (c) assesses the specific risk factors associated with the development proposal, including matters such as -
 - (i) the nature of activities and materials to be conducted/stored on the premises;
 - (ii) numbers and types of persons likely to be present;
 - (iii) warning and/or evacuation requirements;
- (d) addresses each of the specific outcomes and associated probable solutions in the Bushfire Hazard Overlay Code and recommends mitigation actions for the proposed development including -
 - (i) road and lot layout for reconfiguration;
 - (ii) fire trails and fire breaks;
 - (iii) accessways, driveways and evacuation routes;
 - (iv) land uses;
 - (v) site layout;
 - (vi) fuel reduction areas and buffers;
 - (vii) water supply;
 - (viii) landscaping;
 - (ix) fire fighting requirements including infrastructure;
 - (x) any other specific measures such as external sprinkler systems and alarms;
 - (xi) purchaser/resident education and awareness programs;
 - (xii) ongoing maintenance and response awareness programs.

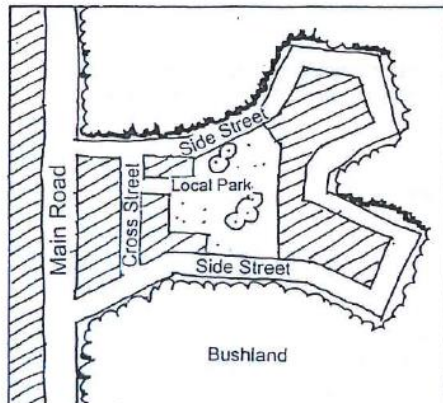
1.7 Development Involving Hazardous Materials Manufactured or Stored in Bulk

- (1) Hazardous materials in bulk for the purposes of bushfire hazard are those detailed in SPP 1/03 as being hazardous materials defined in the *Dangerous Goods Safety Management Act 2001*, in quantities that -
 - (a) would be equivalent to or exceed the minimum quantities set out to determine a Large Dangerous Goods Location in the *Dangerous Goods Safety Management Regulation*; or
 - (b) would require a licence for a magazine for the storage of an explosive under the *Explosives Regulation 1955*.
- (2) Radioactive substances and infectious substances are excluded from the definition of hazardous materials for the purposes of the SPP.
- (3) Development involving hazardous materials manufactured or stored in bulk has the potential to -
 - (a) be significantly affected by bushfire hazard;
 - (b) significantly assist the progression of bushfire.
- (4) Where a development requires a Flammable and Combustible Licence under the *Dangerous Goods Act 2001*, it is recommended that application for that licence be made at the same time as the development application to ensure all relevant issues are addressed in an integrated manner.
- (5) Depending on design or production capacity chemical manufacture and/or storage may constitute an Environmentally Relevant Activity as defined under the *Environmental Protection Act 1994*. This use or component of a use is required to be assessed for environmental impacts in accordance with the *Environmental Protection Act 1994* and the *Redland City Council Operator's Compliance Guidelines*. Further advice on this matter can be provided at the time of the pre-lodgement meeting.

Bushfire Hazard

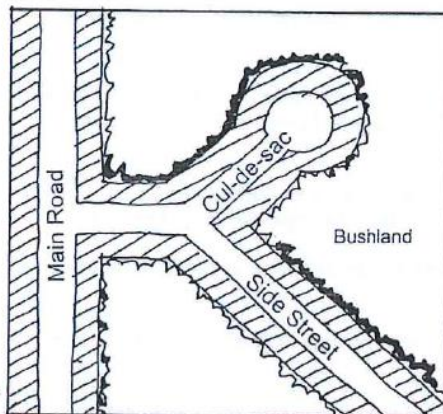

1.8 Road and Lot Layout

Diagram 1 - Preferred road layout in and adjoining bushfire hazard areas



Acceptable – perimeter road system provides separation between hazard and assets; access for fire fighters, and provides two directions for evacuation.

Diagram 2 - Unacceptable road layout in and adjoining bushfire hazard areas



Unacceptable – closed road system congregates evacuation and response traffic, access for fire response restricted.

1.9 Building Siting and Development Envelopes

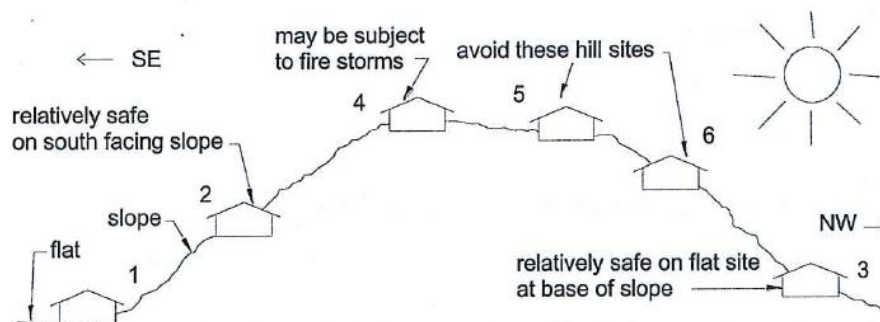
Bushfire Hazard

- (1) The way a building is sited on land is a basic factor influencing the ability to protect people and property. As the pattern of fires is predictable, it is possible to determine the most favourable areas to minimise impacts. For example -
 - (a) check data about previous fires in the area to determine the possible directions a fire would travel;
 - (b) be aware most bushfires occur during dry conditions, particularly in times of hot temperatures and low humidity, and are often accompanied by strong winds;
 - (c) remember fires accelerate going up hill and decrease in speed traveling down hill.
 - (d) hanging a building out over the hazard will increase the risk such as a pole house with timber decks will be much more exposed than one set into the slope;
 - (e) siting the structures downhill from the hazard reduces the risk, and this is reflected in the site-specific assessment method. Setbacks are still necessary to avoid falling trees and debris rolling down hill.



- (2) There are two key principles to be considered in siting a building in a bushfire hazard area -
- avoiding higher risk situations, particularly locations with a combination of slope and certain aspects;
 - maximising the setbacks from hazardous vegetation (refer fuel reduction areas above).
- (3) On larger lots it may be possible to site buildings in an area depicted on bushfire hazard assessment maps as lower bushfire risk.
- (4) Irrespective of the severity of hazard in any bushfire hazard assessment, combinations of slope and aspect on individual sites should be considered. Diagram 3 illustrates the relative bushfire safety of building site locations based on slope and aspect considerations.
- (5) The order of preference is low flat sites, sites set into Southerly or South East slopes, sites at the bottom of more exposed West and North West slopes. The most dangerous sites are on or at the top of West or North West slopes. Building sites should also avoid the head of gullies with Westerly aspects, because fire winds funnel up such sites.
- (6) Although fires may tend to come from a particular direction, local variations are always likely and protection for the southern and eastern side of developments must never be overlooked.

Diagram 3 - Bushfire safety based on slope and orientation



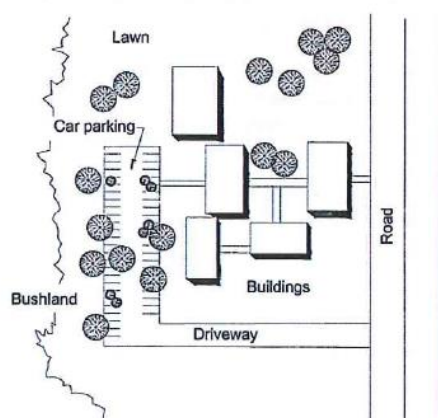
Note -

House sites numbered in order of degree of fire safety - 1 being the safest and 6 being the most hazardous.

- (7) Siting should also -
- avoid ridge tops;
 - avoid steep slopes, particularly upper slopes and narrow ridge crests;
 - avoid locations where adequate fuel reduction areas and buffers can not be provided within the property;
 - locate buildings where vehicular access from two directions can be provided away from identified hazard areas wherever possible;
 - build on level ground wherever possible;
 - where buildings must be constructed on sloping land, incorporate cut-in benches rather than elevated or above fill;
 - avoid raised floors in preference to concrete slabs;

Bushfire Hazard

- (h) locate the building near the property entrance for easier access/egress, refer to Diagram 4;
 - (i) keep services underground, particularly electricity;
 - (j) locate on-site water storage near buildings.
- (8) Development envelopes should be sited in the same manner to the above. Development envelope size and shape is designed to allow for the allocation of fuel reduction areas and buffers to assets within the building envelopes.

Diagram 4 - Preferred Site Layout

Consideration should be given to placing least susceptible land uses closer to the likely direction of fire attack than more susceptible land uses.

1.10 Construction of Buildings in Bushfire Hazard Areas

- (1) Building design can have a significant impact on the likelihood of damage occurring due to bushfire.
- (2) Compliance with *Australian Standard 3959:1999 - Construction of Buildings in Bushfire Prone Areas* is required when a premises is affected by Southern Moreton Bay Islands Bushfire Hazard and fuel reduction opportunities are limited due to lot size.
- (3) Incorporation of principles contained in the above standard are encouraged for all buildings within high, medium and SMBI bushfire hazard affected premises.
- (4) The document *Protecting your home against bushfire attack* (DLGPS&R, 2000) provides further guidance on how a building should be designed.
- (5) In addition, it is recommended that -
 - (a) external gas cylinders are shielded from possible exposure to radiant heat by the construction of a masonry shield;
 - (b) building elevation and roof pitches are minimised;
 - (c) all external gaps are less than 2mm;
 - (d) timber decking is kept to a minimum.

Bushfire Hazard



1.11 Landscaping

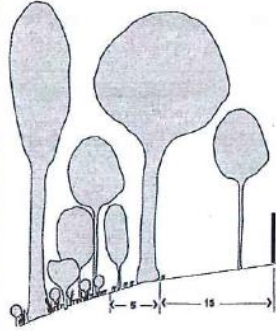
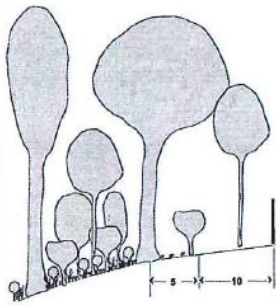
- (1) Landscaping should be designed to assist in creation of buffers and fuel reduction areas.
- (2) Consideration should be given to surround isolated buildings with a wide driveway or paths of gravel, concrete, pavers etc or mown areas.
- (3) Landscaping, particularly using mulch, adjacent to buildings can facilitate spot fires.
- (4) Low flammability plant species indigenous to the local government area should be used and are identified within Table 2 of the Bushfire Hazard Overlay Code.

1.12 Fuel Reduction Areas

- (1) Fuel reduction areas (FRA) require the gradual removal of fuel between development and a hazard and are located to provide -
 - (a) areas of reduced fuel to slow advancing fire;
 - (b) adequate access for fire fighting and other emergency vehicles;
 - (c) for the retention of environmental values.
- (2) FRA types for the local government area were developed over time as land management agencies and the community addressed the separation of bushland from private and public assets with regard to bushfire risk management.
- (3) FRA types have been classified and are used to demonstrate the flexibility required by a land manager in balancing the built environment with the natural environment.
- (4) A FRA consists of varying widths of a slashed zone, and a medium fuel removal zone.
- (5) General characteristics of these FRA include -
 - (a) in the slashed zone -
 - (i) removal of all understorey plants and ground covers;
 - (ii) retention of trees with a trunk diameter at the base of greater than 15cm;
 - (iii) allowance for the movement of fire tender within the FRA in all situations;
 - (b) in the medium fuel removal zones (MFR) -
 - (i) retention of trees and groundcovers;
 - (ii) selective removal of plants that will be less than 1.5 metres in height on maturity.
- (6) Minimum FRA's are specified in Table 1 of the Bushfire Hazard Overlay Code.
- (7) Additional types may be appropriate as determined by a bushfire management plan for the development and are set out in Table 1 of this policy.
- (8) Distances and treatments should be -
 - (a) used as a guide and may be varied at the discretion of the local government in consideration of site specific hazards and significant environmental features. For this reason all 7 types of fuel reduction areas are detailed;
 - (b) measured from any buildings or structures associated with the development.
- (9) On lots greater than 2500m², buildings should be sited so that the minimum setbacks from hazardous vegetation detailed for the FRA can be achieved.



Table 1 - Fuel Reduction Area Descriptions

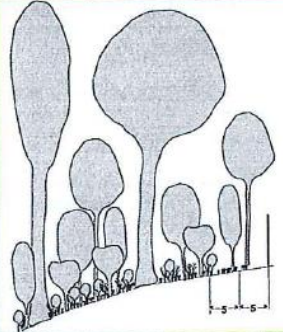
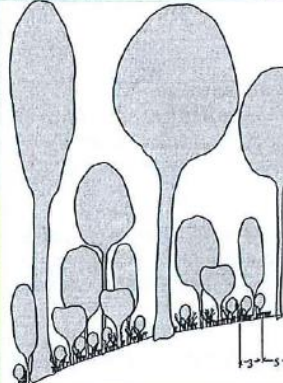
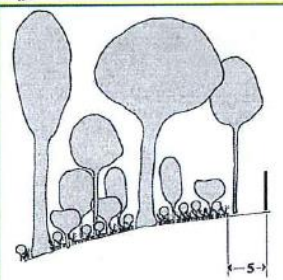
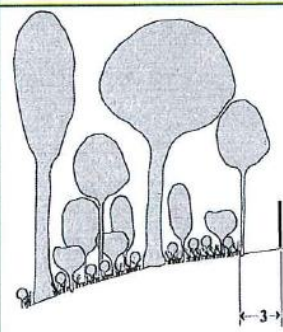
| FRA Type | Representation | Description |
|----------|--|---|
| 1 |  | <p>Requires the removal of canopy, understorey and groundcover and installation of measures to minimise the erosion of the bare soil and direct stormwater run-off.</p> <p>Is only necessary where the fire risk is very high due to highly combustible fuel and the slope of the land would allow for a high rate of spread and a high flame height in periods of high fire danger, and where the risk to life and infrastructure is high.</p> <p>Zone widths -</p> <ul style="list-style-type: none"> ■ Slashed - 15 metres ■ MFR - 5 metres <p>It is noted that this type of FRA results in substantial impact on environmental values and allows for increased opportunities for environmental weeds, soil erosion and other impacts. Erosion control measures should be constructed and maintained in all situations.</p> |
| 2 |  | <p>Requires the removal of the understorey and ground cover but retains some of the canopy. This will depend on the slope, vegetation structure and the type of available fuel.</p> <p>The FRA is used in locations of medium slope with combustible material and where the risk to people and property is high.</p> <p>The slashed zone allows for the easy movement of a fire tender within the FRA in all situations and allows for the re-growth of grasses that need regular slashing or mowing particularly during the fire season.</p> <p>Zone widths -</p> <ul style="list-style-type: none"> ■ Slashed - 10 metres ■ MFR - 5 metres <p>It is noted that this type of FRA results in substantial impact on environmental values and allows for increased opportunities for environmental weeds, soil erosion and other impacts. Erosion control measures should be constructed and maintained in all situations.</p> |

Bushfire Hazard

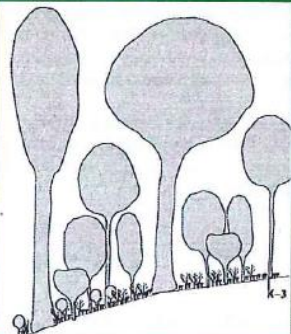


RPS V5.2 - 2013

Part 11 - Planning Scheme Policy 1 - Bushfire Hazard - Page 9

| FRA Type | Representation | Description |
|----------|---|--|
| 3 |  | <p>Requires the removal of the understorey and ground cover but retains canopy vegetation. This FRA is used in locations of medium to low slope, with combustible material and where the risk to people and property medium to low.</p> <p>The slashed zone allows for the easy movement of a fire tender within the FRA in all situations and allows for the re-growth of grasses that need regular slashing or mowing particularly during the fire season.</p> <p>Zone widths -</p> <ul style="list-style-type: none"> ■ Slashed - 5 metres ■ MFR - 5 metres <p>Erosion control measures are required.</p> |
| 4 |  | <p>Requires the removal of the understorey and the slashing of the ground cover.</p> <p>This FRA is used in locations of minimal slope with low fire risk to people or property.</p> <p>It may form internal FRAs within bushland areas where vehicle access is required.</p> <p>Access is provided for fire tenders around the canopy trees within this FRA.</p> <p>Zone widths -</p> <ul style="list-style-type: none"> ■ Slashed - 5 metres ■ MFR - 3 metres <p>Natural drainage lines are maintained and the grasses regularly mowed.</p> |
| 5 |  | <p>Requires the removal of understorey and fire fuels with the slashing of the groundcovers.</p> <p>This FRA type is used in locations of minimal slope and no risk to property. Fire prevention activities are conducted from this FRA, such as prescribed burns, and access is required for fire tenders within the FRA.</p> <p>This FRA is used in areas with environmental values such as riparian areas, where minimal disturbance to values is required.</p> <p>Zone widths -</p> <ul style="list-style-type: none"> ■ Slashed - 3 metres ■ MFR - 2 metres <p>This FRA may provide access in bushland areas such as walking tracks, bikeways, horse trails.</p> |
| 6 |  | <p>Requires the slashing of the groundcovers and the thinning of the understorey to form a FRA of 3 metres. This FRA would receive regular maintenance.</p> <p>This FRA is used in areas of no or minimal slope or where there is no fire risk and the FRA is used for fire prevention, such as prescribed burns.</p> <p>This FRA is used in areas of environmental value or cultural significance, where minimal disturbance is required. Vehicle access is not required.</p> |

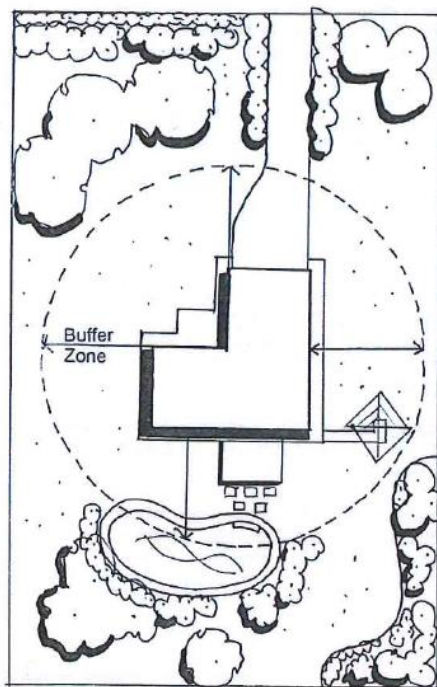
Bushfire Hazard

| FRA Type | Representation | Description |
|----------|---|--|
| 7 |  | <p>Allows for the thinning of the understorey and the minimal slashing/mowing of the groundcovers. The nominal width of this thinned area would be up to 3 metres.</p> <p>This FRA is used in areas of no or minimal slope or where there is no fire risk and the FRA is used for fire prevention such as prescribed burns, purposes.</p> <p>This FRA is used in areas where the adjacent land has a cleared well maintained open area between the hazard and any building or structure.</p> |

1.13 Buffer Zones

- (1) Barriers and buffer zones around buildings will assist in slowing bushfire. Barriers may include planting suitable trees, vegetation and building permanent barriers such as low stone or masonry walls. These barriers or buffers assist in protecting buildings from possible attack by burning debris, heat radiation and direct flame contact.
- (2) Between the barriers and buildings, a 'buffer zone' is created by reducing the number of combustible items near, refer to Diagram 5. This means that if burning debris passes through the barriers, there is minimal opportunity to create further outbreaks and provides an opportunity to put out spot fires.
- (3) Consideration should be given to providing a grassed area or gravel, concrete or paved driveway in proximity to isolated buildings or mown areas.

Diagram 5 - Creation of buffer zones between buildings and hazardous vegetation



Bushfire Hazard



Division 3 - Bushfire Hazard Overlay

5.3.1 Introduction

- (1) This division contains the provisions for the Bushfire Hazard Overlay. They are -
- (a) The Bushfire Hazard Overlay Tables of Assessment, that incorporates -
 - (i) Levels of assessment for development in the Bushfire Hazard Overlay (section 5.3.2);
 - (ii) Assessment criteria for development in the Bushfire Hazard Overlay (section 5.3.3);
 - (iii) Bushfire Hazard Overlay - Table of Assessment for Material Change of Use of Premises (section 5.3.4);
 - (iv) Bushfire Hazard Overlay - Table of Assessment for Other Development not associated with a Material Change of Use of Premises (section 5.3.5).
 - (b) The Bushfire Hazard Overlay Code, that incorporates -
 - (i) Compliance with the Bushfire Hazard Overlay Code (section 5.3.6);
 - (ii) Overall Outcomes for the Bushfire Hazard Overlay Code (section 5.3.7);
 - (iii) Acceptable Solutions applicable to Self-Assessable Development (section 5.3.8);
 - (iv) Specific Outcomes and Probable Solutions applicable to Assessable Development (section 5.3.9).

5.3.2 Levels of assessment for development affected by the Bushfire Hazard Overlay

- (1) Sections 5.3.4 and 5.3.5 identify the level of assessment for development affected by the Bushfire Hazard Overlay, as follows -
- (a) Section 5.3.4 Bushfire Hazard Overlay - Table of Assessment for Making a Material Change of Use of Premises -
 - (i) column 1 identifies uses that are exempt, self-assessable or assessable;
 - (ii) column 2 identifies the level of assessment for the uses listed in column 1;
 - (iii) where the use is defined in Schedule 3 - Dictionary, Division 1 - Uses and is not listed in column 1 it is exempt;
 - (iv) where the use is not defined in Schedule 3 - Dictionary, Division 1 - Uses and is not listed in column 1 it is code assessable.
 - (b) Section 5.3.5 Bushfire Hazard Overlay - Table of Assessment for Other Development not associated with a Material Change of Use of Premises -
 - (i) column 1 identifies other development that is exempt, self-assessable or assessable;
 - (ii) column 2 identifies the level of assessment for other development listed in column 1;
 - (iii) where the other development is not listed in column 1 it is exempt.
- (2) Other Overlays may alter the level of assessment identified in 1(a) and (b)^{5.10}.

Note -

Land identified within the High Bushfire Hazard and Southern Moreton Bay Islands Bushfire Hazard is designated as a bushfire prone area and the medium category bushfire protection provisions of the *Building Code of Australia* apply for the purposes of section 55 of the *Standard Building Regulations 1993*.

^{5.10} Refer to Part 5 - Overlays to determine the level of assessment for the use or other development where another Overlay affects the lot and Part 1, section 1.2.5(10)(f) that explains how the highest level of assessment applies.

5.3.3 Assessment criteria for development in the Bushfire Hazard Overlay

- (1) Development affected by the Bushfire Hazard Overlay is assessed against the assessment criteria listed in column 3 of sections 5.3.4 and 5.3.5, as follows -
 - (a) acceptable solutions in section 5.3.8 of the Bushfire Hazard Overlay Code for self-assessable development; or
 - (b) specific outcomes in section 5.3.9 of the Bushfire Hazard Overlay Code for assessable development.
- (2) Self-assessable development that does not comply with all the acceptable solutions in section 5.3.8 of the Bushfire Hazard Overlay Code is assessable development.

RPS V6 - 2013

Part 5 - Overlays, Division 3 - Bushfire Hazard Overlay - Page 3

5.3.4 Bushfire Hazard Overlay - Table of Assessment for Material Change of Use of Premises

Bushfire Hazard Overlay - Table of Assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|---|--|---|
| Use ^{5.11} | Level of Assessment ^{5.12} | Assessment Criteria |
| <ul style="list-style-type: none"> ■ Aged Persons and Special Needs Housing ■ Agriculture ■ Airport ■ Animal Keeping ■ Apartment Building ■ Bed and Breakfast ■ Brothel ■ Bulky Goods Showroom ■ Car Wash Facility ■ Caretakers Dwelling ■ Child Care Centre ■ Commercial Office ■ Community Facility ■ Display and Sale Activity ■ Drive Through Restaurant ■ Dual Occupancy ■ Dwelling House ■ Education Facility ■ Emergency Services ■ Estate Sales Office ■ Extractive Industry ■ Forestry ■ Funeral Parlour ■ Garden Centre ■ General Industry ■ Health Care Centre ■ Heavy Industry ■ Home Business ■ Hospital ■ Hotel ■ Indoor Recreation Facility ■ Institution ■ Intensive Agriculture ■ Landscape Supply Depot ■ Marine Services ■ Minor Utility ■ Mobile Home Park ■ Multiple Dwelling ■ Night Club ■ Outdoor Dining ■ Outdoor Recreation Facility ■ Passenger Terminal ■ Place of Worship | <p><u>Self-Assessable</u> If complying with the assessment criteria being the acceptable solutions listed in column 3</p> <p><u>Code Assessable</u> If not self-assessable</p> | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 5.3.8 of the Bushfire Hazard Overlay Code ■ Bushfire Hazard Overlay Code |

^{5.11} See Schedule 3 - Dictionary, Division 1 - Uses for defined uses.

^{5.12} See Schedule 3 - Dictionary, Division 2 - Administrative Terms for a definition of level of assessment.

Bushfire Hazard Overlay - Table of Assessment for Material Change of Use of Premises

| column 1 | column 2 | column 3 |
|---|---|---|
| Use ^{5.11} | Level of Assessment ^{5.12} | Assessment Criteria |
| Continued - <ul style="list-style-type: none"> ■ Produce Store ■ Refreshment Establishment ■ Retail Warehouse ■ Roadside Stall ■ Rural Enterprise ■ Service Industry ■ Service Station ■ Shop ■ Telecommunications Facility ■ Temporary Use ■ Tourist Accommodation ■ Tourist Park ■ Utility Installation ■ Vehicle Depot ■ Vehicle Parking Station ■ Vehicle Repair Premises ■ Veterinary Surgery ■ Warehouse | <u>Self-Assessable</u> If complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not self-assessable | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 5.3.8 of the Bushfire Hazard Overlay Code ■ Bushfire Hazard Overlay Code |
| Defined uses not listed in column 1 | <u>Exempt</u> | |
| Uses not defined in Part 9 - Schedule 3 - Dictionary, Division 1 - Uses | <u>Code Assessable</u> | <ul style="list-style-type: none"> ■ Bushfire Hazard Overlay Code |

Bushfire Hazard Overlay

RPS V6 - 2013

Part 5 - Overlays, Division 3 - Bushfire Hazard Overlay - Page 5

5.3.5 Bushfire Hazard Overlay - Table of Assessment for Other Development not associated with a Material Change of Use of Premises

· Bushfire Hazard Overlay - Table of Assessment for Other Development

| column 1 | column 2 | column 3 |
|--|---|---|
| Other Development | Level of Assessment ^{5.13} | Assessment Criteria |
| Reconfiguration for - | | |
| Creating lots by subdividing another lot by Standard Format Plan ^{5.14} | <u>Code Assessable</u> | ■ Bushfire Hazard Overlay Code |
| Rearranging the boundaries of a lot by registering a plan of subdivision | <u>Code Assessable</u> | ■ Bushfire Hazard Overlay Code |
| Building Work for - | | |
| <ul style="list-style-type: none"> ■ Domestic Outbuilding ■ On-site raising or relocation of an existing dwelling unit | <u>Self-Assessable</u> If complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not self-assessable | <ul style="list-style-type: none"> ■ Acceptable Solutions in section 5.3.8 of the Bushfire Hazard Overlay Code ■ Bushfire Hazard Overlay Code |
| Operational Work for - | | |
| Operational Work for Reconfiguring a Lot (by Standard Format Plan) | <u>Code Assessable</u> | ■ Bushfire Hazard Overlay Code |
| All other development not listed in column 1 | <u>Exempt</u> | |

Bushfire Hazard Overlay

^{5.13} See Schedule 3 - Dictionary, Division 2 - Administrative Terms for a definition of level of assessment.

^{5.14} Whether or not having a Community Management Statement.

5.3.6 Compliance with the Bushfire Hazard Overlay Code

- (1) Development that is consistent with the following complies with the Bushfire Hazard Overlay Code -
- (a) acceptable solutions in section 5.3.8 where self-assessable development; or
 - (b) specific outcomes in section 5.3.9 where assessable development.

Note -

- Planning Scheme Policy 1 - Bushfire Hazard will assist in achieving the requirements of the Bushfire Hazard Overlay Code.
- Land identified within the high bushfire hazard and Southern Moreton Bay Islands bushfire hazard is designated as a bushfire prone area and the medium category bushfire protection provisions of the *Building Code of Australia* apply for the purposes of section 55 of the *Standard Building Regulations 1993*.

5.3.7 Overall Outcomes of the Bushfire Hazard Overlay Code

- (1) The overall outcomes are the purpose of the Bushfire Hazard Overlay Code.
- (2) The overall outcomes sought for the Bushfire Hazard Code are the following -
- (a) to minimise the density of uses and other development at risk from bushfire hazard so as to reduce the number of people and properties subject to that risk;
 - (b) to ensure uses and other development are sited, designed and managed to minimise the risk of bushfire to people and property.

Bushfire Hazard Overlay

RPS V6 - 2013

Part 5 - Overlays, Division 3 - Bushfire Hazard Overlay - Page 7

5.3.8 Acceptable Solutions applicable to Self-Assessable Development

| Self-Assessable Development | |
|-----------------------------|---|
| Acceptable Solutions | |
| A1. | <p>(1) Where on the mainland and on a lot or premises identified as medium or high bushfire hazard on this overlay map, uses and other development are located outside the area shown on the overlay map; or</p> <p>(2) Uses and other development are located within an approved development envelope.</p> |

5.3.9 Specific Outcomes and Probable Solutions applicable to Assessable Development

| Assessable Development | | | |
|------------------------|---|--------------------|--|
| Specific Outcomes | | Probable Solutions | |
| S1. | <p><u>General -</u></p> <p>(1) Where on the mainland and on a lot or premises identified as medium or high bushfire hazard on this overlay map, uses and other development are located outside the area shown on the overlay map; or</p> <p>Note - Compliance with specific outcome S1.(1) achieves compliance with this Code.</p> <p>(2) Uses and other development maintain the safety of people and property by -</p> <p>(a) avoiding areas shown on this overlay map as -</p> <p>(i) high bushfire hazard; or</p> <p>(ii) medium bushfire hazard; or</p> <p>(iii) Southern Moreton Bay Islands (SMBI) bushfire hazard;</p> | P1. | <p>(1) No probable solution identified.</p> <p>(2) Uses and other development -</p> <p>(a) locate on land that is not shown on this overlay map as -</p> <p>(i) high bushfire hazard; or</p> <p>(ii) medium bushfire hazard; or</p> <p>(iii) Southern Moreton Bay Islands (SMBI) bushfire hazard; or</p> <p>(b) where shown as medium or SMBI bushfire hazard on this overlay map -</p> <p>(i) determine that the hazard on that part of the lot or premises where the development is proposed is low through a bushfire hazard assessment; or</p> <p>(ii) comply with the recommendations of a bushfire management plan previously prepared for the specific premises; or</p> <p>(c) where shown as high bushfire hazard on this overlay map, all uses and other development, excluding dwelling houses on existing lots, comply with the</p> |

Bushfire Hazard Overlay

Bushfire Hazard Overlay

| Assessable Development | |
|--|---|
| Specific Outcomes | Probable Solutions |
| | <p>recommendations of a comprehensive bushfire management plan for the premises;</p> <p>Note -</p> <p>To assist in achieving P1.(2)(b) and (c) refer to Part 11 - Planning Scheme Policy 1 - Bushfire Hazard for requirements of a bushfire hazard assessment or bushfire management plan.</p> |
| (3) Buildings and structures mitigate risk from bushfire hazard through siting, setback and design; | <p>(3) Buildings and structures -</p> <p>(a) on a lot or premises greater than 2500m² -</p> <p>(i) are located on that part of the lot or premises with the lowest bushfire hazard;</p> <p>(ii) where shown in medium or high bushfire hazard areas on this overlay map, are provided with a fuel reduction area that is a minimum of 1.5 times the predominant mature canopy height; or</p> <p>(iii) where shown in SMBI bushfire hazard areas on this overlay map, provide a fuel reduction area that complies with Table 1 - Type 2; or</p> <p>(b) on a lot or premises less than 2500m² -</p> <p>(i) maximise setbacks from the bushfire hazard; or</p> <p>(ii) where shown as SMBI bushfire hazard on this overlay map -</p> <p>a. provide a fuel reduction area that complies with Table 1 - Type 2; or</p> <p>b. provide a fuel reduction area that complies with Table 1 - Type 4 and buildings are constructed in accordance with <i>Australian Standard 3959:1999 - Construction of Buildings in a Bushfire Prone Area</i>;</p> |
| (4) Reconfiguration and uses that involve numerous buildings, such as tourist accommodation, aged person and special needs housing | <p>(4) Reconfiguration that creates lots or uses that will involve numerous buildings -</p> <p>(a) where shown as high bushfire</p> |

RPS V6 - 2013

Part 5 - Overlays, Division 3 - Bushfire Hazard Overlay - Page 9

| Assessable Development | |
|--|---|
| Specific Outcomes | Probable Solutions |
| <p>or the like, mitigate risk from bushfire hazard through lot design and roads and firebreaks that provide adequate access for fire fighting and other emergency vehicles and safe evacuation routes;</p> | <p>hazard on this overlay, comply with a bushfire management plan for the premises; or</p> <p>(b) where shown as medium or SMBI bushfire hazard, identify an area, in the form of development envelope, that is of sufficient size to -</p> <p>(i) comply with setbacks detailed in P1.(3)(a) and (b) depending on the hazard that is shown on the lot or premises where the development envelope is proposed;</p> <p>(ii) contain all expected uses and associated activities, including buildings, structures, open space, infrastructure and access;</p> <p>(c) provides efficient emergency access for fire fighting purposes by -</p> <p>(i) limiting long narrow lots and accessways;</p> <p>(ii) providing an alternative evacuation route by -</p> <p>a. through roads; or</p> <p>b. where culs-de-sac are used, alternative vehicle access connects the culs-de-sac to the through roads;</p> <p>(iii) providing a perimeter road to separate the development from the hazard that is designed -</p> <p>a. with a minimum cleared width of 20 metres,</p> <p>b. a maximum gradient of 12.5 percent;</p> <p>c. a maximum crossfall of 7 percent; or</p> <p>(iv) where the provision of a perimeter road is not achievable, fire trails are located within the site and comply with the following -</p> <p>a. separate development from the hazard;</p> <p>b. where in the SMBI bushfire hazard have a minimum cleared width of 3 metres that is supported by a slashed zone that complies with Table 1, Type 2 either side of the trail; or</p> |

Bushfire Hazard Overlay

Bushfire Hazard Overlay

| Assessable Development | |
|--|--|
| Specific Outcomes | Probable Solutions |
| <p>(5) Uses and other development mitigate risk from bushfire hazard through providing an adequate and accessible water supply for fire fighting purposes.</p> | <p>c. where in the medium bushfire hazard have a minimum cleared width of 6 metres that is supported by a 10 metre slashed zone either side of the trail;</p> <p>d. where in the high bushfire hazard have a minimum cleared width of 6 metres that is supported by a 15 metre slashed zone either side of the trail;</p> <p>e. have a maximum gradient of 12.5 percent;</p> <p>f. have a maximum crossfall of 7 percent;</p> <p>g. are a constructed finish of 50mm deep decomposed granite;</p> <p>h. have vehicle access at each end;</p> <p>i. include passing bays and turning areas for fire fighting trucks;</p> <p>j. are ultimately dedicated to the local government or provided with an access easement in favour of the local government and Queensland Fire and Rescue Service;</p> <p>Note -</p> <p>Fire trails will only be accepted if it is not practicable to provide the firebreak in the form of a perimeter road due to -</p> <ul style="list-style-type: none"> ■ topographical or remnant or significant vegetation constraints; or ■ access to the proposed lots being provided from an existing road and it would be unreasonable to require the construction of a new road. <p>(5) Uses involving proposed or existing buildings with a gross floor area greater than 50m² are provided with a reliable on-site water supply by -</p> <p>(a) being connected to a reticulated water supply with a minimum pressure and flow of 10 litres per second at 200kPa; or</p> |

RPS V6 - 2013

Part 5 - Overlays, Division 3 - Bushfire Hazard Overlay - Page 11

| Assessable Development | | | |
|------------------------|---|--------------------|---|
| Specific Outcomes | | Probable Solutions | |
| | | | <p>(b) provision of a storage system that is capable of holding a minimum of 5000 litres in the form of a -</p> <p>(i) dam;</p> <p>(ii) swimming pool; or</p> <p>(iii) tank storage system;</p> <p>(c) where a storage system is used it is -</p> <p>(i) fireproof;</p> <p>(ii) fitted with necessary fire hose connections;</p> <p>(iii) accessible for fire fighting vehicles;</p> <p>(iv) provided with a hard stand area within 6 metres of the water supply;</p> <p>(v) connected to a pump that is independent of mains electricity supply;</p> <p>(vi) capable of retaining 5000 litres solely for fire fighting purposes.</p> <p>Notes -</p> <ul style="list-style-type: none"> Where the use incorporates roof sprinkler systems it is advised that the water supply be increased to 22,000 litres. Communal bushfire water supply is encouraged and will be determined on an individual development basis. |
| S2. | <p><u>Environmental Values -</u></p> <p>(1) Bushfire risk is managed in conjunction with the conservation of the ecological and scenic values of the lot or premises and surrounding landscape;</p> <p>(2) Minimise adverse impacts of visual scarring due to vegetation clearance on hillsides and ridgelines;</p> <p>(3) Fuel reduction areas maximise the use of existing or natural fire breaks and minimise the need to clear additional native plants;</p> <p>(4) Bushland areas are segmented with fire breaks in the form of walking trails and infrastructure or the like to assist in fire management practices;</p> <p>(5) Landscaping incorporates species that are less likely to exacerbate a bushfire event.</p> | P2. | <p>(1) No probable solution identified;</p> <p>(2) Avoid locating uses and other development where it will extend beyond the canopy height of vegetation on a ridgeline or on slopes greater than 15 percent (1 in 7);</p> <p>(3) Fuel reduction areas, as detailed in P1.(3)(a) and (b) are -</p> <p>(a) measured from buildings and structures associated with the use and -</p> <p>(i) fully contained within the site; or</p> <p>(ii) where the lot contains a development envelope is within this defined area; or</p> <p>(iii) co-located with other facilities or infrastructure such as open space, stormwater management infrastructure, on-site wastewater treatment</p> |

Bushfire Hazard Overlay

Bushfire Hazard Overlay

| Assessable Development | | | |
|------------------------|---|--------------------|---|
| Specific Outcomes | | Probable Solutions | |
| | | | <p>areas or the like;</p> <p>(4) No probable solution identified;</p> <p>(5) Low flammability plant species identified in Table 2 are used for any planted landscaping within 10 metres of a building or structure.</p> <p>Note -</p> <p>Sites with an average slopes in excess of 15 percent (1 in 7) require a geotechnical analysis report. Refer to Part 11 - Planning Scheme Policy 9 - Infrastructure Works.</p> |
| S3. | <p><u>Hazardous Materials -</u></p> <p>Public safety and the environment are not adversely affected by the detrimental impacts of bushfire on hazardous materials manufactured or stored in bulk.</p> | P3. | <p>Development complies with the recommendations of a bushfire management plan.</p> <p>Note -</p> <p>Refer to Part 11 - Planning Scheme Policy 1 - Bushfire Hazard for further information on bushfire management plans.</p> |
| S4. | <p><u>Community Infrastructure</u></p> <p>(1) Community infrastructure is able to function effectively during and immediately after bushfire events.</p> | P4. | <p>(1) Community infrastructure -</p> <p>(a) is not located on land that is shown as having a high, medium or SMI bushfire hazard on this overlay map; or</p> <p>(b) does not result in any new building work other than an extension of less than 20m² gross floor area; or</p> <p>(c) is located where site assessment identifies that the use is able to function effectively during and immediately after a bushfire event.</p> <p>Note -</p> <ul style="list-style-type: none"> ■ If the proposal complies with P4.(1)(a) no further assessment is required in relation to bushfire hazard. ■ Where the use will be within a bushfire hazard, site-specific assessment is necessary to demonstrate that the bushfire hazard is low on the proposed site. ■ Refer to Part 11 - Planning Scheme Policy 1 - Bushfire Hazard for requirements of a bushfire |

RPS V6 - 2013

Part 5 - Overlays, Division 3 - Bushfire Hazard Overlay - Page 13

| Assessable Development | | | |
|------------------------|--|--------------------|--|
| Specific Outcomes | | Probable Solutions | |
| | | | hazard assessment and management plan. |

Bushfire Hazard Overlay

Table 1 - SMBI Bushfire Hazard Fuel Reduction Area Requirements

| Fuel Reduction Area Type - See Note 1 | Description | | | Applicable to - |
|---------------------------------------|----------------------------|---------------------------------|---|---|
| | Slashed Zone See Note 2 | Fuel Removal Zone See Note 3 | Total Fuel Reduction Area See Note 4 | |
| Type 2 | 10 metres | 5 metres | 15 metres | ■ SMBI bushfire hazard |
| Type 4 | 5 metres | 3 metres | 8 metres | ■ SMBI bushfire hazard if in conjunction with buildings constructed in accordance with <i>Australian Standard 3959:1999 - Construction of Buildings in Bushfire Prone Areas</i> |

Note 1 - The Rural Fire Service identifies 7 types of fuel reduction areas. Of these only 2 and 4 are applicable to the planning scheme area.

Note 2 - Slashed Zone is the area where all understorey and ground cover is removed, trees greater than 15cm diameter at chest height are retained and provides for the easy movement of fire fighting vehicles along the Fuel Reduced Area in all situations.

Note 3 - Fuel Removal Zone is the area where trees and groundcovers are retained and vegetation that is not expected to exceed 1.5 metres in height on maturing is selectively removed.

Note 4 - Fuel Reduction Areas are measured from buildings and structures associated with the development. Refer to Planning Scheme Policy 1 - Bushfire Hazard, section 1.12 for further information.

Table 2 - Low Flammability Plant Species

| Mainland | | SMBI | |
|-------------------------------|-------------------|-------------------------------|-------------------|
| Species | Common Name | Species | Common Name |
| Acacia melanoxylon | Blackwood | Acacia melanoxylon | Blackwood |
| Acacia sophorae | Coastal Wattle | Acacia sophorae | Coastal Wattle |
| Acmena smithii | Lilly Pilly | Banksia integrifolia | Coastal Banksia |
| Banksia integrifolia | Coastal Banksia | Banksia spinulosa var collina | |
| Banksia spinulosa var collina | | Casuarina glauca | Swamp Oak |
| Brachychiton acerifolius | Flame | Cupaniopsis anacardioides | Tuckeroo |
| Buckinghamia celicissima | Ivory Curl | Dodoneaea spp. | |
| Casuarina glauca | Swamp Oak | Elaeocarpus reticulatus | Blueberry Ash |
| Cupaniopsis anacardioides | Tuckeroo | Ficus macrophylla | Moreton Bay Fig |
| Dodoneaea spp. | | Glochidion ferdinandii | Cheese Wood |
| Elaeocarpus reticulatus | Blueberry Ash | Hymenosporum flavum | Native Frangipani |
| Ficus macrophylla | Moreton Bay Fig | Jacksonia scoparia | Dog Wood |
| Glochidion ferdinandii | Cheese Wood | Lophostemon confertus | Brushbox |
| Guioa semiglaucula | | Mallotus philippensis | Red Kamala |
| Hymenosporum flavum | Native Frangipani | Myoporum acuminatum | Boobialla |
| Jacksonia scoparia | Dog Wood | Pittosporum revolutum | Brisbane Laurel |
| Lophostemon confertus | Brushbox | Rapanea variabilis | |
| Mallotus philippensis | Red Kamala | Carpobrotus glaucescens | Pigs Face |
| Myoporum acuminatum | Boobialla | Hardenbergia violacea | |
| Pittosporum revolutum | Brisbane Laurel | Kennedia rubicunda | |
| Pittosporum rhombifolium | | Lomandra longifolia | |
| Rapanea variabilis | | Themeda triandra | |
| Stenocarpus sinuatus | | Viola hederacea | |
| Carpobrotus glaucescens | Pigs Face | Chrysocephalum apiculatum | |
| Hardenbergia violacea | | | |
| Kennedia rubicunda | | | |
| Lomandra longifolia | | | |
| Themeda triandra | | | |
| Viola hederacea | | | |
| Chrysocephalum apiculatum | | | |

Redlands Planning Scheme Fact Sheet



November 2010

Fact Sheet 13 - Hazard Overlays

What is the role of Hazard Overlays?

Hazard overlays show that a property is constrained by a risk that may affect the safety of people and property. Hazard overlays in the scheme are the -

- Acid Sulfate Soils Overlay
- Bushfire Hazard Overlay
- Flood Prone, Storm Tide and Drainage Constrained Land Overlay
- Landslide Hazard Overlay

What is the purpose of the Acid Sulfate Soils Overlay?

The purpose of the **Acid Sulfate Soils Overlay** is to ensure that development identifies and manages acid sulfate soils. The overlay protects the natural and built environments and human health from negative impacts that result from the exposure of acid and metal contaminants from the soil.

Acid sulfate soils (ASS) occur naturally over extensive low-lying coastal areas, mainly below 5 metres Australian Height Datum (AHD). Potential ASS only become a problem when they are exposed to air. Exposure is usually a result of excavation associated with development. The release of ASS may cause harm to the natural and built environment and human health.

The State Government manages ASS through *State Planning Policy 2102: Planning and Managing Development Involving Acid Sulfate Soils*. The overlay ensures development complies with the State Planning Policy.

What are the Acid Sulfate Soil Overlay Maps?

The **Acid Sulfate Soils Overlay Map** shows properties across the Redlands with a surface level -

- at or below 5 metres Australian Height Datum (AHD);
- between 5 metres AHD and 20 metres AHD.

These properties may contain acid sulfate soils. There is a map for the mainland and another for SMBI and North Stradbroke Island.

When will the Acid Sulfate Soils Overlay apply?

The Acid Sulfate Soils Overlay will apply depending on the quantity of filling and/or excavation that occurs in association with development. Often, development will be self-assessable because of limited excavation or fill.

For instance, development is self-assessable where -

- removing less than 100m³ of soil from below 5 metres AHD; or
- filling of land with less than 500m³ of material at an average depth of less than 500mm below 5 metres AHD.

Otherwise development is code assessable and will need to satisfy the assessment criteria of the code. Where development is code assessable ASS need to be identified and managed. This may involve -

- ensuring ASS are not removed;
- neutralizing existing acidity;
- preventing surface or groundwater flows containing ASS from release into the environment.

What is the purpose of the Bushfire Hazard Overlay?

The **Bushfire Hazard Overlay** shows land at risk from bushfire. The purpose of this overlay is to protect people and property from the risk of bushfire while maintaining environmental values.

The State Government manages bushfire hazard through *State Planning Policy 1103: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*. The overlay ensures development complies with the State Planning Policy.

What are the Bushfire Hazard Overlay Maps?

The **Bushfire Hazard Overlay Map** identifies properties affected by bushfire hazard, including properties that adjoin a hazard. Hazard levels affecting Redland City are -

- high hazard - small areas in Mount Cotton and on North Stradbroke Island (NSI);
- medium hazard - across the mainland and NSI;
- SMBI hazard - that is specific to the Southern Moreton Bay Islands.

There is a map for the mainland and another for SMBI and North Stradbroke Island.

When will the Bushfire Hazard Overlay apply?

Most development will need to satisfy the assessment criteria of the overlay code. Where development is located in an area outside the hazard it may be self-assessable.

When development is proposed to locate on land affected by a bushfire hazard, it is code assessable and will need to satisfy the assessment criteria of the overlay code. This means that development will need to avoid the identified bushfire hazards or mitigate bushfire risk through a combination of the following measures -



OUR redlands...OUR future

Page 1 of 2



Fact Sheet 13 - Hazards Overlays - Continued

- locating where the hazard is the lowest;
- maximising setbacks from the hazard;
- designing buildings in accordance with *Australian Standard 3959:1999 Construction of Buildings in a Bushfire Prone Area*;
- providing fuel reduction areas;
- undertaking a bushfire hazard assessment or a bushfire management plan.

Part 11 of the planning scheme contains Planning Scheme Policy 1 - Bushfire Hazard that provides help on how to prepare a bushfire hazard assessment or bushfire management plan, among other matters.

NOTE: The SPA Regulations (Schedule 4) exempts development for residential purposes on lots under 2000m² where the only overlay affecting the land is the Bushfire Hazard Overlay. Please discuss with Council planning officers if you believe this to be your circumstance.

What is the purpose of the Flood Prone, Storm Tide and Drainage Constrained Land Overlay?

The **Flood Prone, Storm Tide and Drainage Constrained Land Overlay** identifies land subject to flooding, storm tide and drainage constraints. The overlay aims to protect the safety of people and property from the risk of flooding. To avoid risks, development should locate outside flood, storm tide and drainage affected areas.

What are the Flood Prone, Storm Tide and Drainage Constrained Land Overlay Maps?

The overlay map identifies land affected by flooding, or storm tide. This means the property is constrained by a -

- Storm Tide Area; or
- Flood Prone Area.

The storm tide area currently includes land below RL 2.4 metre Australian Height Datum (AHD) and the flood prone area includes land that may be affected by the 1percent AEP (1 in 100 year ARI).

The State Government manages the risk of flooding through *State Planning Policy 1103: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*. The overlay ensures development complies with the State Planning Policy.

The term used to describe this flood level is the 1 percent Annual Exceedance Probability (1% AEP) previously referred to as the 1 in 100 year Average Recurrence Interval (ARI). The 1% AEP describes a flood event that has a 1 percent chance of occurring in a 100 year period. Flood levels are generally based on historical rainfall data and extensive surveys and modelling.

The overlay map also shows properties on the Southern Moreton Bay Islands (SMBI) that have a drainage problem by identifying lots that, during extended wet weather, may have the following problems -

- are within a water overland flow path
- have a high water table
- has significant seepage problems
- there is flooding of the road reserve restricting vehicular access to the lot.

Where Council does not have extensive survey or flood analysis, a detailed flood investigation is required to identify the 1% AEP or specific drainage constraint.

The planning scheme contains a planning scheme policy, Planning Scheme Policy 7 - Flood Prone, Tidal Affected and Drainage Constrained Land, to provide help on what technical information is required in survey information and flood studies, among other matters. There is an overlay map for the mainland and another for SMBI and North Stradbroke Island.

When will the Flood Prone, Storm Tide and Drainage Constrained Overlay apply?

Development on land covered by the overlay map and listed in the overlay table of assessment is code assessable and will need to satisfy the assessment criteria of the overlay code.

What is the purpose of the Landslide Hazard Overlay?

The purpose of the **Landslide Hazard Overlay** is to ensure that development on steep slopes does not increase the risk of landslide through poor design, inappropriate excavation and fill or removal of vegetation.

It aims to:

- provide guidance relating to the identification of potential slope instability areas;
- set out the requirements for preparation and submission of development applications, including technical reports on land located within the designated Landslide Hazard Management Area; and
- provide information relating to good engineering practices for hillside development to assist applicants, engineers and planners in the design and application of appropriate type and form of developments that best reflects the capability of the land.

The State Government manages landslide hazard through *State Planning Policy 1/30: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*. The overlay ensures development complies with the State Planning Policy.

What are the Landslide Hazard Overlay Maps?

The **Landslide Hazard Overlay Map** identifies locations across the City with potential for landslide hazard.

Landslide Hazard Management Areas affecting Redland City are described as Very High, High, Moderate or Low. There is a map for the mainland and another for SMBI and North Stradbroke Island.

For further information on specific overlays refer to -

- Fact Sheet 12 - Overlays Overview
- Fact Sheet 14 - Value Overlays
- Fact Sheet 15 - Resource Overlays
- Fact Sheet 16 - Amenity Overlays

Disclaimer -

This fact sheet is intended to help people gain an understanding of the Redlands Planning Scheme and is a **GUIDE ONLY**. The content of this fact sheet is not intended to replace the provisions of the Redlands Planning Scheme.



Stormwater Management Plan

48-66 Scenic Road, Redland Bay

Centhead Pty Ltd

04 November 2019





Document Status

| Version | Doc type | Reviewed by | Approved by | Date issued |
|---------|----------|-------------|-------------|-------------|
| V02 | FINAL | T McAlister | T McAlister | 4/11/2019 |
| | | | | |
| | | | | |

Project Details

| | |
|--|--------------------------------|
| Project Name | 48-66 Scenic Road, Redland Bay |
| Client | Centhead Pty Ltd |
| Client Project Manager | Joel Salmon |
| Water Technology Project Manager | James Weidmann |
| Water Technology Project Director | Tony McAlister |
| Authors | James Weidmann |
| Document Number | 19020125-01_R01_V02.docx |

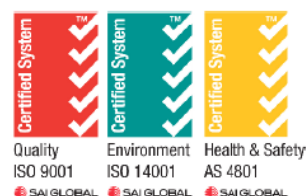
COPYRIGHT

Water Technology Pty Ltd has produced this document in accordance with instructions from Centhead Pty Ltd for their use only. The concepts and information contained in this document are the copyright of Water Technology Pty Ltd. Use or copying of this document in whole or in part without written permission of Water Technology Pty Ltd constitutes an infringement of copyright.

Water Technology Pty Ltd does not warrant this document is definitive nor free from error and does not accept liability for any loss caused, or arising from, reliance upon the information provided herein.

19020125-01_R01_V02.docx

Level 3, 43 Peel Street
 South Brisbane QLD 4101
 Telephone (07) 3105 1460
 Fax (07) 3846 5144
 ACN 093 377 283
 ABN 60 093 377 283





CONTENTS

| | | |
|----------|---|-----------|
| 1 | INTRODUCTION AND BACKGROUND | 4 |
| 1.1 | Introduction | 4 |
| 1.2 | Proposed Development | 5 |
| 1.3 | Quantity and Quality Strategy Overview | 5 |
| 1.4 | Relevant Planning Scheme and Overlays | 6 |
| 2 | SITE DESCRIPTION | 9 |
| 2.1 | Topography and Drainage | 9 |
| 2.2 | Available Data | 9 |
| 3 | HYDROLOGY MODELLING | 10 |
| 3.1 | Overview | 10 |
| 3.2 | Existing Case Model | 10 |
| 3.2.1 | Sub-Catchment Breakdown | 10 |
| 3.2.2 | Rainfall | 10 |
| 3.2.3 | Losses | 10 |
| 3.2.4 | Existing Case Model Validation | 11 |
| 3.3 | Developed Case Model | 12 |
| 3.4 | Hydrological Model Results | 13 |
| 4 | STORMWATER QUALITY | 16 |
| 4.1 | Construction | 16 |
| 4.1.1 | Overview | 16 |
| 4.1.2 | Construction Water Quality Management | 16 |
| 4.2 | Post-Construction | 17 |
| 4.3 | Water Quality Standards and Guidelines | 17 |
| 4.4 | Model Setup | 18 |
| 4.4.1 | Catchment Areas | 19 |
| 4.4.2 | Pollutant Export Parameters | 19 |
| 4.4.3 | Rainfall and Evapotranspiration Data | 19 |
| 4.4.4 | Treatment Nodes | 20 |
| 4.5 | MUSIC Results and Discussion | 21 |
| 4.6 | Summary | 22 |
| 5 | RESPONSE TO INFORMATION REQUESTS | 23 |
| 6 | CONCLUSION | 25 |

APPENDICES

Appendix A Concept Layout

Appendix B WBNM Catchment Details

19020125-01_R01_V02.docx



LIST OF FIGURES

| | | |
|------------|--|----|
| Figure 1-1 | Site Location | 4 |
| Figure 1-2 | Development Area (Source: SAunders Havill, 2019) | 5 |
| Figure 1-3 | RCC Zones and Waterway Corridor Mapping (Source: Red-e-Map 2019) | 7 |
| Figure 1-4 | RCC Flood and Storm Tide Hazard Areas (Source: Red-e-Map, 2019) | 8 |
| Figure 2-1 | Site Topography | 9 |
| Figure 3-1 | Sub-catchment Delineation – Existing Case | 11 |
| Figure 3-2 | Sub-catchment Delineation – Developed Case | 13 |
| Figure 4-1 | MUSIC Model Schematic | 20 |

19020125-01_R01_V02.docx



1 INTRODUCTION AND BACKGROUND

1.1 Introduction

Water Technology (WT) has been commissioned by Centhead Pty Ltd to prepare a Stormwater Management Plan (SMP) for a proposed development located at 48-66 Scenic Road, Redland Bay (real property description Lot 2 RP212251). The site is approximately 17.5 hectares in total area and is located within the Redland City Council (RCC) local government area (refer to Figure 1-1).

We understand that a Material Change of Use (MCU) application has been previously submitted for the site (ref: MCU013843) and that RCC has subsequently issued a request for information (RFI) (ref: MCU17/0108, dated 22/11/2017). Additionally, we understand that the structure plan accompanying the previous application has been given preliminary approval (variation request) with conditions by the State following referral to the Department of Infrastructure, Local Government and Planning (DILGP) (ref: 1711-2416 SRA, dated 14/12/2017).

Because of both the changes to the development arrangement in addition to the information request, an updated stormwater and flood report needs to be prepared. This current report has therefore been prepared to detail the technical assessments completed in respect to flooding and stormwater management at the site based on the revised layouts. The report has also been prepared to specifically address the matters raised by Council in the information request and provides detailed and comprehensive information pertaining to proposed flood and stormwater management strategies at the site.



FIGURE 1-1 SITE LOCATION

19020125-01_R01_V02.docx



1.2 Proposed Development

Figure 1-2 illustrates the proposed development area for which this report has been prepared. The site is approximately 17.5 hectares in total area. The proposed development comprises residential lots, greenspace and associated internal roads and services. The concept layout plan for the proposed development has been provided in Appendix A and is presented in Figure 1-2 below. This SMP has been prepared to document the proposed stormwater management measures (dealing with quantity and quality aspects) to be implemented at the site and to support the development application over the site.



FIGURE 1-2 DEVELOPMENT AREA (SOURCE: SAUNDERS HAVILL, 2019)

1.3 Quantity and Quality Strategy Overview

The general stormwater quality and quantity strategies for the site are summaries as follows:

- **Stormwater Quantity** – The preferred strategy for mitigating flows downstream of the site is to discharge all flows from the site and external catchments directly to Moreton Bay, in the absence of on-site detention. This strategy necessitates the internal diversion of an existing flowpath traversing the site prior to discharge to Moreton Bay. It is noted that a strategy is available including provision of on-site detention for the site's southern catchment. Additionally, another option may be to obtain discharge consent from the downstream property owner (Lot 1 RP212251). This will be resolved at further application stages.
- **Stormwater Quality** – The preferred strategy in terms of stormwater quality is to provide on-site bioretention to treat discharges from the developed site. This assessment provides conceptual bioretention basin sizing to inform development layout and future civil design considerations.



1.4 Relevant Planning Scheme and Overlays

The subject development application for the site will be assessed under the provisions of the Redland City Plan 2019 Version 6.2. According to the Red-e-Map online mapping system, the site is currently zoned for "Rural" land-use, noting that the previously lodged MCU application (ref: MCU013843) was seeking preliminary approval to vary effect of the Planning Scheme in accordance with s242 of the Sustainable Planning Act 2009 to facilitate a residential land-use outcome. Surrounding land parcels are generally zoned as "Emerging Community". A copy of the incumbent general planning zones and Waterway Corridors and Wetlands Overlay mapping is illustrated in Figure 1-4.

The site is mapped as containing Flood Prone Area according to the Flood and Storm Tide Hazard Overlay mapping under the scheme as illustrated in Figure 1-4.

Regard has additionally been given to the Redland Planning Scheme (RPS) Version 7.2 and the current City Plan 2018. A comparison was undertaken of the Flood and Storm Tide Hazard and Waterway Corridors and Wetlands mapping between the current and superseded planning schemes. No changes to the overlay mapping relevant to this study were identified, therefore the updated Planning Scheme does not affect the proposed stormwater management strategies for the site or outcomes of this assessment, and as such, RPS v6.2 is still relevant to apply to subsequent development application/s.

19020125-01_R01_V02.docx



WATER TECHNOLOGY
WATER, COASTAL & ENVIRONMENTAL CONSULTANTS



FIGURE 1-3 RCC ZONES AND WATERWAY CORRIDOR MAPPING (SOURCE: RED-E-MAP 2019)



FIGURE 1-4 RCC FLOOD AND STORM TIDE HAZARD AREAS (SOURCE: RED-E-MAP, 2019)

19020125-01_R01_V02.docx



2 SITE DESCRIPTION

2.1 Topography and Drainage

The site has been largely cleared and contains a single dwelling and shed. Figure 2-1 shows site topography based on 2014 LiDAR topographic survey. The overall site is affected by two (2) main drainage paths associated with separate external catchments. Flows from the northern drainage path discharge to a small farm dam located in the north of the site. The southern drainage path conveys flow to an existing farm dam located on the downstream property (Lot 1 RP212251). Both drainage paths ultimately discharge to Moreton Bay, which is located to the immediate east of the site. The eastern boundary of the site is tidally affected and is included in Council's storm tide inundation area overlay.

Elevations at the site range from approximately ~1.4 mAHd along the eastern boundary to ~22.4 mAHd along the western boundary. There are no major hydraulic structures relevant to the site.

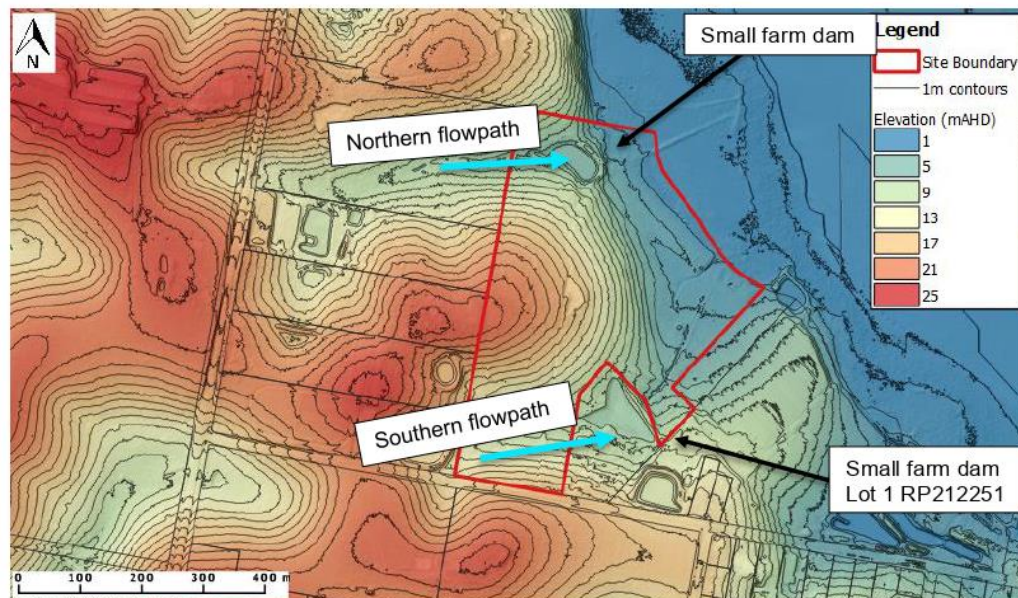


FIGURE 2-1 SITE TOPOGRAPHY

2.2 Available Data

The following data has been sourced and used in this assessment:

- LiDAR and associated contours - SE Queensland 2014 Project.
- Red-e-Map online mapping system;
- Aerial imagery obtained from Google Earth 2019;
- Proposed lot layout provided by Land Partners;
- Historical application documents obtained through PD Online; and
- Rainfall data obtained from the Bureau of Meteorology and ARR Datahub.

19020125-01_R01_V02.docx



3 HYDROLOGY MODELLING

3.1 Overview

A WBNM hydrologic model has been developed as part of this investigation to inform the flood and stormwater assessments. Hydrology for the 63%, 39%, 18%, 10%, 5%, 2% and 1% Annual Exceedance Probability (AEP) flood events has been derived for the catchment. Flows have been validated against the Rational Method.

The WBNM model has been used to assess site hydrology for two (2) different scenarios as follows:

- **Existing Case** – representing the existing catchments according to current land-use conditions.
- **Developed Case** – as per the Existing Case but with the proposed development included as an increase in impervious percentage.

3.2 Existing Case Model

3.2.1 Sub-Catchment Breakdown

Sub-catchments for the site were defined based on LiDAR contours. Sub-catchment details are summarised in Appendix B and sub-catchment boundaries are presented in Figure 3-1.

3.2.2 Rainfall

Rainfall Intensity Frequency and Duration values (ARR87 IFDs) were obtained from the Bureau of Meteorology website and are presented in Table 3-1. The standard temporal patterns for Zone 3 (North-East Coast Division) were applied in the WBNM model.

TABLE 3-1 RAINFALL IFD PARAMETERS

| Location | 2Y 1hr (mm) | 2Y 12hr (mm) | 2Y 72hr (mm) | 50Y 1hr (mm) | 50Y 12hr (mm) | 50Y 72hr (mm) | F2 | F50 | Skew |
|----------------------------------|-------------|--------------|--------------|--------------|---------------|---------------|------|-------|------|
| Redland Bay 27.65S, 153.3E | 47.37 | 9.44 | 3.10 | 87.16 | 18.39 | 6.94 | 4.41 | 17.26 | 0.07 |

3.2.3 Losses

The assumed losses applied in the WBNM model are presented in Table 3-2. These were based on model validation as discussed separately below and are consistent with losses adopted for other nearby, but unrelated assessments, undertaken by Water Technology.

TABLE 3-2 WBNM MODEL INITIAL/CONTINUING LOSSES

| Surface | 1% AEP | 2% AEP | 5% AEP | 10% AEP | 18% AEP | 39% AEP | 63% AEP |
|----------------------|--------|--------|--------|---------|---------|---------|---------|
| Pervious (mm, mm/hr) | 5/1 | 5/1 | 10/2.5 | 10/2.5 | 10/2.5 | 10/2.5 | 10/2.5 |
| Impervious (mm) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

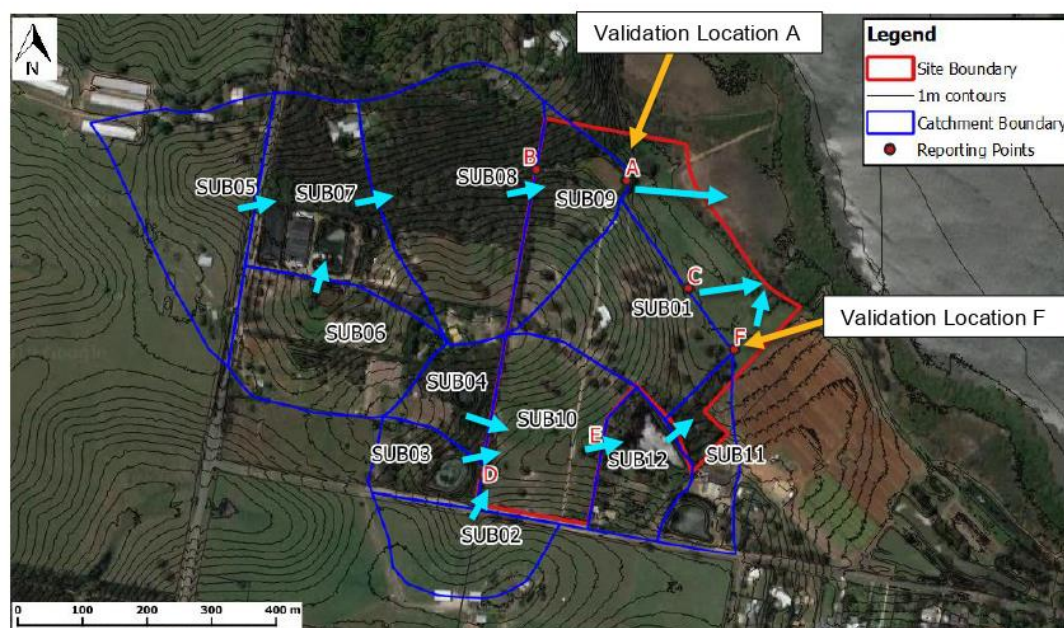


FIGURE 3-1 SUB-CATCHMENT DELINEATION – EXISTING CASE

3.2.4 Existing Case Model Validation

Given the absence of available stream gauges, the WBNM model was validated against the Rational Method for the existing catchment conditions at two locations shown in Figure 3-1. The Bransby-Williams equation was employed for the determination of time of concentration as per QUDM 2016. Table 3-3 and Table 3-4 summarise the Rational Method parameters used. The results of the validation are presented in Table 3-5.

As can be seen, discharge estimates from the WBNM model show good agreement with peak flows calculated using the Rational Method. The WBNM model has thus been adopted for all hydrological modelling prepared as part of this assessment.

TABLE 3-3 VALIDATION LOCATION A RATIONAL METHOD PARAMETERS – EXISTING CASE

| Parameter | Input | Reference |
|--------------------------------|-------|--|
| Upstream area (ha) | 29.1 | Sub-catchment area |
| Flow Path Length (km) | 0.90 | GIS mapping |
| Equal Area Slope (%) | 3.2 | LiDAR topography |
| Discharge coefficient C_{10} | 0.66 | QUDM 2016 Table 4.5.3 – Table of C_{10} values |
| Time of concentration (min) | 30 | Bransby-Williams Equation |

19020125-01_R01_V02.docx



TABLE 3-4 VALIDATION LOCATION F RATIONAL METHOD PARAMETERS – EXISTING CASE

| Parameter | Input | Reference |
|--------------------------------|-------|--|
| Upstream area (ha) | 16.6 | Sub-catchment area |
| Flow Path Length (km) | 0.66 | GIS mapping |
| Equal Area Slope (%) | 3.7 | LiDAR topography |
| Discharge coefficient C_{10} | 0.66 | QUDM 2016 Table 4.5.3 – Table of C_{10} values |
| Time of concentration (min) | 22 | Bransby-Williams Equation |

TABLE 3-5 WBNM VALIDATION RESULT SUMMARY – EXISTING CASE MODEL

| AEP Event | Existing Rational Method Peak Flow (m ³ /s) | Existing WBNM Peak Flow (m ³ /s) | Difference (%) |
|-----------------------------|--|---|----------------|
| Discharge Location A | | | |
| 1% | 9.0 | 8.0 | -12 |
| 2% | 7.8 | 7.1 | -10 |
| 5% | 6.2 | 5.5 | -13 |
| 10% | 5.2 | 4.6 | -14 |
| 18% | 4.5 | 3.9 | -15 |
| 39% | 3.3 | 2.8 | -17 |
| 63% | 2.4 | 1.9 | +28 |
| Discharge Location F | | | |
| 1% | 6.0 | 7.0 | +15 |
| 2% | 5.2 | 6.2 | +16 |
| 5% | 4.1 | 4.8 | +14 |
| 10% | 3.5 | 4.0 | +13 |
| 18% | 3.0 | 3.4 | +12 |
| 39% | 2.2 | 2.5 | +13 |
| 63% | 1.6 | 1.7 | +5 |

3.3 Developed Case Model

The Existing Case model was used as the basis for the Precinct 1 Developed case. The developed case WBNM catchment layout is shown in Figure 3-2, noting that SUB10 is proposed to be diverted internally to SUB01. The impervious fractions of relevant sub-catchments have been increased to represent the proposed Precinct 1 development. A 65% impervious fraction has been adopted for this assessment. All other model parameters were unchanged from the Existing Case. A summary of the Precinct 1 Developed case model parameters has been included in Appendix B. Note that flows from the minor external catchment to the west will be captured and conveyed internally, details of which can be provided following civil design.

19020125-01_R01_V02.docx

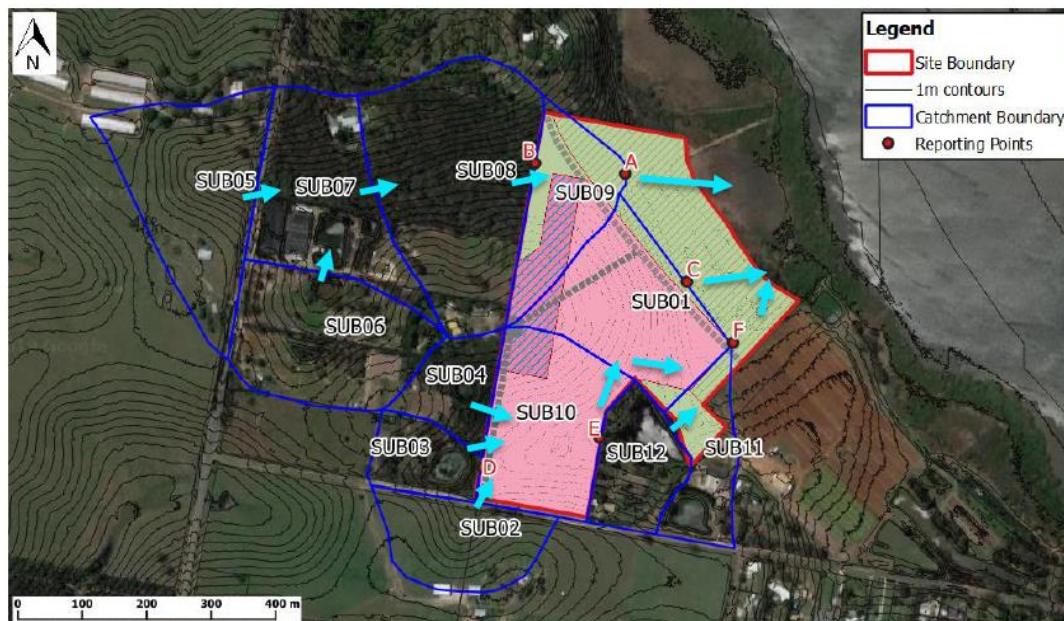


FIGURE 3-2 SUB-CATCHMENT DELINEATION – DEVELOPED CASE

3.4 Hydrological Model Results

Hydrology for the 63%, 39%, 18%, 10%, 5%, 2% and 1% Annual Exceedance Probability (AEP) flood events has been derived for the catchment using the models described above. A summary of flows discharging from the site according to the WBNM hydrological model at the nominated Reporting Points shown above is provided in Table 3-6 below.

Flows discharging directly to Moreton Bay do not require detention, however, stormwater discharging from the site should maintain the existing flow regime as much as practicable. This may require the use of a level-spreader or similar outlet arrangement and consideration of erosion protection. We understand that a linear parkland and footpath is proposed in the corridor between the site and Moreton Bay. As such, the ultimate outlet arrangement will be subject to input from civil engineers, the Applicant and Council when design of this corridor advances.

The preferred strategy for mitigating flows downstream of Reporting Point E is to divert all flows from the site and external catchments internally and ultimately to Moreton Bay in the absence of on-site detention. Details of the internal diversion will be determined at the detailed design stage.

Flows from the minor external catchment to the west can be readily captured and conveyed internally, details of which can be provided following civil design.

Broadly, three alternative strategies to the full flow diversion are available for the site, including:

- partial diversion of flow internally such that existing flows are maintained downstream of Reporting Point E and the difference is diverted to Moreton Bay;
- provision of on-site detention for the sites' southern catchment upstream of Reporting Point E; or

19020125-01_R01_V02.docx



- discharging flows at Reporting Point E and obtaining discharge consent from the downstream property owner (Lot 1 RP212251).

TABLE 3-6 WBNM MODEL RESULTS SUMMARY

| AEP Event | Existing WBNM Peak Flow (m ³ /s) | Developed WBNM Peak Flow (m ³ /s) | Difference (m ³ /s) |
|-------------------------------------|---|--|--------------------------------|
| Discharge Location A (total) | | | |
| 1% | 8.0 | 7.9 | -0.1 |
| 2% | 7.1 | 7.0 | -0.1 |
| 5% | 5.5 | 5.4 | -0.1 |
| 10% | 4.6 | 4.5 | -0.1 |
| 18% | 3.9 | 3.9 | 0 |
| 39% | 2.8 | 2.8 | 0 |
| 63% | 1.9 | 1.9 | 0 |
| Discharge Location F (total) | | | |
| 1% | 7.0 | 7.7 | +0.7 |
| 2% | 6.2 | 6.8 | +0.6 |
| 5% | 4.8 | 5.6 | +0.8 |
| 10% | 4.0 | 4.7 | +0.7 |
| 18% | 3.4 | 4.1 | +0.7 |
| 39% | 2.5 | 3.0 | +0.5 |
| 63% | 1.7 | 2.1 | +0.4 |
| Discharge Location E (total) | | | |
| 1% | 4.2 | 0 | -4.2 |
| 2% | 3.7 | 0 | -3.7 |
| 5% | 3.0 | 0 | -3.0 |
| 10% | 2.5 | 0 | -2.5 |
| 18% | 2.1 | 0 | -2.1 |
| 39% | 1.5 | 0 | -1.5 |
| 63% | 1.1 | 0 | -1.1 |
| SUB09 (local) | | | |
| 1% | 1.4 | 2.0 | +0.6 |
| 2% | 1.2 | 1.8 | +0.6 |
| 5% | 1.0 | 1.6 | +0.6 |
| 10% | 0.8 | 1.4 | +0.6 |
| 18% | 0.7 | 1.2 | +0.5 |
| 39% | 0.5 | 0.9 | +0.4 |
| 63% | 0.4 | 0.7 | +0.3 |
| SUB01 (local) | | | |
| 1% | 2.0 | 3.1 | +1.1 |

19020125-01_R01_V02.docx



| AEP Event | Existing WBNM Peak Flow (m ³ /s) | Developed WBNM Peak Flow (m ³ /s) | Difference (m ³ /s) |
|----------------------|---|--|--------------------------------|
| 2% | 1.8 | 2.8 | +1.0 |
| 5% | 1.4 | 2.6 | +1.2 |
| 10% | 1.2 | 2.2 | +1.0 |
| 18% | 1.0 | 2.0 | +1.0 |
| 39% | 0.7 | 1.5 | +0.8 |
| 63% | 0.5 | 1.2 | +0.6 |
| SUB10 (local) | | | |
| 1% | 1.9 | 3.0 | +1.1 |
| 2% | 1.8 | 2.7 | +0.9 |
| 5% | 1.4 | 2.4 | +1.0 |
| 10% | 1.1 | 2.1 | +1.0 |
| 18% | 1.0 | 1.9 | +0.9 |
| 39% | 0.7 | 1.5 | +0.8 |
| 63% | 0.5 | 1.1 | +0.6 |

19020125-01_R01_V02.docx



4 STORMWATER QUALITY

4.1 Construction

4.1.1 Overview

Management of water quality during the construction phase is necessary to minimise environmental harm to downstream receiving waters. The following section provides a brief outline of the construction phase stormwater management requirements for the proposed development. Construction water quality management approaches are highly-site specific, therefore refinements to this management approach will occur prior to the commencement of construction. Additionally, construction phase water quality management will be subject to detailed engineering design as well as the provision of an appropriate erosion and sediment control plan for the site.

4.1.2 Construction Water Quality Management

Construction phase stormwater management will occur in accordance with current industry best practice, the requirements of the State Planning Policy (SPP) and Best Practice Erosion and Sediment Control (IECA 2008). The main tenants of construction phase water quality management are contained in Table 4-1. These have been adapted from the SPP and a general management approach has been nominated for each issue. Further details of the management approach (i.e. such as sediment basin design) will be determined during the detailed engineering design stage and submitted separately at this future time.

TABLE 4-1 STORMWATER MANAGEMENT ACTIONS (CONSTRUCTION PHASE)

| Issue | Management Actions |
|------------------|--|
| Drainage control | <ul style="list-style-type: none"> Design storm and design life for temporary works: <ul style="list-style-type: none"> Distributed area open for <12 months – 1 in 2-year ARI event Distributed area open for 12-24 months – 1 in 5-year ARI event Distributed area open for >24 months – 1 in 10-year ARI event Design capacity excludes minimum 150mm freeboard. Temporary culvert crossing – minimum 1 in 1-year ARI hydraulic capacity. Internal drainage to avoid exposed soils. Manage sheet flow to minimise gully and rill erosion. Temporary drainage to provide stable concentrated flow paths, catch drains and flow diversions where necessary. The disturbed area is anticipated to be greater than 2,500 m², therefore a sediment basin will likely be required to manage sediment run-off and regulate flows. Temporary sediment basin/s to be constructed in accordance with the SPP and Best Practice Erosion and Sediment Control (IECA 2008). |
| Erosion control | <ul style="list-style-type: none"> Stage clearing and construction activities to minimise exposed soil. Provide cover or bunding for exposed soils or fill stockpiles prior to rainfall events. Provide stabilisation of disturbed soils where necessary and prior to the removal of control devices. |

19020125-01_R01_V02.docx



| Issue | Management Actions |
|--|--|
| Sediment control | <ul style="list-style-type: none"> Implement sediment controls such as sediment traps, silt fences, channel linings and check dams. Implement and maintain sediment control devices to a standard which would achieve least 80% of the average annual runoff volume of the contributing catchment treated (i.e. 80% hydrological effectiveness) to 50mg/L Total Suspended Solids (TSS) or less, pH in the range (6.5–8.0), and turbidity not more than 20 NTU. |
| Gross pollutants, litter, waste and hydrocarbons | <ul style="list-style-type: none"> Provide on-site bins/waste receptacles and remove gross pollutants and litter where necessary. Avoid wind-blown litter, remove gross pollutants. Disposed of waste generated on site at authorised facilities. Avoid the release of oils/hydrocarbons and clean up any spills promptly. |
| Flow management | <ul style="list-style-type: none"> Earthworks and the implementation of erosion and sediment controls are undertaken in ways that ensure flooding characteristics are not worsened. |

4.2 Post-Construction

An assessment of stormwater quality at the site, including Water Sensitive Urban Design (WSUD) measures adopted to mitigate impacts to the quality of runoff leaving the developed site, has been undertaken using the Model for Urban Stormwater Conceptualisation (MUSIC) software. The preferred stormwater treatment strategy involves the use of bioretention basins. The following section documents the conceptual sizing requirements to inform site layout and civil arrangements. Note that various other treatment options may be adopted and these can be assessed during subsequent design stages. These WSUD measures are proposed for the operational phase of the development and are therefore long-term water quality management measures following the post-construction phase of development.

Typical pollutants expected to be generated by this development are listed in the table below:

TABLE 4-2 TYPICAL POLLUTANTS FROM SITE (POST-CONSTRUCTION PHASE)

| Pollutant Type | Pollutant sources |
|------------------|---|
| Gross Pollutants | Litter such as food, drink and materials packaging and wrappers, leaf matter and grass clippings. |
| Sediment | Sediment brought in by vehicles, erosion, atmospheric deposition, organic matter, spills and accidents. |
| Hydrocarbons | Fuel and oil spills from cars and trucks, asphalt pavements. |
| Nutrients | Fertilisers, decaying organic matter, animal faeces, detergents, atmospheric deposition. |

4.3 Water Quality Standards and Guidelines

The standards and guidelines referenced for the MUSIC analysis are listed below:

- "State Planning Policy" (SPP), Department of State Development, Infrastructure and Planning, 2017.
- Redlands Planning Scheme 2019 version 6.2.
- "MUSIC Modelling Guidelines – Version 1.0 – 2010" produced under the Water by Design Program by the South East Queensland Healthy Waterways Partnership 2010.



- d. Water by Design (2014) "Bioretention Technical Design Guidelines" (Version 1.1). Healthy Waterways Ltd, Brisbane.
- e. "Urban Stormwater Quality Planning Guidelines", Department of Environment and Resource Management, 2009.
- f. "Urban Stormwater – Queensland best practice environmental management guidelines – Technical Note: Derivation of Design Objectives", Environmental Protection Agency, January 2009.
- g. "Urban Stormwater Quality Planning Guidelines 2010" Department of Heritage Protection, 2010.

The stormwater quality pollutant load reduction requirements, as specified in Table B in Appendix 2 of the State Planning Policy (DILGP 2017), are listed in Table 4-3. These reduction targets are calculated as reductions in total pollutant load to be achieved as compared to the theoretical runoff of untreated stormwater from the proposed development.

TABLE 4-3 POST CONSTRUCTION PHASE STORMWATER MANAGEMENT DESIGN OBJECTIVES (SPP)

| Pollutant | Water Quality Objectives |
|------------------------------|--|
| Total Suspended Solids (TSS) | 80% reduction in average annual load of pollutants |
| Total Phosphorus (TP) | 60% reduction in average annual load of pollutants |
| Total Nitrogen (TN) | 45% reduction in average annual load of pollutants |
| Gross Pollutants (GP) | 90% reduction in average annual load of pollutants |

4.4 Model Setup

Water quality modelling of the proposed development has been undertaken using MUSIC. MUSIC enables the user to estimate the pollutant export from a proposed development site and quantify the effectiveness of proposed stormwater quality treatment train. MUSIC provides quantitative modelling for Total Suspended Solids (TSS), Total Phosphorus (TP), Total Nitrogen (TN) and Gross Pollutants (GP).

The MUSIC model was set up in accordance with Water by Design MUSIC Modelling Guidelines (2010), which have been produced under the Water by Design Program by the South-East Queensland Healthy Waterways Partnership. In addition, Healthy Waterways recommends using MUSIC Version 6 to ensure compliance with stormwater pollutant load reduction objectives, with the following parameters adopted when modelling bioretention filter media:

- Minimum 30 mg/kg Orthophosphate (OP); and
- Minimum 400 mg/kg Total Nitrogen (TN).

The modelling adopted the split catchment approach for residential development using the typical surface type splits and impervious fractions indicated in Table 4-4 in accordance with the MUSIC Modelling Guidelines (2010) (Table 3.3). The nominated values for the 15dw/ha dwelling density contained in the Guidelines have been adopted for this assessment and are consistent with the proposed low-medium density residential land use.

19020125-01_R01_V02.docx



TABLE 4-4 SPLIT CATCHMENT ASSUMPTIONS – TYPICAL SURFACE SPLITS

| Residential Development | Impervious Fraction (%) | | |
|-------------------------|-------------------------------|------|--------------|
| | Road | Roof | Ground Level |
| 15 Dwelling/ha | 60 | 100 | 20 |
| | Breakdown of Surface Types(%) | | |
| 15 Dwelling/ha | 25 | 32.5 | 42.5 |

4.4.1 Catchment Areas

The proposed development includes approximately 11 ha of low-medium density residential development. Utilising the typical surface splits indicated in Table 4-4 and the resulting catchment areas as outlined in Table 4-5, the entire development has been modelled in MUSIC. The whole site has been modelled as one node and bioretention basins will be sized based on their individual upstream contributing catchment.

TABLE 4-5 CATCHMENT BREAKDOWN – PROPOSED DEVELOPMENT

| Catchment | Total Area (ha) | Road Area (ha) | Lot Roof Area (ha) | Ground Level (ha) |
|------------|-----------------|----------------|--------------------|-------------------|
| Whole Site | 11.050 | 2.763 | 3.591 | 4.696 |

4.4.2 Pollutant Export Parameters

As recommended in Water by Design (2010), pollutant export parameter for urban residential areas using the split catchment land-use has been adopted for this analysis. These parameters are summarised in Table 4-6.

TABLE 4-6 POLLUTANT EXPORT PARAMETERS (SPLIT CATCHMENT APPROACH) - WATER BY DESIGN (2010).

| Flow Type | Surface Type | TSS log ¹⁰ values | | TP log ¹⁰ values | | TN log ¹⁰ values | |
|-----------------------|-------------------|------------------------------|----------|-----------------------------|----------|-----------------------------|----------|
| | | Mean | St. Dev. | Mean | St. Dev. | Mean | St. Dev. |
| Baseflow Parameters | Urban Residential | | | | | | |
| | Roof | N/A | N/A | N/A | N/A | N/A | N/A |
| | Roads | 1.00 | 0.34 | -0.97 | 0.31 | 0.20 | 0.20 |
| | Ground level | 1.00 | 0.34 | -0.97 | 0.31 | 0.20 | 0.20 |
| Streamflow Parameters | Roof | 1.30 | 0.39 | -0.89 | 0.31 | 0.26 | 0.23 |
| | Roads | 2.43 | 0.39 | -0.30 | 0.31 | 0.26 | 0.23 |
| | Ground level | 2.18 | 0.39 | -0.47 | 0.31 | 0.26 | 0.23 |

4.4.3 Rainfall and Evapotranspiration Data

Rainfall data was sourced from the Bureau of Meteorology (BoM) for Redland HRS (Station Number 40265) and covered the period from the 1st January 1997 to the 31st December 2006 with 6-minute rainfall data resolution, as recommended by the MUSIC Modelling Guidelines (2010). Table 4-7 summarises monthly evapotranspiration data adopted for the MUSIC analysis.



TABLE 4-7 EVAPOTRANSPIRATION DATA (PET) OBSERVED AT RELAND HRS STATION

| Month | Evapotranspiration (mm) |
|-----------|-------------------------|
| January | 202 |
| February | 160 |
| March | 156 |
| April | 111 |
| May | 75 |
| June | 62 |
| July | 64 |
| August | 81 |
| September | 112 |
| October | 155 |
| November | 181 |
| December | 209 |

4.4.4 Treatment Nodes

This assessment considered a single end-of-line bioretention basin for the entire development. The resulting bioretention basin size equates to approximately 1% of the upstream development footprint and can be scaled to suit development sub-catchments as required. Figure 4-1 provides an illustration of the MUSIC model schematic for the proposed development, and bioretention basin parameters adopted are summarised in Table 4-8.

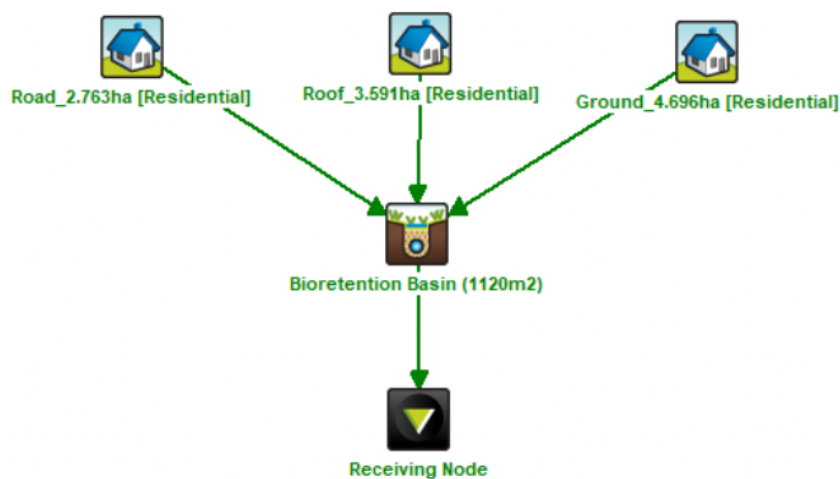


FIGURE 4-1 MUSIC MODEL SCHEMATIC

19020125-01_R01_V02.docx



TABLE 4-8 MUSIC BIORETENTION SYSTEM DETAILS (TOTAL SITE)

| Parameter | Bioretention Basin |
|--|--|
| Low Flow By-pass (m³/s) | 0 |
| High Flow By-pass (m³/s) | 100 |
| Extended Detention Depth (m) | 0.3 |
| Surface Area (m²) | 1120 |
| Filter Area (m²) | 1120 |
| Saturated Hydraulic Conductivity (mm/hr) | 200 |
| Filter Depth (m) | 0.5 |
| TN Content of Filter Media (mg/kg) | 400 |
| Orthophosphate Content of Filter Media (mg/kg) | 30 |
| Exfiltration Rate (mm/hr) | 0 |
| Is the Base Lined (Y/N) | Yes |
| Vegetation Properties | Vegetated with Effective Nutrient Removal Plants |
| Overflow Weir Width (metres) | 112 |
| Underdrain Present (Y/N) | Yes |
| Submerged Zone with Carbon Present (Y/N) | No |

*note that this area of filter media has been designed based on 300mm detention depth and in the detailed design phase could be split in to streetscape bioretention cells, swales and water smart street trees.

4.5 MUSIC Results and Discussion

The MUSIC results demonstrate that the pollutant load reduction objectives for the site have been achieved for the whole development footprint as detailed in Table 4-9. The bioretention basin sizing corresponds to 1.0% of the contributing development footprint catchment. Therefore, providing that each sub-catchment within the development is provided with bioretention filter media area at the rate of 1.0% of the contributing development footprint, the pollutant load reduction objectives will be achieved, and no further MUSIC analysis will be required.

TABLE 4-9 MUSIC RESULTS FOR WHOLE OF SITE

| Parameter | Required Load Reduction | Pollutant Reduction | Target Achieved |
|------------------------------|-------------------------|---------------------|-----------------|
| Total Suspended Solids (TSS) | 80% | 80.6% | Yes |
| Total Phosphorus (TP) | 60% | 73.2% | Yes |
| Total Nitrogen (TN) | 45% | 51.3% | Yes |
| Gross Pollutants (GP) | 90% | 100% | Yes |

19020125-01_R01_V02.docx



4.6 Summary

The MUSIC analysis documented in this report indicates that provision of bioretention capacity at the ratio of 1.0% of the contributing catchment as filter media effectively mitigates pollutant loads generated from the site to required SPP pollutant load reduction targets. Internal catchments and final bioretention arrangements and location for the site will be determined during future operational works stages. However, based on that outlined previously, the current development arrangements can readily demonstrate that water quality objectives can be met.

19020125-01_R01_V02.docx



5 RESPONSE TO INFORMATION REQUESTS

A Material Change of Use (MCU) application has previously been submitted for the site (ref: MCU013843). RCC subsequently issued a request for information (RFI) (ref: MCU17/0108, dated 22/11/2017) which has raised matters to be addressed relating to flooding and stormwater. Additionally, we understand that the structure plan accompanying the previous application has been given preliminary approval (variation request) with conditions by the State following referral to the Department of Infrastructure, Local Government and Planning (DILGP) (ref: 1711-2416 SRA, dated 14/12/2017). The additional information requested by the State does not raise specific matters relating to flooding and stormwater, and predominantly relates to koala management and undertaking works in a coastal management district. A response to the relevant stormwater and flooding items contained in the RFI received from RCC is provided in Table 5-1.

TABLE 5-1 INFORMATION REQUEST RESPONSE

| Item | Response |
|---|--|
| Redland City Council Ref: MCU17/0108 | |
| Stormwater 13. Planning Scheme Policy 14 – Waterways, Wetlands and Moreton Bay stipulates that Council's preference is for waterbodies located within natural drainage lines to be retained. Notwithstanding this and considering the historic agricultural use of the subject land provide an assessment of the dam located in the north-west of the site in accordance with Tables 2.1 and 2.2 of the Healthy Waterways Waterbody Management Guideline module 2 (development assessment). The information must be prepared by suitably qualified professionals including a geotechnical engineer who is an RPEQ, and include the following as a minimum: a) A detailed ecological assessment of the dam; b) An engineering risk and safety evaluation of the dam; and c) A retention management strategy, if the final recommendation of the assessment is dam retention. | It is sought to provide flexibility in relation to the retention or otherwise of the dam within the subject site. To that extent, a condition, similar to Condition 20 of the adjoining Shoreline approval that permits the removal/retention of the dam unless otherwise approved by Council through a subsequent development application is requested. If the on-site dam is to be removed, this will have no bearing on the outcomes of this assessment. |
| 14. The proposed development is partially located within the areas affected by the Flood Prone, Storm Tide and Drainage Constrained Land Overlay and is subject to assessment against the corresponding Code. The information provided by Bligh Tanner is not sufficient in addressing the requirements of the Code. Additionally, the Water, Wastewater and Stormwater report prepared by Bligh Tanner states that stormwater quality would typically be provided through the default bio-retention option of 2.5% (including surrounding batters and the like) of site area, that should be capable of integration within landscaping, medium density zones, open space and road reserves. This would result in a total minimum area of about 4000m ² . Demonstrate compliance with the requirements of Schedule 11 Assessment Benchmarks for development in Koala Habitat of the Planning Regulation 2017, State Planning Policy, Habitat Protection Overlay Code, Stormwater Management Code and Flood Prone, Storm | Hydrological modelling has been performed as part of this SMP to inform the proposed quantity strategies and future civil design. No stormwater infrastructure is proposed within areas mapped as containing vegetation of local environmental significance or koala habitat. As noted herein, the ultimate discharge arrangement for the site will be subject to advice from the Applicant, Council and civil designers at subsequent design stages. The intent will be to discharge stormwater from the site in a manner that maintains the existing flow regime as much as practicable and minimise the impact on the coastal zone and areas of environmental significance. Regarding stormwater quality, the preference will be to provide end of line bioretention. No bioretention is proposed within the road-reserve. Providing total filter media area of approximately 1120m ² and at a rate of approximately 1% of the upstream internal catchments will be sufficient for meeting water quality objectives for the site. |

19020125-01_R01_V02.docx



| Item | Response |
|--|----------|
| <p>Tide and Drainage Constrained Land Overlay Code of the Redlands Planning Scheme. Specifically provide the following information:</p> <p>a) A concept Stormwater Management Plan (SMP). It must include information about development catchments (hydrology), pre and post stormwater management options (including quantity and quality management and conceptual hydraulics) and location of future lawful discharge point(s). It needs to address the future zoning, including location of strategic infrastructure (that is any pump stations and/or WWTP) and any wastewater disposal areas within the Flood Prone, Storm Tide and Drainage Constrained Land Overlay. It must also demonstrate that there is no conflict with the environmental objectives of in Schedule 11 of the Planning Regulation 2017, State Planning Policy and Redlands Planning Scheme. Additionally, the SMP must address the proposed strategies in relation to management of existing dam.</p> <p>For more information please refer to the Habitat Protection Overlay Code, Stormwater Management Code, Flood Prone, Storm Tide and Drainage Constrained Land Overlay Code and corresponding Policies of the Redlands Planning Scheme, as well as relevant State planning instruments.</p> <p>Note: Stormwater treatment located in the road reserve is not generally supported by Redland City Council, particularly within master-planned communities.</p> | |

19020125-01_R01_V02.docx



6 CONCLUSION

Water Technology has been commissioned by Centhead Pty Ltd to prepare a Stormwater Management Plan for proposed development located at 48-66 Scenic Road, Redland Bay (real property description Lot 2 RP212251). The site is approximately 17.5 hectares in total area and is located within the Redlands City Council local government area.

A Material Change of Use (MCU) application has been previously submitted for the site (ref: MCU013843) to facilitate a residential land use outcome. Redland City Council (RCC) has subsequently issued a request for information (RFI) (ref: MCU17/0108, dated 22/11/2017). Additionally, we understand that the structure plan accompanying the previous application has been given preliminary approval (variation request) with conditions by the State following referral to the Department of Infrastructure, Local Government and Planning (DILGP) (ref: 1711-2416 SRA, dated 14/12/2017). The additional information requested by the State does not raise specific matters relating to flooding and stormwater, and predominantly relates to koala management and undertaking works in a coastal management district. A response to the relevant stormwater and flooding items contained in the RFI received from RCC is provided herein.

This report has otherwise been prepared for the purposes of addressing flood and stormwater management aspects relating to development of the site and in support of development applications over the site undertaken to meet the requirements of the Redlands Planning Scheme 2019 Version 6.2.

A key aim of this report is to demonstrate that the proposed development can be fundamentally supported and does not result in adverse flooding impacts external to the site. The general approach proposed includes:

- Discharge of all flows from the site directly to Moreton Bay in the absence of on-site detention. It is proposed to divert all flows from the sites' southern drainage line internally to prevent impacts to the downstream property. The final outlet arrangements will be subject to civil design input. Alternative stormwater quantity management strategies have been discussed in Section 3.4.
- With respect to stormwater quality management, the general strategy for meeting water quality objectives involves bio-retention basins sized to service the development and achieve the required pollutant reduction targets. This general approach may be refined during subsequent design stages.

It has been demonstrated that the proposed development can be fundamentally supported and does not result in adverse flooding impacts external to the site. Additionally, the development can readily achieve required water quality pollutant load reduction targets. On this basis, we believe that the proposed development can be readily be supported by Council, subject to reasonable and relevant conditions.

19020125-01_R01_V02.docx

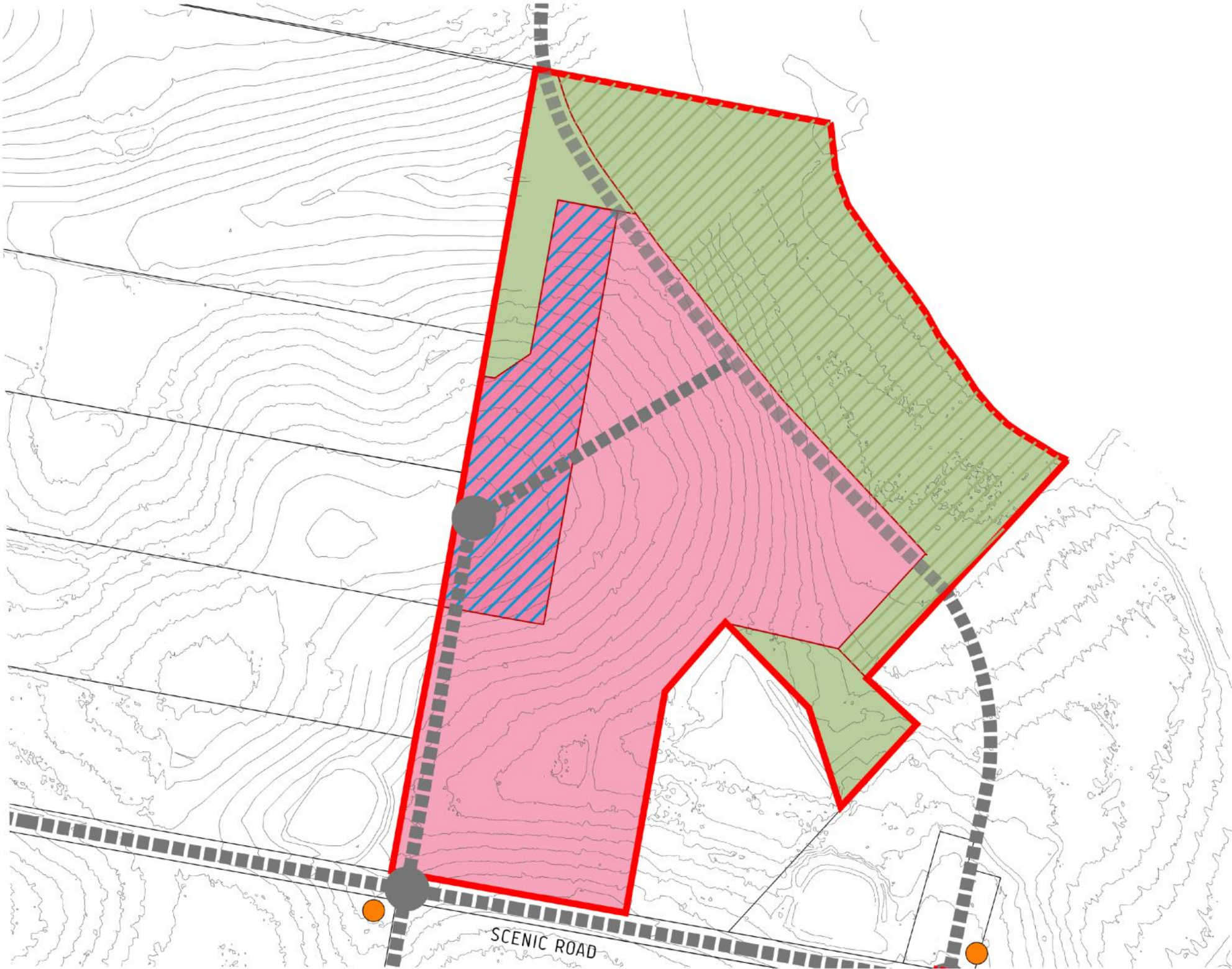


WATER TECHNOLOGY
WATER, COASTAL & ENVIRONMENTAL CONSULTANTS

APPENDIX A CONCEPT LAYOUT



SHORELINE (BAYHILL ESTATE) PRECINCT PLAN



NOT TO BE USED FOR ENGINEERING DESIGN
OR CONSTRUCTION

NOTES

This plan was prepared as a provisional layout to accompany a development application. The information on this plan is not suitable for any other purpose.

Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions.

No reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

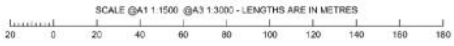
Pavements and centrelines shown are indicative only and are subject to Engineering Design.

Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

DCDB © State of Queensland (Department of Natural Resources and Mines) 2018.
Lidar Data © State of Queensland (Department of Natural Resources and Mines) 2018.

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

- LEGEND**
- Subject Site
 - Residential Precinct
 - Open Space Precinct
 - Foreshore Open Space Subprecinct
 - Town Centre Frame Precinct
 - Conceptual Minor Collector Road
 - Conceptual Bus Stop Location



CENTHEAD PTY LTD

28/10/2019 9401 P 10 Rev C-SKE 01



WATER TECHNOLOGY
WATER, COASTAL & ENVIRONMENTAL CONSULTANTS

APPENDIX B WBNM CATCHMENT DETAILS




Appendix B1 – Existing Catchment Details

| Catchment ID | Downstream ID | Area (ha) | Impervious Fraction (%) | Catchment Lag Parameters | Flowpath Parameter |
|--------------|---------------|-----------|-------------------------|--------------------------|--------------------|
| SUB01 | Discharge_C | 5.005 | 3 | 1.6/0.1 | 1 |
| Discharge_C | Discharge_F | 0.001 | 0 | 1.6/0.1 | 1 |
| SUB04 | Discharge_D | 1.933 | 0 | 1.6/0.1 | 1 |
| SUB03 | Discharge_D | 1.762 | 3 | 1.6/0.1 | 1 |
| SUB02 | Discharge_D | 3.153 | 3 | 1.6/0.1 | 1 |
| Discharge_D | SUB10 | 0.001 | 0 | 1.6/0.1 | 1 |
| SUB10 | Discharge_E | 4.908 | 0 | 1.6/0.1 | 1 |
| Discharge_E | SUB12 | 0.001 | 0 | 1.6/0.1 | 1 |
| SUB12 | SUB11 | 2.472 | 3 | 1.6/0.1 | 1 |
| SUB11 | Discharge_F | 2.402 | 3 | 1.6/0.1 | 1 |
| Discharge_F | SINK1 | 0.001 | 0 | 1.6/0.1 | 1 |
| SUB06 | SUB07 | 5.543 | 3 | 1.6/0.1 | 1 |
| SUB05 | SUB07 | 6.135 | 5 | 1.6/0.1 | 1 |
| SUB07 | SUB08 | 5.522 | 5 | 1.6/0.1 | 1 |
| SUB08 | Discharge_B | 8.704 | 3 | 1.6/0.1 | 1 |
| Discharge_B | SUB09 | 0.001 | 0 | 1.6/0.1 | 1 |
| SUB09 | Discharge_A | 3.154 | 0 | 1.6/0.1 | 1 |
| Discharge_A | SINK1 | 0.001 | 0 | 1.6/0.1 | 1 |
| SINK1 | SINK | 0.001 | 0 | 1.6/0.1 | 1 |

Appendix B2 – Post-Development Catchment Details

| Catchment ID | Downstream ID | Area (ha) | Impervious Fraction (%) | Catchment Lag Parameters | Flowpath Parameter |
|--------------|---------------|-----------|-------------------------|--------------------------|--------------------|
| SUB04 | Discharge_D | 1.933 | 0 | 1.6/0.1 | 1 |
| SUB03 | Discharge_D | 1.762 | 3 | 1.6/0.1 | 1 |
| SUB02 | Discharge_D | 3.153 | 3 | 1.6/0.1 | 1 |
| Discharge_D | SUB10 | 0.001 | 0 | 1.6/0.1 | 1 |
| SUB10 | Discharge_E | 4.908 | 65 | 1.6/0.1 | 1 |
| Discharge_E | SUB01 | 0.001 | 0 | 1.6/0.1 | 1 |
| SUB01 | Discharge_C | 5.005 | 70 | 1.6/0.1 | 1 |
| Discharge_C | Discharge_F | 0.001 | 0 | 1.6/0.1 | 1 |
| SUB12 | SUB11 | 2.472 | 3 | 1.6/0.1 | 1 |
| SUB11 | Discharge_F | 2.402 | 3 | 1.6/0.1 | 1 |
| Discharge_F | SINK1 | 0.001 | 0 | 1.6/0.1 | 1 |
| SUB06 | SUB07 | 5.543 | 3 | 1.6/0.1 | 1 |
| SUB05 | SUB07 | 6.135 | 5 | 1.6/0.1 | 1 |
| SUB07 | SUB08 | 5.522 | 5 | 1.6/0.1 | 1 |
| SUB08 | Discharge_B | 8.704 | 3 | 1.6/0.1 | 1 |
| Discharge_B | SUB09 | 0.001 | 0 | 1.6/0.1 | 1 |
| SUB09 | Discharge_A | 3.154 | 60 | 1.6/0.1 | 1 |
| Discharge_A | SINK1 | 0.001 | 0 | 1.6/0.1 | 1 |
| SINK1 | SINK | 0.001 | 0 | 1.6/0.1 | 1 |



Melbourne

15 Business Park Drive
Notting Hill VIC 3168
Telephone (03) 8526 0800
Fax (03) 9558 9365

Brisbane

Level 3, 43 Peel Street
South Brisbane QLD 4101
Telephone (07) 3105 1460
Fax (07) 3846 5144

Adelaide

1/198 Greenhill Road
Eastwood SA 5063
Telephone (08) 8378 8000
Fax (08) 8357 8988

Perth

Ground Floor
430 Roberts Road
Subiaco WA 6008
Telephone 0438 347 968

Geelong

PO Box 436
Geelong VIC 3220
Telephone 0458 015 664

Gippsland

154 Macleod Street
Bairnsdale VIC 3875
Telephone (03) 5152 5833

Wangaratta

st Floor, 40 Rowan Street
Wangaratta VIC 3677
Telephone (03) 5721 2650

Wimmera

PO Box 584
Stawell VIC 3380
Telephone 0438 510 240

www.watertech.com.au

info@watertech.com.au



Attachment 10 – Recommended conditions

| <u>ASSESSMENT MANAGER CONDITIONS</u> | <u>TIMING</u> |
|---|--|
| 1. Comply with all conditions of this approval, at no cost to Council, at the timing periods specified in the right-hand column. Where the column indicates that the condition is an ongoing condition, that condition must be complied with for the life of the development. | |
| <u>Approved plans and documents</u> | |
| 2. Undertake the development in accordance with the approved plans and documents referred to in Table 1, subject to the conditions of this approval and any notations by Council on the plans. | Prior to the use commencing and ongoing. |

| Plan/document title | Reference number | Prepared by | Plan/doc. date |
|---|--------------------------|-------------------------------|----------------|
| Shoreline (Bayhill Estate) Urban Village Plan of Development | Version J (Draft A) | Saunders Havill Group Pty Ltd | 27/10/2021 |
| Shoreline (Bayhill Estate) Precinct Plan | 9401 P 10 Rev I – SKE 01 | Saunders Havill Group Pty Ltd | 07/12/2021 |
| Stormwater Management Plan | 19020125-01_R01_V02 | Water Technology | 04/11/2019 |
| Bayhill Estate Biting Insect Management Plan | 170506 | FRC Environmental | Sept 2019 |
| Addendum to Bayhill Estate Biting Insect Management Plan (2019) | 170506_Addendum_Riii | FRC Environmental | 27/10/2021 |
| Geotechnical and Acid Sulfate Soils Investigation | 92838.04 | Douglas Partners | March 2019 |
| Overall Bushfire Management Plan | 14-006 | The Consultancy Bureau | June 2014 |

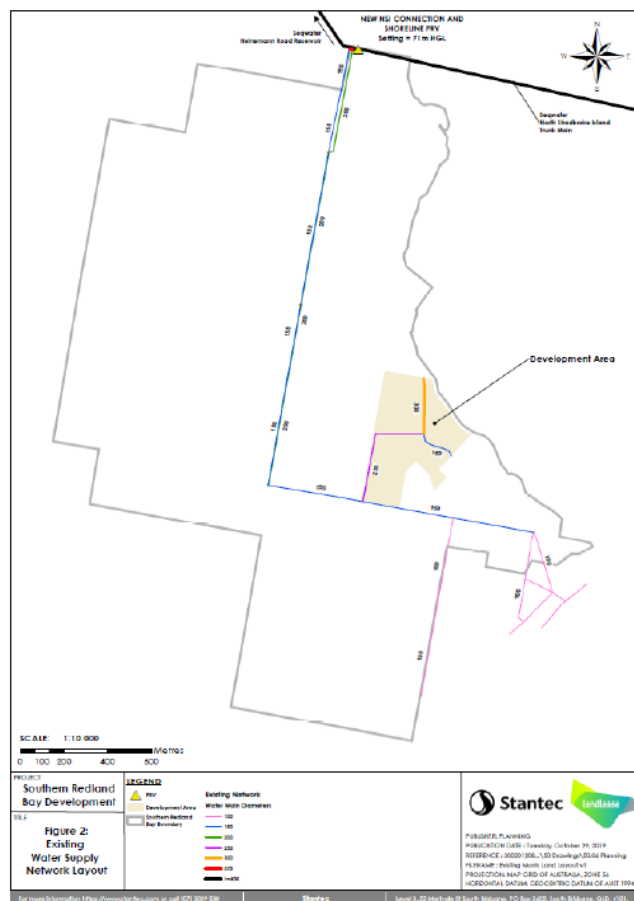
Table 1: Approved plans and documents

| | |
|--|----------|
| 3. Apply the variations approved in the Shoreline (Bayhill Estate) Urban Village Plan of Development, to development that is subject of the variation approval or development that is the natural and ordinary consequence of development that is the subject of the variation approval. | Ongoing. |
|--|----------|

| | |
|---|--|
| <p>4. Amend the approved plan of development to vary the 1% AEP flood and storm tide level from 2.4m to 3.81m AHD, for the following sections of the Redlands Planning Scheme V7.1:</p> <ul style="list-style-type: none"> • Section 5.6.6(1)(a) • Section 5.6.8 A1(2)(b) • Section 5.6.9 S1(1) and notes • Section 8.9.4 P3(1)(iii) • Schedule 3, Division 2 (Administrative Terms) - "storm tide area" • Planning scheme policy 9 Infrastructure Works: <ul style="list-style-type: none"> • Section 9.3.4 checklist flood prone land • Section 9.3.6 checklist flood prone land • Section 9.5.9.9(6) and (7) • Section 9.11.6.1 – item (17) | <p>As part of the lodgement of the first development application.</p> |
| <u>Infrastructure Agreement</u> | |
| <p>5. Comply with the infrastructure agreement relating to the subject site.</p> | <p>Ongoing.</p> |
| <u>Roadworks</u> | |
| <p>6. Submit to Council for approval, engineering plans and details showing the upgrade of Scenic Road for the full frontage of the site to a residential type B collector street standard in accordance with the infrastructure works code as per the approved Plan of Development.</p> | <p>Prior to the sealing of the first lot, or commencement of any use, on the subject land, whichever occurs first.</p> |
| <p>7. Construct the upgrade of Scenic Road for the full frontage of the site to a collector street standard in accordance with a Council approved engineering design.</p> | <p>Prior to the sealing of the first lot, or commencement of any use, on the subject land, whichever occurs first.</p> |
| <u>Utilities</u> | |
| <p>8. Connect the development to external reticulated sewer, external reticulated water and underground electricity supply. Where external reticulated sewer is not available to connect to the development, submit and have approved a tankering management plan in accordance with the Infrastructure Agreement.</p> | <p>Prior to the sealing of the first lot, or commencement of any use, on the subject land, whichever occurs first.</p> |

9. Design and construct the 150mm, 250mm and 300mm diameter water mains as shown on approved plan Figure 1: Existing Water Supply Network Layout within the subject lot, in accordance with the Water Supply Code of Australia – South East Queensland Service Providers Edition and Infrastructure Works Code as per the approved Plan of Development.

Prior to the sealing of the first lot, or commencement of any use, on the subject land, whichever occurs first.



Environmental

10. Provide an environmental offset for all non-juvenile koala habitat trees to be removed within the mapped medium value rehabilitation area, in accordance with the *Environmental Offsets Act 2014*. This must be in accordance with one of the below options:

For a land-based offset – prior to operational works commencing.

For a financial settlement offset –

| | |
|--|--|
| <p>a) A land-based offset may be provided in accordance with sections 2.3.1.1 and 2.3.1.6 of the Queensland Environmental Offsets Policy (Version 1.6).</p> <p>b) A financial settlement offset may be provided in accordance with section 2.3.2 of the Queensland Environmental Offsets Policy (Version 1.6).</p> <p>c) A combination of offset (a) and offset (b) may be provided.</p> | <p>prior to any construction works taking place.</p> |
| <p>11. Provide a Notice of Election in the approved form, in accordance with section 2.4 of the <i>Queensland Environmental Offsets Policy (Version 1.6)</i>, which details the proposed offset delivery approach. The approved form is EOD1 – Environmental Offsets Delivery Form 1: Notice of Election and Advanced Offset Details.</p> <p>The following additional approved forms must also be provided:</p> <p><u>For a land based offset:</u></p> <ul style="list-style-type: none"> • EOD2 – Environmental Offsets Delivery Form 2: Offset Delivery Plan Details*. • EOD3 – Environmental Offsets Delivery Form 3: Offset Area Details. • EOD4 – Environmental Offsets Delivery Form 5: Habitat Quality Details. <p><u>For a financial settlement offset</u></p> <ul style="list-style-type: none"> • EOD4 – Environmental Offsets Delivery Form 4: Financial Settlement Details. <p><i>*Note: Must include the Legal Security mechanism for any land-based offset, as per Sections 18 and 29 of the Environmental Offsets Act 2014.</i></p> | <p>As part of the lodgement of any development application that involves the clearing of non-juvenile koala habitat trees.</p> |
| <p>12. Submit to Council, and have approved, an open space layout plan for the open space precinct identified on the approved precinct plan, in accordance with the Shoreline (Bayhill Estate) Urban Village Plan of Development, and planning scheme policy 9, chapter 11 of the Redlands Planning Scheme V7.1, that demonstrates:</p> <p>a) The vegetation areas that will be retained.</p> <p>b) The areas of vegetation that will be cleared.</p> <p>c) The plans for rehabilitation and vegetation (weed removal and planting).</p> <p>Revegetation of the east-west corridor must include:</p> <p>i) A central core of at least 50 metres wide that achieves a densely vegetated corridor that facilitates provision of wildlife movement.</p> | <p>As part of the lodgement of the first development application.</p> |

- | | |
|------|--|
| ii) | A minimum 25 metre wide section on either side of the central core that achieves a sparsely planted and low-maintenance grass area with scattered koala habitat trees. |
| iii) | Planting design must incorporate species identified within the Redlands Coast Regional Ecosystem Database. |
| iv) | Corridor design must avoid placement of pedestrian and cycle pathways through continuous habitat, with public use kept to areas within or immediately adjacent to roads, designated parks and stormwater facilities. |

ADDITIONAL APPROVALS

The preliminary approval does not authorise development to occur.

Further development permits are necessary to allow development to be carried out, being any development listed as assessable development in the tables of assessment in the Shoreline (Bayhill Estate) Urban Village Plan of Development, or a local categorising instrument (where not varied by the plan of development).

REFERRAL AGENCY CONDITIONS

- **Queensland Government**
Refer to the attached correspondence from the SARA dated 30 August 2021 (SARA reference 1711-2416 SRA).

ASSESSMENT MANAGER ADVICE

- **Coastal processes and sea level rise**
Please be aware that development approvals issued by Redland City Council are based upon current lawful planning provisions which do not necessarily respond immediately to new and developing information on coastal processes and sea level rise. Independent advice about this issue should be sought.
- **Services installation**
It is recommended that where the installation of services and infrastructure will impact on the location of existing vegetation identified for retention, an experienced and qualified arborist that is a member of the Australian Arborist Association or equivalent association, be commissioned to provide impact reports and on site supervision for these works.
- **Fire ants**
Areas within Redland City have been identified as having an infestation of the Red Imported Fire Ant (RIFA). Biosecurity Queensland should be notified on 13 25 23 of proposed development(s) occurring in the Fire Ant Restricted Area before earthworks commence. It should be noted that works involving movements of soil associated with earthworks may be

subject to movement controls and failure to obtain necessary approvals from Biosecurity Queensland is an offence. It is a legal obligation to report any sighting or suspicion of fire ants within 24 hours to Biosecurity Queensland on 13 25 23. The Fire Ant Restricted Area as well as general information can be viewed on the Department of Agriculture and Fisheries (DAF) website www.daf.qld.gov.au/fireants.

- **Cultural heritage**

The *Aboriginal Cultural Heritage Act 2003* requires anyone who carries out a land use activity to exercise a duty of care. Further information on cultural heritage duty of care is available on the Department of Aboriginal and Torres Strait Islander Partnerships (DATSIP) website:

<https://www.datsip.qld.gov.au/resources/datsima/people-communities/cultural-heritage/cultural-heritage-duty-care.pdf>

The DATSIP has established a register and database of recorded cultural heritage matters, which is also available on the Department's website:

<https://www.datsip.qld.gov.au/people-communities/aboriginal-torres-strait-islander-cultural-heritage/cultural-heritage-search-request>

Quandamooka Yoolooburrabee Aboriginal Corporation (QYAC) is the registered cultural heritage body in the Redland City local government area. It is recommended you consult with QYAC in relation to aboriginal and cultural heritage matters prior to the commencement of works on site. QYAC can be contacted on 07 3415 2816 or admin@QYAC.net.au

Should any aboriginal, archaeological or historic sites, items or places be identified, located or exposed during construction or operation of the development, the *Aboriginal and Cultural Heritage Act 2003* requires all activities to cease. Please contact DATSIP for further information.

- **Fauna protection**

It is recommended an accurate inspection of all potential wildlife habitats be undertaken prior to removal of any vegetation on site. Wildlife habitat includes trees (canopies and lower trunk) whether living or dead, other living vegetation, piles of discarded vegetation, boulders, disturbed ground surfaces, etc. It is recommended that you seek advice from the Queensland Parks and Wildlife Service if evidence of wildlife is found.

- **Environment Protection and Biodiversity Conservation Act**

Under the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act* (the EPBC Act), a person must not take an action that is likely to have a significant impact on a matter of national environmental significance without Commonwealth approval. Please be aware that the listing of the Koala as **vulnerable** under this Act may affect your proposal. Penalties for taking such an action without approval are significant. If you think your proposal may have a significant impact on a matter of national environmental significance, or if you are unsure, please contact Environment Australia on 1800 803 772. Further information is available from Environment Australia's website at www.ea.gov.au/epbc.

Please note that Commonwealth approval under the EPBC Act is independent of, and will not affect, your application to Council.

STATEMENT OF REASONS

| | |
|---|--|
| Assessment Benchmarks: | <p>The proposed development was assessed against the following assessment benchmarks:</p> <p>Redlands Planning Scheme Version 7.1</p> <ul style="list-style-type: none"> • Investigation zone code • Acid sulfate soils overlay code • Bushfire hazard overlay code • Flood prone, storm tide and drainage constrained land overlay code • Habitat protection overlay code • Landslide hazard overlay code • Waterways, wetlands and Moreton Bay overlay code • Access and parking code • Excavation and fill code • Infrastructure works code • Landscape code • Stormwater management code • State Planning Policy 2017, Part E • South East Queensland Regional Plan 2017 • <i>Planning Regulation 2017</i>, Schedule 11 |
| Matters prescribed by Regulation | <p>Council had regard to the following matters in the assessment of the application:</p> <ul style="list-style-type: none"> • Adjoining Shoreline development approval • Shoreline infrastructure agreement |
| Other relevant matters | N/A |

The key issues identified in the assessment were:

| Issue | Assessment outcome |
|-----------------|--|
| Land use | The proposed development is considered to align with the surrounding Shoreline approval with respect to the intended land use(s). |
| Precinct layout | The precincts are appropriately sized and shaped to permit the intended land uses, and align with the adjoining Shoreline precincts. |

| | |
|-----------------------|---|
| Environmental values | Environmental corridors are located within the open space/foreshore precinct to ensure these areas are managed. |
| Landscaping | There is sufficient land available to provide appropriate landscaping for future development. |
| Traffic | Road layout and public transport/active transport connection plans were provided, which align with the Shoreline approval. These plan are indicative with detailed plans to be provided with subsequent applications. |
| Stormwater management | The site can directly drain to Moreton Bay, and will be treated via stormwater bio-basins or similar prior to discharge. |
| Biting insects | A biting insects management plan and building design code to reduce the incidence of biting insects is approved for the development. |
| Flood prone land | Minor earthworks will be required in subsequent applications to provide flood immunity. A condition is also included to ensure future development will provide appropriate immunity from 2100 storm tide events. |
| Infrastructure | The Shoreline approval will design and construct a reticulated sewer and water system that will also service the subject site. |
| Bushfire management | Future development can be designed and sited to provide appropriate bushfire mitigation. |
| Coastal erosion | Conditions are included to manage coastal erosion by generally maintaining a development free buffer in the affected area. |



Bayhill Estate Infrastructure Agreement

Lendlease Communities (Shoreline) Pty Ltd ACN 623 367 377
(Applicant)

Redland City Council ABN 86 058 929 428
(Council)

Redland City Council | Infrastructure Agreement

ME_176195850_14

Contents

| | Page No. |
|--|-----------|
| 1. DEFINITIONS AND INTERPRETATION | 1 |
| 1.1 DEFINITIONS..... | 1 |
| 1.2 INTERPRETATION | 6 |
| 1.3 OTHER EXPRESSIONS | 7 |
| 2. INFRASTRUCTURE AGREEMENT | 7 |
| 2.1 APPLICATION OF THE ACT | 7 |
| 2.2 COMMENCEMENT..... | 7 |
| 2.3 AGREEMENT TO BIND SUCCESSORS IN TITLE..... | 7 |
| 2.4 OWNER'S CONSENT | 7 |
| 2.5 THIRD PARTY BENEFIT..... | 7 |
| 2.6 RELATIONSHIP OF PARTIES | 7 |
| 2.7 NO FETTERING AND OBLIGATION TO ACT REASONABLY..... | 8 |
| 2.8 EXTINGUISHMENT OR MODIFICATION OF DEVELOPMENT RIGHTS..... | 8 |
| 2.9 DEVELOPMENT APPLICATION..... | 8 |
| 2.10 TERMINATION OF THE AGREEMENT | 9 |
| 2.11 AGREEMENT PREVAILS TO EXTENT OF INCONSISTENCY | 9 |
| 2.12 OBLIGATION TO NEGOTIATE IN GOOD FAITH | 9 |
| 2.13 PROVISION OF SECURITY | 10 |
| 3. PAYMENT OF SECURITY..... | 10 |
| 3.1 OBLIGATION TO PROVIDE SECURITY..... | 10 |
| 3.2 COUNCIL'S RIGHT OF RECOURSE TO SECURITY..... | 10 |
| 3.3 REQUEST FOR RELEASE OF SECURITY..... | 10 |
| 3.4 RELEASE OF SECURITY..... | 10 |
| 3.5 APPLICATION OF MONEY..... | 11 |
| 3.6 SECURITY INSUFFICIENT..... | 11 |
| 3.7 INTEREST | 11 |
| 4. INFRASTRUCTURE CHARGES | 11 |
| 4.1 NO FURTHER INFRASTRUCTURE CONTRIBUTIONS OR INFRASTRUCTURE CHARGES..... | 11 |
| 4.2 REDUCTIONS OF INFRASTRUCTURE CHARGES BY OFFSET | 11 |
| 5. OFFSETS FOR INFRASTRUCTURE CONTRIBUTIONS..... | 11 |
| 5.1 WHEN OFFSETS APPLY | 11 |
| 5.2 WHEN OFFSETS ACCRUE | 12 |
| 5.3 CALCULATION OF AN OFFSET | 12 |
| 5.4 SET-OFF AGAINST INFRASTRUCTURE CHARGES..... | 12 |
| 5.5 LIMITATIONS ON AN OFFSET | 12 |
| 5.6 CROSS CREDITING | 12 |
| 5.7 ALLOCATION OF OFFSET AMOUNT TO OTHER LAND..... | 12 |
| 5.8 OFFSET REGISTER..... | 13 |
| 6. WORK CONTRIBUTIONS | 13 |
| 6.1 PROVISION OF WORK CONTRIBUTIONS | 13 |
| 6.2 TIMING..... | 13 |
| 6.3 DESIGN REQUIREMENTS | 14 |
| 6.4 SUBMISSION OF DESIGNS AND SPECIFICATIONS | 14 |
| 6.5 CONSTRUCTION OF WORK CONTRIBUTIONS..... | 14 |
| 6.6 FINAL SPECIFICATION OF WORK CONTRIBUTIONS..... | 14 |
| 7. LAND CONTRIBUTIONS | 15 |
| 7.1 PROVISION OF LAND CONTRIBUTIONS | 15 |
| 7.2 FORM OF LAND CONTRIBUTIONS | 15 |
| 7.3 TRANSFER OF LAND | 15 |
| 7.4 COST OF TRANSFER..... | 16 |
| 7.5 GRANT OF EASEMENT FOR LAND CONTRIBUTION | 16 |

| | | |
|------------|---|-----------|
| 7.6 | COMPULSORY ACQUISITION..... | 16 |
| 7.7 | SUSPENSION OF APPLICANT OBLIGATION..... | 17 |
| 8. | COMMENCEMENT OF MAINTENANCE PERIOD FOR WORK CONTRIBUTIONS..... | 17 |
| 8.1 | WHEN WORK CONTRIBUTIONS ARE COMPLETE..... | 17 |
| 8.2 | NOTICE FROM APPLICANT..... | 17 |
| 8.3 | ISSUE OF ON-MAINTENANCE CERTIFICATE..... | 17 |
| 8.4 | COMMENCEMENT OF MAINTENANCE PERIOD..... | 17 |
| 8.5 | APPLICANT'S MAINTENANCE OBLIGATIONS..... | 17 |
| 8.6 | TIMEFRAME FOR RECTIFICATION OF DEFECTS..... | 18 |
| 8.7 | DEFECT NOTICE..... | 18 |
| 9. | EXTENSION TO MAINTENANCE PERIOD..... | 18 |
| 9.1 | COUNCIL MAY EXTEND MAINTENANCE PERIOD..... | 18 |
| 10. | ACCEPTANCE OF WORK CONTRIBUTIONS OFF-MAINTENANCE..... | 19 |
| 10.1 | APPLICANT TO REQUEST INSPECTION..... | 19 |
| 10.2 | WHEN WORK CONTRIBUTIONS ACCEPTED "OFF-MAINTENANCE"..... | 19 |
| 10.3 | OWNERSHIP OF WORK CONTRIBUTIONS..... | 19 |
| 11. | DEFAULT BY APPLICANT..... | 20 |
| 11.1 | APPLICATION OF THIS CLAUSE..... | 20 |
| 11.2 | NOTICE OF DEFAULT..... | 20 |
| 11.3 | EVENT OF DEFAULT..... | 20 |
| 11.4 | COUNCIL'S RIGHTS IN THE EVENT OF DEFAULT..... | 20 |
| 11.5 | NO WAIVER OF EFFECT ON OTHER RIGHTS AND OBLIGATIONS..... | 21 |
| 12. | RIGHTS OF ACCESS..... | 21 |
| 12.1 | COUNCIL'S RIGHT..... | 21 |
| 12.2 | APPLICANT'S RIGHT..... | 21 |
| 12.3 | EXERCISE OF RIGHT OF ACCESS..... | 21 |
| 12.4 | RIGHT OF ENTRY AT LAW..... | 22 |
| 13. | INSURANCE TO BE EFFECTED BY APPLICANT..... | 22 |
| 13.1 | INSURANCES TO BE EFFECTED..... | 22 |
| 13.2 | REQUIREMENTS OF INSURANCE..... | 23 |
| 14. | APPLICANT OBLIGATIONS TO SUBSIST..... | 23 |
| 15. | INDEMNITY AND RELEASE..... | 23 |
| 15.1 | APPLICANT INDEMNIFIES THE COUNCIL..... | 23 |
| 15.2 | APPLICANT RELEASES THE COUNCIL..... | 23 |
| 15.3 | INDEPENDENCE OF APPLICANT'S OTHER OBLIGATIONS..... | 23 |
| 15.4 | EXCLUDED LOSS..... | 23 |
| 16. | DEALING IN RESPECT OF THE LAND..... | 23 |
| 16.1 | RECONFIGURING OF THE LAND..... | 23 |
| 16.2 | DEALING WITH THE DEVELOPABLE LOT..... | 24 |
| 16.3 | RESTRICTION ON ASSIGNMENT BY APPLICANT..... | 24 |
| 16.4 | CONDITIONS OF THE COUNCIL'S CONSENT..... | 25 |
| 16.5 | SECURITY RETAINED IF INVALID ASSIGNMENT..... | 25 |
| 16.6 | APPLICANT TO REMAIN LIABLE..... | 25 |
| 16.7 | RESTRICTION NOT TO APPLY TO DEVELOPED LOTS..... | 25 |
| 17. | FORCE MAJEURE..... | 25 |
| 17.1 | EXCUSE FROM PERFORMANCE OF OBLIGATION..... | 25 |
| 17.2 | NOTIFICATION..... | 26 |
| 18. | INDEXATION..... | 26 |
| 18.1 | APPLICATION OF THIS CLAUSE..... | 26 |
| 18.2 | INDEXATION OF AN AMOUNT..... | 26 |
| 19. | GST..... | 26 |

| | | |
|-------------------|---|-----------|
| 19.1 | DEFINITIONS AND INTERPRETATION..... | 26 |
| 19.2 | INTENTION OF THE PARTIES..... | 27 |
| 19.3 | PAYMENT OF GST | 27 |
| 20. | NOTICES..... | 27 |
| 21. | GENERAL PROVISIONS | 28 |
| 21.1 | BINDING ON SUCCESSORS..... | 28 |
| 21.2 | APPLICABLE LAW | 28 |
| 21.3 | FURTHER ASSURANCES | 28 |
| 21.4 | ENTIRE UNDERSTANDING | 28 |
| 21.5 | WAIVER | 28 |
| 21.6 | WARRANTY OF AUTHORITY | 28 |
| 21.7 | AMENDMENT OF AGREEMENT | 29 |
| 21.8 | SEVERANCE | 29 |
| 21.9 | REMEDIES CUMULATIVE | 29 |
| 21.10 | COUNTERPARTS | 29 |
| 21.11 | RULE OF CONSTRUCTION | 29 |
| 21.12 | NO WAIVER OF EFFECT ON OTHER RIGHTS AND OBLIGATIONS | 29 |
| 21.13 | AGREEMENT DOES NOT AFFECT RIGHTS | 29 |
| 21.14 | DISPUTE RESOLUTION..... | 29 |
| 21.15 | ELECTRONIC EXECUTION AND EXCHANGE..... | 30 |
| 21.16 | ACKNOWLEDGEMENT OF USE OF ELECTRONIC SIGNATURES | 30 |
| SCHEDULE 1 | PARTICULARS | 32 |
| SCHEDULE 2 | SPECIAL CONDITIONS..... | 33 |
| SCHEDULE 3 | SHORELINE LAND | 37 |
| SCHEDULE 4 | SCHEDULE OF PLANS..... | 38 |
| SCHEDULE 5 | INFRASTRUCTURE CONTRIBUTION SCHEDULE | 39 |
| SCHEDULE 6 | PRELIMINARY APPROVAL (CONDITIONS)..... | 48 |

Dated:**Parties:**

Lendlease Communities (Shoreline) Pty Ltd ACN 623 367 377 of
Level 14, Tower Three, International Towers Sydney, 300 Barangaroo Avenue,
Barangaroo in the State of New South Wales

(Applicant)

Redland City Council ABN 86 058 929 428 of Corner Bloomfield & Middle
Streets, Cleveland in the State of Queensland

(Council)

Background:

- A. The Development Application was lodged over the Land.
- B. Council is to decide the Development Application.
- C. The Applicant will provide Infrastructure Contributions as part of its development of the Land in accordance with this agreement.
- D. The Parties have voluntarily agreed to enter into an infrastructure agreement and have negotiated the terms of this agreement in good faith.
- E. This agreement sets out the terms of the agreement reached between the Parties.

The Parties agree:**1. DEFINITIONS AND INTERPRETATION****1.1 Definitions**

In this agreement, unless inconsistent with the context or subject matter:

- (1) **Act** means the *Planning Act 2016*.
- (2) **Adopted Resolution** means Redland City Council Adopted Infrastructure Charges Resolution (No.3.1) 2020, which took effect on and from 28 February 2020. For clarity, 'Adopted Resolution' does not include any changes to this resolution, nor any resolution or other instrument that replaces this resolution.
- (3) **Applicant** means the person or entity described in Item 4 of Schedule 1 and includes:
 - (a) successors and permitted assigns in the case of a corporation, association or other body whether incorporated or not; and
 - (b) executors, administrators and permitted assigns in the case of a natural person.
- (4) **Applicant Obligations** means all obligations of the Applicant pursuant to and identified in this agreement.
- (5) **Applicant's Agents** includes the Applicant's officers, servants, employees, contractors and subcontractors and agents and servants of the Applicant's contractors and subcontractors.
- (6) **Application** means an application for an Approval.

- (7) **Approval** means a consent, permit, licence, certificate, authorisation, registration, membership, allocation or approval under a Law and includes a Development Approval.
- (8) **Approved Plans** means the plans referred to in an Infrastructure DA.
- (9) **Authorised Person** means an officer of the Council authorised pursuant to section 202 of the *Local Government Act 2009* to exercise the powers of the Council under the Local Planning Instrument, Adopted Resolution or this agreement.
- (10) **Business Day** means a day that is not a Saturday or Sunday or a public holiday in Brisbane and no days after 24 December and before 2 January.
- (11) **Charges Notice** means an infrastructure charges notice as defined by the Act and includes a notice referred to in section 301(1) of the Act.
- (12) **Chief Executive Officer** means the Council's Chief Executive Officer at a relevant time, or any person the Chief Executive Officer authorises in writing, by way of delegation pursuant to the *Local Government Act 2009*, to exercise his or her responsibilities for a purpose relating to this agreement.
- (13) **Clause** means a numbered Clause, sub-Clause or paragraph of this agreement, whether referred to individually or collectively.
- (14) **Commencement Date** means the date stated in Item 1 of Schedule 1 and, if Item 1 is blank, means the date the last Party signs this agreement.
- (15) **Conditions of Approval** means the conditions contained in a Development Approval.
- (16) **Council** means the Redland City Council ABN 86 058 929 428 and includes its predecessors, successors, transferees and assigns.
- (17) **Council's Agents** includes the Council's elected members, officers, servants, employees, contractors and subcontractors, and agents and servants of the Council's contractors and subcontractors.
- (18) **Defect Notice** means a Notice given under Clause 8.7.
- (19) **Developable Lot** means either a:
- (i) lot comprising the Land at the Commencement Date; or
 - (ii) a lot forming part of the Land,
- which is not a Developed Lot.
- (20) **Developed Lot** means a lot forming part of the Land which is:
- (i) provided with the infrastructure and services necessary to enable its use in accordance with the Development Entitlements or a Development Approval; and
 - (ii) not intended to be the subject of:
 - A. an Application for a material change of use; or
 - B. a further reconfiguring of a lot,other than in connection with the construction of detached or attached Dwellings if permitted under the Preliminary Approval, a Development Approval or a Local Planning Instrument.

- (21) **Development** has the meaning in the Act.
- (22) **Development Obligations** means the obligations under this agreement to be performed or fulfilled by a Party.
- (23) **Development Application** means the development application described in Item 6 of Schedule 1.
- (24) **Development Approval** means a development approval under the Act.
- (25) **Development Entitlements** means the entitlements for Development specified in the Preliminary Approval.
- (26) **Dwelling** has the meaning in the Local Planning Instrument.
- (27) **Endorsement** means, when used in reference to a Plan of Subdivision, the notation of the Council's approval on the Plan of Subdivision following the process required by section 69 and Schedule 18 of the *Planning Regulation 2017*.
- (28) **Event of Default** means an event identified in Clause 11.1.
- (29) **Excluded Loss** means:
- (i) special or indirect loss or damage;
 - (ii) loss of production, use, business opportunity, profit or revenue; and
 - (iii) consequential loss.
- (30) **Financial Contribution** means a contribution for infrastructure being the provision of a monetary sum.
- (31) **Force Majeure** means an event:
- (i) that is:
 - (A) an act of God, such as a storm surge, storm, lightning, flood, earthquake, tempest, pandemic or fire;
 - (B) a terrorist act, sabotage, war, protest, blockade or riot; and
 - (C) an industrial dispute that is not within the control of the Party claiming Force Majeure; and
 - (ii) which could not have been prevented by the exercise by a person of a standard of foresight, care and diligence consistent with that of a prudent and competent person under the circumstances.
- (32) **Infrastructure Charge** means a charge that, under:
- (i) the Act;
 - (ii) a Development Approval; or
 - (iii) an infrastructure agreement under the Act,
- is imposed in respect of Development as a contribution to infrastructure, and includes:
- (iv) a Levied Charge; and
 - (v) a Financial Contribution.

- (33) **Infrastructure Contribution** means a contribution for infrastructure which may be in the form of one or more of the following:
- (i) a Financial Contribution;
 - (ii) a Land Contribution; and
 - (iii) a Work Contribution.
- (34) **Infrastructure Contributions Schedule** means the Infrastructure Contributions specified in Schedule 5.
- (35) **Infrastructure DA** means a Development Approval that authorises a Work Contribution or the reconfiguration of a lot required for a Land Contribution or both.
- (36) **Insolvency Event** means the following:
- (i) if the Applicant or a person comprising the Applicant is a company – that company becoming an externally-administered body corporate (as defined by the *Corporations Act 2001*); or
 - (ii) if the Applicant or a person comprising the Applicant is an individual – that individual becoming an insolvent under administration.
- (37) **Land** means the land described in Item 5 of Schedule 1.
- (38) **Land Contribution** means a contribution for infrastructure being the provision of land including the grant of an easement.
- (39) **Law** means any statute, regulation or subordinate legislation of the Commonwealth, the State of Queensland or local or other government in force in the State of Queensland, irrespective of when enacted.
- (40) **Levied Charge** has the meaning in the Act.
- (41) **Local Law** has the meaning given in the *Local Government Act 2009*, and includes all local law policies made under a Local Law and all approvals granted under a Local Law.
- (42) **Local Planning Instrument** has the meaning in the Act.
- (43) **Maintenance Obligations** are the obligations of the Applicant identified in Clause 8.5.
- (44) **Maintenance Period** means, for a Work Contribution, the period that:
- (i) begins when the Work Contribution is accepted by the Council 'on maintenance' pursuant to Clause 8.4;
 - (ii) is the minimum period specified in Item 9 of Schedule 1 plus any extension pursuant to Clause 9.1; and
 - (iii) ends on the date the Council issues an Off-maintenance Certificate pursuant to Clause 10.2.
- (45) **Notice** means any certificate, demand or notice to be made, given or served by a Party under this agreement.
- (46) **Off-maintenance** means the end of the Maintenance Period as determined under Clause 10.

- (47) **Off-Maintenance Certificate** means a certificate issued by the Council under Clause 10.2.
- (48) **Offset** means an offset resulting from the provision of Infrastructure Contributions that the Applicant or another person is entitled to apply under Clause 5.
- (49) **Offset Amount** has the meaning in Clause 5.4(2).
- (50) **On-Maintenance Certificate** means a certificate issued by the Council under Clause 8.3(1).
- (51) **Owner** means the registered owner of land and includes its predecessors, successors, transferees and assignees.
- (52) **Party** means a party to this agreement.
- (53) **Plan of Subdivision** has the meaning in the *Planning Regulation 2017*.
- (54) **Preliminary Approval** means a Development Approval given by the Council or if applicable as given by a Court of competent jurisdiction under clause 2.9(4) for the Development Application.
- (55) **Preliminary Approval (Conditions)** means the conditions specified in Schedule 6.
- (56) **Rectification Works** means the physical works, site works, design work, professional services and other activities and actions carried out or procured for any of the following:
- (i) to remedy a failure by the Applicant to comply with Maintenance Obligations;
 - (ii) to rectify any works done in respect of, or in purported compliance with, the Maintenance Obligations;
 - (iii) to mitigate the effects of any failure to comply with the Maintenance Obligations;
 - (iv) any Applicant Obligations in respect of Work Contributions under this agreement which have not been performed in accordance with this agreement;
 - (v) testing and commissioning of any works described above; and
 - (vi) the compilation of 'as constructed' information with respect to any Work Contribution or other works described in paragraphs (i) to (v).
- (57) **Related Entity** means an entity that is a Council owned corporation.
- (58) **RPEQ** means a Registered Professional Engineer of Queensland being an engineer registered as a Registered Professional Engineer of Queensland with the Board of Professional Engineers of Queensland in accordance with the *Professional Engineers Act 2002*.
- (59) **Security** means a security provided to the Council by the Applicant under Clause 3.1 to ensure the performance of the Maintenance Obligations.
- (60) **Schedule** means a schedule to this agreement.
- (61) **Schedule of Plans** means the plans referenced in Item 7 of Schedule 1.
- (62) **Shoreline Land** means the land described in Schedule 3.
- (63) **Shortfall** means any difference between the Security and any cost, expense, loss or damage incurred by the Council, or which is likely to be incurred by the Council, as a

consequence of exercising its rights to rectify a default to which the Security relates (but excluding any cost, expense, loss or damage to the extent that is it caused or contributed to by the Council's or the Council's Agents' act or omission, and excluding any Excluded Loss).

(64) **Transferee** means a person to whom the Applicant or Owner proposes to sell a Developable Lot.

(65) **Work Contribution** means the provision of work for infrastructure.

1.2 Interpretation

In this agreement, unless inconsistent with the context or subject matter:

- (1) a reference to a person includes any other legal entity;
- (2) a reference to a legal entity includes a person;
- (3) words importing the singular number include the plural number;
- (4) words importing the plural number include the singular number;
- (5) the masculine gender must be read as also importing the feminine or neuter gender;
- (6) a reference to a Party includes the Party's heirs, executors, successors and permitted assigns;
- (7) headings are for reference purposes only and must not be used in interpretation;
- (8) where any word or phrase is given a defined meaning any other part of speech or other grammatical form concerning the word or phrase has a corresponding meaning;
- (9) a reference to legislation or to a provision of legislation includes a modification or re-enactment of it, a legislative provision substituted for it and a regulation or other statutory instrument issued under it;
- (10) references to writing include any mode of representing or reproducing words in tangible and permanently visible form, and includes e-mail and fax;
- (11) a reference to a monetary amount is a reference to an Australian currency amount;
- (12) an obligation of two or more Parties binds them jointly and each of them severally;
- (13) an obligation incurred in favour of two or more Parties is enforceable by them severally;
- (14) references to time are to local time in Queensland;
- (15) where time is to be reckoned from a day or event, the day or the day of the event must be excluded;
- (16) if any time period specified in this agreement expires on a day which is not a Business Day, the period shall expire at the end of the next Business Day;
- (17) a reference to a month means a calendar month;
- (18) specifying anything in this agreement after the words 'includes' or 'for example' or similar expressions does not limit what else is included unless there is express wording to the contrary; and
- (19) all schedules and attachments to this agreement form part of this agreement.

1.3 Other expressions

If a term is not defined in this agreement it shall, unless the context otherwise requires, have the meaning given to it by the following, in the following sequence:

- (1) the Act;
- (2) an applicable Local Planning Instrument;
- (3) the Macquarie Dictionary; and
- (4) the common understanding of the term or expression in the absence of any other applicable definition.

2. INFRASTRUCTURE AGREEMENT

2.1 Application of the Act

This agreement is intended to constitute an infrastructure agreement pursuant to the Act.

2.2 Commencement

This agreement commences on the Commencement Date.

2.3 Agreement to bind successors in title

- (1) The Applicant Obligations under this agreement attach to the Land and are binding on the Owner of the Land and any successors in title of the Land in accordance with section 155 of the Act.
- (2) For the purposes of section 152(1)(a) of the Act, a change in the ownership of all or part of the Land will not affect the Parties' obligations under this agreement, other than as expressly stated in this agreement.

2.4 Owner's consent

The Applicant warrants that:

- (1) it is not the Owner of the Land; and
- (2) it has provided Council with a document evidencing the consent of the Owner of the Land to the Applicant Obligations being attached to the Land.

2.5 Third party benefit

The Parties acknowledge and agree that in accordance with section 55 of the *Property Law Act 1974* (Qld) any third party referred to in this agreement may enforce in its own name the covenants, releases and other promises made in favour of that third party under this agreement which are intended to be for the benefit of that third party.

2.6 Relationship of Parties

The Parties acknowledge and agree that:

- (1) the Applicant may be required to obtain a number of Infrastructure DAs before provision of Work Contributions and Land Contributions; and
- (2) Infrastructure DAs and Development Approvals in relation to the Land are anticipated to be granted by the Council.

2.7 No Fettering and obligation to act reasonably

- (1) The Applicant acknowledges that this agreement does not in any way fetter or restrict the lawful exercise or performance by the Council of its statutory functions or powers under any legislation including the Act.
- (2) Subject only to Clause 2.7(1) and to any express provision in this agreement to the contrary, where a Party is required to make a decision, give a consent or approval under this agreement, the Party must:
 - (i) act reasonably in making the decision, giving the consent or approval;
 - (ii) make the decision, give the consent or approval as promptly as reasonably practicable;
 - (iii) where appropriate, consult with the other Parties before making the decision or giving the consent or approval;
 - (iv) only impose reasonable conditions on the decision, consent or approval, which are consistent with this agreement; and
 - (v) notify the other Parties of the decision, consent or approval and any conditions as promptly as reasonably practicable.
- (3) Subject to any express provision in this agreement to the contrary, if a thing is required or permitted to be done under this agreement and no specific process is provided under the agreement, the Parties must act reasonably and cooperate to do the thing as quickly and efficiently as reasonably practicable.

2.8 Extinguishment or modification of development rights

For the purposes of section 152(1)(b) of the Act, if:

- (1) the fulfilment of obligations under this agreement depends on development entitlements that may be affected by a change to a Local Planning Instrument; and
- (2) a change to a Local Planning Instrument generates an adverse impact on those development entitlements,

the Parties must negotiate in good faith to determine the extent to which:

- (3) money paid pursuant to this agreement will be repaid; or
- (4) money expended pursuant to this agreement will be reimbursed; or
- (5) the extent to which those obligations will be changed or cancelled (where the development entitlements are changed without the consent of the Party bound by the obligations).

The Parties must prepare and execute promptly, after they reach agreement, a deed varying this agreement, to give effect to what they have agreed.

2.9 Development Application

- (1) The Council is to decide the Development Application in a manner which is as timely as is reasonably practicable.
- (2) If the Council grants the Preliminary Approval in accordance with the Preliminary Approval (Conditions), the Applicant is not to make a claim, demand or proceeding against the Council in respect of the granting of the Preliminary Approval, other than as a respondent to a claim, demand or proceeding made by another party.

- (3) The Applicant and the Council are to confer as to the claim, demand or proceeding made by another party with a view to reaching an agreement as to any proposed changes to the Preliminary Approval.
- (4) If a Court grants the Preliminary Approval other than in accordance with the Preliminary Approval (Conditions) as a result of a claim, demand or proceeding made by another party:
 - (i) the Applicant and the Council are to confer with a view to reaching an agreement as to the changes;
 - (ii) the Applicant and the Council are to review the Applicant Obligations, negotiate in good faith and amend this agreement to put the parties in as near as practical a position as they would have been had no changes occurred ; or
 - (iii) the dispute resolution process in Clause 21.14 is to be invoked if agreement cannot be reached as to the amendment of this agreement.

2.10 Termination of the agreement

- (1) A Party may give to each other Party a Notice which states that it proposes to terminate this agreement if one of the following events has occurred:
 - (i) the Development Entitlements in the Preliminary Approval and any changes to the Preliminary Approval under the Planning Act:
 - A. do not take effect under the Planning Act; or
 - B. cease to have effect under the Planning Act;
 - (ii) the Parties agree as follows:
 - A. the Proposed Development has reached completion and the Applicant Obligations have been performed and fulfilled; and
 - B. to terminate this document;
 - (iii) the parties agree as follows:
 - A. that the performance and fulfillment of this document has been frustrated by an event outside of the control of the Parties; and
 - B. to terminate this document.
- (2) A Party may at a date, which is 20 Business Days after the giving of the written notice under clause 2.10(1), give to each other Party a written notice which states that the agreement is terminated.

2.11 Agreement prevails to extent of inconsistency

To the extent that this agreement is inconsistent with the Preliminary Approval, any Development Approval, any Condition of Approval or a Charges Notice this agreement prevails to the extent of inconsistency.

2.12 Obligation to negotiate in good faith

For the purposes of section 151 of the Act, the Parties agree and warrant that:

- (1) written agreement was given to entering into negotiation for an infrastructure agreement; and

- (2) in negotiating this agreement, the Parties acted in good faith.

2.13 **Provision of Security**

A Security required by this agreement must be given to the Council by the Applicant in the following form:

- (1) money; or
- (2) an unconditional, non-lapsing and irrevocable banker's or insurance company's undertaking in favour of the Council which is:
 - (i) in a form and on terms approved by the Chief Executive Officer acting reasonably;
 - (ii) given by a financial institution approved by the Chief Executive Officer acting reasonably; and
 - (iii) clearly given in respect of obligations under this agreement.

3. **PAYMENT OF SECURITY**

3.1 **Obligation to provide Security**

The Applicant must provide Security to the Council only for Maintenance Obligations in accordance with Item 8 of Schedule 1.

3.2 **Council's right of recourse to Security**

If the Applicant defaults in its obligation in respect of Maintenance Obligations for the relevant Work Contribution for which Security has been provided and the Applicant does not commence to rectify such default within 20 Business Days of receiving Notice from the Council the Council may, acting reasonably:

- (1) draw upon and have recourse to the Security in accordance with Clause 3.5; and
- (2) apply the Security in accordance with Clause 3.5 to remedy the default.

3.3 **Request for Release of Security**

The Applicant may apply to the Council in writing for the return of a Security:

- (1) at the conclusion of the timeframe identified in Item 9 of Schedule 1 for the relevant Work Contribution; and
- (2) upon an assignment having been undertaken by the Applicant in compliance with Clause 16.3.

3.4 **Release of Security**

The Council must release and return to the Applicant a Security, or any remaining balance of Security as the case may be:

- (1) within 10 Business Days of the end of the Maintenance Period for the relevant Work Contribution; and
- (2) within 10 Business Days of the Applicant having complied with Clause 16.3.

3.5 Application of money

In exercising its rights under this agreement, the Council may apply a Security to any Shortfall or towards any reasonable cost or expense incurred by the Council to rectify the default for the relevant Work Contribution to which the Security relates, comprising all or any of the following:

- (1) carrying out the Maintenance Obligations or Rectification Works;
- (2) carrying out, whether inside or outside or partly inside or partly outside the perimeter of the Land, such other work (including without limitation any addition or extension to the Work Contribution) or activity as the Council reasonably considers necessary to mitigate the effects of any failure to comply with the Maintenance Obligations.

3.6 Security insufficient

Without limiting the Council's rights, if a Security is insufficient to rectify a default to which it relates, the Council may, at its election and in its sole discretion:

- (1) rectify the default, so far as the Security will allow;
- (2) rectify the default and recover any Shortfall from the Applicant as a liquidated debt; or
- (3) take whatever steps reasonably required, including legal proceedings in any Court of competent jurisdiction, to compel the Applicant to rectify the default.

3.7 Interest

If a Security consists of money, then:

- (1) the Council is not required to hold that Security in an interest bearing account;
- (2) if it does, any interest earned on the Security shall belong to the Council; and
- (3) if the Council holds the Security in an interest bearing or other deposit account it bears the risk of doing so.

4. INFRASTRUCTURE CHARGES**4.1 No further Infrastructure Contributions or Infrastructure Charges**

Provided the Development Entitlements for the Land are not exceeded, the Council must not impose or require for the Land and the Owner of the Land or Applicant is not to be liable for any Infrastructure Contributions or any Infrastructure Charges for the Land other than as specified in the Special Conditions and Infrastructure Contributions Schedule.

4.2 Reductions of Infrastructure Charges by Offset

In return for providing an Infrastructure Contribution specified in the Infrastructure Contributions Schedule, Infrastructure Charges may be reduced by an Offset calculated in accordance with, and using the process under, this agreement.

5. OFFSETS FOR INFRASTRUCTURE CONTRIBUTIONS**5.1 When Offsets apply**

The Applicant is entitled to the Offsets for Infrastructure Contributions specified in Column 6 of the Infrastructure Contributions Schedule.

5.2 When Offsets accrue

The Applicant accrues an Offset for an Infrastructure Contribution when:

- (1) for a Land Contribution, the instrument which transfers the land is registered in the Titles Registry following lodgement by or on behalf of the Applicant; and
- (2) for a Work Contribution, the Maintenance Period for the Work Contribution commences.

5.3 Calculation of an Offset

The Offset for an Infrastructure Contribution is the amount shown in Column 6.

5.4 Set-off against Infrastructure Charges

- (1) The Applicant may set off an Offset against Infrastructure Charges payable in respect of Development of the Land or the Shoreline Land, when those Infrastructure Charges are payable.
- (2) If the Applicant wants to set off an Offset or part of an Offset (**Offset Amount**) under Clause 5.4(1), the Applicant must give to the Council a Notice stating:
 - (i) the Infrastructure Charges in respect of which the Offset Amount is to be set off; and
 - (ii) the Offset Amount.
- (3) The Council must then apply the Offset Amount against the relevant Infrastructure Charges in accordance with the Applicant's Notice under Clause 5.4(2) and the Applicant's (or any other person's) liability to pay the relevant Infrastructure Charges is reduced by the Offset Amount.

5.5 Limitations on an Offset

- (1) An Offset:
 - (i) can only be used and applied in accordance with this agreement;
 - (ii) must be:
 - A. calculated and recorded in dollars; and
 - B. indexed in accordance with Clause 18; and
 - (iii) may be used for or applied to any Infrastructure Charges payable by the Applicant (or any other person nominated by the Applicant in writing to the Council) in respect of any infrastructure network in respect of Development of the Land or the Shoreline Land.
- (2) The Council cannot be required to redeem an accrued Offset by refund or another cash payment.

5.6 Cross crediting

For clarity, nothing in this agreement limits the Applicant's ability to set off an Offset accrued on account of an Infrastructure Contribution in relation to one infrastructure network against Infrastructure Charges relating to another type of infrastructure network.

5.7 Allocation of Offset Amount to other land

- (1) The Applicant may, but is not required to, give the Council a Notice that:

- (i) specifies particular land within the Land or the Shoreline Land to which an Offset Amount is allocated; and
 - (ii) changes an allocation under Clause 5.7(1)(i), but, if the Applicant is not the Owner of land to which an Offset Amount has been allocated, the allocation cannot be changed without the written consent of the Owner.
- (2) For clarity, an allocation of an Offset Amount to particular land in accordance with clause 5.7 does not require the Council's consent and is not in breach of clause 16.3.
- (3) If an Offset Amount is allocated to particular land in accordance with clause 5.7 then:
 - (i) that allocated Offset Amount may only be set off in respect of Infrastructure Charges relating to any infrastructure network that applies to the Development of that particular land;
 - (ii) the set off of the Offset Amount can be made by the Owner of the land to which the Offset Amount has been allocated or any other person who is undertaking the Development of the particular land who is nominated by the Owner to the Council in a Notice; and
 - (iii) the process in Clause 5.4 applies to the set off process as if the Owner or other person referred to in Clause 5.7(3)(ii) was the Applicant.

5.8 Offset register

- (1) The Council must keep a register for the purpose of keeping a true and accurate account of the accrual, set off and allocation of Offsets and for this purpose the register will include the following information determined in accordance with this agreement:
 - (i) the original amounts of the Offsets and the dates they accrue;
 - (ii) the indexation of those Offsets;
 - (iii) the allocation of Offsets under Clause 5.7; and
 - (iv) the set off of Offsets against Infrastructure Charges.
- (2) The Council must without undue delay comply with a Notice given by the Applicant stating that the Applicant or a person authorised in writing by the Applicant wishes to, free of charge:
 - (i) inspect the Offset register; and
 - (ii) obtain a copy of an extract from the register.
- (3) The Applicant must comply with a Notice given by the Council requiring the Applicant to provide reasonable or relevant information for the purpose of enabling the Council to keep the Offset register.

6. WORK CONTRIBUTIONS

6.1 Provision of Work Contributions

The Applicant must provide the Work Contributions specified in the Infrastructure Contributions Schedule at the Applicant's cost, subject to Clause 5.

6.2 Timing

- (1) The Applicant must provide the Work Contributions at the times specified in the Infrastructure Contributions Schedule.

- (2) The Parties acknowledge and agree that where Work Contributions are reasonably required to service Development of a particular area or catchment, those Work Contributions are to be delivered by the Applicant:
 - (i) commensurate with Development of the relevant area within the Land; and
 - (ii) in a manner that ensures each Developed Lot is connected to and serviced by water and sewerage infrastructure prior to the Approval of a Plan of Subdivision creating the Developed Lot or the commencement of the use of the Developed Lot.
- (3) For clarity, nothing in this agreement requires the Applicant to provide the Work Contributions:
 - (i) if the Applicant is not undertaking the corresponding Development of the relevant part of the Land; or
 - (ii) in advance of the relevant timing in Column 4 of the Infrastructure Contributions Schedule.

6.3 Design Requirements

Each Work Contribution must be designed in accordance with the Local Planning Instrument applicable at the time the Work Contribution is to be provided.

6.4 Submission of designs and specifications

The Applicant must prepare all designs and specifications for the Work Contributions, which are certified by an RPEQ.

6.5 Construction of Work Contributions

Without limiting the Applicant's obligations under this agreement, the Applicant must provide the Work Contributions:

- (1) in a proper and workmanlike manner in accordance with the Approved Plans and applicable:
 - (i) Laws;
 - (ii) codes of practice; and
 - (iii) Australian standards;
- (2) with due diligence and without undue delay; and
- (3) with the standard of skill, care and diligence that would be expected of a provider of work and services of a nature similar to the Work Contributions.

6.6 Final Specification of Work Contributions

- (1) Each Work Contribution must be provided to the satisfaction of the Council, acting reasonably and in the interpretation and application of this Clause:
 - (i) it is recognised that some provisions of this agreement do provide a particular specification for the Work Contributions and, in some cases do show diagrammatically and in an indicative way the location of the Work Contributions on plans or diagrams; and

- (ii) a specification or location has been determined on the basis of present knowledge and expectation as to circumstances which will prevail at the time the Work Contributions are to be carried out; and
 - (iii) the circumstances actually prevailing at the relevant time may result in it being necessary or appropriate to adopt a different specification or vary the location for the final design of the Work Contributions.
- (2) The inclusion of a particular specification in this agreement or the depiction of the location of Work Contributions on a plan within this agreement does not prevent:
 - (i) the Applicant from seeking approval for an altered specification or location; and
 - (ii) the Council from giving approval where an alteration is necessary or appropriate having regard to the circumstances prevailing at the relevant time.

7. LAND CONTRIBUTIONS

7.1 Provision of Land Contributions

The Applicant must provide the Land Contributions specified in the Infrastructure Contributions Schedule at the Applicant's cost, subject to Clause 5.

7.2 Form of Land Contributions

- (1) The Land Contributions are to comprise:
 - (i) where specified in the Infrastructure Contributions Schedule as a 'dedication', the transfer or dedication to Council of an estate in fee simple (or any other form of tenure acceptable to the Council, acting reasonably); or
 - (ii) otherwise the grant to Council of easements (on the Council's standard terms which cannot impose any obligation on the land owner for ongoing maintenance) over any land as required for Work Contributions not referred to in Clause 7.2(1)(i).
- (2) For clarity, land required in fee simple for a path or sewerage pumping station (SPS) does not have to be on a separate title in the event that it is co-located with other land to be dedicated to the Council (such as a park) under this agreement or any other arrangement, including an infrastructure agreement, Preliminary Approval or a Development Approval.
- (3) For clarity, easements are not required where Council can access the Work Contribution from a dedicated road or other land held or controlled by the Council or a Related Entity.

7.3 Transfer of land

- (1) Where land is required to be transferred to the Council pursuant to this agreement, the Applicant must, at the Applicant's expense:
 - (i) arrange for the transfer to the Council of the land;
 - (ii) deliver to the Council the stamped transfer instrument (capable of immediate registration once executed by the Council) for the land within the required timeframe; and
 - (iii) if Council requests the Applicant register the transfer, promptly;

- A. lodge the transfer for registration once the Council has duly executed and returned the stamped transfer instrument for the land to the Applicant;
- B. attend to answering any requisition issued (subject to any necessary assistance being provided by Council if required); and
- C. notify Council on registration of the transfer.

7.4 Cost of transfer

The Applicant must bear all costs of and incidental to arranging and effecting the transfer, including:

- (1) the price, if any, payable to the transferor in return for the transfer;
- (2) the duty payable on the transaction;
- (3) the registration fees; and
- (4) all expenses that the Council reasonably incurs.

7.5 Grant of easement for Land Contribution

Where a Land Contribution is to comprise an easement to Council, the Applicant must grant, or procure the grant of, an easement to the Council:

- (1) at no cost to the Council;
- (2) on the Council's standard terms which cannot impose any obligation on the land owner for ongoing maintenance, and in a location satisfactory to the Council;
- (3) with sufficient dimensions to accommodate the applicable Work Contribution; and
- (4) in accordance with any condition of the Infrastructure DA or applicable Local Planning Instrument.

7.6 Compulsory acquisition

Despite anything else in this agreement, if land required for Work Contributions is land that is not a road, held or controlled by the Council or a Related Entity, or within the control of the Applicant:

- (1) the Applicant must use reasonable endeavours to procure relevant rights to use, occupy or transfer the land, as applicable, in order to carry out its obligations under this agreement;
- (2) if the Applicant cannot secure those rights at a reasonable cost and within a reasonable timeframe (determined by the Applicant, acting reasonably), the Applicant may request the Council to exercise its powers as a constructing authority to compulsory acquire the rights; and
- (3) if the Applicant makes a request under Clause 7.6(2), the Council must, if it is lawful to do so, undertake all necessary steps to compulsorily acquire the relevant rights, as promptly as reasonably practicable and the Applicant must pay the Council the costs, expenses and compensation incurred by the Council carrying out and as a consequence of the compulsory acquisition.

7.7 Suspension of Applicant Obligation

If the Applicant makes a request under Clause 7.6(2), the Applicant Obligation to provide the relevant Work Contribution is suspended until the Applicant or the Council procure the relevant rights to use, occupy or transfer the land, as applicable, reasonably necessary for the Applicant to carry out the relevant Applicant Obligation..

8. COMMENCEMENT OF MAINTENANCE PERIOD FOR WORK CONTRIBUTIONS**8.1 When Work Contributions are complete**

Work Contributions are complete when:

- (1) the Work Contributions are completed in accordance with the relevant Infrastructure DA;
- (2) all Conditions of Approval to be satisfied before the Work Contributions are accepted On-Maintenance have been complied with.

8.2 Notice from Applicant

With respect to all Work Contributions, the Applicant must give the Council a Notice:

- (1) at least 10 Business Days before the anticipated date that Work Contributions will be completed; and
- (2) when the Applicant believes those Work Contributions are complete.

8.3 Issue of On-Maintenance Certificate

- (1) The Council must inspect Work Contributions:
 - (i) on the anticipated date that the Work Contributions will be completed if reasonably able to do so; and
 - (ii) otherwise, as soon as possible after receipt of a Notice under Clause 8.2(2).
- (2) Before issuing an On-Maintenance Certificate for Work Contributions, the Council may require that the Applicant provide certificates and evidence of test results from RPEQs where reasonable having regard to the Work Contributions.
- (3) Upon the Council being satisfied that Work Contributions have been completed in accordance with the terms of this agreement, it must issue an On-maintenance Certificate for the Work Contributions.
- (4) The On-Maintenance Certificate may be issued subject to reasonable conditions about Maintenance which are not inconsistent with this agreement or the conditions of the relevant Infrastructure DA.

8.4 Commencement of Maintenance Period

The Maintenance Period for Work Contributions commences on the date of issue of the On-Maintenance Certificate by the Council in accordance with Clause 8.3.

8.5 Applicant's Maintenance Obligations

For the duration of the Maintenance Period, the Applicant must, at its own cost:

- (1) comply with any conditions identified in the On-Maintenance Certificate, within any stipulated timeframe;

- (2) rectify, remedy or correct any default related to the Maintenance Obligations;
- (3) rectify, remedy or correct any defects in the Work Contributions:
 - (a) identified in a Defect Notice issued during the Maintenance Period, in accordance with the Defect Notice and any timeframes stated within the Defect Notice; or
 - (b) identified in any written report prepared in accordance with Clause 8.5(4);
- (4) ensure the Work Contributions are inspected by a RPEQ for defects at least once every 3 months, and a written inspection report is submitted to the Council and the Applicant no later than 10 Business Days after each inspection has occurred.

8.6 Timeframe for rectification of defects

In the absence of any timeframe required under a report prepared under Clause 8.5(4) or a Defect Notice, the Applicant must rectify any defect in the Work Contributions within a reasonable period (having regard to the nature or extent of the defect) from the date the Applicant is provided with a copy of the report under Clause 8.5(4) or Defect Notice, as applicable.

8.7 Defect Notice

- (1) If the Council identifies or becomes aware of a defect in the Work Contributions during the Maintenance Period, it may give the Applicant a Notice specifying the defect in reasonable detail.
- (2) The Applicant must comply with the Defect Notice.
- (3) A Defect Notice must allow the Applicant a reasonable period within which to rectify a Defect.
- (4) For clarity, the Council may give more than one Defect Notice during the Maintenance Period.
- (5) The Applicant must request the Council to inspect and approve any Rectification Work Contributions when the Applicant considers that it has complied with a Defect Notice.
- (6) The Council must respond to the request within 10 Business Days from the date of the request.
- (7) Within 10 Business Days after the Council inspects the Rectification Works, the Council must give the Applicant a Notice:
 - (a) confirming that it accepts the Rectification Works as complete; or
 - (b) refusing to accept the Rectification Works as complete, and stating with reasonable particularity the reasons for its refusal (in which case Clause 8.7(5) will apply again).

9. EXTENSION TO MAINTENANCE PERIOD

9.1 Council may extend Maintenance Period

- (1) The Council may, acting reasonably, extend the Maintenance Period for Work Contributions which applies under Clause 8 for a reasonable period of time if there is an event of Force Majeure which prevents, hinders or delays Council in performing its obligations under Clause 8 or 10.

- (2) If there is to be an extension to the Maintenance Period, the Council must give written Notice to the Applicant:
 - (i) stating that fact and the reason for the extension in reasonable detail; and
 - (ii) stating the duration of the extension to the Maintenance Period which cannot be longer than the event of Force Majeure subsists.
- (3) Council must use all reasonable endeavours to minimise the effect of the event of Force Majeure and bring it to an end and promptly give the Applicant Notice when this occurs.
- (4) For clarity, the Applicant's Maintenance Obligations continue to apply during any extension to the Maintenance Period under this Clause 9.1.

10. ACCEPTANCE OF WORK CONTRIBUTIONS OFF-MAINTENANCE

10.1 Applicant to Request Inspection

- (1) After the minimum period specified in Item 9 of Schedule 1 for Work Contributions ends, the Applicant may give the Council a Notice requesting an Off-Maintenance inspection. The Applicant may give the Notice in advance and the Council must attend the Work Contributions for the inspection on the later of:
 - (i) the day that is:
 - A. the last day of the period specified in Item 9 of Schedule 1; or
 - B. the later date from an extension under Clause 9.1,or the next Business Day if that is not a Business Day (or an earlier day specified by the Council in a Notice); and
 - (ii) 10 Business Days after service of the Applicant's Notice of request.
- (2) The Council and Applicant must reasonably cooperate for the Off-Maintenance inspection.

10.2 When Work Contributions accepted "Off-Maintenance"

- (1) A Work Contribution must be accepted by the Council "Off-Maintenance" if:
 - (i) the period specified in Item 9 of Schedule 1 (and any additional period from an extension under Clause 9) has ended; and
 - (ii) all material defects in the Work Contribution notified in all relevant Defects Notices issued within the Maintenance Period have been certified as complete under Clause 8.7(7)(a).
- (2) The Council must give the Applicant an Off-Maintenance Certificate when a Work Contribution is accepted Off-Maintenance.

10.3 Ownership of Work Contributions

The Council:

- (1) owns a Work Contribution from and including the date of issue of the On-Maintenance Certificate by the Council in accordance with Clause 8.3; and
- (2) assumes responsibility for the maintenance of the Work Contribution from and including the date of issue of the Off-Maintenance Certificate by the Council in accordance with Clause 10.2.

11. DEFAULT BY APPLICANT**11.1 Application of this Clause**

This clause applies if the Applicant fails to perform and fulfil any Applicant Obligation.

11.2 Notice of default

The Council is to, other than for a public emergency, give to the Applicant a Notice which states:

- (1) the details of the Applicant Obligation which has not been performed or fulfilled by the Applicant;
- (2) the action which the Applicant is required to take to perform and fulfil the Applicant Obligation; and
- (3) a reasonable period of not less than 15 Business Days within which the obligation is to be performed and fulfilled by the Applicant.

11.3 Event of Default

An Event of Default occurs if the Applicant:

- (1) for a default that reasonably can be rectified within 20 Business Days after receipt of Notice of default in accordance with Clause 11.2, does not rectify that default within that period;
- (2) for any other default:
 - (i) does not commence rectifying the default within 20 Business Days (or such other longer period as is reasonable having regard to the nature of the default) after receipt of Notice of default in accordance with Clause 11.2; and
 - (ii) does not complete the rectification of the default within a reasonable period (at least 40 Business Days) after receipt of Notice of default in accordance with Clause 11.2;
- (3) assigns its interests, liability, rights or obligations under this agreement other than in accordance with Clause 16.3; or
- (4) becomes subject to an Insolvency Event.

11.4 Council's rights in the Event of Default

In an Event of Default by the Applicant, the Council may take whatever steps are reasonably required to rectify the Event of Default, including any or all of the following:

- (1) for an Event of Default in respect of Maintenance Obligations for which Security has been provided:
 - (i) drawing upon and using a Security, including converting into money any part of a Security that does not consist of money;
 - (ii) recovering any Shortfall from the Applicant as a liquidated debt;
 - (iii) extending a Maintenance Period in accordance with Clause 9.1;
- (2) taking any reasonable steps required, at the Council's discretion, to enforce the Applicant Obligations; and
- (3) the commencement of legal proceedings in any Court of competent jurisdiction,

however, the Council has no right to terminate this agreement.

11.5 No waiver of effect on other rights and obligations

A failure or delay by the Council to exercise any right, remedy, power or privilege under this agreement will not operate as a waiver unless and until expressly communicated in writing by the Council, under the hand of the Chief Executive Officer, to the Applicant.

12. RIGHTS OF ACCESS

12.1 Council's right

- (1) For the purpose of exercising the Council's rights under this agreement, the Owner and Applicant consent to the Council and the Council's Agents accessing the Land for the following reasons:
 - (i) inspecting, monitoring or testing Work Contributions;
 - (ii) ascertaining whether the Applicant Obligations are, or are being, properly performed and fulfilled;
 - (iii) exercising the Council's rights to remedy or rectify any Event of Default; and
 - (iv) exercising the Council's rights under this agreement generally.
- (2) If the Council exercises its right under Clause 12.1(1) it is to be taken to have indemnified the Owner and Applicant against all Claims for or injury to persons or loss or damage to property which may occur as a result of Council exercising its powers referred to in Clause 12.1(1) except where such Claims arise from or in connection with the Owner's or Applicant's negligence or breach of duty.

12.2 Applicant's right

The Council consents to the Applicant and the Applicant's Agents accessing land owned by or under the control of Council or a Related Entity, as may be necessary or convenient in connection with:

- (1) the performance of the Applicant Obligations; and
- (2) the exercise by the Applicant of any of its rights under this agreement.

12.3 Exercise of right of access

- (1) A right of access includes the following:
 - (i) a right to bring any necessary personnel, vehicles, plant and equipment as may be required for the purpose of exercising the right of access; and
 - (ii) a right to effect and install work which is required and authorised to be performed and fulfilled by this agreement.
- (2) A Party exercising a right of access under this Clause 12 is to:
 - (i) give reasonable prior Notice to the other Party;
 - (ii) comply with any reasonable directions of the other Party including in relation to work health and safety provided such directions do not materially interfere with the performance or fulfilment of a right under this agreement;
 - (iii) exercise reasonable care not to cause damage or injury to property or person; and

- (iv) promptly rectify any damage caused to property.

12.4 Right of entry at law

Nothing in this agreement in any way limits or restricts any other rights of entry to land (including the Land) which the Council or the Council's Agents may have at Law, including but not limited to, the Act, the *Local Government Act 2009*, the *Environmental Protection Act 1994*, a Local Planning Instrument and a Local Law.

13. INSURANCE TO BE EFFECTED BY APPLICANT

13.1 Insurances to be effected

The Applicant must effect and maintain, or cause to be effected and maintained by all subcontractors and agents engaged in connection with the performance of the Work Contributions and the Applicant Obligations under this agreement:

- (1) public and third party liability insurance:
 - (c) covering claims in respect of:
 - (i) damage to any real or personal property including property owned by the Council; and
 - (ii) the injury to, or death of, any person,
caused by the carrying out of the Work Contributions;
 - (d) for at least \$20 million;
 - (e) noting the interests of the Council; and
 - (f) for the duration of the carrying out of the Work Contributions;
- (2) insurance of Work Contributions for their full replacement value, in the joint names of Council and the Applicant;
- (3) Worker's Compensation insurance:
 - (g) in accordance with all Laws; and
 - (h) for the duration of the carrying out of the Work Contributions;
- (4) compulsory third party liability insurance:
 - (i) for registered vehicles owned or leased by the Applicant, in accordance with the requirements of any compulsory motor vehicle third party legislation;
 - (j) which provides protection to the Council arising out of the use of the Applicant's vehicles in addition to the Applicant;
 - (k) for the duration of the carrying out of the Work Contributions; and
- (5) automotive and construction plant property damage insurance:
 - (l) covering all motor vehicles owned, leased or hired by the Applicant used in connection with the Works or the Applicant's other obligations under this agreement including the use of unregistered motor vehicles and plant; and
 - (m) for the duration of the carrying out of the Work Contributions.

13.2 Requirements of Insurance

- (1) The Applicant must pay all deductibles, costs and premiums in relation to all insurance or cause for these deductibles and premiums to be paid by all subcontractors and agents engaged in connection with the performance of the Work Contributions and the Applicant Obligations under this agreement.
- (2) Whenever requested by the Council, the Applicant must provide to the Council, evidence of its compliance with Clause 13.1.

14. APPLICANT OBLIGATIONS TO SUBSIST

The obligations of the Applicant under this agreement continue and remain in force and effect until the Applicant Obligations under this agreement have been fulfilled, or otherwise transferred in accordance with Clause 16.3.

15. INDEMNITY AND RELEASE**15.1 Applicant indemnifies the Council**

The Applicant indemnifies the Council and the Council's Agents against all liability, claims, loss, penalties, payments, costs, charges and expenses to the extent that these are directly arising from or incurred in connection with damage to or loss of any property or injury of any person caused or contributed to by the Applicant and the Applicant's Agents in connection with the Applicant doing anything the Applicant is required or permitted to do under this agreement, except where arising from the negligent or unlawful act or omission of the Council or the Council's Agents.

15.2 Applicant releases the Council

The Applicant releases the Council and the Council's Agents from, and agrees that the Council and the Council's Agents are not liable for, liability, loss, penalties, payments, costs, charges and expenses to the extent that these are directly arising from or incurred in connection with the Council doing anything the Council is required or permitted to do under this agreement except where arising from the negligent or unlawful act or omission of the Council or the Council's Agents.

15.3 Independence of Applicant's other obligations

The indemnity and release in Clauses 15.1 and 15.2 are independent of the Applicant's other obligations under this agreement.

15.4 Excluded Loss

Nothing in this agreement permits a Party to recover any Excluded Loss from another Party under or in respect of the subject matter of this agreement.

16. DEALING IN RESPECT OF THE LAND**16.1 Reconfiguring of the Land**

- (1) If the Land is subject to reconfiguring a lot to create a Development Lot, then a Development Obligation no longer:
 - (i) remains attached to the Developed Lot; and
 - (ii) binds the Owner of the Developed Lot.
- (2) If the Land is subject to a reconfiguring of a lot to create a Developable Lot, then a Development Obligation:

- (i) remains attached to the Developable Lot; and
- (ii) binds the Owner of the Developable Lot.

16.2 Dealing with the Developable Lot

- (1) The Owner is not to sell a Developable Lot to a Transferee unless the Owner and the Transferee have executed one of the following documents:
 - (i) a document in which the Transferee covenants and agrees to the following:
 - A. that the Developable Lot is subject to this agreement;
 - B. that a Development Obligation in respect of a Developable Lot (**Prescribed Development Obligation**) may be unperformed and unfulfilled;
 - C. that a Prescribed Development Obligation attaches to the Developable Lot and binds a future Owner;
 - D. that the Owner of the Developable Lot is liable to the Council to perform and fulfill a Prescribed Development Obligation which remains unperformed and unfulfilled;
 - (ii) a deed in which the Transferee becomes contractually bound to the Council to perform and fulfil the Prescribed Development Obligation.
- (2) However, clause 16.2(1) does not prevent the Owner from entering into an agreement for the sale of Developable Lot which is conditional upon compliance with the matters stated in Clause 16.2(1).
- (3) For the avoidance of doubt:
 - (i) Clause 16.2(1) does not apply to a sale by the Owner of a Developable Lot to the Applicant;
 - (ii) if the Owner and the Transferee execute a document under Clause 16.2(1)(i), the Applicant does not cease being liable to the Council to perform and fulfil a Prescribed Development Obligation which remains unperformed and unfulfilled.
- (4) The Owner must provide Council with an original copy of all documents and deeds which are required to be executed under this clause within 10 Business Days of execution.

16.3 Restriction on assignment by Applicant

Subject to Clause 16.7, the Applicant shall not assign its interests, rights or obligations under this agreement to any person (**assignee**) prior to the performance and fulfilment of the Applicant Obligations unless:

- (1) the Council gives written consent to the assignment; and
- (2) the assignee enters into a deed of novation of this agreement with the Council, on terms reasonably acceptable to the Council, under which on and from the operative date:
 - (i) this agreement is novated to the assignee so that:
 - A. the assignee replaces the Applicant under this agreement as if it were an original Party to the agreement;

B. each reference in this agreement to the Applicant must be read as a reference to the assignee, and

- (ii) the assignee becomes contractually bound to the Council to perform and fulfil the Applicant Obligations or such of them as remain unperformed or unfulfilled by the Applicant at the time of assignment and obtains the rights of the Applicant under this agreement.
- (iii) Council acknowledges that the assignee has replaced the Applicant under this agreement and must comply with this agreement on that basis.

16.4 Conditions of the Council's consent

If the Council grants consent, the consent is subject to any conditions imposed by the Council for the giving of such consent, which are not inconsistent with this agreement.

16.5 Security retained if invalid assignment

The Council may, in its sole discretion, refuse to return a Security to the Applicant unless and until:

- (1) any assignment complies with Clause 16.3
- (2) the Applicant complies with any conditions imposed pursuant to Clause 16.4;
- (3) the assignee has paid the Council the full amount of a relevant Security in substitution for the Security paid by the Applicant;
- (4) the Applicant has paid any outstanding Shortfall owing to the Council; and
- (5) the assignee grants access to the Council on the same terms as Clause 12.1.

16.6 Applicant to remain liable

- (1) In the event of an assignment being made otherwise than in compliance with Clause 16.3 the Applicant shall remain responsible to perform and fulfil such of the Applicant Obligations as have not been performed, notwithstanding the Council agrees otherwise in writing.
- (2) In the event of an assignment or transfer being made in compliance with Clause 16.3, the Applicant is released from the Applicant Obligations, effective from the date of assignment.

16.7 Restriction not to apply to Developed Lots

If a Developed Lot is created then the Applicant Obligations are no longer binding in respect of that lot.

17. FORCE MAJEURE

17.1 Excuse from performance of Obligation

If a Party is prevented, hindered or delayed from performing its obligations under this agreement (other than an obligation to pay money) by an Event of Force Majeure, then as long as that situation continues, that Party shall be excused from performance of the obligation to the extent it is so prevented, hindered or delayed, and that time for performance of the obligation shall be extended accordingly.

17.2 Notification

A Party affected by an Event of Force Majeure shall immediately notify the other Party of its occurrence and its effect or likely effect, and use all reasonable endeavours to minimise the effect of the Event of Force Majeure and to bring it to an end.

18. INDEXATION

18.1 Application of this Clause

This Clause applies to an amount stated or calculated under this agreement other than an amount which is stated not to be indexed.

18.2 Indexation of an amount

An amount is to be indexed as follows:

$$IA = A \times \frac{\text{Index Number (Later Date)}}{\text{Index Number (Base Date)}}$$

Where:

IA is the indexed amount.

A is the amount to be indexed.

Index Number is the number in the index stated in Item 10 of Schedule 1.

Base Date is the last date on which the Index Number was published before the date from which the relevant amount is to be indexed.

Later Date is the last date on which the Index Number was published before the date to which the relevant amount is to be indexed.

19. GST

19.1 Definitions and interpretation

- (1) Capitalised expressions which are not defined in this Clause but which have a defined meaning in the GST Law have the same meaning in this agreement.
- (2) In this agreement:
 - (i) **GST** means the goods and services tax as imposed by the GST Law;
 - (ii) **GST Amount** means any Payment (or the relevant part of that Payment) multiplied by the appropriate rate of GST (currently 10%);
 - (iii) **GST Law** has the meaning given to that term in *A New Tax System (Goods and Services Tax) Act 1999* (Cth), or, if that Act does not exist for any reason, means any Act imposing or relating to the imposition or administration of a goods and services tax in Australia and any regulation made under that Act; and
 - (iv) **Payment** means any amount payable under or in connection with this agreement including but not limited to any amount payable by way of indemnity, reimbursement or otherwise and includes the provision of any non-monetary consideration.

19.2 Intention of the Parties

Without limiting any other provision of this clause 19, the Parties intend that:

- (1) Divisions 81 and 82 of the GST Law apply to the supplies made under and in respect of agreement; and
- (2) no additional amounts will be payable on account of GST and no tax invoices will be exchanged between the Parties.

19.3 Payment of GST

The Parties agree that:

- (1) all Payments have been calculated without regard to GST;
- (2) if the whole or any part of any Payment is the consideration for a Taxable Supply for which the payee is liable to GST, the payer must pay to the payee an additional amount equal to the GST Amount, either concurrently with that Payment or as otherwise agreed in writing;
- (3) any reference to a cost or expense in this agreement excludes any amount in respect of GST forming part of the relevant cost or expense when incurred by the relevant Party for which that Party can claim an Input Tax Credit; and
- (4) the payee will provide to the payer a Tax Invoice at the time at which any payment is made under this Clause.

20. NOTICES

- (1) A Party's address for service is the address listed in the Party details at the front of this agreement unless the Party has notified the other Parties of a new address.
- (2) Notices under this agreement must be given in writing by or on behalf of a Party, and sent by electronic mail, post with recorded delivery, or delivered to the address of the recipient.
- (3) A Notice is taken to be received:
 - (i) if hand delivered, on delivery;
 - (ii) if sent by prepaid post with recorded delivery, on the date of delivery; and
 - (iii) if sent by electronic mail and no electronic error notification is received by the sender, the date and time the electronic mail indicates it was sent.
- (4) Where a Party gives a Notice by post or delivered to the address of the recipient, it is also to be sent by email (where possible), but a failure to do so does not invalidate the Notice.
- (5) However, the Notice will be deemed to have been received at 9:00 am on the next Business Day if:
 - (i) the time of sending by electronic mail is on a day other than a Business Day or after 5:00 pm on a Business Day; or
 - (ii) a Notice is hand delivered on a day other than a Business Day or after 5:00 pm on a Business Day.

- (6) Any Notice may be given or signed by a Party to this agreement or its appointed solicitor.

21. GENERAL PROVISIONS

21.1 Binding on successors

This agreement shall be for the benefit of and binding upon the Parties and their heirs, executors, successors and permitted assigns.

21.2 Applicable law

The law in force in Queensland applies to this agreement. The Parties submit to the non-exclusive jurisdiction of the courts of Queensland and to appeal courts from them

21.3 Further assurances

Each Party agrees, at its own expense, on request of the other Party, to do everything reasonably necessary to give effect to this agreement and the transactions contemplated by it, including the execution of documents. However, this Clause does not require a Party to enter into a document other than on terms that are reasonably satisfactory to it.

21.4 Entire understanding

- (1) This agreement contains the entire understanding and agreement between the Parties as to the subject matter of this agreement.
- (2) All previous negotiations, understandings, representations, warranties, memoranda or commitments about the subject matter of this agreement are merged in this agreement and are of no further effect.
- (3) No oral explanation or information provided by a Party to another affects the meaning or interpretation of this agreement or constitutes any collateral agreement, warranty or understanding.

21.5 Waiver

- (1) A Party may not rely on the words or conduct (including a delay in the exercise, a non-exercise or a partial exercise of a right) of any other Party as a waiver of any right arising under or in connection with this agreement (including a right to rely on this Clause) unless the waiver is in writing and signed by the Party granting the waiver.
- (2) In Clause 21.5(1) the term 'waiver' is intended to include an election between rights and remedies as well as conduct which might otherwise give rise to an estoppel.
- (3) A waiver is only effective in relation to the particular obligation or breach in respect of which it is given and is not to be taken as an implied waiver of any other obligation or breach or as an implied waiver of that obligation or breach in relation to any other occasion.

21.6 Warranty of authority

Each person signing this agreement:

- (1) as attorney, by so doing, warrants to the other Party that, as at the date of signing, the signatory has not received notice or information of the revocation of the power of attorney appointing that person; and
- (2) as an Authorised Representative, agent, trustee or in any other representative capacity of a Party warrants to the other Party that, as at the date of signing, the signatory has full and unrestricted authority to execute this agreement on behalf of that Party.

21.7 Amendment of agreement

- (1) Despite any provision of this agreement, the Council and the Applicant may at any time agree to vary the terms of this agreement.
- (2) No modification, variation or amendment of this agreement is of any force or effect unless:
 - (i) it is in the form of an amendment document and has been signed by the Parties; and
 - (ii) where relevant the amendment document complies with the requirements of the Act.

21.8 Severance

- (1) If a provision of this agreement is illegal or unenforceable then that provision must be severed from this agreement and the remaining provisions of this agreement continue in force, unless this would materially change the intended effect of this agreement.
- (2) If only part of a provision is illegal or unenforceable then this Clause applies to that part only.

21.9 Remedies cumulative

Except as provided in this agreement and permitted by Law, the rights, powers and remedies provided in this agreement are cumulative with and not exclusive of the rights, powers or remedies provided by Law independently of this agreement.

21.10 Counterparts

This agreement may consist of a number of counterparts (including any executed by electronic means each of which shall be deemed an original) and the counterparts taken together constitute one and the same instrument.

21.11 Rule of construction

No rule of construction is to be applied to this agreement or any provision of it to the disadvantage of a Party solely because they were responsible for preparing it.

21.12 No waiver of effect on other rights and obligations

A failure or delay by the Council to exercise any right, remedy, power or privilege under this agreement will not operate as a waiver unless and until expressly communicated in writing by the Council, under the hand of the Chief Executive Officer, to the Applicant.

21.13 Agreement does not affect rights

For the avoidance of doubt, this agreement does not affect:

- (1) any other rights, powers or remedies available to the Council, including enforcement powers under the Act or the *Local Government Act 2009*; and
- (2) any obligations of the Applicant to comply with Development Approvals, the Act, any Local Planning Instrument, Local Law or other applicable legislation.

21.14 Dispute resolution

- (1) Except where stated to the contrary in this agreement, if a dispute arises in connection with this agreement, then a Party must deal with the dispute in the manner set out in this Clause.

- (2) A Party may give to the other Party a Notice specifying the dispute and requiring its resolution under this Clause.
- (3) Within 14 days after a Notice is given under Clause 21.14(2) (or such longer period as is agreed in writing by the Parties to the dispute) the Parties must use their reasonable endeavours to resolve the dispute in good faith.
- (4) If, despite the Parties' reasonable endeavours, a dispute is not resolved within 14 days after Notice a Party may by notice to the other Party refer the dispute for mediation in accordance with the Mediation Rules of The Institute of Arbitrators and Mediators Australia. The mediation will be conducted by a mediator to be appointed by agreement of the Parties or in default of agreement to be appointed by the President of the Queensland Law Society or his nominee at the request of a Party. The costs of the mediator will be shared jointly by the Parties.
- (5) If the dispute is not resolved within 20 Business Days after the appointment of the mediator either Party may take legal proceedings to resolve the dispute.
- (6) The provisions of this Clause do not prevent any Party from obtaining any injunctive, declaratory or other interlocutory relief from a Court which may be urgently required.

21.15 Electronic execution and exchange

- (1) A Party may execute this agreement as well as any modifications to it by electronic means (including by electronic signature or by facsimile or email of a signed document in PDF or scanned format).
- (2) The Parties agree and intend that such signature by electronic means or by facsimile or email in PDF or scanned format shall bind the party so signing with the same effect as though the signature were an original signature.

21.16 Acknowledgement of use of electronic signatures

The Parties acknowledge and agree that:

- (1) they consent to the use of the electronic signatures and the agreement proceeding by electronic means; and
- (2) they intend to be legally bound by the terms of the agreement on which their electronic signature(s) has been placed.

Executed as a Deed

SIGNED SEALED AND DELIVERED by)
 Lendlease Communities (Shoreline) Pty Ltd)
 ACN 623 367 377 in accordance with)
 section 127 of the *Corporations Act 2001*:)


 Signature of Director/Secretary

Nhu Nguyen

Print full name of Director/Secretary

20 December 2021

Date signed


 Signature of Director/Secretary


Gary John Searle

Print full name of Director/Secretary

20 December 2021

Date signed

EXECUTED for and on behalf of **REDLAND**)
CITY COUNCIL ABN 86 058 929 428 by its)
 Delegate in accordance with the *Local*)
Government Act 2009 (Qld) on behalf of the)
 Council in the presence of the witness:)
)
)



 Signature of Delegate

Stephen Hill

Print Full name of Delegate

23 December 2021

Date signed


 Signature of Witness

Justin Leach

Full name of Witness

23 December 2021

Date signed

Schedule 1 Particulars

| | | |
|---------|--|--|
| Item 1 | Date | 23 December 2021 |
| Item 2 | Name of agreement | Bayhill Estate Infrastructure Agreement |
| Item 3 | Name of local government | Redland City Council ABN 86 058 929 428 |
| | Address | Corner Bloomfield & Middle Streets, Cleveland Qld 4580 Email: rcc@redland.qld.gov.au |
| Item 4 | Applicant | Lendlease Communities (Shoreline) Pty Ltd ACN 623 367 377 |
| | Address (registered address if corporation) | Level 14, Tower Three, International Towers Sydney, Exchange Place, 300 Barangaroo Avenue, Barangaroo NSW 2000 Email: AUCosec@lendlease.com with copy to General Counsel, Property |
| Item 5 | Land | |
| | Description (lot and registered plan number) | Lot 2 on RP212251 |
| | Address | 48-66 Scenic Road, Redland Bay QLD 4165 |
| | Site area | 17.45ha |
| Item 6 | Development Application | Preliminary approval (variation request) for a material change of use to vary the effect of the <i>Redlands Planning Scheme</i> in accordance with section 50(3) of the Act to permit development in accordance with the Urban Residential Zone, Medium Density Residential Zone, Open Space Zone and Environmental Protection Zone and the modified levels of assessment and assessment benchmarked |
| Item 7 | Schedule of Plans | Refer to Schedule 4 |
| Item 8 | Security | 10% of the Work Contribution |
| Item 9 | Maintenance period | (a) 12 months, plus any extensions of time by Council pursuant to Clause 9.1; and (where applicable) (b) 24 months for any Stormwater Quality Improvement Device. |
| Item 10 | Index Number | The index stated in the Adopted Resolution |

Schedule 2 Special Conditions

1. Infrastructure Contributions

1.1 Limit of Infrastructure Contributions

The Applicant is to provide the following Infrastructure Contributions for the Development of the Land in accordance with the Development Entitlements:

- (a) in respect of transport infrastructure being local roads:
 - (1) a Financial Contribution under the Adopted Resolution for local road infrastructure which at the date of this agreement is \$10,737.20 per lot;
- (b) in respect of transport infrastructure being cycleways:
 - (1) the Work Contribution and Land Contribution for trunk cycleways infrastructure specified in the Infrastructure Contributions Schedule;
 - (2) a Financial Contribution under the Adopted Resolution for cycleways infrastructure, which at the date of this agreement is \$4,601.60 per lot;
- (c) in respect of public parks infrastructure:
 - (1) the Work Contribution and Land Contribution for public parks infrastructure specified in in the Infrastructure Contributions Schedule; and
 - (2) a Financial Contribution under the Adopted Resolution for parks infrastructure, which at the date of this agreement is \$5,828.80 per lot;
- (d) in respect of land for community facilities:
 - (1) a Financial Contribution under the Adopted Resolution for land for community facilities which at the date of this agreement is \$920.30 per lot;
- (e) in respect of stormwater infrastructure:
 - (1) the Work Contribution and Land Contribution for stormwater infrastructure specified in the Infrastructure Contributions Schedule;
- (f) in respect of water supply infrastructure:
 - (1) a Financial Contribution under the Adopted Resolution for water supply infrastructure which at the date of this agreement is \$920.30 per lot;
- (g) in respect of sewerage infrastructure:
 - (1) the Work Contribution and Land Contribution for sewerage infrastructure specified in the Infrastructure Contributions Schedule;
- (h) in respect of marine infrastructure:
 - (A) the Financial Contribution for marine infrastructure specified in the Infrastructure Contributions Schedule.

1.2 Agreement as to Infrastructure Contributions for marine infrastructure

The Parties acknowledge and agree that special condition 1.3 of the infrastructure agreement between Shoreline Redlands Pty Ltd and the Council dated 17 November 2015 in relation to development of the Shoreline Land applies to the Financial Contributions paid to Council in accordance with special condition 1.1(h)(A).

1.3 Offsets, refunds and conversions

Except as provided for in this agreement (including in special condition 1.4), the Applicant is not to take any action under the Act for the following:

- (a) the application of an offset against a Financial Contribution required by the Council for an Infrastructure Contribution for the Development of the Land in accordance with the Development Entitlements (**Infrastructure Offset**);
- (b) the payment of a refund or other monetary payment by the Council for the provision of an Infrastructure Contribution for the Development of the Land in accordance with the Development Entitlements (**Infrastructure Refund**);
- (c) an Application to convert development infrastructure to be provided by the Applicant for the Development of the Land in accordance with the Development Entitlements from non-trunk infrastructure to trunk infrastructure.

1.4 Public parks infrastructure

- (a) In respect of item 4.2 in the Infrastructure Contributions Schedule, the Parties acknowledge:
 - (1) the Council may request from the Applicant an additional:
 - (A) Land Contribution, including an increased land area or amended location;
 - (B) Work Contribution, including an increased specification or level of embellishment; but
 - (2) in accordance with the terms of this agreement, there is no obligation on the Applicant or Owner to provide an additional Infrastructure Contribution.
- (b) A request in accordance with Special Condition 1.4(a)(1) must only be made by the Council accompanied by an offer for the payment of a refund or other monetary payment by the Council for the provision of the additional Infrastructure Contribution.
- (c) This Special Condition does not require a Party to agree any matters concerning an additional Infrastructure Contribution other than on terms that are reasonably satisfactory to it.

2. Work Contribution for sewerage infrastructure

2.1 Tankering Operations

- (a) In this Special Condition 2 and the Infrastructure Contributions Schedule:
 - (1) **Collection Point** means the point for collection of sewerage from the Tankering Facility;
 - (2) **Equivalent Person (EP)** means the demand placed on the sewerage infrastructure by one person;

- (3) **Tankering Contractor** means a licensed sewerage tankering contractor agreed in writing by the Council and the Applicant acting reasonably;
- (4) **Tankering Facility** means the sewage collection and storage facility located on the Tankering Facility Land and includes all other works and facilities necessary to collect and store sewage from the Proposed Development;
- (5) **Tankering Facility Land** means the land within the Land, on which the Tankering Facility is to be located;
- (6) **Tankering Management Plan** means the tankering management plan approved by the Council under Special Condition 2.1(c);
- (7) **Tankering Operations** means all works, services or acts carried out in the operation of the Tankering Facility including the removal of sewage from the Tankering Facility by the Tankering Contractor;
- (b) The parties agree that the Proposed Development may be serviced by way of the Tankering Operations provided there are, at any point in time, no more than 200 dwellings within the Land and Shoreline Land (collectively) being serviced by Tankering Operations. For the avoidance of doubt, a dwelling is no longer serviced by Tankering Operations if it has been connected to Council's sewerage collection, treatment and disposal system.
- (c) The Applicant is to, prior to the commencement of the Tankering Operations, submit and obtain approval from the Council, which is not to be unreasonably withheld, for a tankering management plan for the Tankering Facility and the Tankering Operations, which identifies and addresses the following:
 - (1) details of the Tankering Operations;
 - (2) the location of the Tankering Facility;
 - (3) matters to be included in any contract with the Tankering Contractor for the carrying out of the Tankering Operations;
 - (4) a tankering schedule for projected sewerage loads;
 - (5) design and storage capacity of the Tankering Facility and response times;
 - (6) monitoring, warning systems and reporting of the Tankering Facility and the Tankering Operations;
 - (7) environmental safeguards;
 - (8) odour emission control measures;
 - (9) emergency procedures;
 - (10) decommissioning of the Tankering Facility.
- (d) The Applicant is to, in carrying out the Tankering Operations in item 4.5.3 of the Infrastructure Contributions Schedule:
 - (1) maintain the Tankering Facility and comply with the Tankering Management Plan;
 - (2) ensure that all sewage is collected by the Tankering Contractor from the Collection Point and discharged at a licensed and approved sewage treatment facility;

- (3) meet all costs associated with the Tankering Facility and the Tankering Operations including any Claim or expenses associated with the disposal of sewage and any overflow incidents from the Tankering Facility or upstream sewer;
- (4) indemnify the Council from time to time against any Claim or the costs associated with the Tankering Facility and the Tankering Operations.
- (e) The Council is to accept sewage from the Tankering Operations at a Council sewage treatment facility for no charge.

Schedule 3 Shoreline Land

| Lot | Plan Number | Area (Ha) |
|-----|-------------|-----------|
| 8 | R1291 | 3.237 |
| 69 | S31102 | 10.092 |
| 70 | S31102 | 9.105 |
| 71 | S31102 | 7.993 |
| 72 | S31102 | 8.498 |
| 73 | S31102 | 9.712 |
| 1 | RP133830 | 8.134 |
| 3 | RP105915 | 4.1658 |
| 4 | RP105915 | 4.047 |
| 11 | SP268704 | 101.3839 |
| 2 | SP226358 | 8.314 |
| 83 | S312432 | 8.579 |
| 84 | S312432 | 8.223 |
| 86 | S312432 | 8.094 |
| 255 | S312432 | 8.094 |
| 256 | S312432 | 8.094 |
| 257 | S312432 | 6.199 |
| 247 | S312432 | 8.094 |
| 259 | S312432 | 8.223 |
| 2 | RP149309 | 1.518 |
| 1 | RP105915 | 4.044 |
| 1 | RP140163 | 0.2023 |
| 1 | RP71630 | 0.2643 |
| 1 | RP103265 | 1.167 |
| 2 | RP140163 | 12.58 |
| 1 | RP212251 | 2.286 |
| 252 | S312432 | 8.223 |

Note: These land descriptions accord with the land described in Schedule 2 of the infrastructure agreement between Shoreline Redlands Pty Ltd and the Council dated 17 November 2015 and the Parties acknowledge the title details for this land may have changed since entry into that infrastructure agreement.

Schedule 4 Schedule of Plans

| Plan Title | Plan No. | Revision No. | Drawn by | Date |
|--|-----------------|---------------------|--------------------------|-------------|
| Shoreline (Bayhill Estate) Precinct Plan | 9401 P 10 | Rev I -SKE01 | Saunders Havill Group | 07/12/2021 |
| Bayhill Park Masterplan Report | j000599 | Issue G | Vee | 15/10/2021 |
| Bayhill Park Basic Embellishment Plan | | | | 26/11/2021 |

SHORELINE (BAYHILL ESTATE) PRECINCT PLAN

NOT TO BE USED FOR ENGINEERING DESIGN
OR CONSTRUCTION

NOTES

This plan was prepared as a professional layout to accompany a development application. The information on this plan is not suitable for any other purpose.

Property boundaries shown are based on the most recent cadastral survey and are subject to change. These may need verification if the development application is approved and construction is to proceed. The plan is not a substitute for a cadastral survey or to comply with development approval conditions.

No reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

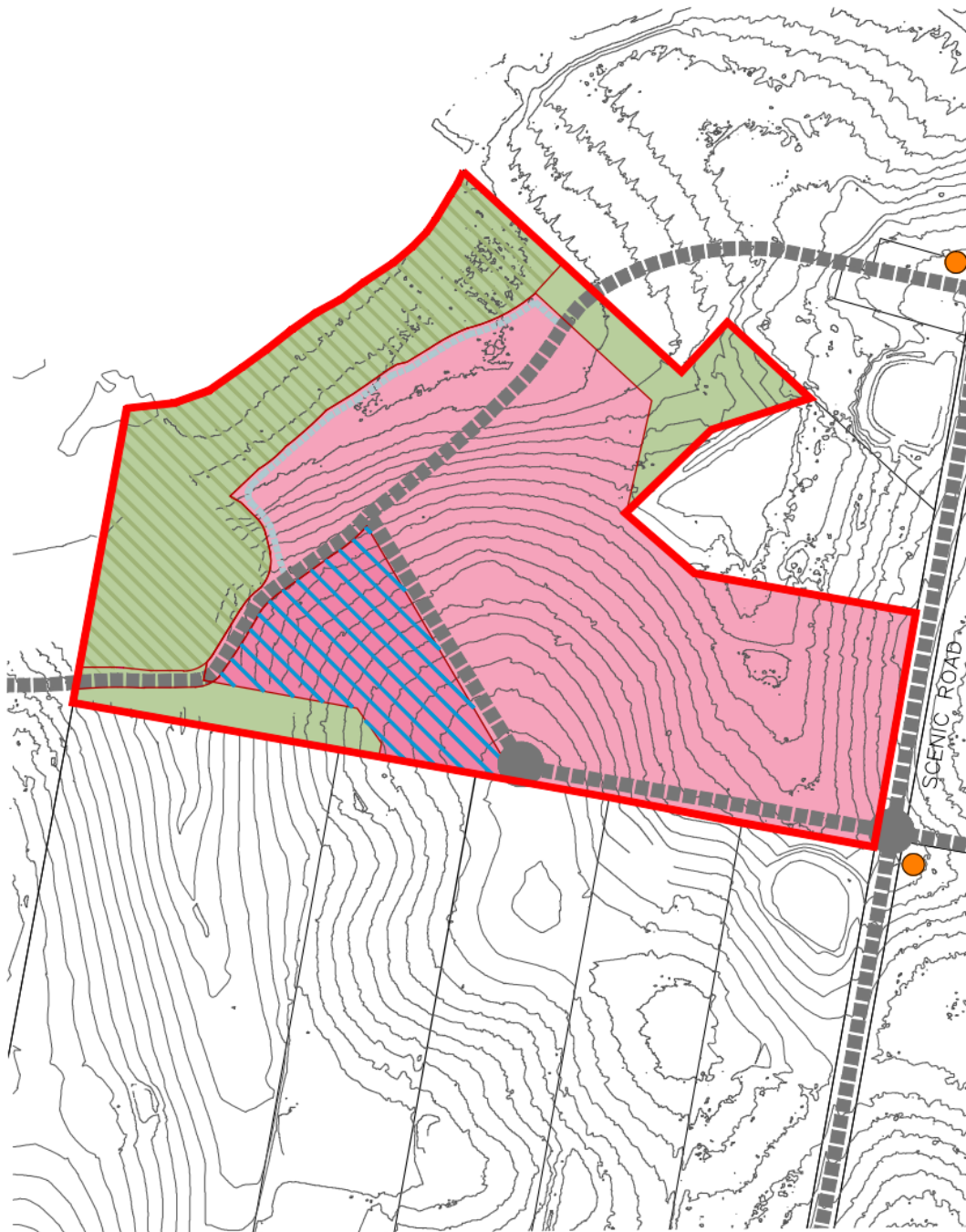
Preparations and certificates shown are indicative only and are subject to Engineering Design. Saunders Havill Group (hereinafter) disclaims any liability for any loss or damage whatsoever or howsoever caused arising from or in connection with the use of this plan for any purpose other than as a document for the purpose of the development application and which may be subject to alteration beyond the control of the Saunders Havill Group. The information is provided for your information only and is not to be relied upon.

Copyright © 2021 Saunders Havill Group. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, without the prior written permission of Saunders Havill Group.

* This site is an integral part of the precinct. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

| LEGEND | |
|--------|----------------------------------|
| | Subject Site |
| | Residential Precinct |
| | Open Space Precinct |
| | Foreshore Open Space Subprecinct |
| | Town Centre Frame Precinct |
| | Conceptual Collector Road |
| | Conceptual Residential Road |
| | Conceptual Bus Stop Location |

| PRECINCT AREA | AREA |
|----------------------------|---------|
| Residential Precinct | 10.1 Ha |
| Open Space Precinct | 5.7 Ha |
| Town Centre Frame Precinct | 1.8 Ha |
| TOTAL | 17.6 Ha |



SCALE: 1:1000 (AS SHOWN IN METERS)



Shoreline

BAYHILL PARK

Document register

1000599

| Issue | Date | Prepared by | Approved by |
|-------|------------|-------------|-------------|
| A | 18/09/2019 | MC | DH |
| B | 28/01/2021 | CV | MC |
| C | 01/02/2021 | CV | MC |
| D | 01/09/2021 | MC | DH |
| E | 02/09/2021 | MC | DH |
| F | 02/09/2021 | MC | DH |
| G | 15/10/2021 | MC | DH |

BAYHILL PARK
MASTERPLAN REPORT

vee





Bayhill Park Basic Embellishment Plan

DATE 26.11.21

Park Area (Including Stormwater Infrastructure): 39,975m²Stormwater Infrastructure: 4,987m²

| Item | Description | Unit | Rate | Qty | Amount |
|-----------------------|--|----------------|-----------------|--------|------------------------|
| 1.00 | PRELIMINARIES | | | | |
| 1.01 | Including costs associated with contractor to establish on site. Cost may include site sheds, barricading, signage or security. General health and safety requirements associated with workplace | item | \$ 25,000.00 | 1 | \$ 25,000.00 |
| 2.01 | Minor earthworks - Allowance for trimming (+/- 100mm) of bulk earthworks to finished grades | item | \$ 20,000.00 | 1 | \$ 20,000.00 |
| | | | SUBTOTAL | | \$ 45,000.00 |
| 2.00 | SOFTSCAPE | | | | |
| 2.01 | Weed treatment to subgrade softworks areas. | m ² | \$ 0.33 | 26,525 | \$ 8,753.25 |
| 2.02 | Final trim and grade to subgrade softworks areas. | m ² | \$ 0.33 | 26,525 | \$ 8,753.25 |
| 2.03 | Supply and spread fertilizer to finished topsoil softworks areas prior to turf/mulch. | m ² | \$ 0.33 | 26,525 | \$ 8,753.25 |
| 2.04 | Amelioration of site topsoil into stockpile for turf and planting areas (trommel screen with ameliorants added), includes 5% waste/bulking factor. | m ³ | \$ 9.20 | 4,762 | \$ 43,811.96 |
| 2.05 | (TA) Turf area cultivation to 150mm depth. | m ² | \$ 3.01 | 9,848 | \$ 29,642.48 |
| 2.06 | (TA) Turf area cart and spread of site ameliorated topsoil to 100mm depth. | m ² | \$ 3.01 | 9,848 | \$ 29,642.48 |
| 2.07 | (TA) Turf area supply, lay and roll 'A' grade couch turf. | m ² | \$ 3.01 | 9,848 | \$ 29,642.48 |
| 2.08 | (PA1) Ornamental Planting area 1 cultivation to 150mm depth. | m ² | \$ 7.20 | 6,096 | \$ 43,891.20 |
| 2.09 | (PA1) Ornamental Planting area 1 cart and spread of site ameliorated topsoil to 300mm depth. | m ² | \$ 7.20 | 6,096 | \$ 43,891.20 |
| 2.10 | (PA1) Ornamental Planting area 1 supply and spread imported forest blend mulch to 100mm depth. | m ² | \$ 7.20 | 6,096 | \$ 43,891.20 |
| 2.11 | (PA2) Revegetation Planting area 2 cultivation to 150mm depth. (NOT INCLUDED IN SCHEDULE) | m ² | \$ - | 5,595 | \$ - |
| 2.12 | (PA2) Revegetation Planting area 2 cart and spread of site ameliorated topsoil to 200mm depth. (NOT INCLUDED IN SCHEDULE) | m ² | \$ - | 5,595 | \$ - |
| 2.13 | (PA2) Revegetation Planting area 2 supply and spread imported forest blend mulch to 100mm depth. (NOT INCLUDED IN SCHEDULE) | m ² | \$ - | 5,595 | \$ - |
| 2.14 | (PA3) Bio Batters Planting area 3 cultivation to 150mm depth. (NOT INCLUDED IN SCHEDULE) | m ² | \$ - | 3,014 | \$ - |
| 2.15 | (PA3) Bio Batters Planting area 3 cart and spread of site ameliorated topsoil to 200mm depth. (NOT INCLUDED IN SCHEDULE) | m ² | \$ - | 3,014 | \$ - |
| 2.16 | (PA3) Bio Batters Planting area 3 supply and spread imported forest blend mulch to 100mm depth. (NOT INCLUDED IN SCHEDULE) | m ² | \$ - | 3,014 | \$ - |
| 2.17 | (PA3) Bio Batters Planting area 3 supply, lay and pin 700gsm coir netting. (NOT INCLUDED IN SCHEDULE) | m ² | \$ - | 3,014 | \$ - |
| 2.18 | (PA4) Bio Basin Planting area 4 supply and spread imported sugar cane mulch to 75mm depth. (NOT INCLUDED IN SCHEDULE) | m ² | \$ - | 1,972 | \$ - |
| 2.19 | (PA4) Bio Basin Planting area 4 supply, lay and pin 700gsm coir netting. (NOT INCLUDED IN SCHEDULE) | m ² | \$ - | 1,972 | \$ - |
| | | | SUBTOTAL | | \$ 290,672.75 |
| 3.00 | PA1 PLANTING STOCK | | | | |
| 3.01 | Supply & install: Tubestock plots | no. | \$ 3.00 | 8,550 | \$ 25,650.00 |
| 3.02 | Supply & install: 140mm plots | no. | \$ 8.00 | 20,000 | \$ 160,000.00 |
| 3.03 | Supply & install: 200mm plots | no. | \$ 16.50 | 4,000 | \$ 66,000.00 |
| 3.04 | Supply & install: 45 Ltr bag trees | no. | \$ 140.00 | 80 | \$ 11,200.00 |
| 3.05 | Supply & install: 100 Ltr bag trees | no. | \$ 370.00 | 60 | \$ 22,200.00 |
| 3.06 | Supply & install: 400 Ltr bag trees | no. | \$ 1,500.00 | 50 | \$ 75,000.00 |
| 3.07 | Supply & install: 1000 Ltr bag trees | no. | \$ 7,000.00 | 2 | \$ 14,000.00 |
| 4.00 | PA2 PLANTING STOCK (NOT INCLUDED IN SCHEDULE) | | | | |
| 4.01 | Supply & install: Tubestock plots (NOT INCLUDED IN SCHEDULE) | no. | | 16,788 | \$ - |
| 4.02 | Supply & install: 25 Ltr bag trees (NOT INCLUDED IN SCHEDULE) | no. | | 60 | \$ - |
| 4.03 | Supply & install: 45 Ltr bag trees (NOT INCLUDED IN SCHEDULE) | no. | | 40 | \$ - |
| 5.00 | PA3 PLANTING STOCK (NOT INCLUDED IN SCHEDULE) | | | | |
| 5.01 | Supply & install: Tubestock plots (NOT INCLUDED IN SCHEDULE) | no. | | 9,042 | \$ - |
| 5.02 | Supply & install: 25 Ltr bag trees (NOT INCLUDED IN SCHEDULE) | no. | | 20 | \$ - |
| 6.00 | PA4 PLANTING STOCK (NOT INCLUDED IN SCHEDULE) | | | | |
| 6.01 | Supply & install: Tubestock plots (NOT INCLUDED IN SCHEDULE) | no. | | 15,776 | \$ - |
| 6.02 | Supply & install: 25 Ltr bag trees (NOT INCLUDED IN SCHEDULE) | no. | | 20 | \$ - |
| | | | SUBTOTAL | | \$ 374,050.00 |
| 7.00 | HARDSCAPE | | | | |
| 7.01 | Supply & install: Recycled plastic bollards | no. | \$ 170.00 | 100 | \$ 17,000.00 |
| 7.02 | Supply & install: Locking rail to RCC Standard Detail | no. | \$ 3,500.00 | 3 | \$ 10,500.00 |
| 7.02 | Supply & install: Concrete edging | lin m | \$ 32.00 | 2000 | \$ 64,000.00 |
| 7.03 | Supply & install: Spade cut edging | lin m | \$ 2.90 | 500 | \$ 1,450.00 |
| 7.04 | Supply & install: Mulch to street trees (outside of PA), 100mm deep (2m ² per tree) | no. | \$ 11.45 | 100 | \$ 1,145.00 |
| 7.05 | Supply & install: Root barrier to street trees (3m per tree) | lin m | \$ 42.00 | 500 | \$ 21,000.00 |
| 7.06 | Supply & install: Sandstone block wall (600x600x1000mm) 'A' grade cut stone. | lin m | \$ 500.00 | 50 | \$ 25,000.00 |
| 7.07 | Supply & install: Picnic seats | no. | \$ 4,000.00 | 2 | \$ 8,000.00 |
| 7.08 | Supply & install: Drinking fountain | no. | \$ 7,500.00 | 2 | \$ 15,000.00 |
| 7.09 | Supply & install: Wayfinding signage | no. | \$ 7,500.00 | 3 | \$ 22,500.00 |
| | | | SUBTOTAL | | \$ 185,595.00 |
| 8.00 | MAINTENANCE (13 Weeks Establishment) | | | | |
| 8.01 | Maintain all hardscape and softscape landscaping works including pavements, trees, shrubs, groundcovers and turf areas for a minimum 13 Week ESTABLISHMENT PERIOD (allow for 1 mow every 3 weeks). | week | \$ 3,500.00 | 13 | \$ 45,500.00 |
| 8.02 | Water truck - Watering every 2nd day - For the full 13 weeks | hours | \$ 150.00 | 150.0 | \$ 22,500.00 |
| | | | SUBTOTAL | | \$ 68,000.00 |
| 9.00 | MAINTENANCE (52 Weeks On Maintenance) | | | | |
| 9.01 | Maintain all hardscape and softscape landscaping works including pavements, trees, shrubs, groundcovers and turf areas for a minimum 52 Week (allow for 1 mow every 3 weeks). | week | \$ 2,000.00 | 52 | \$ 104,000.00 |
| | | | SUBTOTAL | | \$ 104,000.00 |
| TOTAL OF WORKS | | | | | \$ 1,067,317.75 |

| | | | |
|---|--------|-------|------------------------|
| CONSULTANT, DESIGN, OPW FEES, OTHER ON COSTS | 15.00% | \$ | 160,097.66 |
| CONTINGENCY | 10% | \$ | 122,741.54 |
| LAND VALUE (NOMINAL \$/m2) BASED ON 5M STRIP TO INCORPORATE MORETON BAY CYCLEWAY (5m w x 570m l) | \$ | 10.00 | 2850 \$ 28,500.00 |
| TOTAL PARK COSTS | | | \$ 1,378,656.96 |

| | | | | | |
|--|--|----|----|--------|----------------------|
| 10.00 | MORETON BAY CYCLEWAY (MBC) | | | | |
| 10.01 | Supply & install: MBC Shared pathway (125mm thick) (3m Wide x 570m Long) | m2 | \$ | 130.00 | 1787 |
| | | | \$ | | 232,310.00 |
| TOTAL OF WORKS | | | | | \$ 232,310.00 |
| CONSULTANT, DESIGN, OPW FEES, OTHER ON COSTS | | | | 15.00% | \$ 34,846.50 |
| CONTINGENCY | | | | 10% | \$ 26,715.65 |
| TOTAL CYCLEWAY COSTS | | | | | \$ 293,872.15 |

Schedule 5 Infrastructure Contribution Schedule

4.1 Transport Infrastructure Network:

| Column 1 Item | Column 2 Infrastructure Contribution | Column 3 Specifications of Infrastructure Contribution | Column 4 Timing of Infrastructure Contribution | Column 5 Party responsible for Infrastructure Contribution | Column 6 Offset | Column 7 Other requirements |
|------------------|---|---|--|---|--------------------|--------------------------------|
| 4.1.1 | Work Contribution for off-road shared cycleway and pedestrian path infrastructure (Moreton Bay Cycleway). | <p>The Work Contribution is to comprise the design and construction of a single lane off-road shared cycleway and pedestrian path:</p> <p>A. in the location indicatively marked '01 Primary pathway network (Moreton Bay Cycleway) Min. 3m wide x 570m in length' on the Bayhill Park Masterplan Report contained in Schedule 4;</p> <p>B. the Schedule of Works Summary (Table 10.6.6) and the Cycleway Trunk Network Map T8 of the Priority Infrastructure Plan;</p> <p>C. a 570m long 3 metre wide reinforced concrete shared path;</p> <p>D. all works in accordance with the requirements</p> | At the same time as provision of the Land Contribution in item 4.2.1 (or the relevant part thereof). | Applicant. | \$293,872.15 | Not applicable. |

| | | | | | | | |
|-------|--|--|--|------------|-----------------|-----------------|--|
| | | | and standards of Planning Scheme Policy 9 (Infrastructure Works); and | | | | |
| | | | E. lighting and signage in accordance with the relevant infrastructure works planning scheme policy. | | | | |
| 4.1.2 | Land Contribution for off-road shared cycleway and pedestrian path infrastructure. | The Land Contribution is to be provided: A. at no cost to Council; B. as land dedicated as park; and C. to accommodate the Work Contribution in item 4.1.1. | At the same time as the provision of the Work Contribution (or part thereof) to which the Land Contribution relates. | Applicant. | Not applicable. | Not applicable. | |

4.2 Public parks and land for community facilities:

| Column 1 Item | Column 2 Infrastructure Contribution | Column 3 Specifications of Infrastructure Contribution | Column 4 Timing of Infrastructure Contribution | Column 5 Party responsible for Infrastructure Contribution | Column 6 Offset | Column 7 Other requirements |
|------------------|---|---|--|---|--------------------|--------------------------------|
| 4.2.1 | Land Contribution for public parks infrastructure being foreshore open space. | The Land Contribution is to be provided: A. at no cost to Council; | Prior to the Approval of a Plan of Subdivision or commencement of use of a Developed | Applicant. | Not applicable. | Not applicable. |

| | | | | | | |
|-------|--|---|--|------------|----------------|---|
| 4.2.2 | Work Contribution for public parks infrastructure being the embellishment to the foreshore open space. | The Work Contribution is to comprise of the design and construction of embellishments to the Foreshore Open Space Subprecinct generally in accordance with the plans and specifications contained in Schedule 4. | At the same time as the provision of the Land Contribution to which the Work Contribution relates. | Applicant. | \$1,378,656.96 | The Parties acknowledge that whilst the Bayhill Park Basic Embellishment Plan contained in Schedule 4 contains rates and amounts, the plan is included only to define the |
| | | <p>B. as land dedicated as park;</p> <p>C. of approximately 3.99 ha (including stormwater infrastructure);</p> <p>D. in respect of the total area shown as Foreshore Open Space Subprecinct on the Shoreline (Bayhill Estate) Precinct Plan contained in Schedule 4 subject to any refinement of those areas as provided for in an Approval which is a development permit applying to a lot which is part of the Land;</p> <p>E. be generally in accordance with the plans contained in Schedule 4.</p> | Lot for the 150th Dwelling. | | | |

| | | | | | | | |
|--|--|--|--|--|--|--|--|
| | | | | | | | level of embellishment required and there is to be no reconciliation of costs incurred by the Applicant. |
|--|--|--|--|--|--|--|--|

4.3 Stormwater Infrastructure Network:

| Column 1 Item | Column 2 Infrastructure Contribution | Column 3 Specifications of Infrastructure Contribution | Column 4 Timing of Infrastructure Contribution | Column 5 Party responsible for Infrastructure Contribution | Column 6 Offset | Column 7 Other requirements |
|------------------|--|--|---|---|---|--------------------------------|
| 4.3.1 | Work Contribution for stormwater infrastructure. | Work Contribution is the design and construction of stormwater infrastructure in accordance with Planning Scheme Policy 9 (Infrastructure Works) and approved stormwater management plans for each internal catchment as required by the Preliminary Approval. | Prior to the Approval of a Plan or Subdivision or commencement of a Developed Lot which is serviced by the stormwater infrastructure. | Applicant. | Not applicable. No Financial Contribution is imposed for this network. | Not applicable. |
| 4.3.2 | Land Contribution for stormwater infrastructure. | The Land Contribution is to be provided: A. as land dedicated for drainage purposes; and B. to accommodate the Work Contribution. | At the same time as the provision of the Work Contribution in item 4.3.1 (or part thereof) to which the Land Contribution relates. | Applicant. | Not applicable. No Financial Contribution is imposed for this network. | Not applicable. |

4.4 Redland Water - Water Infrastructure Network:

| Column 1 Item | Column 2 Infrastructure Contribution | Column 3 Specifications of Infrastructure Contribution | Column 4 Timing of Infrastructure Contribution | Column 5 Party responsible for Infrastructure Contribution | Column 6 Offset | Column 7 Other requirements |
|------------------|--|--|--|---|--------------------|-----------------------------------|
| Not applicable | | | | | | |

4.5 Redland Water - Sewerage Infrastructure Network:

| Column 1 Item | Column 2 Infrastructure Contribution | Column 3 Specifications of Infrastructure Contribution | Column 4 Timing of Infrastructure Contribution | Column 5 Party responsible for Infrastructure Contribution | Column 6 Offset | Column 7 Other requirements |
|------------------|---|---|--|--|--------------------|---|
| 4.5.1 | Work Contribution for sewerage infrastructure being a Tankering Facility. | The Work Contribution is to comprise a Tankering Facility in accordance with a Tankering Management Plan. | Prior to the Approval of a Plan or Subdivision or commencement of a use of a Developed Lot. | Applicant. | Not applicable. | Not applicable. |
| 4.5.2 | Land Contribution for sewerage infrastructure being Tankering Facility. | The Land Contribution is to comprise an easement at no cost to Council: A. over the Tankering Facility Land and other reasonably specified by Council for access to the Tankering | Prior to the Approval of a Plan or Subdivision or commencement of a use of a Developed Lot. | Applicant. | Not applicable. | The Council is to surrender the easement once the Tankering Facility is decommissioned in accordance with Item 4.5.4. The Applicant is responsible for all costs associated |

| Column 1 Item | Column 2 Infrastructure Contribution | Column 3 Specifications of Infrastructure Contribution | Column 4 Timing of Infrastructure Contribution | Column 5 Party responsible for Infrastructure Contribution | Column 6 Offset | Column 7 Other requirements |
|------------------|--|---|--|--|--------------------|--|
| | | Facility Land; and B. for access and sewerage purposes. | | | | with the surrender of the easement. |
| 4.5.3 | Work Contribution for sewerage infrastructure being the Tankering Operations to service up to 200 Dwellings at any time collectively within the Land and Shoreline Land. | The Work Contribution is to comprise of Tankering Operations to service up to 200 Dwellings at any time collectively within the Land and Shoreline Land, under an effective Environmental Authority (ERA57). | As required to service the Proposed Development until the Proposed Development is connected to sewerage infrastructure to collect and treat sewage from the Proposed Development | Applicant | Not applicable. | Not applicable. |
| 4.5.4 | Work Contribution to decommission and remove the Tankering Facility. | The Work Contribution is to decommission and remove the Tankering Facility. | Within 60 Business Days after the Proposed Development is connected to sewerage infrastructure to collect and treat sewage from the Proposed Development. | Applicant | Not applicable. | Not applicable. |
| 4.5.5 | Work Contribution for sewerage infrastructure. | The Work Contribution is to comprise the design and construction of a sewerage collection, treatment and disposal system to service | A. The design of the Work Contribution is to be completed and submitted to Council prior to the Approval of | Applicant | Not applicable. | Not applicable. |

| Column 1 Item | Column 2 Infrastructure Contribution | Column 3 Specifications of Infrastructure Contribution | Column 4 Timing of Infrastructure Contribution | Column 5 Party responsible for Infrastructure Contribution | Column 6 Offset | Column 7 Other requirements |
|------------------|--|---|--|--|--------------------|-----------------------------------|
| | | the Proposed Development to the reasonable satisfaction of the General Manager of Infrastructure and Operations of the Council. | <p>the Plan of Subdivision creating the first lot.</p> <p>B. The construction of the initial configuration of the Work Contribution is to be completed prior to the Approval of a Plan of Subdivision or commencement of use of a Developed Lot for the 200th Dwelling.</p> <p>C. The construction of the ultimate configuration of the Work Contribution may be stages in accordance with all necessary Approvals, provided that:</p> <p>I. all Developed Lots are connected to the initial configuration of the Work Contribution from the time of Approval of the Plan of Subdivision or commencement</p> | | | |

| Column 1 Item | Column 2 Infrastructure Contribution | Column 3 Specifications of Infrastructure Contribution | Column 4 Timing of Infrastructure Contribution | Column 5 Party responsible for Infrastructure Contribution | Column 6 Offset | Column 7 Other requirements |
|------------------|--|---|--|--|--------------------|-----------------------------------|
| | | | <p>of use of a Developed Lot for the 200th Dwelling; and</p> <p>II. the Work Contribution is appropriate to service the Land at all times.</p> | | | |
| 4.5.6 | Land Contribution for sewerage infrastructure. | <p>The Land Contribution is to be provided:</p> <p>A. at no cost to Council;</p> <p>B. in fee simple for all land on which a sewerage treatment plant or sewerage pump station provided under item 4.5.5 is located;</p> <p>C. as an easement for other sewerage infrastructure under item 4.5.5 or as reasonably appropriate in order to access the sewerage</p> | <p>At the same time as the provision of the Work Contribution in item 4.5.5 (or part thereof) to which the Land Contribution relates.</p> | Applicant. | Not applicable. | Not applicable. |

| Column 1 Item | Column 2 Infrastructure Contribution | Column 3 Specifications of Infrastructure Contribution | Column 4 Timing of Infrastructure Contribution | Column 5 Party responsible for Infrastructure Contribution | Column 6 Offset | Column 7 Other requirements |
|-----------------------------------|---|---|--|--|--------------------|-----------------------------------|
| | | infrastructure if the infrastructure cannot be accessed from a public road; and D. to accommodate the Work Contribution. | | | | |
| 4.6 Marine Infrastructure: | | | | | | |
| Column 1 Item | Column 2 Infrastructure Contribution | Column 3 Specifications of Infrastructure Contribution | Column 4 Timing of Infrastructure Contribution | Column 5 Party responsible for Infrastructure Contribution | Column 6 Offset | Column 7 Other requirements |
| 4.6.1 | Financial Contribution for a public boat ramp | The Financial Contribution is \$253.09 per Developed Lot. | Prior to the Approval of a Plan of Subdivision or commencement of a use of a Developed Lot. | Applicant. | Not applicable. | Not applicable. |

Schedule 6 Preliminary Approval (Conditions)

| ASSESSMENT MANAGER CONDITIONS | TIMING |
|---|--|
| 1. Comply with all conditions of this approval, at no cost to Council, at the timing periods specified in the right-hand column. Where the column indicates that the condition is an ongoing condition, that condition must be complied with for the life of the development. | |
| Approved plans and documents | |
| 2. Undertake the development in accordance with the approved plans and documents referred to in Table 1, subject to the conditions of this approval and any notations by Council on the plans. | Prior to the use commencing and ongoing. |

| Plan/document title | Reference number | Prepared by | Plan/doc. date |
|---|--------------------------|-------------------------------|----------------|
| Shoreline (Bayhill Estate) Urban Village Plan of Development | Version J (Draft A) | Saunders Havill Group Pty Ltd | 27/10/2021 |
| Shoreline (Bayhill Estate) Precinct Plan | 9401 P 10 Rev I – SKE 01 | Saunders Havill Group Pty Ltd | 07/12/2021 |
| Stormwater Management Plan | 19020125-01_R01_V02 | Water Technology | 04/11/2019 |
| Bayhill Estate Biting Insect Management Plan | 170506 | FRC Environmental | Sept 2019 |
| Addendum to Bayhill Estate Biting Insect Management Plan (2019) | 170506_Addendum_Riii | FRC Environmental | 27/10/2021 |
| Geotechnical and Acid Sulfate Soils Investigation | 92838.04 | Douglas Partners | March 2019 |
| Overall Bushfire Management Plan | 14-006 | The Consultancy Bureau | June 2014 |

Table 1: Approved plans and documents

| | |
|--|--|
| 3. Apply the variations approved in the Shoreline (Bayhill Estate) Urban Village Plan of Development, to development that is subject of the variation approval or development that is the natural and ordinary consequence of development that is the subject of the variation approval. | Ongoing. |
| 4. Amend the approved plan of development to vary the 1% AEP flood and storm tide level from 2.4m to 3.81m AHD, for the following sections of the Redlands Planning Scheme V7.1: • Section 5.6.6(1)(a) | As part of the lodgement of the first development application. |

| | |
|---|---|
| <ul style="list-style-type: none"> • Section 5.6.8 A1(2)(b) • Section 5.6.9 S1(1) and notes • Schedule 3 – Administrative Terms - “storm tide area” • Section 7.4.2(2)(b) • Section 8.9.4 P3(1)(iii) • Section 9.3.4 checklist flood prone land • Section 9.3.6 checklist flood prone land • Section 9.5.9.9(6) and (7) • Section 9.11.6.1 Checklist flood prone land. <p>Note: Despite the above, urban development is supported within the residential precinct, as shown in the precinct plan, in the approved Shoreline (Bayhill Estate) Urban Village Plan of Development. Open space embellishments (including the Moreton Bay Connector cycleway) are to be located within the foreshore open space sub-precinct, as shown in the approved precinct plan, in the approved Shoreline (Bayhill Estate) Urban Village Plan of Development.</p> | |
| Infrastructure Agreement | |
| 5. Comply with the infrastructure agreement relating to the subject site. | Ongoing. |
| Roadworks | |
| 6. Submit to Council for approval, engineering plans and details showing the upgrade of Scenic Road for the site frontage to a minimum residential type B collector street standard in accordance with the infrastructure works code as per the approved Plan of Development. | Prior to the sealing of the first lot, or commencement of any use, on the subject land, whichever occurs first. |
| 7. Construct the upgrade of Scenic Road to a minimum collector street standard in accordance with a Council approved engineering design. | Prior to the sealing of the first lot, or commencement of any use, on the subject land, whichever occurs first. |
| Utilities | |
| 8. Connect the development to external reticulated sewer, external reticulated water and underground electricity supply. Where external reticulated sewer is not available to connect to the development, submit and have approved a tankering management plan in accordance with the Infrastructure Agreement. | Prior to the sealing of the first lot, or commencement of any use, on the subject land, |

| | |
|--|---|
| | whichever occurs first. |
| Environmental | |
| <p>9. Provide an environmental offset for all non-juvenile koala habitat trees to be removed within the mapped medium value rehabilitation area, in accordance with the <i>Environmental Offsets Act 2014</i>. This must be in accordance with one of the below options:</p> <p>a) A land-based offset may be provided in accordance with sections 2.3.1.1 and 2.3.1.6 of the Queensland Environmental Offsets Policy (Version 1.6).</p> <p>b) A financial settlement offset may be provided in accordance with section 2.3.2 of the Queensland Environmental Offsets Policy (Version 1.6).</p> <p>c) A combination of offset (a) and offset (b) may be provided.</p> | <p>For a land-based offset – prior to operational works commencing.</p> <p>For a financial settlement offset – prior to any construction works taking place, associated with first development application.</p> |
| <p>10. Provide a Notice of Election in the approved form, in accordance with section 2.4 of the <i>Queensland Environmental Offsets Policy (Version 1.6)</i>, which details the proposed offset delivery approach. The approved form is EOD1 – Environmental Offsets Delivery Form 1: Notice of Election and Advanced Offset Details.</p> <p>The following additional approved forms must also be provided:</p> <p><u>For a land based offset:</u></p> <ul style="list-style-type: none"> EOD2 – Environmental Offsets Delivery Form 2: Offset Delivery Plan Details*. EOD3 – Environmental Offsets Delivery Form 3: Offset Area Details. EOD4 – Environmental Offsets Delivery Form 5: Habitat Quality Details. <p><u>For a financial settlement offset</u></p> <ul style="list-style-type: none"> EOD4 – Environmental Offsets Delivery Form 4: Financial Settlement Details. <p><i>*Note: Must include the Legal Security mechanism for any land-based offset, as per Sections 18 and 29 of the Environmental Offsets Act 2014.</i></p> | <p>As part of the lodgement of the first development application.</p> |
| ADDITIONAL APPROVALS | |

The preliminary approval does not authorise development to occur.

Further development permits are necessary to allow development to be carried out, being any development listed as assessable development in the tables of assessment in the Shoreline (Bayhill Estate) Urban Village Plan of Development, or a local categorising instrument (where not varied by the plan of development)

REFERRAL AGENCY CONDITIONS

- **Queensland Government**
Refer to the attached correspondence from the SARA dated 30 August 2021 (SARA reference 1711-2416 SRA).

ASSESSMENT MANAGER ADVICE

- **Coastal processes and sea level rise**
Please be aware that development approvals issued by Redland City Council are based upon current lawful planning provisions which do not necessarily respond immediately to new and developing information on coastal processes and sea level rise. Independent advice about this issue should be sought.
- **Services installation**
It is recommended that where the installation of services and infrastructure will impact on the location of existing vegetation identified for retention, an experienced and qualified arborist that is a member of the Australian Arborist Association or equivalent association, be commissioned to provide impact reports and on site supervision for these works.
- **Fire ants**
Areas within Redland City have been identified as having an infestation of the Red Imported Fire Ant (RIFA). Biosecurity Queensland should be notified on 13 25 23 of proposed development(s) occurring in the Fire Ant Restricted Area before earthworks commence. It should be noted that works involving movements of soil associated with earthworks may be subject to movement controls and failure to obtain necessary approvals from Biosecurity Queensland is an offence. It is a legal obligation to report any sighting or suspicion of fire ants within 24 hours to Biosecurity Queensland on 13 25 23. The Fire Ant Restricted Area as well as general information can be viewed on the Department of Agriculture and Fisheries (DAF) website www.daf.qld.gov.au/fireants
- **Cultural heritage**
The *Aboriginal Cultural Heritage Act 2003* requires anyone who carries out a land use activity to exercise a duty of care. Further information on cultural heritage duty of care is available on the Department of Aboriginal and Torres Strait Islander Partnerships (DATSIP) website:

<https://www.datsip.qld.gov.au/resources/datsima/people-communities/cultural-heritage/cultural-heritage-duty-care.pdf>

The DATSIP has established a register and database of recorded cultural heritage matters, which is also available on the Department's website:

<https://www.datsip.qld.gov.au/people-communities/aboriginal-torres-strait-islander-cultural-heritage/cultural-heritage-search-request>

Quandamooka Yoolooburrabee Aboriginal Corporation (QYAC) is the registered cultural heritage body in the Redland City local government area. It is recommended you consult with QYAC in relation to aboriginal and cultural heritage matters prior to the commencement of works on site. QYAC can be contacted on 07 3415 2816 or admin@QYAC.net.au

Should any aboriginal, archaeological or historic sites, items or places be identified, located or exposed during construction or operation of the development, the *Aboriginal and Cultural Heritage Act 2003* requires all activities to cease. Please contact DATSIP for further information.

- **Fauna protection**

It is recommended an accurate inspection of all potential wildlife habitats be undertaken prior to removal of any vegetation on site. Wildlife habitat includes trees (canopies and lower trunk) whether living or dead, other living vegetation, piles of discarded vegetation, boulders, disturbed ground surfaces, etc. It is recommended that you seek advice from the Queensland Parks and Wildlife Service if evidence of wildlife is found.

- ***Environment Protection and Biodiversity Conservation Act***

Under the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act* (the EPBC Act), a person must not take an action that is likely to have a significant impact on a matter of national environmental significance without Commonwealth approval. Please be aware that the listing of the Koala as **vulnerable** under this Act may affect your proposal. Penalties for taking such an action without approval are significant. If you think your proposal may have a significant impact on a matter of national environmental significance, or if you are unsure, please contact Environment Australia on 1800 803 772. Further information is available from Environment Australia's website at www.ea.gov.au/epbc

Please note that Commonwealth approval under the EPBC Act is independent of, and will not affect, your application to Council.

Owner's consent – refer clause 2.4

To: Redland City Council
Corner Bloomfield & Middle Streets
CLEVELAND QLD 4580

From: Rodney Roland Morris and Robyn Thelma Morris
48-66 Scenic Road
REDLAND BAY QLD 4165

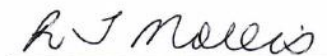
**Owner's consent to Bayhill Estate Infrastructure Agreement - 48-66 Scenic Road,
Redland Bay QLD 4165 (Lot 2 on RP212251)**

We, Rodney Roland Morris and Robyn Thelma Morris, the owners of the land situated at 48-66 Scenic Road, Redland Bay QLD 4165, more particularly described at Lot 2 on RP212251 (**Land**) consent to the obligations under the Bayhill Estate Infrastructure Agreement between Redland City Council and Lendlease Communities (Shoreline) Pty Ltd ACN 623 367 377 being attached to the Land and binding on the owners and owners' successors in title to the Land in accordance with the *Planning Act 2016* (Qld).

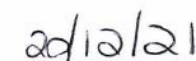
Yours faithfully



Rodney Roland Morris



Robyn Thelma Morris



Date

ME_193727170_1

15 REPORTS FROM INFRASTRUCTURE & OPERATIONS

15.1 WASTE REDUCTION AND RECYCLING PLAN 2021-2030

Objective Reference: A6470105

Authorising Officer: Dr Nicole Davis, General Manager Infrastructure & Operations

Responsible Officer: Bradley Salton, Group Manager City Assets

Report Author: Grace Mullins, Technical Officer Waste Assets

Attachments: 1. Redlands Waste Reduction and Recycling Plan 2021-2030 [↓](#)

PURPOSE

To approve the Waste Reduction and Recycling Plan 2021-2030 for adoption and publication.

BACKGROUND

The *Waste Reduction and Recycling Act 2011* (the Act) requires all Queensland local governments to adopt a Waste Reduction and Recycling Plan (WRRP). The intent is to facilitate good strategic planning by local governments to:

- Promote waste avoidance and reduction, and resource recovery and efficiency actions.
- Reduce the consumption of natural resources and minimise the disposal of waste by encouraging waste avoidance and the recovery, re-use and recycling of waste.
- Minimise the overall impact of waste generation and disposal.
- Ensure a shared responsibility between government, business and industry and the community in waste management and resource recovery.

Under the Act, Council must review its Waste Reduction and Recycling Plan at least every three years. The existing Waste Reduction and Recycling Plan 2015-2020 was adopted on 9 December 2015 and has now expired.

The draft Waste Reduction and Recycling Plan 2021-2025 was prepared in 2020. On 25 March 2021 Council approved the draft Waste Reduction and Recycling Plan 2021-2025, for the purpose of community consultation. The community consultation commenced from 27 April 2021 and closed 28 May 2021.

ISSUES

Strategic Context

The draft Plan was developed with regard to the external waste reforms prior to December 2020 including the National Waste Policy (2018) and Queensland Government Waste Management and Resource Recovery Strategy (2019). It incorporated a new vision for waste management for the City in line with national and state waste strategies and outlined a foundation for moving the Redlands Coast towards a 2050 zero waste future. Central to the draft Plan was an objective to futureproof Redlands Coast against projected additional costs to dispose of waste to landfill. These remain core elements of the updated Plan.

Significant policy announcements also emerged in 2021 that will directly affect the way Queensland and South East Queensland local governments will deliver household waste and recycling services over the coming 10 years. These included:

- Queensland Draft Organics Strategy 2022-2032.
- South East Queensland Council of Mayors Waste Plan Final Report (CoM SEQ Waste Plan) 2021.
- Waste Levy Changes effective from 1 July 2022.

Additionally, more detailed information about the delivery mechanisms for these strategic and policy drivers are anticipated over the coming 6-12 months.

A comprehensive review and update of the Plan was undertaken from June-December 2021 and these significant known and anticipated changes have been worked through with the project team, waste steering group, Executive Leadership Team and Councillors.

The Plan presented for adoption provides a balanced and meaningful Plan that addresses community expectations, is deliverable and provides a framework to keep Redlands waste services aligned with industry policy and targets. It has taken into account the issues discussed below and provides a thorough planning tool for Council to deliver on State waste reduction and recycling targets and futureproof against increasing landfill disposal costs. It has been designed to be flexible and agile so as to respond to the current and future changing waste regulation at all levels of government.

Timeline and Targets

The Plan timeline has been extended to 2030 to align with the 2025 and 2030 State targets and commitments of the CoMSEQ Waste Plan. The Plan will be reviewed as often as necessary and the annual implementation plans will be developed each year to enable flexibility to respond to the rapidly evolving external context.

The Plan acts as a framework to guide future decisions by setting key targets and meaningful priority themes. This will allow Council to respond to opportunities and challenges as they emerge and take the right actions that align with priority themes and deliver on targets and objectives.

Community Feedback

Council captured feedback from 190 participants over the consultation period. The consensus was strong and positive support for the draft Plan and actions.

Overall, the strongest support was for education. The majority of participants want to increase their recycling and reduce their waste but would like more and clearer education around what can and cannot be recycled. This is addressed by the 'Lift the Right Lid' theme in the Plan and aligns with industry objectives to see more recyclables recycled and only 'true residual' waste placed in the household red bins.

Many residents indicated that they would like more provisions for managing food and garden organics. This included requests for free green waste bins, a food waste collection (FOGO) service, community composting and a compost bin rebate scheme. Improving opportunities for residents to keep food and garden organics out of the red bin is comprehensively addressed in Theme 2: Transforming Organics.

To show the community that Council has considered and responded to this feedback, a suite of FAQs will be published alongside the Plan when it is launched to provide additional information about any important items that were raised by the community that aren't directly referenced in the Plan. This feedback will also include future Council considerations around FOGO and what needs to be assessed for it to be viable (i.e. the roadmap).

Responding to a Rapidly Evolving External Context

The pace of external change in the waste industry will continue to influence reviews of the Plan. New initiatives like RecycleMate and the launch of a national product stewardship scheme for batteries have occurred recently and a Queensland Organics strategy is expected to be released soon. These are expected to guide future actions, and therefore the Plan has defined year 1 actions for implementation in financial year 2022/23 that build upon these external influences. Actions for 2023/24 and beyond will be defined each year in annual implementation plans. This will allow flexibility and agility for Council to assess feasibility, resourcing and determine the agency lead for any for new actions.

Waste Levy Changes

The Waste Levy changes announced in December 2021 will significantly increase the cost to Council to landfill household waste. The levy rate for Redland City Council household waste is set to increase annually from \$85 per tonne to over \$150 per tonne in 2030/31. Currently ratepayers are protected from this cost with an annual payment to Council from the State. However, this annual payment will also reduce annually from covering 105% of household levy costs to just 20% by 2030/31.

Whilst the annual payment will remain at the maximum percentage for 2022/23, from 2023/24 as it starts to decrease and the levy rate increases, Council will need to pay increasing amounts of landfill tax each year. Modelling has shown that Council could end up spending more than \$27million in landfill tax for household waste over time to 2030 if we do not reduce household waste to landfill. Almost half of red bin waste is currently recoverable organic material. Without a significant shift in how households manage their food and green waste, Council, and therefore the community, will be liable for the increasingly expensive landfill levy tax on this recoverable material.

Food Waste Collection Opportunity

Kerbside food waste collection is a familiar request to Councils from households and a key barrier for Redland City Council to implement such a service has been affordability. However, the future drivers are stronger than ever and include:

- The Queensland Government calling out household food waste as a priority to be addressed.
- Redlands signing up for the CoMSEQ Waste Plan that commits all SEQ Councils to implement a FOGO food waste collection service by 2030.
- Increasing waste levy costs for household waste and reducing Council annual payments to cover these costs.
- Other Council FOGO trials are underway.
- A possible food/organic waste landfill ban under the Queensland Organics Action Plan 2022-2032.
- Potential state government funding to support Councils to implement FOGO.

As such, Redland City Council must assess options for providing a food waste collection service and determine a way forward and timeframe. It is recognised that the service increase that implementing a food waste collection service represents would require additional budget and resourcing and can only be implemented when affordable.

The Plan presents a path forward for Council to identify options and document a business case for food waste collection following adoption of the Plan. As more information becomes available around FOGO processing infrastructure and markets and lessons learned from neighbouring Council areas, Council will have the ability to model options and how best to meet the State recycling target in the most affordable way.

Launch of the Plan

The Plan will be launched to the community following adoption. A community snapshot will be published alongside the plan to provide a summary of Plan and highlight key recent industry changes. Additionally, a series of FAQs will be published to address any anticipated questions from the community regarding the plan and Council's waste service. This will ensure transparency and provide an opportunity to educate the engaged members of our community on the challenges and opportunities of running a south east Queensland local government waste service in 2022.

STRATEGIC IMPLICATIONS

Legislative Requirements

Council has a legislative requirement to develop a waste reduction and recycling plan under the *Waste Reduction and Recycling Act 2011* and seek public consultation on the draft Plan before adoption. A Waste Reduction and Recycling Plan must include:

- Waste reduction and recycling targets
- Actions to be taken to improve waste reduction and recycling
- Details of current and proposed infrastructure
- Management and monitoring of performance
- Information about achieving continuous improvement in waste management

This consultation on the *draft* Plan has occurred and the Plan within this report represents the finalisation of the consultation and resultant changes.

Risk Management

There is a significant risk that Council will pay increasing levy costs over the coming years if household waste to landfill is not significantly reduced. The opportunity is to invest in future actions to reduce organics and recyclables in the red bin.

There is a risk of poor community perception from the community that the Plan does not include a commitment to providing every item requested in the draft Plan consultation feedback. However, this will be managed and reduced by undertaking additional education and engagement with the community. The opportunity is to provide this engaged audience with information from Council's perspective through FAQs on the Council Your Say website to provide greater transparency to the community.

There is a risk that without action to address yellow bin contamination, this will increase (due to a number of factors) and could result in higher recycling costs. The opportunity is to deliver 'lift the right lid' future actions that have been demonstrated to reduce yellow bin contamination and improve household bin behaviours across the board.

Financial

Development of the Plan, including community consultation, has been funded and delivered through existing resources and budget.

The year one (2022/23) actions have been carefully defined to avoid commitments beyond what is deliverable within existing resourcing and budget levels.

However, the significant changes to the Queensland landfill waste levy and Council annual payments mean that an increase in waste disposal costs is inevitable over the coming years unless Council reduces the amount of waste disposed of to landfill each year. Therefore, future actions described in the Plan will require additional budget and resourcing but present an effective way forward for Council to reduce future levy liability and ensure that Council is meeting state, regional and community expectations for waste reduction and recycling.

People

The Plan identifies Council's strategic waste reduction and resource recovery priorities to provide clear direction for Council employees in planning and allocation of resources to serve the Redlands Coast community. The Plan will help Council officers to understand how the waste and resource recovery services and projects they deliver contribute to the long-term vision, goals and outcomes for our city.

Environmental

Continued disposal of organic waste to landfills will result in continued methane generation contributing to climate change. Reducing household food waste to landfill is identified as a priority for the Queensland local government waste sector.

Social

The Plan will allow Council to redefine its strategic priorities and commitments to the community in a transparent manner. The community consultation process provided the community an opportunity to consider and provide feedback and the Plan will be launched and provided to respondents following adoption.

Human Rights

There are no human rights implications associated with this report.

Alignment with Council's Policy and Plans

The Plan aligns with the Natural Environment section of *Our Future Redlands – A Corporate Plan to 2026 and Beyond* and achieves significant progress on the catalyst project for waste management to "Participate in the development of a regional waste plan, and develop a local Waste Recycling and Reduction Plan to move towards a zero waste future." Pages 10 and 11 of the Plan outline additional Council policies and plans that align with the Plan.

CONSULTATION

| Consulted | Consultation Date | Comments/Actions |
|---|------------------------|---|
| Mayor and Councillors | 28 February 2022 | Reflected on strategic priorities; contributed to Plan. |
| Executive Leadership Team | 31 January 2022 | Reflected on strategic priorities; contributed to Plan content. |
| Redlands Coast Community | 27 April – 28 May 2021 | Statutory consultation feedback collated in consultation report and feedback informed update of Plan. |
| Senior Leadership Team | Various | Provided advice on strategic priorities; contributed to Plan content. |
| Communication, Engagement and Tourism Group | Various | Provided advice on community engagement planning and content. |
| Internal Stakeholders | Various | Provided technical advice; contributed to Plan content. |

OPTIONS**Option One**

That Council resolves as follows:

1. To adopt the attached Waste Reduction and Recycling Plan 2021-2030 (Attachment 1) to commence on 16 March 2022, noting it will be used to develop and guide future actions for Council waste operations.
2. To note the Plan will be graphically designed prior to its commencement on 16 March 2022.
3. To authorise the Chief Executive Officer to make any necessary administrative and formatting amendments prior to final publication.

Option Two

That Council resolves as follows:

1. To adopt the attached Waste Reduction and Recycling Plan 2021-2030 (Attachment 1) with specified amendments to commence after 16 March 2022, noting it will be used to develop and guide future actions for Council waste operations.
2. To note the Plan will be graphically designed prior to its commencement.
3. To authorise the Chief Executive Officer to make any necessary administrative and formatting amendments prior to final publication.

Option Three

That Council resolves as follows:

1. To not approve the attached Waste Reduction and Recycling Plan 2021-2030 (Attachment 1) for adoption.
2. To notify Officers of the specific items that were not able to be adopted by Council.

OFFICER'S RECOMMENDATION

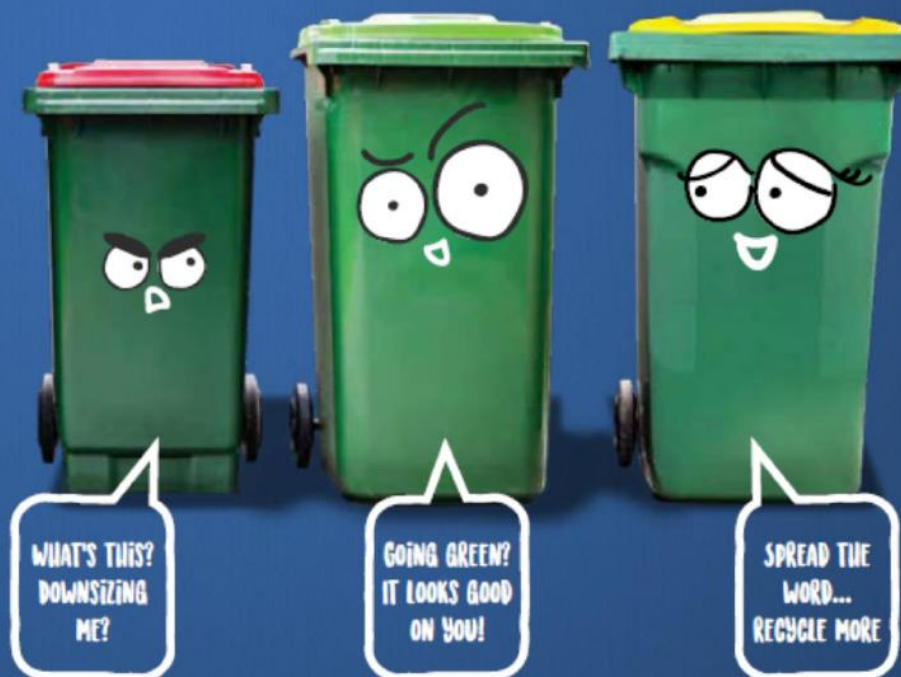
That Council resolves as follows:

- 1. To adopt the attached Waste Reduction and Recycling Plan 2021-2030 (Attachment 1) to commence on 16 March 2022, noting it will be used to develop and guide future actions for Council waste operations.**
- 2. To note the Plan will be graphically designed prior to its commencement on 16 March 2022.**
- 3. To authorise the Chief Executive Officer to make any necessary administrative and formatting amendments prior to final publication.**



Redlands Coast Waste Reduction and Recycling Plan 2021-2030

TOWARDS A ZERO WASTE FUTURE





Contents

| | |
|--|----|
| Mayor's Message | 4 |
| Executive Summary | 6 |
| Introduction | 8 |
| Strategic Context..... | 10 |
| What's the Issue with Waste? | 12 |
| What We Do..... | 14 |
| Key Statistics | 16 |
| What's going in the bins? | 17 |
| Where to From Here? | 18 |
| Tracking Progress | 20 |
| Themes for Action..... | 21 |
| Theme 1 Lift the Right Lid | 22 |
| Lift the Right Lid Considerations | 24 |
| Lift the Right Lid Initiatives | 26 |
| Theme 2 Transforming Organics..... | 28 |
| FOGO Considerations..... | 30 |
| Organics Roadmap..... | 32 |
| Implementation Plan | 34 |
| Lift the Right Lid Actions | 36 |
| Transforming Organics Actions..... | 37 |
| Creating a Zero Waste Redlands Coast Actions | 38 |
| Providing Effective Services Actions | 39 |
| Broad Strategic Context..... | 40 |

Mayor's Message

Council's new Waste Reduction and Recycling Plan - towards a zero waste future

Redland City Council's Waste Reduction and Recycling Plan 2021-2030 is the first stage of a broader 30-year strategy to create a zero waste society by 2050. It aligns with the progressive goals set by the Queensland Government and our performance targets for waste management and resource recovery. To support these goals, active engagement with our regional neighbours and joint projects will help us deliver value-for-money waste infrastructure and resource recovery services for our community.

It's in our nature to reduce waste and recycle right, so let's work together to rethink our waste disposal choices and - on personal and organisational levels – to help create a circular economy where resources are diverted from landfill and redistributed for as long as possible.

Redland City Council's Waste Reduction and Recycling Plan 2021-2030 is the first stage of a broader 30-year strategy to create a zero waste society by 2050. It aligns with the progressive goals set by the Queensland Government and our performance targets for waste management and resource recovery. To support these goals, active engagement with our regional neighbours and joint projects will help us deliver value-for-money waste infrastructure and resource recovery services for our community.

It's in our nature to reduce waste and recycle right, so let's work together to rethink our waste disposal choices and help create a circular economy where resources are diverted from landfill and redistributed for as long as possible.



Figure 1: Council's green waste collection truck

Executive Summary

Redland City Council's Waste Reduction and Recycling Plan 2021-2030 (the Plan) outlines a clear path forward on how the Redlands Coast community will move towards becoming a zero-waste society by 2050. Sustainable waste management principles underpin the Plan to protect and enhance our naturally wonderful environment and the lifestyle we enjoy.

The Queensland waste and resource recovery sector is rapidly evolving, presenting great opportunities, and some challenges for local governments. The Plan aligns with the Council of Mayors south-east Queensland (CoMSEQ) Waste Management Plan (2021) developed collaboratively by SEQ Councils to move our region towards the State targets for household waste.

The Plan provides the framework and principles for the long term with the flexibility to respond to changes. It includes a strategy to 2030 and actions for annual implementation. This will enable Council to respond to the changing waste regulation at all levels of government while also meeting Council's objectives of recovering more resources from waste and futureproofing against projected additional costs from landfill disposal.

The Plan includes Council's commitment to the 2030 waste reduction and recycling targets set by the Queensland Government to:

- reduce the amount of waste generated by residents by 15%
- increase the amount of materials recycled to 60%

The Plan outlines how Council will support the community and work collaboratively to:

- reduce recyclables, green waste and food waste lost through the red bin;
- halve recycling contamination in the yellow bin;
- increase the number of households with a green waste bin; and
- transition to a food waste collection service at the right time.

Currently, each Redlands Coast resident generates just over 700 kilograms of waste annually. We generate more per capita than the south-east Queensland average of 540 kilograms. We need to change our habits from a 'bury it and forget it' approach to one where residents avoid and reduce waste as a first priority and reuse wherever possible.

Redlands Coast's overall recycling rate is high, however, we know that households are only correctly recycling 27% of the waste, recycling and organic materials that they are placing in their kerbside bins. This means that there is a significant amount of recyclables, green waste and food being placed in the red bin and lost to landfill.

We need residents to recognise that materials are valuable by placing recyclables in the yellow bin, green waste in a green bin and being encouraged to compost food waste at home. These actions will allow residents to contribute to creating a circular economy for resources.

In response to feedback from our community on the Draft Plan and the growing focus on regional collaboration and household food waste, the Plan focuses on four themes for action:

Theme 1: Lift the Right Lid

The kerbside bins are our priority to ensure that residents 'lift the right lid' to recycle everything that can be recycled. This will ensure that only 'true residual' waste is sent to landfill. Council will support residents to lift the right lid by providing clear, easy-to-understand information about how to recycle well at home.

Theme 2: Transforming Organics

The Draft Queensland Organics Strategy and Council of Mayors SEQ Waste Plan revealed that addressing the loss of food waste and green waste through kerbside red bins is of critical importance for reducing waste to landfill. Through the CoM SEQ Waste Plan, Council has made a commitment to establishing a transition to a food waste collection service by 2030, if affordable. This would provide residents an easy way to recycle their food waste. The implications of this service change are significant and an organics roadmap is included in this plan to outline the path

forward. Growing the existing green bin take-up provides an important foundation for food waste collection service and providing education will be a key element to ensure that residents lift the right lid and use their bins correctly as Council leads the community in this transition.

Theme 3: Creating a Zero Waste Redlands

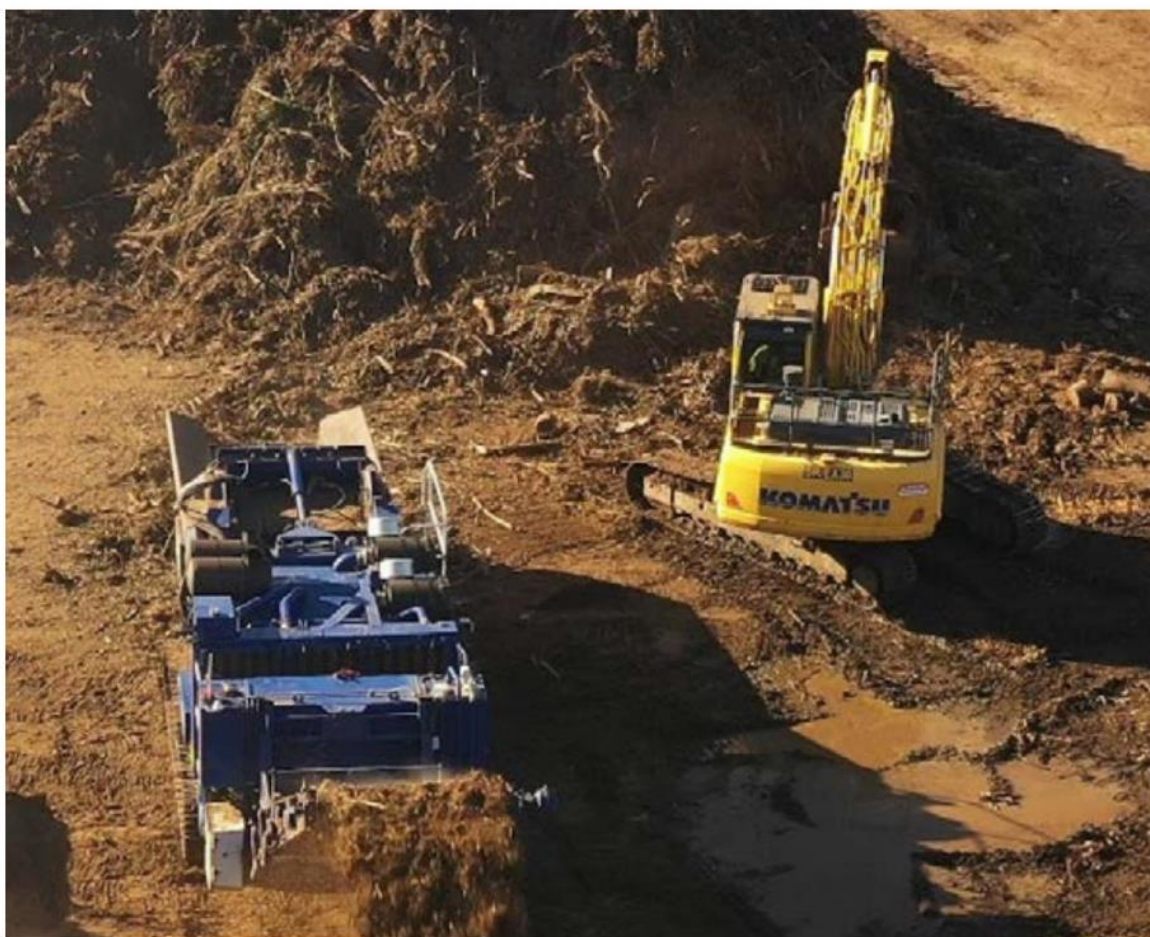
A zero waste approach prioritises avoidance, reduction and reuse over recycling and disposal. Council will support the community to avoid, reduce and reuse and will work to further embed a sustainable approach to resources into Council's own activities.

Theme 4: Providing Effective Services

Council will ensure that the waste and recycling services continue to be cost effective, fit-for purpose and provide a great user experience by planning for the future and engaging in regional collaborations.

Themes 1 & 2 are discussed in depth on pages 22 to 33. An implementation plan is included with actions defined for each theme. Action for implementation in year one are defined, as well as future actions which will be programmed at annual reviews in line with external opportunities.

Taking action as outlined in the Plan will help to future-proof Redlands Coast against waste disposal cost increases, mitigate any future impact from the Queensland Government's waste levy and save valuable resources.



Introduction

Rubbish, waste, garbage. Whatever you call it, it's become a big problem. Almost everything we do creates waste and as a society we are currently producing more waste than ever before.

Put simply, waste is what people throw away because they no longer need or want it. Landfill is the oldest and most common form of waste management and while today's landfill sites are highly engineered, changes are needed if we are to make better use of our resources.

Communities around Australia have expressed growing concern about waste and how it's managed. Governments have responded by introducing significant reforms to policies and developing targeted strategies and plans. The final pages of the Waste Reduction and Recycling Plan (the Plan) summarise the key global, national and state drivers for action on waste.

In 2019, the Queensland Government released the Waste Management and Resource Recovery Strategy which set a framework for moving towards a zero waste society in Queensland. In recognition of the challenges and opportunities presented by organic waste a Draft Organics Strategy was published for consultation in 2021 by the State.

At the end of 2021 the South East Queensland Council of Mayors published the SEQ Waste Plan which set a target 2030 state for waste management in the region. Additionally December 2021 saw the announcement of significant changes to the landfill levy and council annual payments that will see the cost to landfill household waste steadily increase over the next 10 years.

The Plan is a requirement of the Queensland Waste Reduction and Recycling Act (2011) to demonstrate actions to be taken to improve waste reduction and recycling of waste generated by households, Council and the community.

The Plan aligns with state and regional direction with a vision to 2050, targets set to 2030 and actions for annual implementation. The implementation plan details actions Council will take in collaboration with the Redlands Coast community, governments and educators to increase resource recovery and minimise waste to landfill.

This approach provides flexibility for Council to adapt and respond to the evolving regulatory requirements, strategic drivers, costs of disposal and recycling and expectations from our community.

Waste management is an essential service for our community and one of our biggest social, environmental and economic challenges.



Strategic Context

Redland Corporate Plan 2026 and beyond

Our Future Redlands - A Corporate Plan to 2026 and Beyond commenced on 1 July 2021 introducing a new city vision - Naturally wonderful lifestyle. Connected communities. Embracing opportunities. It is key strategic document that lays the foundations for delivering services, projects and facilities to the community and identifies seven goals for 2041.

Queensland Waste Disposal Levy

The introduction of the Queensland waste disposal levy in 2019 has increased the cost of landfilling waste. Redlands Coast residents have been protected from the impact of the levy through the household levy annual payment to Councils. From 2023, this payment will reduce incrementally each year from covering 105% of household disposal levy costs, down to 20% by 2030. In addition, the landfill rate per tonne will increase each year by \$10. Council must plan actions to reduce household waste to landfill or pay significantly increasing disposal levy costs.

Council of Mayors SEQ Waste Management Plan 2021

The Plan sets out a directional path forward for action and collaboration across south-east Queensland Councils. The Plan addresses the key challenges and opportunities for our region with a focus on three core waste streams managed by Councils:

- Commingled recycling
- Organics (food & green waste)
- Residual

Redland Annual Operational Plan

The Annual Operational Plan translates the commitments set out in Council's Corporate Plan into annual measurable activities and actions that Council will undertake.

Redland City Waste Annual Performance Plan

The City Waste Annual Performance Plan sets out how Council's waste service activities will be resourced and carried out. It is the delivery mechanism for this Waste and Recycling Plan to ensure that Council provides an efficient and environmentally sustainable waste and resource recovery service that protects and supports our naturally wonderful lifestyle

Redland Annual Solid Waste Asset and Service Management Plan

The Waste Asset & Service Management Plan is aligned with Council's Strategic Asset Management Plan to demonstrate responsive management of solid waste assets and compliance with regulatory requirements.

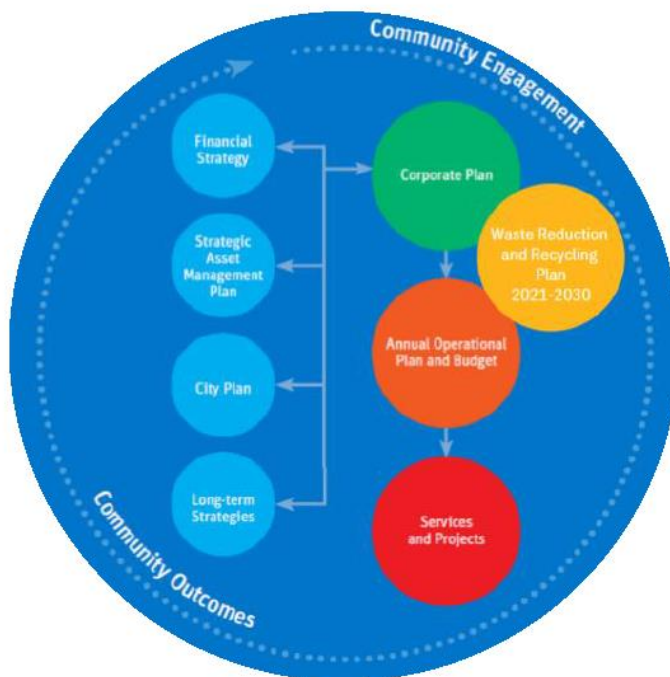
While Council waste services are often linked to protecting our natural environment, this Waste Reduction and Recycling Plan will create benefits across all seven of Council's goals through a circular economy approach to reducing waste and managing resources.



Strategic Planning

Waste and recycling are identified as key contributing services to the success of Council's Corporate Plan. The Waste Reduction and Recycling Plan 2021-2030 is identified as a supporting strategy within the Corporate Plan.

The Waste Reduction and Recycling Plan aligns with Council's Corporate Plan Natural Environment Goal 4 and the circular economy approach to reducing waste and managing resources presented in the Plan can deliver benefits across all of Council's six other goals.



Corporate Plan – Goal 4 Natural Environment

Our environment enhances our identity, lifestyle, wellbeing, economy and cultural values. Opportunities to be immersed in our naturally wonderful environment are harnessed, and drive our commitment to protect and enhance our natural assets.

Objective 4.2

Actively encourage reduction, reuse and recycling of waste to support sustainable waste management principles.

2021-2026 Initiatives

Initiative 6. Support the transition to a circular economy for waste and participate in regional collaboration and other partnership opportunities to improve resource efficiency.

Initiative 9. Work with the community to provide education opportunities to support, enhance and encourage environmental understanding and grow environmental connections.



What's the Issue with Waste?

If not managed well, waste created in our everyday lives can have significant impacts on the environment, affecting the air we breathe, the water we drink and the natural places we love to enjoy. Good management of waste is our business, and it requires significant resources to collect, transport, process, treat and dispose of these materials in an environmentally responsible manner.

Waste in landfills represents a lost resource. It's a waste of the raw materials, energy and water that went into creating the once useful items that are now 'waste'.

Beyond this, organic materials (like food waste and green waste) present an additional issue in landfill as they release methane as they break down - a potent greenhouse gas. A large proportion of household waste placed in kerbside red bins is organic material and presents a large opportunity to reduce the impacts of landfill waste and create nutrient rich soil products.

Waste and Resource Management Hierarchy

Waste avoidance and reduction are the most preferable management options as per the waste and resource management hierarchy below.

Council provides an extensive recycling service that is underutilised by residents. Therefore, the Plan focuses on improving recycling so that only true residual waste that cannot be recycled is sent to landfill.





Waste Reduction and Recycling Plan 2021-2030 | 13

What We Do

Redlands Coast is located approximately 26 kilometres from the Brisbane CBD and covers 537 square kilometres, stretching across mainland and island communities. In 2018, the estimated population of Redlands Coast was 156,863, consisting of 61,204 households made up of couples with and without children, one parent families, single occupiers and group households.

The region's population is expected to grow by 23% to over 192,000 by 2041.

Kerbside Services

All Redlands Coast residents have access to kerbside wheelie bin collection services. This includes a weekly waste and fortnightly recycling service. Mainland residents can also receive an optional fortnightly green waste collection service for garden organics.

The kerbside bin system includes 140-litre wheelie bins for waste and recycling, 240-litre wheelie bins for waste, recycling and garden organics (green waste) and 340-litre wheelie bins for recycling. Council also rewards residents who actively reduce their general waste to landfill by providing the 140-litre waste bin at a lower annual cost than the standard 240-litre bin.

To support households to recycle well and maintain a cost effective recycling service, Council offers a larger 340-litre recycling bin and additional recycling bins. Providing larger bins enables households and businesses to recycle more of their recyclable material without increasing recycling collection costs.

The green waste bin for mainland residents provides for removal of tree prunings, grass clippings, leaves and other garden organic material. Residents and businesses can opt to have multiple green waste bins at their properties.

A bulky item collection service is available, by appointment, to an eligible section of the community across the city who are unable to visit a Recycling and Waste Centre.

Council offers a flexible 'bin menu'. Residents can to save money and reduce their waste to landfill by getting a green waste bin with our 'sustainable bin set'.

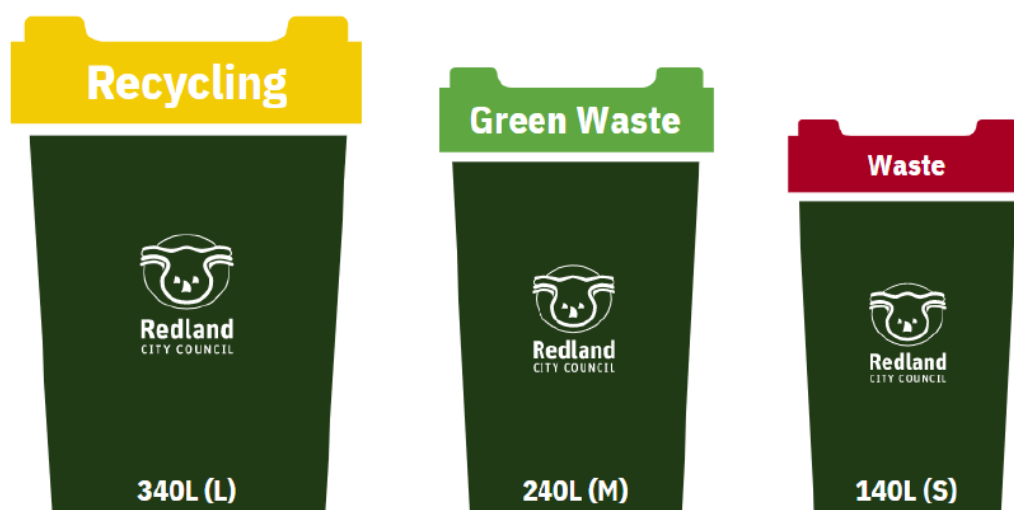


Figure 7 – Sustainable bin set available to Redlands Coast mainland residents.

Recycling and Waste Centres

The Recycling and Waste Centres (RaWCs) on the mainland and at North Stradbroke, Russell and Macleay Islands operate seven days a week, 363 days a year. Opening hours for the smaller island RaWCs are set according to community needs.

The RecycleWorld resale shop operates out of the Redland Bay RaWC and is open at reduced hours each week.

All RaWCs receive residential waste and limited volumes of commercial waste are accepted at just two mainland and four island sites.

Council does not operate any landfills. Landfill waste collected by Council through the kerbside bin service is transported to a south-east Queensland disposal facility.

Items accepted*:

Current at March 2022

-  Green waste
-  Timber
-  Bricks and concrete
-  Soil and clean fill
-  Scrap metal
-  Clothing
-  Donations (for RecycleWorld)
-  E-waste
-  Vehicle batteries
-  Cardboard
-  Tyres
-  Polystyrene
-  Oil
-  Paint
-  Household chemicals

*Redlands Coast residents
have access to eight
Recycling and Waste Centres
located at Birkdale and
Redland Bay and on each of
the six islands.*

*Not all items are accepted at all sites. Check the Council website for what you can drop off at each RaWC.

Indigiscapes Recycling Station

IndigiScapes offers a unique way to recycle items that can't be recycled through the kerbside yellow bin, at Council's RaWCs or through other community drop-off points.

Items accepted*:

Current at March 2022








15

Key Statistics

In the 2020/21 financial year, Council handled 114,048 tonnes of household waste and recyclables.

706kg of domestic waste and recyclables was generated per capita.

| | |
|---|--------------------------------------|
| 51.7% was diverted from landfill (recyclables & green waste) | 27.6 million kg of recyclables |
| | 31.6 million kg of green waste |
| 48.3% was sent to landfill | 55.1 million kg of waste to landfill |

| | |
|---|---|
|  | 43,606 tonnes of kerbside waste sent to landfill |
|  | 9,704 tonnes of kerbside mixed recyclables recycled through yellow bins |
|  | 31,355 tonnes of green waste recycled through green bins and RaWCs |
|  | 11,485 tonnes of waste sent to landfill through RaWCs |
|  | 17,898 tonnes of bespoke recyclables recycled through RaWCs |

| |
|--|
| 54% collected through kerbside bins |
| 46% dropped off at Recycling and Waste Centres |

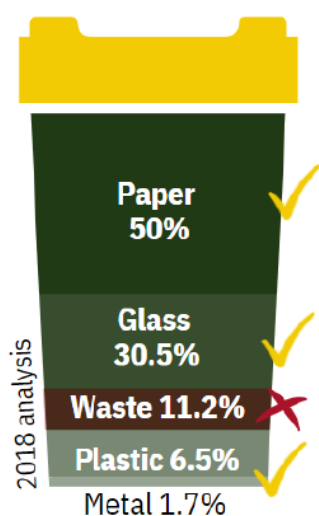
What's going in the bins?

Bin composition audits are undertaken to understand what residents have been placing in their kerbside bins.

Kerbside Recycling

More than one tenth of what's in our kerbside recycling bins doesn't belong there. These items lead to recycling contamination which impacts the quality and value of recycled materials that can be produced.

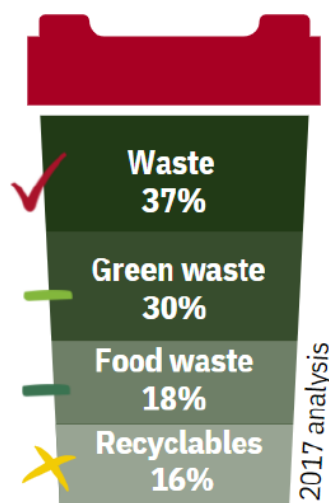
Councils across south-east Queensland are working hard to deliver clear and consistent education to reduce recycling confusion and costs to residents.



Kerbside Waste

Redlands Coast residents are keen recyclers yet there is still around 63 per cent of material in our red-lid bins that could be kept out of landfill.

A key priority for Redlands Coast and Councils across south-east Queensland is reducing the amount of organics and recyclables placed in the red bin.



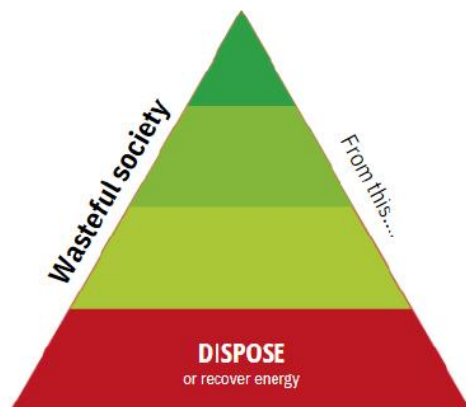
The Plan focusses on actions to improve the way recyclables and organics are managed by residents to ensure that only 'true residuals' end up in the red bin.

Where to From Here?

Our Vision

Redlands Coast will become a zero waste community by 2050 where resources are valued and waste is avoided.

Achieving a zero waste society is in its infancy and will continue to evolve over the decades ahead. Agility within our approach will be important and this 10 year Plan lays the strategic foundation for a zero waste future.



Council's role

Council provides an efficient and environmentally sustainable waste and recycling service that protects and supports our naturally wonderful lifestyle.

It is our responsibility to manage the waste generated by our households in an environmentally responsible way. We do this through our kerbside bin services, Recycling and Waste Centres and RecycleWorld.

We seek to minimise waste generation and loss of resources in alignment with the waste hierarchy.

It is essential that we ensure that our waste and recycling services are cost effective to protect ratepayers from unnecessary costs while we move towards a zero-waste future.

Our Targets

Reduced Generation

Waste avoidance is the highest priority on the waste hierarchy. Our waste reduction target seeks to reduce the amount of waste that each Redlands Coast resident generates. It will be calculated as total kilograms per capita in line with State Government reporting methods.

Redlands Coast residents have been generating more waste per capita than the state average. This is largely due to our climate and the nature and size of residential properties, resulting in high volumes of household green waste.

Waste and recycling generation is an indicator of economic activity and consumer spending and there are other influences external to Council and the community. However, there is still improvement that can be made.

Table 1 – Waste reduction targets for households

| Annual waste generation (per person) | Baseline (2017/18) | 2025 | 2030 |
|--------------------------------------|--------------------|---------------|---------------|
| State targets | 540kg | 10% reduction | 15% reduction |
| Redlands Coast targets | 682kg | 614kg | 580kg |

Increased Recycling Rates

The annual recycling rate is calculated as the amount of material recycled as a percentage of all material collected and received. Council's household recycling rate target includes materials collected through kerbside bins and received at RaWCs.

Our household recycling rate through RaWCs is high. 76% of material received at RaWCs is recycled. Our household kerbside recycling rate is low. Only 27% of the material put kerbside bins is correctly placed in the yellow and green recycling bins.

Residents can increase kerbside recycling performance from 27% (and reduce waste to landfill) simply by placing recyclables in the yellow bin and all green waste correctly in a green bin.

Table 2 – Waste reduction targets for households

| | |
|-----------------------|------|
| Annual recycling rate | 2030 |
| State target | 60% |
| Redlands Coast target | 60% |

Why 2030?

The Queensland waste and resource recovery policy space is rapidly evolving with new strategic drivers coming into effect regularly. The Plan has been developed taking into thorough consideration all known relevant drivers, policy and strategic direction. Targets have been set to 2030 to align with regional, State and Federal priorities. Actions will be detailed in an annual implementation plan.

With a number of key industry announcements on the horizon (that will affect local governments directly) and ever growing expectations from our community, the Plan is designed to be flexible to allow Council to refine the delivery approach as more information becomes available.

Council may review the Plan where updates are needed to address external changes and change management will be needed.

This approach enables Council to adapt to the dynamic landscape of waste and resource recovery in south-east Queensland and deliver effective waste services to Redlands Coast.

Tracking Progress

Table 3 – Success measures

| | Success measure | Redlands Coast baseline | | 2030 target | Services measured | Measurement method |
|---|--|----------------------------|------|-------------------|-------------------|-----------------------|
| 1 | Waste generation (average annual kg per person) | 682 kg 2017/18 (1) | Down | 580 kg | Bins RaWCs | Operational reporting |
| 2 | Kerbside recycling rate (annual average percentage recycled of total material collected) | 27% 2020/21 | Up | 50% | Bins | Operational reporting |
| 3 | RaWC recycling rate (annual average percentage recycled of total material received) | 76% 2020/21 | Up | maintain | RaWCs | Operational reporting |
| 4 | Mixed recyclables lost (% of mixed recyclables in the red-lid bin) | 16% 2017(2) | Down | reduce | Red bin | Bin audit (3) |
| 5 | Recycling contamination (% of non-recyclables in the yellow-lid bin) | 12% 2020/21 | Down | halve | Yellow bin | Operational reporting |
| 6 | Green waste lost (% of green waste in the red-lid bin) | 30% 2017 (2) | Down | reduce | Red bin | Bin audit (3) |
| 7 | Food waste lost (% of food waste in the red-lid bin) | 18% 2017 (2) | Down | reduce | Red bin | Bin audit (3) |
| 8 | Implementation of a food waste collection service (4) | 20,000 green bins Nov 2021 | | Citywide FOGO (4) | Green bin | Operational reporting |

Notes:

- (1) Aligns with State target baseline year.
- (2) Most recent bin audits.
- (3) Subject to budget funding.
- (4) Subject to cost and approval.

Success measures will be reviewed in three years.



Themes for Action

Theme 1 Lift the Right Lid

Objective

To ensure that residents use their yellow, green and red kerbside bins correctly. This means only recyclables are placed in the yellow bin, only green waste is placed in the green bin and only residual materials that couldn't be recycled (or reused) are placed in the red bin.

Success measures

Recyclables lost to red bin [SM4]

Recycling contamination of yellow bin [SM5]

Theme 2 Transforming Organics

Objective

To reduce the loss of organic materials to landfill. Priorities include increasing recovery of food and green waste and reducing the generation of food waste to reduce the amount of organic materials placed in household kerbside red bins.

Success measures

Green waste lost to red bin [SM6]

Food waste lost to red bin [SM7]

Implementation of food waste collection service at some point [SM8]

Theme 3 Creating a Zero Waste society

Objective

To reduce per capita waste generation. Council will continue to encourage waste avoidance, reduction and reuse and support the development of markets for recycled materials and products. All stakeholders including households, community groups, business partners and government agencies have a role to play.

Success measures

Reduced waste generation [SM1]

Theme 4 Providing Effective Services

Objective

To ensure that the waste and recycling services provided by Council continue to be cost effective, fit-for-purpose and provide a great user experience. Council will develop our services and infrastructure appropriately by planning for the future, engaging in collaborations and responding to the rapidly evolving waste and recycling industry and community needs.

Success measures

Kerbside recycling rate [SM2]

Recycling and Waste Centres recycling rate [SM2]

SM = Success measure

Lift the Right Lid (Theme 1) and Transforming Organics (Theme 2) will be the key focus areas for Council over the coming years. Reducing organics to landfill is identified as a priority at Federal, State and regional levels and implementing a Council food waste collection services is a key recommendation of the CoM SEQ Waste Plan. It is important that residents use the recycling services available to them more effectively so that only 'true residual waste' (that couldn't be recycled) is placed in the red lid bin.

Themes 1 & 2 are a priority of Council and the following pages provide a deeper dive into each of these.

Themes 3 & 4 are relevant for long term planning.

Theme 1 Lift the Right Lid

What's the problem with lifting the red lid for recyclables and organic waste?

Redlands Coast residents are keen recyclers, yet over half of what is in the red bin could be kept out of landfill.

With this much recyclable material going to landfill each year, we are unnecessarily putting pressure on landfill capacity, generating methane (a powerful greenhouse gas), increasing Council's disposal costs and losing valuable resources that could have been given another life.

These materials could be recycled through Council's yellow and green bin, at RaWCs or composted at home. Food and garden organic materials can be converted into rich, organic soil material while mixed recyclables can be transformed into new raw materials and products.

What's the problem with lifting the yellow lid for non-recyclables?

More than one tenth of what's in our recycling yellow bin does not belong there. These items are referred to as recycling 'contamination'. Common examples are soft plastic wrapping, plastic bags, nappies, ceramic cups, food scraps and garden organics.

Materials in the yellow bins are transported to a local Materials Recovery Facility where they are sorted both manually and by machines into different material types. The materials are cleaned, processed and made into new products by industry and manufacturers both locally and overseas.

If there is too much contamination, the mechanical sorting processes may not be able to separate the recyclable materials from the waste materials, resulting in valuable recycling materials going to waste.

Lifting the yellow lid for mixed recyclables correctly can improve the quality of the recycled materials and increase value of the new products.

How can you help reduce our rubbish problems with a green bin?

Almost one third of the material placed in the red bin is green waste from our gardens and backyards. This is a lot of valuable material being lost to landfill. Organic material in landfill presents a set of unique issues that are discussed on pages 28 and 29 of the Plan.

Council's green bin service enables residents on the mainland to keep their garden waste out of the red bin. By downsizing their red bin at the same time as getting a green bin, residents can reduce their annual waste fees by nearly \$10 per year based on the 2021/22 fees for mainland residents. Council's register of fees is reviewed annually.

Green waste collected in the green bins is transported to a south-east Queensland organics composting facility where it is put through a shredder and turned into a fine mulch. In some cases, the green waste goes through a three month pasteurisation process where the material is kept at 55 degrees to naturally break down and kill weeds, seeds and other nasties. The mulch, compost and other nutrient-rich products produced are then available to buy at landscaping suppliers, for use in homes, developments and parks and gardens across the community.

To ensure that waste, organics and recyclables can be managed well, it's important that Redlands Coast residents lift the right lid, of the right bin, for the right material.



23

Lift the Right Lid Considerations

Action for Households

A shift in community behaviours is required to meet our waste challenge. Council can provide effective recycling services, however, without Redlands Coast residents taking the actions needed, our waste problem will continue to grow.

Households have important roles to play, including:

- avoid, reduce and reuse wherever possible
- lift the yellow lid for recyclables
- lift the green lid for green waste (get a green bin where required)
- compost food waste (at home or locally)
- place only residuals in the red bin

Lost Recyclables

Lots of valuable material is being lost to landfill in our red bins. Council needs Redlands Coast residents to stop placing their recyclables, green waste and food waste in the red bin. Only what can't be recycled ('residuals') should be placed in the red bin. Reducing their red bin contents is the most important action that Redlands Coast residents can take to reduce the impact of their waste.

Yellow Bin Contamination

Non-recyclables placed in the recycling bin impact Council's ability to recycle recyclables.

Redlands Coast recycling contamination has been increasing over the past 5 years from 7% to 12%. This increase could be due to several factors:

- residents placing more non-recyclable items in the yellow bin,
- lighter recyclable packaging design, and
- recyclable 10c eligible containers returned through Containers for Change.
- The solution remains the same: behaviour change to get residents consistently lifting the right lid.

Green Bin Contamination

There is evidence that some residents have been placing waste other than green waste in their voluntary green bin. Similar to the yellow bin, this contaminating material impacts Council's ability to recycle these organic materials to produce quality mulch and compost products.

Supporting Residents to Lift The Right Lid

Since the introduction of the yellow and green bins, Council has been providing education to the community on how to recycle well. In the consultation feedback, Redlands Coast residents asked for more guidance on what can be placed in each bin and what happens to their recyclables.

Recycling Is Confusing

How materials are recycled and which bin they go in has changed over time and will continue to evolve as we seek to improve recycling systems. Additionally, recycling systems vary from place to place. As a result, knowing what and how to recycle can be confusing. Harmonising bin systems and messaging for recycling and waste across Queensland will reduce confusion and support Redlands Coast residents to lift the right lid.

Consistent messaging is an industry priority across Australia. The Australian Packaging Covenant Organisation, Queensland State Government, Queensland Container Exchange and SEQ Council of Mayors have each indicated an intent to develop clear messaging and resources for Councils and consumers.

Community Partnerships

Council isn't the only organisation interested in seeing waste kept out of landfill. By partnering with local organisations Council can better inspire the shifts needed in Redlands Coast households. For example, Council works with Tangalooma Eco Marines to deliver environment and waste education in schools.

RecycleMate

The new RecycleMate® app is a powerful National recycling education tool delivered by Adaptation Environmental Support. It is an initiative of the Australian Council of Recycling with funding support from the Australian Government's Environment Restoration Fund program. Council has encouraged residents to utilise RecycleMate for detailed relevant recycling guidance. The app utilises machine learning so the accuracy and information quality will improve with use over time.

Australasian Recycling Label (ARL)

The ARL is a helpful tool that supports consumers identify which bin to place their packaging item in. This can be used by Redlands Coast residents to answer their 'which bin?' questions.

Compostable Items

Compostable materials - like PLA plastic cups, wooden cutlery, paper straws, compostable plastic bags, coffee cups and bamboo or palm leaf plates - cannot be placed in the yellow bin (unless it's clean and dry paper or cardboard). The increasing use of compostable packaging and confusion about recyclability means that Council may need to address this as a specific issue in future.

Direct Feedback

Redland City Council and other local government authorities have trialled targeted bin tagging where a tag is placed on any bin presented with contamination.

The tag provides useful feedback directly to the household on the specific incorrect items. This approach has been found to be very effective at reducing yellow bin contamination while also reducing recyclables lost to landfill in the red bin. Whilst this is currently underway on an adhoc basis, a dedicated program is resource intensive but can significantly improve behaviours across the board and deliver clear, useful education direct to householders.

Contamination at the household bin level can be identified by standard collection truck cameras or through visual inspection by an auditor. For a bin with obvious contamination, the collection truck driver can leave the bin, leaving a bin tag advising the reason it was not collected and flagging it in (digitally) as contaminated. The household can contact Council once the issue has been corrected or to seek clarity and request for the bin to be collected.

Good Bin Use Policy

Residents are expected to use their bins correctly however some residents have been continuously and consistently using their green and yellow bins for general (landfill) waste. A Good Bin Use Policy would enable Council to manage contamination better and assist recycling efforts.

Waste Composition Auditing

Waste composition auditing (commonly known as bin auditing) is the process where a sample of waste is analysed. This assessment tells Council what proportion of materials in the bin doesn't belong there. Bin auditing is an intensive process and each colour bin requires its own audit.

Community Recycling Services

There are many free recycling services run by other organisations. Examples include RedCycle's soft-plastics recycling, Containers for Change, Karragara community composting, Ocean Crusader's Caps Crusade and many more. Residents can use these to reduce their waste to landfill.

Support The Recycling Industry

Ensuring that there are uses for recycled materials is an important part of the recycling system. Council will support the recycling industry by aiming to use recycled materials.

Lift the Right Lid Initiatives

Possible tools that can be used to support Redland Coast residents to lift the right lid.

Continued community waste education

Continued schools waste education

Participate in regional recycling campaigns

Participate in product stewardship opportunities

Promote sustainable bin set

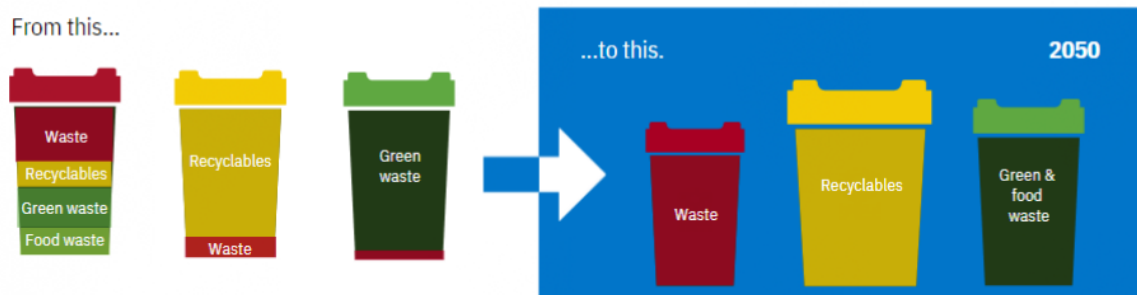
Continued feedback to residents

Focused detailed feedback program

Good bin use policy

Regular performance updates for the community

Bin audits





Theme 2 Transforming Organics

Figure X: Kerbside green waste being dropped off at a Recycling and Waste Centre ready for transport to a composting facility

"Recovery of organics from the kerbside general waste stream represents the single biggest opportunity to move the needle on landfill targets."



SEQ Waste Management Plan 2021



Almost half of what Redlands Coast residents have been putting in their red bin is organic material.

This equates to approximately, 13,000 tonnes of green waste and 7,800 tonnes of food waste lost to landfill in 2020/21.

Keeping Organics Out of Landfill Matters

Organic material in landfill presents a significant issue and lost opportunity. In landfill, organic material breaks down and generates methane and carbon dioxide, both major greenhouse gases. The release of greenhouse gases from landfill is a significant contributing factor in climate change.

By mulching and composting green and food waste, these materials can contribute to regenerative agricultural practices by not only maintaining the circulation of resources but also improving on them.

Applying nutrient-rich recycled organic material increases soil health, builds soil carbon, increases water retention and supports soil biology and ecosystem diversity. Soil health is intrinsically linked to the health of our food system which supports our wellbeing and lifestyle.

Community Consultation

Feedback from the Draft Waste Reduction and Recycling Plan consultation indicated that Redlands Coast residents want to see food and green waste kept out of landfill. The responses demonstrated a desire for a Council kerbside food waste collection service and strong growth in the green bin targets. Key barriers to people taking up the green bin were reported as due to cost and also non availability on the islands of this service. There was also strong support for composting at home and in the community. Suggestions included a compost rebate scheme, a food waste collection service, expansion of the green bin service to islands and resources like a meal planner available to help residents avoid creating food waste.



"I would be more likely to recycle if there were more compostable avenues (whether this is through kerbside bins or rewarding households who implement them in their own homes)."

Capalaba resident

Focus on Food Waste

Food waste is a unique challenge with approximately 1 in every 5 bags of groceries ending up in the bin. The National Food Waste Strategy sets a target to halve food waste by 2030. This requires actions from households to prioritise food waste avoidance and reduction and compost what can't be eaten. A kerbside food waste collection service will make composting even easier for residents.

Key Council levers for reducing food waste to landfill include:

- promoting a Love Food Hate Waste approach to target the behaviours that cause food to end up in the bin
- supporting home composting
- encouraging community composting initiatives where possible
- implementing a food waste collection service

Food Waste Collection (FOGO)

A food waste collection service (often described as a FOGO service) would allow residents to place their food waste in their green bin. A number of Queensland Councils are undertaking State Government funded FOGO trials to support the wider introduction of food waste collection services by Councils across Queensland. Case studies on learnings are expected to be published in early 2023.

The costs to implement and run a food waste collection service are significant. These will become better understood as the FOGO trials progress and markets for processing these materials develop in the region. As the cost to landfill household waste increases, collecting food waste in the green bin is likely to become increasingly cost effective. Council will need to undertake more assessment of these variables and determine when FOGO will become affordable.

Home Composting

Composting at home is a great way to manage food waste and grass clippings. Consultation feedback demonstrated that residents would like support to compost at home.

Changing the amount of food waste generated by households must be addressed in line with the waste hierarchy. It is anticipated that the State Government will provide more detailed guidance on a potential coordinated food waste reduction (Love Food Hate Waste) education campaign. Changing the amount of food waste generated by households must be addressed in line with the waste hierarchy. It is anticipated that the State Government will provide more detailed guidance on a potential coordinated food waste reduction (Love Food Hate Waste) education campaign.

"I compost all food scraps and grass clippings."

Birkdale resident

Strategic Drivers for a Food Waste Collection Service

Two key documents were published in late 2021 which set the direction for Council to take action to reduce household organics lost to landfill.



The Draft Queensland Organics Strategy identified households as the second largest generator of food waste in Queensland with 602,000 tonnes of food waste generated in 2019.

The SEQ Waste Plan identified getting household food waste out of the red bin as the "single biggest opportunity" to reduce waste to landfill. The SEQ Waste Plan emphasises the importance of getting households to separate their organic waste. It defines a FOGO 2030 target state where Councils provide a weekly FOGO collection service which includes all plant and food waste.

FOGO Considerations

Planning

Establishing a food waste collection service will require good planning and considerable resources. Council is committed to establishing appropriate food waste management systems and protecting Redlands Coast residents from unnecessary costs is important. Council will assess the business case for FOGO (and GO+) options to ensure the approach makes financial sense.

Council will review the Queensland FOGO case studies as they become available and will identify funding streams and align with any State Government funding opportunities. Council may look to undertake a Redlands Coast trial if there are benefits to be gained or performance outcomes to be better understood.



Community Engagement

Community support for a food waste collection service is important. Redlands Coast residents need to use their green bin correctly for the service to deliver its full potential benefits. Bringing the community along on the decision making journey and providing a consultation opportunity for residents to have their say about Council's proposed approach will be helpful to the overall success of the service implementation.

Low Hanging Fruit

Council will start with low cost, easily implementable actions while planning for bigger shifts in the future to reduce organics in the red bin. Initial focus areas include:

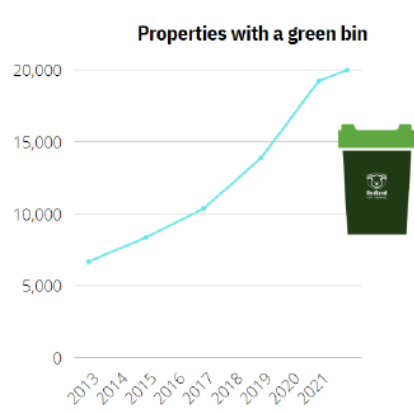
- growing green bin take up (which provides a solid foundation for a future food waste collection service)
- encouraging more composting at home
- shifting household food waste behaviours (e.g. a Love Food Hate Waste campaign).

Current Green Bin Service

Garden organics are the largest proportion of material in the red bin so getting residents to use the existing green bin service can go a long way to keeping organics out of the red bin.

Residents can still also drop off their clean segregated green waste at our RaWCs, however we understand that a kerbside green bin is more convenient for many residents. A household green bin targets the green waste being placed in the red bin.

Council's voluntary green bin service and uptake has consistently grown. Having more properties with a green bin will support the introduction of a future food waste collection service.



Technical Considerations

Options for Food Waste in the Green Bin

A full FOGO service would accept all food waste (including meat and dairy) in the green bin. This would need to be collected by Council every week and the materials would require more thorough processing.

An alternative food waste collection service is known as GO+. A 'GO+' service would allow residents to place their non-protein food waste in the green bin (this means no dairy, cheese or meat).



GO+ material requires less intensive processing (compared to FOGO) and no changes to bin collection frequency.

Processing

Council will need to ensure that any change in what goes in the green bin is supported by appropriate processing capacity and technology within our region at a reasonable cost. More intensive processing of organic materials may not be possible with our existing systems. A material change is likely to incur additional costs. Council will assess options to determine the best way forward.

Education

There is confusion in the community about compostable items such as wooden cutlery, compostable plastics and a suite of other bio-based products. These items will be increasingly generated in our region and ensuring that residents know what can go in their green bin will be imperative and should form a key part of a food waste collection service launch.

Bin Collection

A FOGO service will require weekly green bin collection and fortnightly red bin collection. A GO+ service can have no impact on bin collection frequency.



Council kerbside bin collection services are long-term contractual arrangements which, in the case of the Redland Coast, runs until 2030. New trucks will be required for a FOGO service.

Council will need to work with the existing contractor around the date of a potential food waste collection service implementation considering the existing contract inclusions and remaining life of the contract.

Multi Unit Dwellings

Multi Unit Dwellings (MUDs) operate differently to other properties. At MUDs waste from a number of households is collected in larger bins usually on a different schedule to other properties. The logistical and behavioural challenges of delivering a successful FOGO service to MUDs are unique and will require specific consideration and potentially a tailored approach.

Kitchen Caddies

Whether to provide caddies and/or compostable liners for collecting food waste in the kitchen will be an important consideration. Community feedback will be helpful to clarify whether this is a worthwhile investment to support great green bin use by residents.

Organics Roadmap

10 year roadmap to transform organic waste in the Redlands Coast.

Green bin for green waste

1. 20,000 green bins
2. Identify gaps and barriers to continued green-bin take-up
3. Campaign to grow green bin take-up
4. Communications to address green bin contamination
5. increased green bins by 2025

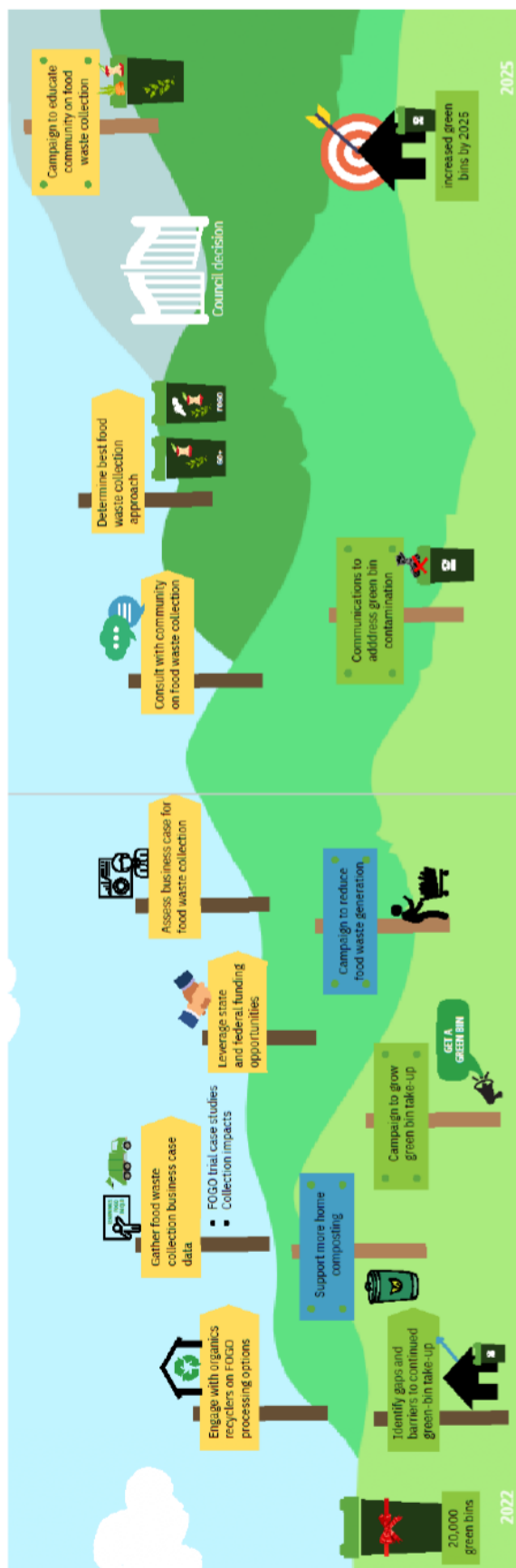
Food waste reduction

1. Support more home composting
2. Campaign to reduce food waste generation

Green bin for green & food waste (FOGO or GO+)

1. Engage with organics recyclers on FOGO processing options
2. Gather food waste collection business case data
 - a. FOGO trial case studies
 - b. Collection impacts
3. Leverage state and federal funding opportunities
4. Assess business case for food waste collection
5. Consult with community on food waste collection
6. Determine best food waste collection approach
7. Campaign to educate community on food waste collection

FOGO 2030 target state in south east Queensland
"FOGO collection weekly, general waste weekly or fortnightly, and inclusion of all plant and food waste"



Implementation Plan



The implementation plan sets out key actions under Council's four themes:

1. Lift the Right Lid
2. Transforming Organics
3. Creating a Zero Waste society
4. Providing Effective Services

A range of actions are detailed for Council and the community to work on together to meet our targets.

Implementation will be delivered through a consistent program of planning, reviewing, decision-making and delivery and will drive the desired outcomes.

Actions will be defined annually for the coming years. This will provide agility and in acknowledgement that this plan will be reviewed and updated.



| Council's Role | Description |
|----------------|---|
| Deliver | Plan, deliver and fund services and projects |
| Facilitate | Assist others to undertake activities by bringing interested parties together |
| Partner | Work with other stakeholders to achieve shared goals |
| Enable | Let the community lead by example, with Council listening and learning |
| Educate | Share learning to support broader understanding and action |
| Advocate | Promote the interest of the community to influence decision makers |
| Regulate | Regulate activities through laws and regulation |

Lift the Right Lid Actions

Year 1

1.1 Education Communication Plan

Develop a three-year Waste Education Communication Plan that focusses on a shared responsibility between Council and the community to avoid and reduce waste and increase recycling rates.

Council's Role: Deliver



1.2 Education Program

Educate and engage all sectors of the community on: a) the importance of using the right bin and issues arising when not using the right bin; b) removing recyclables from general waste bins; c) why contamination in recycling bins is an important issue; and d) the importance of getting a green waste bin. This will be achieved through engagement programs and campaigns, events and media channels, including mobile application.

Council's Role: Educate

1.3 Community Updates

Provide regular information to the community on progress against recycling targets by using kerbside bin audit and other data captured in Council's waste and recycling operations. Council will trial and review the format of community updates.

Council's Role: Educate

1.4 Household Bin Feedback

Continue active monitoring and enforcement of correct bin use to reduce contamination and maintain high-quality recycling by using collection vehicle technology and direct communications with householders.

Council's Role: Educate/Facilitate

Future

Good Bin Use Action Plan

Investigate options to address bin contamination challenges. This could include approaches to inform, give feedback and persuade the community as well as enforce good bin use. A Good Bin Use Action Plan would prioritise actions to improve use of kerbside bin service across the community.

Good Bin Use Policy

Review opportunities to utilise the Waste Management Local Law to support correct kerbside bin use and disposal at RaWCs.

Detailed Bin Feedback

Assess approaches for providing personalised feedback to residents on how to recycle and use their bins well so that they can 'lift the right lid' every time.

Bin Audit

A bin audit (waste composition survey) will be helpful to guide future decision making and investment.

Behavioural Insights

Market research of household bin behaviours will assist Council to gauge the effectiveness of waste education and behaviour change programs.

Collaboration

Support regional, State and Federal initiatives.

Transforming Organics Actions



Year 1

2.1 Organics Transformation Plan

Develop a staged Organics Transformation Plan for Redlands Coast that aligns with the Queensland Governments draft Organic Waste Action Plan.

Council's Role: Deliver

2.2 Green Bin Uptake

Continue to grow the voluntary green waste bin take up across the mainland.

Council's Role: Deliver/Educate

Future

Compost Bin Rebate

Evaluate the value of a rebate scheme to support households to purchase a compost bin, worm farm or bokashi system.

Food Waste Behaviour Change Campaign

Monitor opportunities to connect Redlands Coast residents with local food waste reduction education, tools and initiatives.

Food Waste Collection Plan

Assess the business case for the introduction of a city wide kerbside food organics garden organics (FOGO) collection service. Review:

- Redlands bin audit results
- QLD FOGO trial case studies
- Collection service options
- Processing options
- FOGO community consultation findings

Creating a Zero Waste Redlands Coast Actions



Year 1

3.1 Council Waste Reduction

Council staff are part of, and leaders in, our Redlands Coast community. Council will support our staff to reduce waste and 'lift the right lid' by providing education encouragement to avoid and reduce waste and recycle well. The increased recycling confidence and knowledge can have a ripple effect to improve recycling behaviours across the Redlands Coast.

Council's Role: Educate

3.2 Council Sustainable Procurement

Practise improved sustainable procurement by including criteria to support engaging service providers and suppliers who demonstrate increased recycling and resource recovery outcomes and progression towards the circular economy.

Council's Role: Deliver

3.3 Island Reuse

Improve the diversion of waste at island Recycling and Waste Centres by enabling the separation of resaleable materials for existing island community groups and community support networks.

Council's Role: Deliver

Future

Zero Waste Program

Evaluate the value of providing of waste avoidance and minimisation programs as they become available through partner organisations and budgets.

Providing Effective Services Actions



Year 1

4.1 Recycling and Waste Centres

Ensure recycling infrastructure and service levels at Recycling and Waste Centres are sufficient to maximise the diversion of recyclable materials from the residual waste bins.

Council's Role: Deliver

4.2 Future Development

Review planning Scheme conditions for developments to ensure future developments align with evolving waste requirements.

Council's Role: Deliver

4.3 ASMP Regular Review

Annual review of Waste Asset and Service Management Plan and capital works program for demand management, future renewal and upgrade of waste assets such as Recycling and Waste Centres.

Council's Role: Deliver

4.4 SEQ Collaboration

Collaborate with other south-east Queensland local governments to assess opportunities for shared resource recovery infrastructure and programs.

Council's Role: Partner

Future

Community Recycling Points

Monitor opportunities to expand community touch points for recovery of difficult waste types and the emerging product stewardship schemes.

Broad Strategic Context

International, Federal and State policies will guide better resource recovery management and eventually zero waste to landfill. Some of the key policy drivers are listed below.

Global

United Nations Sustainable Development Goals

The United Nations 2030 Agenda for Sustainable Development includes global waste management goals within the Sustainable Development Goals to guide actions by Australia. Sustainable Development Goal 12 focusses on responsible consumption and production patterns.

Federal

Recycling and Waste Reduction Act 2020

The Recycling and Waste Reduction Act 2020 establishes a national framework to manage waste and recycling across Australia. It includes export bans on recyclable products and aims to stimulate economic activity and job creation while setting targets for waste reduction and increased recycling.

National Waste Policy 2018

The Federal Government's National Waste Policy 2018 adopts five principles that support the vision of a circular economy where we maintain the value of resources for as long as possible. It identifies five overarching principles underpinning waste management in a circular economy. These include:

- avoid waste
- improve resource recovery
- increase use of recycled material and build demand and markets for recycled products
- better manage material flows to benefit human health, the environment and the economy
- improve information to support innovation, guide investment and enable informed consumer decisions.

National Waste Policy Action Plan 2019

This National Action Plan creates targets and actions to implement the 2018 National Waste Policy to guide investment and national efforts to 2030 and beyond. Targets and actions focus on addressing:

- export of waste plastic, paper, glass and tyres
- waste generation and resource recovery rates from all waste streams
- use of recycled content by governments and industry
- problematic and unnecessary plastics
- organic waste sent to landfill
- data for industry and community decision making

National Food Waste Strategy 2017

The National Food Waste Strategy provides a framework to support collective action towards halving Australia's food waste by 2030.

2025 National Packaging Targets

The 2025 National Packaging Targets are supported by Australian industry and government to deliver a new and sustainable approach to packaging. They apply to all packaging that is made, used and sold in Australia. APCO is the organisation charged by government to facilitate the delivery of the 2025 Targets including:

- 100% reusable, recyclable or compostable packaging.
- 70% of plastic packaging being recycled or composted.
- 50% of average recycled content included in packaging (revised from 30% in 2020).
- The phase out of problematic and unnecessary single-use plastics packaging.

Australasian Recycling Label

The Australasian Recycling Label (ARL) is an evidence-based on-pack labelling system developed by APCO and Planet Ark that provides easy to understand recycling information to improve recycling rates and reduce yellow bin contamination.

National Plastics Plan 2021

A plan to address plastic waste at the source through prevention, take responsibility for our plastics through better recycling and address challenges of plastics in our homes and in our oceans and waterways.

Recycling Modernisation Fund (RMF)

The RMF will generate over \$600 million of recycling investment in new infrastructure to sort, process and remanufacture materials such as mixed plastic, paper, tyres and glass.

State

Waste Reduction and Recycling Act 2011

The Waste Reduction and Recycling Act 2011 requires all local governments to adopt a Waste Reduction and Recycling Plan that sets out clear guidelines and targets to meet the objectives under the Act.

Waste Management and Resource Recovery Strategy 2019

The 2019 Waste Management and Resource Recovery Strategy presents a strategic plan for a better way of managing waste in Queensland by harnessing the potential value of resources that have traditionally been discarded through guiding the transition to a more circular economy, reducing the amount of waste disposed of to landfill (or illegally), and providing a more sustainable source of end-of-life products and materials to create new products. Key targets of the strategy are:

- 25 per cent reduction in household waste by 2050
- 90 per cent of waste is recovered and does not go to landfill by 2050
- 75 per cent recycling rates across all waste types by 2050

Waste Disposal Levy 2019

The State Government introduced a waste levy in July 2019 to disincentivise disposal of waste to landfill. To protect ratepayers from rising disposal costs, the State has been reimbursing local governments for the levy fees incurred on household waste. However, this payment is set to reduce significantly and Local Governments must plan to manage these costs and/or reduce their waste to landfill.

Plastic Pollution Reduction Plan 2019

The plastics plan identifies and prioritises actions, to help reduce plastic waste and reduce the amount of plastic in and entering the environment with a focus on economic opportunities to create a plastic circular economy through investment in plastic reprocessing, remanufacturing, market development and new products as alternatives to plastic.

Single-Use Plastics Bans

The State Government banned single-use plastic bags in July 2018 and passed laws in December 2020 to ban other single-use plastic products, including straws, from 1 September 2021.

Queensland Recycling Modernisation Fund (QRMF)

The QRMF will boost Queensland's recycling industry through a \$40 million investment in recycling infrastructure to help build processing capacity and markets for recycled products.

Draft Queensland Organics Strategy 2022-2032

The draft Queensland Organics Strategy 2022–2032 proposes how we can reduce the amount of organic waste that goes to landfill and looks at ways to avoid, reuse and recycle it.

The Plan contains information required by the Act including:

- population growth forecast
- residential and commercial development
- waste types and quantities handled by Council
- Council services and facilities in place to manage the various types of waste according to the waste and resource management hierarchy and principles an action plan to chart a course towards meeting the State's waste and resource management strategy goals and targets.



16 NOTICES OF INTENTION TO REPEAL OR AMEND A RESOLUTION

In accordance with *s.262 Local Government Regulation 2012*.

17 NOTICES OF MOTION

In accordance with s.6.16 Council Meeting Standing Orders.

18 URGENT BUSINESS WITHOUT NOTICE

In accordance with s.6.17 of Council Meeting Standing Orders, a Councillor may bring forward an item of urgent business if the meeting resolves that the matter is urgent.

| Urgent Business Checklist | YES | NO |
|---|------------|-----------|
| To achieve an outcome, does this matter have to be dealt with at a general meeting of Council? | | |
| Does this matter require a decision that only Council make? | | |
| Can the matter wait to be placed on the agenda for the next Council Meeting? | | |
| Is it in the public interest to raise this matter at this meeting? | | |
| Can the matter be dealt with administratively? | | |
| If the matter relates to a request for information, has the request been made to the CEO or a General Manager Previously? | | |

19 CONFIDENTIAL ITEMS

COUNCIL MOTION

That Council considers the confidential report(s) listed below in a meeting closed to the public in accordance with Section 254J of the *Local Government Regulation 2012*:

19.1 Sale of Land for Overdue Rates and Charges

This matter is considered to be confidential under section 254J(3)(g) of the *Local Government Regulation 2012*, and the Council is satisfied that discussion of this matter in an open meeting would, on balance, be contrary to the public interest as it deals with negotiations relating to a commercial matter involving the local government for which a public discussion would be likely to prejudice the interests of the local government.

Overview

To seek Council Resolution to Sell Identified Properties for Overdue Rates and Charges.

19.2 Quandamooka Coast Native Title Federal Court Update

This matter is considered to be confidential under section 254J(3)(e) of the *Local Government Regulation 2012*, and the Council is satisfied that discussion of this matter in an open meeting would, on balance, be contrary to the public interest as it deals with legal advice obtained by the local government or legal proceedings involving the local government including, for example, legal proceedings that may be taken by or against the local government.

Overview

To update Council on the Quandamooka Coast Native Title Federal Court Application.

19.3 Class Action Kozik - Update

This matter is considered to be confidential under section 254J(3)(e) of the *Local Government Regulation 2012*, and the Council is satisfied that discussion of this matter in an open meeting would, on balance, be contrary to the public interest as it deals with legal advice obtained by the local government or legal proceedings involving the local government including, for example, legal proceedings that may be taken by or against the local government.

Overview

To provide an update on Class Action Kozik.

19.4 Proposed Stormwater Improvement Works Program

This matter is considered to be confidential under section 254J(3)(e) and (h) of the *Local Government Regulation 2012*, and the Council is satisfied that discussion of this matter in an open meeting would, on balance, be contrary to the public interest as it deals with legal advice obtained by the local government or legal proceedings involving the local government including, for example, legal proceedings that may be taken by or against the local government and negotiations relating to the taking of land by the local government under the Acquisition of Land Act 1967.

Overview

To recommend that Redland City Council (Council) progress the proposed actions and undertake the recommended capital works required to address some issues within stormwater networks in six locations across Redland City, identified prior to the 2022 rainfall events.

20 MEETING CLOSURE