City of Busselton

Geographe Bay

Council Agenda

17 May 2023

ALL INFORMATION AVAILABLE IN VARIOUS FORMATS ON REQUEST

city@busselton.wa.gov.au

CITY OF BUSSELTON

MEETING NOTICE AND AGENDA – 17 MAY 2023

TO: **THE MAYOR AND COUNCILLORS**

NOTICE is given that a meeting of the Council will be held in the Council Chambers, Administration Building, Southern Drive, Busselton on Wednesday, 17 May 2023, commencing at 5:30pm.

Your attendance is respectfully requested.

DISCLAIMER

Statements or decisions made at Council meetings or briefings should not be relied on (or acted upon) by an applicant or any other person or entity until subsequent written notification has been given by or received from the City of Busselton. Without derogating from the generality of the above, approval of planning applications and building permits and acceptance of tenders and quotations will only become effective once written notice to that effect has been given to relevant parties. The City of Busselton expressly disclaims any liability for any loss arising from any person or body relying on any statement or decision made during a Council meeting or briefing.



TONY NOTTLE

CHIEF EXECUTIVE OFFICER

4 May 2023

CITY OF BUSSELTON

AGENDA FOR THE COUNCIL MEETING TO BE HELD ON 17 MAY 2023

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1. DECLARATION OF OPENING, ACKNOWLEDGEMENT OF COUNTRY AND ANNOUNCEMENT OF VISITORS

2. ATTENDANCE

Apologies

Approved Leave of Absence

Nil

3. PRAYER

4. APPLICATION FOR LEAVE OF ABSENCE

Application for Leave of Absence for Cr Mikayla Love from 22 June 2023 to 30 September 2023, inclusive of Council meetings 26 July 2023, 16 August 2023 and 20 September 2023 and committee meetings within this period.

5. DISCLOSURE OF INTERESTS

6. ANNOUNCEMENTS WITHOUT DISCUSSION

Announcements by the Presiding Member

7. QUESTION TIME FOR PUBLIC

Response to Previous Questions Taken on Notice

Public Question Time For Public

8. CONFIRMATION AND RECEIPT OF MINUTES

Previous Council Meetings

8.1 Minutes of the Council Meeting held 19 April 2023

RECOMMENDATION

That the Minutes of the Council Meeting held 19 April 2023 be confirmed as a true and correct record.

Committee Meetings

8.2 Minutes of the Airport Advisory Committee Meeting held 12 April 2023

RECOMMENDATION

That the Unconfirmed Minutes of the Airport Advisory Committee Meeting held 12 April 2023 be noted as received.

8.3 Minutes of the Finance Committee Meeting held 3 May 2023

RECOMMENDATION

That the Unconfirmed Minutes of the Finance Committee Meeting held 3 May 2023 be noted as received.

9. RECEIVING OF PETITIONS, PRESENTATIONS AND DEPUTATIONS

Petitions

9.1 PETITION - INSTALLATION OF PUBLIC TOILET FACILITY AT VASSE NATURE PLAYGROUND

STRATEGIC THEME	LEADERSHIP - A Council that connects with the community and is accountable in its decision making.
STRATEGIC PRIORITY	4.1 Provide opportunities for the community to engage with Council and contribute to decision making.
SUBJECT INDEX	Petitions
BUSINESS UNIT	Governance Services
REPORTING OFFICER	Governance Officer - Jo Barrett-Lennard
AUTHORISING OFFICER	Chief Executive Officer - Tony Nottle
NATURE OF DECISION	Advocacy: to advocate on its own behalf or on behalf of its community to another level of government/body/agency
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Petition (Redacted)

OFFICER RECOMMENDATION

That the Council receive the petition and refer it to the CEO for action.

EXECUTIVE SUMMARY

A Petition with 144 signatures (Attachment A) was received from the Petitioners on 1 May 2023 requesting as follows:

> *We, the undersigned, do respectfully request that the Council:*
>
> *Support the installation of a public toilet facility at the Dawson Nature Park Vasse-Kealy on Napoleon Promenade for use by all visitors. We therefore ask the Busselton City Council to urgently provide the above-mentioned facilities.*

The requirements for a petition to be heard by Council is set out by Standing Order 6.9 of the *City of Busselton Standing Orders Local Law 2018.* The Petition meets all of the requirements.

Pursuant to Standing Order 6.9(3), the Council has the following options:

(a) receive the petition;

(b) reject the petition;

(c) receive the petition and refer it to the CEO to prepare a report to Council / Committee;

(d) receive the petition and refer it to the CEO for action.

It is recommended that the Petition be received by the Council and referred to the CEO for action, noting it would require budget consideration and therefore can be considered as part of the upcoming budget process.

City of Busselton
Geographe Bay

Petition to the City Of Busselton

TO: **Mayor, City of Busselton**

2 Southern Drive, Busselton WA 6280

city@busselton.wa.gov.au

Correspondence in respect of this petition should be addressed to:

Name: MRS Junee McDONALD

Address: [redacted] VASSE

Email:

J McDonald 1ST/5/23

We, the undersigned, do respectfully request that the Council:
(set out a concise statement of the action required from Council and reasons why)

SUPPORT THE INSTILLATION OF A PUBLIC TOILET FACILITY AT THE "DAWSON NATURE PARK VASSE - REALY ON NAPOLEAN PROM - FOR USE BY ALL VISITORS. TOTAL SIGNATURES 113 + Emails DIRECT TO City of Busselton wa.gov.au. + ANNE RYAN.

The names, addresses and signatures of the petitioners* are as follows:

Date	Name	Address (include suburb)	Signature

(Each additional page must contain the terms of the petition)

*Only electors of the City of Busselton may be included as signatories to the petition.

All Communications to:

T (08) 9781 0444
E city@busselton.wa.gov.au
Locked Bag 1 Busselton WA 6280
www.busselton.wa.gov.au

Where environment, lifestyle and opportunity meet!

Junee McDonald JAMcDonald

I Junne McDonald of [redacted] Vasse, 6280, E: [redacted] in the state of Western Australia am, the promoter of this petition that contains..... signatures.

PETITION IN RELATION TO PROVISION OF TOILET FACILITY AT VASSE NATURE PLAYGROUND

To the Mayor and Councillors of the Busselton City Council, 2 Southern Drive, Busselton, WA 6280.

We the undersigned support the installation of a public toilet facility at the Vasse Nature Park.

We therefore ask the Busselton City Council to urgently provide the above-mentioned facilities.

NAME	FULL ADDRESS	SIGNATURE
JARED WISEWOULD	[redacted]	[signature]
DARRYN MELL		[signature]
Jarrad Bailey		[signature]
Jordan Turner		[signature]
Liv Sedden		[signature]
Ada Kealley		[signature]
Shelley Dodd		[signature]
Ebony Reynolds		[signature]
Erin Gordon		[signature]
Sally White		[signature]
LIZ TURNER		[signature]
Leah Leavy		[signature]
Laurel McDermott		[signature]
Danielle Knight		[signature]
Emma Willis		[signature]
Leah Leavy		[signature]
Larissa Boyanich		[signature]

This Petition must NOT be altered or otherwise marked up or amended. Only original signatures are permitted. Photocopied or faxed signatures are not accepted

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JUNEE McDONALD J McDonald

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We the undersigned support the installation of a public toilet facility at the Vasse Nature Park.

We therefore ask the Busselton City Council to urgently provide the above-mentioned facilities.

NAME	FULL ADDRESS	SIGNATURE
Yutai Lu	[redacted]	
Sylvain Riviere		
Ashlen Cuthbert		
Sarah Banks		
Pru Perkins		
KENT PERKINS		
David Banks		
Ben Donnelly		
Aleisha Shreeve		
Chris Shreeve		
BROOKE HARRIS		
LYNNE HAMILTON		
SOPHIE BAHEN		
RYAN CALLEGARI		
Wendy Winters		
Stephen Reynolds		
Madeline Sykes		
Mikayla Naccarella		
Clare Swannell		

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We therefore ask the Busselton City Council to urgently provide the above-mentioned facilities.

NAME	FULL ADDRESS	SIGNATURE
Ase	[redacted]	Ase Munro
Sharon Knott		
Andrew Knott		
Pernilla Dullan		
PAUL McDONALD		
Alana Cayless		
Chris Wilson		
Peta Wilson		
Kate Bell.		
Dean Love		
Stacey Counsell		
Elisia Reitinger		
Renee Paul		Paul
Josh Farrington		
Sarah Farrington		
Jeremy PAUL		
Danielle Saunders		
GRANT STOKES		
Brad Atwell		

26/2
26/2

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JUNEE McDONALD

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We the undersigned support the installation of a public toilet facility at the Vasse Nature Park.

We therefore ask the Busselton City Council to urgently provide the above-mentioned facilities.

NAME	FULL ADDRESS	SIGNATURE
Zoey Wright	[redacted]	
Alex Eades		
Lara Clautman		
Kindalyn Guthridge		K Guthridge
Mat Lee		
Lisa Edwards		
DAVID RIGGS		
James Hood		
Steven Harper		
PAUL RAINFORD		
TERRY HETHERINGTON		
Chelsea Don		
Jasmine Cameron		Cameron
Dimity Cowmeadow		Cowmeadow.
Isabelle Cameron		HPC
Paddy Doyle		
Kate Hobba		
Vickie Walker		
Rachel Cazier		
Susan Heard.		

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JUNEE McDONALD JAMcDonald

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We the undersigned support the installation of a public toilet facility at the Vasse Nature Park.

We therefore ask the Busselton City Council to urgently provide the above-mentioned facilities.

NAME	FULL ADDRESS	SIGNATURE
Wan-ni Tson,	[redacted]	[illegible]
Lina WARD		[illegible]
CHEN AMEY		[illegible]
Zoe Rivoire		DUNsborough [illegible]
CIEN SUN		[illegible]dwater Cien Sun
Martin Ryan		[illegible]
Sami Ryan		[illegible]
[illegible] Amon		[illegible]
Courtney Kaur		[illegible]
JAGDEEP SINGH		[illegible]
AILSA WILSON		[illegible]
MATT WELBURN		[illegible]
Shayela Devlin		[illegible]
Leah King		[illegible]
CHRIS FRADELOS		[illegible]
FRANK PESSOTTO		[illegible]
Felicity McQueen		[illegible]
Ash Colley		[illegible]
Jess DORNAN		[illegible]
Ciaran Mitchell		[illegible]

This Petition must NOT be altered or otherwise marked up or amended. Only original signatures are permitted. Photocopied or faxed signatures are not accepted

Lauren Jones
RYAN JONES [redacted] Jones

J A McDonald

I Junne McDonald of [redacted] Vasse, 6280, E: [redacted] in the state of Western Australia am, the promoter of this petition that contains..... signatures.

JUNEE McDONALD

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To the Mayor and Councillors of the Busselton City Council, 2 Southern Drive, Busselton, WA 6280.

We the undersigned support the installation of a public toilet facility at the Vasse Nature Park.

We therefore ask the Busselton City Council to urgently provide the above-mentioned facilities.

NAME	FULL ADDRESS	SIGNATURE
G. WILLIAM	[redacted]	
K. Penches		
COLIN WHITTLE		
TINA		
SAM BUCKERIDGE		
SU Sia		
D. HUNTINGTON		
S. Smith		
L. Smith		
M. Smith		Matilda
R. Nelson		
A. SEARLE		
P. SEARLE		
N. Brenton		
M. SIOTO		
J. Francis		
C. Francis		

113+

This Petition must NOT be altered or otherwise marked up or amended. Only original signatures are permitted. Photocopied or faxed signatures are not accepted

9.2 PETITION - DEPARTMENT OF COMMUNITIES HOUSING UNITS

STRATEGIC THEME	LEADERSHIP - A Council that connects with the community and is accountable in its decision making.
STRATEGIC PRIORITY	4.1 Provide opportunities for the community to engage with Council and contribute to decision making.
SUBJECT INDEX	Petitions
BUSINESS UNIT	Governance Services
REPORTING OFFICER	Governance Officer - Jo Barrett-Lennard
AUTHORISING OFFICER	Chief Executive Officer - Tony Nottle
NATURE OF DECISION	Advocacy: to advocate on its own behalf or on behalf of its community to another level of government/body/agency
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Published Under Separate Cover Confidential Petition Attachment B Published Under Separate Cover Confidential Cover Letter

OFFICER RECOMMENDATION

That the Council receive the petition and refer it to the CEO for action.

EXECUTIVE SUMMARY

A Petition with 19 signatures (Attachment A) and a supporting letter (Attachment B) was received from the Petitioners on 4 April 2023. The petition and letter are both provided under separate confidential cover and request the Council to act to change Department of Communities housing units (location provided in attachments) to an over 55's complex, stating as follows:

> *We have to contend with disturbing behaviour, fighting among the families and others, bad language, noise from loud music at parties all hours of the night and continuing fighting onto the street.*
>
> *The surrounding road structure was changed and the street became a cul-de-sac and all the people on this petition have been impacted with the behaviour resulting in the presence of police and emergency services on a regular basis. We have applied to freedom of information for the number of callouts.*
>
> *As the demographics of the street are mainly over 55's and privately owned and occupied this would greatly improve our way of life, security and peace in our final years.*

The requirements for a petition to be heard by Council is set out by Standing Order 6.9 of the *City of Busselton Standing Orders Local Law 2018.* The Petition meets all of the requirements.

Pursuant to Standing Order 6.9(3), the Council has the following options:

(a) receive the petition;

(b) reject the petition;

(c) receive the petition and refer it to the CEO to prepare a report to Council / Committee;

(d) receive the petition and refer it to the CEO for action.

It is recommended that the Petition be received by the Council, and referred to the CEO for action, noting that as the Department of Communities manage the housing units, direct action by the City is limited.

Presentations

Deputations

10. QUESTIONS BY MEMBERS OF WHICH DUE NOTICE HAS BEEN GIVEN (WITHOUT DISCUSSION)

11. ITEMS BROUGHT FORWARD FOR THE CONVENIENCE OF THOSE IN THE PUBLIC GALLERY

12. REPORTS OF COMMITTEE

12.1 Airport Advisory Committee - 12/4/2023 - BUSSELTON MARGARET RIVER AIRPORT OPERATIONS UPDATE

STRATEGIC THEME	OPPORTUNITY - A vibrant City with diverse opportunities and a prosperous economy
STRATEGIC PRIORITY	3.4 Develop aviation opportunities at the Busselton Margaret River Airport.
SUBJECT INDEX	Busselton Margaret River Airport
BUSINESS UNIT	Commercial Services
REPORTING OFFICER	Airport Operations Coordinator - Nicholas Cooper
AUTHORISING OFFICER	Manager Economic and Business Development Services - Jennifer May
NATURE OF DECISION	Noting: The item is simply for information purposes and noting
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Nil

This item was considered by the Airport Advisory Committee at its meeting on 12/4/2023, the recommendations from which have been included in this report.

COMMITTEE RECOMMENDATION

That the Council receives and notes the Busselton Margaret River Airport Operations Report.

OFFICER RECOMMENDATION

That the Council receives and notes the Busselton Margaret River Airport Operations Report.

EXECUTIVE SUMMARY

This report provides an overview of the operations and activities of the Busselton Margaret River Airport (BMRA) for the reporting period 1 July 2022 through 28 February 2023. This includes an update on passenger numbers, regular public transport services (RPT), closed charter and general airport operations.

BACKGROUND

The BMRA has seen continued growth in aircraft landings and passenger numbers with Jetstar RPT services, additional closed charter flights operating during the reporting period**.**

Passenger Numbers

The estimated passenger numbers for the reporting period (1 July 2022 – 28 February 2023) were 98,107 compared to 34,436 for the same period in 2022, representing an increase of over 184%. The continued increase in passenger numbers can be attributed to the growth in FIFO passenger numbers across all closed charter airlines servicing Rio Tinto, BHP and FMG, and Jetstar RPT services.

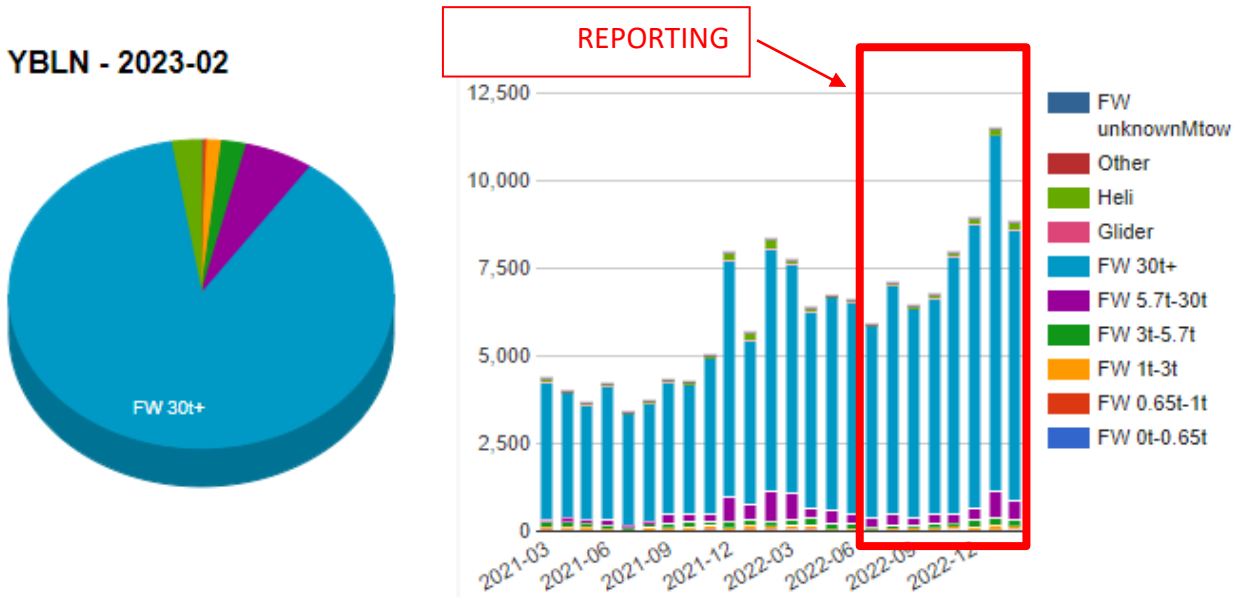
Aircraft Movements

The total number of scheduled services operating from the BMRA as of the end of the reporting period was 34 movements per week, with 31 Fly in Fly out (FIFO) closed charter and 3 RPT services. This increased from a total of 23 flights FIFO closed charter flights movements and nil RPT from the same reporting period in 2022.

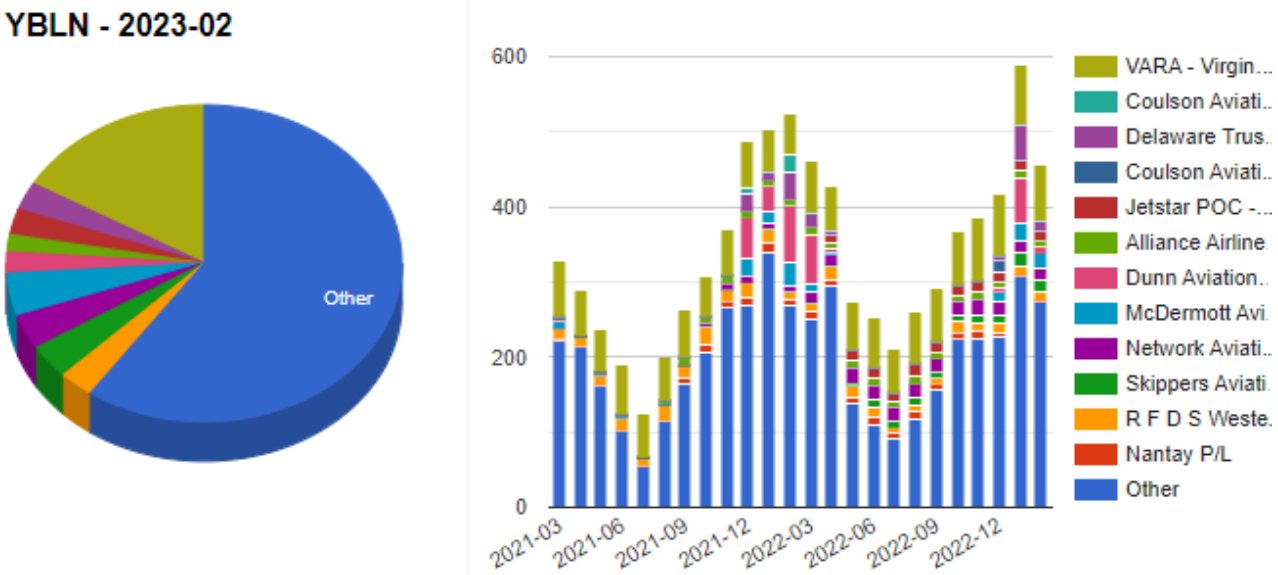
Five airlines are operating from the BMRA with RPT and closed charter services utilising aircraft types from Dash 8/300 to Airbus A320 and Boeing 737/700 aircraft servicing destinations such as Melbourne and multiple mining operations across Western Australia.

Private jet/charter operations have also increased with 35 formal landing approvals granted for the reporting period utilising the Central and Southern Apron Bay 4. The following graphs represent the breakdown of the total tonnage by category at BMRA by month trending over the period March 2021 to 28 February 2023, the highlighted section indicates the current reporting period.

Landed Tonnage by Aircraft category



Number of landings by Customer



The number of landings by customer graph above gives a correlative view of the difference between landed tonnage by aircraft type. Showing that private charter and mostly general aviation, denoted by blue, equates for a large number of the total landings at BMRA.

In the 2021/22 FY the break up from the total landings of 2,981, with 1,276 were aircraft above 5,700 MTOW and the 1,705 below 5,699 MTOW. For the current reporting period, total landings have reached 2,977 with 1,703 being aircraft above 5,700 MTOW and the remaining 1,274 below 5,699 MTOW.

Operations and Maintenance

The focus for the reporting period has been on:

- The central apron bay marking plan implementation has been completed and is now accommodating aircraft types from F100 up to A320N/B737 without turnout restrictions. The new bay marking allows for bays 9, 10 and 11 to facilitate up to A320/B737 operations while bay 8 is restricted to the F100 operations.
- The Annual Technical Inspection (ATI) identified issues are now in the planning and procurement stage around earth works within the runway strip and trimming of trees currently infringing the OLS.
- The central apron expansion planning and procurement has been finalised with works starting mid-April.
- The departure lounge extension area is operational and is easing congestion within the sterile lounge area. The outstanding component of moving the boarding counters will be undertaken by the airlines IT departments.
- A new check-in injector belt identified as one of the operational improvements has been installed and commissioned. This increases the number of operational check-in desks to 4 for Jetstar.
- The paperless reporting system is currently being implemented within the airport team and is to be fully implemented by the end of April.
- A review of the BMRA Wildlife and Hazard Management Plan has been undertaken by JASKO Airport Services. JASKO is now finalising the new Wildlife and Hazard Management Plan.
- The Department of Fire and Emergency's large air tanker (LAT) Bomber Operations finish on the 31 March with the Helitak's remaining onsite until 7 April. Some key aspects of this year's operations have been;
    1. LAT aircraft – Bomber 132 and 139 responded to 15 incidents, a total of 97 sorties and a total of 80 hours flying time;
    2. Helitacs flew 78 sorties and combined 129hrs flying time;
    3. 1,248,000lts of water used for retardant mixing; and
    4. A total of 31 personnel with SES contributing 500 hours in retardant mixing operations.
- The RFQ for the BMRA Master Plan has been awarded to Three Consulting and Leading Edge Aviation Planning Professionals (LEAPP) and the stakeholder engagement plan is being complied.

Security Screening Activities

The below table gives a breakdown of the screening activities over the reporting period.

	Total hours screening point open	Number of people screened
July	37.5	2018
August	45.2	2239
September	39.5	2010
October	47	2010
November	38.7	2605
December	37.85	2222
January	37.5	2210
February	39.9	1914
Total	323.15	17228

Noise Management Plan

The City is required to report annually to the Office of the Environmental Protection Authority prior to the 6 April each year on the effectiveness and recorded non-compliances under the Noise Management Plan. The annual reporting included;

- Three reported non-compliances;
- Two CEO approved non-conforming activities; and
- Two recorded noise complaints.

OFFICER COMMENT

BMRA has continuing to see considerable growth compared to the same reporting period in 2022. Other activities that have occurred during the reporting period and continue to be the focus for the remainder of 2023 are;

- The City was notified in January that it had been successful in a Federal Government Regional Airport Program Round 3 grant application to apply a surface treatment and line marking to the General Aviation precinct aprons and taxiways to mitigate loose stones on the pavement surface. The total project cost is $437,620 with the City contributing 50% of the total costs ($218,810). The City has executed the grant agreement and planning will commence for the works.
- The City purchased an office/training transportable and facilities are currently working through the installation process. This will be shared facility between City airport staff and the South West Aviation Services.
- Department of Transport's Financial and Asset Management Framework (SAAFMF) is a new requirement for Western Australian airports when applying for future RADS grants. The City has engaged a consultant and stakeholder engagement has commenced.
- The RFQ for the BMRA Noise Modelling has been awarded for the preparation of Australian Noise Exposure Forecast (ANEF) contours and Number above contours (N contours) with the project to start on the 10 April and a final report to be complete to feed into the City 's Town Planning Scheme Amendment to be prepared later in 2023.

- Officers are working with the South West Development Commission (SWDC) to apply for State Government funding to undertake a business case for the construction of the new terminal. To inform the business case the following works will need to be procured: airport master plan, terminal design review, passenger forecast and route development analysis, financial model, and economic impact assessment and cost benefit analysis.

Statutory Environment

The BMRA operates in accordance with the following:

- *Aviation Transport Security Act 2004*
- *Aviation Transport Security Regulations 2005*
- CASA part 139 Manual of Standards (Aerodromes)
- City of Busselton Transport Security Plan
- Ministerial Statement 1088.

Relevant Plans and Policies

The officer recommendation aligns to the BMRA Master Plan (2016-2036) and the Busselton Margaret River Airport Noise Management Plan 2022.

Financial Implications

Revenue

The actual YTD revenue for the reporting period is $2,908,252 compared to the projected YTD budget of $1,666,740. Revenue areas that exceeded budget projections are as follows:

- Annual landing fees - $947,417 actual compared to $540,646 budgeted;
- Car parking income - $694,330 compared to $305,914 budgeted; and
- Head Taxes/Passenger Fees - $861,294 compared to $660,045 budgeted.

Expenditure

Actual expenditure for the reporting period is $2,170,156 compared to the YTD budget of $489,837. Higher than projected expenditure for the reporting period can mainly be attributed to the timing of expenditure for the airline attraction program, consultancy, contractors and purchase of materials compared to the projected budget timings. The net operating position for the reporting period is a surplus of $738,096 compared to the YTD budget surplus of $1,176,903.

Stakeholder Consultation

Consultation has been occurring on a regular basis with Department of Transport, Government agencies, airport stakeholders, Department of Home Affairs, Aviation Marine Security (AMS), Civil Aviation Safety Authority (CASA), Air Services Australia, Virgin Australia Regional Airline, Qantas Group, the Busselton Aero Club, Albany, Esperance, Geraldton Airports and Australian Airports Association, concerning many topics and issues relating to the Airport.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. No risks of a medium or greater level have been identified.

Options

As an alternative to the proposed recommendation the Airport Advisory Committee may choose not to receive and note the Busselton Margaret River Airport Operations Report.

CONCLUSION

Officers continue to strive to provide a high level of customer service at the BMRA, while ensuring the airport is compliant, safe and security is maintained throughout. The commencement of Jetstar RPT services has identified a number of operational actions and infrastructure investment requirements.

The focus of the remaining financial year will be to prepare a new BMRA Master Plan, achieving operational efficiencies and business and commercial development initiatives that have been deferred to date.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

Not applicable.

12.2 Finance Committee - 3/5/2023 - LIST OF PAYMENTS MADE - MARCH 2023

STRATEGIC THEME	LEADERSHIP - A Council that connects with the community and is accountable in its decision making.
STRATEGIC PRIORITY	4.2 Deliver governance systems that facilitate open, ethical and transparent decision making.
SUBJECT INDEX	List of Payments
BUSINESS UNIT	Financial Services
REPORTING OFFICER	Manager Financial Services - Paul Sheridan
AUTHORISING OFFICER	Acting Director, Finance and Corporate Services - Sarah Pierson
NATURE OF DECISION	Executive: Substantial direction setting, including adopting budgets, strategies, plans and policies (excluding local planning policies); funding, donations and sponsorships; reviewing committee recommendations
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A List of Payments - March 2023

This item was considered by the Finance Committee at its meeting on 3/5/2023, the recommendations from which have been included in this report.

COMMITTEE RECOMMENDATION

That the Council notes payment of voucher numbers for the month of March 2023 as follows:

CHEQUE PAYMENTS	**119611 - 119646**	**54,806.98**
ELECTRONIC FUNDS TRANSFER PAYMENTS	**93902 - 94201 and 94206 to 94540**	**7,970,944.89**
TRUST ACCOUNT PAYMENTS	**EFT# 94202 - 94205**	**25,949.96**
PAYROLL PAYMENTS	**01.03.23 - 31.03.23**	**164,967.34**
INTERNAL PAYMENT VOUCHERS	**DD #5221 - 5252**	**1,709,387.95**
TOTAL PAYMENTS		**9,926,057.12**

OFFICER RECOMMENDATION

That the Council notes payment of voucher numbers for the month of March 2023 as follows:

CHEQUE PAYMENTS	119611 - 119646	54,806.98
ELECTRONIC FUNDS TRANSFER PAYMENTS	93902 - 94201 and 94206 to 94540	7,970,944.89
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TOTAL PAYMENTS		9,926,057.12

EXECUTIVE SUMMARY

This report provides details of payments made from the City's bank accounts for the month of March 2023 for noting by the Council and recording in the Council Minutes.

BACKGROUND

The *Local Government (Financial Management) Regulations 1996* (the Regulations) requires that, when the Council has delegated authority to the CEO to make payments from the City's bank accounts, a list of payments made is prepared each month for presentation to, and noting by, the Council.

OFFICER COMMENT

In accordance with regular custom, the list of payments made for the month of March 2023 is presented for information.

Statutory Environment

Section 6.10 of the *Local Government Act 1995* and more specifically Regulation 13 of the Regulations refer to the requirement for a listing of payments made each month to be presented to the Council.

Relevant Plans and Policies

There are no relevant plans or policies to consider in relation to this matter.

Financial Implications

There are no financial implications associated with the officer recommendation.

Stakeholder Consultation

No external stakeholder consultation was required or undertaken in relation to this matter.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. No risks of a medium or greater level have been identified.

Options

Not applicable.

CONCLUSION

The list of payments made for the month of March 2023 is presented for information.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

Not applicable.

City of Busselton
Geographe Bay

LISTING OF PAYMENTS MADE
UNDER DELEGATED AUTHORITY
FOR THE MONTH OF MARCH 2023

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		9,926,057.12

CHEQUE PAYMENTS MARCH 2023

DATE	REF #	NAME	DESCRIPTION	AMOUNT $
29/03/2023	119645	ANDREW JOHN PADMAN	REFUND OF RATE OVERPAYMENT	750.00
15/03/2023	119639	ANITA RENEE DEMOPOULOS	REFUND OF RATE OVERPAYMENT	407.09
15/03/2023	119634	ANTHONY GERARD CROLLA	REFUND OF RATE OVERPAYMENT	750.00
10/03/2023	119618	ARTGEO PETTY CASH	PETTY CASH REIMBURSEMENT	167.25
2/03/2023	119614	VOIDED	VOIDED	-
15/03/2023	119631	BROOKE MICHELLE COOPER	REFUND OF RATE OVERPAYMENT	750.00
10/03/2023	119619	BUSSELTON PUBLIC LIBRARY - PETTY CASH	PETTY CASH REIMBURSEMENT	217.50
10/03/2023	119617	CITY OF BUSSELTON - PETTY CASH	PETTY CASH REIMBURSEMENT	186.05
10/03/2023	119620	CITY OF BUSSELTON DEPOT - PETTY CASH	PETTY CASH REIMBURSEMENT	89.95
15/03/2023	119621	DEPARTMENT OF TRANSPORT	PLANT REGISTRATION	981.00
29/03/2023	119641	DEPARTMENT OF TRANSPORT	PLANT REGISTRATION	327.00
29/03/2023	119646	DIANNE GEORGINA & ROBERT LESTER WALLIS	REFUND OF RATE OVERPAYMENT	750.00
15/03/2023	119628	DONALD GEOFFREY SLOAN	REFUND OF RATE OVERPAYMENT	750.00
8/03/2023	119615	DUNSBOROUGH POST OFFICE	POSTAL SERVICE	545.00
15/03/2023	119637	ESTATE OF VANESSA MARIE LOWDEN	REFUND OF RATE OVERPAYMENT	776.50
29/03/2023	119644	FRANCIS IAN & PAMELA-ANNE SHANKS	REFUND OF RATE OVERPAYMENT	750.00
15/03/2023	119624	JANE EVELYN AINSWORTH	REFUND OF RATE OVERPAYMENT	92.33
15/03/2023	119630	JOAN ROBINSON	REFUND OF RATE OVERPAYMENT	700.07
15/03/2023	119623	KATHERINE & MARIN ROBIN SHEGEDIN	REFUND OF RATE OVERPAYMENT	666.30
15/03/2023	119635	KEVIN JOHN & SUSAN MARY TROTT	REFUND OF RATE OVERPAYMENT	100.00
15/03/2023	119625	KRISTY ANN STONE	REFUND OF RATE OVERPAYMENT	750.00
15/03/2023	119626	LESTER MOORE	REFUND OF RATE OVERPAYMENT	100.00
15/03/2023	119622	MAXINE LEE HOLMES	REFUND OF RATE OVERPAYMENT	803.12
15/03/2023	119627	MICHAEL VAGG	REFUND OF RATE OVERPAYMENT	78.36
29/03/2023	119642	MICHELLE CHRISTINE JAMES	REFUND OF RATE OVERPAYMENT	750.00
29/03/2023	119643	MOIRA AILEEN POORE	REFUND OF RATE OVERPAYMENT	375.00
15/03/2023	119632	PATRICIA ANNE ABBOTT	REFUND OF RATE OVERPAYMENT	750.00
15/03/2023	119638	ROSALINE ANN KENT	REFUND OF RATE OVERPAYMENT	375.00
15/03/2023	119636	SALLYANN KING	REFUND OF RATE OVERPAYMENT	750.00
15/03/2023	119633	TERRY JOHN & ALISON LESLEY SANBROOK	REFUND OF RATE OVERPAYMENT	750.00
2/03/2023	119611	VOIDED	VOIDED	-
2/03/2023	119612	VOIDED	VOIDED	-
2/03/2023	119613	VOIDED	VOIDED	-
10/03/2023	119616	VOIDED	VOIDED	-
22/03/2023	119640	WATER CORPORATION	WATER SERVICES	38,819.46
15/03/2023	119629	WENDY LOUISE & TREVOR LESLIE DOLAN	REFUND OF RATE OVERPAYMENT	750.00
				54,806.98

EFT PAYMENTS MARCH 2023

DATE	REF #	NAME	DESCRIPTION	AMOUNT $
22/03/2023	94362	360 ENVIRONMENTAL	ENVIRONMENTAL CONSULTANCY	8,844.00
8/03/2023	94146	A D COOTE & CO	LIGHT POLES - VASSE OVAL	31,213.60
15/03/2023	94197	ABBY LUCAS	STAFF REIMBURSEMENT	151.70
22/03/2023	94272	ACTION KERBING	KERBING SERVICES	480.00
8/03/2023	94133	ACTIV FOUNDATION INC	MAINTENANCE SERVICES	48,542.67
8/03/2023	93926	ACURIX NETWORKS	INTERNET WIFI ACCESS	3,996.65
8/03/2023	93988	ADVAM PTY LTD	AIRPORT CARPARK CREDIT CARD TRANSACTIONS	545.39
8/03/2023	93973	ADVANCED SEALING TRUST	MAINTENANCE SERVICES	1,644.00
22/03/2023	94297	ADVANCED SEALING TRUST	MAINTENANCE SERVICES	506.00
8/03/2023	93991	ADVENTURE+	PLAYGROUND EQUIPMENT	1,551.00
8/03/2023	93983	AERODROME MANAGEMENT SERVICES PTY LTD	AIR SERVICES	29,914.83
8/03/2023	94000	AFGRI EQUIPMENT	MACHINERY EQUIPMENT PARTS AND SERVICE	77.39
22/03/2023	94485	AIRPORT LIGHTING SPECIALISTS	ELECTRICAL SERVICES	9,477.60
8/03/2023	94074	AIRWORKS CONSULTING PTY LTD	AIRPORT CONSULTING	4,158.00
8/03/2023	94100	AL FORNO	CATERING	1,022.00
15/03/2023	94182	ALINTA ENERGY	ELECTRICITY	59.40
8/03/2023	94019	ALISON BURTON	ART SALES	31.50
22/03/2023	94236	ALL WEST BUILDING APPROVALS PTY LTD	BUILDING APPLICATION ASSESSMENTS	1,650.00
8/03/2023	94054	ALLAN GUTHRIE	FIRE DEPARTMENT HONORARIUM	664.25
22/03/2023	94507	ALLOY & STAINLESS PRODUCTS PTY LTD	PLANT PURCHASES / SERVICES / PARTS	990.50
8/03/2023	93942	ALPHA PEST ANIMAL SOLUTIONS	FOX BAITING	896.50
22/03/2023	94255	ALPHA PEST ANIMAL SOLUTIONS	FOX BAITING	1,188.00
8/03/2023	93981	ALPINE LAUNDRY PTY LTD	COMMERCIAL LAUNDRY	433.70
22/03/2023	94304	ALPINE LAUNDRY PTY LTD	COMMERCIAL LAUNDRY	336.54
22/03/2023	94352	ALTUS GROUP CONSULTING PTY LTD	COST MANAGEMENT SERVICES	7,282.00
22/03/2023	94473	AMITY SIGNS	SIGNAGE SERVICES	77.00
29/03/2023	94522	ANGELA GRIFFIN	STAFF REIMBURSEMENT	315.34
22/03/2023	94373	ANNETTE ROBERTS	BJTP REFUND	84.00
8/03/2023	93982	AQUATIC SERVICES WA PTY LTD	POOL SERVICE AND MAINTENANCE	3,476.00
22/03/2023	94305	AQUATIC SERVICES WA PTY LTD	POOL SERVICE AND MAINTENANCE	1,701.70
8/03/2023	93921	ARBOR GUY	TREE MAINTENANCE SERVICES - OLD BROADWATER FARM, JUNEE PLACE, TAYLOR PLACE	23,667.35
22/03/2023	94228	ARBOR GUY	TREE MAINTENANCE SERVICES - YUNGARRA DR	64,127.15
22/03/2023	94290	ARM SECURITY	SECURITY SYSTEMS SUPPLY AND MONITERING	407.34
22/03/2023	94433	ARTS AND CULTURE TRUST	VENUE RENTALS	1,035.28
8/03/2023	94078	ATTEKUS	ONLINE BOOKING, EVENT SOFTWARE	842.19
15/03/2023	94175	AUSQ TRAINING	TRAINING SERVICES	1,500.00
22/03/2023	94239	AUSQ TRAINING	TRAINING SERVICES	3,798.00
22/03/2023	94394	AUSTRALIA AND NEW ZEALAND RECYCLING PLATFORM LTD	E-WASTE COLLECTION	3,868.92
8/03/2023	94125	AUSTRALIA POST	POSTAL SERVICE	5,731.02
22/03/2023	94461	AUSTRALIA POST	POSTAL SERVICE	2,245.51
9/03/2023	93906	AUSTRALIAN TAXATION OFFICE	PAYG TAXATION	250,504.00
23/03/2023	94210	AUSTRALIAN TAXATION OFFICE	PAYG TAXATION	273,138.00
8/03/2023	94055	AUTO ONE TRADING PTY LTD	AUTOMOTIVE	961.56

City of Busselton
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		9,926,057.12

22/03/2023	94391	AUTO ONE TRADING PTY LTD	AUTOMOTIVE	1,667.63
8/03/2023	94008	AV TRUCK SERVICES PTY LTD	VEHICLE PARTS & MAINTENANCE	2,929.28
22/03/2023	94348	AV TRUCK SERVICES PTY LTD	VEHICLE PARTS & MAINTENANCE	191.30
8/03/2023	93939	AZILITY	IT SOFTWARE	988.90
8/03/2023	94137	B & B STREET SWEEPING	STREET SWEEPING SERVICE	3,049.06
22/03/2023	94471	B & B STREET SWEEPING	STREET SWEEPING SERVICE	34,377.61
22/03/2023	94333	BAKED BUSSELTON	BAKERY CATERING	169.30
8/03/2023	94032	BARBARA WEEKS	ART SALES	84.00
8/03/2023	93960	BARRY ALLEN ELECTRICAL SERVICES PTY LTD	ELECTRICAL SERVICES	1,725.82
22/03/2023	94274	BARRY ALLEN ELECTRICAL SERVICES PTY LTD	ELECTRICAL SERVICES - HALYTECH DLSP, ELECTRICAL TEMP DEPARTURE LOUNGE	30,559.44
22/03/2023	94505	BAY CABINETS	FURNITURE PRODUCT SUPPLIER	792.00
8/03/2023	94132	BAY SIGNS	SIGNAGE SERVICES	510.65
22/03/2023	94468	BAY SIGNS	SIGNAGE SERVICES	1,207.20
8/03/2023	93945	BCP CIVIL & PLANT	EXCAVATOR & PLANT HIRE	1,045.00
8/03/2023	93946	BCP LIQUID WASTE	LIQUID WASTE SERVICES	295.00
22/03/2023	94261	BCP LIQUID WASTE	LIQUID WASTE SERVICES	363.39
22/03/2023	94518	BEACHLANDS LAWNMOWING SERVICE	LAWN MOWING SERVICE	300.00
8/03/2023	94038	BETHWYN HALL	BJTP REFUND	58.00
8/03/2023	94158	BG & E PTY LTD	CONSULTANCY SERVICES	12,059.30
8/03/2023	93950	BINDI NUTRITION PTY LTD	ENERGY AND NUTRITION PRODUCTS	269.89
8/03/2023	94060	BING TECHNOLOGIES PTY LTD	MAILING SERVICES	556.21
22/03/2023	94395	BING TECHNOLOGIES PTY LTD	MAILING SERVICES	1,031.55
22/03/2023	94358	BIO SOIL SOLUTIONS	LIQUID SOIL SOLUTIONS	220.00
8/03/2023	94129	BLACKWOODS	FLEET CONSUMABLES & MAINTENANCE PARTS	604.16
22/03/2023	94466	BLACKWOODS	FLEET CONSUMABLES & MAINTENANCE PARTS	787.92
8/03/2023	94048	BLUE ARMADILLO (ODILE BELL)	ART SALES	48.30
8/03/2023	94108	BOC GASES AUSTRALIA LTD	GAS SERVICES	110.18
22/03/2023	94443	BOC GASES AUSTRALIA LTD	GAS SERVICES	1,748.89
8/03/2023	94064	BRENDAN MURRAY	ART SALES	42.00
22/03/2023	94312	BRIAN YORKE	WATER CHARGES REIMBURSEMENT	1,128.45
8/03/2023	93924	BRIDGESTONE	TYRE SERVICES	340.78
22/03/2023	94233	BRIDGESTONE	TYRE SERVICES	46.20
29/03/2023	94531	BROAD CONSTRUCTION PTY LTD	CONSTRUCTION SERVICES	770,154.63
29/03/2023	94521	BRUCE THOMAS	STAFF REIMBURSEMENT	84.00
22/03/2023	94498	BSA ADVANCED PROPERTY SOLUTIONS	AIR CONDITIONING SERVICES	13,436.06
30/03/2023	94539	BSEWA	ELECTRICAL SERVICES	2,355.87
8/03/2023	94113	BUCHER MUNICIPAL PTY LTD	ENGINEERING - PLANT SPARES & SERVICING	120.62
22/03/2023	94447	BUCHER MUNICIPAL PTY LTD	ENGINEERING - PLANT SPARES & SERVICING	3,298.14
22/03/2023	94230	BUNBURY SUBARU	VEHICLE PURCHASES / SERVICES / PARTS	38,324.94
22/03/2023	94357	BUNBURY TRUCKS	PLANT PURCHASES / SERVICES / PARTS	2,785.43
8/03/2023	94141	BUNNINGS BUILDING SUPPLIES	HARDWARE SUPPLIES	1,995.06
22/03/2023	94476	BUNNINGS BUILDING SUPPLIES	HARDWARE SUPPLIES	4,526.62
8/03/2023	93965	BUSSELTON AGRICULTURAL SERVICES (WA) PTY LTD	RURAL SUPPLIES	2,098.00
22/03/2023	94286	BUSSELTON AGRICULTURAL SERVICES (WA) PTY LTD	RURAL SUPPLIES	300.00
22/03/2023	94229	BUSSELTON ALLSPORTS INC T/A BUSSELTON JETTY SWIM	JETTY SWIM SPONSORSHIP	19,800.00
22/03/2023	94234	BUSSELTON BEARING SERVICES	BEARING SUPPLIES	309.10
8/03/2023	94053	BUSSELTON BUILDING PRODUCTS	BUILDING PRODUCT SUPPLIER	365.30
22/03/2023	94389	BUSSELTON BUILDING PRODUCTS	BUILDING PRODUCT SUPPLIER	322.45
22/03/2023	94380	BUSSELTON DISTRICT JUNIOR FOOTBALL ASSOC	MINOR DONATION	949.00
8/03/2023	94150	BUSSELTON FOOTBALL & SPORTSMAN'S CLUB	ELECTRICITY REIMBURSEMENT	1,032.86
22/03/2023	94377	BUSSELTON HOSPICE GOLF DAY	MINOR DONATION	500.00
8/03/2023	93915	BUSSELTON HYDRAULIC SERVICES INC	HYDRAULIC SERVICES	811.73
22/03/2023	94219	BUSSELTON HYDRAULIC SERVICES INC	HYDRAULIC SERVICES	110.07
8/03/2023	93922	BUSSELTON LOCKSMITH	SECURITY SUPPLIES	220.00
22/03/2023	94232	BUSSELTON LOCKSMITH	SECURITY SUPPLIES	341.00
8/03/2023	94123	BUSSELTON MOTORS (MITSUBISHI/MAZDA)	VEHICLE PURCHASES / SERVICES / PARTS	1,907.35
22/03/2023	94459	BUSSELTON MOTORS (MITSUBISHI/MAZDA)	VEHICLE PURCHASES / SERVICES / PARTS	459.00
8/03/2023	94082	BUSSELTON PEST & WEED CONTROL	PEST CONTROL SERVICES	704.00
22/03/2023	94414	BUSSELTON PEST & WEED CONTROL	PEST CONTROL SERVICES	4,169.00
8/03/2023	94143	BUSSELTON REFRIGERATION & AIRCONDITIONING	REFRIGERATION/AIR CONDITIONING SERVICES	1,293.60
22/03/2023	94478	BUSSELTON REFRIGERATION & AIRCONDITIONING	REFRIGERATION/AIR CONDITIONING SERVICES	1,364.00
8/03/2023	94119	BUSSELTON RETRAVISION	ELECTRICAL SERVICES	210.00
29/03/2023	94534	BUSSELTON RETRAVISION	ELECTRICAL SERVICES	15.00
8/03/2023	94144	BUSSELTON STATE EMERGENCY SERVICE	PETTY CASH REIMBURSEMENT	909.93
22/03/2023	94277	BUSSELTON STOCKFEEDS & PET SUPPLIES	ANIMAL SUPPLIES	167.50
22/03/2023	94441	BUSSELTON TOYOTA	VEHICLE PURCHASES / SERVICES / PARTS	71,581.23
8/03/2023	94106	BUSSELTON WATER	WATER SERVICES	117,760.70
15/03/2023	94198	BUSSELTON WATER	WATER SERVICES	84.35
22/03/2023	94442	BUSSELTON WATER	WATER SERVICES	762.05
22/03/2023	94486	BUSSELTON WELDING SERVICES	WELDING SERVICES	1,463.00
22/03/2023	94295	BUTETIMES! PTY LTD T/A FIRESTATION	FOOD AND BEVERAGES	120.00
22/03/2023	94317	C & G NORRIS	WATER CHARGES REIMBURSEMENT	346.75
8/03/2023	94001	CAPE CELLARS BUSSELTON	REFRESHMENTS	758.50
22/03/2023	94344	CAPE CELLARS BUSSELTON	REFRESHMENTS	49.99
22/03/2023	94514	CAPE DRYCLEANERS	LINEN CLEANING SERVICES	11.20
22/03/2023	94509	CAPE RURAL CONTRACTING	FIRE CONTROL SERVICES	165.00
8/03/2023	94095	CARLEY O'NEIL	ART SALES	63.00
8/03/2023	94022	CAROL MULHEARN	ART SALES	188.00
8/03/2023	93994	CB TRAFFIC SOLUTIONS PTY LTD	TRAFFIC MANAGEMENT SERVICES	9,443.78
22/03/2023	94331	CB TRAFFIC SOLUTIONS PTY LTD	TRAFFIC MANAGEMENT SERVICES	34,299.39
22/03/2023	94445	CHADSON ENGINEERING	ENGINEERING SERVICES	276.65
22/03/2023	94328	CHOICECHEM	BITUMEN REMOVER	7,381.00
8/03/2023	94090	CHOICES FLOORING BUSSELTON	FLOORING SERVICES	5,742.00
22/03/2023	94409	CHRIS GODDEN	LAWN MOWING	1,520.00
22/03/2023	94251	CHRIS SHEEDY PANEL & PAINT	PANEL REPAIRS & REPLACEMENT	1,500.00

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8/03/2023	94025	CHRISTINE CRESSWELL	ART SALES	16.80
22/03/2023	94490	CHUBB FIRE	FIRE EQUIPMENT SUPPLIER	625.82
8/03/2023	94147	CHUBB FIRE & SECURITY PTY LTD	FIRE EQUIPMENT SERVICES	3,192.11
22/03/2023	94481	CHUBB FIRE & SECURITY PTY LTD	FIRE EQUIPMENT SERVICES	4,051.09
22/03/2023	94502	CITY AND REGIONAL FUELS	FUEL SERVICES	4,010.09
9/03/2023	93903	CITY OF BUSSELTON CHRISTMAS CLUB	PAYROLL DEDUCTIONS	2,592.18
23/03/2023	94207	CITY OF BUSSELTON CHRISTMAS CLUB	PAYROLL DEDUCTIONS	2,552.18
9/03/2023	93908	CITY OF BUSSELTON PAYROLL	PAYROLL DEDUCTIONS REALLOCATION	7,766.43
23/03/2023	94212	CITY OF BUSSELTON PAYROLL	PAYROLL DEDUCTIONS REALLOCATION	4,307.47
9/03/2023	93904	CITY OF BUSSELTON STAFF LOTTO	STAFF LOTTO	174.00
23/03/2023	94208	CITY OF BUSSELTON STAFF LOTTO	STAFF LOTTO	174.00
9/03/2023	93910	CITY OF BUSSELTON-SOCIAL CLUB	SOCIAL CLUB REIMBURSEMENT	194.00
23/03/2023	94214	CITY OF BUSSELTON-SOCIAL CLUB	SOCIAL CLUB REIMBURSEMENT	194.00
8/03/2023	94050	CITY OF FREMANTLE	LIBRARY RESOURCES	200.00
8/03/2023	94109	CJD EQUIPMENT PTY LTD	PLANT PURCHASES / SERVICES / PARTS	1,692.87
8/03/2023	94093	CLAIRE OSBORN	PAINTING OF JETTY RAILING	1,080.00
22/03/2023	94423	CLAIRE OSBORN	LABOUR TO COLLECT BINS OFF THE JETTY	720.00
22/03/2023	94301	CLAW ENVIRONMENTAL	E-WASTE SERVICES	3,597.77
22/03/2023	94364	CLAYTON & RENEE REITINGER	REFUND DOG REGISTRATION	77.50
22/03/2023	94488	CLEANAWAY	WASTE MANAGEMENT SERVICES	111,001.48
8/03/2023	93966	CLEANAWAY CO PTY LTD	CHEMICAL DISPOSAL SERVICES	6,990.62
22/03/2023	94454	CLEANAWAY EQUIPMENT SERVICES	MAINTENANCE PARTS WASHER	969.72
22/03/2023	94289	CLEANAWAY SOLID WASTE PTY LTD	WASTE DISPOSAL SERVICES	32,592.17
22/03/2023	94218	CLEVERPATCH	VACATION CARE SUPPLIES	234.43
15/03/2023	94192	CLOCKMASTERS AUSTRALIA PTY LTD	CLOCKS AND CLOCK SUPPLIES	1,582.60
15/03/2023	94183	CLOUDPRESS	MANAGED WEBSITE HOSTING	1,299.00
8/03/2023	93971	COATES CIVIL CONSULTING P/L	CIVIL ENGINEERING CONSULTING SERVICES	5,390.00
22/03/2023	94242	COBUS BOTHA	STAFF REIMBURSEMENT	85.16
8/03/2023	94157	COCA COLA - AMATIL PTY LTD	GLC KIOSK PURCHASES	1,689.74
8/03/2023	94148	COLES	COUNCIL & STAFF REFRESHMENTS	251.96
15/03/2023	94201	COLES	COUNCIL & STAFF REFRESHMENTS	166.05
22/03/2023	94482	COLES	COUNCIL & STAFF REFRESHMENTS	698.97
29/03/2023	94536	COLES	COUNCIL & STAFF REFRESHMENTS	317.00
15/03/2023	94179	COLES.COM.AU	COUNCIL & STAFF REFRESHMENTS	354.30
22/03/2023	94263	COLES.COM.AU	COUNCIL & STAFF REFRESHMENTS	951.25
29/03/2023	94523	COLES.COM.AU	COUNCIL & STAFF REFRESHMENTS	172.35
8/03/2023	93980	COMPUTER WEST	INFORMATION TECHNOLOGY SUPPLIER	1,020.70
8/03/2023	94026	CONSULT DIRECT	CLEANING EQUIPMENT AND SERVICES	910.80
22/03/2023	94355	CONSULT DIRECT	CLEANING EQUIPMENT AND SERVICES	1,951.61
8/03/2023	94088	CORE PLUMBING SERVICES	PLUMBING SERVICES - HWS BARNARD SPORTS PAVILION	34,796.08
8/03/2023	93967	CORSIGN WA PTY LTD	SIGNAGE AND TRAFFIC ACCESSORIES	204.60
22/03/2023	94287	CORSIGN WA PTY LTD	SIGNAGE AND TRAFFIC ACCESSORIES	768.90
8/03/2023	94061	CR. ANNE RYAN	COUNCILLOR PAYMENTS	2,759.34
22/03/2023	94396	CR. ANNE RYAN	COUNCILLOR PAYMENTS	647.76
8/03/2023	93917	CR. G HENLEY	COUNCILLOR PAYMENTS	11,061.99
8/03/2023	94058	CR. JODIE RICHARDS	COUNCILLOR PAYMENTS	2,759.34
8/03/2023	94009	CR. KATHERINE COX	COUNCILLOR PAYMENTS	2,759.34
8/03/2023	94062	CR. MIKAYLA LOVE	COUNCILLOR PAYMENTS	2,447.98
15/03/2023	94191	CR. MIKAYLA LOVE	COUNCILLOR PAYMENTS	204.08
8/03/2023	93958	CR. P CARTER	COUNCILLOR PAYMENTS	4,523.65
8/03/2023	94011	CR. P CRONIN	COUNCILLOR PAYMENTS	2,759.34
29/03/2023	94527	CR. P CRONIN	COUNCILLOR PAYMENTS	1,221.95
8/03/2023	93956	CR. R PAINE	COUNCILLOR PAYMENTS	2,759.34
8/03/2023	94007	CR. SUSAN RICCELLI	COUNCILLOR PAYMENTS	2,759.34
15/03/2023	94187	CR. SUSAN RICCELLI	COUNCILLOR PAYMENTS	296.94
22/03/2023	94322	CRAIG & LISA BASELL	WATER CHARGES REIMBURSEMENT	1,692.85
22/03/2023	94384	CRAIG SMITH ARCHITECT	ARCHITECTURAL ADVICE	4,807.00
8/03/2023	93933	CRANEFORD PLUMBING PTY LTD	PLUMBING SERVICES	7,316.17
22/03/2023	94247	CRANEFORD PLUMBING PTY LTD	PLUMBING SERVICES	33,899.39
22/03/2023	94479	CRAVEN FOODS BUNBURY	GLC KIOSK PURCHASES	216.95
8/03/2023	94156	CROSS SECURITY SERVICES	SECURITY SERVICES	577.28
22/03/2023	94497	CROSS SECURITY SERVICES	SECURITY SERVICES	4,552.68
22/03/2023	94430	CRYSTAL GARDNER	STAFF REIMBURSEMENT	100.00
8/03/2023	93995	CS LEGAL - CLOISTERS SQUARE	LEGAL RECOVERY ON RATING DEBTS	6,101.80
22/03/2023	94334	CS LEGAL - CLOISTERS SQUARE	LEGAL RECOVERY ON RATING DEBTS	923.80
15/03/2023	94196	DANELLE DOWDING	STAFF REIMBURSEMENT	220.00
8/03/2023	93914	DANIELL ABRAHAMSE	STAFF REIMBURSEMENT	1,000.00
29/03/2023	94519	DANIELL ABRAHAMSE	STAFF REIMBURSEMENT	117.50
22/03/2023	94316	DARRYL AND LEONIE STEAD	WATER CHARGES REIMBURSEMENT	3,185.80
22/03/2023	94480	DAVID MILDWATERS ELECTRICAL	MAINTENANCE SERVICES	509.63
22/03/2023	94371	DEB WINNING	BJTP REFUND	262.50
22/03/2023	94369	DENNIS & SUSAN DEVEREAUX	BJTP REFUND	121.50
8/03/2023	94139	DEPARTMENT OF FIRE AND EMERGENCY SERVICES	FIRE AND EMERGENCY SERVICES	1,001,375.87
15/03/2023	94189	DEPT LOCAL GOVT, SPORT & CULTURAL INDUSTRIES	IOCAL GOVERNMENT STANDARDS	1,922.80
9/03/2023	93909	DEPUTY CHILD SUPPORT REGISTRAR	SALARY DEDUCTIONS	1,453.35
23/03/2023	94213	DEPUTY CHILD SUPPORT REGISTRAR	SALARY DEDUCTIONS	1,453.35
8/03/2023	94103	DERRICK & DIANNE RILEY	WATER CHARGES REIMBURSEMENT	15.15
22/03/2023	94381	DINA SMITH	REFUND OF ANIMAL REGISTRATION	50.00
8/03/2023	94036	DOG REGISTRATION REFUNDS	REFUND DOG REGISTRATION	77.50
22/03/2023	94361	DONALD CANT WATTS CORKE (WA) PTY LTS	CONSULTANCY SERVICES	18,348.00
22/03/2023	94359	DOOR HARDWARE SOLUTIONS	HARDWARE SUPPLIES	1,070.16
8/03/2023	94067	DOROTHY ROBINSON	ART SALES	97.25
8/03/2023	93925	DOROTHY SADDLETON	ART SALES	22.40
8/03/2023	93975	DORSOGNA LIMITED	ICE CREAM AND SMALL GOODS	2,621.48
22/03/2023	94299	DORSOGNA LIMITED	ICE CREAM AND SMALL GOODS	1,304.35

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LISTING OF PAYMENTS MADE
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CHEQUE PAYMENTS	119611 - 119646	54,806.98
ELECTRONIC FUNDS TRANSFER PAYMENTS	93902 - 94201 and 94206 to 94540	7,970,944.89
TRUST ACCOUNT PAYMENTS	EFT# 94202 - 94205	25,949.96
PAYROLL PAYMENTS	01.03.23 - 31.03.23	164,967.34
INTERNAL PAYMENT VOUCHERS	DD #5221 - 5252	1,709,387.95
		9,926,057.12

8/03/2023	93964	DOUTH CONTRACTING	PROPERTY & GARDEN MAINTENANCE	1,508.38
22/03/2023	94427	DOWN TO EARTH AGRIBUSINESS	RUBBISH CLEAN UP	10,231.10
22/03/2023	94446	DUCHESS MEDICAL PRACTICE	MEDICAL SERVICES	104.90
22/03/2023	94487	DUNSBOROUGH & DISTRICTS PROGRESS ASSOC INC.	EVENT SPONSORSHIP	5,000.00
22/03/2023	94302	DUNSBOROUGH CONCRETE	CONCRETE SUPPLIES	59,416.50
22/03/2023	94220	DUNSBOROUGH FOOTBALL CLUB INC	CAPS - 1ST INSTALLMENT	46,597.32
22/03/2023	94253	DUNSBOROUGH HARDWARE & HOME CENTRE	HARDWARE SERVICES	9.50
8/03/2023	94161	DUNSBOROUGH YALLINGUP CHAMBER OF COMMERCE & IND.	ECONOMIC AND COMMUNITY GRANT	12,500.00
8/03/2023	94152	DUXTON HOTEL	ACCOMMODATION	270.00
22/03/2023	94491	DUXTON HOTEL	ACCOMMODATION	990.00
8/03/2023	93943	DYMOCKS - BUSSELTON	LIBRARY RESOURCES	811.49
22/03/2023	94449	EAGLE BAY VOLUNTEER BUSHFIRE BRIGADE	PETTY CASH REIMBURSEMENT	62.20
22/03/2023	94325	EARTH 2 OCEAN COMMUNICATIONS	COMMUNICATION SERVICES - RADIO REPAIRS	1,896.00
8/03/2023	93996	EARTH AND STONE WA	EARTHWORKS - SUGARLOAF RD	27,197.50
22/03/2023	94337	EARTH AND STONE WA	EARTHWORKS - LOWER VASSE SEDIMENT REMOVAL	66,192.62
8/03/2023	94107	ECOSYSTEMS SOLUTIONS	CONSULTANCY SERVICES	2,718.10
22/03/2023	94307	EIS CONTROL PTYLTD	ELECTRICAL SERVICES	744.70
8/03/2023	93969	ELAMOORE NATURAL SOAPS & COSMETICS PTY LTD	ART SALES	30.10
8/03/2023	93985	ELIZABETH BINT	ART SALES	293.30
8/03/2023	93912	ELLIOTTS FILTRATION	IRRIGATION & FILTRATION SERVICES	2,315.50
30/03/2023	94537	EMERG SOLUTIONS PTY LTD	BROADCAST ALERT APP	5,600.00
8/03/2023	94153	EMERGE OFFICE	OFFICE EQUIPMENT SERVICES - PHOTOCOPYING	638.00
22/03/2023	94492	EMERGE OFFICE	OFFICE EQUIPMENT SERVICES - PHOTOCOPYING	363.00
8/03/2023	94083	EMERSON RAINE	STRATA LEVY FEES & WATER CONSUMPTION	4,441.80
8/03/2023	94049	EMMA GEARY	ART SALES	5.60
22/03/2023	94308	ENABLE WA	DONATION	1,980.00
22/03/2023	94243	ENVIRONEX INTERNATIONAL PTY LTD	POOL CHEMICALS FOR GLC	2,121.30
22/03/2023	94300	ERGOLINK	ERGONOMIC OFFICE EQUIPMENT	619.43
22/03/2023	94429	EVENT DRAW	FLOOR PLAN SOFTWARE	2,860.00
15/03/2023	94180	EVERETT'S HOME AND YARD MAINTENANCE	MAINTENANCE SERVICES	8,330.00
22/03/2023	94264	EVERETT'S HOME AND YARD MAINTENANCE	MAINTENANCE SERVICES	1,175.00
8/03/2023	94021	FAIRTEL PTY LTD	TELECOMMUNICATION SERVICES	158.99
8/03/2023	94124	FESTIVAL OF BUSSELTON (INC)	SPONSORSHIP AND OTHER SUPPORT	11,000.00
8/03/2023	93931	FIRE RESCUE SAFETY AUSTRALIA	FIRE SAFETY EQUIPMENT	364.33
22/03/2023	94245	FOUR POINTS BY SHERATON	ACCOMMODATION	925.00
22/03/2023	94314	FRANK SUTTON	WATER CHARGES REIMBURSEMENT	188.45
8/03/2023	93972	FRESH AS	REFRESHMENTS	340.00
22/03/2023	94296	FRESH AS	REFRESHMENTS	127.35
8/03/2023	93955	FRONTLINE FIRE & RESCUE EQUIPMENT	EMERGENCY RESPONSE EQUIPMENT	2,943.94
22/03/2023	94270	FRONTLINE FIRE & RESCUE EQUIPMENT	EMERGENCY RESPONSE EQUIPMENT	244.04
8/03/2023	94110	FTE ENGINEERING	MAINTENANCE SERVICES	3,905.00
22/03/2023	94444	FTE ENGINEERING	MAINTENANCE SERVICES	310.90
22/03/2023	94458	GALVINS PLUMBING PLUS	PLUMBING SUPPLIES	25.52
22/03/2023	94383	GANNAWAYS CHARTER AND TOURS	BUS HIRE SERVICE	924.00
8/03/2023	94013	GARMONY PROPERTY CONSULTANTS	PROPERTY EVALUATION - RENDEZVOUS SITES	24,750.00
22/03/2023	94319	GARRY HUTTON	WATER CHARGES REIMBURSEMENT	742.40
8/03/2023	94085	GARY LEE ELECTRICAL	ELECTRICAL SERVICES	14,207.34
22/03/2023	94416	GARY LEE ELECTRICAL	ELECTRICAL SERVICES	782.10
22/03/2023	94406	GENERATORS AUSTRALIA PTY LTD	HIRE AND SALES OF EQUIPMENT	2,178.00
22/03/2023	94293	GEOBOX PTY LTD	VEHICLE CAMERAS	1,749.00
22/03/2023	94288	GEOGRAPHE COMMUNITY LANDCARE NURSERY	NURSERY SUPPLIES	8,668.54
22/03/2023	94252	GEOGRAPHE INDUSTRIAL SUPPLIES	INDUSTRIAL SUPPLIES	6.60
22/03/2023	94453	GEOGRAPHE PETROLEUM	FUEL SERVICES	19,159.57
29/03/2023	94533	GEOGRAPHE PETROLEUM	FUEL SERVICES	15,450.22
8/03/2023	94159	GEOGRAPHE SAWS AND MOWERS	PLANT PURCHASES / SERVICES / PARTS	1,381.50
22/03/2023	94501	GEOGRAPHE SAWS AND MOWERS	PLANT PURCHASES / SERVICES / PARTS	896.25
8/03/2023	94111	GEOGRAPHE TIMBER & HARDWARE	HARDWARE SUPPLIES	1,378.00
22/03/2023	94346	GEOSPREAD	GREEN WASTE MULCHING	31,115.70
22/03/2023	94279	GLOBAL SYNTHETICS PTY LTD	GEOTEXTILES AND GABIONS	11,847.00
8/03/2023	94081	GO TRANSIT MEDIA GROUP	ADVERTISING	455.70
8/03/2023	93990	GRAEME PAGES-OLIVER	ART SALES	540.00
22/03/2023	94280	GRAHAM BAILEY	WATER CHARGES REIMBURSEMENT	1,581.33
8/03/2023	93948	GRANITE NETWORKS PTY LTD	IT SERVICES AND HARDWARE	3,476.00
22/03/2023	94284	GUARDIAN FIRST AID & FIRE	SAFETY SUPPLIES	209.00
22/03/2023	94415	HALYTECH PTY LTD	LIGHTING CONTROLLER	3,729.00
15/03/2023	94194	HAMPTON STAINLESS	SCULPTURE: ARMILLARY DIAL	5,500.00
22/03/2023	94451	HANSON CONST. MATERIALS PTY LTD	CONCRETE SERVICES	1,025.31
8/03/2023	94023	HAPPS POTTERY	ART SALES	49.00
22/03/2023	94323	HARBECKS TRANSPORT	SAND AND GRAVEL SUPPLIES - PAYNE RD, ACTON PARK RD	98,320.07
8/03/2023	94068	HARCHER SOUTHWEST FORMERLY PRESTIGE PRODUCTS	HOSPITALITY EQUIPMENT SUPPLIER	5,901.10
22/03/2023	94405	HARCHER SOUTHWEST FORMERLY PRESTIGE PRODUCTS	HOSPITALITY EQUIPMENT SUPPLIER	7,594.10
8/03/2023	93986	HEATH AND GAIL PERRY	WATER CHARGES REIMBURSEMENT	1,285.00
8/03/2023	94051	HERSEY 'S SAFETY PTY LTD	TIMBER AND HARDWARE	18,564.70
8/03/2023	94169	HIP POCKET WORK WEAR AND SAFETY	UNIFORMS & PROTECTIVE CLOTHING	1,007.94
22/03/2023	94515	HIP POCKET WORK WEAR AND SAFETY	UNIFORMS & PROTECTIVE CLOTHING	977.90
8/03/2023	94118	HOLCIM (AUSTRALIA) PTY LTD	CONCRETE SERVICES	626.56
22/03/2023	94385	HOST CORPORATION PTY LTD	CATERING EQUIPMENT	363.00
22/03/2023	94324	ILLION AUSTRALIA PTY LTD	TENDER ADVERTISING AND MANAGEMENT	80.26
22/03/2023	94248	INFOCOUNCIL PTY LTD	SOFTWARE SERVICES	1,801.80
22/03/2023	94285	INNERSPACE COMMERCIAL INTERIORS	OFFICE FURNITURE	3,306.60
8/03/2023	94018	INSTANT PRODUCTS HIRE	PUBLIC ABULTIONS HIRE AND SALES	2,402.66
8/03/2023	94056	INTELLITRAC	GPS TRACKING DEVICES	561.00
8/03/2023	94057	IPEC PTY LTD	COURIER SERVICES	302.17
22/03/2023	94393	IPEC PTY LTD	COURIER SERVICES	128.29
8/03/2023	94145	IPWEA-WA	TRAINING SERVICES	660.00

City of Busselton
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LISTING OF PAYMENTS MADE
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CHEQUE PAYMENTS	119611 - 119646	54,806.98
ELECTRONIC FUNDS TRANSFER PAYMENTS	93902 - 94201 and 94206 to 94540	7,970,944.89
TRUST ACCOUNT PAYMENTS	EFT# 94202 - 94205	25,949.96
PAYROLL PAYMENTS	01.03.23 - 31.03.23	164,967.34
INTERNAL PAYMENT VOUCHERS	DD #5221 - 5252	1,709,387.95
		9,926,057.12

8/03/2023	93929	IRIS CONSULTING GROUP PTY LTD	TRAINING SERVICES	539.00
8/03/2023	93930	IRONMAN AUSTRALIA	GRANT	33,000.00
8/03/2023	94104	IRONMAN OCEANIA	BOND REFUND	200.00
8/03/2023	94130	IT VISION AUSTRALIA PTY LTD	SOFTWARE SERVICES	6,672.55
22/03/2023	94343	IW PROJECTS PTY LTD	WASTE MANAGEMENT CONSULTANTS	3,159.75
8/03/2023	93947	IWEIGH SOLUTIONS PTY LTD	WASTE MANAGEMENT SOFTWARE	2,640.00
8/03/2023	94151	JACK IN THE BOX CORPORATION PTY LTD	MARKETING SERVICES	297.00
22/03/2023	94260	JACKSON MCDONALD	LEGAL SERVICES	8,298.40
8/03/2023	93999	JAMES BENNETT	SPECIALIST LIBRARY RESOURCES	273.38
22/03/2023	94342	JAMES BENNETT	SPECIALIST LIBRARY RESOURCES	467.93
8/03/2023	93977	JAN ROBERTS	ART SALES	48.00
8/03/2023	94034	JANE BENNETT	ARTIST WORKSHOP	790.00
8/03/2023	94094	JANINE OXENHAM	PRODUCER / ARTIST	1,250.00
8/03/2023	94047	JASON EY	REIMBURSEMENT OF WATER EXPENSES	1,423.70
8/03/2023	94112	JASON SIGNMAKERS	SIGNAGE SUPPLIES	548.63
8/03/2023	94005	JBS&G AUSTRALIA PTY LTD	CONSULTANCY SERVICES	1,441.00
22/03/2023	94303	JDM EARTHWORKS	PLANT FOR CELL 2 DUNSBOROUGH WASTE	16,362.50
8/03/2023	93968	JENNIFER BROWN	ART SALES	18.40
22/03/2023	94437	JENNIFER ROUGHTON	STAFF REIMBURSEMENT	47.95
8/03/2023	93998	JIGSAW SIGNS & PRINT	SIGNAGE SERVICES	1,166.00
22/03/2023	94340	JIGSAW SIGNS & PRINT	SIGNAGE SERVICES	344.00
8/03/2023	93944	JIMS FIRST	HARDWARE SUPPLIES	48.60
22/03/2023	94257	JIMS FIRST	HARDWARE SUPPLIES	335.00
9/03/2023	93905	JMW REAL ESTATE	T NOTTLE RENT	1,400.00
23/03/2023	94209	JMW REAL ESTATE	T NOTTLE RENT	1,400.00
15/03/2023	94195	JODIE WOODS	STAFF REIMBURSEMENT	32.00
22/03/2023	94368	JOHN & SUSAN GANT	BJTP REFUND	58.00
8/03/2023	94076	JOHN LOHF	ART SALES	28.00
22/03/2023	94246	JOHN STRICKLAND	LIGHTING AND SOUND SERVICES	1,540.00
22/03/2023	94363	JOHN WILSON	GLC REFUNDS	244.20
8/03/2023	94097	JOHNNY APPLESEED GPS	GPS EQUIPMENT	930.00
8/03/2023	93954	JONES MARINE SERVICES SOUTHWEST	DIVING MAINTENANCE	1,815.00
22/03/2023	94315	JUDITH TOOKE	WATER CHARGES REIMBURSEMENT	179.30
22/03/2023	94511	JUICE PRINT	PRINTING SERVICES	1,436.60
8/03/2023	93997	JULIE GUTHRIDGE	ART SALES	87.75
22/03/2023	94376	KAREN EASTOUGH	APPLICATION REFUND	100.00
15/03/2023	94176	KAREN NICHOLLS	STAFF REIMBURSEMENT	49.12
29/03/2023	94528	KAREN TAYLOR-VIVIAN	WATER CHARGES REIMBURSEMENT	4,375.90
8/03/2023	94086	KASIA PASTERNAK	STAFF REIMBURSEMENT	283.45
8/03/2023	94043	KATHY MCGOLDRICK	BJTP REFUND	58.00
8/03/2023	94027	KAY MANOLAS	ART SALES	332.00
29/03/2023	94524	KELLY MCGORLICK	WATER CHARGES REIMBURSEMENT	965.55
22/03/2023	94225	KERRY HILL ARCHITECTS	ARCHITECTURAL SERVICES	63,155.30
8/03/2023	93987	KEVIN NEWELL	WATER CHARGES REIMBURSEMENT	2,942.40
22/03/2023	94397	KILMORE GROUP PTY LTD	BUILDING INDUSTRY DESIGN	10,551.67
8/03/2023	94066	KIRRALEA BIRCH	ART INSTALLATION AT ARTGEO	3,750.00
22/03/2023	94294	KITCHEN TAKEOVERS	CATERING	596.00
22/03/2023	94475	KLEENHEAT GAS	GAS SERVICES	1,861.97
8/03/2023	93984	KMART BUSSELTON	RETAIL HOME WARES	300.00
22/03/2023	94309	KMART BUSSELTON	RETAIL HOME WARES	403.75
22/03/2023	94292	KWIK KOFFEE BUSSELTON	CATERING	180.00
8/03/2023	94120	LANDGATE (VALUER GENERAL'S OFFICE)	LAND VALUATIONS	177.40
22/03/2023	94455	LANDGATE (VALUER GENERAL'S OFFICE)	LAND VALUATIONS	2,791.81
8/03/2023	94116	LANDGATE CUSTOMER ACCOUNT	LAND INFORMATION AND TITLE SEARCHES	253.80
22/03/2023	94450	LANDGATE CUSTOMER ACCOUNT	LAND INFORMATION AND TITLE SEARCHES	169.20
22/03/2023	94388	LAWRENCE & HANSON	ELECTRICAL/PROTECTIVE CLOTHING SUPPLIES	2,446.25
8/03/2023	94163	LD TOTAL	PLAYGROUND UPGRADES	81,583.95
22/03/2023	94417	LD TOTAL	LANDSCAPING SERVICES	29,285.66
22/03/2023	94503	LD TOTAL	LANDSCAPING SERVICES	7,719.63
15/03/2023	94177	LEAH MULDOON	STAFF REIMBURSEMENT	73.53
8/03/2023	94037	LEE ROADHOUSE	BJTP REFUND	496.65
22/03/2023	94500	LEEUWIN TRANSPORT	COURIER SERVICES	1,448.37
29/03/2023	94520	LGIS	INSURANCE PREMIUM	4,818.88
22/03/2023	94412	LIAM JACKSON	EQUIPMENT HIRE	9,237.25
8/03/2023	94173	LOCAL GOVERNMENT PROFESSIONALS AUSTRALIA (WA DIVISION)	TRAINING SERVICES	6,325.00
9/03/2023	93907	LOCAL GOV'T RACE COURSE & CEMETERY EMPLOYEES	UNION FEES	218.50
23/03/2023	94211	LOCAL GOV'T RACE COURSE & CEMETERY EMPLOYEES	UNION FEES	218.50
8/03/2023	94014	LOCK AROUND THE CLOCK	SECURITY SERVICES	137.50
22/03/2023	94349	LOCK AROUND THE CLOCK	SECURITY SERVICES	85.00
22/03/2023	94266	LOTEX FILTER CLEANING SERVICE	PLANT FILTER CLEANING SERVICE	318.11
22/03/2023	94372	LUCY WEAVER	BJTP REFUND	66.00
22/03/2023	94282	MACHINERY WEST PTY LTD	MACHINERY SERVICE AND PARTS	69.97
22/03/2023	94379	MADDISON FENWICK	MINOR DONATION	500.00
29/03/2023	94532	MAIN ROADS WA HEAVY VEHICLE SERVICES	RAV PERMITS	50.00
22/03/2023	94231	MAIN ROADS WESTERN AUSTRALIA	BRIDGE REPAIRS - LAYMAN RD	171,600.00
8/03/2023	94077	MALATESTA ROAD PAVING & HOTMIX	ROAD HOTMIX / PAVING SERVICES - WILDWOOD RD	407,597.29
22/03/2023	94408	MALATESTA ROAD PAVING & HOTMIX	ROAD HOTMIX / PAVING SERVICES	2,106.00
8/03/2023	93951	MARGARET RIVER BUSSELTON TOURISM ASSOCIATION	CONTRIBUTION TOWARDS COSTS	2,407.61
8/03/2023	93934	MARGARET RIVER FENCING	MAINTENANCE SERVICES	4,180.00
22/03/2023	94250	MARGARET RIVER FENCING	MAINTENANCE SERVICES	2,695.00
8/03/2023	94092	MARK HOWETT	PRODUCTION DESIGN - SALTWATER	5,500.00
8/03/2023	93952	MARKETFORCE PTY LTD	ADVERTISING SERVICES	341.62
22/03/2023	94265	MARKETFORCE PTY LTD	ADVERTISING SERVICES	1,553.04
8/03/2023	93936	MATTHEW SHARP	ART SALES	35.00
22/03/2023	94387	MAYDAY SERVICES	EQUIPMENT HIRE	526.41

City of Busselton
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ELECTRONIC FUNDS TRANSFER PAYMENTS	93902 - 94201 and 94206 to 94540	7,970,944.89
TRUST ACCOUNT PAYMENTS	EFT# 94202 - 94205	25,949.96
PAYROLL PAYMENTS	01.03.23 - 31.03.23	164,967.34
INTERNAL PAYMENT VOUCHERS	DD #5221 - 5252	1,709,387.95
		9,926,057.12

8/03/2023	93928	MCLEODS BARRISTERS & SOLICITORS	LEGAL SERVICES	419.65
22/03/2023	94238	MCLEODS BARRISTERS & SOLICITORS	LEGAL SERVICES	5,478.79
22/03/2023	94221	MCMULLEN NOLAN GROUP PTY LTD	LAND SURVEYING SERVICES - STORM SURGE RISK	47,555.75
8/03/2023	94003	MDM ENTERTAINMENT PTY LTD	DVD AND CD SUPPLY TO LIBRARY	107.80
22/03/2023	94345	MDM ENTERTAINMENT PTY LTD	DVD AND CD SUPPLY TO LIBRARY	1,444.80
22/03/2023	94339	MECHANICAL PROJECT SERVICES	AIRCONDITIONING & REFRIGERATION SERVICES	3,360.27
22/03/2023	94374	MELON HOLDINGS PTY LTD	RATE REFUND	744.90
22/03/2023	94321	MICHAEL & KATE WILSON	WATER CHARGES REIMBURSEMENT	1,301.10
8/03/2023	94167	MJB INDUSTRIES PTY LTD	DRAINAGE SUPPLIES	26,278.97
22/03/2023	94512	MJB INDUSTRIES PTY LTD	DRAINAGE SUPPLIES	42,933.24
29/03/2023	94529	MONG LENG CONNELL	ART GEO REFUND	180.00
15/03/2023	94181	MOORE AUSTRALIA	RATE COMPARISON REPORT	3,135.00
22/03/2023	94432	MORAY & AGNEW PERTH	LEVEL 30 EXCHANGE TOWER	220.00
8/03/2023	94030	MORE CAFE	CATERING	253.00
8/03/2023	94020	MUIR FORD BUSSELTON	VEHICLE MAINTENANCE	13.20
22/03/2023	94353	MUIR FORD BUSSELTON	VEHICLE MAINTENANCE	1,658.23
22/03/2023	94398	MUSIC BY ORNELLA	ENTERTAINMENT	350.00
8/03/2023	93938	NALDA HOSKINS	ART SALES	176.80
8/03/2023	94015	NATURAL EDGE FRAMING & PHOTOGRAPHY	ART SALES	25.55
22/03/2023	94262	NATURALISTE GLASS PTY LTD	GLASS REPAIRS AND MANUFACTURE	3,367.52
22/03/2023	94269	NATURALISTE HYGIENE SERVICES	HYGIENE SERVICES	1,650.00
8/03/2023	94006	NATURE CONSERVATION MARGARET RIVER REGION	BOND REFUND	715.00
8/03/2023	94170	NEVERFAIL SPRINGWATER LTD	WATER REFILL SERVICE - DUNS WASTE FACILI	259.55
22/03/2023	94326	NEW IMAGE LANDSCAPING AND MAINTENANCE	LANDSCAPE MAINTENANCE	25,416.51
8/03/2023	94114	NICHOLLS MACHINERY	PLANT PURCHASES / SERVICES / PARTS	165.00
22/03/2023	94448	NICHOLLS MACHINERY	PLANT PURCHASES / SERVICES / PARTS	2,382.48
30/03/2023	94538	NICHOLLS MACHINERY	PLANT PURCHASES / SERVICES / PARTS	32,120.00
22/03/2023	94365	NICOLE POLA	BJTP REFUND	58.00
22/03/2023	94386	NINTEX PTY LTD	CLOUD SOFTWARE	12,086.80
8/03/2023	94140	NUTRIEN WATER	RETICULATION SUPPLIES	734.56
22/03/2023	94474	NUTRIEN WATER	RETICULATION SUPPLIES	15,104.91
29/03/2023	94535	NUTRIEN WATER	RETICULATION SUPPLIES	1,848.71
8/03/2023	94096	OFFICE PORTFOLIO	OFFICE FURNITURE PARTS	192.50
8/03/2023	93974	OFFICEWORKS	OFFICE EQUIPMENT SERVICES	1,652.27
22/03/2023	94298	OFFICEWORKS	OFFICE EQUIPMENT SERVICES	203.34
22/03/2023	94338	OILVAC AUSTRALIA PTY LTD	OIL CHANGING EQUIPMENT	1,636.80
8/03/2023	93970	OPTEON PROPERTY GROUP PTY LTD	VALUATION SERVICES	4,950.00
8/03/2023	93940	OPTUS BILLING SERVICES PTY LTD	FIXED INTERNET ACCESS	2,500.00
15/03/2023	94178	OPTUS BILLING SERVICES PTY LTD	FIXED INTERNET ACCESS	567.20
8/03/2023	94071	ORACLE CUSTOMER MANAGEMENT SOLUTIONS PTY LTD	AFTER HOURS RECEPTION	2,545.91
22/03/2023	94407	ORACLE CUSTOMER MANAGEMENT SOLUTIONS PTY LTD	AFTER HOURS RECEPTION	1,987.10
22/03/2023	94404	ORANA CONCRETE PTY LTD	CONCRETE SERVICES - FOOTPATH VASSE	42,845.00
8/03/2023	93941	OSCAR NEGUS	FIRE OFFICER HONORARIUM	221.75
22/03/2023	94463	OTIS ELEVATOR COMPANY PTY LTD	ELEVATOR SERVICES	6,537.01
8/03/2023	94166	OWEN G ISBEL	ART SALES	104.40
8/03/2023	94059	PAR 3 PTY LTD	GOLF, MINI GOLF	250.00
29/03/2023	94525	PATRICK MARSHALL	STAFF REIMBUIRSEMENT	142.98
8/03/2023	94002	PAUL SHERIDAN	STAFF REIMBURSEMENT	92.14
8/03/2023	94121	PENDREY AGENCIES P/L	CHEMICAL/RURAL SUPPLIES	4,036.30
22/03/2023	94504	PENSKE POWER SYSTEMS	PLANT PURCHASES / SERVICES / PARTS	2,868.82
22/03/2023	94222	PEOPLE SENSE PTY LTD	EMPLOYEE ASSISTANCE PROGRAM	4,862.00
8/03/2023	94033	PETER EVANS	ART SALES	476.00
8/03/2023	93919	PETER STARK	BUSHFIRE OFFICER HONORARIUM	442.75
8/03/2023	94171	PFD FOOD SERVICES PTY LTD	GLC KIOSK PURCHASES	336.00
22/03/2023	94516	PFD FOOD SERVICES PTY LTD	GLC KIOSK PURCHASES	2,859.93
8/03/2023	93932	PHASE 3 LANDSCAPE CONSTRUCTION PTY LTD	LANDSCAPING SERVICES	5,912.50
8/03/2023	93918	PHIL HOLLETT PHOTOGRAPHY	ART SALES	49.35
8/03/2023	93920	PHOENIX FOUNDRY PTY LTD	MEMORIAL PLAQUES SUPPLIER	385.00
22/03/2023	94227	PHOENIX FOUNDRY PTY LTD	MEMORIAL PLAQUES SUPPLIER	240.90
22/03/2023	94259	PICTON CIVIL PTY LTD	EARTHMOVING SERVICES	3,256.00
22/03/2023	94439	PK COURIERS	COURIER SERVICES	524.70
8/03/2023	94029	PLANTATION PAPER	INK CARTRIDGES	319.09
22/03/2023	94217	POSITION PARTNERS	TRAINING SERVICES	3,919.76
22/03/2023	94392	POST NEWSPAPERS PTY LTD	ADVERTISING SERVICES	2,420.00
8/03/2023	93992	POWER MEDICAL CENTRE	PRE EMPLOYMENT MEDICAL	319.00
22/03/2023	94327	POWER MEDICAL CENTRE	PRE EMPLOYMENT MEDICAL	210.00
8/03/2023	94099	PRACTICAL PRODUCTS PTY LTD	COMMERCIAL CATERING EQUIPMENT	3,090.52
22/03/2023	94226	PRIME TELEVISION (SOUTHERN) PTY LIMITED	ADVERTISING SERVICES	3,300.00
8/03/2023	93979	PRO CRACK SEAL	CRACK SEALING SERVICES - BUSSELL HWY	17,820.00
8/03/2023	93989	PROJECT MILES TRUST	REPAIRS AND MAINTENANCE	8,262.10
15/03/2023	94185	PROJECT MILES TRUST	REPAIRS AND MAINTENANCE	9,805.40
22/03/2023	94318	PROJECT MILES TRUST	REPAIRS AND MAINTENANCE	2,269.30
22/03/2023	94402	PROSPEC FABRICATION PTY LTD	FABRICATION AND WLEDING	1,133.00
8/03/2023	93963	PVR INDUSTRIAL PTY LTD	INDUSTRIAL PUMP REPAIRS	8,099.09
22/03/2023	94278	PVR INDUSTRIAL PTY LTD	INDUSTRIAL PUMP REPAIRS	1,854.60
8/03/2023	94041	R & L NORRISH	BJTP REFUND	36.50
15/03/2023	94184	RACKMAN AUST	RACKING/SHELVING	21,502.99
8/03/2023	94091	RADIANCE NETWORK SOUTHWEST INC	RADIANCE NETWORK SYMPOSIUM	1,000.00
8/03/2023	94168	RAPID ASCENT PTY LTD	BOND REFUND	5,500.00
22/03/2023	94366	RE & KA MARSHALL	BJTP REFUND	130.00
8/03/2023	94098	RECONCILIATION WA	RECONCILIATION WEEK BANNERS	850.00
8/03/2023	94089	RED OHMS PTY LTD	ASSESSMENT OF SMALL PLANT VIBRATIONS	4,037.00
22/03/2023	94283	REDFISH TECHNOLOGIES PTY LTD	AUDIO VIDEO CONSULTING	2,465.76
8/03/2023	94080	REGIONAL PROJECTS WA PTY LTD	PROJECT MANAGEMENT & CONSTRUCTION SUPERVISING - BMRA	11,483.17
8/03/2023	94028	RENSKJE DOUGLAS	ART SALES	80.00

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INTERNAL PAYMENT VOUCHERS	DD #5221 - 5252	1,709,387.95
		9,926,057.12

8/03/2023	94131	REPCO AUTO PARTS	PLANT PURCHASES / SERVICES / PARTS	2,214.36
22/03/2023	94467	REPCO AUTO PARTS	PLANT PURCHASES / SERVICES / PARTS	1,095.65
22/03/2023	94424	RETEX PAVEMENT SERVICES WA	AIRFIELD PAVEMENT MANAGEMENT	7,939.80
22/03/2023	94258	RETRACTABLE TARPS PTY LTD	TARPAULINS	960.30
22/03/2023	94375	RICHARD EDWARDS	BOND REFUND	1,050.00
22/03/2023	94367	RICK ELLIS	BJTP REFUND	58.00
8/03/2023	94039	RJ & EA DOLAN	BJTP REFUND	55.50
22/03/2023	94508	RMS (AUST) PTY LTD	SOFTWARE SERVICES	129.53
8/03/2023	94042	ROCHELLE NEWMAN	BJTP REFUND	58.00
8/03/2023	94126	ROD'S AUTO ELECTRICS	AUTO ELECTRICAL SERVICES	427.09
22/03/2023	94462	ROD'S AUTO ELECTRICS	AUTO ELECTRICAL SERVICES	1,805.35
8/03/2023	94142	ROTARY CLUB OF BUSSELTON GEOGRAPHE BAY	SPONSORSHIP / ADVERTISING	7.00
8/03/2023	94115	ROYAL LIFE SAVING SOCIETY - WESTERN AUSTRALIA	TRAINING SERVICES	381.40
22/03/2023	94341	RURAL PRESS PTY LTD	ADVERTISING SERVICES	2,153.01
8/03/2023	94160	SAFE & SURE SECURITY PTY LTD	SECURITY SERVICES - ALARM OCCURANCE	1,001.00
8/03/2023	93927	SAFE FIRST TRAINING	STAFF TRAINING	529.00
22/03/2023	94235	SAFE FIRST TRAINING	STAFF TRAINING	488.00
22/03/2023	94351	SAI GLOBAL LTD	AUST STANDARDS PUBLICATIONS	38.19
8/03/2023	93949	SANDGROPER CONTRACTING	LIQUID WASTE REMOVAL SERVICE	1,996.50
8/03/2023	94101	SANDGROPER CONTRACTING PTY LTD	LIQUID WASTE REMOVAL SERVICE	3,085.50
8/03/2023	94031	SANDRA WALKER	ART SALES	9.60
8/03/2023	94072	SAPIO PTY LTD	SECURITY INSTALLATIONS AMD MAINTENANCE	1,667.60
15/03/2023	94174	SARAH PIERSON	STAFF REIMBURSEMENT	89.00
22/03/2023	94244	SCOPE BUSINESS IMAGING	ELECTRONIC EQUIPMENT	267.93
22/03/2023	94311	SEA CHANGE NEWS	STATIONERY AND OFFICE SUPPLIES	182.14
8/03/2023	94065	SEEK LIMITED	ADVERTISING SERVICES	995.50
22/03/2023	94400	SEEK LIMITED	ADVERTISING SERVICES	918.50
22/03/2023	94254	SERVICES AUSTRALIA	CHARGES FOR CENTREPAY FACILITY	124.74
22/03/2023	94320	SHANE & ALEXIS JENNINGS	INSTALLATION OF SCHEME WATER	792.50
8/03/2023	94069	SHARON HINCHLIFFE	ART SALES	9.80
8/03/2023	94165	SHARON WILLIAMS	ART SALES	93.60
22/03/2023	94510	SHARON WILLIAMS	ART SALES	257.54
22/03/2023	94390	SHELTER BREWING CO.	FOOD AND BEVERAGE	270.50
22/03/2023	94513	SHORE COASTAL PTY LTD	COASTAL CONSULTANCY SERVICES	16,588.00
8/03/2023	94063	SHOREWATER MARINE PTY LTD	MARINE ASSET MAINTENANCE	1,254.00
22/03/2023	94399	SHOREWATER MARINE PTY LTD	MARINE ASSET MAINTENANCE	23,144.55
29/03/2023	94530	SHOREWATER MARINE PTY LTD	MARINE ASSET MAINTENANCE	11,677.53
31/03/2023	94540	SHOREWATER MARINE PTY LTD	MARINE ASSET MAINTENANCE	138,612.38
8/03/2023	94084	SIGNS & LINES	DIGITAL ENTRY STATEMENT BILLBOARD	38,174.89
22/03/2023	94313	SIMONE NEWMAN	WATER CHARGES REIMBURSEMENT	3,457.35
8/03/2023	94010	SKIDATA AUSTRALASIA	CARPARK EQUIPMENT	80.85
29/03/2023	94526	SKIDATA AUSTRALASIA	CARPARK EQUIPMENT	4,541.90
9/03/2023	93902	SMARTSALARY PTY LTD	SALARY PACKAGING SERVICE	19,383.81
23/03/2023	94206	SMARTSALARY PTY LTD	SALARY PACKAGING SERVICE	17,763.81
22/03/2023	94241	SMC MARINE PTY LTD	MARINE CONSTRUCTION	4,400.00
22/03/2023	94273	SOGGYBONES WHEELBITE	EVENT COORDINATION	700.00
22/03/2023	94420	SOILS AINT SOILS	NURSERY SUPPLIES	98.80
15/03/2023	94188	SOLE TRAILS PTY LTD	EVENT MANAGEMENT SPONSORSHIP	3,850.00
22/03/2023	94434	SOLOMONS BUSSELTON	CRICKET TURF	25,290.00
8/03/2023	94046	SONIA CALDWELL	BJTP REFUND	121.50
8/03/2023	93935	SONIC HEALTH PLUS PTY LTD	OCCUPATIONAL HEALTH SERVICES	154.00
8/03/2023	94024	SOS OFFICE EQUIPMENT	OFFICE EQUIPMENT SERVICES	2,475.36
22/03/2023	94354	SOS OFFICE EQUIPMENT	OFFICE EQUIPMENT SERVICES	1,188.00
8/03/2023	94070	SOUNDWAVE	ELECTRONIC EQUIPMENT	1,600.00
22/03/2023	94281	SOUTH REGIONAL TAFE	EDUCATION & TRAINING	1,179.65
22/03/2023	94411	SOUTH WEST CLEANING	BBQ CLEANING	22,177.32
8/03/2023	94128	SOUTH WEST ISUZU	PLANT PURCHASES / SERVICES / PARTS	1,269.76
22/03/2023	94465	SOUTH WEST ISUZU	PLANT PURCHASES / SERVICES / PARTS	4,764.54
8/03/2023	93993	SOUTH WEST OFFICE NATIONAL	STATIONERY	905.61
22/03/2023	94330	SOUTH WEST OFFICE NATIONAL	STATIONERY	394.40
22/03/2023	94249	SOUTH WEST PRINTING & PUBLISHING	ADVERTISING SERVICES	3,193.94
8/03/2023	94117	SOUTH WEST STEEL PRODUCTS	STEEL PRODUCTS SUPPLIER	818.80
8/03/2023	94149	SOUTHERN MACHINING & MAINTENANCE	PLANT MAINTENANCE SERVICES	1,983.83
22/03/2023	94484	SOUTHERN MACHINING & MAINTENANCE	PLANT MAINTENANCE SERVICES	1,355.52
8/03/2023	94052	SOUTHWEST HOIST & CRANE	SERVICES AND REPAIRS OF HOISTS	1,479.50
8/03/2023	93957	SOUTHWEST OUTDOOR POWER	PLANT PURCHASES / SERVICES / PARTS	50.60
22/03/2023	94271	SOUTHWEST OUTDOOR POWER	PLANT PURCHASES / SERVICES / PARTS	269.30
8/03/2023	94087	SOUTHWEST TYRE SERVICE	PLANT TYRE SUPPLIER / REPAIRER	897.90
22/03/2023	94418	SOUTHWEST TYRE SERVICE	PLANT TYRE SUPPLIER / REPAIRER	4,390.00
22/03/2023	94267	SPORTFIRST BUSSELTON	SPORTING PRODUCTS	800.00
22/03/2023	94310	SPORTSPOWER	SPORT EQUIPMENT SUPPLIER	290.00
8/03/2023	94155	SPORTSWORLD OF WA	SPORT EQUIPMENT SUPPLIER	1,692.90
22/03/2023	94495	SPORTSWORLD OF WA	SPORT EQUIPMENT SUPPLIER	4,664.55
22/03/2023	94440	SPOTLIGHT	VACATION CARE SUPPLIES	127.40
8/03/2023	93961	SPRAYMOW SERVICES	MAINTENANCE SERVICES	6,717.40
22/03/2023	94275	SPRAYMOW SERVICES	MAINTENANCE SERVICES	2,843.80
22/03/2023	94435	ST GEORGE'S COMMNITY CARE DUNSBOROUGH	MEETING ROOM HIRE	210.00
8/03/2023	93923	ST JOHN AMBULANCE	TRAINING SERVICES	160.00
22/03/2023	94456	STATE LIBRARY OF WESTERN AUSTRALIA	LIBRARY RESOURCES	2,106.22
22/03/2023	94336	STEPHEN AND TRACY PARNHAM	WATER CHARGE REIMBURSEMENT	3,185.80
8/03/2023	94105	STEWART & HEATON CLOTHING CO PTY LTD	PROTECTIVE CLOTHING SUPPLIER	680.28
22/03/2023	94438	STEWART & HEATON CLOTHING CO PTY LTD	PROTECTIVE CLOTHING SUPPLIER	1,984.70
8/03/2023	94162	STRATAGREEN	NURSERY SUPPLIES	145.53
8/03/2023	93937	SUMMERS CONSULTING	MOSQUITO BREEDING MONITORING	627.00
8/03/2023	93911	SUPERCHOICE	SUPERANNUATION	188,834.01

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		9,926,057.12

23/03/2023	94215	SUPERCHOICE	SUPERANNUATION	191,815.04
22/03/2023	94483	SURF LIFE SAVING W.A.	LIFE GUARD CONTRACT	142,002.74
22/03/2023	94499	SURVCON PTY LTD	SURVEY SERVICES	2,761.00
22/03/2023	94370	SUSAN MATTHEWS	BJTP REFUND	58.00
8/03/2023	94127	SW PRECISION PRINT	PRINTING SERVICES	4,014.00
22/03/2023	94464	SW PRECISION PRINT	PRINTING SERVICES	5,040.00
15/03/2023	94186	SYNERGY	ELECTRICITY SUPPLIES	145,017.31
22/03/2023	94335	SYNERGY	ELECTRICITY SUPPLIES	1,665.61
8/03/2023	93976	TALOGY	PSYCHOMETRIC ASSESSMENT SERVICES	726.00
22/03/2023	94223	TARVIA PTY LTD	ENGINEERING SERVICES	586.30
8/03/2023	94017	TECH WINDOW GAVIN KENNETH BARNES t/as	IT SUPPORT AND RETAIL SALES	49.95
15/03/2023	94199	TELSTRA CORPORATION	COMMUNICATION SERVICES	10,257.45
22/03/2023	94436	TELSTRA CORPORATION LIMITED	RECOVERABLE COMMERCIAL WORKS - DUNSBOROUGH TOWNSCAPE	29,174.29
15/03/2023	94193	TELSTRA LIMITED	COMMUNICATION SERVICES	45.00
22/03/2023	94428	TELSTRA LIMITED	COMMUNICATION SERVICES	5,849.25
22/03/2023	94378	THE BUSSELTON OLD TIME DANCE INC	MINOR DONATION	250.00
22/03/2023	94403	THE CHILD KINGS	ENTERTAINMENT	400.00
22/03/2023	94421	THE MARGARET RIVER NATURAL SPRING WATER	BOTTLED WATER	165.00
8/03/2023	94035	THE SUGAR CHEF PATISSERIE	CATERING	413.00
15/03/2023	94190	THE SUGAR CHEF PATISSERIE	CATERING	176.00
22/03/2023	94360	THE SUGAR CHEF PATISSERIE	CATERING	190.00
8/03/2023	94004	THINK WATER DUNSBOROUGH	RETICULATION SERVICES	815.00
22/03/2023	94347	THINK WATER DUNSBOROUGH	RETICULATION SERVICES	504.83
8/03/2023	94012	THOMAS ECKERT	CARPENTRY WORK	762.30
8/03/2023	94164	THOMAS MAZEY	ART SALES	10.50
22/03/2023	94401	TILTFORCE TRANSPORT	TILT TRAY SERVICES	280.50
22/03/2023	94224	TINT A CAR BUSSELTON	MAINTENANCE SERVICES	495.00
8/03/2023	94075	TODD JOHNSON	FIRE HONORARIUM	221.75
8/03/2023	94044	TOSHIHIKO & RYOKO SAKAGAMI FUJI	BJTP REFUND	58.00
22/03/2023	94329	TOTAL TOOLS	TOOL PURCHASES	1,174.00
8/03/2023	94172	T-QUIP	MOWER PARTS & SERVICE	1,956.25
22/03/2023	94517	T-QUIP	MOWER PARTS & SERVICE	1,318.55
22/03/2023	94506	TRADE HIRE	PLANT HIRE & EQUIPMENT SERVICES	2,034.80
8/03/2023	93913	TRAFFIC FORCE	TRAFFIC MANAGEMENT SERVICES	1,383.80
8/03/2023	93953	TROPHIES ON TIME	NAME BADGE SUPPLIER	88.00
22/03/2023	94268	TROPHIES ON TIME	NAME BADGE SUPPLIER	77.00
22/03/2023	94291	TRUCK CENTRE (WA) PTY LTD	NEW VEHICLE PARTS & SERVICE	7,336.96
8/03/2023	94016	TRUCKLINE	PLANT PURCHASES / SERVICES / PARTS	520.27
22/03/2023	94350	TRUCKLINE	PLANT PURCHASES / SERVICES / PARTS	739.55
22/03/2023	94425	TWELVE PARSECS	ENTERTAINMENT - BATTLE OF THE BANDS	400.00
22/03/2023	94489	TYREPOWER BUSSELTON	PLANT TYRE SUPPLIER / REPAIRER	1,075.00
22/03/2023	94306	TYRES & MORE DUNSBOROUGH	TYRE SALES AND SERVICE	145.00
8/03/2023	94079	UNITING GLOBAL PTY LTD	CLEANING AND MAINTENANCE SERVICES	62,947.70
22/03/2023	94410	UNITING GLOBAL PTY LTD	CLEANING AND MAINTENANCE SERVICES	39,052.07
22/03/2023	94494	VEOLIA RECYCLING & RECOVERY PTY LTD	WASTE MANAGEMENT SERVICES	1,434.50
22/03/2023	94382	VISIMAX	FIRE EQUIPMENT SUPPLIER	467.28
22/03/2023	94413	VOGT GRAHAM LEGAL PTY LTD	LEGAL SERVICES	999.00
8/03/2023	94040	VOIDED	VOIDED	-
8/03/2023	94045	VOIDED	VOIDED	-
22/03/2023	94431	VOIDED	VOIDED	-
22/03/2023	94240	VORGEE PTY LTD	GYM GOODS	1,597.20
15/03/2023	94200	W.A. HINO SALES & SERVICE	PLANT PURCHASES / SERVICES / PARTS	773.16
22/03/2023	94496	WA RANGERS ASSOCIATION	MEMBERSHIP FEES	250.00
22/03/2023	94477	WA TREASURY CORPORATION	LOAN REPAYMENTS	1,304,702.26
22/03/2023	94216	WALGA	WALGA TRAINING SERVICES	70.00
8/03/2023	93916	WEATHERSAFE WA (DEL-RAY CANVAS)	CANVAS SERVICES	660.00
22/03/2023	94256	WELARM PTY LTD	BUSSELTON GROUNDWATER INVESTIGATION	3,047.53
8/03/2023	94102	WELLTECH TOTAL WATER MANAGEMENT	WATER TOWER HIRE	3,276.44
8/03/2023	94134	WEST OZ LINEMARKING	LINE MARKING SERVICES	2,476.10
22/03/2023	94469	WEST OZ LINEMARKING	LINE MARKING SERVICES	1,204.50
22/03/2023	94356	WESTERN GROWERS FRESH	CATERING	1,049.00
8/03/2023	93959	WESTERN IRRIGATION PTY LTD	BORE AND IRRIGATION SERVICES	6,007.32
22/03/2023	94452	WESTERN POWER CORPORATION	ELECTRICAL SERVICES	616.78
8/03/2023	94135	WESTRAC EQUIPMENT P/L	PLANT PURCHASES / SERVICES / PARTS	1,921.82
22/03/2023	94470	WESTRAC EQUIPMENT P/L	PLANT PURCHASES / SERVICES / PARTS	2,662.28
8/03/2023	94073	WESTSIDE TILT TRAY SERVICE	ABANDONED CAR REMOVAL	165.00
22/03/2023	94332	WHO'S ON LOCATION LIMITED	ELECTRONIC VISITOR MANAGEMENT SYSTEM	70.00
8/03/2023	93978	WIN MCGILL	ART SALES	10.50
8/03/2023	94122	WINC AUSTRALIA PTY LTD	STATIONERY SUPPLIER	73.41
22/03/2023	94457	WINC AUSTRALIA PTY LTD	STATIONERY SUPPLIER	568.10
22/03/2023	94237	WOODLANDS DISTRIBUTORS & AGENCIES PTY LTD	STREETSCAPE FURNITURE	8,702.76
8/03/2023	94138	WORK CLOBBER	PROTECTIVE CLOTHING SUPPLIER	417.00
22/03/2023	94472	WORK CLOBBER	PROTECTIVE CLOTHING SUPPLIER	264.00
8/03/2023	94154	WREN OIL	WASTE OIL SERVICES	16.50
22/03/2023	94493	WREN OIL	WASTE OIL SERVICES	16.50
8/03/2023	93962	YAHAVA KOFFEE WORKS WHOLESALE	CATERING	730.00
22/03/2023	94276	YAHAVA KOFFEE WORKS WHOLESALE	CATERING	399.90
8/03/2023	94136	YALLINGUP COASTAL VOLUNTEER BUSHFIRE BRIGADE	PETTY CASH REIMBURSEMENT	190.24
22/03/2023	94426	YELVERTON BIO INDUSTRIES	SLUDGE ANALYSIS LEACHATE POND DUNSBOROUGH	2,953.70
22/03/2023	94419	YOUTH AFFAIRS COUNCIL OF WA (YACWA)	YOUTH AND COMMUNITY SECTOR WORKSHOPS	8,316.00
22/03/2023	94460	ZIPFORM	PRINTING SERVICES	2,688.91
22/03/2023	94422	ZONE 50 ENGINEERING SURVEYS PTY LTD	SURVEYING SERVICES	3,954.50
				7,970,944.89

TRUST PAYMENTS MARCH 2023

City of Busselton
Geographe Bay

LISTING OF PAYMENTS MADE
UNDER DELEGATED AUTHORITY
FOR THE MONTH OF MARCH 2023

CHEQUE PAYMENTS	119611 - 119646	54,806.98
ELECTRONIC FUNDS TRANSFER PAYMENTS	93902 - 94201 and 94206 to 94540	7,970,944.89
TRUST ACCOUNT PAYMENTS	EFT# 94202 - 94205	25,949.96
PAYROLL PAYMENTS	01.03.23 - 31.03.23	164,967.34
INTERNAL PAYMENT VOUCHERS	DD #5221 - 5252	1,709,387.95
		9,926,057.12

DATE	REF #	NAME	DESCRIPTION	AMOUNT $
16/03/2023	94203	CITY OF BUSSELTON - EFT	INTERNAL PAYMENTS / COMMISSIONS	554.25
16/03/2023	94204	CONSTRUCTION TRAINING FUND	CTF LEVY	2,920.09
16/03/2023	94202	DEPARTMENT OF MINES, INDUSTRY REGULATION & SAFETY	BUILDING SERVICES LEVY	22,413.97
22/03/2023	94205	WEST WIDE SHED SERVICES	BUILDING FEE REFUND	61.65
				25,949.96

INTERNAL PAYMENT VOUCHERS (DIRECT DEBITS) MARCH 2023

DATE	REF #	NAME	DESCRIPTION	AMOUNT $
7/03/2023	5251	AMPOL	FUEL	113413.46
1/03/2023	5225	ANZ BANK	BANK FEES	15.00
1/03/2023	5226	ANZ BANK	BANK FEES	15.00
6/03/2023	5229	ANZ BANK	BANK FEES	775.78
6/03/2023	5230	ANZ BANK	BANK FEES	2,253.96
6/03/2023	5231	ANZ BANK	BANK FEES	177.47
6/03/2023	5232	ANZ BANK	BANK FEES	254.01
1/03/2023	5234	ANZ BANK	BANK FEES	6,996.17
9/03/2023	5250	ANZ BANK - VISA CARD	CREDIT CARD PAYMENT	17,391.71
		Apple iCLOUD STORAGE	iCLOUD STORAGE -O.DARBY	4.49
		SAI GLOBAL- AUSTRALIAN STANDARDS	AS 2021:2015 CONSTRUCTION AGAINST AIRCRAFT NOISE	284.69
		COLES- CATERING	STAFF FAREWELL MORNING TEA-J.TAUKIRI	45.00
		COLES- CATERING	STAFF FAREWELL MORNING TEA-A.CLARKE	45.00
		DOMINOS- YOUTH SERVICES	CATERING- SATURDAY NIGHT PROGRAM	103.93
		FACEBOOK ADVERTISING	GLC-MEMBERSHIP SALE	56.43
		DOMINOS- YOUTH SERVICES	CATERING- SATURDAY NIGHT PROGRAM	103.98
		HOLIDAY HOME MADE EASY	ACCOMMODATION FOR BEYOND THE VASSE TEAM -SALTWATER OPENING	1,115.20
		SENDGRID	EMAIL PROGRAM FOR CUSTOMER RETENTION AND CONTACT-GLC	29.98
		OCULUS	OCULUS VR GAMES -YOUTH SERVICES	228.94
		RADIOLOGICAL COUNCIL	AIRPORT EQUIPMENT REGISTRATION	480.00
		DOMINOS- YOUTH SERVICES	CATERING- SATURDAY NIGHT PROGRAM	104.45
		MAILCHIMP-ELECTRONIC MARKETING	LIBRARY NEWSLETTER AND MARKETING	113.75
		MESSAGEMEDIA	GLC - CUSTOMER RETENTION AND CONTACT SYSTEM	83.16
		SPOTIFY	MUSIC FOR YOUTH SERVICES EVENTS	18.99
		FACEBOOK ADVERTISING	GLC-MEMBERSHIP SALE	62.18
		CITY OF BUSSELTON	BUILDING LEVY -BMRA	61.65
		REGIONAL ARTS WA	CREATIVE LEADERSHIP TRAINING - J.HAPP	200.00
		MAILCHIMP -ARTGEO	ELECTRONIC MARKETING -ARTGEO	104.38
		DOMINOS- YOUTH SERVICES	CATERING- SATURDAY NIGHT PROGRAM	108.98
		TERRY TRUCK RENTALS /HERTZ DEPOSIT	TRANSPORT FOR BEYOND THE VASSSE TEAM -SALTWATER OPENING	1,039.16
		SPOTLIGHT	SKATEBOARD DECK-DUNS SKATEPARK EVENT	600.00
		DOMINOS- YOUTH SERVICES	CATERING- SATURDAY NIGHT PROGRAM	127.45
		POST OFFICE DUNS	WA POLICE NPC APPLICATION	58.70
		MAILCHIMP	ELECTRONIC NEWSLETTER PR	352.40
		PERTH AIRPORT PARKING	PARKING WHILE ATTENDING RCA CONFERENCE IN CANBERRA-CEO & MAYOR	96.07
		AERIAL CG -TAXI	MAYOR/CEO TAXI FARE- RCA DELEGATION CANBERRA	28.51
		VIRGIN AUSTRALIA INFLIGHT FOOD	INFLIGHT FOOD- RCA CONFERENCE IN CANBERRA-CEO & MAYOR	30.00
		HOTEL REALM PTY LTD	DRINKS- RCA CONFERENCE IN CANBERRA-CEO & MAYOR	56.00
		BRASSEY HOTEL CANBERRA	ACCOMMODATION-RCA CONFERENCE CANBERRA-MAYOR HENLEY	309.00
		BRASSEY HOTEL CANBERRA	ACCOMMODATION-RCA CONFERENCE CANBERRA-CEO	320.00
		CITY HILL COFFEE CANBERRA AIRPORT	MEAL-RCA CONFERENCE CANBERRA-CEO	42.36
		FLORIST GUMP	SYMPATHY FLOWERS	108.00
		COLES EXPRESS DUNSBOROUGH	FUEL CEO VEHICLE	149.16
		REGIONAL AUSTRALIA INSTITUTE	ATTENDANCE TO REGIONS RISING -T.NOTTLE	220.00
		WEST AUSTRALIAN	DIGITAL SUBSCRIPTION	28.00
		ECU	TUITION FEES	4,260.00
		VITALSOURCE	STUDY ASSISITANCE- T.NOTTLE	79.26
		AUST. LIBRARY AND INFORMATION ASSOCIATION	JOB ADVERTISMENT -LIBRARIAN ESERVISES	595.00
		CONETIX PTY LTD	SPAM FILTER- busselton.wa.gov.au & artgeo.com.au	480.00
		GO DADDY	DOMAIN REGISTRATION RENEWAL -SALTWATERBUSSELTON.COM.AU	21.95
		OFFICEWORKS	THUMBDRIVES	59.25
		DEPUTY	DEPUTY ROSTERING SYSTEM GLC	859.49
		MWAVE	12 USB DESKTOP EXTENDERS	154.35
		GO DADDY	DOMAIN REGISTRATION RENEWAL -SALTWATERBUSSELTON.COM	32.92
		ZOOM	MONTHLY SUBSCRIPTION	129.72
		GO DADDY	WILDCARD RENEWAL BUSSELTON.WA.GOV.AU	1,499.91
		DELAWARE NORTH	BREAKFAST- EX TROPICAL CYCLONE ELLIE DEPLOYMENT INCIDENT 603042	25.50
		PERTH AIRPORT PTY LTD	AIRPORT PARKING- EX TROPICAL CYCLONE ELLIE DEPLOYMENT INCIDENT 603042	145.37
		REGIONAL AUST. INST.	REGIONS RISING EVENT-CR COX	220.00
		THAI LEMONGRASS	COUNCIL CATERING 08/02/23	370.00
		NATIONAL TAX & ACCOUNTANTS ASSOC.	2023 FBT ONLINE SEMINAR J. SPURGEON	469.00
		REGIONAL AUST. INST.	REGIONS RISING EVENT-CR RICHARDS	220.00
		IAP2 AUSTRALIASIA	EVALUATE ENGAGEMENT -VIRTUAL TRAINING-K.JAMES	850.00
22/03/2023	5249	B STEWART	REFUND OF RATE OVERPAYMENT	1,183.29
20/03/2023	5241	BARRIER REEF POOLS	APPLICATION REFUND	61.65
16/03/2023	5240	BUSSELTON HOCKEY CLUB	APPLICATION REFUND	307.00
3/03/2023	5233	COMMONWEALTH BANK	BANK FEES	555.09
15/03/2023	5238	COMMONWEALTH BANK	BANK FEES	27.20
21/03/2023	5245	CR. MIKAYLA LOVE	COUNCILLOR PAYMENT	311.36
21/03/2023	5243	D COSGROVE	REFUND OF ANIMAL TRAP BOND	100.00
15/03/2023	5237	D HOMER	REFUND OF ANIMAL TRAP BOND	100.00
20/03/2023	5241	GOOD TIMES TOURING	REFUND OF HALL & KEY DEPOSITS	1,000.00
29/03/2023	5252	GRAPES OF MIRTH	REFUND OF BOND APPLICATION	569.00
1/03/2023	5222	J CRITCH	REFUND OF RATE OVERPAYMENT	1814.40
14/03/2023	5235	K MAIDEN	APPLICATION REFUND	85.00
2/03/2023	5224	L GEORGE	REFUND OF ANIMAL TRAP BOND	100.00

City of Busselton
Geographe Bay

LISTING OF PAYMENTS MADE
UNDER DELEGATED AUTHORITY
FOR THE MONTH OF MARCH 2023

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PAYROLL PAYMENTS	01.03.23 - 31.03.23	164,967.34
INTERNAL PAYMENT VOUCHERS	DD #5221 - 5252	1,709,387.95
		9,926,057.12

1/03/2023	5227	LES MILLS ASIA PACIFIC	CONTRACT FEES	524.85
1/03/2023	5228	LES MILLS ASIA PACIFIC	CONTRACT FEES	629.82
22/03/2023	5249	LUGGER ENTERPRISES	APPLICATION REFUND	4,590.00
1/03/2023	5239	NAUTICAL DRIVE FEST	APPLICATION REFUND	1,139.00
14/03/2023	5236	P BLAKE	REFUND OF ANIMAL TRAP BOND	100.00
20/03/2023	5247	P MAIOLO	AIRPORT PARKING CARD REFUND	20.00
14/03/2023	5235	P SMALL	REFUND OF RATE OVERPAYMENT	1,345.95
1/03/2023	5221	PEOPLE SENSE PTY LTD	BOND REFUND	246.40
3/03/2023	5223	R SERROAN	APPLICATION REFUND	147.00
1/03/2023	5221	S HARTNETT	REFUND OF HALL & KEY DEPOSITS	500.00
1/03/2023	5239	S HIGGINBOTTOM	APPLICATION REFUND	284.00
14/03/2023	5235	S KING	REFUND OF RATE OVERPAYMENT	352.00
1/03/2023	5239	S MIGHALL	APPLICATION REFUND	1,137.27
22/03/2023	5244	S RICHARDSON	REFUND OF RATE OVERPAYMENT	511.00
14/03/2023	5235	S RUSHFORTH	REFUND OF RATE OVERPAYMENT	564.00
22/03/2023	5248	S SWEATMAN	AIRPORT PARKING CARD REFUND	20.00
1/03/2023	5222	SOUTHWESTERN HOSPITALITY	APPLICATION REFUND	295.00
14/03/2023	5235	SUN CREAM NINGALOO	APPLICATION REFUND	77.33
22/03/2023	5246	SURVON LAND SURVEY	APPLICATION REFUND	146.00
20/03/2023	5242	T MCAULIFFE	REFUND OF ANIMAL TRAP BOND	100.00
22/03/2023	5249	T WILDING	REFUND OF RATE OVERPAYMENT	3,091.44
1/03/2023	5221	TANGENT	APPLICATION REFUND	1,639.73
				164,967.34

12.3 Finance Committee - 3/5/2023 - FINANCIAL ACTIVITY STATEMENTS - YEAR TO DATE AS AT 31 MARCH 2023

STRATEGIC THEME	LEADERSHIP - A Council that connects with the community and is accountable in its decision making.
STRATEGIC PRIORITY	4.2 Deliver governance systems that facilitate open, ethical and transparent decision making.
SUBJECT INDEX	Financial Activity Statements
BUSINESS UNIT	Financial Services
REPORTING OFFICER	Manager Financial Services - Paul Sheridan
AUTHORISING OFFICER	Acting Director, Finance and Corporate Services - Sarah Pierson
NATURE OF DECISION	Executive: Substantial direction setting, including adopting budgets, strategies, plans and policies (excluding local planning policies); funding, donations and sponsorships; reviewing committee recommendations
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Investment Report - March 2023 Attachment B Loan Schedule - March 2023 Attachment C Financial Activity Statement - March 2023

This item was considered by the Finance Committee at its meeting on 3/5/2023, the recommendations from which have been included in this report.

COMMITTEE RECOMMENDATION

That the Council receives the statutory financial activity statement reports for the period ending 31 March 2023, pursuant to Regulation 34(4) of the *Local Government (Financial Management) Regulations 1996*.

OFFICER RECOMMENDATION

That the Council receives the statutory financial activity statement reports for the period ending 31 March 2023, pursuant to Regulation 34(4) of the *Local Government (Financial Management) Regulations 1996*.

EXECUTIVE SUMMARY

Pursuant to Section 6.4 of the *Local Government Act 1995* (the Act) and Regulation 34(4) of the *Local Government (Financial Management) Regulations 1996* (the Regulations), a local government is to prepare, on a monthly basis, a statement of financial activity that reports on the City's financial performance in relation to its adopted / amended budget.

This report has been compiled to fulfil the statutory reporting requirements of the Act and associated Regulations, whilst also providing the Council with an overview of the City's financial performance on a year to date basis, for the period ending 31 March 2023.

BACKGROUND

The Regulations detail the form and manner in which financial activity statements are to be presented to the Council on a monthly basis, and are to include the following:

- Annual budget estimates
- Budget estimates to the end of the month in which the statement relates
- Actual amounts of revenue and expenditure to the end of the month in which the statement relates

- Material variances between budget estimates and actual revenue/expenditure (including an explanation of any material variances)
- The net current assets at the end of the month to which the statement relates (including an explanation of the composition of the net current position)

Additionally, and pursuant to Regulation 34(5) of the Regulations, a local government is required to adopt a material variance reporting threshold in each financial year. At its meeting on 3rd August 2022, the Council adopted (C2208/198) the following material variance reporting threshold for the 2022/23 financial year:

> *That pursuant to Regulation 34(5) of the Local Government (Financial Management) Regulations, the Council adopts a material variance reporting threshold with respect to financial activity statement reporting for the 2022/23 financial year as follows:*
>
> - *Variances equal to or greater than 10% of the year to date budget amount as detailed in the Income Statement by Nature and Type/Statement of Financial Activity report, however variances due to timing differences and/or seasonal adjustments are to be reported only if not to do so would present an incomplete picture of the financial performance for a particular period; and*
> - *Reporting of variances only applies for amounts greater than $50,000.*

OFFICER COMMENT

In order to fulfil statutory reporting requirements and to provide the Council with a synopsis of the City's overall financial performance on a year to date basis, the following financial reports are attached hereto:

Statement of Financial Activity

This report provides details of the City's operating revenues and expenditures on a year to date basis, by nature and type (i.e. description). The report has been further extrapolated to include details of non-cash adjustments and capital revenues and expenditures, to identify the City's net current position; which reconciles with that reflected in the associated Net Current Position report.

Net Current Position

This report provides details of the composition of the net current asset position on a full year basis, and reconciles with the net current position as per the Statement of Financial Activity.

Capital Acquisition Report

This report provides full year budget performance (by line item) in respect of the following capital expenditure activities:

- Land and Buildings
- Plant and Equipment
- Furniture and Equipment
- Infrastructure

Reserve Movements Report

This report provides summary details of transfers to and from reserve funds, and associated interest earnings on reserve funds, on a full year basis.

Additional reports and/or charts can be provided as required to further supplement the information comprised within the statutory financial reports.

Comments on Financial Activity to 31 March 2023

The Statement of Financial Activity (FAS) for the year to date (YTD) shows an overall Net Current Position of $10.9M as opposed to the YTD budget of ($3.7M). This represents a positive variance of $14.6M YTD.

The following table summarises the major YTD variances that appear on the face of the FAS, which, in accordance with Council's adopted material variance reporting threshold, collectively make up the above difference. Each numbered item in this lead table is explained further in the report.

Description	2022/23 Actual YTD $	2022/23 Amended Budget YTD $	2022/23 Amended Budget $	2022/23 YTD Bud Variance %	2022/23 YTD Bud Variance $	Change in Variance Current Month $
Revenue from Ordinary Activities				***9.61%***	***7,177,297***	***746,612***
1. Operating Grants, Subsidies and Contributions	2,409,734	1,776,778	3,432,638	35.62%	632,957	(49,663)
2. Fees & Charges	18,712,069	13,954,543	19,894,021	34.09%	4,757,526	582,874
3. Other Revenue	412,995	264,044	351,906	56.41%	148,951	(8,435)
4. Interest Earnings	2,938,598	1,475,191	2,019,250	99.20%	1,463,407	262,112
Expenses from Ordinary Activities				***(14.01%)***	***(7,920,127)***	***(1,192,970)***
5. Materials & Contracts	(14,487,875)	(8,948,710)	(23,416,561)	(61.90%)	(5,539,165)	(949,450)
6. Utilities (Gas, Electricity, Water etc)	(2,053,024)	(1,832,451)	(2,876,680)	(12.04%)	(220,573)	(35,803)
7. Insurance Expenses	(869,528)	(635,989)	(652,369)	(36.72%)	(233,539)	(82)
8. Other Expenditure	(2,642,346)	(2,067,140)	(7,677,546)	(27.83%)	(575,206)	(109,993)
9. Non-Operating Grants, Subsidies and Contributions	9,339,721	594,396	32,939,826	1471.30%	8,745,325	4,000,012
Capital Revenue & (Expenditure)				***10.93%***	***4,521,253***	***(189,740)***
10. Land & Buildings	(9,652,732)	(11,876,748)	(41,476,124)	18.73%	2,224,016	307,498
Plant & Equipment	(1,032,981)	(1,277,273)	(4,773,534)	19.13%	244,292	1,131,195
Furniture & Equipment	(680,487)	(556,190)	(1,178,086)	(22.35%)	(124,297)	(2,446)
Infrastructure	(10,713,788)	(13,669,313)	(23,055,781)	21.62%	2,955,526	(91,128)
11. Proceeds from Sale of Assets	396,242	585,452	460,652	(32.32%)	(189,210)	(409,198)
12. Proceeds from New Loans	6,500,000	0	6,750,000	100.00%	6,500,000	0
13. Transfer to Restricted Assets	(21,629,258)	0	0	(100.00%)	(21,629,258)	(5,251,849)
14. Transfer from Restricted Assets	14,150,688	0	13,038,048	100.00%	14,150,688	4,103,088
15. Transfer from Reserves	4,190,034	2,145,016	39,885,838	95.34%	2,045,018	993,476

Revenue from Ordinary Activities

In total, revenue from Ordinary Activities is 9.6% ahead YTD. There are however material variance items contained within this category, on the face of the FAS, that require comment.

1. Operating Grants, Subsidies and Contributions

Ahead of YTD budget by $633K, or 35.6%, mainly due to the items listed in the table below:

Cost Centre Code	Cost Centre Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
Finance and Corporate Services		***850,491***	***678,123***	***172,368***	***25.4%***	***(43,851)***
1028	Governance and Corporate Services	29,572	-	29,572	100.0%	-
Actuals relate to 2 x Parenting Leave Reimbursements which were not budgeted for. These are offset by the actual wages paid to the employee while on parental leave.						
1030	Human Resources	38,872	-	38,872	100.0%	5,176
The actuals relate primarily to Workcover wages reimbursement from LGIS. This is not something that can be reliably estimated, hence there is no budget figure for the year.						
1033	Financial Services	56,338	163,520	(107,182)	(65.5%)	(43,457)
The variance to budget relates to mainly Insurance Reimbursements. The total budget for the year is an estimate based on prior years, with monthly timing difficult to forecast accurately due to not knowing in advance when insurance claims will need to be made.						
1034	General Purpose Funding	562,853	415,309	147,544	35.5%	4,197
The annual Financial Assistance Grants from the state government are received each year in 4 instalments. At the time of setting the budget, estimates were made based on prior years receipts, incremented by projected LGCI. Final FAGS distributions, finalised after the budget was set, were higher than initially forecast. As such there is higher than anticipated grant revenue in this area YTD, and this will continue through to the end of the financial year.						
1038	Records	14,624	-	14,624	100.0%	-
Actuals relate to Parenting Leave Reimbursements which were not budgeted for. These are offset by the actual wages paid to the employee while on parental leave.						
1041	Land and Property Leasing	134,500	91,556	42,943	46.9%	(9,249)
When the budget was created there were no allocations for utility charge reimbursements for certain properties (i.e. the amounts the tenants of the Microbrewery, Interpretive Centre and UWO pay the City to reimburse the City for utility charges were budgeted as $0). YTD the City has received revenue for reimbursements across those properties which explains most of the current exceedance and also why the budget will likely be exceeded at year end.						
Community and Commercial Services		***164,931***	***164,359***	***572***	***0.3%***	***(28,947)***
1005	Library Services	63,676	44,308	19,368	43.7%	1,467
$7K relates to unbudgeted Parenting Leave Reimbursements (offset in parental leave wages), and the remainder is a timing difference with all of the budgeted operating grants having been received ahead of budget.						
1007	Airport Operations	1,077	57,811	(56,734)	(98.1%)	(12,500)
This is a budget timing variance that relates mainly to the $50K RADS grant that will be received towards the end of the financial year. The budget has been spread.						
1009	Community and Recreation Management	83,239	60,000	23,239	38.7%	(17,364)
The variance relates to timing differences in the budget phasing for Youth Services being allocated entirely in June.						

Cost Centre Code	Cost Centre Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
1011	Leisure Centres	11,876	-	11,876	100.0%	(390)
$7K relates to unbudgeted Parenting Leave Reimbursements (offset in parental leave wages), and the remainder relates to a grant for a JobSkills Trainee that was not budgeted for (also offset by slightly higher wages).						
Planning and Development Services		***471,103***	***434,598***	***36,505***	***8.4%***	***(6,166)***
1043	Planning and Development Directorate Admin	20,008	-	20,008	100.0%	20,000
This is a final recoup of the Healthy Estuaries grant that was not budgeted.						
1048	Statutory Planning	14,716	-	14,716	100.0%	1,625
The variance relates to unbudgeted Parenting Leave Reimbursements. These are offset by the actual wages paid to the employee while on parental leave.						
1049	Strategic Planning Management	15,200	-	15,200	100.0%	-
This is the final grant payment as part of the Coastal Adaptation Strategy. It was expected in the 21/22 year, and was therefore not budgeted for in this FY.						
1051	Environmental Health Services	75,111	-	75,111	100.0%	-
This is a timing variance with budgets allocated to June and actual operating contributions already reconciled and recouped in relation to the CLAG mosquito program with neighbouring shires.						
1054	Ranger and Emergency Management	346,068	434,598	(88,530)	(20.4%)	(27,791)
The variance is a combination of the cancellation of grant funding for the previous 0.5FTE Bushfire Risk Management Officer role (a new 1.0 FTE role has been created, but funded from the Ranger budget for the 21/22 FY), budget timing for the recognition of the ESL levy reimbursements, and a reallocation of the budget for the ESL Commission administration. It is expected that we will be under budget by approximately $80K by the end of the financial year.						
Engineering and Works Services		***923,209***	***499,513***	***423,696***	***84.8%***	***29,301***
1015	Operations and Works Management	129,249	50,384	78,865	156.5%	16,549
Actuals and budget relate to Workers Compensation Insurance Reimbursements, which are difficult to predict with any degree of accuracy, and are usually based on historical trends.						
1016	Construction and Maintenance	122,874	-	122,874	100.0%	(6,620)
Actuals relate to unbudgeted insurance recoveries for Gale Road bridge repairs and maintenance, and reimbursements from RAC for the charging station costs in Busselton and Dunsborough.						
1017	Parks & Gardens	151,626	25,394	126,233	497.1%	8,525
Positive variance to budget relates mainly to the Southwest Catchments Council's grants in the Environmental Management area, plus some other minor grants, all with budget allocations in the June period.						
1019	Facilities Maintenance	41,075	-	41,075	100.0%	2,804
The positive variance is due to the allocation of utilities reimbursements from tenants, which were budgeted in a different area. A review of that budget indicates that we are expecting to recover more than expected by year end overall, due to higher actual utility costs.						
1025	Fleet Management	61,015	-	61,015	100.0%	11,528
Actuals relate to Fuel Rebates received, with the full year budget of $117K allocated to June. Due to the ATO cutting the excise rate, the fuel rebates will come in considerably less than budget by year end.						

2. Fees & Charges

Ahead of YTD budget by $4.8M, or 34.1%, mainly due to the items listed in the table below:

Cost Centre Code	Cost Centre Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
Finance and Corporate Services		***969,785***	***824,476***	***145,309***	***17.6%***	***82,841***
1034	General Purpose Funding	49,292	58,638	(9,346)	(15.9%)	(712)
Lower than expected property information and settlement/search requests.						
1037	Customer Service	76,936	84,609	(7,674)	(9.1%)	3,248
This account relates to Cemetery Income; there has been less demand on this service year to date.						
1041	Land and Property Leasing	436,948	293,415	143,533	48.9%	74,142
The variance is primarily as a result of timing issues caused by how the budget has been spread (e.g. rental payments have been received ahead of where they were allocated in the budget). Lease revenue is forecasted to be significantly lower for the Goose Café (rent concession granted by Council during rebuild), Old Tennis Club Building (delays with entering into a lease with new tenant) and Peel Terrace Building (delays with entering into a lease with new tenant after CQU vacated). This will likely result in budget not being achieved by the end of financial year.						
1042	Aged and Community Housing	404,705	386,818	17,888	4.6%	5,103
Income fluctuates depending on financial status of tenants and is difficult to predict accurately.						
Community and Commercial Services		***7,127,527***	***3,101,829***	***4,025,698***	***129.8%***	***459,655***
1001	Community & Commercial Directorate Administration	1,420,717	1,090,973	329,743	30.2%	56,468
Significantly ahead of budget YTD due to much higher levels of caravan park visitations than originally forecast.						
1003	Cultural Precinct	31,637	13,429	18,208	135.6%	3,878
Higher than forecast YTD retail and art sales have been achieved due to the successful Margaret River Open Studios event and commercial rent was also received earlier than forecast.						
1004	Events	27,800	-	27,800	100.0%	4,072
The variance relates to timing variances in terms of how the budget has been spread. We are on target to achieve full year budget.						
1005	Library Services	31,697	14,688	17,009	115.8%	4,095
Much higher than expected printing and photocopying fees raised YTD, and are expected to exceed the full year budget as well.						
1007	Airport Operations	3,260,666	1,831,426	1,429,241	78.0%	180,546
Significantly ahead of budget YTD due to much higher levels of visitations than originally forecast, giving rise to increased passenger, landing and car parking fees at the airport.						
1008	Economic and Business Development	34,506	23,998	10,507	43.8%	679
Hire fees are over YTD and overall in this category it is forecast to be over budget by year end.						
1009	Community and Recreation Management	100,955	-	100,955	100.0%	7,654
The YTD variance relates to timing, in terms of how the budget has been spread. In relation to the full year budget, the following is forecast: • Hire fees – on track to 90% achievement of budget. • Hire of Buildings – on track to achieve. • Hire Sporting grounds – on track to achieve. • Event application fee – Exceed budget.						

Cost Centre Code	Cost Centre Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
1011	Leisure Centres	2,220,159	124,564	2,095,595	1682.3%	202,263
The YTD variance relates to timing issues in terms of how the budget has been spread. Based on YTD actuals when compared to the full year budget we are expected to be under by approximately $100K by the end of the financial year, largely due to reduced vacation care, memberships, and swimming lesson revenue.						
Planning and Development Services		***1,865,305***	***1,760,240***	***105,066***	***6.0%***	***20,009***
1046	Building Services	520,898	536,423	(15,525)	(2.9%)	2,061
Fees income is determined by the volume and construction costs of building activity. Fee income is budgeted on a best estimate basis, but is inherently uncertain. Building activity has continued at elevated levels, but reduced slightly over the last few months.						
1049	Strategic Planning Management	52,841	44,415	8,426	19.0%	5,774
Higher than expected rezoning and structure plan charges.						
1048	Statutory Planning	669,742	552,914	116,829	21.1%	12,090
Fees income is determined by the volume and value of development activity. Fees income is budgeted on a best estimate basis, but is inherently uncertain. Development activity has continued at elevated levels so far in 22/23.						
1054	Ranger and Emergency Management	131,481	146,030	(14,548)	(10.0%)	1,963
Principally due to overdue animal registration fees.						
Engineering and Works Services		***8,753,285***	***8,267,998***	***485,286***	***5.9%***	***20,369***
1020	Engineering Technical Management	119,675	70,643	49,032	69.4%	1,040
The increase in revenue for the Engineering and Technical Management area can directly be attributed to the increase in development. This is specific to the increased number of Traffic Management Plans approved, as well as an increase in Sub-Division Supervision Fees.						
1024	Waste and Fleet Management	8,635,898	8,193,529	442,369	5.4%	19,330
Positive variance due to increased revenue from additional rateable properties coming online, as well as Waste Facilities receiving volumes above the forecasted amounts.						

3. Other Revenue

Ahead of YTD budget by $149K, or 56.4%, mainly due to the items listed in the table below:

Cost Centre Code	Cost Centre Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
Finance & Corporate Services		***57,644***	***21,386***	***36,258***	***169.5%***	***5,696***
1034	General Purpose Funding	22,137	7,336	14,801	201.8%	-
Timing variance due to budget spread and where it was previously allocated. The actual amount received is representative of prior year's ESL administration fees received.						
1037	Customer Service	30,594	13,421	17,173	128.0%	462
This account relates to Cemetery memorials, where there has been higher demand year to date, and the Sale of Number plates which has also had much higher demand than anticipated.						

Cost Centre Code	Cost Centre Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
Community & Commercial Services		***54,377***	***1,727***	***52,650***	***3048.0%***	***2,872***
1007	Airport Operations	37,930	675	37,255	5516.6%	203
The City is the airfield representative for ABP and on occasion will process fuel sales on their behalf. The funds are then paid onto ABP. There has been higher activity levels in this area than initially anticipated.						
Planning & Development Services		***71,937***	***92,390***	***(20,453)***	***(22.1%)***	***(3,800)***
1053	Regulatory Compliance	27,417	-	27,417	100.0%	640
This unbudgeted income relates to a Long Service Leave entitlement paid to the City from another Local Government entity, for an employee that had accumulated that entitlement at that other entity, and has now taken the leave.						
1054	Ranger & Emergency Management	30,996	86,184	(55,188)	(64.0%)	(4,332)
Main variances include: • Fire Prevention DFES – under $18K: Change in allocation in budget – ESL commission is now allocated to Finance due to the administration of this funding sitting within the responsibilities of this business area. • Parking Control – $22K under: income dependent on number of parking offences. There had been a decrease in scheduled patrols due to staff absences, also fewer patrols and infringements in Dunsborough due to road works resulting in temporary reduction in parking bays. • Animal Control – $14K under: income dependent on number of animal control offences. There has been more of a focus on education, rather than an immediate issuance of infringements. Anecdotally, this emphasis on education has also seen lower actual infringement.						
Engineering & Works Services		***211,091***	***148,540***	***62,551***	***42.1%***	***(13,202)***
1024	Waste & Fleet Management	202,883	142,096	60,787	42.8%	(13,202)
Positive variance due to increased revenue from Waste Facilities receiving volumes above the forecasted amounts.						

4. Interest Earnings

$1.5M better than YTD budget due to much higher than expected interest rates, plus a higher than forecast cash on hand position in comparison to previous years. This is due mainly to the earlier than forecast application and receipt of the budgeted Saltwater construction project loans cash, and subsequent re-investment in term deposits (due to rising rates), until required for use in the project.

Expenses from Ordinary Activities

Expenditure from ordinary activities is $7.9M, or 14%, more than expected when compared to the budget YTD. The expense line items on the face of the financial statement that have a YTD variance that meet the material reporting threshold are outlined below.

5. Materials & Contracts

$5.5M, or 61.9%, over the budget YTD. The main contributing items are listed below:

Cost Centre Code	Cost Centre Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
Finance and Corporate Services		***1,641,680***	***589,428***	***(1,052,252)***	***(178.5%)***	***(119,185)***
1027	Finance & Corporate Services Directorate Administration	10,852	1,197	(9,656)	(807.0%)	69
YTD budget figures are not reflective of actual spend, but it is expected that actuals for the year will be on track to budget by year end.						
1028	Governance and Corporate Services	189,779	141,621	(48,158)	(34.0%)	(10,830)
The variance is timing related in terms of the spread of Computer and Software Licences which are being spread over the full year. The budget is allocated entirely in June.						
1030	Human Resources	23,816	37,056	13,240	35.7%	297
The variance is timing related in terms of the spread of the consultancy budget, and the employee relations subscriptions which were budgeted when the cash is paid, instead of being spread over the full year when they are actually recognised as costs.						
1033	Financial Services	76,603	63,146	(13,457)	(21.3%)	(3,489)
Apparent overspend relates to the budget allocation of Bank Charges, that does not align to where the actuals have been allocated. Over the whole organisation there is predicted overspend to budget on bank charges by approximately $50K, largely due to an unrealistic budget being set.						
1034	General Purpose Funding	156,662	195,044	38,382	19.7%	(3,328)
This covers a variety of expenses in the Rates Administration area. Some costs are yet to be incurred and additionally budget timing does not match actual expenses in some cases (bank charges). It is expected that there will be an underspend to budget by year end, however much of this will have a nil impact on the Net Current Position as the activity with the majority of underspend (Consultancy for the Rates review project), is reserve funded.						
1036	Information Technology	929,981	52,921	(877,060)	(1657.3%)	(73,778)
The variance size is timing related allocation due to the budget spread not matching actual expenditure. Actuals for the full year are however expected to come in approximately $100K over budget due to higher computer software licencing and consultancy costs.						
1039	Legal & Property Management	135,083	1,719	(133,364)	(7758.8%)	(28,394)
The size of the variance is timing related due to the budget allocation not matching actual expenditure timing. Year to date actual expenditure is above year to date anticipated expenditure however, as a result of various legal matters requiring external advisors. There is a reasonable possibility of the full year budget being exceeded by between $70K and $100K. A budget amendment has been endorsed to pull funding from the reserve, set up for this purpose.						
1042	Aged and Community Housing	39,710	16,238	(23,472)	(144.5%)	(4,057)
The reason for the apparent overspend is due to how the budget has been spread. The year to date expenditure of $40K is in fact an underspend compared to the estimated year to date expenditure of $82K if the full year budget of $109K was spread evenly.						
Community and Commercial Services		***1,929,457***	***713,473***	***(1,215,984)***	***(170.4%)***	***(312,774)***
1002	Events and Cultural	32,933	12,082	(20,851)	(172.6%)	(29,512)
$13K of the overspend relates to a misallocation of costs for Art Geo Admin that should have been allocated against the Cultural Precinct, where the budget lies. The remaining $7K relates to timing, with YTD budget figures not aligning to actual cost spends in BPACC Operations and Cultural Planning.						

Cost Centre Code	Cost Centre Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
1003	Cultural Precinct	16,505	44,660	28,156	63.0%	4,647
While underspent YTD, a cost overrun of approximately $14K by year end in relation to an externally funded children's arts program that was omitted from the budget. This will be offset by underspends in other areas of the Events & Cultural budget.						
1005	Library Services	77,742	63,329	(14,413)	(22.8%)	(2,533)
The variance is related to timing variances with Computer Software Licensing and the expenditure budget being projected for month 12.						
1007	Airport Operations	724,899	111,073	(613,826)	(552.6%)	(75,507)
The size of the variance YTD is in part timing related, with some budget line items total expenditure being projected for months 11 and 12. Full year costs are however expected to exceed budget due to the higher than expected throughput at the airport, which is offset by the significantly higher fees & charges received for services.						
1008	Economic and Business Development	39,614	3,677	(35,937)	(977.4%)	(2,242)
The variance is mainly due to timing of expenses in the Consultancy allocation and actual expense in Computer Software licences & cloud services for the Spendmapp expenditure (was allocated to IT budget in 2020/21 and not budgeted for in EBD).						
1009	Community and Recreation Services Management	297,984	68,838	(229,147)	(332.9%)	(226,437)
YTD variance is largely timing related, with the 22/23 contracted Lifeguard Services paid to Surf Life Saving WA in March, but budgeted for in June.						
1011	Leisure Centres	365,106	34,994	(330,112)	(943.3%)	(39,700)
The variance is timing related in terms of how the budget has been spread. Actual expenditure to date when compared against the full year 22/23 budget of $423K, represents 86% expended to date. An even pro-rata of the annual budget to the end of January equates to an approximate $48K overspend YTD. Whilst some expense lines will be exceeded (eg. repairs/maint, chemicals, cleaning) this will be offset by underspends in other areas, to fully expend budget by EOFY.						
Planning and Development Services		***780,924***	***974,682***	***193,758***	***19.9%***	***326,626***
1043	Planning and Development Directorate	213,619	503,880	290,261	57.6%	368,358
Underspend is timing related, with consulting costs in the Sustainability area not spent as yet compared to a $90K budget YTD, and contractor costs still to come for the on-going Vasse River Restoration project of $190K.						
1048	Statutory Planning	32,190	2,471	(29,719)	(1202.6%)	(2,914)
Timing variance related to the spread of the budget. Overall expenses are tracking to over-expend budget by approximately $15K in consultancy.						
1049	Strategic Planning	85,578	452	(85,126)	(18823.2%)	(34,883)
Timing variance related to the spread of the budget. Expected to come in on budget by year end.						
1051	Environmental Health Services	93,180	116,533	23,353	20.0%	1,402
Materials & contracts related to environmental health services are primarily linked to expenditure related to treatments of mosquitoes. As there have been lower than usual number of illness carrying mosquitoes thus far this year, there have consequently been a lower number of treatments which has resulted in a lower than expected expenditure in material & contract costs.						
Engineering and Works Services		***10,126,840***	***6,667,252***	***(3,459,589)***	***(51.9%)***	***(844,008)***
1015	Operations and Works Management	22,873	5,280	(17,593)	(333.2%)	(1,232)
This variance is due to both the spread of the budget across the year and posting allocation errors as staff adjust to the City's new Chart Of Accounts. A journal will be processed to reassign costs against alternative cost centres where the budget resides.						

Cost Centre Code	Cost Centre Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
1016	Construction and Maintenance	1,123,745	1,478,961	355,216	24.0%	75,442
Expenditure is tracking well to budget and with committed and planned works it is forecast that the total budget will be utilised come the end of the financial year.						
1017	Parks & Gardens	2,346,186	2,262,500	(83,686)	(3.7%)	(374,374)
Although slightly over budget YTD, it is anticipated that the Parks & Gardens operational budget will be fully utilised come June 30.						
1019	Facilities Maintenance	1,904,622	530,929	(1,373,692)	(258.7%)	(213,446)
Materials & Contract costs associated with Facilities Maintenance Operations are reported at $1.4m over expended to budget YTD. However this is significantly and materially impacted by both the budget spread and various Reserve funded major maintenance projects for the year that are yet to record substantial levels of expenditure against them. With these items excluded and with the budget based on an even spread expenditure is tracking at approximately $109K over budget YTD. The Facility Services operational budget will be fully utilised come June 30.						
1020	Engineering Technical Management	385,059	243,479	(141,579)	(58.1%)	(32,126)
The YTD Expenditure varies with the Amended Budget YTD, mainly due to the timing of the implementation of these works. The item worth mentioning is the sand –renourishing that has been cash flowed towards the winter months, i.e. April-June 23, however 70% has already been spend to date on renourishment of the coast line. In summary this is a timing variance only.						
1024	Waste Management	2,180,558	1,873,097	(307,462)	(16.4%)	(49,347)
The most significant YTD over-expenditure to budget has been $163K for the Domestic Collections, attributed to the timing of when contractor's invoices are received. There is also $74K in costs that are over budget YTD relating to external waste disposal at Dardanup whilst the City's landfill (cell 2) is under construction. The remaining variance relates to the processing of higher than budgeted 15,500m3 volume of construction and demolition waste, which only occurs once every few years during the winter months. From a consolidated perspective endeavours are being made that any over expended items will be managed and offset by under expended items.						
1025	Fleet Management	1,749,680	2,500	(1,747,180)	(69887.2%)	(192,947)
The YTD budget figure is not correctly reflected in the accounts; that aside, 9/12th of the annual budget equals $1.72M and thus YTD costs would be tracking at $30K over budget YTD. Fuel & Oil fleet costs have fluctuated throughout the year with an interim mid-year review indicating an estimated $40-$50k over budget position at that time. Historically the amount of diesel used across the City increase in the second half of the year, in line with an increase in civil construction activities. Thus, this variance may increase although the price of diesel seems to have moderated recently with some small decreases in price. Efforts will be made to plan and manage any over expenditure against other Fleet related costs that can be deferred.						
1055	Rural Verge and Firebreak Maintenance	386,374	260,001	(126,373)	(48.6%)	(52,337)
$463k has been budgeted for a phased approach to the creation of an in-house Tree Care team over two financial years. This being the first year, $347K of the budget has been assigned to contractor based works until plant and equipment is procured. Due to extended lead times for plant procurement, material & Contract expenditure this financial year will be managed to the full $463K budget ($116K over the operational materials & contracts budget).						

6. Utilities (Gas, Electricity, Water etc)

In total, over budget by $221K YTD, broken down as follows:

Description	FY Budget Expense	YTD Budget Expenses	YTD Actual Expenses	YTD Variance
3500 - Electricity	1,814,016	1,138,467	1,406,576	(268,108)
3505 - Gas - Reticulated	4,971	2,875	1,419	1,456
3506 - Gas - LPG Bottled	16,041	0	16,994	(16,994)
3507 - Gas - Alinta Boiler Gas (BJTP)	5,843	3,612	2,530	1,082
3510 - Water Consumption	491,504	279,411	289,757	(10,345)
3511 - Water Meter Rental & Supply Charge	86,520	49,412	65,286	(15,874)
3513 - Sewerage Volume Charges	32,134	31,468	12,915	18,553
3514 - Sewerage Charge (Rates)	98,871	93,527	54,405	39,122
3520 - Office Telephones, Faxes & Internet	96,909	70,497	73,073	(2,576)
3521 - Public WIFI	40,693	31,286	32,419	(1,133)
3522 - Mobile Devices Costs	102,395	71,967	48,270	23,697
3524 - Other Telecommunication & Network Costs	86,783	59,929	53,012	6,916
	2,876,680	**1,832,451**	**2,056,656**	**(224,205)**

The electricity charges are significantly over budget YTD due to the entire year budgets for GLC and NCC being allocated to June (tracking well compared to full year budget of $223K), as well as budget timing for Street Lighting. It is however expected that overall electricity charges for the City will be over budget in the vicinity of approximately $50K. A portion of this will be offset by on-charges of variable outgoings to the various tenants of the City's buildings.

Gas is over budget due to the budget timing allocated to the end of the year. Spend is on track to meet or be under budget by year end.

Between Water Consumption & Water Rental & Supply charges, the YTD overspend to budget is also attributable to budget timing, with actual charges YTD on track to coming in under the full year budget by year end.

Sewerage charges and rates are significantly under budget YTD due to delays in allocating the annual notices, which have in fact been received and paid. This variance will rectify in the subsequent months.

Telecommunications, internet and network costs are under YTD due to billing lags in relation to the mobile account. It is expected to come in close to budget by year end.

7. Insurance Expenses

The full year budget for all insurance is $1.32M, split $652K in Insurance Expenses and $672K in Employment Costs. Insurance costs that are categorised in the operational nature & type are $234K over budget YTD due to the timing of the budget allocation and that fact that all premiums have been paid. This is however expected to be $217K over by year end. Apart from rising insurance costs globally, the biggest cause for this over spend is the significantly higher than expected asset values, which are used by the insurers in setting premiums, that arose from the organisation wide independent asset revaluation conducted in early 2022.

This is outlined in the table below:

Description	FY Budget Expense	YTD Budget Expenses	YTD Actual Expenses	Variance to FY Budget	Variance to YTD Budget
3565 - Art Works Insurance	1,969	1,801	8,547	(6,578)	(6,746)
3566 - Building Insurance	140,111	131,816	308,288	(168,177)	(176,472)
3568 - Electronic Equipment Insurance	1,298	1,298	4,036	(2,738)	(2,738)
3569 - Insurance Excess	0	0	1,000	(1,000)	(1,000)
3570 - Machinery Breakdown Insurance	796	796	22,139	(21,343)	(21,343)
3571 - Marine Crafts Insurance	251	0	1,654	(1,403)	(1,654)
3572 - Motor Vehicle & Plant Insurance	40,127	38,996	102,598	(62,471)	(63,602)
3573 - Multi Risk Insurance	21,747	16,846	35,989	(14,242)	(19,143)
3575 - Public Liability Insurance	398,824	399,075	339,962	58,862	59,113
3576 - Other General Insurance Costs	45,948	44,063	29,547	16,401	14,516
3577 - Cyber Liability	1,298	1,298	15,769	(14,471)	(14,471)
Total	**652,369**	**635,989**	**869,528**	**(217,159)**	**(233,539)**

8. Other Expenditure

$575K, or 27.8%, over the budget YTD. The main contributing items are listed below:

Cost Centre Code	Cost Centre Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
Executive Services		***41,539***	***26,969***	***(14,570)***	***(54.0%)***	***(690)***
1000	Office of the CEO	41,539	26,969	(14,570)	(54.0%)	(690)
The overspend mainly relates to an unbudgeted amount of $11.3K, which is the recognition of the contribution the City makes to the COVID-19 clinic at the YCAB, by virtue of recognising the value of rent not charged. This is offset by the recognition of the revenue in Fees & Charges under YCAB, so has a nil cash impact. There is also a minor $3.3K timing difference in the CEO discretionary line contributing to the YTD overspend.						
Finance and Corporate Services		***647,524***	***713,375***	***65,851***	***9.2%***	***31,046***
1028	Governance and Corporate Services	392,309	483,109	90,800	18.8%	30,468
The underspend relates to reduced civic events catering and YTD underspends across merchandising and public relation accounts. These will be used to fund a Regulation 17 Review – to be invoiced. The Members of Council budget is also underspent in catering (linked to the revised meeting schedule) and conferences and training.						
1030	Human Resources	33,991	5,969	(28,022)	(469.4%)	106
The overspend relates to Long Service Leave contributions to other LG's (which are unable to be accurately budgeted) and timing variances in catering budget.						
Community and Commercial Services		***1,763,738***	***1,168,973***	***(594,766)***	***(50.9%)***	***(115,102)***
1002	Events & Cultural	63,275	151,578	88,303	58.3%	(10,180)
Events and Cultural other expenses is underspent mainly in BPACC (Saltwater) operations in the areas of marketing and event attraction. Spending is these areas has been delayed until there is increased certainty with event organisers to take bookings and the software system to handle payments is implemented. We are also waiting on the outcome of a conference bid and a large funding application which require contribution payments.						
1004	Events	911,700	888,183	(23,517)	(2.6%)	12,935
Events overspend is timing related with invoicing of round 1 funding of events and marketing initiatives happening in the first half of the financial year, but the budget has been allocated mainly to the back end of the year. Based on events that have been approved for funding YTD, it is expected that total spend will come in approximately $33K under budget by year end.						
1007	Airport Operations	321,564	98,506	(223,057)	(226.4%)	(17,278)
This is due to a timing variance with the Airline Attraction budget allocation being posted in month 12 and YTD actual expenses having being incurred to date.						
1008	Economic & Business Development	124,791	15,612	(109,178)	(699.3%)	750
This category is overspent mainly due to 2 line items - MRBTA visitor servicing for which the budget expenditure is projected for month 12 and the first two quarters payments having been made, and consultancy for which the budget expenditure is projected for month 12 and some expenditure has occurred YTD.						
1009	Community & Recreation Management	288,351	1,000	(287,351)	(28735.1%)	(94,095)
The variance is timing related with the total budget for the year allocated to June 2023. CAP funding payments are expected to exceed by end of year $50-80k, offset somewhat by the savings of approximately $50K in the YouChoose program in Governance that will not be spent.						

Cost Centre Code	Cost Centre Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
1011	Leisure Centres	34,621	3,283	(31,337)	(954.5%)	(4,742)
The variance is timing related due to spread of the budget. Actual expenditure to date represents 66% of the other expenses budget and is actually underspent compared to 9/12 even spread of the full year budget of $53K.						
Planning and Development Services		***75,025***	***83,070***	***8,045***	***9.7%***	***(4,302)***
1045	Planning Administration Support	-	30,780	30,780	100.0%	-
Funds are for the Busselton & Dunsborough Centres Refurbishment Subsidy Programme. The City has not undertaken an EOI programme this financial year, as a result, no applications for funding assistance have been received.						
1048	Statutory Planning	6,315	-	(6,315)	100.0%	-
The overspend relates to Long Service Leave contributions to other LG's for former employee's (which are unable to be accurately budgeted). It is covered by the provision for LSL.						
1054	Ranger & Emergency Services	20,002	3,945	(16,057)	(407.1%)	(4,503)
$6K relates to a spend against Rangers for contributions to another LG for LSL. The remainders relates to earlier than anticipated spending on supplies for the various brigades, compared to the months where the budget is allocated.						
Engineering and Works Services		***114,304***	***74,754***	***(39,550)***	***(52.9%)***	***(20,944)***
1019	Facilities Maintenance	34,917	18,212	(16,705)	(91.7%)	122
The variance in Facilities is due to greater ESL levies being paid than was originally budgeted for. The variance in Donations, contributions and subsidies is the contribution the City pays to MRBTA for our share of the cleaning costs – This is allowed for in the operational budget and an overall overspend is not anticipated.						
1024	Waste Management	56,204	40,992	(15,213)	(37.1%)	(20,960)
The overspend is due to water cost reimbursements paid to residents in relation to the Rendezvous issue. It is expected that these will be over budget by approximately $15K by year end.						

9. Non-Operating Grants, Subsidies & Contributions

The positive variance of $8.7M is mainly due to the items in the table below. It should be noted that any negative variance in this area will approximately correlate to an offsetting positive underspend variance in a capital project tied to these funding sources. This can be seen in the section below that outlines the capital expenditure variances. Where this is not the case, the reconciliation of the projects and the required funding to be recognised in revenue is not completed until closer to year end.

The overall positive variance however, due to certain projects in the table below, is due to a reimbursement of the municipal fund required for cashflow purposes a lot earlier than was initially budgeted.

Revenue Code	Revenue Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
Finance and Corporate Services		***76,801***	***-***	***76,801***	***100.0%***	***-***
1033	Financial Services	7,801	-	7,801	100.0%	-
1041	Land and Property Leasing	69,000	-	69,000	100.0%	-

Revenue Code	Revenue Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
Community and Commercial Services		***1,094,255***	***-***	***1,094,255***	***100.0%***	***12***
1007	Airport Operations	1,052,000	-	1,052,000	100.0%	-
1011	Leisure Centres	42,243	-	42,243	100.0%	-
Planning and Development Services		***159,501***	***45,392***	***114,109***	***251.4%***	***-***
1049	Strategic Planning Management	-	45,392	(45,392)	(100.0%)	-
1054	Ranger & Emergency Services	159,501	-	159,501	100.0%	-
Engineering and Works Services		***8,002,860***	***1,470,504***	***6,532,356***	***444.2%***	***3,633,696***
1016	Construction and Maintenance	583,300	1,470,504	(887,204)	(60.3%)	(360,000)
1017	Parks & Gardens	5,132	-	5,132	100.0%	-
1018	Major Projects Management	7,202,028	-	7,202,028	100.0%	4,000,000
1019	Facilities Maintenance	196,500	-	196,500	100.0%	-
1020	Engineering Technical Management	15,900	-	15,900	100.0%	-

10. Capital Expenditure

YTD there is an underspend variance of 19.4%, or $5.3M, in total capital expenditure, with YTD actual at $22.1M against the YTD budget of $27.4M. A large portion of this positive underspend variance is offset by the negative variances in Non-Operating Grants, Contributions & Subsidies outlined above, with the remainder offset by the negative variances in Transfers From Reserves and Restricted Assets related to funds held aside for these projects. The attachments to this report include detailed listings of all capital expenditure (project) items, however the main areas of YTD variance are summarised as follows:

Project Code	Project Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
Buildings		***9,650,617***	***11,876,748***	***2,226,131***	***19%***	***309,613***
Various	Aged Housing Capital Works	111,737	49,000	(62,737)	(128%)	(1,018)
The size of YTD overspend is due to timing of budget allocations, however the end of year budget is forecast to be over spent by approximately $85K. This is due to more refurbishments required than planned which are difficult to predict given it is tied to vacancies, plus the increased cost of labour and materials. A budget amendment has been endorsed to draw funds from the Aged Housing Joint Venture Reserve.						
Various	BPACC (Saltwater)	8,425,104	8,664,453	239,349	3%	178,708
Budgets for large projects such as Saltwater are very hard to predict with accuracy. The variance in construction is a timing issue, with predicted cash flows being slightly misaligned. Professional fees are overspent YTD, again this can be viewed as a timing issue. It is anticipated this will be on track by the end of the financial year.						
10016	Civic and Administration Centre Minor Upgrades(C)	3,300	26,250	22,950	87%	2,917
Variance is due to timing. The budget is expected to be expended by the end of the financial year.						

Project Code	Project Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
10585	BMRA Hangars(C)	-	303,790	303,790	100%	-
This funding was originally to build three hangars however with price escalation, only 2 hangars are likely to be achieved. With current resourcing and lead times for construction the hangars will not be achieved in this financial year.						
10589	Airport Construction, Existing Terminal Upgrade(C)	386,373	209,254	(177,119)	(85%)	196,747
This includes the terminal departures lounge expansion and office / training room transportable projects. The total costs of these projects will be larger than budgeted (all of which has been allocated to the June period), and subject to a Budget Amendment report.						
10622	Bovell Construction of Change rooms(C)	84,663	72,394	(12,269)	(17%)	-
Project was completed in Dec. 2022, with an expected cost overrun of approximately $15K.						
10642	Dunsborough Lakes Sporting Precinct-Pavilion/Changeroom F(C)	34,663	1,284,775	1,250,112	97%	(21,476)
The variance is attributable to the Pavilion being re-scoped with the project currently on hold. The City has recently been informed that it has not been successful in securing external State Government grant funding at this time. A future budget amendment will be prepared for Council covering all elements of this project, with the pavilion likely to be removed from this year's budget.						
10688	Depot Washdown Facility Upgrades(C)	-	76,700	76,700	100%	-
The YTD variance related to infrastructure upgrades to the City's Barlee St. Depot vehicle and plant wash-down bay, whereby new equipment will be purchased to treat and improve post wash-down water quality. Documentation to go out to market has been prepared with the aim of delivering this project this FY.						
10788	GLC Building Improvements(C)	210,217	365,277	155,060	42%	(63,226)
This is a timing issue only – the funds will be fully expended by EOFY.						
10972	Churchill Park Renew Sports Lights(C)	215,392	188,252	(27,140)	(14%)	-
This project is now complete with a $27k budget overrun. City Officers will endeavour to offset this overspend against an equivalent underspend or net over and under spends between projects of a like type.						
12428	Re-use shop Busselton Transfer Station(C)	16,899	158,375	141,476	89%	24
This is a timing variance only at this stage, however tendered prices have recently been received that exceed the budget allocation. A briefing with Council will be arranged to discuss options and alternatives and to review the feasibility of this project continuing.						
12440	Energy Efficiency Initiatives (Various Buildings) (C)	31,814	106,246	74,432	70%	9,460
Variance is due to timing. The budget is planned to be expended by the end of the financial year.						
12457	Busselton Jetty Tourist Park Upgrade (C)	13,031	45,686	32,655	71%	-
The budget is for electrical compliance works that are scheduled to commence once the Park is not at 100% capacity.						
12791	Naturaliste Community Centre Fire Indicator Panel Renewal(C)	4,965	22,500	17,535	78%	2,500
Variance is due to timing. The budget is expected to be expended by the end of the financial year.						

Project Code	Project Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
12795	Busselton Depot CCTV & Electronic Gate(C)	29,636	66,250	36,614	55%	(12,553)
Timing is variance related. The CCTV component of the total project budget ($55K) is expected to be completed by the end of April, with $30K committed. The remaining budget for the gate component is expected to be expended.						
12793	Bunker Bay Ablution - Improvements(C)	-	12,750	12,750	100%	1,417
Variance is due to timing. The budget is expected to be expended by the end of the financial year.						
12797	Dunsborough Hall Renewals(C)	1,856	20,059	18,203	91%	441
Variance is due to timing. The budget is expected to be expended by the end of the financial year.						
12800	Old Courthouse and Jail Cells (C)	17,860	45,750	27,890	61%	5,083
Variance is due to timing. The budget is expected to be expended by the end of the financial year.						
12801	Old Police Quarters - Roof Renewal(C)	-	45,000	45,000	100%	5,000
Variance is due to timing. The budget is expected to be expended by the end of the financial year.						
12804	Airport Terminal Building(C)	4,836	23,840	19,004	80%	2,649
Variance is due to timing. The budget is expected to be expended by the end of the financial year.						
12942	Asbestos Removal & Replacement(C)	2,960	24,750	21,790	88%	(210)
Variance is due to timing. The budget is expected to be expended by the end of the financial year.						
Plant & Equipment		***1,032,981***	***1,277,273***	***244,292***	***19%***	***1,131,195***
The $244k underspend is due to delays in delivery of plant and equipment currently on order.						
Furniture & Office Equipment		***680,487***	***556,190***	***(124,297)***	***(22%)***	***(2,446)***
10965	P&E - P&G Smart Technologies(C)	14,400	-	(14,400)	0%	(13,893)
This is a timing variance, with the full year budget of $100K allotted to later in the financial year. Procurement in currently underway with full budget expenditure planned for this financial year.						
12876	ICT Services - Equipment & Software Purchases(C)	287,348	219,845	(67,503)	(31%)	-
YTD variance is attributable to $110k for procurement of 50 laptops in 2021/22 financial year that were only delivered in the 2022/23 financial year. By year end however, other planned spends will be deferred so that we meet budget.						
14729	Events Furniture & Equipment(C)	239,819	200,000	(39,819)	(20%)	(36,531)
The overspend relates to work invoice for the additional cost of $50,000 to upgrade the power supply to the new electronic billboard. These extra works were approved by Council (C2208/210), to be funded from the Marketing & Area Promotions Reserve.						
14730	Geographe Leisure Centre Fitness Equipment(C)	-	18,160	18,160	100%	-
Capital funds planned to be expended in April for the purchase and installation of shade structure in the outdoor pool area.						

Project Code	Project Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
14731	Cultural Planning Furniture & Equipment(C)	50,578	78,185	27,607	35%	42,617
The underspend in Cultural Planning is due to a number of projects that are not yet fully expensed such as Sculpture by the Bay art prizes and the Ballaarat Room digital interpretation. We expect the projects to be completed by the end of the financial year.						
14764	Christmas Decorations (C)	39,870	-	(39,870)	(100%)	-
This expenditure currently with zero budget was for a Christmas tree to be funded from the Council's operational discretionary budget. A budget amendment has been done to re-allocate a portion of that budget to this project to cover the cost.						
Infrastructure		***10,713,788***	***13,669,313***	***2,955,526***	***22%***	***(91,128)***
Various	Roads	3,307,472	6,819,020	3,511,549	51%	171,655
There remain some budget timing variances within this item, with delivery behind schedule due to Dunsborough Townscape and Sugarloaf Road projects taking longer than planned. The $3.3M YTD variance includes: • $1.1M Bussell Highway (11199) – Contract awarded 27APR. Construction commencement anticipated mid-May. • $227k Chapman Hill Road (11989) – Project complete and under budget. Fully grant funded. • $82K Gifford Rd – construction commencement planned mid-May. • $112K Kaloorup Rd – Project complete, defect rectification pending under warranty. • $287k Payne Road (12005) – Project postponed until next financial year due to traffic management conflicts with bridge works on Kaloorup Road and reconstruction of North Jindong Road. • ($694k) Sugarloaf Road (12010) – Project complete and over budget. Additional grant funding of $420k has been secured to offset the over expenditure. Budget amendment endorsed by council 20APR. • ($84K) Wildwood Rd – Project complete and over budget. Budget amendment endorsed by council 20APR. • $755k North Jindong Road (12611) – Contract awarded and construction commenced in March and is ongoing. • $685K Acton Park Road (12824) – Construction in progress and planned for completion in May. • $185K Commonage Rd – Works complete and under budget. • $184K Ludlow-Hithergreen Rd – Works complete and pending final cost reconciliation. • $384k Queen Elizabeth Avenue (12838) – Works complete and pending final cost reconciliation. • ($682k) Sugarloaf Road (12010) – Project complete and over budget. Additional grant funding of $420k has been secured to offset the over expenditure. Budget amendment endorsed by council 20APR. • $87K Bussell Hwy (12851) – Stage 1 works complete. Stage 2 works pending MRWA approval.						
Various	Bridges	156,203	-	(156,203)	0%	(156,203)
$156K invoiced value from MRWA for Layman Rd Bridge (3438) repairs. Cost is aligned with amended full year budget, but timing isn't.						
Various	Car Parks	174,985	333,373	158,388	48%	59,738
Delivery of projects within this item are on track for completion this financial year. Contract for Carpark Hotel Site 2 has been awarded with construction commencement planned for late March.						

Project Code	Project Code Description	Actual YTD $	Amended Budget YTD $	Variance YTD $	Variance YTD %	Change in Variance Current Month $
Various	Footpaths & Cycleways	195,406	1,009,446	814,040	81%	(68,755)
There remain some budget timing variances within this item with delivery on schedule. The $883k YTD variance includes: • $115k Carey Street Footpath Construction (10742) – Works in progress and planned for completion in late April. • $309k Causeway Road Shared Path (11986) – Contract awarded. Construction commencement planned early May. • $100k Busselton CBD Footpath Renewal (10741) – scheduled to commence in May. • $73k Prince Regent Drive (12817) – Works in progress and planned for completion in late April. • $70k Coastal Principled Shares Path (12816) – Budget to offset Causeway Road Shared Path expenditure. • $73K Kaloorup Road (12818) – Works complete and under budget.						
Various	Parks, Gardens & Reserves	1,417,290	2,564,098	1,146,808	45%	(165,218)
This category comprises 107 projects with a combined budgeted value totalling $10.1m. There remain some budget timing variances within this item. Some of the $1.1M YTD variance is attributable to: • $533k Dunsborough Lakes Sporting Precinct (Stage 1). • $163k Sport Oval Lighting - Vasse Ovals (12849). • $129k Meelup Coastal Parking & Landscaping (10613). • $125k Shade Sail Program (10967). • ($537k) Townscape Works Dunsborough (12333) - Budget amendment endorsed by council 20APR.						
Various	Waste Services Capital Works	1,256,386	28,955	(1,227,431)	(4239%)	(70,678)
This variance is attributable to stage 2 of the lined landfill / cell development. The stage 2 budget totalling $1.95M was loaded into the month of June 2023. Expenditure on this project YTD totals $1.2M.						
10818	Jetty Capital Works	437,018	410,474	(26,544)	(6%)	61,136
This is a timing issue – a capital upgrade on two timber Jetty piles that was programmed for later in the year was brought forward due to earlier than expected approval from DPLH.						
Various	Drainage	207,572	506,238	298,666	59%	7,914
The City has three drainage projects planned for the year budgeted at $705K in total. There remain some budget timing variances within this item with the $299K YTD variance being mainly: • $109K Carey Street – Concrete products procured, contract awarded for water main replacement with construction commencement scheduled for end of March. • $173K North Street – Design in progress. Construction delivery dependent on proposed scope, contractor availability and seasonal weather.						
Various	Regional Airport & Industrial Park Infrastructure	1,067,678	81,518	(986,160)	(1210%)	79,342
The variance relates to the Airfield Stage 2 project, which includes the public car park expenditure ($251K) and project expenses ($750K) - both are a timing issue compared to YTD budget allocations. It is expected that total actual expenditure for the year will come in very close to the budgeted full year amount for this area of $1.43M.						

11. Proceeds from Sale of Assets

There is a YTD variance of ($189K), due to delays in asset sales, as a result of supply chain issues in the trade-in/purchase relating to the changeover and replacement of various vehicles and other plant items.

12. Proceeds from New Loans

There is an YTD variance $6.5M as the budgeted final draw down on the borrowing for the Saltwater project occurred earlier than forecast due to the increasing interest rates.

13. Transfer to Restricted Assets

There is an YTD variance in transfers to Restricted Assets of $21.6M because there is no budget at all for this item. The transfers are not possible to predict, and are fully reconciled only at year end.

At the time of budgeting it is not possible to predict what grants, contributions or developer bonds will be received, and in what timeframe, nor when they will be spent and hence potentially transferred to Restricted Assets (or unspent portions thereof).

Transfers to restricted assets are offset by the incoming receipt, be it a grant, contribution, subsidy or even loan proceeds, so the net impact on the Net Current Position is always nil (once full reconciliation has occurred at year end).

YTD, loans of $9.7M were restricted for BPACC (following receipt of grant funds and the final tranche of borrowing), until utilized, as well as $10.2M in various government grants, plus $1.2M in Roadwork Bonds, $30K in BJTP deposits, $433K in developer contributions and $37K in various other deposits and bonds.

14. Transfer from Restricted Assets

YTD, there has been $14.1M transferred from Restricted Assets into the Municipal Account. The transfers are usually not possible to predict, and are fully reconciled only at year end. This was attributable to $4.1M of the BPACC loan funding utilised, $9.1M of grant money for works completed and reconciled, $841K of Roadwork Bonds returned, and $59K of various other bonds and deposits returned or utilised.

15. Transfer from Reserves

YTD, there has been $857K more transferred from reserves than budgeted YTD, due to reconciliation of completed reserve funded works occurring earlier than forecast (usually done at year end), for some particularly large projects.

Investment Report

Pursuant to the Council's Investment Policy, a report is to be provided to the Council on a monthly basis, detailing the investment portfolio in terms of performance and counterparty percentage exposure of total portfolio. The report is also to provide details of investment income earned against budget, whilst confirming compliance of the portfolio with legislative and policy limits.

As at 31st March 2023 the value of the City's invested funds increased from at $113.1M as at 28th February 2023 to $118.6M.

As at 31st March 2023 the 11AM (an intermediary account which offers immediate access to the funds compared to the term deposits) account balance is $12.5M, with increase of $5.5M from 28th February 2023.

During the month of March six term deposits totalling the amount of $21M matured. These were renewed for a further 259 days at 4.38% on average.

The official cash rate increased during the month of March 2023 from 3.35% to 3.60%. Further increases to the cash rate are expected in the coming months. This will result in higher interest earnings for the City, although future borrowings will incur higher rates also.

Borrowings Update

During the month no new loans were drawn, with $868K of principal and $437K of interest repaid on existing loans. The attached Loan Schedule outlines the status of all existing loans YTD.

Chief Executive Officer – Corporate Credit Card

Details of transactions made on the Chief Executive Officer's corporate credit card during March 2023 are provided below to ensure there is appropriate oversight and awareness.

Date	Payee	Description	$ Amount
6/03/2023	COLES EXPRESS	FUEL - CEO VEHICLE	141.28
9/03/2023	ALBIES BAR AND BISTRO	DINNER - COUNCILLORS,CEO & SMG	526.75
16/03/2023	WEST AUSTRALIAN	DIGITAL SUBSCRIPTION	28.00
16/03/2023	iTECH PLANET	MOBILE PHONE COVER - CEO	37.95
16/03/2023	AMPOL	FUEL - CEO VEHICLE	98.92
21/03/2023	THE FIRE STATION BUSSELTON	FAREWELL DINNER FOR CCS DIRECTOR- TO BE REIMBURSED	54.00
23/03/2023	CROWN PERTH PARKING BURSWOOD	PARKING AT CROWN FOR SPEAKER AT FINANCE PROFESSIONALS	8.07
24/03/2023	CITY OF PERTH PARKING	PARKING AT CROWN FOR FMG MEETING	13.12
24/03/2023	CROWN PERTH PARKING BURSWOOD	PARKING AT CROWN FOR CEO CONNECTIONS FORUM	8.07
31/03/2023	MAILCHIMP	ELECTRONIC NEWSLETTER-PR	373.10
		TOTAL	**1,289.26**

Donations & Contributions Received

During the month no non-infrastructure asset (bridges, roads, POS etc), donations or contributions were received.

Statutory Environment

Section 6.4 of the Act and Regulation 34 of the Regulations detail the form and manner in which a local government is to prepare financial activity statements.

Relevant Plans and Policies

There are no relevant plans or policies to consider in relation to this matter.

Financial Implications

Any financial implications are detailed within the context of this report.

Stakeholder Consultation

No external stakeholder consultation was required or undertaken in relation to this matter.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. No risks of a medium or greater level have been identified.

Options

The Statements of Financial Activity are presented in accordance with Section 6.4 of the Act and Regulation 34 of the Regulations and are to be received by Council. Council may wish to make additional resolutions as a result of having received these reports.

CONCLUSION

As at 31st March 2023, the City's net current position stands at $10.9M, and cash reserve balances remain sufficient for their purposes.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

Not applicable.

CITY OF BUSSELTON - INVESTMENT PERFORMANCE REPORT
For the month of March 2023

11am Bank Account				As at 31 March 2023
INSTITUTION			**RATE**	**AMOUNT**
ANZ 11am At Call Deposit			3.50%	$ 12,500,000

Term Deposits - Miscellaneous Funds					As at 31 March 2023
INSTITUTION	**RATING**	**DAYS**	**MATURITY**	**RATE**	**AMOUNT**
ANZ	AA	90	16-Apr-23	3.22%	$ 3,500,000
WBC	AA	150	22-Jul-23	4.61%	$ 1,500,000
WBC	AA	212	17-Jun-23	4.20%	$ 1,500,000
Bendigo	BBB	366	22-Mar-24	4.50%	$ 3,000,000
WBC	AA	245	06-Nov-23	4.84%	$ 5,000,000
NAB	AA	182	19-Jun-23	4.25%	$ 4,000,000
NAB	AA	180	26-Jul-23	4.25%	$ 2,000,000
WBC	AA	243	24-Apr-23	3.74%	$ 3,000,000
WBC	AA	181	24-Aug-23	4.71%	$ 2,000,000
WBC	AA	212	29-Apr-23	4.33%	$ 4,000,000
NAB	AA	152	14-Aug-23	4.45%	$ 4,000,000
ANZ	AA	306	25-Jan-24	4.17%	$ 3,000,000
ANZ	AA	212	25-May-23	3.59%	$ 2,000,000
ANZ	AA	337	26-Feb-24	4.16%	$ 4,000,000
WBC	AA	150	10-Jul-23	4.53%	$ 4,000,000
NAB	AA	181	03-Apr-23	4.05%	$ 3,000,000
NAB	AA	181	29-May-23	4.10%	$ 3,000,000
NAB	AA	150	27-Jul-23	4.42%	$ 4,000,000
ANZ	AA	153	10-Aug-23	4.13%	$ 2,000,000
ANZ	AA	150	10-Jul-23	3.57%	$ 3,000,000
CBA	AA	211	28-Apr-23	4.10%	$ 5,000,000
MeBank	BBB	182	24-Apr-23	4.20%	$ 2,000,000
BoQ	BBB	181	02-May-23	4.20%	$ 2,000,000
BoQ	BBB	181	30-May-23	4.15%	$ 2,000,000
ANZ	AA	181	29-Jul-23	3.75%	$ 4,000,000
ANZ	AA	181	29-May-23	3.82%	$ 2,000,000
CBA	AA	239	28-Jun-23	4.19%	$ 3,000,000
WBC	AA	212	20-Apr-23	4.14%	$ 4,000,000
WBC	AA	242	20-May-23	4.22%	$ 4,000,000
WBC	AA	273	20-Jun-23	4.30%	$ 4,000,000
CBA	AA	272	19-Jun-23	4.11%	$ 5,000,000
CBA	AA	240	18-May-23	4.04%	$ 5,000,000
			Total of Term Deposits		**103,500,000.00**
			Weighted Average Annual Rate of Return		**4.17%**

Airport Redevelopment Funds					As at 31 March 2023
WA Treasury Corp. - Overnight Cash Deposit Facility				3.55%	$ 609,298
			Total of Airport Redevelopment Funds - WATC		$ 609,298
					Nil
			Total of Airport Redevelopment Funds - Bank Term Deposits		$0
ANZ Cash Account	AA	NA	NA	3.50%	$ 784,422
			Total of Airport Redevelopment Funds - Other		$ 784,422
			Total of Airport Redevelopment Funds		**$ 1,393,721**
			Interest Received 2015/16		$ 609,666
			Interest Received 2016/17		$ 1,158,623
			Interest Received 2017/18		$ 631,835
			Interest Received 2018/19		$ 121,836
			Interest Received 2019/20		$ 43,093
			Interest Received 2020/21		$ 2,267
			Interest Received 2021/22		$ 1,626
			Interest Received 2022/23		$ 36,083
			Interest Accrued but not yet Received		$ 13,682
			Total Interest Airport Funds (Non-Reserve) at month's end		**$ 2,618,711**
			Interest Transferred out and held in City Reserve Account 136		$ 1,085,630
			Interest Transferred out to Municipal Funds		$ 39,694
			Interest Earnt (incl. Accrued) on Funds Held in City Reserve A/c 136		$ 109,408

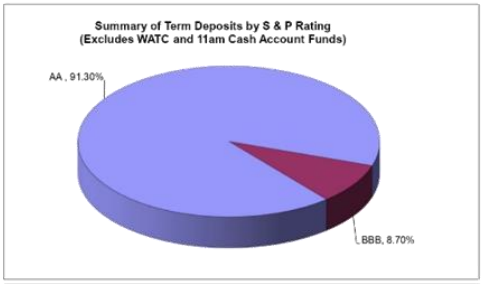
(Note: Funds held with the WATC are in accordance with the Airport Redevelopment Funding Contract and the Foreshore Development Contract and are not held within the requirements of the City's Investment Policy 218)

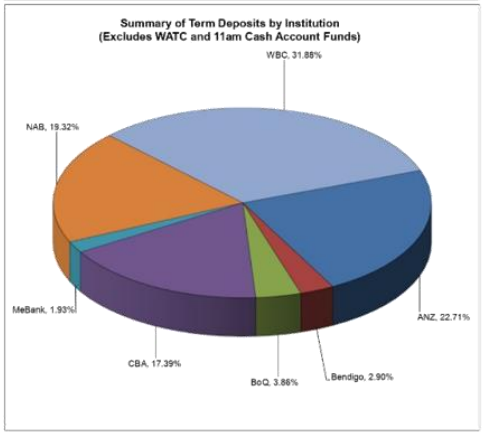
SUMMARY OF ALL INVESTMENTS HELD	As at 1 year ago	As at 30 June 2022	As at 31 March 2023
11am Bank Account	$ 13,000,000	$ 11,500,000	$ 12,500,000
11am Bank Account Interest - not yet fully processed	$ -	$ -	$ -
Term Deposits - Misc. Funds	$ 81,501,572	$ 81,500,000	$ 103,500,000
Term Deposit Interest - not yet fully processed		$ -	$ -
Airport Redevelopment - WATC Deposits	$ 1,639,595	$ 1,640,116	$ 609,298
Airport Redevelopment - ANZ Cash A/c	$ 784,422	$ 784,422	$ 784,422
Total of all Investments Held	$ 96,925,589	$ 95,424,539	$ 117,393,721
TOTAL INTEREST RECEIVED AND ACCRUED	**$ 174,863**	**$ 319,405**	**$ 2,496,686**
INTEREST BUDGET	**$ 155,259**	**$ 200,000**	**$ 1,215,888**

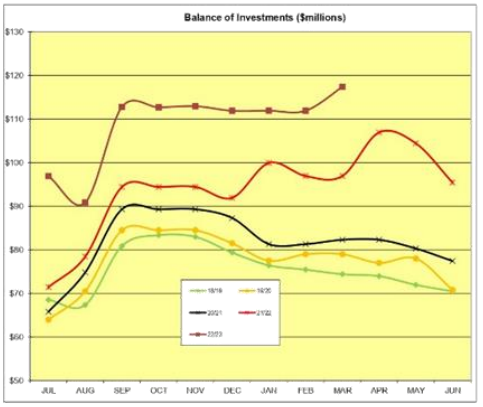
(Note: Interest figures relate to City general funds only and does not include interest allocated to specific areas such as the Airport Redevelopment)

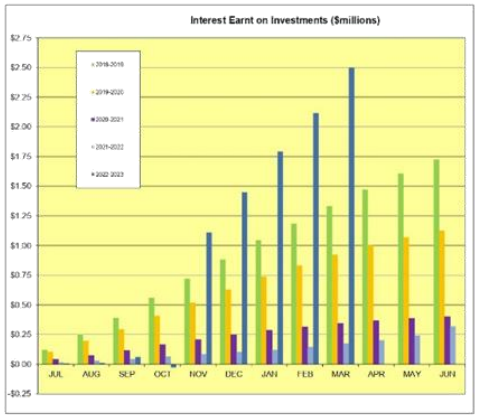
Statement of Compliance with Council's Investment Policy 218	
1. All funds are to be invested within legislative limits.	**Fully Compliant**
2. All individual funds held within the portfolio are not to exceed a set percentage of the total portfolio value.	**Fully Compliant**
3. The amount invested based upon the Fund's Rating is not to exceed the set percentages of the total portfolio.	**Fully Compliant**
4. The amount invested based upon the Investment Horizon is not to exceed the set percentages of the total portfolio.	**Fully Compliant**

Investment Graphs









City of Busselton
Loan Schedule - as at 31 March 2023

Purpose	Loan Number	Institut-ion	Budgeted Interest Rate	Term (Years)	Expiry	Actual Interest Rate	2022/23 Actual New Loans	2022/23 Actual Principal Repayments	2022/23 Balance of Principal Owing	2022/23 Actual Interest Repayments	Budget Principal 1 July 2022	2022/23 Budget New Loans	2022/23 Budget Principal Repayments	Budget Principal Outstanding 30 June 2023	2022/23 Budget Interest Repayments
			%			%	$	$	$	$	$	$	$	$	$
Council Loans															
Administration															
Civic and Administration Centre	207	WATC	4.51	20	Jun-34	4.51		604,384	11,990,659	419,264	12,595,043		810,406	11,784,637	554,459
Other Property and Services															
Lot 40 Vasse Highway	210	WATC	3.61	10	Dec-25	3.61			850,000	23,014	850,000		-	850,000	30,685
Recreation and Culture															
Geothermal Heating GLC	202	WATC	3.98	10	Jun-23	3.98		47,329	16,091	1,425	63,421		63,421	(0)	1,585
Busselton Foreshore	204	WATC	4.36	15	Jun-29	4.36		56,361	548,302	19,163	604,663		75,559	529,104	25,139
GLC Extensions	205	WATC	3.92	10	Jun-24	3.92		102,390	177,450	7,230	279,840		137,191	142,649	8,969
Busselton Foreshore	209	WATC	3.45	12	Jun-27	3.45		425,323	2,635,877	77,971	3,061,200		569,628	2,491,572	101,430
Busselton Foreshore	211	WATC	2.55	8	Oct-24	2.55		294,476	709,341	17,329	1,003,817		393,889	609,928	21,851
Busselton Foreshore Jetty Precinct	215	WATC	3.25	10	Apr-28	3.25		121,488	1,473,991	25,927	1,595,480		244,951	1,350,529	49,879
Tennis Club Facility	216	WATC	3.25	10	Apr-28	3.25		133,637	1,621,390	28,519	1,755,027		269,446	1,485,581	54,867
Lot 10 Commonage Road	217	WATC	3.25	10	Apr-28	3.25		77,753	943,354	16,593	1,021,107		156,769	864,338	31,923
Busselton Tennis Club	218	WATC	2.21	10	Jun-29	2.21		90,554	815,761	14,524	906,314		121,072	785,242	19,031
Performing Arts / Convention Centre	225	WATC	1.46	10	Dec-31	2.10		343,351	4,430,725	73,360	4,774,076		459,005	4,315,071	96,611
Performing Arts / Convention Centre	226	WATC	2.02	15	Dec-36	2.39		212,429	4,648,043	85,698	4,860,472		284,085	4,576,387	113,418
Performing Arts / Convention Centre	228	WATC	3.86	20	Jun-42	3.86		126,433	4,873,567	176,528	5,000,000		169,393	4,830,607	190,515
Performing Arts / Convention Centre	229	WATC	3.77	17	Jun-39	3.77		159,932	4,840,068	172,047	5,000,000		214,251	4,785,749	185,387
Performing Arts / Convention Centre	230	WATC	3.25	20	Dec-42	4.42	6,500,000	50,960	6,449,040	91,853	-	6,500,000	175,426	6,324,574	157,020
Transport															
Airport Jet A1 Installation	206	WATC	3.92	10	Jun-24	3.92		29,864	51,756	2,109	81,620		40,014	41,606	2,616
Airport Freight Hub Stage 1	219	WATC	2.21	10	Jun-29	2.21		107,215	965,861	17,196	1,073,076		143,350	929,726	22,532
							6,500,000	**2,983,879**	**48,041,276**	**1,269,750**	**44,525,155**	**6,500,000**	**4,327,853**	**46,697,301**	**1,667,916**
Self-Supporting Loans															
Recreation and Culture															
Busselton Bowling Club	199	WATC	5.98		Dec-20	5.98			-		-			-	
Busselton Football and Sportsman's Club	208	WATC	2.93	10.25	Apr-25	2.93		2,347	7,358	196	9,705		3,141	6,564	250
Dunsborough and Districts Country Club	212	WATC	3.04	10	May-27	3.04		5,721	55,570	932	61,291		11,530	49,761	1,776
Geographe Bay Yacht Club	213	WATC	3.04	10	May-27	3.04		5,019	48,745	817	53,764		10,114	43,650	1,558
Dunsborough and Districts Country Club	214	WATC	3.19	10	Sep-27	3.19		10,955	53,822	1,980	64,777		10,955	53,822	1,980
Busselton Tennis Club	220	WATC	1.37	7	Sep-26	1.37		5,321	25,568	299	30,889		7,107	23,782	387
Busselton Hockey Club Stadium	221	WATC	1.31	10	Jun-30	1.31		3,263	33,253	348	36,517		4,358	32,158	457
Busselton Golf Club	222	WATC	1.45	10	Jun-31	1.45		7,821	91,882	1,057	99,703		10,447	89,256	1,390
Dunsborough Bay Yacht Club	223	WATC	2.77	5	Dec-26	1.57		3,655	18,932	251	22,587		4,883	17,704	325
Geographe Bay Yacht Club	224	WATC	2.77	10	Dec-31	2.42		3,387	44,389	846	47,776		4,530	43,246	1,114
Community Groups 22/23 $250K	New	Unknown	1.55	10	New				-		-	250,000	11,603	238,397	1,915
Economic Services															
MRBTA - Ancient Lands Discovery Park	227	WATC	2.77	10	Mar-32	2.77		82,818	1,139,955	24,844	1,222,773		110,808	1,111,965	32,742
							-	**130,308**	**1,519,474**	**31,570**	**1,649,782**	**250,000**	**189,475**	**1,710,307**	**43,895**
Total - Council and Self-supporting Loans							**6,500,000**	**3,114,187**	**49,560,749**	**1,301,320**	**46,174,937**	**6,750,000**	**4,517,329**	**48,407,608**	**1,711,811**

City of Busselton

Statement of Financial Activity

Year to Date As At 31 March 2023

	2022/2023 Actual YTD	2022/2023 Amended Budget YTD	2022/2023 Original Budget YTD	2022/2023 Amended Budget	2022/2023 Original Budget	2022/23 YTD Bud (A) Variance
	$	$	$	$	$	%
Revenue from Ordinary Activities						
Rates	57,367,971	57,193,515	57,193,515	57,741,408	57,741,408	0.31%
Operating Grants, Subsidies and Contributions	2,409,734	1,776,778	271,254	3,432,638	3,432,638	35.62%
Fees & Charges	18,712,069	13,954,543	13,954,543	19,894,021	19,894,021	34.09%
Other Revenue	412,995	264,044	264,044	351,906	351,906	56.41%
Interest Earnings	2,938,598	1,475,191	1,475,191	2,019,250	2,019,250	99.20%
	81,841,367	**74,664,070**	**73,158,546**	**83,439,223**	**83,439,223**	**9.61%**
Expenses from Ordinary Activities						
Employee Costs	(26,084,029)	(24,045,554)	(23,991,085)	(36,283,918)	(36,307,918)	-8.48%
Materials & Contracts	(14,487,875)	(8,948,710)	(8,250,367)	(23,416,561)	(22,164,077)	-61.90%
Utilities (Gas, Electricity, Water etc)	(2,053,024)	(1,832,451)	(1,832,451)	(2,876,680)	(2,876,680)	-12.04%
Depreciation on non current assets	(19,630,426)	(20,598,720)	(20,598,720)	(27,439,900)	(27,439,900)	4.70%
Insurance Expenses	(869,528)	(635,989)	(635,989)	(652,369)	(652,369)	-36.72%
Other Expenditure	(2,642,346)	(2,067,140)	(1,391,703)	(7,677,546)	(7,677,546)	-27.83%
Allocations	1,297,978	1,579,440	1,579,440	2,105,926	2,132,924	17.82%
	(64,469,250)	**(56,549,123)**	**(55,120,874)**	**(96,241,048)**	**(94,985,566)**	**-14.01%**
Borrowings Cost Expense						
Interest Expenses	(1,211,619)	(1,251,876)	(1,251,876)	(1,722,673)	(1,722,673)	3.22%
	(1,211,619)	**(1,251,876)**	**(1,251,876)**	**(1,722,673)**	**(1,722,673)**	**3.22%**
Non-Operating Grants, Subsidies and Contributions	9,339,721	594,396	594,396	32,939,826	31,102,583	1471.30%
Profit on Asset Disposals	135,157	8,632	8,632	18,846	23,632	1465.76%
Loss on Asset Disposals	(7,626)	(45,550)	(45,550)	(45,450)	(45,550)	83.26%
	9,467,251	**557,478**	**557,478**	**32,913,222**	**31,080,665**	**1598.23%**
Net Result	**25,627,750**	**17,420,549**	**17,343,274**	**18,388,724**	**17,811,649**	**47.11%**
Adjustments for Non-cash Revenue & Expenditure						
Depreciation	19,630,426	20,598,720	20,598,720	27,439,900	27,439,900	
Donated Assets	(237,228)	0	0	(5,740,000)	(5,740,000)	
(Profit)/Loss on Sale of Assets	(127,530)	36,917	36,917	26,604	21,918	
Allocations & Other Adjustments	(281,745)	0	0	0	0	
Deferred Pensioner Movements (Non-current)	(36,432)	0	0	0	0	
Deposit & Bonds Movements (cash backed NC)	402,456	0	0	0	0	
Future Obligations Net Movements (NC)	2,274,513	0	0	(250,254)	0	
Capital Revenue & (Expenditure)						
Land & Buildings	(9,652,732)	(11,876,748)	(11,876,748)	(41,476,124)	(40,359,914)	18.73%
Plant & Equipment	(1,032,981)	(1,277,273)	(1,277,273)	(4,773,534)	(2,451,873)	19.13%
Furniture & Equipment	(680,487)	(556,190)	(556,190)	(1,178,086)	(1,048,664)	-22.35%
Infrastructure	(10,713,788)	(13,669,313)	(13,669,313)	(23,055,781)	(22,600,157)	21.62%
Proceeds from Sale of Assets	396,242	585,452	535,452	460,652	613,452	-32.32%
Proceeds from New Loans	6,500,000	0	0	6,750,000	6,750,000	100.00%
Self Supporting Loans - Repayment of Principal	138,399	136,098	136,098	189,476	189,476	1.69%
Total Loan Repayments - Principal	(3,114,187)	(3,185,494)	(3,185,494)	(4,517,329)	(4,517,329)	2.24%
Repayment Capital Lease	(247,021)	(250,974)	(250,974)	(250,974)	(250,974)	1.58%
Advances to Community Groups	0	0	0	(250,000)	(250,000)	0.00%
Transfer to Restricted Assets	(21,629,258)	0	0	0	0	-100.00%
Transfer from Restricted Assets	14,150,688	0	0	13,038,048	12,811,794	100.00%
Transfer to Reserves	(15,131,019)	(14,273,685)	(14,273,685)	(24,746,493)	(24,477,257)	-6.01%
Transfer from Reserves	4,190,034	2,145,016	2,145,016	39,885,838	35,886,464	95.34%
Opening Funds Surplus/ (Deficit)	507,353	507,353	507,353	507,353	507,353	
Net Current Position - Surplus / (Deficit)	**10,933,453**	**(3,659,573)**	**(3,786,848)**	**448,020**	**335,838**	

City of Busselton

Net Current Position

Year to Date As At 31 March 2023

	2022/23 Actual	2022/23 Amended Budget	2022/23 Original Budget	2021/22 Actual
	$	$	$	$
NET CURRENT ASSETS				
CURRENT ASSETS				
Cash - Unrestricted	8,029,963	171,707	59,525	0
Cash - Restricted	116,379,767	69,782,820	73,739,212	97,960,213
Sundry Debtors	1,248,524	2,779,261	2,779,261	4,245,922
Rates Outstanding - General	3,184,909	120,739	120,739	120,738
Stock on Hand	926,708	900,000	900,000	935,800
	129,769,871	**73,754,527**	**77,598,737**	**103,262,673**
LESS: CURRENT LIABILITIES				
Bank Overdraft	0	0	0	304,759
Sundry Creditors	2,456,652	3,523,687	3,523,687	4,490,348
Obligations Liability (C)	0	2,800,000	2,800,000	2,999,485
Performance Bonds	4,471,894	4,069,438	4,069,438	4,069,438
	6,928,546	**10,393,125**	**10,393,125**	**11,864,030**
Current Position (inclusive of Restricted Funds)	122,841,325	63,361,402	67,205,612	91,398,643
Add: Cash Backed Obligations Liability (C)	0	2,800,000	2,800,000	2,999,485
Add: Cash Backed Liabilities (Deposits & Bonds)	4,471,894	4,069,438	4,069,438	4,069,438
Less: Cash - Restricted Funds	(116,379,767)	(69,782,820)	(73,739,212)	(97,960,213)
NET CURRENT ASSET POSITION	**10,933,453**	**448,020**	**335,838**	**507,353**

City of Busselton
Capital Construction & Acquisitions Report
For Period Ended 31 March 2023

Project	Project Description	2022/23	2022/23	2022/23	2022/23	2022/23
Project Code	Project Description	Actual YTD	Amended Budget YTD	Original Budget YTD	Amended Budget	Budget Original
		$	$	$	$	$
Land						
12847	Purchase Sues Road(C)	-	-	-	500,000	500,000
12936	Property Services Administration(C)	-	-	-	50,000	50,000
		-	-	-	550,000	550,000
Buildings						
Aged Housing						
12231	Aged Housing Capital Improvements - Harris Road(C)	7,089	-	-	12,608	12,608
12233	Aged Housing Capital Improvements - Winderlup(C)	80,228	-	-	25,215	25,215
12234	Aged Housing Capital Improvements - Winderlup Court (City(C)	24,420	49,000	49,000	49,000	49,000
		111,737	49,000	49,000	86,823	86,823
Saltwater						
10024	Performing Arts Convention Centre(C)	2,821	-	-	-	-
12471	BPACC - Construction(C)	7,436,377	8,590,428	8,590,428	11,453,899	11,453,899
12652	BPACC - Design of Structure / Professional Fees(C)	502,111	74,025	74,025	98,700	98,700
12779	BPACC - Contingency (C)	397,540	-	-	-	-
12780	BPACC - Landscaping (C)	472	-	-	-	-
12781	BPACC - Loose Furniture & Fittings (C)	20,481	-	-	-	-
12782	BPACC - Utility Costs (C)	17,727	-	-	-	-
12783	BPACC - IT Hardware & Software (C)	46,594	-	-	-	-
12916	BPACC - Construction(C)	-	-	-	550,000	550,000
12917	BPACC - Loose Furniture & Fittings(C)	982	-	-	250,000	250,000
12918	BPACC - Construction(C)	-	-	-	1,642,703	1,642,703
12919	BPACC - Construction - Funded Federal Government Grant(C)	-	-	-	2,799,000	2,799,000
12920	BPACC - Construction - Funded Loan(C)	-	-	-	6,500,000	6,500,000
12921	BPACC - Construction - Funded RA Unspent Loans(C)	-	-	-	7,187,000	7,187,000
12922	BPACC - Contingency - Funded RA Unspent Loans(C)	-	-	-	2,000,000	2,000,000
12923	BPACC - Design of Structure / Professional Fees - Funded (C)	-	-	-	670,000	670,000
12924	BPACC - Utility Costs - Funded RA Unspent Loans(C)	-	-	-	143,000	143,000
12925	BPACC - Construction - Funded Grant Community Program Pha(C)	-	-	-	1,923,000	1,923,000
12926	BPACC - Construction - Funded RIO Sponsorship(C)	-	-	-	250,000	250,000
12927	BPACC - Construction - Funded Building Asset Renewal Rese(C)	-	-	-	130,000	130,000
12928	BPACC - IT Hardware & Software - Funded Corporate IT Syst(C)	-	-	-	75,000	75,000
12929	BPACC - Landscaping - Funded Parks, Gardens & Reserve Res(C)	-	-	-	500,000	500,000
		8,425,104	8,664,453	8,664,453	36,172,302	36,172,302
10015	Civic and Administration Building Replacement of Cladding(C)	-	-	-	-	-
10016	Civic and Administration Centre Minor Upgrades(C)	3,300	26,250	26,250	35,000	35,000
10025	Weld Theatre(C)	2,115	-	-	-	
10585	BMRA Hangars(C)	-	303,790	303,790	303,790	303,790
10589	Airport Construction, Existing Terminal Upgrade(C)	386,373	209,254	209,254	496,254	287,000
10622	Bovell Construction of Change rooms(C)	84,663	72,394	72,394	72,394	72,394
10642	Dunsborough Lakes Sporting Precinct-Pavilion/Changeroom F(C)	34,663	1,284,775	1,284,775	1,284,775	1,284,775
10688	Depot Washdown Facility Upgrades(C)	-	76,700	76,700	76,700	76,700
10788	GLC Building Improvements(C)	210,217	365,277	365,277	423,934	423,934
10789	GLC CCTV Installation(C)	-	-	-	-	50,000
10972	Churchill Park Renew Sports Lights(C)	215,392	188,252	188,252	188,252	188,252
12428	Re-use shop Busselton Transfer Station(C)	16,899	158,375	158,375	550,000	-
12429	Busselton Waste Transfer Station - Buildings(C)	100	-	-	-	-
12435	Dunsborough Youth Centre Building Construction(C)	43,973	36,147	36,147	36,147	36,147
12440	Energy Efficiency Initiatives (Various Buildings) (C)	31,814	106,246	106,246	133,234	133,234
12456	Bsn Jetty Tourist Park Home(C)	473	-	-	-	-
12457	Busselton Jetty Tourist Park Upgrade(C)	13,031	45,686	45,686	45,686	45,686
12789	Busselton Library -Lighting Improvements(C)	-	-	-	-	9,224
12791	Naturaliste Community Centre Fire Indicator Panel Renewal(C)	4,965	22,500	22,500	30,000	30,000
12792	Dunsborough Hall - Asbestos Management Allocation (C)	5,670	12,750	12,750	17,000	17,000
12793	Bunker Bay Ablution - Improvments(C)	-	12,750	12,750	17,000	17,000
12795	Busselton Depot CCTV & Electronic Gate(C)	29,636	66,250	66,250	105,000	55,000
12796	Depot Training Room - Roof Renewal(C)	-	7,950	7,950	10,600	10,600
12797	Dunsborough Hall Renewals(C)	1,856	20,059	20,059	26,746	26,746
12798	High Street Hall (C)	5,095	4,500	4,500	6,000	6,000
12800	Old Courthouse and Jail Cells (C)	17,860	45,750	45,750	61,000	61,000
12801	Old Police Quarters - Roof Renewal(C)	-	45,000	45,000	60,000	60,000
12803	Seymour Park Toilets(C)	-	4,050	4,050	5,400	5,400
12804	Airport Terminal Building(C)	4,836	23,840	23,840	31,787	31,787
12868	Busselton Jetty Tourist Park - Replace Cabin 2 (C)	-	-	-	205,000	205,000
12869	Busselton Jetty Tourist Park - Renewal Works Park 1 Ablut(C)	-	-	-	46,120	46,120
12942	Asbestos Removal & Replacement(C)	2,960	24,750	24,750	33,000	33,000
14836	RFDS relocation(C)	-	-	-	366,180	
		1,115,890	3,163,295	3,163,295	4,666,999	3,550,789
		9,652,732	11,876,748	11,876,748	40,926,124	39,809,914
Plant and Equipment						
10700	Dunsborough Cemetery(C)	10,073	17,273	17,273	17,273	17,273
12870	Busselton Jetty Tourist Park- Replace Holden Colorado 4x4(C)	-	-	-	35,000	35,000
12871	Busselton Jetty Tourist Park - Replace Stihl FS110 Brushc(C)	-	-	-	-	1,000
12872	Busselton Jetty Tourist Park - Battery Powered Mule(C)	-	-	-	-	35,000
12879	Plant Purchases (P11) - Spit water heavy duty high pressu(C)	10,741	-	-	14,000	14,000

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Project	Project Description	2022/23	2022/23	2022/23	2022/23	2022/23
Project Code	Project Description	Actual YTD	Amended Budget YTD	Original Budget YTD	Amended Budget	Budget Original
		$	$	$	$	$
12880	Plant Purchases (P11) - Water Tank 4,500 LT with Pump & (C)	-	-	-	-	15,000
12881	Plant Purchases (P11) - HINO FD1024 Beavertail Truck (tur(C)	-	-	-	-	110,000
12882	Plant Purchases (P11) - Isuzu NPR65-190 Single Cab (Turf (C)	112	-	-	-	90,000
12883	Plant Purchases (P11) - Kubota F3690 Outfront Mower (C)	29,200	-	-	33,000	33,000
12884	Plant Purchases (P11) - Kubota F3690 Outfront Mower (C)	-	-	-	33,000	33,000
12885	Plant Purchases (P11) - Kubota F3690 Outfront Mower (C)	-	-	-	33,000	33,000
12886	Plant Purchases (P11) - Brush / Tree Chipper(C)	-	-	-	100,000	100,000
12887	Plant Purchases (P11) - Redexim Easyspread 1600 Sand Spre(C)	-	-	-	20,000	20,000
12888	Plant Purchases (P12) - HINO FS2848 Tipper Truck (Constr/(C)	-	-	-	230,000	230,000
12889	Plant Purchases (P12) - Speed Display/VMB single axle tra(C)	-	-	-	25,000	25,000
12890	Plant Purchases (P12) - Caterpillar CS56 Rollwe (Constru(C)	-	-	-	180,000	180,000
12891	Plant Purchases (P12) - Ditchwitch Cable Locator(C)	-	-	-	8,000	8,000
12892	Plant Purchases (P12) - ISUZU FVZ1400 Tipper Truck (Const(C)	-	-	-	230,000	230,000
12893	Planning and Development Services - Replacement Complianc(C)	43,000	-	-	41,000	41,000
12894	Plan and Dev - Replacement Comp - Nissan X-trail(C)	-	-	-	-	35,000
12895	Engineering and Works Services - Replacement Asset Manage(C)	-	-	-	-	35,000
12896	Engineering and Works Services - Replacement Building Fac(C)	-	-	-	42,000	42,000
12897	Engineering and Works Services - Replacement Isuzu D-Max (C)	-	-	-	-	42,000
12898	Engineering and Works Services - Replacement Mitsubishi G(C)	-	-	-	-	42,000
12899	Engineering and Works Services - Replacement Isuzu D-Max (C)	-	-	-	42,000	42,000
12900	Engineering and Works Services - Replacement Toyota Hilux(C)	-	-	-	-	42,000
12901	Engineering and Works Services - Replacement Toyota Hilux(C)	-	-	-	-	42,000
12902	Finance and Corporate Services - Replacement Manager Gove(C)	-	-	-	40,000	40,000
12903	Finance and Corporate Services - Replacement IT Coordinat(C)	34,623	-	-	35,000	35,000
12904	Plant Purchases (P11) - Minor Plant (Capital)(C)	9,412	-	-	20,000	20,000
12905	Plant Purchases (P11) - Minor Plant (Non-Capital)(C)	-	-	-	-	40,000
12906	Plant Purchases (P12) - Minor Plant (Capital)(C)	24,014	-	-	15,000	15,000
12907	Plant Purchases (P12) - Minor Plant (Non-Capital)(C)	-	-	-	-	15,000
12908	Transport - Workshop - Minor Plant(C)	-	-	-	10,000	10,000
12909	Busselton Jetty - Replacement Stihl MS381 Chainsaw(C)	-	-	-	-	2,000
12910	Busselton Jetty - Replacement Honda EU20 Generator (Jetty(C)	-	-	-	-	3,000
12911	Waste Management - Replacement of Volvo FE320 6x4 Dual Co(C)	-	-	-	440,000	440,000
12912	Waste Management - Plant Replacement Grab bucket and atta(C)	-	-	-	30,000	30,000
12913	Waste Management - Plant Replacement Trailer for bin clea(C)	8,045	-	-	20,000	20,000
12914	Waste Management - Plant Replacement Minor (Capital)(C)	-	-	-	10,000	10,000
12915	Waste Management - Plant Replacement Minor (Non Capital)(C)	-	-	-	-	10,000
12930	Airport Operations - Replacement Ute - Airport Operations(C)	-	-	-	35,000	35,000
12931	Airport Operations - Replacement Deutz/able 75KVA Generat(C)	-	-	-	-	25,000
12932	Airport Operations - Replacement Toro Groundmaster 7200 M(C)	-	-	-	30,000	30,000
12933	Airport Operations - Replacement Stihl FS94R CE Brushcutt(C)	-	-	-	-	700
12934	Airport Operations - Replacement Bar Pertol 3000PSI Press(C)	-	-	-	-	1,500
12935	Airport Operations - Replacement Blower(C)	-	-	-	-	400
12948	Environmental Health Serv Admin-Health Ute(C)	-	-	-	-	42,000
14268	TOYOTA PRADO GXL 4X4 (CEO Tony.N)(C)	64,682	-	-	60,000	
14727	Baggage handling system injector belt(C)	-	-	-	55,000	55,000
14734	MAZDA CX5 TOURING AWD SUV (JENNY MAY) REPL.P194110(C)	39,330	-	-	-	-
14744	MITSUBISHI PAJERO GLX 4X4 (R RUNCO REPL194122)(C)	-	-	-	41,083	
14746	TOYOTA HILUX 4X4 SIN CAB UTIL TRAY (PARK-EF)REP196100(C)	43,994	-	-	44,017	-
14753	FLOODRITE 10,000L WATER TANK (CONST) REPL.P198111(C)	40,270	-	-	40,270	-
14763	FORD ESCAPE ST LINE 2WD (FLEET COOR) Repl.P194126(C)	34,128	-	-	34,128	-
14765	MITSUBISHI PAJERO SPORT 4X4 SUV REP P196110(C)	39,931	-	-	39,931	-
14766	NISSAN X-TRAIL AWD (EVENTS COORD) REP P192024(C)	36,642	-	-	36,642	-
14767	TOYOTA HILUX 4WD DUAL CAB UTILITY (RANGER SER)RepP196102(C)	53,364	-	-	53,364	-
14768	TOYOTA HILUX SR 4X4 DUAL CAB U (G STEWART) REPL.P196098(C)	49,508	-	-	49,508	-
14770	VOLVO FE320 6X4 RUBBISH COMPA Repl. P166020(C)	426,679	-	-	426,679	-
14773	KOMATSU GD655-7 MOTOR GRADER (CONSTR.) REPL.P103002(C)	14	-	-	410,800	
14805	TOYOTA RAV4 HYBRID 4X2 SUV (REP P194120)(C)	35,217	-	-	35,217	-
14818	Wheeled 20t excavator Inc. Accessories(C)	-	485,000	485,000	485,000	-
14819	Positrak (Cat 299) with Accessories (C)	-	250,000	250,000	250,000	-
14820	Trailer for Towing Positrak & Traffic Lights(C)	-	40,000	40,000	40,000	-
14821	Trailer Traffic Lights x 2 (and Sign Cones)(C)	-	45,000	45,000	45,000	-
14823	Bin Truck Replacement (Side Arm)(C)	-	440,000	440,000	440,000	-
14842	New Horticultural Truck East(C)	-	-	-	100,540	-
14843	New Horticultural Truck West(C)	-	-	-	111,192	-
14844	New CBD Truck West (C)	-	-	-	111,280	-
14845	New Construction Truck(C)	-	-	-	95,610	-
		1,032,981	1,277,273	1,277,273	4,773,534	2,451,873
Furniture and Equipment						
10965	P&E - P&G Smart Technologies(C)	14,400	-	-	100,000	100,000
11038	Pilot Act. Lighting control unit(C)	7,240	-	-	-	
12876	ICT Services - Equipment & Software Purchases(C)	287,348	219,845	219,845	594,845	594,845
12878	Naturaliste Community Centre (NCC) - Purchase Office Furn(C)	-	-	-	20,000	20,000
12937	Community Resource Centre(C)	3,993	-	-	20,000	20,000
12938	YCAB (Youth Precinct Foreshore)(C)	-	-	-	5,091	5,091
12939	Administration Building- 2-16 Southern Drive(C)	6,556	-	-	15,000	15,000
12940	Depot Building-Busselton((C)	-	-	-	50,000	50,000

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		$	$	$	$	$
14729	Events Furniture & Equipment(C)	239,819	200,000	200,000	200,000	200,000
14730	Geographe Leisure Centre Fitness Equipment(C)	-	18,160	18,160	18,160	18,160
14731	Cultural Planning Furniture & Equipment(C)	50,578	78,185	78,185	78,185	25,568
14764	Christmas Decorations (C)	39,870	-	-	-	-
14824	Barnard Park New Hot Water System(C)	31,633	40,000	40,000	40,000	-
14830	Airport Capital Furniture&Equipment(C)	-	-	-	36,805	-
	Timing discrepancy	(950)				
		680,487	556,190	556,190	1,178,086	1,048,664
Roads Infrastructure ***						
10610	Forth Street Groyne Carpark - Formalise and Seal(C)	12,953	-	-	-	-
10673	Peel & Queen Street Roundabout Service Relocation(C)	543	19,941	19,941	19,941	19,941
11135	Carey Street - Asphalt Overlay & Kerb(C)	458	-	-	-	-
11151	Chapman Crescent Spray Seal(C)	1,373	-	-	-	-
11152	Donnelly Court Reseal(C)	190	-	-	-	-
11193	Wilyabrup Road Resheet(C)	48,490	97,500	97,500	130,000	130,000
11199	Bussell Highway(C)	35,427	1,142,645	1,142,645	1,330,145	1,330,145
11982	Cape Naturaliste Road - School Warden Crossing Upgrade(C)	135	-	-	-	-
11987	Caves Road - Median Crossing(C)	917	17,960	17,960	17,960	17,960
11988	Chamber Road(C)	482	-	-	-	
11989	Chapman Hill Road(C)	154,394	381,951	381,951	381,951	381,951
11991	Commonage & Hayes Road instersection Safety works(C)	234	38,951	38,951	38,951	38,951
11996	Geographe Bay Road Quindalup(C)	364	-	-	-	
11997	Gifford Road Reconstruction(C)	28,845	111,053	111,053	111,053	111,053
11998	Kaloorup Road(C)	60,730	79,690	79,690	79,690	79,690
11999	Kaloorup Road - Reconstruct and Seal Shoulders(C)	-	25,472	25,472	25,472	25,472
12000	Kaloorup Road (Stage 1)(C)	1,322	69,412	69,412	69,412	69,412
12005	Payne Road(C)	140,667	427,500	427,500	570,000	570,000
12007	Rendezvous Road Spray Seals(C)	-	-	-	-	150,000
12008	Road Safety Signage Infrastructure(C)	15,231	-	-	-	-
12009	Seascape Rise - Road Safety Upgrade(C)	4,315	-	-	-	-
12010	Sugarloaf Road(C)	1,446,089	751,509	751,509	751,509	751,509
12012	Wildwood Road(C)	623,587	540,000	540,000	540,000	-
12446	Dunsborough Road Access Improvements Stage 1(C)	42	-	-	-	-
12590	Sidebottom Road(C)	2,328	-	-	-	-
12601	Falkingham Road(C)	162	-	-	-	
12602	Gale Street(C)	123	-	-	-	-
12603	Harris Road(C)	1,033	-	-	-	-
12604	Lindberg Road(C)	273	-	-	-	
12607	Wilyabrup Road(C)	217	-	-	-	-
12611	North Jindong Road(C)	14,549	770,000	770,000	770,000	-
12645	Marine Terrace(C)	6,764	-	-	-	-
12823	Ludlow-Hithergreen Second Coat Seal (C)	31,882	22,500	22,500	30,000	30,000
12824	Acton Park Road(C)	201,586	887,250	887,250	1,183,000	1,183,000
12825	Farquar Road Resheet(C)	68,396	56,250	56,250	75,000	75,000
12826	Glendon Road Resheet(C)	23,531	22,010	22,010	29,347	29,347
12827	Commonage Road(C)	26,770	210,000	210,000	280,000	280,000
12835	Ludlow-Hithergreen Road(C)	62,884	247,500	247,500	330,000	330,000
12836	Metricup(C)	10,991	90,000	90,000	120,000	120,000
12837	Pre-emptive Design Works (C)	24,857	37,500	37,500	50,000	50,000
12838	Queen Elizabeth Avenue(C)	133,311	517,500	517,500	690,000	690,000
12839	Seista Park Road(C)	631	-	-	-	198,000
12840	Sheens Road Apron(C)	10,878	6,000	6,000	8,000	8,000
12841	Strelly Street (C)	33,254	45,000	45,000	60,000	60,000
12842	Nuttman Road (C)	-	41,426	41,426	55,235	55,235
12851	Bussell Highway(C)	25,437	112,500	112,500	150,000	150,000
14749	Jalbarragup Road Shoulders(C)	40,664	-	-	-	-
14817	Road Access Seal - Busselton Animal care facility(C)	-	50,000	50,000	50,000	-
14835	West Street Resurfacing SLK 1.00 to 1.15(C)	10,165	-	-	-	
		3,307,472	6,819,020	6,819,020	7,946,666	6,934,666
Bridges Infrastructure ***						
12376	Boallia Road Bridge - 4854(C)	203	-	-	-	
12377	Gale Road Bridge 3408A(C)	-	-	-	90,000	90,000
12379	Roy Road - Bridge Construction - Bridge 3373A(C)	-	-	-	87,000	87,000
12545	Layman Road Bridge - 3438(C)	156,000	-	-	234,000	234,000
		156,203	-	-	411,000	411,000
Car Parks Infrastructure ***						
10606	Dunsborough Lakes Sporting Precinct (Stage 1) - Carparkin(C)	122,135	183,373	183,373	183,373	183,373
10608	Dunsborough Yacht Club Carpark(C)	386	-	-	-	-
10618	Vasse Oval Gravel Car Parking - Dawson (Eastern Side)(C)	97	-	-	-	-
12806	Margaret Street Beach Carpark(C)	-	-	-	-	111,687
14813	Geo Bay Road Carpark (10 bays East SLK 0.3 - 0.38)(C)	36,793	35,000	35,000	70,000	-
14815	Carpark Hotel Site 2(C)	15,574	115,000	115,000	230,000	-
		174,985	333,373	333,373	483,373	295,060

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Project Code	Project Description	Actual YTD	Amended Budget YTD	Original Budget YTD	Amended Budget	Budget Original
		$	$	$	$	$
Footpaths & Cycleways Infrastructure * **						
10698	Buayanyup Drain Shared Path(C)	4,505	49,446	49,446	49,446	49,446
10736	Arnup Drive Footpath Construction(C)	42,230	73,422	73,422	74,672	74,672
10741	Busselton CBD Footpath Renewal(C)	-	100,000	100,000	100,000	100,000
10742	Carey Street Footpath Construction(C)	87,978	203,793	203,793	271,724	271,724
10744	End of Trip Footpath Construction(C)	6,340	7,500	7,500	10,000	10,000
10746	Micro Brewery - Footpath and Landscaping(C)	37	-	-	-	-
10903	DAIP - Disability Access(C)	1,095	-	-	30,000	-
10960	Dunsborough Centennial Park Project(C)	-	-	-	-	99,384
11986	Causeway Road Shared Path(C)	10,988	320,000	320,000	320,000	194,455
12439	End of Trip Facilities for Cyclists(C)	155	-	-	-	
12552	College Avenue(C)	415	-	-	-	-
12816	Coastal Principled Shares Path (C)	1,800	72,285	72,285	72,288	206,333
12817	Prince Regent Drive (C)	32,278	105,750	105,750	141,000	141,000
12818	Kaloorup Road (C)	7,586	58,500	58,500	78,000	78,000
12877	Principle Shared Path (PSP) Development Approvals (C)	-	18,750	18,750	25,000	25,000
14814	Townscape Works Busselton(C)	-	-	-	100,000	-
		195,406	1,009,446	1,009,446	1,272,130	1,250,014
Parks, Gardens and Reserves * **						
Coastal & Boating						
10613	Meelup Coastal Parking & Landscaping(C)	4,385	133,678	133,678	178,238	178,238
10645	Coastal Adaptation: Mitigation of Coastal Flooding (Drain(C)	42,744	-	-	-	-
10646	Coastal Adaptation: Mitigation of Coastal Flooding (Dunes(C)	313	-	-	-	
10775	Coastal Protection Works(C)	43	-	-	-	-
10777	Coastal Structures (West Busselton Seawall - Stage 2)(C)	134,614	146,560	146,560	146,560	146,560
12812	Coastal Adaptation : Forth St (Stage 2)(C)	-	37,463	37,463	49,950	125,000
12813	Coastal Adaptation : Dunsborough Dunnbay Road to Highview(C)	-	-	-	-	964,798
14737	Coastal Flood Risk Mitigation(C)	129,698	-	-	-	
14738	Wave and Tide Sensor Monitoring Buoys(C)	46,175	-	-	50,000	-
		357,970	317,701	317,701	424,748	1,414,596
Townscapes						
12333	Townscape Works Dunsborough(C)	2,135,802	1,598,490	1,598,490	1,748,490	1,298,490
		2,135,802	1,598,490	1,598,490	1,748,490	1,298,490
Other P&G Infrastructure						
10597	Busselton Cemetery Infrastructure Upgrades(C)	5	-	-	-	
10674	Dunsborough Lakes Sporting Precinct - Outdoor Courts(C)	519,860	531,497	531,497	531,497	531,497
10762	Busselton Foreshore - Exercise Equipment(C)	2,606	-	-	-	-
10765	Foreshore Busselton - High Street to Carey Street(C)	3,002	7,500	7,500	10,000	10,000
10767	Port Geographe General Improvements/ Foreshore(C)	25,544	69,312	69,312	82,285	82,285
10821	Barnard Park East Foreshore Landscaping(C)	17,203	-	-	-	-
10831	Rotary Park / War Memorial Relocation(C)	-	-	-	525,000	525,000
10852	RBFS Port Geographe Boat Facility Solar Lighting (C)	21,288	31,800	31,800	31,800	31,800
10951	Mitchell Park Upgrade(C)	36,760	37,491	37,491	37,491	37,491
10952	Possum Park Barnard East Upgrade(C)	563	-	-	30,000	-
10953	Youth Skate Park(C)	-	7,500	7,500	10,000	10,000
10966	Provence SAR Area General Improvements to the Area(C)	6,600	20,000	20,000	20,000	20,000
10967	Shade Sail Program(C)	46,268	171,414	171,414	196,414	196,414
10969	Vasse SAR Area General Improvements to the Area(C)	105,339	112,500	112,500	150,000	150,000
11024	Pioneer Cemetery - Implement Conservation Plan(C)	186	-	-	-	-
11034	Dunsborough Non-Potable Water Network(C)	9,940	90,784	90,784	90,784	90,784
11035	Park Furniture Replacement - Replace aged & unsafe Equip(C)	10,776	22,500	22,500	30,000	30,000
11036	Playgrounds General - Replacement of playground equipment(C)	33,089	131,250	131,250	175,000	175,000
11109	BBQ Placement and Replacement(C)	-	11,250	11,250	15,000	15,000
11111	Dawson Park (Mcintyre St Pos)(C)	923	-	-	-	
11112	Dolphin Road - POS Upgrade(C)	923	-	-	-	
11115	Kingfish/ Costello - POS Upgrade(C)	923	-	-	-	
11116	Kingsford Road - POS Upgrade(C)	923	-	-	-	
11117	Limestone Quarry - POS Upgrade(C)	923	-	-	-	
11120	Quindalup Old Tennis Courts Site - POS Upgrade(C)	923	-	-	-	
11122	Tulloh St (Geographe Bay Road) - POS Upgrade(C)	923	-	-	-	-
11123	Wagon Road - POS Upgrade(C)	923	-	-	-	
12251	Cricket Wicket Renewal(C)	22,991	29,423	29,423	39,230	39,230
12382	Rails to Trails - Continuation of Implementation Plan(C)	8,274	88,243	88,243	88,243	88,243
12401	Barnard East Underground Power(C)	2,508	-	-	-	-
12402	Bovell - Connection of Services(C)	87,702	90,902	90,902	90,902	90,902
12407	Dunsborough Lakes Sporting Precinct (Stage 1)(C)	61,908	594,983	594,983	594,983	594,983
12523	Beach Access Improvements(C)	3,910	-	-	-	-
12526	Beach Access Improvements(C)	35,468	26,250	26,250	35,000	35,000
12530	Busselton Foreshore Jetty Precinct(C)	679	-	-	-	-
12699	Dunsborough Oval - Construct New Oval (R4R Funded)(C)	342	-	-	-	
12717	Armistice Centenary Program(C)	203	-	-	-	
12785	Vasse Playing Fields Sports Lighting (C)	409	-	-	-	-
12810	Churchill Park Main Oval redevelopment(C)	-	-	-	-	168,132
12819	Beach Enclosures(C)	4,023	-	-	100,491	100,491
12820	Bird Crescent Dunsborough POS- improvements(C)	155	8,250	8,250	11,000	11,000

City of Busselton
Capital Construction & Acquisitions Report
For Period Ended 31 March 2023

Project Code	Project Description	2022/23 Actual YTD	2022/23 Amended Budget YTD	2022/23 Original Budget YTD	2022/23 Amended Budget	2022/23 Budget Original
		$	$	$	$	$
12821	Churchill Park - Main Oval Renewal (C)	-	-	-	-	444,558
12846	Mitchell Park Landscape Upgrade Stage 2(C)	234	-	-	150,000	150,000
12849	Sport Oval Lighting - Vasse Ovals(C)	243,138	406,250	406,250	475,000	475,000
12850	Dunsborough Lakes Sporting Precinct (Stage 1) - Planning (C)	-	-	-	105,165	105,165
14806	Asphalt Process Pad at BTS for Vasse River Acid S soils(C)	61,950	-	-	-	-
14807	Storytime Way(C)	36,108	-	-	-	
14811	RBFS Old Dunsborough Boat Ramp Scour Protection (C)	-	-	-	33,240	
14816	Carpark Hotel Site 2 Land Scaping(C)	876	75,000	75,000	150,000	-
		1,417,296	2,564,098	2,564,098	3,808,525	4,207,975
		3,911,068	4,480,289	4,480,289	5,981,763	6,921,061
Waste Services						
12420	Vidler Road Waste Site Capital Improvements(C)	(0)	28,955	28,955	28,955	28,955
12421	City Lined Landfill Stage 2 - Preliminary Works(C)	1,244,370	-	-	1,950,000	1,950,000
12422	Liquid Waste Pond Renewal Works(C)	1,448	-	-	-	
12425	Busselton Landfill Post-closure Capping, Rehab & Remediat(C)	10,568	-	-	2,000,000	2,000,000
12428	Transfer Station Development ©	-	-	-	-	308,375
12844	Dunsborough Landfill - Washdown Bay(C)	-	-	-	150,000	150,000
		1,256,386	28,955	28,955	4,128,955	4,437,330
Jetty Infrastructure ***						
10818	Busselton Jetty - Capital Expenditure(C)	437,018	410,474	410,474	480,632	280,632
		437,018	410,474	410,474	480,632	280,632
Drainage Infrastructure ***						
10691	Busselton LIA - Geocatch Drain Partnership WSUD Improveme(C)	1,833	-	-	30,000	30,000
10692	Carey Street Drainage Upgrade(C)	56,440	165,277	165,277	220,369	220,369
12814	High View Road Drainage Works(C)	147,310	166,169	166,169	221,559	221,559
12815	North Street Drainage Works(C)	1,907	174,792	174,792	233,056	233,056
	Minor Variance	82				
		207,572	506,238	506,238	704,984	704,984
Regional Airport and Industrial Park ***						
10583	Airport Construction Stage 2, Airfield(C)	1,066,445	77,768	77,768	1,427,768	1,350,000
10588	Airport Construction Stage 2, Noise Management Plan(C)	345	-	-	-	-
10590	Airport Development - Project Expenses(C)	848	-	-	10,410	10,410
10591	Airport Fencing Works(C)	40	-	-	-	-
12941	Airport - Buildings(C)	-	3,750	3,750	5,000	5,000
14837	Apron Expansion(C)	-	-	-	88,100	
14838	BMRAP - Apron Lighting(C)	-	-	-	65,000	
14839	BMRAP - Apron CCTV(C)	-	-	-	50,000	
		1,067,678	81,518	81,518	1,646,278	1,365,410
	Sub-Total Infrastructure ***	**10,713,788**	**13,669,313**	**13,669,313**	**23,055,781**	**22,600,157**
	Grand Total	**22,079,988**	**27,379,525**	**27,379,525**	**70,483,525**	**66,460,608**

City of Busselton Reserve Movements
For Period Ended 31 March 2023

Project Number	Transaction Type	Project Description	YTD Actual	YTD Budget	Budget Original	YTD BudgetA	Budget Amended
1001 - Airport Existing Terminal Building Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(323,124.54)**	(323,124.54)	(323,124.54)	(323,124.54)	(323,124.54)
10904	Interest Earned	Other General Purpose Funding(O)	**(8,925.58)**	(5,524.29)	(7,381.30)	(5,524.29)	(7,381.30)
10027	Transfer To Reserve	Asset Management Administration(O)	**(100,215.00)**	(100,215.00)	(133,619.00)	(100,215.00)	(133,619.00)
12804	Transfer From Reserve	Airport Terminal Building(C)	**0.00**	0.00	31,787.00	0.00	31,787.00
12941	Transfer From Reserve	Airport Operations - Buildings(C)	**0.00**	0.00	5,000.00	0.00	5,000.00
		Airport Existing Terminal Building Reserve Closing Balance	**(432,265.12)**	(428,863.83)	(427,337.84)	(428,863.83)	(427,337.84)
1003 - Airport Marketing & Incentive Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(6,385,898.19)**	(6,385,898.19)	(6,385,898.19)	(6,385,898.19)	(6,385,898.19)
10904	Interest Earned	Other General Purpose Funding(O)	**(147,736.53)**	(93,015.54)	(124,023.83)	(93,015.54)	(124,023.83)
10594	Transfer To Reserve	Airport Operations(O)	**(230,769.00)**	(230,769.00)	(307,694.00)	(230,769.00)	(307,694.00)
10594	Transfer From Reserve	Airport Operations(O)	**0.00**	0.00	3,349,358.00	0.00	3,349,358.00
		Airport Marketing & Incentive Reserve Closing Balance	**(6,764,403.72)**	(6,709,682.73)	(3,468,258.02)	(6,709,682.73)	(3,468,258.02)
1004 - Airport New Terminal Building Reserve							
			0.00	0.00	0.00	0.00	0.00
10904	Interest Earned	Other General Purpose Funding(O)	**0.00**	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
		Airport New Terminal Building Reserve Closing Balance	**0.00**	0.00	0.00	0.00	0.00
1005 - Barnard Park Sports Pavilion Building Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(105,989.51)**	(105,989.51)	(105,989.51)	(105,989.51)	(105,989.51)
10904	Interest Earned	Other General Purpose Funding(O)	**(2,840.93)**	(1,626.48)	(2,181.10)	(1,626.48)	(2,181.10)
10027	Transfer To Reserve	Asset Management Administration(O)	**(27,495.00)**	(27,495.00)	(36,658.00)	(27,495.00)	(36,658.00)
14824	Transfer From Reserve	Barnard Park New Hot Water System(C)	**0.00**	0.00	0.00	0.00	40,000.00
		Barnard Park Sports Pavilion Building Reserve Closing Balance	**(136,325.44)**	(135,110.99)	(144,828.61)	(135,110.99)	(104,828.61)
1006 - Building Asset Renewal Reserve Fund - General Buildings							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(2,691,452.78)**	(2,691,452.78)	(2,691,452.78)	(2,691,452.78)	(2,691,452.78)
10904	Interest Earned	Other General Purpose Funding(O)	**(71,152.09)**	(35,557.38)	(47,425.41)	(35,557.38)	(47,425.41)
10027	Transfer To Reserve	Asset Management Administration(O)	**(649,818.00)**	(649,818.00)	(866,428.00)	(649,818.00)	(866,428.00)
10175	Transfer From Reserve	Yallingup Hall(O)	**0.00**	0.00	0.00	0.00	10,000.00
11801	Transfer From Reserve	Old Butter Factory(O)	**0.00**	0.00	0.00	0.00	26,000.00
12792	Transfer From Reserve	Dunsborough Hall - Asbestos Management Allocation (C)	**0.00**	0.00	17,000.00	0.00	17,000.00
12793	Transfer From Reserve	Bunker Bay Ablution - Improvments(C)	**0.00**	0.00	17,000.00	0.00	17,000.00
12794	Transfer From Reserve	Busselton Depot: Workshop (O)	**0.00**	0.00	30,000.00	0.00	30,000.00
12795	Transfer From Reserve	Busselton Depot CCTV & Electronic Gate(C)	**0.00**	0.00	55,000.00	0.00	55,000.00
12796	Transfer From Reserve	Depot Training Room - Roof Renewal(C)	**0.00**	0.00	10,600.00	0.00	10,600.00
12797	Transfer From Reserve	Dunsborough Hall Renewals(C)	**0.00**	0.00	26,746.00	0.00	26,746.00
12798	Transfer From Reserve	High Street Hall (C)	**0.00**	0.00	6,000.00	0.00	6,000.00
12799	Transfer From Reserve	High Street Hall - Roof Repairs(O)	**0.00**	0.00	12,000.00	0.00	12,000.00
12800	Transfer From Reserve	Old Courthouse and Jail Cells (C)	**0.00**	0.00	61,000.00	0.00	61,000.00
12801	Transfer From Reserve	Old Police Quarters - Roof Renewal(C)	**0.00**	0.00	60,000.00	0.00	60,000.00
12802	Transfer From Reserve	Old Police Quarters - Re-putty windows and Paint(O)	**0.00**	0.00	5,000.00	0.00	5,000.00
12803	Transfer From Reserve	Seymour Park Toilets(C)	**0.00**	0.00	5,400.00	0.00	5,400.00
12927	Transfer From Reserve	BPACC - Construction - Funded Building Asset Renewal Rese(C)	**0.00**	0.00	130,000.00	0.00	130,000.00
12942	Transfer From Reserve	Asbestos Removal & Replacement(C)	**0.00**	0.00	33,000.00	0.00	33,000.00
12943	Transfer From Reserve	Bay View Cres-Toilets(O)	**0.00**	0.00	9,500.00	0.00	9,500.00
12944	Transfer From Reserve	Bovell-Toilets & Change Rooms(O)	**0.00**	0.00	25,000.00	0.00	25,000.00
12945	Transfer From Reserve	Bunker Bay - Toilet(O)	**0.00**	0.00	5,600.00	0.00	5,600.00
12946	Transfer From Reserve	Seymour Park Toilet(O)	**0.00**	0.00	15,000.00	0.00	15,000.00
12947	Transfer From Reserve	Old Court House(O)	**0.00**	0.00	15,000.00	0.00	15,000.00
		Building Asset Renewal Reserve Fund - General Buildings Closing Balance	**(3,412,422.87)**	(3,376,828.16)	(3,066,460.19)	(3,376,828.16)	(3,030,460.19)
1007 - Busselton Area Drainage and Waterways Improvement Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(130,608.29)**	(130,608.29)	(130,608.29)	(130,608.29)	(130,608.29)
10904	Interest Earned	Other General Purpose Funding(O)	**(2,529.67)**	(1,009.53)	(1,361.62)	(1,009.53)	(1,361.62)
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
		Busselton Area Drainage and Waterways Improvement Reserve Closing Balance	**(133,137.96)**	(131,617.82)	(131,969.91)	(131,617.82)	(131,969.91)
1008 - Busselton Community Resource Centre Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(422,704.86)**	(422,704.86)	(422,704.86)	(422,704.86)	(422,704.86)
10904	Interest Earned	Other General Purpose Funding(O)	**(10,814.85)**	(6,730.11)	(8,982.83)	(6,730.11)	(8,982.83)
10027	Transfer To Reserve	Asset Management Administration(O)	**(78,588.00)**	(78,588.00)	(104,779.00)	(78,588.00)	(104,779.00)
12937	Transfer From Reserve	Community Resource Centre(C)	**0.00**	0.00	20,000.00	0.00	20,000.00
		Busselton Community Resource Centre Reserve Closing Balance	**(512,107.71)**	(508,022.97)	(516,466.69)	(508,022.97)	(516,466.69)
1009 - Busselton Foreshore Maintenance Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(12,690.03)**	(12,690.03)	(12,690.03)	(12,690.03)	(12,690.03)
10904	Interest Earned	Other General Purpose Funding(O)	**(286.87)**	(224.37)	(296.04)	(224.37)	(296.04)
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
		Busselton Foreshore Maintenance Reserve Closing Balance	**(12,976.90)**	(12,914.40)	(12,986.07)	(12,914.40)	(12,986.07)
1010 - Busselton Jetty Tourist Park Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(1,241,104.12)**	(1,241,104.12)	(1,241,104.12)	(1,241,104.12)	(1,241,104.12)
10904	Interest Earned	Other General Purpose Funding(O)	**(33,483.24)**	(13,684.50)	(18,236.66)	(13,684.50)	(18,236.66)
10297	Transfer To Reserve	Busselton Jetty Tourist Park(O)	**(303,590.97)**	(303,590.97)	(404,787.96)	(303,590.97)	(404,787.96)
10297	Transfer From Reserve	Busselton Jetty Tourist Park(O)	**0.00**	0.00	170,367.00	0.00	171,367.00
12457	Transfer From Reserve	Busselton Jetty Tourist Park Upgrade(C)	**0.00**	0.00	45,686.00	0.00	45,686.00
12805	Transfer From Reserve	Busselton Jetty Tourist Park Upgrade(O)	**0.00**	0.00	25,000.00	0.00	25,000.00
12868	Transfer From Reserve	Busselton Jetty Tourist Park - Replace Cabin 2 (C)	**0.00**	0.00	205,000.00	0.00	205,000.00
12869	Transfer From Reserve	Busselton Jetty Tourist Park - Renewal Works Park 1 Ablut(C)	**0.00**	0.00	46,120.00	0.00	46,120.00
12870	Transfer From Reserve	Busselton Jetty Tourist Park- Replace Holden Colorado 4x4(C)	**0.00**	0.00	25,430.00	0.00	25,430.00
12871	Transfer From Reserve	Busselton Jetty Tourist Park - Replace Stihl FS110 Brushc(C)	**0.00**	0.00	1,000.00	0.00	0.00
12872	Transfer From Reserve	Busselton Jetty Tourist Park - Battery Powered Mule(C)	**0.00**	0.00	35,000.00	0.00	0.00
		Busselton Jetty Tourist Park Reserve Closing Balance	**(1,578,178.33)**	(1,558,379.59)	(1,110,525.74)	(1,558,379.59)	(1,145,525.74)

City of Busselton Reserve Movements
For Period Ended 31 March 2023

Project Number	Transaction Type	Project Description	YTD Actual	YTD Budget	Budget Original	YTD BudgetA	Budget Amended
1011 - Busselton Library Building Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(88,925.42)**	(88,925.42)	(88,925.42)	(88,925.42)	(88,925.42)
10904	Interest Earned	Other General Purpose Funding(O)	**(2,774.21)**	(1,402.11)	(1,878.83)	(1,402.11)	(1,878.83)
10027	Transfer To Reserve	Asset Management Administration(O)	**(46,584.00)**	(46,584.00)	(62,114.00)	(46,584.00)	(62,114.00)
12789	Transfer From Reserve	Busselton Library -Lighting Improvements(C)	**0.00**	0.00	9,224.00	0.00	0.00
		Busselton Library Building Reserve Closing Balance	**(138,283.63)**	(136,911.53)	(143,694.25)	(136,911.53)	(152,918.25)
1012 - CBD Enhancement Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(1,333,421.41)**	(1,333,421.41)	(1,333,421.41)	(1,333,421.41)	(1,333,421.41)
10904	Interest Earned	Other General Purpose Funding(O)	**(30,718.10)**	(5,580.36)	(7,421.79)	(5,580.36)	(7,421.79)
10438	Transfer To Reserve	Fire Station Surrounds(O)	**(42,363.00)**	(42,363.00)	(56,478.00)	(42,363.00)	(56,478.00)
12333	Transfer From Reserve	Townscape Works Dunsborough(C)	**1,000,000.00**	0.00	1,298,490.00	0.00	1,397,321.00
		CBD Enhancement Reserve Closing Balance	**(406,502.51)**	(1,381,364.77)	(98,831.20)	(1,381,364.77)	(0.20)
1013 - Cemetery Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(242,001.16)**	(242,001.16)	(242,001.16)	(242,001.16)	(242,001.16)
10904	Interest Earned	Other General Purpose Funding(O)	**(7,007.92)**	(1,346.04)	(1,810.30)	(1,346.04)	(1,810.30)
10157	Transfer To Reserve	Busselton Cemetery(O)	**(89,253.00)**	(89,253.00)	(119,000.00)	(89,253.00)	(119,000.00)
10158	Transfer From Reserve	Dunsborough Cemetery(O)	**0.00**	0.00	17,273.00	0.00	17,273.00
12807	Transfer From Reserve	Pioneer Cemetery - Implement Conservation Plan (Reserve (O)	**0.00**	0.00	20,757.00	0.00	20,757.00
12808	Transfer From Reserve	Dunsborough Cemetery (Reserve Funded)(O)	**0.00**	0.00	20,757.00	0.00	20,757.00
12809	Transfer From Reserve	Memorial Relocation(O)	**0.00**	0.00	50,000.00	0.00	50,000.00
		Cemetery Reserve Closing Balance	**(338,262.08)**	(332,600.20)	(254,024.46)	(332,600.20)	(254,024.46)
1014 - City Car Parking and Access Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(1,213,889.15)**	(1,213,889.15)	(1,213,889.15)	(1,213,889.15)	(1,213,889.15)
10904	Interest Earned	Other General Purpose Funding(O)	**(29,319.79)**	(12,478.68)	(16,625.78)	(12,478.68)	(16,625.78)
10027	Transfer To Reserve	Asset Management Administration(O)	**(123,849.00)**	(123,849.00)	(165,137.00)	(123,849.00)	(165,137.00)
10904	Transfer To Reserve	Other General Purpose Funding(O)	**0.00**	0.00	0.00	0.00	(104,773.39)
12806	Transfer From Reserve	Margaret Street Beach Carpark(C)	**0.00**	0.00	111,687.00	0.00	0.00
14815	Transfer From Reserve	Carpark Hotel Site 2(C)	**0.00**	0.00	0.00	0.00	230,000.00
		City Car Parking and Access Reserve Closing Balance	**(1,367,057.94)**	(1,350,216.83)	(1,283,964.93)	(1,350,216.83)	(1,270,425.32)
1015 - Civic and Administration Building Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(497,008.81)**	(497,008.81)	(497,008.81)	(497,008.81)	(497,008.81)
10904	Interest Earned	Other General Purpose Funding(O)	**(16,465.68)**	(6,954.39)	(9,278.76)	(6,954.39)	(9,278.76)
10027	Transfer To Reserve	Asset Management Administration(O)	**(325,386.00)**	(325,386.00)	(433,850.00)	(325,386.00)	(433,850.00)
10016	Transfer From Reserve	Civic and Administration Centre Minor Upgrades(C)	**0.00**	0.00	35,000.00	0.00	35,000.00
12790	Transfer From Reserve	Administration Building- 2-16 Southern Drive - Major Main(O)	**0.00**	0.00	65,000.00	0.00	65,000.00
		Civic and Administration Building Reserve Closing Balance	**(838,860.49)**	(829,349.20)	(840,137.57)	(829,349.20)	(840,137.57)
1016 - Coastal and Climate Adaptation Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(566,908.46)**	(566,908.46)	(566,908.46)	(566,908.46)	(566,908.46)
10904	Interest Earned	Other General Purpose Funding(O)	**(26,181.39)**	(2,159.28)	(2,882.15)	(2,159.28)	(2,882.15)
10027	Transfer To Reserve	Asset Management Administration(O)	**(825,678.00)**	(825,678.00)	(1,100,911.00)	(825,678.00)	(1,100,911.00)
10180	Transfer To Reserve	Locke Estate(O)	**(47,997.00)**	(47,997.00)	(64,000.00)	(47,997.00)	(64,000.00)
10180	Transfer From Reserve	Locke Estate(O)	**0.00**	0.00	0.00	0.00	178,462.56
10705	Transfer From Reserve	Engineering Services Administration(O)	**0.00**	0.00	133,380.00	0.00	133,380.00
10777	Transfer From Reserve	Coastal Structures (West Busselton Seawall - Stage 2)(C)	**0.00**	0.00	146,560.00	0.00	146,560.00
11034	Transfer From Reserve	Dunsborough Non-Potable Water Network(C)	**0.00**	0.00	45,392.00	0.00	45,392.00
12181	Transfer From Reserve	Gibb Road(O)	**0.00**	0.00	0.00	125,000.00	0.00
12811	Transfer From Reserve	Sand Re-Nourishment(O)	**0.00**	0.00	100,000.00	0.00	100,000.00
12812	Transfer From Reserve	Coastal Adaptation : Forth St (Stage 2)(C)	**0.00**	0.00	125,000.00	(125,000.00)	0.00
12813	Transfer From Reserve	Coastal Adaptation : Dunsborough Dunnbay Road to Highview(C)	**0.00**	0.00	783,750.00	0.00	0.00
12873	Transfer From Reserve	Coast Protection - Beach Monitoring Program(O)	**0.00**	0.00	51,250.00	0.00	25,625.00
12874	Transfer From Reserve	Coastal Protection - Busselton Jetty Wave Monitoring(O)	**0.00**	0.00	60,000.00	0.00	40,000.00
12875	Transfer From Reserve	Coastal Protection - Coastal Structures Inspections and R(O)	**0.00**	0.00	30,000.00	0.00	15,000.00
14736	Transfer From Reserve	PACP Coastal Grant Projects(O)	**0.00**	0.00	0.00	0.00	600,000.00
		Coastal and Climate Adaptation Reserve Closing Balance	**(1,466,764.85)**	(1,442,742.74)	(259,369.61)	(1,442,742.74)	(450,282.05)
1017 - Commonage Community Facilities Dunsborough Lakes SR							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(74,506.58)**	(74,506.58)	(74,506.58)	(74,506.58)	(74,506.58)
10904	Interest Earned	Other General Purpose Funding(O)	**(1,676.44)**	(1,317.96)	(1,738.59)	(1,317.96)	(1,738.59)
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
		Commonage Community Facilities Dunsborough Lakes SR Closing Balance	**(76,183.02)**	(75,824.54)	(76,245.17)	(75,824.54)	(76,245.17)
1018 - Commonage Community Facilities South Biddle Precinct Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(908,566.25)**	(908,566.25)	(908,566.25)	(908,566.25)	(908,566.25)
10904	Interest Earned	Other General Purpose Funding(O)	**(20,443.56)**	(15,899.85)	(21,196.68)	(15,899.85)	(21,196.68)
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
		Commonage Community Facilities South Biddle Precinct Reserve Closing Balance	**(929,009.81)**	(924,466.10)	(929,762.93)	(924,466.10)	(929,762.93)
1019 - Commonage Precinct Bushfire Facilities Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(58,746.18)**	(58,746.18)	(58,746.18)	(58,746.18)	(58,746.18)
10904	Interest Earned	Other General Purpose Funding(O)	**(1,321.85)**	(1,037.52)	(1,370.90)	(1,037.52)	(1,370.90)
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
		Commonage Precinct Bushfire Facilities Reserve Closing Balance	**(60,068.03)**	(59,783.70)	(60,117.08)	(59,783.70)	(60,117.08)
1020 - Commonage Precinct Infrastructure Road Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(817.19)**	(817.19)	(817.19)	(817.19)	(817.19)
10904	Interest Earned	Other General Purpose Funding(O)	**(18.08)**	(28.08)	(18.74)	(28.08)	(18.74)
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
		Commonage Precinct Infrastructure Road Reserve Closing Balance	**(835.27)**	(845.27)	(835.93)	(845.27)	(835.93)

City of Busselton Reserve Movements
For Period Ended 31 March 2023

Project Number	Transaction Type	Project Description	YTD Actual	YTD Budget	Budget Original	YTD BudgetA	Budget Amended
1021 - Community Facilities - Airport North							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(3,176,662.93)**	(3,176,662.93)	(3,176,662.93)	(3,176,662.93)	(3,176,662.93)
10904	Interest Earned	Other General Purpose Funding(O)	**(71,536.35)**	(57,570.39)	(76,760.52)	(57,570.39)	(76,760.52)
11026	Transfer To Reserve	Planning Administration(O)	**0.00**	(86,859.00)	(115,809.00)	(86,859.00)	(115,809.00)
			0.00	0.00	0.00	0.00	0.00
		Community Facilities - Airport North Closing Balance	**(3,248,199.28)**	(3,321,092.32)	(3,369,232.45)	(3,321,092.32)	(3,369,232.45)
1022 - Community Facilities - Broadwater							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(197,731.81)**	(197,731.81)	(197,731.81)	(197,731.81)	(197,731.81)
10904	Interest Earned	Other General Purpose Funding(O)	**(68,498.48)**	(3,533.31)	(4,695.50)	(3,533.31)	(4,695.50)
11026	Transfer To Reserve	Planning Administration(O)	**0.00**	(11,898.00)	(15,866.00)	(11,898.00)	(15,866.00)
			0.00	0.00	0.00	0.00	0.00
		Community Facilities - Broadwater Closing Balance	**(266,230.29)**	(213,163.12)	(218,293.31)	(213,163.12)	(218,293.31)
1023 - Community Facilities - Busselton							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(71,707.81)**	(75,058.41)	(75,058.41)	(75,058.41)	(75,058.41)
10904	Interest Earned	Other General Purpose Funding(O)	**(27,289.25)**	(1,065.60)	(1,427.03)	(1,065.60)	(1,427.03)
11026	Transfer To Reserve	Planning Administration(O)	**0.00**	(16,173.00)	(21,558.00)	(16,173.00)	(21,558.00)
			0.00	0.00	0.00	0.00	0.00
		Community Facilities - Busselton Closing Balance	**(98,997.06)**	(92,297.01)	(98,043.44)	(92,297.01)	(98,043.44)
1024 - Community Facilities - City District							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(1,083,900.64)**	(1,116,043.93)	(1,116,043.93)	(1,116,043.93)	(1,116,043.93)
10904	Interest Earned	Other General Purpose Funding(O)	**(29,502.53)**	(11,889.81)	(15,862.43)	(11,889.81)	(15,862.43)
10904	Transfer To Reserve	Other General Purpose Funding(O)	**(227,617.26)**	0.00	0.00	0.00	0.00
11026	Transfer To Reserve	Planning Administration(O)	**0.00**	(337,500.00)	(450,000.00)	(337,500.00)	(450,000.00)
10972	Transfer From Reserve	Churchill Park Renew Sports Lights(C)	**0.00**	0.00	11,831.00	0.00	11,831.00
12849	Transfer From Reserve	Sport Oval Lighting - Vasse Ovals(C)	**0.00**	0.00	100,000.00	0.00	100,000.00
12850	Transfer From Reserve	Dunsborough Lakes Sporting Precinct (Stage 1) - Planning (C)	**0.00**	0.00	105,165.00	0.00	105,165.00
12916	Transfer From Reserve	BPACC - Construction(C)	**0.00**	0.00	550,000.00	0.00	550,000.00
		Community Facilities - City District Closing Balance	**(1,341,020.43)**	(1,465,433.74)	(814,910.36)	(1,465,433.74)	(814,910.36)
1025 - Community Facilities - Dunsborough							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(465,445.07)**	(465,445.07)	(465,445.07)	(465,445.07)	(465,445.07)
10904	Interest Earned	Other General Purpose Funding(O)	**(52,280.12)**	(4,542.84)	(6,038.42)	(4,542.84)	(6,038.42)
11026	Transfer To Reserve	Planning Administration(O)	**0.00**	(25,614.00)	(34,155.00)	(25,614.00)	(34,155.00)
			0.00	0.00	0.00	0.00	0.00
		Community Facilities - Dunsborough Closing Balance	**(517,725.19)**	(495,601.91)	(505,638.49)	(495,601.91)	(505,638.49)
1026 - Community Facilities - Dunsborough Lakes							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(712,435.68)**	(712,435.68)	(712,435.68)	(712,435.68)	(712,435.68)
10904	Interest Earned	Other General Purpose Funding(O)	**(18,090.20)**	(112.14)	(165.10)	(112.14)	(165.10)
10904	Transfer To Reserve	Other General Purpose Funding(O)	**(160,328.00)**	0.00	0.00	0.00	0.00
10606	Transfer From Reserve	Dunsborough Lakes Sporting Precinct (Stage 1) - Carparkin(C)	**0.00**	0.00	423,111.00	0.00	423,111.00
		Community Facilities - Dunsborough Lakes Closing Balance	**(890,853.88)**	(712,547.82)	(289,489.78)	(712,547.82)	(289,489.78)
1027 - Community Facilities - Geographe							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(137,434.90)**	(139,273.90)	(139,273.90)	(139,273.90)	(139,273.90)
10904	Interest Earned	Other General Purpose Funding(O)	**(3,366.04)**	(2,187.27)	(2,913.25)	(2,187.27)	(2,913.25)
10904	Transfer To Reserve	Other General Purpose Funding(O)	**(13,195.38)**	0.00	0.00	0.00	0.00
11026	Transfer To Reserve	Planning Administration(O)	**0.00**	(7,974.00)	(10,637.00)	(7,974.00)	(10,637.00)
			0.00	0.00	0.00	0.00	0.00
		Community Facilities - Geographe Closing Balance	**(153,996.32)**	(149,435.17)	(152,824.15)	(149,435.17)	(152,824.15)
1028 - Community Facilities - Port Geographe							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(352,421.54)**	(352,421.54)	(352,421.54)	(352,421.54)	(352,421.54)
10904	Interest Earned	Other General Purpose Funding(O)	**(7,929.82)**	(6,169.23)	(8,222.53)	(6,169.23)	(8,222.53)
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
		Community Facilities - Port Geographe Closing Balance	**(360,351.36)**	(358,590.77)	(360,644.07)	(358,590.77)	(360,644.07)
1029 - Community Facilities - Vasse							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(175,153.74)**	(175,153.74)	(175,153.74)	(175,153.74)	(175,153.74)
10904	Interest Earned	Other General Purpose Funding(O)	**(3,998.81)**	(6,421.59)	(8,574.59)	(6,421.59)	(8,574.59)
10904	Transfer To Reserve	Other General Purpose Funding(O)	**(2,888.16)**	0.00	0.00	0.00	0.00
12849	Transfer From Reserve	Sport Oval Lighting - Vasse Ovals(C)	**0.00**	0.00	275,000.00	0.00	275,000.00
		Community Facilities - Vasse Closing Balance	**(182,040.71)**	(181,575.33)	91,271.67	(181,575.33)	91,271.67
1030 - Corporate IT Systems Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(378,519.83)**	(378,519.83)	(378,519.83)	(378,519.83)	(378,519.83)
10904	Interest Earned	Other General Purpose Funding(O)	**(10,201.86)**	(6,001.02)	(7,998.24)	(6,001.02)	(7,998.24)
10027	Transfer To Reserve	Asset Management Administration(O)	**(103,212.00)**	(103,212.00)	(137,614.00)	(103,212.00)	(137,614.00)
12876	Transfer From Reserve	ICT Services - Equipment & Software Purchases(C)	**0.00**	0.00	375,000.00	0.00	375,000.00
12928	Transfer From Reserve	BPACC - IT Hardware & Software - Funded Corporate IT Syst(C)	**0.00**	0.00	75,000.00	0.00	75,000.00
		Corporate IT Systems Reserve Closing Balance	**(491,933.69)**	(487,732.85)	(74,132.07)	(487,732.85)	(74,132.07)
1031 - Debt Default Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(102,371.12)**	(102,371.12)	(102,371.12)	(102,371.12)	(102,371.12)
10904	Interest Earned	Other General Purpose Funding(O)	**(2,303.43)**	(1,794.69)	(2,402.27)	(1,794.69)	(2,402.27)
			0.00	0.00	0.00	0.00	0.00
10904	Transfer From Reserve	Other General Purpose Funding(O)	**0.00**	0.00	0.00	0.00	104,773.39
		Debt Default Reserve Closing Balance	**(104,674.55)**	(104,165.81)	(104,773.39)	(104,165.81)	0.00

City of Busselton Reserve Movements
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Project Number	Transaction Type	Project Description	YTD Actual	YTD Budget	Budget Original	YTD BudgetA	Budget Amended
1032 - Election, Value and Corporate Expense Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(254,330.23)**	(254,330.23)	(254,330.23)	(254,330.23)	(254,330.23)
10904	Interest Earned	Other General Purpose Funding(O)	**(6,898.13)**	(3,841.74)	(5,103.63)	(3,841.74)	(5,103.63)
10830	Transfer To Reserve	Members of Council(O)	**(107,730.00)**	(107,730.00)	(143,640.00)	(107,730.00)	(143,640.00)
11126	Transfer From Reserve	Rates Administration(O)	**0.00**	0.00	80,000.00	0.00	80,000.00
		Election, Value and Corporate Expense Reserve Closing Balance	**(368,958.36)**	(365,901.97)	(323,073.86)	(365,901.97)	(323,073.86)
1033 - Emergency Disaster Recovery Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(74,954.48)**	(74,954.48)	(74,954.48)	(74,954.48)	(74,954.48)
10904	Interest Earned	Other General Purpose Funding(O)	**(1,858.04)**	(2,383.56)	(3,162.50)	(2,383.56)	(3,162.50)
10007	Transfer To Reserve	Emergency Contingency Costs (Other)(O)	**(15,003.00)**	(15,003.00)	(20,000.00)	(15,003.00)	(20,000.00)
			0.00	0.00	0.00	0.00	0.00
		Emergency Disaster Recovery Reserve Closing Balance	**(91,815.52)**	(92,341.04)	(98,116.98)	(92,341.04)	(98,116.98)
1034 - Energy Sustainability Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(168,406.57)**	(168,406.57)	(168,406.57)	(168,406.57)	(168,406.57)
10904	Interest Earned	Other General Purpose Funding(O)	**(5,051.77)**	(2,495.70)	(3,333.84)	(2,495.70)	(3,333.84)
12440	Transfer To Reserve	Energy Efficiency Initiatives (Various Buildings) (C)	**(80,847.00)**	(80,847.00)	(107,793.00)	(80,847.00)	(107,793.00)
12440	Transfer From Reserve	Energy Efficiency Initiatives (Various Buildings) (C)	**0.00**	0.00	133,234.00	0.00	133,234.00
		Energy Sustainability Reserve Closing Balance	**(254,305.34)**	(251,749.27)	(146,299.41)	(251,749.27)	(146,299.41)
1035 - Footpath and Cycleways Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(1,246,635.85)**	(1,246,635.85)	(1,246,635.85)	(1,246,635.85)	(1,246,635.85)
10904	Interest Earned	Other General Purpose Funding(O)	**(43,624.47)**	(4,066.11)	(5,421.48)	(4,066.11)	(5,421.48)
10027	Transfer To Reserve	Asset Management Administration(O)	**(957,789.00)**	(957,789.00)	(1,277,057.00)	(957,789.00)	(1,277,057.00)
10698	Transfer From Reserve	Buayanyup Drain Shared Path(C)	**0.00**	0.00	31,897.00	0.00	31,897.00
10736	Transfer From Reserve	Arnup Drive Footpath Construction(C)	**0.00**	0.00	74,672.00	0.00	74,672.00
10741	Transfer From Reserve	Busselton CBD Footpath Renewal(C)	**0.00**	0.00	100,000.00	0.00	100,000.00
10742	Transfer From Reserve	Carey Street Footpath Construction(C)	**0.00**	0.00	271,724.00	0.00	271,724.00
10744	Transfer From Reserve	End of Trip Footpath Construction(C)	**0.00**	0.00	10,000.00	0.00	10,000.00
10903	Transfer From Reserve	DAIP - Disability Access(C)	**0.00**	0.00	0.00	0.00	30,000.00
10960	Transfer From Reserve	Dunsborough Centennial Park Project(C)	**0.00**	0.00	99,384.00	(99,384.00)	0.00
11986	Transfer From Reserve	Causeway Road Shared Path(C)	**0.00**	0.00	95,955.00	0.00	160,000.00
12382	Transfer From Reserve	Rails to Trails - Continuation of Implementation Plan(C)	**0.00**	0.00	88,243.00	0.00	88,243.00
12816	Transfer From Reserve	Coastal Principled Shares Path (C)	**0.00**	0.00	206,333.00	0.00	72,288.00
12817	Transfer From Reserve	Prince Regent Drive (C)	**0.00**	0.00	141,000.00	0.00	141,000.00
12818	Transfer From Reserve	Kaloorup Road (C)	**0.00**	0.00	78,000.00	0.00	78,000.00
12877	Transfer From Reserve	Principle Shared Path (PSP) Development Approvals (C)	**0.00**	0.00	25,000.00	0.00	25,000.00
14813	Transfer From Reserve	Geo Bay Road Carpark (10 bays East SLK 0.3 - 0.38)(C)	**0.00**	0.00	0.00	0.00	70,000.00
14814	Transfer From Reserve	Townscape Works Busselton(C)	**0.00**	0.00	0.00	0.00	100,000.00
		Footpath and Cycleways Reserve Closing Balance	**(2,248,049.32)**	(2,208,490.96)	(1,306,906.33)	(2,307,874.96)	(1,276,290.33)
1036 - Furniture and Equipment Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(516,180.88)**	(516,180.88)	(516,180.88)	(516,180.88)	(516,180.88)
10904	Interest Earned	Other General Purpose Funding(O)	**(12,887.88)**	(5,075.64)	(6,751.94)	(5,075.64)	(6,751.94)
10027	Transfer To Reserve	Asset Management Administration(O)	**(82,566.00)**	(82,566.00)	(110,091.00)	(82,566.00)	(110,091.00)
10461	Transfer From Reserve	Geographe Leisure Centre(O)	**0.00**	0.00	0.00	0.00	0.00
12876	Transfer From Reserve	ICT Services - Equipment & Software Purchases(C)	**0.00**	0.00	219,845.00	0.00	219,845.00
12878	Transfer From Reserve	Naturaliste Community Centre (NCC) - Purchase Office Furn(C)	**0.00**	0.00	20,000.00	0.00	20,000.00
12917	Transfer From Reserve	BPACC - Loose Furniture & Fittings(C)	**0.00**	0.00	250,000.00	0.00	250,000.00
12938	Transfer From Reserve	YCAB (Youth Precinct Foreshore)(C)	**0.00**	0.00	5,091.00	0.00	5,091.00
12939	Transfer From Reserve	Administration Building- 2-16 Southern Drive(C)	**0.00**	0.00	15,000.00	0.00	15,000.00
12940	Transfer From Reserve	Depot Building-Busselton((C)	**0.00**	0.00	50,000.00	0.00	50,000.00
14730	Transfer From Reserve	Geographe Leisure Centre Fitness Equipment(C)	**0.00**	0.00	18,160.00	0.00	18,160.00
		Furniture and Equipment Reserve Closing Balance	**(611,634.76)**	(603,822.52)	(54,927.82)	(603,822.52)	(54,927.82)
1037 - Geographe Leisure Centre Building (GLC) Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(314,128.20)**	(314,128.20)	(314,128.20)	(314,128.20)	(314,128.20)
10904	Interest Earned	Other General Purpose Funding(O)	**(10,984.92)**	(2,187.27)	(2,910.13)	(2,187.27)	(2,910.13)
10027	Transfer To Reserve	Asset Management Administration(O)	**(236,970.00)**	(236,970.00)	(315,962.00)	(236,970.00)	(315,962.00)
10788	Transfer From Reserve	GLC Building Improvements(C)	**0.00**	0.00	423,934.00	0.00	423,934.00
		Geographe Leisure Centre Building (GLC) Reserve Closing Balance	**(562,083.12)**	(553,285.47)	(209,066.33)	(553,285.47)	(209,066.33)
1038 - Jetty Maintenance Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(6,320,300.89)**	(6,320,300.89)	(6,320,300.89)	(6,320,300.89)	(6,320,300.89)
10904	Interest Earned	Other General Purpose Funding(O)	**(150,199.64)**	(102,017.07)	(136,007.18)	(102,017.07)	(136,007.18)
10027	Transfer To Reserve	Asset Management Administration(O)	**(257,294.97)**	(257,298.03)	(343,064.04)	(257,298.03)	(343,064.04)
10048	Transfer To Reserve	Busselton Jetty(O)	**0.00**	0.00	(826,541.00)	0.00	(826,541.00)
10160	Transfer To Reserve	Equinox Cafe(O)	**(69,246.00)**	(69,245.28)	(92,327.04)	(69,245.28)	(92,327.04)
10161	Transfer To Reserve	Goose Café(O)	**(38,385.00)**	(38,383.47)	(51,177.96)	(38,383.47)	(51,177.96)
10162	Transfer To Reserve	Micro Brewery Building(O)	**(69,813.00)**	(69,813.72)	(93,084.96)	(69,813.72)	(93,084.96)
11704	Transfer To Reserve	Busselton Tennis Club Building (Old)(O)	**(18,747.00)**	(18,749.97)	(24,999.96)	(18,749.97)	(24,999.96)
11798	Transfer To Reserve	Hotel Site 2(O)	**(27,360.00)**	(27,355.50)	(36,474.00)	(27,355.50)	(36,474.00)
10048	Transfer From Reserve	Busselton Jetty(O)	**0.00**	58,722.75	509,398.00	58,722.75	514,116.00
10818	Transfer From Reserve	Busselton Jetty - Capital Expenditure(C)	**0.00**	0.00	280,632.00	0.00	480,632.00
12909	Transfer From Reserve	Busselton Jetty - Replacement Stihl MS381 Chainsaw(C)	**0.00**	0.00	1,891.00	0.00	0.00
12910	Transfer From Reserve	Busselton Jetty - Replacement Honda EU20 Generator (Jetty)(C)	**0.00**	0.00	2,827.00	0.00	0.00
		Jetty Maintenance Reserve Closing Balance	**(6,951,346.50)**	(6,844,441.18)	(7,129,229.03)	(6,844,441.18)	(6,929,229.03)
1039 - Jetty Self Insurance Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(573,410.47)**	(573,410.47)	(573,410.47)	(573,410.47)	(573,410.47)
10904	Interest Earned	Other General Purpose Funding(O)	**(13,876.83)**	(10,039.05)	(13,376.05)	(10,039.05)	(13,376.05)
10048	Transfer To Reserve	Busselton Jetty(O)	**(58,725.00)**	(58,725.00)	(78,297.00)	(58,725.00)	(78,297.00)
			0.00	0.00	0.00	0.00	0.00
		Jetty Self Insurance Reserve Closing Balance	**(646,012.30)**	(642,174.52)	(665,083.52)	(642,174.52)	(665,083.52)

City of Busselton Reserve Movements
For Period Ended 31 March 2023

Project Number	Transaction Type	Project Description	YTD Actual	YTD Budget	Budget Original	YTD BudgetA	Budget Amended
1040 - Joint Venture Aged Housing Reserve (Harris/Winderlup)							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(1,491,225.29)**	(1,491,225.29)	(1,491,225.29)	(1,491,225.29)	(1,491,225.29)
10904	Interest Earned	Other General Purpose Funding(O)	**(35,911.14)**	(23,078.61)	(30,783.94)	(23,078.61)	(30,783.94)
11684	Transfer To Reserve	Winderlup Court Aged Housing(O)	**(139,969.53)**	(139,969.53)	(186,626.04)	(139,969.53)	(186,626.04)
12231	Transfer From Reserve	Aged Housing Capital Improvements - Harris Road(C)	**0.00**	0.00	12,608.00	0.00	12,608.00
12233	Transfer From Reserve	Aged Housing Capital Improvements - Winderlup(C)	**0.00**	0.00	25,215.00	0.00	25,215.00
		Joint Venture Aged Housing Reserve (Harris/Winderlup) Closing Balance	**(1,667,105.96)**	(1,654,273.43)	(1,670,812.27)	(1,654,273.43)	(1,670,812.27)
1041 - Legal Expenses Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(638,294.45)**	(638,294.45)	(638,294.45)	(638,294.45)	(638,294.45)
10904	Interest Earned	Other General Purpose Funding(O)	**(14,316.69)**	(9,450.18)	(12,603.36)	(9,450.18)	(12,603.36)
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
		Legal Expenses Reserve Closing Balance	**(652,611.14)**	(647,744.63)	(650,897.81)	(647,744.63)	(650,897.81)
1042 - Locke Estate Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(6,588.67)**	(6,588.67)	(6,588.67)	(6,588.67)	(6,588.67)
10904	Interest Earned	Other General Purpose Funding(O)	**(72.10)**	(112.14)	(152.64)	(112.14)	(152.64)
10180	Transfer To Reserve	Locke Estate(O)	**0.00**	0.00	0.00	0.00	(164,462.56)
			0.00	0.00	0.00	0.00	0.00
		Locke Estate Reserve Closing Balance	**(6,660.77)**	(6,700.81)	(6,741.31)	(6,700.81)	(171,203.87)
1043 - Long Service Leave Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(4,054,581.00)**	(4,054,581.00)	(4,054,581.00)	(4,054,581.00)	(4,054,581.00)
10904	Interest Earned	Other General Purpose Funding(O)	**(96,752.78)**	(62,505.72)	(83,331.62)	(62,505.72)	(83,331.62)
10810	Transfer To Reserve	Human Resources & Payroll(O)	**(337,500.00)**	(337,500.00)	(450,000.00)	(337,500.00)	(450,000.00)
10041	Transfer From Reserve	Building Services(O)	**0.00**	0.00	19,332.00	0.00	19,332.00
10217	Transfer From Reserve	Busselton Library(O)	**0.00**	0.00	12,935.00	0.00	12,935.00
10461	Transfer From Reserve	Geographe Leisure Centre(O)	**0.00**	0.00	54,830.00	0.00	54,830.00
10462	Transfer From Reserve	Naturaliste Community Centre(O)	**0.00**	0.00	14,256.00	0.00	14,256.00
10652	Transfer From Reserve	Community & Commercial Services Support(O)	**0.00**	0.00	43,908.00	0.00	43,908.00
10678	Transfer From Reserve	Customer Services(O)	**0.00**	0.00	8,409.00	0.00	8,409.00
10704	Transfer From Reserve	Engineering & Works Services Support(O)	**0.00**	0.00	18,295.00	0.00	18,295.00
10710	Transfer From Reserve	Environmental Health Services Administration(O)	**0.00**	0.00	14,393.00	0.00	14,393.00
10711	Transfer From Reserve	Environmental Management Administration(O)	**0.00**	0.00	14,421.00	0.00	14,421.00
10790	Transfer From Reserve	Governance Support Services(O)	**0.00**	0.00	10,657.00	0.00	10,657.00
10810	Transfer From Reserve	Human Resources & Payroll(O)	**0.00**	0.00	11,964.00	0.00	11,964.00
10824	Transfer From Reserve	Legal and Compliance Services(O)	**0.00**	0.00	32,581.00	0.00	32,581.00
10900	Transfer From Reserve	Office of the CEO(O)	**0.00**	0.00	120,000.00	0.00	120,000.00
10901	Transfer From Reserve	Operations Services Administration(O)	**0.00**	0.00	45,697.00	0.00	45,697.00
10902	Transfer From Reserve	Operations Services Works(O)	**0.00**	0.00	137,631.00	0.00	137,631.00
10905	Transfer From Reserve	Other Law, Order & Public Safety(O)	**0.00**	0.00	18,435.00	0.00	18,435.00
11041	Transfer From Reserve	Property Services Administration(O)	**0.00**	0.00	5,212.00	0.00	5,212.00
11124	Transfer From Reserve	Public Relations(O)	**0.00**	0.00	5,982.00	0.00	5,982.00
11126	Transfer From Reserve	Rates Administration(O)	**0.00**	0.00	11,212.00	0.00	11,212.00
11128	Transfer From Reserve	Recreation Administration(O)	**0.00**	0.00	16,788.00	0.00	16,788.00
12225	Transfer From Reserve	Sanitation Waste Services Administration(O)	**0.00**	0.00	34,681.00	0.00	34,681.00
12258	Transfer From Reserve	Statutory Planning(O)	**0.00**	0.00	16,685.00	0.00	16,685.00
		Long Service Leave Reserve Closing Balance	**(4,488,833.78)**	(4,454,586.72)	(3,919,608.62)	(4,454,586.72)	(3,919,608.62)
1044 - Major Traffic Improvements Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(1,184,733.73)**	(1,184,733.73)	(1,184,733.73)	(1,184,733.73)	(1,184,733.73)
10904	Interest Earned	Other General Purpose Funding(O)	**(30,781.60)**	(17,470.17)	(23,309.14)	(17,470.17)	(23,309.14)
10027	Transfer To Reserve	Asset Management Administration(O)	**(258,030.00)**	(258,030.00)	(344,035.00)	(258,030.00)	(344,035.00)
10673	Transfer From Reserve	Peel & Queen Street Roundabout Service Relocation(C)	**0.00**	0.00	19,941.00	0.00	19,941.00
10831	Transfer From Reserve	Rotary Park / War Memorial Relocation(C)	**0.00**	0.00	375,000.00	0.00	375,000.00
12845	Transfer From Reserve	General Design / Modelling Works (O)	**0.00**	0.00	300,000.00	0.00	300,000.00
		Major Traffic Improvements Reserve Closing Balance	**(1,473,545.33)**	(1,460,233.90)	(857,136.87)	(1,460,233.90)	(857,136.87)
1045 - Marketing & Area Promotion Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(655,702.34)**	(655,702.34)	(655,702.34)	(655,702.34)	(655,702.34)
10904	Interest Earned	Other General Purpose Funding(O)	**(30,502.64)**	(3,841.74)	(5,137.90)	(3,841.74)	(5,137.90)
10188	Transfer To Reserve	Events(O)	**(999,603.00)**	(999,603.00)	(1,332,802.00)	(999,603.00)	(1,332,802.00)
10188	Transfer From Reserve	Events(O)	**0.00**	0.00	1,545,548.00	0.00	1,545,548.00
14729	Transfer From Reserve	Events Furniture & Equipment(C)	**0.00**	0.00	200,000.00	0.00	200,000.00
		Marketing & Area Promotion Reserve Closing Balance	**(1,685,807.98)**	(1,659,147.08)	(248,094.24)	(1,659,147.08)	(248,094.24)
1046 - Naturaliste Community Centre Building (NCC) Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(170,088.68)**	(170,088.68)	(170,088.68)	(170,088.68)	(170,088.68)
10904	Interest Earned	Other General Purpose Funding(O)	**(4,694.00)**	(1,710.54)	(2,286.95)	(1,710.54)	(2,286.95)
10027	Transfer To Reserve	Asset Management Administration(O)	**(54,315.00)**	(54,315.00)	(72,415.00)	(54,315.00)	(72,415.00)
12791	Transfer From Reserve	Naturaliste Community Centre Fire Indicator Panel Renewal(C)	**0.00**	0.00	30,000.00	0.00	30,000.00
12867	Transfer From Reserve	Naturaliste Community Centre - Maintenance External Work(O)	**0.00**	0.00	91,000.00	0.00	91,000.00
		Naturaliste Community Centre Building (NCC) Reserve Closing Balance	**(229,097.68)**	(226,114.22)	(123,790.63)	(226,114.22)	(123,790.63)
1047 - New Infrastructure Development Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(723,692.92)**	(723,692.92)	(723,692.92)	(723,692.92)	(723,692.92)
10904	Interest Earned	Other General Purpose Funding(O)	**(16,150.41)**	(4,514.76)	(6,025.91)	(4,514.76)	(6,025.91)
10904	Transfer To Reserve	Other General Purpose Funding(O)	**(6,388.90)**	0.00	0.00	0.00	0.00
12407	Transfer From Reserve	Dunsborough Lakes Sporting Precinct (Stage 1)(C)	**0.00**	0.00	453,487.00	0.00	453,487.00
12936	Transfer From Reserve	Property Services Administration(C)	**0.00**	0.00	50,000.00	0.00	50,000.00
		New Infrastructure Development Reserve Closing Balance	**(746,232.23)**	(728,207.68)	(226,231.83)	(728,207.68)	(226,231.83)

City of Busselton Reserve Movements
For Period Ended 31 March 2023

Project Number	Transaction Type	Project Description	YTD Actual	YTD Budget	Budget Original	YTD BudgetA	Budget Amended
1048 - Other Infrastructure (Drainage, Signage Etc) Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(403,730.56)**	(403,730.56)	(403,730.56)	(403,730.56)	(403,730.56)
10904	Interest Earned	Other General Purpose Funding(O)	**(18,424.02)**	(7,010.55)	(9,359.86)	(7,010.55)	(9,359.86)
10027	Transfer To Reserve	Asset Management Administration(O)	**(567,657.00)**	(567,657.00)	(756,876.00)	(567,657.00)	(756,876.00)
10691	Transfer From Reserve	Busselton LIA - Geocatch Drain Partnership WSUD Improveme(C)	**0.00**	0.00	30,000.00	0.00	30,000.00
10692	Transfer From Reserve	Carey Street Drainage Upgrade(C)	**0.00**	0.00	220,369.00	0.00	220,369.00
10852	Transfer From Reserve	RBFS Various Grant Applications(C)	**0.00**	0.00	15,900.00	0.00	15,900.00
12786	Transfer From Reserve	Newtown Beach Boat Ramp (O)	**0.00**	0.00	17,255.00	0.00	17,255.00
12787	Transfer From Reserve	Dunsborough Boat Ramp(O)	**0.00**	0.00	17,382.00	0.00	17,382.00
12788	Transfer From Reserve	Quindalup Boat Ramp (Sea Rescue)(O)	**0.00**	0.00	17,255.00	0.00	17,255.00
12814	Transfer From Reserve	High View Road Drainage Works(C)	**0.00**	0.00	221,559.00	0.00	221,559.00
12815	Transfer From Reserve	North Street Drainage Works(C)	**0.00**	0.00	233,056.00	0.00	233,056.00
14811	Transfer From Reserve	RBFS Old Dunsborough Boat Ramp Scour Protection (C)	**0.00**	0.00	0.00	0.00	8,310.00
		Other Infrastructure (Drainage, Signage Etc) Reserve Closing Balance	**(989,811.58)**	(978,398.11)	(397,190.42)	(978,398.11)	(388,880.42)
1049 - Parks, Gardens and Reserves Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(633,227.21)**	(633,227.21)	(633,227.21)	(633,227.21)	(633,227.21)
10904	Interest Earned	Other General Purpose Funding(O)	**(30,162.77)**	(4,683.06)	(6,240.96)	(4,683.06)	(6,240.96)
10027	Transfer To Reserve	Asset Management Administration(O)	**(980,496.00)**	(980,496.00)	(1,307,332.00)	(980,496.00)	(1,307,332.00)
10765	Transfer From Reserve	Foreshore Busselton - High Street to Carey Street(C)	**0.00**	0.00	10,000.00	0.00	10,000.00
10951	Transfer From Reserve	Mitchell Park Upgrade(C)	**0.00**	0.00	37,491.00	0.00	37,491.00
10952	Transfer From Reserve	Possum Park Barnard East Upgrade(C)	**0.00**	0.00	0.00	0.00	30,000.00
10953	Transfer From Reserve	Youth Skate Park(C)	**0.00**	0.00	10,000.00	0.00	10,000.00
10965	Transfer From Reserve	P&E - P&G Smart Technologies(C)	**0.00**	0.00	100,000.00	0.00	100,000.00
10967	Transfer From Reserve	Shade Sail Program(C)	**0.00**	0.00	196,414.00	0.00	196,414.00
11035	Transfer From Reserve	Park Furniture Replacement - Replace aged & unsafe Equip(C)	**0.00**	0.00	30,000.00	0.00	30,000.00
11036	Transfer From Reserve	Playgrounds General - Replacement of playground equipment(C)	**0.00**	0.00	175,000.00	0.00	175,000.00
11109	Transfer From Reserve	BBQ Placement and Replacement(C)	**0.00**	0.00	15,000.00	0.00	15,000.00
12251	Transfer From Reserve	Cricket Wicket Renewal(C)	**0.00**	0.00	39,230.00	0.00	39,230.00
12526	Transfer From Reserve	Beach Access Improvements(C)	**0.00**	0.00	35,000.00	0.00	35,000.00
12819	Transfer From Reserve	Beach Enclosures(C)	**0.00**	0.00	100,491.00	0.00	100,491.00
12820	Transfer From Reserve	Bird Crescent Dunsborough POS- improvements(C)	**0.00**	0.00	11,000.00	0.00	11,000.00
12821	Transfer From Reserve	Churchill Park - Main Oval Renewal (C)	**0.00**	0.00	444,558.00	0.00	0.00
12929	Transfer From Reserve	BPACC - Landscaping - Funded Parks, Gardens & Reserve Res(C)	**0.00**	0.00	500,000.00	0.00	500,000.00
14816	Transfer From Reserve	Carpark Hotel Site 2 Land Scaping(C)	**0.00**	0.00	0.00	0.00	150,000.00
		Parks, Gardens and Reserves Reserve Closing Balance	**(1,643,885.98)**	(1,618,406.27)	(242,616.17)	(1,618,406.27)	(507,174.17)
1050 - Performing Arts and Convention Centre Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(2,386,292.52)**	(2,386,292.52)	(2,386,292.52)	(2,386,292.52)	(2,386,292.52)
10904	Interest Earned	Other General Purpose Funding(O)	**(54,978.07)**	(30,397.59)	(40,539.47)	(30,397.59)	(40,539.47)
12918	Transfer To Reserve	BPACC - Construction(C)	**0.00**	0.00	(1,800,000.00)	0.00	(1,800,000.00)
10022	Transfer From Reserve	BPACC Operations(O)	**0.00**	0.00	46,433.00	0.00	46,433.00
12918	Transfer From Reserve	BPACC - Construction(C)	**0.00**	0.00	1,642,703.00	0.00	1,642,703.00
		Performing Arts and Convention Centre Reserve Closing Balance	**(2,441,270.59)**	(2,416,690.11)	(2,537,695.99)	(2,416,690.11)	(2,537,695.99)

City of Busselton Reserve Movements
For Period Ended 31 March 2023

Project Number	Transaction Type	Project Description	YTD Actual	YTD Budget	Budget Original	YTD BudgetA	Budget Amended
1051 - Plant Replacement Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(2,698,073.38)**	(2,698,073.38)	(2,698,073.38)	(2,698,073.38)	(2,698,073.38)
10904	Interest Earned	Other General Purpose Funding(O)	**(73,838.09)**	(33,426.18)	(44,562.00)	(33,426.18)	(44,562.00)
10027	Transfer To Reserve	Asset Management Administration(O)	**(825,687.00)**	(825,687.00)	(1,100,911.00)	(825,687.00)	(1,100,911.00)
12879	Transfer From Reserve	Plant Purchases (P11) - Spit water heavy duty high pressu(C)	**0.00**	0.00	13,500.00	0.00	13,500.00
12880	Transfer From Reserve	Plant Purchases (P11) - Water Tank 4,500 LT with Pump & (C)	**0.00**	0.00	14,200.00	0.00	0.00
12881	Transfer From Reserve	Plant Purchases (P11) - HINO FD1024 Beavertail Truck (tur(C)	**0.00**	0.00	61,500.00	0.00	0.00
12882	Transfer From Reserve	Plant Purchases (P11) - Isuzu NPR65-190 Single Cab (Turf (C)	**0.00**	0.00	65,000.00	0.00	0.00
12883	Transfer From Reserve	Plant Purchases (P11) - Kubota F3690 Outfront Mower (C)	**0.00**	0.00	27,000.00	0.00	27,000.00
12884	Transfer From Reserve	Plant Purchases (P11) - Kubota F3690 Outfront Mower (C)	**0.00**	0.00	27,000.00	0.00	27,000.00
12885	Transfer From Reserve	Plant Purchases (P11) - Kubota F3690 Outfront Mower (C)	**0.00**	0.00	27,000.00	0.00	27,000.00
12886	Transfer From Reserve	Plant Purchases (P11) - Brush / Tree Chipper(C)	**0.00**	0.00	100,000.00	0.00	100,000.00
12887	Transfer From Reserve	Plant Purchases (P11) - Redexim Easyspread 1600 Sand Spre(C)	**0.00**	0.00	19,200.00	0.00	19,200.00
12888	Transfer From Reserve	Plant Purchases (P12) - HINO FS2848 Tipper Truck (Constr/(C)	**0.00**	0.00	150,000.00	0.00	150,000.00
12889	Transfer From Reserve	Plant Purchases (P12) - Speed Display/VMB single axle tra(C)	**0.00**	0.00	22,500.00	0.00	22,500.00
12890	Transfer From Reserve	Plant Purchases (P12) - Caterpillar CS56 Rollwe (Constru(C)	**0.00**	0.00	114,000.00	0.00	114,000.00
12891	Transfer From Reserve	Plant Purchases (P12) - Ditchwitch Cable Locator(C)	**0.00**	0.00	7,500.00	0.00	7,500.00
12892	Transfer From Reserve	Plant Purchases (P12) - ISUZU FVZ1400 Tipper Truck (Const(C)	**0.00**	0.00	155,000.00	0.00	155,000.00
12893	Transfer From Reserve	Planning and Development Services - Replacement Complianc(C)	**0.00**	0.00	23,000.00	0.00	23,000.00
12894	Transfer From Reserve	Plan and Dev - Replacement Comp - Nissan X-trail(C)	**0.00**	0.00	18,000.00	0.00	0.00
12895	Transfer From Reserve	Engineering and Works Services - Replacement Asset Manage(C)	**0.00**	0.00	18,500.00	0.00	0.00
12896	Transfer From Reserve	Engineering and Works Services - Replacement Building Fac(C)	**0.00**	0.00	23,000.00	0.00	23,000.00
12897	Transfer From Reserve	Engineering and Works Services - Replacement Isuzu D-Max (C)	**0.00**	0.00	27,500.00	0.00	0.00
12898	Transfer From Reserve	Engineering and Works Services - Replacement Mitsubishi G(C)	**0.00**	0.00	27,500.00	0.00	0.00
12899	Transfer From Reserve	Engineering and Works Services - Replacement Isuzu D-Max (C)	**0.00**	0.00	27,000.00	0.00	27,000.00
12900	Transfer From Reserve	Engineering and Works Services - Replacement Toyota Hilux(C)	**0.00**	0.00	22,000.00	0.00	0.00
12901	Transfer From Reserve	Engineering and Works Services - Replacement Toyota Hilux(C)	**0.00**	0.00	22,000.00	0.00	0.00
12902	Transfer From Reserve	Finance and Corporate Services - Replacement Manager Gove(C)	**0.00**	0.00	20,000.00	0.00	20,000.00
12903	Transfer From Reserve	Finance and Corporate Services - Replacement IT Coordinat(C)	**0.00**	0.00	18,000.00	0.00	18,000.00
12904	Transfer From Reserve	Plant Purchases (P11) - Minor Plant (Capital)(C)	**0.00**	0.00	18,000.00	0.00	18,000.00
12905	Transfer From Reserve	Plant Purchases (P11) - Minor Plant (Non-Capital)(C)	**0.00**	0.00	36,000.00	0.00	0.00
12906	Transfer From Reserve	Plant Purchases (P12) - Minor Plant (Capital)(C)	**0.00**	0.00	13,500.00	0.00	13,500.00
12907	Transfer From Reserve	Plant Purchases (P12) - Minor Plant (Non-Capital)(C)	**0.00**	0.00	13,500.00	0.00	0.00
12908	Transfer From Reserve	Transport - Workshop - Minor Plant(C)	**0.00**	0.00	9,000.00	0.00	9,000.00
12948	Transfer From Reserve	Environmental Health Serv Admin-Health Ute(C)	**0.00**	0.00	22,000.00	0.00	0.00
14268	Transfer From Reserve	TOYOTA PRADO GXL 4X4 (CEO Tony.N)(C)	**0.00**	0.00	0.00	0.00	60,000.00
14746	Transfer From Reserve	TOYOTA HILUX 4X4 SIN CAB UTIL TRAY (PARK-EF)REP196100(C)	**0.00**	0.00	0.00	0.00	44,017.00
14753	Transfer From Reserve	FLOODRITE 10,000L WATER TANK (CONST) REPL.P198111(C)	**0.00**	0.00	0.00	0.00	40,270.00
14763	Transfer From Reserve	FORD ESCAPE ST LINE 2WD (FLEET COOR) Repl.P194126(C)	**0.00**	0.00	0.00	0.00	34,128.00
14765	Transfer From Reserve	MITSUBISHI PAJERO SPORT 4X4 SUV REP P196110(C)	**0.00**	0.00	0.00	0.00	39,931.00
14766	Transfer From Reserve	NISSAN X-TRAIL AWD (EVENTS COORD) REP P192024(C)	**0.00**	0.00	0.00	0.00	36,642.00
14767	Transfer From Reserve	TOYOTA HILUX 4WD DUAL CAB UTILITY (RANGER SER)RepP196102(C)	**0.00**	0.00	0.00	0.00	53,364.00
14768	Transfer From Reserve	TOYOTA HILUX SR 4X4 DUAL CAB U (G STEWART) REPL.P196098(C)	**0.00**	0.00	0.00	0.00	49,508.00
14770	Transfer From Reserve	VOLVO FE320 6X4 RUBBISH COMPA Repl. P166020(C)	**0.00**	0.00	0.00	0.00	426,679.00
14773	Transfer From Reserve	KOMATSU GD655-7 MOTOR GRADER (CONSTR.) REPL.P103002(C)	**0.00**	0.00	0.00	0.00	410,800.00
14774	Transfer From Reserve	Busselton Jetty Tourist Park - Replace Stihl FS110 Brushc(O)	**0.00**	0.00	0.00	0.00	41,083.00
14775	Transfer From Reserve	Plant Purchases (P11) - Minor Plant (Non-Capital)(O)	**0.00**	0.00	0.00	0.00	36,000.00
14776	Transfer From Reserve	Plant Purchases (P12) - Minor Plant (Non-Capital)(O)	**0.00**	0.00	0.00	0.00	13,500.00
14805	Transfer From Reserve	TOYOTA RAV4 HYBRID 4X2 SUV (REP P194120)(C)	**0.00**	0.00	0.00	0.00	35,217.00
14818	Transfer From Reserve	Wheeled 20t excavator Inc. Accessories(C)	**0.00**	0.00	0.00	0.00	485,000.00
14819	Transfer From Reserve	Positrak (Cat 299) with Accessories (C)	**0.00**	0.00	0.00	0.00	250,000.00
14820	Transfer From Reserve	Trailer for Towing Positrak & Traffic Lights(C)	**0.00**	0.00	0.00	0.00	40,000.00
14821	Transfer From Reserve	Trailer Traffic Lights x 2 (and Sign Cones)(C)	**0.00**	0.00	0.00	0.00	45,000.00
14822	Transfer From Reserve	Chainsaw and Polesaw (O)	**0.00**	0.00	0.00	0.00	2,500.00
14842	Transfer From Reserve	New Horticultural Truck East(C)	**0.00**	0.00	0.00	0.00	100,540.00
14843	Transfer From Reserve	New Horticultural Truck West(C)	**0.00**	0.00	0.00	0.00	111,192.00
14844	Transfer From Reserve	New CBD Truck West (C)	**0.00**	0.00	0.00	0.00	111,280.00
14845	Transfer From Reserve	New Construction Truck(C)	**0.00**	0.00	0.00	0.00	95,610.00
		Plant Replacement Reserve Closing Balance	**(3,597,598.47)**	(3,557,186.56)	(2,681,646.38)	(3,557,186.56)	(467,085.38)
1052 - Port Geographe Development Reserve (Council)							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(126,995.64)**	(126,995.64)	(126,995.64)	(126,995.64)	(126,995.64)
10904	Interest Earned	Other General Purpose Funding(O)	**(3,553.44)**	(476.73)	(620.06)	(476.73)	(620.06)
10325	Transfer To Reserve	Port Geographe(O)	**(43,866.00)**	(43,866.00)	(58,485.00)	(43,866.00)	(58,485.00)
10086	Transfer From Reserve	Pedestrian Bridge (Port Geographe)(O)	**0.00**	0.00	64,152.00	0.00	64,152.00
10767	Transfer From Reserve	Port Geographe General Improvements/ Foreshore(C)	**0.00**	0.00	82,285.00	0.00	82,285.00
		Port Geographe Development Reserve (Council) Closing Balance	**(174,415.08)**	(171,338.37)	(39,663.70)	(171,338.37)	(39,663.70)
1053 - Port Geographe Waterways Management Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(3,060,602.36)**	(3,060,602.36)	(3,060,602.36)	(3,060,602.36)	(3,060,602.36)
10904	Interest Earned	Other General Purpose Funding(O)	**(71,786.50)**	(52,971.48)	(70,641.10)	(52,971.48)	(70,641.10)
10325	Transfer To Reserve	Port Geographe(O)	**(176,058.00)**	(176,058.00)	(234,744.00)	(176,058.00)	(234,744.00)
10325	Transfer From Reserve	Port Geographe(O)	**0.00**	0.00	390,547.00	0.00	390,547.00
		Port Geographe Waterways Management Reserve Closing Balance	**(3,308,446.86)**	(3,289,631.84)	(2,975,440.46)	(3,289,631.84)	(2,975,440.46)
1054 - Professional Development Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(156,214.03)**	(156,214.03)	(156,214.03)	(156,214.03)	(156,214.03)
10904	Interest Earned	Other General Purpose Funding(O)	**(3,476.11)**	(2,383.56)	(3,184.31)	(2,383.56)	(3,184.31)
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
		Professional Development Reserve Closing Balance	**(159,690.14)**	(158,597.59)	(159,398.34)	(158,597.59)	(159,398.34)
1055 - Provence Landscape Maintenance Reserve (SAR)							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(1,323,558.59)**	(1,323,558.59)	(1,323,558.59)	(1,323,558.59)	(1,323,558.59)
10904	Interest Earned	Other General Purpose Funding(O)	**(32,177.19)**	(21,676.50)	(28,911.35)	(21,676.50)	(28,911.35)
10966	Transfer To Reserve	Provence SAR Area General Improvements to the Area(C)	**(145,485.00)**	(145,485.00)	(193,983.00)	(145,485.00)	(193,983.00)
10966	Transfer From Reserve	Provence SAR Area General Improvements to the Area(C)	**0.00**	0.00	20,000.00	0.00	20,000.00
12999	Transfer From Reserve	Provence SAR Reserve Funding(O)	**0.00**	0.00	132,251.00	0.00	132,251.00
		Provence Landscape Maintenance Reserve (SAR) Closing Balance	**(1,501,220.78)**	(1,490,720.09)	(1,394,201.94)	(1,490,720.09)	(1,394,201.94)

City of Busselton Reserve Movements
For Period Ended 31 March 2023

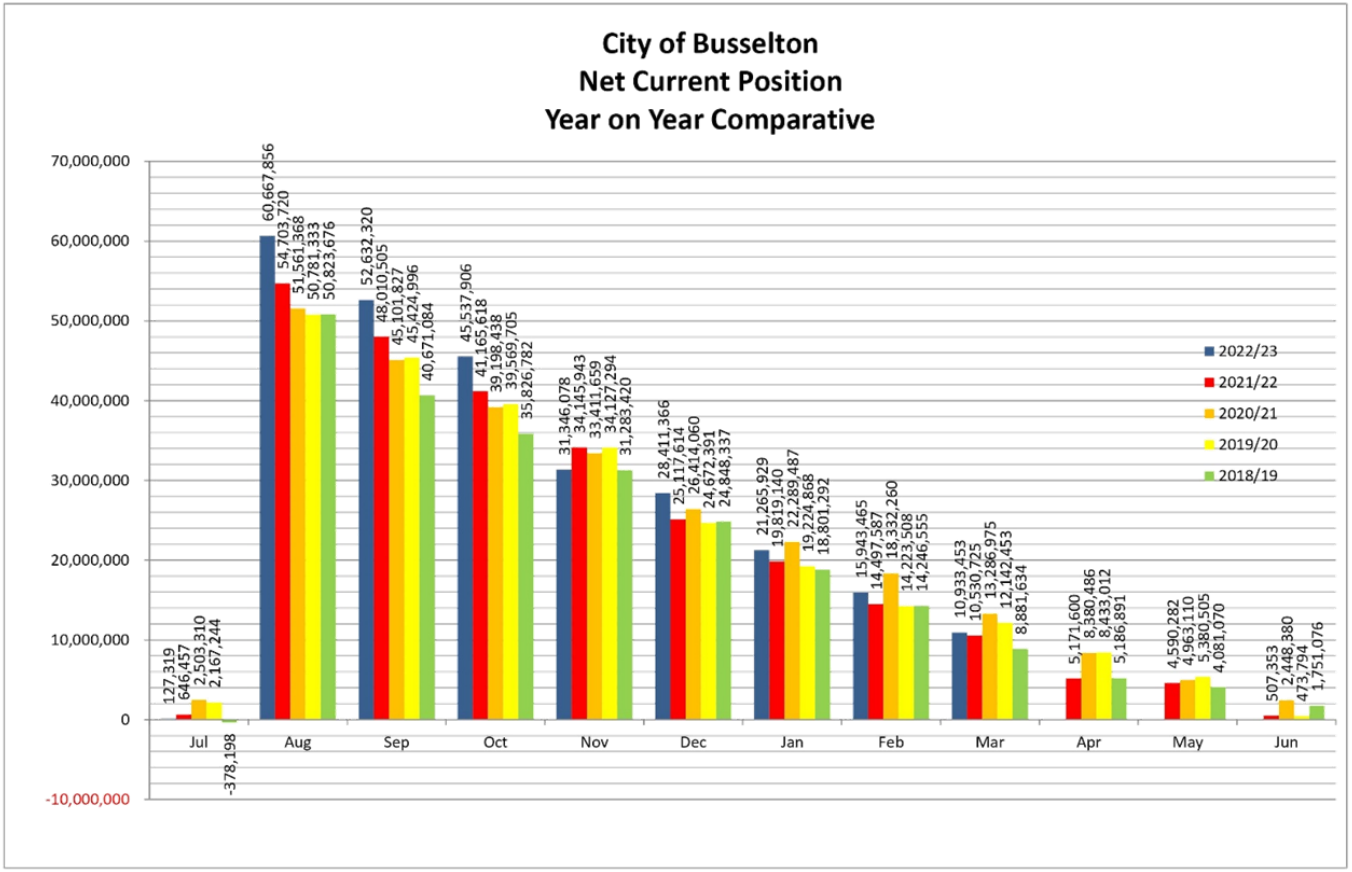
Project Number	Transaction Type	Project Description	YTD Actual	YTD Budget	Budget Original	YTD BudgetA	Budget Amended
1056 - Public Art Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(249,544.01)**	(46,665.83)	(46,665.83)	(46,665.83)	(46,665.83)
10904	Interest Earned	Other General Purpose Funding(O)	**(1,050.02)**	(813.24)	(1,090.55)	(813.24)	(1,090.55)
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
		Public Art Reserve Closing Balance	**(250,594.03)**	(47,479.07)	(47,756.38)	(47,479.07)	(47,756.38)
1057 - Railway House Building Reserve (50%)							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(63,088.20)**	(63,088.20)	(63,088.20)	(63,088.20)	(63,088.20)
10904	Interest Earned	Other General Purpose Funding(O)	**(1,715.83)**	(1,065.60)	(1,405.22)	(1,065.60)	(1,405.22)
10027	Transfer To Reserve	Asset Management Administration(O)	**(17,865.00)**	(17,865.00)	(23,814.00)	(17,865.00)	(23,814.00)
10904	Transfer From Reserve	Other General Purpose Funding(O)	**0.00**	0.00	0.00	0.00	0.00
		Railway House Building Reserve (50%) Closing Balance	**(82,669.03)**	(82,018.80)	(88,307.42)	(82,018.80)	(88,307.42)
1058 - Road Asset Renewal Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(1,920,213.12)**	(1,920,213.12)	(1,920,213.12)	(1,920,213.12)	(1,920,213.12)
10904	Interest Earned	Other General Purpose Funding(O)	**(57,335.90)**	(7,347.06)	(9,796.08)	(7,347.06)	(9,796.08)
10027	Transfer To Reserve	Asset Management Administration(O)	**(2,580,264.00)**	(2,580,264.00)	(3,440,347.00)	(2,580,264.00)	(3,440,347.00)
10256	Transfer From Reserve	Road Maintenance General(O)	**175,000.00**	0.00	175,000.00	0.00	175,000.00
11193	Transfer From Reserve	Wilyabrup Road Resheet(C)	**130,000.00**	0.00	130,000.00	0.00	130,000.00
11199	Transfer From Reserve	Bussell Highway(C)	**0.00**	0.00	443,465.00	0.00	443,465.00
11987	Transfer From Reserve	Caves Road - Median Crossing(C)	**0.00**	0.00	17,960.00	0.00	17,960.00
11991	Transfer From Reserve	Commonage & Hayes Road instersection Safety works(C)	**0.00**	0.00	38,951.00	0.00	38,951.00
11997	Transfer From Reserve	Gifford Road Reconstruction(C)	**0.00**	0.00	111,053.00	0.00	111,053.00
11999	Transfer From Reserve	Kaloorup Road - Reconstruct and Seal Shoulders(C)	**0.00**	0.00	25,472.00	0.00	25,472.00
12000	Transfer From Reserve	Kaloorup Road (Stage 1)(C)	**0.00**	0.00	23,137.00	0.00	23,137.00
12005	Transfer From Reserve	Payne Road(C)	**0.00**	0.00	190,000.00	0.00	190,000.00
12007	Transfer From Reserve	Rendezvous Road Spray Seals(C)	**0.00**	0.00	58,218.00	0.00	0.00
12010	Transfer From Reserve	Sugarloaf Road(C)	**0.00**	0.00	250,502.00	0.00	250,502.00
12012	Transfer From Reserve	Wildwood Road(C)	**0.00**	0.00	0.00	0.00	180,000.00
12333	Transfer From Reserve	Townscape Works Dunsborough(C)	**0.00**	0.00	0.00	0.00	351,169.00
12611	Transfer From Reserve	North Jindong Road(C)	**0.00**	0.00	0.00	0.00	270,000.00
12824	Transfer From Reserve	Acton Park Road(C)	**908,000.00**	0.00	908,000.00	0.00	908,000.00
12825	Transfer From Reserve	Farquar Road Resheet(C)	**0.00**	0.00	75,000.00	0.00	75,000.00
12826	Transfer From Reserve	Glendon Road Resheet(C)	**0.00**	0.00	29,347.00	0.00	29,347.00
12828	Transfer From Reserve	Rural road open drain maintenance - Reserve Funded(O)	**0.00**	0.00	100,000.00	0.00	100,000.00
12829	Transfer From Reserve	Rural Verge Maintenance - Reserve Funded(O)	**0.00**	0.00	150,000.00	0.00	150,000.00
12830	Transfer From Reserve	Urban Tree Management - Reserve Funded(O)	**0.00**	0.00	70,000.00	0.00	70,000.00
12831	Transfer From Reserve	Princefield Road - Reserve Funded(O)	**0.00**	0.00	40,000.00	0.00	40,000.00
12832	Transfer From Reserve	Urban Drainage - Reserve Funded(O)	**0.00**	0.00	40,000.00	0.00	40,000.00
12833	Transfer From Reserve	Prewinter stormwater drainage maintenance - Reserve Funde(O)	**0.00**	0.00	70,000.00	0.00	70,000.00
12834	Transfer From Reserve	Urban Compensation Basin Maintenance - Reserve Funded(O)	**0.00**	0.00	30,000.00	0.00	30,000.00
12835	Transfer From Reserve	Ludlow-Hithergreen Road(C)	**0.00**	0.00	110,000.00	0.00	110,000.00
12837	Transfer From Reserve	Pre-emptive Design Works (C)	**0.00**	0.00	50,000.00	0.00	50,000.00
12838	Transfer From Reserve	Queen Elizabeth Avenue(C)	**0.00**	0.00	230,000.00	0.00	230,000.00
12839	Transfer From Reserve	Seista Park Road(C)	**0.00**	0.00	198,000.00	0.00	0.00
12840	Transfer From Reserve	Sheens Road Apron(C)	**0.00**	0.00	8,000.00	0.00	8,000.00
12841	Transfer From Reserve	Strelly Street (C)	**0.00**	0.00	60,000.00	0.00	60,000.00
12842	Transfer From Reserve	Nuttman Road (C)	**0.00**	0.00	55,235.00	0.00	55,235.00
12851	Transfer From Reserve	Bussell Highway(C)	**0.00**	0.00	150,000.00	0.00	150,000.00
14817	Transfer From Reserve	Road Access Seal - Busselton Animal care facility(C)	**0.00**	0.00	0.00	0.00	50,000.00
		Road Asset Renewal Reserve Closing Balance	**(3,344,813.02)**	(4,507,824.18)	(1,533,016.20)	(4,507,824.18)	(938,065.20)
1059 - Sick Pay Incentive Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(79,476.54)**	(79,476.54)	(79,476.54)	(79,476.54)	(79,476.54)
10904	Interest Earned	Other General Purpose Funding(O)	**(1,753.59)**	(560.88)	(738.49)	(560.88)	(738.49)
			0.00	0.00	0.00	0.00	0.00
10810	Transfer From Reserve	Human Resources & Payroll(O)	**0.00**	0.00	15,000.00	0.00	15,000.00
		Sick Pay Incentive Reserve Closing Balance	**(81,230.13)**	(80,037.42)	(65,215.03)	(80,037.42)	(65,215.03)
1060 - Strategic Projects Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(2,909,577.74)**	(2,909,577.74)	(2,909,577.74)	(2,909,577.74)	(2,909,577.74)
10904	Interest Earned	Other General Purpose Funding(O)	**(65,786.04)**	(50,896.35)	(67,892.96)	(50,896.35)	(67,892.96)
10830	Transfer To Reserve	Members of Council(O)	**(18,747.00)**	(18,747.00)	(25,000.00)	(18,747.00)	(25,000.00)
12847	Transfer From Reserve	Purchase Sues Road(C)	**0.00**	0.00	500,000.00	0.00	500,000.00
		Strategic Projects Reserve Closing Balance	**(2,994,110.78)**	(2,979,221.09)	(2,502,470.70)	(2,979,221.09)	(2,502,470.70)
1061 - Vasse Newtown Landscape Maintenance Reserve (SAR)							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(668,099.07)**	(668,099.07)	(668,099.07)	(668,099.07)	(668,099.07)
10904	Interest Earned	Other General Purpose Funding(O)	**(17,295.44)**	(11,357.01)	(15,139.57)	(11,357.01)	(15,139.57)
10969	Transfer To Reserve	Vasse SAR Area General Improvements to the Area(C)	**(143,082.00)**	(143,082.00)	(190,775.00)	(143,082.00)	(190,775.00)
10969	Transfer From Reserve	Vasse SAR Area General Improvements to the Area(C)	**0.00**	0.00	150,000.00	0.00	150,000.00
12822	Transfer From Reserve	Vasse SAR Area General Improvements to the Area - Tree Re(O)	**0.00**	0.00	50,000.00	0.00	50,000.00
13000	Transfer From Reserve	Vasse SAR Reserve Funding(O)	**0.00**	0.00	140,536.00	0.00	140,536.00
		Vasse Newtown Landscape Maintenance Reserve (SAR) Closing Balance	**(828,476.51)**	(822,538.08)	(533,477.64)	(822,538.08)	(533,477.64)
1062 - Vasse Sports Pavilion Building Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(1,684.98)**	(1,684.98)	(1,684.98)	(1,684.98)	(1,684.98)
10904	Interest Earned	Other General Purpose Funding(O)	**(45.97)**	(28.08)	(40.55)	(28.08)	(40.55)
10027	Transfer To Reserve	Asset Management Administration(O)	**(486.00)**	(486.00)	(649.00)	(486.00)	(649.00)
			0.00	0.00	0.00	0.00	0.00
		Vasse Sports Pavilion Building Reserve Closing Balance	**(2,216.95)**	(2,199.06)	(2,374.53)	(2,199.06)	(2,374.53)

City of Busselton Reserve Movements
For Period Ended 31 March 2023

Project Number	Transaction Type	Project Description	YTD Actual	YTD Budget	Budget Original	YTD BudgetA	Budget Amended
1063 - Waste Facilities and Plant Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(8,287,152.23)**	(8,287,152.23)	(8,287,152.23)	(8,287,152.23)	(8,287,152.23)
10904	Interest Earned	Other General Purpose Funding(O)	**(186,249.76)**	(114,355.53)	(152,486.50)	(114,355.53)	(152,486.50)
12225	Transfer To Reserve	Sanitation Waste Services Administration(O)	**0.00**	0.00	0.00	0.00	0.00
12412	Transfer To Reserve	Domestic & Commercial Waste Collection(O)	**0.00**	0.00	(2,032,658.00)	0.00	(2,032,658.00)
10688	Transfer From Reserve	Depot Washdown Facility Upgrades(C)	**0.00**	0.00	76,700.00	0.00	76,700.00
11130	Transfer From Reserve	Regional Waste Management Administration(O)	**0.00**	0.00	106,780.00	0.00	106,780.00
12225	Transfer From Reserve	Waste and Fleet Services Admin PWOH(O)	**0.00**	0.00	0.00	0.00	10,000.00
12420	Transfer From Reserve	Vidler Road Waste Site Capital Improvements(C)	**0.00**	0.00	28,955.00	0.00	28,955.00
12421	Transfer From Reserve	City Lined Landfill Stage 2 - Preliminary Works(C)	**0.00**	0.00	1,950,000.00	0.00	1,950,000.00
12425	Transfer From Reserve	Busselton Landfill Post-closure Capping, Rehab & Remediat(C)	**0.00**	0.00	2,000,000.00	0.00	2,000,000.00
12427	Transfer From Reserve	Dunsborough Waste Facility(O)	**0.00**	0.00	284,914.00	0.00	284,914.00
12428	Transfer From Reserve	Transfer Station Development(C)	**0.00**	0.00	158,375.00	0.00	400,000.00
12843	Transfer From Reserve	SW Regional Waste Group Funding - Regional Waste Hub Deve(O)	**0.00**	0.00	50,000.00	0.00	50,000.00
12844	Transfer From Reserve	Dunsborough Landfill - Washdown Bay(C)	**0.00**	0.00	150,000.00	0.00	150,000.00
12911	Transfer From Reserve	Waste Management - Replacement of Volvo FE320 6x4 Dual Co(C)	**0.00**	0.00	440,000.00	0.00	440,000.00
12912	Transfer From Reserve	Waste Management - Plant Replacement Grab bucket and atta(C)	**0.00**	0.00	30,000.00	0.00	30,000.00
12913	Transfer From Reserve	Waste Management - Plant Replacement Trailer for bin clea(C)	**0.00**	0.00	20,000.00	0.00	20,000.00
12914	Transfer From Reserve	Waste Management - Plant Replacement Minor (Capital)(C)	**0.00**	0.00	10,000.00	0.00	10,000.00
12915	Transfer From Reserve	Waste Management - Plant Replacement Minor (Non Capital)(C)	**0.00**	0.00	10,000.00	0.00	0.00
14823	Transfer From Reserve	Bin Truck Replacement (Side Arm)(C)	**0.00**	0.00	0.00	0.00	440,000.00
		Waste Facilities and Plant Reserve Closing Balance	**(8,473,401.99)**	(8,401,507.76)	(5,156,572.73)	(8,401,507.76)	(4,474,947.73)
1064 - Winderlup Aged Housing Reserve (City Controlled)							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(356,903.58)**	(356,903.58)	(356,903.58)	(356,903.58)	(356,903.58)
10904	Interest Earned	Other General Purpose Funding(O)	**(8,826.84)**	(4,626.90)	(6,153.63)	(4,626.90)	(6,153.63)
10027	Transfer To Reserve	Asset Management Administration(O)	**(47,169.00)**	(47,169.00)	(62,889.00)	(47,169.00)	(62,889.00)
12234	Transfer From Reserve	Aged Housing Capital Improvements - Winderlup Court (City(C)	**0.00**	0.00	49,000.00	0.00	49,000.00
		Winderlup Aged Housing Reserve (City Controlled) Closing Balance	**(412,899.42)**	(408,699.48)	(376,946.21)	(408,699.48)	(376,946.21)
1065 - Workers Compensation and Extended Sick Leave							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(194,219.32)**	(194,219.32)	(194,219.32)	(194,219.32)	(194,219.32)
10904	Interest Earned	Other General Purpose Funding(O)	**(4,338.13)**	(3,393.09)	(4,530.35)	(3,393.09)	(4,530.35)
			0.00	0.00	0.00	0.00	0.00
10810	Transfer From Reserve	Human Resources & Payroll(O)	**0.00**	0.00	193,000.00	0.00	193,000.00
		Workers Compensation and Extended Sick Leave Closing Balance	**(198,557.45)**	(197,612.41)	(5,749.67)	(197,612.41)	(5,749.67)
1066 - Youth and Community Activities Building Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(158,157.72)**	(158,157.72)	(158,157.72)	(158,157.72)	(158,157.72)
10904	Interest Earned	Other General Purpose Funding(O)	**(4,203.70)**	(2,495.70)	(3,315.14)	(2,495.70)	(3,315.14)
10027	Transfer To Reserve	Asset Management Administration(O)	**(38,970.00)**	(38,970.00)	(51,957.00)	(38,970.00)	(51,957.00)
			0.00	0.00	0.00	0.00	0.00
		Youth and Community Activities Building Reserve Closing Balance	**(201,331.42)**	(199,623.42)	(213,429.86)	(199,623.42)	(213,429.86)
1067 - Prepaid Grants and Deferred Works & Services Reserves							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(1,979,511.24)**	(1,979,511.24)	(1,979,511.24)	(1,979,511.24)	(1,979,511.24)
10904	Interest Earned	Other General Purpose Funding(O)	**1,690.69**	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
10904	Transfer From Reserve	Other General Purpose Funding(O)	**1,977,034.36**	0.00	1,979,511.00	0.00	1,979,511.00
		Prepaid Grants and Deferred Works & Services Reserves Closing Balance	**(786.19)**	(1,979,511.24)	(0.24)	(1,979,511.24)	(0.24)
1068 - Airport Development Reserve							
			0.00	0.00	0.00	0.00	0.00
10904	Interest Earned	Other General Purpose Funding(O)	**0.00**	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
		Airport Development Reserve Closing Balance	**0.00**	0.00	0.00	0.00	0.00
1069 - Airport Infrastructure Renewal and Replacement Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(1,259,814.66)**	(1,259,814.66)	(1,259,814.66)	(1,259,814.66)	(1,259,814.66)
10904	Interest Earned	Other General Purpose Funding(O)	**(28,069.32)**	(18,227.34)	(24,293.77)	(18,227.34)	(24,293.77)
10594	Transfer To Reserve	Airport Operations(O)	**0.00**	0.00	(642,013.00)	0.00	(642,013.00)
10583	Transfer From Reserve	Airport Construction Stage 2, Airfield(C)	**0.00**	0.00	0.00	0.00	60,768.00
10585	Transfer From Reserve	BMRA Hangars(C)	**0.00**	0.00	182,891.00	0.00	182,891.00
10594	Transfer From Reserve	Airport Operations(O)	**0.00**	0.00	0.00	0.00	2,100.00
12930	Transfer From Reserve	Airport Operations - Replacement Ute - Airport Operations(C)	**0.00**	0.00	35,000.00	0.00	35,000.00
12931	Transfer From Reserve	Airport Operations - Replacement Deutz/able 75KVA Generat(C)	**0.00**	0.00	19,000.00	0.00	0.00
12932	Transfer From Reserve	Airport Operations - Replacement Toro Groundmaster 7200 M(C)	**0.00**	0.00	22,000.00	0.00	22,000.00
12933	Transfer From Reserve	Airport Operations - Replacement Stihl FS94R CE Brushcutt(C)	**0.00**	0.00	600.00	0.00	0.00
12934	Transfer From Reserve	Airport Operations - Replacement Bar Pertol 3000PSI Press(C)	**0.00**	0.00	1,150.00	0.00	0.00
12935	Transfer From Reserve	Airport Operations - Replacement Blower(C)	**0.00**	0.00	350.00	0.00	0.00
14830	Transfer From Reserve	Airport Capital Furniture&Equipment(C)	**0.00**	0.00	0.00	0.00	36,805.00
14836	Transfer From Reserve	RFDS relocation(C)	**0.00**	0.00	0.00	0.00	177,515.00
14838	Transfer From Reserve	BMRAP - Apron Lighting(C)	**0.00**	0.00	0.00	0.00	65,000.00
14839	Transfer From Reserve	BMRAP - Apron CCTV(C)	**0.00**	0.00	0.00	0.00	50,000.00
		Airport Infrastructure Renewal and Replacement Reserve Closing Balance	**(1,287,883.98)**	(1,278,042.00)	(1,665,130.43)	(1,278,042.00)	(1,294,042.43)
1070 - Airport Noise Mitigation Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(683,693.59)**	(683,693.59)	(683,693.59)	(683,693.59)	(683,693.59)
10904	Interest Earned	Other General Purpose Funding(O)	**(15,364.23)**	(7,627.41)	(10,185.46)	(7,627.41)	(10,185.46)
			0.00	0.00	0.00	0.00	0.00
10586	Transfer From Reserve	Airport Development Operations(O)	**0.00**	0.00	98,238.00	0.00	98,238.00
		Airport Noise Mitigation Reserve Closing Balance	**(699,057.82)**	(691,321.00)	(595,641.05)	(691,321.00)	(595,641.05)
1071 - LED Street Lighting Replacement Program Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(38,098.35)**	(38,098.35)	(38,098.35)	(38,098.35)	(38,098.35)
10904	Interest Earned	Other General Purpose Funding(O)	**(1,464.25)**	0.00	(3.12)	0.00	(3.12)
10254	Transfer To Reserve	Street Lighting Installations(O)	**(37,503.00)**	(37,503.00)	(50,000.00)	(37,503.00)	(50,000.00)
10251	Transfer From Reserve	LED Street Light Replacement Program(O)	**0.00**	0.00	87,866.00	0.00	87,866.00
		LED Street Lighting Replacement Program Reserve Closing Balance	**(77,065.60)**	(75,601.35)	(235.47)	(75,601.35)	(235.47)

City of Busselton Reserve Movements
For Period Ended 31 March 2023

Project Number	Transaction Type	Project Description	YTD Actual	YTD Budget	Budget Original	YTD BudgetA	Budget Amended
1072 - Lou Weston Oval Pavilion Reserve							
			0.00	0.00	0.00	0.00	0.00
10904	Interest Earned	Other General Purpose Funding(O)	**(153.43)**	0.00	0.00	0.00	0.00
10027	Transfer To Reserve	Asset Management Administration(O)	**(9,324.00)**	(9,324.00)	(12,431.00)	(9,324.00)	(12,431.00)
			0.00	0.00	0.00	0.00	0.00
		Lou Weston Oval Pavilion Reserve Closing Balance	**(9,477.43)**	(9,324.00)	(12,431.00)	(9,324.00)	(12,431.00)
1073 - Waterways Restoration Reserve							
10904	Opening Balance 1/7/2022	Other General Purpose Funding(O)	**(10.00)**	(10.00)	(10.00)	(10.00)	(10.00)
10904	Interest Earned	Other General Purpose Funding(O)	**(6,793.92)**	0.00	0.00	0.00	0.00
10711	Transfer To Reserve	Environmental Management Administration(O)	**(412,841.25)**	(412,841.25)	(550,455.00)	(412,841.25)	(550,455.00)
12848	Transfer From Reserve	Vasse River - Ongoing Restoration of River Habitat(O)	**0.00**	0.00	550,455.00	0.00	550,455.00
		Waterways Restoration Reserve Closing Balance	**(419,645.17)**	(412,851.25)	(10.00)	(412,851.25)	(10.00)
1078 - Post Office Tea Rooms Reserve							
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
10020	Transfer To Reserve	Art Geo Administration(O)	**0.00**	0.00	(121,028.00)	0.00	(121,028.00)
10020	Transfer From Reserve	Art Geo Administration(O)	**0.00**	0.00	60,514.00	0.00	60,514.00
10033	Transfer From Reserve	Art Geo Building(O)	**0.00**	0.00	60,514.00	0.00	60,514.00
12472	Transfer From Reserve	ArtGeo Building(C)	**0.00**	0.00	0.00	0.00	0.00
		Post Office Tea Rooms Reserve Closing Balance	**0.00**	0.00	0.00	0.00	0.00
1079 - Peel Tce/Causeway Rd Building Reserve							
			0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00
10441	Transfer To Reserve	Peel Tce Building & Surrounds(O)	**0.00**	0.00	(23,429.00)	0.00	(23,429.00)
			0.00	0.00	0.00	0.00	0.00
		Peel Tce/Causeway Rd Building Reserve Closing Balance	**0.00**	0.00	(23,429.00)	0.00	(23,429.00)
		Grand Total	**(82,124,324.93)**	**(85,232,757.17)**	**(59,608,589.86)**	**(85,332,141.17)**	**(55,878,451.86)**
	Opening Balance 1/7/2022		**(71,183,341.29)**	(71,017,796.00)	(71,017,796.00)	(71,017,796.00)	(71,017,796.00)
	Interest Earned		**(1,870,408.58)**	(937,474.20)	(1,249,999.90)	(937,474.20)	(1,249,999.90)
	Transfer To Reserve		**(13,260,609.42)**	(13,336,209.72)	(23,227,257.96)	(13,336,209.72)	(23,496,493.91)
	Transfer From Reserve		**4,190,034.36**	58,722.75	35,886,464.00	(40,661.25)	39,885,837.95
		Grand Total	**(82,124,324.93)**	**(85,232,757.17)**	**(59,608,589.86)**	**(85,332,141.17)**	**(55,878,451.86)**


City of Busselton
Net Current Position
Year on Year Comparative
70,000,000
60,000,000
50,000,000
40,000,000
30,000,000
20,000,000
10,000,000
0
-10,000,000
2022/23
2021/22
2020/21
2019/20
2018/19
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
127,319
646,457
2,503,310
2,167,244
-378,198
60,667,856
54,703,720
51,561,368
50,781,333
50,823,676
52,632,320
48,010,505
45,101,827
45,424,996
40,671,084
45,537,906
41,165,618
39,198,438
39,569,705
35,826,782
31,346,078
34,145,943
33,411,659
34,127,294
31,283,420
28,411,366
25,117,614
26,414,060
24,672,391
24,848,337
21,265,929
19,819,140
22,289,487
19,224,868
18,801,292
15,943,465
14,497,587
18,332,260
14,223,508
14,246,555
10,933,453
10,530,725
13,286,975
12,142,453
8,881,634
5,171,600
8,380,486
8,433,012
5,186,891
4,590,282
4,963,110
5,380,505
4,081,070
507,353
2,448,380
473,794
1,751,076

13. PLANNING AND DEVELOPMENT SERVICES REPORT

13.1 LOWER VASSE RIVER AND TOBY INLET - UPDATE, REVIEW AND PROPOSED FUTURE DIRECTION FOR THE CITY AS INTERIM WATERWAY ASSET MANAGER

STRATEGIC THEME	ENVIRONMENT - An environment that is valued, conserved and able to be enjoyed by current and future generations.
STRATEGIC PRIORITY	1.3 Work with key partners to improve the health of the Vasse River and other waterways in the Geographe catchment.
SUBJECT INDEX	Water Quality
BUSINESS UNIT	Environmental Services
REPORTING OFFICER	Senior Sustainability/Environment Officer - Mathilde Breton Director Planning and Development Services - Paul Needham
AUTHORISING OFFICER	Director Planning and Development Services - Paul Needham
NATURE OF DECISION	Executive: Substantial direction setting, including adopting budgets, strategies, plans and policies (excluding local planning policies); funding, donations and sponsorships; reviewing committee recommendations
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Living Streams Concept Design for the Lower Vasse River - Design Report (Alluvium, Aug 2021) Attachment B Living Streams Concept drawings for the Lower Vasse River (Alluvium, Aug 2021) Attachment C Peer Review of the Living Streams Concept (Hamilton et al., Jun 2022) Attachment D Living Streams Design for the Lower Vasse River - Peer Review (Alluvium, Oct 2022) Attachment E Comments on Peer Review of the Living Streams Concept (B. Hart, Oct 2022) Attachment F Lower Vasse River, Busselton - Blue-green algae and human health (Department of Health, Jun 2021) Attachment G Lower Vasse River Waterway Management Plan (City of Busselton, May 2019) Attachment H Toby Inlet Waterway Management Plan (City of Busselton, May 2019)

OFFICER RECOMMENDATION

That the Council, with respect to the City's role as interim asset manager for the Lower Vasse River and Toby Inlet -

1. **Notes that the City's role is undertaken within the broader context of the Revitalising Geographe Waterways programme, overseen by the Vasse Ministerial Taskforce;**
2. **Notes progress with implementing the Lower Vasse River and Toby Inlet Waterway Management Plans (2019);**
3. **Reiterates the City's commitment to being interim asset manager for the Lower Vasse River and Toby Inlet, whilst also reiterating that the City's continued commitment is contingent upon continuing technical and financial support from the State Government;**
4. **Sets out that the City's continued commitment to being interim asset manager for the Lower Vasse River and Toby Inlet is also contingent upon the State's continued commitment to boader waterway and water quality management in Geographe Bay and the Geographe Bay catchment;**

5. Notes findings and recommendations from the –

a. Living Streams Concept Design (Alluvium, August 2021);

b. Living Streams Concept peer review (Hamilton et al., June 2022); and

c. Living Streams Design for the Lower Vasse River – Peer Review (Alluvium, October 2022);

6. Supports the continued staged removal of nutrient-rich sediments between the Busselton Bypass and the Busselton Butter Factory Museum as the City's short-term priority focus for management of the Lower Vasse River, subject to procurement, funding and regulatory approvals;

7. Notes that the success of sediment removal for reducing blue-green algal blooms in the Lower Vasse River will be continuously reviewed and its effectiveness at improving water quality assessed before committing to further stages of sediment removal beyond the Stage 3 sediment removal project, which is planned to be undertaken in the section of the River upstream from Strelly Street Bridge, commencing in Autumn 2024;

8. Supports a large scale application of the Phosphorus binding clay Phoslock (or equivalent) in partnership with the Department of Water and Environmental Regulation (DWER) in a section of the Lower Vasse River in Summer 2023/24 in order to scope out practical requirements, costs and effects on water quality;

9. Also notes that any further work on other stages of the Living Streams Concept Design, other than further stages of sediment removal, will not be prioritised or progressed until the actions set out in points 6 and 8 above have been undertaken and assessed;

10. Requests the CEO to continue advocating with the State Government for prioritising infill sewer in the Busselton Light Industrial Area;

11. Supports current management of Toby Inlet, with a focus on management of the sand bar and revegetation of adjacent foreshore reserves, in partnership with the Toby Inlet Catchment Group in the short term, and management of sedimentation issues, potentially including targeted removal of sediments in the medium to longer term;

12. Notes the need for a considered approach and demonstrated process to considering water quality improvement trials in the Lower Vasse River and Toby Inlet, informed primarily by advice from the DWER Aquatic Science branch, or other appropriately qualified, experienced and independent technical or scientific specialists;

13. Endorses the proposed community and stakeholder engagement model for management of the Lower Vasse River and Toby Inlet, and the cessation of the Lower Vasse River Management Advisory Group as established by Council Resolution C2003/086, and requests that the CEO prepare a community and stakeholder strategy, consistent with the proposed model;

14. Thanks Lower Vasse River Management Advisory Group members for their contributions;

15. Thanks the State Government for its past and ongoing support for the Revitalising Geographe Waterways programme; and

16. Expresses the City's continuing support for the Vasse Ministerial Taskforce as a means of overseeing and coordinating work to improve water quality and waterway health in the Geographe Bay catchment.

EXECUTIVE SUMMARY

This report provides a summary of work managing water quality and waterway health undertaken by the City, since agreeing to take on the role of interim asset manager of the Lower Vasse River and Toby Inlet. The report also makes key recommendations and sets out a proposed direction for the City's future role in managing the Lower Vasse River and Toby Inlet.

BACKGROUND

The Geographe Bay Catchment has been extensively cleared for agriculture and urban development. This, combined with sandy soils dominating much of the landscape, has resulted in high nutrients entering waterways and widespread poor water quality issues.

Water quality issues in the catchment have existed for a long time, with algal blooms reported in the Lower Vasse River at least as early as the 1930's. The construction of the Vasse Diversion Drain in 1924, followed by the installation of a weir structure near the Old Butter Factory in 1935, have significantly modified the hydrology of the Lower Vasse River and its catchment. Similarly flows into Toby Inlet have been substantially reduced by artificial drainage to enable farming and urban development in the catchment. The intensification of land use, both urban and agricultural, combined with the impacts of climate change have amplified water quality issues.

Poor water quality in the Lower Vasse River and Toby Inlet has been a focus of management activities for over two decades. Geocatch was established in 1997 following community concerns over the condition of the Lower Vasse River and Geographe Bay. The Lower Vasse River Clean-up program commenced in 1999, which implemented a range of on-ground works and trials to improve the ecological health of the system. The focus of work on the Lower Vasse River began to shift in 2008 when monitoring and modelling for the development of the (State Government) Water Quality Improvement Plan (WQIP) showed that high levels of nutrients were entering the Lower Vasse River from surrounding urban and rural sources, and the river would continue to experience poor water quality in summer unless this was addressed.

In response to growing community concerns about poor water quality, Council resolved in March 2012 to set up a City-led Taskforce that would work with relevant state government agencies to develop a plan for restoring water quality in these waterways, and prevent water quality declines in Geographe Bay and the Vasse-Wonnerup wetlands (C1203/55). Note that, other than the management of land adjoining the river, and management of draining infrastructure that flows into the river, the City does not have any formal responsibilities for managing the Lower Vasse River.

The LVR Taskforce, later renamed the Waterways Improvement Reference Group, was composed of four councillors and City staff. The Group met with Ministers and government agencies and contributed to a greater recognition of local water quality issues at the local and state level, by government and community stakeholders alike. Following a mass fish kill in the Vasse Estuary in 2013, the state government commissioned an independent review into the management of Geographe waterways, and funding followed to implement some of the recommendations.

The Revitalising Geographe Waterways (RGW) program was then established in 2015, coordinated by the Vasse Ministerial Taskforce (the Taskforce). RGW has continued work in the broader catchment to reduce nutrients entering from urban and rural areas. The program has also expanded its focus to investigate ways to fast-track water quality improvements in the waterways. The Taskforce continues to play an important role under successive Ministers for Water and two different State Governments.

The Taskforce has most recently been chaired by South West Region MLC Hon Jackie Jarvis, and is a partnership between the State (represented by various agencies, most significantly the Department of Water and Environmental Regulation – DWER), the respective local governments (the City and the Shire of Capel) and some other key stakeholders.

The Taskforce provides strategic direction and support to the lead agencies responsible for delivering projects under RGW, and through GeoCatch reports to the community on outcomes of activities undertaken to improve waterway health.

As part of RGW, the City committed to be the 'interim asset manager' for the LVR and Toby Inlet, and as part of that commitment agreed to lead preparation of Waterway Management Plans for both the Lower Vasse River and Toby Inlet (December 2019, C1905/095). In March 2020, reflecting a recommendation of the adopted *Lower Vasse River Waterway Management Plan* (LVRWMP), the Council also resolved to support the formation of the Lower Vasse River Management Advisory Group (MAG) (C2003/086).

The LVRWMP also recommended to continue to develop 'Living Streams' planning as a pathway for implementing ecological restoration and water quality improvement works. Following a tender process and using funds allocated by the State Government through Revitalising Geographe Waterways 2, a concept design was completed by a firm called Alluvium in August 2021. The key objective for the work was to identify means by which the frequency, duration and intensity of summertime blue-green algal / cyanobacterial blooms could be reduced. The concept design was peer reviewed by the Australian Rivers Institute (ARI) (Griffith University), with Alluvium addressing comments provided by the ARI.

Following discussions with the LVRMAG, the City also made a decision to prioritise sediment removal actions outlined in the LVRWMP. Stage 1 of sediment removal was completed in April-May 2022, with 630 tonnes (dry solids) of sediments removed in a section of the river downstream from the Causeway Road Bridge. Stage 1 was part-funded by the State through the RGW programme. Stage 2 is currently underway, and external funding secured to meet around half the cost of a future Stage 3 sediment removal project.

OFFICER COMMENT

Water quality issues in the LVR and Toby Inlet

Extremely high nutrient concentrations are being discharged to the LVR all year around. This, coupled with reduced flow and high temperatures lead to toxic blue-green algae blooms in the river every summer. Water quality issues of this kind, although often not to the same degree, are present in all major catchments in the southern parts of WA, and are also common elsewhere in Australia and indeed elsewhere in the world.

Nutrients come from rural and urban catchments, groundwater and within the river itself, when released from the accumulated sediments. Each source delivers sufficient nutrients to the river to trigger an algal bloom. It is therefore essential to target all sources of nutrients to substantially improve water quality in the river.

Water quality problems of this kind have, however, proven very difficult to sustainably manage in many places around the world. They often take the form of 'wicked problems' – problems that are difficult to truly 'solve', and can in fact be quite hard to even 'treat'. Experience both here and elsewhere also suggests that any proposed solution or treatment should be approached and considered with a sceptical and critical mindset – and that such a mindset should be applied to consideration of both treatment trials, and potential longer term or larger scale treatments.

Monitoring since 2000 by DWER shows that water quality and phytoplankton levels have, however, remained stable for the last 20 years in the LVR sub-catchment, despite increasing pressure from urban development and intensification of agriculture – although across the Geographe Bay catchment as a whole, there has been a net reduction in nutrients entering waterways.

It is not expected that improvements in the quality of water flowing into the river will result in any improvement in water quality of significance in the foreseeable future – meaning that any significant improvement would require some kind of in-situ treatment, if effective and sustainable improvements can actually be achieved.

Toby Inlet also used to suffer poor water quality, with macro-algae blooms a regular occurrence in summer. Sources of excess nutrients include run-off from agricultural and residential areas, and leachate from septic systems in nearby residential areas. Since the regular opening of the sand bar by the City to increase flushing with the ocean, water quality in the lower part of the inlet has significantly improved, but the same improvement has not been seen further upstream. Extensive sediment deposition, which is getting exposed during low water levels, and causes at times extremely poor amenity, impacts on water quality, and fish and waterbirds habitat. The completion of infill sewer works in Quindalup adjacent Toby Inlet is also expected to result in water quality improvements over time.

The landscape across the Geographe Bay catchment is saturated in nutrients and will continue to release nutrients to waterways for the next few decades, even if significant reductions are achieved working across the catchment. Acknowledging community desires to improve water quality in a shorter timeframe, the City, in partnership with other stakeholders is combining nutrient reductions from catchment sources with in-situ remediation – with the current focus being sediment removal.

There are limited nutrient management strategies that can be applied to the river, due to its ecological value/sensitivity and the extent in which the LVR has been modified from its original state. Similar restrictions apply to Toby Inlet, with the exception that the sand bar can and is now regularly being artificially opened to improve water quality. This has had a significant effect in improving water quality, mostly in the lower part of the inlet.

Both Toby Inlet and the LVR retain high ecological values, despite poor water quality, with these waterways providing habitat to many native aquatic species, including some that are endangered.

Partnership approach and City's role as LVR and Toby Inlet interim asset manager

The Independent Review of the Current and Future Management of Water Assets in the Geographe Catchment undertaken by Professor Barry Hart (2014), noted the lack of an obvious lead agency for the LVR and the need for greater support to the Toby Inlet Catchment Group.

Following a review of possible future management options, the report recommended the establishment of an overall lead agency to coordinate the separate asset management arrangements, due to it being more likely favoured by the then WA Government. The report also recommended the following management arrangements:

Lead agency	Asset
City	LVR and Toby Inlet
DBCA (then DPaW)	Vasse-Wonnerup Wetlands
Geocatch or DWER (then DoW)	Geographe Catchment, including waterways and drainage network

This led to the formation of the Vasse Ministerial Taskforce, with the following interim asset managers nominated as responsible for managing the following water assets:

Lead agency	Asset
City	LVR and Toby Inlet
Geocatch	Geographe Catchment
Vasse Wonnerup Partnership the (until such time as Native Title Rights are resolved and the VWW are transferred to the Conservation Commission and managed by DBCA)	Vasse Wonnerup Wetlands
DBCA	Broadwater Wetlands
Water Corporation	Drainage network

DWER, Geocatch and other partners have been actively implementing nutrient reduction initiatives in the catchment, working with farmers and urban residents. Some of these initiatives have included soil testing, dairy effluent management, soil amendment, fencing and riparian revegetation of waterways adjacent to paddocks. Up-to-date information was presented to Council by DWER at a briefing on Catchment Science and Modelling in January 2023.

Whilst the City has agreed to be the interim asset manager for the two waterways, it needs to be recognised that there are many factors affecting both waterways, many of which are or will be outside the control of the asset manager. As such there is seen to be a need for a continued partnership approach. The City's agreement to be the 'interim asset manager' has also been on the understanding of continued support and partnership from and with the State.

Responsibility for management will in any case remain provisional until Native Title claims are fully resolved for unallocated crown land, including water areas of the LVR and Toby Inlet, and a management order is provided. That may include joint management by the City and the Karri Karrak Aboriginal Corporation.

As part of this report, officers recommend the Council reiterates its support to being interim asset manager for the Lower Vasse River and Toby Inlet. It is also recommended that the Council indicate that its commitment is contingent upon continued State support – both technically and financially, and both with respect to the two waterways specifically, but also in terms of management of the broader Geographe Bay catchment.

As already noted, however, the City does not have a statutory duty to manage either waterway and could decide to cease being the interim asset manager. Given that, and given the challenges, both practical and financial, with acting as the asset manager, why should the Council continue to commit the City, and what does that actually mean? There are no clear or simple answers to either of those questions.

In terms of the first question, though, fundamentally it is because –

- The two waterways are important to the City and our communities;
- There are no clear or simple answers to the question – 'who is responsible?' – but if the City does not agree to play a significant role, the answer in practice may well be 'no one';
- By showing commitment to management of the two waterways, the City is sending a message to the State about the importance of the issues, and showing that the City is prepared to play its part'; and
- The State also needs to continue to play its various parts.

In terms of the second question, 'what does it mean to be the interim asset manager?', the key thing it means is a role in implementing in-situ treatments, in cases where the City is best placed to do so – as has been the case with sediment removal to date.

It is becoming increasingly clear, though, that the City's strength is often around implementation of strategies once those strategies have been determined and agreed. The complex and difficult nature of the issues, and the very high level of scientific and technical understanding required to identify and assess strategies, means that the City is not able to determine what those strategies should be. Instead, the State, through DWER and the Taskforce especially, needs to play a critical role in determining strategic direction.

Waterway Management Plans

As part of Revitalising Geographe Waterways, the City developed Waterway Management Plans for the Lower Vasse River and Toby Inlet to document the threats and values of the waterways, and guide future management. The plans were developed following a comprehensive review of work undertaken to date and available science, and with considerable community and stakeholder input.

Since the plans were endorsed by Council in December 2019, significant work has been undertaken by the City, in partnership with other members of the Taskforce. This report provides an update on some of the key initiatives implemented. The plans are provided as Attachments G and H.

Living Streams Concept Design

The 'Living Streams' concept is something that has been considered as a means of improving water quality in the Lower Vasse River for around a decade. It is a broad concept, but in simple terms would involve making physical changes to the River, including sediment removal and potentially creating water movement or circulation through artificial means.

Developing a Living Streams approach is one of the key recommendations from the LVRWMP as it provides an overarching pathway for implementing management actions related to water quality and ecology. The WMP recognised the need to assess community support for this approach as it develops.

BGA blooms in the river are a complex and long-standing issue, which called for an innovative and multi-pronged approach. The river's morphology and hydrology have been historically modified, with sections of the river deepened and straightened and significant flows diverted away from the river. The Living Stream designs are aimed at re-establishing natural processes within the constraints of drainage and urban development.

Using funds allocated by the State Government through the Revitalising Geographe Waterways 2 program, a concept design was completed by a firm called Alluvium in August 2021. The key objective for the work was to identify means by which the frequency, duration and intensity of summertime blue-green algal / cyanobacterial blooms could be reduced.

The design recommends the staged implementation of:

- Removal of sediment to take out accumulated nutrients and dormant cyanobacteria from the river bed;
- Recirculation of river water through one or two off-stream treatment wetland(s) to shade out cyanobacteria and filter nutrients; and
- Construction of in-stream vegetated structures to reduce water volume in the river and create wetland habitat.

Input was sought from the community and key stakeholders throughout the development of the concept design. More details on the extent of consultation undertaken is provided in the Community Consultation section of this report.

The *Living Streams Concept Design* documents (Alluvium, August 2021) are included as Attachments A and B to this report. Financial implications are outlined in the Financial implications section of this report.

The concept design was peer reviewed by the Australian Rivers Institute (ARI) (Griffith University). The purpose of the peer review was to look at the science around how to reduce the severity of algal blooms, the strengths and weaknesses of the concept design and then offer suggestions for improvement. The peer review was commissioned due to the innovative approach recommended by Alluvium, the high public profile of the project and the level of proposed investment associated with the design.

The ARI supported a staged intervention approach, but even further highlighted the need to fully implement and thoroughly assess each stage prior to progressing to the next stage. ARI reinforced the need to remove nutrient-rich sediments from as much of the river as possible. They emphasised the importance to reduce nutrient load from the catchment, in parallel with implementing in-situ initiatives. They recommended the City investigates the use of flocculants like Phoslock to increase the inactivation of phosphorus in the water column and sediments, after dredging operations.

They also expressed some level of concern that the proposed treatment wetlands may not sufficiently reduce cyanobacteria through shading to have a material effect on BGA blooms in the river. They raised the issue of the ongoing operational costs of pumping water to the treatment wetlands and that the proposed in-stream structures may impede flushing flows and cause BGA hotspots.

Alluvium was then offered the opportunity to respond to the peer review (which is standard practice for peer reviews). Alluvium supported the comment that as much sediments as possible to be removed from the river, and valued the additional technical information provided by the ARI on how BGA blooms form. They queried that the ARI didn't take into account the physical filtration of water flowing through the treatment wetlands for Stage 2. They acknowledged some of the uncertainties associated with the stated performance of the treatment wetlands, mainly due to the lack of in-situ data to support the design and that additional planning work would be required to finalise the design. They reiterated that sediment removal alone is unlikely to address the BGA issue and that the nutrient source needs to be treated. They expressed concerns with the long-term efficiency of using Phoslock with the potential for phosphorus to be remobilised still unknown. They recommended a fine scale hydraulic model is used when designing the in-stream structures to avoid impeding flows.

The Peer Review undertaken by ARI and Alluvium's response are included as Attachments C, D and E to this report. The response from Alluvium also includes comments from Professor Barry Hart.

As a result of the advice provided by Alluvium and the Australian Rivers Institute, the City has been focusing as a priority on sediment removal in the river. Outcomes of sediment removal will be reviewed and evaluated prior to progressing to any further aspect outlined in the Living Streams design. Importantly, at this stage the City has not decided whether any future stages of the Living Streams concept design will be implemented.

Due to the complexities of water quality issues in the river, an adaptive management approach is required. The Living Streams Concept Design prepared by Alluvium has provided significant direction and context towards developing a strategy for reducing BGA blooms in the river. The Peer Review and response from Alluvium contribute additional highly qualified professional opinions on the matter and add value to the discussion.

Sediment removal

Sediment removal has long been viewed by many stakeholders as an essential part of future management of the river. It was highlighted as a key management action during community consultation undertaken as part of the preparation of the LVRWMP. As a stand-alone method, it is not anticipated to prevent algal blooms, because nutrient concentrations in surface and groundwater inputs are sufficient for excessive algal growth.

High levels of nutrients are however released from the sediments when there is low dissolved oxygen or when they are disturbed, significantly contributing to the algae problems.

The LVR Management Advisory Group selected sediment removal as the highest priority for implementation when managing the LVR. They were instrumental in prioritising and staging the removal of sediments, which is now underway.

City staff sought environmental and cultural heritage approvals for a 2.5km section of the river from the Butter Factory Museum to the Busselton Bypass, in recognition that somewhat better water quality outcomes may be achieved if a significant portion of the river was dredged. However due to the large volumes of sediments, a staged approach is necessary to minimise environmental impacts and due to logistical constraints.

Locations for the initial stages of sediment removal were selected based on a number of reasons, including severity of the algal bloom, level of public access and information available at the time. Availability of suitable land for the dewatering process was also considered. The LVRMAG assisted the City in selecting priority areas for sediment removal.

The technical advice consistently received indicates that water flow along the bottom of the River very rarely reaches speeds that would move large amounts of sediment downriver in the lower reach of the river. Modelling undertaken by DWER, as part of the *Reconnecting Rivers Study* (2019), confirmed that the percentage of time that sediment are likely to be mobilised was less than 2%. Staging of the dredging process can, therefore, be undertaken on a priority basis as opposed to in a linear fashion, starting upstream.

Dredging in natural waterways can have detrimental impacts to the natural environment and needs to be managed carefully. Some of the risks include the release of heavy metals and high nutrients from the sediments, the smothering of aquatic fauna and fish kills. The LVR has high ecological values, providing habitat to the endangered Carter's Freshwater Mussel and flowing into the internationally protected Vasse-Wonnerup Wetlands. It is also listed as an Aboriginal Heritage Site. Approvals were granted under the *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999, Biodiversity Conservation Act 2016* and *Aboriginal Heritage Act 1972* (now *Aboriginal Cultural Heritage Act 2021*) with stringent conditions associated with water quality monitoring, survey and relocation of Carter's Freshwater Mussels and treatment of Acid Sulfate Soils.

Stage 1 of sediment removal was completed in June 2022, with 630 tonnes dry solid (TDS) removed from the river between the Causeway Road Bridge and upstream from the pedestrian bridge. Sediments were left to dewater for up to 6 months, after which they were transported to the Rendezvous Road Waste Transfer Station (Busselton) to be treated for Acid Sulfate Soils by incorporating lime. Once the sediments were confirmed to be neutralised, they were transported to the Vidler Road Waste Facility (Dunsborough) for reuse. Due to some metals and hydrocarbons being slightly elevated, above the Uncontaminated Fill thresholds under the *Environmental Protection Regulations 1987* and the revised *Landfill Waste Classification and Waste Definitions 1996 (amended 2019),* the only reuse option available was as daily landfill cover.

An amendment to the Vidler Road Waste Facility licence under the *Environmental Protection Act* is currently being sought to trial the reuse of the dewatered sediments as soil amendment as part of the rehabilitation of the unlined waste cell in Dunsborough. Should the trial demonstrate the ability to lower heavy metals and hydrocarbons to a safe level, this may broaden the range of reuse options for future sediment removal stages.

Stage 1 was one of the first times nutrient-rich sediments were attempted to be removed from a natural waterway at a broader scale and with the intent of improving water quality in Western Australia.

The project attracted a lot of interest from the community, scientific community, regulators and other waterway managers. It is therefore important to have processes in place to measure performance and capture lessons learnt.

There are several ways of measuring success and they all contribute to the assessment of the project. The amount of sediments removed from the river can be measured either by comparing the volumes of sediments in-situ before and after dredging, or by measuring the quantity of sediments pumped and transported off site.
Dredging surveys were undertaken in September 2021 and June 2022. The existing riverbed surface was mapped using a hydrographic sonar mounted on a kayak. The sediment depth (or "bottom of riverbed“) was inferred from hand probing to limit of penetration at selected cross sections, with position and depth measured by RTK survey. Sediment volumes were calculated by developing cross sections showing the 'silt' and 'river bed' surface, and multiplying the area by the length.

There are significant limitations with measuring sediments in-situ. The fine and flocculent nature of sediments and the need to extrapolate volume data due to limited number of survey points reduces the accuracy of the survey. Sediments in-situ are highly compacted following years of accumulation so the final volume once dredged is likely to be higher than what is measured in situ. Core sampling was also undertaken, which confirmed the difficulty in relying on measuring sediments in-situ.

Recognising the high level of uncertainty highlighted above, it is estimated stage 1 removed between 33% and 42% (or an average of 37.5%) of sediments in the 180m section of river between upstream of the pedestrian bridge and the Causeway Road Bridge.

While there has been significant interest by some members of the community to determine how much sediments are remaining in the river, the intent was never to remove all sediments due to the significant challenges associated with dredging in a natural waterway. Overhanging branches and the shape of the river reduced the area accessible to the dredge, while the presence of small plant debris in the sediment slurry reduced the pumping rate. The large volume of sediments removed will prevent a significant amount of nutrients from being released.

Another way to measure sediments removed from the river is by measuring the volume of slurry pumped and the percentage solids (bone dry) of that slurry. Apex Envirocare used a solids analyser during the works and recorded 630 Dry Solids (TDS) of sediments removed. This is measured continuously and updated during pumping.

Approximately 1,545m³ of dewatered sediments were transported from Rotary Park, with an average water content of 70%. In-situ sediments have an average water content of 85.5%, with the dredge pumping a sediment slurry made of river water and nutrient-rich sediments. The project did not cause any significant environmental impacts despite some of the high risks associated with the works, and the stringent approval conditions the project had to operate under were complied with.

Ultimately the key measurement will be whether the removal of sediments leads to improvements in water quality. The City, in partnership with DWER has developed an ongoing water quality monitoring program to measure impacts from the removal of sediments.

It will take at least a couple of years before meaningful conclusions can be made due to the lag time associated with water quality improvements. Total nutrient removed from the river will also be calculated by measuring the amount of nutrients and carbon stored in the geotextile bags.

Stage 2 of sediment removal started in mid-April 2023, upstream from the Causeway Road Bridge. The same dredging and dewatering technique are being used. Following a review of Stage 1, Apex Envirocare has made minor amendments to their dredge equipment to reduce the amount of blockages due to small wood debris in the river.

The City was successful in securing State Government funding under the State NRM Community Stewardship program for Stage 3 of sediment removal upstream from the Strelly Street Bridge. A Request for Tender (RFT) will be advertised to secure a dredging contractor. Proponents will be invited to submit conforming and non-conforming tenders, subject to demonstrating how the alternative dredging technique would have equivalent or lower environmental impacts. Stage 3 will provide additional constraints due to the amount of vegetation on the river banks, the morphology of the river and the need to relocate Carter's Freshwater Mussels.

Negotiations are currently underway with a couple of adjacent private landowners to secure a dewatering area through a leasing agreement, should the technique selected require it.

The outcomes of Stage 1 are still being reviewed. It has confirmed that a significant amount of sediments has been removed, although not all can be removed from the river. It is too early to tell whether this will lead to water quality improvements. The first stage indicated that removing sediments from the river, while it can be done, is a complex and expensive process.

It will be important to continuously review the benefits of sediment removal and how it compares with other waterway enhancement techniques. It is recommended an assessment of the impacts of sediment removal on blue-green algae blooms in the river is undertaken in 2025/26 as a longer stretch of river would have been dredged and data from three years of water quality monitoring will be available. A decision can then be made whether to complete stages 4, 5 and 6.

The technique used, of a mini-dredge with dewatering of the sediments using geotextile bags, has proven successful with limited environmental impacts and significant amount of sediments removed. Going forward, Officers will continue reviewing all dredging and dewatering technologies available in the market and their suitability depending on the conditions of the various sections of river to be dredged. The same technique used for Stages 1 and 2 may also not be possible or appropriate for future stages. Further, all stakeholders need to recognise that sediment removal alone is not expected to see a significant improvement in water quality – and it is in fact not entirely clear at the present time that it will result in any improvement in water quality at all.

Large scale application of Phosphorus binding clay

Phoslock is a commercially available clay which binds excess phosphorus in the water column, making it unavailable to fuel algal growth and enables it to settle to the river bed. It is used extensively in Australia and worldwide to improve water quality. The application of Phoslock was trialled in the LVR in the early 2000's. DWER also trialled the application of a newly developed phosphorous-binding hydrotalcite-clay (HT-clay) in 2016/17 and 2017/18.

Both trials demonstrated that the clays were effective at improving water quality, with the HT-clay able to reduce algal blooms even after the bloom was established. The main drawback is the need to reapply on an ongoing basis to maintain the water quality benefits. It is understood, however, that over time smaller applications may be required.

Some questions remain with regards to how often the product would need to be applied and the best methods to apply it. DWER secured $100,000 in funding from RGW towards implementing a large scale application of Phoslock (more cost effective for the time being given that the HT clay is not commercially available) to a section of the river.

The Living Streams Concept Design developed by Alluvium highlighted the complimentary role that Phoslock could play in fast-tracking water quality improvements in the river. This was echoed by the peer review undertaken by the ARI, especially after dredging.

It is proposed Phoslock is applied to a section of river already dredged, adjacent to the Causeway Road Bridge. More accurate information will be captured from the application, especially application costs and long term effects on water quality.

Approach/process for assessing water quality improvement trials

Due to the extent of water quality and algal bloom issues worldwide, there are a wide range of commercial products and technologies available offering water quality improvement solutions. Officers are regularly approached by private companies to either trial or purchase various products or equipment.

Due to the ecological values of both the LVR and Toby Inlet and the regulatory protection they are afforded, Officers are not able to implement technologies or products that have not been rigorously tested. As experienced with the sediment removal project, securing environmental approvals for work undertaken in the river can be lengthy and resource intensive.

It is also important to put in place rigorous scientific monitoring to assess the success or otherwise of the product/technology used. This can have significant costs, financially but more importantly in terms of staff time. Officers recognise technological advancement and the need to stay abreast of new technologies. It is recommended to develop a framework with set criteria to assess when and how to implement water quality improvements trials. Some of the issues the framework would need to address include

- Will it address the problem? (e.g. reduce severity and duration of algal blooms?)
- Will it work in the LVR (need to consider the characteristics of the river)
- Is it feasible? How much will it cost? Will it be approved?
- Is it practical - site limitations?
- Will it impact on ecological/indigenous/social values?
- Is there scientific evidence?
- Has it been considered before? If so, is there new evidence?

Decisions as to whether to trial water quality improvements technologies or products should be data driven. The City needs to seek relevant and unbiased scientific advice first before progressing with procurement processes. The DWER Aquatic Science branch has been providing such advice to the City. The City could however seek further advice from other independent alternative qualified and experienced technical or scientific specialists – although where that is considered appropriate, it would require allocation of funding or other resources to allow that to occur.

There has been significant community interest in aeration and/or oxygenation as a means to reducing BGA blooms. Oxygenation was previously trialled in the river with no visible reduction in cyanobacteria. The river is currently well oxygenated, even at night and throughout the water profile due to photosynthesis from the blue green algae. The river is also too shallow for light inhibition of phytoplankton, and water temperature is high throughout the water column, with minimal temperature gradient. Due to these conditions, aeration or oxygenation is not currently considered suitable for the river.

However following completion of sediment removal and deepening of the water body, it may be worth reviewing this advice as conditions in the river may change. In essence, though, whilst the urge to 'do something' is understandable, that kind of approach has been tried in the past, and it is considered that it is an instinct and approach that the City and other stakeholders need to move away from. Instead, a more deliberate and focused approach is needed.

Light Industrial Area (LIA) Infill Sewer

Groundwater input through leachate from septic systems has been identified as a significant contributor to BGA in the river. The updated modelling from the draft Water Quality Improvement Plan (DWER, 2023) shows that septics are responsible for 11.4% of nitrogen and 27.9% of phosphorus discharging into the river.

A significant portion of the Busselton Light Industrial Area (LIA) is currently not connected to sewerage infrastructure, with 150 septic tanks discharging leachate to the groundwater adjacent to the river.

As previously discussed, all sources of nutrients need to be addressed to achieve notable improvement in water quality. The City, in partnership with DWER has been monitoring groundwater in the vicinity of the LIA with a view to quantify nutrient and pollutant exports from Busselton Light industrial area (LIA) to the Lower Vasse River and inform a case for deep sewerage.

Two additional groundwater monitoring bores were constructed to collect additional data. Development of infill sewerage infrastructure in the LIA has a high potential cost and requires clear evidence to be progressed.

The WA Water Corporation is responsible for managing wastewater in WA, with the State Government funding extensions to the sewer network.

In 2019, the Toby Inlet infill sewage program saw 126 properties connected to deep sewer in the Quindalup area between Toby Inlet and Geographe Bay. It is expected to reduce approximately 1860 kilograms of nitrogen and 372 kilograms of phosphorus per year flowing into Toby Inlet. It is difficult to measure exactly how much the works have actually reduced nutrient loads due to the multiple sources of nutrients entering Toby. DWER measures phytoplankton levels in Toby every summer and will be able to look at trends over time.

It is recommended the City continues to advocate that the State prioritise the connection of the Busselton LIA to deep sewer.

Health matters

Phytoplankton, including cyanobacteria are currently sampled on a fortnightly basis by DWER. The information is provided to DoH and the City. Based on advice from DoH and subject to monitoring results undertaken by DWER, the City implement a number of risk mitigation measures. Permanent and temporary health warning signage is erected in multiple locations alongside the river. Advice through social media and local newspapers is also promoted to the community at the start and during summer.

The advice warns members of the public not to come in contact or consume river water and includes preventing animal access to the river. The health warning can be intensified as required, should the severity of the algal bloom increase.

There has been increasing community concerns with a link between cyanobacteria and neurodegenerative diseases. The City relies on advice provided by DoH as it does not have the expertise to provide advice on health matters. Following discussions, including at LVRMAG meetings, the DoH prepared an information sheet (see Attachment F) summarising potential human health impacts of blue-green algae in the LVR (*Lower Vasse River, Busselton – Blue-green algae and human health, DoH 2021).*

Community and stakeholder engagement

Recognising the high public profile and level of community interest in the LVR, the LVRWMP recommended the creation of a Management Advisory Group to develop and maintain partnerships and a collaborative approach between key stakeholders and the community when managing the river.

As a result, in March 2020 Council resolved to form a Management Advisory Group (C2003/086). The LVRMAG was created in June 2020. The MAG is not a formal Committee of Council as defined in section 5.8 of the Local Government Act and does not have delegated (decision-making) authority.

The objectives of the MAG as per the Terms of Reference were to:

- identify practical and implementable actions to sustainably improve the health and amenity of the River;
- identify means of funding those actions;
- assist the City with implementation of the Lower Vasse River Waterway Management Plan;
- facilitate information exchange on waterway management, restoration and enhancement;
- promote and encourage collaboration between stakeholders; and
- have input into the approach and priorities for, and reviewing the outcomes of, trials, research and monitoring.

The membership is comprised of:

- three (3) Elected Members;
- two (2) City staff;
- a representative from each of the following agencies: DWER, DBCA, GeoCatch, Water Corporation and DoH;
- a representative from Undalup Association and a representative from SW Boojarah Working Party; and
- four (4) community representatives, which were appointed by the CEO following a public Expression of Interest process.

The first six-months of meetings were spent sharing knowledge and upskilling the MAG members as water quality issues in the river are complex and long-standing. Over 2 ½ years the group met 21 times. The MAG was instrumental in providing guidance when prioritising and staging the sediment removal project. It also drew attention to the need to refine the phytoplankton monitoring and reporting process, in partnership with DWER and DoH. This led to DoH preparing an information note on cyanobacteria and health impacts in the LVR. It also invigorated the monitoring of groundwater and stormwater entering the river with a view to developing strategies to reduce nutrient inputs.

Overall, the group made good progress in getting stakeholders together and working in collaboration.

At a LVRMAG meeting held in October 2022, a workshop was facilitated to assist in reviewing the success of the LVRMAG. The group reviewed the Terms of Reference and Ground Rules and brainstormed how to improve the collaboration between the group and how to expand engagement with the broader community.

Some of the items discussed included:

- The need for confidentiality and respect amongst members;
- The role of the LVRMAG as an advisory group, and not as a technical working group or a Committee of Council and to what level the advice provided by the group had been taken into account by the City;
- How the City's procurement processes operate;
- The need to review the Terms of Reference and Ground Rules; and
- How communication to the broader community could be improved.

The group also discussed key priorities for management. The group confirmed that sediment removal should remain the priority for management going forward, followed by enhancing ecological values through revegetation and weed control and public health management. There was a discussion on how the proposed Living Streams Design may be implemented.

As part of this report, officers are recommending that the LVRMAG does not continue in its current form and an alternative community engagement model is developed – for both the LVR and Toby Inlet. As per the Terms of Reference a decision of Council is required to make that change. Substantial resources have been allocated to the LVRMAG. However it is felt that this effort didn't lead to the broader community becoming better engaged with waterway issues, rather a handful of community members having access to a lot of information and support.

Particularly in more recent times, it is considered that meetings have often been challenging, and overly focused on technical matters – noting that the LVRMAG is not a technical advisory group. Resolution of many technical questions is, in fact, something that needs occur progressively, through the input of many different technical and scientific specialists, and not through a single group or forum.

The City has a good framework for managing the Lower Vasse River with the LVR Waterway Management Plan, which was developed with significant community and stakeholders input. With assistance from the LVRMAG, the priorities and direction have more or less been set for the next 2-3 years. It is felt that the City should now focus its resources on achieving those priorities.

The City however needs to continue engaging and consulting with the broader community on waterway management. The proposed alternative model, which is considered more suited to the current context and will be less resource intensive than the current MAG is to, amongst other things, hold a bi-annual Update and Planning session, which would be open to all community members.

That would provide an opportunity for a broader range of people to find out about what has been done to improve water quality in the river and have input into setting priorities for the coming period. It is recognised that Councillors also need to remain engaged in this process and it is proposed quarterly Council briefings are held. The information presented to Council could also be used to publish a written update to the community.

If the Council is supportive of a model as described above, it is proposed that a broader community and stakeholder engagement strategy would be developed, in consultation with Councillors and stakeholders, and in relation to both the LVR and Toby Inlet. It is considered that the engagement strategy would be developed, implemented and reviewed on an ongoing basis. It should be acknowledged, however, that the complex, difficult and long-term nature of the issues makes the engagement task very challenging, and it is not reasonable to always expect high-levels of community understanding of the issues, or consensus around what should be done to address the issues.

It is recognised that community members invested a significant amount of personal time attending LVRMAG meetings and contributing to discussions and the decision to move to a different model may be concerning for some stakeholders. It is, however, considered that the current model is unsustainable – and it should be noted that at this stage a similar group has not been formed for Toby Inlet, despite being a recommendation of the Toby Inlet waterway Management Plan. It is, however, recommended LVRMAG members are thanked by the Council for their contributions.

Toby Inlet

Toby Inlet used to suffer severe macro algae blooms and very poor water quality. Following the completion of the *Reconnecting Toby* study (DWER, 2019), the City has been actively managing the artificial opening of the sand bar to improve water exchange with the ocean. This has led to significant improvements in water quality in the lower part of the inlet (3.6km) but unfortunately does not do much for the upper section of Toby, closer to Caves Road.

Development in the catchment, hydrological changes, high nutrient inputs and a history of severe macroalgal blooms have led to an accumulation of both sandy sediments and fine, black, sulfidic sediments known as monosulfidic black ooze (MBOs).This has led to the community growing increasingly concerned by deteriorating amenity associated with the loss of open water vistas and unpleasant odours during low water levels. Sediment deposition also interferes with water flow, fish movement and recreational use. The inlet is influenced by the tide and low tides will expose existing sediment deposits even more. Reduced rainfall associated with climate change is also impacting on water flows.

Managing sedimentation was identified as a high priority management issue during the preparation of the Toby Inlet Waterway Management Plan (2019). As a result, the City commissioned a study into the extent of sedimentation in Toby Inlet and how it could be managed.

The *Sediment Study* (Ottelia, 2020) concluded that the restoration of habitat values in Toby Inlet is unlikely to be achieved without the removal of accumulated black sediment. It recommended the staged removal of sediments in priority areas, from Wilson Avenue to the footbridge, equivalent to approximately 60,300m^{3}of sediments or an average of 80cm deep. The study specifies that different dredging techniques will be required, some of which will require scientific trials.

The City applied for external funding to trial mechanically stirring sediments in the lower section of Toby during high flows in winter to disperse the sediments into the ocean, which was one of the key recommendations from the study. The application was unfortunately not successful. Future sources of funding are being investigated but this work has significant costs and would require detailed planning and investigations prior to implementation as it may cause disturbance to the environment.

Complaints are regularly received in summer regarding the increasing amenity impacts sedimentation is having on residents adjacent to Toby Inlet. Since becoming the interim asset manager, the City has intensified its management of the inlet with positive outcomes. Unfortunately without significant additional funding and resources, the City is currently not able to prioritise large scale sediment removal in Toby Inlet. It is also not certain what technique could actually be used to remove sediment from Toby Inlet.

The Toby Inlet Catchment Group has also been one of the most active Friends of Reserve groups in the district, undertaking rehabilitation and revegetation of foreshore reserves near Toby Inlet. It is envisaged that the City will continue to provide support to the volunteers via the City's Environmental Volunteer Management and Engagement Strategy (2017).

Other waterway management initiatives

River Flow Management

The Vasse Diversion Drain was built in 1927 to reduce the risk of flooding to Busselton and diverts around 90% of the upper Vasse and 60% of the Sabina Rivers directly to Geographe Bay. In response to community interest, the Reconnecting Rivers model was developed by DWER to look at options for redirecting flows back into the Lower Vasse River and Vasse Estuary to improve water quality. The model identified a number of options to reduce flow into the Lower Vasse River and Vasse estuary without increasing flood risk, however the model also demonstrated that increasing flows also increases nutrient loads. Informed by this study, the Water Corporation has doubled the size of the culvert between the Vasse Diversion Drain and Lower Vasse River to increase winter flows in their 2021 upgrade of the Vasse Diversion Drain.

The revised culverts have been operated by the Water Corporation based on the *Draft Operating Guidelines for the VDD culvert* (2021). The draft Guidelines were developed based on weekly water quality sampling undertaken by DWER over a two-year period (2019-2021) at the outlet of the Vasse Diversion Drain culvert.

To optimise water quality benefits, both culverts are open in spring, summer and autumn and one culvert is closed in winter (1st July to 1st September). The water quality monitoring identified higher nutrient loads discharging to the river in winter due to increased runoff from the catchment and by reducing flow this also reduces nutrients entering the river and Vasse-Wonnerup wetlands, which contribute to algal blooms. Both culverts are closed when water levels reach a certain height in the Vasse estuary and the Wonnerup sandbar is closed. This is to reduce flooding risks. At the end of 2024 the draft guidelines will be reviewed and updated based on a larger water quality and flow data set.

Stormwater Management

Stormwater is a significant source of nutrients, especially after summer rains when there is already an algal bloom and the Vasse Diversion Drain is not flowing. The City is responsible for managing urban stormwater and this is an area the City can have influence over. Over the last decade, the City has retrofitted many stormwater systems with Water Sensitive Urban Design to reduce the amount of nutrients being discharged to waterways.

Using funds from RGW2, a more detailed assessment of stormwater quality discharging into the LVR sub-catchment was undertaken. The information was used to assist in the prioritisation of WSUD upgrades at outlets throughout the Lower Vasse sub-catchment. Elevated levels of nutrients (in particular phosphorus) were detected in several stormwater outlets. Heavy metals were present from all sampled sites discharging from the LIA with several samples exceeding default guideline values for Aluminium, Copper, Iron, Nickel, lead and Zinc.

Using a triple bottom line assessment framework, six sites were identified as a priority for upgrades. Using Federal Government funding from the South West Catchment Council (SWCC), detailed design for upgrading the stormwater systems on Southern Drive and near the old Tourist Bureau are currently being developed.

Mexican waterlily Management

Mexican Waterlily (*Nymphaea mexicana*) has grown invasively in the Lower Vasse River since the 2013-14 summer. The extensive cover of waterlilies in the river has negative impacts on oxygen levels and waterbird habitat; however they appear to have a beneficial effect on water quality, inhibiting the development of algal blooms.

As a result, and as recommended in the LVRWMP, the City has been implementing an ongoing control program since 2018 to maintain some areas of lilies and prevent further spread, while maintaining water quality benefits. This has resulted in a significant reduction in lily coverage in the river, requiring low resourcing to continue managing the lilies on an ongoing basis.

Mechanical removal is not recommended due to potential impacts on Carter's Freshwater Mussel and because it promotes regrowth due to the need to remove all parts of the plant (especially the extensive underwater structures).

Riparian Vegetation Management

In the early 2000's significant resources were allocated as part of the LVR Cleanup Program led by Geocatch and with support from the City to revegetate foreshore reserves between the pedestrian bridge and Strelly Street Bridge. More recently additional revegetation has been completed, including as part of the City's 'Bridge to Bridge' project and with involvement from the Undalup Association.

This has led to significant improvements, in terms of providing habitat to wildlife and amenity values. Foreshore vegetation also plays a role in improving water quality by reducing water temperature with shading and filtering nutrients before run-off discharges to the river.

There has been recent interest from local residents to form a Friends of Reserve Group, which would assist the City in managing the river foreshore as per the City's Environmental Volunteer Management and Engagement Strategy (2017). Support from Geocatch is also available to assist private landowners in revegetating strips of land adjacent to the river. The River Resort and Butter Factory Museum have expressed an interest in increasing native vegetation near the river.

Statutory Environment

The officer recommendation supports the general function of a local government under the *Local Government Act 1995* to provide for the good government of persons in its district.

Relevant Plans and Policies

The Environmental Policy endorsed by Council in 2018 outlines Council's commitment towards continuous improvement in environmental management practices and the long-term protection of environmental values within the District.

The Environment Strategy endorsed by Council in 2016 provides direction on how the City will meet the environmental aspirations of the community as set out in the Strategic Community Plan and guides the City's future activities in environmental management and sustainability. The Environment Strategy included the following action for Water Resources "Continue to work with all partners of the Taskforce to develop strategic and integrated approaches to management of water quality in the wetlands and waterways of Geographe Catchment".

The Lower Vasse River and Toby Inlet Waterway Management Plan (WMPs) endorsed by Council in 2019 guide future management strategies and actions for the Lower Vasse River and Toby Inlet.

Financial Implications

Revenue

The following allocations are currently listed in the Long Term Financial Plan (LTFP) in the Waterway Restoration Reserve (1073):

Financial year	2021/2022	2022/23	2023/24	2024/25	2025/26
LTFP	$290,000	$550,455	$578,646	$608,136	$637,438

$152,000 of consultancy funding is allocated in the 2022/23 and proposed 2023/24 Sustainability budget, with up to $101,000 dedicated to waterway management.

Officers have been actively pursuing external funding, with the following being granted since 2019:

- $210,000 from Revitalising Geographe Waterways for the completion of the Living Streams Concept Design, Toby Inlet Sedimentation Study and Lower Vasse River Stormwater Prioritisation;
- $40,000 from Healthy Estuaries WA as additional funding towards completion of the Living Streams Concept Design;
- $350,000 from Revitalising Geographe Waterway 2 towards the completion of Stage 1 Lower Vasse River Sediment Removal; and
- $407,964 from the State NRM Office as part of the Community Stewardship funding program towards Stage 3 of sediment removal.

DWER has allocated $100,000 towards a large scale application of Phoslock in the Lower Vasse River in summer 2023/24. The City is also in discussion with DWER to incorporate waterway enhancement initiatives associated with the Lower Vasse River and Toby Inlet in the next round of RGW investment, which will cover 2025-2030.

The City wrote to the Hon. Jackie Jarvis in June 2022 requesting guidance on seeking additional government funding towards waterway management. It is envisaged that the City will continue to proactively identify and pursue additional sources of external funding.

Expenditure

The City has already committed around $1.2M to sediment removal in Stages 1 and 2. The City has also allocated several hundred thousands of dollars' worth of in-kind contributions to planning, consultation and other supporting activities directly associated with the River and Toby over recent years.

Based on costs of stage 1 Sediment removal (assuming a similar dredging technique is used) and taking into account some of the specific requirements of each stage, it is estimated the following expenditures will be incurred to complete sediment removal between the pedestrian bridge and the Busselton Bypass. Costs below are high level estimates only, do not account for inflation and would need to be refined and reviewed following further planning.

Estimated costs of LVR sediment removal								
	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	Total
Stage 1	$623,974	$300,065						$924,039
Stage 2		$560,837	$205,000					$765,837
Stage 3			$613,900	$230,800				$844,700
Stage 4				$811,438	$296,071			$1,107,510
Stage 5					$1,185,185	$394,355		$1,579,540
Stage 6						$1,093,793	$361,960	$1,455,753
Total	$623,974	$860,903	$818,900	$1,042,238	$1,481,257	$1,488,148	$361,960	$6,677,381

As part of the Living Streams Concept Design, Alluvium estimated the following expenditures to complete each stage of the design.

Estimated costs of each stage of Living Streams Concept Design	
Intervention	Nominal cost
Wetland – LIA (treats lower reach)	$3,480,000
Wetland – Molloy Street (treats upper reach)	$6,350,000
In stream: 2 x cross stream structures (water treated ~ 600m³)	$260,000
In stream: 3 x benches structures (water treated ~ 1000m³)	$410,000
Wetland enhancement – Rotary Park	$640,000

Not all stages of the Living Streams Concept Design may be required to achieve the level of water quality improvement required. The construction of the treatment wetland to treat the lower reach of the river at $3,480,000 is the first priority if progressing with the implementation of the concept design.

Should the large scale application of Phoslock scheduled for summer 2023/24 prove successful, it would cost approximately $630,000 to treat the whole river to the Busselton Bypass. It may not be necessary to treat the whole reach, and costs would be proportionate to the area treated. These costs are ongoing, likely to be every year and re-application may be required during the summer. Subsequent maintenance applications require lower doses of Phoslock and would cost approximately $160,000 for the whole reach. These costs are high level estimates until Officers get a better understanding of actual costs through the proposed large scale application next summer. Costs will also vary depending on the levels of nutrients in the sediments.

The City spends approximately $6,000 every year to open the Toby Inlet sand bar at the beginning of summer. The sandbar sometimes has to be re-opened if it closes due to natural processes. It is also sometimes opened in winter to prevent flooding. A telemetered datalogger was installed in 2018 to monitor water levels and inform the opening of the sand bar. The datalogger is maintained, with software hosting fees at a cost of $1,760 per annum.

This financial year, the City has spent approximately $10,000 in on-ground staff time and purchase of material towards revegetation and support to volunteers in the LVR and Toby Inlet.

A significant portion of a 0.8 FTE (Senior Sustainability/Environment Officer) is allocated towards coordinating and delivering the City's approach towards waterway management. The Director of Planning and Development, and to a lesser extent the Director of Engineering and Works also dedicate significant towards providing strategic direction and representing the City when liaising with stakeholders as part of the Vasse Ministerial Taskforce and associated activities. Administrative support is also provided by the PDS Executive Support Officer amounting to several hours per month. In total, it is estimated the City allocates up to $150,000 per annum of in-kind funding in terms of staff time towards managing the LVC and Toby Inlet.

It should be noted that only the cost of identified river restoration measures have been highlighted above. Other costs may be incurred should additional measures be progressed.

The City's current financial commitment to waterways management and the Lower Vasse River in particular is unprecedented in the history of the City of Busselton, and is probably unprecedented for any local government in Western Australia. It reflects the community and Council's strong ties to local waterways and strong aspirations to improving water quality. The City is however unlikely to be able to complete the Lower Vasse River Restoration without significant additional financial support from the State and potential additional allocations to the City's Long Term Financial Plan, especially post 2025/26.

Stakeholder Consultation

The WMP were developed following significant consultation with the community, stakeholders and Traditional Owners. A collaborative approach was used to work towards future management of the Lower Vasse River and Toby Inlet that aligns with community priorities, is well-understood and accepted, and has significant commitment to implementation by stakeholders.

The community and stakeholders were also comprehensively consulted during the preparation of the Living Streams Concept Design, with the establishment of a Technical Advisory Group, online survey, community information sessions (2), Your Say public forum, FAQs and public advertising of draft concept design. The LVRMAG was also consulted during the drafting of the concept design. It is however noted that due to the Living Streams project commencing before the LVRMAG was established, input from the LVRMAG was provided once the project's scope was already established. As a result of feedback from the MAG and the broader community, the study area was extended from the old boat ramp, upstream from the City's administration building to the Busselton Bypass.

The LVRMAG was established in March 2020 to develop and maintain partnerships and a collaborative approach between key stakeholders and the community when managing the river. Further information is provided on the LVRMAG and its operation under the Officer Comment section of this report. This report recommends ending the LVRMAG in its current form and adopting an alternative community engagement model.

Waterway management is a topical issue in the community and the City will need to continue engaging and consulting with the community on these issues.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. The following risks have been identified:

Concerns associated with moving to a new community and stakeholder engagement model.			
Risk Category	**Risk Consequence**	**Likelihood of Consequence**	**Risk Level**
Reputation	Minor	Likely	Medium

By not prioritising the removal of sediments in Toby Inlet, the City risks to alienate some adjacent residents that suffer from poor smells and amenity during low water levels in summer.			
Risk Category	**Risk Consequence**	**Likelihood of Consequence**	**Risk Level**
Reputation	Minor	Likely	Medium

Those two reputational risks can be mitigated by implementing an alternative community engagement model as recommended by Officers and allocated additional resources towards communication on water quality and waterway health, in partnerships with other stakeholders.

Options

As an alternative to the proposed recommendation the Council could:

1. Cease being the interim asset manager for the Lower Vasse River and Toby Inlet and revert back to the State to manage those waterways.

Since the City agreed to become the interim asset manager for the LVR and Toby, significant progress has been made in progressing solutions for improving water quality. Should the City ceased being the interim manager, this momentum risks being lost and we would revert to the situation described as part of the Independent Review undertaken by Professor B. Hart in 2014.

2. Not support the continuation of sediment removal in the Lower Vasse River.

Sediment removal has been identified by the LVRMAG as the priority for management of the river. It is also highly supported by the broader community and Traditional Owners. The Living Streams Concept Design and Peer Review reiterated how important it is to remove sediments from the river to reduce the amount of nutrients discharged. Significant work has been completed to secure environmental and cultural heritage approvals, allowing the dredging to proceed in stages. It is proposed a formal assessment of the impacts of sediment removal is undertaken in 2025/26 once three years of water quality and at least three stages of sediment removal are completed.

3. Not support the proposed large scale Phoslock application in summer 2023/24 in the Lower Vasse River.

Phoslock has been identified in the Living Streams Concept Design and Peer Review as a complementary measure to fast track water quality improvements in the river. DWER has secured funding to apply Phoslock to a section of the river, which will allow the City, in partnership with DWER to improve our understanding of the role Phoslock can play in improving water quality in the river.

4. Prioritise the removal of built up sediments in Toby Inlet.

Should Council wish to prioritise the removal of sediments to improve amenity and water quality in Toby Inlet, additional resources will need to be allocated to allow for the planning and management of the works, in addition to undertaking the work itself.

5. Continue the LVRMAG and look at ways to improve the functioning of the group.

While moving to a new stakeholder and community engagement model may be of concern to some stakeholders, continuing with the current model is not considered an appropriate use of finite resources, nor likely to achieve the best community engagement outcomes.

CONCLUSION

This reports provides an update on key initiatives implemented by the City as interim asset manager for the Lower Vasse River and Toby Inlet. The work undertaken is in accordance with the Waterway Management Plans, which were developed with significant community and stakeholders input.

Achieving water quality improvement will require a significant effort in reducing nutrients in the broader catchment combined with targeted and innovative work within the waterways themselves. It will require the continuation of strong partnerships between the City and all partners represented in the Taskforce. The City will need to continue working closely with the community, noting some of the complexities and the fact that significant improvement to water quality is not expected in the nearer term.

The City has taken on a leadership role in managing the LVR and Toby Inlet, reflective of the community strongly valuing these local waterways. The City can be pleased of the progress achieved to date. While key priorities have now been set in the short to medium term, time and substantial resources, from the City but also from the State, will be needed to fully progress their implementation using an adaptive management process.

Noting that the Officer Recommendation is quite long and complex, as part of this conclusion, set out below is each of the 15 proposed points, followed by a brief description of the rationale for each -

1. Notes that the City's role is undertaken within the broader context of the Revitalising Geographe Waterways programme, overseen by the Vasse Ministerial Taskforce;

This is simply recognizing the broader context – and recognizing that both the RGW programme and the Taskforce are critical to that broader context.

2. Notes progress with implementing the Lower Vasse River and Toby Inlet Waterway Management Plans (2019);

This is recognizing the existence of these important plans, and the progress achieved in implementing the plans.

3. Reiterates the City's commitment to being interim asset manager for the Lower Vasse River and Toby Inlet, whilst also reiterating that the City's continued commitment is contingent upon continuing technical and financial support from the State Government;

The Council could choose not to continue as asset manager – and it is considered that making a continued commitment is something that the Council itself should consider and decide. It is considered that the Council should make that commitment, as it is an important part of the partnership approach required for management of water quality issues across the whole of the Geographe Bay catchment. It is also considered that the Council should also indicate that its commitment is, however, contingent upon continued State support.

4. Sets out that the City's continued commitment to being interim asset manager for the Lower Vasse River and Toby Inlet is also contingent upon the State's continued commitment to boader waterway and water quality management in Geographe Bay and the Geographe Bay catchment;

The rationale for this point is essentially the same as point 3 above.

5. Notes findings and recommendations from the –

a. Living Streams Concept Design (Alluvium, August 2021);

b. Living Streams Concept peer review (Hamilton et al., June 2022); and

c. Living Streams Design for the Lower Vasse River – Peer Review (Alluvium, October 2022);

These documents are all considered important to future decision-making and collectively constitute a considerable body of work – and it is therefore considered that the Council should formally note the documents and the work involved.

6. Supports the continued staged removal of nutrient-rich sediments between the Busselton Bypass and the Busselton Butter Factory Museum as the City's short-term priority focus for management of the Lower Vasse River, subject to procurement, funding and regulatory approvals;

Whilst acknowledging the limitations and uncertainties around sediment removal and its potential effectiveness, many in the community have been calling for work of this kind for many years, and there is a reasonable body of scientific and technical opinion in support of the work. External funding has also been secured for proposed Stage 3. Given that, subject to point 7 below, it is considered that sediment removal should continue to be a short term priority.

7. Notes that the success of sediment removal for reducing blue-green algal blooms in the Lower Vasse River will be continuously reviewed and its effectiveness at improving water quality assessed before committing to further stages of sediment removal beyond the Stage 3 sediment removal project, which is planned to be undertaken in the section of the River upstream from Strelly Street Bridge, commencing in Autumn 2024;

This is obviously linked closely to point 6 above – recognizing the need for an adaptive management approach, and a need to review outcomes of management outcomes before committing fully to further steps.

8. Supports a large scale application of the Phosphorus binding clay Phoslock (or equivalent) in partnership with the Department of Water and Environmental Regulation (DWER) in a section of the Lower Vasse River in Summer 2023/24 in order to scope out practical requirements, costs and effects on water quality;

This is an initiative that DWER is looking to implement, and would allow for management approaches of this kind, which could prove very effective, to be more fully tested and understood – and could therefore play a significant role in developing longer term strategy.

9. Also notes that any further work on other stages of the Living Streams Concept Design, other than further stages of sediment removal, will not be prioritised or progressed until the actions set out in points 6 and 8 above have been undertaken and assessed;

This is in recognition of three key things. Firstly, the issues outlined in the peer review. Secondly, the need to consider lessons from sediment removal and use of phosphorus binding clay before committing to further work on the Living Streams concepts. Thirdly, the fact that the City does not have the resources or capacity to prioritise further work at this stage.

10. Requests the CEO to continue advocating with the State Government for prioritising infill sewer in the Busselton Light Industrial Area;

This has long been identified as desirable, and would have significant environmental and economic benefits – with the economic benefits being related to the greater capacity for redevelopment in the LIA if sewer was available (meaning that the LIA could provide a greater range of goods, services and employment to the local community over time).

11. Supports current management of Toby Inlet, with a focus on management of the sand bar and revegetation of adjacent foreshore reserves, in partnership with the Toby Inlet Catchment Group in the short term, and management of sedimentation issues, potentially including targeted removal of sediments in the medium to longer term;

This reflects the success of sand bar management, the important and positive played by the Catchment Group over a long period of time, as well as both the potential benefits of and challenges associated with sediment removal or management in Toby Inlet.

12. Notes the need for a considered approach and demonstrated process to considering water quality improvement trials in the Lower Vasse River and Toby Inlet, informed primarily by advice from the DWER Aquatic Science branch, or other appropriately qualified, experienced and independent technical or scientific specialists;

This recognizes the key role that needs to be played by DWER, and independent scientific and technical expertise more broadly, in developing and implementing strategy for the two waterways.

13. Endorses the proposed community and stakeholder engagement model for management of the Lower Vasse River and Toby Inlet, and the cessation of the Lower Vasse River Management Advisory Group as established by Council Resolution C2003/086, and requests that the CEO prepare a community and stakeholder strategy, consistent with the proposed model;

This recognizes the need for greater engagement with a broader range of stakeholders than is currently occurring – especially for Toby Inlet – whilst also recognizing that the strategy for both waterways for the short-term is essentially set, and so the kind of intensive engagement with the LVRMAG that has been occurring for the last few years is not currently necessary.

14. Thanks Lower Vasse River Management Advisory Group members for their contributions;

This recognizes the considerable time and energy that members – both community and agency members – have contributed over recent years, and the important role the Group has played in developing strategy for the next few years.

15. Thanks the State Government for its past and ongoing support for the Revitalising Geographe Waterways programme;

Similarly, this recognizes the considerable resources and effort the State has put into the Geographe bay catchment over recent years.

16. Expresses the City's continuing support for the Vasse Ministerial Taskforce as a means of overseeing and coordinating work to improve water quality and waterway health in the Geographe Bay catchment.

This recognizes that the State's support for the Taskforce – and in particular the fact that it is a Ministerial Taskforce – has been important to maintaining and developing the partnership approach needed to address water quality issues in the Geographe Bay catchment, and that maintaining the partnership approach into the future requires that level of State Government involvement and oversight.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

Once Council has made a decision, it will be communicated to stakeholders within 2 weeks.

City of Busselton
Geographe Bay

alluvium

DESIGN REPORT:

Living Streams concept design for the Lower Vasse River

August 2021

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JOSH BYRNE & ASSOCIATES

Josh Byrne and Associates deliver projects with an integrated approach to landscape architecture, environmental engineering and sustainability, community engagement and communications.

tranen revegetation systems

Tranen's primary focus is revegetating, rehabilitating, and restoring natural ecosystems around the southwest of Australia using native species.

WRM

Wetland Research and Management is a highly experienced environmental research and consultancy group that provides a wide range of specialist aquatic ecological services

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Abbreviations

Alluvium	Alluvium Consulting Australia Pty Ltd
AHD	Australian Height Datum
CoB	City of Busselton
DBCA	Department of Biodiversity, Conservation and Attractions
DWER	Department of Water and Environmental Regulation
EDD	Extended Detention Depth
LIA	Light Industrial Area
LVR	Lower Vasse River
LVRMAG	Lower Vasse River Management Advisory Group
LVRWMP	Lower Vasse River Waterway Management Plan
NWL	Normal Water Level
TEC	Threatened Ecological Communities

1 Introduction

Alluvium Consulting Australia Pty Ltd (Alluvium) and Josh Byrne and Associates have been engaged by the City of Busselton (CoB) to develop concept design for the restoration of the Lower Vasse River (LVR) using a Living Streams approach.

This report outlines a Living Streams concept design that will enhance the ecological values, and improve public amenity, of the Lower Vasse River. This report summarises existing conditions and issues as they pertain to management of algae blooms in the project area, and outlines a staged concept design for the restoration of the Lower Vasse River.

1.1 Project background

The LVR is a 5.6 km reach of the Vasse River which flows from the Vasse Diversion Drain to the Butter Factor Museum. The Vasse Diversion Drain significantly modifies the hydrological regime of the reach; diverting approximately 90% of catchment flows directly to Geographe Bay.

The LVR flows through the centre of Busselton, and is socially and culturally important to the community of Busselton and the whole Geographe catchment. However, it is one of the most heavily nutrient-enriched waterways in the state. The LVR experiences severe blue-green algal blooms caused by toxic cyanobacteria that last for several months each summer, presenting a risk to public health and reducing amenity.

In the last two decades ongoing management activities have been undertaken to address poor water quality in the Lower Vasse River. Management approaches have included:

- river restoration (i.e. bank reprofiling and revegetation);
- installation of stormwater treatments;
- agricultural nutrient management; and
- small scale case studies for water quality improvement (e.g. application of flocculating clays, recirculation, and establishing aquatic plants)

However, water quality in the LVR remains poor, and severe blue-green algal blooms continue to occur for several months each summer.

In 2019 the LVR Waterway Management Plan (LVRWMP), developed through the Revitalising Geographe Waterways program, was released in response to community concerns regarding poor water quality. The LVRWMP was developed to guide future management strategies and actions that will work towards the vision for the Lower Vasse River:

> *"The Lower Vasse River is an icon of Busselton, valued and enjoyed by the community, as a healthy waterway linking people and nature".*

Importantly, the LVRWMP recommended further development of a Living Stream approach to future management of the LVR.

The Living Streams concept design has been driven by the LVRWMP. Strategically, the foundations of a 'clear and shared vision' have been established for the Living Streams design and provide strategic influence to this study.

1.2 Living Stream approach

This report describes a Living Streams concept design that will improve the ecological and social values of the Lower Vasse River. The concept will achieve multiple objectives, but is primarily concerned with reducing the duration, frequency, and severity of Cyanobacterial blooms.

The project aims to create a stable and sustainable ecosystem, where primary productivity is dominated by vascular plants, by restoring or enhancing ecological processes and biodiversity, and reconnecting the river with surrounding wetland habitat. Creating a stable ecosystem will achieve the concept's objectives while minimising ongoing operational expense associated with current efforts to control Cyanobacterial blooms to the maximum extent possible.

The concept design includes several interventions that address Cyanobacterial blooms, as well as other objectives, via several complimentary mechanisms (Figure 1). There are many causes of Cyanobacterial blooms, and it can be difficult to determine which one is the most important in any given situation. Therefore, adopting a multi-pronged approach to controlling cyanobacteria offers the best chance of long-term success. The concept design can be implemented in a staged approach that allows the CoB to prioritise objectives and access different funding streams now and in the future.

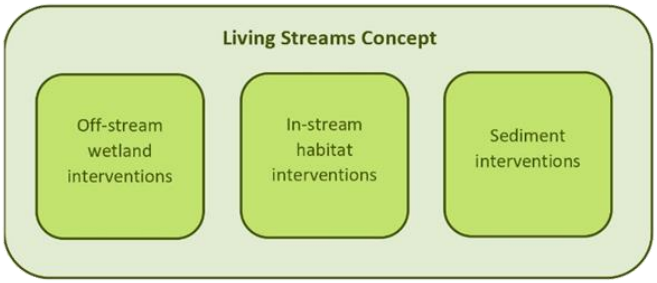

Figure 1 *Components of the Living Streams concept for the Lower Vasse River.*

The proposed interventions have been designed to sustainably reduce the frequency, severity and duration of cyanobacterial blooms over the medium term, but also allow complimentary interventions to mitigate acute problems over short time frames if required.

The concept aims to reduce Cyanobacterial blooms in a 3.3 km reach of the LVR between the Butter Factory weir and the Busselton bypass (Figure 2), beginning in the lower reach and working upstream. The lower reach is the most visible and accessible section of the river, and also experiences the most severe blooms.

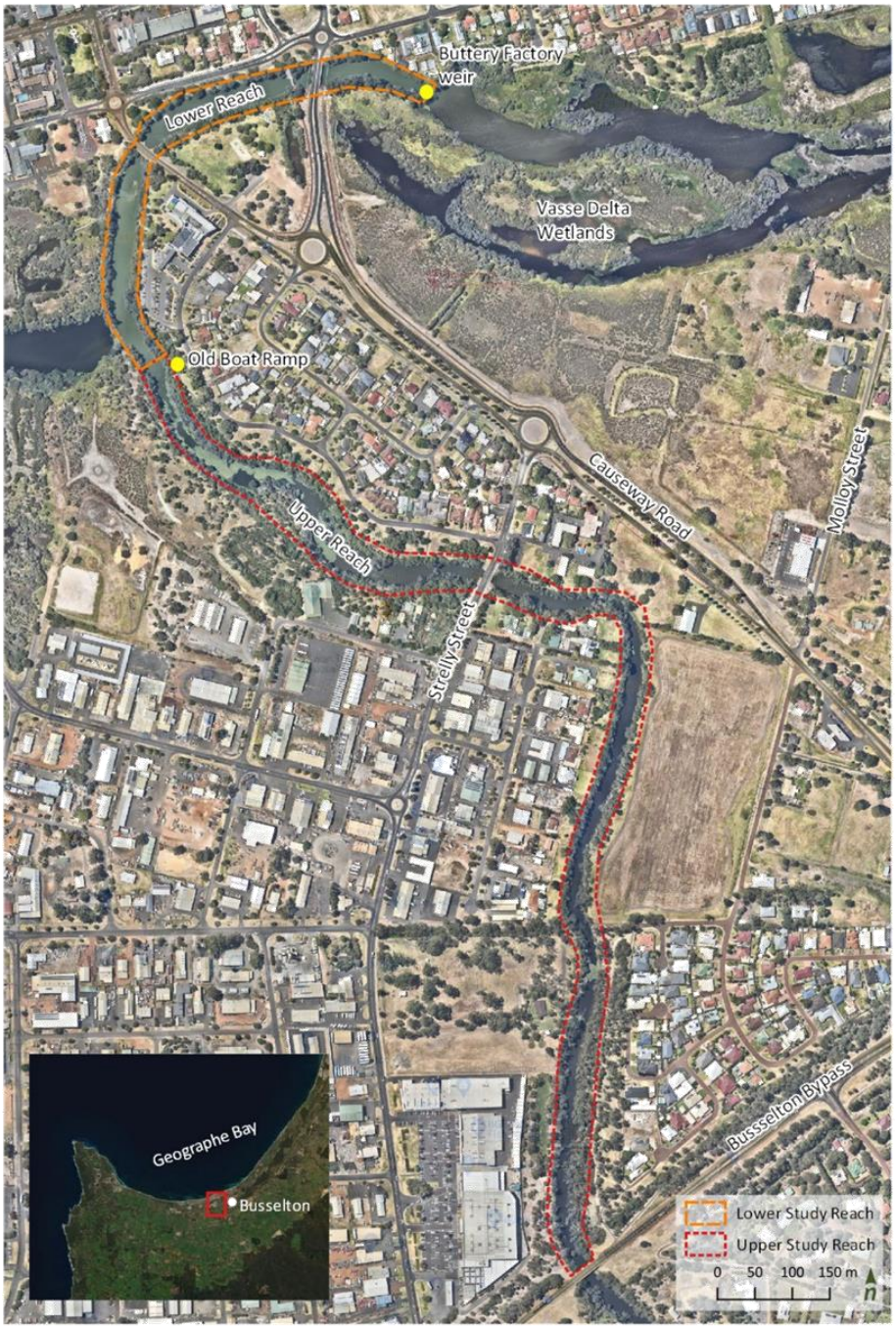

Figure 2. *Location map the Lower Vasse River Living Streams study area, showing the upper and lower study reaches, and key landmarks.*

1.3 Project aim

The project aim is to develop a concept design, with cost estimates, for the restoration of a section of LVR using a Living Streams Approach. The project area extends from the Butter Factory weir up to the Bussselton bypass (Figure 2). The design is to be gradually implemented over a decade.

The concept design has one key aim:

- Significantly reduce the extent, severity, frequency, or duration of cyanobacterial blooms in a high priority part of the reach in the short term and throughout the whole study reach in the medium term.

Objectives to meet the overall project aim have been derived through a review of the system opportunities and constraints and in consultation with stakeholders. This is further documented in Section 4.

1.4 Stakeholders

There are numerous stakeholders to this study which include:

- The City of Busselton (CoB)
- Lower Vasse River Management Advisory Group (LVRMAG)
- Traditional Owners
- Department of Water and Environmental Regulation (DWER)
- The Department of Biodiversity, Conservation and Attractions (DBCA)
- Water Corporation
- Community (includes residents, landowners, businesses, community groups etc.)

2 System understanding

2.1 Overview

The LVR is a seasonally flowing river that drains into an extensive wetland complex that includes the Ramsar-listed Vasse-Wonnerup Estuary to the east and the New River Wetlands to the west. When water levels drop in summer, it becomes disconnected from these wetlands.

Prior to widespread drainage in the Geographe catchment, this wetland complex which extends from Dunsborough to Capel would have received much greater inflows than at present. The drying climate has reduced flow as well, but to a lesser extent than drainage. The impact of drainage on the extent, inundation period and salinity of the wetland complex has been large but is not currently well understood. Water would have flowed into the wetlands during winter and spring, as is currently the case, however most of the annual flow of the LVR (90%) has now been diverted by the Vasse Diversion Drain to reduce flooding in Busselton. The seasonal inflow period of approximately June to November has remained relatively unchanged but prior to drainage, water would likely have been retained in the landscape for much longer, and outflow to Geographe Bay may have continued into late spring and early summer.

Clearing of native vegetation, high nutrient loads from the catchment, and still water during the long cease-to-flow period have led to the formation of regular toxic cyanobacterial blooms every summer that damage the river's social and ecological values.

The LVR is regionally significant from a hydrological and ecological perspective due to the presence of permanent fresh water in a landscape with highly seasonal rainfall. Together with the lower Sabina and Ludlow Rivers, it forms a summer refuge for freshwater fish (Beatty et al. 2014), which act as hosts for the threatened Carter's Freshwater Mussel.

It is likely that the LVR is connected to a regional groundwater system that supports the presence of permanent fresh water and contributes to winter baseflow. The LVR is incised into the Spearwood Dune and Vasse Estuarine formations, which directly overlie the Leederville formation. This contrasts with the seasonally dry upper reaches of the Vasse River that are separated from the regional groundwater by the alluvial Guildford formation. Hydraulic head in the Leederville aquifer near the coast has been decreasing in recent years due to reduced rainfall and/or increasing abstraction. This trend is likely to continue as the climate becomes hotter and drier.

Climate change is likely to reduce the annual discharge and the flow period of the Vasse River through changes in surface hydrology. Although the objectives of the regional drainage network are unlikely to change within the next ten years, the concept design described in this report acknowledges the possibility that the network may be managed to retain surface water in the landscape in a drier future.

2.2 Causes of blue-green algae blooms

Cyanobacteria, or blue-green algae, are highly adaptive single-celled organisms that increasingly dominate lakes and stagnant water bodies around the world. They can reproduce exponentially and form blooms when the cells accumulate to sufficient density.

To control cyanobacterial blooms in the LVR, we need to have a detailed understanding of the mechanisms that cause them. Although the factors influencing cyanobacterial growth are well understood, they operate at different scales and over different timeframes. Understanding the site-specific, bloom-forming mechanism that apply to the LVR helps us to predict the effect that a certain intervention option is likely to have on blooms. From the published literature (Raps et al. 1982, Robarts and Zohary 1987, Vezie et al. 2002, Robson and Hamilton 2003, Novak and Chambers 2014), literature provided in the brief (Paice et al. 2016, Tulipani 2019,), discussions with the project team, and analysis of routinely collected water quality data, we suggest that the severity and duration of cyanobacterial blooms are related to five casual factors:

1. initial cell count at the beginning of the growing season
2. nutrient concentration in the water
3. available light
4. water temperature
5. stagnation of the water body

Each of these factors may be limiting depending on the location within the reach and the time of year. Factors controlling the growth of cyanobacteria cells and the formation of blooms are summaried in Figure 3.

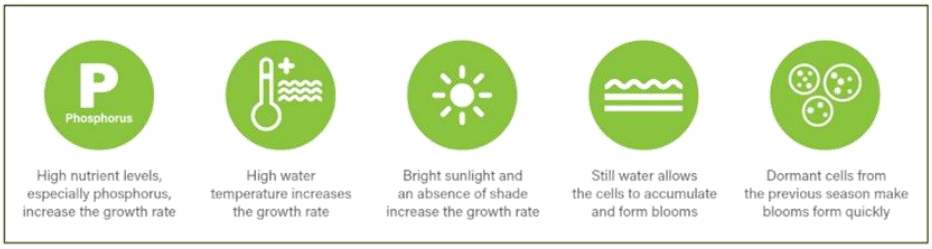

Figure 3 *Factors controlling the growth of cyanobacteria cells and the formation of blooms.*

Data gathered from the LVR suggest several pathways for blooms to form. The pathways are described below and illustrated in Figure 4.

- The nutrient concentration in the water is related to both external (catchment) and internal (sediment) loads. Both sources are probably sufficient to cause blooms on their own and both will need to be controlled to ensure long-term reductions in the severity, extent and duration of blooms. There may be further inputs of nutrient into the river from shallow groundwater. In particular, data presented by Paice et al. (2016) and supported by routine monitoring, suggest that Phosphorus levels in the waters of the LVR when it is flowing exceed the level at which algae dominate lakes (Novak and Chambers 2014) and that phosphorus levels increase further during the cease-to-flow period.
- The presence of ASS within the sediment of the LVR suggests that the bed is frequently anoxic, which can lead to remobilisation of phosphorus from sediment into the water column (Tulipani 2019). It is likely that anoxic conditions are maintained by inflow of groundwater with low levels of dissolved oxygen and internal biochemical cycles that consume oxygen.
- The cyanobacterial blooms often begin in the deepest part of the reach downstream of the causeway and expand upstream (Tulipani 2019).
- Given favourable light and temperature conditions and sufficient nutrient concentration, cyanobacteria will achieve a growth rate of around 0.35/day, meaning that residence time of water within a non-flowing waterbody of 20-30 days will result in a cyanobacterial bloom. We expect that blooms will begin to form in this system about a month after the river ceases to flow, usually in late spring (Robson and Hamilton 2003).

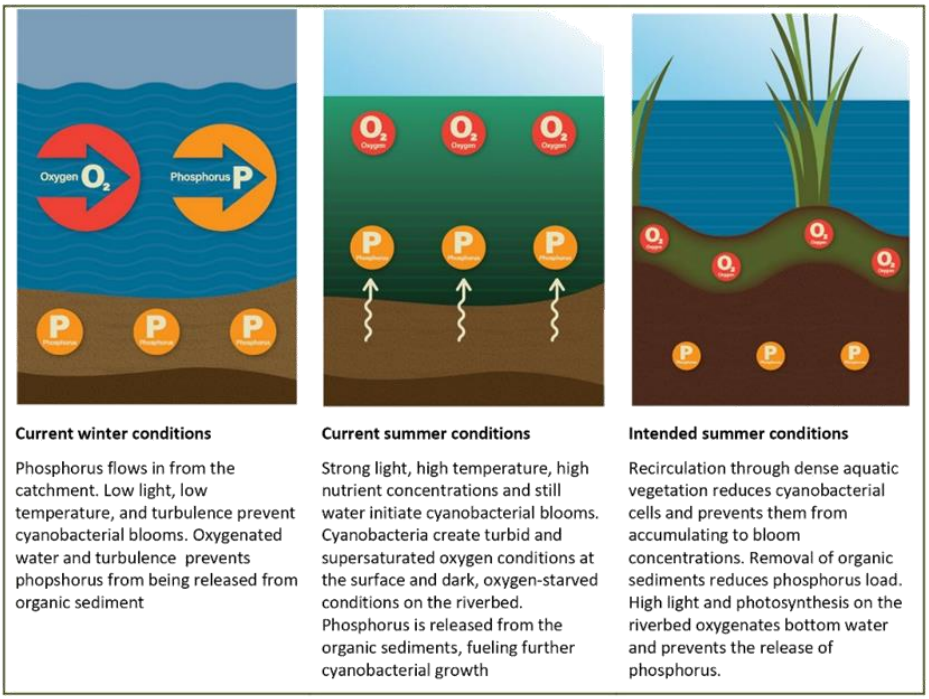

Figure 4 *Conditions leading to cyanobacterial blooms in the Lower Vasse River and intended conditions after implementation of the Living Streams design.*

Data from the LVR and studies elsewhere provide some evidence of more complex mechanisms that may be operating in the LVR:

- Phosphorus is considered to be the limiting nutrient, especially as cyanobacteria can fix nitrogen. However, high levels of nitrogen can increase the response of cyanobacteria to phosphorus, especially when both are present in high concentrations (Gobler et al. 2016).
- Photosynthetic capacity and growth of *Microcystis* are reduced at light levels below 240 µmol/m/s and 100 µmol/m/s under laboratory conditions (Raps et al. 1982). In field conditions, these light intensities would be experienced at noon beneath vegetation that intercepts around 88% and 95% of sunshine. This may explain their absence from the area infested with Mexican water lilies in the upstream part of the reach (Ottelia Ecology 2018).
- There is insufficient mixing between cooler, more saline, denser and deoxygenated groundwater and warmer, fresher oxygenated surface water in the deeper lower reach in winter/spring, creating a chemocline where cyanobacterial cells persist through the flow season. These cells are the progenitors of the new bloom each summer. The rapid onset of blooms in the LVR at the start of the growing season suggests that a substantial number of cells are more or less permanently present.

We suggest further monitoring and investigation to better understand the biogeochemical processes that lead to the formation of cyanobacterial blooms and the efficacy of potential interventions. This includes:

- Continuous physical-chemical monitoring of the water column downstream of the causeway bridge to detect potential thermal stratification and the onset of benthic anoxia. Parameters to be measured include temperature, dissolved oxygen, salinity, pH and chlorophyll. Monitoring upstream of the causeway bridge could also be beneficial.
- Isotopic identification of phosphorus and nitrogen sources throughout the growing season.

- Auto-sampling of water in the Vasse Diversion Drain to detect seasonal peak concentrations of phosphorus and nitrogen for an optimised operational strategy for the offtake structure to the LVR.

A summary of the five causes of cyanobacterial blooms and the concept's approach to preventing them is contained in Attachment 2.

2.3 Site inspection

Two site visits were conducted in September 2020, and a third site visit in March 2021, to allow the project team to gain a better understanding of the local terrain, site constraints and opportunities. The first site visit was attended by Alex Johnston (Tranen), the second by Richard McManus (Alluvium), and the third by Bill Moulden (Alluvium).

Consideration was given to the location, landscape form(s), local features and structures (constructed and natural) including creeks, rivers, irrigation channels, overland flow paths, existing sediment basins, significant trees and natural habitat features, and existing recreational links around the site. Some key findings from the site visit are provided in Figure 5.



Figure 5. *Photos of sites considered and referred to in the concept design.*

2.4 Existing services

The existing underground services are shown in Figure 6. An optic fibre line runs north south through middle of the study area.

Other key infrastructure includes:

- Stormwater basin at Rotary Park
- Stormwater basin at Bunbury Street (Light Industrial Area (LIA))

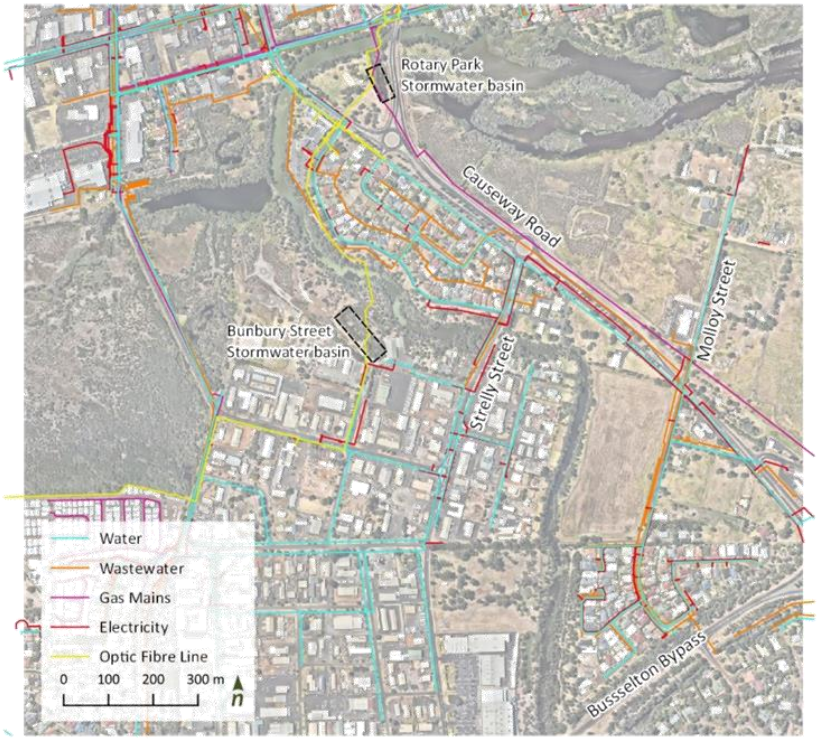

Figure 6. *Existing services and infrastructure within the study area.*

3 Community Engagement

The participation of the community in this project was deemed fundamental to ensure community participation in the design process and ultimately to ensure the long-term success of the project. The key objectives of the community engagement program were to:

- Create awareness of and interest in the project amongst the local community, foreshore users, interests groups, nearby schools and businesses, regulators and other interested stakeholders.
- Provide a range of opportunities and formats for the community and other stakeholders to engage in the project through the planning and decision-making phases.
- Ensure that stakeholders have the right information, promptly and in a format that is easily understood, to provide considered feedback and constructively contribute to collaborative actions and solutions.
- Create a process and environment whereby stakeholder groups can hear and understand the needs, aspirations and concerns of other stakeholders, and participate in an informed debate to identify win-win solutions that achieve maximum benefit for all parties.
- Acknowledges and celebrates the contributions of stakeholders to the concept plan design process.

A timeline of community engagement activities is provided in Table 1. Further etail of these community engagement activities is provided below. Further community engagement should be undertaken prior to proceeding to functional and detailed design.

Table 1. Timeline of community engagement activities.

Date	Summary
September 2020	Community survey carried out on the CoB's YourSay website
September 2020	Online community forum and Q&A, which resulted in 93 comments posted on the CoB's online consultation platform.
September 2020	Community engagement workshop
September and November 2020	Traditional Owners consultation - presentations to SW Boojarah Working Group
November 2020	Community update attended by 55 people
22 June 2021	On Country Traditional Owners consultation

3.1 Community survey

A community survey was carried out on the CoB's YourSay website during September 2020. The survey had 86 participants. The purpose of engaging the community through the YourSay website was for the CoB and its partners to:

- Provide a publicly accessible summary of our understanding of the problem, the project's objectives, and the potential interventions being considered.
- Understand community views for each of the project objectives.
- Understand community views for each of the potential interventions.
- Identify high priority areas within the study reach and surrounds.

We wanted to engage as broad a cross-section of the community as possible to understand preferences for the project's objectives and potential interventions. We also wanted to engage, in a more targeted way, people

who have strong attachment to the waterway and its future management. This is about incorporating as much detailed knowledge as possible and building an understanding of the constraints that may exist.

3.2 Community engagement workshop

A community engagement workshop was also carried out in September 2020. The purpose of the workshop was for the CoB and its partners to:

- Understand community views on potential wetland and in-stream works locations
- Identify other outcomes and interventions the community would like to see in the project

A summary memo for the Your Say survey, the community feedback form used during the workshop, and survey results are provided in Attachment A.

3.3 Community engagement outcomes

The outcomes from the community engagement activities were used to:

1. inform the preferred treatment intervention and location
2. inform secondary project objectives:
    - Place activation through the provision of interactive play
    - Indigenous and ecological interpretation and education
    - Connectivity through walking and cycling links
    - Enhance public open space with provision of public amenities and shade
    - Enhance habitat and nature interaction through planting/habitat elements viewing areas and boardwalks
3. Identify key issues / opportunities in each location

3.4 Aboriginal cultural heritage survey

Brad Goode and Associates undertook an Aboriginal Heritage Survey for the CoB's Captial Works program, which includes the Vasse River walking trail, in 2021. The Vasse River walking trail and the survey area incorporates the LIA site. Key outcomes from the report, relevant to the Living Stream concept, include:

- The New River is a registered DPLH site (Site ID 16807).
- Traditional Owners advised that the New River is a significant site created by the Waugal. It is part of a larger and culturally and spiritually significant interconnected system of wetlands. The wetland system was a major source of food in pre and post contact times.
- It was requested that the Local Nyungar community be offered employment and engagement opportunities in relation to the proposed works at the Vasse River Reserve.
- The walking trail should be located to the south of the LIA site as much as possible on previously disturbed ground.

4 Project objectives

4.1 Ecological principles

We have employed four overarching ecological principles to evaluate the proposed interventions. These ecological principles are summarised below:

- **Address the multiple causal factors of cyanobacterial blooms**
  We have identified five factors that promote the growth and accumulation of cyanobacterial cells to bloom concentrations. A great deal of work has been done to understand ecological processes in the LVR and all of the factors appear to be contributing to the blooms. However, it is not clear if any single factor is dominant. A design that addresses all the factors will therefore have the best chance of successfully controlling blooms. This principle directly addresses the main objective of reducing algal blooms, as well as the second objective of improving nutrient processing capacity.

- **Reconnect wetlands and river**
  This concept attempts to recreate the historical connection between a permanent water body and the surrounding seasonal wetlands within the constraints of the urban footprint of Busselton and the need to minimise flooding. This principle addresses the third objective of increasing and/or improving wetland habitat.

- **Create a diversity of habitat types**
  Prior to clearing and drainage of the Vasse River catchment, the LVR would have been connected to a large wetland complex with a diversity of hydrological and ecological habitats. Each habitat type served a unique role in supporting a healthy ecosystem. For example: wetland shrubs and trees would prevent algal dominance by shading the water column, extensive macrophyte beds would fix nutrients and provide fish spawning habitat, and permanent waterholes would provide habitat for fish that control mosquito larvae during summer. We have purposely designed a concept to recreate this complexity, with improved aquatic habitat and a range of seasonal wetland habitats to improve overall biodiversity and create a healthy, self-sustaining ecosystem.

- **Create a new stable ecosystem**
  The LVR behaves like a lake ecosystem for at least six months of the year. Currently, it is an algal-dominated system, where floating unicellular algae create supersaturated oxygen conditions in the upper levels of the water column and shade the riverbed, which starves benthic algae and submerged macrophytes of energy. This in turn leads to deoxygenation of the sediment and microbial release of nutrients into the water column, further fuelling algal growth. The Living Streams concept creates a new macrophyte-dominated ecosystem that replaces algae with emergent macrophytes and woody wetland plants as the dominant source of photosynthesis and primary productivity. As well as absorbing nutrients from the sediment, vascular plants oxygenate the sediment that they grow in, preventing the microbial mobilisation of nutrients into the water column. This principle addresses the long-term sustainability issues described in objectives four, five, and six.

4.2 Project objectives

The system understanding, community engagement outcomes, ecological principles and ongoing discussions with City of Busselton have been used to develop objectives to meet the overall project aim and enable a quantitative assessment of management options.

Project Aim:

- Visibly reduce the extent, severity, frequency, or duration of cyanobacterial blooms in a high priority part of the reach in the short term and throughout the whole study reach in the medium term.

Project Objectives:

1. Functionality
   - Reduce toxic algal blooms: visibly reduce the extent, severity, frequency, or duration of Cyanobacterial blooms in the study reach
   - Improve water quality: increase the capacity of the LVR to fix and store nutrients that are imported via inflowing water and/or decrease the amount of nutrients released from internal stores within the medium term
2. Environment
   - Create diversity of aquatic and wetland habitats
   - Improve ecological corridor: reconnection of waterways and wetlands (Ecological principle)
3. Constructability
   - Construction considerations (i.e. pipe network and pumping, access and working conditions, complexity of approvals)
4. Operation and maintenance
   - Maintenance requirements (i.e. ease of maintenance, reliability) and long-term sustainability

5 Management options

5.1 Central interventions

There are a multitude of potential interventions that can control cyanobacterial blooms. Many have already been employed in the LVR with varying degrees of success. We have assessed around a dozen possible interventions (Table 2) before selecting the four central interventions that form the core of the concept option development:

- Creating wetland habitat
- Shading the water column
- Recirculating water
- Removing sediment

Together, these interventions address the five causal factors of algal growth in the LVR. Wetland habitat, both off-stream and instream, absorbs nutrient from the water and sediment. It shades the water column, reducing the light and temperature environment that promotes algal growth. If the wetland vegetation is dense enough and the residence time of water within it is long enough (approximately 5 days), complete shading is possible, which can starve algal cells of energy and kill them. If the residence time in the open-water habitat of the LVR is reduced enough (approximately 20 days), the algal cells do not have enough time to reach bloom concentration. The concept presented in this report is intentionally conservative, adopting a long residence time in shade of 5 days and a short residence time in sun of 20 days in order to maximise the chances of success.

The wetland vegetation also reduces nutrient in the sediment and water through direct absorption and through absorption by microbial communities in the root zone. Establishing emergent wetland vegetation also oxygenates the sediment, which inhibits the release of nutrients into the water column. Removing unconsolidated and organic sediment from the bed of the river reduces an important source of nutrients in the system. It also creates better habitat for nutrient fixing organisms such as submerged macrophytes and freshwater mussels that can lodge more easily in the firmer underlying soil.

Every potential intervention has a mode of action, or mechanism by which it controls algal blooms, and each has strengths and weaknesses. Many complement each other and can be employed in a staged approach, while others must be employed together to be successful.

The complete list of interventions considered during the development of this concept is detailed in Table 2The interventions we have selected are highlighted in bold text and were chosen because together, they offered a multi-pronged approach to achieving the diverse objectives of the project in a reasonable timeframe. Importantly, most of the interventions are compatible with the ones described in this concept and can be employed in the future if desired. For example, there are large areas of existing wetland habitat within the project area that could be artificially reconnected to the river to achieve biodiversity and water quality objectives, however, the topography and hydraulics of these wetlands are uncertain, so reconnection would require a process of trial and error over many years. Traditional Owners and other stakeholders would also need to be engaged to resolve issues associated with cultural heritage and land tenure.

Table 2. Potential interventions that were considered during the development of this concept.

Intervention		How does it interfere with the cyanobacterial life cycle?	Does it support a new stable ecosystem?*	Design benefits	Design constraints
Remediate the catchment		Reduces nutrients	Yes	• Treats the source of the problem • Benefits the whole catchment	• Takes a long time to work • Requires a large number of partners
Shade the water column	**Riparian trees**	**Reduces temperature and light environment**	**No**	• **Visual and social amenity** • **Terrestrial biodiversity**	• **only slows BGA cell growth** • **doesn't remove nutrients**
	Wetland macrophytes and shrubs	**Strongly reduces light environment and temperature** **Reduces initial algal cell count**	**Yes, if connected to the river**	• **eliminates BGA cells** • **removes nutrients**	• **Visual amenity** • **Requires complimentary interventions to be fully effective**
Create wetland habitat	**In-stream**	**Reduces nutrients**	**Yes**	• **Removes nutrients** • **Creates habitat** • **Reduces the volume of water that needs to be treated**	• **Can increase nutrients by creating bird habitat**
	Off-stream	**Reduces nutrients** **Reduces residence time**	**Yes, if connected to the river**	• **Removes nutrients** • **Creates habitat**	• **Requires recirculation** • **Increases the evaporative surface**
Hydraulically isolate water bodies		N/A	no	• Can greatly reduce the volume of water that needs to be treated • Creates habitat	• Can reduce connectivity of aquatic habitat if not designed properly
Connect existing wetland habitat		Reduces nutrients	yes	• Hydrological remediation of high-value wetlands • Benefits terrestrial and aquatic biodiversity • Potentially a very large treatment area available • Inexpensive	• Many design uncertainties • Risk of eutrophication in high value wetlands
Remove sediment		**Reduces nutrients**	**Yes, in the long term**	• **Removes a large nutrient source** • **Improves aquatic habitat**	• **Increases the volume of water that needs to be treated**
Recirculate water		**Reduces residence time**	**Yes, if connected to wetlands**	• **Inexpensive**	• **Requires complimentary interventions to be fully effective**
Supplement with alternative water source		dilutes nutrients in the LVR Reduces initial algal cell count (in the LVR)	no	• Inexpensive • Visual amenity • Reduces initial agal cell count	• Doesn't fix nutrients or kill BGA cells • Potentially shifts the problem to Ramsar listed VWW
Flocculate nutrients		Reduces nutrients	no	• Proven to work • Removes nutrients from the water • Can potentially eliminate cells	• Could add to nutrient load in the sediment • Probably requires removal of sediment and remediation of the riverbed to be fully effective • Probably requires intensive control of exotic fish
Fertilise diatom community with silica		Reduces nutrients	Supports an alternative unicellular algal community.	• Can potentially shift algal community from toxic to non-toxic • Ease of application	• Presence of suitable diatom species is not known. • Long-term sustainability of the new algal community is uncertain • Nutrients from senescing diatoms may remain available
Plant submerged macrophytes		Reduces nutrients	yes	• Creates aquatic habitat • Visual amenity	• Large-scale establishment is complex • May require preliminary control of algae to be effective

*Refer to ecological principles in Section 4.1

5.2 Site selection

We identified six potential locations for constructed wetlands based on land tenure and proximity to the study reach (Figure 7). In, this section we have analysed each location against the primary project objective of reducing cyanobacterial blooms, and the secondary objectives of environmental outcomes and financial sustainability.

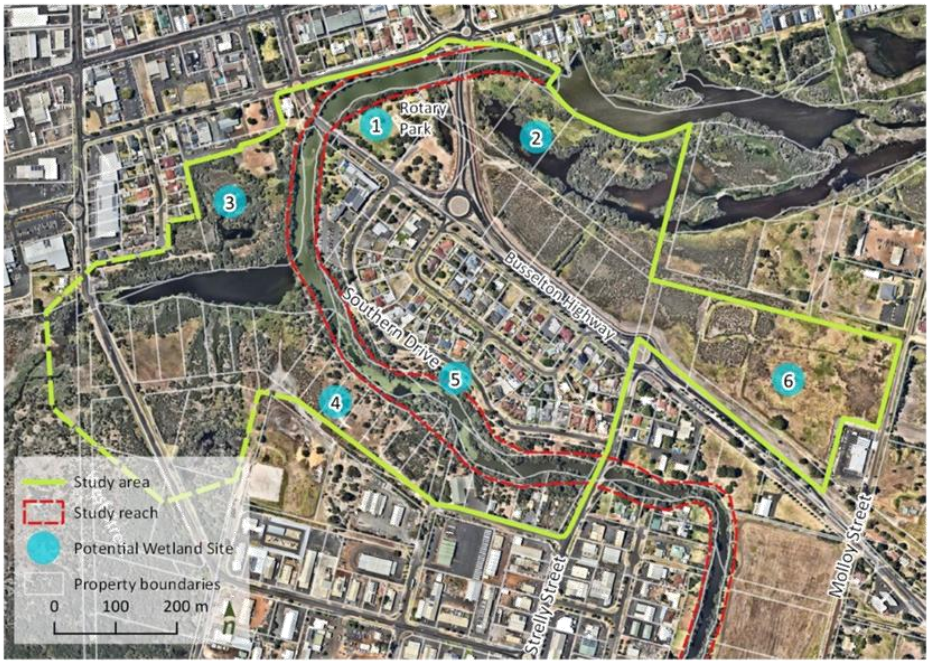

Figure 7. *Study area for the Living Stream design, Lower Vasse River: showing six potential wetland location identified based on land tenure and proximity to study reach.*

We have summarised the benefits and constraints of each wetland site in Table 3. Based on the site comparison the LIA site and the Molloy Site were identified as the preferred sites to progress to concept design. The LIA site was identified as a preferred site due to its proximity to the LVR, size, and potential for habitat and ecological corridor improvement. The Molloy site was identified as preferred site due its size, accessibility, and potential for visual amenity as an entrance statement to Busselton.

Table 3. Comparison between the relative benefits and constraints of LIA and Molloy Street constructed wetland sites.

Site	Current use	Benefits	Constraints	Neutral	Site suitability
1: Rotary Park	Recreation	• Could utilise existing stormwater detention area: create benches (fill areas) within stormwater detention area and revegetate • Site proximal to the study reach	• Limited space • Social values: current recreational use • Future use: war Memorial has progressed, likely opposition/complaints from residents		Constraints in terms using whole site. However, could utilise existing stormwater detention area.
2: East of the New Eastern Link Bridge	Crown reserve for railway purposes	• Site proximal to the study reach • Existing wetland system	• The site is already well vegetated. • Sensitive site adjacent to Ramsar-listed Vasse-Wonnerup Estuary • Constructability issues: engagement with ground water, low-lying and very wet in winter, and difficult to access		Not suitable
3. New River Wetland	Passive recreation	• Large area • Close to study reach • Existing wetland system	• Registered site •		Land tenure and potential cultural heritage constraints. However, still a potential site.
4: LIA wetland site	Passive recreation and revegetation activities	• Site proximal to the LVR, minimising capital and operational costs • Straightforward outfall system (i.e. weir structure) that minimises operational costs and improves reliability • Habitat and corridor improvement that better fulfills environmental objectives in the long term. • Option to use existing stormwater infrastructure to pulse system during winter. This will improve ecological health and visual amenity	• Existing revegetation site. Tree removal likely required. However, wetland will be planted out, therefore will be an overall net vegetation gain once established • Potential ecological constraints. Threatened Ecological communities are nearby and may constrain the site footprint. • Smaller site with more difficult access • Some loss of water through evapotranspiration	• Proximity to culturally sensitive areas. Could negatively affect construction timelines but could also drive further engagement with Traditional Owners and raise the profile of the project outside Busselton	Potential site: develop concept design
5: Southern Park Drive	Passive recreation	• Site proximal to the study reach • Minimal native vegetation • Good access	• Small narrow site • Large established vegetation • Existing amenity already good, the site is currently use by community • Proximity to residents: likely opposition/complaints from residents		Not suitable
6. Molloy Street wetland site	Nil	• Existing vegetation is generally degraded. Negligible tree removal required, which fulfills environmental objective sin the short term. • Visual amenity – entrance statement to Busselton • Larger site with easier access	• Distance from study reach: higher costs associated with outfall pumping over long distances and maintenance that increases operational costs and decreases reliability. • Pumped pulse flow may be required during winter, to maintain amenity • Potential ecological constraints (TECs) • Significant loss of water through evapotranspiration, and potentially seepage to groundwater		Potential site: develop concept design

A quantitative assessment of the two preferred sites was then carried out (Table 4). Both options have been given a score against the following criteria (informed by key project objectives and overarching ecological principles) to arrive at a preliminary preferred solution and to inform staging of the concept design:

1. Functionality
   - Reduce toxic algal blooms: visibly reduce the extent, severity, frequency, or duration of Cyanobacterial blooms in the study reach
   - Improve water quality: increase the capacity of the LVR to fix and store nutrients that are imported via inflowing water and/or decrease the amount of nutrients released from internal stores within the medium term
   - *Both sites perform equally well at improving water quality and reducing cyanobacterial blooms. We expect that losses to groundwater and evapotranspiration will be greater at the Molly St site and have rated it lower for this reason.*
2. Environment
   - Create diversity of aquatic and wetland habitats
   - Improve ecological corridor: reconnection of waterways and wetlands
   - *We have rated the LIA site higher for environmental criteria as a wetland at this site would enhance an existing habitat corridor and be more consistent with the surrounding habitat.*
3. Constructability
   - Construction considerations (i.e. pipe network and pumping, access and working conditions, complexity of approvals)
   - *We have rated the Molloy St site higher for constructability. Although it will require more pipework, site access is easier and the approvals process will be simpler.*
4. Operation and maintenance
   - Maintenance requirements (i.e. ease of maintenance, reliability) and long-term sustainability
   - *A wetland at the LIA site will be simpler to operate and maintain, requiring only one pump rather than two.*

The LIA site is preferred at this stage based on desktop assessment. It scores higher for functionality, enhancing biodiversity, and creating a sustainable long-term solution. It's physical proximity to the LVR and New River wetlands offers an opportunity to enhance existing habitat as well as create new habitat, and the need for only one pump rather than two improves the long-term financial sustainability of constructing at this site. The Molloy St site scores higher for constructability, being a larger site with fewer constraints, a simpler approvals process, and easier access.

Table 4. Wetland options assessment matrix.

All scores rated from 1 (Poor) to 5 (Very Good) **CRITERIA**	**Constructed wetland - LIA bushland**	**Constructed wetland - Molloy St**
	Score	Score
FUNCTIONALITY		
Reduce toxic algal blooms	5	5
Improve water quality in the LVR	5	5
Losses to evaporation, groundwater	4	2
Sub-total for Functionality	14	12
ENVIRONMENT		
Improve aquatic and wetland habitat	4	3
Improve ecological corridor/connectivity	4	2
Visual amenity	4	4
Sub-total for Environment	12	9
CONSTRUCTABILITY		
Pipe network and pumping	4	3
Access, working conditions	3	4
Complexity of approvals (TECs, cultural, land tenure)	3	4
Sub-total for Constructability	10	11
OPERATION & MAINTENANCE		
Energy requirement	4	3
Ease (Cost) of Maintenance	4	3
Reliability	4	3
Sub-total for Operation	12	9
Total Overall Score	48	41

5.3 Wetland sizing

The summer water volume in both the lower and upper reach of the study area was determined (using bathymetry (2015) and LiDAR data provided by CoB) in order to size the wetland treatment systems. The treatment water volume assumes an average summer water level of 0.12 m AHD (determined from 2009 – 2020 logger data downstream of the Butter Factory weir). The treatment volume accounts for dredging to a depth of 0.5 m, based on the average sediment depth in the LVR (Apex Envirocare).

The LIA wetland was sized to treat to lower reach and the Molloy site was size to treat the upper reach. The wetland size is based on a residence time of 5 days in the wetland (to maximise algal cell shedding due to shading by wetland vegetation), a residence time of 20 days in the Lower Vasse River (to prevent algal cells from accumulating to bloom conditions), and an average wetland depth of 0.4 m (assuming a constant pump rate). Design parameters of the wetland systems for the upper and lower reaches are shown in Table 5.

Table 5. Design parameters for the wetlands.

Site	River section treated	Reach volume	Average wetland depth	Normal water level (NWL) area	Pump rate
LIA	Lower reach (Butter factory weir to old boat ramp)	27,120 m^3	0.4 m	16,950 m^2	15.7 (L/s)
Molloy Street	Lower reach (old boat ramp to Busselton bypass)	25,770 m^3	0.4 m	16,105 m^2	14.9 (L/s)

6

7 Concept design

7.1 Staging

We have selected four interventions, in collaboration with the working group, to form the core of the Living Streams concept for the Lower Vasse River. The primary objective of the concept is to significantly reduce the extent, severity, frequency, or duration of cyanobacterial blooms, while also achieving significant benefits for biodiversity and sustainability. The interventions are listed as stages of a potential 3-10 year implementation process and illustrated in Table 6 and Figure 8. An overview of these interventions is provided below with a more detailed assessment provide in the following sections.

The Living Streams concept design drawings are provided in Attachment C.

Table 6. Program staging.

Stage 1	**Sediment Removal**
	Options that comprise dredging the Lower Vasse River. – Dredge lower reach – Dredge whole study reach
Stage 2	**Constructed Wetland**
	Stage 2A Light Industrial Area (LIA) bushland Site (treats lower reach) Stage 2B Molloy Street Site (treats upper reach)
Stage 3	**In-stream Structures**
	Options that comprise in-stream structures within Lower Vasse River. – Bench structures – Cross-stream structures
Stage 4	**Wetland Enhancement**
	Enhancement of the existing Rotary Park stormwater basin.

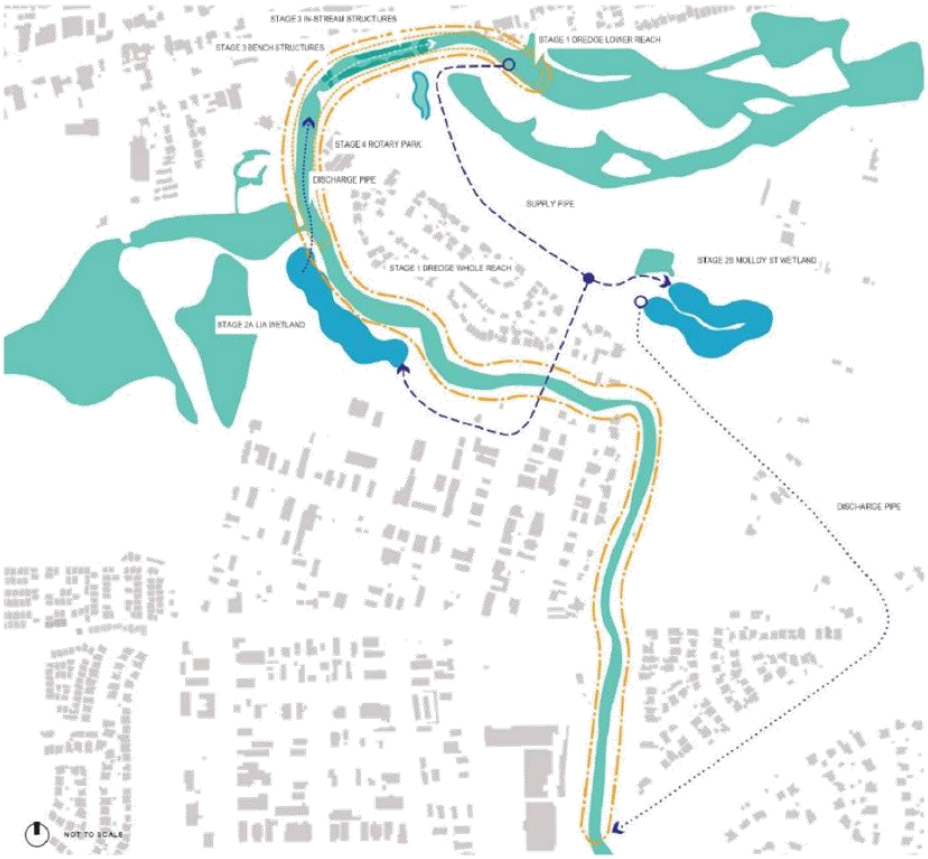

Figure 8. *Four stages of the Living Streams concept design.*

We expect that Stages 1 and 2 (sediment removal and wetland construction) will both be required if a significant reduction in algal blooms is to be achieved. Removing sediment will reduce a major source of nutrient driving the system, create better aquatic habitat for flora and fauna and reduce the incidence of algal blooms over the long term. However, the seasonal inflow of water during winter and spring likely delivers sufficient nutrient load to cause algal blooms even in the absence of nutrient released from sediment, although this may be minimised by better management of the inflow culvert. Shallow groundwater in the area has high nutrient levels (Total Phosphorus ranging from 0.11 to 4.01 mg/L within the study area) and it is likely that groundwater inflow provides a further input. Therefore, we expect the LVR to remain nutrient saturated for the foreseeable future, so we require a complementary intervention that can reduce cell count under these conditions. Off-stream wetlands that control cells by completely shading the water are the intervention that we have selected to fulfill this role.

In-stream structures could be implemented as Stage 3 of the design. They would reduce the residence time of water in the river, enhancing the efficacy of the off-stream wetlands, as well as providing habitat, shade and nutrient processing capacity to the river itself. Enhancement of existing wetland is another option that would reduce algal cells further if additional improvement in water quality is required in the future. There are several sites where this could be implemented, including the existing sediment basin in Rotary Park. This stage is more akin to an 'optional extra' and implementation would be reliant on support from a range of stakeholders. Consequently, we have described this stage in less detail than the others.

7.2 Sediment removal

Nutrient-rich sediments have built up on the bed of the LVR due to low flow, and deposition of algal blooms. These sediments smother aquatic habitat and form a sink in the system for nutrients which are released from the sediment each summer, fuelling the cycle of continued algal growth. Removing these sediments controls a key input of nutrients into the water and helps to reduce algal blooms over the long term.

The algal blooms appear to originate between the Causeway and Eastern Link bridges, so this area is a priority for sediment removal. Removing sediments throughout the study reach (from the Busselton Bypass to the Butter Factory weir) will have even greater benefits, however, this is associated with considerably high cost.

Sediment removal techniques, such as dredging, can have a negative impact on Carter's freshwater mussels. Due to their conservation status, mussels would need to be removed and relocated to a suitable aquatic environment for the duration of any dredging operations.

7.3 Constructed wetlands

The recirculation of river water through the constructed wetland habitat controls cyanobacteria via several mechanisms:

- Shading within the wetland that starves the cells of light and energy. This reduces the capacity of the cells to grow and divide when they re-enter the river, and if the shading is sufficient, can lead to senescence and sedimentation within the wetland.
- Filtering of cells along with other suspended solids by the wetland vegetation and by flow through subsurface sediments, especially at the unlined LIA site. This reduces the number of cells that flow back into the river.
- Reduction in temperature of water in the wetlands due to shading by dense vegetation reduce the growth rate of cyanobacteria in the wetlands.
- Reduction in nutrient concentration of water that flows back into the river, which reduces the growth rate of cells in the river.
- Reduction in residence time of water in the river, which reduces the opportunity for cell concentrations to reach bloom levels.

Implemented together, recirculating water through constructed wetlands addresses all five mechanisms of bloom formation: light, temperature, nutrients, residence time, and initial cell count.

The concept designs for the two different sites are presented within this section. Each option includes:

- The macrophyte treatment area NWL based on the volume of the relevant section of the study reach
- NWL identified by looking at the topography of the site, as well as the inclusion of 0.1 m extended detention depth (EDD) and 0.2 m freeboard
- An approximate overall footprint based on the selected NWL, battering up to existing surface at a 1-in-5 grade, and/or bunding around perimeter at a 1-in-5 grade
- Indicative inlet pipe, and outlet pipe locations.

Other factors that influenced the configuration of the wetlands included:

- The ability to outfall
- The requirement to meet a length to width ratio of at least 4:1 [MZ4 in the Constructed Wetlands Manual], therefore the associated maximum width, and how this fits with the surrounding terrain
- Minimising excavation requirements where possible

The configuration of these wetlands will be refined in later design stages, however these concept designs provide a conservative indication of land take and functionality.

LIA constructed wetland

The LIA wetland is created by excavating the inlet and outlet pools and using the cut material to bund the perimeter and create a shallow wetland basin. The wetland should be planted with a dense coverage of native sedges and shrubs that are adapted to periodic inundation. Vegetation should be dense enough to intercept at least 90-95% of photosynthetically active radiation to significantly impact the physiology and growth of cyanobacterial cells. This level of light interception has been achieved in annual rice crops (Kar and Kumar 2014, Gautam et al. 2019) and even greater levels have been measured in terrestrial forest ecosystems where soil moisture is non-limiting (Runyon et al. 1994). In practice, it may take several growing seasons to reach maximum light interception, with growing and senescent vegetation both shading the water surface. The existing vegetation is comprised of species typically suited to periodic inundation (e.g. *Melaleuca viminea, Eucalyptus rudis, Juncus pallidus*). These and other species should be planted in a mosaic to test the optimal structure and composition of vegetation. Where existing vegetation needs to be excavated to create optimal wetland geometry, excavated plants should be replanted elsewhere.

The wetland incorporates a recirculation system. In spring and summer, water will be pumped from the river at the Butter Factory weir and into the wetland. Treated water will then flow back into the river (opposite the old boat ramp) through a rock weir. The inlet and outlet pools are clay lined to create permanent water bodies and habitat for macroinvertebrate predators and to enable sediment to be dredged from the inlet pool following flocculation. The macrophyte zone is not clay lined, allowing seepage back into the river. Pumping into the wetland would begin in spring before the river stops flowing to enable the shallow groundwater to be recharged and minimise water losses during summer. Shallow bores that intercept the water table can be installed between the wetland and the river to measure the hydraulic gradient and estimate water flow between the wetland and the river.

An automatic dosing system for flocculating clay will be connected to the inlet pool to facilitate removal of dissolved and particulate phosphorous. The dosing system consists of a storage hopper, powder feeder and a mixing tank that creates a suspension of flocculating clay that is injected directly into the inlet pipe just before it discharges to the wetland's inlet pool. The inlet pool should be dosed at a rate of approximately 0.75g/L (Tulipani 2019, Robb et al. 2003). Application period would depend on nutrient concentration; however it would likely be for intermittent periods of approximately 20 days at the beginning of summer.

Additional benefits of the wetland are the removal of nutrients by vegetation and soil microorganisms and provision of habitat for birds, frogs, and other wetland species. The LIA constructed wetland concept schematic is shown in Figure 9.

The wetland has been positioned to minimise impacts on threatened ecological communities (TEC), to retain and enhance as much of the existing vegetation as possible, and to accommodate the existing stormwater basin and underground services (Figure 6).



Figure 9. *LIA constructed wetland concept. Showing treatment area, macrophyte zones, and proposed pipe network.*

The wetland normal water level (NWL) at the LIA site is 1.3 m AHD (approximately 0.25 - 0.3 m above the average existing ground level). The fall of the existing terrain (within the macrophyte zone) is utilised to convey flow from the inlet to the outlet pool. In addition, the NWL is set at a higher elevation than both the summer and winter average water levels in the LVR to allow treated water to flow from the wetland back into the river via gravity. Specifications for the LIA wetland are provided in Table 7. A representative cross-section of the LIA wetland is shown in Figure 10.

Table 7. LIA wetland specifications.

Specification	Unit	Value
Wetland NWL	m ADH	1.3
Wetland EDD	m	0.1
Wetland Freeboard	m	0.2
Wetland area at NWL	m^2	16,950
Approximate total footprint	m^2	20,620

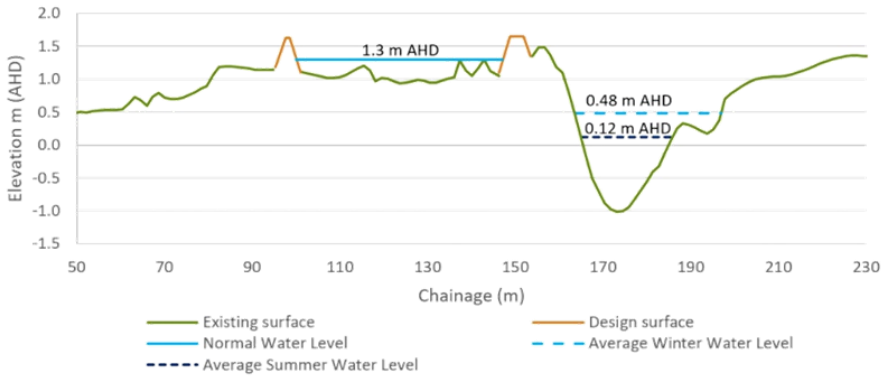

Figure 10. *A representative cross-section of the LIA constructed wetland. Showing the wetland perched above the Lower Vasse River to the east and the New River Wetlands to the west.*

Wetland habitat provides good spawning habitat for the native fish that act as hosts for mussel larvae. If possible, the outlet should be designed as a natural riffle/run sequence that allows fish to access the wetland during spawning season.

The outlet of the wetland will be a source of flowing water during summer and therefore is likely to attract fish. If the outlet cannot be designed to allow access, fish are likely to congregate and be vulnerable to predation, so vegetation will need to be established around the outlet to provide cover.

Molloy Street constructed wetland

The Molloy wetland is created by excavating to create a shallow basin and bunding of part of the perimeter (i.e. lower lying ground at the western extent of the site). The wetland incorporates a pump-in/pump-out recirculation system. In spring and summer, water will be pumped from the river at the Butter Factory weir and into the wetland. Treated water will then be pumped from the wetland and into the river (near the Busselton bypass). The Molloy Street wetland is clay lined beneath the entire extent to prevent water loss via seepage during summer.

An automatic flocculation dosing system is proposed to be connected to the inlet pool, to facilitate removal of dissolved and particulate phosphorous. The dosing system consists of a mixing tank that creates a suspension of flocculating clay that is injected directly into the inlet pipe just before it discharges to the wetland's inlet pool. The inlet pool should be dosed at a rate of approximately 0.75g/L (Tulipani 2019, Robb et al. 2003). Application period would depend on nutrient concentration; however it would likely be for intermittent periods of approximately 20 days at the beginning of summer.

Additional benefits of the wetland are the removal of nutrients by vegetation and soil microorganisms and provision of habitat for birds, frogs, and other wetland species. The Molloy Street constructed wetland concept schematic is shown in Figure 11.

The wetland has been positioned to minimise impacts on existing vegetation (including TEC), and to accommodate the underground services (Figure 6).

The wetland NWL at the Molloy site is 1 m AHD (approximately 0.15 m below the average existing ground level). The NWL has been set close to the existing average site level to minimise earthworks costs. Due to the significant distance from the wetland outlet pool and the upstream extent of the study reach (~1.6 km), and the relatively flat terrain, the treated water must be pumped from the outlet pool into the river. Specifications for the Molloy Street wetland are provided in Table 8. A representative cross-section of the Molloy Street wetland is shown in Figure 12.



Figure 11. *Molloy Street wetland concept. Showing treatment area, macrophyte zones, and proposed pipe network.*

Table 8. Molloy wetland specifications.

Specification	Unit	Value
Wetland NWL	m ADH	1
Wetland EDD	m	0.1
Wetland Freeboard	m	0.2
Wetland area at NWL	m^2	16,105
Approximate total footprint	m^2	19,720

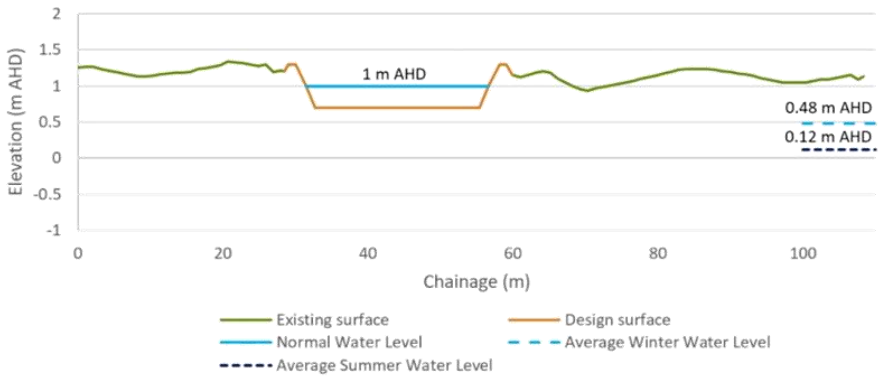

Figure 12. *A representative cross-section of the Molloy Street constructed wetland. Showing the wetland cut into relatively flat terrain.*

Pipe network

The combined pipe network for the LIA (Stage 2a) and Molloy Street (Stage 2b) wetland is shown in Figure 13. The supply pipe network should be sized for the combined LIA and Molloy Street wetlands. A control junction situated where the supply pipe separate (adjacent to the Busselton Highway and Strelly Street roundabout) builds flexibility into the design. The junction enables flow rates to each wetland to be adjusted based on system response, allowing greater control of cyanobacteria in upstream or downstream.



Figure 13. *LIA and Molloy Street wetland combined pipework.*

Flood storage

The cut/fill design approach for the wetlands will result in loss of floodplain in a small area due to bunding of the wetland perimeter. Preliminary two-dimensional hydraulic modelling indicates that the wetland footprints, at both sites, only marginally encroach on the 100 yr ARI flood extents. Therefore, loss of flood storage is likely fairly negligible. The impact on flood extents will need to be confirmed during detailed design.

7.4 In-stream structures

In-stream structures with a dense coverage of sedges and scattered wetland trees reduce cyanobacterial blooms primarily by reducing the residence time of water in the river before it is pumped into a wetland. They do this by reducing the volume of water held in the river. Larger structures will reduce the volume and residence time more than smaller structures, and the size can be optimised to meet any specified residence time. They also shade the water column and remove nutrients as water flows through the vegetation and associated biofilms, which reduces the growth of cyanobacteria further still.

Mussels are to be removed and relocated to a suitable aquatic environment for the duration of construction of in-stream structures. Rock walls will be covered with a suitable substrate to facilitate recolonisation.

Cross-stream structures

Cross-stream structures incorporate the use of two rock walls to create an area of infill across the width of the river (i.e. between the rock walls). Rocks will be covered with suitable substrate that allows the establishment of sedges and/or freshwater mussels. A plan view and long-section of the cross-stream structure is shown in Figure 14 and Figure 15 respectively.

Cross-stream structures would be implemented in pairs. The top of the cross-stream structure is set at 0.3 m AHD with a narrow invert at a lower level. The cross-stream structure is below the winter average water level (0.48 m AHD), allowing flow and migrating fish to pass over it. In summer when the water level drops (average water level 0.12 m AHD), the structure is exposed and pools either side of the structure are largely isolated, except for a narrow channel. Water in the isolated section (between the two structures) can be recirculated or treated with products such as nutrient binding clays to prevent algal blooms. Isolating this section of the river prevents the blooms that form there from spreading to the rest of the river. Each structure has a total top width of approximately 13 – 15 m. The individual rock walls have a top width of approximately 1 m and batter slopes of 1H:2V. Dimensions should be refined during the detailed design phase.

Potential locations for cross-stream structures are downstream of the Causeway Bridge and upstream of the East Link Bridge. This would isolate the part of the river subject to the most severe blooms and allow for intensive treatment of the water within the summer pool. Locations downstream of the study reach near the Vasse Delta wetlands could be suitable location to prevent the infiltration of saline water from the delta. Final locations would be subject to stakeholder consultation and hydraulic modelling during the detailed design phase.



Figure 14. *Plan view of the cross-stream structures showing isolated waterbody (between the two structures) during summer. Location is indicative only and would be finalised during detailed design phase.*

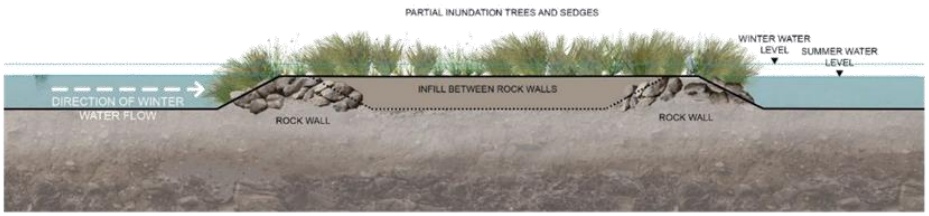

Figure 15. *Long-section of a single cross-stream structure showing infill area (between rock walls), dense planting, and average summer and winter water levels. Winter flow passes over the cross-stream structure.*

Sedges planted on the structure help to control algal blooms by removing nutrients and allowing water to flow through during winter. Shallower sections or raised islands can be incorporated to support wetland trees that further control algal blooms by shading the water column. In the longer term, enough canopy coverage can be achieved to allow possums to safely cross the river in summer and autumn, connecting habitat on both sides of the river.

Bench structures

Bench structures incorporate the use of rock walls to create areas of infill along the river bank. Rocks will be covered with suitable substrate that allows the establishment of sedges and/or freshwater mussels. Bench structures can be constructed on one or both sides of the river and are to extend approximately halfway across the river width. The top of the bench structure is set at 0.3 m AHD. The bench is below the winter average water level (0.48 m AHD), allowing water to flow across the structure and inundate vegetation in winter. When the water level drops in summer, the vegetation is exposed and allowed to partially dry. The individual rock walls have a top width of approximately 1 m and batter slopes of 1H:2V. A plan view and cross-section of the bench structure is shown in Figure 16 and Figure 17 respectively. The location of structures is indicative. Final locations would be subject to stakeholder consultation and hydraulic modelling during the detailed design phase.



Figure 16. *Plan view of the bench structure showing modified river flow. Location is indicative only and would be finalised during detailed design phase.*

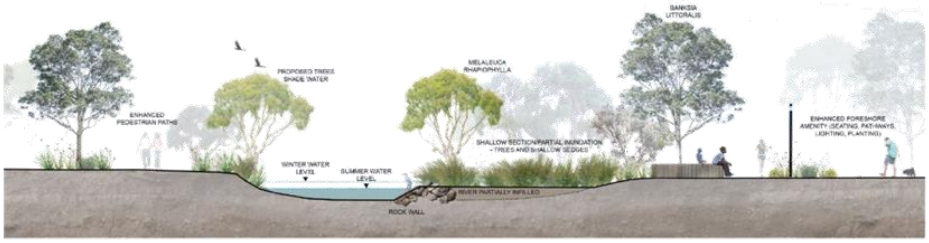

Figure 17. *Cross-section of the bench structure showing infill area, dense planting and average summer and winter water levels.*

Sedges and trees, planted on the bench structures, aim to reduce the duration, frequency, and severity of Cyanobacterial blooms by shading the water and removing nutrients. The benches also reduce the volume of water in the river, which reduces the amount of time water spends in the river before being recirculated through constructed wetlands. Additional benefits of the bench structures include more extensive riparian vegetation creating spawning habitat for frogs and fish, and nesting habitat for water birds. Native vegetation and fauna also provide a more nature-based experience for the community.

7.5 Wetland enhancement

The existing basin in Rotary Park is enhanced to create denser wetland vegetation without the need for excavation (infill is used to create shallow macrophyte zones). Dense vegetation shades the water column (maximising algal cell shedding) and absorbs nutrients.

The proposed Rotary Park wetland has a treatment area of approximately 1,900 m^2 (and average depth on 0.4 m). Water is pumped from the river near the Butter Factory weir (via the existing constructed wetland pipe network) and allowed to drain back via gravity through a vegetated treatment swale (Figure 18).

The wetland has been positioned to fit within the existing stormwater basin. The wetland NWL at the Rotary Park site is 0.6 m AHD to minimise impacts on fringing vegetation (i.e. period of inundation). In addition, the NWL is set at a higher elevation than both the summer and winter average water levels in the LVR (to allow treated water to flow from the wetland into the LVR via gravity through a treatment swale).



Figure 18. *Rotary Park enhanced wetland concept. Showing treatment area, and treatment swale.*

This option creates a smaller amount of wetland habitat than the LIA or Molloy Street sites and therefore treats a significantly smaller volume of water. On its own, it would treat approximately 10% of the lower reach. However, it could be implemented as a "value-add" option that improves the performance of one of the constructed wetlands by reducing the residence time of water in the lower reach by 3-4 days. Note that there are many areas of wetland surrounding the LVR, both large and small, that could potentially be enhanced in a similar way to reduce residence time in the river and improve water quality and biodiversity.

7.6 Optimising residence time in the river

The interventions should be implemented together to achieve a residence time of water in the river that optimises the performance of the constructed wetland(s) within the constraints of time, budget, land availability and evaporative loss of water. Each of the constructed wetlands has been sized to provide a residence time for water of 5 days in the wetland and 20 days in the reach of the river that it is treating. If increased treatment of water is required, river residence times can be reduced by implementing stages 3 and/or 4. The marginal cost of water treatment via each stage is detailed in Table 9.

A wetland at the Molloy St site could easily be made larger to reduce the residence time of water in the river. However, this is likely to increase the loss of water through evapotranspiration, potentially requiring the river to be topped up with groundwater from the Leederville aquifer.

The in-stream structures reduce residence time of water in the river without promoting loss of water through evapotranspiration. The structures described in this report reduce residence time by about a day, but they can be easily scaled up or down during the detailed design phase to theoretically achieve any target. Cross-stream structures and the location of inlet and outlet pipes could be configured to intensively treat a limited portion of the LVR using very low residence times in the river. However, it would be difficult to achieve this effect while maintaining movement for fish during the cease-to-flow period. Benches can be added to progressively reduce the residence time of water in the river using whatever budget is available. To achieve a significant reduction in residence time, they would need to fill a significant volume of the river, potentially reducing habitat for fish. The effect on fish habitat can be mitigated by sensitive design to create optimal bank habitat, reintroduce large woody debris and maximise the wetted surface area.

Enhancement of existing wetland habitat close to the LVR offers the most cost-effective way to reduce the residence time of water in the river. This option has minimal impacts on cultural heritage values, and potentially enhances them. It could potentially increase the loss of water through evapotranspiration, but this effect would be small, given that the areas are already well vegetated and close to the river. The stormwater basin in rotary park is the largest of these wetland areas, and activation of this wetland would reduce residence time by several days. Other suitable areas also exist between the confluence with the New River and Strelly St.

7.8 High-level cost estimates

A summary of high-level construction, treatment, and operation and maintenance costs for the selected interventions is provided in Table 9. Quantity and cost estimates for the recommended works are provided in Table 10 to Table 14.

Costs are provided for individual in-stream structures (bench and cross-stream structures). However, it is likely that bench structures would be implemented in sets, and cross-stream structures would be implemented in pairs, having consideration for small-scale . In-stream structure costs are based on indicative locations; cost would vary based on channel width and depth at site of implementation. A 30% contingency has been included due to the difficult nature of estimating costs at such an early stage of treatment design.

Table 9. A summary of high-level concept costs for the selected interventions.

Options	Construction Cost	Construction Cost (with contingency)	Cost of treatment ($/m³ water)	Annual operation and maintenance costs
Sediment removal				
Dredge between lower reach (Butter Factory weir to the old boat ramp) (including approvals)	$ 1,046,000[1]			
Dredge whole study reach (including approvals)	$ 2,136,000[2]			
Constructed Wetland				
Constructed wetland - LIA		$3,290,000	$130	$103,000
Constructed wetland - Molloy Street		$6,580,000	$260	$113,000
Individual in-stream structure				
Bench structure (vegetated area = 760 m²)		$420,000	$410	$3,800
Cross-stream (vegetated area = 450 m²)		$290,000	$500	$2,300
Enhanced wetland				
Constructed wetland (infill) - Rotary Park		$420,000	$140	$1,800

[1] Cost estimate provided by City of Busselton
[2] Cost estimate extrapolated from lower reach estimate

Table 10. Costing - LIA constructed wetland.

Description of works	Quantity	Unit	Unit Rate	Cost
Preliminaries				
Site establishment, sediment and erosion control	1	No	5.00%	$102,454
	Subtotal - Preliminaries			$102,454
Wetland				
Excavation (inlet and outlet pools)	1922	m^3	$30	$57,670
Excavation (for 200 mm planting media)	678	m^3	$30	$20,340
Excavation (for 300 mm clay liner)	1017	m^3	$30	$30,510
Reuse spoil for bunds (top width ~ 1m, top elevation 1.6 m AHD, 1 in 5 batter)	1170	m^3	$15	$17,555
Dispose of excess spoil (transport and disposal - clean)*	3617	m^3	$80	$289,388
Supply and place clay liner (300 mm thick)	3,390	m^3	$30	$101,700
Planting (6 plants/sqm)	15,253	m^2	$50	$762,637
Planting media (200 mm depth)	678	m^3	$40	$27,120
Supply and install inlet pipe scour pad	1	No	$5,000	$5,000
Supply and install outlet weir	1	No	$5,000	$5,000
	Subtotal - Wetland			$1,316,920
Flocculant dosing system				
Automatic flocculation dosing system (storage hopper, powder feeder and a mixing tank)	1	PC	$115,000	$115,000
	Subtotal - Dosing system			$115,000
Recirculation system				
Electrical design associated with pumps	1	No	$5,500	$5,500
Pump design	1	No	$5,500	$5,500
Pumps (pump in)(sized supply both the LIA and Molloy wetland)	1	No	$50,000	$50,000
Solar panels	10	No	$1,000	$10,000
Supply and install recirculation pipe to wetland	1351	m	$350	$472,850
	Subtotal - Recirculation			$543,850
Landscaping				
Planting (4 plants/sqm)	3,665	m^2	$20	$73,300
	Subtotal			$73,300
-	Subtotal - Wetland			$2,049,070
-	Subtotal for all items			$2,151,524
Other				
Allowance for approvals (heritage, ecology etc.)	1	No	$50,000.00	$50,000
Site investigations (geotech, survey, service detection, potholing, contam, etc)	1	No	5.0%	$107,576
Maintenance and establishment period	1	No	15.0%	$223,901
Subtotal	Subtotal - other			$381,477
	Subtotal for all items			**$2,533,001**
	Contingency		**30%**	**$759,900**
	Total Overall (EX. GST) Inc. 30% contingency			**$3,290,000**
Annual Operation and Maintenance (O & M)				
O & M - Vegetated fringe			6.59%	$4,830
O & M - Wetland			0.40%	$12,867
O & M - Flocculating clay **	20.3	tonnes	$3,000.00	$60,900
O & M - Sediment removal from inlet pool	2	No	$10,000	$20,000
O & M - Recirc pipes			0.50%	$2,364
O & M - Pumps			4%	$2,000
	Total - O & M			**$102,962**

* Disposal rate may vary based on disposal method.

** Based on a dose rate of 0.75 g/L for 20 days. Total annual clay requirement likely to be reduced significantly after a few years of application.

Table 11. Costing – Molloy Street constructed wetland.

Description of works	Quantity	Unit	Unit Rate	Cost
Preliminaries				
Site establishment, sediment and erosion control	1	No	5.00%	$203,679
	Subtotal - Preliminaries			$203,679
Wetland				
Excavation (to wetland dimensions - average depth 400 mm)	9357	m^3	$30	$280,697
Excavation (for 200 mm planting media)	3221	m^3	$30	$96,630
Excavation (for 300 mm clay liner)	4831	m^3	$30	$144,945
Reuse spoil on site for bunds (top width ~ 1m, top elevation 1.6 m AHD, 1 in 5 batter)	769	m^3	$15	$11,533
Dispose of excess spoil (transport and disposal - clean)	17409	m^3	$80	$1,392,723
Supply and place clay liner (300 mm thick)	16,105	m^2	$30	$483,149
Planting (6 plants/sqm)	12,884	m^2	$50	$644,198
Planting media (200 mm depth)	3,221	m^3	$40	$128,840
Supply and install inlet pipe scour pad	1	No	$5,000	$5,000
	Subtotal - Wetland			$3,187,714
Flocculant dosing system				
Automatic flocculation dosing system (storage hopper, powder feeder and a mixing tank)	1	PC	$115,000	$115,000
	Subtotal - Dosing system			$115,000
Recirculation system				
Electrical design associated with pumps	1	No	$7,500	$7,500
Pump design	1	No	$7,500	$7,500
Pumps (pump out)	1	No	$25,000	$25,000
Solar panels	20	No	$1,000	$20,000
Supply and install recirculation pipe to wetland	213	m	$350	$74,550
Supply and install recirculation pipe to river	1611	m	$350	$563,850
	Subtotal - Recirculation			$698,400
Landscaping				
Planting (4 plants/sqm)	3,623	m^2	$20	$72,460
Subtotal				$72,460
	Subtotal - Wetland			$4,073,574
	Subtotal for all items			$4,277,252
Other				
Allowance for approvals (heritage, ecology etc.)	1	No	$50,000	$50,000
Site investigations (geotech, survey, service detection, potholing, contam, etc)	1	No	5.0%	$213,863
Maintenance and establishment period	1	No	15.0%	$519,578
	Subtotal			$783,440
	Subtotal for all items			$5,060,693
	Contingency		**30%**	**$1,518,208**
	Total Overall (EX. GST) Inc. 30% contingency			**$6,580,000**

Annual Operation and Maintenance (O & M)				
O & M - Vegetated fringe			6.59%	$4,775
O & M - wetland			0.40%	$26,030
O & M - Flocculating clay	19.3	tonne	$3,000	$57,900
O & M - sediment removal from inlet pool	2	No	$10,000	$20,000
O & M - Recirc pipes			0.50%	$3,192
O & M - pumps			4%	$1,000
	Total - O & M			**$112,897**

* Reuse of topsoil and clay onsite, depending on geotechnical and agronomy investigation, may reduce these costs.
** Based on a dose rate of 0.75 g/L for 20 days. Total annual clay requirement likely to be reduced significantly after a few years of application.

Table 12. Costing – Individual bench structure (vegetated area = 760 m²).

Description of works	Qty	Unit	Rate ($)	Amount ($)
Preliminaries				
Site establishment, sediment and erosion control	1	item	5.00%	$11,233
Subtotal	Subtotal			$11,233
Instream structure				
Sediment removal (dredging)- site of structures (assuming silt depth 500mm)	1174	m^3	$30	$35,205
Dewatering (200 m3)	6	item	$750	$4,500
Transport and disposal to landfill	293	m^3	$80	$23,470
Supply of rock (rock wall)	467	m^3	$100	$46,734
Landscape rock (top 200 mm of wall)	22	m^3	$90	$1,976
Fill material	574	m^3	$100	$57,382
Top surface area of structure	760	-	-	
Top soil (200 mm)	152	m^3	$40	$6,080
Supply and installation of erosion matting (added 10% to exposed area)	833	m^2	$5	$4,165
Construction of rock wall	6	Days	$2,500	$15,000
Earthworks - placement of fill / topsoils	6	Days	$2,500	$15,000
	Subtotal			$209,512
Planting				
Planting top of instream structure (4 plants/m2)	757	m^2	20	$15,145
	Subtotal			$15,145
	Subtotal for all instream structure items			$224,657
	Subtotal for all items			$235,890
Other				
Allowance for approvals (heritage, ecology etc.)	1	item	50,000	$50,000
Site investigations (geotech, survey, service detection, potholing, contam, etc)	1	item	5%	$11,794
Maintenance and establishment period	1	item	10%	$23,589
	Subtotal			$85,383
	Subtotal for all items			**$321,273**
	Contingency		**30%**	**$96,382**
	Total Overall (EX. GST) Inc. 30% contingency			**$420,000**
Annual Operation and Maintenance (O & M)				
Weed control. Summer hand weeding x 4	760	m^2	2.50	$1,900
Infill planting. 1 plant/m2	760	m^2	2.50	$1,900
	Total - O & M			**$3,800**

Table 13. Costing – Individual cross-stream structure (vegetated area = 450 m²).

Description of works	Qty	Unit	Rate ($)	Amount ($)
Preliminaries				
Site establishment, sediment and erosion control	1	item	5.00%	$7,145
Subtotal	Subtotal - Preliminaries			$7,145
Instream structure				
Sediment removal (dredging)- site of structures (assuming silt depth 500mm)	444	m^3	$30	$13,310
Dewatering (200 m3)	3	item	$750	$2,250
Transport and disposal to landfill	111	m^3	$80	$8,873
Supply of rock (rock wall)	279	m^3	$100	$27,853
Landscape rock (top 200 mm of wall)	17	m^3	$90	$1,516
Fill material	310	m^3	$100	$30,996
Top surface area of structure	453	-	-	
Top soil (200 mm)	74	m^3	$40	$2,966
Supply and installation of erosion matting (added 10% to exposed area)	498	m^2	$5	$2,491
Construction of rock wall	6	Days	$2,500	$15,000
Earthworks - placement of fill / topsoils	6	Days	$2,500	$15,000
	Subtotal – Structure			$120,254
Planting				
Planting top of instream structure (4 plants/m2)	1132	m^2	$20	$22,648
	Subtotal			$22,648
	Subtotal for all instream structure items			$142,902
	Subtotal for all items			$150,047
Other				
Allowance for approvals (heritage, ecology etc.)	1	item	50,000	$50,000
Site investigations (geotech, survey, service detection, potholing, contam, etc)	1	item	5%	$7,502
Maintenance and establishment period	1	item	10%	$15,005
	Subtotal			$72,507
	Subtotal for all items			**$222,554**
	Contingency		**30%**	**$66,766**
	Total Overall (EX. GST) Inc. 30% contingency			**$290,000**
Annual Operation and Maintenance (O & M)				
Weed control. Summer hand weeding x 4	435	m^2	2.50	$1,133
Infill planting. 1 plant/m2	435	m^2	2.50	$1,133
	Total - O & M			**$2,265**

Table 14. Costing - Rotary Park infill constructed wetland.

	Quantity	Unit	Unit Rate	Cost
Preliminaries				
Site establishment, sediment and erosion control	1	No	5.00%	$10,920
	Subtotal- Preliminaries			$10,920
Wetland				
Excavation (to wetland dimensions)	0	m^3	$30	$0
Fill material (area x 0.6 m fill (minus clay liner depth and planting media depth) i.e. from -0.4 m AHD to 0.2 m AHD assuming ave depth 0.4 m)	190	m^3	$100	$18,970
Dispose of excess spoil (transport and disposal - clean)	0	m^3	$80	$0
Supply and place clay liner	1,897	m^3	$30	$56,910
Planting (6 plants/sqm)	1,897	m^2	$50	$94,850
Planting media (200 mm depth)	379	m^3	$40	$15,176
Supply and install inlet pipe scour pad	1	No	$5,000	$5,000
Supply and install outlet treatment swale	1	No	$10,000	$10,000
	Subtotal- Structure			$161,069
Recirculation system				
Electrical design associated with pumps	0	No	$5,500	$0
Pump design	0	No	$5,500	$0
Pump station - 2 pumps (duty and standby)(pump in)	0	No	$25,000	$0
Supply and install recirculation pipe to wetland	50	m	$350	$17,500
Supply and install recirculation pipe to river	0	m	$350	$0
	Subtotal			$17,500
	Subtotal for all wetland items			$218,406
	Subtotal for all items			$229,326
Other				
Allowance for approvals (heritage, ecology etc.)	1	No	$50,000	$50,000
Site investigations (geotech, survey, service detection, potholing, contam, etc)	1	No	5.0%	$11,466
Maintenance and establishment period	1	No	15.0%	$34,399
	Subtotal			$95,865
	Subtotal for all items			**$325,192**
	Contingency		**30%**	**$97,557**
	Total Overall (EX. GST) Inc. 30% contingency			**$420,000**
Annual Operation and Maintenance (O & M)				
Operation and Maintenance Estimate - wetland			0.40%	$1,680
Operation and Maintenance Estimate - Recirc pipes			0.50%	$88
	Total - O & M			**$1,768**

7.9 Concept design assumptions

In developing the concept designs for each site, a range of assumptions were used, as outlined in Table 16. All the designs were developed to concept design stage. This level of detail will ensure the concepts at each site work; however, it does not include detailed site surveys or investigations. The concept designs relied on 2015 LiDAR, 2015 bathymetry and GIS information (i.e. services layers provided by CoB), which will need to be verified during the functional and detailed design stage. This may alter the costs associated with the detailed design and construction. To allow for this, the costings include a 30% contingency.

Table 15. Concept design assumptions.

Assumption	Comment
Cut and fill	Cut and fill calculations were performed based on the treatment area, average wetland depth of 0.4 m, average existing ground level, and a batter slope of 1 in 5.
Services	Services were identified from GIS layers provided by the CoB and included water, waste-water, gas mains, electricity and optic fibre line.
Costing	Each element of the design was incorporated in the costing schedule. Landscaping was factored into each design's costs, to a maximum area of 30% of the treatment area (e.g., wetland water level and surrounding embankments). The method used for Operation and Maintenance costing was as follows: 1. Vegetated fringe O&M cost is based on the raw CapEx estimate (i.e. no contingencies) * 6.59% 2. Wetlands (0.4%) O&M cost is based on total CapEx estimate (including contingencies) minus the raw costs of vegetated fringe 3. Pipe O&M cost is based on the raw CapEx estimate (i.e. no contingencies) * 0.5% 4. Pump O&M cost is based on the raw CapEx estimate (i.e. no contingencies) * 4%
Rates	Unit rates were developed by Alluvium and other consultants for the construction of the treatment systems (e.g. pipes, filter media, excavation). The unit rates were based on previous projects undertaken in Canberra, NSW and VIC, and the Australian Construction Handbook (Rawlinsons, 2020).
Access	Access was required to each site for both construction and ongoing maintenance. Where required, 3 m access paths were accounted for to enable access from the road to the treatment system.

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Attachment A
Community engagement

YourSay Survey results

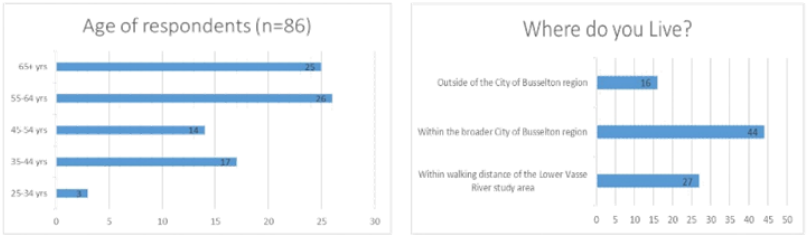

Figure A1. *Age (left) and residence location (right) of survey respondents.*

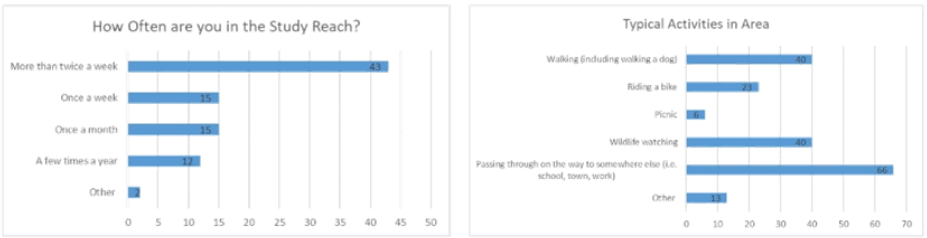

Figure A2. *How often respondents are in close proximity to the study area (left) and activities respondents undertake around the study area (right)*

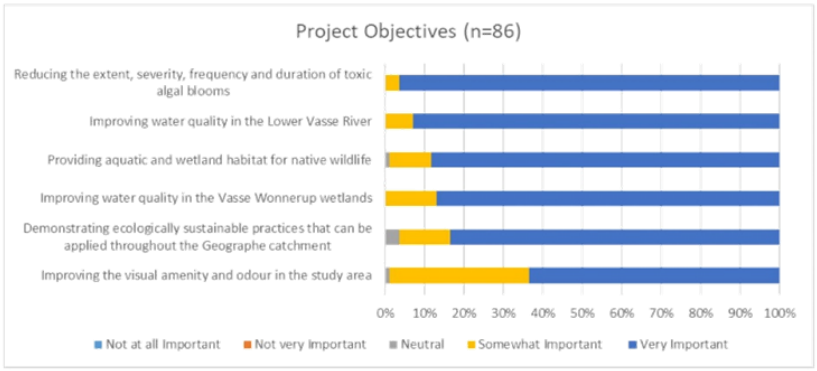

Figure A3. *Importance of key project objectives to the survey respondents.*

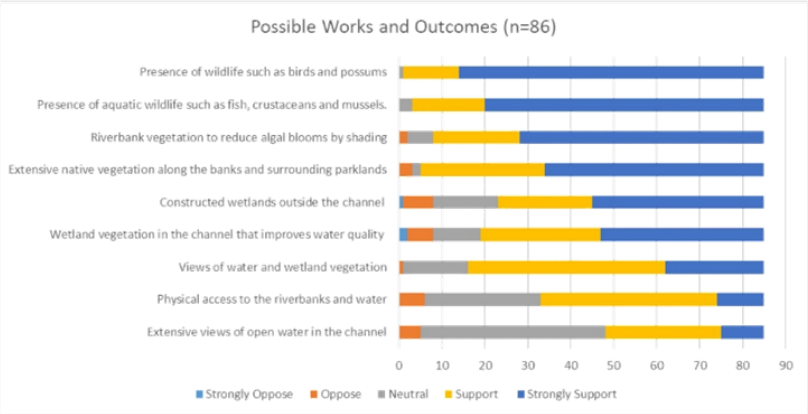

Figure A3. *Views of potential changes to the character and appearance of the Lower Vasse River and its surrounds.*

Table A1. A sample of survey comments

A sample of survey comments
• "winter stream which dries out over summer"
• "Bacteria/Enzyme product....to help control the Blue Green Algae"
• "some form of artificial circulation (either fountain or Volcanic mixers)"
• "some form of artificial flow in the summer months by a bore or wastewater"
• solar powered water fountain for aeration and aesthetics
• "Restoration and beautification interventions should be mindful that this part of the waterway is part of the entrance to Busselton and include views and access statements"
• The most important item that is missed in the questionnaire is - do you support the removal of sludge in the river, this is something that MUST be done to improve the flow of the river

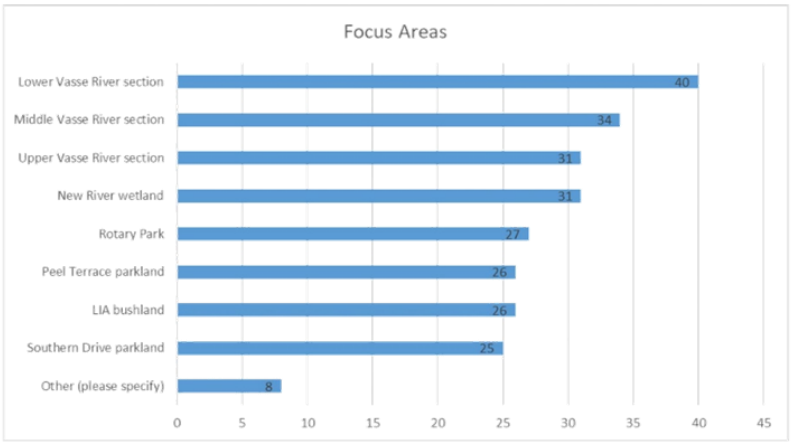

Figure A3. *Views of focus areas for the Living Streams design.*

Attachment B
Conceptual understanding of Cyanobacterial blooms

Attachment C
Concept Design Drawings


JOSH BYRNE
& ASSOCIATES
LIVING STREAMS CONCEPT DRAWINGS FOR THE LOWER VASSE RIVER

CONTENTS

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Document Status

Date of issue	Rev No.	Reason for Issue	Author	Reviewed By	Approved by
12 November 2020	-	Review	JLS	PV	PV
4 February 2021	A	Information	JLS	PV	PV
19 May 2021	-	Review	JLS	PV	PV
9 June 2021	B	Review	JLS	PV	PV
20 June 2021	C	Information	JLS	PV	PV

STAGING

STAGE 1 SEDIMENT REMOVAL

Options that comprise dredging within the Lower Vasse River. Stage 1 options include:

- Dredge lower reach
- Dredge whole study reach

STAGE 2 CONSTRUCTED WETLAND

Stage 2A - Light Industrial Area (LIA) bushland site (treats lower reach)

Stage 2B - Molloy Street site (treats upper reach).

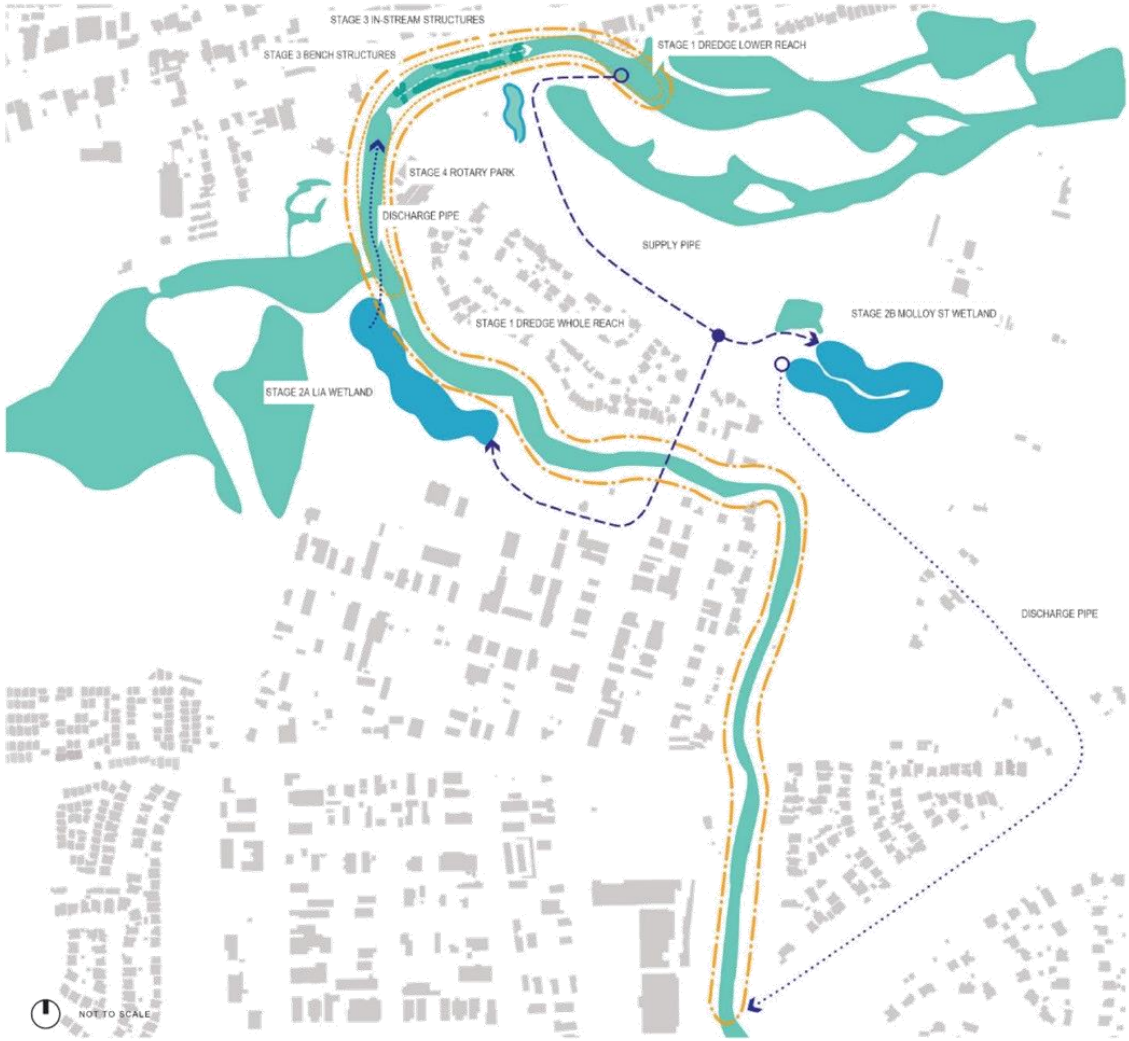
STAGE 3 IN-STREAM STRUCTURES

Options that comprise in-stream structures within Lower Vasse River. Stage 3 options assessed include:

- Bench Structures
- Cross-stream structure

STAGE 4 WETLAND ENHANCMENT

Comprises the enhancement of the existing Rotary Park stormwater basin.

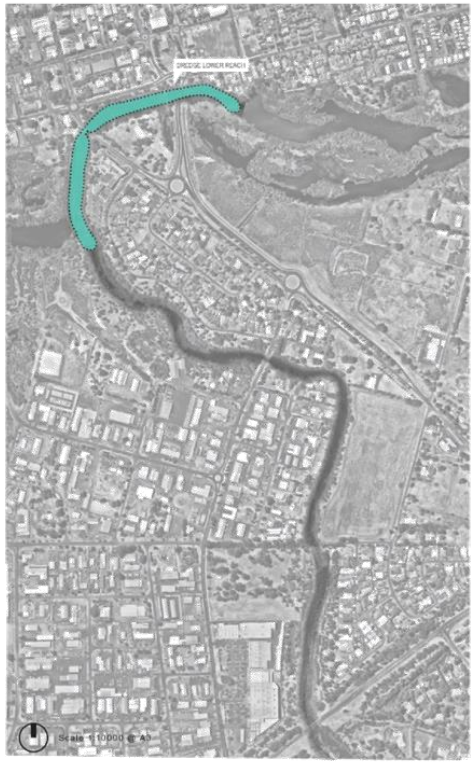


STAGE 1 SEDIMENT REMOVAL

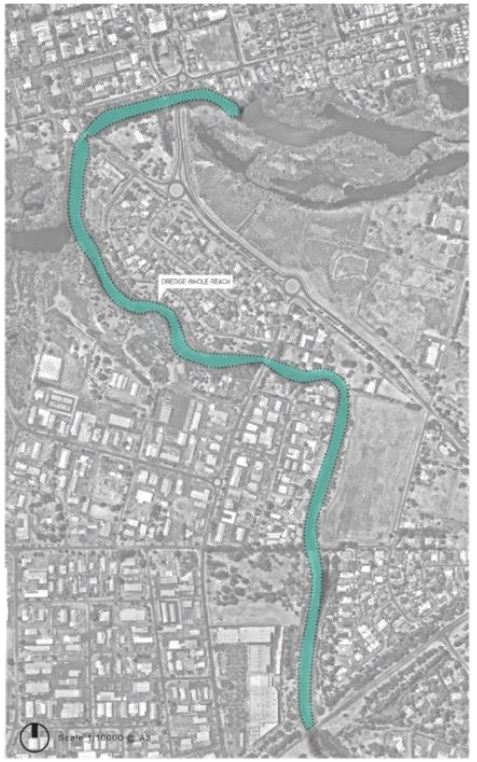
Nutrient-rich sediments have built up on the bed of the Lower Vasse River due to low flow and deposition of cyanobacterial blooms. The sediments smother aquatic vegetation and release nutrients under anoxic conditions in summer, fueling the cycle of continued cyanobacterial growth.

Removing these sediments controls a key source of nutrients from the river and helps to prevent cyanobacterial blooms into the future. The build up of nutrients appears to be greatest between the Causeway and Eastlink bridges, so this area is a priority for sediment removal. Removing sediments throughout the reach will have even greater benefits.

Sediment removal techniques such as dredging can have a negative impact on freshwater mussels. Mussels should be removed and relocated to a suitable aquatic environment for the duration of any dredging operations.



DREDGE LOWER REACH



DREDGE WHOLE REACH

STAGE 2A CONSTRUCTED WETLAND LIA

The wetland is created by excavating the deep pools and using the sediment to bund the perimeter to create a shallow basin. It is planted with a dense coverage of native sedges and shrubs that are adapted to periodic inundation. The existing vegetation are typically species suited to periodic inundation (i.e *Melaleuca viminea, Juncus palladus*). In spring and summer, water is pumped from the river at the Butter Factory weir into the wetland. It flows back into the river via gravity. Water spends 5 days in the wetland, allowing enough time for the shade from dense vegetation to kill cyanobacterial cells. Water spends 20 days in the river before it is pumped back out again, preventing cells from accumulating to bloom concentrations. In autumn, the wetland is partially drained, allowing plant species that require seasonal drying to thrive.

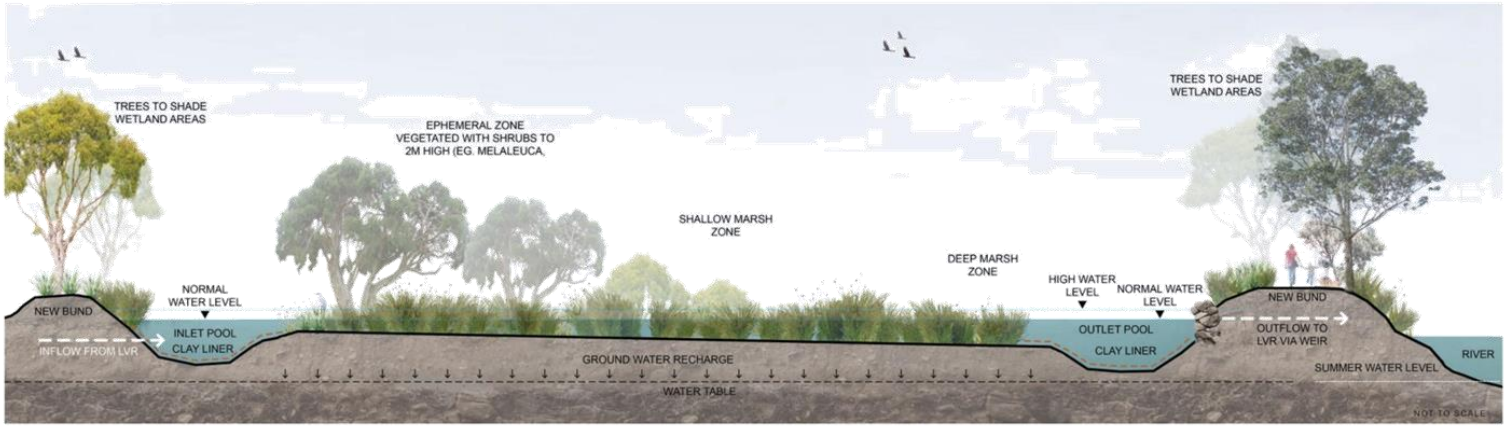
Additional benefits of the wetland are the removal of nutrients by vegetation and soil microorganisms and provision of habitat for birds, frogs, and other wetland species. A footpath on the raised bund is proposed to the river side. The location of the wetland is indicative only (final layout to protect cultural heritage and conform to land tenure boundaries).



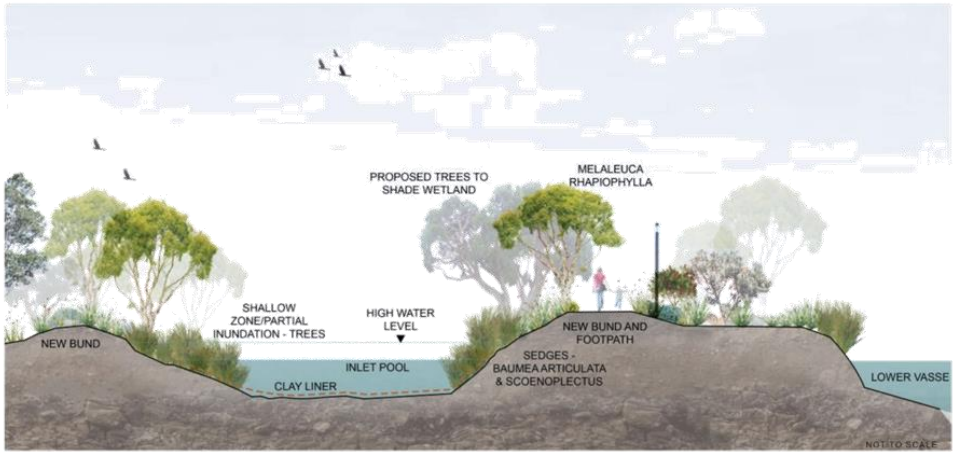
STAGE 2A LIA BUSHLAND PIPE NETWORK



STAGE 2A LIA BUSHLAND CONEPT PLAN



LIA BUSHLAND INDICATIVE LONG SECTION



INDICATIVE CROSS SECTION THROUGH POOL



INDICATIVE CROSS SECTION THROUGH SEDGE ZONE

STAGE 2B CONSTRUCTED WETLAND MOLLOY ST

The wetland is created by using the sediment to bund part of the perimeter (where existing ground level is lower) to create a shallow basin. It is planted with a dense coverage of native sedges and shrubs that are adapted to periodic inundation. The wetland at Molloy St is designed to provide treated water to the upper reach and functions in the same way as the LIA wetland that treats the lower reach. However, it requires an additional outlet pump to drain the wetland and transport water to the upstream end of the reach at the Busselton bypass. A subsurface clay liner is installed below the root zone of vegetation to prevent water loss in summer via seepage to groundwater.

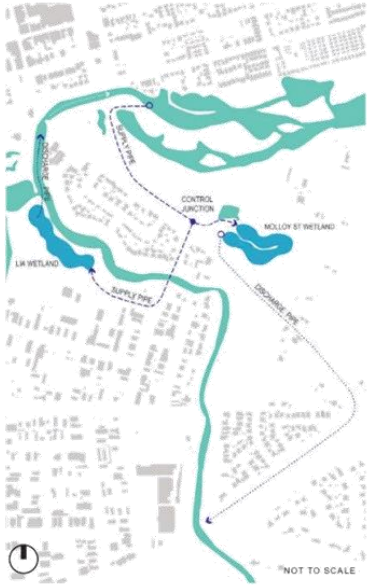
A valve where the supply pipes separate enables flow rates to be adjusted to each of the wetlands, allowing greater flexibility and control of cyanobacteria in upstream or downstream reaches as needed.

Additional benefits of the wetland are the removal of nutrients by vegetation and soil microorganisms and provision of habitat for birds, frogs, and other wetland species. The wetland location is indicative only and will be adjusted to accommodate potential community uses of the site. The layout accounts for 15m buffer required for road corridor, and the protection of the samphire area.

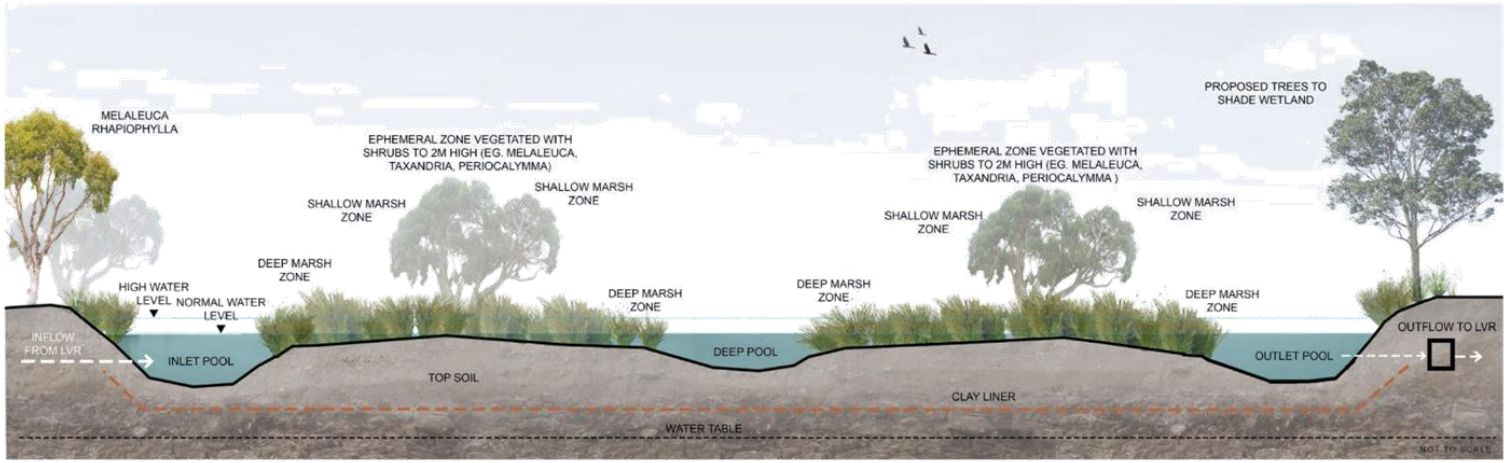
Together the wetlands would provide 33055m² of macrophyte area. The control junction builds flexibility into the design. Flow rates to each wetland can be adjusted based on system response.



STAGE 2B MOLLOY STREET WETLAND CONCEPT PLAN



COMBINED PIPE NETWORK



MOLLOY ST INDICATIVE LONG SECTION

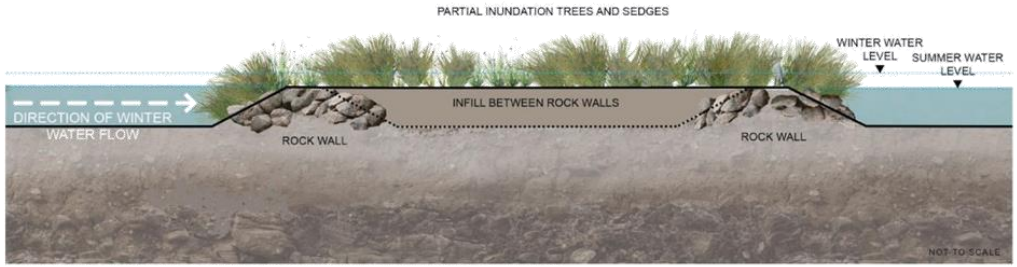
STAGE 3 INSTREAM STRUCTURES - CROSS STREAM

Cross stream structures are installed at two locations near the Causeway and Eastern Link bridges. The crest of the cross-stream structures are lower than the winter water level, allowing flow and migrating fish to pass through. In summer when the water level drops, the structures are exposed and the river between the two structures is isolated from the rest of the river. Water in the isolated section can be recirculated or treated with products such as nutrient binding clays to prevent algal blooms. Isolating this section of the river prevents the blooms that form there from spreading to the rest of the river.

Mussels are removed and relocated to a suitable aquatic environment for the duration of construction.

Sedges planted on the raised bed help to control algal blooms by removing nutrients and allowing water to flow through during winter. Shallower sections or raised islands can be incorporated to support wetland trees that further control algal blooms by shading the water column. In the longer term, enough canopy coverage can be achieved to allow possums to safely cross the river in summer and autumn, connecting habitat on both sides of the river.

The location of structures is indicative and may be constructed upstream or downstream of the locations indicated.

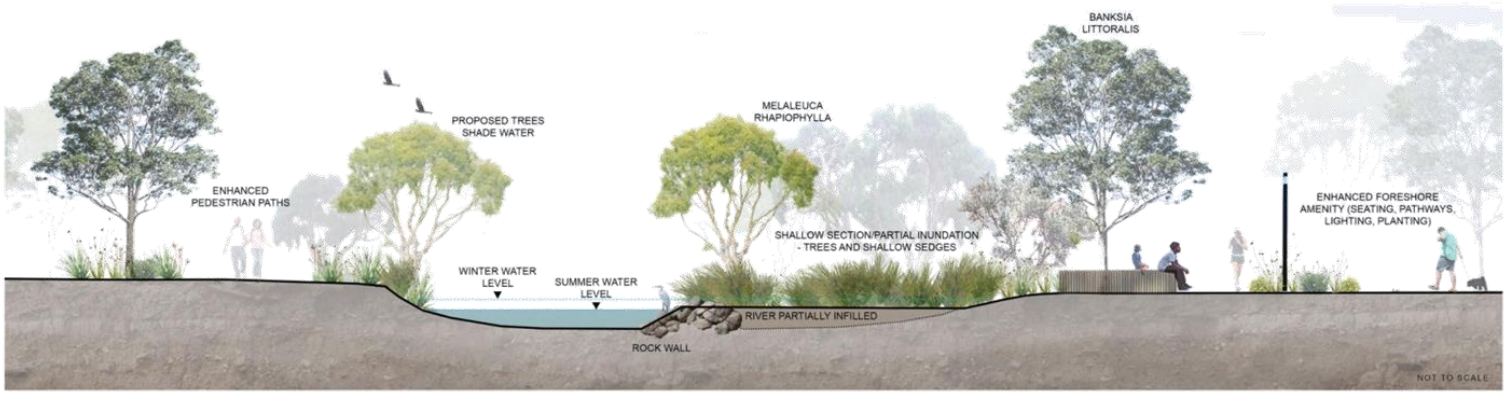


CROSS-STREAM STRUCTURE INDICATIVE LONGITUDINAL SECTION



CROSS STREAM STRUCTURES CONCEPT PLAN

STAGE 3 INSTREAM STRUCTURES - BENCH



BENCH STRUCTURE INDICATIVE CROSS SECTION

The riverbanks are extended into the channel on one or both sides and planted with a dense coverage of sedges and scattered wetland trees. The new bank is lower than the winter water level, allowing water to flow through and inundate vegetation. When the water level drops in summer, the vegetation is exposed and allowed to partially dry. Mussels are removed and relocated to a suitable aquatic environment for the duration of construction. Sedges and trees prevent cyanobacterial blooms by shading the water and removing nutrients.

The constructed banks reduce the amount of time water spends in the river before being recirculated through constructed wetlands. Native Riparian re-vegetation creates spawning habitat for frogs and fish, nesting habitat for water birds and provides a more nature-based experience for the community. The location of structures is indicative, structures would be beneficial throughout the study reach and may be constructed upstream or downstream of the locations indicated.



BENCH STRUCTURES CONCEPT PLAN

STAGE 4 ENHANCEMENT OF EXISTING ROTARY PARK BASIN

The existing basin in Rotary Park is enhanced to create denser wetland vegetation without the need for excavation. Water is pumped from the river near the Butter Factory weir and allowed to drain back via gravity through a vegetated swale. Dense vegetation kills cyanobacterial cells and absorbs nutrients.

This option creates a smaller amount of wetland habitat than the constructed wetlands and should be considered as an "optional add-on" that would be implemented after the construction of the LIA or Molloy St wetland to improve water quality even further and enhance the environmental values of Rotary Park.



ROTARY PARK CONCEPT PLAN

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Peer Review of the Living Streams Concept



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For:

City of Busselton

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Griffith UNIVERSITY
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1. Executive summary

The Lower Vasse River (LVR) is a highly seasonal freshwater river system which is usually protected from ingress of estuarine brackish water in summer by a range of controls, including natural wetland vegetation and a downstream weir. The hydrology of the system is also strongly modified by an upstream diversion drain. The system is seasonally eutrophic, with algal blooms attenuated in late winter and early spring by the lower temperatures and seasonal flushing flows that do not allow adequate time for phytoplankton to proliferate despite strongly elevated concentrations of dissolved inorganic nutrients (nitrate, ammonium, and phosphate). As temperature increases and flow recedes during summer, cyanobacteria grow rapidly and remain resident in the LVR, taking up available nutrients and depleting them to concentrations that ultimately limit their further proliferation, but attaining concentrations that allow them to form blooms by floating to the water surface in calm conditions.

Alluvium was commissioned by the City of Busselton to develop a Living Streams concept design for the LVR, to reduce the extent, severity, frequency and duration of toxic cyanobacterial blooms. The Griffith University authors reviewed the Alluvium reports and offer various levels of endorsement and critique on the recommendations made in the reports. The Alluvium reports include three main stages, which recommend 1) removal of sediments extending to different distances upstream, 2) recirculation of water through one or two modified and/or constructed wetlands, and 3) construction of in-stream vegetated structures to reduce volume and create wetland habitat within the LVR.

The Griffith University reviewers endorse a staged intervention approach recommended by Alluvium but do not agree with the recommended implementation of all stages of the Living Streams concept, at least not until Stage 1 is implemented in full and its effects assessed. Dredging of the whole reach of the LVR is considered necessary to adequately offset the very high nutrient loads received in winter-spring flows from the catchment. A large proportion of these nutrients is likely to reside in the LVR and be recycled during summer-autumn, enhanced by anoxia of bottom waters, and fuelling cyanobacteria blooms. The dredging therefore needs to be accompanied by a major focus on nutrient load reductions from the catchment and use of a flocculant (e.g., Phoslock®) to offset potential negative impacts of dredging (i.e., from resuspended sediments) and in a broader application in the river system, to increase the inactivation of phosphorus present in the water column and bottom sediments. Appropriate safeguards and mitigations for the effects of dredging are required in addition to the flocculant application.

Stage 2 involves recirculation of water through one or two modified/constructed wetlands. We recommend this stage should not be undertaken until Stage 1 is completed and assessed. There are risks with Stage 2 that the wetland enhancement and construction will

not meet expectations for cyanobacteria control because of insufficient duration of shading of cyanobacteria in the wetland (five-day residence time) that will not offset their ability to grow in the LVR (20-day residence time). Ongoing operational costs from pumping water from the LVR into the wetlands are a further consideration. This option may reduce nutrients, but hydrological and hydraulic modifications may provide an additional lever, noting that culverts have already been implemented to reconnect the Vasse Diversion Drain to the Lower Vasse River and extend the period of flushing freshwater flows without undue increase in the risk of flooding in the LVR.

At this stage the reviewers do not recommend implementing Stage 3, involving construction of in-stream vegetated structures and associated wetland habitat. The reviewers believe it would be useful to assess Stages 1 and 2 effects before proceeding with Stage 3. The Stage 3 in-stream structures may reduce the depth of the river in some places and impede flushing flows in some localised areas. These factors would need to be assessed against some increase in the proportion of the total water volume within the wetlands and which would be partially shaded and therefore limit cyanobacteria growth.

2. Background

The City of Busselton requested Griffith University to review reports by Alluvium (2021a, 2021b) who were originally commissioned by the City of Busselton to develop a Living Streams concept design for the Lower Vasse River (LVR) in Busselton, Western Australia. The aim of the concept design is to reduce the extent, severity, frequency and duration of toxic cyanobacterial blooms.

The purpose of the peer review is to provide an evaluation that:

1. considers the validity of the design science, inputs and assumptions;
2. addresses whether the design objectives have been met;
3. identifies strengths and weaknesses of the design;
4. assesses whether the proposed design provides best triple bottom line value; and
5. if appropriate, makes high level suggestions for improvements/amendments to the design.

The Alluvium report included:

1. building on previous management and research related to the LVR and relevant other research and case study literature;
2. considering and responding to environmental, hydrological, physical and heritage site constraints;
3. incorporating the principles of a Living Stream approach as outlined in the Lower Vasse River Waterway Management Plan (LVRWMP) and including or facilitating implementation of other management strategies as appropriate.
4. building on existing hydrological modelling work by Department of Water and Environmental Regulation and undertake more detailed modelling of hydrology and hydraulics to ensure feasibility in terms of flood prevention and stability of works.
5. allowing for enhanced interaction between people and the river;
6. defining the regulatory framework for implementation;
7. highlighting areas requiring further research or trials; and
8. providing for prioritised, staged implementation.

Alluvium identified three stages of the concept design for Vasse River restoration, targeting a 3.3 km length of the LVR from the Butter Factory weir to the Busselton bypass; the LVR itself extends further to the Vasse Diversion Drain. Stage 1 recommended the removal of sediments between the Butter Factory weir and the old boat ramp (or to the Busselton Bypass). Stage 2 included recirculation of water through a constructed wetland near the light industrial area. Stage 3 involved the construction of in-stream vegetated structures that displace water and create more water within the wetland habitat. This review has focused on these three stages and has also embedded the work within a broader consideration of the current state of the LVR.

3. Evaluation

3.1 Introduction

The LVR has been extensively modified hydrologically, mostly for the purpose of flood control for the City of Busselton via the Vasse Diversion Drain but also with a weir at the Butter Factory (constructed in the 1930s), to prevent upstream ingress of saline water into the freshwater region of the LVR Weir and maintain water levels in river in summer. The weir boards were permanently removed in 2018, with subsequent ingress of salt water linked to management of the Vasse Estuary (artificially higher water levels to manage water quality, reduce the risk of fish kills and improve amenity for residents) as well as the removal of the weir boards. Past ingress of saline water has led to deoxygenation of bottom waters and has likely been associated with increases in cyanobacterial blooms from anoxia-stimulated nutrient releases as well as death of freshwater mussels (Carter's freshwater mussel, listed as Vulnerable under the Environment Protection and Biodiversity Conservation Act). River diversions for flood control, along with agricultural development have strongly reduced freshwater flow in the river, with compounding effects from the build-up of organic matter and nutrients in the bottom sediments, and eutrophication of the LVR (e.g., Fig. 1). These factors act synergistically to contribute to cyanobacteria blooms. Additionally, rainfall in southwest Western Australia has declined in recent years, due to cyclical climatic patterns and long-term climate change that is consistent with global and regional climate model projections.



Figure 1 Lower Vasse River near City of Busselton council buildings, May 9, 2022. Note the highly brown-green colouration of the water, indicative of eutrophic conditions, but no apparent surface-reaching cyanobacteria blooms at the time.

Alluvium report - critique

The Alluvium report (Alluvium 2022a) identifies the causes of cyanobacteria blooms in the LVR. Section 2.2 (Causes of blue-green algae blooms) lists five of the causal factors for cyanobacteria blooms. The first factor is the initial cell count in the water column at the beginning of the growing season. We do not necessarily disagree with the assertion that this is an important determinant of the bloom but point out that cyanobacteria in the sediments may potentially contribute substantially to the initiation of blooms. For example, *Microcystis* spp. can overwinter in vegetative form in the sediments for months or even years, while *Dolichospermum* can germinate from akinetes in the sediments, to colonise the water column under favourable conditions (Borges et al. 2016). The assertion in the report that there is a "chemocline where cyanobacterial cells persist through the flow season" and that "a substantial number of cells are more or less permanently present" is highly debatable. Persistence of cyanobacteria in the bottom sediments is a more plausible mechanism to support the rapid onset of blooms in spring or early summer. We highlight this point because it has important implications for dredging operations that, while primarily targeting removal or organic material and associated nutrients, may also beneficially remove stocks of cyanobacteria cells or akinetes in the bottom sediments.

In Section 2.2 it is also stated that "cyanobacteria can fix nitrogen". In freshwater, only heterocystous cyanobacteria can fix nitrogen (i.e., those with specialised cells that are used to take dissolved nitrogen gas in the water and incorporate it into cellular tissue). Heterocysts normally only develop and persist under nitrogen (N)-limited conditions when the supply of inorganic nitrogen limits growth (Oliver et al. 2012). *Dolichospermum, Aphanizomenon* and *Rhaphidiopsis* are genera of cyanobacteria that can potentially fix N, while *Microcystis* cannot, although the '*Microcystis* biome' contained within the *Microcystis* colony sheath may contain some bacteria with ability to fix N (Cook et al. 2020).

Section 2.2 of the report suggests using isotopic identification of phosphorus and nitrogen sources throughout the growing season to understand the formation of cyanobacteria blooms. We agree that this methodology may be useful for nitrogen, particularly for understanding the relative contribution of N fixation to the cyanobacteria cell N quota and to total nitrogen in the water column but it is likely to required skilled assessments for interpretation of phosphorus sources and cycling.

Factors 4 and 5 identified by Alluvium (2022a) to cause cyanobacteria blooms include water temperature and stagnation of the water body, respectively. These two factors are associated with water column stratification, where a warm (or fresh) surface layer overlies of colder (or saltier) layer underneath. Stratification plays an important role in bloom formation as most bloom-forming cyanobacteria are buoyant and can float to the surface under calm conditions when they are not entrained in vertical turbulent motions during periods of mixing. Small gradients in temperature or salinity are often considered as an

indication that there is no stratification but, as shown by Sherman et al. (1998), gradients of temperature of as little as 0.05 °C between adjacent vertical thermistors (a temperature gradient of 0.25 °C over 1 metre) can be sufficient to induce the stratification necessary for buoyant cyanobacteria to float, when they would otherwise be distributed more evenly through the water column. The Reviewers therefore consider that a careful assessment of stratification is required aligned with the occurrence of cyanobacteria blooms.

Section 4.1 (Ecological principles) of the Alluvium (2020a) report promotes the concept of recreating the historical connection between the LVR and the surrounding seasonal wetlands within the constraints of urban infrastructure and flooding. It could have also been noted here that the Butter Factory weir prevents the natural historical hydrological connection in which saline water was likely to have intruded into the LVR during the low-flow summer conditions. There would now be substantial risk of loss of freshwater-adapted riparian vegetation if the weir was permanently removed; to minimise this risk, in February 2022 a temporary sand levee was used to prevent upstream intrusion of salt water. Further considerations and model scenarios for a range of flow conditions have been undertaken by Marillier (2018) noting that there is limited opportunity for floodplain connection above the weir.

Section 5.1 includes four "Central interventions" but has not mentioned application of Phoslock® or any other type of nutrient-binding compound among the inventory of intervention options to reduce nutrient levels. Given that Phoslock® is regarded as environmentally low risk (Behets et al. 2020) and has been used in the LVR and other systems in Western Australia (e.g., Robb et al. 2003), it could have been considered in this section. Additionally, in this section the effects of shading by wetland plants on cyanobacteria was not well described. Shading will reduce or negate growth of cyanobacteria but does not directly "kill them" or "eliminates BGA cells" (table 2 on p. 16 of the report). Indeed, many cyanobacteria are well adapted to low light levels and a ratio of 5 days in shade (under wetland plants) and 20 days in the open (LVR channel) is unlikely to substantially affect cyanobacteria biomass, with some doubt that Stage 3 would substantially alter this ratio. Table 2 also indicates that low light bleaches cells and cites a reference to support this case. This is not the case and under low-light conditions cyanobacteria are more likely to increase chlorophyll (i.e., become greener) in response to low-light conditions. In general terms we support opportunities to connect constructed wetlands to the river, but we believe the potential role of shading on cyanobacteria by wetland plants is overstated. A further issue in considering residence times is that natural systems have complex mixing patterns where the *mean* water residence time will likely differ from the residence time of buoyant cyanobacteria cells and colonies in the system; cyanobacteria are often concentrated in calm backwaters and shorelines out of the mainstem flow and can therefore persist even when the mean water residence time would

suggest that they would be flushed from the system. This should be an important consideration in Stage 3 involving construction of in-stream wetlands.

Table 2 considers a "Flocculate nutrients" option and indicates it could add to the nutrient load in the sediment. We agree but we caution that this consideration may be simplistic if a material like Phoslock® inactivates phosphorus and prevents it from being released back into the water column under the range of environmental conditions expected in the LVR. This table also considers an option to "fertilise [the] diatom community with silica". This option can only be effective if silica concentrations in LVR are depleted to a level where silica is a limiting nutrient for diatom growth.

Generally, we support the underlying concept in the report that light and nutrients, below certain thresholds, will reduce the magnitude of cyanobacterial blooms. However, it is challenging to determine whether the reduction in these physicochemical parameters will be adequate to excerpt substantial control on cyanobacteria biomass. The clay dosing recommended in Stage 3 of the constructed wetlands may assist with reducing nutrients in the LVR but such an indirect application of the clay to the wetlands, over a large area, is an indirect method of cyanobacteria control compared with the more targeted Phoslock® application mentioned above. The Reviewers consider that the clay application in the constructed wetlands should only be considered after careful analysis of the other recommended actions in stages 1 and 2.

3.2 Additional considerations – observational data

There is an assumption in the report that the species responsible for the blooms is *Microcystis* but the data provided to us by Department of Water and Environmental Regulation (DWER) indicates a broader assemblage, often with *Dolichospermum* (basionym *Anabaena*) present, particularly earlier in summer, followed by *Microcystis* in late summer and autumn. The importance of this succession is that *Microcystis* does not fix nitrogen while *Dolichospermum* may fix nitrogen under conditions of nitrogen limitation.

The DWER dataset (2015-2022) has nitrate concentrations that are low to undetectable for about half the year (Jan-Jul), usually coinciding with elevated cyanobacteria biomass. Ammonium concentrations show a similar pattern of strong depletion in summer (Dec-May) but offset 1-2 months earlier than nitrate and with occasional spikes in summer. The pattern can be surmised as high levels of ammonium and nitrate delivered in late winter flows once the catchment has received substantial winter rainfall, followed in early summer by rapid depletion of ammonium from nitrification, and depletion of both ammonium and nitrate as cyanobacteria biomass increases and flushing is reduced with the flow recession. Occasional spikes in ammonium in summer are likely due to partial mixing events (e.g., from rapid cooling and/or wind) that circulate bottom waters with high levels of ammonium into surface waters where uptake by phytoplankton again rapidly reduces the ammonium

concentration. Phosphate concentrations show a similar pattern to nitrate and ammonium but the duration of low concentrations in summer is reduced. Phosphate concentrations are concerningly high (often > ~100 µg L^{-1}) in winter and indicate potential to support very high concentrations of cyanobacteria biomass, as well as strong likelihood of phytoplankton nitrogen limitation in spring; a likely precursor to nitrogen fixation by *Dolichospermum* and other N-fixing cyanobacteria (e.g., *Pseudanabaena*).

3.3 Staged approach to intervention

We endorse the staged approach mentioned in the report and recommend even more rigidly developing this approach to provide a basis for adaptive management, so that the effects on water quality at each stage are validated with monitoring data before proceeding to the next stage. This approach should not hinder ongoing catchment works and management, however, as the highly elevated nutrient concentrations in winter flows indicate an urgent need for strong catchment management actions (i.e., aligned with Best Management Practices). Targets for reductions in nutrient concentrations in winter flows need to be set in order that investments in interventions in the LVR (i.e., the potential implementation of the three stages) are not wasted or need to be repeated at short intervals.

Stage 1 in the Alluvium (2020a, 2020b) report considers sediment removal by dredging the lower reach (Fig. 1) (Butter Factory weir to the old boat ramp) at an estimated cost of $1,046,000 or dredging the whole study reach ($2,136,000), with both costs inclusive of approvals. The reviewers endorse this approach and strongly recommend dredging the whole reach (Butter Factory weir to the Busselton Bypass) to achieve 'system-wide impacts' of removal of organic, nutrient-enriched sediments, along with appropriate mitigation actions to protect biota (e.g., Carter's freshwater mussel, endemic freshwater fish) and any unintended side effects from the dredging (e.g., sediment and nutrient resuspension, runoff from dredged spoil and spoil management). The latter effects may require supplementation with various flocculating agents (e.g., alum, polyaluminium chloride (PAC) or Phoslock®). The reviewers also suggest that the timing of applications of flocculating agents (likely Phoslock®, targeted at P adsorption) be aligned with completion of dredging in sections of the LVR, i.e., soon after the dredging, to lock up P in resuspended sediments. Depending on the depth of sediment removal, there may be increased volume in the LVR to improve flood mitigation. Careful monitoring is important, particularly because it has been shown that Phoslock® may increase the release of ammonium under anoxic conditions (Zeller and Alperin 2021).

Stage 2 involves recirculation of water through one or two constructed wetlands. Stage 2A involves modification of the wetlands in a bushland site in the light industrial area, mostly focusing on the lower reaches of the LVR. Stage 2B involves constructing a wetland in an area near Molloy Street. The authors have several concerns about Stage 2 and these

concerns reinforce their viewpoint that completion and evaluation of effects of Stage 1 are a necessary prerequisite for Stage 2. Some of the potential issues of Stage 2 have been mentioned above, including the likelihood that cyanobacteria biomass may not be adequately controlled by the proposed wetlands (even with Stage 3), but also issues related to the succession and density of plants in the wetland to adequately exert nutrient and light control on cyanobacteria in the wetland-LVR system.

The reviewers also highlight the ongoing costs from pumping water up to the wetlands from the LVR. The views expressed about Stage 2 should not be interpreted that the reviewers are not supportive of opportunities for wetlands to improve water quality but there is a high degree of uncertainty associated with aspects of Stage 2 that suggest that Stage 1 should be undertaken in full and monitored carefully.

The authors have some concerns about Stage 3 involving the construction of in-stream vegetated structures that displace water and create wetland habitat within LVR. This approach may reduce the volume of LVR and its residence time, but it also risks dividing the river into small areas that create stagnant areas and enhance stratification, i.e., the environmental drivers of cyanobacterial blooms. The proposed areas will create little additional habitat for biota, especially compared with restoring riparian buffers and natural areas.

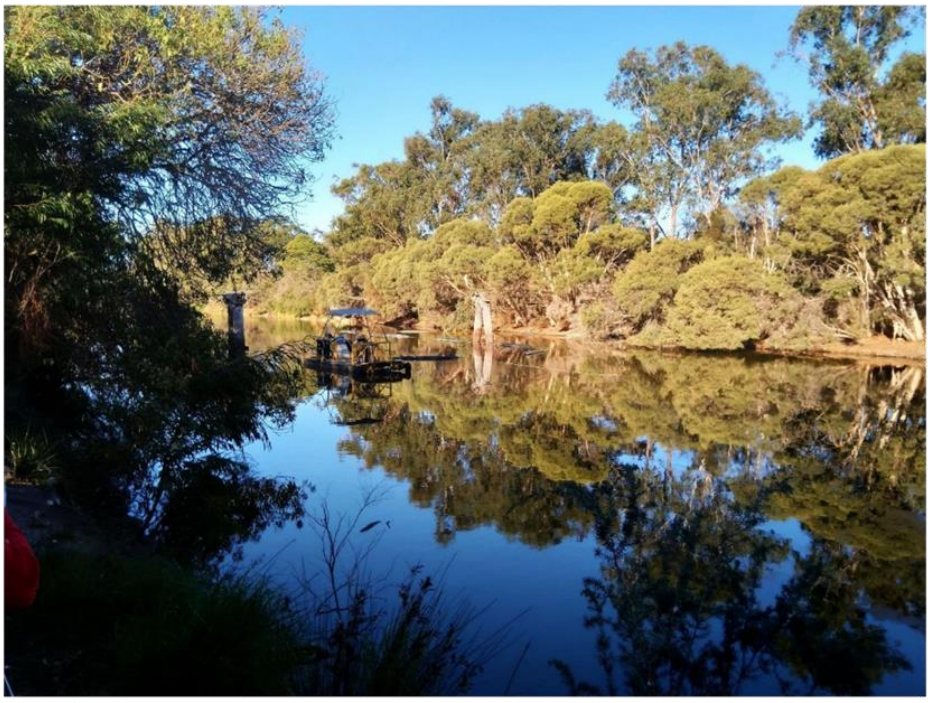

Figure 2 Dredging operation underway in the Lower Vasse River, May 9, 2022.

4. Recommendations

Based on the review of the Alluvium reports and from the information available to the Griffith University researchers, we make the following recommendations:

1) The Stage 1 dredging should be completed in full for the LVR, to address legacy issues of build-up of organic matter and nutrients in the bottom sediments. Associated with the dredging should be use of a flocculant (e.g., Phoslock®) to (a) offset localised effects of the dredging operation (resuspended sediments, spoil supernatant and spoil itself) and (b) be part of a plan to inactivate phosphorus throughout the LVR including releases from the bottom sediments.

2) Stage 2 should not be undertaken until Stage 1 is completed and assessed. There are risks with Stage 2 that the wetland enhancement and construction will not meet expectations for cyanobacteria control because of insufficient duration of shading of cyanobacteria in the wetland (five days) that will not offset their ability to grow in the LVR (20 days). The application of clay to reduce phosphorus availability in the wetland, and by implication in LVR, is a less direct method of control than the proposed P-locking in LVR in Stage 1 and may be part of the staged assessment approach, i.e., following implementation of Stage 1.

3) Stage 3 involving the construction of in-stream vegetated structures to displace water and create wetland habitat requires the wetlands to be in place from Stage 2. The benefits of this approach in reducing volume and increasing flushing rates in LVR could be countered by reduced flood volume storage and creating favourable conditions for the proliferation of cyanobacteria (e.g., increased temperature, stagnation and stratification) due to greater heterogeneity of flow within the LVR.

5. Acknowledgements

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Memo

Subject	Peer review
Project	Living Streams Design for the Lower Vasse River
Distribution	Mathilde Breton, City of Busselton
Author	Bill Moulden
Date	31 Oct 2022

The City of Busselton engaged Alluvium Consulting to respond to a peer review by Hamilton et al. (2022) of its Living Streams concept design for the Lower Vasse River. The peer review adds further insight to the mechanisms causing and controlling cyanobacterial blooms and highlights aspects of the concept design that require further development and progressive monitoring. We agree with the reviewers' recommendations and especially value their insights into the biology of cyanobacteria at the site. However, we feel that they overlooked some aspects of hydrology and water quality that necessitate the construction of Stage 2 and possibly Stage 3 of the concept design

This memo comments on the review and offers recommendations for monitoring of project stages and for the scope of the detailed design of later stages. It also incorporates comments and recommendations from Hart (2022).

Key findings and recommendations of the review by Hamilton et al.

The Lower Vasse River is a seasonally eutrophic system. During winter and spring when temperature is low and water is flowing through the river, the cyanobacterial community, that may be present as akinetes and vegetative forms in sediments, cannot grow and accumulate fast enough to form surface blooms. During summer when flow ceases and temperature increases, populations of cyanobacteria rapidly grow and accumulate on the surface, depleting the available nutrient in the water column to the point where further growth ceases.

Dredging proposed for Stage 1 should be completed along the entire length of the lower Vasse River from the butter factory weir to the Busselton bypass. Dredging should be accompanied by an application of flocculant such as Phoslock to inactivate phosphorus that is resuspended during dredging operations. The effectiveness of Phase 1 should then be assessed.

Stage 2 should only proceed if Stage 1 is evaluated as providing insufficient control of algal blooms. There is a risk that the density and extent of vegetation in the wetlands is insufficient to adequately control algal blooms. The reviewers make no mention of the potential control of cyanobacteria through physical filtration of water flowing through the wetland.

Stage 3 should only proceed after Stages 1 and 2 have been implemented and evaluated. Although the replacement of channel water with solid instream structures will reduce the average residence time, there is a risk that their design may create areas of localised low flow and extended residence time that favour the formation of algal blooms.

Alluvium response to findings regarding Stage 1

We agree that dredging the entire river upstream to the Busselton bypass would remove a large source of nutrient from the system and could reduce the intensity and/or duration of algal blooms. We agree that the application of a flocculant during or soon after dredging would further reduce the risk of blooms in the short term. However, in common with Hart (2002), we are sceptical that flocculant application alone would be sufficient to control blooms in following seasons. While flocculants have been shown to remove phosphorus

from the water column, their ability to permanently fix phosphorus and prevent its release or resuspension is less well documented.

We agree that the outcomes of Stage 1 should be evaluated before proceeding to stage 2. Proposed evaluation questions and measures are described in Table 1.

Table 1 Evaluation of Stage 1

Evaluation question	Measure of success
Has dredging reduced the availability of phosphorus for algal growth?	Phosphorus release from sediment is lower after dredging than before. Methods follow Tulipani (2019)
	Total P in water does not rise after flow ceases. Standard DWER methodology is employed.
Has dredging reduced algal growth?	Algal cell count is lower in seasons following dredging. Standard DWER methodology is employed.
	Chlorophyl A and total suspended solids are lower in season after dredging than before and do not follow the seasonal pattern with peaks in summer. Standard DWER methodology is employed.
	Dissolved nitrogen and phosphorus are depleted more slowly in early summer in seasons after dredging than seasons before. Standard DWER methodology is employed

Alluvium response to findings regarding Stage 2

We agree that there is some uncertainty regarding the performance of the wetlands, particularly regarding the shading mechanism of action. We assessed the feasibility of achieving sufficient vegetation cover using studies from other parts of the world, and the estimate of the potential impact of shading on cyanobacteria comes from a laboratory study. The lack of in-situ data to support the design means that this mode of action is experimental, and will need to be rigorously evaluated.

However, the assessment of performance for removing suspended solids uses well-documented design standards from Australia and a study from a similar environment on the Swan Coastal Plain in Perth.

The concentration of phosphorus in water flowing into the lower Vasse River from the catchment each year is sufficient to maintain an algal-dominated eutrophic ecosystem even in the absence of any phosphorus release from sediments during the cease-to-flow period. Stage 1 alone cannot address this source and both Hamilton et al. and Hart have suggested that it will be difficult to control cyanobacteria in the long term without treating this source. We believe that this aspect of the problem necessitates the construction of Stage 2 for three reasons:

- Cyanobacterial blooms need to be reduced faster than nutrient concentration can be reduced through source control.
- Flocculation of phosphorus using the clay dosing system offers the potential to completely remove phosphorus from the river system if the sediment in the inlet pond is periodically removed. In contrast, flocculation in-situ results in the phosphorus remaining in the river, although in an unavailable form. The potential for the phosphorus to be remobilised is unknown.
- The wetlands offer the potential to physically remove algal cells via filtration through vegetation and potentially through soil in the case of the LIA site.

We agree that Stage 2 should also be evaluated and have proposed a framework in

Table 2. Each mode of action should be independently evaluated to optimise the operation of the wetland.

Table 2 Evaluation of Stage 2

Evaluation question	Measure of success
Has the clay dosing system removed phosphorus from the water?	Upon commissioning of the dosing system and prior to the establishment of vegetation, total and soluble P at the wetland outlet is lower than at the pump inlet.
	Total and soluble P in the river gradually reduces over several weeks.
Does wetland vegetation remove phosphorus?	With the dosing system turned off, total and soluble P at the wetland outlet is lower than at the pump inlet.
Does the wetland filter or physically remove algal cells?	Algal cell count is lower at the wetland outlet than the pump inlet.
	Hydraulic conductivity of LIA soils is measured along with groundwater levels and modelled subsurface flow from the wetland to the river is significant.
Does wetland vegetation interfere with the biology of algal cells?	Chlorophyll A concentration is lower at the wetland outlet than the pump inlet. The effect is greater than the reduction in algal cell count.

Alluvium response to findings regarding Stage 3

We agree that instream structures, if not properly designed, have the potential to create localised hydraulic conditions that promote rather than hamper the growth of algal cells. Accurate monitoring of river levels over the next few years will be required to determine the design elevation of the structures. Detailed hydraulic assessment using a 2D, and possibly 3D, fine-scale hydraulic model will be required during detailed design to determine the planform of the structures.

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Attachment 1

Hart B. 2022. Comments on Peer Review of Living Streams Concept. Water Science report 14 October 2022

Water Science Pty. Ltd.

Comments on Peer Review of the Living Streams Concept
by
Professor Barry T Hart
14 October 2022

Review findings

This document contains comments by Professor Barry Hart (Director, Water Science Pty Ltd) on the *Peer Review of the Living Streams Concept* by the Australian Rivers Institute (ARI), Griffith University (Hamilton et al., 2022).

Hamilton et al. (2022) were commissioned by the City of Busselton to review the Living Streams concept design for the Lower Vasse River (LVR) developed by Alluvium Consulting (Alluvium 2021a,b). The aim of this concept was to reduce the extent, severity, frequency and duration of cyanobacterial blooms in the LVR between the Butter Factory and upstream to the Busselton Bypass, a length of 3.3 km.

In general, the Hamilton et al. (2022) review supported the three-staged approach recommended by Alluvium: Stage I - removal of sediments extending to different distances upstream; Stage 2 - recirculation of water through one or two modified and/or constructed wetlands; and Stage 3 - construction of in-stream vegetated structures to reduce volume and create wetland habitat within the LVR.

However, they made sensible recommendations regarding the introduction of the three stages, namely:

- That the Stage 1 dredging should be completed in full before Stage 2 is commenced
- That during the dredging consideration should be given to using a flocculant, such as Phoslock®, to offset possible localised effects of the dredging and to contribute to the inactivation of phosphorus in the bottom sediments
- That further work be undertaken to ensure that the proposed wetland enhancement and construction project (Stage 2) will achieve its objectives
- That Stage 3 not be commenced until Stage 2 is completed and further that additional work is undertaken to ensure the benefits of this approach.

I agree with these recommendations with some caveats discussed below. Additionally, I believe the adoption of these recommendations will significantly improve the prospects that this project will be successful.

However, I also make comment in this report and previously (Hart, 2014) that unless the two primary causes of the cyanobacterial blooms in the Lower Vasse River - excessive nutrient inputs from the Vasse catchment and insufficient river flow in summer - are adequately addressed, the potential for blooms in river will always exist despite the restoration efforts discussed by Alluvium and Hamilton et al. (2022).

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Other comments

This section contains my more detailed comments on the Hamilton et al. (2022) review.

Overriding issue

Both Alluvium (2021a,b) and Hamilton et al. (2022) make the point that the fact that cyanobacterial blooms occur in the LVR is primarily because of two factors: the excessive nutrient (nitrogen and phosphorus) input from the Vasse catchment; and inadequate river flow in summer. This point was also made in a review I undertook for the WA Department of Water (now Department of Water and Environmental Regulation) in 2014 (Hart, 2014).

I understand that the bypass from the drain to the LVR has been increased in size, increasing flow in the LVR during winter, but resulting in little additional flow in summer. Thus, the summer flow is still inadequate. Additionally, there seems to have been little progress in reducing nutrient inputs from the agricultural areas of the Vasse catchment.

If these two issues - inadequate flows in summer and nutrient reduction from the catchment - were adequately addressed, I would be more confident that the recommended restoration of the LVR would be successful in the long term.

Sediment removal (Stage 1)

Alluvium (2021 a,b) recommended that the existing organic, nutrient-rich sediment in the LVR be dredged to remove a major source of nutrients (and possibly cyanobacteria) that appears to contribute to algal blooms in the LVR in summer. These sediments have accumulated over many years, largely because of the presence of the weir at the Butter Factory (now removed) and the lack of flow in the LVR to scour the sediments further downstream.

Alluvium recommended two options for sediment removal; from the Butter Factory to the old boat ramp at an estimated cost of $1.046 million; and the whole study reach from the Butter Factory to the Busselton Bypass a distance of 3.3 km at a cost of $2.136 million.

Hamilton et al. (2022) recommended that the whole study reach be dredged with which I agree.

A further three aspects need to be considered regarding the dredging.

Hamilton et al. (2022) further recommended that during the dredging, consideration should be given to using a flocculant, such as Phoslock®, to offset possible localised effects of the dredging and to contribute to the inactivation of phosphorus in the bottom sediments. I am somewhat sceptical regarding this suggestionm. There have been many studies of the application of Phoslock® in the LVR over the past 20 years with mixed success. My view is that further work is required on the need for a flocculant during the dredging operation. Additionally, if the sediments are removed, and they don't build up again, the need for inactivation of sediment phosphorus will not be needed.

Neither Alluvium or Hamilton et al. commented on the situation regarding sediment after the dredging, e.g., will sediment continue to build-up in the future or will the addition flow and removal of the weir be sufficient to flush sediments downstream during the winter months?

The third aspect, which is linked to the above point, is what represent success of the dredging option? Hamilton et al. were strong in their recommendation that sediment removal should be completed, and shown to be successful, before any other stages are commenced. However, they provided no commentary on how the success of the dredging should be assessed. My view is that the success criteria for the dredging should be developed as part of the detailed dredging program.

Application of wetlands (Stage 2)

Hamilton et al. (2022), while generally supporting the use of natural or artificial wetlands to improved water quality, nevertheless felt there was a 'high degree of uncertainty associate with aspects of Stage 2 of the project'. In brief, their concerns were:

- Whether adequate cyanobacterial control will be achieved given that the duration of shading of the algae in the wetland (five days) may be insufficient to offset their ability to grow in the LVR (20 days)
- Whether the succession and density of plants in the wetlands will be adequate to control cyanobacteria via nutrient uptake and reduction of light (shading)
- Whether the on-going costs of pumping LVR water to the wetlands may reduce the cost-benefit of this part of the restoration project.

I agree with these uncertainties and recommend that further work be undertaken on the proposed wetland concept.

In-stream structures (Stage 3)

Hamilton et al. (2022) were also concerned about the proposed Stage 3 involving the construction of in-stream vegetated structures to displace water and create wetland habitat within LVR.

Their concerns were the while the volume of LVR and residence time may be reduced (leaving less time for cyanobacterial growth), there is also the risk that the river would be divided into small areas potentially creating stagnant areas and enhance stratification and better conditions for cyanobacterial growth.

Obviously, more work is needed on this Stage 3 option to prove its effectiveness.

It seems unlikely that the type of interventions considered in Stage 3 (and possibly even Stage 2) would be necessary if the two primary issues - excessive nutrients from the catchment and insufficient river flow in summer - were at least partially addressed.

Causes of cyanobacterial blooms

Hamilton et al. (2022) also provided a very useful critique of Section 2.2 of the Alluvium (2021a) report (Causes of blue-green algae blooms). The various points of clarification on cyanobacterial biology are welcome and should be noted by the City of Busselton in any publicity they issue on this project.

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Government of **Western Australia**
Department of **Health**

Lower Vasse River, Busselton - Blue-green algae and human health

What are algae and 'blue-green algae' (BGA)?

Blue Green Algae (BGA) are plants with a very simple cell structure, mostly aquatic (living on, in or near water) and usually very small (microscopic) in size.

What is an algal bloom?

Algae can grow very fast or 'bloom' into thick, visible patches near the surface of the water. Blooms do occur naturally, but excessive nutrients and certain environmental conditions can cause larger growth.

Have BGA been monitored in the Lower Vasse River

Yes, routine water samples have been taken by the Department of Water and Environmental Regulation (DWER) over the last 20 years from several locations along the Lower Vasse River.

What are the key BGA species found in the Lower Vasse River

At two locations (see map below), one near Strelley Street Bridge and the other at the footbridge near Peel Terrace / Stanley Street junction, the following key species of blue green algae (BGA) have been identified:

- *Anabaena circinalis* (now known as *Dolichospermum circinalis*)
- *Anabaena* spp.
- *Anabaenopsis* spp.
- *Aphanocapsa* spp.
- *Microcystis aeruginosa* and *Microcystis flos-aquae*
- *Oscillatoria* spp.





- Images: Lower Vasse River – phytoplankton sample points (Department of Water and Environmental Regulation, 2021)

Why are the key BGA species important?

The six BGA species listed above have the potential to produce toxins that can pose a threat to public health.

Can BGA algal toxins be transmitted by air?

BGA toxins are not easily transported by air. Transportation by air may only occur when spray drift is caused by wind and wave action or where sprays and mists are created by waterfalls, fountains or high-pressure irrigation systems.

In many cases spray drift can be easily resolved by:

- designing buffer zones between public areas and affected water bodies.
- planting trees and shrub screens.
- removing or redesigning waterfalls and fountains.
- connecting irrigation systems and fountains to weather wind monitoring (anemometer switching systems).
- designing sprinkler systems to spray larger sized droplets.

How can I tell if there is an algal bloom?

Signs that may indicate that there is an algal bloom include:

- brightly coloured water
- blue-green scums on the water surface
- brown discoloured water
- oily films on the water surface

If you notice any of these signs it is recommended that you do not enter the water, fish or collect shellfish or other crustacea.

The City of Busselton will also erect warning signs along the banks of the Lower Vasse River when an algal bloom has been identified.



Image: Algae warning sign Vasse River



Image: Standard health recreational water warning sign

What are the potential human health effects from BGA species?

As BGA species can produce toxins direct contact with an algal bloom may cause several health problems including:

- skin rashes
- eye irritation and redness
- ear aches
- itchiness
- swollen lips
- hay fever symptoms
- asthma
- possible skin tumours
- gastroenteritis

Some species of BGA can also effect the liver and the nervous system when eaten.

Can BGA algal toxins cause other health effects?

Recent community concerns have been raised about the potential for a higher incidence of neurodegenerative disease, caused by β-methylamino-L-alanine (BMAA) in people who live or work near waterbodies, impacted by BGA blooms.

This concern initially came from research undertaken in the Pacific Island of Guam in the 1950's, which recorded an association between a number of patients diagnosed with amyotrophic lateral sclerosis/Parkinsonism dementia complex (ALS/PDC) and the consumption of cycad seeds and flying foxes contaminated by forms of BGA.

However, more recent research published by the World Health Organisation (WHO) in 2021 has not supported the link between β-methylamino-L-alanine (BMAA) and neurodegenerative disease.

The WHO further states that even if a link can be made, the consumption of fish and shellfish contaminated by BGA remains the most likely method of human exposure to BMAA. The risk posed by spray drift or aerosols is even less likely.

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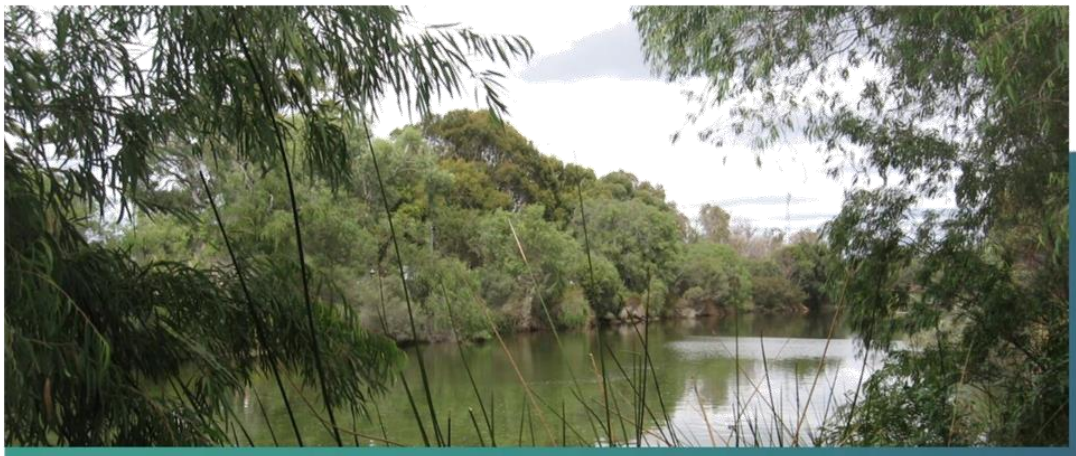
Department of Water and Environmental Regulation
Department of Primary Industries and Regional Development
GOVERNMENT OF WESTERN AUSTRALIA

Lower Vasse River Waterway Management Plan

May 2019



City of Busselton
Geographe Bay

Revitalising Geographe Waterways

VASSE taskFORCE

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Acknowledgement of Wadandi people and country

The Vasse River has great spiritual, environmental, customary and social significance to the Wadandi Nyungar people. From its headwaters at Chapman Hill through to the Vasse-Wonnerup Wetlands, the Bilya (river) carries their songline. The Wadandi people are the traditional custodians of the Lower Vasse River, and this connection will be recognised in its future management.

All systems and beliefs have water as life, blood. We can't survive without fresh water: it's blood, life.

(Isaac Webb, 2018, cited in BGA 2018)

Executive Summary

Background

The Lower Vasse River is a reach of the Vasse River approximately 5.5km in length from the Vasse Diversion Drain to the weir structure at the Old Butter Factory. It flows through the centre of Busselton, about 250km south of Perth. This reach is greatly modified, with an estimated 90% of catchment flows diverted to Geographe Bay, and impoundment by the weir structure at its downstream end. The river is highly eutrophic, with severe algal blooms occurring each year during the warmer months.

Isolation in terms of flow; the conditions of extremely poor water quality experienced; and the high-profile location have led to the need for specific management of this area. This is the focus of this Water Management Plan. It was initiated though the Revitalising Geographe Waterways program, in response to community concerns about water quality issues in key water assets in the Geographe Bay Catchment. The Water Management Plan has been developed using a collaborative approach that has allowed for extensive consultation to work towards future management of the Lower Vasse River that aligns with community priorities, is well-understood and accepted, and has significant commitment to implementation by stakeholders.

Purpose and scope

The City of Busselton (the City) has developed this Waterway Management Plan (WMP) to guide future management strategies and actions that will work towards the vision for the Lower Vasse River:

> *The Lower Vasse River is an icon of Busselton, valued and enjoyed by the community, as a healthy waterway linking people and nature.*

The Plan includes a description of the characteristics and management issues for the Lower Vasse River, and provides objectives for the future. Through a review of available management options and consideration of stakeholder input, a comprehensive series of management strategies, each with specific actions, has been developed to guide works that will contribute to the objectives and overall vision for The Lower Vasse River.

Management focus areas

Management issues for the Lower Vasse River have been grouped into the following seven focus areas, with 16 associated management objectives, summarised here in order of importance as rated during community consultation. The table below provides management strategies and actions for each focus area.

1. Water Quality

Nutrients are a key driver of algal blooms, so ongoing load reduction actions are a fundamental part of management. However, it often takes a long time to achieve load reductions, and they may be counteracted by new developments and changes to land use. Algal blooms can also be addressed through interventions that limit nutrient availability or directly target algal blooms. They may also be managed by creating less favourable physical conditions for phytoplankton; or restoring ecosystem functions such as nutrient cycling and food web processes.

Objectives:

- Reduce nutrient contributions to the Lower Vasse River from all existing sources to improve water quality and reduce the frequency and severity of toxic algal blooms.
- Minimise any additional nutrients flowing into the Lower Vasse River from new developments and agricultural intensification.
- Utilise science and innovative technologies to improve water quality in the Lower Vasse River.

2. Ecology

Although degraded, the Lower Vasse River still provides habitat for native freshwater fish, frogs, turtles and invertebrates, and open water areas for waterbirds. The riparian vegetation contributes to aquatic habitats and also supports a range of terrestrial fauna and birds. The permanent fresh waters of Lower Vasse River provide a unique habitat in a landscape of seasonal wetlands and estuaries. There is significant scope to enhance ecological values through managing invasive species and restoring habitat.

Objectives:

- Protect and enhance native aquatic and terrestrial habitats in the Lower Vasse River and the foreshore reserve.
- Reduce the impact of threatening processes on the natural values of the Lower Vasse River and the foreshore reserve.
- Balance mitigation of fire risks with the protection of natural values of the Lower Vasse River foreshore reserve.

3. Water Flow

There have been substantial changes to the hydrology of the Lower Vasse River and its catchment through physical changes, diversion and impoundment. There is a strong perception in the community that increasing flows from the Vasse Diversion and removal of the Butter Factory weir boards will improve water quality and mobilise sediments. This approach is limited by flow regimes, flood risks and influence on nutrient loads; and a lack of defined management responsibilities for operation of flow control infrastructure.

Objective:

- Optimise water flow in the Lower Vasse River to balance improvement of water quality, protection of natural values and public amenity, while maintaining flood protection.

4. Sediments

The Lower Vasse River system has accumulated a layer of nutrient rich organic sediments, which contribute nutrients to the water column over summer, driving algal blooms. These sediments provide habitat for beneficial aquatic plants and benthic invertebrates. Sediments are therefore are a key consideration in addressing water quality problems in the Lower Vasse.

Objectives:

- Strategically manage accumulated sediments to protect the natural, cultural and social values of the Lower Vasse River.

5. Amenity, Recreation and Education

A number of trails and public open space areas adjoin the Lower Vasse and these are still regularly used by the community. Poor water quality has greatly reduced the opportunities for recreational activities in and around the river during the warmer months. Access and recreation was rated the highest and the focus area requiring change. There is significant potential for improving amenity and recreational and educational opportunities through enhancing ecology, improving facilities, addressing water quality problems, and developing information material.

Objectives:

- Improve visual amenity, public health and odours for residents and visitors to enjoy the Lower Vasse River.
- Facilitate recreational and educational opportunities, which are compatible with protection of the key values of the Lower Vasse River and enhance community stewardship.
- Enhance public access to the Lower Vasse River and within the foreshore reserve, with a focus on creating linkages to the town centre and surrounding areas while protecting the river's natural values.

6. Culture and Heritage

The river has historically been an iconic feature of the town and focal point for recreational and social events. There is a strong Aboriginal cultural connection to the river and a need for greater recognition of the role of Aboriginal people in future management.

Objective:

- Promote understanding of the Aboriginal and European history and culture of the Lower Vasse River.

7. Governance

The need for a designated manager of the Lower Vasse River was recognised by the independent review of waterways management, and also highlighted during community consultation. The lead role of the City in the future management of the Lower Vasse River will be recognised through endorsement and adoption of this WMP. This will task the City with responsibility for coordinating implementation, however key stakeholders and the community will have ongoing roles in many aspects of the WMP.

Objectives:

- Develop and maintain partnerships and a collaborative approach between key stakeholders and the community when managing the Lower Vasse River.
- Maximise opportunities for protection of the Lower Vasse River as part of future development proposals and changes in land uses.
- Manage the Lower Vasse River with consideration to other water assets, including the Vasse-Wonnerup Wetlands and Geographe Bay.
- Improve knowledge and understanding of key values and management issues of the Lower Vasse River to support adaptive management.

Living Streams

This WMP recommends further development of a Living Stream approach to future management of the Lower Vasse River. The term *Living Streams* describes an approach to managing urban stormwater that creates a complex ecosystem with outcomes for ecology, water quality, water conveyance and amenity. For the Lower Vasse River, this would involve altering the morphology to restore ecological processes and create physical conditions that provide greater resilience to high nutrient conditions. It may also facilitate intervention actions, such as water treatment and sediment removal, in specific areas of the river.

Implementation

The lead role of the City in the future management of the Lower Vasse River will be recognised through endorsement and adoption of this WMP. Other key stakeholders will continue to have important roles in many aspects of implementation, and there is an ongoing need for community reporting and feedback.

There are many management actions recommended in the WMP and currently there is no guaranteed funding mechanisms or timeline for implementation. A framework for implementation is provided that defines the roles and responsibilities of key stakeholders and a process for action planning, works, evaluation and reporting. This will allow ongoing prioritisation and implementation of actions in line with available funding, and building on new information from research, monitoring and outcomes as management progresses.

Implementation process for the Lower Vasse River Waterway Management Plan:



Management strategies and actions for the Lower Vasse River.

Strategies and actions are grouped for the Living Streams approach (LS) and each focus area: Water Quality (WQ); Ecology (E); Water Flow (WF); Sediments (S); Amenity; Recreation and Education (ARE); Culture and Heritage (CH); Governance (G).

Management Strategies	Management Actions
Living streams approach	LS.1 Continue to develop Living Streams planning as a pathway for implementing ecological restoration and water quality improvement works, and assess community support for this approach. LS.2 Incorporate the key principles into restoration planning as part of the Living Streams approach.
Protecting water quality from urban sources	WQ1.1 Quantify nutrient and pollutant exports from Busselton Light industrial area (LIA) to the Lower Vasse River to inform a case for deep sewerage. WQ1.2 Explore options to secure deep sewerage for the Busselton LIA in partnership with Water Corporation. WQ1.3 Assess opportunities for greater connection to existing sewerage infrastructure within the LVR catchment. If there a significant opportunity exists, investigate options and incentives to increase connectivity. WQ1.4 Planning decisions to include appropriate sewerage management requirements and best practice water management, through implementing the *Better Urban Water Management* framework. WQ1.5 Develop a prioritised program for stormwater upgrades to maximise nutrient reduction outcomes. WQ1.6 Support educational campaigns that aim to reduce nutrients in runoff through individual and community actions (e.g. Bay OK). WQ1.7 Support implementation of the Vasse-Wonnerup Wetlands and Geographe Bay Water Quality Improvement Plan (WQIP).
Reducing nutrient inputs from the rural catchment	WQ2.1 Support projects focussed on reducing nutrient exports from rural catchment of the LVR, as recommended in the Vasse-Wonnerup Wetlands and Geographe Bay WQIP (DoW 2010; noting future updates of this document): WQ2.2 Explore opportunities for enhanced nutrient assimilation in rural drains in the LVR catchment, particularly those in reserves.
Water treatment	WQ3.1 Incorporate outcomes from the Water Quality Treatment Trials (2016-2018) into future management planning. WQ3.2 Undertake seasonal water treatments in priority amenity area/s prior to algal bloom establishment, ensuring physical isolation to maximise effectiveness (dependent on outcomes Water Quality Treatment Trials, 2016-2018). WQ3.3 Maintain research partnerships to identify and investigate new technologies to treat water in the future.
Riparian vegetation management	E1.1 Develop and implement a revegetation program for City-managed foreshore reserves, considering recommended rehabilitation areas reported in Ecoedge (2017). E1.2 Continue to impose appropriate conditions on new developments adjacent to the Lower Vasse River that ensure future vesting and revegetation of foreshore reserves. E1.3 Include creation and improvement of habitat for birds and possums in planning riparian revegetation. E1.4 Update the Vasse River Action Plan in partnership with adjacent landholders, and extend this throughout the Lower Vasse River study area.

	E1.5	Minimise fire risks associated with foreshore reserves by: reducing growth of annual grassy weeds; and considering species type, height and planting density when planning revegetation.
Understanding and protecting waterbirds	E2.1	Undertake a survey of waterbirds of the Lower Vasse River and identify important habitat zones, with strong involvement from the community.
	E2.2	Protect identified important bird habitat zones through revegetation and weed control, recognising the current role of weeds as habitat.
	E2.3	Create additional habitat zones for birds by placing large woody debris emerging from the water.
	E2.4	Avoid identified important bird habitat zones when planning future infrastructure, and consider nesting season when planning works.
Controlling invasive species	E3.1	Prevent of further spread of Mexican waterlily through herbicide control and/or shading.
	E3.2	Undertake strategic control of Mexican waterlily to progressively reclaim areas of open water, while minimising adverse impacts and preventing a return to algal blooms in these areas.
	E3.3	Undertake regular feral fish eradication activities in partnership with Murdoch University.
	E3.4	Undertake targeted control of arum lily and Brazilian pepper trees throughout the Lower Vasse River study area.
Optimising flows	WF1.1	Increase flushing of the river by installing a second 900mm culvert at outflow point from Vasse Diversion Drain, in accordance with recommendations from the Reconnecting Rivers Report (DWER 2018).
	WF1.2	Monitor impacts of increasing flows into the Lower Vasse River.
	WF1.3	Undertake intensive monitoring water quality in the Vasse Diversion to support operational guidelines for managing the culvert.
	WF1.4	Develop operational guidelines for the Vasse Diversion culvert that defines responsibilities and provides formal guidance for manipulation of the valve to maximise water quality benefits and minimise risk of flooding.
	WF1.5	Review function of the Butter Factory weir boards to inform their future use and need for replacement.
	WF1.6	Investigate potential for increasing internal circulation in the system during summer to reduce residence time for phytoplankton.
Sediment Removal	S1.1	Undertake a small-scale sediment removal project, using geotextile bags for dewatering and disposal, to assess cost and logistics of this approach.
	S1.2	Determine feasibility of disposal options for future sediment removal: landfill, composting, soil conditioner.
	S1.3	Depending on outcomes of small scale removal, undertake staged removal of sediments in the Lower Vasse River as a component of Living Streams design.
Improving facilities and information	ARE1.1	Review existing facilities and develop a concept plan for strategic pathways and viewing points that connect people with the river.
	ARE1.2	Update the interpretive signage around the river to provide information on of the history, ecology, hydrology and management of the Lower Vasse River.
	ARE1.3	Develop online and printed resources with interesting and important information on ecology, water quality, history and management of the Lower Vasse River.
	ARE1.4	Establish bird watching areas and hides in appropriate places with informational material.
	ARE1.5	Encourage opportunities for citizen science to contribute to understanding and appreciation of the Lower Vasse River.
Public health management	ARE2.1	Continue monitoring phytoplankton species and densities to inform public health notifications.

	ARE2.2	Review algal bloom warning sign protocol and prepare a communication program to inform the community when harmful algal blooms occur.
	ARE2.3	Develop a policy for use of recreational watercrafts in the Lower Vasse River, including consideration of public health constraints.
Recognising Wadandi custodianship	CH1.1	In partnership with Wadandi people, include reference to traditional custodianship of the waterways and land in development of information resources.
	CH1.2	Manage future access in a way that avoids additional disturbance and considers protection of potential sites of significance – however Wadandi activities such as fishing, camping, the gathering of bush foods and family recreational and educational activities, should not be restricted by implementation of this plan.
	CH1.3	Seek to improve partnerships with the Wadandi community to increase their involvement in the management, protection and restoration of the Lower Vasse River.
	CH1.4	Consult further with Wadandi representatives in regards to specific works which result from this plan.
	CH1.5	Support programs that engage the Wadandi community in implementation of works associated with this plan.
Preserving historical values	CH2.1	Identify and ensure appropriate maintenance of sites of historical importance.
	CH2.2	Develop interpretive material to increase understanding of local history, and to promote, appreciate and access historical sites.
Collaborative and adaptive management	G1.1	The City to consider securing management orders over the waterway and adjacent public lands in Lower Vasse River study area, to facilitate implementation of this plan.
	G1.1	Establish a Management Advisory Group comprised of representatives from the City, Department of Water and Environmental Regulation, Department of Biodiversity, Conservation and Attractions, Water Corporation, GeoCatch, Wadandi representatives, and other community representatives.
	G1.2	Continue water quality monitoring in the Lower Vasse River.
	G1.3	Ensure adequate monitoring and reporting of outcomes from management actions, and feedback results into future management actions.
	G1.4	Maintain and develop partnerships with research organisations to improve knowledge and management of the Lower Vasse River.
Optimising planning tools	G2.1	Improve clarity of planning approval requirements for changes to land use and new developments in the agricultural sector (e.g. horticulture, dairies, feedlots).
	G2.2	Assess future development proposals and changes of land-use on adjoining lands with consideration of impacts on the Lower Vasse River.
	G2.3	Include 50m wide foreshore reserves as part of future development adjacent to the river.

1 Introduction

The City of Busselton (the City) has developed this Water Management Plan (WMP) to recommend management actions that will lead to improved water quality and ecological health for the Lower Vasse River. The vision for the Lower Vasse River, developed for this Water Management Plan in partnership with the community and stakeholders, is:

> *The Lower Vasse River is an icon of Busselton, valued and enjoyed by the community, as a healthy waterway linking people and nature.*

1.1 Background to this Waterway Management Plan

The Lower Vasse River is a high profile waterway in Busselton, flowing through the entrance to the town centre, and is a strong part of local history. It has extremely poor water quality as a result of increased nutrient loads form the catchment and changes to hydrology. Seasonal blooms of harmful phytoplankton are a major concern for the community and management. The river has been greatly modified from its original state and ecological health has declined, however it remains an important freshwater habitat supporting aquatic fauna and waterbirds.

This WMP is part of Revitalising Geographe Waterways (RGW), a $15 million program encompassing 30 projects to improve water quality and ecosystem health in key water assets. Within the RGW program, the City was given responsibility to prepare WMPs for the Lower Vasse River and Toby Inlet. The Department of Biodiversity, Conservation and attractions was given responsibility to develop an Operational Plan for the Vasse-Wonnerup Wetlands system.

The RGW program is one of five focus areas of the Vasse Geographe Strategy, a State Government initiative to address water quality in the Geographe Bay catchment (Figure 1). The program also includes three projects directly related to the Lower Vasse River WMP: the Reconnecting Rivers hydrological modelling project; the stormwater upgrades project for Busselton; and water treatment trials in the Lower Vasse River.

The Vasse Geographe Strategy was initiated by an independent review of waterways management (Hart 2014), commissioned by the State Government in response to serious community concerns about water quality issues. The Vasse Geographe Strategy is overseen by the Vasse Taskforce, comprising representatives from:

- Department of Water and Environmental Regulation (DWER)
- City of Busselton (the City)
- Shire of Capel
- Geographe Catchment Council (GeoCatch)
- Department of Biodiversity, Conservation and Attractions (DBCA)
- Department of Primary Industries and Regional Development (DPIRD)
- Department of Planning, Land and Heritage (DPLH)
- South West Catchments Council (SWCC)
- Water Corporation (WCorp)
- Busselton Water (BW)

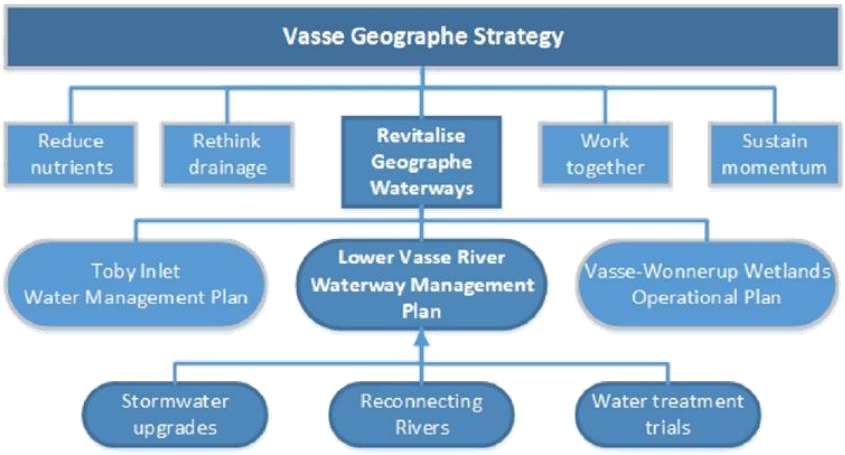

Figure 1. Framework for developing the Lower Vasse Waterway Management Plan.

1.2 Study area description

The study area includes the reach of the Vasse River approximately 5.5km in length, from the Vasse Diversion Drain to the weir boards at the Old Butter Factory, flowing through the centre of Busselton. The river discharges through a wetland area into the upper reach of the Vasse Estuary, which is part of the internationally significant Vasse-Wonnerup Wetland System. The study area includes the river itself and some adjacent areas of public land (Figure 1). Areas of water and unallocated crown land have no management responsibility designated, other areas are foreshore reserves managed by the City.

The lower section of the Vasse River is within Busselton's urban area, with a mix of residential and light industrial uses in the catchment. Upstream of the Busselton Bypass the surrounding land is agricultural, aside from the golf course. Upstream of the intersection with the Vasse Diversion, dairy and beef grazing are the dominant uses in the catchment and are intensifying.

The Vasse River catchment has ephemeral headwaters in the Whicher Scarp to the south, and lowland reaches crossing the Swan Coastal Plain. Extensive clearing and construction of the artificial drainage network during the early 1900s facilitated agricultural development across the Swan Coast Plain areas of the catchment. Native vegetation in these areas is very limited, and much of what remains is therefore of high conservation value. The upper parts of the catchment in the Whicher Scarp still retain substantial areas of remnant vegetation.

The Vasse Diversion diverts flow from approximately 90% of the Vasse River catchment to Geographe Bay. It was constructed in the early 1900s to provide flood protection for Busselton. Flow from this region of the catchment is restricted to a 900mmm pipe at the intersection, which may be open or closed by a manually-operated valve. This diversion drain physically separated the lower reach of the Vasse River, known as the Lower Vasse River, substantially changing the natural hydrological regime. At the downstream end of the study area the river is impounded by a weir, established in the early 1900s to maintain higher summer water levels through the town section for amenity and recreation

purposes. Removable weir boards are installed at the end of winter and removed in autumn. The effect of flow diversion and impoundment is essentially an elongated "lake" area from late spring to late autumn. In recent years, the weir boards have become degraded and gradual leaking of water during summer leads to water levels defined by land to the east near Ford Road.

Owing to increased inputs of nutrients from catchment sources, and the still conditions created by impoundment, the Lower Vasse River is eutrophic. Extremely high nutrient concentrations, particularly phosphorus, and ideal physical conditions drive severe seasonal algal blooms for up to seven months from November to May. Algal blooms cause unsightly water discoloration and scums and unpleasant odours. These blooms are often dominated by blue-green algae (cyanobacteria) which are potentially toxic and close the waters to public use.

Despite seasonally poor water quality, the Lower Vasse River retains social and natural values. It provides permanent freshwater habitat and vegetated foreshore areas that support native fauna, including many waterbirds, native fish, oblong turtles, freshwater mussels and western ringtail possums. Many people in the community still enjoy the ecological characteristics amenity of the river.

The isolation of the Lower Vasse River by diversion and impoundment; the conditions of extremely poor water quality experienced; and the high profile location have led to the need for specific management of this area. This is the focus of this WMP.

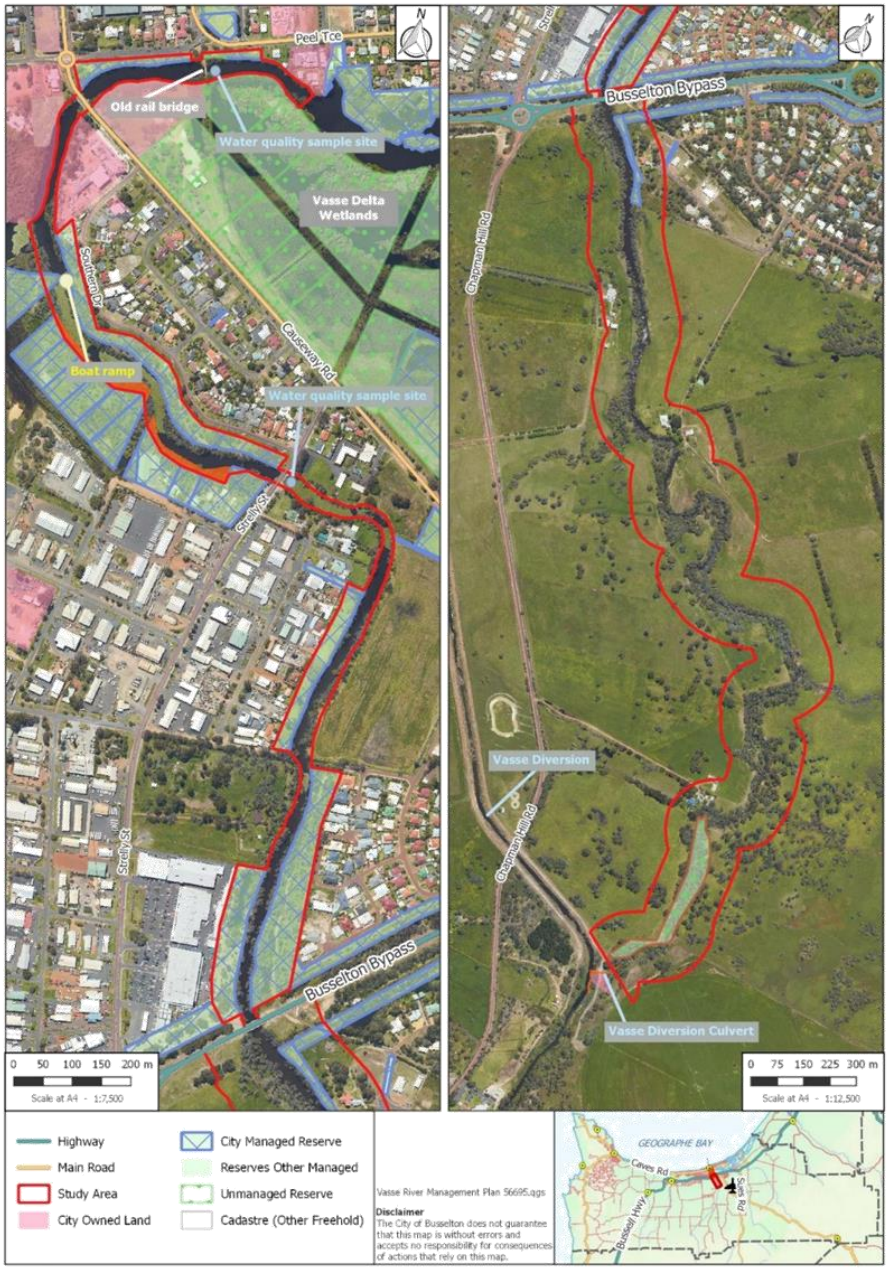

Figure 2. Study area for the Lower Vasse River Waterway Management Plan, showing tenure and landmarks.

1.3 History of management

Poor water quality in the Lower Vasse River has been a focus of management activities for at least two decades. The Lower Vasse River Cleanup Program (LVRCP) commenced in 1999, which implemented a range on-ground works and trials to improve the ecological health of the system (Paice 2005). Key components of the LVRCP were:

- sediment treatment and removal;
- restoring river ecology;
- rural catchment management; and
- urban catchment management.

These approaches had some success and have provided useful information for future work. The revegetation undertaken through this project has doubtless enhanced the ecological values of the river. However water quality remains extremely poor with severe algal blooms recurring each year during the warmer months. A review of the LVRCP recommended priority areas for action as:

- continued partnerships to assess appropriate sediment remediation options;
- maintenance of revegetated areas in terms of weed control;
- continued revegetation with emergent and submerged plants;
- formalise agreed management of water flows through the river to maximise flushing;
- management of the feral goldfish population;
- identifying and addressing point source problems in particular septic tank leachate; and
- ongoing monitoring and evaluation to measure progress towards long term objectives (Paice 2005).

Since the Lower Vasse River Cleanup program, managers have continued to implement nutrient reduction actions in the rural and urban catchments, including river restoration, implementation of best management practices and installation of stormwater treatments. There have also there have been small scale studies to assess potential for improving water quality using other measures such as enzyme treatments, floating islands and establishing aquatic plants.

The independent review of the waterways management (Hart 2014) highlighted the lack of an obvious lead agency. It made the distinction between long-term reduction of nutrients from the overall catchment, and short-term management of the impounded reach Lower Vasse River. It highlighted the need for an operational management plan for this section of the river that would address the dual objectives of achieving good water quality while also preventing flooding in Busselton.

1.4 Process for developing the Waterway Management Plan

The WMP has been developed using a collaborative approach that has allowed for extensive consultation to work towards future management of the Lower Vasse River that aligns with community priorities, is well-understood and accepted, and has significant commitment to implementation by stakeholders. Key stakeholders that contributed to this WMP are:

- City
- Community members
- Aboriginal People
- GeoCatch
- Department of Water and Environmental Regulation
- Department of Biodiversity, Conservation and Attractions
- Water Corporation

The process for developing the WMP is shown in Figure 3. The consultation process has contributed directly to the management issues, vision, management objectives, management strategies and actions for the WMP. Activities undertaken for consultation are outlined in the following sections. The consultation process and the overall WMP have been informed by review of existing information about the Lower Vasse River and new information gained through projects undertaken during the planning process. It is important to note the adaptive nature of this WMP. It has been prepared at a point in time, using the information currently available. Implementation will require an ongoing process of monitoring and evaluation to determine future actions.

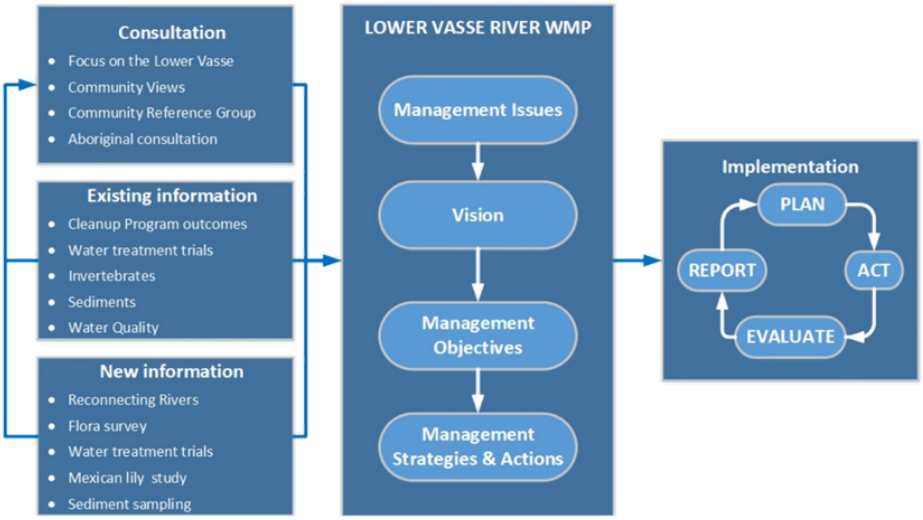

Figure 3. Process for developing the Lower Vasse River Waterway Management Plan

1.4.1 Community consultation

Consultation with stakeholders was an integral part of preparing this WMP. The aims of consultation were:

- To understand community issues and concerns on the Lower Vasse River;
- Gain input, ideas, feedback into future management of the Lower Vasse River;
- To get support from the community on proposed actions; and
- To raise community awareness and understanding of local water quality issues.

Early consultation events were widely advertised to attract a broad representation from the community. The first of these, *Focus on the Lower Vasse* in June 2015, provided current information and sought to identify issues of most importance to the community. The *Community Views* event in March 2016 was also open to whole community and facilitated rating of management issues valued characteristics and desired change (Figure 4; AHA 2016). These results reflected a high level of importance on issues related to the health of the Lower Vasse River and associated amenity (82%). Other issues rated as important were recreation and access, heritage, flood and management. The outcomes of this consultation were used to formally identify key management issues, as outlined in Section 2 of the WMP. Information provided by the community regarding their understanding of the system and suggested management actions were used to develop draft management objectives, and were considered when reviewing management options.

Following initial consultation, the Lower Vasse River Community Reference Group (CRG) was formed to provide ongoing input to WMP. This group was formed by inviting participants of earlier events to nominate for ongoing involvement. It also included representation from the Department of Water and Environmental Regulation and GeoCatch, as key supporting partners in development of the WMP. Facilitated workshops with this group were held to develop the vision, management objectives (AHA 2017a, 2017b) and management strategies and actions (AHA 2018) for the WMP.

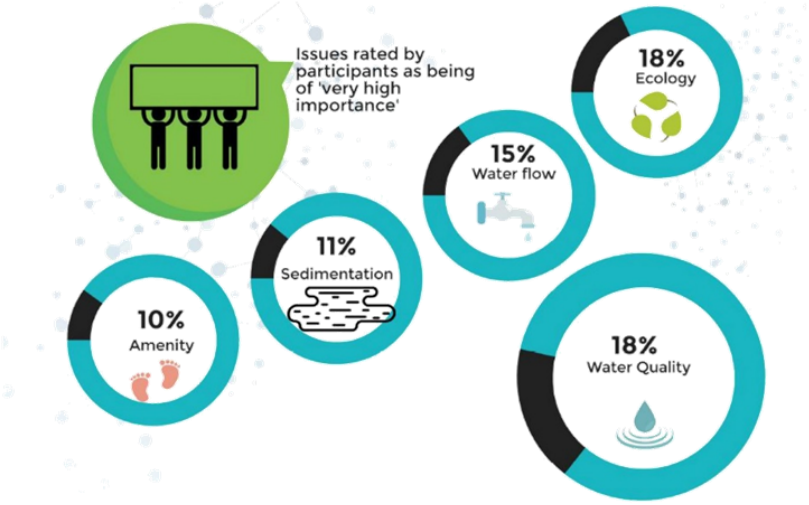

Figure 4. Outcomes of identifying and rating management issues for the Lower Vasse River from the *Community Views* consultation session, March 2016.

1.4.2 Aboriginal consultation

In recognition of Aboriginal (Wadandi) people as the traditional custodians of country, and understanding the significance of waterways to Aboriginal people, additional consultation was undertaken with the South West Boojarah (SWB) and Harris Family native title claim groups to allow their input to the WMP.

The study area is within the South West Boojarah Indigenous Land Use Agreement area which is one of six Agreement areas that form part of the South West Native Title Settlement Area[1].

Presentations were given to the South West Boojarah (SWB) Working Party and subsequent during an Aboriginal heritage survey. An overview of the RGW program and the draft management objectives were presented to the SWB Working Party.

An aboriginal heritage survey was undertaken with representatives of the SWB and the Harris family native title groups in February 2018, encompassing the study areas of the Lower Vasse River and Toby Inlet water management plans and the Vasse Wonnerup Operation Plan. The survey was facilitated by Brad Goode and Associates (BGA) and included briefings and a bus tour of key sites for discussion of scientific investigations, future management actions and the content of the plans (BGA 2018). On-site discussions were held on key potential management actions including sediment removal, water treatment, reshaping and revegetation, Mexican waterlily control.

The representatives highlighted the importance of connectivity of waterways in the landscape from both spiritual and ecological perspectives. They highlighted the importance of managing the headwaters of the river to address the real cause of poor health in the lower reach, relating problems in the Lower Vasse to disruption of connectivity with its catchment. They also acknowledged that it is not practical to return the river's hydrology to its natural state. The group supported specific works to address sediment and water quality problems, including sediment removal and waterlily control. Information from this consultation has been considered in the development of management strategies and actions in this WMP.

[1] Current information on the South West Native Title Settlement: http://www.noongar.org.au

2 Management Issues

Through the consultation process, management issues were grouped into the following eight key focus area for management:

1. Water quality
2. Ecology
3. Water flow
4. Sedimentation
5. Amenity
6. Recreation and Education
7. Heritage
8. Governance

The most important issues for management the Lower Vasse River as rated through community consultation are water quality, ecology, water flow, and sedimentation. These are key river health issues, which are interconnected and fundamental to ongoing management of the river.

Management strategies which provide outcomes for river health will contribute directly to social issues by improving amenity and increasing opportunities for recreation and education. In turn, facilities to provide for these activities will allow for promotion of cultural heritage values. Governance relates to policy and management responsibilities, which will underlie the implementation of strategies to improve river health.

A summary of key management issues and available information for these focus areas is provided in this section.

2.1 Water quality

2.1.1 Nutrients and algal blooms

The Lower Vasse River is a eutrophic waterway, with very high nutrient concentrations resulting in extremely high densities of phytoplankton (microscopic algae), commonly referred to as algal blooms. These algal blooms persist for up to seven months each year, generally between December and May, resulting in discoloured water, unsightly scums and unpleasant odours. The blooms are dominated by blue-green algae (cyanobacteria), which are potentially toxic to animals and humans (Figure 5). Not surprisingly, water quality is the most significant management issue for the Lower Vasse River.

It is interesting to note that "thick algae" was observed in the river in 1940 (Mouritz, Elphick and Anderson).

Nitrogen and phosphorus are the main nutrients contributing to eutrophication. Nutrients have been regularly sampled by DWER at two sites in the Lower Vasse River (Figure 2):

i. Strelly Street Bridge from 1996 – 2010, and since January 2017 (excluding winter since 2000);
ii. Old rail bridge from 1996 – 2010.

Total nitrogen (TN) concentrations have often exceeded ecosystem protection guidelines in the past (Figure 6a). However, sampling in recent years has lower TN concentrations, particularly at the Strelly Street site. Monthly data for the old rail bridge site shows high TN in winter and a gradual decrease

during spring, followed by an increase to very high levels in summer (Figure 6b). Peak TN in summer corresponds to peak algal growth (Figure 6e), and is likely related to the ability of blue-green algae to fix nitrogen from the atmosphere. Very little nitrogen is present in dissolved available forms, which limits the amount available for growth or other types of algae.

Total phosphorus (TP) concentrations in the lower Vasse River are extremely high with annual and monthly means consistently exceeding ecosystem protection guidelines, often by an order of magnitude (Figure 6c, d). Phosphorus concentrations show a seasonal increase from spring to summer and then remain high (Figure 6d). Unlike nitrogen, the phosphorus concentrations are higher at the Strelly St Bridge site upstream, where algal blooms have been less severe in recent years (Figure 6e). This is unusual, as phosphorus is known to promote algal growth. Dissolved phosphorus is consistently high at the Strelly Street site, accounting for an average 48% of TP. At the old rail bridge site, dissolved phosphorus accounts for an average 17% of TP, and decreases over the duration of the season. Dissolved oxygen concentrations are much lower at the Strelly Street site than downstream and this may be linked to higher phosphorus concentrations, as phosphorus is released from sediments under low oxygen conditions.

Chlorophyll a is an indicator of phytoplankton growth, and very high concentrations throughout the river until 2010 reflect seasonal algal blooms. Chlorophyll a has been much lower at the Strelly St Bridge site since sampling recommenced in the 2016-17 season (Figure 6e). It has remained high at the old rail bridge in recent years, showing a seasonal increase in correspondence to increasing algal growth in the summer (Figure 6f). This is also reflected in monitoring of phytoplankton cell densities and species (Figure 8), which shows continuing dominance by blue-green algal blooms at the old rail bridge; but a substantial reduction at Strelly Street. There has been a shift at the Strelly St site to harmless species of green algae, with occasional 'bloom' densities. Lower phytoplankton growth at the Strelly Street site is no doubt due to the recent presence of Mexican waterlily at this site. The waterlily prevents light entering the water column, preventing algal growth. However, as discussed in Section 2.2.3, Mexican waterlily appears to reduce algal growth more broadly.

2.1.2 Nutrient sources

Nutrients in the Lower Vasse River come from surface runoff and groundwater infiltration; and are also released into the water column from the sediment (0). Nutrient sources include residential, commercial, industrial and rural sources in its local catchment area (downstream of the Vasse Diversion), as well as some flows from the Vasse Diversion. In addition to ongoing inputs to the river, nutrients accumulate in the sediments from the ongoing cycle of algal growth and decay, providing an internal source of nutrients (2.4).

Water quality analysis and modelling for the Water Quality Improvement Plan (WQIP) estimated that septic systems in the Busselton light industrial area (LIA) contribute 0.45 tonnes (9.4%) of phosphorus 1.3 tonnes of nitrogen 3.7% to the river annually (DoW 2010). This modelling also predicted that urban expansions in the catchment could result in a 41% increase in phosphorus load and a 23% increase in nitrogen load. Importantly, the WQIP also identified one feedlot as being the largest contributor of phosphorus in the Lower Vasse River catchment (since converted to irrigated horticulture, and likely to remain a significant phosphorus source). Dairy sheds also contribute a significant proportion of nutrients from broader agricultural areas.

Nutrient concentrations in the Vasse Diversion vary widely from acceptable to extremely high, with mean annual concentrations since 2008 of 1.6-2.4 mg/L for TN and 0.03-0.23 mg/L for TP. Nutrient inputs to the Vasse River depend on the operation of the culvert valve connection to allow water to flow through the 900mm pipe at the upper end of the river (Section 2.3). Opening of the valve connection is not formally managed and flows are not formally recorded. There may be potential to optimise management of the valve connection to reduce flows when nutrient levels are high. Community perception is that water flow from the Vasse Diversion to the Lower Vasse River should be maximised to improve water quality by flushing the river.

2.1.3 Downstream impacts

In addition to problems associated with nutrient enrichment within the river itself, high loads of nutrients flowing through the river influence the wetlands and the Vasse Estuary downstream. The WQIP reports that the Lower Vasse River contributes very high nutrient loads to downstream waters relative to its catchment size (DoW 2010); and recommends long-term load reductions of 67% for phosphorus and 70% for nitrogen to meet acceptable loadings for the Vasse-Wonnerup Wetlands. Management actions for the Lower Vasse River need to consider downstream impacts. For example, increasing flows from the Vasse Diversion to the Lower Vasse River would increase nutrient loads from this source to the Vasse Estuary (Section 4.8).



Figure 5. Blue green algal bloom in the Lower Vasse River.

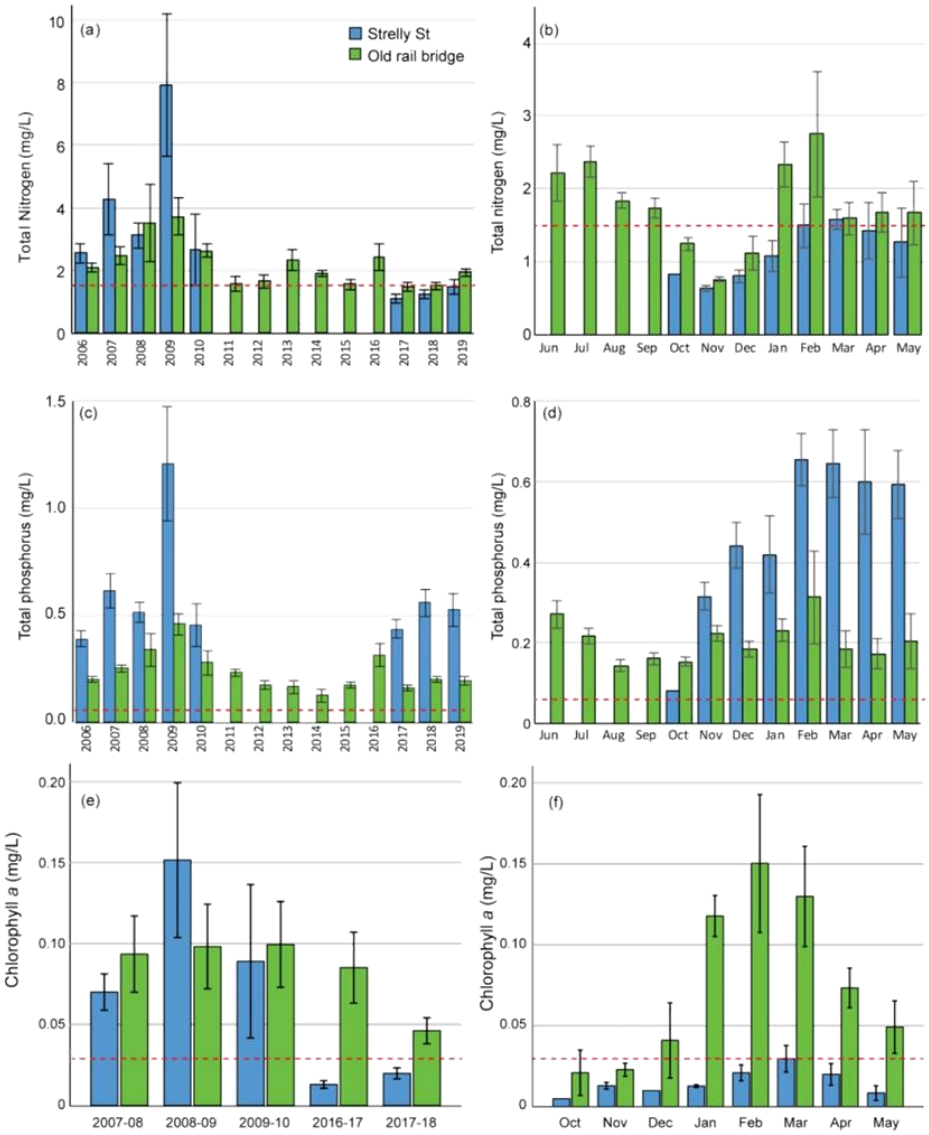

Figure 6. Mean annual and monthly concentrations of total nitrogen (a, b) and total phosphorus (c, d); and mean chlorophyll a across annual spring-summer-autumn sampling seasons (e) and for each month (f). Red dashed lines are guidelines for protection of wetland ecosystems (ANZECC and ARMCANZ 2000). Monthly nutrient data from 2011-2018; monthly chlorophyll *a* data since 2017 (DWER 2018a). Error bars are +/- standard error.

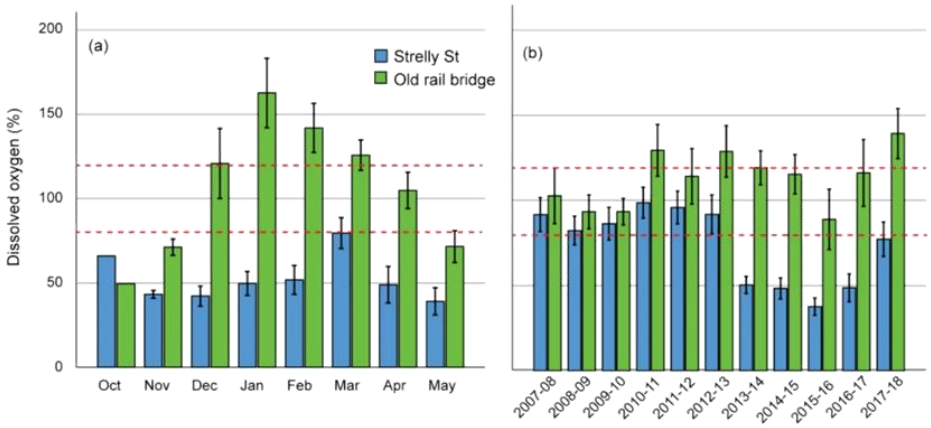

Figure 7. Dissolved oxygen concentrations in the Lower Vasse River: average monthly means for 2016-2018 centred around summer (a); and annual means since 2007-08 (spring-autumn sampling) (DWER 2018a).

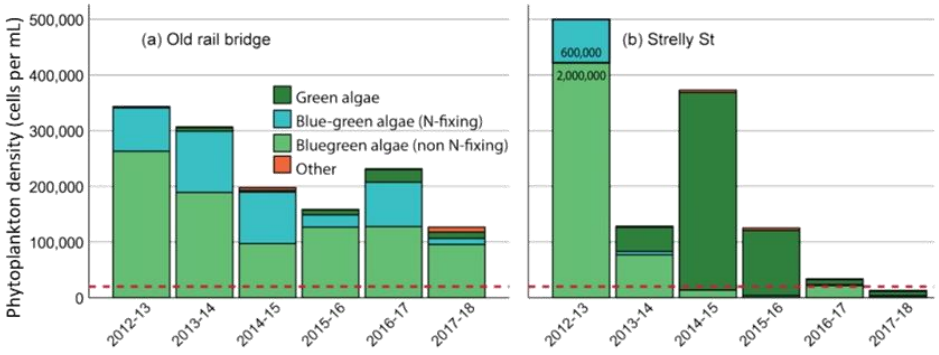

Figure 8. Mean cell densities for main phytoplankton species groups at sampling sites in the Lower Vasse River during spring-summer-autumn seasons since 2012 (DWER 2018b). Red dashed line is the guideline value of 20,000 cells per millilitre for recreational use.

2.2 Ecology

The Lower Vasse River has undergone substantial physical changes through widening and de-snagging, and clearing of surrounding vegetation. This includes a "clean out" by the Public Works Department around 1939 using a dragline. It has also been impacted by altered hydrology and nutrient enrichment. These changes have dramatically affected the river's ecology. Aboriginal people have stories of fishing and hunting along the Vasse River when water quality was better. However it now has little in-stream habitat and the dominance of phytoplankton during the warmer months supports limited diversity.

Although degraded, it still provides habitat for native freshwater fish, frogs, turtles and invertebrates, and open water areas for waterbirds. The riparian vegetation contributes to aquatic habitats and also

supports a range of terrestrial fauna and birds. The permanent fresh waters of the Lower Vasse River provide a unique habitat in a landscape of seasonal wetlands and estuaries.

Ecology was rated as the most important management issue by 18% of *Community Views* participants (AHA 2016). The river environment contributes to local amenity and the birdlife is particularly enjoyed. The study area has been identified as a regional ecological linkage (Molloy et al. 2009, Ecoedge 2017). A summary of the main ecological components of the Lower Vasse River study area and implications for management is provided below.

2.2.1 Vegetation

Native fringing (riparian) vegetation of the Lower Vasse River has been largely cleared, leaving a narrow strip of remnant trees with limited understorey and extensive weed invasion. There are opportunities to enhance vegetation in the study area through weed control and revegetation.

Vegetation along the river provides important habitat for terrestrial fauna, with overhanging trees offering many roosting and nesting sites for waterbirds. In addition to providing habitat benefits, fringing vegetation is a vital component of river health. The important functions include:

- supporting terrestrial and aquatic food webs;
- habitat for terrestrial and aquatic fauna;
- foreshore stabilisation;
- maintaining cooler temperatures
- interception of nutrients and sediments in runoff; and
- nutrient uptake and processing.

The extent and diversity has been increased downstream of the Busselton bypass by revegetation work done for the Lower Vasse River Cleanup program and in new foreshore reserves adjacent to subdivided land. A vegetation survey in the study area in 2017 found only 5.6% of vegetation in good condition, occurring mainly within these revegetated areas (Ecoedge 2017).

The current vegetation includes only 28 native species, including some species in revegetated areas that would not have occurred there naturally. The Ecoedge (2017) survey found no occurrences of threatened or priority flora, although there are nearby occurrences of the Coastal Saltmarsh threatened ecological community (TEC); and the *Eucalyptus rudis*, Marri and Peppermint forest ecological community (Priority 1).

At least 20 species of weeds are present, including 10 of environmental concern, which are mapped in the Ecoedge (2017) survey report. The most widespread problem weeds are Arum Lily, Brazilian pepper tree and Kikuyu (Ecoedge 2017). Kikuyu and other grassy weeds form an extensive component of the understory in much of the study area. Less widespread but potentially invasive weeds include Blue periwinkle, Weeping willow and Watsonia. Within the waterway, Mexican waterlily has infested large areas.

2.2.2 Fire Risk

Management of vegetation needs to address current and future risk of fire, particularly in areas close to buildings and infrastructure. A Bushfire Attack Level assessment can be used to determine suitable setbacks (Calibre 2018). Adequate setbacks to sensitive infrastructures, strategic gaps between vegetated areas limiting width of vegetation can be used to reduce fire risk where required. Selection

of species for revegetation that have lower flammability and maintaining moisture content through irrigation can also mitigate risk (Calibre 2018).

2.2.3 Mexican waterlily

Mexican waterlily (*Nymphaea Mexicana*) covers large areas of the Lower Vasse River (Figure 9a,b). Although present in small patches in the river for several years, it underwent rapid expansion during the 2013-2014 spring-summer growing season and has continued to spread gradually since then. In 2017 it covered 23% and 1.15 hectares of water between the Busselton Bypass and the Butter Factory weir.

This is a serious concern for the community and management authorities owing to impacts on visual amenity, loss of open water habitat and possible flow obstruction. Overhanging fringing vegetation supports many roosting and nesting sites for birds. Growth of lilies beneath these sites prevents diving from these platforms and creates a risk for fledglings that may get trapped in the lilies beneath nests. Loss of open waters reduces space for birds to swim and dive and reduces available habitat for fish and turtles.

A study on the impacts of Mexican waterlily in the Lower Vasse River in 2017 investigated the effects of these plants on water quality and ecology (Paice 2018). In addition to the obvious problem of loss of open waters, the lilies result in very low oxygen levels in the water (Figure 10a), presenting a risk for aquatic fauna. Despite this, the structural habitat provided by the lilies supports greater abundance and diversity of aquatic invertebrates than other parts of the river. However this invertebrate population does include large numbers of non-biting midge larvae, which can contribute to nuisance insect problems.

The extensive root mass of the lilies and ongoing growth and decay contributes to a build-up of organic material, creating shallower conditions. This has allowed additional colonisation of semi aquatic plants. Currently, this has been seen the native (though prolific) Slender knotweed, *Persicaria decipiens*), but there is a risk of colonisation by wetland weeds. The reduced depth is now evident upstream of Strelly Street where waterlilies have died back from herbicide use.

Mexican waterlily has also had an effect on nutrient levels and growth of phytoplankton. Since the period of expansion in 2013-14, algal blooms have been greatly reduced in waters upstream of the point of infestation (near the boat ramp area along Southern Drive) (Figure 9c, d, Figure 10c). This is despite very high phosphorus concentrations in these areas; much higher than downstream Figure 10b). The reasons for reduced algal blooms between patches of waterlily are not fully understood. It may be a combination of greater low residence time in sunlit areas owing to lilies and riparian shading; nitrogen limitation; or chemical inhibition.



Figure 9. Mexican waterlily in the Lower Vasse River: (a) extensive growth upstream of Strelly Street in March 2017; (b) flower; (c) downstream of infestation in April 2014 showing obvious algal bloom; (d) upstream of infestation in April 2014 (same day) with no algal bloom.

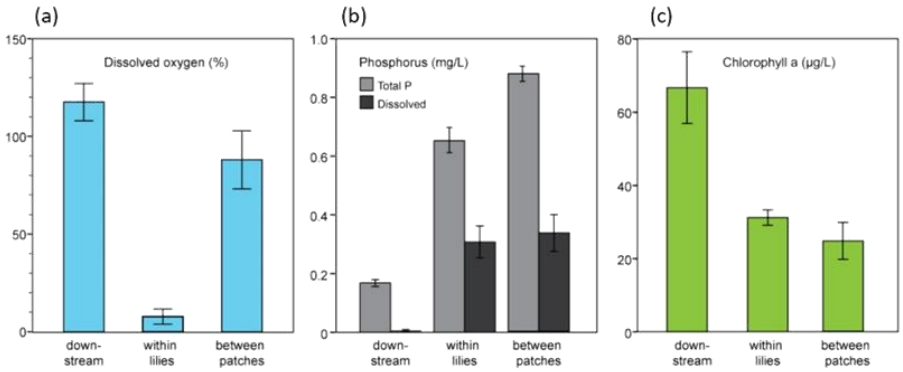

Figure 10. Comparison of water quality in relation to Mexican waterlily in the Lower Vasse River: downstream of the waterlily infestation, within dense waterlily growth, and in areas of open water between patches of waterlily (200-300m reaches) (Paice 2018).

2.2.4 Birds

The birdlife in and around the Lower Vasse River was rated by the community as the most liked characteristic (AHA 2016). Protecting and enhancing habitat for birds and providing opportunities for enjoyment of birdlife should be part of future management.

Table 1 provides a list of bird records available for the Lower Vasse River. There are probably more than this, however limited data is available. There is little formal published information about the birdlife of the Lower Vasse River, and there is scope to improve understanding and to share knowledge. Fostering existing community efforts in birdwatching to capture data would be a good step towards achieving this.

Remnant fringing rushes and overhanging trees provide important nesting and roosting sites. Secluded sections of the river and the southern bank adjacent to Southern Drive support some very dense nesting areas for cormorants, darters, Night heron and Yellow-billed spoonbills. In addition to the areas of remnant native rushes, grassy weeds also provide habitat for birds on the banks of the river, and this should be considered when undertaking weed control.

Threats to birds of the Lower Vasse River include predation by dogs, cats (domestic and feral) and foxes; degradation of vegetation through declining tree health, weed invasion and clearing; and loss of open water habitat by expansion of Mexican waterlily.

Table 1. Bird species recorded in the Lower Vasse River (Birdlife Australia 2018, Birdlife Western Australia 2017; Paice et al. 2016).

Common Name	Scientific Name
Australasian grebe	*Tachybaptus novaehollandiae*
Australasian shoveler	*Anas rhynchotis*
Australian pelican	*Pelecanus conspicillatus*
Australian reed-warbler	*Acrocephalus australis*
Australian spotted crake	*Porzana fluminea*
Australian white ibis	*Threskiornis molucca*
Australian wood duck	*Chenonetta jubata*
Black swan	*Cygnus atratus*
Black-fronted dotterel	*Elseyornis melanops*
Black-winged stilt	*Himantopus himantopus*
Blue-billed duck	*Oxyura australis*
Buff-banded rail	*Gallirallus philippensis*
Darter	*Anhinga melanogaster*
Dusky moorhen	*Gallinula tenebrosa*
Eastern great egret	*Ardea alba modesta*
Eurasian coot	*Fulica atra*
Great egret	*Egretta garzetta*
Grey teal	*Anas gracilis*
Hoary-headed grebe	*Poliocephalus poliocephalus*
Little black cormorant	*Phalacrocorax sulcirostris*
Little grassbird	*Megalurus gramineus*
Little pied cormorant	*Phalacrocorax melanoleucos*
Musk duck	*Biziura lobata*
Nankeen night heron	*Nycticorax caledonicus*
Pacific black duck	*Anas superciliosa*
Purple swamphen	*Porphyrio porphyrio*
Spotless crake	*Porzana tabuensis*
White-faced heron	*Egretta novaehollandiae*
Yellow-billed spoonbill	*Platalea flavipes*

2.2.5 Aquatic fauna

The key management issue for aquatic fauna is degraded habitat, in terms of limited structural habitat and poor water quality. Although a range of aquatic fauna occur in the Lower Vasse River, the degraded conditions no doubt limit the populations it can support. While management should therefore focus on enhancing habitat and reducing threats, such actions may have short term impacts on existing individuals. Nevertheless the Lower Vasse River has been found to have high ecological value worthy of protection, including a fish and crayfish community dominated by native species and with evidence of successful recruitment (DWER 2019).

Fish

Eight native fish species have been recorded in the Lower Vasse River during a fish survey in 2003-2004 and during subsequent goldfish control work: four freshwater species and four estuarine species (Table 2). These species have been heavily impacted by alteration and loss of habitat in the south west region, requiring structural habitat and refuge in permanent freshwaters. These species are generally only found in low numbers in the Lower Vasse River; although higher numbers of the Western pygmy perch and the occurrence of the Mud minnow (listed as vulnerable under Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice 2017) at a site just downstream of the Vasse Diversion outflow suggest better habitat there (Morgan and Beatty 2004). The estuarine Western hardyhead was most abundant downstream of the Butter Factory weir and the survey reported that this structure may impede migration of native fish (Beatty *et al*. 2011).

Two introduced fish species are widespread in the Lower Vasse River: mosquitofish and goldfish. Mosquitofish are small and commonly seen in very large numbers in the river. Significant numbers of large goldfish occur in the Lower Vasse River. They have been noted as being common in the river near town in 1956; and trout were released in the river in 1957 (Mouritz, Elphick and Anderson), but have not been reported since then.

The presence of goldfish is an important issue owing to their contribution to poor water quality and algal blooms. Their benthic foraging disturbs nutrient-rich sediments and there is evidence that growth of blue-green algae is stimulated following ingestion and passage through goldfish (Kolmakov and Gladyshev 2003). A program of annual removal from 2003 to 2013 removed 842 goldfish, some exceeding 40cm in length, from the Vasse River (Beatty et al 2014).

Other aquatic fauna

Southwestern snake-neck turtles (*Chelodina oblonga*, Oblong turtles, Western long-necked turtle) are regularly observed in the Lower Vasse River, although they have not been specifically studied. There is no published information about frogs in the study area. Decapods recorded in the study area are the endemic Gilgie (*Cherax quinquecarinatus*) and the introduced Yabbie (*Cherax destructor*) (Beatty *et al*. 2011).

Carter's freshwater mussel (*Westralunio carterii*) is common in the Lower Vasse River, showing a preference for structured benthic habitats such as bridges (Beatty et al. 2017). It is listed as vulnerable fauna (Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice 2017; IUCN Red List).

Aquatic invertebrates are commonly used as indicators of ecological health. The open waters of the river contain little structural habitat and supports very low diversity of invertebrates, dominated by

zooplankton (mostly copepods) and highly mobile predators (of zooplankton) such as backswimmers (Notonectidae) and water boatmen (Corixidae) (Paice et al. 2016). The presence of aquatic plants and waterlilies greatly increases diversity and abundance of aquatic invertebrates in the river, owing to increased structural habitat and alternative food sources. In the case of waterlilies, this included mainly robust species tolerant of poor water quality and low oxygen conditions (Paice et al. 2016). However, growth of submerged plants (as transplants) has been shown to support significantly higher abundance and diversity across a range of functional groups (Paice 2018).

2.2.6 Other fauna

A range of other fauna are known to occur in remnant vegetation in the study area, but have not been formally surveyed. Importantly this includes the Western ringtail possum (Ngwayir, *Pseudocheirus occidentalis*), which is listed as critically endangered fauna (Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice 2017). Grey kangaroos are common in some parts of the study area and adjacent land and the river may provide a corridor for their movement within and increasingly developed landscape. Water rats (Rakali, *Hydromys chrysogaster*) have been anecdotally observed but are not common.

Table 2. Fish in the Lower Vasse River (Morgan and Beatty 2004, Beatty et al. 2011)

Type / Common name	Species	Notes
Native freshwater fish		
Western pygmy perch	*Edelia vittata*	Widely distributed, low numbers
Western minnow	*Galaxias occidentalis*	Few sites, low numbers
Nightfish	*Bostockia porosa*	Few sites, low numbers
Mud minnow	*Galaxiella munda*	Headwater site only, vulnerable
Native estuarine species		
Western hardyhead	*Leptatherina wallacei*	Downstream sites
Swan River goby	*Pseudogobius olorum*	Widely distributed
Sea Mullet		Downstream, low numbers
Black bream	*Acanthopagrus butcheri*	One fish
Introduced fish		
Goldfish	*Carassius auratus*	Widely distributed,
Mosquitofish	*Gambusia holbrooki*	Widely distributed, large numbers

2.3 Water flow

There have been substantial changes to the hydrology of the Lower Vasse River and its catchment. The coastal plain area of the catchment has been modified by a drainage network constructed during the 1920s to facilitate settlement, transport infrastructure and agricultural development (English 1994). This involved widening, straightening and de-snagging of water courses, and construction of artificial channels. Approximately 90% of catchment flows are diverted via the Vasse Diversion Drain, creating a distinct separation of the section known as the Lower Vasse River. Water flow to the Lower Vasse River from the Vasse Diversion is controlled by a manually operated valve on a 900mm pipe.

At the downstream end of the study area the river is impounded by a weir, established around the 1920s to maintain higher summer water levels through the town section for amenity and recreation

purposes. Removable weir boards are usually installed at the end of winter and removed in autumn. In recent years, the weir boards have become degraded and gradual leaking of water during summer leads to water levels defined by land to the east near Ford Road.

The Lower Vasse River flows via a wetland area known as the Vasse River Delta into the Vasse Estuary. A surge barrier on the Vasse Estuary exit channel, first constructed in 1908, allows outflow of water but prevents inflow of tidal and storm surge waters. This provides flood protection but has reduced tidal exchange throughout the estuary and the lower reaches of the river.

The modified water flow regime of the Lower Vasse River contributes to poor water quality. The effect of flow diversion and impoundment is essentially an elongated "lake" area from late spring to late autumn. Reduced flow velocity contributes to accumulation of nutrients and organic material from the catchment, and the still conditions during summer promote algal blooms. Recurring algal blooms contribute to the build-up of nutrients in sediments, creating an internal source of nutrients.

There is a perception in the community that increasing flows from the Vasse Diversion and removal of the Butter Factory weir boards will create a flushing effect that will improve water quality and mobilise the accumulated sediments. Management of these structures has been restricted by limited understanding of the outcomes and constraints of this approach; and a lack of defined management responsibilities for operation.

(a) (b)



Figure 11. Flow management structures for the Lower Vasse River: (a) the valve controlling flow from the Vasse Diversion to the Lower Vasse River via a 900mm pipe; (b) the weir and removable boards at the Butter Factory.

2.4 Sediments

Sediments

The Lower Vasse River has, over several decades, accumulated a layer of nutrient rich organic sediments, generally about 0.5m thick but up to 1m in some parts (Apex 2012). Sediments accumulate from inputs of organic material from the catchment and from ongoing growth and decay of phytoplankton cells within algal blooms. Low oxygen levels and resuspension of sediments when disturbed releases nutrients to the water column over summer, contributing to algal blooms. Sediments are therefore are a key consideration in addressing water quality problems in the Lower Vasse.

There is a perception by the community that the soft organic sediments in the Lower Vasse River contribute to poor water quality, and general support for sediment removal. However there are many constraints to this management option relating to the pollution content of sediments and potential for acidification; and the high costs associated with removal and disposal. Sediment removal is discussed further in Section 4.11.

The presence of soft organic sediments impacts ecology in other ways. They provide a poor substratum for growth of beneficial aquatic plants, and poor habitat for benthic invertebrates other than worms and midge larvae. This limits biodiversity within the river system and contributes to the dominance of phytoplankton in primary production. Sediment accumulation has reduced the depth of the river over time, filling in deeper habitats and contributing to warm conditions that favour algal growth.

The bathymetry of the river (Figure 12) shows the gradual increase in depth moving downstream. There are two areas that are notably deeper: downstream of the Causeway Road bridge and downstream of the Butter factory weir. This suggests scouring of sediments downstream of these constrictions, which may indicate some potential for controlling sediment using flow regimes.

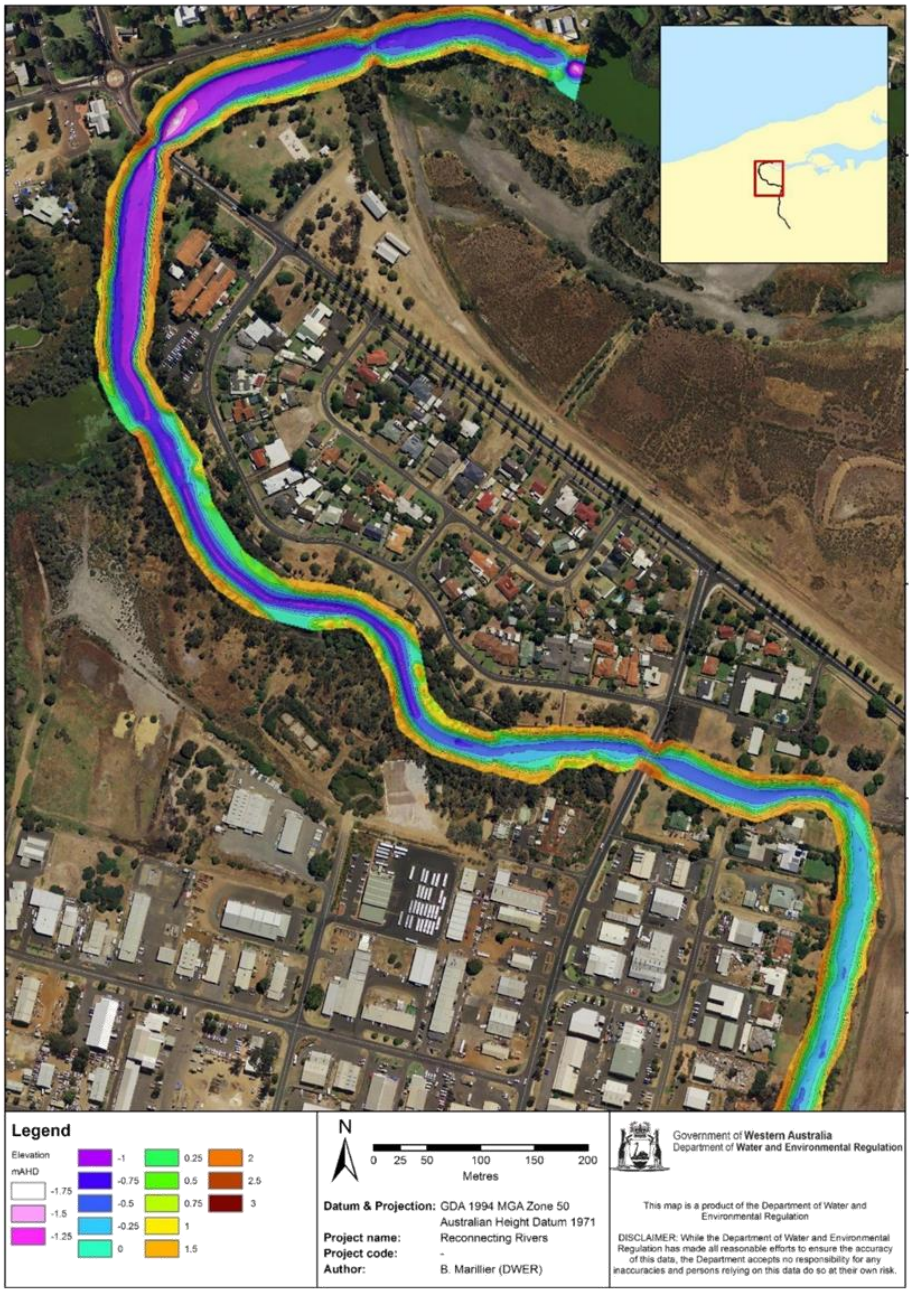

Figure 12. Lower Vasse River bathymetry from Butter Factory weir boards to Isaac Street reserve.

2.5 Amenity

Amenity describes the attractiveness of a place, and for the Lower Vasse River this is directly related to water quality. Algal blooms cause obvious green discoloration of the water, unsightly scums and unpleasant odours. There is concern that the poor amenity of the river during peak the tourist season creates a poor impression at the entrance to Busselton.

Despite poor water quality, natural values of the river environment, particularly the bird life, are still enjoyed by many in the community. Amenity is closely linked to the adjacent reserve and opportunities for recreation and access, which can enhance enjoyment of the Lower Vasse River.

2.6 Recreation and education

Poor water quality has greatly reduced the opportunities for recreational activities in the river during the warmer months. Persistent and severe algal blooms, often dominated by harmful blue-green species (cyanobacteria), cause closure of the water to public use. Access and recreation was rated highest as the focus area requiring change (AHA 2016.

Although algal blooms are seasonal, permanent warning signs are in place to advise against contact with the water. There is potential for recreational use of the water when there are no algal blooms, however signage does not indicate any safe period for contact.

In the past, the waters were used more extensively for recreation. In the 1940s the paddle wheel steamer *Jumna* carried passengers between the town and the Cattle Chosen homestead (Mouritz, Elphick and Anderson). There are anecdotes of canoeing, swimming and fishing and in the past. Whiting, Mulloway, Bream and Mullet have been anecdotally caught in the lower reach. Mullet and Black bream were caught during recent fish sampling but people no longer fish for them.

The Busselton Festival started in 1964, and crowning of the Festival Queen on the river bank opposite the City Administration building. The Festival Queen travelled on a barge from the boat ramp upstream and the community gathered on the banks to watch. At some point this ceremony ceased, though it is not clear when, probably due to poor water quality during the summer festival. In the 1970s there were paddle-boats on the river in town.

Regardless of water quality and restrictions on recreation within the river, a number of trails and public open space areas adjoin the Lower Vasse, which are still regularly used by the community. Rotary Park provides good public infrastructure near the river. Algal blooms and associated odours associated with a do impact use of these areas at times. There is significant potential for improved recreational, amenity and cultural connection with the river through enhancing and protecting natural values and improving facilities. Clearly though, addressing water quality is essential for improving recreational opportunities.

2.7 Culture and heritage

The river is highly valued by the local community and has historically been an iconic feature of the town and focal point for recreational and social events. There is a strong Aboriginal cultural connection to the river and many historical features. Heritage was rated as an issue of very high importance by the community.

2.7.1 Aboriginal heritage

The Lower Vasse River holds significant value for the local Wadandi people. There is a strong spiritual connection with all waterways in the area associated with the Waugul, and they are seen as a fundamental part of all life (Huxtable 2018). In pre European times, Aboriginal People used the Vasse River and its natural resources extensively.

With European settlement and alterations to the landscape, traditional uses of the river have been substantially impacted.

> *Before all the drains were put in the Vasse River was a system of walk trails. The old people would follow the river down to here, singing songs of the elders. We utilised the bush for medicine and food. It's a supermarket, everything we need is right here, the country provides everything we need.*
>
> (I. Webb, as cited in Huxtable 2018)

During consultation, Aboriginal representatives highlighted the importance of connectivity of waterways in the landscape from both spiritual and ecological perspectives. They highlighted the importance of managing the headwaters of the river to address the real cause of poor health in the lower reach, relating problems in the Lower Vasse to disruption of connectivity with its catchment. Representatives also acknowledged the need for intervention to improve the health of the river.

In a formal management sense, the study area is within the South West Boojarah Indigenous Land Use Agreement area within the South West Native Title Settlement Area[2]. An area encompassing the New River wetland area, including part of the study area, is a registered site under the *Aboriginal Heritage Act 1972*. In addition, there may be sites of cultural significance which are not reported or registered for cultural and political reasons. This will necessitate further consultation as specific management actions are developed.

2.7.2 European history

The presence of the Vasse River influenced the decision for settlement, and the development of Busselton and many aspects of social life have long been centred around it (Mouritz, Elphick and Anderson). Prior to settlement the Vasse River was one waterway from its headwaters to Wonnerup, but has been dramatically altered. History shows a connection to the river for many people. Some important historical features and activities associated with the Lower Vasse River are listed below (from Mouritz, Elphick and Anderson).

- Early settlers moved north from the Blackwood River and via the Vasse River towards Busselton.
- The old rail bridge was constructed in 1890, with rail connections to Bunbury, Nannup and Karridale, servicing the timber industry.

[2] Current information on the South West Native Title Settlement: http://www.noongar.org.au

- During the 1830s, the river was used to move goods from the jetty site, via what is now Queen Street, to Cattle Chosen to build the homestead. The small paddle replica paddle steamer *Jumna* transported people from St Mary's Church to Cattle Chosen; this included voyages for many prominent visitors to Busselton.
- The Busselton Festival commenced in 1964, with the crowning ceremony on the banks of the Vasse River a special event.
- The Butter Factory was transferred from Strelly Street to its current site in the banks of the river in 1918, and ceased production in 1975.
- The footbridge near Peel Terrace was built by the local council in 1972.

2.8 Governance

There are two key issues for the Lower Vasse River with regards to governance:

- defining roles and responsibilities for future management; and
- minimising impacts from planning for future developments and land use change.

Management of diffuse and point sources of nutrients from agricultural and urban catchments of the Lower Vasse River is a shared responsibility across GeoCatch, DWER, DPIRD, the City and industry groups. The independent review of water asset management (Hart 2014) recognised this joint responsibility. The Water Quality Improvement Plan (WQIP) provides load reduction targets, management recommendations and identifies key organisations responsible for implementation.

The independent review identified a clear need for a designated manager of the Lower Vasse River 'lake' section. There has been a lack of leadership and funding since the Lower Vasse River Cleanup Program, and thus little progress with management since this program was completed. This issue was also evident during community consultation (AHA 2016). One of guiding principles of the Vasse Geographe Strategy is the appointment of designated lead managers for key water assets. The independent Review (Hart 2014) recommended the City becomes the lead management agency, with continuing assistance from DWER.

The Lower Vase River catchment area will undergo considerable expansion of urban and industrial areas in the future, as identified in the current Draft Local Planning Strategy (CoB 2016). This could result in significant increases in nutrient loads to the Lower Vasse River, and downstream environments (Section 2.1). The City will have an important role in minimising nutrient exports from future developments and land use change; and effectively managing foreshore reserve areas with regard to the vision for the Lower Vasse River. Development is also expected to result in considerable new areas of foreshore reserve being managed by the City (i.e. areas identified as Parks and Recreation in Figure 13).



Figure 13. Draft Local Planning Strategy (2016) land use within the Lower Vasse River study area.

3 Management Objectives

This section presents sixteen management objectives across the eight the focus areas. These were developing in partnership with community members and provide good guidance on the expectations of future management of the Lower Vasse River.

3.1 Water quality

1. Reduce nutrients flowing into the Lower Vasse River from all existing sources to improve water quality and reduce the frequency and severity of toxic algal blooms.
2. Minimise any additional nutrients flowing into the Lower Vasse River from new developments and agricultural intensification.
3. Utilise science and innovative technologies to improve water quality in the Lower Vasse River.

3.2 Ecology

4. Protect and enhance native aquatic and terrestrial habitats in the Lower Vasse River and the foreshore reserve.
5. Reduce the impact of threatening processes on the natural values of the Lower Vasse River and the foreshore reserve.
6. Balance mitigation of fire risks with the protection of natural values of the Lower Vasse River foreshore reserve.

3.3 Water flow

7. Optimise water flow in the Lower Vasse River to balance improvement of water quality, protection of natural values and public amenity, while maintaining flood protection.

3.4 Sediments

8. Strategically manage accumulated sediments to protect the natural and social values of the Lower Vasse River.

3.5 Amenity

9. Improve visual amenity, public health and odours for residents and visitors to enjoy the Lower Vasse River.
10. Facilitate recreational and educational opportunities, which are compatible with protection of the key values of the Lower Vasse River and enhance community stewardship.

3.6 Recreation and education

11. Enhance public access to the Lower Vasse River and within the foreshore reserve, with a focus on creating linkages to the town centre and surrounding areas while protecting the river's natural values.

3.7 Culture and heritage

12. Promote understanding of the Aboriginal and European history and culture of the Lower Vasse River.

3.8 Governance

13. Develop and maintain partnerships and a collaborative approach between key stakeholders and the community when managing the Lower Vasse River.

14. Maximise opportunities for protection of the Lower Vasse River as part of future development proposals and changes in land uses.

15. Manage the Lower Vasse River with consideration to other water assets, including the Vasse-Wonnerup Wetlands and Geographe Bay.

16. Improve knowledge and understanding of key values and management issues of the Lower Vasse River to support adaptive management.

4 Review of Management Options

Development of management strategies for the Lower Vasse River has involved consideration of a range of potential initiatives. Some are fundamental approaches such as catchment nutrient reduction and riparian vegetation management. Intervention options have also been considered to directly manage water quality problems. These options are important due to the long-term nature of achieving nutrient load reductions, and the potential for ongoing release of nutrients from accumulated sediments.

The independent review identified the need for solutions that directly reduce nutrient availability for algal growth, alter physical conditions to make it more difficult for algae to grow, or dredging the sediments (Hart 2014). In addition, the *Community Views* session also provided suggestions for future management options (Figure 14). These reflect long-held community opinions and are aligned well with the options considered for inclusion in the management strategies and actions in this WMP.

This section outlines existing information, challenges and likely outcomes from potential management options. This review was an integral step in the development of strategies and actions for the WMP, outlined in Section 5.



Figure 14. Suggestions for the future management of the Lower Vasse River from the *Community Views* session (AHA 2016).

4.1 Living Streams

The term *living streams* describes an approach to managing urban stormwater that creates a complex ecosystem with outcomes for ecology, water quality, water conveyance and amenity. Although traditionally applied to urban stormwater drains, this approach of restructuring the ecosystem is also relevant to restoration of the Lower Vasse River. In this case it would involve altering the morphology to restore ecological processes and create physical conditions that provide greater resilience to high nutrient conditions.

A living streams approach would see creation of diverse habitats including seasonally dry areas, river pools, channels, floodplain areas, riffle zones and islands (floating and grounded). Creation of these habitats would have clear outcomes for ecology, and the potential to provide significant water quality benefits. Compartmentalising the river by creating seasonally dry areas during summer also provides opportunities to stage works and target intervention actions. Figure 15 provides an example of changes to river form with a living streams approach.

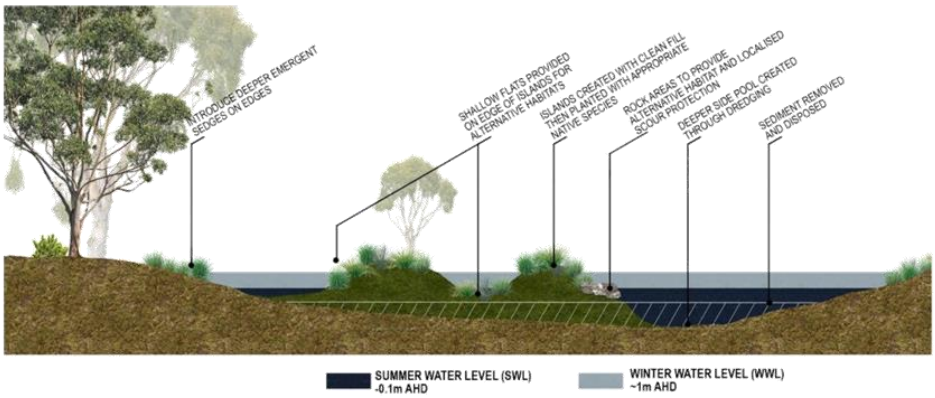

Figure 15. An example of altered river morphology with a living streams approach. More diverse habitats would be created including channels, pools, islands and seasonally dry areas.

4.1.1 Ecological outcomes

As outlined in Section 0, the Lower Vasse River supports many terrestrial and aquatic fauna despite its degraded status. The living stream approach would create new riparian habitat to support birds and possible other terrestrial fauna. Within the river, the increased surface area and diversity of aquatic habitats and food sources is likely to have a profound effect on aquatic invertebrate communities. This has been shown in the river in regard to aquatic plants (Paice et al. 2016, Paice 2018). Physical substrates (e.g. rocks, sand, and logs) and varied flow conditions will also support greater diversity. The plant and invertebrate communities in turn provide food resources for fish and birds.

4.1.2 Water quality outcomes

Potential water quality benefits of ecosystem restructuring through a living streams approach are summarised below. While these mechanisms may not achieve significant water quality improvements

individually, combined they have potential to create a more complex ecosystem that is less prone to seasonal dominance by phytoplankton. Enhanced nutrient processing capacity may also benefit downstream wetlands.

a) Aquatic plants: Modifying the depth profile and enhancing substrate can provide more favourable sediment and depth conditions for anchorage and growth of beneficial aquatic plants (macrophytes). These plants may re-establish naturally or can be transplanted. A macrophyte restoration trial in the river in 2012 did not result in water quality improvement (Paice et al. 2016), however the mechanisms by which these plants contribute to water quality are well known throughout the world (Van Donk and Van de Bund 2002; Davis et al. 2010). Interestingly the Mexican waterlily has shown water quality benefits, although it is not clear how. Aquatic plants contribute to improved water quality through:
   - competing with algae for nutrients, both directly and by supporting biofilm;
   - stabilising and oxygenating the sediments;
   - supporting organisms that graze on algae; and
   - chemical inhibition (allelopathy).

b) Freshwater mussels: Carter's Freshwater Mussel (*Westralunio carteri*) is a listed threatened species known to occur in the river. Modifying substrate or providing additional substrate could increase mussel populations. They are thought to play an important role in maintaining water quality in refuge pools through filtration (Caraco et al. 2006). Mussels in the Lower Vasse River have a habitat preference for bridge sites and river edges, which are more shaded and stable.

c) Benthic algae: Increasing surface area by creating a more complex river form with greater rock and wood surfaces would allow benthic algal populations to establish. These communities are alternative primary producers to phytoplankton, competing for nutrients and providing an important food source for aquatic fauna, so that nutrients are incorporated into the food web. Emergent wood and rock materials also provide habitat for birds.

d) Emergent plants: Reshaping river banks could provide ledges for establishment of more emergent plants through revegetation. These plants use up nutrients, shade the water, trap sediments and provide excellent habitat and food for waterbirds. They are more beneficial than rushes on the upper banks because of stronger interaction with river sediment and water column. Some emergent plant beds have been created in previous restoration efforts, but they are confined to very thin riparian strips.

e) Floating islands: There have been a number of vegetated floating islands trialled in the Lower Vasse River. These islands provide habitat, both above and below the water and may contribute to nutrient uptake and processing through growth of plants and associated biofilm. Some products include a nutrient holding media in the island structure, although effectiveness is uncertain. These structures also provide an immediate shading benefit, restricting algal growth. This shading function may also be useful in restricting the spread of waterlilies (4.5).

f) Changing morphology: Physical modifications that increase surface area and creates seasonal separate wetland compartments may have several advantages, including:

- greater resilience to higher nutrient loading due to greater surface area for beneficial processes;
- higher levels of shading, providing less favourable conditions for algal blooms;
- reduced wind fetch and thus nutrient-release and turbidity from resuspension of sediments;
- potential for water circulation within or between pools, reducing residence time for development of algal blooms; and
- opportunities for targeted interventions to address water quality such as sediment removal (Section 4.11) and water treatment (Section 4.3).

4.1.3 Challenges

Modification of river morphology as part of a living stream approach would involve extensive earthworks that affect hydrology (and flooding) and existing riparian and aquatic habitats. Design will need to address constraints of these issues, and several approvals will be required (Calibre 2018). In particular, Carter's Freshwater Mussels occur in the river. This is a recently listed (2018) threatened species[3] and so will require approval and management of in-river works to minimise mortality and create a net benefit for this species.

Implementation of living streams works would involve considerable cost associated with sediment removal and infill. It has been difficult to develop reliable costings for this approach, owing to variation in potential designs; and uncertainty in volumes and methodology for sediment removal and disposal, and materials used for infill. Costs and uncertainty can be addressed through staging of works, allowing development of reliable methods and better understanding of materials. Adaptive implementation in stages based on results will improve overall outcomes.

4.2 Reducing nutrient sources

Management of nutrient inputs from urban and agricultural catchment areas is addressed in the Water Quality Improvement Plan (WQIP, DoW 2010), which is currently being reviewed. The WQIP outlines management measures and provides recommendations, which are included in the Management Strategies for this WMP (WQ1 and WQ2).

A large proportion of the catchment with agricultural landuse (approximately 90%) is currently diverted via the Vasse Diversion. Nonetheless, flows from the broader rural catchment do impact water quality in the Lower Vasse River. Increasing flows from the Vasse Diversion to the Lower Vasse River (Section 4.8) would increase nutrient loads from this source. There are also some rural land use activities remaining in the Lower Vasse River catchment area.

GeoCatch, supported by DWER, has a strong focus on nutrient reduction in agricultural areas, supporting implementation of best management practices for fertiliser use and dairy effluent management, and soil amendments. They also promote and assist riparian management and stock control on waterways. There are opportunities to improve management of the extensive modified drainage networks, which rapidly convey nutrients and sediments within the catchment. This is the

[3] Listed as threatened under Wildlife Conservation Act 1950 (Western Australia); listed as vulnerable under Environmental Protection and Biodiversity Conservation Act (1999) (Commonwealth); listed as vulnerable under Global IUCN Red List of Threatened Species.

focus of the *Rethink Drainage* action area for the RGW program. These management initiatives are important to the long-term reduction of nutrient contributions to the Lower Vasse River from rural sources.

Much of the Lower Vasse River catchment is urban, and these areas will continue to expand with future development, creating new sources of nutrients. In existing urban areas, the City has worked in partnership with GeoCatch to implement significant stormwater management upgrades throughout the Busselton CBD and LIA areas (Appendix 3). These include:

- biofiltration beds
- rain gardens (Figure 16)
- enhancement of natural wetlands
- constructed wetlands
- vegetated swales
- biofiltration swales
- detention basins

There may be more opportunities for stormwater upgrades in the Lower Vasse River catchment, and a process to identify and prioritise future projects would be beneficial.

Inclusion of best practice water management technologies in new developments will be essential to minimise future nutrient inputs. The City has a key role through its planning and development approvals processes to ensure this occurs. The *Better Urban Water Management Framework* (BUWMF) provides guidance ensure consideration of water resource management in the planning process (Section 4.13).

Sewerage infrastructure has a major role in protecting water quality in the Lower Vasse River, diverting nutrient- and pollutant-rich waters to the Busselton Wastewater Treatment Plant. Not all properties are connected to existing sewerage infrastructure, and there may be opportunities to increase connections within the Lower Vasse River urban catchment areas, reducing nutrient exports from these areas.

The Busselton Light Industrial Area (LIA) is currently not connected to sewerage infrastructure. Septic tanks in the LIA are estimated to contribute about 10% of the phosphorus load and 4% of the nitrogen load to the Lower Vasse River annually (DoW 2010). However, there is limited data available to base these estimates on. Development of infill sewerage infrastructure in the LIA has a high potential cost and requires clear evidence to be progressed. This would be assisted by investigation of nutrient and pollutant exports, and an audit of waste in relation to acceptable criteria.



Figure 16. Example of a rain garden for stormwater quality management, at the City Administration building.

4.3 Water treatment

Reducing nutrient inputs is a fundamental management approach, but significant reduction in nutrient loading from diffuse sources in the catchment is difficult to achieve and takes many years. In highly eutrophic systems, such as the Lower Vasse River, reducing nutrient inputs alone is unlikely to prevent algal blooms because of the ongoing supply of nutrients form the sediments. Intervention options to limit nutrients available to algae and to treat algal blooms may be necessary to achieve short term water quality improvement. The main limitations of these options are uncertainty in effectiveness, costs of large scale treatment, and short-term effectiveness.

4.3.1 Water treatment using specialised clays

"Water treatment trials" in the Lower Vasse River have focussed on specialised clays. Covering the sediments with specially-developed material can prevent nutrient release and reduce nutrients available for algal growth. These products are applied as a slurry and settle through the water column to form a layer on the surface of the sediments. Applied in this way, these products can bind to and sink nutrients and algal cells as they settle through the water column (Figure 17). There are a number of clay products used commercially and experimentally in a global context. Three have been trialled in the Lower Vasse River: Phoslock™, flocculating clays, and hydrotalcite clay.

From 2001-2004, three trials of Phoslock™ were completed. Application during an existing algal bloom can substantially reduce available phosphorus but had no effect on the algal bloom. Application prior to establishment of the algal bloom reduced both phosphorus levels and limited algal growth by 80%, although a less severe algal bloom still occurred (Robb et al. 2003). Application rates for Phoslock™ are well-understood and it is a commercially available product. It needs to be applied prior to establishment of an algal bloom, to restrict growth by reducing phosphorus availability.

Two types of flocculating clays have been trialled in the Lower Vasse River. Application of a clay mixture containing polyaluminium chloride in April 2000 had no overall positive effect on river appearance. An experimental clay product was applied to a small contained area in February 2002, which did show visible improvement in water quality, but little monitoring was done.

Hydrotalcite clay (HT clay) has been the focus of more recent trials in the Lower Vasse River. Like Phoslock, this product is applied as a slurry and designed to strip phosphorus from the water column and trap phosphorus by forming a layer on the sediment surface. A mesocosm study was undertaken during 2006-17; followed by a larger scale field experiment in 2017-18. The results of these trials indicate reductions in phosphorus concentrations and algal growth (DWER 2018c). Unfortunately observed water quality remained poor in the trial areas, with the water still having a green appearance. More work is required to determine appropriate dosage levels, and this product is not widely available.

In general terms, these products have not demonstrated prevention of algal blooms, but have shown some success in reducing algal growth. Their effectiveness is limited by ongoing external nutrient inputs, so ongoing applications are needed and they are costly. DWER currently recommend annual treatment of the lower reach of the river with Phoslock™, at an estimated cost of $120,000 per year.

Targeted treatment may be possible in smaller, seasonally-isolated areas following implementation of living streams works. This would make multiple applications more affordable. An ongoing interest in future development of these products should be maintained as they are improved and developed commercially.

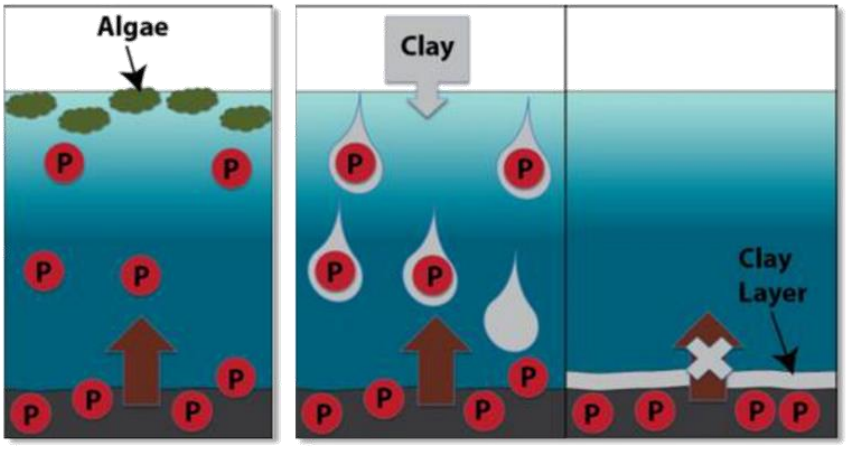

Figure 17. Phosphorus-binding clay products such as Phoslock® or the new HT-clay lock up phosphorus, making it unavailable to algae. Phosphorus is removed as the clay settles through the water and it also forms a protective layer on the sediments, reducing phosphorus release. Figure Courtesy DWER.



Figure 18. HT clay being applied in the Lower Vasse River during the 2017-18 trial.

4.3.2 Oxygenation and aeration

Oxygen is important for aquatic fauna and also influences nutrient availability. Low oxygen levels can be artificially increased by pumping oxygen gas into the water and by aeration. Both these methods will result in increased oxygen levels in the water, although oxygenation is more effective and aeration may increase nitrogen concentrations (due to nitrogen content of air). Increasing oxygen levels improves conditions for aquatic fauna and promotes aerobic biological processes, which can address odour issues.

Low oxygen conditions at the bottom of the water facilitate release of phosphorus from the sediments, which contributes to algal blooms (Boulton et al. 2014). This situation occurs when there is little mixing and the water column is stratified. In this situation, oxygenation, aeration or artificial circulation can reduce phosphorus release from sediments into the water.

The Lower Vasse River is not stratified, and has high oxygen levels throughout the water column during summer when the algal bloom is established. Algal blooms increase oxygen levels to above 100% during the day through photosynthesis. Although respiration at night consumes oxygen, it does not cause deoxygenation. The water is shallow enough to be mixed by the wind. Oxygenation and aeration of the water column would therefore not address nutrient problems in the Lower Vasse River when an algal bloom is established. The sediment is anoxic, but these methods do not oxygenate the sediments, and an attempt to do so would cause considerable resuspension of sediments.

Oxygenation was trialled in the Lower Vasse River during the summer of 1998-99 to determine the effectiveness of the process and water quality outcomes. There was no effect on the established algal bloom, although increased oxygen levels were observed and considered beneficial for aquatic fauna. Greater understanding of oxygen fluctuations prior to the onset of the algal bloom when oxygen levels would help assess potential advantages of oxygenation lower in the Lower Vasse River.

In addition to increasing oxygen levels, mixing of the water through aeration combined with sufficient circulation may influence algal growth by reducing the residence time. Phytoplankton thrive in the still conditions of the Lower Vasse River during summer. Movement of water within the system has potential to limit algal blooms by physical disturbance and reducing water temperatures (Cha et al. 2017). Artificial mixing is a common management practice in lake restoration, both to address stratification problems and to restrict growth by entraining phytoplankton in flow, and can restrict growth of scum-forming blue-green algae (Visser et al. 2016).

4.3.3 Water treatment using microbiological products

A number of commercial products exist that claim to improve water quality through the introduction or enhancement of micro-organisms. There are no scientific studies available on the effectiveness of these products. Current evidence is anecdotal only and while some benefits may have been observed in small-scale situations they have not been formally reported.

The City supported trials of two such products in the Lower Vasse River during the summer of 2012-2013:

- A microbiological culture pad product that provides high surface area and trace elements to increase the population of beneficial microbes (*Archaea* microbes and *Bacillus* bacteria).
- An enzyme protein product designed to promote bacterial growth and activity.

Water quality monitoring over three months did not show any significant effects of these treatments, however there were several limitations of the trials. There was no aeration, which is generally recommended in combination with these treatments. The trials did not take place under conditions of severe algal blooms expected, owing to the effect of Mexican waterlily downstream.

Enhanced nitrification and denitrification is described as the beneficial process by which these products improve water quality, and some effect on available nitrogen was found for the enzyme product. The Lower Vasse River generally has very low available nitrogen, which favours blue green algae because they can obtain nitrogen from the atmosphere through fixation. This product may influence the phytoplankton community by increasing available nitrogen. Reducing phosphorus availability is very important for limiting algal growth, and these products do not achieve this.

There are no published studies of the effective use of microbiological products to control algal blooms at the lake scale. They may be more effective in small isolated systems such as ponds and dams.

4.3.4 Barley Straw

Addition of barley straw is considered a preventative method for algal control that has been used extensively in farm dams and canals. Decomposing straw has been shown to inhibit algal growth in laboratory conditions (Gibson et al. 1990) and reduce filamentous algal growth in canals in years following placement (Welch et al. 1990). Barley straw bales and extracts are marketed for use in algae prevention.

In April 2000, straw bales were placed in the Lower Vasse River upstream of the Causeway Rd bridge to assess their effect on algal blooms. No effect on water quality was observed, however it is uncertain that Barely straw was used. Potential future use should consider it may be most effective at small scales; in a preventative approach; and that straw must be decomposing. It may be more effective for filamentous algae rather than phytoplankton.

4.3.5 Algaecides

A number of algaecides are marketed for treating algae, usually copper-based, but are generally not recommended for natural systems due to their toxicity to non-target plants and aquatic fauna. Hydrogen peroxide is marketed as an algaecide which has high specificity for blue-green algae and no residual impacts on the environment as it breaks down to hydrogen and oxygen gases. Some research supports its potential as a management tool for algal blooms (Matthijs et al. 2012, Bauza et al. 2014). It has been used to control blue-green algae in small lakes and wastewater treatment ponds, but is not widely used for larger systems for a number of reasons:

- difficulty in achieving and maintaining required concentrations throughout water body;
- potential impact of hydrogen sulphide on other organisms, mainly zooplankton;
- potential for release of toxins such as microcystins from dying algal cells;
- lack of residual effect (regrowth of algae following treatment).

Trials of hydrogen peroxide in Lake Torrens[4] in South Australia have not been formally reported. Information provided suggests effective reduction of blue-green algae at H_2O_2 concentrations of 2-5 mg/L, with no impacts on aquatic fauna. However these trials were conducted at low algal cell densities (below algal bloom levels), and the current recommendation is for small scale use in combination with other methods. SA Water continues to investigate this method for reservoir management.

4.3.6 Ultrasound

Ultrasonic control of phytoplankton is commonly used for pond environments and works by destruction of algal cells. Its effectiveness has been demonstrated in small scale studies and laboratory experiments, but upscaling this treatment to field conditions is challenging (Park et al. 2017). Frequency, intensity and exposure are important factors in effectiveness, and may have variable effects on different algal species. There has been a successful trial in a 9000m^3 pond in combination with pumping, but could not differentiate the effects of ultrasound and the pumps (Ahn et al. 2007).

4.4 Riparian vegetation management

In addition to the conservation value of the flora itself, fringing vegetation of wetland areas is a vital component of river health. Functions include:

- supporting terrestrial and aquatic food webs;
- habitat for terrestrial and aquatic fauna;
- foreshore stabilisation;
- shading and maintaining cooler temperatures
- interception of nutrients and sediments in runoff; and
- nutrient uptake and processing.

Riparian vegetation along the Lower Vasse River provides important bird habitat and forms part of a regional ecological linkage mapped along the length of the study area (Ecoedge 2017). However the vegetation is mostly degraded with low species diversity and extensive weed invasion. There has been

[4] Information from unpublished report and discussions with local NRM group Natural Resources Adelaide and Mt Lofty Ranges.

considerable riparian revegetation on the Lower Vasse River banks since 1999, and these areas provide the best condition riparian vegetation. This demonstrates successful revegetation, but these areas need more active weed control and could be enhanced with infill planting.

Extensive areas of public lands provide good opportunities for revegetation. Ecoedge (2017) suggests five key areas for rehabilitation based on size, accessibility and level of competition with existing plants (Appendix 3. Additional areas of City-managed foreshore reserve are being created through new developments, providing new opportunities for improving riparian vegetation. The littoral zone[5] could be expanded in some areas through a living streams approach, including zones of seasonal and permanent inundation, requiring a specialised suite of species. A species list for revegetation for terrestrial and aquatic areas is provided in Appendix 4.

Outside of urban areas there is still stock access to some foreshore areas, damaging fringing vegetation and directly contributing wastes to the river. The *Vasse River Action Plan* study area extends from the headwaters in the Whicher Range to Fairlawn Road (Scott 2000). It provides an assessment of foreshore condition and identifies areas requiring management of stock access, weed control, erosion control and revegetation. A review of implementation of the Action Plan and an update of the foreshores assessment and associated management recommendations for the Lower Vasse River WMP study area would assist in planning and undertaking restoration activities. This would also set a baseline for future monitoring of progress and outcomes. River action planning should also include consideration of future development and provide information to assist in planning for additional foreshore reserves.



Figure 19. Improving riparian revegetation through weed control and infill planting.



Figure 20. Floating island on the Lower Vasse River installed in 2002.

[5] The ecological zone in freshwater systems close to the shoreline where sufficient light extends to the bottom for plant growth (Boulton et al. 2014).

4.5 Floating Islands

Floating islands are also known as constructed floating wetlands, as they are designed to provide the ecological engineering benefits of constructed wetlands designed for water quality improvement. They are used in water treatment systems, particularly in China, and can contribute to restoration of natural waterbodies, however their effectiveness in pollutant removal is lower at larger scales (Bi et al. 2019). Floating islands have potential to remove nutrients from the water column, and they provide ecological benefits of habitat and shading.

Islands consist of a floating frame or structure supporting a contained media within which plant roots can grow. The plants and media combined enhance microbial processes that have potential to reduce nutrients in the water column. They may be more effective at nitrogen reduction than phosphorus: nitrogen is removed via enhanced nitrification and denitrification, while phosphorus is stored internally and remains potentially available. As plants grow they take up nutrients from the water, however this only contributes to ongoing nutrient removal plants are regularly harvested.

The shading effect of floating islands has immediate benefits of reducing lower water temperatures and light availability to algae, although the scale of islands needed for this to limit algal blooms may be unfeasible. The structures have potential for use in restricting growth of Mexican waterlily by shading, while retaining beneficial biological processes. Islands and the roots below provide structural habitat for aquatic invertebrates, increasing biodiversity and improving food resources for other aquatic fauna. They also provide refuge from heat and predation from waterbirds.

Some small floating islands have been placed in the river in the past. In 2002 a small reed raft was made from a PVC frame with plastic mesh base (Figure 20). Plant growth was rapid, and the structure was subsequently used for nesting. This 'island' remains in the river today and has become rooted to the bottom of the river. Swans have recently been observed nesting on it. In 2012 floating islands were installed in a curtained off area to assess water quality benefits. The trial did not take place under conditions of severe algal blooms expected, owing to the effect of Mexican waterlily downstream. No significant effects on water quality were found in this trial, however the beneficial ecological processes associated with floating islands are well-established.

4.6 Managing waterlilies

The extensive cover of waterlilies in the river has negative impacts on oxygen levels and open water habitat; however they appear to have had a beneficial effect on water quality, inhibiting the development of algal blooms in open water areas upstream of the point of infestation (near the boat ramp) (Paice 2018). The structural habitat of the waterlilies also supports aquatic invertebrates, despite low oxygen levels.

Although unintentional, this is an example of "ecological engineering", whereby a change in the ecology has provided water quality benefits. The reasons for reduced algal blooms between patches of waterlily are not fully understood. It is not a result of reduced phosphorus concentrations, as phosphorus was actually extremely high in areas with low algal growth. It may be a combination of greater low residence time in sunlit areas owing to lilies and riparian shading; nitrogen limitation; or chemical inhibition (allelopathy). Understanding the mechanisms by which waterlilies inhibit algal growth may provide important insights to future management, and warrants further research. It

would also be valuable to investigate the potential to achieve similar inhibition using native aquatic plant species, such as *Cycnogeton* spp., *Potamogeton* spp., *Liparophyllum* spp. and *Ottelia ovalifolia*.

Reduced algal growth was observed following a rapid expansion of waterlily cover in 2013-2014 (Figure 9), at considerably lower levels of cover than subsequent years. This suggests that water quality benefits can be maintained with some control of waterlily. Large scale control would likely see a return to widespread seasonal algal blooms; and also presents risks of widespread deoxygenation following plant die-off. Paice (2018) recommends strategic control of waterlily to gradually reclaim open waters between lily patches, targeting important waterbird habitat, and to prevent invasion of new areas. Although outside the study area of the WMP, the downstream Lower Vasse River delta wetlands are at particular risk and should be targeted for waterlily control.

4.7 Controlling feral fish

The two main feral fish species in the Lower Vasse River are goldfish and mosquitofish. There is little that can be done to control mosquitofish populations. Goldfish are known to feed in at the bottom of the river, disturbing sediments and so contributing to nutrient release and turbidity. There is also evidence that passage through goldfish stomachs can increase the growth rate of blue-green algal cells.

Although eradication of goldfish is difficult, population numbers were successfully reduced through an annual electrofishing program from 2003 to 2013 (Beatty et al 2014). The resumption of this program should be considered. Compartmentalising the river may provide opportunities for effective targeted goldfish removal.

4.8 Increasing flow inputs from the Vasse Diversion

Reduction in catchment flows due to interception by the Vasse Diversion, together with impoundment by the Butter Factory weir boards have substantially altered hydrology of the Lower Vasse River. The effect on nutrient concentrations is complex due to variation in nutrient concentrations and the combined results of flow volume and velocity, assimilation within the system and outflows. Although nutrient loads may have decreased due to lower volumes, this does not translate to lower nutrient concentrations.

The impounded conditions and accumulated sediments in the lower 'lake' section of the river promote algal blooms which causes a seasonal increase in nutrient concentrations over summer when there is negligible flow (Section 2.1.1). Flushing of the river may be important for removing nutrients and organic material that accumulate in during summer (Figure 6).

There is strong support from the community for increasing flow into the Lower Vasse River from the Vasse Diversion with the aim of improving water quality. Altering flows has potential to improve water quality where it dilutes nutrient concentrations or reduces residence time for growth of algal blooms. But outcomes need to be considered in the context of flood protection and impacts on nutrient loads to downstream wetland ecosystems. This option of altering flows was investigated by the *Reconnecting Rivers* study (DWER 2018b), which used hydrological modelling to determine the outcomes from a range of reconnection scenarios. The main findings of the *Reconnecting Rivers* study in relation to the Lower Vasse River were:

- the Vasse surge barrier is essential for flood prevention in Busselton;

- additional flows from the Vasse Diversion would increase nutrient loads to the Lower Vasse River and Vasse Estuary;
- an additional 900mm culvert at the Vasse Diversion offtake to the Lower Vasse River is feasible without increased flood risk and without unacceptable additional nutrient loads to the Vasse Estuary;
- the equivalent of three 900mm culverts or full reconnection of the Vasse Diversion would cause unacceptable flood risk and increase in nutrient loads to the Vasse Estuary;
- additional flows from the Vasse Diversion only has a significant effect on flows during winter;
- the potential effect of an additional culvert on summer water quality in the Lower Vasse River is small because of a lack of flow;

The study recommended that the Vasse Diversion Drain offtake structure be upgraded to an equivalent of two 900mm culverts (i.e. double its current capacity), with the ability to control flow. This infrastructure has been designed and works are currently scheduled for 2019. *Reconnecting Rivers* also recommended the development of an operational strategy to manage the culverts, with defined roles and responsibilities and consideration of how nutrient concentrations could be minimised. A greater understanding of relationships between water flow and water quality wold be beneficial to inform optimal operation of the culvert with regard to nutrient management.

4.9 Improving summer flows

There is no flow from the Vasse Diversion in the warmer months to address water quality problems during the algal bloom season through dilution and water movement (DWER 2018b). There are limited other options for creating summer flows with other water sources. These are summarised as follows:

- Storage of water for summer release: A dam to hold water for summer release would need a capacity of 18GL and cover an area of 9km^2. Water stored in such a reservoir is at risk of experiencing similar water quality problems to the Lower Vasse River. Using the Vasse Diversion or existing flood detention basins is not viable as it would compromise their flood protection function (DWER 2018b).
- Busselton Wastewater Treatment Plant discharge: This option would reduce water residence time and may decrease phosphorus concentrations with limited increase in loads to downstream wetlands (DWER 2018b). This option may be considered further, but its practicality is limited by need for substantial infrastructure and future competition for this water resource.
- Busselton Water operations: There may be potential for backwash inputs, but this has not yet been assessed.
- Internal artificial circulation: Movement of water within the system has potential to limit algal blooms by physical disturbance, reducing water temperatures. Temperature and residence time can be key factors controlling algal blooms in impounded rivers suggests (Cha et al. 2017). This approach may provide opportunities for external treatment techniques associated with recirculation (e. g. filtration via treatment wetlands). This option has not been assessed.

4.10 Removal of the Butter Factory weir boards

The Butter Factory weir structure and boards were installed around 1918 to retain water levels in Busselton for amenity and recreation outcomes. There are mixed perceptions regarding their

necessity: that removal would improve water quality in the river through flushing; that they are not necessary and greater drying would be beneficial; and that maximising depth is important to improve water quality by creating cooler conditions.

Current management practice is to remove the weir boards in winter, and reinstall them in October to maintain water levels. However, the wooden boards currently leak, so higher water levels are only maintained temporarily. From around December, the extent of water is determined by land elevation, and currently restricted by a point further downstream near Ford Rd.

Modelling through the Reconnecting Rivers project indicated that removal of the weir functionality would not create a flooding risk; and would not result in drying out of the river. This approach may have the following outcomes:

- water levels in the Lower Vasse River would become lower earlier, by up to eight weeks;
- water would continue to flow into the downstream wetlands for a longer period, rather than being held back, influencing nutrient load;
- potential effects on goldfish movement.

An important operational issue at present is the safety of City staff during the installation and removal of the weir boards. A decision is required as to their future use, because if they are necessary part of river management they will need to be replaced and the mechanism for their installation and removal upgraded.

4.11 Sediment removal

Regardless of potential reductions in nutrient loads, the organic sediment in the Lower Vasse River provides an ongoing internal source of nutrients loading that can continue to drive algal blooms. Phosphorus is released from the sediments under low-oxygen conditions, and nutrients are also resuspended from the sediments when disturbed by flows and wind. Increasing phosphorus concentrations over the summer months may be a result of sediment-nutrient release. Note that specialised clay products are a form of sediment treatment that prevents phosphorus release (Section 4.3).

Sediment removal has long been viewed by many stakeholders as an essential part of future management. It was highlighted as a key management action during community consultation (AHA 2016). As a stand-alone method it would probably not prevent algal blooms, because nutrient concentrations in surface and groundwater inputs are sufficient for excessive algal growth. However, "resetting" the river through removal of organic sediments does have potential outcomes for water quality and ecology.

Outcomes of sediment removal for river health are complex. Increasing depth may create cooler temperatures but can also result in stratification if there is little mixing of the water, so there may be little temperature-related control of algae. Deeper waters may also reduce resuspension of nutrients from the riverbed. However, shallow waters may also be less prone to algae blooms owing to more favourable conditions for aquatic plants and benthic algae. Rather than removing all soft sediments from the river, creation of deeper pools and channel habitats in some areas as part of a living stream approach is considered more feasible (Section 0).

A section of the river upstream of Causeway Rd Bridge was dredged in March 2001. This work has increased the depth of the river in this section, however a large amount of soft sediment remains, at

thickness similar to other parts of the river, and water quality remains poor (Paice 2005). In this case a mini-dredge was used to pump material to a holding dam, allowed to settle overnight and then overlying water was returned to the river. Sediment from the dam was disposed of at a gravel pit.

4.11.1 Removal method

Sediments in the Lower Vasse River are very fine and contain a high moisture content, and so require pumping from the river rather than excavation. The method used in 2001 was effective in removing some sediment and allowing it to dry out sufficiently for excavation. However drying took a considerable length of time and the total amount removed was dependent on the capacity of the holding dam. A more recently developed option is pumping sediments into porous geotextile bags placed nearby (Figure 21); with addition of a polymer to expel the water from the bags, which flows back into the river. This approach allows additional sediment to be pumped from the river as the volume of water is removed from collected sediments. This is considered the most feasible option for sediment removal from the river, and a proposal for a trial is currently being developed.

4.11.2 Disposal options

Disposal of dredged sediment is challenging in terms of potentially very large volumes, involving considerable transport costs; and limitations on disposal site owing to potential acidification and nutrient and pollutant content. To inform disposal options, the City undertook sampling of between the boat ramp on Southern Drive and the Butter Factory weir in March 2018, with assistance from DWER.

Levels of heavy metals and organic and inorganic contaminants were below threshold levels for disposal at a Class I landfill facility, with the exception of lead (Table 3). Although lead content levels were above threshold values for waste not requiring a leach test, subsequent leachate testing results showed levels were well below the Class I concentration limit.

The average depth of soft sediment in core samples was 488mm, with these sediments dominated by fine silts and clays (71.4%). Sample analysis found no existing acidity (mean pH 7.0), and low acid volatile sulphur (<0.005 %S) but indicated sulfidic soils with very high potential acidity. Net acidity varied greatly, ranging from 449 to 1511 with a mean value of 980 mole H+/Tonne dry weight. This is well above the acid sulphate soils 'action criterion' of 62 mole H+/T for fine texture materials (DER 2015). When sulfidic soils are exposed to air, oxidation can result in acidification. This has been demonstrated for the dredged material from 2001 at the gravel pit, which has a pH of around 4. The average lime dosing required to buffer potential acidification is 74kg/Tonne dry weight.

Soil characteristics do show that dredged material could be disposed of at a Class I landfill facility, such as the City's Vidler Road Waste Facility. However the high nutrient and organic content of the material suggests potential for reuse of the material as a component of compost. Composting can further dilute concentrations of pollutants. This approach would require a trial and further testing of the material to ensure it is safe for any proposed end use.

4.11.3 Risks

The main risks associated with sediment removal are:

- potential impact on benthic organisms;

- short term effects on water quality;
- acidification of sulfidic sediments; and

In the Lower Vasse River the soft sediment layer general provides poor habitat for benthic organisms. However the threatened Carter's Freshwater Mussel (*Westralunio carteri*) is known to occur. Mussels in the Lower Vasse River have a habitat preference for bridge sites and river edges, which are more shaded and stable. Key habitat areas could be avoided and work could be offset by overall habitat improvement; but nonetheless sediment removal work would need to consider and manage impacts on this species and be approved under state and federal legislation.

There is some risk of increased nutrient concentrations in the vicinity of dredging operations disturbance of nutrient rich sediments. Given the severe water quality problems currently experienced in the river this is not considered to be a serious risk. However the connectivity to the Vasse Estuary downstream does raise the issue of impacts on nutrient loads. This could be avoided by undertaking work when the river is disconnected from the downstream system.

The soft sediments in the Lower Vasse River are sulfidic and laboratory analysis and the pH of the old dredge spoil do indicate that oxidation would cause acidification. Severe acidification can have direct impacts on aquatic flora and fauna, lead to contamination of water resources, and cause corrosion of infrastructure. Exposure of the sediments to oxygen in the water column or air would be avoided using the geotextile bag method, preventing oxidation during the removal process. The sediments are not monosulfidic (indicated by low acid volatile sulphur); so do not pose the risk of rapid acidification and associated deoxygenation of the water column with potential heavy metal release. Sediments would require lime dosing for disposal.

Table 3. Comparison of pollutant content of Lower Vasse River sediments to threshold values for Class I landfill (sampling by City, March 2018).

Analyte	mean	Class I landfill threshold[1]	Units
Arsenic	<5	14	mg/kg
Beryllium	0.1	2	mg/kg
Cadmium	0.34	0.4	mg/kg
Chromium	6.6	10	mg/kg
Lead	35	2	mg/kg
Lead leachate	<0.01	0.1	mg/L
Mercury	0.04	0.2	mg/kg
Molybdenum	<2	10	mg/kg
Nickel	2.00	4	mg/kg
Silver	<1	20	mg/kg
Fluoride	137	300	mg/kg
Cyanide - Total	<1	16	mg/kg
Petroleum hydrocarbons C_{6-9}	<0.2	2800	mg/kg
Petroleum hydrocarbons – other	19.5	450[2]	mg/kg

[1] Landfill Waste Classification and Waste Definitions (DEC 2009)
[2] minimum threshold value for range of petroleum hydrocarbons
< indicates value below limit of detection
Phenol and pesticide suite also analysed, all results below limit of detection

4.11.4 Costs

There is uncertainty around costs for sediment removal, related to volumes of material and potential shrinkage, method of removal and options for disposal. Further work is required to provide accurate estimates of sediment and determine sound methods for removal and disposal. Removal also needs to consider appropriate locations and whether it could be staged in association with a living streams design approach. The removal trial currently being developed (see 4.11.1) will inform future costings of this management option.



Figure 21. Geotextile bags used for sediment removal via dredging.

4.12 Recreation and access management

Recreational opportunities for the Lower Vasse River are mainly walking and riding along the river and bird watching. Feeding of ducks and other birds near Peel Terrace is also common, but is discouraged owing to potential impacts on water quality and bird behaviour. Recreation is clearly limited by water quality problems. Algal blooms pose a health risk that prevents direct contact activities such as swimming and use of paddle craft; and at times cause poor odours that limit activities near the water. Management actions that address water quality are thus essential to improve recreational opportunities.

There is potential to improve access and facilities for recreation and enjoyment during periods where algal blooms do not occur, or do not cause offensive odours. Community consultation indicated access and recreation as the area of management where the community would most like to see change (AHA 2016). Examples include additional pathways, boardwalks, viewing platforms, seating, bird hides and picnic areas. Upgrading of interpretive signage would also encourage people to the river and enhance their experience. There are existing pathways along the river in the vicinity of Peel Terrace and

Southern Drive, and among the nearby New River Wetlands: the City is currently developing plans for an extension to this network.

There is also a need to review the use of permanent warning signs around the river, which discourage activities when there is no public health risk. This is particularly important if water quality improvements are achieved.

There is significant potential for improved recreational, amenity and cultural connection with the river. Although poor water quality does limit these outcomes, it does not prevent it. Enhancing ecological values of the river and opportunities for community connection can be achieved independent of water quality improvement. Furthermore, there are many months of the year when water quality does not pose a health risk. Clearly though, water quality improvement is a key aspect of enhancing recreational opportunities.

Interpretive signage along the Lower Vasse River between the old Rail Bridge and Rotary Park was developed as part of the Lower Vasse River Cleanup Program, in the early 2000s. These signs are still in place but are outdated: some are no longer visible and some are no longer relevant. Improved interpretive facilities and information would engage more of the community and enhance appreciation and understanding of the river and its management.

4.13 Governance options

The independent review of water asset management (Hart 2014) highlighted the need for the Lower Vasse River to have a designated manager. The City was recognised as the most appropriate manager, and this has been supported by the Western Australian Government in its response to the review. It is sensible that the City adopts this role given the high public profile of the river as a part of Busselton's town centre; and the large areas of foreshore reserves under the City's management control. Although the City is responsible for overall implementation of management actions, several key stakeholders also have important roles, outlined below. These roles and responsibilities are also summarised in Table 4, in Section 6.

The flow control structures at the Vasse Diversion connection and the Butter Factory, considered vital components of river management, are generally operated by the City. However, this infrastructure is owned by the Water Corporation. The Water Corporation has given the City permission to operate these mechanisms for water quality purposes, however some uncertainty remains in relation to flood protection.

The City also has an important role in its planning capacity. The *Optimising Planning Tools* project was completed by the City, for the RGW Program, to review the potential role of planning in water resource protection (Hosken 2018). Proposals for changes in land use and new developments can trigger the imposition of new environmental protection requirements at the approval stage. This applies to both urban and rural development.

The Lower Vasse River catchment area will undergo considerable expansion of urban and industrial areas in the future, which will increase potential nutrient and pollutant sources. Continued implementation of best practice stormwater management designs, and long term maintenance of infrastructure by the City is essential to minimise water quality impacts from future developments. Future residential development will provide opportunities for improving foreshore environments as new reserves are vested in the City. Consideration of water quality protection and surface water

management in the planning process is guided by *Better Urban Water Management* document (WAPC 2008). There is potential to require new developments to demonstrate that nutrient and contaminant levels will not exceed background levels, but this would require amendment of the City's Local Planning Scheme and is restricted by a lack of water quality standards.

In rural areas, the current trend of intensification of agriculture is likely to continue into the future. Although there is a requirement for planning approval for intensive agricultural uses such as horticulture and feedlots, development applications for these land use changes are generally not submitted to the City. Improved clarity of planning approval requirements for changes in agricultural land use and new agricultural developments may increase opportunities for waterway protection requirements. The development of industry best management practices (BMPs) would provide useful criteria for planning assessment.

The City's management responsibility is generally limited to the study area and does not extend into the broader catchment. Ongoing management initiatives in the catchment, in particular to address issues of nutrient enrichment and sedimentation, are a fundamental component of waterways management. GeoCatch, with the support of DWER, is the lead manager for catchment management. The Water Corporation has management responsibility for its rural drainage network.

DWER has an ongoing role in providing support for the management of the Lower Vasse River through continued involvement in water science, modelling and monitoring. If the implementation of this WMP is to be funded through ongoing investment in a broader program for Geographe Bay catchment waterways, DWER is likely to continue to have an important project management and networking role.

The community is also an important stakeholder with potential roles in management decisions, advocacy, implementation of on-ground works and contribution to community science. Many interested community members have provided valuable assistance during the preparation of this WMP and would be valuable in ongoing collaboration during implementation. The City has a strong 'Friends of' approach to reserves management, which may facilitate volunteer involvement in actions and monitoring. Aboriginal people have expressed a desire to participate in management decisions and on-ground projects.

4.14 Research and monitoring needs

Research and monitoring are needed to enable assessment and reporting on progress of management initiatives and to fill knowledge gaps. Research outcomes need to feed back into management planning through an adaptive process. The key research areas for the Lower Vasse River are summarised below.

Water quality: Ongoing water quality monitoring is an essential part of long-term assessment and reporting for waterway health. Future research into different water treatment options to reduce nutrient availability and reduce algal growth may provide important management tools. Short-term Intensive monitoring of nutrient concentrations and flows to the river from the Vasse Diversion Drain to improve understanding of the first flush dynamics of the system would inform operation of culverts.

Water flow: Investigation of the relationship between nutrient and flows in the Vasse Diversion will help inform management decisions around operation of the culvert connection. When the culvert is upgraded, inclusion of flow monitoring in the design would support future decisions in optimising flow. Better understanding of the effects of the Butter Factory weir on water levels and water quality is also needed to determine the need for upgrading this structure.

Birds: Despite being one of the most valued characteristics of the river, bird populations and key habitat areas are not well understood. Better knowledge of birds would assist in prioritising management actions (e.g. habitat restoration) and in developing information resources for visitors. There is an opportunity for development of community-based sampling to address this gap.

Mussels: Freshwater mussels occur in the river, and have recently been added to specially protected fauna lists at the state, federal and global levels. A better understanding is needed of the mussel population, habitat requirements, potential contribution to water quality and potential impacts of management initiatives.

Mexican waterlily: The reasons for reduced algal blooms between patches of waterlily are not fully understood, and research into the mechanisms for this would provide insights for broader river management.

Sediments: Sediment removal is potentially a major part of future management of the river to address internal nutrient sources. More work is needed to develop methods of removal, determine costs, and examine potential outcomes for water quality and impacts on existing ecological values.

5 Management Strategies and Actions

The management strategies and actions included here have been developed to work towards meeting the management objectives and vision for the Lower Vasse River. Specific actions have been grouped into strategies for each of the management focus areas, although many have potential outcomes for several objectives. Living Streams is included separately, because it is an approach to management that influences implementation of actions for a number of focus areas. A framework for implementation of the WMP is provided in Section 6, including the roles and responsibilities of key stakeholders; definition of management areas; and a process for ongoing action planning, reporting and review.

5.1 Living Streams

Living Streams is separated from the management focus areas because it provides an overarching pathway for implementing management actions related to water quality and ecology. It involves altering the morphology and physical characteristics of the river to restore ecological processes and create less favourable conditions for algal blooms. It may also facilitate intervention actions, such as water treatment and sediment removal, in specific areas of the river.

5.1.1 Strategy LS1: Living streams approach

A living streams approach would see creation of diverse habitats including seasonally dry areas, river pools, channels, floodplain areas, riffle zones and islands (floating and grounded). In addition to outcomes for biodiversity in the river, these habitats would be designed to maximise potential benefits to water quality.

Management actions:

LS.3 Continue to develop Living Streams planning as a pathway for implementing ecological restoration and water quality improvement works, and assess community support for this approach.

LS.4 Incorporate the following principles into restoration planning as part of the Living Streams approach:

- maximise shading;
- enhance substrate to provide more favourable sediment and depth conditions for anchorage and growth of beneficial aquatic plants;
- modify depth contours to support more in-stream vegetation, including emergent and submerged plants, to enhance nutrient uptake and cycling;
- provide greater surface area for benthic algal populations to develop as alternative primary producers to phytoplankton;
- reduce the size of open water areas to increase resilience to nutrient loading;
- enhance habitat for freshwater mussels to maximise their role in maintaining water quality;
- reduce residence time for algal growth through flow management.

5.2 Water quality

Nutrients are a key driver of algal blooms, so ongoing load reduction actions are a fundamental part of management. However, it often takes a long time to achieve load reductions, and they may be counteracted by new developments and changes to land use. Algal blooms can also be addressed through interventions that limit nutrient availability or directly target algal blooms. They may also be managed by creating less favourable physical conditions for phytoplankton; or restoring ecosystem functions such as nutrient cycling and food web processes.

Catchment management actions in this section are closely linked with recommendations in the Water Quality Improvement Plan (WQIP: DoW 2010), which are included for reference.

5.2.1 Strategy WQ1: Protecting water quality from urban sources

The Busselton Light Industrial Area (LIA) has been identified as a potentially significant source of nutrients and pollutants to the Lower Vasse River. This strategy is focussed on improving understanding of this problem to guide future management. It also includes actions to maintain and expand best practice stormwater management to improve water quality.

Management actions:

WQ1.8 Quantify nutrient and pollutant exports from Busselton LIA to the Lower Vasse River to inform a case for deep sewerage.

WQ1.9 Explore options to secure deep sewerage for the Busselton LIA in partnership with Water Corporation.

WQ1.10 Assess opportunities for greater connection to existing sewerage infrastructure within the Lower Vasse River catchment. If there a significant opportunity exists, investigate options and incentives to increase connectivity.

WQ1.11 Planning decisions to include appropriate sewerage management requirements and best practice water management, through implementing the *Better Urban Water Management* framework.

WQ1.12 Develop a prioritised program for stormwater WSUD upgrades to maximise nutrient reduction outcomes.

WQ1.13 Support educational campaigns that aim to reduce nutrients in runoff through individual and community actions (e.g. Bay OK).

WQ1.14 Support implementation of the Vasse-Wonnerup Wetlands and Geographe Bay WQIP (DoW 2010).

5.2.2 Strategy WQ2: Reducing nutrient inputs from the rural catchment

Agricultural activities in the Vasse River catchment influence nutrient inputs via the Vasse Diversion culvert, which may increase when the culvert capacity is increased (see Water Flows). There are also some rural land use activities remaining in the Lower Vasse River catchment area. This strategy reflects catchment management initiatives recommended in the WQIP, and future management direction in improving rural drainage.

Management actions:

WQ2.3 Support projects focussed on reducing nutrient exports from rural catchment of the Lower Vasse River, as recommended in the Vasse-Wonnerup Wetlands and Geographe Bay WQIP (DoW 2010):

- *Improve fertiliser management throughout the catchment*
- *Improve effluent management at dairy sheds and feedlots*
- *Implement riparian management and stock control on streams and drains*
- *Use soil amendments on sandy soils*
- *Use perennial pastures when suitable*

WQ2.4 Explore opportunities for enhanced nutrient assimilation in rural drains in the Lower Vasse River catchment, particularly those in reserves.

5.2.3 Strategy WQ3: Water treatment

Even when substantial reductions in nutrient loads are achieved, algal blooms often persist owing to ongoing internal nutrient supply. This strategy includes remediation approaches that address in-situ water quality, by treating water to reduce nutrient levels and algal blooms.

Management actions:

WQ3.4 Incorporate outcomes from the Water Quality Treatment Trials (2016-2018) into future management planning.

WQ3.5 Undertake seasonal water treatments in priority amenity area/s prior to algal bloom establishment, ensuring physical isolation to maximise effectiveness (dependent on outcomes Water Quality Treatment Trials, 2016-2018).

WQ3.6 Maintain research partnerships to identify and investigate new technologies to treat water in the future.

5.3 Ecology

5.3.1 Strategy E1: Riparian vegetation management

Riparian vegetation provides important habitat and supports ecosystem functions that maintain water quality. This strategy directs weed control and revegetation to improve and expand vegetated areas.

Management actions:

E1.6 Develop and implement a revegetation program for City-managed foreshore reserves, considering recommended rehabilitation areas reported in Ecoedge (2017).

E1.7 Continue to impose appropriate conditions on new developments adjacent to the Lower Vasse River that ensure future vesting and revegetation of foreshore reserves.

E1.8 Include creation and improvement of habitat for birds and possums in planning riparian revegetation.

E1.9 Update the Vasse River Action Plan in partnership with adjacent landholders, and extend this throughout the Lower Vasse River study area.

E1.10 Minimise fire risks associated with foreshore reserves by: reducing growth of annual grassy weeds; and considering species type, height and planting density when planning revegetation.

5.3.2 Strategy E2: Understanding and protecting waterbirds

Although there is high community appreciation of waterbirds in and around the Lower Vasse River, there is little formal understanding of bird populations and key habitats. This strategy will improve knowledge to guide protection and enhancement of bird habitat. There is potential for community contribution to this through a citizen science approach.

Management actions:

E2.5 Undertake a survey of waterbirds of the Lower Vasse River and identify important habitat zones, with strong involvement from the community.

E2.6 Protect identified important bird habitat zones through revegetation and weed control, recognising the current role of weeds as habitat.

E2.7 Create additional habitat zones for birds by placing large woody debris emerging from the water.

E2.8 Avoid identified important bird habitat zones when planning future infrastructure, and consider nesting season when planning works.

5.3.3 Strategy E3.1 Controlling invasive species

Mexican waterlily and feral goldfish are significant invasive species in the Lower Vasse River, impacting substantially on ecology and water quality. This strategy supports ongoing control programs for these species, but recognises the role of waterlily in reducing algal blooms.

Management actions:

E3.5 Prevent of further spread of Mexican waterlily through herbicide control and/or shading.

E3.6 Undertake strategic control of Mexican waterlily to progressively reclaim areas of open water, while minimising adverse impacts and preventing a return to algal blooms in these areas.

E3.7 Undertake regular feral fish eradication activities in partnership with Murdoch University.

E3.8 Undertake targeted control of arum lily and Brazilian pepper trees throughout the Lower Vasse River study area.

5.4 Water flow

5.4.1 Strategy WF1: Optimising flows

This strategy considers potential for water quality outcomes by manipulating flow inputs from the Vasse Diversion Drain, and by increasing summer flows. Increased flow inputs from the Vasse Diversion Drain require careful consideration of nutrient loads and flood protection. While there are limited sources of summer flow, there is scope to further investigate options and benefits of internal water circulation. This could be made more feasible through the Living Streams approach.

Management actions:

WF1.7 Increase flushing of the river by installing a second 900mm culvert at outflow point from Vasse Diversion Drain, in accordance with recommendations from the Reconnecting Rivers Report (DWER 2018).

WF1.8 Monitor impacts of increasing flows into the Lower Vasse River.

WF1.9 Undertake intensive monitoring water quality in the Vasse Diversion to support operational guidelines for managing the culvert.

WF1.10 Develop operational guidelines for the Vasse Diversion culvert that defines responsibilities and provides formal guidance for manipulation of the valve to maximise water quality benefits and minimise risk of flooding.

WF1.11 Review function of the Butter Factory weir boards to inform their future use and need for replacement.

WF1.12 Investigate potential for increasing internal circulation in the system during summer to reduce residence time for phytoplankton.

5.5 Sediments

5.5.1 Strategy S1: Sediment removal

The accumulated organic sediment in the Lower Vasse River provides an ongoing internal source of nutrients that drive algal blooms. These sediments also create a hostile environment for beneficial native aquatic plants and benthic aquatic fauna. This strategy includes removing sediment through an adaptive approach over time and considers alternatives to removal.

Management actions:

S1.4 Undertake a small-scale sediment removal project, using geotextile bags for dewatering and disposal, to assess cost and logistics of this approach.

S1.5 Determine feasibility of disposal options for future sediment removal: landfill, composting, soil conditioner.

G2.4 Depending on outcomes of small scale removal, undertake staged removal of sediments in the Lower Vasse River as a component of Living Streams design.

5.6 Amenity, recreation and education

5.6.1 Strategy ARE1: Improving facilities and information

Management actions:

ARE1.6 Review existing facilities and develop a concept plan for strategic pathways and viewing points that connect people with the river.

ARE1.7 Update the interpretive signage around the river to provide information on of the history, ecology, hydrology and management of the Lower Vasse River.

ARE1.8 Develop online and printed resources with interesting and important information on ecology, water quality, history and management of the Lower Vasse River.

ARE1.9 Establish bird watching areas and hides in appropriate places with informational material.

ARE1.10 Encourage opportunities for citizen science to contribute to understanding and appreciation of the Lower Vasse River.

5.6.2 Strategy ARE1: Public health management

There are many months of the year when algal blooms are not present and some areas do not experience regular summer algal blooms. The current approach of leaving warning signs in place throughout the year contributes to poor public perception of river health, and is not appropriate in terms of actual risk.

Management actions:

ARE2.4 Continue monitoring phytoplankton species and densities to inform public health notifications.

ARE2.5 Review algal bloom warning sign protocol and prepare a communication program to inform the community when harmful algal blooms occur.

ARE2.6 Develop a policy for use of recreational watercrafts in the Lower Vasse River, including consideration of public health constraints.

5.7 Culture and Heritage

5.7.1 Strategy CH1: Recognising Wadandi custodianship

Wadandi people have a strong connection to the Lower Vasse River and have considerable interest in its future management. This strategy will improve involvement of the Wadandi community in decisions and actions on river health and cultural connection.

Management actions:

CH1.6 In partnership with Wadandi people, include reference to traditional custodianship of the waterways and land in development of information resources.

CH1.7 Manage future access in a way that avoids additional disturbance and considers protection of potential sites of significance – however Wadandi activities such as fishing, camping, the gathering of bush foods and family recreational and educational activities, should not be restricted by implementation of this plan.

CH1.8 Seek to improve partnerships with the Wadandi community to increase their involvement in the management, protection and restoration of the Lower Vasse River.

CH1.9 Consult further with Wadandi representatives in regards to specific works which result from this plan.

CH1.10 Support programs that engage the Wadandi community in implementation of works associated with this plan.

5.7.2 Strategy CH2: Preserving historical values

Working towards the vision will improve community perception of the Lower Vasse River as an iconic and historical feature of the Busselton. The history of the river should be preserved in terms of physical structures and records of information.

Management actions:

CH2.3 Identify and ensure appropriate maintenance of sites of historical importance.

CH2.4 Develop interpretive material to increase understanding of local history, and to promote, appreciate and access historical sites.

5.8 Governance

5.8.1 Strategy G1: Collaborative and adaptive management

The City has coordinated the development of this WMP and has overall responsibility for implementation, but partnerships with other stakeholders will be essential to achieve many management actions and assess their outcomes. This strategy provides for a collaborative approach to management and will ensure outcomes of actions and new research inform future decisions. Roles and responsibilities of key stakeholders are defined in Table 4.

Management actions:

G1.2 The City to consider securing management orders over the waterway and adjacent public lands in Lower Vasse River study area, to facilitate implementation of this plan.

G1.5 Establish a Management Advisory Group comprised of representatives from the City, Department of Water and Environmental Regulation, Department of Biodiversity, Conservation and Attractions, Water Corporation of WA, GeoCatch, Wadandi representatives, and other community representatives.

G1.6 Continue water quality monitoring in the Lower Vasse River.

G1.7 Ensure adequate monitoring and reporting of outcomes from management actions, and feedback results into future management actions.

G1.8 Maintain and develop partnerships with research organisations to improve knowledge and management of the Lower Vasse River.

5.8.2 Strategy G2: Optimising planning tools

There is potential for the City to facilitate improved management through the planning and development framework. This strategy builds on the *Optimising Planning Tools* project, which outlines the potential use of planning tools in water quality protection.

Management actions:

G2.5 Improve clarity of planning approval requirements for changes to land use and new developments in the agricultural sector (e.g. horticulture, dairies, feedlots).

G2.6 Assess future development proposals and changes of land-use on adjoining lands with consideration of impacts on the Lower Vasse River.

G2.7 Include 50m wide foreshore reserves as part of future development adjacent to the river.

6 Implementation

6.1 Roles and responsibilities

The lead role of the City in the future management of the Lower Vasse River will be recognised through endorsement and adoption of this WMP. This will task the City with responsibility for coordinating implementation, however key stakeholders will have ongoing roles in many aspects of the WMP. These roles and responsibilities are defined in Table 5.

As captured in action G1.1 a Management Advisory Group is recommended to oversee implementation of this WMP, comprised of representatives from the City, Department of Water and Environmental Regulation, Department of Biodiversity, Conservation and Attractions, Water Corporation of WA, GeoCatch, Wadandi representatives and broader community representatives.

6.2 Management areas

In planning for implementation of management actions, it is helpful to define specific management areas of the catchment and river/foreshore, based on the characteristics of the areas and thus the actions that will be applicable. These are described as follows:

River and foreshore areas:

A. From the Butter Factory weir to Strelly Street, with significant areas of public reserve
B. From Strelly Street to Busselton Bypass, with adjacent residential and commercial areas and less prominent reserves
C. From Busselton Bypass to the Vasse Diversion, with adjacent rural properties

Catchment areas:

A. Busselton light industrial area
B. Other residential and commercial areas
C. Rural areas downstream of the Vasse Diversion
D. Rural catchment upstream of the Vasse Diversion

6.3 Implementation process

An adaptive process of action planning, works, evaluation and reporting is recommended for the WMP, summarised by Figure 22. The strategies and actions presented provide the basis for planning actions for a specified period of time, dependent on achievable priority works and research within available budgets. This would be a key role of the Management Advisory Group. Outcomes of these actions are measured through adequate monitoring, with results assessed in terms of progress towards the management objectives and vision. Reporting of outcomes to the community is essential to maintain community support and this forum would provide an opportunity to gain input to the next action planning cycle.



Figure 22. Implementation process for the Lower Vasse River Waterway Management Plan.

Table 4. Roles and responsibilities of key stakeholders for implementation of the Lower Vasse River Waterway Management Plan.

Stakeholder	Roles and Responsibilities
City	Overall implementation of the WMP. Management of reserves. Stormwater infrastructure upgrades and maintenance. Operation of the Vasse Diversion culvert. Operation of the Butter factory Weir boards. Support to community groups.
Department of Water and Environmental Regulation	Monitoring of water quality. Technical contributions to management decisions. Coordination of future investment in waterways management through Revitalising Geographe Waterways.
GeoCatch	Support to private landholders to improve land and waterway management in the catchment. Educational programs to minimise nutrient and sediment loads. Education, habitat restoration, and community group support for protection of Western Ringtail Possums.
Water Corporation	Managing flooding risk. Support to operational decisions for the Vasse Diversion culvert. Sewerage infrastructure development. Rural drainage maintenance, with potential to improve sediment trapping and nutrient assimilation.
Department of Biodiversity, Conservation and Attractions	Coordinate native wildlife management programs and implement recovery plans for native flora and fauna of conservation significance. Provide guidance and direction to community group in relation to the protection and conservation of Western Ringtail Possums. Providing information about native flora and fauna.
South West Boojarah Working Party	Advocating protection and enhancement of the Vasse River. Providing input to management decisions that affect environmental and cultural values. Engagement and participation of Aboriginal people in management decisions and actions.
Friends of reserves groups	Future role in local-level advocacy and management actions.

7 References

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8 Appendices

Appendix 1. List of vascular flora found within the Survey Area of the Lower Vasse River (Ecoedge 2017).

FAMILY	LATIN NAME	COMMON NAME	NATURALISED	PLANTED
Anacardiaceae	*Schinus terebinthifolius*	Pepper Tree	*	
Apiaceae	*Centella asiatica*	Centella		
Apocynaceae	*Vinca major*	Blue Periwinkle	*	
Araceae	*Zantedeschia aethiopica*	Arum Lily	*	
Asteraceae	*Lactuca saligna*	Wild Lettuce	*	
Asteraceae	*Sonchus asper*	Rough Sowthistle	*	
Casuarinaceae	*Allocasuarina fraseriana*	Sheoak		
Cyperaceae	*Carex divisa*	Divided Sedge	*	
Cyperaceae	*Ficinia nodosa*	Knotted Club Rush		
Cyperaceae	*Gahnia trifida*	Coast Saw-sedge		
Cyperaceae	*Lepidosperma gladiatum*	Coast Sword-sedge		
Dennstaedtiaceae	*Pteridium esculentum*	Bracken		
Dilleniaceae	*Hibbertia cuneiformis*	Cutleaf Hibbertia		
Euphorbiaceae	*Euphorbia terracina*	Geraldton Carnation Weed	*	
Fabaceae	*Acacia saligna*	Orange Wattle		
Fabaceae	*Lupinus cosentinii*	Blue Lupin	*	
Fabaceae	*Vicia sativa*	Common Vetch	*	
Fabaceae	*Viminaria juncea*	Swishbush		
Goodeniaceae	*Dampiera alata*	Winged-stem Dampiera		
Haemodoraceae	*Anigozanthos flavidus*	Tall Kangaroo Paw		
Juncaceae	*Juncus kraussii*	Sea Rush		
Juncaceae	*Juncus pallidus*	Pale Rush		
Menyanthaceae	*Liparophyllum lasiospermum*			
Moraceae	*Ficus carica*	Common Fig	*	
Myrtaceae	*Agonis flexuosa*	Peppermint		
Myrtaceae	*Astartea scoparia*	Common Astartea		
Myrtaceae	*Calothamnus quadrifidus*	One-sided Bottlebrush		x

FAMILY	LATIN NAME	COMMON NAME	NATURALISED	PLANTED
Myrtaceae	*Corymbia calophylla*	Marri		
Myrtaceae	*Eucalyptus citriodora*	Lemon-scented Gum	*	x
Myrtaceae	*Eucalyptus rudis*	Flooded Gum		
Myrtaceae	*Kunzea glabrescens*	Spearwood		?
Myrtaceae	*Melaleuca cuticularis*	Saltwater Paperbark		
Myrtaceae	*Melaleuca huegelii*	Chenille Honeymyrtle		x
Myrtaceae	*Melaleuca rhaphiophylla*	Swamp Paperbark		
Myrtaceae	*Melaleuca viminea*	Mohan		
Myrtaceae	*Taxandria parviceps*			
Papaveraceae	*Fumaria muralis*	Wall Fumitory	*	
Poaceae	*Bromus diandrus*	Great Brome	*	
Poaceae	*Cenchrus clandestinus*	Kikuyu Grass	*	
Poaceae	*Cortaderia selloana*	Pampas Grass	*	
Poaceae	*Cynodon dactylon*	Couch	*	
Poaceae	*Ehrharta calycina*	Perennial Veldt Grass	*	
Poaceae	*Ehrharta longiflora*	Annual Veldt Grass	*	
Poaceae	*Holcus lanatus*	Yorkshire Fog	*	
Poaceae	*Phleum pratense*	Timothy	*	
Polygonaceae	*Persicaria hydropiper*	Water Pepper		
Polygonaceae	*Rumex conglomeratus*	Clustered Dock	*	
Proteaceae	*Banksia grandis*	Bull Banksia		
Proteaceae	*Banksia littoralis*	Swamp Banksia		
Salicaceae	*Salix babylonica*	Weeping Willow	*	
Solonaceae	*Solanum linnaeanum*	Apple of Sodom	*	
Typhaceae	*Typha orientalis*	Typha		

Appendix 2. Summary of Water Sensitive Urban Design infrastructure

WSUD infrastructure implemented in the Lower Vasse River Catchment

Description
CBD area
Kent Street streetscaping Kent Street biofiltration bed
Coles Carpark Bio-filtration Gardens
Woolworths carpark – Rain Gardens and soak wells
Queen Street/Prince Street Bio-filtration beds
Busselton Community Resource Centre Rain Gardens
Busselton Community Youth Centre Rain gardens– High and Jolliffe Street Busselton
Queen Street Outfall – Natural wetlands
Busselton LIA
Frederick Street – Artificial ponds and vegetated swales
College Avenue – Constructed wetland
College – Cook connector drain
Bunnings Carpark – detention ponds
Fairlawn road – Vegetated Swale
Strelly Street – Demonstration – Biofiltration swales and rain gardens Urban Drainage Pilot Project - Details on Strelly Street biofiltration swales
Community Garden – Vegetated swales and detention ponds
Bunbury Street/Roe Terrace – Vegetated detention pond and constructed wetland
Roe Terrace – Vegetated Swale
Bunbury/Barlee Street – Bio-filtration basin

Locations of WSUD in Busselton CBD:

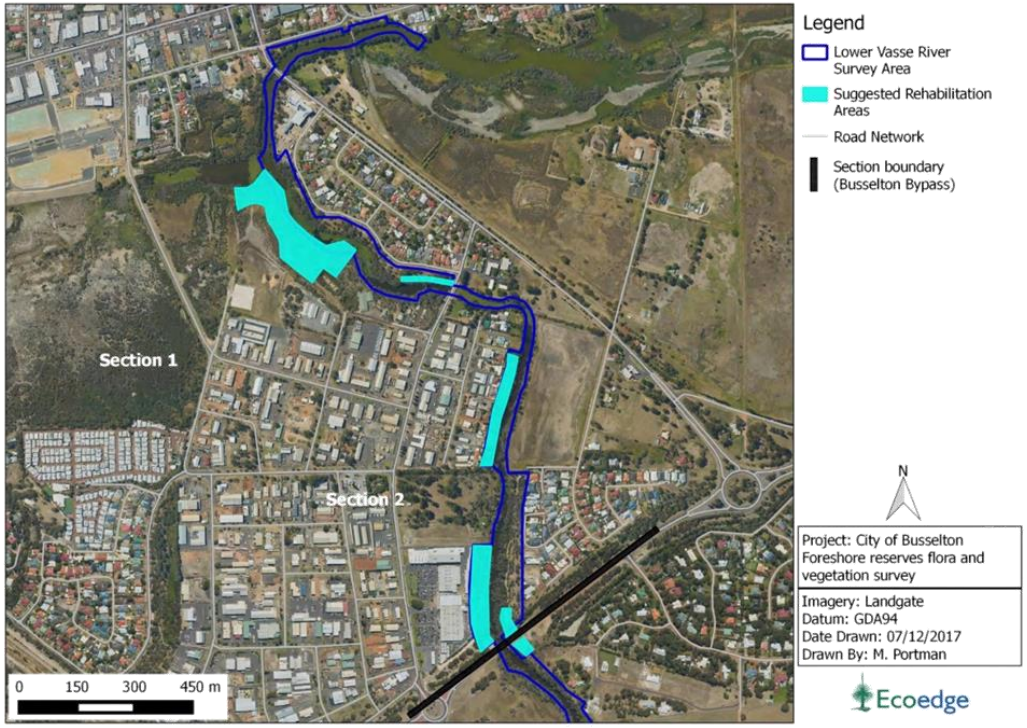


Locations of WSUD in Busselton LIA:



Appendix 3. Recommended revegetation areas for the Lower Vasse River Study area

Recommended rehabilitation areas identified the 2017 vegetation survey (Ecoedge 2017). Note the western foreshore area to the south was revegetated in June 2018.



Appendix 4. Suggested species for revegetation of the Lower Vasse River

Revegetation species list for damp and terrestrial areas (Ecoedge 2017).

Family	Species	Common Name	Habitat	Form
Cyperaceae	*Ficinia nodosa*	Knotted Club Rush	Damp	Rush
Cyperaceae	*Gahnia trifida*	Coast Saw-sedge	Damp	Sedge
Cyperaceae	*Lepidosperma gladiatum*	Coast Sword-sedge	Damp	Sedge
Cyperaceae	*Lepidosperma squamatum*		Dry	Sedge
Dennstaedtiaceae	*Pteridium esculentum*	Bracken	Dry	Herb
Dilleniaceae	*Hibbertia cuneiformis*	Cutleaf Hibbertia	Dry	Shrub
Dilleniaceae	*Hibbertia diamesogenos*		Dry	Shrub
Ericaceae	*Astroloma ciliatum*	Candle Cranberry	Dry	Shrub
Fabaceae	*Acacia saligna*	Orange Wattle	Damp	Shrub
Fabaceae	*Hardenbergia comptoniana*	Native Wisteria	Dry	Climber
Fabaceae	*Jacksonia gracillima*		Dry	Shrub
Fabaceae	*Viminaria juncea*	Swishbush	Damp	Shrub
Goodeniaceae	*Dampiera alata*	Winged-stem Dampiera	Damp	Shrub
Haemodoraceae	*Anigozanthos flavidus*	Tall Kangaroo Paw	Dry	Herb
Hemerocallidaceae	*Agrostocrinum scabrum*	Blue Grass Lily	Dry	Herb
Juncaceae	*Juncus kraussii*	Sea Rush	Damp	Rush
Juncaceae	*Juncus pallidus*	Pale Rush	Damp	Rush
Myrtaceae	*Agonis flexuosa*	Peppermint	Dry	Tree
Myrtaceae	*Astartea scoparia*	Common Astartea	Damp	Shrub
Myrtaceae	*Calothamnus sanguineus*	Silky-leaved Blood flower	Dry	Shrub
Myrtaceae	*Eucalyptus rudis*	Flooded Gum	Damp	Tree
Myrtaceae	*Hypocalymma angustifolium*	White Myrtle	Damp	Shrub
Myrtaceae	*Kunzea glabrescens*	Spearwood	Dry	Shrub
Myrtaceae	*Melaleuca cuticularis*	Saltwater Paperbark	Damp/ Saline	Tree
Poaceae	*Austrostipa flavescens*		Dry	Herb
Proteaceae	*Conospermum caeruleum* ssp. *marginatum*	Blue Brother	Dry	Shrub
Proteaceae	*Xylomelum occidentale*	Woody Pear	Dry	Tree
Santalaceae	*Exocarpos odoratus*	Scented Ballart	Damp	Shrub
Thymelaeaceae	*Pimelea angustifolia*	Narrow-leaved Pimelea	Dry	Shrub

List of emergent and submerged species for restoration of seasonally and permanently inundated areas (littoral zone).

Species	Common Name	Habitat	Form
Centella asiatica	Native celery, Gotu-cola	seasonally emergent	groundcover
Cotula coron			
Melaleuca raphiophylla	Swamp paperbark	seasonally emergent	tree
Eleocharis acuta	Common spike-rush	seasonally-permanent emergent	Rush
Schoenoplectus vallidus		seasonally-permanent emergent	rush
Baumea articulata	Jointed twigrush	seasonally-permanent emergent	rush
Baumea juncea		seasonally emergent	rush
Baumea rubiginosa		seasonally emergent	
Liparophyllum sp		seasonally emergent	broad leaf
Cycnogeton huegelii	Water ribbons	submerged – seasonally emergent aquatic	narrow leaves
Cycnogeton procera	Water ribbons	submerged aquatic	narrow leaves
Potamogeton crispus	Curly pondweed	submerged aquatic	branched macrophyte
Potamogeton ochreatus		submerged aquatic	branched macrophyte
Potamogeton drummondii		submerged aquatic	submerged and floating leaves
Ottelia ovalifoloa	Swamp lily	submerged aquatic	submerged and floating leaves
Stuckenia pectinatus		submerged aquatic	branched macrophyte

Department of Water and Environmental Regulation
Department of Primary Industries and Regional Development
GOVERNMENT OF WESTERN AUSTRALIA

Toby Inlet
Waterway Management Plan
May 2019



City of Busselton
Geographe Bay

Revitalising Geographe Waterways
VASSE taskFORCE

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Acknowledgement of Nyungar people and country

The Wadandi Nyungar people are acknowledged as the traditional custodians of Toby Inlet and its catchment. Toby Inlet is a significant place of camping, fishing, hunting, and gathering food. Waterways are fundamental to life and wellbeing, and Aboriginal custodians have a spiritual connection that tasks them with the responsibility to look after these important environments.

Executive Summary

Background

Toby Inlet is a small estuary near the town of Dunsborough, Western Australia, about 250 km South of Perth. It is narrow and elongated, extending parallel to the coastline of Geographe Bay for approximately 6 km. Catchment development and hydrological changes have led to water quality and sedimentation problems in Toby Inlet. Remnant vegetation in adjacent areas is threatened by weed invasion, disturbance and illegal clearing. Despite these problems, Toby Inlet, and associated wetlands and remnant fringing vegetation retain natural values, which contribute to the amenity of the area and enjoyment by the local community.

This Waterway Management Plan (WMP) was initiated though the Revitalising Geographe Waterways program, in response to community concerns about water quality issues in key water assets in the Geographe Bay Catchment. The community have long been involved in management of Toby Inlet and its catchment, largely through the efforts of the Toby Inlet Catchment (TIC) Group to undertake research, management planning and on-ground works throughout the catchment. However there is a need for greater clarity in management roles and for a lead organisation to support community initiatives.

The WMP was developed using a collaborative approach that has allowed for extensive consultation to inform future management of Toby Inlet that aligns with community priorities, is well-understood and accepted, and has commitment to implementation by stakeholders.

Purpose and scope

The City of Busselton (the City) has developed this WMP to provide future management actions that will work towards realising the vision for Toby Inlet:

> *A healthy waterway and fringing vegetation that is actively managed, protected, valued and enjoyed by the community.*

The study area for the WMP includes the main waters of Toby Inlet, adjacent public reserves and wetland areas upstream to Quindalup Siding Road. The WMP includes a description of the characteristics and management issues for Toby Inlet, and provides objectives for future management. Through a review of available management options and consideration of stakeholder input, a comprehensive series of management strategies, each with specific actions, has been developed to guide works that will contribute to the objectives and overall vision for Toby Inlet.

Management focus areas

Management issues for Toby Inlet have been grouped into nine focus areas, with sixteen associated management objectives. These are summarised here in order of importance as rated during community consultation. The strategies and associated actions are provided in the table below, with the expected outcomes for each focus area. Owing to the interconnected nature of the system, many management strategies contribute to more than one objective.

1. Sedimentation

Extensive sediment deposition is evident in much of Toby Inlet, with deposits in the upper reach seasonally exposed during low water levels. This is a high priority management issue, which results in poor amenity associated loss of open water vistas and unpleasant odours during low water levels. Sediment deposition also interferes with water flow, fish movement and recreational use.

Objectives:

- Reduce catchment sediments and contaminants from existing and new developments entering Toby Inlet.
- Manage existing sediment to improve water quality, water flow and amenity of Toby Inlet.

2. Amenity

The issue of amenity in Toby Inlet is directly related to sedimentation, water quality and ecology. Amenity is also linked to recreation and access, which provide opportunities to enjoy Toby Inlet.

Objective:

- Improve visual amenity, public health and odours so that residents and visitors alike can enjoy Toby Inlet.

3. Water flow

Water flow within Toby Inlet has been significantly altered through drainage and diversion since European settlement. Reduced catchment flows are considered to have two main consequences: reduced winter flushing, contributing to poor water quality and sedimentation; and less frequent connection to the ocean, reducing summer flushing and increasing winter flood risk.

Objective:

- Optimise all water flow in Toby Inlet to balance improvement of water quality, protection of ecological values and public amenity, while maintaining flood protection.

4. Water quality

Water quality in Toby Inlet, associated wetlands and catchment tributaries has declined due to increased loads of sediments and nutrients, and poor flushing. Elevated nutrient levels typically cause increased growth of algae, including microscopic algae (phytoplankton) and filamentous algae (macroalgae), which impact amenity and can pose a public health risk. Macroalgal blooms in particular have been problematic. They are unsightly and can cover large areas of water, restricting access, and support breeding of nuisance midges. Decomposition of the algae reduces oxygen levels in the water and contributes to accumulation of sulfidic organic sediments.

Objectives:

- Reduce and manage nutrients and other pollutants entering Toby Inlet to improve water quality and lessen the frequency and severity of algal blooms.
- Minimise any additional nutrients entering Toby Inlet from new developments and agricultural intensification.

5. Toby Inlet Ocean Exchange

The status of Toby Inlet's connection to the ocean directly affects water quality and water levels. When the sand bar at the mouth of the inlet is closed during summer, water quality is poor and conducive to algal growth. When the sand bar is open, tidal flushing dilutes the nutrient concentrations and

reduces residence time, limiting algal growth. When the sand bar is closed during winter, water levels in Toby Inlet can become high enough to cause localised flooding problems. Declining water quality has likely increased the demand for the Inlet to be opened, and this will be an important ongoing component of managing Toby Inlet.

Objective:

- Actively manage the Toby Inlet mouth to maximise ecology, water quality and recreational values.

6. Ecology

Toby Inlet and associated wetland area retains many important ecological attributes, which contribute to regional biodiversity and are valued highly by the local community. Remnant vegetation in the study area has natural value, provides important habitat and supports ecological functions. Key threats to vegetation are weed invasion, unauthorised clearing within public reserves and unmanaged access. The aquatic habitats of these systems are closely linked to the fringing vegetation and support diverse populations of aquatic fauna and waterbirds.

Objectives:

- Restore, maintain and protect the ecological values of Toby Inlet.
- Reduce the impacts of threatening processes on the ecological values of Toby Inlet.

7. Recreation and Education

Toby Inlet provides significant recreational opportunities, including fishing, swimming, paddling, birdwatching, exercising and passive enjoyment; and also opportunities for people to learn about the ecology and history of the area. Poor water quality and sedimentation issues restrict access for recreation within the water, and poor visual amenity and odours affect other activities. Unmanaged access has degraded fringing vegetation and caused some bank erosion. There is significant potential for improving recreational and educational opportunities in and around Toby Inlet.

Objectives:

- Improve and manage public access for recreational purposes that support the amenity and ecological values of Toby Inlet.
- Facilitate appropriate water based recreational activities with consideration to the ecological values and water quality of Toby Inlet.
- Raise community awareness of Toby Inlet's recreational, cultural and ecological values.

8. Heritage

Toby Inlet holds significant cultural value for the Wadandi people due to the abundance of resources and the natural protection from weather conditions. The area has been important for hunting and camping for many years both pre- and post-settlement. Aboriginal people are well aware of the decline in health of the inlet and the relationship to drainage changes and land development. A key issue raised by Aboriginal representatives was minimising additional access and infrastructure for recreation, while retaining access for Aboriginal people.

The area around Toby Inlet was an important part of early European colonisation. Quindalup was the primary settlement established in 1866, with a school, supporting local timber export. There is also a history connected to whaling.

Objective:

- Understand, protect and preserve the heritage values of Toby Inlet.

9. Governance

An independent review of waterway management highlighted the need for Toby Inlet to have a designated manager, and for greater clarity of management roles for various organisations. The Toby Inlet Catchment Group has been instrumental in past management, but implementation of an existing management plan has been limited by a lack of funding and support from relevant organisations.

The review also recommended that research and monitoring need to be a component of future management. This would facilitate ongoing assessment and reporting of progress and allow for adaptive management based on outcomes and new knowledge.

Objectives:

- Develop and maintain partnerships and a collaborative approach between stakeholders and the community when managing Toby Inlet.
- Involve the community in the future management of Toby Inlet.
- Adopt evidence based decision making in the long term management of Toby Inlet.

Implementation

The lead role of the City in the future management of Toby Inlet will be recognised through endorsement and adoption of this Waterway Management Plan. Other key stakeholders will continue to have important roles in many aspects of implementation, and there is an ongoing need for community reporting and feedback. A framework for implementation is provided that defines roles and responsibilities for management and an adaptive cycle for management.

Implementation process for the Toby Inlet Waterway Management Plan:



Management Strategies and Actions for Toby Inlet and expected outcomes for each focus area

Focus areas: Water Quality (WQ); Toby Inlet Ocean Exchange (TIOE); Ecology (E); Water Flow (WF); Sediments (S); Amenity; Recreation and Education (ARE); Culture and Heritage (CH); Governance (G).

Management Strategy	Management Actions	Expected outcomes (related focus area)
Optimal management of Toby Inlet ocean exchange	• Maintain Toby Inlet ocean outlet, the Station Gully culvert and the Station Gully outlet in accordance with the Operational Procedures (Appendix 2). • Monitor the status of the outlet through a telemetered system to determine when opening of the sand bar is necessary. • Ensure the culvert between Station Gully and Toby Inlet remains open to improve water quality in the upper reach of Toby Inlet, east of the ocean outlet.	Sand bar management (TIOE) Defined management (G) Reduced algal growth (WQ, A) Less sediment exposure (S, A) Improved amenity (A, RE) Enhanced fish movement (E, RE) Optimising Water flow (WF)
Investigate sediment removal	• Define priority areas for sediment management and determine sediment composition and volume for these areas, building on previous sediment investigations. • Assess potential outcomes and impacts of sediment removal from priority areas and undertake a cost/benefit analysis of strategic sediment removal. • Assess whether sediment agitation would facilitate mobilisation and flushing of sediment deposits on Toby Inlet.	Evidence-based decision-making (G) Less sediment exposure (S, A) Improved amenity (A, RE) Manage existing sediment (S) Optimising Water flow (WF)
Prevent further sedimentation	• Improve understanding of sediment sources and transport through water quality monitoring. • Develop an education approach to reducing sediments inputs from the catchment. • Identify and ensure management of potential erosion problems from new developments and changes in land use during the planning process, through implementing the Better Urban Water Management framework. • Investigate key sediment sources in the catchment and potential for works to stabilise drains and increase sediment trapping within the drainage network.	Reduce catchment sediments (WQ, S) Minimise development impacts (S, G) Evidence-based decision-making (G)
Rehabilitate exposed sediment deposits	• Identify areas of exposed sediments that could be revegetated to improve habitat and amenity and stabilise sediments. • Undertake trial revegetation of samphire in exposed sediment.	Creation of new habitat (E) Covering unsightly sediment deposits (S, A)
Reducing nutrient sources from the catchment	• Completion of scheduled infill sewerage works in residential areas adjacent to Toby Inlet. • Review the sewerage works once completed, and address any lack of connection to sewerage infrastructure through education campaigns or incentives if deemed necessary. • Ensure Geographe Bay catchment management initiatives extend to the Catchment of Toby Inlet, including: implementation of best management practices; and community education to reduce inputs from gardening and livestock activities in urban and special rural areas.	Reduce inputs of nutrients and other pollutants (WQ) Reduce catchment sediments (S) Reduced algal growth (WQ, A) Minimise development impacts (WQ, G)

	• Increase potential for nutrient assimilation in the rural drainage network in conjunction with sediment trapping and through restoration. • Identify opportunities for reducing nutrient, sediment and pollutant sources through upgrades to stormwater infrastructure. • Continue current water quality monitoring within Toby Inlet, and extend routine monitoring to include associated wetlands and catchment tributaries, to ensure information requirements for prioritising and reviewing management initiatives are met. • Support educational campaigns that aim to reduce nutrients in runoff through individual and community actions (e.g. Bay OK) and investigate options to improve nutrient management in public open space. • Minimise future nutrient sources from new development and land use change at the planning stage through implementing the *Better Urban Water Management* framework. • Support implementation of the Vasse Wonnerup wetlands Geographe Bay Water Quality Improvement Plan.	Evidence-based decision-making (G)
Effectively manage foreshore reserves	• Prepare and implement a prioritised works program for weed control and revegetation. • Support community efforts in weed control and revegetation. • Ensure revegetation in high amenity areas is appealing and maintains vistas to increase community support for these activities. • Effectively manage recreational access to protect and enhance the key values of reserve areas. • Create awareness of reserve boundaries through bollards and signage where appropriate. • Develop information resources for landholders to raise awareness of reserve boundaries, the importance of fringing vegetation, weed problems and the restrictions on clearing native vegetation and building jetty structures. • Assess foreshore reserve areas that have no public access and develop appropriate management actions to benefit the broader public. • Develop a policy for jetties that ensures structural integrity and protection of adjacent foreshore areas and prevents establishment of new structures.	Conservation of vegetated habitat (E) Reduce threatening processes (E) Improved amenity (A) Managing access (RE) Maintaining fringing vegetation buffer (WQ) Preventing bank erosion (S)
Understanding fauna	• Support further research on aquatic and terrestrial fauna and bird populations to inform management initiatives and assess outcomes. • Pursue a community science approach to collecting bird data. • Develop information resources to increase community interest and understanding of fauna.	Awareness and understanding of ecological values (RE) Community involvement in management (G) Evidence-based decision-making (G)
Improving facilities for community appreciation	• Seek community input on the *Access Management Plan* for Toby Inlet (SW Environmental 2018), and subsequently develop and implement appropriate access-ways and recreational infrastructure. • Determine requirements for additional parking in support of improved facilities.	Improved public access and amenity (RE) Support for appropriate activities (RE)

	• Enhance bird habitat in connection with existing and potential bird watching sites. • Encourage bird watchers to join a community science approach to collecting bird data. • Support schools in using Toby Inlet as an outdoor learning environment, including provision of information resources and consideration of an outdoor classroom.	Awareness and understanding of ecological values (RE) Community involvement in management (G)
Providing informative resources	• Develop appropriate signage in connection with improved access and facilities to inform the community about: ecological values of Toby Inlet; location and use of access and facilities; cultural and historical values; and management initiatives underway. • Prepare and distribute fact sheets and educational material for key management focus areas, relevant to schools, community members and natural resource managers. • Continue to update the Revitalising Geographe Waterways website with information on Toby Inlet and its management.	Awareness of recreational, cultural and ecological values (RE)
Recognising Aboriginal custodianship	• In partnership with local Aboriginal people, include reference to traditional custodianship of the waterways and land in development of information resources. • Manage future access in a way that avoids additional disturbance and considers protection of potential sites of Aboriginal significance – however activities of local Aboriginal people, such as fishing, camping, the gathering of bush foods and family recreational and educational activities, will not be restricted by implementation of this plan. • Seek to improve partnerships with the Nyungar community to increase their involvement in the management, protection and restoration of Toby Inlet and the study area. • Consult further with Aboriginal representatives in regard to specific works which result from this plan. • Support programs that engage the Aboriginal community in implementation of works associated with this plan.	Understanding and protecting heritage values (CH) Community involvement in management (G)
Conserve historical values	• Identify and ensure appropriate maintenance of sites historical importance. • Develop interpretive material to increase understanding of local history, and to promote, appreciate and access historical sites.	Understanding and protecting heritage values (CH)
Defined and collaborative management	• City to consider securing management order over waterways and adjacent public lands in study areas, to facilitate implementation. • Establish a Management Advisory Committee comprised of representatives from the City, Toby Inlet Catchment Group, Department of Water and Environmental Regulation, Water Corporation, GeoCatch, South West Catchments Council, Wadandi representatives and broader community representatives. • Support the Toby Inlet Catchment Group as active participants in planning, on-ground works, and as a key link to the community.	Collaborative approach to management (G) Community involvement in management (G)

	• Facilitate the development of locally-active Friends of Toby Inlet groups to advocate and coordinate on-ground work in reserves and on private property. • Define and resolve issues around vesting of Unallocated Crown Land.	
Evaluate and adapt management actions	• Continue monitoring of water quality in Toby Inlet. • Review monitoring requirements for catchment tributaries and groundwater. • Undertake assessment of macroalgal growth. • Ensure timely reporting of monitoring and research outcomes to the management advisory group. • Review future management actions in light of monitoring and research outcomes.	Evidence-based decision-making (G)

1 Introduction

The City of Busselton (the City) has developed this Waterway Management Plan (WMP) to guide future management actions that will lead to improved water quality and ecological health for the Toby Inlet and associated reserves and wetlands within the study area. The vision for Toby Inlet, developed in partnership with the community and stakeholders, is:

> *A healthy waterway and fringing vegetation that is actively managed, protected, valued and enjoyed by the community".*

1.1 Background to this Waterway Management Plan

Catchment development and hydrological changes have led to water quality and sedimentation issues in Toby Inlet for many years. Nutrient enrichment has resulted in seasonal blooms of filamentous algae (macroalgae), which reduce amenity and recreation values by blocking open waters and causing foul odours when they decompose. Sediment deposition in the Inlet has created shallower conditions which are exposed at low water levels, reducing visual amenity and contributing to odour problems. Phytoplankton blooms and stranding of fish in shallow pools have occasionally resulted in fish deaths in the Inlet.

This WMP is part of Revitalising Geographe Waterways (RGW), a $15 million program developed to improve water quality and ecosystem health in key water assets. Within the RGW program, the City has been identified as the lead agency for progressing improved waterway management within the Lower Vasse River and the Toby Inlet, and was given responsibility to prepare Waterway Management Plans for these systems. The Department of Biodiversity, Conservation and Attractions was given responsibility to develop an Operational Plan for the Vasse-Wonnerup Wetland Systems.

The RGW program is one of five focus areas of the Vasse Geographe Strategy, a State Government initiative to address water quality in the Geographe Bay catchment (Figure 1). The program also includes two projects directly related to the Toby Inlet WMP: the Reconnecting Toby Inlet hydrological modelling project; and the infill sewage project for residential areas adjacent to Toby Inlet.

The Vasse Geographe Strategy was initiated by an independent review of waterways management (Hart 2014), commissioned by the State Government in response to serious community concerns about water quality issues. The Vasse Geographe Strategy is overseen by the Vasse Taskforce, comprising representatives from:

- Department of Water and Environmental Regulation (DWER)
- City of Busselton (the City)
- Shire of Capel
- Geographe catchment Council (GeoCatch)
- Department of Biodiversity, Conservation and Attractions (DBCA)
- Department of Primary Industries and Regional Development (DPIRD)
- Department of Planning, Land and Heritage (DPLH)
- South West Catchments Council (SWCC)
- Water Corporation (WCorp)
- Busselton Water (BW)

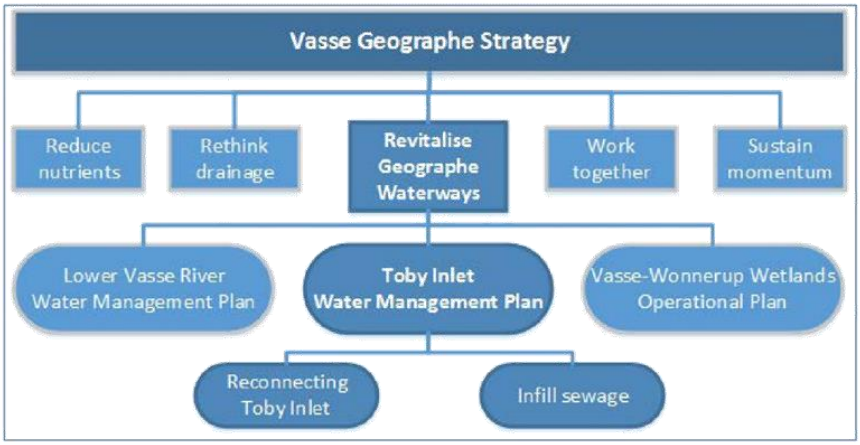

Figure 1. Management framework for the Toby Inlet Waterway Management Plan.

1.2 Study Area Description

Toby Inlet is a small estuary near the town of Dunsborough, Western Australia, about 250 km South of Perth (Figure 2). It is narrow and elongated, extending parallel to the coastline of Geographe Bay for approximately 6 km. It is situated on the Swan Coastal Plain and is connected to seasonal wetland areas upstream. The study area for the WMP is 118 hectares, encompassing Toby Inlet itself, adjacent public reserves, and the wetland area extending upstream approximately 2.7 km from Caves Road to Quindalup Siding Road. Quindalup Siding Road acts as a physical barrier to other wetlands to the east. The study area also includes a short reach of Station Gully Drain between Caves Road and the beach (150 m), which dissects the easternmost section of Toby Inlet (500 m) commonly referred to as the Deadwater. Station Gully Drain is openly connected to the Deadwater, but is only connected to Toby Inlet via a culvert under the access road to the beach.

1.2.1 Landscape and hydrology

Toby Inlet has a catchment area of approximately 33 km^2 including large areas of Swan Coastal Plain, and bounded by the Whicher Scarp to the south. The portion on the coastal plain areas is characterised by deep sandy soils and seasonally inundated flats, which have been subject to extensive clearing and drainage for agriculture. Only around 30% of native vegetation remains in the Toby Inlet catchment, with key remnants occurring in foreshore reserves, on private land adjacent to the wetland areas, and on reserves and private land in the upper catchment.

Artificial drainage, undertaken for much of the Swan Coastal Plain in the early 1900s to improve agricultural value, has changed the hydrology of Toby inlet and its catchment. This included drainage and redirection of flow within wetland areas to the south of Toby Inlet, and diversion of the upper reaches of Station Gully, Annie Brook and Mary Brook into a single drain into Geographe Bay at the eastern end of Toby Inlet (Station Gully Drain). These changes have effectively reduced the original catchment area of the inlet and the volume of water conveyed. The average annual rainfall in the

catchment is 651mm (10-year average, BoM 2018), with declining rainfall evident over the last 20 years (Figure 3).

Toby Inlet is intermittently connected to the ocean, either naturally or artificially, at two points: via a channel to the east of Station Gully; and via a culvert to Station Gully, which then flows to the ocean. The connection of Toby Inlet to the ocean is likely to have always been intermittent, but it is thought that reduced flows from the catchment have decreased natural breaching of the sand bar.



Figure 2. Toby Inlet locality and study area, and routine monitoring sites.

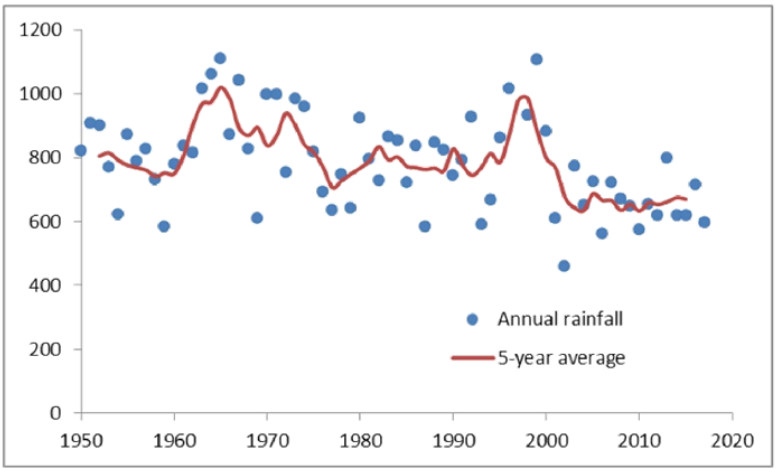

Figure 3. Rainfall records for Cape Naturaliste (BoM 2018). The 5-year average for each year includes two years before and after.

1.2.2 Land use and tenure

From the mouth of the Inlet to 300m upstream of Caves Rd, the study area is entirely within publicly-owned land (Figure 4). Upstream from this point the wetland areas are privately owned, with the exception of a drainage reserve in the central section approximately 800m long and 20m wide (Responsible agency DWER). Public lands include reserves vested in the City, unallocated Crown land (UCL) and road reserves (Appendix 1).

The eastern 1.5km section of Toby Inlet is entirely within public reserve between Caves Road and Geographe Bay, and is managed by the City. West of this, the Inlet is surrounded by residential development. Despite the foreshore being entirely public land, many sections are inaccessible to the public and are managed by adjacent private landholders. Clearing of foreshore vegetation, weed invasion, lawn encroachment and dumping of garden refuse are common problems in these areas. Many residents have established private jetties, which vary in quality and at times debris from these structures floats into the Inlet. Upstream of Caves Road, land use is mainly rural.

Agriculture (50%) and rural residential areas (32%) are the dominant land uses in the catchment. The remaining area consist of existing and future urban development (8%: residential, business and industrial), and reserves and public open space (10%). There is currently considerable urban residential development occurring on coastal plain areas to the south west of Toby Inlet.

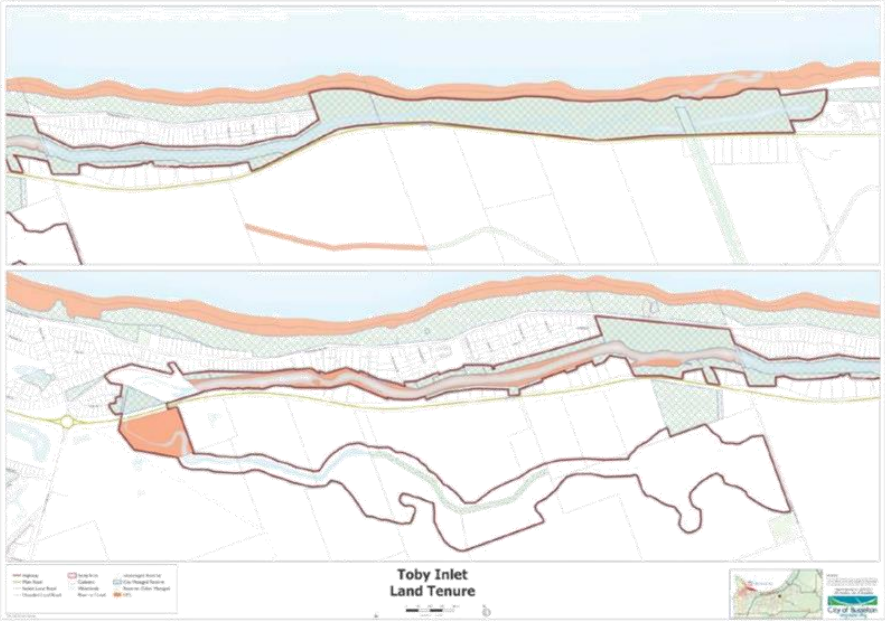

Figure 4. Toby Inlet study area land tenure.

1.2.3 Natural and social values

Toby Inlet study area retains high natural values that are important for conservation purposes, and contribute to the amenity of the area and enjoyment by the local community. The Inlet itself provides habitat for fish, crabs, frogs and aquatic macroinvertebrates that support food webs. The surrounding reserves include important areas of intact remnant vegetation, including areas of the Threatened[1] Coastal Saltmarsh ecological community. Foreshore vegetation and open waters support many species of waterbirds. Remnant vegetation throughout the study area provides habitat for other birds and terrestrial fauna including the Critically Endangered[2] Western Ringtail Possum (*Pseudocheirus occidentalis*) and the Priority 4 Quenda[3] (*Isoodon obesulus fusciventer*, also known as the Southern Brown Bandicoot).

Residential areas adjacent to Toby Inlet in Quindalup benefit from its quiet location away from central Dunsborough and the natural amenity of its proximity to the protected waters of Toby inlet and Geographe Bay. The remnant vegetation, water vistas, birdlife and fishing opportunities are enjoyed by the local community and visitors to the area.

[1] *Environmental Protection and Biodiversity Conservation Act* 1999 (Commonwealth) (EPBC Act)
[2] Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice 2017 (WA); (EPBC Act)
[3] Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice 2017 (WA)

1.3 History of Management

It is important to acknowledge past and ongoing work of the community-based Toby Inlet Catchment (TIC) Group in advocating and undertaking active management of Toby Inlet, associated wetlands and broader catchment. In 1996-97, the TIC Group initiated surveys on vegetation (Weston 1997), terrestrial fauna (HAS 1997), birds (Clay and Clay 1996), and water quality and aquatic macroinvertebrates (Streamtec 1997). The outcomes of this work highlighted degradation of terrestrial and aquatic habitats in the Inlet and its catchment. Data from these surveys was used to prepare the *Toby Inlet and Associated Wetlands Management Plan* (Comer and Clay 1999) for the TIC Group. TIC Group has also prepared the *Toby Inlet Catchment Management Plan* (Clay 2002) to direct catchment scale works to improve water quality and manage flora and fauna.

The Toby Inlet Steering Committee was formed in 2003, which included community members from TIC Group, Dunsborough Coast and Land Care, Sussex LCDC and the Quindalup Strip Preservation Committee; councillors and an officer from the (then) Shire of Busselton; and officers from GeoCatch and the Water Corporation. The TIC Group prepared the *Management Plan for the Toby Inlet Foreshore and Waters* (Clay 2005), supported by the Steering Committee and adopted by the (then) Shire of Busselton.

The issues, objectives and actions in the 2005 management plan remain relevant. Since the adoption of the 2005 management plan, further work has been done to monitor water quality; determine needs and outcomes of opening the sand bar; understand sediment characteristics in the inlet; and to assess and improve the health of foreshore vegetation.

1.4 Process for developing the Waterway Management Plan

The WMP has been developed using a collaborative approach that has allowed for extensive consultation to work towards future management of Toby Inlet that aligns with community priorities, is well-understood and accepted, and has commitment to implementation by stakeholders. Key stakeholders that have contributed to this WMP are:

- City
- Community members
- Aboriginal people
- Toby Inlet Catchment Group
- Dunsborough Coast and Land Care
- GeoCatch
- Department of Water and Environmental Regulation
- Water Corporation

The process for developing the WMP is shown in Figure 5. The consultation process has contributed directly to identifying and developing the management issues, vision, management objectives, management strategies and actions for the WMP. Activities undertaken for consultation are outlined in the following sections. The consultation process and the overall WMP have been informed by review of existing information about Toby Inlet and by new information gained through projects undertaken during the planning process. It is important to note the adaptive nature of this WMP. It

has been prepared at a point in time, using the information currently available. Implementation will require an ongoing process of monitoring and evaluation to guide future actions.

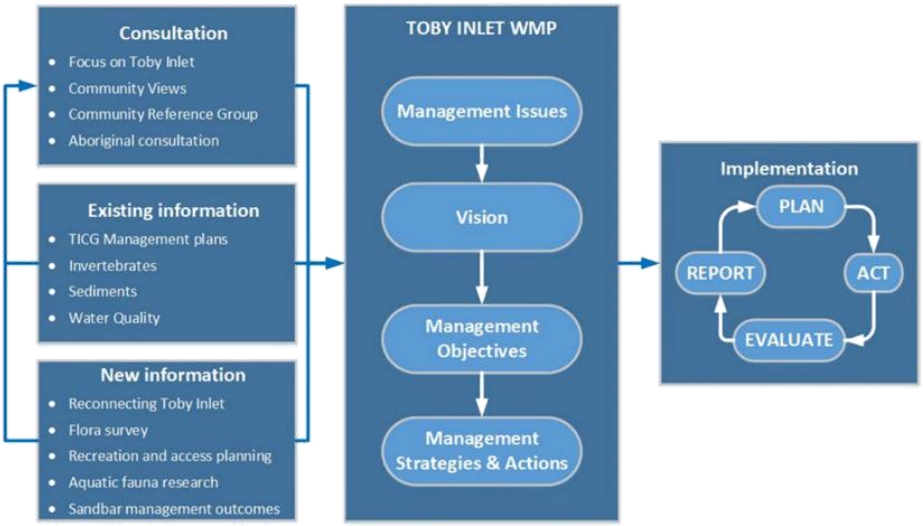

Figure 5. Process for developing the Waterway Management Plan for Toby Inlet.

1.4.1 Community consultation

Consultation with stakeholders was an integral part of preparing this WMP. The aims of consultation were:

- To understand community issues and concerns about Toby Inlet;
- Gain input, ideas, feedback into future management of the Toby Inlet;
- To get support from the community on proposed actions; and
- To raise community awareness and understanding of local water quality issues.

Early consultation events were widely advertised to attract a broad representation from the community. The first of these, *Focus on Toby Inlet* in June 2015, provided information on current understanding of Toby Inlet and sought to identify issues of most importance to the community. The *Community Views* event in March 2016 was also open to whole community and facilitated rating of management issues, valued characteristics and desired change (Figure 6; AHA 2016). These results reflected a high level of importance on issues related to the health of Toby Inlet and associated amenity (82%). Other issues rated as important were recreation and access, heritage, flood and management. The outcomes of this consultation were used to formally identify key management issues, as outlined in Section 2 of the WMP. Information provided by the community and suggested management actions were used to develop draft management objectives, and were considered when reviewing management options.

Following initial consultation, a Community Reference Group (CRG) was formed to provide ongoing input to WMP. This group was formed by inviting participants of earlier events to nominate for ongoing involvement. It also included representation from the Department of Water and Environmental Regulation and GeoCatch, as key supporting partners in development of the WMP. Facilitated workshops with this group were held to develop the vision, management objectives (AHA 2017a, 2017b) and management strategies and actions (AHA 2018) for the WMP.

1.4.2 Aboriginal consultation

Aboriginal people are important stakeholders. In recognition of Aboriginal people as the traditional custodians of country, and understanding the particular significance of waterways to Aboriginal people, additional consultation was undertaken to facilitate input to the WMP.

The draft management objectives were presented to the South West Boojarah (SWB) Working Party via the South West Aboriginal Land and Sea Council (SWALSC) in May 2017. An overview of the Revitalising Geographe Waterways Program was also provided at a Working Party meeting in November 2017.

The Aboriginal Heritage Survey was undertaken with representatives of the Aboriginal community (members of the SWB Working Party and the Harris family, as nominated by SWASLC) in February 2018, encompassing the study areas of all three plans included in the RGW program. The Survey was facilitated by Brad Goode and Associates (2018) and included briefings and a bus tour of key sites of the Toby Inlet study area for discussion of scientific investigations, future management actions and the content of the plan. Information from this consultation has been considered in the development of management objectives and actions in this WMP.

The study area is within the South West Boojarah Indigenous Land Use Agreement Area, which is one of six Indigenous Land Use Agreement areas that form part of the South West Native Title Settlement Area[4]. There is a historical camping ground within the survey area, which has been lodged as an Aboriginal Site under the Aboriginal Heritage Act (1972) and is awaiting an outcome.

[4] Current information on the South West Native Title Settlement: http://www.noongar.org.au

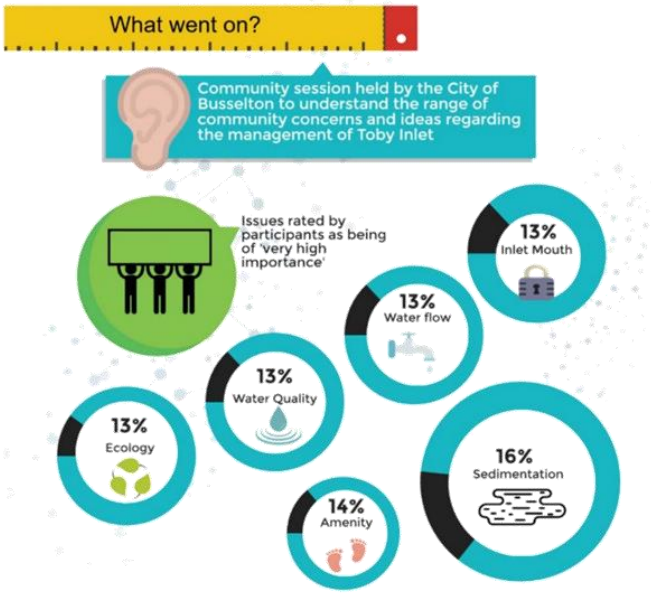

Figure 6. Outcomes from identifying and rating management tissues for Toby Inlet at the *Community Views* consultation session, March 2016.

2 Management Issues

The consultation process lead to the development of nine focus areas for management as follows:

- Sedimentation
- Amenity
- Water flow
- Water quality
- Toby Inlet mouth
- Ecology
- Recreation and education
- Heritage
- Governance

A summary of key management issues and information for these focus areas is provided in this section.

2.1 Sedimentation

Extensive sediment deposition is evident in much of Toby Inlet, with deposits in the upper reach of seasonally exposed during low water levels. Although sediment accretion in estuaries is a natural long-term process, it has been accelerated in Toby Inlet by increased sediment loads from the catchment and by excessive growth of algae in response to nutrient enrichment (discussed further in the section on water quality). Sediments deposits in Toby Inlet broadly comprise two sources: soils from the catchment, transported to and deposited in the Inlet; and accumulation of organic material within the Inlet. There is concern about the build-up of sediment in Toby Inlet for the following reasons:

- Poor amenity due to loss of open water vistas and unpleasant odours of exposed sediment during low water levels.
- Blocking of water flow in the inlet, preventing flushing of nutrients and organic material from the system.
- Reduced depth throughout the Inlet, restricting fish movement and creating potential for fish stranding in shallow pools.
- Smothering of benthic habitats, potentially impacting ecology.
- Reduced depth restricting recreational activities such as use of watercraft.

Areas of deposition downstream of Caves Road are generally sandy to a depth of 0.5m over clay and lateritic rock, and considered to be recent deposition from catchment sources (Norrish 2005, ENV 2007). Sandy deposits are also evident in other parts of the Inlet but these have not been characterised. Aerial photographs of the area show that substantial sediment deposits have been present for more than 20 years (Figure 7). These sediments have been identified as potential acid sulphate soils (ENV 2007, Figure 8) and the implications of this for management are discussed in Section 4.1.

Siltation from catchment sources is associated with clearing and drainage. Clearing of vegetation mobilises soils, and artificial drainage often creates unstable banks and channels, contributing sediment downstream. Earthworks and drainage for residential development results in exposed soils susceptible to erosion, and can be observed in drains within the Toby Inlet catchment (add photo).

Urban development in close proximity to Toby Inlet is often considered a key source of sediment. Diversion of flows may have decreased potential for flushing of sediments through the system to the ocean, exacerbating accumulation of 'sediment slugs'.

In downstream sections of Toby Inlet, accumulation of organic material has contributed significantly to sedimentation. Monosulfidic black ooze (MBO) has been found in the lower reach of Toby Inlet, from a point approximately 700m downstream of Caves Road Bridge (ENV 2007, Ward et al. 2009; Figure 8). MBO commonly forms in areas of high primary productivity, where seasonal growth and decomposition of algae results in accumulation of soft organic material with high concentrations of iron monosulfides (Ward et al. 2009). Growth of phytoplankton and filamentous macroalgae in Toby Inlet has been enhanced by increased nutrient loads from the catchment. MBO presents a risk of rapid acidification when disturbed, causing deoxygenation. Analysis of these sediments did indicate high potential for acidification, but also found that acid neutralising capacity (ANC) may be sufficient to buffer this effect (Ward et al. 2009).

"There used to be little streams 25 years ago. They have all been filled in and the birds and vegetation suffers." Community views report 2016



Figure 7. Comparative aerial photographs of sediment deposition in Toby Inlet downstream of Caves Road, from 2018 (left) and 1997 (right).

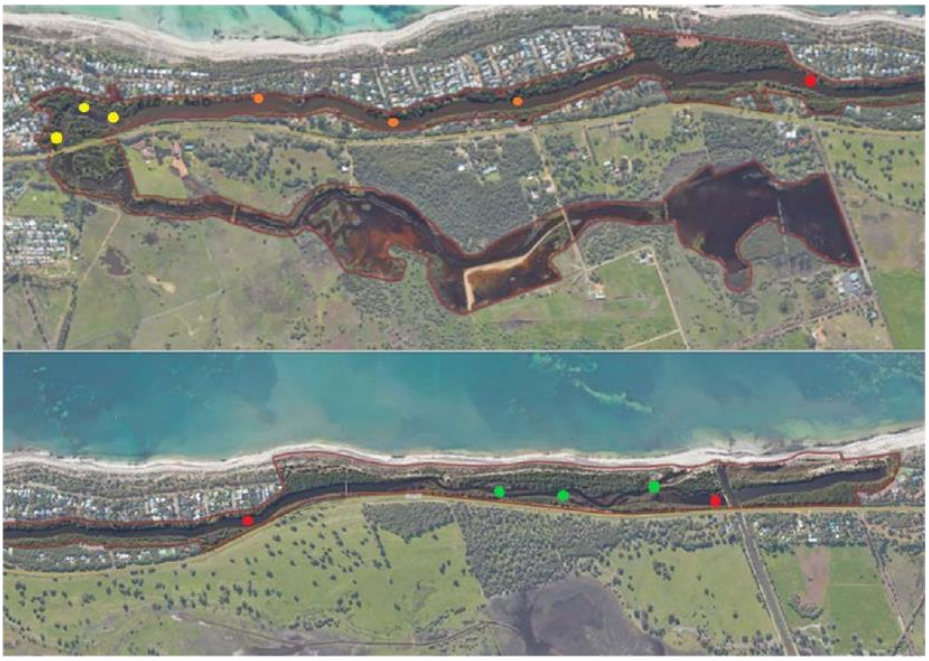

Figure 8. Acid sulphate soil and monosulfidic black ooze (MBO) presence in Toby Inlet sediments. Yellow markers show sand-dominated sediments with potential acid sulphate soils but no MBOs found in 2007 study. Orange sites show MBOs and potential acid sulphate soils in 2007 study. Green sites show no potential acidity or MBOs found in 2009 study. Red sites show MBOs and potential acid sulphate soils in 2009 study.

2.2 Amenity

Amenity describes the attractiveness of a place, and the 'visual' appeal of Toby Inlet was the characteristic most valued by participants in community consultation. Amenity was rated as one of the most important management issues, showing that people are concerned about threats to the amenity of Toby Inlet. The issue of amenity in Toby Inlet is directly related to sedimentation, water quality and ecology. Amenity is also linked to recreation and access, which provide opportunities for the public to enjoy Toby Inlet.

During low water levels, exposure of sediment deposits reduces amenity associated with open water vistas, and can result in unpleasant odours. The loss of amenity is a key reason that sedimentation in Toby Inlet has been identified as the highest-rating management issue.

In relation to water quality, seasonal macroalgal blooms are common in some parts of the inlet due to high nutrient concentration and still conditions. These masses of filamentous algae are unsightly, and cause unpleasant odours when they decompose. The algae also provide good habitat for non-biting midge larvae which may contribute to nuisance populations. As noted in Section 2.1, this material also accumulates in the Inlet and contributes to sedimentation problems.

Phytoplankton blooms occur occasionally in Toby Inlet, but have not been persistent and are usually dominated by harmless species. Isolated blooms of blue-green algae, which create a public health risk, occurred in May 2013 and February 2018, but did not persist. Further decline in water quality has potential to increase algal blooms in Toby Inlet, impacting amenity and recreation.

Quindalup Special Character Area

The Quindalup Special Character Area (SCA) Policy was developed by the (then) Shire of Busselton in 1996 to guide urban development in a way that maintains the natural amenity of the area. The Toby Inlet study area is located within this policy area. The character of the area is described as *a relaxed holiday atmosphere, this is attributable to its low density of housing which is contained within a bush and seaside setting, surrounded by natural environs.* The policy provisions apply to all public and private land within the SCA. The Quindalup SCA Policy notes the extensive remnant vegetation on private and public land in the area as a significant characteristic, and outlines development controls to protect native vegetation.

2.3 Water flow

Water flow within Toby Inlet has been significantly altered through drainage and diversion since European settlement. Notably, the catchments of Carbunup River, Station Gully (aside from interchange at the culvert) and a number of other smaller waterways have been diverted and no longer connects to the Inlet or contribute to its flow. Prior to this, Toby Inlet was connected to the Deadwater and outflow to the ocean was via the current Station Gully outlet (anecdotal). There is also a perception by some community members that construction of dams in the catchment has contributed to reduced flow (including the Dunsborough Lakes development).

Reduced catchment flows are considered to have two main consequences: reduced winter flushing, contributing to poor water quality and sedimentation; and less frequent connection to the ocean. The issue of reduced ocean connectivity is discussed further in Section 2.5.

There is community support for increasing water flows from catchment sources with the aim of mobilising sediment deposits within the Inlet. Altering water inflows may improve water quality through:

- Increasing summer/autumn flow to reduce water residence time and so reduce potential for algal growth.
- Diluting nutrient concentrations by adding lower nutrient-content inflows.
- Increasing winter velocity to scour sediments.

Potential for reconnecting catchment flows to Toby Inlet has been investigated through the *Reconnecting Toby Inlet* hydrological modelling project (Frazer and Hall 2018), and this management option is discussed further in Section 4.3.

2.4 Water Quality

2.4.1 Surface Water

Water quality in Toby Inlet and its tributaries has declined due to increased loads of sediments and nutrients, and poor flushing. Sources of excess nutrients include runoff from agricultural and residential areas, and leachate from septic systems in nearby residential areas (DoW 2010). Elevated nutrient levels typically cause increased growth of algae, including microscopic algae (phytoplankton) and filamentous algae (macroalgae), which impact amenity and can pose a public health risk.

Nitrogen levels in the Toby Inlet are consistently higher than ecosystem protection guidelines for estuaries, particularly in spring and summer (Figure 9a). Concentrations tend to be higher in upstream sites, and are lowest near the ocean entrance in summer and autumn. This may reflect opening of the sand bar in summer autumn period and a limited flushing effect upstream.

Phosphorus concentrations in Toby Inlet are highly variable and while average values are below the ecosystem protection guideline, samples frequently exceed this throughout the Inlet (Figure 9b). Extremely high total phosphorus occurs during summer at the more upstream sites, while concentrations near the ocean outlet are low. This may reflect ocean flushing, but may be due to uptake of phosphorus by filamentous macroalgae.

While nutrient concentrations appeared higher in the most upstream site, phytoplankton growth is greater lower in the Inlet (indicated by chlorophyll a, Figure 9c). Many types of phytoplankton are harmless, but at high densities can have unpleasant odours and form unsightly scums. Some species are toxic to humans and animals, including fish. Phytoplankton sampling by DWER since 2012 shows that the levels in Toby Inlet are mostly below the recreational guideline of 20,000 cells/mL (Figure 9e). However, harmful algal species have been found frequently at low densities. Blooms of blue-green algae have been detected twice since 2012.

Macroalgal blooms are currently more problematic than phytoplankton in Toby Inlet (Figure 10). They are not toxic but are unsightly and can cover large areas of water, restricting access and impacting visual amenity. Macroalgae also provides ideal habitat for breeding of nuisance midges. When large blooms of macroalgae decompose, this reduces oxygen levels in the water and sediments. Accumulation of this material has contributed to the formation of sulfidic sediments, including MBO. Although excessive growth of macroalgae is a serious management concern, no assessment or monitoring of species or biomass has been undertaken.

Fish deaths have occurred in Toby Inlet in late September 2006 (limited information available) and on 6 March 2014 (about 1000 fish). The 2014 incident was a result of stranding of fish associated with extremely low tides draining the lower sections of the Inlet. Fish deaths can be caused by low oxygen conditions, harmful phytoplankton or by stranding in warm shallow waters. Low oxygen levels have been associated with phytoplankton blooms in Toby Inlet, and fish have been observed congregating near the closed mouth of the Inlet when oxygen is low.

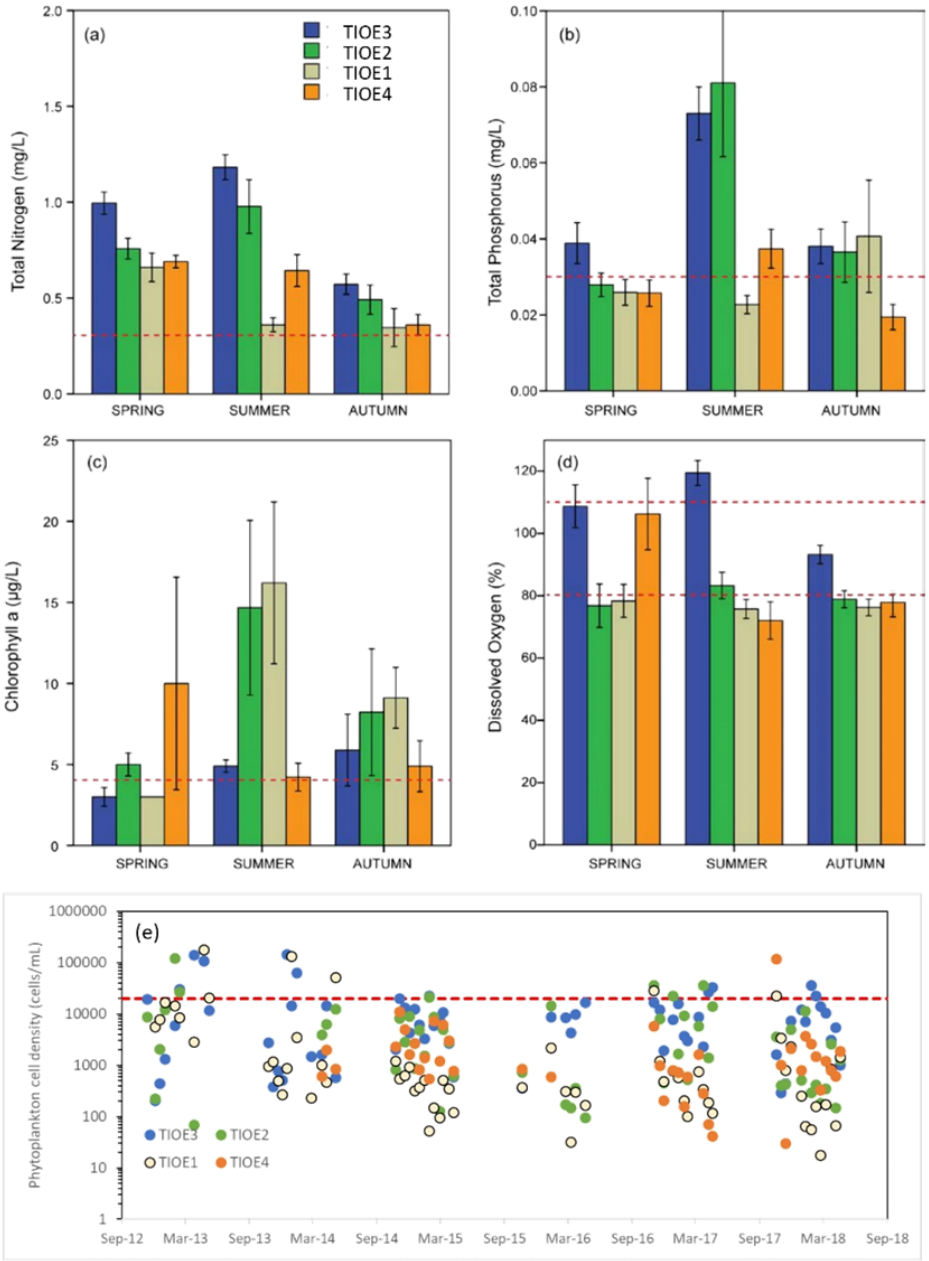

Figure 9. Average concentrations of water quality indicators (a-d) and phytoplankton density (e) in Toby Inlet (data courtesy DWER (DWER 2018). Sites TIOE3, 2 and 1 are located east to west respectively from Quindalup Siding Road to the ocean exchange and TIOE4 is just near the culvert exchange with Station Gully, as shown in Figure 1. Red dashed lines are guideline values for protection of estuarine ecosystems (a-d) and recreational use (e) (ANZECC and ARMCANZ 2000). Note logarithmic scale in (e). Error bars are +/- standard error.



Figure 10. Macroalgae growing in Toby Inlet (DoW 2010).

2.4.2 Groundwater

On the coastal plain, groundwater and surface water are closely related. Summer water levels in wetlands are often expressions of the superficial aquifer. Groundwater quality around Toby Inlet and in catchment areas is not well understood. Though there are numerous monitoring bores in the catchment, sampling has been inconsistent and there has been no analysis of data. This was not raised as an issue during community consultation, but could have implications for future management.

There have been concerns raise by community members in the past (late 1990s) and very recently about salt water intrusion in groundwater in the Dunsborough foreshore area generally, as a possible cause for the declining health of Peppermint trees. Dunsborough Coast and Land Care (DCALC) initiated a groundwater study for Dunsborough foreshore and Toby Inlet in partnership with the (then) Water and Rivers Commission. Fourteen monitoring bores were installed for assessment of salinity, nutrients and pH. However, results of the sampling program are not publicly available.

2.5 Toby Inlet ocean exchange

The common understanding among the community is that reduced water flow from the catchment has reduced the natural opening of Toby Inlet to Geographe Bay. The status of the sand bar has direct influence on water quality and water levels. When the sand bar is closed during summer, water quality is poor and conducive to algal growth. When the sand bar is open, tidal flushing dilutes the nutrient concentrations and reduces the residence time, limiting algal growth. When the sand bar is closed during winter, water levels in Toby Inlet can become high enough to cause localised flooding problems for nearby residential properties.

A memorandum of understanding for artificial opening of the sand bar was signed by key management bodies in June 2000, including the (then) Shire of Busselton, (then) Water and Rivers Commission, GeoCatch and Water Corporation. This specified that the preferred management for Toby Inlet and

Station Gully was as a common ocean outlet. The purpose of opening the sand bar was to prevent flooding of nearby properties and to increase tidal flushing to improve water quality. Managing a single ocean outlet became difficult owing to extensive sand build-up. In early 2005, the (then) Department of Environment trialled excavation of a separate ocean outlet for Toby Inlet with the aim of improving water quality in the Inlet through tidal flushing.

Although water quality is generally improved by ocean exchange, problems have occurred with excessively low water levels during low tides. Very low water levels impede recreational boating activities and lead to greater exposure of sediment deposits, reducing visual amenity and causing poor odours. There is also anecdotal evidence of fish stranding in upstream areas at very low tides.

Declining water quality has likely increased the demand for the Inlet to be opened, and this will be an important ongoing component of managing Toby Inlet.

2.6 Ecology

Toby Inlet and associated wetland area retains many important ecological attributes, which contribute to regional biodiversity and are valued highly by the local community. The vegetation communities within and surrounding Toby Inlet and associated wetlands have intrinsic conservation value and provide important habitats for terrestrial and ecological functions. The aquatic habitats of these systems are closely linked to the fringing vegetation and support diverse populations of aquatic fauna and waterbirds.

The ecology of Toby Inlet provides amenity value and supports recreational activities such as fishing, watercraft use, bird-watching and exercise pastimes. A summary of the ecological components of the Toby Inlet study area and associated management issues is provided below.

2.6.1 Vegetation

The foreshore of Toby Inlet contains large areas of intact vegetation, owing to preservations within reserves, most of which are managed by the City. The management of vegetation and conflicting landscaping and gardens of adjoining properties is a key issue.

A recent survey of flora and vegetation was completed for the City by Ecoedge (2017). The study area contains at least fifty native species within seven different vegetation communities (0), including two vegetation units that fit criteria for the Coastal Saltmarsh threatened ecological community[5]. Weston (1997) described three broad types of vegetation communities: fringing wetland and estuarine, coastal scrub, and forests and woodlands.

There are at least fifty species of weeds present in the study area, and 14 of these are considered environmentally significant (0the most significant of these is Arum lily (*Zantedeschia aethiopica*), which currently occurs as localised infestations at many sites (Ecoedge 2017). Bridal creeper and grassy weeds are also problematic. Grassy weeds continue to invade native vegetation, and there is progressive encroachment of lawns into reserve areas in some locations. There are number of potentially invasive garden escapees that pose a threat in the study area. Dumping of garden refuse

[5] EPBC Act 1999

and direct planting of exotic species within reserves, as well as spreading from private gardens, contribute to this problem.

Other key threats to vegetation are unauthorised clearing within public reserves and unmanaged access.

Despite the presence of a range of environmental weeds, the foreshore vegetation is considered generally in fair to good condition. Forty percent of vegetation is rated as very good to excellent condition. The study area is also in high proximity to a Regional Ecological Linkage. In addition to the conservation value of the flora itself, fringing vegetation of wetland areas is a vital component of wetland health. Functions include:

- supporting terrestrial and aquatic food webs;
- habitat for terrestrial and aquatic fauna;
- foreshore stabilisation;
- maintaining cooler temperatures;
- interception of nutrients and sediments in runoff; and
- nutrient uptake and processing.

Future works to rehabilitate fringing vegetation must be mindful of maintaining suitable amenity to avoid future conflicts with landowners and preventing ongoing encroachment of lawns and gardens into reserve areas.

2.6.2 Birds

Birds are an important part of the Toby Inlet ecosystem and are appreciated by members of the community and by visitors. No formal bird monitoring data is available for the study area, however surveys were conducted during spring in 1996 and results are reported in Clay (2005). This survey recorded 68 bird species including 26 waterbirds and 42 forest birds. Given the level of community interest in birds there is an opportunity to engage people in data sharing to better understand bird populations of Toby Inlet.

The surrounding vegetation and open water areas are important habitat for birds. Threats to bird populations include degradation of habitats, predation by domestic and feral animals, and disturbance from human activities.

2.6.3 Aquatic Fauna

Though impacted by modified hydrology, nutrient enrichment and sedimentation, Toby Inlet is considered to provide important fish habitat. Sheltered estuarine systems such as Toby Inlet are important for fish breeding, particularly for estuarine species which require both fresh- and salt-water for different phases of growth and reproduction. Estuaries also tend to be highly productive, supporting aquatic invertebrate communities that provide an important food resource for fish and waterbirds.

Aquatic invertebrates

Aquatic invertebrate sampling of Toby Inlet in 1997 found a combination of estuarine and freshwater species, with more diverse wetland-type communities at upstream sites. Though species diversity was high at some sites, the system was considered dominated by cosmopolitan species characteristic of a degraded system (Streamtec 1997).

Recent sampling downstream of Caves Road in November 2017, prior to opening of the sand bar, also found higher-diversity wetland communities in more upstream regions and lower-diversity estuarine communities downstream (Tweedley et al. 2018). This study found a relatively diverse aquatic invertebrate community, including species that are intolerant of pollution and low oxygen levels, indicating a fairly healthy ecosystem. Other notable fauna observed during the study by Tweedley et al. (2018), were: Southern Bobtail Squid (*Euprymna tasmanica*, Blue Swimmer Crab (*Portunus armatus*) and Western King Prawn (*Penaeus plebejusl*). A list of taxa from both these studies is provided in Appendix 7.

The effect of opening of the sand bar on the invertebrate population, and implications of this in terms of food resources for fish and birds, have not been assessed. The recent sampling provides a useful baseline for future assessments in Toby Inlet.

Fish

Fish in Toby Inlet have long provided a food resource for Aboriginal people, and fishing has been a valued recreational pursuit for many years. There is a general perception that the fish population has declined in Toby Inlet, though it is still perceived as providing important fish habitat.

A recent study of the fish population in Toby Inlet (Tweedley et al. 2018) provides the first formal description of the fish population. For this study, fish were sampled in November 2017 and March 2018, prior to and following the opening of the sand bar (11th December 2017). The type of fish found were typical of those found in other south west estuaries and include estuarine and marine species and some freshwater-estuarine fish. Several marine species known for using estuaries as nursery areas were present. Mosquitofish, which is aggressive to native fish and not able to be controlled, was also recorded.

Following opening of the sand bar in December 2017, fish density remained similar to before opening, but species diversity increased owing to an increase in the number of marine species which recruited into the estuary. However in general, the fish population was more influenced by timing of life cycles than by opening of the sand bar.

2.6.4 Other Fauna

The terrestrial vegetation provides habitat for many species of birds and other fauna, including two mammal species of conservation significance: the Critically Endangered[6] Western Ringtail Possum (Ngwayir, *Pseudocheirus occidentalis*); and the priority 3 listed[7] Quenda (Southern Brown Bandicoot). A site survey and summary of observations by local residents in November 1996 found these two mammals, Grey kangaroos present, two species of frogs, 13 species of reptiles and the possible

[6] Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice 2017 (WA); (EPBC Act)
[7] Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice 2017 (WA)

presence of Water Rat (Rakali, *Hydromys chrysogaster*) (Hart et al. 1997) (Appendix 6.). The Brush-tailed Phascogales (*Phascogale tapoatafa*) may also be present, and is listed as a conservation-dependent species[8].

Impacts on vegetated habitat, predation by domestic and feral animals and fire are the main threats to these native mammals. Remnant vegetation is at risk of degradation from physical disturbance, inappropriate fire regimes, weed invasion and physical disturbance.

2.7 Recreation and Education

Toby Inlet provides significant recreational and educational opportunities. Activities such as fishing, swimming and paddling on the Inlet have been important recreational pastimes since early European settlement during the mid to late 1800's. Bird watching and other passive enjoyment activities are also important. Toby Inlet is the focus of a number of tourism accommodation businesses on and around the inlet. The visual amenity and opportunity for recreational pursuits are critical to both visitors and local residents alike. Poor water quality and sedimentation problems restrict access for recreation within the water, and visual amenity and odour problems affect other recreational activities. This affects a broad cross section of the community, visitors and local businesses.

Despite these problems, a number of trails, beaches and open space adjoining the Toby Inlet continue to provide recreational opportunities and these are highly valued by the community. However, unmanaged access has led to disturbance of foreshore vegetation and erosion of banks in some locations. There is significant potential for improving recreational and educational opportunities in and around Toby Inlet, by addressing water quality and sediment problems, improving facilities and providing information resources.

Private use of reserves and private jetties

Considerable areas of foreshore reserves do not have public access and some areas adjacent to private property owners are managed for private purposes. The condition of foreshore vegetation and bank stability in these areas varies from remnant vegetation in good condition to extensive clearing and bank instability. Illegal clearing of native vegetation within public reserves to improve views is an ongoing problem. Private use of public reserves by residents conflicts with access by the broader public; but some residents are concerned that increased public access will create security issues.

These privately used foreshore reserves include a number of private jetties. They have been present in Toby Inlet for many years and in general have not been raised as a key management issue. However there is an issue relating to the structural integrity of these jetties and the materials they are built from. For example a jetty made from plastic drums has come apart and a plastic drum floated in the Inlet. In addition, building of more jetty structures may cause inappropriate disturbance to foreshore areas. The City currently has no policy regarding these structures.

[8] Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice 2017 (WA)

2.8 Cultural Heritage

2.8.1 Aboriginal heritage

Toby inlet holds significant cultural value for Wadandi people. In pre-European times, local groups traditionally gathered to conduct ceremonies and take advantage of food resources. Following European settlement, the area continued to be used for camping, with evidence of several historical camps still present from times when Aboriginal people were not permitted to live in town (BGA 2018). There is a historical camping ground within the survey area, which has been lodged as an Aboriginal site under the *Aboriginal Heritage Act 1972* and is awaiting an outcome.

On-site discussions with local Aboriginal representatives were held during the preparation of this plan. The group described historical use of Toby Inlet and surrounds by Aboriginal People for camping and fishing and the substantial changes to the area since European settlement (BGA 2018). The group related the decline in water quality and fish abundance to the substantial changes in drainage and development of the surrounding lands. A key issue raised by the group was minimising additional access and infrastructure for recreation, while retaining access for Aboriginal people.

2.8.2 European History

The area around Toby Inlet was an important part of early European colonisation. Quindalup was the primary settlement established in 1866, supporting local timber industry, and is the site of the original school. There is also a history connected to whaling.

This extract about European history is from the Management Plan prepared by Clay (2005):

Toby Inlet was named after Captain Jacob Toby, of the coastal schooner 'Ellen'. The Ellen used to take on water at Meelup, and while in the area Captain Toby would moor close to the mouth of Toby Inlet and barter with the local residents, exchanging knives, tools, sugar and tea for fresh produce (Guinness, 1984; Smith, pers.comm2004). In the 1800's Jack Molloy commenced construction of a boat in the sheltered waters of Toby Inlet near the sand bar. The boat was well into construction when the mouth broke out, and washed away the boat supports. The boat was buried by sand and left at the site. This incident is referred to as 'Molloy's Folly" (Smith, pers. comm.).

The European history of Toby Inlet, is documented by several authors (Guiness, 1984; Kinsella, 1990: Horwitz & Wardell-Johnson, 1996). Anecdotal evidence supports the fact that Toby Inlet used to be considerably deeper than it is today. In the 1920's the channel was deep enough for small boats, and due to the accretion of sediments, this is obviously no longer possible. In 1967 the Inlet was dredged by a very unsophisticated piece of equipment, along the north bank, from a point just west of the Edgewater subdivision to a point some 400 metres east of this sub-division. From this point to the ocean a channel was cut to allow passage for small boats (Ken Davies pers.comm.2004).

In 1994 the Water Authority constructed a bund across the Inlet, at the western end of Campion Way to allow for the maintenance of an existing water main. It is said by the locals that after maintenance had been completed, the bund was not completely removed, thus restricting water flow (Ken Davies pers.comm.2004).

2.9 Governance

Governance was not identified as a priority issue of concern in the community views session, but was indicated as an area needing change. It was recognised as an important focus area during the development of management objectives, and is clearly an important overarching issue for implementation of the WMP.

The independent review of water asset management (Hart 2014) highlighted the need for Toby Inlet to have a designated manager, which was further supported in the State Government response. The review acknowledged the work of the Toby Inlet catchment Group in developing the existing management plan (Clay 2005). However, implementation of this plan has been limited by a lack of funding and support from relevant organisations, and the management roles have not been clear.

The existing management plan is not connected to any targets or monitoring, so progress and outcomes have not been measurable. The community have been dissatisfied with the progress of management for Toby Inlet. Although there has been no formal tracking of progress, there is a general perception in the community that the ecological health of Toby Inlet has continued to decline (Hart 2014).

The review also recommended that identifying research needs should be a component of future management. Annual reporting to the community on the health of Toby Inlet and the effectiveness of management was also recommended, with government support, which will require clear goals/targets and associated monitoring.

> *Management of Toby Inlet is minimalist at best. The community-based Toby Inlet Catchment Group have developed a Management Plan for Toby Inlet, and could do a serviceable job of managing the Inlet if they had more funding and greater backup from CoB and DoW* (Independent Review - Hart 2014).

3 Management Objectives

Sixteen management objectives across the nine the focus areas are listed below. These objectives were strongly guided by community input. They provide important statements for future assessment of the implementation of this WMP.

3.1 Sedimentation

1. Reduce catchment sediments and contaminants from existing and new developments entering Toby Inlet.
2. Manage existing sediment to improve water quality, water flow and amenity of Toby Inlet.

3.2 Amenity

3. Improve visual amenity, public health and odours so that residents and visitors alike can enjoy Toby Inlet.

3.3 Water quality

4. Reduce and manage nutrients and other pollutants entering Toby Inlet to improve water quality and lessen the frequency and severity of algal blooms.
5. Minimise any additional nutrients entering Toby Inlet from new developments and agricultural intensification.

3.4 Water flow

6. Optimise all water flow in Toby Inlet to balance improvement of water quality, protection of ecological values and public amenity, while maintaining flood protection.

3.5 Toby Inlet ocean exchange

7. Actively manage the Toby Inlet mouth to maximise ecology, water quality and recreational values.

3.6 Ecology

8. Restore, maintain and protect the ecological values of Toby Inlet.
9. Reduce the impacts of threatening processes on the ecological values of Toby Inlet.

3.7 Recreation and Education

10. Improve and manage public access for recreational purposes that support the amenity and ecological values of Toby Inlet.
11. Facilitate appropriate water based recreational activities with consideration to the ecological values and water quality of Toby Inlet.
12. Raise community awareness of Toby Inlet's recreational, cultural and ecological values.

3.8 Cultural Heritage

13. Understand, protect and preserve the heritage values of Toby Inlet.

3.9 Governance

14. Develop and maintain partnerships and a collaborative approach between stakeholders and the community when managing Toby Inlet.
15. Involve the community in the future management of Toby Inlet.
16. Adopt evidence based decision making in the long term management of Toby Inlet.

4 Review of Management Options

Development of management strategies for Toby Inlet involved consideration of a range of potential initiatives. Some of these are based on fundamental waterway management approaches, such as minimising nutrient and sediment loads, and enhancing the important function of fringing vegetation. Other initiatives involve further work to better understand potential outcomes and challenges. Many of the strategies and actions build on community suggestions for future management of Toby Inlet.

4.1 Sediment Removal

There is strong community support for active removal of sediments from Toby Inlet. Community input indicates that this is driven by perceptions that sediment removal will lead to outcomes in the following areas:

- Flushing of water through the system to improve water quality.
- Removal of unsightly sediment deposits.
- Addressing unpleasant odours associated with exposed sediments.
- Deepening of the Inlet to improve boating conditions.
- Improved conditions for fish.

Removal (dredging) of sediment could be progressed if it can be justified on ecological grounds, rather than for amenity outcomes only.

4.1.1 Challenges

Previous investigations (ENV Australia 2007) have shown a layer of sandy sediments approximately 0.5m deep in the area of obvious sediment deposits downstream of Caves Road. This area would be a likely focus of sediment removal should it be deemed an appropriate action. This area did not contain MBOs but did contain potential acid sulphate soils (PASS). Potential for acidity means sediment removed would require treatment for disposal.

The deeper area downstream was assessed as having a surface layer of MBO in the sediments and also contained PASS (ENV Australia 2007). The presence of MBOs is probably linked to a history of macroalgal blooms in the area. Disturbance of MBOs can cause deoxygenation, heavy metal release, nutrient release, sulphide toxicity and bad odours.

Removal and transport for disposal would involve significant costs, and may also cause physical disturbance to the environment. Further investigations would be needed to prioritise areas for sediment removal; determine volumes and characteristics of the sediment to inform disposal options; and assess potential environmental impacts. Volumes of sediment have been estimated for the large area of deposition downstream of Caves Road as:

- Deepening the channel to -0.4m AHD: 1684m^3
- Removal of large sandy deposit to 0.4m AHD: 714m^3

4.1.2 Potential outcomes of removal

The main objective associated with this approach is improved amenity: removal of sediment deposits would improve water vistas for some local residents; and deepening the Inlet would improve access for watercraft. Outcomes for water quality and ecology and potential impacts of removal are also possible but not well understood, and further investigation is needed to assess potential for both beneficial outcomes and negative impacts.

Removal of sediment in the upper and lower reaches of Toby Inlet was included in hydrological modelling done for the *Reconnecting Toby Inlet* project. This indicated some potential for improvement in water quality through increased water circulation in the estuary: reducing the bathymetry to -0.5mAHD (removing about 300mm of sediment) would create additional regular flushing of about 2%, or 100m (Frazer and Hall 2017).

Deeper conditions may also improve open water habitat for fish and birds, but this is not known. There are risks of negative impacts on the environment, which may in turn have negative effects on amenity. Risks associated with sediment removal in Toby Inlet include:

- disturbance of acid sulphate soils and monosulfidic black ooze;
- physical disturbance of bed and bank habitats; and
- damage to fringing vegetation.

Before a recommendation can be made with regards to sediment removal, management should focus on defining priority areas for sediment management and understanding the costs and benefits of removal.

4.1.3 Alternatives to removal

Other than removal, some potential management options to address sedimentation in Toby Inlet are:

- Minimising future sediment loads into the system.
- Mobilisation of sediment through agitation to resuspend sand into the water column, using a hydraulic sludge pump during high flows, to facilitate its movement into to the ocean.
- Acceptance of sediment deposits and rehabilitation (e.g. planting) of these areas to improve ecology.

4.2 Toby Inlet ocean exchange

Connectivity of Toby Inlet to the ocean has direct effects on water quality and water levels. Potential connections are via a culvert into Station Gully, which is intermittently open to the ocean; and via a direct separate channel to the west of Station Gully. The status of these connections depends on flows coming from the catchment and the nature of the sand bars, determined by coastal processes.

The Toby Inlet Ocean Entrance Study in 1999 (Rogers and Associates 1999) identified a common channel for Station Gully and Toby Inlet as the more desirable option to improve water quality and alleviate flooding, as the combined flows from the systems have greater potential to maintain the opening. In June 2000, a Memorandum of Understanding (MoU) was developed which specified management of Toby Inlet/Station Gully with a common ocean outlet to ensure:

1. *Protection of residential properties from flooding.*
2. *Maintenance of tidal flushing to maintain water quality in the Inlet.*
3. *Protection of rural properties from flooding.*

This MoU was signed by representatives of the (then) Shire of Busselton, Water Corporation, Toby Inlet Catchment Group, (then) Water and Rivers Commission and the Geographe Catchment Council.

The *Reconnecting Toby Inlet* hydrodynamic modelling study (Frazer and Hall 2018) determined that a separate ocean connection for Toby Inlet resulted in tidal flushing of 72% of the Inlet, compared with only 36% flushing via Station Gully. A key difference for this study was additional bathymetric survey in the area, which showed that the narrow connection between Station Gully and Toby Inlet allowed only very limited exchange between the two waterways. Thus much greater flushing of Toby Inlet is achieved via a separate ocean connection.

This work also determined a minimum sill height for the channel of -0.15 m AHD to avoid excessive draining of the Inlet on low tides. Very low water levels have caused problems with past sand bar openings owing to increased exposure of sediments, and isolation of shallow pools that provide unfavourable conditions for aquatic fauna. Recommendations from this study were:

- The Toby inlet mouth is kept open throughout the year, with a minimum sill elevation of -0.15 m AHD from October to June to avoid very low water levels during low tides.
- Keeping the culvert between Station Gully and Toby Inlet open permanently.
- Potentially, to investigate a second cut for Toby Inlet if increased flushing of the upper estuary is considered necessary.

A telemetered data logging system is in place to monitor water levels and sill height of the ocean connection.

4.2.1 Summer - water quality protection

During 2017-2018 the opening of the mouth of Toby Inlet has been maintained. A draft operational procedure is in place to keep the sandbar open, with a minimum sill elevation of -0.15 m AHD (Appendix 2. The sand bar was opened in November 2017. It stayed open until late March 2018 and was re-opened on 6th April 2018. The feedback from the community on this management initiative has generally been positive.

4.2.2 Winter - flood protection

The *Reconnecting Toby Inlet* project recommends the ocean outlet be kept open all year (Frazer and Hall 2018). However, periodic closing of sand bar through natural processes during winter creates unpredictability in works requirements to achieve this. A trigger level for flood protection purposes would be useful to initiate opening of the sand bar in winter. Detailed water level data (15-minute intervals) from the telemetered monitoring system provides some useful information for setting trigger levels for winter sandbar opening.

Intense storms in May and June 2018 resulted in a high level of sand deposition on the beach and very high water levels in Toby Inlet. Despite large rainfall events, there was insufficient flow to naturally cut through the sand bar. Water levels were in the vicinity of 1.5m (above sea level AHD) from 10th to 14th June, following a series of rainfall events from the 25th May (Figure 11). Photographs of the area

during this time show minor flooding in adjacent lands at these water levels (Figure 12). The sand bar was opened on 13th June 2018, lowering water levels to about 0.8m within two days. This opening was effective, and the outlet remained open intermittently for about four weeks. Rising water levels initiated further opening of the sand bar on 24th July when water levels were around 1.1m. In this instance the sand bar closed within two days.

Maintaining the ocean outlet throughout winter may incur excessive costs if it closes frequently. An appropriate trigger level would direct works only when there is a risk of flooding, and coincide with sufficient flows to maintain the opening. Given the flooding observed when water levels were at 1.5m, and the lack of a consistent channel when opened at around 1.1m, an appropriate trigger level would be at a height between these levels.

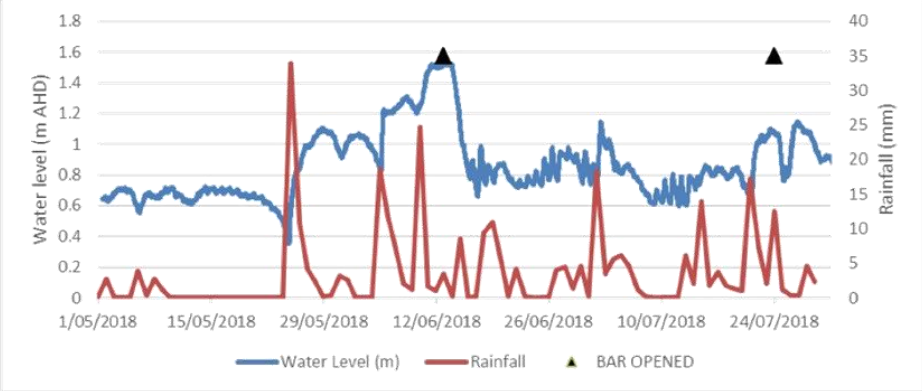

Figure 11. Water levels (blue line) at the Toby Inlet ocean outlet, daily rainfall (red line) and times when sand bar was opened (black markers) during May, June and July 2018. Rainfall data from BoM (2018).





Figure 12. Photos showing minor flooding in the vicinity of Toby Inlet from 11th - 13th June 2018.

4.3 Reconnecting catchment flows

Water flow within Toby Inlet has been significantly altered since European settlement. Notably, the Carbunup River and a number of other smaller waterways have been diverted and no longer connects to the Inlet or contribute to its flow. These changes have resulted in a significant decline in flows and influence the accumulation of nutrients and sediments in the system. The *Reconnecting Toby Inlet* hydrological modelling study investigated options to reinstate flow through Toby Inlet through reconnection of catchment tributaries (Frazer and Hall 2018).

Increasing water flow may improve water quality through dilution of nutrients and by reducing water residence time (flushing). Nutrient concentrations in Station Gully, with a predominately agricultural catchment, are higher than in Toby Inlet, so additional flow from this source may have a negative effect on water quality through increased nutrient loads (Frazer and Hall 2018). Flushing of the estuary has minimal effect on water quality during winter, but is needed during summer when water quality problems occur. However, owing to seasonal flows, there is little potential for catchment flows to provide summer flushing, do the reconnection of catchment sources would not provide this benefit (Frazer and Hall, 2018). There is insufficient water available from other sources, such as Dunsborough lakes dams, to provide summer and autumn flows.

Increasing catchment inflows is also perceived as an option for addressing sedimentation problems. Although the volume of flow through Toby Inlet would be increased by additional catchment water flows, the flat landscape means that flow velocities would remain low, and would not facilitate sediment scouring (Frazer and Hall 2018). It is also worth considering that if velocities were sufficient to mobilise sediment, there may also be a risk of increased sediments from the catchment to Toby Inlet (not assessed).

4.4 Recreation Planning

Community feedback on recreation in and around Toby Inlet was sought during the consultation process and via a specific online survey (City's *Your Say* platform). These forums have indicated very

clearly that management should focus on encouraging passive recreation, and on improvements to existing access rather than increasing accessibility.

Aboriginal consultation revealed a strong desire to maintain a passive level of recreation in and around Toby Inlet. Representatives also suggested that additional infrastructure and signage in the area should be minimised.

An access management plan has been developed to identify existing recreational access and infrastructure in the study area and opportunities for improvements (SWE 2018). This plan identifies four categories for management:

i. Vegetated areas with no tracks: to be retained as high conservation value areas with no further access.
ii. Vegetated areas with existing tracks: to be improved and potentially linked to each other and parkland areas enhance access for recreation and management purposes (e.g. weed control and infill planting).
iii. Parkland cleared areas: existing high-use areas where improved infrastructure and formal paths would be appropriate and foreshore protection may be needed.
iv. Private property access only: not accessible for assessment and unlikely to be suitable for further public access.

Management options identified in the plan include improvements to existing tracks and the potential for additional tracks and/or a boardwalk; potential sites for canoe access, bird watching facilities, picnic facilities and outdoor classroom; and protection works for revegetation, weed control and erosion control. The concept plans for these options provide an ideal basis for further community consultation and project development.

4.5 Managing foreshore reserves

Foreshore reserves require improved management to protect remnant vegetation from weed invasion and physical disturbance from uncontrolled access. Revegetation is also needed in some degraded areas, particularly along banks where vegetation is important for stabilisation and ecological functions.

The Ecoedge (2017) vegetation survey report provides mapping of weeds that would form a basis for strategic control. This report also proposed five areas for revegetation based on size (≥ 1500m^2), accessibility for implementation, and low density of existing vegetation (Ecoedge 2017). These should be further considered in consultation with the community. Weed control and revegetation is needed to ensure protection of natural values in the study area. Some further planning may be needed to direct these efforts.

Recreation and access planning also provide recommendations for areas requiring weed control and revegetation in association with managing access and addressing foreshore erosion, and improving recreation opportunities (SW Environmental 2018). Pathways provide opportunities to formalise boundaries of reserves or interfaces between areas of parkland and natural vegetation.

Some foreshore reserves adjacent to private properties do not have public access to undertake an assessment of management issues or opportunities for improvement. The condition of foreshore

vegetation, bank stability and integrity of private jetties in this area varies. A process of assessment of these areas is needed that identifies:

- inappropriate management of public land;
- jetty structures that require maintenance or removal;
- areas of recreational value for the broader community;
- required management actions to conserve ecological values; and
- potential fire risk.

This process could also be used to develop relationships with local landholders and foster community stewardship for ongoing management, such as through formation of localised *Friends of* groups that could partner with the Toby Inlet catchment Group. In addition, a policy relating to current and future jetty structures would be valuable to minimise potential impacts of the structures and ensure adjacent foreshore areas are protected.

4.6 Catchment management

The portion of the catchment closest to the Inlet has experienced rapid urban development and this is projected to continue into the future. Unsewered urban areas of Quindalup have been identified as a significant nutrient source, particularly through the critical summer months. Sewerage infill works in this area are imminent (update progress as needed). Once completed, the connection of properties to this infrastructure will be vital to ensure outcomes from this investment. There may need to be targeted awareness campaign to maximise connection.

The broader Toby Inlet catchment contains a range of land uses with significant portions dominated by native vegetation, beef grazing, lifestyle blocks and highly developed urban or commercial areas. Management of the broader catchment is beyond the scope of this plan. However, as the catchment has substantial influence on the health of waters within the study area, it is logical that its implementation would support initiatives that reduce catchment sources of nutrients and sediments. GeoCatch has a lead role in catchment management including improved land use management practices, waterway restoration and educational approaches. In addition, the Toby Inlet Catchment Group has long advocated catchment management and could partner with GeoCatch to extend initiatives in the Toby Inlet catchment.

There is also a role for land use development planning in catchment protection. Proposals for changes in land use and new developments can trigger the imposition of new environmental protection requirements. This applies directly to the objective: *reduce catchment sediments and contaminants from existing and new developments entering Toby Inlet*. The use of planning approaches is part of the governance framework for this plan.

4.7 Governance arrangements

The independent review of water asset management (Hart 2014) highlighted the need for Toby Inlet to have a designated lead manager. The City was recognised as the most appropriate manager for Toby Inlet, and this has been supported by the Western Australian Government in its response to the review. It is appropriate that the City adopts this role, given its management responsibility for a large proportion of adjacent foreshore reserves. Although the City is responsible for overall implementation

of management actions, several key stakeholders also have important roles, outlined below. These roles and responsibilities are also summarised in Table 1, Section 6.

The City's management responsibility is generally limited to the study area and does not extend into the broader catchment. Ongoing management initiatives in the catchment, in particular to address issues of nutrient enrichment and sedimentation, are a fundamental component of waterways management. GeoCatch, with the support of DWER, is the lead manager for catchment management. The Water Corporation has management responsibility for its rural drainage network. This network extend into the Station Gully catchment, but is not part of the existing Toby Inlet catchment.

DWER has an ongoing role in providing support for the management of Toby Inlet through continued involvement in water science, modelling and monitoring. If the implementation of this WMP is to be funded through ongoing investment in a broader program for Geographe Bay catchment waterways, DWER is likely to continue to have an important project management and networking role.

The Toby Inlet Catchment (TIC) Group also has an active role in the management of Toby Inlet and its catchment, with a long history in management planning and on-ground works. Members of TIC Group are important advocates in the community for protection of Toby Inlet, increasing support for, and recognition of, improved management. The group continues to undertake restoration activities such as weed control, revegetation and feral animal control. This greatly assists with management of public reserves, and should continue to be supported by the City.

Establishment of "Friends of Reserves" groups for sections of Toby Inlet foreshore has been suggested during consultation as a way of fostering community stewardship to assist with and maintain restoration efforts. These groups could partner with TIC Group, increasing overall capacity. The City recognises the valuable contribution of volunteers to environmental management, and has a commitment to supporting volunteer groups such as TIC Group and Friends of Reserves groups.

The City also has an important role in its planning capacity. Through the *Revitalising Geographe Water*ways program, the City has been responsible for the *Optimising Planning Tools* project to review the potential role of planning in water resource protection.

4.8 Research needs

Research is needed to enable assessment and reporting on progress of management initiatives and to fill knowledge gaps. Research outcomes need to feed back into management planning through an adaptive process. The key research areas for Toby Inlet are summarised below.

Water quality: Ongoing water quality monitoring is an essential part of long-term assessment and reporting for waterway health. There appears to be an adequate sampling program for open waters of Toby Inlet. Investigative sampling within of tributaries and groundwater in the Toby Inlet catchment should be considered to ensure information requirements for prioritising and reviewing management initiatives are met.

Water flow: Assessment of the potential for existing flows to move sediment in association with resuspension of sediment through agitation may require further modelling or a trial.

Sediments: If removal of sediment is deemed appropriate in the future, further studies of physical and chemical characteristics will be needed to inform priority locations, the removal technique and disposal options.

Bird life: There has been little formal surveying of bird life of Toby Inlet, so the overall importance of the study area for providing bird habitat and the particular sites of importance are not well understood. There is an opportunity for community-based surveying to assist in prioritising management initiatives (e.g. habitat restoration) and in developing information resources for visitors.

Aquatic fauna: Fish and aquatic invertebrates are good indicators of waterway health. Recent research has provided baseline information for future monitoring and reporting. Community involvement in this research has highlighted the potential for educational opportunities that engage people in the management of Toby Inlet.

Aquatic flora: There have been no studies of macroalgae and other aquatic plants in Toby Inlet and associated wetlands. Aquatic flora has an important structuring role, with a strong seasonal influence on habitat and water quality and hence on aquatic fauna and food web interactions. The extent and composition of macroalgal growth (as blooms or at non-nuisance levels) have not been formally monitored and may provide a good indicator of water quality.

5 Management Strategies and Actions

The management strategies and actions included here have been developed to work towards meeting the management objectives and vision for Toby Inlet. Specific actions have been grouped into strategies for each of the management focus areas, although many have potential outcomes for several objectives. A framework for implementing the WMP is provided in Section 6, including the roles and responsibilities of key stakeholders and a process for ongoing action planning, reporting and review.

5.1 Toby Inlet ocean exchange

5.1.1 Strategy OE1: Optimal management of Toby Inlet ocean exchange

Effective management of the Toby Inlet ocean exchange has clear outcomes for water quality by through dilution of nutrient concentrations and preventing algal growth. Establishing a minimum sill height during summer will reduce areas prone to sediment exposure and associated problems with visual amenity and odours. Management of the sand bar is also important in mitigating the flood risk for adjacent properties.

Management actions:

OE1.1 Maintain Toby Inlet ocean outlet, the Station Gully culvert and the Station Gully outlet in accordance with Operational Procedures in Appendix 2.

OE1.2 Monitor the status of the outlet through a telemetered system to determine when opening of the sand bar is necessary.

OE1.3 Ensure the culvert between Station Gully and Toby Inlet will be left open to improve water quality in the upper reach of Toby Inlet, east of the ocean outlet.

5.2 Sedimentation

5.2.1 Strategy S1: Investigate sediment removal

There is strong community support for active removal of sediments from Toby Inlet, however the main objective associated with this approach is improved amenity. Outcomes for water quality and ecology and potential impacts of removal are not well understood, and further investigation is needed. An alternative approach to mobilising sediment may be mechanical agitation of sediments in depositional areas during high flows. There is community support to further investigate potential to mobilise deposited sediment.

Management actions:

S1.1 Defining priority areas for sediment management and determine sediment composition and volume for these areas, building on previous sediment investigations.

S1.2 Assess potential outcomes and impacts of sediment removal from priority areas and undertake a cost/benefit analysis of strategic sediment removal.

S1.3 Assess whether sediment agitation would facilitate mobilisation and flushing of sediment deposits on Toby Inlet.

5.2.2 Strategy S2: Prevent further sedimentation

Existing land uses in the catchment and ongoing development are likely to continue to contribute additional sediment to the drainage system, wetlands and Toby Inlet. Minimising sources of sediments and trapping mobile sediments before they reach receiving waters is important to prevent further deposition.

Management actions:

S2.1 Improve understanding of sediment sources and transport through water quality monitoring (refer to WQ1.6).

S2.2 Develop an education approach to reducing sediments inputs from the catchment.

S2.3 Identify and ensure management of potential erosion problems from new developments and changes in land use during the planning process, through implementing the *Better Urban Water Management* framework.

S2.4 Investigate key sediment sources in the catchment and potential for works to stabilise drains and increase sediment trapping within the drainage network.

5.2.3 Strategy S3: Rehabilitate exposed sediment deposits

Revegetation of exposed sediments may address amenity issues. It would also stabilise the sediments, provide additional habitat, and trap additional sediments and nutrients entering the Inlet.

S3.1 Identify areas of exposed sediments that could be planted to improve habitat and amenity and stabilise sediments.

S3.2 Undertake trial revegetation of samphire in exposed sediment.

5.3 Water quality

Increased nutrient loads from the catchment are a major cause of water quality decline. Actions to reduce point and non-point sources of nutrients are thus a fundamental component of managing water quality. Management of the sand bar to provide flushing during summer and autumn is a key strategy to improve water quality in Toby Inlet (Strategy OE1). However, ocean flushing does little to address water quality issues in the upper reach of Toby Inlet or in the upstream wetland environments.

5.3.1 Strategy WQ1: Reducing nutrient sources from the catchment

Nutrients are a key driver of algal blooms, so ongoing load reduction actions are a fundamental part of management. Infill sewerage works is important to addressing nutrient sources from adjacent residential areas. Reducing nutrient inputs at the catchment level is a long-term management initiative, fundamental to protecting water quality in receiving aquatic environments.

Management actions:

WQ1.1 Completion of scheduled infill sewerage works in residential areas adjacent to Toby Inlet.

WQ1.2 Review the sewerage works once completed, and address any lack of connection to sewerage infrastructure through education campaigns or incentives if deemed necessary.

WQ1.3 Ensure Geographe Bay catchment management initiatives extend to Toby Inlet catchment, including: implementation of best management practices; and community education to reduce inputs from gardening and livestock activities in urban and special rural areas.

WQ1.4 Increase potential for nutrient assimilation in the rural drainage network in conjunction with sediment trapping and through restoration.

WQ1.5 Identify opportunities for reducing nutrient, sediment and pollutant sources through upgrades to stormwater infrastructure.

WQ1.6 Continue current water quality monitoring within Toby Inlet, and determine required monitoring for associated wetlands and catchment tributaries, to ensure information requirements for prioritising and reviewing management initiatives are met.

WQ1.7 Support educational campaigns that aim to reduce nutrients in runoff through individual and community actions (e.g. Bay OK) and investigate options to improve nutrient management in public open space.

WQ1.8 Minimise future nutrient sources from new development and land use change at the planning stage through implementing the *Better Urban Water Management* framework.

WQ1.9 Support implementation of the Vasse Wonnerup wetlands Geographe Bay Water Quality Improvement Plan.

5.4 Ecology

5.4.1 Strategy E1: Effectively manage foreshore reserves

Foreshore reserves in the study area contain important areas of vegetation, provide habitat for native fauna and contribute to heathy aquatic ecology. These reserves present considerable opportunity for conservation, however active management is needed to address threats of weeds, pests, unmanaged access, clearing of native vegetation, and vegetation decline.

Management actions:

E1.1 Prepare and implement a prioritised works program for weed control, revegetation and feral animal control.

E1.2 Support community efforts in weed control, revegetation and feral animal control.

E1.3 Ensure revegetation in high amenity areas is appealing and maintains vistas to increase community support for these activities.

E1.4 Effectively management recreational access to protect and enhance the key values of reserve areas.

E1.5 Create awareness of reserve boundaries through bollards and signage where appropriate.

E1.6 Develop information resources for landholders to raise awareness of reserve boundaries, the importance of fringing vegetation, weed problems, and the restrictions on clearing native vegetation and building jetty structures.

E1.7 Assess foreshore reserve areas that have no public access and develop appropriate management actions to benefit the broader public.

E1.8 Develop a policy for jetties that ensures structural integrity and protection of adjacent foreshore areas and prevents establishment of new structures.

5.4.2 Strategy E2: Understanding fauna

There is limited formal knowledge of the fauna of Toby Inlet. Recent research on fish and aquatic invertebrates has provided an important baseline and has had excellent outcomes for community engagement. While there is some knowledge of the occurrence of other fauna in the study area such as birds and mammals, this is not based on formal surveys. Increased understanding of fauna can be achieved through scientific and community based approaches to improve information, and sharing this knowledge with the broader community.

Management actions:

E2.1 Support further research on aquatic and terrestrial fauna and bird populations to inform management initiatives and assess outcomes.

E2.2 Pursue a community science approach to collecting bird data.

E2.3 Develop information resources to increase community interest and understanding of fauna.

5.5 Amenity, Recreation and Education

Strategies for amenity, recreation and education have been combined owing to overlap between these focus areas. All relate to the interaction between people and Toby Inlet, and improving potential enjoyment.

5.5.1 Strategy ARE1: Improving facilities for community appreciation

There is a need to formalise access and improve recreational facilities around Toby Inlet, but with a clear focus on passive recreational pursuits, such as walking and running, bird watching, fishing and non-motorised water sports. The *Access Management Plan* for Toby Inlet provides an excellent basis for improving recreational opportunities and access around Toby Inlet (Appendix 9. Although this has been developed with consideration of outcomes of previous community consultation, further review and feedback from the community will be required prior to its implementation.

Management actions:

ARE1.1 Seek community input on the *Access Management Plan* for Toby Inlet (SW Environmental 2018), and subsequently develop and implement appropriate access-ways and recreational infrastructure.

ARE1.2 Determine requirements for additional parking in support of improved facilities.

ARE1.3 Enhance bird habitat in connection with existing and potential bird watching sites.

ARE1.4 Encourage bird watchers to join with a community science approach to collecting bird data.

ARE1.5 Support schools in using Toby Inlet as an outdoor learning environment, including provision of information resources and consideration of an outdoor classroom.

5.5.2 Strategy ARE2: Providing informative resources

Management strategies around education often include interpretive signage. However given the desire for passive recreation in the Inlet and minimal facilities, extensive signage is not appropriate around Toby Inlet. Some signage regarding the values and management of the Inlet, and access points would be appropriate. Information in other forms would also be valuable for those who are interested, including learning resources for school groups. This includes printed resources and online information.

Management actions:

ARE2.1 Develop appropriate signage in connection with improved access and facilities to inform the community about: ecological values of Toby Inlet; location and use of access and facilities; and management initiatives underway.

ARE2.2 Prepare and distribute fact sheets and educational material, printed and online, for key management focus areas, relevant to schools, community members and natural resource managers.

ARE2.3 Continue to update the Revitalising Geographe Waterways website with information on Toby Inlet and its management.

5.6 Culture and Heritage

Heritage values in the vicinity of the Toby Inlet study area include traditions and history of Aboriginal people and European settlement.

5.6.1 Strategy CH1: Recognising Aboriginal custodianship

Toby Inlet holds significant cultural value for the local Wadandi people, as important place for food resources and camping. The area has continued to be an important camping and fishing area since European settlement. An area of campgrounds has been lodged for assessment as a Registered Aboriginal Site under the *Aboriginal Heritage Act* (1972).

Aboriginal representatives indicated clearly that they did not support extensive cultural information on signs in the area. However, acknowledgement of the significance of the area to Aboriginal people may be appropriate on signs for other purposes, and in other information resources suggested in this

plan. There is also potential to recognise Aboriginal peoples' connection to the area through other means, such as artwork or design of recreational facilities.

As traditional custodians, Aboriginal people are concerned about declining health of the environmental and should also be given opportunities to contribute to the future management of Toby's Inlet.

Management actions:

CH1.1 In partnership with local Aboriginal people, include reference to traditional custodianship of the waterways and land in development of information resources.

CH1.2 Manage future access in a way that avoids additional disturbance and considers protection of potential sites of Aboriginal significance – however activities of local Aboriginal people, such as fishing, camping, the gathering of bush foods and family recreational and educational activities, should not be restricted by implementation of this plan.

CH1.3 Seek to improve partnerships with the Nyungar community to increase their involvement in the management, protection and restoration of Toby Inlet and the study area.

CH1.4 Consult further with Aboriginal representatives in regard to specific works which result from this plan.

CH1.5 Support programs that engage the Aboriginal community in implementation of works associated with this plan.

5.6.2 Strategy CH2: Conserve historical values

There is a great deal of history associated with the whaling industry and European settlement in the study area. It is important that future generations have access to historical information and that historical sites are maintained.

Management actions:

CH2.1 Identify and ensure appropriate maintenance of sites historical importance.

CH2.2 Develop interpretive material to increase understanding of local history, and to promote, appreciate and access historical sites.

5.7 Governance

Management of Toby Inlet requires leadership which is most appropriately provided by the City. There is strong interest in the management of Toby Inlet from a broad range of stakeholders with varying interests and responsibilities. A collaborative approach to management is needed, that facilitates ongoing input from stakeholders and provides support to active members of the community, in particular the Toby Inlet Catchment Group. Partnerships with researchers are also valuable to improve our understanding of the system, inform management decisions and monitor success or otherwise of management actions.

5.7.1 Strategy G1: Defined and collaborative management

The City has coordinated the development of this WMP, and has overall responsibility for implementation. However other stakeholders have important roles in undertaking and supporting many management actions. Collaboration of stakeholders will therefore be essential to successful future management of the Toby Inlet study area. Major stakeholders and their roles in the future management of Toby Inlet and the study area are summarised in Table 1.

Management actions:

G1.1 City to consider securing management order over waterways and adjacent public lands in study area, to facilitate implementation.

G1.2 Establish a Management Advisory Committee comprised of representatives from the City, Toby Inlet Catchment Group, Department of Water and Environmental Regulation, Department of Biodiversity Conservation and Attractions, Water Corporation, GeoCatch, South West Catchments Council, Aboriginal representatives, and community members.

G1.3 Support the Toby Inlet Catchment Group as active participants in planning, on-ground works, and as a key link to the community.

G1.4 Facilitate the development of locally-active Friends of Toby Inlet groups to advocate and coordinate on-ground work in reserves and on private property.

G1.5 Define and resolve issues around vesting of Unallocated Crown Land.

5.7.2 Strategy G2: Evaluate and adapt management actions

Implementation will require an ongoing process of monitoring and evaluation of outcome, and future management will need to be informed by this proves and by new information gained through research. Long term water quality data is a fundamental tool for defining management issues and assessing outcomes of management. While an established routing monitoring program is in place for Toby Inlet itself, available data for catchment tributaries and groundwater is inconsistent. Biological monitoring approaches are valuable to assess current and future ecological health, and to provide interesting information for the community. Recent sampling of aquatic fauna has helped establish a baseline for future assessment of decline or improvement. Despite the nuisance growth of macroalgae in Toby Inlet, there has been no assessment of species or estimates of biomass.

Management actions:

G2.1 Continue monitoring of water quality in Toby Inlet.

G2.2 Review monitoring requirements for catchment tributaries and groundwater.

G2.3 Support future sampling of aquatic fauna.

G2.4 Undertake assessment of macroalgal growth.

G2.5 Ensure timely reporting of monitoring and research outcomes to the management advisory group.

G2.6 Review future management actions in light of monitoring and research outcomes.

6 Implementation

6.1 Roles and responsibilities

The lead role of the City in the future management of Toby Inlet will be recognised through endorsement and adoption of this WMP. This will task the City with responsibility for coordinating implementation, however key stakeholders will have ongoing roles in many aspects of the WMP. These roles and responsibilities are defined in Table 1.

As captured in action G1.2 a Management Advisory Group is recommended to oversee implementation of this WMP, comprised of representatives from the City, Department of Water and Environmental Regulation, Department of Biodiversity Conservation and Attractions, Water Corporation of WA, GeoCatch, Wadandi representatives and broader community representatives.

6.2 Implementation process

An adaptive process of action planning, works, evaluation and reporting is recommended for the WMP, summarised by Figure 13. The strategies and actions presented provide a basis for planning actions for a specified period of time, dependent on available budgets and identified priorities. This would be a key role of the Management Advisory Group. Outcomes of these actions are measured through adequate monitoring, with results assessed in terms of progress towards the management objectives and vision. Reporting of outcomes to the community is essential to maintain community support and this forum would provide an opportunity to gain input to the next action planning cycle.

Table 1. Key stakeholders for future management of Toby Inlet and main roles and responsibilities.

Stakeholder	Roles and Responsibilities
City	Overall implementation of the WMP. Management of reserves. Maintenance of Toby Inlet ocean exchange. Operation of Station Gully culvert. Support to community groups.
Toby Inlet Catchment Group	Undertaking weed control, revegetation and feral animal control activities. Advocating protection and enhancement of Toby Inlet. Representing community interests in future management of Toby Inlet and reserves. Leadership for citizen science opportunities.
South West Boojarah Working Party	Advocating protection and enhancement of Toby Inlet. Providing input ion management decisions to ensure maintenance of cultural values.

	Engagement of Aboriginal people in management decisions and actions.
Department of Water and Environmental Regulation	Monitoring of water quality. Technical contributions to management decisions.
GeoCatch	Support to private landholders to improve land and waterway management in the catchment. Educational programs to minimise nutrient and sediment loads. Education, habitat restoration, and community group support for protection of Western Ringtail Possums.
Water Corporation	Maintenance of Station Gully ocean exchange. Maintenance (ownership) of Station Gully culvert. Managing flooding risk.
Department of Biodiversity, Conservation and Attractions	Coordinate native wildlife management programs and implement recovery plans for native flora and fauna of conservation significance. Provide guidance and direction to community group in relation to the protection and conservation of Western Ringtail Possums. Providing information about native flora and fauna.
South West Catchments Council	Support for funding opportunities.
Friends of reserves groups	Future role in local-level advocacy and management actions.



Figure 13. Implementation process for the Toby Inlet Waterway Management Plan.

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8 Appendices

Appendix 1. Land tenure listing

Current vesting details for public lands in the study area.

TYPE	PIN	RESERVE	CURRENT PURPOSE/LEGAL USE	CURRENT VESTING
Reserve	1039621	23572	RECREATION	City
Reserve	532402	31944	PUBLIC RECREATION	City
Reserve	532412	31944	PUBLIC RECREATION	City
Reserve	11342942	31591	PUBLIC RECREATION	City
Reserve	11767346	46	LANDSCAPE PROTECTION AND	City
Reserve	1341995	26122	PUBLIC RECREATION	City
Reserve	1051637	26122	PUBLIC RECREATION	City
Reserve	532482	26122	PUBLIC RECREATION	City
Reserve	1208973	26122	PUBLIC RECREATION	City
Reserve	1107483	36262	PUBLIC RECREATION	City
Reserve	532377	36262	PUBLIC RECREATION	City
Reserve	532386	36262	PUBLIC RECREATION	City
Reserve	532394	36262	PUBLIC RECREATION	City
Reserve	1153703	45169	PUBLIC RECREATION &	City
Reserve	1112023	46086	PUBLIC RECREATION, DRAINAGE	City
Reserve	1214511	46086	PUBLIC RECREATION, DRAINAGE	City
Reserve	532322	26524	PUBLIC RECREATION	City
Reserve	532329	26524	PUBLIC RECREATION	City
Reserve	532342	26524	PUBLIC RECREATION	City
Reserve	532350	26524	PUBLIC RECREATION	City
Reserve	532494	36429	RECREATION	City
Reserve	1186196	45436	PUBLIC RECREATION	City
Reserve	1215108	45436	PUBLIC RECREATION	City
Reserve	523991	29844	PUBLIC RECREATION	City
Reserve	523992	29844	PUBLIC RECREATION	City
Reserve	523989	37416	WATER SUPPLY	Water Corporation
Reserve	524084	40677	DRAINAGE	Water Corporation
Reserve	1287021	26225	RECREATION & ROAD	DEPARTMENT OF LANDS (SLSD)
Reserve	1034792	32282	DRAIN	DEPARTMENT OF WATER
UCL	11676813			
UCL	1237261			
UCL	11154519			
UCL	11154521			
UCL	11627253			
UCL	11608890			
UCL	11154520			

Appendix 2. Operational Procedures for maintenance of Toby Inlet sand bar

OPERATIONAL PRACTICE AND PROCEDURE

OPENING AND MAINTENANCE OF THE TOBY INLET SAND BAR AND CULVERT

PURPOSE

This document details the procedures that apply to the opening and maintenance of the Toby Inlet sand bar and the culvert between Toby Inlet and Station Gully. The main purposes of opening the sand bar are to improve water quality in the inlet by increasing water flushing and reduce the likelihood of algal blooms and to mitigate flooding risks to neighbouring properties.

OE1.4 Ensure the ocean outlet is kept open through the period from 1 November to 31 April to improve water quality, with a minimum sill height of -0.15m AHD to prevent excessively low water levels.

OE1.5 Open the sand bar during the period 1 May to 31 October if water levels exceed an interim trigger value of 1.3m AHD. The outcomes of this approach will be monitored and management guidelines adapted accordingly.

SPECIFICATIONS

Ocean entrance

Summer – water quality improvement

1. The Toby Inlet mouth is maintained open from 1 November to the 30 April at a minimum sill elevation of -0.15m AHD.
2. Opening to be facing approximately 45 degrees eastward, to the width of inlet.
3. Opening to be located in area highlighted in aerial photo below, subject to seasonal varibility of inlet's position.
4. Opening works to coincide with rising tide and greatest tidal variations (as practicable).
5. Sand removed to be deposited to the east of opening and flattened out to not impede access by pedestrians and horses.
6. Machinery to access site via Quindalup boat ramp.
7. Sand bar to be open within two weeks of notification received of it being closed.

Winter – flooding mitigation

1. The Toby Inlet mouth is to be opened when water levels reach 1.3m AHD, causing a potential flooding risk to neighbouring properties and infrastructure.
2. Opening to be located in area highlighted in aerial photo below, subject to seasonal varibility of inlet's position.
3. Opening works to coincide with lowering tide.
4. Sand removed to be deposited to the east of opening and flattened out to not impede access by pedestrians and horses.
5. Machinery to access site via Quindalup boat ramp.

Culvert

1. Culvert between Station Gully drain and Toby Inlet to remain open all year around.



RESPONSIBILITIES

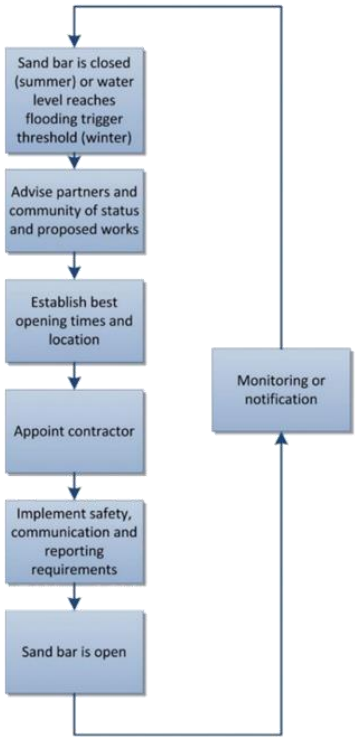
The City is responsible for:

- Monitoring status of the Toby Inlet ocean entrance, with a minimum of a check per fortnight during the period of October to May.
- Organising, supervising and funding the manual opening of the Toby Inlet ocean entrance by machinery as required from October to June.
- Notifying other stakeholders (including the Water Corporation and Department of Water and Environmental Regulations) and the public of upcoming maintenance works.
- Ensuring public safety during operations, including at works site and upstream of Toby Inlet.
- Keep records of sand bar opening times.
- Maintaining the culvert between Toby Inlet and Station Gully in a good state of repair and open all year around.

The Water Corporation and the Department of Water and Environmental Regulations are responsible for:

- Notifying the City if it becomes aware that the Toby Inlet entrance has closed.
- Provide any information that may assist the City in managing the opening of the Toby Inlet ocean entrance.
- Opening Station Gully ocean outlet for flood protection purposes as necessary.

PROCESS TO BE FOLLOWED IF SAND BAR CLOSES (FLOWCHART)



Appendix 3. Plant species found within the Toby Inlet study area

List of vascular flora identified in the study area during survey by Ecoedge (2017)

FAMILY	SPECIES	COMMON NAME	NATURALISED
Aizoaceae	*Carpobrotus edulis*	Hottentot Fig	*
Anacardiaceae	*Schinus terebinthifolius*		*
Apiaceae	*Apium prostratum*	Sea Celery	
Apiaceae	*Centella asiatica*	Centella	
Apiaceae	*Daucus glochidiatus*	Australian Carrot	
Apocynaceae	*Vinca major*	Blue Periwinkle	*
Araceae	*Zantedeschia aethiopica*	Arum Lily	*
Araliaceae	*Hedera helix*		*
Araliaceae	*Trachymene pilosa*	Native Parsnip	
Asparagaceae	*Acanthocarpus preissii*		
Asparagaceae	*Asparagus asparagoides*	Bridal Creeper	*
Asparagaceae	*Lachenalia bulbifera*		*
Asphodelaceae	*Trachyandra divaricata*		*
Asteraceae	*Carduus pycnocephalus*	Slender Thistle	*
Asteraceae	*Cotula coronopifolia*	Waterbuttons	*
Asteraceae	*Gazania linearis*		*
Asteraceae	*Hypochaeris glabra*	Smooth Cats-ear	*
Asteraceae	*Olearia axillaris*	Coastal Daisybush	
Asteraceae	*Osteospermum jucundum*		*
Asteraceae	*Osteospermum ecklonis*		*
Asteraceae	*Senecio jacobaea*	Ragwort	*
Asteraceae	*Sonchus asper*	Rough Sowthistle	*
Asteraceae	*Symphyotrichum squamatum*	Bushy Starwort	*
Boraginaceae	*Echium plantagineum*	Paterson's Curse	*
Casuarinaceae	*Allocasuarina fraseriana*	Sheoak	
Chenopodiaceae	*Atriplex hypoleuca*		
Chenopodiaceae	*Atriplex prostrata*		
Chenopodiaceae	*Rhagodia baccata*	Berry Saltbush	
Chenopodiaceae	*Salicornia quinqueflora*	Beaded Samphire	
Chenopodiaceae	*Suaeda australis*	Seablite	
Convolvulaceae	*Dichondra repens*	Kidney Weed	
Cupressaceae	*Callitris preissii*	Rottnest Island Pine	
Cyperaceae	*Baumea juncea*	Bare Twigrush	
Cyperaceae	*Carex divisa*	Divided Sedge	*
Cyperaceae	*Ficinia nodosa*	Knotted Club Rush	
Cyperaceae	*Gahnia trifida*	Coast Saw-sedge	
Cyperaceae	*Lepidosperma gladiatum*	Coast Sword-sedge	
Dennstaedtiaceae	*Pteridium esculentum*	Bracken	
Dilleniaceae	*Hibbertia cuneiformis*	Cutleaf Hibbertia	
Ericaceae	*Leucopogon parviflorus*	Coast Beard-heath	

FAMILY	SPECIES	COMMON NAME	NATURALISED
Euphorbiaceae	*Euphorbia paralias*	Sea Spurge	*
Euphorbiaceae	*Euphorbia terracina*	Geraldton Carnation Weed	*
Fabaceae	*Acacia cochlearis*	Rigid Wattle	
Fabaceae	*Acacia cyclops*	Coastal Wattle	
Fabaceae	*Acacia littorea*		
Fabaceae	*Acacia saligna*	Orange Wattle	
Fabaceae	*Chamaecytisus palmensis*	Tagasaste	*
Fabaceae	*Dipogon lignosus*	Dolichos Pea	*
Fabaceae	*Hardenbergia comptoniana*	Native Wisteria	
Fabaceae	*Lotus subbiflorus*		*
Fabaceae	*Melilotus indicus*		*
Fabaceae	*Podalyria sericea*		*
Fabaceae	*Templetonia retusa*	Cockies Tongues	
Fabaceae	*Trifolium campestre*	Hop Clover	*
Geraniaceae	*Geranium molle*	Dove's Foot Cranesbill	*
Geraniaceae	*Geranium solanderi*	Native Geranium	
Geraniaceae	*Pelargonium capitatum*	Rose Pelargonium	*
Goodeniaceae	*Dampiera trigona*	Angled-stem Dampiera	
Goodeniaceae	*Scaevola crassifolia*	Thick-leaved Fan-flower	
Hemerocallidaceae	*Dianella revoluta*	Blueberry Lily	
Iridaceae	*Watsonia meriana*	Bulbil Watsonia	*
Juncaceae	*Juncus kraussii*	Sea Rush	
Lauraceae	*Cassytha racemosa*	Dodder Laurel	
Liliaceae	*Lilium* sp.		*
Loganiaceae	*Logania vaginalis*	White Spray	
Moraceae	*Ficus carica*	Common Fig	*
Myrtaceae	*Agonis flexuosa*	Peppermint	
Myrtaceae	*Eucalyptus rudis*	Flooded Gum	
Myrtaceae	*Melaleuca cuticularis*	Saltwater Paperbark	
Myrtaceae	*Melaleuca osullivanii*		
Myrtaceae	*Melaleuca rhaphiophylla*	Swamp Paperbark	
Myrtaceae	*Melaleuca* sp.		*
Myrtaceae	*Melaleuca viminea*	Mohan	
Orchidaceae	*Cyrtostylis robusta*		
Orobanchaceae	*Parentucellia viscosa*	Sticky Bartsia	*
Oxalidaceae	*Oxalis corniculata*	Yellow Wood Sorrel	*
Oxalidaceae	*Oxalis pes-caprae*	Soursob	*
Papaveraceae	*Fumaria muralis*	Wall Fumitory	*
Phyllanthaceae	*Phyllanthus calycinus*	False Boronia	
Plantaginaceae	*Plantago lanceolata*		*
Poaceae	*Ammophila arenaria*	Marram Grass	*
Poaceae	*Austrostipa compressa*		
Poaceae	*Austrostipa flavescens*		
Poaceae	*Avena fatua*	Wild Oat	*

FAMILY	SPECIES	COMMON NAME	NATURALISED
Poaceae	*Briza maxima*	Blowfly Grass	*
Poaceae	*Bromus diandrus*	Great Brome	*
Poaceae	*Lagurus ovatus*	Hare's Tail Grass	*
Poaceae	*Lolium perenne*	Perennial Ryegrass	*
Poaceae	*Piptatherum miliaceum*	Rice Millet	*
Poaceae	*Poa porphyroclados*		
Poaceae	*Sporobolus virginicus*	Marine Couch	
Poaceae	*Stenotaphrum secundatum*	Buffalo Grass	*
Polygalaceae	*Comesperma virgatum*	Milkwort	
Polygonaceae	*Muehlenbeckia adpressa*	Climbing Lignum	
Polygonaceae	*Rumex brownii*	Swamp Dock	*
Ranunculaceae	*Ranunculus muricatus*	Sharp Buttercup	*
Rhamnaceae	*Spyridium globulosum*	Basket Bush	
Rosaceae	*Rosa chinensis* x *multiflora*		*
Santalaceae	*Exocarpos sparteus*	Broom Ballart	
Santalaceae	*Santalum acuminatum*	Quandong	
Solanaceae	*Solanum linnaeanum*	Apple of Sodom	*
Stylidiaceae	*Stylidium adnatum*	Common Beaked Triggerplant	
Thymelaeaceae	*Pimelea argentea*	Silvery Leaved Pimelea	
Typhaceae	*Typha orientalis*	Typha	

Appendix 4. Revegetation species the Toby Inlet study area

Suggested revegetation species for main soil types in the Toby Inlet study area (Ecoedge 2017)

Saline Soils:
Atriplex prostrata
Ficinia nodosa (Knotted Club Rush)
Juncus kraussii (Sea Rush)
Melaleuca cuticularis (Saltwater Paperbark)
Salicornia quinqueflora (Beaded Samphire)
Suaeda australis (Sea Blite)

Loams:
Acacia saligna (Orange Wattle)
Agonis flexuosa (Peppermint)
Eucalyptus rudis (Flooded Gum)
Exocarpos sparteus (Broom Ballart)
Hakea varia
Hibbertia cuneiformis (Cutleaf Hibbertia)
Jacksonia furcellata
Kunzea micrantha
Melaleuca viminea (Mohan)
Spyridium globulosum (Basket Bush)
Viminaria juncea (Swish Bush)

Quindalup Dunes:
Agonis flexuosa (Peppermint)
Spyridium globulosum (Basket Bush)
Acacia littorea
Acacia cochlearis
Hibbertia cuneiformis (Cutleaf Hibbertia)
Leucopogon parviflorus
*Hardenbergia comptoniana (*Native Wisteria)
Lepidosperma gladiatum (Sword Sedge)

Appendix 5. Birds of Toby Inlet and associated wetlands

Bird species reported to occur in the study area, from a survey by Clay and Clay (1996, cited in Comer and Clay 1999).

COMMON NAME	SPECIES NAME
Water Birds	
Hairy-headed Grebe	Poliocephalusi poliocephalus
Australasian Grebe	*Tachybaptus novaehollandiae*
Australian Pelican	*Pelecanus conspicillatus*
Darter	*Anhinga melanogaster*
Little Black Cormorant	*Phalacrocorax sulcirostris*
Little Pied Cormorant	*Phalacrocorax melanoleucos*
White Faced Heron	*Ardea novaehollandiae*
Great Egret	*Egretta alba*
Sacred Ibis	*Threskiornis aethiopica*
Straw-necked Ibis	*Threskiornis spinicollis*
Yellow Billed Spoonbill	*Platalea flavipes*
Black Swan	*Cygnus atratus*
Australian Shelduck	*Tadorna tadornoides*
Pacific Black Duck	*Anas superciliosa*
Grey Teal	*Anas gibberifrons*
Australian Wood duck	*Chenonetta jubata*
Musk Duck	*Biziura lobata*
Pink-eared Duck	*Malacorhynchus membranaceus*
Hardhead	*Aythya australis*
Osprey	*Pandion haliaetus*
Eurasian Coot	*Fulica atra*
Purple Swamphen	*Porphyrio porphyrio*
Hooded Plover	*Charadrius rubricollis*
Black-fronted Plover	*Charadrius melanops*
Greenshank	*Tringa nebularia*
Silver Gull	*Larus novaehollandiae*
Caspian Tern	*Hydropgne caspia*
Crested Tern	*Sterna bergii*
Fairy Tern	*Sterna nereis*
Bush Birds	*Scientific Name*
Black-shouldered Kite	Elanus notatus
Whistling Kite	*Haliastur sphenurus*
Brown Goshawk	*Accipiter fasciatus*
Australian Kestrel	*Falco cenchroides*
Laughing Turtle-dove*	*Streptopelia senegalensis*
Common Bronze wing	*Phaps chalcopterai*
Red-tailed Black Cockatoo	*Calyptorhynchus magnificus*

White-tailed Black Cockatoo	*Calyptorhynchus baudinii/latirostris?*
Red-capped Parrot	*Purpureicephalus spurius*
Western Rosella	*Platycercus icterotis*
Australian Ringneck	*Barnardius zonarius*
Tawny Frogmouth	*Podargus strigoides*
Laughing Kookaburra	*Dacelo novaeguineae*
Sacred Kingfisher	*Halyconi sancta*
Rainbow Bee-eater	*Merops ornatus*
Welcome Swallow	*Hirundo neoxena*
Tree Martin	*Hirundo nigricans*
Richard's Pipit	*Anthus novaeseelandiae*
Black-faced Cuckoo-Shrike	*Coracina novaehollandiae*
Scarlet Robin	*Petroica Multicolor*
Rufous Whistler	*Pachycephala rufiventris*
Grey Shrike-thrush	*Colluricincla harmonica*
Grey Fantail	*Rhipidura fuliginosa*
Willie Wagtail	*Rhipidura leucophrys*
Splendid Fairy-Wren	*Malurus splendens*
White-browed Scrub-Wren	*Sericornis frontalis*
Western Gerygone	*Gerygone fusca*
Western Thornbill	*Acanthiza inornata*
Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*
Varied Sitella	*Daphoenositta chrysoptera*
Rufous Treecreeper	*Climacteris rufa*
Red Wattle Bird	*Anthochaera carunculata*
Brown Honeyeater	*Lichmera indistincta*
New Holland Honeyeater	*Phylidonyris novaehollandiae*
Western Spinebill	*Acnathorynchus superciliosus*
Silvereye	*Zosterops lateralis*
Australian Magpie-Lark	*Grallina cyanoleuca*
Dusky Woodswallow	*Artamus cyanopterus*
Grey Butcherbird	*Cracticus torquatus*
Australian Magpie	*Gymnorhina tibicen*
Australian Raven	*Corvus coronoides*

Appendix 6. Other Fauna likely to occur in study area

Fauna identified as present or likely to be present in the study area in the survey by Hart et al. (1997)

Frogs		
	Litoria adalaidensis* Litoria moorei* Crinia georgiana Heleioporus eyrie Limnodynastes dorsalis Pseudophryne glauerti Ranidella insignifera	
Reptiles		
Turtle	Chelodina oblonga*	Long-necked turtle
Gecko	Phyllodactylus marmoratus*	
Legless lizards	Aprasia repens Pygopus lepidopodus	
Dragon lizards	Pogona m. minor*	Western bearded dragon
Skinks	Bassiana trilineata* Cryptoblepharus plagiocephalus Egernia kingie* Egernia napoleonis* Glaphyromorphus australis Hemiergis peronei Lerista distinguenda* Menetia greyii* Morethia lineoocellata* Tiliqua r. rugose*	
Monitors	Varanus gouldii Varanus rosenbergi	
Snakes	Ramphotyphlops australis Drysdalia coronate Echiopsis curta Notechis scutatus occidentalis*	 Tiger snake

	Pseudonaja affinis affinia* Rhinocephalus gouldii Rhinocephalus nigriceps	Dugite
Mammals		
	Pseudocheirus occidentalis* Isoodon obesulus* Macropus fuliginosus* Hydromys chrysogaster	Western ringtail possum Southern brown bandicoot Western grey kangaroo Rakali, Water rat
Introduced species		
	Mus musculus* Rattus rattus Vulpes vulpes* Felis catus Oryctolagus cuniculus*	

*Evidence of presence found

Appendix 7. Aquatic invertebrates of Toby Inlet and associated wetlands

Aquatic invertebrates found in Toby Inlet during the two surveys by Streamtec (1997) and Tweedley et al. (2018).

Phylum / Order		Family / Species		Streamtec (1997)	Tweedley et al. (2018)
Nematoda			Nematoda sp.	✓	
Mollusca					
	Gastropoda	Ancylidae	Ferrissia petterdi	✓	
			(?) Fluviopupa sp.	✓	
		Planorbiidae	Physastra sp.	✓	
		Tateidae	Potamopyrgus sp.		✓
	Veneroida	Galeommatidae	Arthritica semen		✓
	Littorinimorpha	Pomatiopsidae	Coxiella striatula		✓
Annelida	Oligochaeta		Oligochaeta spp.	✓	
	Cnidaria			✓	
	Hydrozoa	Hydridae	Hydra sp.	✓	
	Arachnida			✓	
	Acarina		Hydracarina sp.	✓	
	Phyllodocida	Nereididae	Simplisetia aequisetis		✓
	Spionida	Spionidae	Pseudopolydora kempi		✓
	Polychaeta	Capitellidae	Capitella captitata		✓
	Polychaeta	Orbiniidae	Scoloplos normalis		✓
	Canalipalpata	Serpulidae	Ficopomatus enigmaticus		✓
Crustacea					
	Cladocera		Cladocera sp.	✓	
		Daphiidae	Daphinia sp.	✓	
	Ostracoda	Ilyocypridae	Ilyodromas sp.	✓	
			Ostracoda sp.	✓	
	Copepoda	Cyclopoida	Cyclopidae sp.	✓	
		Harpacticoida	Harpacticodae sp.	✓	

	Amphipoda	Gammaridae	Perthia sp.	✓	✓
			Amphipod sp.	✓	
		Aoridae	Grandidierella propodentata		✓
		Melitidae	Barnardomelita matilda		✓
	Decapoda	Palaemonidae	Palaemonetes australis	✓	
		Parastacidae	Cherax quinquecarinatus	✓	
	Isopoda	Armadillidae	Oniscidea sp.		✓
	Malacostraca	Chiltoniidae	Austrochiltonia subtenuis		✓
Crustacea	Mysida	Mysidae	Mysida sp. 1		✓
Insecta					
	Ephemeroptera	Leptophlebiidae	Bilbumena	✓	
		Baetidae	Baetis soror	✓	
		Caenidae	Tasmanocoenis tillyardi (Lestage)	✓	
	Odonata Zygoptera	Coenagriidae	Ischnura aurona	✓	
	Odonata Zygoptera	Coenagriidae	Odonata sp. 1		✓
	Odonata Zygoptera	Coenagriidae	Odonata spp.		✓
	Odonata	Aeshnidae	Austrolestes annulosus		✓
	Anisoptera	Corduliidae	Hemicordulia tau Selys	✓	
	Diptera	Simuliidae	Austrosimulium sp.	✓	
			Simulium ornatipes (Skuse)	✓	
		Ceratopogonidae	Ceratopogonidae sp. F	✓	
		Chironomidae		✓	
			Chironomidae sp. 1		✓
			Chironominae sp. 2		✓
			Chironominae spp.		✓
			Chironominae occidentalis		✓

			Chironominae alternans		✓
			Procladius sp.		✓
		Tipulidae	Tipulidae sp. A	✓	
			Tipulidae sp. B	✓	
			Tipulidae sp. X	✓	
			Unidentified spp.	✓	
		Empidadae	Empididae sp. B	✓	
			Unidentified spp.	✓	
		Culicidae	Culicidae sp. B	✓	✓
			Unidentified sp.	✓	
		Muscidae spp.	Unidentified sp.	✓	
		Stratiomyidae spp.	Unidentified sp.	✓	
		Syrphidae sp.		✓	
		Ephydridae	Ephydridae sp. X	✓	
	Lepidoptera		Lepidoptera sp. X	✓	
			Unidentified sp.	✓	
	Trichoptera	Ecnomidae	Ecnomus pansus/turgidus complex	✓	
			Oecetis sp.	✓	
			Notalina fulva	✓	
Insecta			Triplectides australis	✓	
			Oxyethira retracta	✓	
			Hellethira sp. C	✓	
		Leptoceridae	Notalina spira		✓
	Odonata	Aeshinidae	Aeshinidae sp.		✓
	Hemiptera	Notonectidae	Paranisops sp.	✓	
	Coleoptera		Carabidae sp.	✓	
		Dytiscidae	? Rhantus sp.	✓	
			Necterosoma sp. B	✓	
			Liodesus sp.	✓	
			? Megaporus sp.	✓	
			Platynectes decempunctatus	✓	

			Homeodyetes scutelaris	✓	
			Dytiscid sp. X	✓	
		Hydrophilidae	Hydrophilidae sp. A	✓	
			Hydrophilidae sp. X	✓	
			Hydrophilidae spp.	✓	
			Berosus approximans	✓	
			Berosus sp.	✓	
			Haliplidae sp.	✓	
		Lestidae	Austrolestes annulosus		✓

Appendix 8. Fish survey results 2017-2018

Fish species captured in nearshore and offshore waters of Toby Inlet before (November 2017) and after (March 2018) opening of the sand bar (Tweedley et al. 2018).

Species name	Common name	Estuarine use group*	November 2017	May 2018
Nearshore waters				
Leptatherina wallacei	Western Hardyhead	EF	✓	✓
Atherinosoma elongata	Elongate Hardyhead	E	✓	✓
Pseudogobius olorum	Bluespot Goby	EF	✓	✓
Gambusia holbrooki	Eastern Gambusia	FEO	2.36 ✓	✓
Gambusia holbrooki	Eastern Gambusia	EF	3.24 ✓	✓
Favonigobius lateralis	Southern Longfin Goby	EM	3.10 ✓	✓
Leptatherina presbyteroides	Silver Fish	EM		✓
Amniataba caudavittata	Yellowtail Grunter	E	✓	✓
Pelates octolineatus	Western Striped Grunter	MEO		✓
Mugil cephalus	Sea Mullet	MEO	✓	✓
Rhabdosargus sarba	Tarwhine	MEO	✓	✓
Galaxias occidentalis	Western Galaxias	FEO	✓	
Craterocephalus mugiloides	Spotted Hardyhead			✓
Sillago burrus	Western Trumpeter			✓
Pseudorhombus jenynsii	Smalltooth Flounder			✓
Atherinomorus vaigiensis	Common Hardyhead			✓
Acanthopagrus butcheri	Black Bream		✓	
Offshore waters		**EUFG**		
Mugil cephalus	Sea Mullet	MEO	✓	✓
Amniataba caudavittata	Yellowtail Grunter	E	✓	✓
Acanthopagrus butcheri	Black Bream	E	✓	✓
Aldrichetta forsteri	Yelloweye Mullet	MEO	✓	✓
Pelates octolineatus	Western Striped Grunter	MEO		✓
Rhabdosargus sarba	Tarwhine	MEO		✓
Arripis georgianus	Australian Herring	MEO		✓
Sillago schomburgkii	Yellowfin Whiting	MEO		✓
Pomatomus saltatrix	Tailor	MEO		✓
Gerres subfasciatus	Common Silverbiddy	MEO		✓
Sphyraena novaehollandiae	Snook	MS		✓
Pseudorhombus jenynsii	Smalltooth Flounder	MEO		✓
Nearshore waters				
Leptatherina wallacei		EF	✓	✓
Atherinosoma elongata		E	✓	✓
Pseudogobius olorum		EF	✓	✓
Gambusia holbrooki		FEO	✓	✓
Afurcagobius suppositus		EF	✓	✓
Favonigobius lateralis		EM	✓	✓
Leptatherina presbyteroides		EM		✓
Amniataba caudavittata		E	✓	✓
Pelates octolineatus		MEO		✓
Mugil cephalus		MEO	✓	✓

Rhabdosargus sarba		MEO	✓	✓
Galaxias occidentalis		FEO	✓	
Craterocephalus mugiloides				✓
Sillago burrus				✓
Pseudorhombus jenynsii				✓
Atherinomorus vaigiensis				✓
Acanthopagrus butcheri			✓	
Offshore waters		**EUFG**		
Mugil cephalus		MEO	✓	✓
Amniataba caudavittata		E	✓	✓
Acanthopagrus butcheri		E	✓	✓
Aldrichetta forsteri		MEO	✓	✓
Pelates octolineatus		MEO		✓
Rhabdosargus sarba		MEO		✓
Arripis georgianus		MEO		✓
Sillago schomburgkii		MEO		✓
Pomatomus saltatrix		MEO		✓
Gerres subfasciatus		MEO		✓
Sphyraena novaehollandiae		MS		✓
Pseudorhombus jenynsii		MEO		✓

* Estuarine usage functional groups: E, solely estuarine; MEO, marine estuarine-opportunist; MS, marine straggler; FEO, freshwater estuarine-opportunist; EF, estuarine & freshwater; E, solely estuarine; EM, estuarine & marine; MEO, marine estuarine-opportunist)

Appendix 9. Access Management Plan for Toby Inlet

Access Management Plan

Toby Inlet, Quindalup

JUNE 2018





Photo: Toby Inlet

Version control

Project number:	SW175			
Project file path:	SW175 Toby Inlet access planning			
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Statement of limitations

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Executive Summary

The City of Busselton ('the City') is preparing a Water Management Plan for Toby Inlet and required a conceptual plan for improving access and recreation facilities around Toby Inlet. The vision for the management plan is *"A healthy waterway and fringing vegetation that is actively managed, protected, valued and enjoyed by the community"*. One of the key management strategies is to improve access and facilities for community enjoyment that incorporate appropriate rehabilitation measures such as weed control, revegetation and erosion control.

This Access Management Plan has been prepared in consideration of the above and to meet the required scope of work. The study area includes the areas of Toby Inlet from the south western corner of the Palmers Estate downstream to the foot bridge crossing on Caves Road just east of the residential area of Quindalup. There was a preference to focus on the northern side of Toby Inlet.

This Access Management Plan for Toby Inlet categorised the Toby Inlet reserve into four access management precincts:

- **Vegetated areas (no tracks):** Areas of intact remnant native vegetation where there are no access tracks or only small foot tracks through vegetation. They often extend from the private property areas all the way to the foreshore vegetation or high water mark. Native vegetation has a high biodiversity conservation value and tracks should be generally avoided in these areas. Without clearing, these areas do not require any further attention.
- **Vegetated areas (existing tracks):** Areas consisting of intact remnant native vegetation with existing tracks. Tracks often link up sections of other precincts, such as street parking to foreshore parklands, or have been constructed as fire breaks. With the exception of the Geographe Bay foreshore path and footbridge east of Geographe Bay Road, most of these tracks are in need of maintenance or could be improved with either a 1.2m red hot mix seal in high traffic areas or at flood risk (e.g. foreshore areas) or compacted limestone along the firebreaks.
- **Parkland cleared (existing constructed tracks or maintained grassy areas):** Extensive sections of foreshore that have been cleared and are subject to ongoing maintenance (e.g. mowing). They are typically located in high use areas and would be ideal public parks. The construction of formal pathways following the contour of the inlet edge would encourage public use of these areas, are in close enough proximity to parking to be ideal locations for recreational infrastructure such as tables, barbeques, an outdoor class room or other passive recreation features. Additional parking may be required at these locations and should be considered in line with any infrastructure improvements. These existing high use areas are also typically the areas that are most degraded along the inlet banks. The loss of riparian vegetation has had numerous negative effects on the overall health of the inlet.
- **Private property access only:** Extended areas of foreshore reserve that are only able to be accessed by the adjacent private landowners. As these areas were not able to be accessed they were not surveyed in detail, nor is a pathway likely to be suitable.

Each precinct has unique opportunities to improve access and associated infrastructure (recreation facilities) around Toby Inlet. Site specific recommendations have been made in Appendix A including existing access, and recommended weed control, revegetation and erosion control. Additional opportunities including canoe access points, a boardwalk and clearing for new tracks was also discussed and could further enhance the existing Toby Inlet reserve.

A continuous pathway along the inlet could be achieved between Mc Dermott Street and Campion Way (approximately two kilometres) with the recommendations made in this report. Apart from the far western section around Palmers, Wilson Avenue and some isolated locations (e.g. Bloor Street) the other areas are inaccessible due to private property and/or vegetation.

1 Introduction

1.1 Background

The City of Busselton ('the City') is preparing a Water Management Plan for Toby Inlet and required a conceptual plan for improving access and recreation facilities around Toby Inlet.

The vision for the management plan is "*A healthy waterway and fringing vegetation that is actively managed, protected, valued and enjoyed by the community*".

One of the key management strategies is to improve access and facilities for community enjoyment that incorporate appropriate rehabilitation measures such as weed control, revegetation and erosion control.

Public consultation has shown very clearly that management should focus on encouraging passive recreation, and on improvements to existing access rather than increasing accessibility. There is also a perception that access pathways should act as barriers for protection of foreshore vegetation. The draft management actions for the management plan in relation to this are to develop and assess options for low-key access and recreation facilities in the area, such as:

- Install BBQ and seating at McBride Park or Wilson Avenue.
- Formalise carpark and access ways to horse beach, and improve signage.
- Provide some bird information and seating in appropriate, quiet areas.
- Investigate need for and location of bird hide.
- Enhance habitat for birds in connection with bird watching sites.
- Provide appropriate canoe-launching access at Mc Quade Park and address existing erosion.
- Improve existing walkways, and use these as reserve boundaries to protect fringing vegetation.
- Manage firebreak as bike access way.
- Determine requirements of additional parking in support of improved facilities.

This Conceptual Access Plan or 'Access Management Plan' has been prepared in consideration of the above and to meet the scope of work outlined below.

1.2 Scope of works

The study area includes the areas of Toby Inlet from the south western corner of the Palmers Estate downstream to the foot bridge crossing on Caves Road just east of the residential area of Quindalup. There was a preference to focus on the northern side of Toby Inlet. The study area is shown in Figure 1-1.

The scope of the consultation is to:

1. Review of 2017 vegetation survey as it relates to weed mapping and vegetation condition within the project area.
2. On-site meeting with City officer to discuss project.
3. Site survey to ground-truth existing pathways and access.
4. Recommendations for improvements to:
    - access pathways,

- canoe-launching area/s (provide ideas and examples for this),
- bird watching places,
- resting and observing areas.

5. Identify any requirements for weed control, erosion control and revegetation associated with these improvements. Note these will be generally high level, as in recommending areas that require these actions, rather than identifying site specific, prescriptive actions on how to undertake the actions.
6. Digitising of existing access, pathways, facilities, and recommendations.
7. Preparation of maps that clearly show existing features and recommendations.
8. A brief report that:
   - describes existing access/facilities,
   - outlines the recommendations and rationale,
   - links recommendations to maps.

Mapping layers will be provided as PDF in the report and as ESRI shapefiles.



Figure 1-1 Toby Inlet study area

2 Methods

This Access Management Plan was prepared based on desktop review and ground truthing.

2.1.1 Desktop review

Recent high resolution aerial photography (provided by the City of Busselton, 2018) was reviewed over the study area and potential tracks and lineal areas of vegetation disturbance digitised for follow up ground truthing. As many areas across the study area back onto private property with limited public access, this was useful to determine general land use and existing access opportunities.

A flora and vegetation report (Ecoedge 2017)[1] was also commissioned by the City for the broader study area. The flora and vegetation report results (vegetation types, condition and weeds and recommended revegetation locations) were reviewed, summarised in Section 3.2, and considered in the preparation of this Access Management Plan.

2.1.2 Ground truthing

The mapped areas were ground truthed by walking over the site on foot and investigating some inaccessible areas by drone (DJI Mavic Pro). A site meeting was carried out with Robyn Paice (Senior Environment Officer, the City) on 4th May and follow up fieldwork was carried out over two days by SW Environmental on 11th and 12th June 2018.

2.1.3 Limitations

Some areas were unable to be accessed due to a combination of the high water level at the time of the survey, heavy vegetation or tenure issues (private land uses or property restricting access). The high water level was due to the inlet not being open and an accumulation of water following seasonal rains. Some seasonally accessible low laying tracks may have been missed in this report. Whilst high water levels restricted access, it also provided insight as to where any access tracks and other recreational infrastructure may not be suitable or would be under water if constructed.

Heavy vegetation was not considered to be a constraint in terms of access. The management actions outlined a clear preference *to improvements to existing access rather than increasing accessibility* and *protection of foreshore vegetation*. These areas were therefore not considered further for access.

Private property backs onto the Toby Inlet along extended sections, with fencing, clearing and retained remnant native vegetation extending right to the Inlet itself (often within the reserve). For the most part, other than direct access from an adjacent house, there are no existing pathways along these sections nor would future proposed paths likely to have the support of the adjacent landowner.

The underwater, vegetated and restricted access locations throughout the study area are generally not considered appropriate for pathways in line with the management plan actions and scope of work.

[1] Ecoedge (2017) Report of a Flora and Vegetation survey at Toby Inlet. Unpublished report to the City of Busselton.

3 Results

3.1 Existing environment and tenure

The 47 ha study area is located along the Toby Inlet, a 118 ha low energy coastal lagoon that meanders from the eastern edge of the Dunsborough Township east to the mouth at Geographe Bay. It is formed from the flooding and drainage of low laying sumplands south of Caves Road. The study area comprises a combination of Crown Land and reserves vested in or managed by the City.

The residential locality of Quindalup is located between Toby Inlet and the Geographe Bay foreshore. It is long and narrow in extent, well less than 100m wide at some locations, with many of the residential properties backing directly onto the reserves associated with the inlet. Historic pressures from with local development and secondary uses relating to the recreational opportunities offered by the inlet (access, water sports, fishing, picnics, water craft launching etc) have created additional pressures on the inlet, such as impacts to foreshore riparian vegetation and bank stability. A general background on Toby Inlet and land uses will be addressed in more detail in the Water Management Plan.

3.2 Vegetation (including weeds)

Ecoedge (2017) carried out a flora and vegetation report which is useful in identifying

- areas of intact vegetation or areas of conservation significance that should be avoided in terms of access,
- areas that are already cleared or degraded,
- areas of weeds that will require management.

A summary of the flora and vegetation report (Ecoedge 2017) is provided below. One hundred and four vascular plant taxa were recorded for the survey area, almost 50% were naturalised, planted, or non-locally native species. The high proportion of non-native species reflects the long disturbance history of much of the vegetation, the degree of urbanisation, and the narrow width of much of the inlet foreshore reserves.

Of the non-native species, 14 were considered potential or actual environmentally significant weeds. Two groups of weeds ("mixed agricultural weeds" and "mixed garden escapees") were recorded; those that have probably been present in the native vegetation for 100 years or more (e.g. Bridal Creeper, Blue periwinkle, Arum Lily, Onion Weed and Hare's Tail Grass) and are more or less naturalised, and those that are more recent garden escapees such as *Dimorphotheca ecklonis* (Cape Daisy) and *D. juncundum* (African Daisy) an *Lilium* spp. which are seen invading the surrounding bushland from gardens established on Crown land adjacent to the inlet. Weeds are shown in Appendix A where they should be considered in context of access management.

No State or federal listed threatened flora, Priority flora or other flora of conservation significance were found. Several Environmentally Sensitive Areas (ESAs) have been designated within the survey area associated with the Toby Inlet, which is classified as a Conservation Category wetland.

Nine native vegetation units were recognised, six of them part of the Vasse Complex (Wetland and Estuarine Fringe Vegetation units) and three of them in the Quindalup Complex (Beach and Dune Vegetation units). Four other non-native or planted vegetation units were also mapped (**Ammophila arenaria – Spinifex hirsutus* grassland, Plantation (Amenity plantings), Heavily Disturbed Area (includes lawn areas with scattered *A. flexuosa* or *Melaleuca* spp.), and Water (Toby Inlet)).

About 35.5 ha of Quindalup Complex vegetation was mapped in the survey area, most of it in Very Good or Excellent condition. Two of these vegetation units fit the diagnostic criteria of the Federally-listed Threatened ecological community "Subtropical and Temperate Coastal Saltmarsh", which is also listed as a Priority 3 ecological community at the State level. In particular, *Salicornia quinqueflora* low shrubland and *Juncus kraussii-Ficinia nodosa* closed sedgeland fit within the Coastal Saltmarsh TEC criteria. There was 5.7 ha of Coastal Saltmarsh TEC (comprised of the above two vegetation units) in the survey area, most of it in Good or Very Good condition.

Just over 40% of the remnant vegetation within the survey area was classified as "Very Good" or "Excellent" condition. These areas were mainly in the eastern part of the survey area on Crown reserves (A class reserve No. 46 and Sussex lots 4748 and 4857). Almost all of the remnant native vegetation on privately owned land south of Caves Road was classed as "Degraded".

A regional ecological linkage runs through the survey area for much of its length (Molloy et al 2009)[2]. As a result of the location of this linkage, survey area vegetation has been assigned proximity rating values of 1a, 1b and 1c, which are the three highest ratings.

Ecoedge (2017) identified areas that would benefit from revegetation, associated with where the Toby Inlet crosses Caves Road. These are shown in Appendix A. They are broad scale (only areas over 1500 m^2 are mapped) and best adopted separately to this Access Management Plan. Finer scale recommendations are addressed further in this document (Sections 3.3, 3.4 and Appendix A).

In addition to the conservation values highlighted by Ecoedge (2017) several threatened fauna may also utilise the site for habitat and as an important connection along the inlet foreshore, including the Critically Endangered Western Ringtail Possum (WRP).

3.3 Existing access, infrastructure and opportunities

Throughout the Toby Inlet reserve, existing access types are generally reflective of current foreshore usage patterns and demand. Built up areas typically have more frequent visitors, a higher need for formalised access and require management intervention the most. Long term trends of population increase are likely to result in higher foreshore usage and access requirements. This has been considered in relation to opportunities in this Plan.

3.3.1 Existing access and opportunities

There are numerous existing pathways from formal vehicular tracks and firebreaks, concrete paths, cleared and maintained parkland areas to informal access through native vegetation. Considering access types the study area can generally be broken up into several management precincts:

- Vegetated areas (no tracks),
- Vegetated areas (existing tracks),
- Parkland cleared (existing constructed tracks or maintained grassy areas),
- Private property access only.

These are mapped in Figure 3-1 (detailed in Appendix A) and are described below. Additional location specific recommendations, such as track closures and revegetation opportunities are also made in the Appendix.

[2] Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. (2009) *South West Regional Ecological Linkages Technical Report*, Western Australian Local Government Association and Department of Environment and Conservation, Perth.

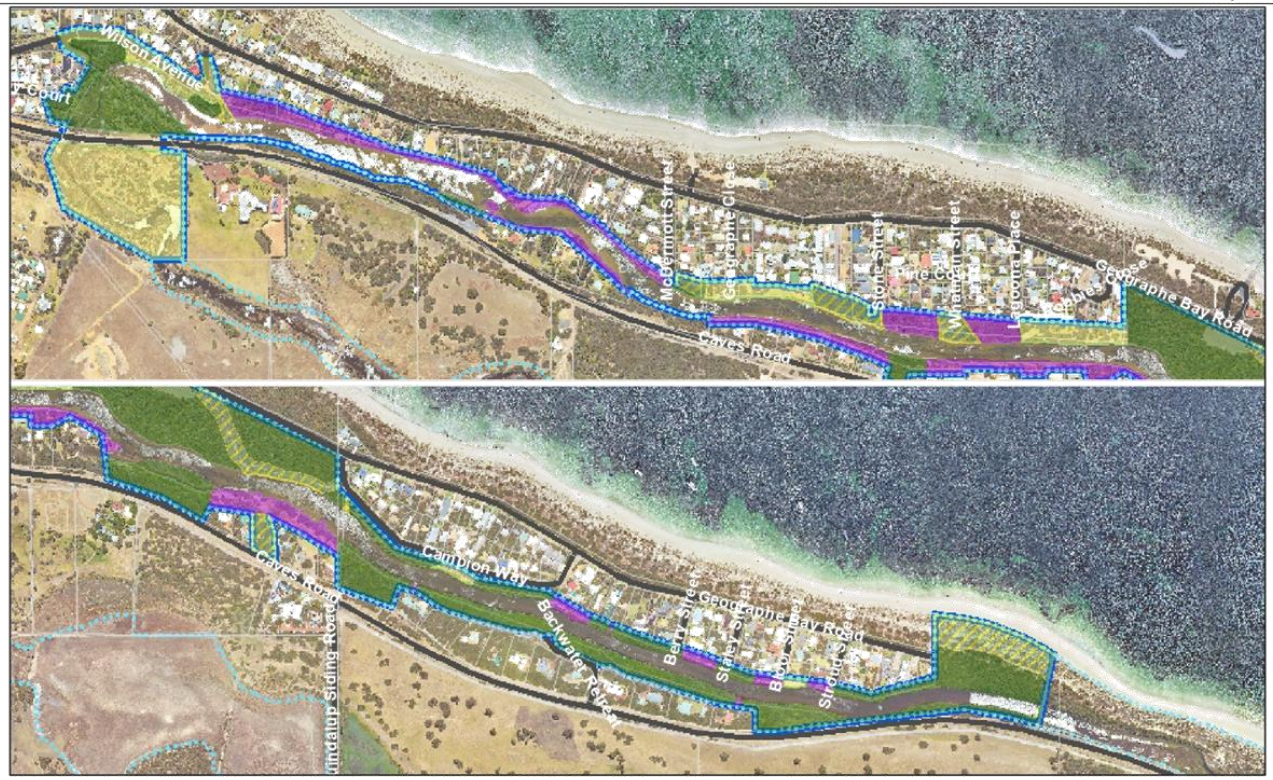


Figure 3-1 Toby Inlet access management precincts

Vegetated areas (no tracks)

These areas consist of intact remnant native vegetation where there are no access tracks or only small illegal foot tracks through vegetation. They often extend from the private property areas all the way to the foreshore vegetation or high water mark. Native vegetation has a high biodiversity conservation value and tracks should be generally avoided in these areas. For the most part these areas do not require any further attention other than small illegal foot tracks.

Vegetated areas (existing tracks)

These areas consist of intact remnant native vegetation with existing tracks. Tracks often link up sections of other precincts, such as street parking to foreshore parklands, or have been constructed as fire breaks. Typical examples include

- the 1.2m sealed access to the foreshore from Geographe Close and Stone Street (Maps 5 and 6),
- the 3m wide emergency access to the foreshore from Lagoona Place (Map 6),
- the degraded 1m sealed access to the foreshore from Robbies Close (Map 7),
- the fire trail linking the foreshore to Geographe Bay Road east of Robbies Close (Map 7),
- the unsealed 3m wide firebreak from the Dunsborough Boat Club overflow carpark to Campion Way (Map 7 and 8),
- the existing Geographe Bay foreshore walk and footbridge east of Geographe Bay Road (Map 12).

With the exception of the Geographe Bay foreshore walk and footbridge east of Geographe Bay Road, most of these tracks are in need of maintenance or could be improved with either a 1.2m (or City standard) red hot mix seal in the high traffic areas or those at risk of flooding (e.g. foreshore areas), or compacted limestone along the firebreaks. Formalising tracks would encourage use and contain potential impacts that might otherwise occur (e.g. minimise trampling along the edges). Some existing areas need to be repaired (e.g. existing concrete path south of Geographe Close, shown in Figure 3-2). Location specific management recommendations are provided in Appendix A.



Figure 3-2 Existing path south of Geographe Close needing repair.



Figure 3-3 Existing path near Stone Street requiring maintenance.



Figure 3-4 Emergency access off Lagoona Place that could be improved with new hot mix.



Figure 3-5 Firebreak from the Boat Club overflow carpark to Campion Way that could be formalised with compacted limestone.

Parkland cleared (existing constructed tracks or maintained grassy areas)

These include extensive sections of foreshore that have been cleared and are subject to ongoing maintenance (e.g. mowing). They are typically located in high use areas and would be ideal public parks. Examples include

- the parkland at Wilson Avenue (currently no pathway),
- Campion Way (Mc Quade Park) (currently no pathway),
- the area west of Palmers Estate (low use) (grass pathways / firebreaks),
- the resort areas off Lagoon Place and south of Robbies Close (existing 1.2m pathway), and
- the grassy area at Bloor Street (currently no pathway).

The construction of formal pathways following the contour of the inlet edge would encourage public use of these areas, are in close enough proximity to parking to be ideal locations for recreational infrastructure such as tables, barbeques, an outdoor class room or other passive recreation features. Pathways can also provide boundaries for protection of foreshore vegetation. Additional parking may be required at these locations and should be considered in line with any infrastructure improvements.

These existing high use areas are also typically the areas that are most degraded along the inlet banks. The loss of riparian vegetation has had numerous negative effects on the overall health of the inlet, including but not limited to

- Loss of bio filter mechanism (plants) for sediments and pollutants entering the inlet from upslope,
- Increased erosion (the areas with no vegetation stabilising the bank are those with the most erosion issues),
- Loss of habitat connectivity (particularly important for fauna such as WRP).

The areas between the existing / proposed tracks should be revegetated, with occasional trees but low sedges such as coastal sword-sedge (*Lepidosperma gladiatum*) or local provenance wetland species. It may be important to maintain a balance between the existing visual amenity of the inlet as an asset, given that some areas have already been cleared.



Figure 3-6 Caves Road, Palmers Estate to the left and the section of Toby Inlet outlined within the study area in the mid ground. Note although flooded in this picture there are extensive mowed grassy walkways that could be formalised with crushed limestone.



Figure 3-7 Maintained parkland at Wilson Avenue where a defined pathway would define the reserve boundary and protect fringing vegetation.



Figure 3-8 Example of erosion at Mc Quade Park (Campion Way) due to loss of stabilising foreshore vegetation.



Figure 3-9 Example of erosion at Mc Quade Park (Campion Way) due to loss of stabilising foreshore vegetation.



Figure 3-10 Cleared area off Bloor Street.



Figure 3-11 Cleared area off Bloor Street showing clearing from adjacent landowner and fencing to the water edge.

Private property access only

There are extended areas of foreshore reserve that are only able to be accessed by the private landowners that back onto it. This is either due to

- Inappropriate management by adjacent landowners (e.g. Figure 4-10 above) where through fencing or personal use of the reserve, public access is difficult or discouraged,
- Restricted access due to terrain, narrow foreshore reserve, or sections of intact vegetation or other obstacles (such as high water level).

As these areas were not able to be accessed they were not surveyed in detail, nor is a pathway likely to be suitable.

These areas will be a challenge to the City in terms of ensuring appropriate foreshore management and will likely be addressed in the broader Water Management Plan. There are several sections that could be used by the public where a landowner(s) could be contacted, but in isolation and without connectivity to other pathways, they are limited in what they can offer in this Plan.



Figure 3-12 Example of restricted access and private property adjacent to the reserve.

3.3.1 Additional existing infrastructure and opportunities

Existing

Additional existing recreational infrastructure noted during fieldwork included passive infrastructure elements that may improve the recreational experience associated with the access, or that may encourage access by enriching the foreshore environment.

Existing additional infrastructure is very limited along the foreshore, to the point of being neglected. This is probably due to low use historically coupled with low demand for new infrastructure. Existing infrastructure observed in relation to the foreshore access, included (refer to Appendix A for waypoint locations):

- Bird hide (WP 1)[3] (Map 1)
- Foot bridge (WP 2)[3] (Map 1)
- Bench seat (WP 3) (Map 3)
- Seat (WP 4) (Map 6)
- Water taps (WP 5, 6, 7) (Map 9)
- Derelict table (WP 8) (Map 9)
- Bench seat (WP 9) (Map 9)

These are shown in the photos below. There are a number of pontoons and other informal structure private property structures that may require inspection and assessment by the City as to whether they should be removed due to a public liability risk (risk delegation signage might be more appropriate than removal).

[3] Note these are outside or on the edge of the study area or within other insecure tenure.



Figure 3-13 Bird hide (WP 1)



Figure 3-14 Foot bridge (WP 2)



Figure 3-15 Bench seat (WP 3)



Figure 3-16 Seat (WP 4)



Figure 3-17 Bench seat (WP 9)



Figure 3-18 Derelict table (WP 8)

Opportunities

There are opportunities for the development of new low key infrastructure to enhance the foreshore and encourage public access. Examples include (see Appendix A):

- Wilson Avenue: Barbeque or picnic table within the parkland at Wilson Avenue.

- WP 10: Bird hide (easy access, good cover and existing bird attracting snags within the inlet. Drawback would be possible low water level during summer months).
- WP 11: Bench seat or bird hide (easy access, good cover and though a lack of existing snags within the inlet and possible low water level during summer months).
- Resort area between Geographe Close and Stone Street Bench: add bench seat.
- End of Stone Street (WP 12): Add compacted ramp for canoe access or fishing, otherwise close off and revegetate.
- Parkland area off Lagoona Place (WP 13): Add seat / table in the park areas, and consider fishing platform (stabilised bank) along a small section of degraded bank.
- Track off Campion Way (WP 14): Add compacted ramp for canoe access or fishing, otherwise close off and revegetate.
- Mc Quade Park (Campion Way): Barbeque or picnic table within the parkland. Consider fishing platform (stabilised bank) along a small section of degraded bank. Formalise a canoe launching area in the eastern edge of the park (where there is existing scouring of the bank). Remove bollards and add parking bays at the eastern end of the park.

Foreshore access from public roads are typically hard to find and should be clearly sign posted. Access points along the cul de sacs would benefit most from this:

- Mc Dermott Street
- Geographe Close
- Stone Street
- Whatman Street
- Lagoona Place
- Bloor Street

3.4 Other opportunities

Other opportunities for further consideration include canoe access points, a boardwalk around areas of limited access, and clearing for the construction of new tracks.

3.4.1 Canoe access points

Formal canoe (or equivalent such as stand up paddleboard) access points are required at different locations along the Inlet. Canoes appear to be being launched at several locations including Mc Quade Park (within the eroded area at the eastern edge of the park), Stone Street and off Campion Way.

Given the demand for use at these locations it is recommended that all of these locations are formalised. A formal entry point should consider the following:

- Close access to parking,
- Located downstream enough so that water levels are adequate for most of the year,
- Ensure the natural bank is stabilised,
- Ensure construction materials will withstand periodic inundation,
- Include appropriate signage,
- Alternative use as a fishing platform.



Figure 3-19 Examples of stepped retaining walls that could be enlarged for canoe access, or as a fishing platforms in degraded areas.



Figure 3-20 Example of graded access to the water mark. Note that retaining walls would still be required at the bank cutting. Source: https://www.lcfpd.org/launches/

3.4.2 Boardwalk

The construction of timber boardwalks, whilst generally out of the scope of this consultation, should be considered in areas where there is

- Dense vegetation or private property along the foreshore limiting foreshore access,
- High scenic quality,
- Tracks would contribute to connecting other access areas and improve the overall value of the foreshore,
- Could be also used as a fishing platform.

These are low key features, relatively cheap to build, with low construction impacts if constructed during summer low water level months (with little or no clearing required). They have been adopted with high success by other local governments in high value sensitive coastal lake locations such as Bottom Lake, Merimbula (Bega Valley Shire Council) (see Figure 3-21) and Narooma Foreshore (Eurobodalla Shire Council). A starting point for the installation of a boardwalk might be the 100m and 70m private property sections between Stone Street and Lagoona Place, which would then enable a continuous pathway of about two kilometres long.



Figure 3-21 Boardwalk examples around Bottom Lake, Merimbula

3.4.3 Clearing

The clearing of native vegetation for the purposes of walking tracks is generally exempt from requiring a clearing permit under the walking tracks exemption (*Regulation 5, Item 13* of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*). This exemption however does not apply in Environmentally Sensitive Areas (ESAs) such as the mapped Conservation Category wetland section of Toby Inlet. Clearing that is not exempt requires a clearing permit in accordance with the *Environmental Protection Act 1986*.

Whilst there is a general preference to avoid native vegetation in line with the Toby Inlet draft management actions, low impact clearing could be carried out at specific locations

- To maintain continuity and connectivity of the existing track network, thereby improving the overall value and usage of the asset,
- Control impacts to native vegetation, e.g. provide a formal, controlled access to the foreshore where existing access has been informally achieved. In some cases if there has been informal access then there may be a demand to access the foreshore at that location.

An example would be the construction of a pathway along Campion Way road reserve linking Mc Quade Park to the east to the existing pathway off Campion Way to the Boat Ramp parking lot. Low impact clearing of sword sedge would be required.



Figure 3-22 Clearing required for a pathway along the southern Campion Way roadside (see red line).

4 Conclusions

Toby Inlet reserve was categorised into four access management precincts:

- Vegetated areas (no tracks)
- Vegetated areas (existing tracks)
- Parkland cleared (existing constructed tracks or maintained grassy areas)
- Private property access only

Each type has unique opportunities to improve access and associated infrastructure (recreation facilities) around Toby Inlet. For at least some locations the recommendations associated with these opportunities could be implemented relatively easily to meet the Water Management Plan vision of "*A healthy waterway and fringing vegetation that is actively managed, protected, valued and enjoyed by the community*".

A continuous pathway along the inlet could be achieved between Mc Dermott Street and Campion Way (approximately two kilometres). Apart from the far western section around Palmers, Wilson Avenue and some isolated locations (e.g. Bloor Street) the other areas are inaccessible due to provide property and/or vegetation. Site specific recommendations have been made in the Appendix including existing access, recommended weed control, revegetation and erosion control. Additional opportunities including canoe access points, a boardwalk and clearing for new tracks was also discussed and could further enhance the existing Toby Inlet reserve.

Appendix A Access Management Maps (2018)

13.2 DA22/0754 - EXTENSION TO NON-CONFORMING USE - TOURIST ACCOMMODATION (CARETAKER'S DWELLING AND 9 X ACCOMMODATION UNITS) - RECONSIDERATION AFTER DECISION TO DEFER CONSIDERATION AT 19 APRIL 2023 ORDINARY COUNCIL MEETING

STRATEGIC THEME	OPPORTUNITY - A vibrant City with diverse opportunities and a prosperous economy
STRATEGIC PRIORITY	3.3 Continue to promote the District as the destination of choice for events and unique tourism experiences.
SUBJECT INDEX	Development/Planning Applications
BUSINESS UNIT	Development Services
REPORTING OFFICER	Statutory Planning Coordinator - Andrew Watts
AUTHORISING OFFICER	Director Planning and Development Services - Paul Needham
NATURE OF DECISION	Regulatory: To determine an application/matter that directly affects a person's right and interests e.g. development applications, applications for other permits/licences, and other decisions that may be reviewable by the State Administrative Tribunal
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Location Plan Attachment B Historic Approval documents for 40 Ford Road Attachment C Original Submitted Development Plans Attachment D Revised Submitted Development Plans Attachment E Traffic Impact Statement Attachment F TIS Peer Review Attachment G Schedule of Submissions Attachment H Applicant Cover Letter Attachment I Applicant R-code Checklist Attachment J Revised Plans - following Council deferral decision 19 April 2023

OFFICER RECOMMENDATION

That the Council determines:

A. That application DA22/0754 submitted for development of Extension to Non-Conforming Use – Tourist Accommodation (Caretakers Dwelling and Nine Accommodation Units) on Lot 50 (No. 40) Ford Road, Busselton, is considered by the Council to be generally consistent with Local Planning Scheme No. 21 and the objectives of the zone within which it is located.

B. That Development Approval is granted for the proposal referred to in (A) above subject to the following conditions:

GENERAL CONDITIONS:

1. The development hereby approved shall be substantially commenced within two years of the date of this decision notice.

2. The development hereby approved shall be undertaken in accordance with the signed and stamped, Approved Development Plan(s) (note: these plans are the revised site and floor plans that form Attachment J only).

PRIOR TO COMMENCEMENT OF ANY WORKS CONDITIONS:

3. The development hereby approved, or any works required to implement the development, shall not commence until the following plans or details have been submitted to the City and have been approved in writing:

3.1 Plans that satisfactorily address the following required design changes:

- **Revised elevations, consistent with the approved site and floor plans, and in terms of building style and design generally, consistent with the revised submitted development plans (note: these are the plans that form Attachment D);**
- **Provision of fencing to all adjoining properties to a minimum height of 1.8m;**
- **Redesign of the crossover to physically prevent right-turn movements from the site onto Duke Street;**
- **Privacy screen to a minimum height of 1.5 metres above floor level to the western side of the Residence 2 balcony; and**
- **Increase in car parking bays provided to 32.**

3.2 Details of the finished treatment of all hard surfaced areas to be used for the construction of the parking and maneuvering areas as shown on the Approved Development Plans.

3.3 Details of stormwater and surface water drainage. Stormwater to be retained for use and/or infiltration within the lot at a rate of 1m³ per 40m² of roofed and impervious area.

3.4 Lighting Plan which shall include all awnings, parking areas, footpaths and areas accessible to the public and be consistent with the requirements of Australian Standard *AS 4282—2019*, *Control of the obtrusive effects of outdoor lighting*.

3.5 Details of the proposed bin storage areas including, but not limited to, the design and the materials to be used in their construction.

3.6 Details of the proposed bicycle parking and end of trip facilities, designed in accordance with the Australian Standard for Parking facilities – Bicycle parking (AS2890.3-2015). The details shall include, as a minimum, the location, design and materials to be used in their construction.

3.7 A schedule of the final materials, finishes and colours, which shall be generally consistent with the approved plans. The schedule shall include details of the type of materials proposed to be used, including their colour and texture.

3.8 A final Landscaping Plan (LP). The LP shall include the following:

a. the location, number, size and species of all existing trees to be removed and / or retained;

b. proposed trees and shrubs, including calculations for the landscaping area;

c. any lawns to be established;

d. those areas to be reticulated or irrigated;

e. the location, design and materials of any proposed fencing to be installed;

f. verge treatments, including hard and soft landscaping treatments; and

g. consideration of Designing Out Crime principles.

3.9 Details related to the removal of a maximum of one street tree located within the proposed crossover of Lot 50 within the Duke Street road reserve. The street tree is to be relocated or replaced at the applicant's cost in a suitable location within the verge adjacent to Lot 50 to the satisfaction of the City prior to commencement of development. The remaining street trees shall be maintained and protected to the satisfaction of the City.

3.10 A Tree Protection Plan (TPP) for the trees identified on the approved plans to be retained on the site and adjoining road reserves. The TPP shall include an Arboricultural Report to address measures to be adopted to ensure the ongoing protection of the identified trees. The Tree Protection Plan shall be implemented before any of the substantive development is commenced and shall be retained throughout the development period until such time as all equipment, machinery and surplus materials have been removed from the site. Within the areas so fenced, nothing shall be stored or placed, and the ground levels shall not be altered.

3.11 A Construction Management Plan. The Construction Management Plan should address the following issues, where applicable:

a) public safety and amenity;

b) site plan and security;

c) contact details of essential site personnel, construction period and operating hours;

d) community information, consultation and complaints management Plan;

e) temporary realignment of pedestrian access ways (including crossing points and lighting);

f) noise, vibration, air and dust management;

g) dilapidation reports of nearby properties;

h) traffic, access and parking management;

i) waste management and materials re-use;

j) sanitary facilities;

k) earthworks, excavation, land retention/piling methods and associated matters;

l) stormwater and sediment control;

m) street tree management and protection;

n) management of asbestos removal;

o) any other matter deemed relevant by the City.

p) Construction works shall take place in accordance with the approved details at all times.

3.12 A Tourist Accommodation management plan addressing the management arrangements for the operation of the development, including –

a) Signage at entrance of property with onsite managers contact details, inclusive of after-hours and weekend contact details;

b) Control of noise and antisocial behaviour, including a displayed Code of Conduct within each unit;

c) Complaints Management;

d) Property Management & Record Keeping; and

e) Vehicle management including use of allocated bays, all guest and visitor parking is to be contained within the site, right turn off Duke Street when entering the site and left turn onto Duke Street when leaving the site, and use of low beam headlights within and when leaving the site.

3.13 A Waste Management Plan. The plan shall include specifications of the methods, facilities and management measures to be put in place for the storage, collection and disposal/collection of waste and rubbish generated by the development, and that collection shall only be from the Ford Road frontage of the site.

3.14 Satisfactory arrangements shall be made with the City to provide public art works within the development. This entails compliance with the Percent for Art provisions of the City's *Development Contribution Policy* via appropriate works up to a minimum value of 1% of the Estimated Cost of Development ("ECD"). Where the value of on- site works is less than 1% of the ECD, a payment sufficient to bring the total contribution to 1% of the ECD is required.

4 The development hereby approved, or any works required to implement the development, shall not commence until the following contributions have been paid to the City:

4.1 A contribution of $5,336.23 towards Road Network Upgrading in the Geographe precinct.

4.2 A contribution of $8,757 towards community facilities in the Geographe precinct.

PRIOR TO OCCUPATION/USE OF THE DEVELOPMENT CONDITIONS:

5. The development hereby approved shall not be occupied, or used, until all plans, details or works required by Condition(s) 2 and 3 have been implemented; and/or the following conditions have been complied with:

5.1 Crossovers located and constructed to the City's specifications.

5.2 The redundant vehicle crossover is to be removed, the verge reinstated with grass or landscaping and footpath reinstated to the specifications of the City. Crossovers located and constructed to the City's specifications.

5.3 All pedestrian accessway(s) being constructed and drained at the developer's cost.

5.4 All vehicle parking, access ways, footpaths and external lighting shall be constructed to a minimum standard in accordance with the Australian Standard for Parking Facilities - Off-Street Car Parking (AS 2890.1) and shall be developed in the form and layout depicted on the approved plans to the satisfaction of the City.

5.5 Accessible car parking and access shall be provided and designed in accordance with the Australian Standard for Parking Facilities - Off-Street Car Parking for people with disabilities (AS 2890.6).

5.6 Landscaping and reticulation shall be implemented in accordance with the approved Landscape Plan and shall thereafter be maintained to the satisfaction of the City. Unless otherwise first agreed in writing, any trees or plants which, within a period of five years from first planting, are removed, die or, are assessed by the City as being seriously damaged, shall be replaced within the next available planting season with others of the same species, size and number as originally approved.

ON-GOING CONDITIONS:

6. The works undertaken to satisfy Condition(s) 2, 3, 4 and 5 shall be subsequently maintained for the life of the development and the following conditions shall be complied with:

6.1 The use hereby approved shall at all times comply with the definition of Tourist Accommodation as provided in Schedule 1 of the City of Busselton *Local Planning Scheme No. 21*, as follows:

"Tourist Accommodation" means single occupancy accommodation units, which may be self-contained and may include associated central facilities for the exclusive use of guests, and includes serviced apartments."

6.2 The maximum number of guests occupying the Tourist Accommodation hereby approved shall be 72 guests at any one time.

6.3 The Tourist Accommodation hereby approved is to be made available for temporary accommodation purposes only and shall not be occupied by any one person or family or group of persons (two persons or more) for a period exceeding 3 months (consecutively or cumulatively) within any 12 month period.

6.4 External fixtures, including but not restricted to air-conditioning units, satellite dishes and non-standard television aerials, but excluding solar collectors, are to be integrated into the design of the building, located and/or screened such that they are not visible from the primary street, secondary street and to protect the visual amenity of neighbouring properties.

6.5 Landscaping and reticulation shall be maintained in accordance with the approved Landscaping Plan to the satisfaction of the City. Unless otherwise first agreed in writing, any trees or plants which, within a period of five years from first planting, are removed, die or, are assessed by the City as being seriously damaged, shall be replaced within the next available planting season with others of the same species, size and number as originally approved.

6.6 Vehicular entry gates shall be a minimum 50% visually permeable and not obstruct vehicle sight lines or manoeuvring.

ADDENDUM

Background

The application subject of this report was considered by the Council at its 19 April 2023 meeting, wherein the Council resolved as follows –

That the Council determines:

a) That consideration of application DA22/0754 submitted for development of Extension to Non-Conforming Use – Tourist Accommodation (Caretakers Dwelling and Nine Accommodation Units) on Lot 50 (No. 40) Ford Road, Busselton, be deferred pending the applicant's consideration of design changes and conditions as set out below.

b) Amended plans providing for the provision of embayed parking bays on Ford Rd to accommodate Charter Buses and Taxis (i.e. drop off/pick up zone).

c) Amended plans providing for the provision of rubbish bin collection from Ford Rd rather than Duke St.

d) Amended plans providing for a left-hand turn only on Duke Street, directing traffic to Ford Road.

e) Amended plans providing for reduction of built form and scale in line with what would be permissible if there was NO non-conforming use right i.e. Holiday Homes in the form of 9 grouped dwellings providing for a maximum of 54 occupants and capped at 6 occupants per dwelling.

f) The Tourist Accommodation Management Plan addressing, in addition to matters identified in the Officer Recommendation, the management of overflow parking and -

1) Signage at entrance of property with onsite managers contact details, inclusive of after-hours and weekend contact details;

2) Control of noise and antisocial behaviour, including a displayed Code of Conduct within each unit;

3) Complaints Management;

4) Property Management & Record Keeping; and

5) Vehicle management including use of allocated bays, all guest and visitor parking is to be contained within the site, right turn off Duke Street when entering the site and left turn onto Duke Street when leaving the site, and use of low beam headlights within and when leaving the site.

The content of this report, other than the Officer Recommendation and this Addendum, or attachments referred to within this Addendum, is the same as the report on the application included in the agenda for the Council's 19 April 2023 meeting. Any departures from the Officer Recommendation previously presented to the Council are described below.

Having considered the Council's 19 April resolution, the applicant has submitted revised site and floor plans for the proposed development (at the time of writing, the City had not been provided with revised elevation drawings). Those plans are provided as Attachment J.

The revised plans provide for and illustrate changes to the proposed development as follows -

- The two north western units –
    - Reduced from double to single storey.
    - Reduced from 5 bedroom to 3 bedroom.
- The two south-western units –
    - Reduced from 5 bedroom to 4 bedroom.
    - Minimum Duke St setback increased from 1500mm to 2950mm.
    - Side setback increased from 2300 to 3800mm.
    - Balconies relocated from Duke St to face internally.
- Reception/caretaker unit setback increased from 1500mm to 2950mm.
- Left turn only when exiting (onto Duke towards Ford).
- Reduction in car bays from 32 to 28.
- 78 person guest cap proposed.
- Reduction in plot ratio floorspace from 2,255m^2 (as per Attachment D) to 1,980m^2 (note that the originally submitted plans, as per Attachment C, provide for floorspace of 2,467m^2).

The Council is asked to consider the application again, which has now been modified by the proponent through the submission of the revised plans. As the changes are intended to address issues raised during consultation, and reflected in the Council's previous decision, further advertising of the application is not seen as necessary or appropriate.

Comment

There are considered to be four key sets of issues requiring consideration, given the changes to the proposed development and the Council's earlier decision regarding the application –

1. The physical scale and form of the proposed development;
2. The scale and scope of activity likely to be associated with the proposed development, and the management of that activity;
3. Car parking provision; and
4. Traffic management.

Each of these sets of issues is outlined and discussed below.

Scale and form of development

With respect to the physical scale and form of the proposed development, it has been reduced relative to the plans previously considered by the Council. In the previous report presented to the Council on the application, the officer assessment was that the physical scale and form of the proposed development was acceptable, subject to the removal of north-facing balconies from the two north-western units. As the revised plans propose the reduction of those two units from double to single storey, there are now no balconies at all on those units.

In terms of overall site coverage the proposed development is somewhat less than would be expected from a residential redevelopment of the site, and in terms of overall floorspace, it is very similar to what would be expected from a residential redevelopment of the site (noting also that, in any residential redevelopment of the site, it is likely that most if not all units would include a double garage, in addition to living, bedroom and bathroom spaces). Given that, the earlier assessment and the changes that have been made that reduced the total scale of the proposed development, it is considered that the physical scale and form of the development is acceptable.

The movement of the balconies for the two south-western units to face internally, however, does increase potential for overlooking of the adjoining residential property behind the street setback line from the balcony for the westernmost unit (shown as Residence 1 on the plans provided at Attachment J). To mitigate potential privacy issues associated with that balcony, a condition requiring a privacy screen to the western side of that balcony, to a minimum height of 1.5 metres above floor level, forms part of the Officer Recommendation.

Scale and scope of activity and management of activity

With respect to the scale and scope of activity and the management of that activity, it is noted that the revised plans reduce the potential scale of the activity through reducing the total number of bedrooms for guests from 45 to 39. That reduction is all in the western part of the site (from 20 to 14 bedrooms), adjacent to the western and part of the northern boundary of the site, where potential impacts on amenity of nearby residents are more likely (due to proximity – for both existing and potential future houses/units on the adjoining properties).

The proposed maximum occupancy numbers have not, however, been reduced down to either the 54 person cap (6 per unit) proposed by the Council, or the 72 guest cap (8 per unit) recommended by officers previously. Instead, a 78 person cap is proposed.

The fact that the revised plans now provide for units of three different sizes also means that consideration may also be required as to whether different maximum occupancies should be applied to units of different sizes.

It is understood that the Council's proposed 54 person cap was based on the maximum occupancy that would be allowed if holiday homes, essentially dwellings that can be used for either long or short stay purposes, were being proposed – and where holiday homes or units or flats, rather than single houses, occupancy for short stay purposes is capped at 6 persons. Unlike a holiday home, however, where on-site management is not required, the proposed development includes on-site management.

The applicant's proposed cap of 78 guests is consistent with guest caps on the units of different sizes as follows –

- 10 persons for each of the five 5 bedroom units (50 total);
- 8 persons for each of the two 4 bedroom units (16 total); and
- 6 persons for each of the two 3 bedroom units (12 total).

Officers are of the view that, given there are now differently sized units, differential caps on units would be appropriate. There is no particular guidance around what the cap should be, either in an overall sense or in each unit, but officers remain of the view that a 72 person cap overall would be appropriate, and that is reflected in the Officer Recommendation.

Officers also consider that preparation of a Tourist Accommodation Management Plan remains appropriate. That is reflected in the Officer Recommendation, including incorporation of the additional matters outlined in part 5 of the Council's earlier decision. The proposed Waste Management Plan condition also includes a reference to bin collection being only from the Ford Road frontage of the site.

Car parking

The revised plans reduce total proposed bays from 32 to 28. That is consistent with an expectation that –

- 3 bays would be provided for each of the five 5 bedroom units (15 total);
- 2 bays would be provided for each of the four 3 or 4 bedroom units (8 total) – this is where the reduction has occurred, reflecting the reduction in the proposed size and numbers of bedrooms in these units;
- 2 bays would be provided for the managers' unit; and
- 3 bays are provided for visitors.

Whilst it is considered that parking provision set out above would be adequate, it is not entirely clear why the reduction has been considered necessary, or how it is reflected on the revised plans. As this is an issue of some sensitivity with nearby residents, the Officer Recommendation proposes a condition increasing total on-site parking provision back up to 32, providing for some additional capacity for visitors, or for some of the smaller units, in the event that guests arrive in more than two vehicles.

Traffic management

Given discussion and debate associated with the proposed footpath to the Duke Street frontage, the Officer Recommendation no longer provides for the removal of that aspect of the proposed development.

The applicants have also agreed to left-turn movements only out of the site, onto Duke Street. The revised plans do not, however, illustrate any changes to the physical design of the crossover to reflect that. Whilst not considered necessary to make the proposal acceptable from a traffic management perspective, it is considered that, to be effective, controls to prevent right-turn movements out of the site need to include signage, other messaging/education and physical design elements. Given that, the Officer Recommendation contains conditions requiring all three elements to be in place.

Conclusion

It is considered that the application proposes development that, when considered in the context of the relevant planning framework, is acceptable in its context. Whilst it is noted that the applicant has not agreed to a reduction in maximum guest numbers down to 54, changes to the proposal set out in the revised plans and/or in conditions that the applicant has indicated they are comfortable with will also reduce potential amenity impacts relative to the proposal as previously considered by the Council. Given the above, it is recommended that the application is approved, subject to conditions as set out in the Officer Recommendation.

EXECUTIVE SUMMARY

The City has received a development application proposing an "Extension to Non-Conforming Use – Tourist Accommodation (Caretaker's Dwelling and Nine Accommodation Units)" on Lot 50 (No. 40) Ford Road, Busselton ("the Site"). Due to the nature of the issues requiring consideration and the level of community interest, the application is being presented to Council for determination, rather than being determined by City officers acting under delegated authority.

Having considered the application, including submissions received, City officers consider that the proposed development is generally consistent with the *City of Busselton Local Planning Scheme No. 21* ("Scheme") and the broader, relevant planning framework, and it is recommended for approval subject to conditions.

BACKGROUND

The Council is asked to consider a development application for a proposed "Extension to Non-Conforming Use – Tourist Accommodation (Caretaker's Dwelling and Nine Accommodation Units)" on Lot 50 (No. 40) Ford Road, Busselton ("the Site").

Key information regarding the application is set out below:

1. **Landowner:** DC & MM PTY LTD
2. **Applicant:** DMG Architects
3. **Site Area:** 3092m^2
4. **General description of the site:** Lot 50 (No. 40) Ford Road, Busselton ("the Site") was formally described as Lots 15, 16 and 17 corner Duke Street and Ford Road, Busselton.

The Site is a corner lot, bounded by Ford Road to the east and Duke Street to the south. The Site is zoned 'Residential' under the *Scheme* with a density coding of R30. Adjoining properties to the north and west are similarly zoned 'Residential' and R30. A location plan is provided in Attachment A.

5. **Current development/use:** The existing development comprises five short stay units and a caretaker's residence with a single crossover that provides vehicle access to the site from Ford Road.

   There are two historical development approvals for the site, to utilise the land for the purpose of short-term accommodation. The first approval for short-term accommodation was granted in 1979 to the Country Women's Association of Australia (CWA). The second approval to develop additional holiday units and a caretaker's residence was granted in 1993. The CWA continued to use the land for short-term accommodation until the land was sold in January 2020. The current landowner acquired the land from the CWA, and has continued to enjoy the use of the land for short-term accommodation to the present day. Documents associated with the earlier approvals are provided as Attachment B.

6. **Applicable Zoning and Special Control Area designations:** The Site is located within the Residential zone, and not affected by any Special Control Area designations.

7. **Land-use Permissibility:** Pursuant to the *City of Busselton Local Planning Scheme No. 21* ("Scheme"), the site is zoned 'Residential'. Under the zoning table 'Tourist Accommodation' on land within the Residential zone is an 'X' use, meaning a use that is not permitted by the Scheme.

   However, the land enjoys non-conforming use rights which enables the landowner the continued use of the land for short-term accommodation purposes. The non-conforming use rights are established by previous approvals granted on the land, which is described in more detail later in this report.

   Under the current planning framework the City considers that the continued use of the land for short-term accommodation would fall within a 'Tourist Accommodation' use class. Tourist Accommodation is defined as –

   > *means single occupancy accommodation units, which may be self-contained and may include associated central facilities for the exclusive use of guests, and includes serviced apartments.*

8. **Brief description of the proposed development:** On 25 October 2022 the applicant lodged an application with the City seeking development approval for an "Extension to Non-Conforming Use – Tourist Accommodation (Caretaker's Dwelling and Nine Accommodation Units)".

   The proposal can be described as follows -

   (a) Demolish existing short stay accommodation units and caretakers dwelling;

   (b) Construct nine two storey accommodation units – each unit consists of:

      a. Five bedrooms;

      b. Three bathrooms;

      c. Laundry facility;

      d. Ground floor kitchen and living area;

e. Exclusive outdoor living area being nine ground floor courtyards; and

f. Upper floor kitchenette, living area and balcony;

(c) The nine accommodation units are proposed to be occupied on short-stay basis, as an extension to a non-conforming use for 'Tourist Accommodation' use class;

(d) One accommodation unit (Unit 9) designed in accordance with NDIS Specialist Disability Accommodation Design Standard;

(e) Caretaker's dwelling which consists of:

a. Located on the first-floor level, above reception, office and laundry;

b. One bedroom;

c. One bathroom;

d. Laundry facility; and

e. Kitchen and living area;

(f) Caretaker's dwelling and accommodation units are all accessed via an internal driveway and orientated as described:

- Units 5 – 9 are orientated towards Ford Road;
- Units 1 and 2, and Caretaker's Dwelling are orientated towards Duke Street;
- Units 3 and 4 are orientated towards adjoining residential properties;

(g) Total of 32 onsite car parking bays including:

- 4 visitor bays;
- 1 accessible bay; and
- 1 staff parking bay;

(h) Bin storage area;

(i) Pedestrian access;

(j) Office, reception and laundry facility;

(k) Vehicle access to the site from Duke Street.

The originally submitted plans are provided as Attachment C.

The application was referred to adjoining landowners and occupiers for comment in November 2022. Information about submissions received is set out in the Stakeholder Consultation section of this report.

In response to the submissions received and discussion with City officers, the applicant opted to review the proposal and submitted revised plans in March 2023 (see Attachment D). The original plans have been superseded and it is the revised plans which are being considered for the purposes of this assessment. The revised plans include the following changes:

(a) Site plan amended:

i. Siting of Accommodation Units 3 and 4 – western side lot boundary setback increased from 2.2m to 4.95m;

ii. Siting of Accommodation Units 1 and 2 – western side lot boundary setback reduced from 2.4m to 2.3m; and

(b) Total number of *Agonis flexuosa* (WA Peppermint Trees) to be removed reduced from seven to three, which includes two specimens within the site and one specimen within the Duke Street road reserve;

(c) Balcony removed from southern aspect of Accommodation Unit 9;

(d) Verge parking within the Ford Road and Duke Street road reserves removed;

(e) Minor redesign of internal driveway to retain existing vegetation;

(f) Minor amendments to car parking design (total number of bays unchanged);

(g) Minor amendments to pedestrian footpaths and crossings added;

(h) Added provision for bicycle parking facilities;

(i) New concrete footpath extending along the Duke Street road reserve and connecting into existing footpath adjacent the Ford Road and Duke Street intersection.

(j) Permanent screening (fixed louvres) to a minimum 1.6m above finished floor level added to northern aspect of Accommodation Units 3 and 4 balconies to restrict views within the cone of vision to adjoining residential property(s);

(k) Delineated courtyard areas adjacent internal driveway removed; and

(l) Design changes to the ground floor level of Accommodation Unit 9 to comply with NDIS Specialist Disability Accommodation Design Standard.

OFFICER COMMENT

The proposal has been assessed against relevant requirements of the Scheme. The following matters have been identified as key considerations for the determination of this application and are discussed further below -

- Non-conforming use rights;
- The built form of the proposed development;
- Other amenity considerations;
- Traffic and transport considerations; and
- Environmental considerations.

Each of these matters is outlined and discussed under the sub-headings below.

Non-conforming use rights

Under the *Planning and Development Act 2005*, the term non-conforming use is defined as follows -

> *a use of land which, though lawful immediately before the coming into operation of a planning scheme or amendment to a planning scheme, is not in conformity with a provision of that scheme which deals with a matter specified in Schedule 7 clause 6 or 7.*

Clause 3.10 of the Scheme preserves non-conforming use rights, setting out, amongst other things –

> *Except as otherwise provided in the Scheme, no provision of the Scheme is to be taken to prevent –*
>
> *(a) the continued use of any land for the purpose for which it was being lawfully used immediately prior to the Gazettal date of the Scheme or an amendment to the Scheme (as the case may be)…*

Simply put, a non-conforming use is one that either did not require development approval or has lawfully received development approval in the past, but due to subsequent changes in the planning framework, would be a prohibited land use now, and no longer capable of receiving development approval if applied for today.

Clauses 3.12, 3.13 and 3.14 of the Scheme set out the circumstances in which a non-conforming use right may be lost, setting out, amongst other things –

> *3.12 DISCONTINUANCE OF NON-CONFORMING USE*
>
> > *3.12.1 Where a non-conforming use of any land has been discontinued for a period of 12 months the land must not be used after that period otherwise than in conformity with the provisions of the Scheme…*
>
> *3.13 TERMINATION OF A NON-CONFORMING USE*
>
> *The local government may effect the discontinuance of a non-conforming use by the purchase of the land, or by the payment of compensation to the owner or occupier or to both the owner and occupier of that land, and may enter into an agreement with the owner for that purpose.*
>
> *3.14 DESTRUCTION OF NON-CONFORMING USE BUILDINGS*
>
> *If a building used for a non-conforming use is destroyed to 75% or more of its value, the building is not to be repaired, rebuilt, altered or added to for the purpose of being used for a non-conforming use or in a manner not permitted by the Scheme, except with the development approval of the local government.*

It is considered clear that, in this case, the current land-use is a prohibited land use in the Zone in which it is located, and has been so since 1999. It is also considered clear, however, that the land use was lawful in 1999 and has continued without interruption since that time. As such, it is also considered clear that non-conforming use rights exist, and that the use can lawfully continue unless and until one or more of the circumstances in clauses 3.12-3.14 arises.

It is noted that there is no 'register' of non-conforming uses. Non-conforming uses arise, continue and/or cease as and when the conditions set out in the Scheme arise 'automatically'. If there is a difference of view as to whether non-conforming use rights exist and they could not be resolved through discussion between the parties (being the City and the landowner), resolution would occur through court or tribunal processes. In this case, however, there is not seen to be any doubt that non-conforming use rights exist.

Pursuant to clause 3.11 of the Scheme, non-conforming use rights, as well as allowing the continuation of the use, also entail a right to apply to alter, extend or change the development. That can involve the physical alteration or extension of the non-conforming use (note that, in this sense, 'extension' is related to a physical or spatial extension, and not a temporal extension, allowing the use to continue into the future, as that temporal extension is already established by clause 3.10), and it can also involve a change from the current to a different non-conforming use.

Clause 3.11 is as follows –

3.11 EXTENSIONS AND CHANGES TO A NON-CONFORMING USE

3.11.1 Subject to the other provisions of this clause 3.11, a person must not –

(a) alter or extend a non-conforming use;

(b) erect, alter or extend a building used in conjunction with or in furtherance of a non-conforming use; or

(c) change the use of land from a non-conforming use to another non-conforming use, without first having applied for and obtained development approval under the Scheme.

3.11.2 An application for development approval under this clause is to be advertised in accordance with clause 64 of the Deemed Provisions.

3.11.3 Where an application is for a change of use from an existing non-conforming use to another non-conforming use, the local government is not to grant its development approval unless the proposed use is less detrimental to the amenity of the locality than the existing non-conforming use and is, in the opinion of the local government, closer to the intended purpose of the zone.

Clause 3.11.1 establishes two key things. Firstly, that exemptions from the need to obtain development approval that may otherwise apply do not apply – i.e. development approval is required for all development that is non-conforming. Secondly, that an application can be made to alter or extend the use, or buildings associated with that use, and also that a change can be made from one non-conforming use to another non-conforming use. Note, however, that as no change of use is proposed, clause 3.11.1 (c) is not relevant to consideration of this application.

Clause 3.11.2 establishes that any application to alter, extend or change a non-conforming must be advertised prior to determination. As noted elsewhere in this report, the application has been advertised.

Clause 3.11.3 then establishes that, where a change from the existing non-conforming use to a different but still non-conforming use is proposed, the local government must not grant approval unless it considers that the new use is less detrimental to the amenity of the locality and closer to the intended purpose of the Zone than the existing use. As no change of use is proposed, however, clause 3.11.3 is not relevant to consideration of this application.

The Scheme does not provide any further specific guidance regarding consideration of applications to extend a non-conforming use. There is also not much in the way of directly relevant case law that could guide decisions relating to a proposal to extend a non-conforming use. Case law examination does also not lead to identification of any clear principles or tests that should be applied. An examination of case law, however, results in the following key observations about consideration of applications to extend a non-conforming use –

1. Non-conforming use rights are to be characterized liberally;
2. There needs to be a balance between the rights of landowners to obtain the full benefit of their non-conforming use rights vs the rights of the planning authority to enforce the objectives of the planning framework; and
3. The considerations set out in clause 67 (2) of the Deemed Provisions (‘matters to be considered’) are relevant.

In essence, what is required to determine the application is an assessment of the potential impacts of the development against the relevant matters to be considered, with one of the most significant being the objectives of the Zone. Those objectives are as follows –

a. To provide for a range of housing and a choice of residential densities to meet the needs of the community.

b. To facilitate and encourage high quality design, built form and streetscapes throughout residential areas.

c. To provide for a range of non-residential uses, which are compatible with and complementary to residential development.

Also significant as matters to be considered are those that relate to amenity and the compatibility of the proposed development with the character of the locality.

In considering the proposal in the context of those particular matters to be considered, it is noted that objective (c) of the Zone does not preclude non-residential uses, and in fact a variety of non-residential uses are permissible in the Residential Zone. That includes holiday homes, child care premises and medical centres. In simple terms, the objectives of the Residential Zone cannot be applied on the basis that only residential uses are appropriate.

In the particular case of this application, it is also possible and relevant to consider the proposal relative to the most likely alternative redevelopment option for the site. It is considered that the most likely alternative is grouped dwelling development – either for long stay/residential purposes only, or potentially for either long stay/residential or short stay/tourism purposes (i.e. as holiday homes). Development of either kind would involve assessment against the R-Codes, noting that the R-Codes provide extensive and often quite detailed guidance around built form (in terms of things like setbacks, overshadowing or overlooking). A proposal that was exactly the same in built form terms, and in terms of actual land use intent, but was instead proposed to be approved as grouped dwellings to be used as holiday homes would, in fact, not be non-conforming, it would be conforming development, other than with respect to the proposed caretaker's dwelling, and the proposal to accommodate more than 6 guests in each of the proposed units.

It is considered reasonable and correct to assess the application in comparison with the that alternative redevelopment option, and to determine that, if a particular aspect of the development is consistent with and appropriate from an R-Codes perspective then, unless there is a clear reason why the requirements should be different for this development, the same requirements can be applied to assessment of this application. The remainder of this section of the report therefore looks to assess the proposal in substantial part with reference to how the proposal would be assessed if the same built form were proposed, but as grouped dwellings with the option of being used as holiday homes, rather than as Tourist Accommodation.

The built form of the proposed development

As explained above, there are no principles specifically relevant to a proposal to extend a non-conforming use, and consideration is required to be given to a potentially wide range of relevant matters. Given the above, it is noted that 'Holiday Home (Multiple/Grouped Dwelling)' is defined by the Scheme as follows -

> *means a grouped dwelling or multiple dwelling, which may also be used for short stay accommodation for hire or reward for no more than six people (but does not include a bed and breakfast, chalet, guesthouse, rural tourist* accommodation or tourist accommodation).

The policy implications for consideration of the development of holiday homes across the whole of the City are set out in Local Planning Policy 4.1 Holiday Homes. Applying the key policy provisions relevant to a 'Holiday Home (Multiple/Grouped Dwelling)', the development would satisfy all relevant 'deemed-to-comply' requirements including location, utility servicing, car parking and dwelling design. In terms of density, the proponent could apply for nine grouped dwellings to be used as holiday homes.

A number of concerns were also expressed by residents in relation to the building height and built form of the development, which they considered to be an overdevelopment of the site and inconsistent with the 'residential' character of the locality.

Building height controls for the site are established by cl 4.8(b) of the Scheme - Height of Buildings. The proposed building height complies with the development standards, by virtue of the development not exceeding a maximum height of approximately 7.5m above natural ground level.

The site is also subject of the R30 residential density coding under the Scheme. An assessment of the proposal against the deemed-to-comply provisions of the R-Codes found that the development is largely compliant in terms of setbacks, open space, street surveillance and visual privacy. Discretion is required for minor setback variations to the northern and western aspects of the proposal, however the development demonstrates compliance with the relevant design principles, and meets deemed-to-comply controls in terms of overshadowing, privacy and building bulk. Officers are of the opinion that the proposal is fundamentally consistent with relevant development standards and design elements of the density coding.

The original proposal, however, did not satisfy the deemed-to-comply provisions of Part 5.4.1, with balconies to Accommodation Units 3 and 4 overlooking adjoining residential properties, specifically 148 and 150 Adelaide Street.

In response to the submissions received and discussion with City officers, the applicant opted to review the proposal and submitted revised plans in March 2023. The amended plans provided permanent screening to the balconies to restrict views within the cone of vision to the adjoining residential properties, and satisfy the deemed-to-comply provisions of Part 5.4.1 of the Codes in relation to visual privacy.

However, the City has concerns that the balconies have the potential to adversely impact the amenity of adjoining properties to the north. Whilst the permanent screening restricts overlooking to adjoining residential properties, the increased reflection of the screening treatments may result in amplification of noise and other disturbances. It is also considered that short stay guests may utilise the balcony areas more frequently than if the developments were permanent occupied. On this basis, it is the City's position that the balconies of Accommodation Units 3 and 4 should be removed from the proposed development and a condition has been recommended requiring amended plans that show the balconies deleted.

Other amenity considerations

As with built form, comparison with an equivalent proposal that involved grouped dwellings proposed to be used as holiday homes is also instructive in relation to other amenity considerations. Such a development could accommodate up to 54 short stay guests on the site at any one time. That isless than the 90 guests proposed by the applicant, however, there would be no requirement to provide a caretaker's dwelling or any form of onsite management. If the dwellings were not being used as holiday homes, however, maximum occupancy per dwelling would not be capped – although in practice it seems unlikely there would be more than 54 people on the site at any given time, and the likely number would be somewhat lower.

Under the City of Busselton *Holiday Homes Local Law 2012*, holiday homes must be registered and a manager nominated. Multiple managers may be appointed to undertake the functions and management of premises within a unit complex, and some units could be occupied on a permanent/residential basis, whilst others were being used for short stay purposes.

The proposed development provides a caretaker's dwelling. The role and benefit of a caretaker in a tourist accommodation development can be significant. A caretaker is responsible for the management of the premises, ensuring that the property is maintained, and daily operations undertaken. Onsite management also provides greater confidence that the behaviour of guests is in alignment with the facility's controls in terms of control of noise, security and anti-social behaviour, as the manager will have an incentive to manage behaviour of guests in each unit, as their behaviour could impact on the amenity of guests in the other units.

It should also be noted that there are a range of locations across the City where tourism development adjoins residential development, as well as over 1,000 holiday homes, most of which adjoin or are very close to residential properties. Whilst the behaviour of guests in dedicated short stay developments can sometimes be problematic for nearby residents, the City's experience suggests that it is less problematic than for holiday homes in residential areas.

Notwithstanding the above, it is considered appropriate that a management plan be prepared, and that the total number of guests on site at any one time be capped at a lower number than the proposed maximum occupancy of 90 guests. A cap of 72 guests overall, equivalent to an average of 8 guests per unit is proposed. That is more than would ordinarily be allowed for a grouped dwelling being used as a holiday home (i.e. 6), but recognises that the units are larger than would typically be expected for a grouped dwelling and there will be more active management, but it is also substantially less than the maximum allowed for a Single House being used as a holiday home (i.e. 12). Conditions consistent with this form part of the officer recommendation.

Traffic and transport considerations

A number of concerns were raised by residents in the locality regarding the proposed vehicle access location on Duke Street, specifically concerns in relation to pedestrian safety, increased vehicle movements associated with the tourist use and negative impact to the amenity of the area. The preference of submitters was for the vehicle access location to remain in its current location on Ford Road.

It is important to note that since the original Council approval was granted in 1979, the planning framework has changed considerably. Provisions and standards relating to vehicle access have developed over time so as to protect vehicle and pedestrian safety, minimise the number of crossovers and reduce impacts to the streetscape. Under the current planning framework, in areas zoned Residential, the relevant provisions of the following instruments would be considered in assessing vehicle access to a proposed development -

- Part 5.3.5 of the R-Codes Vehicular Access; and
- AS 2890 Parking Facilities.

Both the R-Codes and AS2890 prohibit access close to and opposite intersections, and the current access is within a prohibited location as defined by AS2890 and not complaint. The local government cannot reasonably override a prohibition in a Standard and cannot approve an access for new development in the current location. The applicant has submitted a Traffic Impact Statement (TIS) report in support of the proposal, which concludes that the existing road and access conditions are suitable to cater for the additional traffic generated by the proposed development. A copy of the report is at Attachment E.

The City commissioned a peer review of the TIS which also concludes that the proposed access is acceptable and agrees that the current access on Ford Road does not comply with the Australian Standards and within the prohibition area. A copy of the peer review is provided at Attachment F.

The option of moving the crossover to the northern boundary of the site fronting Ford Road has also been considered. Amongst other things, though, it is considered that would have significant amenity impacts on the dwelling immediately to the north, as it would entail a driveway immediately adjacent to the boundary and in close proximity to the dwelling itself.

Environmental considerations

The original submission proposed a total of seven Agonis *flexuosa* (WA Peppermint Trees) to be removed. The revised plans, submitted in March 2023 reduced the extent of clearing reduced to three Agonis *flexuosa* (WA Peppermint Trees), which includes two specimens within the site and one specimen within the Duke Street road reserve.

It is considered that, with the changes made, the development has been designed to maximum retention of quality trees and substantial replanting is proposed as 'offsets' for the three trees proposed to be removed.

Statutory Environment

The key statutory environment is set out in the City of Busselton *Local Planning Scheme No. 21* ("Scheme"), the *Planning and Development (Local Planning Schemes) Regulations 2015* (Regulations), Schedule 2 of which is the 'deemed provisions', which also functionally form part of the *Scheme*. The key aspects of the Scheme and Regulations relevant to consideration of the application are set out below.

Pursuant to the *City of Busselton Local Planning Scheme No. 21* ("Scheme"), the site is zoned 'Residential'. Under the zoning table a 'Tourist Accommodation' on land within a Residential zone is an 'X' use, meaning a use that is not permitted by the *Scheme*.

However, the land currently enjoys non-conforming use rights for 'Holiday Units' or 'Short Stay Units'. Under the current planning framework the non-conforming use rights would fall within a 'Tourist Accommodation' use class. The history of the short stay use that arrived to this result is as follows -

- In March 1979, Council resolved to recommend approval for "Proposed Holiday Units – Lots 15, 16 and 17 Corner Duke Street and Ford Road East Busselton" under Interim Development Order No. 2.

- In February 1983, the *Shire of Busselton Town Planning Scheme No. 5* (TPS5) was gazetted. Pursuant to TPS5, the site was zoned 'Short Stay Residential'. Under TPS5 cl 3.2.4(a) "*no person shall within any Short Stay Residential Zone occupy a residential unit, chalet, caravan, camp or any other form of accommodation for more than a total of three months in any one twelve month period"*.

- In September 1999, the *Shire of Busselton Town Planning Scheme No. 20* (TPS20) was gazetted. At the time of gazettal, the site was zoned 'Residential'. Under this zoning, 'Tourist Accommodation' was not permitted by the *Scheme*. The non-conforming use provisions of TPS20, however, provided that the existing use of the site was, nonetheless, lawful.

- Since approval was granted in 1979, the site has continued to be lawfully used as 'Tourist Accommodation' and its non-conforming use rights were maintained when the *City of Busselton Local Planning Scheme No. 21* ("Scheme") was gazetted in October 2014. Pursuant to cl 3.11 of the *Scheme*, the applicants have sought approval to extend the non-conforming 'Tourist Accommodation' use class on the land.

Matters to be considered

In considering the application, the Council needs to consider the 'matters to be considered' set out in clause 67 (2) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, particularly relevant considerations in relation to this application are the following –

(a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area;

(b) the requirements of orderly and proper planning including any proposed local planning scheme or amendment to this Scheme that has been advertised under the Planning and Development (Local Planning Schemes) Regulations 2015 or any other proposed planning instrument that the local government is seriously considering adopting or approving;…

(m) the compatibility of the development with its setting, including —

(i) the compatibility of the development with the desired future character of its setting; and

(ii) the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;

(n) the amenity of the locality including the following —

(i) environmental impacts of the development;

(ii) the character of the locality;

(iii) social impacts of the development;…

Relevant Plans and Policies

Relevant plans and policies must be given due regard in assessing the application, but cannot and do not bind the local government in determining an application for development approval. The key policy implications for consideration are set out in the following policy documents:

Local Planning Policy 2.1 – Car Parking

Provides guidance on car parking and bicycle requirements for new development. The Policy does not define minimum car parking standards for 'Tourist Accommodation'. According to the merits of the proposed development, the City has considered the minimum car parking standards for a 'Chalet' development are relevant in this instance.

For 'Chalets' the Policy requires one bay per unit plus one visitor bay for every four units. The proposal provides 26 bays plus 4 visitor parking bays for the nine accommodation units. In addition, one staff parking bay is allocated to the caretaker's dwelling plus one accessible bay is provided. Allowance for bicycle parking has been included in the proposal. The City considers that the total 32 car parking bays and provision for bicycle parking satisfies the requirements of the Policy.

Local Planning Policy 3.01 Reflective Building Materials

Provides guidance on the control reflective building materials to protect the visual amenity of residential living environments. A condition requiring nominated colours has been recommended.

Local Planning Policy 4.4 Percent for Art

Provides guidance on the promotion of public art to enhance character and encourage cultural identity within the community. A condition requiring a percent for art contribution has been recommended.

Local Planning Policy 6.1 Stormwater Management

Provides guidance on the methods for achieving the safe and effective management of the quantity and quality of stormwater runoff.

Local Planning Policy 6.04 Roads, Footpath and Cycle Network Upgrading Contributions

The development proposes a footpath to be constructed within the Duke Street road reserve. The landowner is responsible for all costs associated with construction of the footpath, therefore a condition requiring a contribution towards footpath and cycle networking upgrading is not considered appropriate. A condition requiring a road network upgrading contribution has been recommended.

Financial Implications

There are no financial implications associated with the officer recommendation.

Stakeholder Consultation

Public Consultation

Consultation on the proposed development was undertaken in the following manner:

- Letters sent directly to surrounding landowners and occupiers; and
- Two signs erected on the lot; and
- Development plans and information provided by the applicant were made available for public viewing on the City's website via 'Your Say'.

Consultation on the proposal commenced on the 30 November 2022 and concluded on 11 January 2023. A total of 37 public submissions were received. Of these submissions five were in support and 35 raised concerns with the development. A schedule of submissions is provided at Attachment G.

The key concerns raised in the submissions related to -

- Built form and scale
- Land-use
- Amenity
- Vehicle and pedestrian safety
- Visual privacy and overlooking to adjoining properties
- Environment and loss of vegetation
- Waste management
- Management of the development

Referrals/Consultation with Government/Service Agencies

- Department of Biodiversity, Conservation and Attractions (DBCA)

The City notes the comments received from DBCA in respect to the impact to vegetation which forms part of a fauna corridor that contains high quality Western Ringtail Possums (WRP) habitat.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. The key risk to the City is considered to be the potential reputational and environmental risk that may arise if the site is not managed in a manner consistent with the conditions of approval.

Options

As an alternative to the proposed recommendation the Council could -

1. Refuse the proposal, setting out reasons for doing so; or
2. Apply additional or different conditions.

CONCLUSION

Subject to appropriate conditions, the proposal is considered appropriate to support and accordingly is recommended for approval.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

The applicant and those who made a submission will be advised of the Council decision within two weeks of the Council meeting.



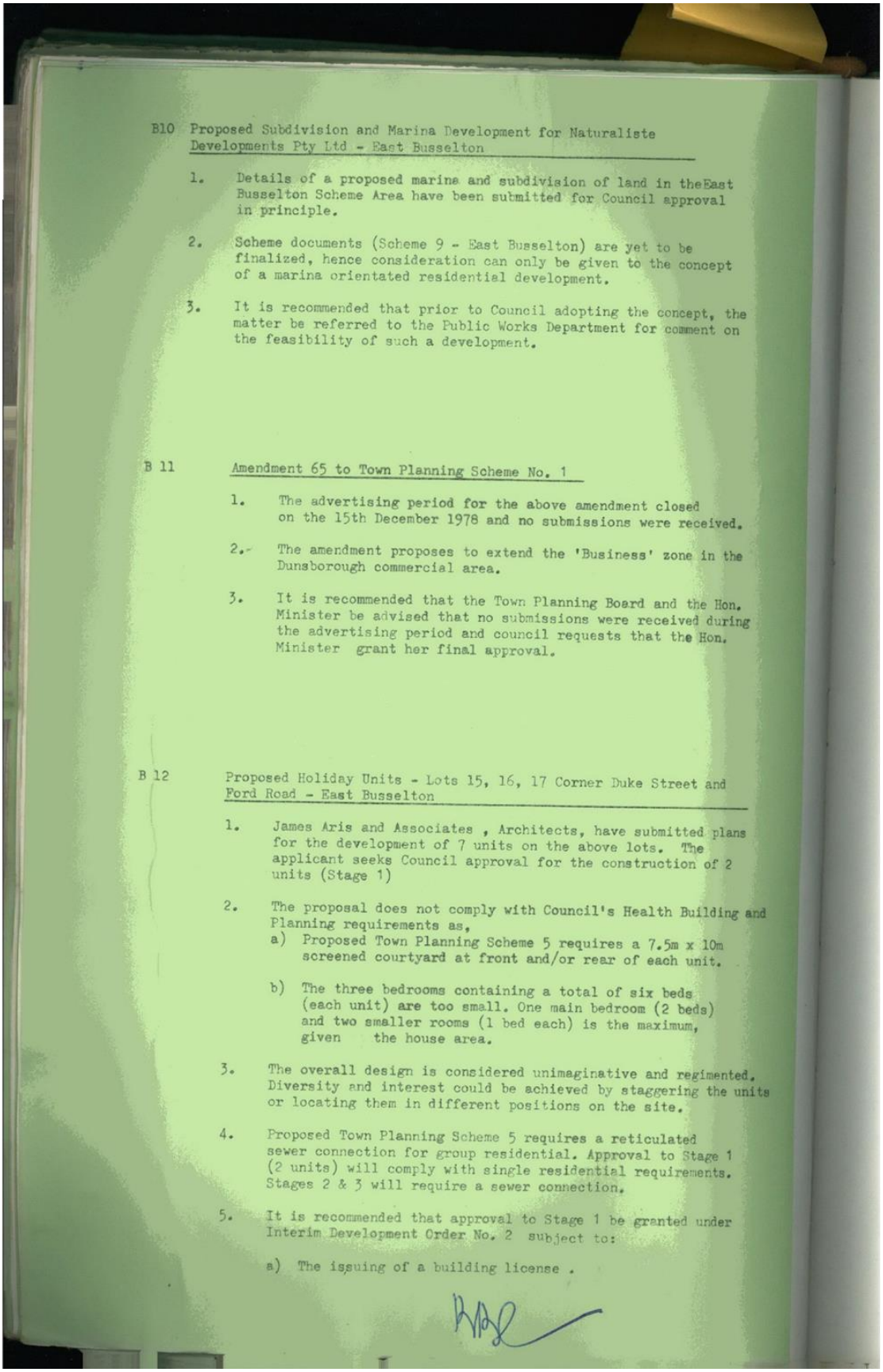
City of Busselton
Geographe Bay

Disclaimer: Every effort has been made to make the information displayed here as accurate as possible. This process is ongoing and the information is therefore ever changing and cannot be disseminated as accurate. Care must be taken not to use this information as correct or legally binding. To verify information contact the City of Busselton office.

Location Plan

5/04/2023

1:2500 @ A3L



B10 Proposed Subdivision and Marina Development for Naturaliste Developments Pty Ltd - East Busselton

1. Details of a proposed marina and subdivision of land in the East Busselton Scheme Area have been submitted for Council approval in principle.

2. Scheme documents (Scheme 9 - East Busselton) are yet to be finalized, hence consideration can only be given to the concept of a marina orientated residential development.

3. It is recommended that prior to Council adopting the concept, the matter be referred to the Public Works Department for comment on the feasibility of such a development.

B 11 Amendment 65 to Town Planning Scheme No. 1

1. The advertising period for the above amendment closed on the 15th December 1978 and no submissions were received.

2. The amendment proposes to extend the 'Business' zone in the Dunsborough commercial area.

3. It is recommended that the Town Planning Board and the Hon. Minister be advised that no submissions were received during the advertising period and council requests that the Hon. Minister grant her final approval.

B 12 Proposed Holiday Units - Lots 15, 16, 17 Corner Duke Street and Ford Road - East Busselton

1. James Aris and Associates , Architects, have submitted plans for the development of 7 units on the above lots. The applicant seeks Council approval for the construction of 2 units (Stage 1)

2. The proposal does not comply with Council's Health Building and Planning requirements as,
   a) Proposed Town Planning Scheme 5 requires a 7.5m x 10m screened courtyard at front and/or rear of each unit.
   b) The three bedrooms containing a total of six beds (each unit) are too small. One main bedroom (2 beds) and two smaller rooms (1 bed each) is the maximum, given the house area.

3. The overall design is considered unimaginative and regimented. Diversity and interest could be achieved by staggering the units or locating them in different positions on the site.

4. Proposed Town Planning Scheme 5 requires a reticulated sewer connection for group residential. Approval to Stage 1 (2 units) will comply with single residential requirements. Stages 2 & 3 will require a sewer connection.

5. It is recommended that approval to Stage 1 be granted under Interim Development Order No. 2 subject to:

   a) The issuing of a building license .

B.10 Proposed Subdivision and Marina Development for Naturaliste Developments Pty. Ltd. - East Busselton

Resolved to recommend that the proposal be approved in principle by Council and referred to the Public Works Department for comment on the feasibility of such development.

B.11 Amendment 65 to Town Planning Scheme No. 1

Resolved to recommend that the recommendation be adopted.

B.12 Proposed Holiday Units - Lots 15, 16 & 17 Corner Duke Street and Ford Road, East Busselton

Resolved to recommend that the recommendation be adopted.

Date 7.3.79 ..... CHAIRMAN

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BAR

Developments Pty. Ltd. - East Busselton

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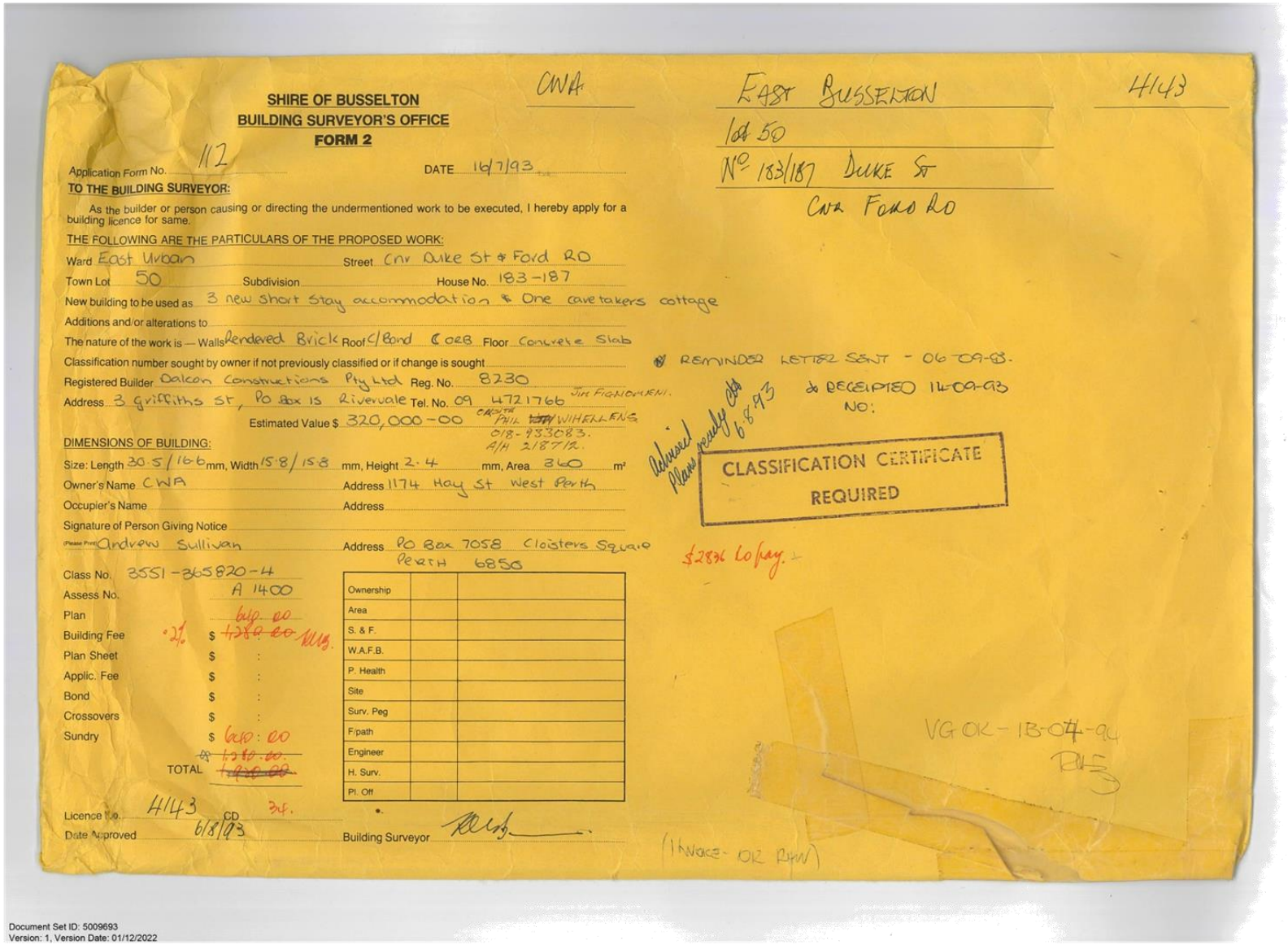
Date 7.3.79 BAR .....CHAIRMAN



CWA

EAST BUSSELTON 4143
lot 50
No 183/187 DUKE ST
CNR FORD RD

SHIRE OF BUSSELTON
BUILDING SURVEYOR'S OFFICE
FORM 2

Application Form No. 112 DATE 16/7/93

TO THE BUILDING SURVEYOR:

As the builder or person causing or directing the undermentioned work to be executed, I hereby apply for a building licence for same.

THE FOLLOWING ARE THE PARTICULARS OF THE PROPOSED WORK:

Ward East Urban Street Cnr Duke St & Ford RD
Town Lot 50 Subdivision House No. 183-187
New building to be used as 3 new short stay accommodation & One caretakers cottage
Additions and/or alterations to
The nature of the work is — Walls Rendered Brick Roof C/Bond ℄ ORB Floor Concrete Slab
Classification number sought by owner if not previously classified or if change is sought
Registered Builder Dalcon Constructions Pty Ltd Reg. No. 8230
Address 3 Griffiths St, Po Box 15 Rivervale Tel. No. 09 4721766 JIM FIGNOMENI.
Estimated Value $ 320,000-00 CONSULTING PHIL ~~[illegible]~~ WIHELLENS 018-933083. A/H 218712.

REMINDER LETTER SENT - 06-09-93.
& RECEIPTED 14-09-93 NO:

Advised Plans ready 6.8.93

CLASSIFICATION CERTIFICATE REQUIRED

DIMENSIONS OF BUILDING:

Size: Length 30.5/16.6 mm, Width 15.8/15.8 mm, Height 2.4 mm, Area 360 m²
Owner's Name CWA Address 1174 Hay St West Perth
Occupier's Name Address
Signature of Person Giving Notice
(Please Print) Andrew Sullivan Address PO Box 7058 Cloisters Square PERTH 6850

$2836 Lo pay.

Class No. 3551-365820-4
Assess No. A 1400
Plan 640.00
Building Fee .2% $ ~~1,280.00~~ [illegible]
Plan Sheet $:
Applic. Fee $:
Bond $:
Crossovers $:
Sundry $ 640:00
~~$ 1,280.00~~
TOTAL ~~1,920.00~~

Ownership		
Area		
S. & F.		
W.A.F.B.		
P. Health		
Site		
Surv. Peg		
F/path		
Engineer		
H. Surv.		
Pl. Off		

Licence No. 4143 CD 34.
Date Approved 6/8/93 Building Surveyor [signature]

VG OK - 13-04-94
[illegible]

(INVOICE - OK RHW)

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PROD. CODE 118119 6-90

16/9/93 T+M OK. a

21/9/93 P+M OK unc

22/9/93 P+M, in place poor [illegible] anship, concrete joint between units 1+2 and unit 3+2. very poorly done [illegible] plastic short on edges, concrete thickend edge to be painted

26/10/93 phoned Andrew Sullivan about licence.

9/12/93. meeting with Greg Simpson. Keith Brown Bert Johnson and Jim Tigliomeni about hold up on by O cycel.

17/12/93 roof timbers up work in progress fixing out by O cycel in, send up to fence landscaping to be done

21/12/93 Off-white Colorbond. letter drafted.

10-1-94 Andrew Sullivan rang for architects. He will send letter.

15/3/94 Completed.

15/3/94. Health O.K. (fencing to be completed BIOCYCLE)

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SHIRE OF BUSSELTON
SOUTHERN DRIVE, BUSSELTON, W.A. 6280
Telephone (097) 52 1011, Facsimile (097) 52 4958
Office Hours: Monday to Friday, 9am to 4pm
All Communications to the Shire Clerk
P.O. BOX 84, BUSSELTON, W.A. 6280

Our Ref: C.5.1/1036
Your Ref:
Enquiries: Mr Steve Thompson

May 4, 1993

Mr Andrew Sullivan
Donaldson Smith & Hooke
PO Box 7058 Cloisters Square
PERTH WA 6850

Dear Andrew

RE: PROPOSED 3 ADDITIONAL SHORT STAY UNITS & 1 CARETAKER'S UNIT - LOT 50 CNR DUKE ST & FORD RD, BUSSELTON

I refer to your Development Application regarding the above received March 15, 1993.

Approval to commence development is hereby granted under Town Planning Scheme No 5 subject to the following conditions:

1. All development being in accordance with the approved plan dated May 4, 1993.
2. The issue of a building licence and compliance with the Building Code of Australia.
3. The obtaining of a Certificate of Classification prior to the occupation of the development.
4. Compliance with all Health requirements.
5. The submission of the following details to Council prior to the issuing of a building licence:
   - Floor plan details of the existing 2 units
   - Drainage and effluent disposal details for all units
   - Details on the size of the proposed Aerobic Treatment Unit with estimates on maximum usage/volume to be catered for
   - Details on ventilation systems to proposed bathrooms, laundries and toilets

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6. *The provision of clothes drying facilities to the satisfaction of the Principal Health Surveyor.*

7. *All units being connected to the Busselton Water Board's reticulated water system.*

8. *The colour of the roofing material being in accordance with Council's Planning Policy No 4 "Use of Reflective Building Materials". This requires the use of low reflective materials and not zincalume as outlined. Please indicate revised roofing material on building licence plans.*

9. *The submission of a landscape plan to Council's satisfaction prior to the issue of a building licence. This should outline planting species, paving areas, fencing, seating and associated details.*

10. *The implementation of the landscape plan prior to the issue of a Certificate of Classification.*

11. *Payment of the following contributions in accordance with Council's Policy on "Guidelines for all Developments other than Subdivisions" prior to the release of the building licence:*

.	*Traffic charge ($100 per unit)*	*$400*
.	*Vasse Diversion Drain ($150 per unit)*	*$600*
.	*Local Road Frontage of 51m (at $36 per metre)*	*$1836*
.	*Local drainage - all stormwater to be disposed of on-site in which no charges apply or if connecting with the local drainage system a cost of $100/1000m² applies*	*$309*

12. *Plans submitted with the building licence are to show finished floor levels and finished ground levels and details of stormwater and roof runoff disposal to the satisfaction of the Shire Engineer and Building Surveyor.*

13. *The provision of a 'hard stand area' for mobile rubbish bins to be indicated on the building licence plans in a location acceptable to Council and constructed prior to the occupation of the premises.*

14. *Compliance with the Holiday Accommodation Bylaws. This requires that no person occupy on-site accommodation for a period of greater than 3 months in any 12 month period.*

15. *All carparking bays and vehicle manoeuvring areas, including the driveway access, being bitumen sealed or brick paved, constructed, drained and marked out to Council's satisfaction.*

16. *Dimensions of carparking spaces to be not less than 2.5m by 5.5m with a 7m turning area.*

17. *Approval being obtained from the WA Fire Brigades Board. Documentary evidence of this approval to be provided to Council prior to the occupation of the premises.*

18. *The provision of a new fence to Council's satisfaction to replace the existing wooden fence on Lot 50's northern boundary. This is to be at cost to the owner/developer of this proposal.*

This approval is valid for 12 months, during which time a Building Licence should be obtained.

With regard to Condition 11, the contribution charges are the direct result of increased traffic and impact on services as a consequence of the proposed development.

With regard to Condition 18, Council seeks the minimum construction standard to be a 4 ft high 'system six' fence (as per the existing fibro fence on the northern boundary of Lot 50. Should the adjoining neighbour wish to seek a higher fence or alternative construction form, then it will be a matter of negotiation between your client and the neighbour.

Yours faithfully

Michael Swift
PRINCIPAL PLANNER

c.c.: *Martin Caramia*
Principal Building Surveyor

Enc:
1. *Certificate of Classification*
2. *Landscape Plan Information*

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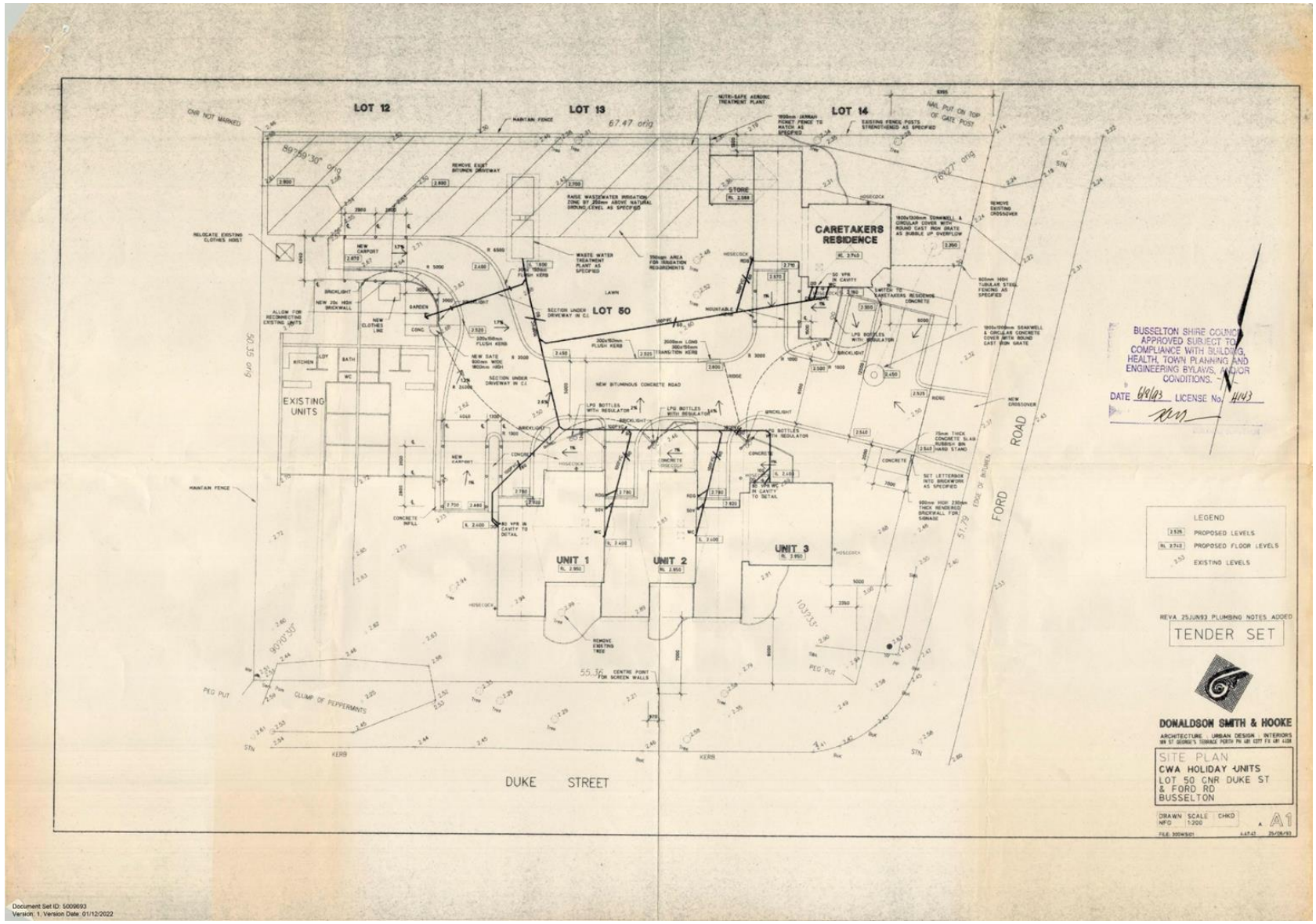
Version: 1, Version Date: 01/12/2022



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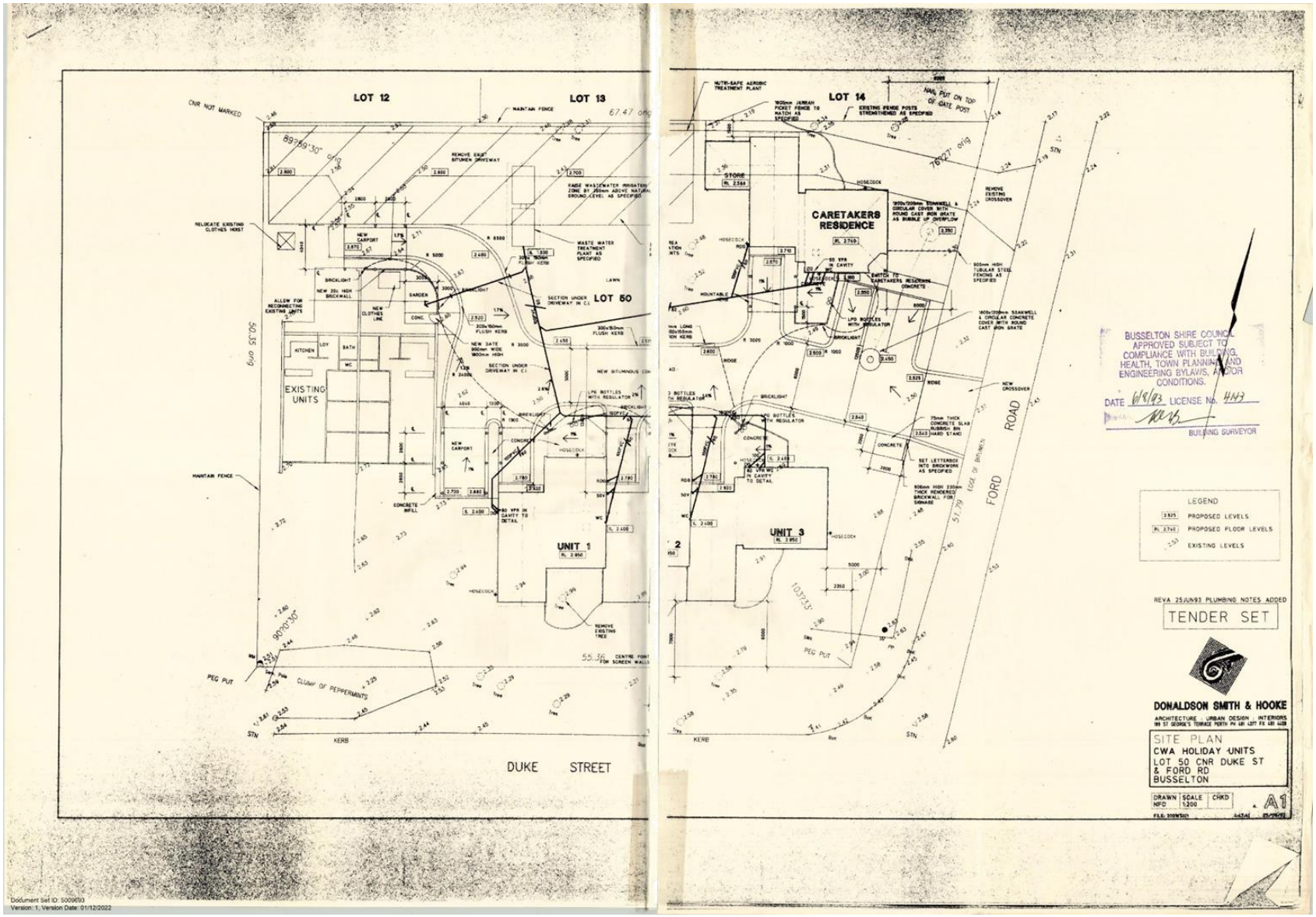
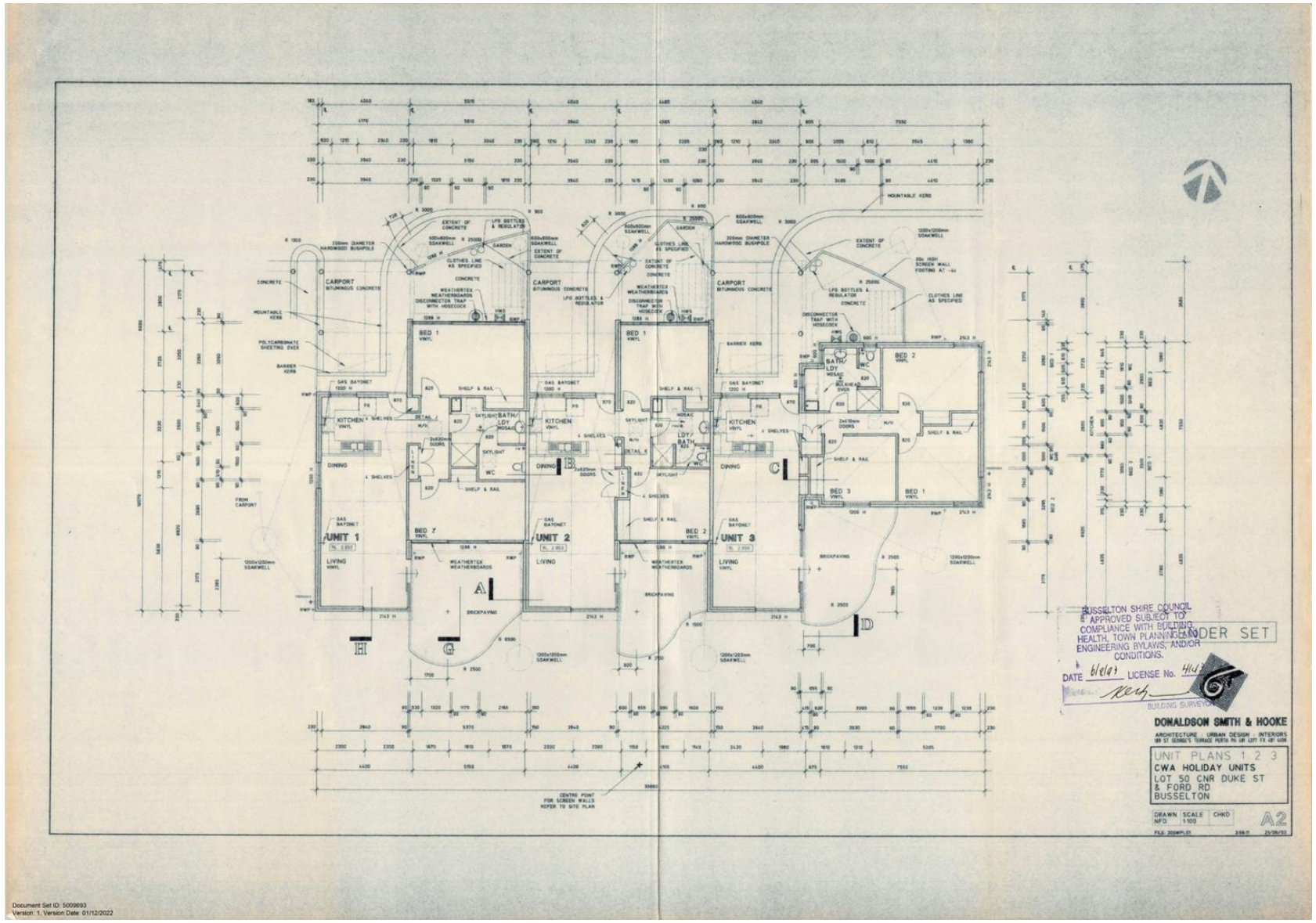

LOT 12
LOT 13
LOT 14
LOT 50
CARETAKERS RESIDENCE
EXISTING UNITS
UNIT 1
UNIT 3
DUKE STREET
FORD ROAD
BUSSELTON SHIRE COUNCIL APPROVED SUBJECT TO COMPLIANCE WITH BUILDING, HEALTH, TOWN PLANNING AND ENGINEERING BYLAWS, AND/OR CONDITIONS.
DATE 6/8/93 LICENSE No. 4143
BUILDING SURVEYOR
LEGEND
PROPOSED LEVELS
PROPOSED FLOOR LEVELS
EXISTING LEVELS
REVA 25JUN93 PLUMBING NOTES ADDED
TENDER SET
DONALDSON SMITH & HOOKE
ARCHITECTURE · URBAN DESIGN · INTERIORS
SITE PLAN
CWA HOLIDAY UNITS
LOT 50 CNR DUKE ST & FORD RD
BUSSELTON
DRAWN NFD
SCALE 1:200
CHKD
A1



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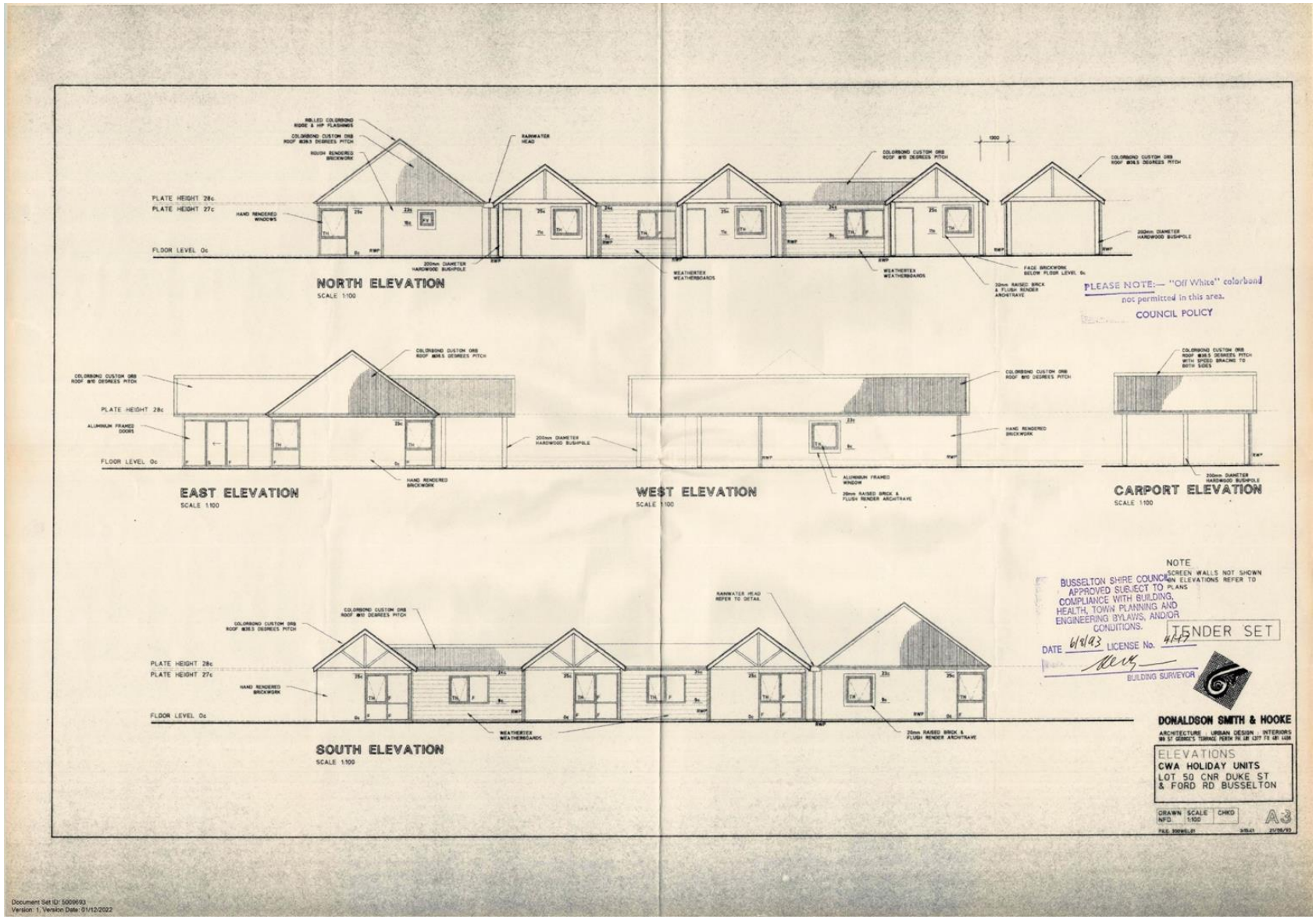

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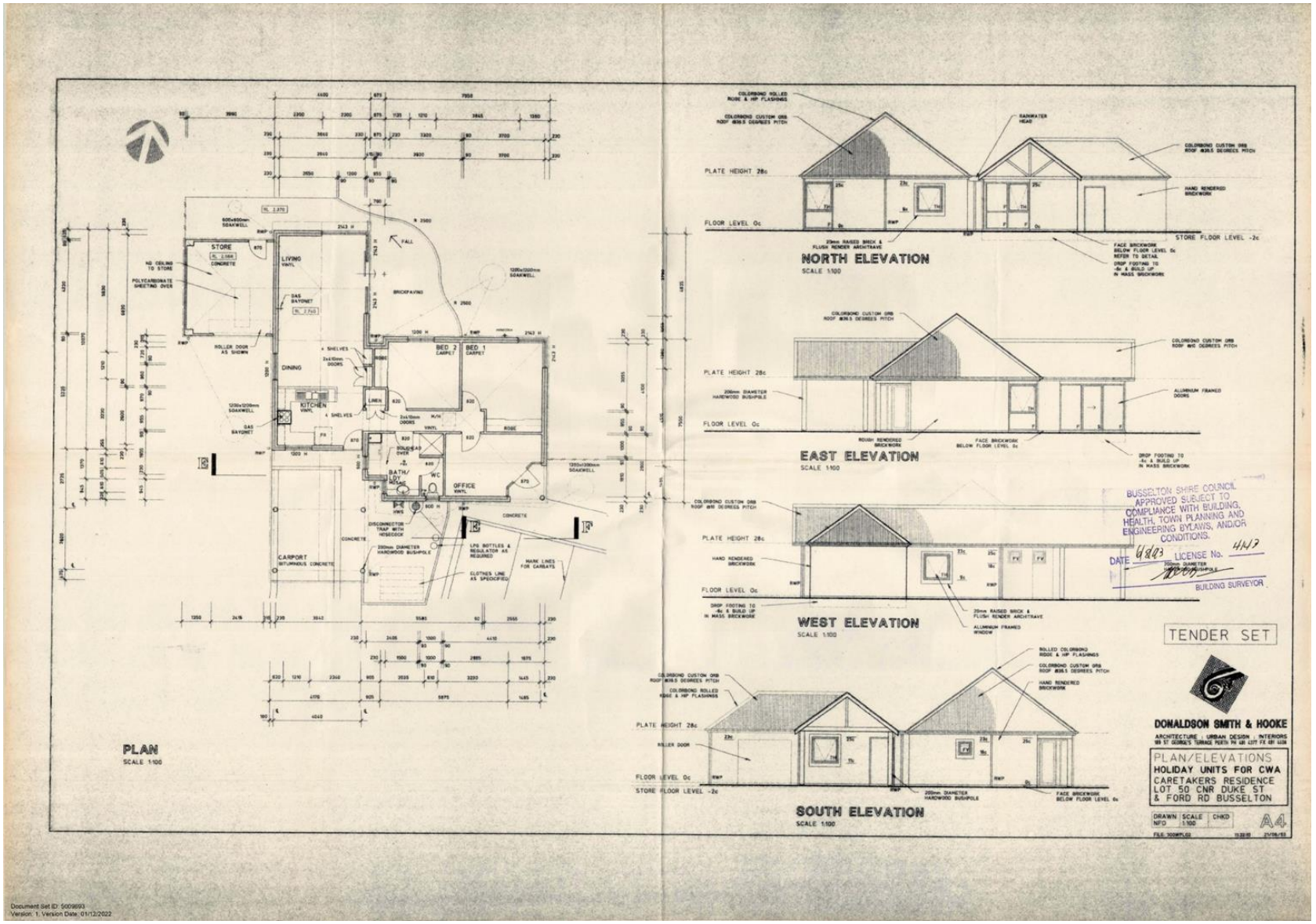

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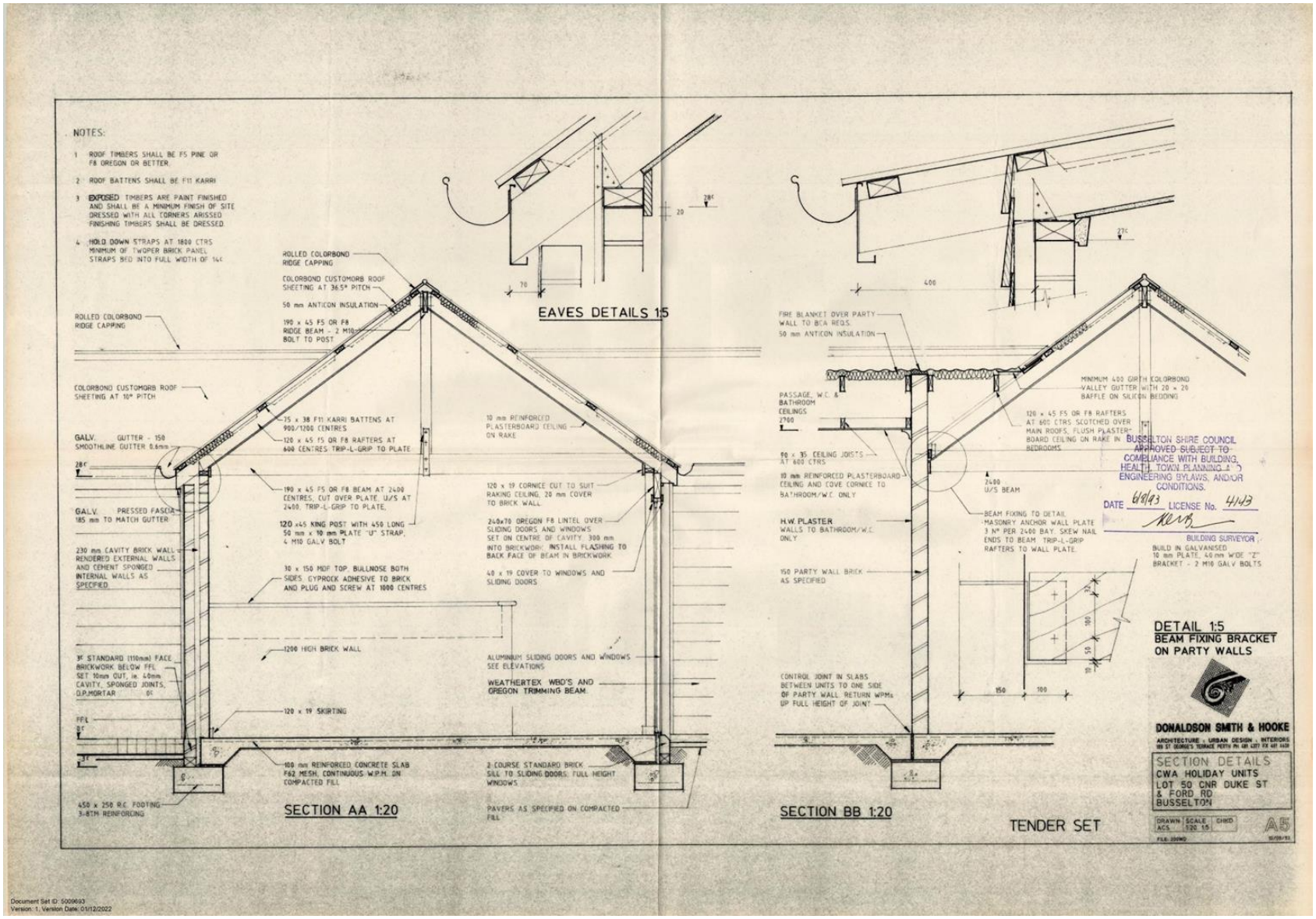

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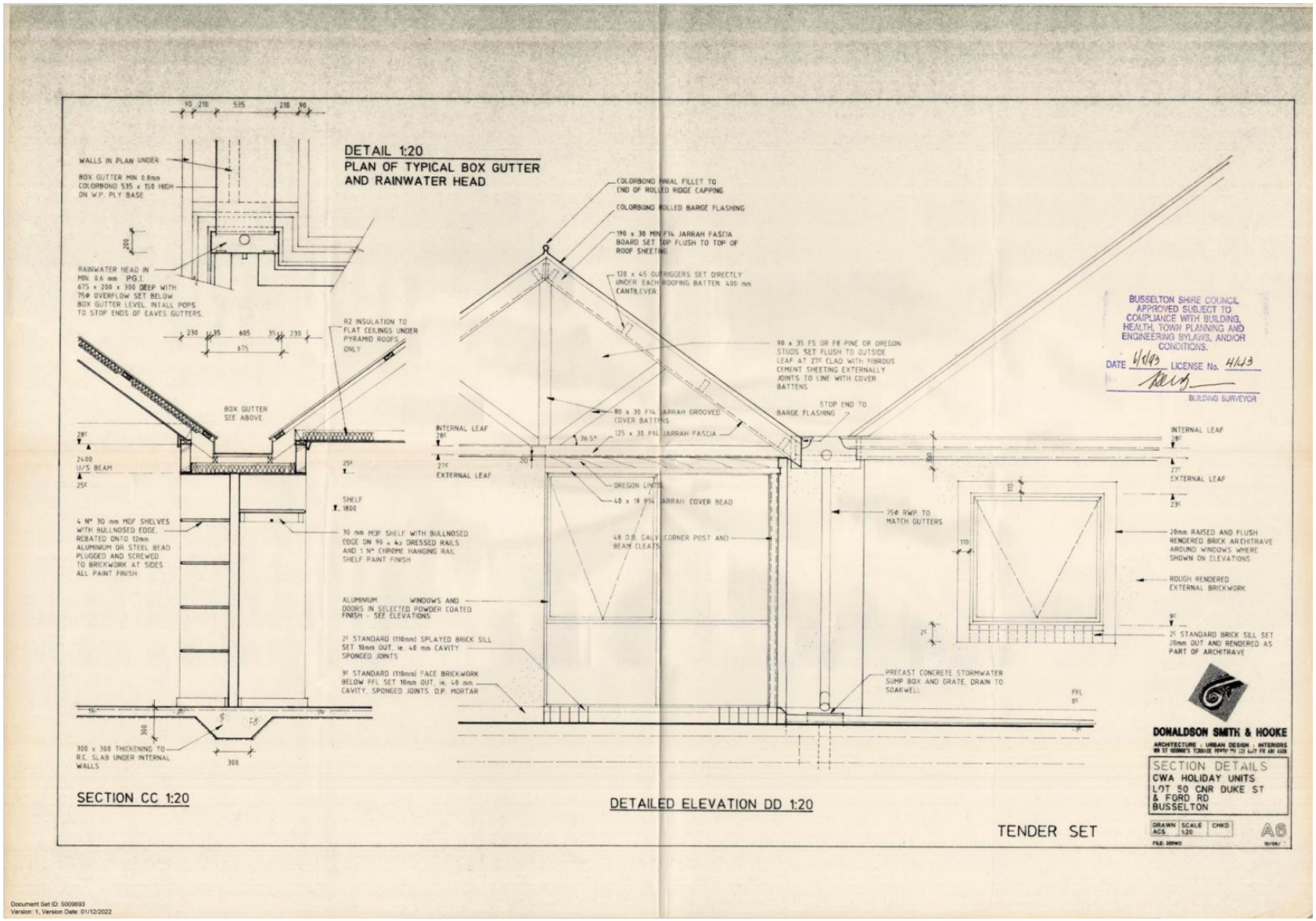

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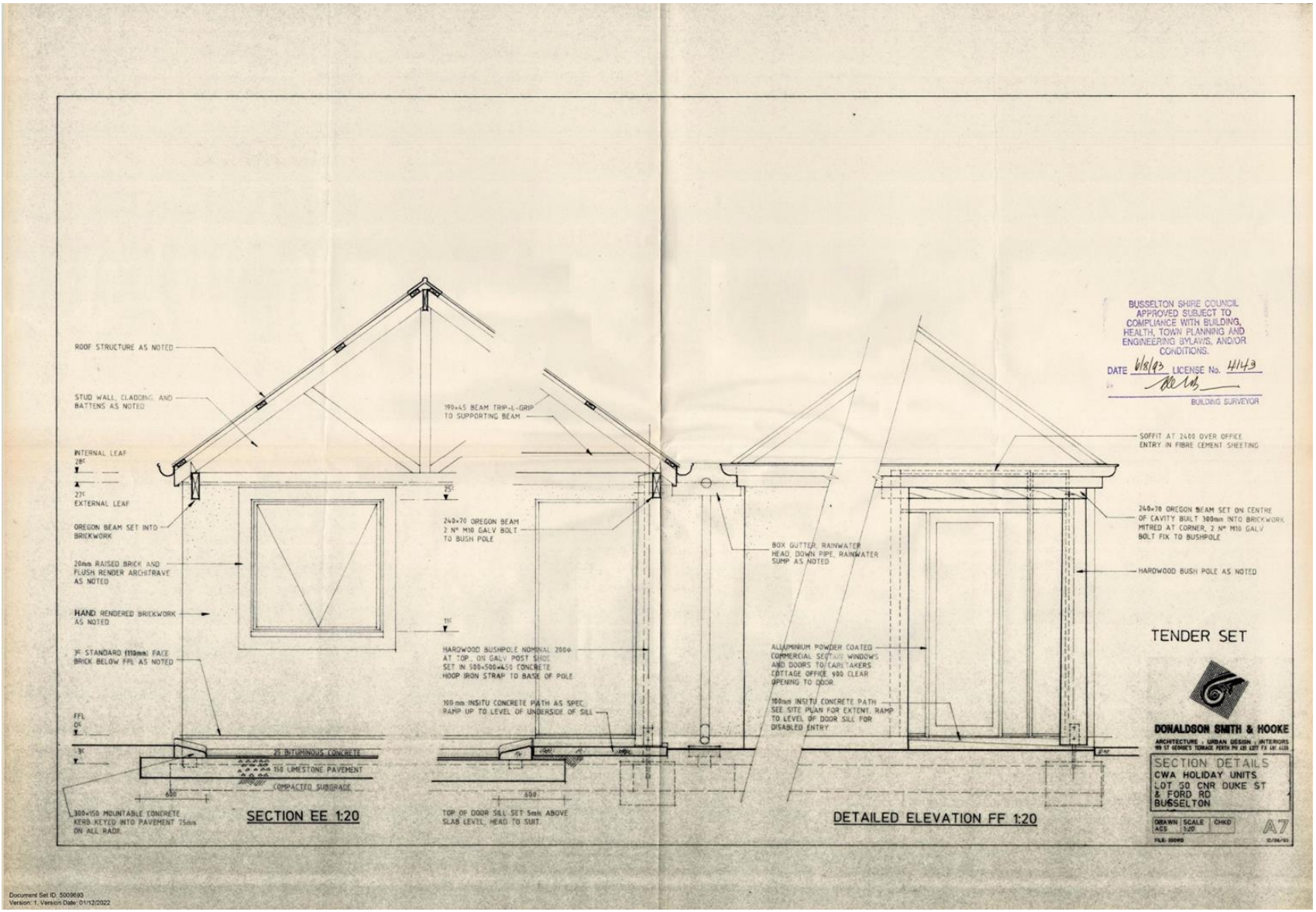

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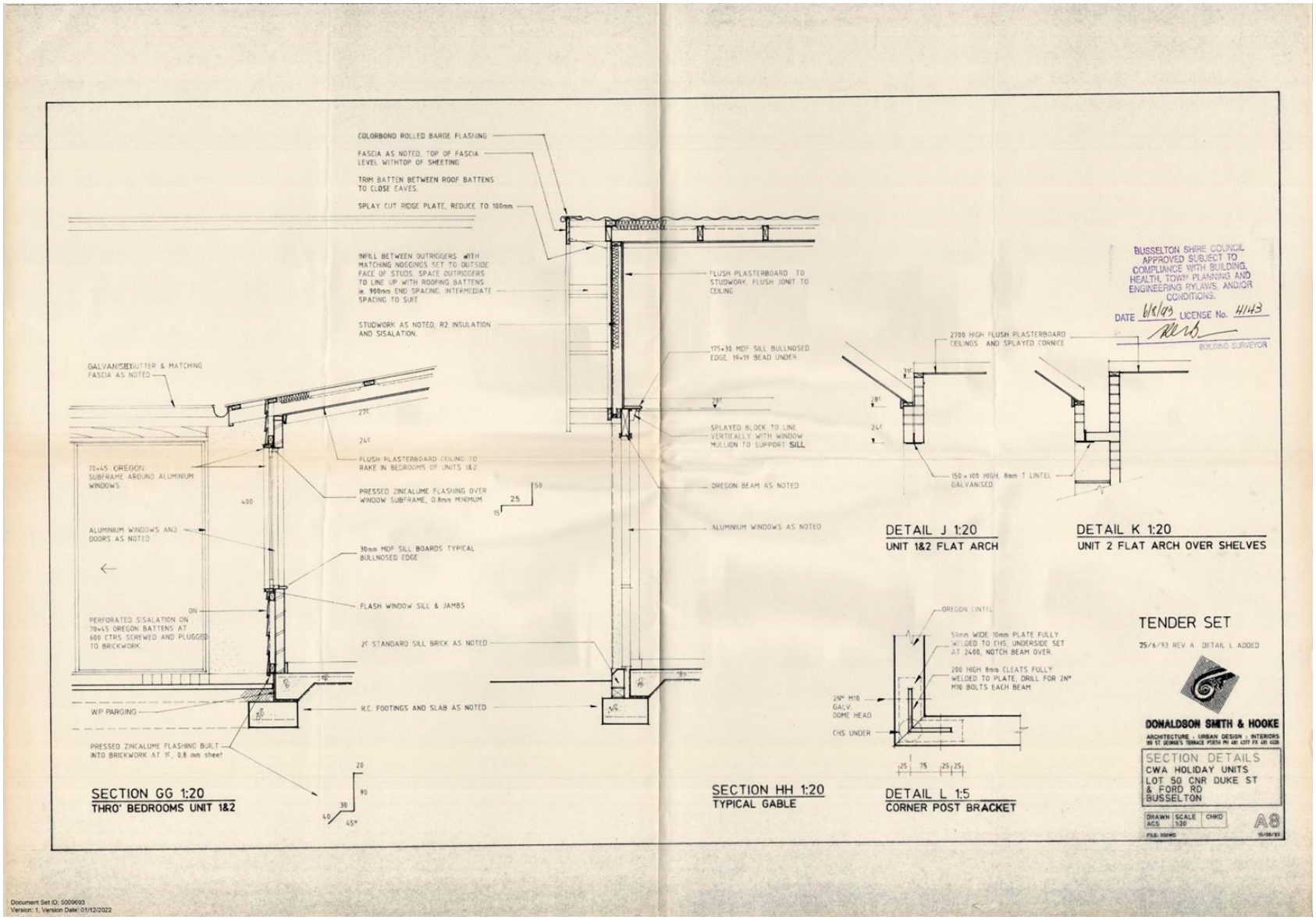

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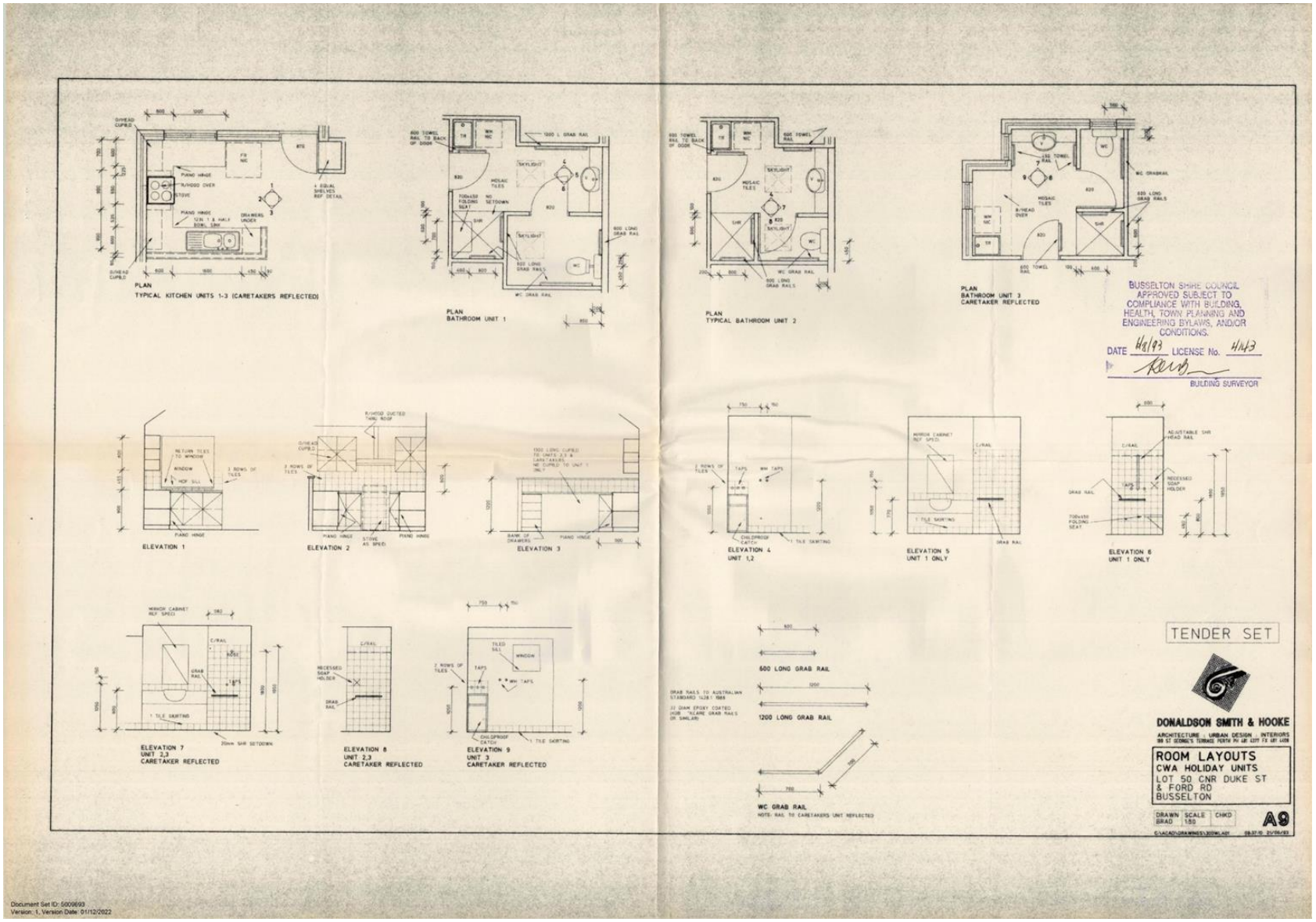

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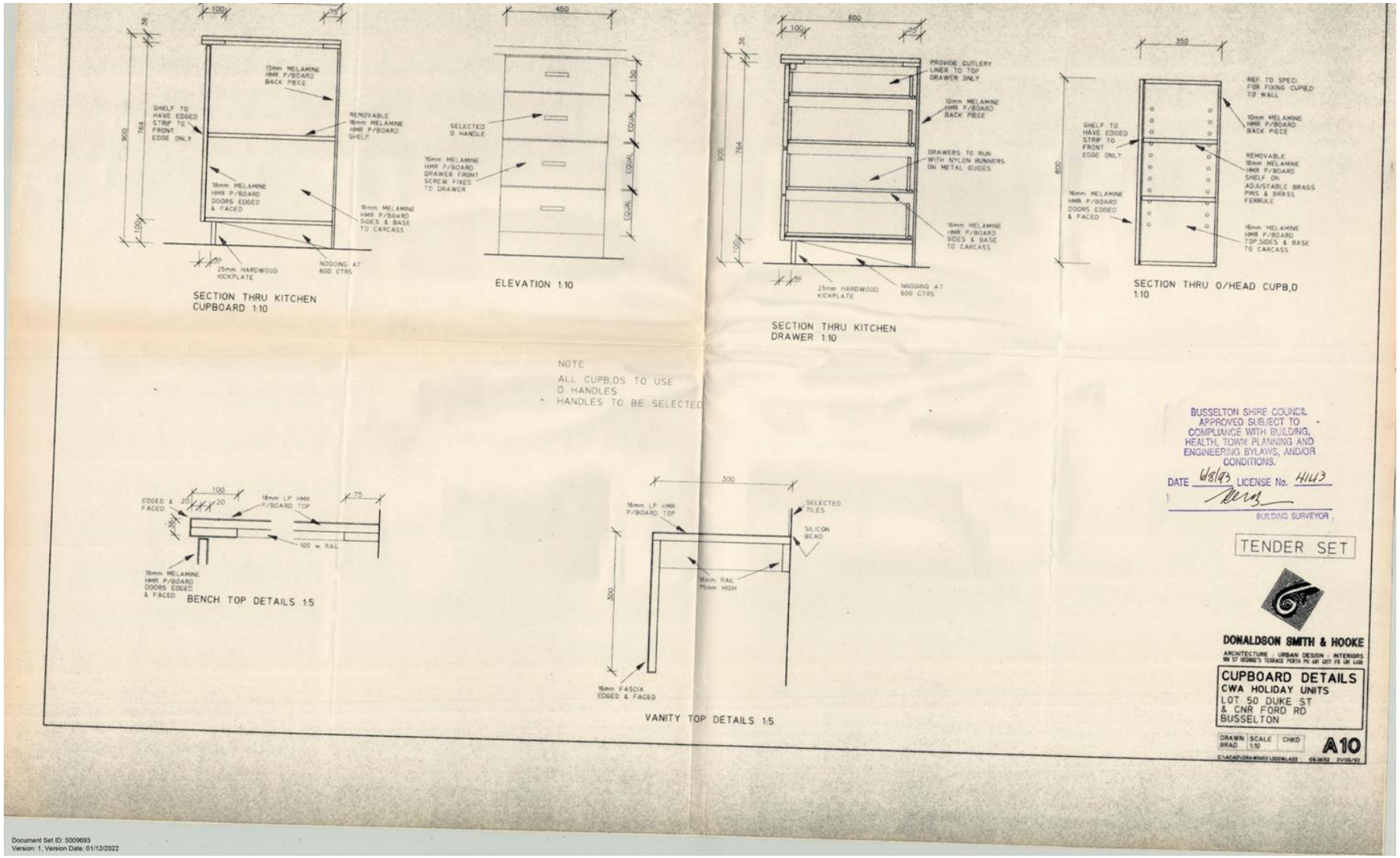

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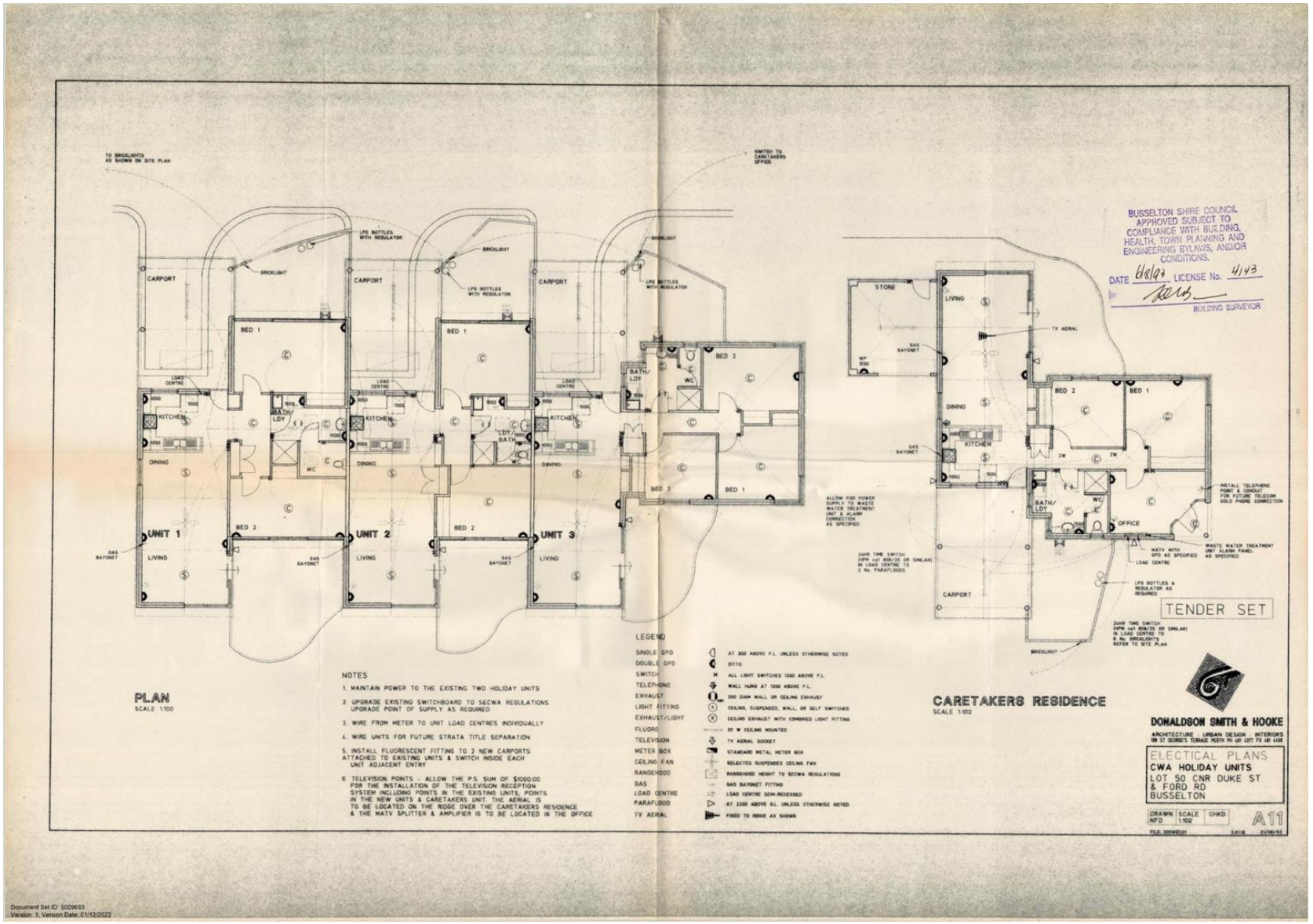

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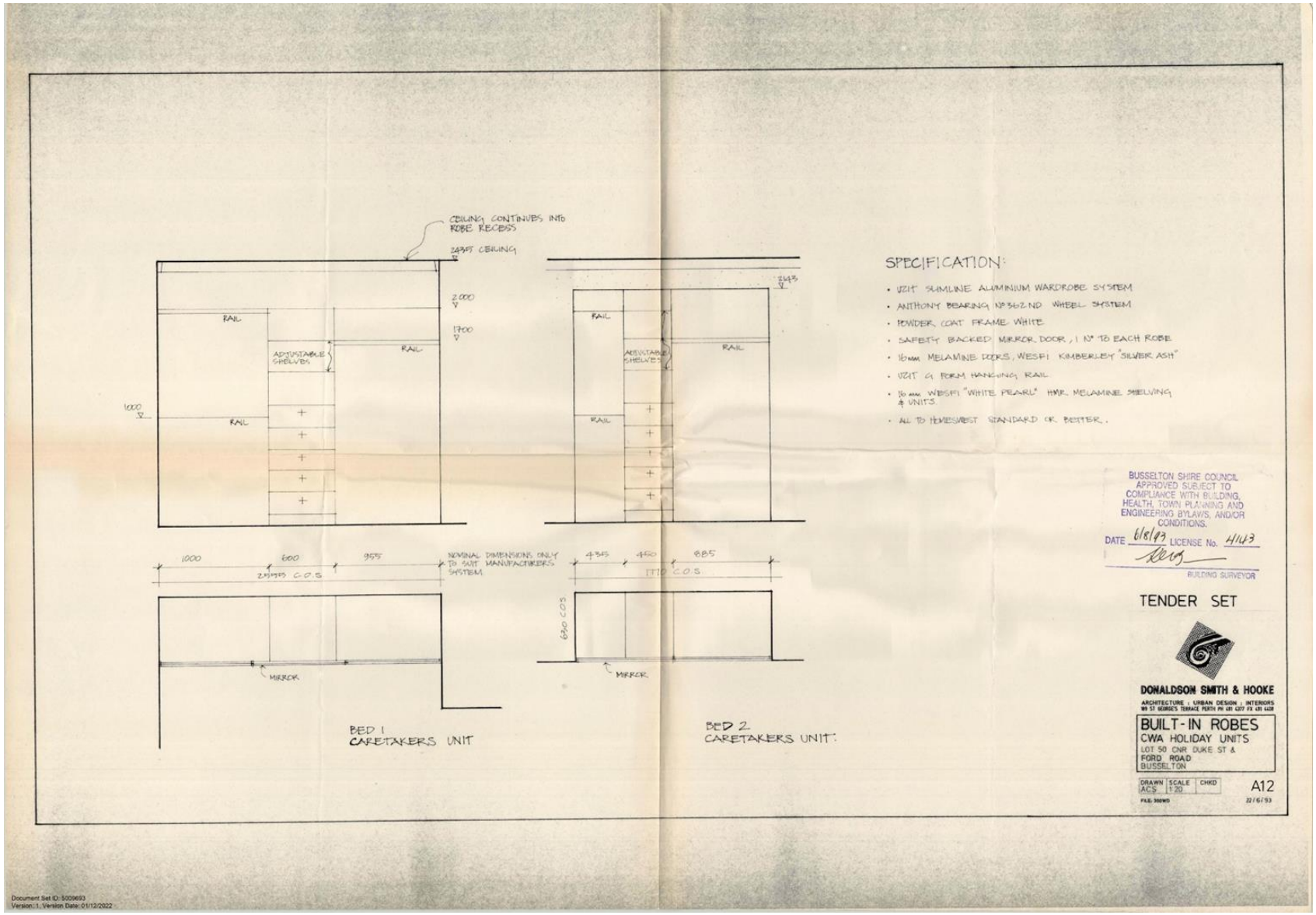

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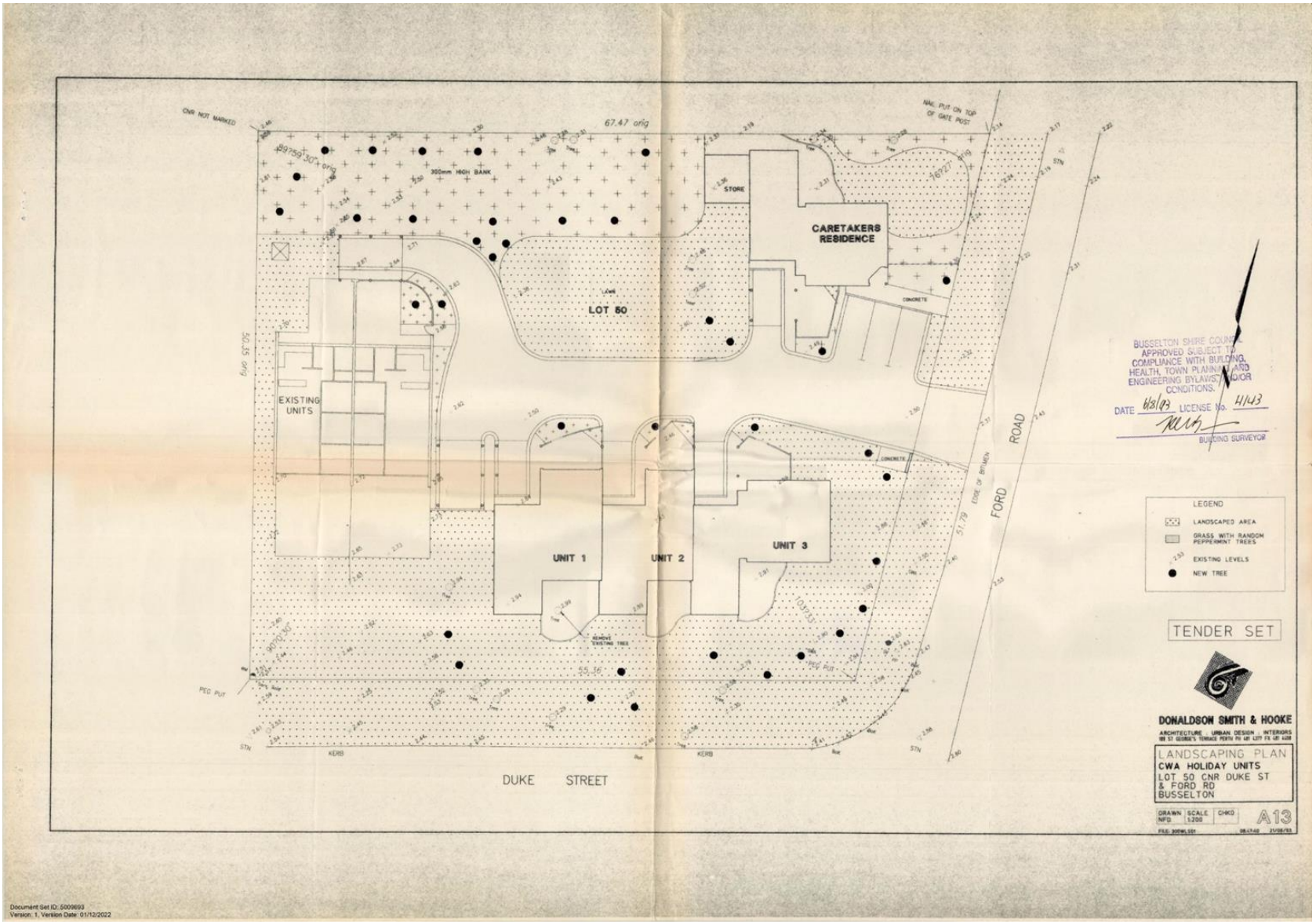

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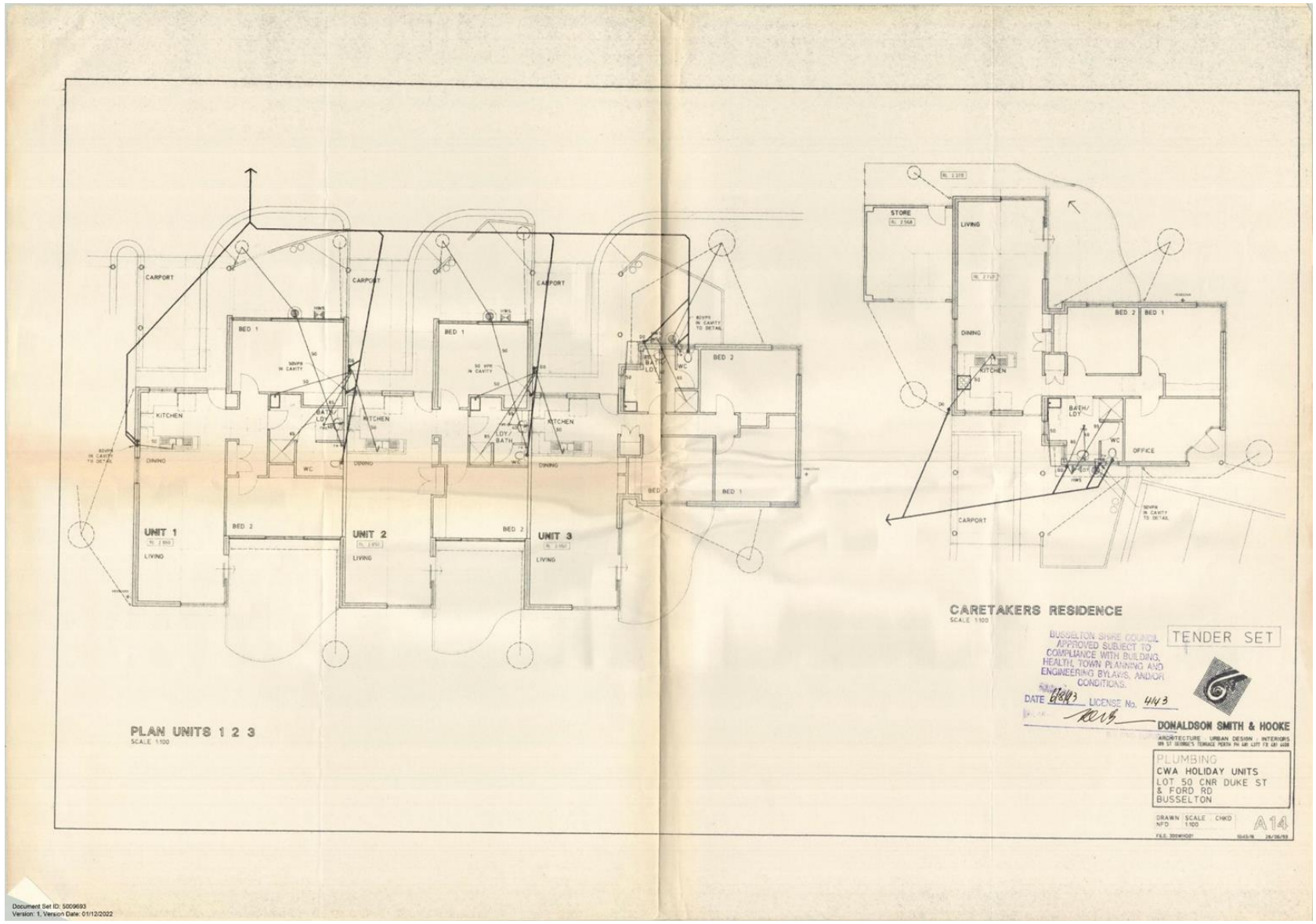

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SHIRE OF BUSSELTON
SOUTHERN DRIVE, BUSSELTON, W.A. 6280
Telephone (097) 52 1011, Facsimile (097) 52 4958
Office Hours: Monday to Friday, 9am to 4pm
All Communications to the Shire Clerk
P.O. BOX 84, BUSSELTON, W.A. 6280

Our Ref: C.5.1/1036
Your Ref:
Enquiries: Mr Steve Thompson

May 4, 1993

Mr Andrew Sullivan
Donaldson Smith & Hooke
PO Box 7058 Cloisters Square
PERTH WA 6850

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Document Set ID: 5046553
Version: 1, Version Date: 03/02/2023

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Yours faithfully

Michael Swift
PRINCIPAL PLANNER

c.c.: *Martin Caramia*
Principal Building Surveyor

Enc:
1. *Certificate of Classification*
2. *Landscape Plan Information*

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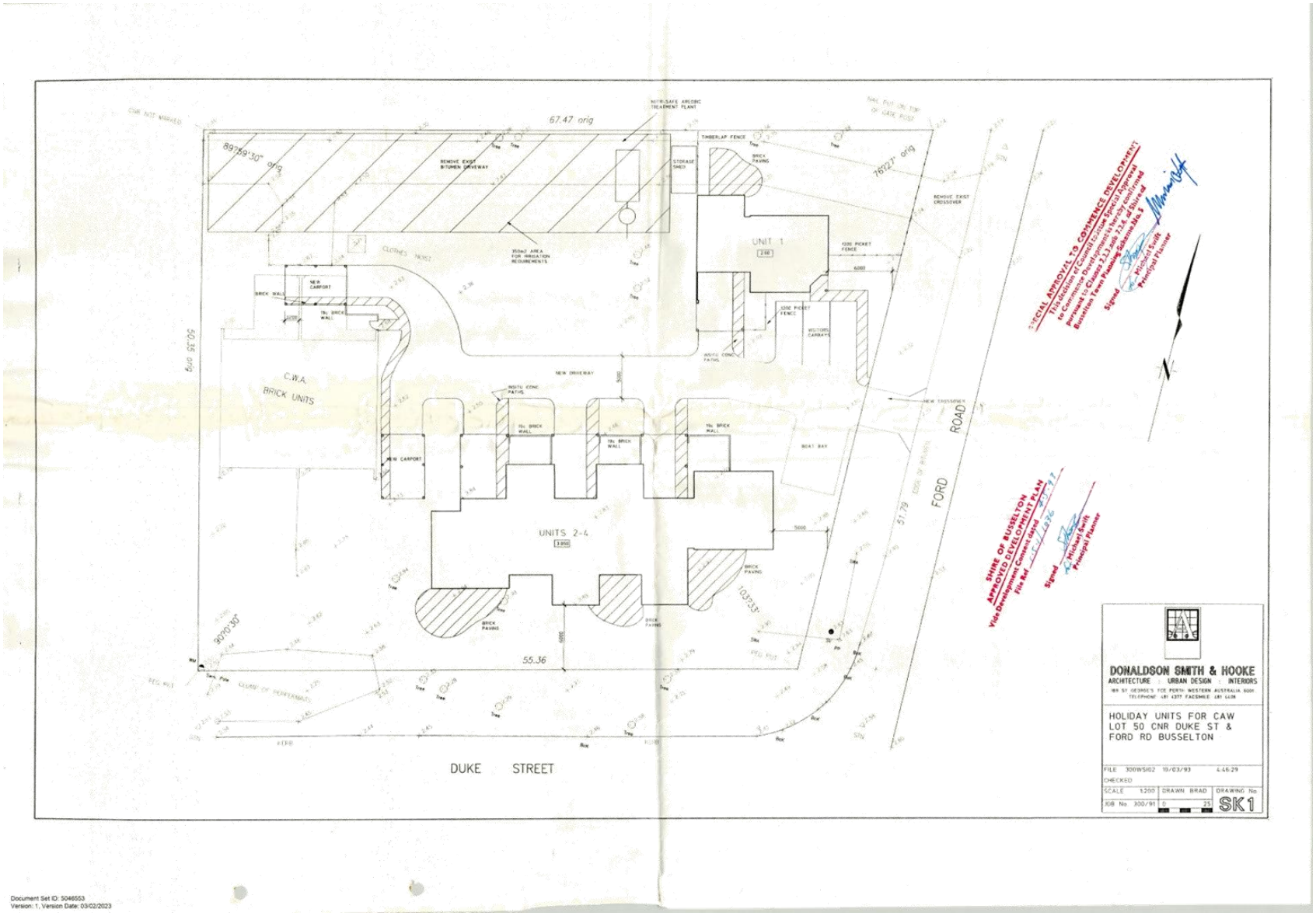

Document Set ID: 5046553
Version: 1, Version Date: 03/02/2023



Document Set ID: 5046553
Version: 1, Version Date: 03/02/2023

Duke St Busselton

F

SCHEDULE
Form 1

BUSSELTON SHIRE COUNCIL

BUILDING SURVEYOR'S OFFICE

Application Form No. 5430. Date 21-2-1979.

TO THE BUILDING SURVEYOR—

As the builder or person causing and directing the work undermentioned to be executed, I hereby apply for a Building Licence for same.

The following are the particulars of the proposed works—

Situation: Ward Central Street Duke & Ford Rd.

Lot 15.16.17. Subdivision Central Busselton House No. 183-187

New building to be used as HOLIDAY HOMES.

Additions and/or alterations to

The nature of the work is Brick external S/F internal metal Roofs.

Estimated value $ 56000.00

Dimensions of building or structure

Area ~~202~~ 245 sq. ft. Depth 14.410 (C. Ports. 8.000) ft. Width 14.020 (5.000) ft. Height 2.400 ft.

Number of Storeys 1

Owner: Name C. W. A.

Address: ~~85 MILL POINT RD. STH Perth~~ c/-61 Harris Rd Busselton

Occupier: Name Country Women Association.

Signature of person giving notice James Aris Assoc.

Address: c/o. P.O Box 111 West Perth.

Fees: $ 53.90 Receipt No. 9109

Appl. ~~30c~~

$ 54-30

Planning OK

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Version: 1, Version Date: 17/01/2023

18/4/79 Compaction O.K average 6 to 12 ins
Poly. mesh ready to Pour
20/4/79 Floor Poured Rick. Neal
General Work O.K
12/7/79 Completed

Document Set ID: 5036329
Version: 1, Version Date: 17/01/2023

Form 2
Local Government Act 1960 By-Law 8.1
Application No. 5430

BUSSELTON SHIRE COUNCIL
APPLICATION FOR BUILDING LICENSE

To the Building Surveyor:-

As the builder or person causing and directing the works undermentioned to be executed, I hereby apply for a Building License for same.

The following are the particulars of the proposed works:-

Situation

Ward East Busselton Street Cnr. Ford Rd & Duke St.
Town Lot 50 Subdivision House No. 183-187
New building to be used as Holiday Homes
Additions and/or alterations to
The nature of the work is BRICK-VENEER CONSTRUCTION
METAL ROOF-COVER CONCRETE FLOORS

Estimated value $ 55725—

Dimensions of building or structure
Area 240-52 m² Depth 14020 mm ; Width 14440 mm Height 2440 mm
Number of Storeys Single.
Owner: Name C.W.A. Address C/- 61 Harris Rd Busselton
Occupier: Name ✓ Address
Classification Number sought by owner if not previously classified or if change of use is sought

Signature of Applicant [signature] for Bignell Building Co Pty Ltd.
Address Queen St. Busselton
Date:- 27-3-1979

By-Law 6.3 OFFICE USE ONLY*

Form 1
Local Government Act 1960
Certificate No.

Busselton Shire Council
Certificate of Classification

Date of Certificate 19.
This is to certify that the Council has approved the use of the building situated at
(DESCRIPTION OF LAND)
as a building of the class or classes specified herein.

STOREY OR PORTION OF BUILDING	CLASS OR CLASSES OF BUILDING

Signed:-
Shire Clerk.

NOTE:- The use of the above building or any portion thereof for a purpose not covered by this certificate is an offence.

Document Set ID: 5036329
Version: 1, Version Date: 17/01/2023

James Aris & Associates

Architects

[redacted]
P.O. Box 111 West Perth
Telephone [redacted] 367 8264

15th February, 1979.

The Building Surveyor,
Shire of Busselton,
Prince Street,
BUSSELTON W.A. 6280

Dear Sir,

C.W.A. Holiday Homes

We submit for your consideration and issue of a building license the enclosed plans and specifications in duplicate.

Our clients are anxious to commence construction as soon as possible and ask for your earliest attention.

Yours faithfully,

JAMES ARIS & ASSOCIATES

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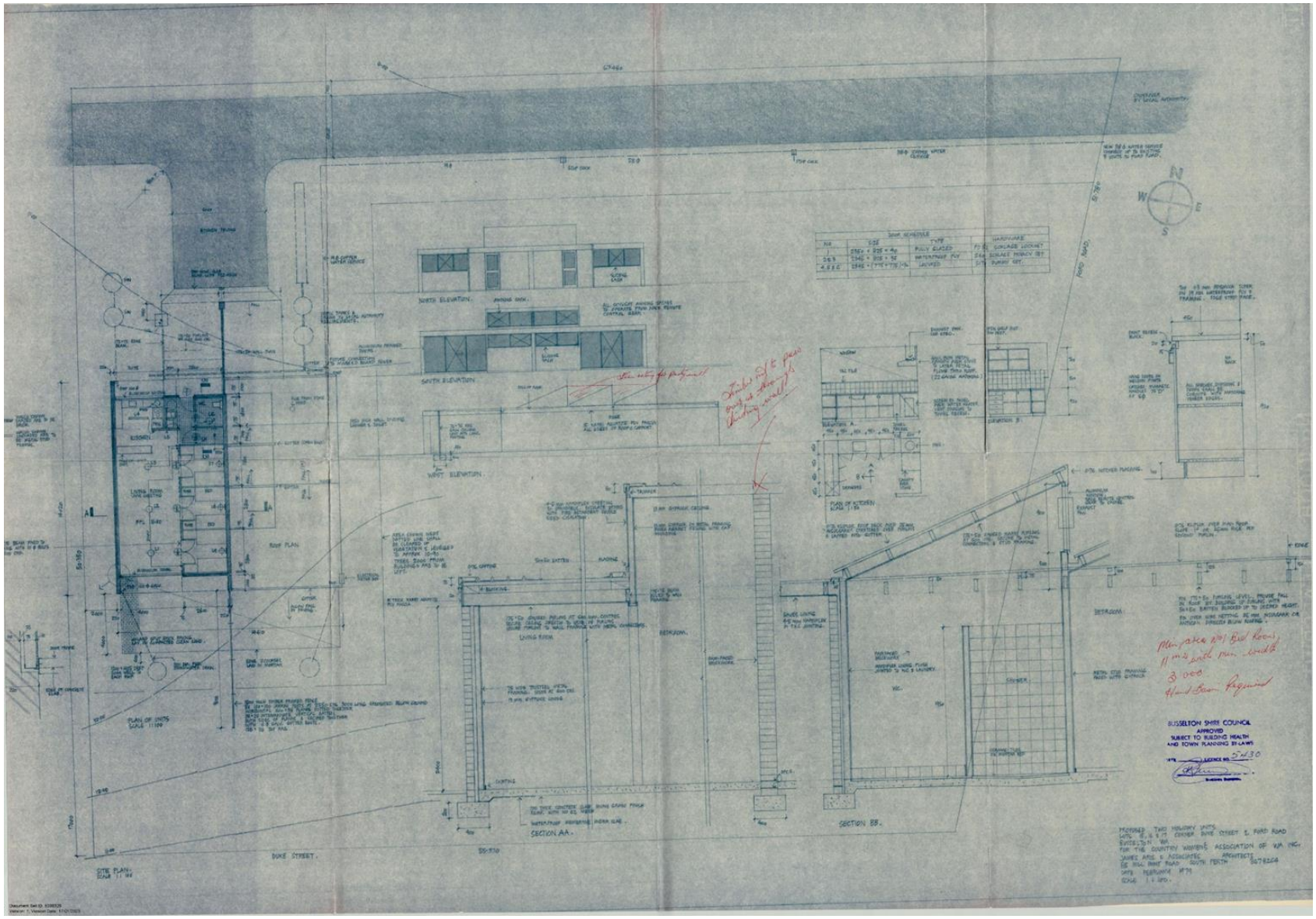
Version: 1, Version Date: 17/01/2023


NORTH ELEVATION
SOUTH ELEVATION
WEST ELEVATION
SECTION AA
SECTION BB
SITE PLAN
PLAN OF UNITS
DUKE STREET
FORD ROAD
BUSSELTON SHIRE COUNCIL
APPROVED
SUBJECT TO BUILDING HEALTH
AND TOWN PLANNING BY-LAWS



FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD BUSSELTON, WA 6280

DEVELOPMENT APPLICATION
PREPARED FOR THE CITY OF BUSSELTON OCTOBER 2022

A00.00	COVER
A01.01	SURVEY
A01.02	PROPOSED SITE PLAN
A02.01	GROUND FLOOR PLAN
A02.02	FIRST FLOOR PLAN
A02.03	ROOF PLAN
A03.01	ELEVATIONS & SCHEDULE OF MATERIALS
A03.02	ELEVATIONS
A03.03	VISUALS

SCALE
NTS

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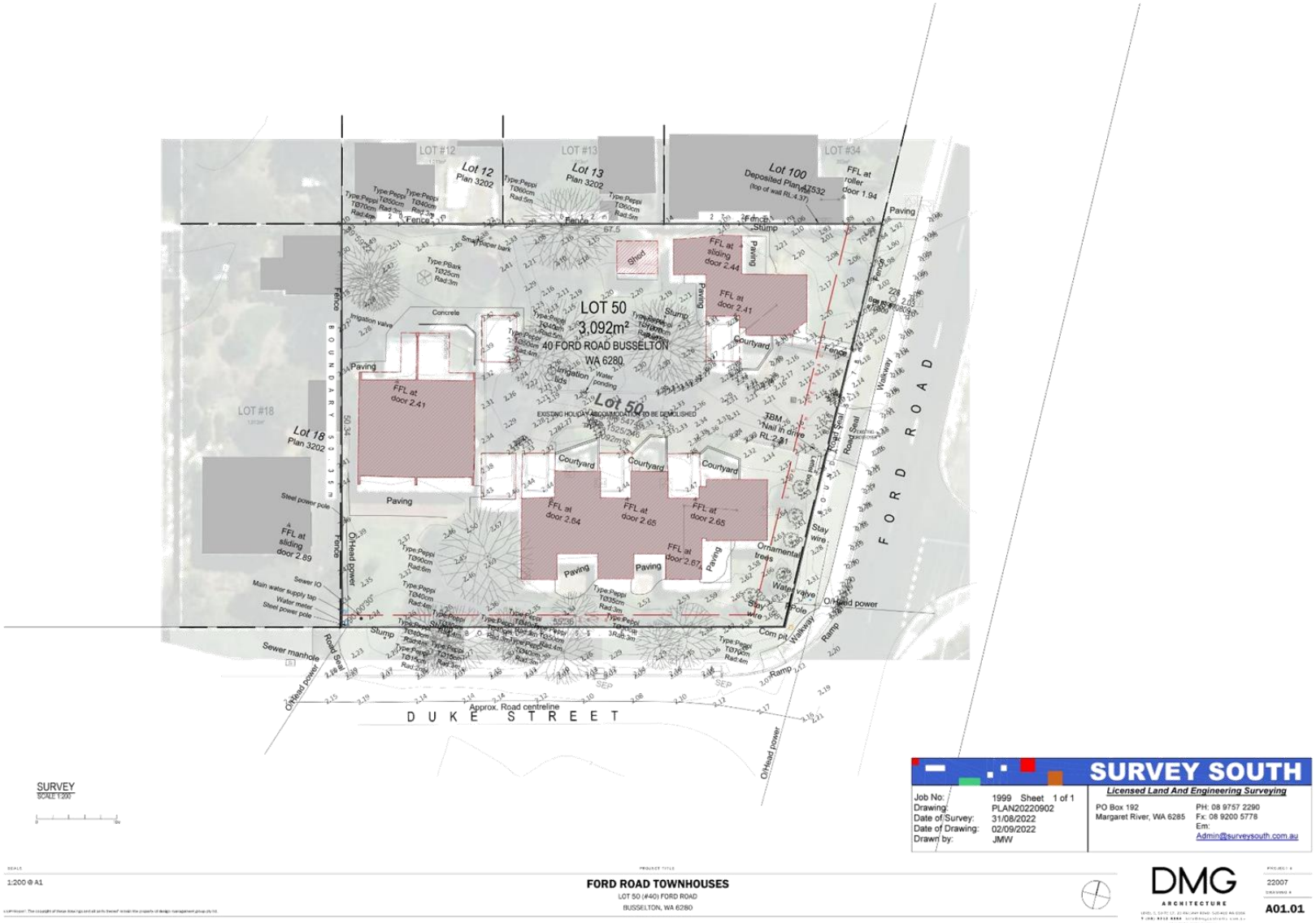
PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG
ARCHITECTURE

PROJECT #
22007

DRAWING #
A00.00


LOT 50
3,092m²
40 FORD ROAD BUSSELTON
WA 6280
Lot 50
Lot 12
Plan 3202
Lot 13
Plan 3202
Lot 100
Deposited Plan 47532
Lot 18
Plan 3202
LOT #12
LOT #13
LOT #34
LOT #18
FFL at door 2.41
FFL at door 2.64
FFL at door 2.65
FFL at door 2.67
FFL at sliding door 2.44
FFL at sliding door 2.89
FFL at roller door 1.94
Paving
Courtyard
Concrete
Shed
Stump
Fence
Walkway
Road Seal
Ornamental trees
Water valve
Pole
Com pit
Ramp
Steel power pole
Sewer IO
Main water supply tap
Water meter
Steel power pole
Sewer manhole
O/Head power
Approx. Road centreline
D U K E S T R E E T
F O R D R O A D
SURVEY
SCALE 1:200
SURVEY SOUTH
Licensed Land And Engineering Surveying
Job No: 1999 Sheet 1 of 1
Drawing: PLAN20220902
Date of Survey: 31/08/2022
Date of Drawing: 02/09/2022
Drawn by: JMW
PO Box 192
Margaret River, WA 6285
PH: 08 9757 2290
Fx: 08 9200 5778
Em: Admin@surveysouth.com.au
1:200 @ A1
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280
DMG
ARCHITECTURE
22007
A01.01



PROPOSED SITE PLAN
SCALE 1:200

LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21	
R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
BUILDING HEIGHT (PITCHED ROOF)	12m
EXTERNAL WALL HEIGHT (ROOF ABOVE)	9m
EXTERNAL WALL HEIGHT (CONCEALED ROOF)	10m
MIN PRIMARY SETBACK	4m
MIN SECONDARY SETBACK	1.5m
MIN SIDE/REAR SETBACKS	PER R-CODES
MIN OPEN SPACE	45%
SITE AREA	3092m²
PROPOSED	
CARPARKING	
VISITOR (+1x STAFF)	5 BAYS
GROUPED DWELLING	3 BAYS PER DWELLING
TOTAL	32 SECURE CAR BAYS
ON STREET	4 BAYS

TOWNHOUSE	**TOTAL**
5 BED x 3 BATH	9
1 BED x 1 BATH	1

PLOT RATIO	
DEVELOPMENT PR AREA (INCL BALC)	2467m²
PLOT RATIO	0.80
OPEN SPACE	1740m²
	56%
DEEP SOIL ZONE	625m²
	20%

SCALE
1:200 @ A1

PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #
22007

DRAWING #
A01.02



GROUND FLOOR PLAN
SCALE 1:200

LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21

R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
BUILDING HEIGHT (PITCHED ROOF)	12m
EXTERNAL WALL HEIGHT (ROOF ABOVE)	9m
EXTERNAL WALL HEIGHT (CONCEALED ROOF)	10m
MIN PRIMARY SETBACK	4m
MIN SECONDARY SETBACK	1.5m
MIN SIDE/REAR SETBACKS	PER R-CODES
MIN OPEN SPACE	45%
SITE AREA	3092m²

PROPOSED

CARPARKING

VISITOR (+1x STAFF)	5 BAYS
GROUPED DWELLING	3 BAYS PER DWELLING
TOTAL	32 SECURE CAR BAYS
ON STREET	4 BAYS

TOWNHOUSE	TOTAL
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NOT FOR GUEST USE

SCALE
1:200 @ A1

PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #
22007

DRAWING #
A02.01



FIRST FLOOR PLAN
SCALE 1:200

LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21	
R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
BUILDING HEIGHT (PITCHED ROOF)	12m
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DEEP SOIL ZONE	625m²
	20%

OVERLOOKING CONE OF VISION

NOT FOR GUEST USE

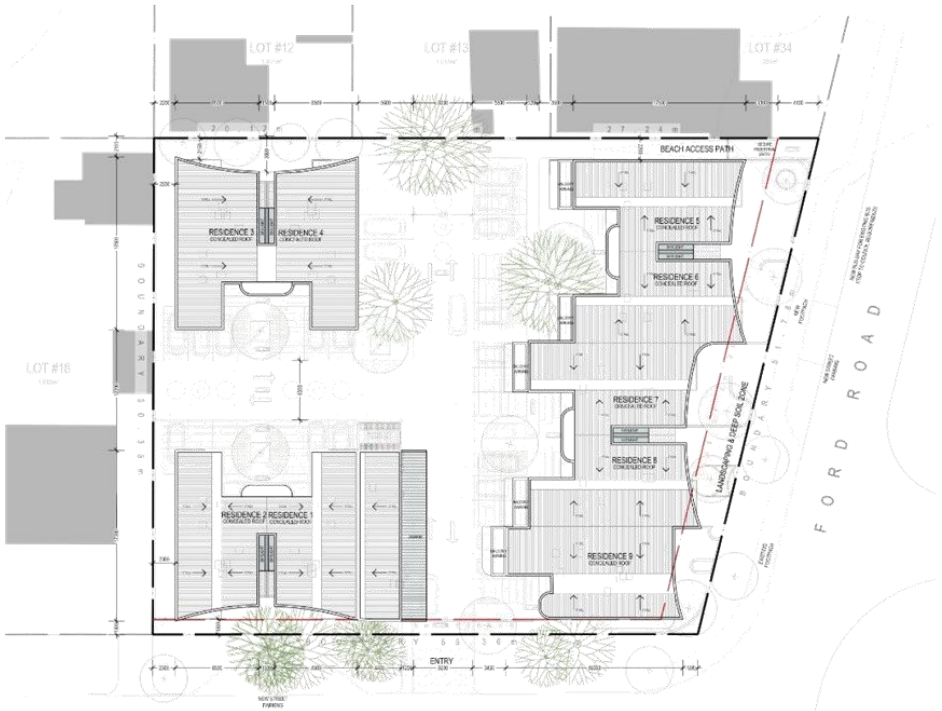
SCALE
1:200 @ A1

PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #
22007

DRAWING #
A02.02



ROOF PLAN
SCALE 1:200

LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21

R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
BUILDING HEIGHT (PITCHED ROOF)	12m
EXTERNAL WALL HEIGHT (ROOF ABOVE)	9m
EXTERNAL WALL HEIGHT (CONCEALED ROOF)	10m
MIN PRIMARY SETBACK	4m
MIN SECONDARY SETBACK	1.5m
MIN SIDE/REAR SETBACKS	PER R-CODES
MIN OPEN SPACE	45%
SITE AREA	3092m²

PROPOSED

CARPARKING

VISITOR (+1x STAFF)	5 BAYS
GROUPED DWELLING	3 BAYS PER DWELLING
TOTAL	32 SECURE CAR BAYS
ON STREET	4 BAYS

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DEEP SOIL ZONE	625m²
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SCALE
1:200 @ A1

PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

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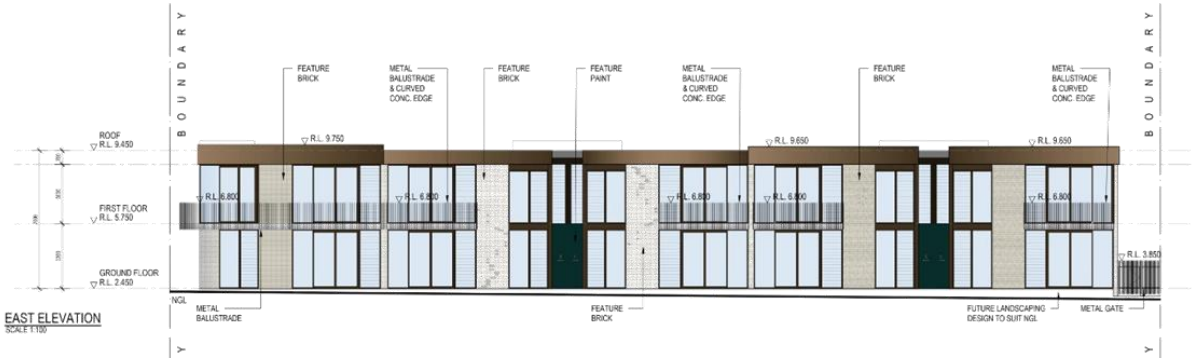
ARCHITECTURE

PROJECT #
22007

DRAWING #
A02.03







LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21	
R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
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	20%

SCHEDULE OF MATERIALS

- METAL CLADDING - BRONZE COLOUR
- FEATURE BRICK - NEUTRAL BEIGE
- BOARD MARK CONCRETE
- BREEZE BLOCK WALL (BRISE SOLEIL)
- ALUMINIUM FRAMED GLAZING - CLEAR
- FEATURE STONE PAVING
- BRICK ARTWORK TO FUTURE DESIGN
- FEATURE PAINT FINISH - MUTED GREEN
- FEATURE PAINT FINISH - BRONZE

SCALE
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PROJECT TITLE
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LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

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LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21	
R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
BUILDING HEIGHT (PITCHED ROOF)	12m
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SCALE
1:100 @ A1

PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #
22007
DRAWING #
A03.02



FORD ROAD - PERSPECTIVE 1



FORD ROAD - PERSPECTIVE 2



FORD ROAD TOWNHOUSES

LOT 50 (#40) FORD ROAD BUSSELTON, WA 6280

DEVELOPMENT APPLICATION
PREPARED FOR THE CITY OF BUSSELTON MARCH 2023

A00.00	COVER
A01.01	SURVEY
A01.02	PROPOSED SITE PLAN
A02.01	GROUND FLOOR PLAN
A02.02	FIRST FLOOR PLAN
A02.03	ROOF PLAN
A03.01	ELEVATIONS & SCHEDULE OF MATERIALS
A03.02	ELEVATIONS
A03.03	VISUALS

SCALE
NTS

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PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

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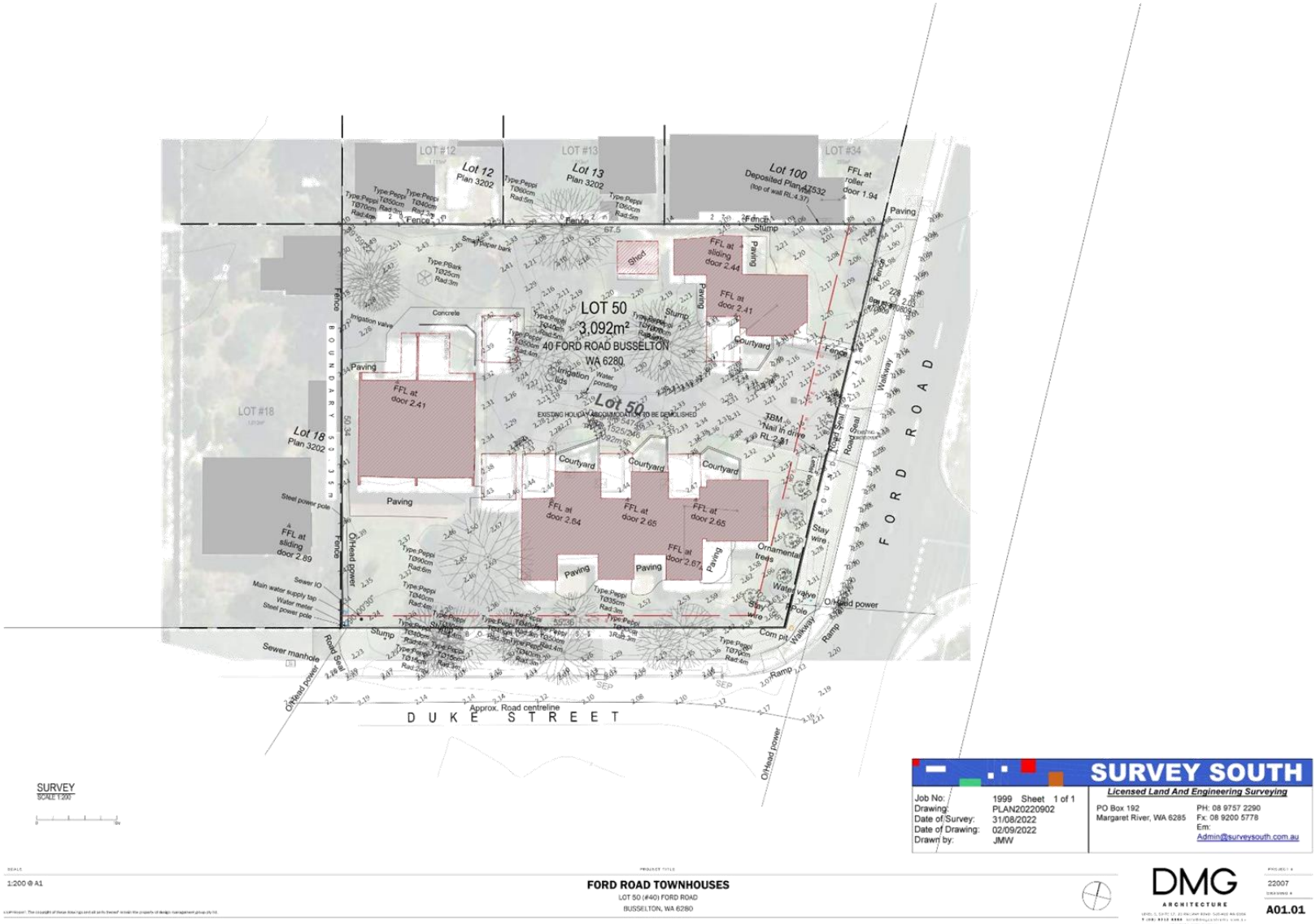
ARCHITECTURE

PROJECT #
22007
DRAWING #
A00.00



SURVEY SOUTH
Licensed Land And Engineering Surveying

Job No:	1999 Sheet 1 of 1
Drawing:	PLAN20220902
Date of Survey:	31/08/2022
Date of Drawing:	02/09/2022
Drawn by:	JMW

PO Box 192
Margaret River, WA 6285
PH: 08 9757 2290
Fx: 08 9200 5778
Em: Admin@surveysouth.com.au

1:200 @ A1

FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

22007

A01.01



PROPOSED SITE PLAN
SCALE 1:200

LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21	
R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
BUILDING HEIGHT (PITCHED ROOF)	12m
EXTERNAL WALL HEIGHT (ROOF ABOVE)	9m
EXTERNAL WALL HEIGHT (CONCEALED ROOF)	10m
MIN PRIMARY SETBACK	4m
MIN SECONDARY SETBACK	1.5m
MIN SIDE/REAR SETBACKS	PER R-CODES
MIN OPEN SPACE	45%
SITE AREA	3,092m²
PROPOSED	
CAR PARKING	
VISITOR (+1x STAFF)	5 BAYS
GROUPED DWELLING	3 BAYS PER DWELLING
TOTAL	32 SECURE CAR BAYS
BIKES	
PRIVATE	4 PER UNIT
VISITOR	10

TOWNHOUSE	**TOTAL**
5 BED x 3 BATH	9
1 BED x 1 BATH	1

PLOT RATIO	
DEVELOPMENT PR AREA	2,255m²
PLOT RATIO	0.73
OPEN SPACE	1740m²
	56%
DEEP SOIL ZONE	625m²
	20%

SCALE
1:200 @ A1

PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #
22007

DRAWING #
A01.02



GROUND FLOOR PLAN
SCALE 1:200

LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21	
R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
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MIN PRIMARY SETBACK	4m
MIN SECONDARY SETBACK	1.5m
MIN SIDE/REAR SETBACKS	PER R-CODES
MIN OPEN SPACE	45%
SITE AREA	3,062m²
PROPOSED	
CAR PARKING	
VISITOR (=1x STAFF)	5 BAYS
GROUPED DWELLING	3 BAYS PER DWELLING
TOTAL	32 SECURE CAR BAYS
BIKES	
PRIVATE	4 PER UNIT
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5 BED x 3 BATH	9
1 BED x 1 BATH	1

PLOT RATIO	
DEVELOPMENT PR AREA	2,255m²
PLOT RATIO	0.73
OPEN SPACE	1740m²
	58%
DEEP SOIL ZONE	625m²
	20%

NOT FOR GUEST USE

SCALE
1:200 @ A1

PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #
22007

A02.01



FIRST FLOOR PLAN
SCALE 1:200

LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21	
R-CODING	R30
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SITE AREA	3,092m²
PROPOSED	
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PRIVATE	4 PER UNIT
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PLOT RATIO	
DEVELOPMENT PR AREA	2,255m²
PLOT RATIO	0.73
OPEN SPACE	1740m²
	56%
DEEP SOIL ZONE	625m²
	20%

OVERLOOKING CONE OF VISION

NOT FOR GUEST USE

SCALE
1:200 @ A1

PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #
22007

DRAWING #
A02.02



LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21	
R-CODING	R30
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DEVELOPMENT PR AREA	2,255m²
PLOT RATIO	0.73
OPEN SPACE	1740m²
	56%
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	20%

ROOF PLAN
SCALE 1:200

SCALE
1:200 @ A1

PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #
22007

DRAWING #
A02.03



LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21	
R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
BUILDING HEIGHT (PITCHED ROOF)	12m
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PLOT RATIO	
DEVELOPMENT PR AREA	2,255m²
PLOT RATIO	0.73
OPEN SPACE	1740m² 56%
DEEP SOIL ZONE	625m² 20%

SCHEDULE OF MATERIALS

- METAL CLADDING - BRONZE COLOUR
- FEATURE BRICK - NEUTRAL BEIGE
- BOARD MARK CONCRETE
- ALUMINIUM LOUVRES - 75% OBSCURE
- BREEZE BLOCK WALL (BRISE SOLEIL)
- ALUMINIUM FRAMED GLAZING - CLEAR
- FEATURE STONE PAVING
- BRICK ARTWORK TO FUTURE DESIGN
- FEATURE PAINT FINISH - MUTED GREEN
- FEATURE PAINT FINISH - BRONZE

SCALE: 1:100 @ A1

PROJECT TITLE:
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #: 22007
DRAWING #: A03.01



LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21	
R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
BUILDING HEIGHT (PITCHED ROOF)	12m
EXTERNAL WALL HEIGHT (ROOF ABOVE)	9m
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SITE AREA	3,092m²
PROPOSED	
CAR PARKING	
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TOWNHOUSE	**TOTAL**
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DEVELOPMENT PR AREA	2,255m²
PLOT RATIO	0.73
OPEN SPACE	1740m² 56%
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SCALE: 1:100 @ A1

PROJECT TITLE:
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #: 22007

DRAWING #: A03.02



FORD ROAD - PERSPECTIVE 1



FORD ROAD - PERSPECTIVE 2

SCALE
NTS

PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG
ARCHITECTURE

PROJECT #
22007

A03.03



DMG
ARCHITECTURE

Project:	Proposed Redevelopment 40 Ford Road, Busselton
Client:	DMG Architectural
Author:	Yuyang Ke
Date:	27th Feb 2023
Document No.:	230207-TIS-001

SHAWMAC TRAFFIC & SAFETY PTD LTD
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Document Status: Document Status

Version	Prepared By	Reviewed By	Approved By	Date
1	Yuyang Ke	Anthony Anastas	Anthony Anastas	23/02/23

File Reference: C:\Users\k2y20\Shawmac T & S Dropbox\Jobs Active 2023\Traffic & Parking\DMG_40 Ford Road Busselton TIS\DMG_40 Ford Road Busselton TIS_Rev 1.docx

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1. Introduction

1.1. Proponent

DMG Architecture are proposing to redevelop an existing holiday accommodation at 40 Ford Rd in Busselton to expand the capacity from 5 town houses for 31 guests plus caretakes/staff to 9 town houses for 90 guests plus caretakers/staff.

1.2. Site Location

The local council is the City of Busselton (the City). The site location is shown in **Figure 1**. An aerial photo of the site is shown in **Figure 2**.

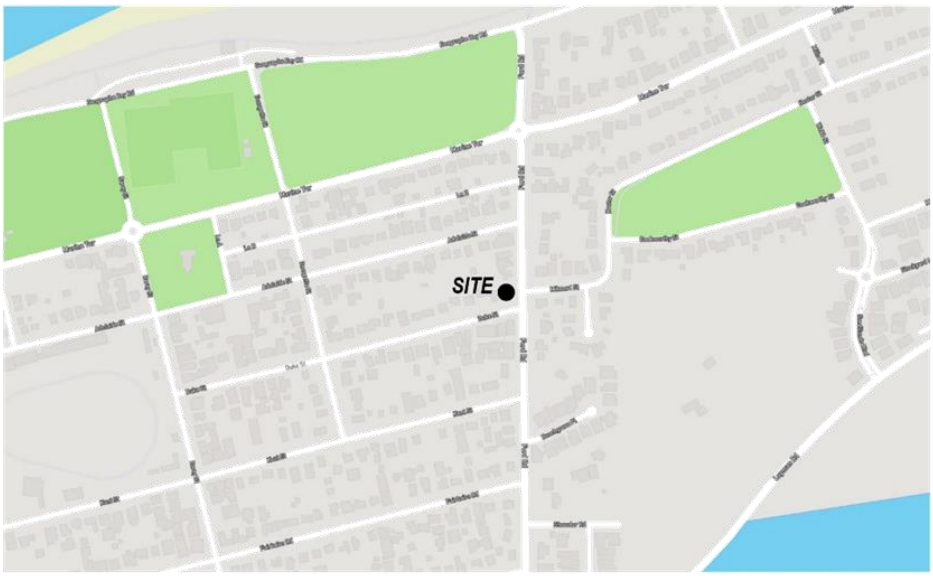


Figure 1: Site Location



Figure 2: Aerial View (February 2022)

This Transport Impact Statement has been prepared in accordance with the Western Australian Planning Commission's *Transport Impact Assessment Guidelines 2016* (TIA guidelines).

2. Redevelopment Proposal

2.1. Land Uses

The proposed development is to expand the capacity from 5 town houses for 31 guests plus caretakes/staff to 9 town houses for 90 guests plus caretakers/staff. Under the City's Local Planning Scheme, the site is zoned Residential and compliance with R-Code 30.

A ground floor site plan is shown in **Figure 3** and the floor plans are attached as **Appendix A**.



Figure 3: Site Plan

3. Traffic Management on Front Streets

3.1. Road Network

3.1.1. Existing Road Layout and Hierarchy

The layout and hierarchy of the existing local road network according to the Main Roads WA *Road Information Mapping System* is shown in **Figure 4**.



Figure 4: Existing Road Network Hierarchy

3.1.2. Carriageway and Cross Section

The configuration of the relevant existing road is summarised in **Table 1**.

Table 1: Road Configuration

Road and Location	Road Type	Cross Section	Speed Limit (km/h)
Ford Road	Access Road	2-lane single carriageway	50km/h
Duke Street	Access Road	2-lane single carriageway	50km/h

3.1. Traffic Volumes (add the traffic volumes relevant to the project)

There are no traffic data available for Ford Road and Duke Street on MRWA Traffic Map, it is assumed these roads only carries low volume of traffic and the development is unlikely to affect the road network.

4. Vehicle Access and Parking

4.1. Proposed Access and Rearrangement

Existing property access is located on Ford Road north of Duke Street intersection, the proposed development access will be relocated to Duke Street.

Proposed onsite car parking includes 26 resident bays, 4 visitor bays, 1 staff bay and 1 disable bay.

The proposed site layout and vehicle access arrangement is shown in **Figure 5**.

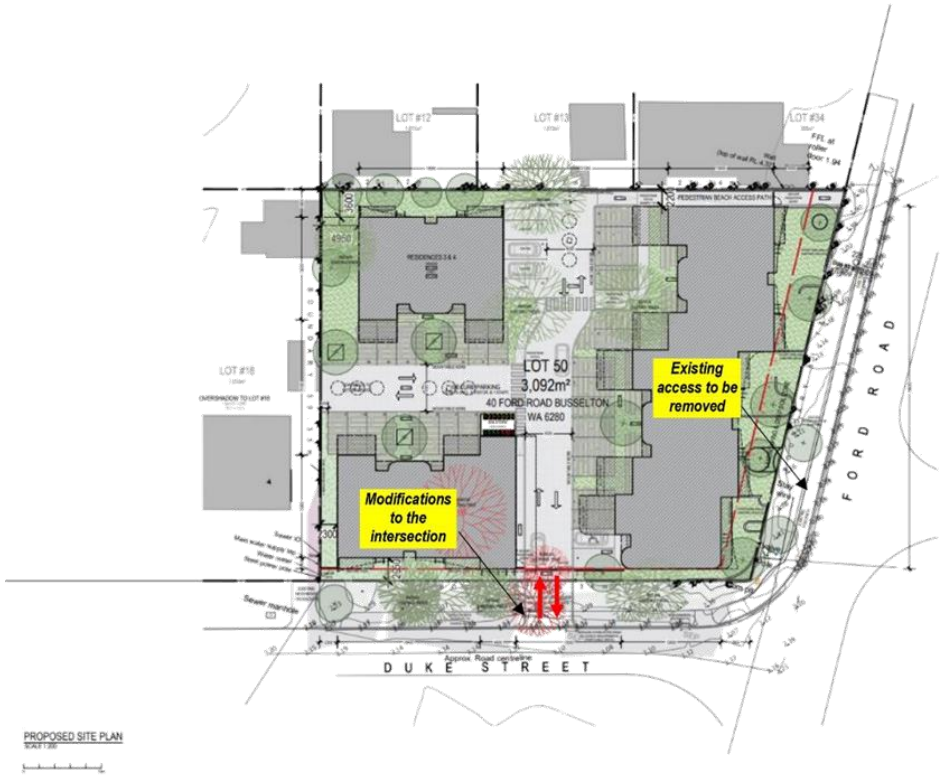


Figure 5: Redevelopment Plan

4.2. Parking Supply

4.2.1. City of Busselton Local Planning Scheme

The requirements for car parking have been assessed for compliance with the City's Local Planning Scheme 21(Relevant scheme) as detailed in **Table 2**, which for residential developments requires compliance to the R Codes.

Table 2: R Code Requirement

Parking types		Location A	Location B
Car parking[1]	1 bedroom dwellings	0.75 bay per dwelling	1 bay per dwelling
	2+ bedroom dwellings	1 bay per dwelling	1.25 bays per dwelling
	Visitor	1 bay per four dwellings up to 12 dwellings 1 bay per eight dwellings for the 13th dwelling and above	
Bicycle parking[1]	Resident	0.5 space per dwelling	
	Visitor	1 space per 10 dwellings	
Motorcycle/ Scooter parking[2]	Developments exceeding 20 dwellings provide 1 motorcycle/scooter space for every 10 car bays		

[1] Calculations of parking ratios shall be rounded up to the next whole number.
[2] For each five motorcycle/scooter parking bays provided in accordance with Table 3.9, car parking bays may be reduced by one bay.

Definitions:
Location A: within 800m walkable catchment of a train station and/or 250m of a transit stop (bus or light rail) of a high-frequency route and/or within the defined boundaries of an activity centre.
Location B: not within Location A.

The parking requirements are calculated in **Table 3**.

Table 3: RDC2 Car Parking Requirements (Location B)

Land Use	Unit	Requirement	Quantum	Required Bays
Residential	1 bedroom dwellings 2+ bedroom dwellings	0.75 bay per dwelling 1.25 bay per dwelling	1 9	1 12
Residential Visitor	dwellings	1 bay per 4 dwellings up to 12 dwellings	10	3
Total Required				**13 resident bays** **3 visitor bays**
Total Provided				**27 resident bays** **4 visitor bays** **1 staff bay** **1 disable bay**

As shown, required bays are compliant.

4.2.2. Bicycle Parking

The bicycle parking requirements are also outlined in RDC2 as calculated in **Table 4**.

Table 4: RDC2 Bicycle Parking Requirements

Land Use	Unit	Requirement	Quantum	Required Bays
Residential	dwellings	0.5 spaces per dwelling	10	5
Residential Visitor	dwellings	1 bay per 10 dwellings	1	1
Total Required				**5 resident spaces** **1 visitor space**

As shown, the redevelopment requires 5 resident bicycle spaces and 1 visitor space.

It is proposed to provide 4 bicycle space for each of the dwelling (total 40 spaces) and 1 space for each dwelling for visitors (total 10 spaces). The proposed bicycle parking provision is therefore compliant.

4.3. Parking and Access Layout

The layout and dimensions of the car parking areas have been assessed for compliance with AS2890.1 and AS2890.6 as detailed in **Table 5**. The car park is considered to be User Class 1 or 1A as all bays are for residents (i.e. long term parking).

Table 5: AS2890.1 and AS2890.6 Car Parking Compliance

Dimension	Requirement	Provided
90 degree parking – Class 1A – Residential, domestic and employee parking (AS2890.1)		
Car Bay Width	2.4m	2.5m
Car Bay Length	5.4m	5.5m
Parking Aisle Width	5.8m	6.0m
Blind Aisle Extension	1.0m	1.0m
90 degree ACROD parking (AS2890.6)		
Width of Car Bay and Shared Space	2.4m	2.5m
Length of Car Bay and Shared Space	5.4m	5.5m

The parking layout is compliant with the requirements.

4.3.1. Swept Paths

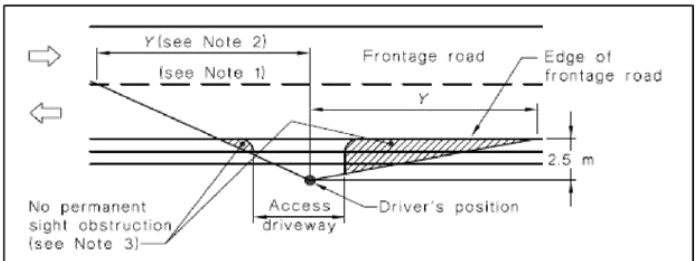
A swept path assessment has been undertaken using Autodesk Vehicle Tracking to demonstrate the manoeuvrability of the car bays. The B85 vehicle template has been used to test the most critical bays which are the bays at each end of the parking aisle and the private garage closest to the entrance. The swept paths are shown in **Appendix B** and demonstrate that all bays can accommodate the B85 sized vehicle. It is noted that the bays at the eastern end of the car park may require 3-point or 5-point turns which is typical for many large vehicles. The majority of vehicles are smaller than the B85 template and will be able to manoeuvre more easily than shown in the swept paths.

4.3.2. Access Width

The car park access is 6m and the requirement for two-way traffic is 5.5m in accordance with AS2890.1, the access width is compliant with the requirement.

4.3.3. Access Sight Distance

Sight distance requirements from vehicle exit points are defined in Figure 3.2 of Australian Standard AS2890.1-2004 *Parking facilities Part 1: Off street car parking* (AS2890.1) which is shown in **Figure 6**.



Frontage road speed (Note 4) km/h	Distance (Y) along frontage road m		
	Access driveways other than domestic (Note 5)		Domestic property access (Note 6)
	Desirable 5 s gap	Minimum SSD	
40	55	35	30
50	69	45	40
60	83	65	55
70	97	85	70
80	111	105	95
90	125	130	Use values from 2nd and 3rd columns
100	139	160	
110	153	190	

Figure 6: AS2890.1 Sight Distance Requirements

Based on the 50km/h speed limit along Duke Street, the minimum required sight distance is 45m.

As shown in **Figure 7**, the required sight distance is not achieved in both directions due to the existing trees surrounding the proposed access. As the result, existing trees within the proposed access to be removed. Tree brunches to shall be trimmed on both side of the proposed access to maintain the Minimum Sight Distance requirement.

Vertically, the geometry of Duke Street is relatively flat with no major crests or sags that would impede sight distance.

It is also noted that Duke Street is narrower than a typical access road and so vehicles are likely to be travelling well below 50km/h.



Figure 7: Sight Distance Check

In addition to vehicle sight distance, adequate sight distance to pedestrians is required at the property boundaries for vehicles leaving the driveway. The required sight triangles according to RDC2 are shown in **Figure 8**. The driveway and corner of the boundary are shown in **Figure 9**. As shown, the minimum requirement is archived.

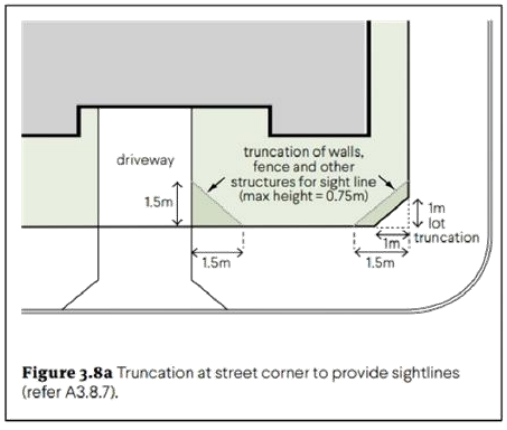


Figure 3.8a Truncation at street corner to provide sightlines (refer A3.8.7).

Figure 8: RDC2 Pedestrian Access Sight Distance Requirements

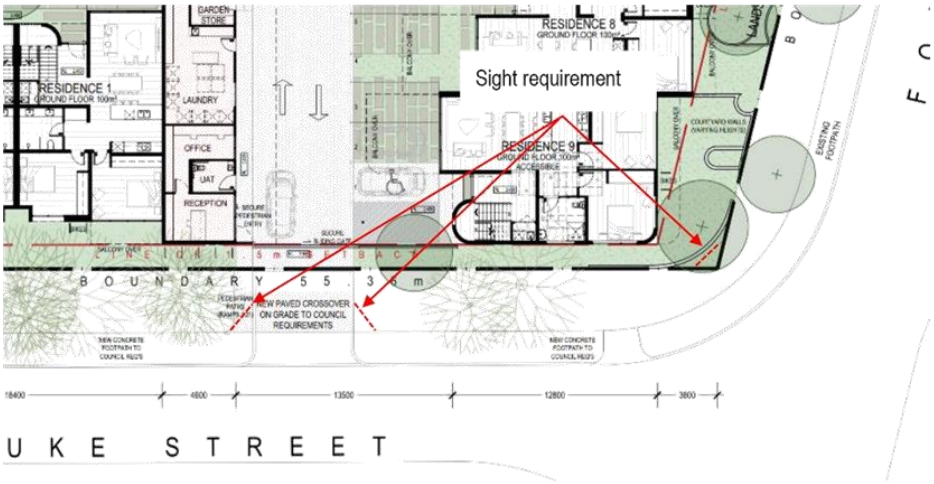


Figure 9: Pedestrian Sight Triangle Check at Proposed Crossover

5. Daily Traffic Volumes and Vehicle Types

5.1. Proposed Development

The volume of traffic generated by the proposed use has been estimated using trip generation rates from the Institute of Transportation Engineers (ITE) *Trip Generation* as detailed in **Table 6**. The peak hour trip rates are based on the peak hour of the adjacent road network typically occurring between 7 to 9am and between 4 to 6pm.

Table 6: Proposed Development Vehicle Trip Generation

Land Use	Units	Quantity	Generation Rate			Number of Trips		
			Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak
Holiday House	Dwellings	9	2.49	0.19	0.23	60	5	6
					Total	**60**	**5**	**6**

The traffic generated by the existing dwellings has not been subtracted from the above as this is considered to be minimal.

As shown in **Table 6**, the proposed development is predicted to generate approximately 60 vehicle trips per day with 5 trips during the morning peak hour and 6 during the afternoon peak hour. This volume of traffic is considered to have a low impact on the road network.

5.2. Vehicle Types

The proposed land uses are expected to primarily generate light vehicle trips.

6. Public Transport Access

The site has good access to existing public transport services. The following TransBusselton bus routes No. 817 is currently operating within reasonable walking distance of the site.

The nearest bus stops are located as shown in **Figure 10**.



Figure 10: Bus Stop Locations

The existing available service is adequate to meet the demand for these services.

7. Pedestrian Access

All roads in the vicinity of the site have at least one path. The Holiday Home has pedestrian access on Ford Road and Duke Street. The pedestrian access points are shown in **Figure 11**. No issues with pedestrian accessibility were identified.

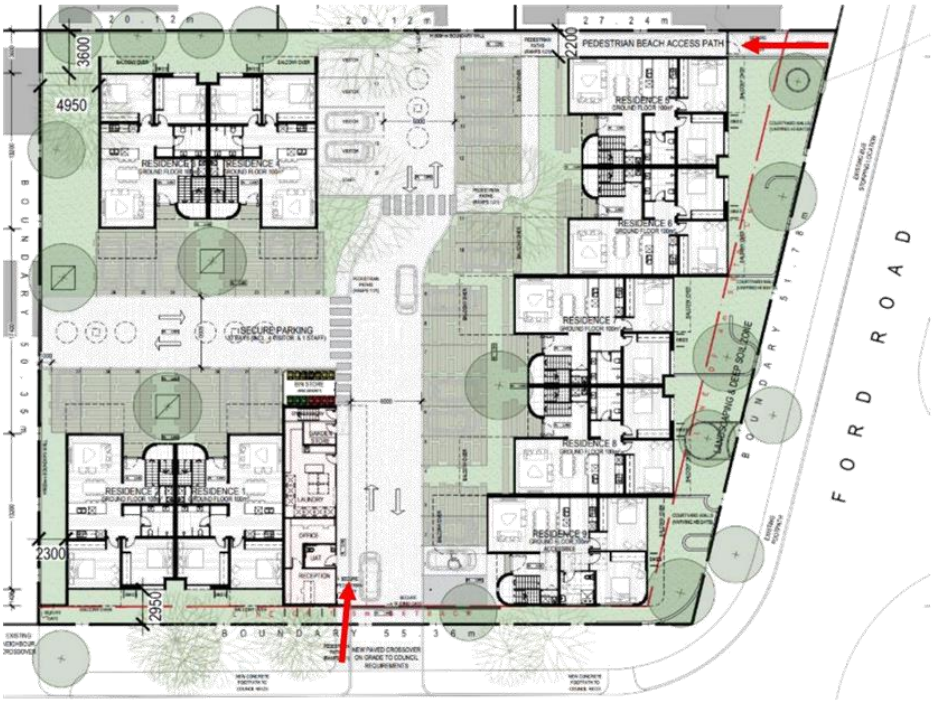


Figure 11: Pedestrian Accessibility

8. Cycle access

It is proposed to provide bicycle parking rails for each town house behind the courtyard walls within the property boundary.

The proposed bicycle parking provision is considered to be adequate.

9. Site Specific or Safety Issues

The crash history of Ford Road and Duke Street for the five-year period ending December 2021 was obtained from the MRWA Reporting Centre as attached in **Figure 12**.

Summary Crash History

Selection Criteria	Value
Road	FORD RD (2050217)
Date	01/01/2017 to 31/12/2021
Road SLK	0.40 to 0.38

Severity	Count	Percentage
Fatal	0	0.0%
Hospital	0	0.0%
Medical	0	0.0%
PDO Major	1	100.0%
PDO Minor	0	0.0%
Other / Unknown	0	0.0%
Total:	**1**	**100.0%**

MR Type	Count	Percentage
Involving Overtaking	0	0.0%
Involving Parking	0	0.0%
Involving Animal	0	0.0%
Involving Pedestrian	0	0.0%
Entering / Leaving Driveway	0	0.0%
Other / Unknown	1	100.0%
Total:	**1**	**100.0%**

Light Conditions	Count	Percentage
Daylight	1	100.0%
Dawn Or Dusk	0	0.0%
Dark - Street Lights On	0	0.0%
Dark - Street Lights Off	0	0.0%
Dark - Street Lights Not Provided	0	0.0%
Other / Unknown	0	0.0%
Total:	**1**	**100.0%**

Object Hit	Count	Percentage
SEC Pole		
Traffic Light Post		
Traffic Sign		
Commercial Sign Post		
Tree		
Other		
Total:		

Road Grade	Count	Percentage
Level	1	100.0%
Crest Of Hill	0	0.0%
Slope	0	0.0%
Other / Unknown	0	0.0%
Total:	**1**	**100.0%**

Road Alignment	Count	Percentage
Curve	0	0.0%
Straight	1	100.0%
Other / Unknown	0	0.0%
Total:	**1**	**100.0%**

Speed a Factor	Count	Percentage
Yes	0	0.0%
No	0	0.0%
Other / Unknown	1	100.0%
Total:	**1**	**100.0%**

Road Condition	Count	Percentage
Wet	0	0.0%
Dry	1	100.0%
Other / Unknown	0	0.0%
Total:	**1**	**100.0%**

MR Nature	Count	Percentage
Rear End	1	100.0%
Head On	0	0.0%
Sideswipe Opposite Dirn	0	0.0%
Sideswipe Same Dirn	0	0.0%
Right Angle	0	0.0%
Right Turn Thru	0	0.0%
Hit Pedestrian	0	0.0%
Hit Animal	0	0.0%
Hit Object	0	0.0%
Non Collision	0	0.0%
Other / Unknown	0	0.0%
Total:	**1**	**100.0%**

Run on 27-Feb-2023 00:06 by Yuyang Ke Page 2 of 2 reporting.centre@mainroads.wa.gov

Figure 12: Crash History January 2017 to December 2021

This showed that there were 2 reported rear end crashes resulting PDO Major, they occurred at the intersection on straight, in dry, during daylight.

The occurrence of crashes on the adjacent road network is considered to be low and does not indicate any typical safety issues with the road network.

The expected volume of traffic generated by the proposed development is not considered to increase the likelihood of crashes measurably. No other site specific or safety issues were identified.

10. Service Vehicle Access

Waste from the redevelopment will be stored in a bin store located within the property next to the major entry. Waste from existing development is currently collected by council waste vehicles from the verge and it is assumed that the same arrangement will apply to the proposed development.

11. Conclusion

Transport Impact Statement of the proposed commercial redevelopment concluded the following:

- The proposed development is expected to have a minimal transport impact on the adjacent road network and no modification to the network is considered necessary.
- There is inadequate sight distance from the proposed vehicle access in both directions due to the existing trees within the verge of Duke Street, it is recommended that tow trees are removed within the proposed access and tree brunches to be trimmed to maintain minimum 45m sight distance along the northern verge of Duke Street.
- The proposed 6m wide access is adequate for two-way traffic.
- The proposed car parking and motorcycle parking provisions satisfy the requirements of the City's policy and the Residential Design Codes.
- The access and parking layout is compliant with Australian Standards. A swept path assessment confirms that all bays provide adequate manoeuvrability.
- The accessibility for pedestrians and cyclists is adequate.
- The site has good access to public transport.
- A review of the crash history did not identify any atypical crash patterns or safety issues with the adjacent road network. The expected volume of traffic generated by the development is not likely to increase the risk of crashes on the adjacent road network.

Appendix A – Development Plans





GROUND FLOOR PLAN
SCALE 1:200



FIRST FLOOR PLAN



ROOF PLAN


EAST ELEVATION
WEST ELEVATION - INTERIOR
EASTERN WALL ELEVATION
LOT 50 (840) FORD ROAD, BUSSELTON
SCHEDULE OF MATERIALS
FORD ROAD TOWNHOUSES
DMG
A03.01


LOT 50 (#40) FORD ROAD, BUSSELTON
SOUTH ELEVATION
NORTH ELEVATION
WEST ELEVATION
FORD ROAD TOWNHOUSES
DMG
A03.02



FORD ROAD - PERSPECTIVE 1



FORD ROAD - PERSPECTIVE 2

NTS

FORD ROAD TOWNHOUSES

DMG ARCHITECTURE

A03.03

Appendix B – Swept Paths





Stantec

Memo

To:	City of Busselton	From:	Stantec Australia
Project	CW1200711 - Proposed Redevelopment 40 Ford Road, Busselton	Date:	22 March 2023
Subject	Transport Impact Statement Peer Review	Revision	A
Author	RR	Reviewer	AW

Reference: CW1200711

1 INTRODUCTION

Stantec has been engaged by the City of Busselton (the City) to undertake a peer review of a Transport Impact Statement for Proposed Redevelopment 40 Ford Road ("the report", "the TIS") prepared by Shawmac and dated 27/02/2023. The proposal is for a redevelopment of an existing holiday accommodation. The redevelopment would expand the capacity of the Site from 5 town houses (31 guests) to 9 town houses (90 guests).

This review includes a cross-reference of the report to the requirements listed in the Western Australia Planning Commission (WAPC) "Transport Impact Assessment Guidelines for Developments, Volume 4 – Individual Developments" (2016).

2 PEER REVIEW FINDINGS

Table 2-1 summarises the key review findings identified as part of the review undertaken against the WAPC Transport Assessment Guidelines (Transport Impact Statement Checklist for individual developments transport impact statement).

Where the review has found that the relevant sections have been sufficiently addressed or no issues have been identified, the text has been coloured in **green**, while **orange** text has been used for sections where non-critical improvements can be made to the report, and **red** text has been used for sections that have been omitted or insufficiently addressed in the report. Non-coloured text refers to requirements **that need to be adhered to** but cannot be verified as either correct or incorrect in the details provided.

Reference: **CW1200711**

Table 2-1 Peer Review Findings

Item	Peer Review Comment
Proposed development	
proposed land uses	Included. The redevelopment would expand the capacity of the Site from 5 town houses (31 guests) to 9 town houses (90 guests).
existing land uses	Included.
context with surrounds	Included in Section 1.2.
Vehicular access and parking	
access arrangements	Included in Section 4.1. Sight distance assessment was provided in Section 4.3.3 based on AS 2890.1 minimum SSD. The assessment indicated that sight line is not compliant due to trees. As the sight distance assessment was undertaken using aerial image, the location of the tree trunks cannot be determined, therefore the true extent of sight obstruction is not known. It is recommended that a site visit be undertaken to confirm the available sight distance at the new access on Duke Street. Refer to **Section 3** below for discussion on access location.
public, private, disabled parking set down/pick up	Included in Section 4.1.
Service vehicles	
access arrangements	Included in Section 10. Waste collection will be undertaken on-street (Duke Street)
on/off-site loading facilities	Included in Section 10. Waste collection will be undertaken on-street (Duke Street)
Hours of Operation	
Hours of Operation	Not included, however it is expected to be typical of motel or hotel operating hours.
Traffic volumes and vehicle types	
daily or peak traffic volumes	Included in Section 5.1. The trip generation rates are slightly lower than ITE rates for "Recreational Home" (ITE Code 260), however the TIS trip generation estimate is still considered reasonable.
type of vehicles (e.g. cars, trucks)	Included in Section 5.2.
Traffic management on frontage streets	
Traffic management on frontage streets	Included in Section 3.

Reference: **CW1200711**

Item	Peer Review Comment
Public transport access	
nearest bus/train routes	Included in Section 6.
nearest bus stops/train stations	Included in Section 6.
pedestrian/cycle links to bus stops/ train station	Included in Section 6.
Pedestrian access/facilities	
existing pedestrian facilities within the development (if any)	N/A
proposed pedestrian facilities within development	Included in Section 7. Pedestrian links into Duke Street and Ford Road are proposed. There is also dedicated pedestrian paths within the development.
existing pedestrian facilities on surrounding roads	Included in Section 7.
proposals to improve pedestrian access	Included in Section 7.
Cycle access/facilities	
existing cycle facilities within the development (if any)	N/A
proposed cycle facilities within development	Included in Section 8
existing cycle facilities on surrounding roads	No dedicated cycling facilities in surrounding roads, other than paths.
proposals to improve cycle access	N/A
Site specific issues	
Site specific issues	N/A.
Safety issues	
identify issues	Included in Section 9. There is a typographical error in page 18. The text mentioned 2 crashes, however the crash summary in page 17 only shows 1 crash.
remedial measures	N/A

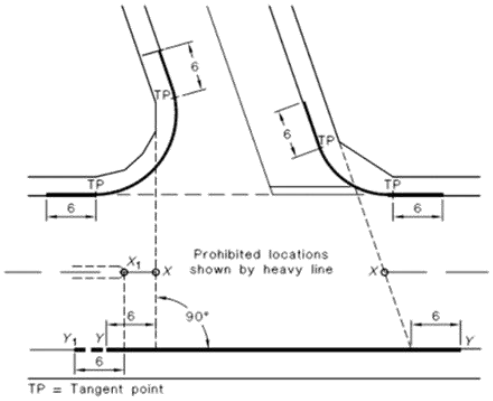
Reference: **CW1200711**

3 REVIEW OF ACCESS LOCATION

To minimise conflict between road traffic and car park traffic, AS2890.1 provides guidance on location where access is prohibited, which is shown below in **Figure 3-1**. This prohibited access location diagram is then applied to the intersections of Ford Street/Milward Street and Ford Street/Duke Street shown in **Figure 3-2.**

Figure 3-2 shows that the existing access on Ford Street is located within the prohibited location, and therefore not compliant with current standards. The proposed development is relocating the access to Duke Street, which is outside of the prohibited location shown in **Figure 3-3** and is therefore compliant with AS 2890.1, subject to confirmation that the relevant sight-line requirements can be achieved.

Figure 3-1 AS 2890.1 Prohibited Access Location



NOTES:

1 Accesses to domestic driveways are excluded from the prohibition in respect of the kerb section marked *Y-Y* (see Clause 3.2.3(a)).

2 The points marked X_1 and X are respectively at the median end on a divided road and at the intersection of the main road centre-line and the extensions of the side road property lines shown as dotted lines, on an undivided road. On a divided road, dimension *Y-Y* extends to Point Y_1.

DIMENSIONS IN METRES

FIGURE 3.1 PROHIBITED LOCATIONS OF ACCESS DRIVEWAYS

Reference: **CW1200711**

Figure 3-2 Ford Street/Milward Street/ Duke Street Prohibited Access Location



Figure 3-3 Proposed Development Access on Duke Street



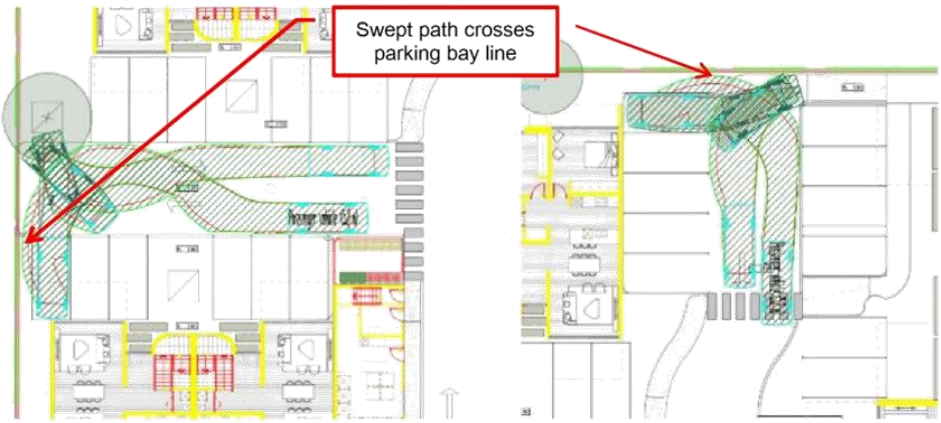
Reference: **CW1200711**

4 SWEPT PATH REVIEW

Swept path assessment has been undertaken at the blind aisle, showing that a B85 car requiring 3-point turn to exit the bay. This is typical of bays in blind aisle due to the restricted space. As the Site use is 'residential' in nature, 3-point or 5-point turn can be tolerated.

It is noted however that the car crosses the parking bay line adjacent to the blind aisle extension as shown below in **Figure 4-1**, which allows for single forward entry movement. It is unclear from the plan, however the last parking bay should be flush with the blind aisle to allow easier entry into the parking bay.

Figure 4-1 B85 Parking Manoeuvre



Reference: **CW1200711**

5 SUMMARY

Stantec has undertaken a peer review of a TIS for the "Proposed Redevelopment 40 Ford Road" Site. The following conclusions have been made with regards to the TIS:

- The TIS provided most of the information listed in WAPC Checklist.
- Undertake a site visit to determine the available sight line and to ascertain whether trees need to be removed.
- The proposed site access on Duke Street is located outside of the AS 2890.1 prohibited access location. The existing access location on Ford Street currently does not comply with AS 2890.1.
- The edge of the parking bay adjacent to blind aisles should not be kerbed to allow cars to enter forward in comfortably.

SUMMARY OF SUBMISSIONS
PROPOSAL: Error! No document variable supplied.
SUBMISSIONS CLOSE: 30 NOVEMBER 2022
OFFICER: ANDREW WATTS

No.	NAME	SUMMARY OF SUBMISSION
External Agencies		
1.	Department of Biodiversity Conservations and Attractions	Refer to Attachment 000 – Department of Biodiversity Conservations and Attractions
Public Submissions		
1.	S Papadopoulos BUSSELTON	**OBJECT:** The proposed development has its entry on Duke Street and considering the number of units, guest and visitor parking (40 bays plus 4 street bays) will have a major impact on all the residents quiet enjoyment. We purchased our property a few months ago and based our offer to purchase on the outlook from the front courtyard (the only outside area the property has) and the quiet street scape. The proposed plan has moved the entry from Ford Road which has little or no impact on residents to a quiet tree lined neighborhood street where children play and walk to the beach and school bus. Being directly opposite our home we believe cars (allowance for 40 car bays & 4 on street bays) entering and leaving the development will create noise, safety and direct headlight issues onto our properties at all times of the day and night. We strongly disagree with the entry access on Duke Street.
2.	S Papadopoulos BUSSELTON	**OBJECT:** Good morning I originally put a short comment in 'your say' and due to Christmas and the holiday period and timing of the advertising of the proposed development was unable to gather some valid information. I am asking for a 7 day extension from the closing date as I am now waiting on that information that I would like to add to my original say. Hope this is would be acceptable.
3.	S Papadopoulos BUSSELTON	**OBJECT :** Refer to Attachment 001 – S. Papadopoulos
4.	S Papadopoulos BUSSELTON	**OBJECT:** 1. I, with my husband, am the owner of 186 Duke Street, Busselton. I live directly opposite the proposed redevelopment. Planning policy should contribute positively to making a neighbourhood better for its residents and ratepayers. I am of the view that the proposed redevelopment of Lot 50 (No 40) Ford Road, Busselton, a 45 bed, 40 car bays, will have a negative impact on residents/ratepayers in Duke Street,

SUMMARY OF SUBMISSIONS
PROPOSAL: Error! No document variable supplied.
SUBMISSIONS CLOSE: 30 NOVEMBER 2022
OFFICER: ANDREW WATTS

		and the other surrounding streets close to the redevelopment. This large-scale redevelopment with the capacity to accommodate 90+ people at any one time, (an 82% increase on the current available beds) is incompatible with the low density, peaceful residential neighbourhood we reside in. It is my understanding that the approval for Non-Conforming Use by the City of Busselton was given to the CWA specifically to build cottages for members seeking respite. I am not against the redevelopment of the site. However, it should be in keeping with the other developments in the area and respectful of the reason for the original non-conforming use approval as well as the low density residential zoned neighbourhood the site is located in. My reasons for my objections to this redevelopment are as follows: DUKE STREET ENTRY TO REDEVELOPMENT: The current Ford Road property has its entry on Ford Road. By relocating the entry to the redevelopment on to Duke Street, it will mean the 45-bedroom, 40 car bays, high density building will turn Duke Street from a safe, peaceful, low traffic street, into a thoroughfare. The entry to any redevelopment on Lot 50, should remain on Ford Road. SAFETY CONCERNS: Currently, children, grandchildren and pedestrians use Duke Street to play and walk. The danger from increased private motor vehicles (trailers/jet-skis in tow) commercial vehicles, taxis and chartered vehicles and buses using Duke Street to come and go is a serious safety issue for residents. Exiting vehicles from the redevelopment will not turn left to use Ford Road, they will turn right and drive down Duke Street. QUIET ENJOYMENT: Our property is directly opposite the proposed entry in Duke Street. Our only outdoor area is the front garden. This is also the case for our three neighbours. The redevelopment will have a negative impact on the quiet enjoyment which we currently have. The peacefulness of Duke St was one of the reasons why we purchased our property. Our quiet enjoyment will be impacted by:

SUMMARY OF SUBMISSIONS
PROPOSAL: Error! No document variable supplied.
SUBMISSIONS CLOSE: 30 NOVEMBER 2022
OFFICER: ANDREW WATTS

		Vehicle headlights: Should the Duke Street entry to the redevelopment be approved it would mean we will have car headlights shining directly into our property (and neighbours) at all hours of the night. Noise nuisance: Holiday makers will be coming and going at all times of the day and night from a concentrated entry and exit directly opposite our home. A 45 bed, 40 car bays, holiday high density property will mean an increase in noise levels: 90+ holiday makers voices, amplified music, radios, engines starting and revving, opening, and closing of car doors. It is a far different proposition to the peaceful amenity we currently enjoy in our quiet residential street. Privacy: With the entry directly opposite us, we will have no privacy. It will have a major impact on our quiet enjoyment. PROPOSED STREET PARKING: The proposal includes 2 street parking bays opposite our home and a further 2 in Ford Road. Why? Would this possibly be a provision for buses and larger charter vehicles? If so, it is a flagrant disregard for the current streetscape and residents of Duke Street. There are 36 parking bays in the complex, which include visitor bays. Surely, there is no need for further parking on the street. SITE CLEARING: The redevelopment requires the removal of 5 mature trees. It is deplorable that an out of place high-density large-scale redevelopment plan includes chopping down 5 mature trees. Once the 5 mature trees are chopped down there is the potential for the few remaining trees on the site to have root damage from felling the 5 trees and causing the health of the remaining trees to be compromised. In our changing climate all trees are valuable. The mature trees to be felled in Duke Street add to the streetscape. Plans should be amended to save the trees in question. The trees on Duke Street would not have to be removed if the entry to the redevelopment remained where it is on Ford Road.

SUMMARY OF SUBMISSIONS
PROPOSAL: Error! No document variable supplied.
SUBMISSIONS CLOSE: 30 NOVEMBER 2022
OFFICER: ANDREW WATTS

		In conclusion, I assume that all decision makers involved in considering this submission have visited the proposed Lot 50 (No 40) Ford Road, Busselton and considered the density of the development on the available land and the obvious impact on the amenity of neighbouring properties. I would urge all the decision makers to view the proposed development through the lens of a neighbour and the impact it would have on them if it was opposite their home. I would be grateful if the City of Busselton would take my objections into consideration when deciding this proposal. Thank you. Shirley Papadopoulos January 4, 2023.
5.	P Biagioni BUSSELTON	**SUPPORT:** "It will enhance the streetscape and add value to our area. It will definitely be an improvement to what is on the site at the moment."
6.	T Munro BUSSELTON	**OBJECT:** I don't support the intensity / density of the proposal in a local residential area. I don't support to main entry / exit on Duke St. The current entry / exit is on Ford Rd and should remain in Ford Road. I don't support the on-street car parking on Duke Street. There should be no parking on Duke Street. The increase in traffic on Duke St would negatively affect the current residences. The density is inappropriate for the location.
7.	T Munro BUSSELTON	**OBJECT:** The proponent and City of Busselton need to seriously consider the adverse impact on Western Ringtail Possums from this proposal. The WRP is known is to feed, breed and forage on the property. The proposal needs to be referred by the proponent to the State Environmental Protection Authority (EPA) and the Federal Environment Department under the EPBC Act to determine if there is needed a formal assessment on the potential impacts to the Critically Endangered Western Ringtail Possum. The proponent appears to have not undertaken a fauna study to determine how many breeding female possums are present on the property. The impacts on WRP from the development, for example the 24/7 lighting required for high density tourist residential, have not been considered and are unlikely to be receptive to nocturnal possum specimens residing in the area. The development density does not allow for suitable WRP habitat to be incorporated into the design. The proposal is deficient in environmental assessment.

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8.	R Hingston BUSSELTON	**OBJECT:** I note that the access to the proposed building is from Duke St. This will absolutely destroy the current ambience, peacefulness and one of the best streets in Busselton. The reason for this is to have access from Duke Street and will thereby greatly increase the traffic along Duke Street, of which my house faces (on corner of Georgette and Duke Streets). When we bought our house here 27 years ago it was for the low traffic movement along Duke Street and its quiet nature. We have many grandchildren and Neighbour's children that use Duke Street for cricket, football, handball and tennis because it has a low traffic movement, and the kids can play there in safety. The current design of this building having access to Duke Street is therefore poor planning. If the City approves of the current access to Duke Street, has disregard for other residents who have bought properties here (or recently) and for reasons similar to mine. I urge the City to redirect the developers of the proposed building to access their site via Ford Rd and NOT from Duke Street, please. If the City approve this proposal, they do not care much for long-standing residents who have lived on this quiet street for many years. I am against this proposal because it will greatly increase traffic in Duke Street. The current access to Ford Road has worked since the CWA Holiday homes have operated in excess of 50 years. Please give consideration to our concerns please. Thank you.
9.	L Yeomans BUSSELTON	**SUPPORT:** I am happy for this development to go ahead but my concern is the entrance to the property being on Duke St and the extra parking bays proposed to be on Duke St as this is a street with many families and elderly people. I would like to see Duke St continue to be that with out the extra traffic.
10.	D Breen BUSSELTON	**OBJECT:** Refer to Attachment 002 – D Breen
11.	D Breen BUSSELTON	**OBJECT:** Refer to Attachment 003 – D Breen
12.	J Mercer & B Skellern BUSSELTON	**OBJECT:** We have received the information regarding the proposed development on Lot 50 Ford Road opposite our home at 184 Duke Street Busselton. Our understanding is 'your say' is so the shire can understand and consider our concerns. We are residents not businesspeople and we understand there will change in the Busselton but change should not be at cost of residents looking for a quiet retirement in a quiet street.

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		We have recently bought our home and the attraction on our decision to purchase at the time was that Duke Street is a quiet low traffic family/residential street, we understood the CWA cottages where across the road and access to them was from Ford Road. We have looked at the proposed plans of Ford Road and disagree with the size of the development it is very high density for the area and we are totally against the access being diverted off Ford Road to Duke Street, our reasons are as follows: - • A major increase in traffic flow based on the size of the development requiring forty car bays. • An enormous impact on our quiet enjoyment from cars shining headlights directly on to ours and neighbours' homes. • Holiday groups coming and going at all times of day and night from a concentrated entry and exit of the street. • Impact on our quiet enjoyment, privacy, and negative value of our home. • Our only outdoor area as is the case for our three neighbours is the front yard, we do not have a backyard to retreat to which will have an enormous impact on us. • Safety issues for grandchildren and pedestrians that currently use Duke Street to walk and play. Please consider how this would impact you if the access for a development like the proposed was changed to opposite your home.
13.	S Teal BUSSELTON	**SUPPORT:** We require affordable accommodation. This looks like a well planned project. I hope the Council will require the holiday homes to be available for longer leases at reduced cost for locals to rent in the off seasons.
14.	R Vohland BUSSELTON	**OBJECT:** 1 My property adjoins this non conforming proposal at my back fence line 2 As i can see by the proposed plans certain units look into my property which i feel invades my privacy and convenes council regulations to the building code 3 This proposal is well outside the fit for purpose in a now quite residential area

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		4 The increase in persons using this non conforming proposal will disrupt the neighbour hood through coming and goings of persons and vehicle traffic The number of rooms is not a true indication of the number of persons who will be using these facilities as bunk type bedding will no doubt be introduced to the rooms 5 Removal of trees is not fully indicated on the said plans as i pointed out to the planning section when i received the plans at the council offices after receiving the letters dated 5/12/2022 The trees that now exist at my back boundary does give me some sort of buffer from noise and traffic lights The place as it exists is noisy at times but this proposal will no doubt cause a disruption to my privacy 6 I would prefer if this development does not go ahead my concerns in short (a) evasion of privacy units facing into my yard (convenes the building code?) (b) increase noise and traffic lights etc coming onto and leaving the property at all hours of the night (c) Number of persons residing there at any one time rooms are not a indicator? (d) Fence in its present form to the boundary adjoining my property is inadequate needs to be a high soundproof type fence nothing showing or indicated on the plans? (e) What trees are to be removed?
15.	M Leonard BUSSELTON	**OBJECT:** 1) The application to have 36 possible cars entering and exiting onto Duke street is totally unacceptable. the current access and egress to this site is from Ford Rd, which is where it's been for many years. 2) Duke Street is a minor street, with no footpaths, and of limited width is totally unsuitable for an increase in traffic such as this, furthermore the 'type' of traffic from what's basically a hotel development is not consistent with regular residential traffic....i.e. check in and check out times being particularly busy, guests come and go with much greater frequency that standard residential occupancy property, guests and not familiar and unaware of the high number of kids, pedestrians and in many cases venerable elderly and wheelchair users that frequent Duke Street 3) In relation to the quiet nature of Duke Street - this is one of the primary reasons my wife and I recently purchased 168 Duke. My wife is an active wheelchair user and most days

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		wheels into town along Duke....as there are no footpaths, an increase in traffic (and traffic of this nature) would have serious safety concerns for her and others in a similar situation 4) Many kids, including my own, play extensively on Duke St.....simply because of it's quite nature and currently limited traffic....while we are fairly new to the street, we have stayed on it regularly since 2018 and in that time observed kids of varying ages regularly playing on the street....the social aspect of this cannot be downplayed. 5) During the recent 'leavers' there was a significant increase in vehicular traffic on the street, and that is without a dedicated and sole access to Duke Street – the same traffic was noticeably travelling faster than regular street traffic. 6) Its been mentioned to me by a resident that one of the planners has stated traffic would 'exit the proposed Duke Street Entry and proceed to Ford Rd'.....I fail to see how this could be determined. Traffic will take the path of least resistance and having to enter Ford Rd, with further major intersections off same would not be conducive with typical driver behaviour 7) The development itself, I can see causing concern for immediate neighbours, both in terms of serious overlooking issues and without a doubt significant additional noise 8) What's being proposed is more in line with a hotel than the typical one-off short stays or single airbnb's scattered through the locality – is this what's wanted in a residential street...? To summarise, I believe any attempt to have vehicular access onto Duke street is totally unacceptable and would have significant detrimental consequences for safety of all residents on Duke Street....see attached a very crude but effective representation of the number of cars at each property exiting onto Duke - the 36 at the proposed development stands out a bit....
16.	C Edwards BUSSELTON	**OBJECT :** We believe that the proposal is inappropriate on two fronts; 1. The area is zoned as residential and not part of a strategic tourist zone. We understand that the original approval given to the CWA for the current holiday site would have been done so out of an acknowledgement of the philanthropic work carried out by the CWA at the time. The new proposal is purely based on a commercial outcome and is not in the spirit of why the land was given an exemption many years ago.

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		2. The proposal with result in a dramatic increase in car traffic on Duke Street coming to and from town. Compared to the current use, the number of units increases from 5 to 9 and the total capacity of the units almost triples to over 90 people (9 units each with 5 queen / double bedrooms). The plans for the application reflect this increase with a large number of parking bays. In summary, the size, scope and scale of the proposal is inappropriate for a residentially zoned area.
17.	S Campbell WEST BUSSELTON	**OBJECT:** This proposal will see the destruction of critical habitat trees for endangered Western Ringtail Possums. Fragmented habitat corridors is one of the key causes of the rapid decline of the species, one which is found nowhere else on Earth. Loss of these trees also means loss of shade and overall visual appeal of the area
18.	L Eades BUSSELTON	**OBJECT :** Possums birds tree's also quite area don't need this in Street
19.	J Harvey BUSSELTON	**OBJECT :** To: City of Busselton 8th January 2023 I have received the information regarding the proposed development on Lot 50 Ford Road opposite my home at 188 Duke Street Busselton. My understanding is 'your say' is so the shire can understand and consider my concerns. I am a resident not businesspeople and understand there will be developement in the Busselton area, but it should not be at cost of quality of life and safety of residents looking for a quiet retirement in a quiet street. I bought my home two years ago and the attraction when deciding on the purchase at the time was that Duke Street is a quiet low traffic family/residential street lined with healthy mature peppermint trees, I understood and took into consideration lot fifty had access to the nine cottages off Ford Road. I disagree with the size of development; it is not conducive to the area. I am totally against the proposed access off Duke Street, the reasons are as follows: - • A major increase in traffic flow based on the size of the development requiring forty car bays.

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		• An enormous impact on our quiet enjoyment from cars shining headlights directly on to my neighbours' homes and mine. • Holiday groups coming and going at all times of day and night from a concentrated entry and exit of the street. • Impact on our quiet enjoyment, privacy, and negative value of our home. • My only outdoor area as is the case for our three neighbours is the front yard, we do not have a backyard to retreat, the current proposal will have an enormous impact on us all. • Safety issues for drivers, pedestrians and bike riders that currently use Duke Street. Other concerns: o Forty car bays requiring street parking and the removal of the mature, healthy peppermint trees. These trees are home to numerous endangered Ring Tail Possums. o The significant increase in size/footprint of each proposed unit in comparison to the existing units e.g. seven metre high walls Please consider our concerns and how this proposal will impact our streets quality of life, our safety and the environmental impact of removing healthy, mature peppermint trees. Thank you
20.	R Hingston BUSSELTON	**OBJECT:** This development is not in keeping with a quiet residential area of the townsite. I have lived on the corner of Georgette St (my address) and Duke St for over 29 years and moved here because it is one of the quietest and beautiful streets in Busselton. Duke St does not have much traffic on it during the day except for its residents. If this development goes ahead this is very poor planning given the narrow street that Duke is and allowing the new development to access Duke St. The City has spent a lot of money upgrading Ford Rd allowing higher use for traffic and this is where the problem lies. Keep access from this development onto Ford Rd and NOT Duke St. Increased traffic down Duke St should not be allowed due to design of the new building allowing exit onto Duke St. It is also one of the few streets in this area that do not allow major traffic access to and from town as it is not a through road like Adelaide or Kent Streets.

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		At the present time (and for the past 50 years or so this has operated by CWA Holiday Units) there has been no conflict with those temporary residents with local residents in Duke St. This is because all vehicles exit this complex via Ford Rd. This development, as a much larger short stay accommodation, will also cause an increase in general noise, more rubbish, dogs (if allowed) and high traffic coming and going into or out of it. Cars will be parked in Duke St and there should not be any bus movement down Duke St due to its narrow width. This area does not need two story buildings that will wreck the overall amenity and landscape values of Duke St - one of the prettiest streets in Busselton. I also think that the advertisement placed in local newspapers by the city is also deceptive in that it does not fully describe the true design of the future building. This advert describes the development as "Extension of Non-Conforming Use - Tourist Accommodation (Caretakers residence and (x Accommodation units". This implies that the new development will not be a two-x story unit but does not imply that the existing buildings will be demolished to build a 45 bed complex. I therefore feel that the advert is deceptive for other local residents who may not be aware of the scale of the proposed development. There are many mature peppermint trees which are at least 15-30 years old that will need to be cleared for this development to progress. This will destroy the habitat of the endangered ring-tailed possum as this area is also one of the highest populations of possums in town. This should not be allowed although the developers would be required to plant many younger trees, there will be a loss of possum habitat for at least 15 years. Although an environmental consultant will be employed to confirm this. this process is only rubber stamping or ticking boxes for the Dept of Planning at the City. This loss of peppermint trees on this end of Duke Street will also destroy the visual amenity of Duke St - a common reason why many people buy property in this street. I am therefore against the scale of this proposal and wish that Councilors give serious consideration against the development as it will have a negative impact on residents and ratepayers in Duke St. Thank you.

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21.	M Preedy BUSSELTON	**SUPPORT:** The eastern side of the City of Busselton to Ford Road would benefit from new/improved buildings/residences, and lift the standard of buildings in this area. This would make it more attractive and appealing to both local residents and holiday makers. Given that a caretaker's residence is planned for the site that should assist with problems that those living closer to this development may encounter.
22.	J Davy BUSSELTON	**OBJECT:** Refer to Attachment 004 – J Davy
23.	D Birch BUSSELTON	**OBJECT:** I recently holidayed in Busselton for the first time in many years at a home that will be affected. I reviewed the old CWA site (good memories but circumstances I wont discuss) and was made aware of the development. I cannot see how development has any revelence to the existing Non-Conforming Use current - development is for profitable tourist rental accommodation and has nothing in common with PURPOSE of current use. I can understand why effected home owners are upset as development represents significant change to this quiet end of town. Developments of this style need to be away from this residential end of town and more to the beach further west of the town site
24.	J Campbell BUSSELTON	**OBJECT :** I live in Duke St and am concerned re the traffic, privacy and environmental implications of this development, The CWA site housed approximately 30 guests and had adequate on site parking. I would like to see a copy of the traffic assessment for this site. The new proposal will have 90 guests and it is proposed the trees is Duke St be removed for parking sites on the road. These are beautiful healthy peppermint tress that are homes for the critically endangered ring tail possum. It seems incongruous that the counsel has funded a "Possum park" at the end of Ford street and will now destroy native habitat and ruin a lovely streetscape. The new entrance to the proposed site will be on Duke St. Duke St is a narrow dimly lit street with no footpaths on either side of the road. Presently those using gophers and wheelchairs must use the road. Increased traffic to the proposed site will use Duke St as a thoroughfare increasing the risk of harm to residents. Cars will park on the road causing obstruction in the street and increased hazards for pedestrians and the disabled.As each unit will now hold up to 10 people there will be a large increase in traffic and the use of larger commercial vehicles and small buses that will further add to the congestion of the street. Ford Street recently

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		underwent an expensive upgrade to cope with increasing traffic so the entrance to the development should be on Ford Street where it is currently situated. Duke St is often used for learner drivers as it is quiet. This already leads to road obstructions at times The CWA site was a nonconforming site and had no plans of development until recently. It has been used by families coming for a holiday for years.They were quiet and welcome in the street. The local community had no idea of the proposed changes that will affect their privacy. Those who have recently purchased a house here had no idea of such a development plan and thought they had bought in to a quiet residential area. I am not against refurbishing the site but the present plan is unsuitable in a residential area. If the site was redeveloped retaining its current capacity. Those living in Duke St opposite the proposed entrance will be affected by noise and invasion of privacy as the 2 (or is it 3) story developments have verandas that will enable guests direct views into surrounding houses, even more so once the peppermint trees are gone. The traffic of cars coming and going and noise produced by large numbers of guests arriving together on buses will be horrendous. At night car lights will be constantly beaming in to the front of the units opposite. I invite all counselors to meet me on the corner of Ford and Duke St to see what the impact of this development will be to rate paying residents who bought in good faith.
25.	A Leonard BUSSELTON	**OBJECT:** Myself, my husband and our 8yr old son have just recently bought a house on Duke street as it is a quiet residential Street. I am a full time wheelchair user and I frequently wheel from our house into the jetty and into the city independently. As there is no footpath I wheel on the road, often with my 8yr old son, the traffic flow is quite minimal and I feel safe wheeling on the road. If the proposed development is allowed to change vehicular access from Ford Rd to Duke St, I am concerned that the increase in traffic on this quiet residential street will no longer allow me to safely wheel on the road and thus curb my independence and freedom to move freely outside my own home. The application to have an extra 36 possible cars entering and exiting onto Duke St is totally unacceptable, Duke St is a narrow St with no footpaths and totally unsuitable for an increase in such traffic, where as Ford Rd is already set up to accommodate this flow of traffic. Personally I don't have the

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		option to wheel off the road or on the grassed areas. I also note that I am not the only wheelchair user or person with mobility issues that uses this street. Refer to Attachment 011 – A Leonard
26.	J Harvey BUSSELTON	**OBJECT:** Additional information. Further to my submission on 09/01/23 I would like to add the following - 1. I object to the seven metre high wall of the proposed unit 9 which has a balcony and windows which will look directly into my only outdoor living area. 2. I would like to get calcification on how many levels the proposed units will have - two or three?
27.	B Blissenden BUSSELTON	**OBJECT:** I have recently moved to the area and moved into this particular street as it is quiet and has very little traffic. I walk my dog daily and enjoy a quiet life which will be unfairly disturbed by a driveway being allowed to be added at the Duke Street side of the proposed site. I have an 8 year old grandson who often stays with me and he has befriended other young children in the street. They walk between houses and I feel safe knowing that he is doing this in a controlled environment, away from traffic. I am puzzled by the motivation for the proposal being considered on the grounds that Ford Road is where the driveway currently is and that Road is wide and a direct thoroughfare between Peel Terrace and Marine Terrace, which leads me to question if this aspect of the proposal is driven by money and greed, without considering the effects it will have on the surrounding residential and wildlife community.
28.	P Chamberlain BUSSELTON	**OBJECT:** I do not support the scale of the development. Its a near 300% increase in the number of rooms and people that can stay there. I support upgrading the existing accommodation but not expanding it to the scale proposed. It will have a negative effect on traffic flow through Duke Street which has no foot paths to allow people living in the streets with wheelchair needs to navigate safely through the additional traffic should the access and egress be changed from Ford Road to Duke Street.

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		The proposal will also see the removal of many peppermint trees to expand the existing accommodation on site which will affect the native wildlife such as the possums. It will also affect the quiet enjoyment of the residents that live in Duke street. Please reconsider the scale of the expansion and leave the access and egress to the Ford Road side where the road has already been expanded to cater for the additional traffic and access to Peel terrace.
29.	J M Hatwell NORTH PERTH	**SUPPORT:** The area could benefit from some development and amenity that is sympathetic to the local environment. This development looks potentially beneficial to the area and may assist with bringing more amenity to the area without having any negative impacts. I support this development.
30.	A Bilsby BUSSELTON	**OBJECT:** I don't support this development proposal as it stands, because I believe the amenity of Duke Street will be adversely affected by the driveway position of the development.The development is planned for Lot 50 Ford Road, not Lot 50 Duke Street. The current CWA holiday units are accessed via the entry on Ford Road and changing that access to Duke Street would mean a lot more car traffic on the quiet, family-friendly street. Duke Street is short and doesn't provide direct access to the Busselton CBD like Kent Street and Adelaide Street do. Currently my children are able to play out the front without multiple cars speeding down the street, allowing impromptu cricket matches between the many children of Duke Street to occur. The 30+ cars that would be accessing the new holiday accomodation at Lot 50 Ford Road would negatively impact the safety of the neighbourhood children. As such, I would ask the City of Busselton to only approve a development application with access from Ford Road, not Duke Street.
31.	N Sheridan BUSSELTON	**OBJECT :** The local traffic infrastructure isn't capable of handling this increase in traffic. Will greatly affect Duke st and the safety of the young families in the area. The destruction of the local peppy trees and the affect this will have on th ring tail possum population In The area will be devastating.
32.	A Clifford BUSSELTON	**OBJECT:** Refer to Attachment 005 – A Clifford
33.	M & G Stanford BUSSELTON	**OBJECT:** Refer to Attachment 006 – M & G Standford

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34.	D Rees DUNSBOROUGH	**OBJECT:** Refer to Attachment 007 – D Rees
35.	G Thomas BUSSELTON	**OBJECT:** Refer to Attachment 008 – G Thomas
36.	S Bray (NOT PROVIDED)	**OBJECT:** Refer to Attachment 009 – S Bray
37.	C Elliot (NOT PROVIDED)	**OBJECT:** Refer to Attachment 010 – C Elliot

Department of **Biodiversity, Conservation and Attractions**

PARKS AND WILDLIFE SERVICE

E-MAILED 23/2/2023

We're working for Western Australia.

[redacted]

City of Busselton
27 FEB 2023

Chief Executive Officer
City of Busselton
Locked Bag 1
BUSSELTON WA 6280

ATTENTION: [redacted]

EXTENSION TO NON-CONFORMING USE – TOURIST ACCOMMODATION (CARETAKERS RESIDENCE AND 9 X ACCOMMODATION UNITS) -
LOT 50 FORD ROAD BUSSELTON

I refer to your email dated 30 January 2023 seeking the Department of Biodiversity, Conservation and Attractions' (DBCA) Parks and Wildlife Service comments in relation to a proposed development application for the above property.

DBCA provides the following advice on the proposed development.

Advice to City

Western ringtail possums (WRP) are listed as threatened species under the *Biodiversity Conservation Act 2016* (BC Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). WRP are listed as critically endangered under both the BC Act and the EPBC Act. WRP have been found in close proximity to Lot 50.

Implementation of the development as proposed, will require the removal of large trees that provide suitable habitat for threatened fauna, as indicated by the DMG *Architecture Ford Road Townhouses* plan (Project 22007, Drawing A01.02) (Plan).

The vegetation along Duke Street forms part of a fauna corridor connection that contains high quality WRP habitat. DBCA's preference is for WRP habitat to be retained where possible and suggests that options for amendments to the development plan be considered to retain trees where possible. Considerations could include reducing building footprints, relocating visitor parking area and relocating the crossover to retain additional fauna habitat trees.

Trees identified for retention should be protected from impacts of fill that could lead to decline and death of the large WA Peppermint trees. DBCA recommends that all utilities, servicing pipes and cables are located to avoid impacts on retained trees and their root systems.

DBCA also recommends that removed trees are replaced with WA Peppermint trees to consolidate the existing fauna corridor linkage.

Regional and Fire Management Services Division
South West Region
PO Box 1693, Bunbury, Western Australia 6230
dbca.wa.gov.au

When clearing of threatened fauna habitat is unavoidable an experienced fauna spotter, who holds a section 40 ministerial authorisation to take or disturb threatened fauna under the BC Act, should be engaged to be on-site prior to and during vegetation clearing.

Thank you for the opportunity to comment on this application. Please contact [redacted] if you have any queries regarding this advice.

Yours sincerely

[redacted]
Acting Regional Manager
South West Region

21 February 2023

[redacted]
Subject: [redacted]
Date: Lot 50 (NO. 40) Ford Road Busselton
Monday, 16 January 2023 8:40:13 AM

This email is from outside the CoB. Links or attachments may not be safe.

To the Councillors, Jaymee Daff Planning Officer

"Your say" submissions for DA22/0754 – Extension to Non-Conforming Use – Lot 50 (No40) Ford
Road, Busselton closed on 11/01/2023. Due to the late arrival of the City of Busselton's letter –
dated the 30 th of November, 2022 but not received until mid-December, together with Christmas
and New Year holidays cutting into the available time given to lodge submissions, the information I
was waiting on in relation to the above development proposal did not arrive before the 11 th of
January, 2023.

On the 11 th of January, I requested a week's extension to that date, as I have not had a reply to that
request, please take my comment in this email into consideration when voting on the above proposal.

Also, I would appreciate the answers to the following questions so I might better understand the
development application process.

Can you please advise me of where I can find the applicant's report describing the history of the site
and the proposed redevelopment? I couldn't find one – is there one and is it in the public domain?

Is there a traffic report available to residents? Or does the developer engage a company to prepare
such a report on their behalf only, as part of the developer's application?

Can you please advise me where I can find a copy of the existing "non-conforming use rights" for this
site?

It is my understanding that the land is zoned residential under the Local Planning Scheme 21 (LPS21)
Page 10 – 3:2 ZONE OBJECTIVES
Objective C: To provide for a range of non-residential uses, which are compatible with and complimentary to residential development.

Any new development or use of the site should comply with these objectives.

Given the significant increased scale of the proposed double storey, 45-bedroom development in
contrast to the small scale, single storey, 15-bedroom community CWA cottages – how does this

proposed development comply with Objective C?

Page 23 of LPS21 – Clause: 3:11:3
Where an application is for a change of use from an existing non-conforming use to another non-
conforming use, the local government is not to grant its development approval unless the proposed
use is **less detrimental to the amenity of the locality than the existing nonconforming use** and is, in
the opinion of the local government, closer to the intended purpose of the zone.

How is a re-development of this scale less detrimental to the amenity of the locality?

The proposed re-development goes way beyond the original intent of the site of the CWA use. The
use by many more people and many more cars is in complete contrast to the intent of a residential
zone and the quiet expectations of people living in a normally quiet residential environment.

How is this consistent with LPS21? It appears to be outside the established planning framework of the City of Busselton.

I am not against the re-development of the site but the current proposal before the City of Busselton
is of a scale not appropriate in a residential zoned location. I am concerned over the detrimental
aspects specific to my home and neighbours' homes and the quiet amenity we seek to maintain.

I would appreciate if you can confirm receipt of this email and look forward to your considered
response to my concerns.

Thank you.

[redacted] Papadopoulos
[redacted] Busselton..

[redacted]

Adjoining Landowner Submission

DA 22/0754 Tourist Accommodation Lot 50 (40) Ford Road January 2023

The proposal to construct nine townhouses and caretakers residence on the former CWA holiday unit site being Lot 50 (40) Ford Road will have a significant adverse impact for local residents. The existing short-term accommodation on site comprises five single storey units and caretakers residence with generous setbacks to the street and all adjoining landholders boundaries. In stark contrast to the restrained parkland setting with mature peppie trees that presently exists on site the proposed development is of increased scale and commercial intent offering a bulky two-storey built form and hard paved guest carparking area.

The tourist accommodation is being provided exclusively as larger five bedroom attached townhouse apartment style units which will define a user demographic comprising larger groups of short-term guests and visitors to the site. This differs from the smaller number of couples, respite care and single family groups who frequent the existing modest holiday units.

In optimising the development potential of the site buildings have been positioned with minimum permissible setback distances to all lot boundaries. This raises specific issues for overlooking of adjoining private yards. The overall impression is that on completion the site when viewed from the street or any of the adjoining single storey residential properties will appear as an imposing mass of buildings and on-site parking. This is the type of development prescribed for a commercial or mixed use zoning not a residential zoned area.

The primary concern as an adjoining resident property owner is how this development will adversely impact the established quiet traditional suburban amenity of the immediate area. The density of the proposal is a massive 'step up' from the current non-conforming usage of the site. The scale and operation of the proposal is more akin to a bustling urban precinct where all hours activity can be expected to prevail. This proposal will result in frequent disturbance, increased noise and a significant increase in the volume of traffic especially on Duke Street where vehicular access is proposed, all issues which are not going to be welcomed by neighbourhood households.

The scale of the proposal will impact adversely on the amenity and market value of all adjoining and nearby properties including my much-loved retirement home of six years, being Lot 18-181 Duke Street. The commercial nature of the venture is not an acceptable use for an R30 residential zoning applying to the site, it will be **detrimental to the traditional quiet suburban residential ambience** of the area.

General observations and queries specific to the proposal as it stands include the following;

1. There is no provision for any communal bbq/pool or such like congregation areas assigned on site. Can adjoining owners be assured there will be no decision taken to include such a facility in the future?

2. Can adjoining owners be assured that the caretakers residence is a full time 24/7 site management operation and not just a token gesture to satisfy DA requirements?

3. Are the proposed street parking bays noted on the plans for the exclusive use of the proponent?

4. Will planting on the Duke Street verge as suggested on the plans be cognisant of existing crossover sightlines and the introduced street carbays?

5. Will the proponent be seeking to replace, upgrade or modify boundary fencing to adjoining properties?

6. Will any measures be undertaken to manage traffic and ensure safe passage of pedestrians along Duke Street?

D[redacted] Breen

Property Owner - [redacted]

Letter to City of Busselton - Mayor + Councillors

9th January 2023

Dear Sir/Madam,

DA 22/0754 Non-Conforming Use – Tourist Accommodation Lot 50 (40) Ford Road

I am an adjoining landowner to the above development proposal and have recently lodged a written submission to Council, a pdf copy of which I have attached for your information and records.

As outlined in my submission to Council **I do not support** the proposal to extend the non-conforming **tourist accommodation** use for the site and would hope our neighbourhood can look to your support to vote accordingly and not support this application when it comes before Council.

Busselton has become a regional destination of choice for a growing number of people - visitors and residents alike. Accommodation for both is critical to the ongoing success of the region. Residents and visitors share common interests when it comes to the enjoyment of the natural environment, hospitality and entertainment facilities on offer provided there is a clear demarcation between potential conflicting interests.

Generally, those like myself who have sought to live full time in Busselton have chosen a home which is located in a quiet residential area - an area close by the Bay and near to town facilities where budget permits, in doing so carefully assessing what exists and what is likely to occur in the immediate area.

On my retirement six years ago, I chose to purchase an established home at 181 Duke Street immediately adjoining the CWA holiday unit site anticipating that the CWA would maintain ownership and continue to operate the facility as they had successfully done for several decades – appearing to offer respite for country folk and other less fortunate lower socio-economic families. My due diligence at time of purchasing did not extend to establishing what conditions if any might have applied to the granting of non-conforming use of the CWA site - I did not foresee the sale of the property to private ownership as subsequently occurred and certainly did not anticipate a significant **double storey 'motel style'** new build short term accommodation business of the scale now being proposed for the site as being an acceptable non-conforming use.

Duke Street east of the Showgrounds to Ford Road is a designated R30 residential zoning. The established housing comprises single storey homes with some duplex and triplex subdivisions completed in recent years. The proposal to construct a two storey development on the corner of Duke Street and Ford Road does not respond favourably to the existing **streetscape character**. Building setbacks are all minimal distance which will reduce the opportunity for effective landscape buffers and screening to be undertaken particularly to adjoining residential properties.

I along with nearby residents would hope that we can continue the quiet enjoyment of our home lives as we all anticipated - not having to contend with an overpowering, busy commercial enterprise bringing potential conflict and disharmony on a daily basis to an otherwise **desirable residential neighbourhood**.

I am writing to you as a City Councillor hopeful that you will not simply pass over this application, instead that you view it with an enquiring and considerate mind. The current proposal for 40 Ford Road is a significant and fundamental **change of use** from a modest (fmr CWA) low scale single storey residential business model to a fully-fledged commercial use of the site. The size and scale of operation will not be a welcome addition to the Duke Street neighbourhood and on approval will set a potentially undesirable planning precedent.

Please feel free to contact me to discuss this proposal at your convenience as I would welcome the opportunity to seek a more satisfactory outcome for all. My contact details are *mobile*: [redacted]

Yours faithfully,

D[redacted] Breen

Property Owner - [redacted]

Attachment: *Adjoining Landowner Submission*

10 January 2023

To: City of Busselton
BUSSELTON 6280

Ref : **DA22/0754 - Extension to Non-Conforming Use – Tourist Accommodation (Caretakers Residence and 9 x Accommodation Units) - Lot 50 (No. 40) Ford Road BUSSELTON**

I am submitting the following submission concerning the proposed development of land as detailed above.

I reside at 182 Duke Street Busselton and have been a resident at this address since 2013. I am directly opposite this site, on Duke Street.

Prior to this residence, I resided at 7 Andrews Street Busselton from 1982 to 2013

It is my understanding that the application listed above seeks to not only extend the non-conforming use of the existing Tourist Accommodation known prior to its relatively recent purchase, as the CWA Holiday units, but also seeks to significantly amend the facility and increase its capacity by over 250%

The existing Non-Conforming Use provides for Tourist Accommodation that encompasses 4 x 3 bedroom and 2 x 2-bedroom facilities permitting a total of approximately 30 to 40 persons at 100% capacity which I accept was in place at the time of my property purchase in 2013.

The application is to construct 9 x 5-bedroom villas and 1 x single bedroom caretaker villa. Each 5-bedroom Villa will have the capacity of at least 10 and as much 16 persons per villa dependent on bedding configuration (Single beds, Split king beds, Twin beds, Bunk beds etc.). Including the Caretakers apartment, this provides for a capacity of 92 to 146 persons – a potential capacity increase of over 100 persons or 250%+

Therefore, I oppose this proposed development on the following grounds:

1) This capacity increase will significantly change the amenity of the area which is primarily residential with many smaller older houses or newer 3-to-4-bedroom townhouses. Many of which I understand are occupied by older persons such as myself.

2) Given Lot 50 (40 Ford Road) is Zoned R30 as are all residences North, South and East of Lot 50, and it is 0.3092 of a hectare, how would 9 dwellings and a caretaker's residence (with each dwelling required to be a minimum of 300 sqm) possibly conform with the Zoning requirements of **R30** in the City's planning scheme? Furthermore how would this excessive massing not significantly negatively affect the compliant R30 and R15 Zone properties surrounding it?



3) My reading of the R-Codes Volume 1, as explained on the WA Planning Commission Website, is that 45% of the lot size, or approximately 1400 sqm in this case is to be open space. The outdoor living areas and common areas would not meet this requirement and some of the parking areas do not appear to meet geometric design requirements.

4) The developers are clearly cramming as much as possible into a small site, given every villa has 5 bedrooms where it appears a more sensible mix of 2 and 3 bedroom villas, accommodating similar numbers to what presently exists will be much more manageable, provide sensible and compliant common spaces, compliant parking areas, retain more of the existing established trees and make for a much more "residential neighborhood" friendly development.

Table 1: General site requirements for all single house(s) and grouped dwellings; and multiple dwellings in areas coded less than R40

1 R-Code	2 Dwelling type	3 Minimum site area per dwelling (m²) ◆	4 Minimum lot area/rear battleaxe (m²) ▼	5 Minimum frontage (m) ▼	6 Open space		7 Minimum setbacks (m)		
					min total (% of site)	min outdoor living (m²)	primary street ●	secondary street ●	other/rear
R2	Single house or grouped dwelling	Min 5000	-	50	80	-	20	10	10
R2.5	Single house or grouped dwelling	Min 4000	-	40	80	-	15	7.5	7.5
R5	Single house or grouped dwelling	Min 2000	-	30	70	-	12	6	*/6
R10	Single house or grouped dwelling	Min 875 Av 1000	925	20	60	-	7.5	3	*/6
	Multiple dwelling	1000	-	-	60	-	7.5	3	*/6
R12.5	Single house or grouped dwelling	Min 700 Av 800	762.5	17	55	-	7.5	2	*/6
	Multiple dwelling	800	-	-	55	-	7.5	2	*/6
R15	Single house or grouped dwelling	Min 580 Av 666	655	12	50	-	6	1.5	*/6
	Multiple dwelling	666	-	-	50	-	6	1.5	*
R17.5	Single house or grouped dwelling	Min 500 Av 571	587.5	12	50	36	6	1.5	*
	Multiple dwelling	571	-	-	50	-	6	1.5	*
R20	Single house or grouped dwelling	Min 350 Av 450	450	10	50	30	6	1.5	*
	Multiple dwelling	450	-	-	50	-	6	1.5	*
R25	Single house or grouped dwelling	Min 300 Av 350	425	8	50	30	6	1.5	*
	Multiple dwelling	350	-	-	50	-	6	1.5	*
R30	Single house or grouped dwelling	Min 260 Av 300	410	-	45	24	4	1.5	*
	Multiple dwelling	300	-	-	45	-	4	1.5	*
R35	Single house or grouped dwelling	Min 220 Av 260	385	-	45	24	4	1.5	*
	Multiple dwelling	260	-	-	45	-	4	1.5	*
R40	Single house or grouped dwelling	Min 180 Av 220	380	-	45	20	4	1	*
R50	Single house or grouped dwelling	Min 160 Av 180	380	-	40	16	2	1	*
R60	Single house or grouped dwelling	Min 120 Av 150	380	-	40	16	2	1	*
R80	Single house or grouped dwelling	Min 100 Av 120	380		30	16	1	1	*

All standards for single house or grouped dwellings within R100, R160 and R-AC areas are as for the R80 Code

Legend

◆ subject to variations permitted under clause 5.1.1 C1.4

▼ only applies to **single houses**

● **secondary street**: includes **communal street**, private street, **right-of-way** as street

- indicated not applicable

* see **Tables 2a and 2b** and clause 5.1.3

Av. average **site** area

Additionally, setbacks of 4 metres from the primary street are required. If as shown, the 4-metre setback is off Ford Road as the primary street, then why is the entry exit not off Ford Road given this is the property address and the acknowledged, primary street? There would be no houses affected by a driveway entry and exit off its primary street front address. If the answer is because of the busy nature of Ford Road, then how will adding around 40 plus vehicles and over 100 plus persons and all associated traffic issues both pedestrian and vehicle to this immediate corner help?

5) With this proposed capacity increase there will be significant increases in traffic movement and congestion resulting in clear safety concerns for residents surrounding this facility. Duke Street has no walkway or pathway, and this corner already experiences significant vehicle movement from vehicles accessing the Esplanade and Marine Terrace via Ford Road and in the opposite direction back to Layman Road/Peel Terrace.

6) The proposed entry and exit point, off Duke Street, despite being a **FORD ROAD** address, will result in vehicles entering and exiting directly into and opposite homes including mine, which will cause major disruption to our peace and amenity as traffic moves at all times, 24/7 and exiting vehicle lights will be directly focused on a minimum of 4 homes on Duke Street.

7) 41 car bays including 4 off street indicates significant vehicle movement is expected and this does not even allow for vehicles towing boats which presently utilise the driveways, lawns and verges of homes on Duke Street, including my own, in order to reverse recreational vehicles into the grassed areas of Lot 50 Ford Road.

8) The off-street parking proposed is away from the Town Centre and in no way will it serve a greater community purpose as off-street parking requires. It will further impinge on safe pedestrian flow on Duke Street, given there are no foot paths, other than on Ford Road and it will become a maintenance obligation for the City.

9) The noise issues that are likely to come from at minimum, over 100 persons within such a confined facility are significant despite the presence of a single caretaker. This noise will no doubt affect all neighboring residences including those on Adelaide Street and Duke Street. It is my understanding that the positioning of the current single storey Holiday Homes was done to ensure that the neighbouring houses were not affected by noise, and I believe this has largely been effective.

10) Homes on Adelaide Street will now directly abut two-storey homes in this development. Apart from there being very clear overlooking issues, the distance of only 2.2 metres from the Northern boundary to Adelaide Street homes includes a pedestrian walkway **within** that space. This walkway will no doubt be utilised for after-hours access, again creating noise concerns considering the number of persons accommodated within this development.

11) The increase in the provision of Waste Services, such as Rubbish Collection will also result in increase in disturbance and amenity and will also affect safety of pedestrians and residents given a minimum of **20** rubbish bins will be located on the street on dual rubbish collection days

In Summary

I strongly oppose this extension to the Non-Conforming Use for Lot 50 (No.40) Ford Road in its present form.

My primary issues all relate to the significant increase by more than 250% of persons within the site and the associated traffic issues, noise, general disturbance, security and safety concerns for all residents in a residential zoned neighborhood.

The application does not appear to comply with the State R-Code Volume 1 requirements, nor the City of Busselton's own planning framework and the site is clearly insufficient in size to increase its capacity to such an extent without seriously negatively affecting all residences which surround it.

I urge the Busselton Council to dismiss this application.

Sincerely

J[redacted] Davy
Resident
[redacted]
Busselton.
[redacted]

City of Busselton
Application No | Receipt No
CIO ID
05 JAN 2023
Property ID | Doc ID
Retention
City of Busselton

City of Busselton

Please accept this submission from me as a person who lives nearby the property known as [redacted] Ford Road, Busselton 6280.

I have viewed the plans and find the following areas of concern to myself.

(A) Precisely how many occupants will this new development.
(B) I seek knowledge of the full capacity of sleeping accommodation.
(C) What my concern is, centers around Noise Disturbance from large numbers of people.
(D) Privacy for surrounding adjoining properties.
(E) Removal of mature trees that are both healthy and beneficial to the environment.
(F) The current usage of the low level residences, has not been an issue for the twelve years I have been a close neighbor. However, two story TOWN HOUSES will completely change many aspects of what currently is in existence.
(G) I enjoy living in a peaceful locality and feel traffic density will greatly increase if the development is allowed.

Finally, I want it to be on record that "*to extend a NON CONFORMING USE for a proposal that is so far removed from what currently is the status quo*" Should not be allowed.

For the above reasons, I am against the proposal for the applicants consent to proceed.

Thank you,

29-12-22

A[redacted] Clifford

[redacted], Busselton

City of Busselton | Application No | Receipt No | City of Busselton
CIO ID NM
09 JAN 2023
Property ID | Doc ID

City of Busselton
Locked Bag 1
BUSSELTON WA 6280

Email: mikestan48@hotmail.com

Attention [redacted]

Dear Sir/Madam

Submission to DA22/0754 – Extension to Non-Conforming Use – Tourist Accommodation - Lot 50 (No. 40) Ford Road, Busselton.
(Caretakers Residence and 9 x Accommodation Units)

We, Michael and Grace Stanford of Lot 12 (No.148) Adelaide Street, Busselton, strongly object to the proposed development and desire that the City of Busselton **REFUSE** the application to extend and intensify the "Non-Conforming Use" of Lot 50 (No. 40) Ford Road, Busselton.

We have been eye witnesses to the many children who have spent precious hours playing innocently on the grass beneath the magnificent trees, that adorn the property in question.

Having been adjoining owners for almost forty years, we feel privileged to have had the joy of children breaking away from electronic devises and engaging in physical activity.

From a perusal of the plans applicable to redevelopment of the land, it is plainly apparent the trees and grass removed and be replaced with unfriendly concrete development.

Extending the Non-Conforming Use, for this vastly different proposal, away from the low-level holiday units, that are currently on the land should not be permitted.

We implore all at the City of Busselton to take into consideration how the usage was initially granted to the Country Women's Association for respite care prior to the property being sold.

It is our belief that what the applicants desire to redevelop the site should NOT be accommodated by an extension of the "Non-Conforming Use".

The current proposal is far in excess of the use granted many years ago. The proposed development is excessively different from the current "Non-Conforming use," applicable to the property at present.

More specifically our reasons objections to the proposed development include:

M Stanford 6/1/2023 6/1/23

1. **Intensification of Use – Tourist Accommodation**
   Currently the site has spacious areas of open space and has been developed with a caretaker's residence plus 2 x 2-bedroom units and 4 x 3-bedroom units. Each unit is single storey and can occupy 6 to 7 people respectively (total 15 bedrooms or 42 people). The proposed development proposes 9 x 5-bedroom two storey units and a 1-bedroom caretakers' residence. It is estimated that each unit could accommodate 10 people, equating to 46 bedrooms or 92+ people (if bunk beds are used) with associated vehicles on site per night. The intensification of the use proposes a tripling in the number rooms with greater site coverage and is not consistent with the character of the area.

   It is suggested that the development / use be considered as a "Holiday Home (Multiple/Grouped Dwelling" instead of "Tourist Accommodation" (Non-Conforming Use) under the City of Busselton Local Planning Scheme No. 21. "Holiday Home (Multiple/Grouped Dwelling)" may be used for short stay accommodation for hire or reward for no more than 6 people per unit.

2. **Adverse Impact to the Amenity of the Area**
   The removal of the existing vegetation including a large and mature peppermint tree in good health and development of the site will negatively impact upon the amenity of the area and also local fauna.

   It is suggested that the development be redesigned to retain the large peppermint tree.

3. **Overlooking and loss of privacy**
   The proposed two storey development with windows and balconies in close proximity to our property will result in overlooking and a loss of privacy. Although the majority of the overlooking is over our shed and backyard, we are concerned that future development of our property may be negatively impacted.

   It is suggested that the development be redesigned to relocate the proposed residences 3 and 4 further from the northern boundary (6 metres), windows be raised or balconies appropriately screened to protect the existing and future privacy of our property.

Thank you for providing the opportunity to comment.

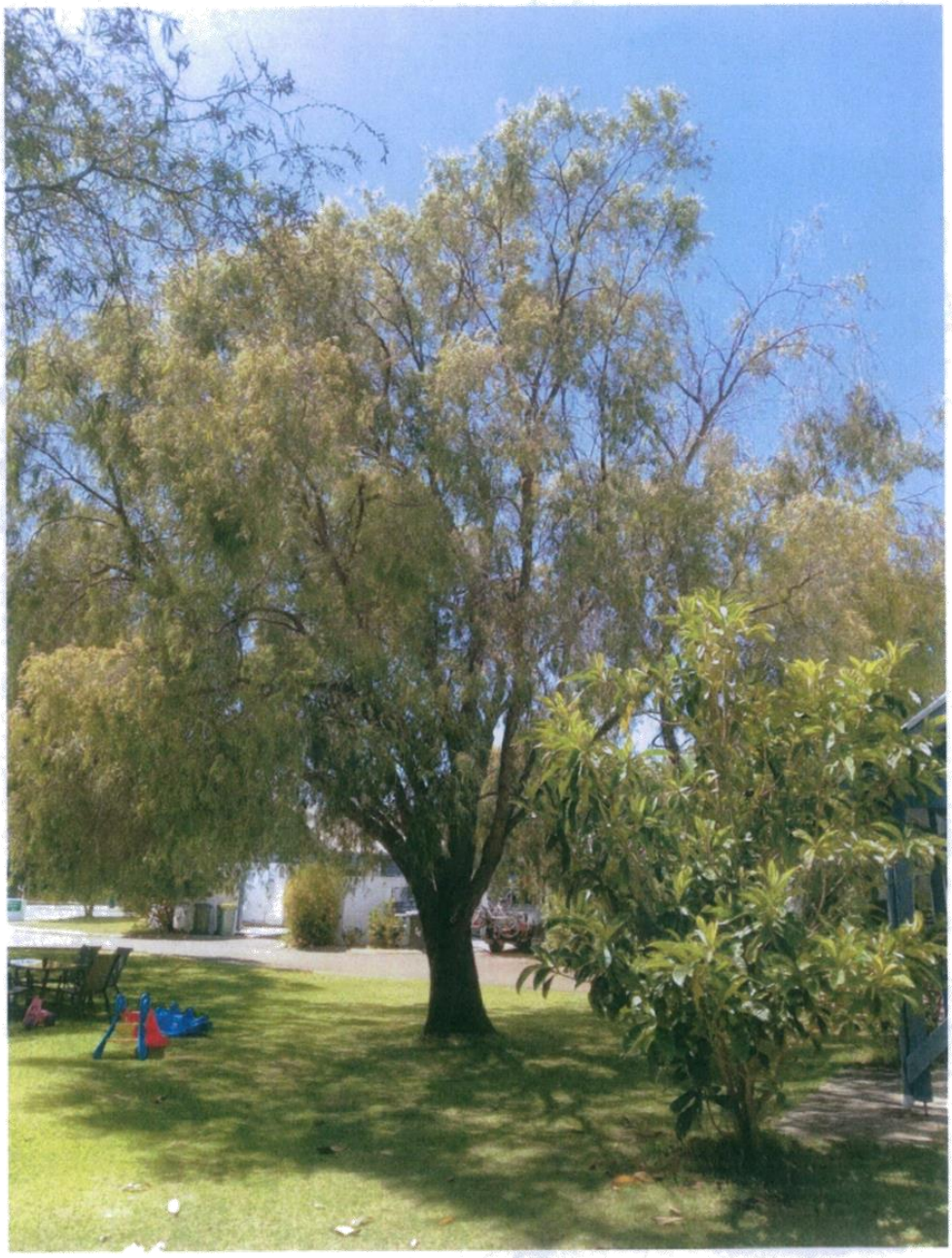
M[redacted] Stanford G[redacted] Stanford

Date: 6 January 2023

M Stanford

Submitted with Three Colour Photographs


Lot 12
148 Adelaide St
STANFORD
45/50
Feet
Plessp
Retain



These trees should not be removed

Trees located between current Units and 148 Adelaide St.


Photo looking West
Shows Boundy Fence betw not 50 and not 18 (Duke St)
45 to 50 Foot Peppermint
Natives
Fence betw not 12 and not 50

[redacted]

From: [redacted]
Sent: Monday, 9 January 2023 5:42 PM
To: Enquiries - City of Busselton
Subject: Proposed development 40 Ford Road Busselton

Categories: Crystal-Registered in ECM

This email is from outside the CoB. Links or attachments may not be safe.

RE: Submission to Oppose Proposed Development 40 Ford Road Busselton
Attn: Jaymee Daff
Current zoning of the site is residential with CWA previously providing holiday accommodation under a non-conforming use. A proposed development to provide tourist accommodation with a much greater density of units and occupancy is a significant change in use and clearly compromises City of Busselton's Local Tourism Planning Strategy 2011.
If the City of Busselton is to retain integrity of its Town Planning Scheme it will not allow an extension of a non-conforming use for the proposed development. An alternative would be to re-zone the site for tourist accommodation which would be against the City's Local Tourism Planning Strategy and difficult to imagine ever succeeding.
To allow tourist accommodation to be established in a residential area by way of extending a non-conforming use would set a precedent that could be regretted by the City for years to come.
On this basis the proposed development should be denied.
Yours sincerely,
D[redacted] Rees
[redacted] Dunsborough
Phone: [redacted]

[redacted]

Sent: Tuesday, 10 January 2023 5:43 PM
To: Councillors / SMG and Governance [redacted]
Subject: Development Applications - 40 Ford Road

⚠This email is from outside the CoB. Links or attachments may not be safe.

Dear Councillors and Mr Needham

I provide for your information the attached objection to the proposed Extension to Non-Conforming use of Lot 50 (No 40) Ford Road Busselton. This objection has been submitted on the City of Busselton Website link specific to the development application, however I wish to provide it to you directly. It was submitted on behalf of Mrs Joan Davy, a resident of 182 Duke Street Busselton. In addition to the matters raised in this letter, I wish to draw your attention to the additional points below.

The scale of this proposal in a residential neighbourhood will significantly impact all surrounding residents.

- What Traffic Management survey has been done to assess the impact of this proposed development?
- Presently a number of elderly persons in homes directly adjacent to this proposed development are wheelchair bound or use personal disability vehicles (scooters, gophers etc). Given the lack of existing footpaths on Duke Street, what assessment has been done to eliminate the risks to residents due to the significant increase in traffic, both vehicle and pedestrian?
- Given the likely use of 5-bedroom villas, utilised for short stay purposes, will include groups. What assessment has been done on the impact of larger transport vehicles such as buses and coaches to pedestrian and vehicle traffic in the area?

- Given the development requires the removal of large, established, healthy peppermint trees, what study or assessment has been done to ensure minimal disruption to Possums that inhabit these trees in relatively high numbers?

On behalf of Mrs Davy, we wish to strenuously object to the scale of this development and the negative impacts it will have on the community surrounding it. Whilst we accept that development of the site is necessary given its age, the developers are clearly attempting to maximise their return per square meter with little thought to those they impact surrounding them. A revised Development Application that positively addresses all of the above and attached issues and is of a scale not dissimilar to what presently exists will, we believe, gain local support.

Thank you for your consideration

G[redacted] Thomas (On Behalf of Mrs[redacted] Davy, [redacted] Busselton)

From: [redacted]
To: Enquiries - City of Busselton
Subject: Objection to building
Date: Wednesday, 11 January 2023 9:39:17 AM

This email is from outside the CoB. Links or attachments may not be safe.

I write to express concern with regard to the proposed development in Ford street.
I Express concern about removal of vegetation.
I also state clearly that the new development is way beyond what the non conforming use was granted and to allow the massive increase in density will not be a suitable fit for continued use of the grant that has been previously given. HENCE, I DO NOT AGREE WITH THE PROPOSED DEVELOPMENT.

Sent from my iPhone

[redacted]

[redacted]
Sent: [redacted] Wednesday, 11 January 2023 12:23 PM
To: Enquiries - City of Busselton
Subject: https://your say.busselton.wa.gov.au

Categories: [redacted] - Registered in ECM

This email is from outside the CoB. Links or attachments may not be safe.

ref DA22/0754

I wish to address the above DA and point out the concerns that I have with it.

1 The increase in traffic that will result from this development is of great concern as Duke St has no footpath and it is used by small children. The danger is increased at the intersection with Georgette St which is also used by parents with small children. There is no footpath in that street either.

A development of this magnitude should not be considered without more safety provisions being provided especially when the entry/exit is onto Duke St.

Finally, I believe that as this is a Quiet family area the large increase in short stay residential is going to adversely on all residents in the surrounding area as we already have a number of that type of accommodation units nearby.

Yours sincerly,

[redacted] Elliott.



DMG
ARCHITECTURE

City of Busselton
Attention: Planning Services
2 Southern Drive
Busselton, WA 6280
planning@busselton.wa.gov.au

25th October 2022

BY EMAIL

To Planning Services,

REF: DEVELOPMENT APPLICATION FOR LOT 50 (#40) FORD ROAD BUSSELTON, WA 6280

Design Management Group Pty Ltd (DMG) on behalf of the landowner, seek development application approval for a short term accommodation development comprising of nine (9) two-storey townhouses as well as a reception, office, laundry and caretakers' residence alongside outdoor living terraces and common landscaped zones. The development, referred to as 'Ford Road Town Houses' is located on the corner of Ford Road and Duke Street in Busselton WA.

The site in its current state consists of five brick and tin chalets used as short term accommodation with one caretaker's unit and the application proposes a new development of the same nature that enhances the experience of place and contributes the character and culture of the Busselton community and streetscape.

In regards to the R-Codes Volume 1 Residential Development Application Compliance Checklist, we note the below variations and justifications;

- **5.1.1 C1.1 & C1.2 Site area requirements**
  Minimum total lot area required per dwelling to be 260m^2 however the proposal offers on average 200m^2 per dwelling as they are short term accommodation

- **5.3.2 C1.1 & C2.1 Grouped and multiple dwellings, common property and communal open spaces**
  Efforts have been made to retain as many trees as possible on the site and integrate them in the communal landscaping. A high percentage of open area, shared green spaces and feature trees to each town house will enhance the development and maintain consistency to the streetscape. The proposal seeks to remove a small percentage of existing verge trees on Duke Street to accommodate the new crossover, directing traffic to the secondary street and enhancing the Ford Road streetscape.

- **5.4.1 C1.1 & C1.2 Visual Privacy**
  Residences 3 & 4 to the north-eastern boundary each have a balcony which is considered an unenclosed outdoor active habitable space. The variation to the cone of vision prescribed can be justified as;
  - the balconies have fixed louvres restricting view in the direction of overlooking,
  - the town houses are used as short term accommodation with no permanent residents,
  - the dwelling on the adjoining property (148 Adelaide St) is ~30m from the boundary and
  - the area on the adjoining property (148 Adelaide St) which is affected by overlooking from the balconies contains a large shed/workshop.

DMG
ARCHITECTURE

Enclosed are the following supporting documents:

Forms

- Application for Development Approval form
- Residential Development Application Checklist
- R-Codes Volume 1 Residential Development Compliance Checklist
- Short Term Accommodation Development Application
- Certificate of Title
- Diagram

Documentation

- Architectural Drawing Package
  - A01.00 COVER PAGE
  - A01.01 SURVEY
  - A01.02 PROPOSED SITE PLAN
  - A02.01 GROUND FLOOR PLAN
  - A02.02 FIRST FLOOR PLAN
  - A02.03 ROOF PLAN
  - A03.01 ELEVATIONS & SCHEDULE OF MATERIALS
  - A03.02 ELEVATIONS
  - A03.03 VISUALS

We trust that the attached documents assist in your assessment of the proposal. Should you require any further information, please do not hesitate to contact the undersigned on 9212 8888.

Yours sincerely,

Liam Jones
liam.jones@dmgaustralia.com.au
08 9212 8888

Department of Planning, Lands and Heritage

GOVERNMENT OF WESTERN AUSTRALIA

Western Australian Planning Commission

R-Codes

State Planning Policy 7.3 **Residential Design Codes**

R-Codes Volume 1 Residential Development Compliance Checklist

July 2021

The Department of Planning, Lands and Heritage acknowledges the traditional owners and custodians of this land. We pay our respect to Elders past and present, their descendants who are with us today, and those who will follow in their footsteps.

Disclaimer

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fax: 08 6551 9001
National Relay Service: 13 36 77

This document is available in alternative formats on application to the Department of Planning, Lands and Heritage Communications Branch.

R-Codes Volume 1
Residential Development Compliance Checklist

This checklist streamlines the compliance assessment of residential development applications to support a consistent, accurate and faster determination process. It outlines the major R-Codes Vol. 1 (Part 5) design elements to be considered for various residential development proposal types including single houses, grouped dwellings, ancillary dwellings, outbuildings, external fixtures, boundary walls or fences, patios, pergolas, verandahs, garages, carports and retaining walls. The checklist does not form part of the R-Codes Vol. 1 and may be updated from time to time as a supplement the R-Codes Explanatory guidelines.

When completing the checklist it should be noted that local planning policies, local development plans and activity centre plans may contain provisions that amend or replace deemed-to-comply provisions. Assessments should be conducted against those amended/replaced provisions.

Use of the checklist is recommended for both applicants and decision-makers to assist in the timely determination of a proposal. Applicants are encouraged to complete the checklist and submit it to the decision-maker together with the development application form, associated plan(s) and the assessment fee.

The checklist is available online at www.dplh.wa.gov.au/rcodes

General

Application description	SHORT TERM ACCOMODATION TOWNHOUSES
Reference number	

Property details

Address	LOT 50 (#40) FORD ROAD, BUSSELTON WA 6280
Land area	3,092 sqm
Title information (Lot type and easements)	

Planning framework

Region Scheme zoning	CITY OF BUSSELTON LOCAL PLANNING SCHEME NO. 21
Local Planning Scheme zoning/R-Code	R-30
Land use permissibility	RESIDENTIAL
Special control area	
Structure plan area	
Local development plan	
Local planning policies	
Development contributions	
Road widening proposed	
Is referral required to external agency? (Main Roads, WAPC, Heritage Council, etc.)	

Site inspection

Site inspection undertaken	YES
Verge infrastructure (lighting, power, water, side entry pit, etc.)	YES - SEE FEATURE SURVEY A01.01
Street trees	YES
Date of site inspection	02/09/2022
Summary of site inspection findings/ photos	SEE FEATURE SURVEY A01.01

5.1.1 Site area

R-Codes Vol. 1 deemed to comply	Required (Table 1)	Proposed	Compliance
C1.1 and C1.2 – Site area requirements	Minimum lot area 260 square metres (m^2)	200	☐ Yes ☒ No
	Average lot area 300 square metres (m^2)	309	☒ Yes ☐ No
	Minimum frontage - m		☐ Yes ☐ No
C1.3	Corner truncations up to a maximum of $20m^2$ to be added to the area of an adjoining lot		☐ Yes ☐ No
	Battle-axe – access leg is no more than 20% of site area		☐ Yes ☐ No

5.1.2 Street setback

R-Codes Vol. 1 deemed to comply	Required (Table 1)	Proposed	Compliance
C2.1 – Primary street	4m	4m	☒ Yes ☐ No
C2.2 – Secondary street	1.5m	1.5m	☒ Yes ☐ No
C2.3 – Corner truncation	1.5m	1.5m	☒ Yes ☐ No
C2.4 – Porches, verandahs and balconies	Project into the primary street setback area to a maximum of half the required primary street setback.	1.4m	☒ Yes ☐ No

5.1.3 Lot boundary setback

Boundary (select one — north, south, east or west)

Wall/section of wall	Major opening	Length	Height	Setback required	Setback provided	Compliance
Wall	☐ Yes ☒ No	15.7 m	7.0 m	2.20 m	2.20 m	☒ Yes ☐ No
Eaves	Project no more than 750mm* into a setback area			0 m	0 m	☒ Yes ☐ No
Wall	☐ Yes ☒ No	18.5 m	7.0 m	2.40 m	3.60 m	☒ Yes ☐ No
Eaves	Project no more than 750mm* into a setback area			0.75 m	0.4 m	☒ Yes ☐ No

Boundary (select one — north, south, east or west)

Wall/section of wall	Major opening	Length	Height	Setback required	Setback provided	Compliance
Wall	☐ Yes ☒ No	15.7 m	7.0 m	2.2 m	2.30 m	☒ Yes ☐ No
Eaves	Project no more than 750mm* into a setback area			0.75 m	0 m	☒ Yes ☐ No
Wall	☐ Yes ☒ No	15.7 m	7.0 m	2.2 m	2.2 m	☒ Yes ☐ No
Eaves	Project no more than 750mm* into a setback area			0.75 m	0 m	☒ Yes ☐ No

* Less setbacks may apply as per 5.1.3 C3.1, separate building code requirements may also apply.

5.1.3 Boundary walls

R-Codes Vol. 1 deemed to comply	Permitted	Proposed	Compliance
Boundary wall			☐ Yes ☐ No
Wall length			☐ Yes ☐ No
Maximum height			☐ Yes ☐ No
Behind front setback			☐ Yes ☐ No
Adjacent to existing boundary wall of similar/greater dimension			☐ Yes ☐ No
Up to two site boundaries			☐ Yes ☐ No

5.1.4 Open space

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C4 – Open Space (refer definition in Appendix 1)	45%	56%	☒ Yes ☐ No

5.1.5 Communal open space (grouped dwellings only)

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C5 – Grouped dwellings	Is communal open space proposed? If yes, refer 5.1.5 and 5.3.1	YES	☒ Yes ☐ No

5.1.6 Building height

R-Codes Vol. 1 deemed to comply	Required (Table 3)	Proposed	Compliance
Pitched roof			
Maximum height of wall			☐ Yes ☐ No
Maximum total building height			
Gable, skillion and concealed roof	7m	7m	☒ Yes ☐ No
Hipped and pitched roof			☐ Yes ☐ No

5.2.1 Setback of garages and carports

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C1.1 – Garage (Primary street)	4.5m or at least 0.5m behind the dwelling alignment? (Figure 8b)		☐ Yes ☐ No
	3m where parallel to street		☐ Yes ☐ No
C1.2 – Carport (Primary street)	Carport meets primary street setback requirement or		☐ Yes ☐ No
	Carport achieves 50% of Table 1 setback and:		☐ Yes ☐ No
	- width does not exceed 60% of frontage - allows unobstructed view between dwelling and street - is compatible in materials and roof pitch with the dwelling		☐ Yes ☐ No
C1.3 – Setback from right of way of communal street	Manoeuvring space of at least 6m provided?		☑ Yes ☐ No
C1.4 – Secondary street (if applicable)	1.5m		☑ Yes ☐ No

5.2.2 Garage width

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C2 – Garage width relative to frontage			☐ Yes ☐ No

5.2.3 Street surveillance

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C3.1 – Entry points	Clearly definable entry points visible and accessible from the street	YES	☑ Yes ☐ No
C3.2 – Surveillance	At least one major opening from a habitable room of the dwelling faces the street and the pedestrian or vehicular approach to the dwelling	YES	☑ Yes ☐ No
C3.3 – Surveillance of battleaxe lots	At least one major opening from a habitable room of the dwelling faces the approach of the dwelling	YES	☑ Yes ☐ No

5.2.4 Street walls and fences

R-Codes Vol. 1 deemed to comply	Required (Table 3)	Proposed	Compliance
C4.1 – Fence height	Fencing (excluding pillars) within front setback visually permeable above 1.2m (Figure 12)		☐ Yes ☐ No
C4.2 – Front fence pillars	Maximum solid pillar height of 1.8m		☐ Yes ☐ No
	Maximum pillar dimensions of 400mm by 400mm		☐ Yes ☐ No

5.2.5 Sightlines

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C5 – Sightlines	Walls, fences and other structures truncated or reduced to no higher than 0.75m within 1.5m of where walls, fences, or other structures adjoin those outlined in C5 i – iii	YES	☑ Yes ☐ No

5.2.6 Appearance of retained dwelling

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C6 – Grouped and multiple dwellings	Appearance of retained dwelling upgraded to similar maintenance standard of new development		☐ Yes ☐ No

5.3.1 Outdoor living areas

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C1.1 – Outdoor living area	Area in accordance with Table 1	Yes - car bays act as outdoor living space	☑ Yes ☐ No
	Behind front setback	Yes - car bays act as outdoor living space	☑ Yes ☐ No
	Accessible from a primary living space	Yes - car bays act as outdoor living space	☑ Yes ☐ No
	Minimum width and length dimension of 4m (Figure 13)	Yes - car bays act as outdoor living space	☑ Yes ☐ No
	Two-thirds of the required area without permanent roof cover (Figure 13)	Yes - car bays act as outdoor living space	☑ Yes ☐ No
C1.2.	Multiple dwelling provided with a balcony ($10m^2$, minimum dimension 2.4m) opening directly from primary living space.		☐ Yes ☐ No

5.3.2 Landscaping

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C2.1 – Grouped and multiple dwellings, common property and communal open spaces	Street setback area without car-parking (except visitor bays)		☑ Yes ☐ No
	Pedestrian access (wheelchair accessible) connecting ground floor entries with public footpath and car parking areas.		☑ Yes ☐ No
	One tree for every four uncovered car bays (rounded to the nearest whole number)		☑ Yes ☐ No
	Lighting to pathways, communal open space and parking		☑ Yes ☐ No
	Bin areas conveniently located and screened		☑ Yes ☐ No
	Trees <3m in height retained in communal open space	Where possible	☐ Yes ☑ No
	Sightlines for pedestrians and vehicles		☑ Yes ☐ No
	Line of sight between communal open space and at least two major openings		☑ Yes ☐ No
	Line of sight between communal open space and at least two major openings		☐ Yes ☐ No
C2.2 – Trees and associated planting areas	10 Trees	15+	☑ Yes ☐ No
	10 2m x 2m tree planting area	10	☐ Yes ☐ No
	Street setback area not more than 50% impervious surface		☑ Yes ☐ No

5.3.3 Parking

R-Codes Vol. 1 deemed to comply	Required		Proposed	Compliance
C3.1 – Resident parking	2	bays	3	☑ Yes ☐ No
C3.2 – Visitor	3	bays	5	☑ Yes ☐ No

5.3.4 Design of car parking spaces

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C4.1 – Car space and manoeuvring area design	As per AS 2890.1	YES	☑ Yes ☐ No
C4.2 – Visitor bays	Marked and signposted	YES	☑ Yes ☐ No
	Located outside of security barrier	Secured (24/7 surveillance)	☐ Yes ☑ No
	Accessible path provided	YES	☑ Yes ☐ No
C4.3 – Landscaping	Landscaping between each six consecutive bays	YES	☑ Yes ☐ No

5.3.5 Vehicular access

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C5.1 – Access to on-site parking	Provided from communal street or right-of-way, or secondary street where no communal street or right-of-way exists, or primary street where no secondary street, communal street or right-of-way exists	YES	☑ Yes ☐ No
C5.2 – Driveways to primary and secondary streets	Minimum width of 3m for driveways serving four dwellings or less		☐ Yes ☐ No
	Maximum width of 6m	YES	☑ Yes ☐ No
	Maximum aggregate width of 9m (where more than one driveway proposed)		☐ Yes ☐ No
C5.3 – Driveways	Setback of 0.5m from side lot boundary	YES	☑ Yes ☐ No
	No closer than 6m to a street corner	YES	☑ Yes ☐ No
	No closer than 6m to a street corner	YES	☑ Yes ☐ No
	Align at right angle to the street	YES	☑ Yes ☐ No
	Avoids street trees	No - some street trees to be replaced	☐ Yes ☑ No
	Adequately paved and drained	YES	☑ Yes ☐ No
C5.4 – Driveways design for two-way access and for vehicles to enter the street in a forward gear	Does driveway serve five or more dwellings?	YES	☑ Yes ☐ No
	Is the distance from a car space to the street 15m or more?		☐ Yes ☐ No
	Is the street a primary distributor or integrator arterial?	YES	☑ Yes ☐ No
C5.5 – Driveways for grouped dwellings (five or more)	Minimum width of 4m	YES	☑ Yes ☐ No
	Designed for two way access	YES	☑ Yes ☐ No
C5.6 – Driveways where retaining an existing dwelling	3m where retaining an existing dwelling and driveway services a grouped dwelling		☐ Yes ☐ No
C5.7 – Driveways for 20 or more grouped dwellings	Minimum width 12m		☐ Yes ☐ No

5.3.6 Pedestrian access

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C6.1	Separate path (to a minimum width of 1.2m) where communal street serves more than 10 dwellings	YES	☑ Yes ☐ No
C6.2	Where communal street serves more than two dwellings the configuration of the pedestrian and vehicular route is to be provided with: • clear sight lines • adequate lighting • paving surfaces to slow traffic	YES	☑ Yes ☐ No
C6.3	A communal street or pedestrian path is to be no closer than 2.5m to any wall with a major opening unless privacy screening is provided to the communal street or pedestrian path.	Residence #7	☐ Yes ☑ No

5.3.7 Site works

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C7.1 – Site works and retaining walls between the street boundary and the street setback	0.5m or less between street boundary and the street setback, except where necessary to provide for pedestrian, universal and/or vehicle access, drainage works or natural light to a dwelling.		☐ Yes ☐ No
C7.2 – Site works and retaining walls behind front setback	Complies with Table 4: m		☐ Yes ☐ No
C7.3 – Impact on adjoining properties	0.5m or less within 1m of a lot boundary		☐ Yes ☐ No

5.3.8 Retaining walls – Deleted by amendment dated 02/07/2021

5.3.9 Stormwater management

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C9 – Stormwater	Stormwater contained on site	YES	☑ Yes ☐ No

5.4.1 Visual privacy

R-Codes Vol. 1 deemed to comply	Setback required	Proposed	Compliance
	m (C1.1)		☐ Yes ☐ No
	m (C1.1)		☐ Yes ☐ No

5.4.2 Solar access

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
R-Codes Vol. 1 deem to comply (as applicable)	Higher than R40		☐ Yes ☐ No
R25 and lower; or	35% of adjoining site area		☐ Yes ☐ No
R30–R40; or	50% of adjoining site area	4.5%	☑ Yes ☐ No
Higher than R40			☐ Yes ☐ No

5.4.3 Outbuildings

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C3 – Small outbuildings	Not attached to a dwelling		☐ Yes ☐ No
	Non-habitable		☐ Yes ☐ No
	Maximum 10m² in area		☐ Yes ☐ No
	Maximum wall height and ridge height of 2.7m		☐ Yes ☐ No
	Not located within the primary or secondary street setback area		☐ Yes ☐ No
	Complies with open space and outdoor living area requirements		☐ Yes ☐ No
	Complies with setbacks		☐ Yes ☐ No
C3 – Large and multiple outbuildings	Not attached to a dwelling		☐ Yes ☐ No
	Non-habitable		☐ Yes ☐ No
	Maximum 60m²		☐ Yes ☐ No
	Setback in accordance with Table 2a		☐ Yes ☐ No
	Maximum wall height of 2.4m		☐ Yes ☐ No
	Maximum ridge height of 4.2m		☐ Yes ☐ No
	Not located within the primary or secondary street setback area		☐ Yes ☐ No
	Complies with open space and outdoor living area requirements		☐ Yes ☐ No
	Complies with setbacks		☐ Yes ☐ No

5.4.4 External fixtures, utilities and facilities

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C4.1	Solar collectors proposed		☐ Yes ☐ No
C4.2	Television aerials, essential plumbing and down pipes permitted		☐ Yes ☐ No
C4.3	Other external fixtures not visible from the primary street		☐ Yes ☐ No
	Designed to integrate with the building		☐ Yes ☐ No
	Are located so as not to be visually obtrusive		☐ Yes ☐ No
C4.4	Antennas, satellite dishes and the like not visible from the primary and secondary street		☐ Yes ☐ No
C4.5	Min 4m² enclosed lockable store room with minimum dimension of 1.5m		☐ Yes ☐ No
C4.6	Communal bin store area provided if necessary		☐ Yes ☐ No
C4.7	Clothes drying areas screened from street		☐ Yes ☐ No

5.5.1 Ancillary dwellings

R-Codes Vol. 1 deemed to comply	Required	Proposed	Compliance
C1	Lot not less than 350m²		☐ Yes ☐ No
	Maximum plot ratio area of 70m²		☐ Yes ☐ No
	Parking provided in accordance with 5.3.3		☐ Yes ☐ No
	Located behind the street setback line		☐ Yes ☐ No
	Compatible with the colour, roof pitch and materials of the single house on the same lot		☐ Yes ☐ No
	Does not preclude single house from meeting open space and OLA requirements		☐ Yes ☐ No
	Compliance with the R-Codes with the exception of site area, street surveillance and outdoor living areas		☐ Yes ☐ No



FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD BUSSELTON, WA 6280

DEVELOPMENT APPLICATION
PREPARED FOR THE CITY OF BUSSELTON MAY 2023

A00.00	COVER
A01.01	SURVEY
A01.02	PROPOSED SITE PLAN
A02.01	GROUND FLOOR PLAN
A02.02	FIRST FLOOR PLAN
A02.03	ROOF PLAN
A03.01	ELEVATIONS & SCHEDULE OF MATERIALS
A03.02	ELEVATIONS
A03.03	VISUALS

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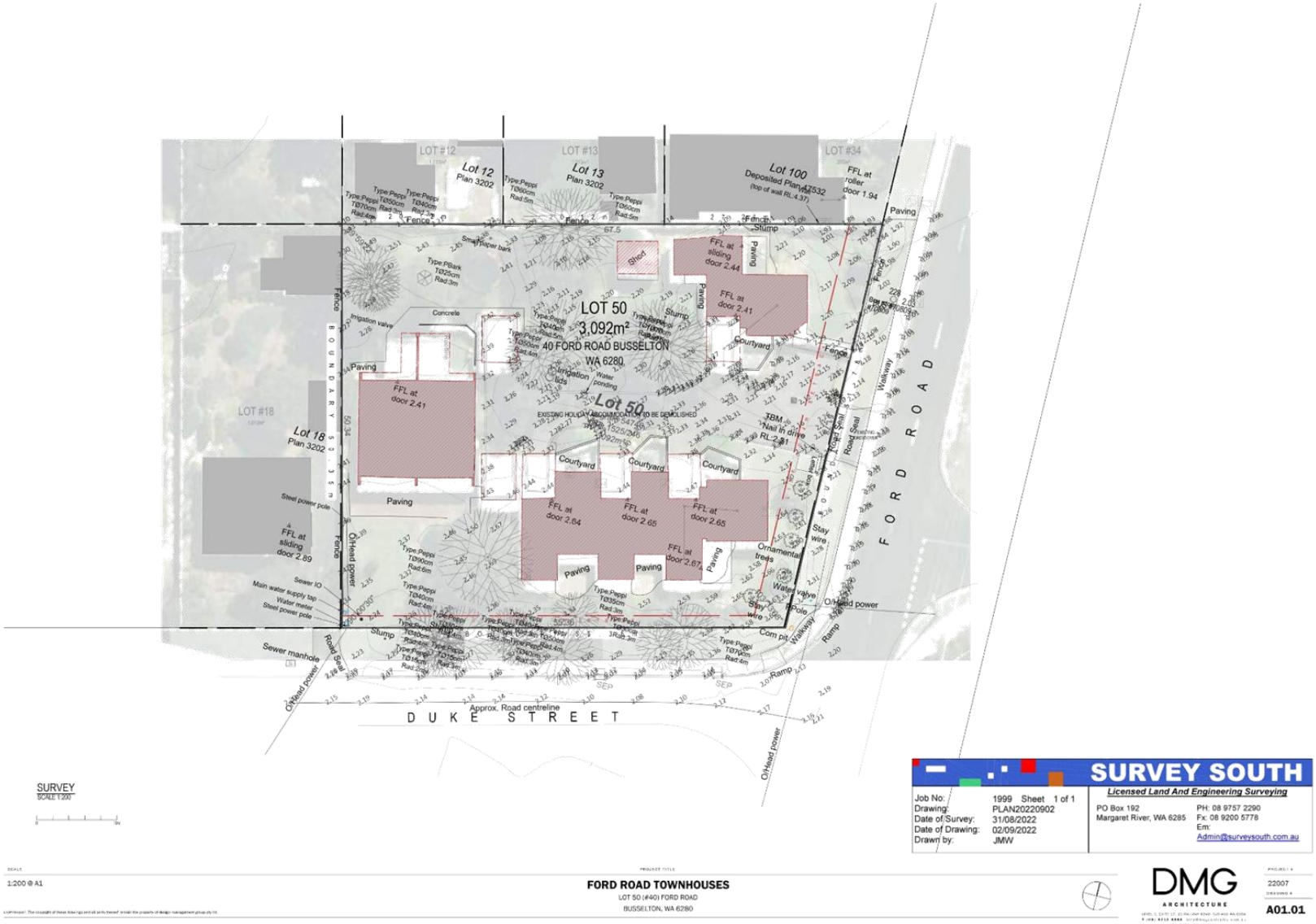
SCALE
NTS

PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG
ARCHITECTURE

PROJECT #
22007

A00.00


LOT 50
3,092m²
40 FORD ROAD BUSSELTON
WA 6280
Lot 50
Lot 12
Plan 3202
Lot 13
Plan 3202
Lot 100
Deposited Plan 47532
Lot 18
Plan 3202
LOT #12
LOT #13
LOT #34
LOT #18
FFL at door 2.41
FFL at door 2.64
FFL at door 2.65
FFL at door 2.67
FFL at sliding door 2.44
FFL at sliding door 2.89
FFL at roller door 1.94
Paving
Courtyard
Concrete
Shed
Stump
Fence
Ornamental trees
Stay wire
Water valve
Pole
Com pit
Walkway
Ramp
Road Seal
O/Head power
Steel power pole
Sewer IO
Main water supply tap
Water meter
Sewer manhole
Approx. Road centreline
D U K E S T R E E T
F O R D R O A D
SURVEY
SCALE 1:200
SURVEY SOUTH
Licensed Land And Engineering Surveying
Job No: 1999 Sheet 1 of 1
Drawing: PLAN20220902
Date of Survey: 31/08/2022
Date of Drawing: 02/09/2022
Drawn by: JMW
PO Box 192
Margaret River, WA 6285
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1:200 @ A1
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280
DMG
ARCHITECTURE
22007
A01.01



PROPOSED SITE PLAN
SCALE 1:200

LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21	
R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
BUILDING HEIGHT (PITCHED ROOF)	12m
EXTERNAL WALL HEIGHT (ROOF ABOVE)	9m
EXTERNAL WALL HEIGHT (CONCEALED ROOF)	10m
MIN PRIMARY SETBACK	4m
MIN SECONDARY SETBACK	1.5m
MIN SIDE/REAR SETBACKS	PER R-CODES
MIN OPEN SPACE	45%
SITE AREA	3,092m²
PROPOSED	
CAR PARKING	
VISITOR (+1x STAFF)	6 BAYS
GROUPED DWELLING	2-3 BAYS PER DWELLING
TOTAL	28 SECURE CAR BAYS
BIKES	
PRIVATE	4 PER UNIT
VISITOR	10

TOWNHOUSE	**TOTAL**
5 BED x 3 BATH	5
4 BED x 2 BATH	2
3 BED x 2 BATH	2
1 BED x 1 BATH	1

CAPACITY	**TOTAL**
GUESTS	78
CARETAKER	2

PLOT RATIO	
DEVELOPMENT PR AREA	1,980m²
PLOT RATIO	0.64
OPEN SPACE	1,967m²
	64%
DEEP SOIL ZONE	625m²
	20%

SCALE: 1:200 @ A1

PROJECT TITLE:
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #: 22007
DRAWING #: A01.02



GROUND FLOOR PLAN
SCALE 1:200

LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21	
R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
BUILDING HEIGHT (PITCHED ROOF)	12m
EXTERNAL WALL HEIGHT (ROOF ABOVE)	9m
EXTERNAL WALL HEIGHT (CONCEALED ROOF)	10m
MIN PRIMARY SETBACK	4m
MIN SECONDARY SETBACK	1.5m
MIN SIDE/REAR SETBACKS	PER R-CODES
MIN OPEN SPACE	45%
SITE AREA	3,092m²
PROPOSED	
CAR PARKING	
VISITOR (+1x STAFF)	5 BAYS
GROUPED DWELLING	2-3 BAYS PER DWELLING
TOTAL	28 SECURE CAR BAYS
BIKES	
PRIVATE	4 PER UNIT
VISITOR	10

TOWNHOUSE	**TOTAL**
5 BED x 3 BATH	5
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1 BED x 1 BATH	1

CAPACITY	**TOTAL**
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PLOT RATIO	0.64
OPEN SPACE	1,967m²
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DEEP SOIL ZONE	625m²
	20%

NOT FOR GUEST USE

SCALE: 1:200 @ A1

PROJECT TITLE:
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #: 22007

DRAWING #: A02.01

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FIRST FLOOR PLAN
SCALE 1:200

LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21

R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
BUILDING HEIGHT (PITCHED ROOF)	12m
EXTERNAL WALL HEIGHT (ROOF ABOVE)	9m
EXTERNAL WALL HEIGHT (CONCEALED ROOF)	10m
MIN PRIMARY SETBACK	4m
MIN SECONDARY SETBACK	1.5m
MIN SIDE/REAR SETBACKS	PER R-CODES
MIN OPEN SPACE	45%
SITE AREA	3,092m²

PROPOSED

CAR PARKING

VISITOR (+1x STAFF)	5 BAYS
GROUPED DWELLING	2-3 BAYS PER DWELLING
TOTAL	28 SECURE CAR BAYS

BIKES

PRIVATE	4 PER UNIT
VISITOR	10

TOWNHOUSE	TOTAL
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CAPACITY	TOTAL
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PLOT RATIO

DEVELOPMENT PR AREA	1,980m²
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	64%
DEEP SOIL ZONE	625m²
	20%

OVERLOOKING CONE OF VISION

NOT FOR GUEST USE

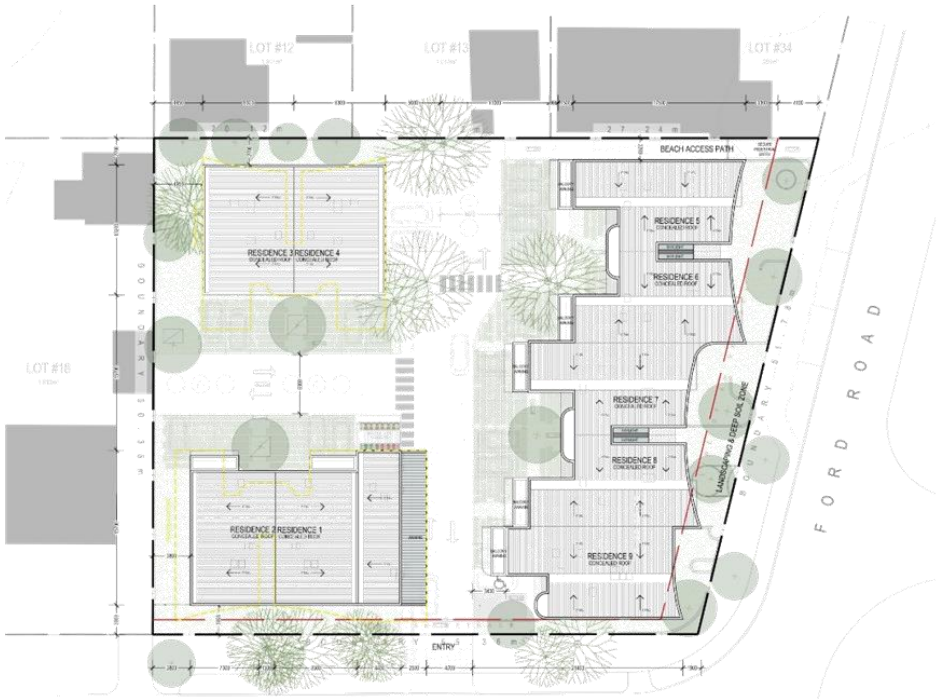
SCALE
1:200 @ A1

PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #
22007

DRAWING #
A02.02



ROOF PLAN
SCALE 1:200

LOT 50 (#40) FORD ROAD, BUSSELTON

CITY OF BUSSELTON LPS NO.21

R-CODING	R30
BUILDING HEIGHT LIMIT	3 STOREYS
BUILDING HEIGHT (PITCHED ROOF)	12m
EXTERNAL WALL HEIGHT (ROOF ABOVE)	9m
EXTERNAL WALL HEIGHT (CONCEALED ROOF)	10m
MIN PRIMARY SETBACK	4m
MIN SECONDARY SETBACK	1.5m
MIN SIDE/REAR SETBACKS	PER R-CODES
MIN OPEN SPACE	45%
SITE AREA	3,092m²

PROPOSED

CAR PARKING

VISITOR (+1x STAFF)	5 BAYS
GROUPED DWELLING	2-3 BAYS PER DWELLING
TOTAL	28 SECURE CAR BAYS

BIKES

PRIVATE	4 PER UNIT
VISITOR	10

TOWNHOUSE	TOTAL
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DEVELOPMENT PR AREA	1,980m²
PLOT RATIO	0.64
OPEN SPACE	1,967m²
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SCALE
1:200 @ A1

PROJECT TITLE
FORD ROAD TOWNHOUSES
LOT 50 (#40) FORD ROAD
BUSSELTON, WA 6280

DMG ARCHITECTURE

PROJECT #
22007
DRAWING #
A02.03

14. ENGINEERING AND WORK SERVICES REPORT

14.1 RFT 07/23 PLUMBING SERVICES

STRATEGIC THEME	LEADERSHIP - A Council that connects with the community and is accountable in its decision making.
STRATEGIC PRIORITY	4.5 Responsibly manage ratepayer funds to provide for community needs now and in the future.
SUBJECT INDEX	Tenders
BUSINESS UNIT	Major Projects
REPORTING OFFICER	Project Administration Officer - Joshua Friis
AUTHORISING OFFICER	Director, Engineering and Works Services - Oliver Darby
NATURE OF DECISION	Contractual: To enter into a contract e.g. a lease or the award of a tender etc.
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Published Under Separate Cover Confidential RFT07/23 Tender Evaluation Report

OFFICER RECOMMENDATION

That the Council endorses the outcome of the evaluation panel's assessment of RFT07/23 Plumbing Services, and accepts the tender from Craneford Plumbing Pty Ltd (ACN 120 701 368) in respect of SP1 - Reactive Plumbing Services to the City of Busselton owned buildings and SP2 - Scheduled Maintenance Services to all City of Busselton owned buildings, as the most advantageous tender.

EXECUTIVE SUMMARY

The City issued RFT 07/23 Plumbing Services for reactive plumbing services and scheduled maintenance services. This report recommends that Council endorse the outcome of the evaluation panel's assessment and accept the tender from Craneford Plumbing Pty Ltd (ACN 120 701 368) as most advantageous for each separable portion.

BACKGROUND

The City of Busselton's Building/Facilities Maintenance Working Budget includes provision for the scheduled and reactive maintenance to the City's plumbing services. The City invited suitably qualified and experienced contractors to make submissions to enter into a contract for the provision of these services in the following separable portions:

1. Separable Portion 1 Reactive Plumbing Services to the City of Busselton owned buildings **(SP1)**;
2. Separable Portion 2 Scheduled Maintenance Services to all City of Busselton owned buildings **(SP2)**

The Tender documentation outlines the service expectations, specifications and standards associated with providing plumbing services to City owned buildings.

OFFICER COMMENT

On 25 March 2023 a request for tender was invited via VendorPanel and publicly advertised in the West Australian newspaper. Tenders closed on 18 April 2023 and the City received a total of two submissions across the two separable portions as follows:

	Tenderer	Location	SP1	SP2
1.	Ashore Plumbing and Gas Pty Ltd (**Ashore**)	Busselton	✓	✓
2.	Craneford Plumbing Pty Ltd (**Craneford Plumbing**)	Dunsborough	✓	✓

Assessment process

In accordance with the City's procurement practices and procedures, assessments were carried out by an evaluation panel comprising City officers with relevant skills and experience. The assessment process included:

(a) Assessing submissions received against relevant compliance criteria. The compliance criteria were not point scored. Each submission was assessed on a Yes/No basis as to whether each criterion was satisfactorily met. All tenders were deemed compliant; and

(b) Assessing submissions received against the Qualitative Criteria weighted as detailed below.

Criteria		Weighting
(a)	Relevant Experience	25%
(b)	Local Content	5%
(c)	Demonstrated Understanding and Resources	25%

Summary of Assessment Outcomes

The tender evaluation for SP1 and SP2 resulted in Craneford Plumbing being ranked first on qualitative criteria, second on price and first overall. Further details are set out in the Confidential Attachment. Craneford Plumbing is considered to be most advantageous to the City for each of the two separable portions of the contract, as:

- Craneford Plumbing has extensive relevant experience working on City of Busselton, Water Corp and Busselton Water assets. They have provided numerous examples of civil and construction projects, as well as upgrades and maintenance services.
- Submission shows detailed list of equipment and staff. Demonstrates a site specific understanding of requirements and provides details on execution.
- Craneford Plumbing is a locally owned company who supports local suppliers and employs 20 people locally.

Statutory Environment

Section 3.57 of the *Local Government* Act *1995* (the Act) requires a local government to invite tenders before it enters into a contract of a prescribed kind under which another person is to supply goods and services.

Part 4 of the *Local Government (Functions and General) Regulations 1996*:

- requires that tenders be publicly invited for contracts where the estimated cost of providing the required goods and/or services exceeds $250,000; and
- under Regulations 11, 14, 18, 20 and 21A, provides the statutory framework for inviting and assessing tenders and awarding contracts pursuant to this process.

The officer recommendation complies with the above-mentioned legislative requirements. The estimated expenditure is in excess of $500,000 which is above the Chief Executive Officer's delegated authority.

Relevant Plans and Policies

The City's Purchasing policy, Regional Price Preference, occupational health and safety and asset management policy and were all relevant to the Tender, and have been adhered to in the process of requesting and evaluating tenders.

Financial Implications

This contract is funded by the City of Busselton's Building/Facilities Maintenance Working Budget. The estimated total value of the procurement at the time of going to market over an initial contract term of one year is approximately $140,000 excluding GST. The estimated total value over the full contract term including three optional twelve month contract extensions at the time of going to market is $700,000 excluding GST.

The budget estimate was based on the current contract rates and an anticipated increase due to current market conditions and labour shortages.

Stakeholder Consultation

No external stakeholder consultation was required or undertaken in relation to this matter.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework. No risks of a medium or greater level have been identified.

Options

As an alternative to the proposed recommendation the Council could:

1. Determine to award the Tender either in full or in separable portions to an alternative tenderer(s). In the view of the Officers this could result in the Tender being awarded to a Tenderer that is not most advantageous to the City.
2. To not award the Tender. This would mean going back out to tender, resulting in significant delays to the contract award and the provision of plumbing services to City owned facilities.

CONCLUSION

The submission from Craneford Plumbing is considered the most advantageous to the City. It is recommended that Craneford Plumbing be awarded the contract for plumbing services to the City resulting from RFT 07/23 in respect of separable portions 1 and 2.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

If endorsed by Council, and subject to any minor variations, it is expected the City will enter into a contract with Craneford Plumbing by end May 2023. It is intended that the contracts for SP1 and SP2 will commence on 1 June 2023.

14.2 RFT 08/23 IRRIGATION COMPONENTS

STRATEGIC THEME	LIFESTYLE - A place that is relaxed, safe and friendly with services and facilities that support healthy lifestyles and wellbeing
STRATEGIC PRIORITY	2.12 Provide well maintained community assets through robust asset management practices.
SUBJECT INDEX	Tenders
BUSINESS UNIT	Operation and Works Services
REPORTING OFFICER	Parks and Gardens Coordinator - Bradley Reynolds
AUTHORISING OFFICER	Director, Engineering and Works Services - Oliver Darby
NATURE OF DECISION	Contractual: To enter into a contract e.g. a lease or the award of a tender etc.
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Published Under Separate Cover Confidential RFT08/23 Tender Evaluation Report

OFFICER RECOMMENDATION

That the Council endorses the outcome of the evaluation panel's assessment of RFT08/23 Irrigation Components and accept the tender from Te Rawhti Pty Ltd (ACN 632 963 476) as trustee for the Think Water Trust trading as Think Water Capes Region as most advantageous.

EXECUTIVE SUMMARY

The City issued RFT 08/23 Irrigation Components for the supply of irrigation components for operating and capital works. This report recommends that Council endorse the outcome of the evaluation panel's assessment and accept the tender from Te Rawhti Pty Ltd (ACN 632 963 476) as trustee for the Think Water Trust trading as Think Water Capes Region as most advantageous.

BACKGROUND

The City of Busselton's Operation Services capital and operating budgets includes a requirement for ongoing maintenance and construction of numerous irrigation systems. To undertake these works a large parts supply list is required. The existing supply of Irrigation Components was provided for by RFT 04/18. The second (final) contract extension expires on 31st May 2023.

OFFICER COMMENT

A request for tender was invited via VendorPanel and advertised on 25th March 2023 in the West Australian newspapers. Tenders closed on 18 April 2023 and the City received submissions as follows:

	Tenderer	Location
1.	Te Rawhti Pty Ltd (ACN 632 963 476) as trustee for the Think Water Trust trading as Think Water Capes Region (**Think Water**)	Dunsborough, WA
2.	Total Eden Pty Ltd (ACN 010 118 995) trading as Nutrien Water (**Nutrien Water conforming tender**)	Busselton, WA
3.	Total Eden Pty Ltd (ACN 010 118 995) trading as Nutrien Water **(Nutrien Water alternative tender)**	Busselton WA
4.	Elders Rural Services Australia Limited (**Elders Midland**)	Bellevue, WA

Assessment process

In accordance with the City's procurement practices and procedures, assessments were carried out by an evaluation panel comprising City officers with relevant skills and experience. The assessment process included:

(a) Assessing submissions received against relevant compliance criteria. The compliance criteria were not point scored. Each submission was assessed on a Yes/No basis as to whether each criterion was satisfactorily met; and

(b) Assessing submissions received against the Qualitative Criteria weighted as detailed below.

Criteria		Weighting
(a)	Price	65%
(b)	Relevant Experience	10%
(c)	Local Benefit	5%
(d)	Tenderer's Resources	20%

Summary of Assessment Outcomes

The tender from Elders Midland did not comply with the compliance criteria. In accordance with Delegation DA1-07 the CEO rejected the tender from Elders Midland without considering the merits. For further information see section 3.2 of the Evaluation Sheet.

Nutrien Water submitted a conforming tender and an alternative tender. Clause 2.8 of the Conditions of Tender allow tenderers to submit alternative tenders. The Nutrien Water alternative tender was submitted on the basis that:

"pricing will be subject to supplier price rises during the period of the tender with substantiated documentation from the relevant supplier. Increase in pricing will be in line with the percentage increase from the supplier with 30 days' notice"

The evaluation panel formed the view that Nutrien Water's alternative tender:

(a) Fails to offer certainty to the City for predictable/set prices over the contract term;

(b) Is subject to price rises by Nutrien's third party suppliers which would be able to be directly passed onto the City under the proposed alternative tender; and

(c) Would make contract administration and budget planning more difficult for City officers, as the contractor would be able to increase its prices with 30 days' notice to the City at any time over the contract term.

Clause 2.8(d) of the Conditions of Tender allows the City in its absolute discretion to reject any such alternative Tender as non-conforming. For the reasons set out above and further detailed in the Confidential Attachment, the evaluation panel consider that the risk to the City of accepting the alternative tender is not acceptable, and recommend that the City reject the non-conforming tender pursuant to clause 2.8(d) of the conditions of tender. The evaluation panel did not consider Nutrien Water's alternative tender against the qualitative and price criteria as they recommend that the City ought to reject it.

The Think Water tender and the Nutrien Water conforming tender were assessed against the qualitative criteria and price criteria. To ascertain an overall price from the extensive parts supply list, a typical 'shopping basket' of 45 products was compiled by officers. This basket represents a typical annual expenditure against regularly used items and is the method of assessment.

The tender evaluation as further outlined in the Confidential Attachment resulted in the tender from Think Water being ranked second on qualitative criteria, first on price and first overall. The evaluation panel recommends that Think Water be endorsed as the preferred tenderer.

Statutory Environment

Section 3.57 of the *Local Government* Act *1995* (the Act) requires a local government to invite tenders before it enters into a contract of a prescribed kind under which another person is to supply goods and service. Part 4 of the *Local Government (Functions and General) Regulations 1996*:

- requires that tenders be publicly invited for contracts where the estimated cost of providing the required goods and/or service exceeds $250,000; and
- under Regulations 11, 14, 18, 20 and 21A, provides the statutory framework for inviting and assessing tenders and awarding contracts pursuant to this process.

The officer recommendation complies with the above-mentioned legislative requirements. The estimated expenditure is in excess of $500,000 which is above the Chief Executive Officer's delegated authority.

Relevant Plans and Policies

The City's Purchasing policy, Regional Price Preference, occupational health and safety and asset management policy and were all relevant to the Tender and have been adhered to in the process of requesting and evaluating tenders.

Financial Implications

This contract will be funded from the Operation Services capital and operating budgets. The estimated total value of the procurement over the full contract term (3 year initial term plus 2 x 12 month extensions) is $700,000 excluding GST. This represents up to $140,000 per annum at the highest level of estimated expenditure inclusive of major capital works such as possible sports oval constructions.

Stakeholder Consultation

No external stakeholder consultation was required or undertaken in relation to this matter.

Risk Assessment

An assessment of the potential implications of implementing the officer's recommendation has been undertaken using the City's risk assessment framework, with the intention being to identify risks which, following implementation of controls, are identified as medium or greater. There are no such risks identified, with the Successful Tenderer assessed as being capable of delivering the services to a suitable service level. No risks of a medium or greater level have been identified.

Options

As an alternative to the proposed recommendation the Council could:

1. Determine to award the Tender in full to the alternative tenderer (either its conforming or non-conforming tender). In the view of the Officers this could result in the Tender being awarded to a Tenderer that is not most advantageous to the City.

2. To not award the Tender. This would mean going back out to tender, resulting in significant delays to the contract award and the provision of Irrigation components to City owned facilities.

CONCLUSION

The tender from Think Water is considered the most advantageous to the City. It is recommended that Think Water be awarded the contract for supply of irrigation components to the City resulting from RFT 08/23.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

If endorsed by Council, and subject to any minor variations, it is expected the City will enter into a contract with Think Water by 1 June 2023.

15. COMMUNITY AND COMMERCIAL SERVICES REPORT

15.1 BUSINESS DEVELOPMENT, EVENTS AND MARKETING PROGRAM (BDEMP)

STRATEGIC THEME	LIFESTYLE - A place that is relaxed, safe and friendly with services and facilities that support healthy lifestyles and wellbeing
STRATEGIC PRIORITY	2.5 Facilitate events and cultural experiences that provide social connection.
SUBJECT INDEX	Events
BUSINESS UNIT	Events
REPORTING OFFICER	Events Coordinator - Peta Pulford
AUTHORISING OFFICER	Acting Director, Community and Commercial Services - Dave Goodwin
NATURE OF DECISION	Executive: Substantial direction setting, including adopting budgets, strategies, plans and policies (excluding local planning policies); funding, donations and sponsorships; reviewing committee recommendations
VOTING REQUIREMENT	Absolute Majority
ATTACHMENTS	Nil

OFFICER RECOMMENDATION

That Council:

1. **Endorses the following single year funding allocations towards the following economic focused events, to be funded from the 2023/2024 Events Budget:**

Event Name	Officer Recommendation (cash)	Officer Recommendation (in kind)
Geo Bay Swim - Cool Water Classic	$15,000	Up to $5,000
South West Jiu Jitsu Championships	$4,000	$680
Out of the Woods Festival	$20,000	Up to $20,000
TOTALS	$39,000	Up to $25,680

2. **Endorses the following single year funding allocations towards the following community focused events, to be funded from the 2023/2024 Events Budget:**

Event Name	Officer Recommendation (cash)
The Wildflower & Environment Show 2023	$6,000
Australian Golfing Fellowship of Rotary	$5,000
2023 Busselton Show	$10,000
Building Busselton Town Team - Yoga November & Christmas in Mitchell Park	$5,610
Between The Lines Literature Festival - Family Day	$2,600
Dunsborough Community Expo & Street Party	$7,500
TOTALS	$36,710

3. Endorses the following multi year funding allocations towards the following economic focused events, to be funded from the 2023/2024 – 2025/2026 Events Budgets:

Event Name	Officer Recommendation
Pedal Prix HPV Round 5 Busselton	**2023/24 $25,000** **2024/25 $25,000** **2025/26 $25,000**
Geographe Bay Race Week	**2023/24 $12,500** **2024/25 $15,000** **2025/26 $17,500**
TOTALS	**2023/24 $37,500** **2024/25 $40,000** **2025/26 $42,500**

4. Endorses the following funding allocation, to be funded from the 2023/2024 Marketing and Economic Development Initiatives budget:

Event Name	Officer Recommendation
WA Regional Architecture Symposium 2023	**$2,000**
TOTALS	**$2,000**

EXECUTIVE SUMMARY

A meeting of the Business Development, Events and Marketing Program (BDEMP) was held on Wednesday 19 April 2023. This report presents the recommendations from this meeting.

BACKGROUND

At the Ordinary Meeting of Council held 13 April 2011, Council resolved (C1104/114) to endorse the implementation of a differential rating system whereby properties rated industrial and commercial across the City would directly contribute toward the City's continued support of tourism, marketing and event activities. The City also established a key stakeholders reference group, now known as the 'Business Development, Events and Marketing Program' (BDEMP) – formerly 'Marketing and Events Reference Group' (MERG), to make recommendations to Council with respect to the marketing and events budget allocations.

At its meeting of 22 June 2011, Council resolved (C1106/201) to introduce a 3% differential rate on industrial and ccommercial rated properties which has increased over time to 10%. The proceeds from the differential rate are allocated towards funding events and marketing.

The draft 2023/2024 budget for events and marketing totals $1,256,582. The breakdown of this budget is as follows:

- $983,018 – Events
- $273,564 – Marketing and economic development initiatives.

This excludes budget allocations for Leavers Week, administration, and events staffing.

A BDEMP meeting was held on Wednesday 19 April 2023, with the following key matters presented;

- update on events held since the last meeting on 19 October 2022 and upcoming major events;
- consideration of funding for the 2023/24 – 2025/26 events and marketing budgets.

OFFICER COMMENT

Supporting the development and attraction of new events throughout the year, the City's Events Sponsorship Programme promotes the City of Busselton as an attractive event tourism destination. At the BDEMP meeting held 19 April 2023 a range of requests for funding were considered as outlined below:

Requests for Funding – 2023/2024 Events Sponsorship Program – Round 1

Round 1 of the 2023/2024 Events Sponsorship Program opened on 8 March 2023, closing 31 March 2023. Twelve (12) applications for funding were received for a total of $172,710.

Applications are separated into funding streams for the purpose of evaluation:

- Economic focused events – aim to attract visitation to the region, bring economic return in the form of visitor and event spend with local business, attract significant media exposure, attract funding from other sources
- Community focused events - Provide social benefit and promote community connection, promote cultural diversity and inclusion, provide place making adding vibrancy and activation
- Economic development activities – focussed on supporting industry sector growth and upskilling, town centre activation, place making, growth of the night time economy.
- Marketing initiatives – leverage to improve the visitor experience, strengthen the Busselton and Dunsborough brands and promote a unified brand, build on the sub regional branding

The Events team evaluated all funding applications against criteria derived from the identified Diversity, Localise, Hallmark and Venues strategies. An overall score was allocated and funding recommendations based on this.

Funding was allocated on the following basis:

<u>Economic Focused events</u>

Events that score:

- 13 or more are to be considered for event sponsorship funding
- 8 - 12 funding to be considered if funds available in that round, potential partial funding
- 7 or less are not to be considered at all.

<u>Community focused events</u>

Events that score:

- 11 or more are to be considered for event sponsorship funding
- 6 - 10 funding to be considered if funds available in that round, potential partial funding
- 5 or less are not to be considered at all.

Applicants that have held their event for two or more years and been funded by the City, have demonstrated that they meet requested KPI's, and have indicated that they intend to continue holding the event in future years, may request or be offered a multiyear agreement. This allows them to plan effectively for future events and reduces administration for both the event organiser and City staff. They will however still be required to meet KPI's and provide a post event report for each year of the event before any further funding is released in future years.

Applications for funding increases of more than 25% on previous funding levels will not be considered, unless it is demonstrated that the event will substantially diversify their event offerings to meet the City's strategic outcomes or dramatically increase their event attendance or economic outcomes as a result of increased funding.

The following requests have been received for single year funding for economic focused events from the 2023/2024 Events Budget:

Geo Bay Swim – Cool Water Classic - 11 November 2023

The original Geo Bay Swim was held from 2008 until 2012, starting in Abbey and finishing at the Busselton Foreshore. The proposed new event will commence at the Dunsborough Bay Yacht Club and finish at Busselton Foreshore. This event will market to the participants of other similar long format open water swims such as Rottnest Channel Swim and Port to Pub.

Organisers are seeking funding of $20k cash plus up to $10k in-kind support. As the first time this event has occurred in more than 10 years, it is recommended to offer a lesser amount of $15k cash and up to $5k in-kind to assess how it performs before funding at the full requested amount.

BDEMP recommend that event organisers are asked to confirm if any, their expectations of use of the Geographe Leisure Centre pools or other City facilities, to be agreed upon with the City well before the staging of the event. Any waiver of entry fee considerations be included in the Citys support of this event where appropriate.

South West Jiu Jitsu Championships – 6 August 2023

This will be the first ever Brazilian Jiu-Jitsu Championship competition to be held in the South-West of WA, with participants of all ages normally having to attend Perth to compete at this level. It is expected to attract competitors from the eight SW based clubs as well as from Perth and further around the state.

Organisers are seeking funding of $7.5k cash plus in-kind support of $680, which is for the one day hire of the GLC stadium. Based on their evaluation score, reduced funding of $4k cash plus $680 in-kind support is recommended.

Out of the Woods Festival – 7-8 October 2023

The Out of the Woods Music and Arts Festival is a cultural event that brings together music, art, and interactive installations in a festival-style setting. The event features more than 40 musical artists, 10 art installations, interactive art pieces, and secret bars, providing attendees with a unique and immersive experience. It was first held in 2022 at Barnard Park on the Busselton Foreshore, where it will return in 2023 with a capacity of up to 10,000 attendees.

Event organisers are seeking funding of $40k cash towards marketing and art installations, as well as in-kind support in the form of waiver of ground hire and event fees up to the value of $20k, based on the projected numbers of 10,000 attendees. It is not recommended to support the full requested amount of $40k cash, however a reduced funding amount of $20k cash and up to $20k in-kind is recommended.

In summary, BDEMP support the officer recommendations for the following economic focused events, to be funded from the 2023/2024 Events Budget:

Event Name	Funding Request	Officer Recommendation (cash)	Officer Recommendation (in kind)
Geo Bay Swim - Cool Water Classic	$20,000 cash (Plus up to $10,000 in-kind)	$15,000	Up to $5,000
South West Jiu Jitsu Championships	$7,500 cash (Plus up to $680 in-kind)	$4,000	$680
Out of the Woods Festival	$40,000 cash (Plus up to $20,000 in-kind)	$20,000	Up to $20,000
TOTALS	**$92,500 cash Up to $35,680 in-kind**	**$54,000**	**Up to $25,680**

The following requests have been received for single year funding for community focused events from the 2023/2024 Events Budget:

The Wildflower & Environment Show 2023 – 6 – 7 October 2023

In October 2022, the Geographe Landcare Nursery (GCLN) hosted the free, Wildflower & Environment Show as a reinvention of the former, popular Wildflower Show that had been held for many years at the Uniting Church. In its new format it had a more contemporary style with a broader variety of displays and talks, promoting the use of native plants within the community, to contribute to environmental sustainability and water efficiency in the home garden and farms.

Speakers and presenters will be selected to not only entertain an audience but also educate people about local native plants, furthering the appreciation of these plants, how they benefit the water quality, local fauna, and broader environment and how they can be utilised in domestic, agricultural, and commercial settings.

Additionally, the 2023 show will include other local businesses such as a biodynamic winery, plus a food van and coffee vendor. Successful funding applications will allow us to include more cultural entertainment such as didgeridoo performances, and other indigenous and non-indigenous artists throughout the two days.

Event organisers are requesting funding of $6k, mainly towards the cost of erecting a large marquee in case of inclement weather. Based on their evaluation score, it is recommended to fund them the full amount of $6k.

Australian Golfing Fellowship of Rotary - 14 – 20 April 2024

The Australian Golfing Fellowship of Rotary is an annual week long competition involving Rotarians from around Australia gathering in one area to compete, whilst hosting an array of social events at various venues for participants and partners. Busselton has been selected as the host venue for the 2024 event.

Although funding for this event has been applied for under the community focused events stream, this event does also bring economic and promotional benefits and therefore it has been scored under those criteria.

Event organisers have requested funding of $5k, mainly to support the transport costs associated with both the golfing event and also the partner events. Based on their evaluation score, it is recommended that the full requested amount of $5k is supported.

2023 Busselton Show – 3 - 4 November 2023

The Busselton Show brings together agricultural producers and the wider community to celebrate the world-class produce of the South West. Aimed at both adults and families the show fosters community participation and cohesion, with attendance of over 10,000 people representing around a quarter of the local population.

Event organisers are seeking funding of $20k to provide additional free activities and entertainment aimed at families and children. Given that they have not sought funding support previously and the large amount of $20k requested, it is recommended to offer a reduced amount of $10k. Increased funding can be considered in future years, after evaluation of the success of this year's event.

Building Busselton Town Team – 'Have a Go' Yoga (throughout November 2023) and Christmas in Mitchell Park (8 December 2023)

Building Busselton Town Team have implemented several successful events since their formation in 2019. They are seeking funding to return two of their most popular events:

'Have a Go Yoga' – free weekly yoga sessions in Mitchell Park, encouraging community to come together in the City centre in an inclusive, friendly and welcoming activity Christmas in Mitchell Park - annual free family friendly event with Christmas themed entertainment and activities for the whole family.

Event organisers are seeking funding of $5,610, comprising of $800 for the yoga sessions and $4,810 for event related costs for the Christmas event. Based on their evaluation score, funding is recommended for the requested amount of $5,610.

Between The Lines Literary Festival – Family Day – 9 or 16 March 2024 (TBD)

Between The Lines is an annual literary festival, that has operated within the schools environment for many years, but since 2021 it has branched out to include a public family day that offers free and ticketed activities. The program consists of local children's authors and creatives to target those interested in reading, storytelling, illustration and literature enthusiasts.

Event organisers are seeking funding of $5,600 towards author fees and travel costs, performers and entertainment. Based on their evaluation score, reduced funding amount of $2,600 is recommended.

Dunsborough Community Expo & Street Party – 11 or 18 November 2023

The Dunsborough Progress Association are proposing to celebrate the completion of the final section of the Dunsborough town centre upgrade with a community expo and street party. Community groups will be invited to have a presence at the celebration to create awareness, increase membership and local businesses will be benefit by being open and activated. The event will feature local entertainment featured Food stalls and bar facilities. The street party will be held in the newly street scaped area on Naturaliste Terrace, between Dunn Bay Road and Cyrillean Way.

Event organisers are seeking funding of $7,500. Based on their evaluation score, it is recommended that the full requested amount of $7,500 is supported.

In summary, BDEMP support the officer recommendations for the following community focused events, to be funded from the 2023/2024 Events Budget:

Event Name	Funding Request	Officer Recommendation (cash)
The Wildflower & Environment Show 2023	$6,000	$6,000
Australian Golfing Fellowship of Rotary 2023	$5,000	$5,000
2023 Busselton Show	$20,000	$10,000
Building Busselton Town Team - Yoga November & Christmas in Mitchell Park	$5,610	$5,610
Between The Lines Literature Festival - Family Day	$5,600	$2,600
Dunsborough Community Expo & Street Party	$7,500	$7,500
TOTALS	**$49,710**	**$36,710**

The following requests have been received for multiyear funding from the 2023/24 – 2025/26 Events Budgets:

Pedal Prix HPV Round 5 Busselton

Pedal Prix in WA commenced in 2014 with the inaugural event in Busselton. The sport of HPV racing commenced in South Australia in 1986 under the auspices of Australian International Pedal Prix Inc (AIPP). AIPP established the Australian HPV Super Series in 2003 as a 3 Round 3 race Series. This has grown to a 6 Round 8 race Series including the Busselton event.

The Busselton event has not grown in competitor numbers significantly since 2014 but it has matured enormously. COVID prevented the event from proceeding in 2020 and 2021, with a cautious resumption in 2022. Teams competing now understand the need for competitive vehicles to engage their riders and with the revamping of WAHPVA we now have teachers in WA actively canvassing their colleagues to become involved.

While the majority of competitors are WA based the availability of direct flights from the East Coast creates opportunities particularly for Victorian based teams to travel to the event. City funding supports the organiser's capability to support teams to travel to Busselton with subsidised entry fees and assistance with equipment transport costs as an incentive for interstate teams to compete.

Pedal Prix WA has previously been funded under a multi-year agreement of $20k per year. They are seeking a further multi-year agreement for $28k per year, on the basis of a maximum increase of 25%, they are recommended for an amount of $25k per year for 2023/24 – 2025/26.

Geographe Bay Race Week 2024 - 3 - 9 February 2024

Geographe Bay Race Week is Western Australia's premier sailing regatta and a much-anticipated event among the sailing fraternity since 2003. Competitors, spectators, family and friends come together to enjoy the festival atmosphere of the event's on-water and off-water schedule.

The 2023 event saw 43 yachts competing, with an expectation that a minimum of 50 yachts will compete in 2024, and that this number will continue to grow due to an increasing level of interest in the event.

Organisers are seeking funding of $25k cash, which is a significant increase on their 2023 funding of $10k. Given that it is a long running event, for planning purposes and security for the organisers it is recommended to offer a multiyear agreement for the amounts of $12.5k in 2023/24, $15k in 2024/25 and $17.5k in 2025/26. The increases for each year will be assessed through evaluation of the event growth from post event reporting.

In summary, BDEMP support the officer recommendations for the following events, to be funded from the 2023/24 – 2025/26 Events Budgets:

Event Name	Funding Request	Officer Recommendation
Pedal Prix HPV Round 5 Busselton	2023/24 $28,000 2024/25 $28,000 2025/26 $28,000	2023/24 $25,000 2024/25 $25,000 2025/26 $25,000
Geographe Bay Race Week	2023/24 $25,000	2023/24 $12,500 2024/25 $15,000 2025/26 $17,500
TOTALS	**2023/24 $53,000** **2024/25 $28,000** **2025/26 $28,000**	**2023/24 $37,500** **2024/25 $40,000** **2025/26 $42,500**

The following request is recommended for single year funding from the 2023/24 Marketing and Economic Development initiatives Budget:

WA Regional Architecture Symposium 2023 - 15 - 16 September 2023

The WA Regional Architecture Symposium will comprise several small events focusing on the theme of co-designing our communities. Featuring over six hours of formal continuous professional development content (CPD) presented by inspirational speakers, the Regional Symposium will offer around 120 participants access to resources and innovative industry best practice trends on co-designing with communities.

The Symposium is held over two days with a range of high profile speakers from WA and interstate travelling into Busselton for the event. Sessions include the main presentations and social function at Caves House, Witchcliffe Ecovillage and Cultural Heritage tours to explore co-designing with communities in meaningful ways.

They are seeking funding of $2.5k towards event costs. Based on their evaluation score, a funding amount of $2k is recommended. Given that this event will engage with multiple venues, offers opportunity for local professionals to attend and is focused on supporting industry sector growth and upskilling, it is recommended that funding is allocated from the 2023/24 Marketing and Economic initiatives budget.

In summary, BDEMP support the officer recommendation for the following event, to be funded from the 2023/24 Marketing and Economic Development initiatives Budgets:

Event Name	Funding Request	Officer Recommendation
WA Regional Architecture Symposium 2023	$2,500	$2,000
TOTALS	**$5,500**	**$2,000**

Statutory Environment

The Officer Recommendation supports the general function of a local government under the *Local Government Act 1995* to provide for the good government of persons in its district.

Relevant Plans and Policies

The Officer Recommendation aligns with the City's Events Policy which provides event organisers with information on the event application and approval process and event sponsorship guidelines.

Financial Implications

The draft 2023/2024 budget for marketing and events totals $1,256,582. The breakdown of this budget is as follows:

- $983,018 – Events
- $273,564 – Marketing and economic development initiatives.

Funds currently committed from the 2023/2024 Events Budget through multiyear sponsorships totals $806,500, leaving a balance of $176,518 for any further event sponsorships or other initiatives. If all funding recommendations included in this report are accepted, a balance of $61,308 will remain. There will be one further funding round in this financial year, opening in September 2023 for events held from January to June 2024.

Funds currently committed from the 2023/2024 Marketing and Economic Development Initiatives Budget is $120,000. If funding recommendations included in this report are accepted, a balance of leaving a balance of $151,564 for any further initiatives to be proposed.

Stakeholder Consultation

Consultation has been undertaken with BDEMP members with representatives comprising the Busselton and Dunsborough Yallingup Chambers of Commerce and Industry, Margaret River Busselton Tourism Association and the City of Busselton.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. The officer recommendation does not introduce any risks identified as being of a high or medium level.

Options

Council may choose not to support the recommendations made by BDEMP and resolve not to endorse part or all of the recommendations.

CONCLUSION

The BDEMP has been established by Council to make recommendations on the way in which funds raised through the industrial and commercial differential rate for the purposes of events and marketing are allocated. This report contains the recommendations made at the 19 April 2023 BDEMP meeting, which if endorsed by Council, will result in the continuation of high quality events being held within the region, supported by successful marketing promotions. All recommendations support Council's vision of being recognised as the 'Events Capital WA.'

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

Following Council's decision, the outcomes will be communicated to BDEMP members and relevant event/marketing bodies for their information and implemented where required.

15.2 YOUTHCARE GRANT AGREEMENT

STRATEGIC THEME	LIFESTYLE - A place that is relaxed, safe and friendly with services and facilities that support healthy lifestyles and wellbeing
STRATEGIC PRIORITY	2.2 Work with key partners to facilitate a safe, healthy and capable community.
SUBJECT INDEX	Grant Agreements
BUSINESS UNIT	Community and Recreation Services
REPORTING OFFICER	Recreation and Community Development Coordinator - Adrian Fisher
AUTHORISING OFFICER	Acting Director, Community and Commercial Services - Dave Goodwin
NATURE OF DECISION	Contractual: To enter into a contract e.g. a lease or the award of a tender etc.
VOTING REQUIREMENT	Absolute Majority
ATTACHMENTS	Attachment A YouthCARE Services Snapshot 2022 Attachment B YouthCARE Letter March 2023

OFFICER RECOMMENDATION

That the Council enter into a three year funding agreement with YouthCARE for the purpose of providing Chaplaincy services to students, staff and families in our local schools for the 2023/24, 2024/25 and 2025/26 financial years inclusive of an annual contribution of $40,000 (indexed per annum) excluding GST.

EXECUTIVE SUMMARY

A letter of request was received dated March 23, 2023 (attached) from YouthCARE seeking a new grant agreement to the value of $40,000 per annum for the next three years (indexed per annum) to replace their current one year rolling agreement.

BACKGROUND

YouthCARE provides support and services to young people in schools across Busselton. Founded in 1991, YouthCARE is a not-for-profit organisation that aims to empower, engage, and support young people to reach their full potential by offering a range of programs and initiatives that focus on their social, emotional, and educational well-being.

YouthCARE operates in Busselton and the surrounding areas, working closely with local schools, community groups, and other stakeholders to deliver a variety of services for youth. The organisation's programs include mentoring, counselling, educational support, mental health services, recreational activities, and leadership development opportunities. With a strong focus on early intervention and prevention, YouthCARE works proactively to address the challenges faced by young people, such as mental health issues, bullying, drug and alcohol abuse, and social isolation. The organisation collaborates with local schools and community partners to create safe and inclusive environments that promote positive youth development, resilience, and social connectedness.

YouthCARE is supported by a dedicated team of staff, volunteers, and community partners who work collectively to deliver impactful programs and services that make a positive difference in the lives of our young people. The organisation relies on community support, fundraising efforts, and grants to sustain its operations and ensure that its services remain accessible to all young people in need.

YouthCARE currently have a one year rolling grant agreement with the City.

OFFICER COMMENT

YouthCARE's partnership with the City assists to provide a number of key outcomes including:

- *Positive Youth Outcomes*

  YouthCARE's programs align with the City's key priorities and goals, including early intervention and prevention strategies, positive youth development, and building resilient and inclusive communities. The organisation's initiatives address the social, emotional, and educational needs of young people, providing them with essential support and resources to thrive in their personal and academic lives.

- *Established Impact*

  YouthCARE has a long-standing presence in our community, with over 14 years of providing services to young people in Busselton. The organisation has built strong relationships with our local schools, community groups, and other stakeholders, and has a proven track record of delivering effective programs that make a meaningful impact on the lives of our young people.

- *Collaborative Approach*

  YouthCARE works closely with our local schools, community partners, and other stakeholders to ensure that programs are tailored to the unique needs of young people in Busselton. The organisation collaborates with the City as required to ensure a coordinated and integrated approach to addressing the challenges faced by young people in our community.

- *Sustainable Operations*

  The funding of $40,000 per annum for the next three years will provide YouthCARE with the necessary resources to sustain and expand its programs. The funding will support the organisation's operational costs, including staff salaries, program materials, and other essential expenses that are required to deliver their services effectively and will provide the stability and certainty needed to continue to provide these valuable services in our community.

A snapshot of the outcomes achieved by YouthCARE in Busselton for 2022 is at Attachment A.

Officers recommend YouthCARE's request for the amount of $40,000 per annum for the next three years. This investment will contribute to the well-being and development of young people in our community, align with the City's priorities, and support the sustainability of YouthCARE's operations. The funding will enable YouthCARE to continue its valuable work and make a positive difference in the lives of young people in Busselton.

Statutory Environment

The officer's recommendation supports the general function of a local government under the *Local Government Act 1995* to provide for the good government of persons in its district.

Relevant Plans and Policies

City of Busselton Community Development Plan (2022 - 2027)

Specifically to achieve the goal in the Community Wellbeing section to provide support for Family and Domestic Violence, Mental Health Awareness and Community Capacity Building. Also supports the Youth and Children's section developing key partnerships with stakeholders to ensure that youth service provision is maximised.

City of Busselton Corporate Business Plan 2022-2026

To achieve the goal in implementing community services and programs that support people of all ages and backgrounds, specifically in relation to 2.2 Work with key partners to facilitate a safe, healthy and capable community, and 2.6 Provide for youth development through activities, programs and events

Financial Implications

$40,000 is already currently allocated each year specifically for YouthCARE within the annual budget so there are no additional financial implications other than an advanced budget allocation for 3 years.

Stakeholder Consultation

Officers have been working with YouthCARE for some time and regular consultation has occurred with the area Chaplain in relation to their request and ongoing operational planning. Youthcare also present to Council annually.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. No risks of a medium or greater level have been identified.

That said, if Council were to choose not to continue the funding arrangement then the risk of a service provision decline to youth in our community would be a possibility.

Options

As an alternative to the proposed recommendation the Council could:

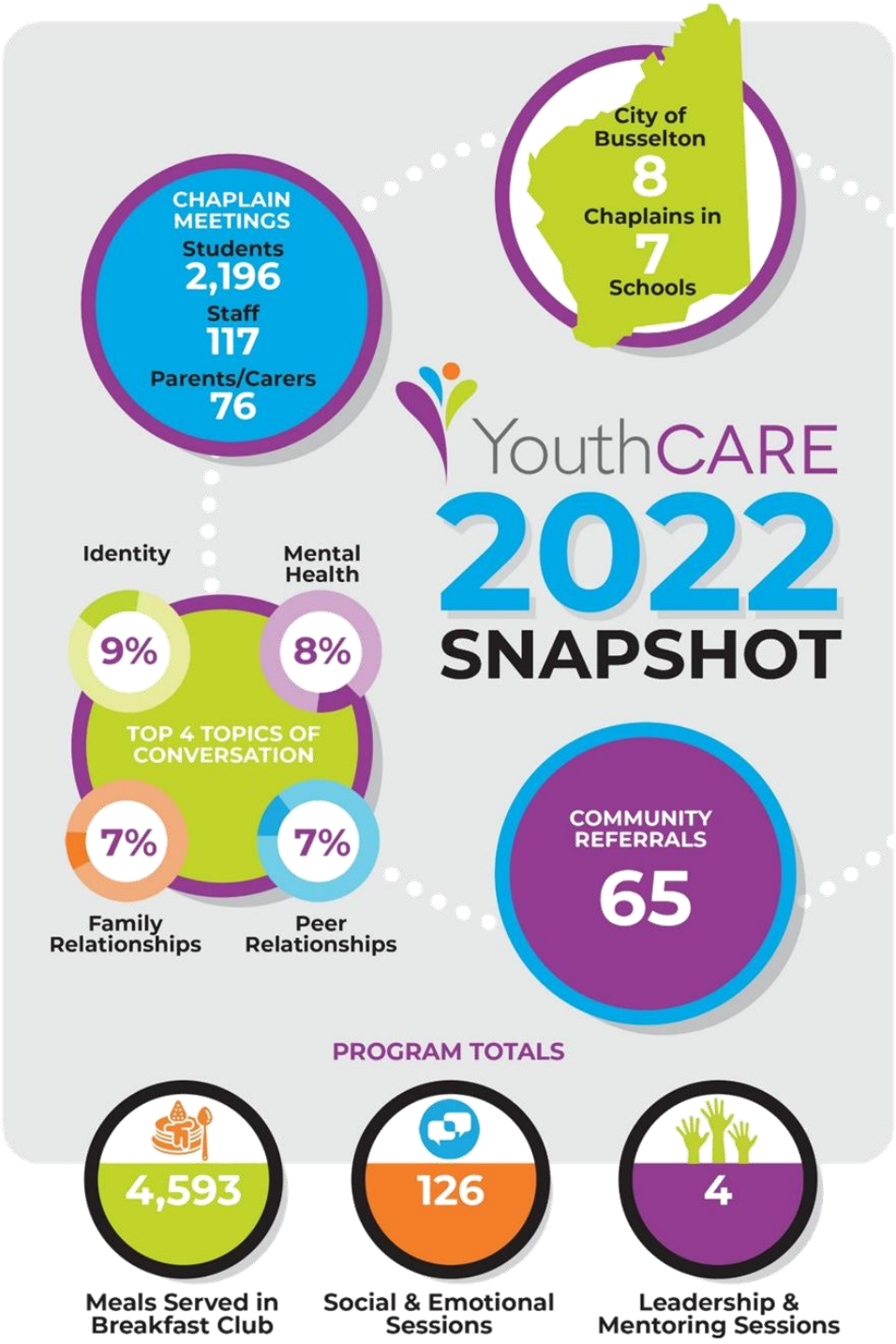
1. Not support moving to a three year agreement and continue with an annual agreement. This could result in YouthCARE being unable to sufficiently plan service delivery in advance due to uncertainty as there would be a requirement to apply for funding each year.
2. Discontinue funding YouthCARE altogether. This is not recommended and could result in the reduction of service delivery within our local schools.

CONCLUSION

Officers support the funding of YouthCARE in the amount of $40,000 per annum for the next three years. YouthCARE's proven track record, collaborative approach, and focus on positive youth outcomes make them a valuable and impactful organisation in our community. By providing essential support and services to our young people, YouthCARE aligns with the City's priorities and contributes to building a resilient and inclusive community. This funding will enable YouthCARE to sustain and expand its programs, making a meaningful difference in the lives of young people in Busselton.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

Officers have the information required to prepare a three year grant agreement subject to Council consideration of the recommendation. It is anticipated that this agreement would be finalised in time for the 2023/2024 financial year.


City of Busselton
8
Chaplains in
7
Schools
CHAPLAIN MEETINGS
Students
2,196
Staff
117
Parents/Carers
76
YouthCARE
2022
SNAPSHOT
Identity
Mental Health
9%
8%
TOP 4 TOPICS OF CONVERSATION
7%
7%
Family Relationships
Peer Relationships
COMMUNITY REFERRALS
65
PROGRAM TOTALS
4,593
Meals Served in Breakfast Club
126
Social & Emotional Sessions
4
Leadership & Mentoring Sessions

March 23, 2023

Dear Council of the City of Busselton,

On behalf of *YouthCARE,* I am writing to request the extension of funding for our Chaplaincy program for a period of three years. We appreciate the support the City of Busselton has provided for this program in the past and believe that an extension of funding will enhance our ability to continue this vital service to our schools and community.

The *YouthCARE* Chaplaincy program provides emotional and pastoral support to students, staff, and families in our schools. Our Chaplains work closely with school communities to promote a positive and inclusive school culture, and to provide a safe and confidential space for students to discuss their personal and emotional concerns. We also provide support during times of crisis or trauma, helping school staff and families to navigate difficult situations.

The funding provided by the City of Busselton in the past has helped us to provide a high-quality Chaplaincy service to our schools. We believe that an extension of funding for three years will provide us with the stability and certainty we need to continue to provide a consistent and effective service to our schools.

We understand that the City of Busselton is committed to the wellbeing of our community and believe that the extension of funding for our Chaplaincy program is a valuable investment in the health and wellbeing of our young people. We also understand that the City of Busselton has a responsibility to ensure that public funds are used effectively and efficiently, and we are committed to providing regular reports on the activities and outcomes of our program to ensure transparency and accountability.

Therefore, we respectfully request that the City of Busselton extend the funding for the *YouthCARE* Chaplaincy program for a period of three years. This will enable us to plan and implement our work in a sustainable and effective manner, and to continue to provide a vital service to our schools and community.

A Unit 1/103 Catherine Street Morley WA 6062 **P** PO Box 482 Morley WA 6943
T 08 9376 5000 **W** youthcare.org.au **ABN** 70 172 899 396

Please see attached for a "snapshot" of services provided by *YouthCARE* Chaplains in our region.

Thank you for your consideration of our request.

Sincerely,

Andrew Broadbent

YouthCARE Area Chaplain

Southwest Coastal Region

0400 327 942

16. FINANCE AND CORPORATE SERVICES REPORT

Nil

17. CHIEF EXECUTIVE OFFICERS REPORT

17.1 COUNCILLORS' INFORMATION BULLETIN

STRATEGIC THEME	LEADERSHIP - A Council that connects with the community and is accountable in its decision making.
STRATEGIC PRIORITY	4.2 Deliver governance systems that facilitate open, ethical and transparent decision making.
SUBJECT INDEX	Councillors' Information Bulletin
BUSINESS UNIT	Executive Services
REPORTING OFFICER	Reporting Officers - Various
AUTHORISING OFFICER	Chief Executive Officer - Tony Nottle
NATURE OF DECISION	Noting: The item is simply for information purposes and noting
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Current Active Tenders - May 2023 Attachment B State Administrative Tribunal Reviews Update Attachment C Correspondence from Royal Australian Navy

OFFICER RECOMMENDATION

That the items from the Councillors' Information Bulletin be noted:

17.1.1 Minor Donations Program – March and April 2023

17.1.2 Current Active Tenders

17.1.3 State Administrative Tribunal Reviews Update

17.1.4 Correspondence: Royal Australian Navy

EXECUTIVE SUMMARY

This report provides an overview of a range of information that is considered appropriate to be formally presented to the Council for its receipt and noting. The information is provided in order to ensure that each Councillor, and the Council, is being kept fully informed, while also acknowledging that these are matters that will also be of interest to the community.

Any matter that is raised in this report as a result of incoming correspondence is to be dealt with as normal business correspondence, but is presented in this bulletin for the information of the Council and the community.

INFORMATION BULLETIN

17.1.1 Minor Donations Program – March and April 2023

The Council allocates an annual budget allowance to the Minor Donations Program. This is provided such that eligible groups and individuals can apply for and receive sponsorship to assist them in the pursuit of endeavors that bring direct benefit to the broader community. Allocation of funds is delegated to the Chief Executive Officer, in accordance with the published guidelines and funding availability.

2 applications were approved throughout March 2023 and 6 applications approved throughout April 2023, totalling $3,856.00 as outlined below:

Recipient	Purpose	Amount
Leeuwin Naturaliste Junior Soccer Association (LNJSA)	This donations is a contribution towards the cost of supplying bibs which are required for LNJSA players competing for selection to represent the region at Country Week.	$500.00
Toby Inlet Catchment Group	The Toby Inlet Catchment Group runs the Toby Inlet Regeneration Program which involves student participation from local schools. This donation has been approved to cover the cost of transport for Busselton Senior High School students, enabling their participation in the program.	$600.00
Lily O'Meara	Lily has qualified to compete in the 16 year old girl's category at the National Age Competition hosted by Swimming Australia on the Gold Coast, April 7 to 15. This donation will assist with covering the costs associated with attending the competition.	$500.00
Mother's Day Classic	The Mother's Day Classic is an Australia wide charity walk/ run event which raises awareness of and honors those affected by breast cancer, and raises funds towards research. This donation will waive the cost of advertising the event on the City's digital billboard which will in turn attract local participation at the event and / or the free family activities being run in conjunction with the event.	$256.00
Tess McCubbing	Tess has been selected to represent WA as part of the Water Polo WA State Country Team at the National Championships in Ballina, NSW. This donation will assist with covering the costs associated with attending the competition.	$500.00
Isabella Bidesi	Isabella has been selected to compete at the 2023 Australian Junior Track and Field Championships being held in Queensland on 12 to 16 April. This donation will assist with covering the costs associated with attending the competition.	$500.00
Annabelle Muir	Annabelle has been selected to represent WA as part of the Water Polo WA State Country Team at the National Championships in Ballina, NSW. This donation will assist with covering the costs associated with attending the competition.	$500.00
Sam Jones	Sam has been selected to represent WA as part of the Water Polo WA State Country Team at the National Championships in Ballina, NSW. This donation will assist with covering the costs associated with attending the competition.	$500.00
	Total	**$3,856.00**

Donations approved as of 30 April 2023 total $29,857.47. Total budget remaining $142.53.

17.1.2 Current Active Tenders

The Tender update for May 2023 is provided at Attachment A.

17.1.3 State Administrative Tribunal Reviews Update

The Current State Administrative Tribunal Reviews is at Attachment B.

17.1.4 Correspondence: Royal Australian Navy

Thank you letter from Rear Admiral Smith AM CSM, of the Royal Australian Navy is at Attachment C.

As at 26 April 2023

TENDER	BACKGROUND	CURRENT STATUS
RFT 14/22 REUSE SHOP • Requirements – a suitable contractor to design and install a reuse and recycling shed and amenities at Busselton Waste Transfer Station.	• A request for tender was advertised on 17 December 2022.	• This tender closed on 24 January 2023, three submissions were received. • This tender will fall within the CEO's delegated authority to accept tenders.
RFT 01/23 COASTAL INUNDATION MODELLING • Requirements – a suitable consultant to conduct coastal inundation surveys of coastal areas from Dunsborough to Wonnerup.	• A request for tender was advertised 18 March, closing 19 April 2023. Four submissions were received.	• It is expected that this tender will fall within the CEO's delegated authority to accept tenders.
PQS02/23 CONCRETE SERVICES • Requirements – a panel of pre-qualified suppliers to provide the City's ongoing requirements for concrete services.	• A request for applications was advertised on 11 February 2023, closing on 7 March 2023. • Six submissions were received.	• An evaluation panel is currently assessing the submissions. • The CEO holds delegated authority to appoint a panel of suppliers under delegation DA01-10.
RFT04/23 CLEANING CONSUMABLES • Requirements – a suitable contractor to supply the City's requirements for cleaning consumables.	• A request for tender was advertised on 25 February 2023, closing on 23 March 2023. • Seven submissions were received.	• An evaluation panel is currently assessing the submissions. • It is expected that this tender will fall within the CEO's delegated authority to accept tenders.

TENDER	BACKGROUND	CURRENT STATUS
PQS04/23 COASTAL ENGINEERING SERVICES • Requirements – a panel of pre-qualified consultants to provide the City's ongoing requirements for coastal engineering services.	• A request for tender was advertised on 8 March 2023, closing on 28 March 2023. Nine submissions were received.	• The CEO holds delegated authority to appoint a panel of suppliers under delegation DA01-10.
RFT06/23 MECHANICAL SERVICES • Requirements – a suitable contractor(s) to provide mechanical services to City owned buildings	• A request for tender was advertised on 4 March 2023, closing on 28 March 2023. Four submissions were received.	• A report to Council for acceptance of a suitable tenderer will be presented to Council at its May 2023 meeting.
RFT07/23 PLUMBING SERVICES • Requirements – a suitable contractor(s) to provide maintenance and reactive plumbing services to the City	• A request for tender was advertised on 25 March 2023, closing on 18 April 2023. Two submissions were received.	• A report to Council for acceptance of a suitable tenderer will be presented to Council at its May 2023 meeting.
RFT08/23 IRRIGATION COMPONENTS • Requirements – a suitable supplier to provide the City's requirements for irrigation components	• A request for tender was advertised on 25 March 2023, closing on 18 April 2023. Three submissions were received.	• A report to Council for acceptance of a suitable tenderer will be presented to Council at its May 2023 meeting.

As at 4 May 2023

APPLICATION (Name, No. and City File Reference)	PROPERTY	DATE COMMENCED	DECISION BEING REVIEWED	STAGE COMPLETED	NEXT ACTION AND DATE OF ACTION AS PER SAT ORDERS	DATE COMPLETED / CLOSED
CITY OF BUSSELTON						
Amber Cloud Pty Ltd v City of Busselton (DR 231/2021)	Lot 101 Wilyabrup Road, Wilyabrup	November 2021	Review of a decision to refuse or conditionally grant an application under a planning scheme (Single House)	• Directions hearing on the 12 November 2021 against the decision of the City to refuse a development application. The matter is listed for Mediation on 7 February 2022. • Mediation on 7 February 2022 where it was resolved that: - Additional information would be submitted to the City by 22 March; - Mediation listed for 5 April 2022. • Mediation on 5 April 2022 where it was resolved that: - Applicant to provide amended application on or before 8 July 2022; - Mediation scheduled 22 July 2022; - Respondent (the City) to reconsider on or before 18 November 2022; - Listed for directions hearing 25 November 2022. • Mediation on 22 July 2022 where it was resolved that: - Applicant to provide an updated suite of documents on or before 12 August 2022; - By 16 September 2022 the respondent is to provide to the applicant respondent comments and any referral agency comments; - Mediation is adjourned to 20 September 2022; - Respondent to reconsider on or before 18 November2022; and - Listed for directions hearing 25 November 2022. • Mediation on 20 September 2022: - Applicant to provide an updated suite of documents on or before 4 October; - Mediation adjourned to 20 October 2022; - Respondent to reconsider on or before 18 November 2022; • Mediation listed for 20 October 2022 is vacated and relisted for 4 November 2022. The time to comply with the orders above to submit updated information is extended to 18 October 2022. • Mediation listed for 4 November was vacated and the following orders affirmed: - Respondent (the City) to reconsider on or before 18 November 2022; - Listed for directions hearing 25 November 2022. • Directions hearing on 25 November was vacated and the following orders affirmed: - Respondent (the City) to reconsider on or before 23 December 2022; - Listed for directions hearing on 9 December 2022. • Directions hearing on 9 December 2022 was vacated and the	Directions Hearing on 5 May 2023.	

APPLICATION (Name, No. and City File Reference)	PROPERTY	DATE COMMENCED	DECISION BEING REVIEWED	STAGE COMPLETED	NEXT ACTION AND DATE OF ACTION AS PER SAT ORDERS	DATE COMPLETED / CLOSED
				following orders affirmed: - Respondent (the City) to reconsider on or before 23 December 2022; - Listed for directions hearing on 3 February 2023. • Directions hearing on 3 February 2023 was vacated and relisted for directions hearing on 24 February 2023. • Directions hearing on 24 February 2023 was vacated and relisted for directions hearing on 17 March 2023. • Directions hearing on 17 March 2023 was vacated and relisted for directions hearing on 5 May 2023.		
Silverlodge Pty Ltd v City of Busselton (CC 1054/2022)	585 Caves Rd Marybrook	August 2022	Review of a decision under the Caravan Parks and Camping Grounds Act 1995.	• Directions hearing listed for 23 September 2022 against the City reducing the number of licenced sites. • Directions hearing on 23 September 2022 was vacated and listed for a mediation on 18 October 2022. • Mediation on 18 October 2022: - Mediation adjourned to a further mediation on 17 November 2022. • Mediation on 17 November 2022 was vacated. Mediation listed for 22 December 2022. • Mediation on 22 December 2022: - Listed for a directions hearing on 31 January 2023. • Directions hearing on 31 January 2023 was vacated. Directions hearing on 3 March 2023 • Listed for directions hearing on 2 May 2023 • Directions hearing on 2 May 2023 was vacated. Relisted for a further directions hearing on 6 June 2023.	Directions Hearing on 6 June 2023	
Happ & Anor v City of Busselton (DR 159/2022)	575 Commonage Road Quindalup	September 2022	Review of a direction by the City to stop and not recommence a development and to restore land to its state prior to the development	• Directions hearing listed for 14 October 2022. • Mediation listed for 1 November 2022 and further directions hearing on 4 November. • Mediation on 1 November referred to further mediation on 13 December 2022. Directions Hearing listed for 4 November vacated. • Direction hearing on 13 December 2022: • Orders that a further directions hearing take place on 20 January 2023. - Directions hearing on 20 January 2023 was vacated and re-listed for 3 March 2023. • Directions hearing on 3 March 2023: - By 14 April 2023 the parties have leave to file with the Tribunal and exchange any evidence expert or otherwise. - Further Directions hearing to take place on 28 April 2023 • Directions hearing on 28 April 2023 was vacated and re-listed for 4 August 2023 (to enable the City to assess a recently received development application)	Directions Hearing on 4 August 2023	

APPLICATION (Name, No. and City File Reference)	PROPERTY	DATE COMMENCED	DECISION BEING REVIEWED	STAGE COMPLETED	NEXT ACTION AND DATE OF ACTION AS PER SAT ORDERS	DATE COMPLETED / CLOSED

Happ & Anor v City of Busselton (DR 197/2022)	575 Commonage Road Quindalup	November 2022	Review of direction 214(2) by the City	• Planning (General) Directions hearing listed for 25 November 2022.
				• Directions hearing on 25 November 2022 was vacated and listed for mediation on 13 December 2022.
				• Direction hearing on 13 December 2022:
				  • Orders that a further directions hearing take place on 20 January 2023.
				• Directions hearing on 20 January 2023 was vacated and re-listed for 3 March 2023.
				• Directions hearing on 3 March 2023:
				  - By 14 April 2023 the parties have leave to file with the Tribunal and exchange any evidence expert or otherwise.
				• Further Directions hearing to take place ion 28 April 2023
				• Directions hearing on 28 April 2023 was vacated and re-listed for 4 August 2023 (to enable the City to assess a recently received development application).
					Directions Hearing on 4 August 2023	

Johnson v City of Busselton (DR 61/2023)	214 Naturaliste Terrace, Dunsborough	April 2023	Review of a decision to refuse or conditionally grant an application under a planning scheme	Listed for a directions hearing on 19 May 2023	Directions hearing on 19 May 2023	
REGIONAL JOINT DEVELOPMENT ASSESSMENT PANEL						
NIL						
NIL						

Rear Admiral Christopher Smith, AM, CSM, RAN
Commander Australian Fleet

Fleet Headquarters, Locked Bag 7005, Liverpool NSW 1871
02 9359 4609 | comausflt.office@defence.gov.au

05 APR 2023
City of Busselton

OFC/OUT/2023/010

Councillor Grant Henley
Mayor of the City of Busselton
Locked Bag 1
BUSSELTON, WA 6280

Dear Councillor,

I am writing to invite you to join with Navy in developing a relationship between your jurisdiction and one of our newest ships, Australian Defence Vessel (ADV) *Cape Naturaliste*. I would like to open a dialogue between yourself, ADV *Cape Naturaliste*, the City of Busselton and the Nyoongar Nation and Wardandi Peoples, with the aim of developing a mutually beneficial and lasting relationship.

ADV *Cape Naturaliste* is the third of eight new Cape Class Patrol Boats being built for Navy by Austal Ships Pty Ltd in Western Australia. ADV *Cape Naturaliste* will be physically based in Darwin, however as you would be aware from your time serving in the Royal Australian Navy, it is tradition that our ships develop and maintain ongoing relationships with namesake towns and cities.

All of Navy's new Cape Class Patrol Boats are named for prominent capes around the Australian coastline. However, many of these capes have only navigation marks or light houses as the only human structures present. We have therefore worked to identify suitable population centres in the Local Government Areas within which the namesake capes are located, to establish what we term "ceremonial home ports" for our new patrol boats.

I note that Cape Naturaliste lies within the City of Busselton Local Government Area, on the western edge of Geographe Bay. I therefore invite you to join me in assisting the officers and crew of ADV *Cape Naturaliste* to establish a relationship with the township and people of Busselton and with the Nyoongar Nation and Wardandi Peoples.

Should you be agreeable, I will direct the Commanding Officer of ADV *Cape Naturaliste*, Lieutenant Commander Jeremy Evain, RAN to make contact with you and open the dialogue.

Yours sincerely,

CE Smith, AM, CSM
Rear Admiral, Royal Australian Navy
Commander Australian Fleet

27 March 2023

18. MOTIONS OF WHICH PREVIOUS NOTICE HAS BEEN GIVEN

Nil

19. URGENT BUSINESS

20. CONFIDENTIAL MATTERS

Nil

21. CLOSURE