Controlled Action Referralat Warner Road

Warner on behalf of Ausbuild

Under Section 75 of the Environment Protection and Biodiversity Conservation Act 1999

17/03/2022

ENVIRONMENTAL PLANNING ° ENVIRONMENTAL MANAGEMENT °

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1 Introduction

1.1 Project Background

28 South Environmental (**28 South**) have been engaged by Ausbuild (here in referred to as the Applicant) to carry out an ecological assessment of Matters of National Environmental Significance (**MNES**) to support a referral under the Commonwealth Government's Environment Protection and Biodiversity Conservation Act 1999 (**EPBC Act**)- refer **Table 1** below. The purpose of this report is to identify potential MNES, specifically listed threatened species that may be impacted by the proposed urban development ('the action') of land located on southern side of Warner Road, Warner. The site is identified properly referred to as Lots 3 - 7 on RP79062, Lot 2 on SP121774, 9-10 RP79062 and lot 2 RP118172 and is herein referred to as the "Site".

The site is located within Moreton Bay Regional Council (**MBRC**) and is located within the suburb of Warner (refer Att C- Figures 1-4 Mapping and Surveys, **Figure 1** and **Figure 2**) and covers a total area of 27.67 Hectares (**ha**). Due to the operational requirements of the proposed development, the total disturbance footprint is 16.35 ha, while achieving an avoidance footprint of 11.32 Ha (refer Att F- Attachments 1-12 Reporting and Scoring, **Attachment 1 and 2**). The Site is in the southern portion of a former (more extensive) proposed development footprint that extended north of Warner Road. This report has been prepared to accompany a Controlled Action Referral to undertake a residential development over the Site.

1.2 Current Site Context

The Site is currently utilised for rural residential landuses, with low density peri-urban and agricultural activities occurring (horse paddocks and yards) with the tenure identified as freehold. The Site falls within the Rural Residential Zone under the *MBRC Planning Scheme*. The Site's context, locality and position within the LGA is shown in Att C- Figures 1-4 Mapping and Surveys, **Figure 1**. The area surrounding the Site is currently in a transitional phase between peri urban and industrial landuses to higher density urban landuses and has been largely cleared for historical agricultural development (Att C- Figures 1-4 Mapping and Surveys, **Figures 1** & **2** and Att E- Figures 6-10 Mapping and Surveys, **Figures 5a-g**).

As such, much of the area has been subject to significant historical vegetation disturbance. A large portion of the site is cleared, including areas associated with Conflagration Creek riparian area in the eastern and central portion of the Site. A number of artificial farm dams are located on the Site, including along Conflagration Creek and associated tributaries. The western portion of the site is

proposed for the higher density residential lot development and is generally devoid of significant strands of vegetation, while the south-eastern portion is designated for the larger lot rural residential style landuse. The remainder of the site is set aside for Environment Management and Conservation Zone (**EMC Precinct**).

The Site itself is wholly located within the suburb of Warner, approximately 17km north of Brisbane GPO and approximately 26.7km south of Caboolture. The Site is bound by Warner Road to the north which is generally utilised for local traffic (as shown Att C- Figures 1-4 Mapping and Surveys, **Figure 2**). Land further north is proposed as part of the conditionally approved Warner "Sanctuary" residential development. To the east, south and west the Site is bound by existing low density residential land uses typical throughout the Warner areas.

As illustrated in Att C- Figures 1-4 Mapping and Surveys, **Figure 1**, the following key urban features surround the Proposed Action Site:

- Higher density residential and urban landuses are located to the South of the Site boundary (associated with Eatons Crossing Road), East of the Site boundary (associated with South Pine Road) and to the North (associated with Kremzow Road). An existing Controlled Action Approval, and MBRC development approvals has been gained by the Applicant over Lot 1 on RP92508 and Lot 2 on RP195936 to the north of Warner Road.

- Wantima Golf Course and South Pine Sporting Complex is located to the east of South Pine Road. The Brendale Sewerage Treatment plant is located in the same area.

- Existing quarry and industrial landuses co-exist with higher density residential development associated with Kremzow Road further north of the Site. Suburban land uses associated with Bray Park and Strathpine continue with limited ecological value until North Pine River.

- Rural residential landuses prevail further west of the Site. Clear Mountain Conservation Park is identified approximately 3.2 km west of the Site.

The topography of the immediate locality can generally be described as low undulating hills bisected by several modified waterways and associated tributaries, whilst being heavily characterised by historical urban and agricultural activities which have significantly augmented the landscape. The Site itself supports variable topography, which generally drains to Conflagration Creek in the central and eastern portions of the Site. Water generally drains in a north-easterly/south westerly direction towards to artificial dam near the southern boundary of the site.

Aerial photography and in-field ecological investigations indicated that the Site supported three (3) vegetation community types each with internal variations due to historical and ongoing disturbances as a result of various land use practices (Att C- Figures 1-4 Mapping and Surveys, **Figure 3**).

Within the development footprints residential precinct the slope gradients range 15-38º (ave. 27 º degrees). The slope aspect is south easterly. Within the rural residential precinct, slope gradients range 2-6 degrees (ave. 4º). The slope aspect in the rural residential precinct is north westerly. Gradients along Conflagration Creek are less than 2º, with a generally east to north-easterly aspect.

The vegetation communities of the site include:

1. Landscaping and maintained lawn are throughout highly disturbed areas largely devoid of any specific/ identifiable vegetation community which covers a majority of the Site;

2. Broad Leaved Paperbark - Queensland Blue Gum – Swamp Mahogany disturbed open forest; and

3. Queensland Blue Gum - Northern Grey Ironbark – Pink Bloodwood disturbed open forest.

1.3 Hydrology of the Site

The Site uses, as detailed above, are consistent with a rural residential landuses, with evidence of historical agricultural uses and online water storage. The balance of the Site contains a mix of scattered vegetation, disturbed areas largely devoid of any specific vegetation community and plantation areas. One historical dam is present within the south- central portion of the Site which has been confirmed during the Site survey (Refer Att C- Figures 1-4 Mapping and Surveys, **Figure 2**). The western and central components of the Site support two mapped ephemeral drainage feature that generally flow from northwest to southeast. These drainage features (as defined by the *Water Act 2000* (QLD)) are an unnamed tributary of Conflagration Creek; and have been assessed as highly degraded drainage features containing a number of exotic species which do not facilitate flow freely across the Site.

Conflagration Creek is mapped and identified as generally bring located within the central portion of the site and is mapped as a 'Low' Value Queensland Waterway for Waterway Barrier Works under the *Fisheries Act 1994* (see Att F- Attachments 1-12 Reporting and Scoring, **Attachment 8**), the highly modified nature of the feature is not currently considered to facilitate a viable natural

aquatic ecosystem for native species. The waterway has been disconnected in several locations, including the onsite dam in the southern portion of the site, and to the east of Old north Road, to the north east of the Site. It is also noted that the portion of Conflagration Creek onsite is not mapped as being connected to any larger waterway (i.e. The disconnected waterway is not mapped to drain into the Pine River).

1.4 Community Engagement, Meetings and Outcomes

Community consultation has, and continues to, play a significant role in the master planning for the proposed development of Warner South. The purpose of this ongoing engagement is to form quality relationships with key stakeholders and establish a direct channel for communication about the proposed development, with the overarching aim of achieving a positive outcome that balances the needs of the community, the environment, and the demand for residential housing supply in the Moreton Bay Region.

Table 1 Below is a summary of the key community engagement activities undertaken by Ausbuild and its consultants in the preparation of the Development Application for Warner South.

Table 1 Summary of the Key Community Engagement Activities

Stakeholder/s	Engagement Platform / Activity	Overview
Local residents, schools and businesses	**Focus Groups** The community Focus Group sessions were held on Saturday 20 November 2021, which were independently moderated by Wolter Consulting.	The purpose of the Focus Groups, which were facilitated by independent consultants, was to present an overview of Ausbuild's plans to lodge a future Development Application for the area referred to as 'Warner South' and gather community feedback. The three groups comprised: • Group 1: General population (ranging in age from 18 – 64) • Group 2: Youth / First and Future Home Buyers (ranging in age from 16 – 29) • Group 3: Representatives from 'Save Our Community Warner'. Participants for Group 1 were entirely

Stakeholder/s	Engagement Platform / Activity	Overview
		independently recruited by a specialist research firm. Participants for Group 2 were either independently recruited by the research firm or students from Bray Park State High School. All participants in Groups 1 and 2 were residents of the Moreton Bay LGA, with a mix from Warner, the immediate neighbouring suburbs and the broader LGA. Participants in Group 3 were invited/self-selected representatives of the 'Save our Community Warner' group. Feedback from the Focus Group sessions has been incorporated in the proposed development, including (but not limited to): • Increasing street frontages to a minimum of 12.5m, up to 22m • Ensuring lot sizes bordering the northern boundary, and a selection along the western boundary, are a minimum of 600sqm • Lower the height of the existing farm dam to permit fish passage into Conflagration Creek • Parkland will enable connection to cycle ways and pedestrian links created as part of the approved works • Park to suit a range of ages • High level surveillance to ensure the parkland area is safe and usable.
Local residents, schools and businesses	**The Sanctuary Community Reference Group** Fair and broad community	A CRG has been established to inform how existing and future stages of The Sanctuary contribute to the local environment and brings the community together. Three meetings have been held to date, in October and November

Stakeholder/s	Engagement Platform / Activity	Overview
	representation was sought through a four-week Expression of Interest campaign, comprising targeted digital and print advertisements. Independently moderated by Shaping Places. Members include a site neighbour, a local Warner resident living on acreage, a Warner Lakes resident, a future resident of The Sanctuary, and a local school principal.	2021, and February 2022. These will continue on a bi-monthly basis in the year ahead. The scope of the CRG incorporates feedback into Ausbuild's plans for the area referred to as 'Warner South' and influence: 1. Developing a place identity 2. Public spaces and park design 3. Activations and events 4. Environmental protection of flora and fauna 5. Community education & engagement The CRG will also provide recommendations to Ausbuild on grant recipients for The Sanctuary Community Fund. The CRG's Terms of Reference is published on the Ausbuild website, where summary reports of all meetings are also made publicly available.
Nominated suburbs within Moreton Bay Region including Warner, Strathpine, Bray Park, Cashmere, Brendale, Albany Creek and Eatons Hill	**The Sanctuary Community Fund** Administered by The Sanctuary CRG. Eligibility: organisations, schools, community groups, not-for-projects with an ABN.	Ausbuild has launched a community fund which will be administered by the CRG. The Fund incorporates a grants program of $100,000, to be divided between two funding rounds in April and October 2022. The objectives of the Fund are to contribute to responsible place-making and supporting healthy communities. Further information on the Fund will be shared with the community via the ASPECT on Warner community magazine, Ausbuild's website, PR activity and targeted digital and advertising campaigns.
Bray Park State High School students	**Partnership Agreement with Bray Park State High School**	A Partnership Agreement between Ausbuild and Bray Park State High will provide opportunities for students in Years 10, 11 and

Stakeholder/s	Engagement Platform / Activity	Overview
		12 to participate in real world learning and hands-on experience to complement their formal education and help establish career pathways. The program will involve work experience and work shadowing opportunities across various skilled disciplines and trades.
Local businesses, schools and residents within the broader Moreton Bay Region	**Community Sponsorships**	Ausbuild has committed funds to several partnerships that align with the company's values of community. These include: A two-year sponsorship with Wantima Country Club in Brendale to support the maintenance of the club as an important community recreation facility. Ausbuild also supports the venue by hosting regular CRG meetings and the recent Focus Group Sessions at Wantima. Sponsoring the inaugural 2021 Moreton Daily News Christmas Lights competition, which celebrates communities across the region and brings families and neighbours together Donating $10,000 to Pine Rivers Special School in Petrie to enable the purchase of iPads for students to assist with learning.
Residents in neighbouring properties	**One-on-One Meetings** Meetings have been held with some neighbouring residents to provide details of the proposed development and direct contact information for ongoing communication and information regarding the proposed development.	Ausbuild has met with two close site neighbours of 'Warner South' to discuss the proposed development and seek feedback for incorporation into the proposed design. Further engagement with site neighbours will continue in the weeks and months ahead. As part of the ongoing community engagement process, we will continue to inform local residents of the approval process, including the final DA Decision.

Stakeholder/s	Engagement Platform / Activity	Overview
Moreton Bay Regional Council - l Planning Team	**Moreton Bay Regional Council** Undertake a collaborative approach to the DA proposal through ongoing meetings with the Council's Planning Team.	A pre-lodgement meeting was held with the Council's planning team on 25 November 2021. The proposal was presented to obtain feedback on the design, density, and general planning controls. Updates to the proposal have been made in line with the Council and local community's feedback to date.
Local Councillor and Deputy Mayor (Cr Tonks and Cr Shipway)	**Meeting with local representatives** Ausbuild attended a meeting with Cr Tonks and Cr Shipway to discuss the current and proposed development at Warner and discuss the community's needs and concerns.	Meeting held with Councilors Tonks and Shipway in November 2021. Key matters discussed were environmental impacts, local infrastructure (water, road network) and community engagement. A further meeting was arranged with Cr Shipway and Cr Tonks on 6 December to review the actions instigated. The Councillors will be provided with ongoing updates as the development progresses, including (but not limited to) design progress, likely timing of DA, feedback from the local community, and community engagement updates.
Immediate site neighbours and nearby residents Local representatives	**Development Bulletins** Distributed to 86 households adjoining, and located close to, The Sanctuary. Copies are also shared with local elected representatives.	Development Bulletins are regularly distributed to immediate site neighbours and nearby households to provide information about current site works, temporary impacts and key project milestones. These updates will continue for the duration of construction works at The Sanctuary.
Warner residents and broader community	**ASPECT on Warner magazine** Quarterly publication.	ASPECT on Warner is a community-focused magazine that includes updates on The Sanctuary and community engagement

Stakeholder/s	Engagement Platform / Activity	Overview
	Distributed to 15,000 households in Warner, Bray Park, Eatons Hill, Cashmere and Brendale.	activity, features on local businesses and people, local history, local attractions, and upcoming events.
	Ongoing Engagement post-DA lodgement	Ausbuild continues to engage with key stakeholders following the lodgement of the DA for Warner South. In early 2022, Ausbuild met with local representatives from 'Save Our Community Warner' to walk the Warner South site and look at the existing vegetation. A key outcome of this meeting has been an agreement to retain an additional section of vegetation that will be incorporated into a larger community park proposed for the community. Other ongoing engagement activities include (but are not limited to) the following: • Community Reference Group meetings • Development Bulletins • One-on-One Meetings • Future issues of *ASPECT on Warner* magazine • Council and elected representative briefings • Website updates • Community grants • Community sponsorships.

1.5 Study Limitations and Applicants Environmental Record

The MNES assessment presented herein has involved a combination of desktop assessments and field investigations and has relied on publicly available information and data supplemented with direct field assessments.

The likelihood of occurrence assessment has relied on database searches and publicly available information that relates to the subject site and broader locality.

To date, field assessments have been undertaken in 2015 (botanical assessment, tree survey, regional ecosystem (RE) assessment, fauna assessment) with additional contemporary assessments undertaken in 2021 (additional tree survey, Koala and Grey-headed flying-fox assessments). The ecological assessments have focused on assessing the presence of Matters of Local Environmental Significance (MLES), Matters of State Environmental Significance (MSES) and MNES present on the site. Assessments were informed by database searches.

Regarding the MNES, field surveys only targeted those threatened species or communities, which have either been previously recorded or predicted to occur in the locality, and as such were assessed as having a moderate or high likelihood of occurring in the subject site.

Fauna surveys for MNES species relied on passive methods for detection, such as call recognition, spotlighting, visual identification, motion detection cameras, active searches and inferential evidence of habitat usage (e.g. scratches, scats, burrows, active nests etc). Although trapping was conducted for as part of the fauna surveys for non-MNES fauna, no trapping was undertaken for the target MNES species.

This report has been compiled and undertaken in consultation with a team of consultant engineers, urban designers and environmental management experts. The Applicant relies on these consultants to ensure compliance with environmental planning legislation relevant to its projects. It has been identified that Ausbuild Proprietary Limited (ABN 76 464 427 582) has a satisfactory record of responsible environment management. It is additionally identified that there are no past or present proceedings under a Commonwealth, State or Territory Law for the protection of the environment or the conservation and sustainable use of natural resources.

Ausbuild Proprietary Limited ABN 76 464 427 582 (Ausbuild) is presently undertaking work adjacent to the site (Warner North), for which there is a current controlled action approval issued by the Commonwealth:

- *Warner Road Residential Development, Warner Qld 2017/8022.*

Works here are occurring in the post approval phase (note the PMST Att F Att1-12 Mapping and Surveys, **Attachment 2**) and having commenced in September 2021 have occurred without environmental incident. Ausbuild has been undertaking the Proposed Action in accordance with Local, State and Commonwealth approvals and legislation.

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2 Project Description

2.1 Proposed Development

The proposed development footprint will necessitate the disturbance of approximately 16.35 hectares (**ha**) of the 27.67ha subject site. The Site is currently utilised for typical Rural Residential landuses, including dwelling houses, livestock paddocks and fencing.

The areas of investigation for this ecological assessment include:

- Subject site – the extent of land described as 65+75+87+89+101+105+117 Warner Road, Warner (properly described as Lot 5 -7 + lot 9 + lot 10 on RP79062, Lot 2 on SP121774 and Lot 2 on SP118172). The subject site area totals 27.67ha.
- Mapped and ground-truthed onsite koala utilisation.
- Locality – the extent of the 5km radius database searches of the subject site and contextual Grey-headed flying-fox (**GHFF**) roost searches.

Within this, the proposed development will include:

- Mixed residential and rural residential allotments;
- Neighborhood park;
- Internal roads;
- Stormwater Detention Basins; and
- The balance of the subject site will be retained and rehabilitated as Environmental Management and Conservation Precinct (**EMC**).

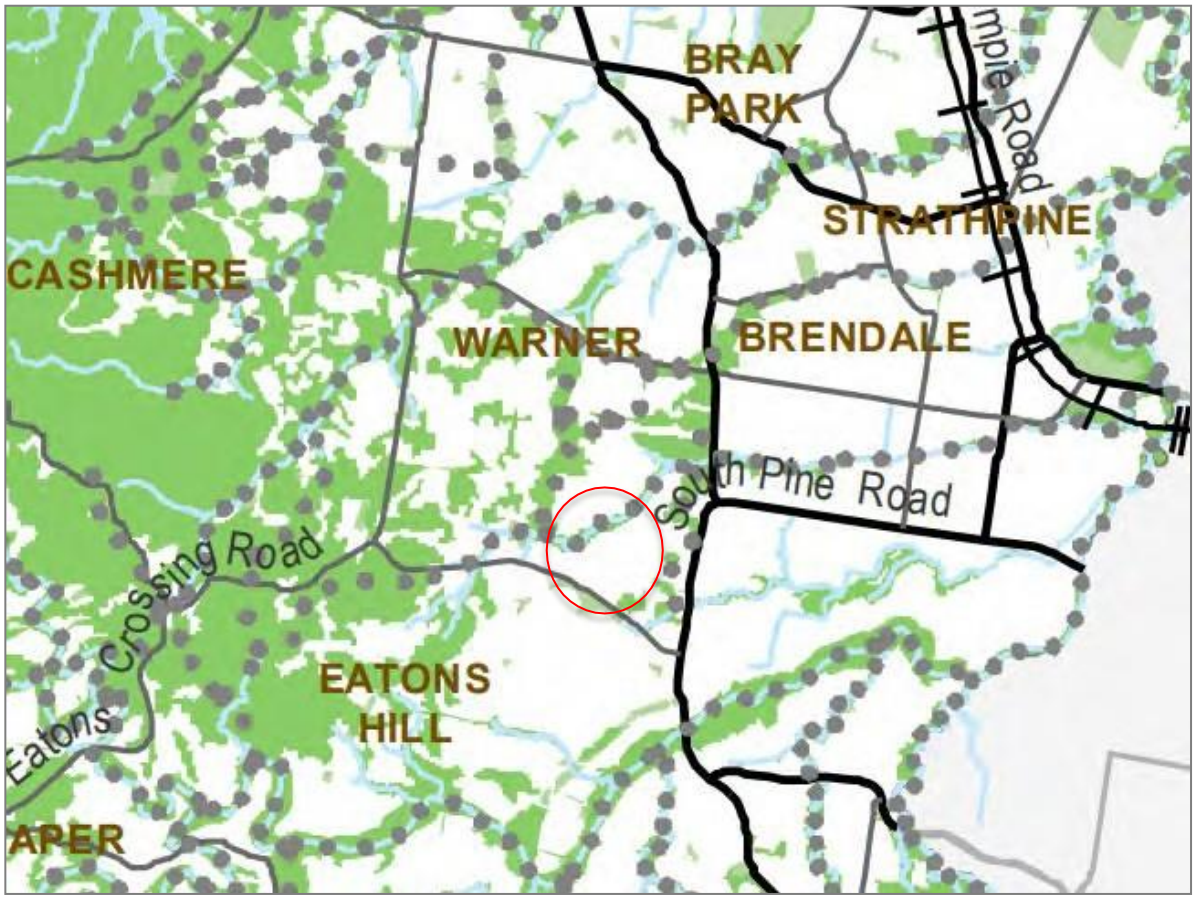
State and MBRC environmental constraint mapping identify environmental values on and surrounding the Site. The more significant values (Koala habitat, and the MBRC Green Infrastructure Network) are generally located outside the development footprint. Incursion into the State and local environmental mapped areas do occur, and ground-truthing shows that the constraint mapping is generally incorrect in these areas. Map amendment requests regarding these areas are likely to be submitted as part of the MBRC development application at a later stage.

The footprint of the current proposed development is generally co-located within the cleared portions of the site associated with the current rural residential landuse and **does not include any mapped or identified areas of significant ecological values**, nor is it of strategic ecological value (e.g. important steppingstone habitat between more contiguous vegetation). The proposed development has undergone a number of design iterations and the deliberate positioning of the development footprint has generally ***avoided all*** **impacts on areas of ecological value, while retaining and concentrating the highest onsite ecological value within the proposed EMC Precinct.**

Protection, retention and revegetation of the average 100m wide EMC Precinct is the proposed actions primary mitigation measure. The EMC Precinct aligns with Conflagration Creek, and the associated retained and protected corridor associated with the creek system. We further note that Conflagration Creek and the associated riparian corridor is identified by the MBRC Green Infrastructure Network Strategic Framework Map within the planning scheme (refer **Insert 1** below) and is identified as a component of the ecological connections. **As such, the proposed development is consistent with the intentions of the Natural Environment and Landscape Theme** within the Strategic Framework within the Planning scheme to provide *"protection, maintenance and enhancement, with a focus toward improving linkages between all natural areas"*[1].

Retention, protection and rehabilitation of the EMC Precinct will establish a continuum of habitat across the Conflagration Creek corridor and consolidate existing important habitat to the north and east of the Site to establish a connected node of habitat and greenspace more than 77.16 hectares in area. The applicant has committed to reinstate regional ecosystems that are locally uncommon and poorly conserved; which will significantly improve connectivity to the south of the Site, beyond Warner Road. The potential for increased fauna strike on the local road network has been addressed by providing fauna underpasses and adopting other innovative speed control measures (refer **Section 6** of this report). Interaction between dogs and koalas will be minimised by way of appropriate fencing.

[1] MBRC Planning Scheme Version 4; 2016; Part 3, Section 3.4.



Insert 1 - Green Infrastructure Network: Strategic Framework - Map 3.4.1. (General locality of Siteidentified by red circle) (Source: MBRC Planning Scheme)

2.2 Purpose of this report

The purpose of this ecological assessment is to confirm the presence or absence of MNES, which have been identified by a desktop assessment and then field verified by targeted field surveys. This ecological assessment identifies the MNES of potential relevance to the site. It assesses the significance of potential project related impacts upon relevant MNES in consideration of proposed impact avoidance and minimisation measures.

2.3 Project Critical Path

The applicant, Ausbuild proposed action intends to commence in Q4 2023.

2.4 Existing Approvals

28 South Environmental Pty Ltd (**28 South**) has been engaged to advise on ecological and environmental matters as part of the specialists consultants team for Ausbuild over the

residential developments associated with the Warner Road Site. 28 South has undertaken extensive assessment of the Site's ecological, environmental and landscape values, with recent onsite assessments undertaken 2-5 and 8 February 2021 (tree survey) and 1, 2 and 16 June 2021 for additional Koala and GHFF surveys, and most recently 1-2 June 2021 and 16 June 2021.

A previous EPBC Act referral (EPBC Act referral 2017/8022) was undertaken over the subject site and included land to the north of Warner Road. This referral was subsequently withdrawn and revised to include two (2) separate applications (Land north of Warner Road, and this Site). The area to the north of Warner Road has been assessed and conditionally approved (EPBC Act referral 2017/8022) in 2020. The conditionally approved EPBC Act referral 2017/8022 is for a residential development, comprising of the following elements:

- Mixed residential;
- Neighborhood park;
- Internal roads;
- Stormwater Detention Basins; and
- The balance of the subject site will be retained and rehabilitated as Environmental Management and Conservation Zone (EMC Precinct).

The locality of the conditionally approved EPBC Act referral 2017/8022 in relation to this proposed application has been shown in Att C- Figures 1-4 Mapping and Surveys.pdf, **Figure 1**.

Extensive work has been undertaken on both developments by the applicant to ensure fauna connections are protected on and enhanced through the following:

- utilisation of fauna transport infrastructure throughout the Site, including the use of:
    - a dedicated fauna underpass under Warner Road;
    - utilisation of glider poles and fauna refuge landscaping throughout the Site;
- fauna friendly fencing between the proposed residential and park areas and the riparian reserve;

- Road treatments and signage along Warner Road advising the presence and potential movement of koala; and

- retention, protection and enhancement of the riparian corridors and habitat associated with Conflagration Creek.

Local Government development approval (through the Queensland Planning and Environment Court (No.923 of 2020)) has been issued to the Applicant for a substantially similar approval to the north of Warner Road. As part of this conditional approval, the Applicant has proposed extensive ecological habitat rehabilitation and intensive creation of habitat for state and local listed and identified fauna species. This includes:

- creation of extensive fish refuge and frog ponds to reinstate fish passage and frog habitat through and off the Site. This habitat recreation has been undertaken in conjunction with the Queensland Department of Environment and Heritage and the Queensland Department of Agriculture and Fisheries; and

- Retention to the greatest extent possible of riparian vegetation associated with Conflagration Creek. Additional retention of the bulk of the large mature vegetation in the EMC Precinct and the local park has been carefully considered.

The retention, protection, rehabilitation and creation of habitat connections to the north of Warner Road will be utilised and built on to facilitate the fauna movement through and off the site as part of this application. Refer to **Section 6** of this report for further detail regarding the impact mitigation proposed as part of this application.

3 Statutory Context

The proposed action will be requiring approval under Section 45 of the *Planning Act 2016,* which requires the proposed development will be assessed against the provisions of the MBRC Planning Scheme Version 4.

Assessment of the proposed development against Section 2 of the MBRC Planning Scheme requires consideration of the State Planning Policy (**SPP**) (2017), Part E - Biodiversity (1), Which requires consideration of the requirements of the EBPC Act. While it is considered that the proposed development has satisfied the requirements of the SPP by generally locating the footprint within areas with existing disturbance, the proponent has elected to formally assesses the direct and indirect impacts of the development against the Commonwealth EPBC Act.

The following information outlines the State and Local planning framework as it applies to the Proposed Action.

Aboriginal Cultural Heritage Act 2003

The purpose of the *Aboriginal Cultural Heritage Act 2003* (**ACH Act**) is to provide for the effective recognition, protection and conservation of Aboriginal cultural heritage.

Biosecurity Act 2014

The *Biosecurity Act 2014* came into effect on 1 July 2016 and is designed to ensure a consistent, modern, risk based, and less prescriptive approach, to biosecurity in Queensland.

Environmental Protection Act 1994

The *Environmental Protection Act 1994* (**EP Act**) is the principal environmental regulatory framework for environmental management and protection in Queensland. The EP Act objective is to protect the natural environment and associated ecological systems and processes while allowing for continued sustainable development.

The EP Act requires the Project's potential environmental impacts to be assessed and that measures be proposed to avoid or minimise any adverse impacts. To achieve this, the EP Act regulates activities that will or may have the potential to cause environmental harm.

All mitigation and management measures associated with the Action will be required to comply with an Environmental Authority issued to the under the EP Act. This Environmental Authority will govern all facilities of the construction and operation of the Action, including stringent monitoring

of inputs, outputs and emissions to ensure that no legislative thresholds are exceeded. Management plans will be prepared as a part of the detailed design phased and implemented during the operation phases to comply with the Environmental Authority including management and rectification of any non-compliance.

Environmental Protection Regulation 2008

The *Environmental Protection Regulation 2008* (**EP Regulation**) supports and supplements the environmental assessment process outlined under the EP Act. It also specifies Environmentally Relevant Activities (**ERA**s) that require approval, associated thresholds, specific approval details and reporting requirements.

Environmental Offsets Act 2014

The *Environmental Offsets Act 2014* (**EO Act**) coordinates the delivery of environmental offsets across jurisdictions. The EO Act purpose is to offset significant residual impact on prescribed environmental matters.

The *Environmental Offsets Regulation 2014* (**EO Regulation**) provides details on prescribed activities regulated under existing legislation and prescribed environmental matters to which the Act applies.

Fisheries Act 1994

The *Fisheries Act 1994* sets out Fisheries Queensland's responsibilities for the economically viable, socially acceptable and ecologically sustainable development of Queensland's fisheries resources. The Act specifically regulates development or construction within the bed and banks of mapped waterways and drainage features which may impact on fish passage up and down the waterway.

The *Fisheries (General) Regulation 2019* outlines general regulatory requirements relevant to the management and use of Queensland's fisheries resources.

Land Act 1994

The Land Act 1994 (**Land Act**) provides the framework for State land, such as leasehold, roads and reserves and their subsequent management.

Under Chapter 4, Part 4 of the Land Act, a permit to occupy is required for the occupation of a reserve, road or area of unallocated State land. An application for a temporary road closure may also be required.

Local Government Act 2009

The purpose of the *Local Government Act 2009* (**LG Act**) is to outline the extent of local government responsibilities and powers within their respective jurisdictions. The Act provides local governments with the power to enact and enforce laws within the relevant local government area. These laws usually relate to the protection of amenity or other values important to communities including local roads, noise, light, waste management, vegetation, animals, parks and fencing.

Nature Conservation Act 1992

The *Nature Conservation Act 1992* (**NC Act**) is administered by Department of Environment and Science (**DES**) and regulates the environmental impacts on plants and animals through the protected plants framework and species management program requirements.

The subject site is not mapped as containing either Core Koala Habitat Area or Locally Refined Koala Habitat, but is, however, mapped within the Koala Priority Area. As such the State Development Assessment Provisions (**SDAP**) 25 (Development in South East Queensland koala habitat areas*)* will not be triggered.

Nevertheless, requirements identified by the *Nature Conservation (Koala) Conservation Plan 2017* should be considered, including sequential clearing, having a koala spotter in attendance, and limits on the amount of habitat that can be cleared at any one time.

Planning Act 2016

The *Planning Act 2016* (**P Act**) establishes a system of land use planning (planning), development assessment and related matters that facilitates the achievement of ecological sustainability in Queensland. The P Act coordinates development assessment in association with many of the other acts outlined below.

The P Act:

- manages the process by which development takes place, including ensuring the process;
- is accountable, effective and efficient and delivers sustainable outcomes;

- manages the effects of development on the environment (including managing the use of premises);

- coordinates and integrates planning at local, regional and state levels.

The assessment of the Project will consider the State Planning Policy (including the Queensland Plan) and Southeast Queensland Regional Plan, which applies to the area in which the Project is located.

A comprehensive Ecological Assessment Report has been completed and issued to Moreton Bay Regional Council to support the Development Assessment application in accordance with the Planning Act 2016, Section 45. The outcomes of this report have been replicated in Section 4-6 of this report.

Additional discussion regarding the proposed action and the site context in relation to the P Act is provided in **Section 3.1** of this report.

Planning Regulation 2017

The *Planning Regulation 2017* (**P Reg**) supports the provisions of the P Act and controls the various aspects of planning within QLD. It identifies particular components of development for assessment by the state, through the *Planning Regulation 2017*, and sets out the triggers for State assessment through the SDAP and details the state's assessment requirements.

Additional discussion regarding the proposed action and the site context in relation to the P Reg is provided in **Section 3.1** of this report.

South-east Queensland Regional Plan 2017 – ShapingSEQ

The Project will be assessed against the relevant aspects of the South-east Queensland Regional Plan 2017 ShapingSEQ.

ShapingSEQ is the regions pre-eminent strategic land use plan given effect by the P Act. The primary purpose of *ShapingSEQ* is to provide the regional framework for growth management, land use and development in South-east Queensland (**SEQ**). The document sets the long-term planning direction for sustainable growth, a globally competitive economy, and high-quality living for SEQ.

ShapingSEQ provides the 50-year vision of the region and is supported by five (5) key themes which underpin the vision including, Growth, Prosper, Connect, Sustain and Live.

The Site is within the urban footprint and as such will assist in meeting the needs of the Moreton Bay locality through the provision of residential landuse. The proposed investment aligns with the Regional Plans desire to prioritise infrastructure investment and enhance regional infrastructure.

Additional discussion regarding the proposed action and the site context in relation to the ShapingSEQ is provided in **Section 3.1.2** of this report.

Queensland Heritage Act 1992

The *Queensland Heritage Act 1992* (**Heritage Act**) protects heritage areas that are considered to be of State significance and are placed on the Queensland Heritage Register, administered by the Queensland Heritage Council. Local heritage is also addressed in the Heritage Act, with local governments being required to establish their own heritage registers.

Vegetation Management Act 1999

The *Vegetation Management Act 1999* (**VM Act**), in conjunction with the Planning Act, regulates the conservation and management of vegetation communities and clearing of vegetation. The VM Act provides a State-wide system for the management of native vegetation on freehold and leasehold land based on the concept of Regional Ecosystem (**RE**) areas. The status of each RE is assigned as one of three categories: 'endangered', 'of concern' or 'least concern', based upon an estimate of the regional ecosystem's pre-clearing distribution, and how much of it remains.

Schedule 10, part 3 of the Planning Reg makes clearing of native vegetation on prescribed land assessable development which requires a development permit, unless the clearing is otherwise exempt.

Water Act 2000

The *Water Act 2000* (**Water Act**) provides a framework for the sustainable management of Queensland's non-tidal water resources and riverine quarry material.

With respect to the Project, the Water Act establishes systems for the planning, allocation and use of non-tidal water, including regulation of impoundments. Allocation of quarry material and riverine protection provided for by the Act will be of relevance.

3.1 Queensland planning framework context

Consideration of the environmental impacts of the proposed action has been undertaken in accordance with the Queensland planning framework. In this instance, applicable components of the framework include the *State Planning Policy* (**SPP**), specifically Part E- Planning for the Environment and Heritage, *Shaping SEQ: South East Queensland Regional Plan 2017*, and the MBRC Planning Scheme Version 4.

3.1.1 State Planning Policy

While the SPP is generally delivered through the local government planning scheme, Part 2 of the MBRC Planning Scheme has identified that the integration of the SPP 2014 has been undertaken. While further detailed assessment of the proposed action against the principles of the SPP 2017 will be undertaken as part of the development assessment material to MBRC associated with the future planning phase of the works, we note that criteria (1) of the State interest- biodiversity, requires that:

(1) Development is located in areas to avoid significant impacts on matters of national environmental significance and considers the requirements of the Environment Protection and Biodiversity Conservation Act 1999.

We note that this document has identified the impact of the proposed action and has avoided significant impact to identified MNES.

3.1.2 ShapingSEQ 2017: South East Queensland Regional Plan 2017

The Site is identified as being wholly located within the mapped “urban footprint” land use category (refer **Insert 2** below). The stated intention of the urban footprint is to “identify established urban areas and land with potential for new urban development”, and to “accommodate urban growth” (Shaping SEQ 2017: Pp101).

While we note that further assessment against the principles of the urban footprint will be undertaken as part of the development assessment phase of the development, we note that the **proposed action is consistent with the principles, especially the “promotion of a compact settlement pattern and the consolidation of urban development within established communities”** (Shaping SEQ 2017: Pp101; Principle 2).

We further note that the suburb of Warner is identified as an area for the “Growth by Expansion” settlement pattern, with the intention “to deliver new and more complete communities that are well-planned and serviced will be achieved….” (Shaping SEQ 2017:Pp110). While additional

assessment will be undertaken as part of the development applications phase of the proposed, the proposed residential development on the identified Site is consistent with the intentions of ShapingSEQ.

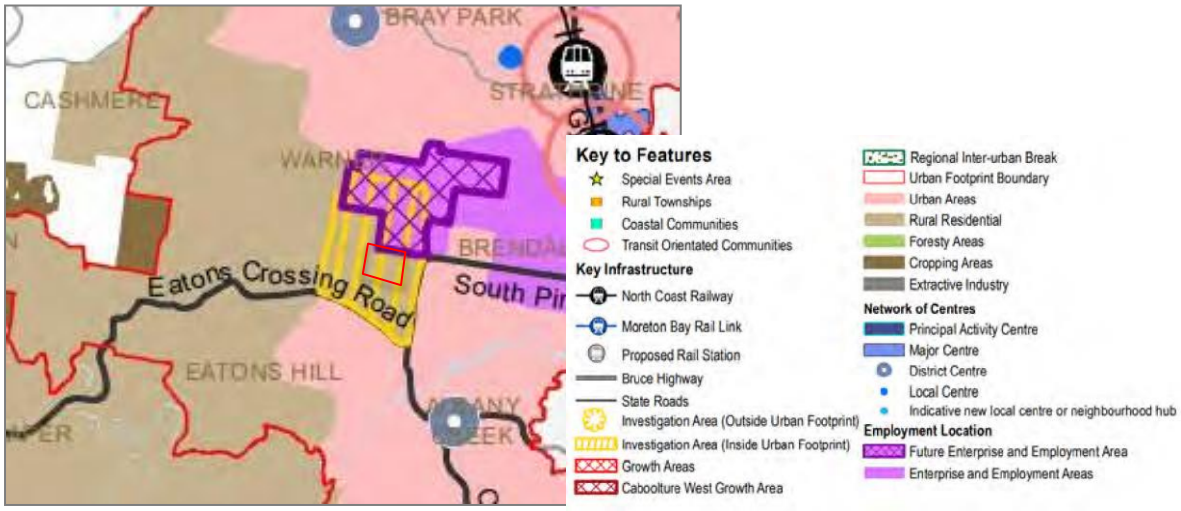
Insert 2 - ShapingSEQ context in regards to the Site (approximate Site boundary depicted in Pink)(Source: Queensland Globe: 2021)

3.1.3 Moreton Bay Regional Council -Warner Investigation Area

In addition to the above, the Site forms part of the Warner Investigation Area (**WIA**), a large structure planned locality undertaken by MBRC for which a comprehensive structure planning process has been completed and a conceptual structure plan prepared. The open space and EMC Precinct areas proposed will provide for the creation of a riparian corridor and linear open space network which in turn will provide a minimum 100m wide fauna movement corridor.

The proposed action is located centrally within the WIA (refer **Insert 3 below**) and is considered as being generally consistent with the Warner Concept Structure Plan. We additionally note that recent development approvals have been gained from MBRC for the areas to the south of Kremzow Road, and to the north of Warner Road (by the same proponent as this proposed action), which

supports the MBRC Planning scheme requirement for sequential, efficient and cohesive development within the Warner Investigation Area.



Insert 3 - Warner Investigation Area (Approximate Site Boundary depicted in red) (Source: MBRC Planning Scheme; Settlement Pattern Strategic Framework – Map 3.6.1; accessed: https://www.moretonbay.qld.gov.au/files/assets/public/services/building-development/mbrc-plan/maps/v4/sf_regional_settlement_pattern.pdf)

4 Survey Methodology – Onsite Matters of National Environmental Significance

4.1 Desktop Assessment

A desktop analysis was conducted of Commonwealth, State and Local environmental databases and overlay mapping prior to on-site assessment, including the following:

- Protected Matters Search Tool (**PMST**) to identify MNES within 5 km of the Site (Att F- Attachments 1-12 Reporting and Scoring, **Attachment 3**);
- Department of Agriculture, Water and Environment (**DAWE**) SPRAT Database;
- Department of Environment and Science (**DES**) Wildlife Online Database to identify fauna and flora species potentially occurring within 1 km, 5 km and 10 km of the Site (Att F- Attachments 1-12 Reporting and Scoring, **Attachment 4**);
- Department of Resources (**DoR**) Regulated Vegetation (Att F- Attachments 1-12 Reporting and Scoring, **Attachment 5**), Remnant RE and Essential Habitat Mapping;
- DoR Pre-clearing Extents of REs;
- DES Protected Plants Flora Tripper Mapping (Att F- Attachments 1- 12 Reporting and Scoring, **Attachment 5**);
- DES Biodiversity Planning Assessment Mapping (Att F- Attachments 1-12 Reporting and Scoring, **Attachment 6**);
- DES Biodiversity Corridor Mapping (Att F- Attachments 1-12 Reporting and Scoring, **Attachment 7**);
- DES watercourse mapping (Att F- Attachments 1-12 Reporting and Scoring, **Attachment 8**); and
- Atlas of Living Australia (**ALA**) spatial records and predicted distributions of fauna species.

4.2 Likelihood assessment

In order to determine the occurrence and subsequent potential impact to MNES listed threatened species and ecological communities, detailed in-field assessments were undertaken across the Site. To inform these in-field assessments, and to assess the likelihood of threatened species or ecological communities occurring within the Site, a desktop review of relevant sources was undertaken including the PMST (Att F- Attachments 1- 12 Reporting and Scoring, **Attachment 3**); DAWE Species Profiles and Threats (**SPRAT**) Database; the DES Wildlife Online Database (Att F- Attachments 1-12 Reporting and Scoring, **Attachment 4**); DES Essential Habitat mapping; DES Watercourse mapping, and ALA spatial records. The table in **Section 5.3** provides an assessment summary of MNES potentially occurring withinthe Site.

The assessment of potential for significant impact has been completed by 28 South.

Utilising local records and perceived habitat suitability, the presence of conservation significant fauna was evaluated as 'Known', 'Likely', 'Possible', 'Unlikely', 'Highly Unlikely' or 'Transient' based on their perceived probability of inhabiting/frequenting the Site. The following table (**Table 2**) describes each category of perceived probability.

4.2.1 Onsite Survey MethodologyFauna

Fauna surveys were conducted over a 5 day period, 9-13 October 2015, with contemporary supplementary assessments for undertaken 25 March and 1, 2 and 16 June 2021. Survey efforts included a detailed walk-through of the Site, assessment of all vegetation supported within and immediately adjoining the Site for habitat features important to species of conservation significance and active searches for fauna species or their evidence (such as koala and other scansorial fauna). Surveys also diurnal comprised systematic area and point searches, SAT plots for koala, nocturnal spotlighting, all playback and anabat surveys, and trapping. Good coverage of the Site was achieved, although greater effort was focused in areas where Koala (*Phascolarctos cinereus*) and squirrel glider (*Petaurus norfolcensis*) were considered most likely to occur (notably the more intact habitats associated with ConflagrationCreek).

Table 2 - Likelihood of Occurrence Assessment Criteria

Assessment	Habitat Criteria	Local Record Criteria	Perceived Probability
Known	The species has been confirmed as present within the Site, and those records are unlikely to represent transient or vagrant individuals.		100%
Likely	Habitat is considered moderately to good quality and similar to other locations wherethe species is found	There is a number (~5 or greater) of local (≤ 10 km from the Site), contemporary (post 1990) records of the species; or There is strong evidence that a cryptic species (which may not be frequently recorded in databases) has a nearby resident population(s).	>50%
Possible	Habitat is marginal to moderate	The species is known by a few local contemporary records and is not a transient species.	20-50%
Unlikely	The habitat is marginal	There are few, if any, local contemporary records.	1-19%
Highly unlikely	The habitat is unsuitable	There are no local contemporary records.	≤1%
Absent	No habitat present	There, local historic or contemporary records (TEC only).	0%
Transient	The habitat is suitable, marginal or good quality	The species is highly mobile and vagrant. They may infrequently appear in the local area over a long timeframe but are never resident or frequent visitors (e.g. return migrants). These species are typically birds which, while having some probability of occurring, are unlikely rely on the Site for their lifecycle or maintaining populations.	N/A

The assessment included a landscape wide drive through to review the surrounding locality's ecological values and importantly, the context of the Site in regard to significant level of ecological impediments present throughout the Warner area. Surveys were conducted over the course of three days and included:

- **Active searches of logs, rocks and ground debris** – when encountered discarded building materials, logs, rock and ground debris was turned in order to detect amphibians,reptiles and small terrestrial mammals.
- **Area and Point census surveys** - in higher quality habitats for birds.
- **Timed transects searches -** within riparian and higher quality habitats in order to detect bird. Other species were recorded opportunistically as encountered.
- **Wetland/dam watches at dawn/dusk -** in order to detect birds with other species eg frogs and reptiles recorded opportunistically as encountered.
- **Call playback for threatened species which may potentially occur –** species / species groups included koala, large forest owls, frogs and cryptic wetland birds
- **Flushing of taller rank grasslands and wetlands –** in order to detect cryptic bird species. Flushing surveys involved the use of two ecologists where one remained stationary with a 500mm spotting scope while the other meandered through proximate habitat.
- **Active searches for habitat trees** – searches were completed for hollow-bearing trees providing potential habitat for a range of tree hollow dependent fauna[2].

[2] For example, small hollow-bearing trees providing roost sites for microchiropteran bats and gliders, medium sized hollows providing nest sites for small to medium sized birds and possums, and large hollows providing potential nest sites for large forest owls.

- **Random meander searches and aural surveys** – searches of riparian and vegetated areas were undertaken to identify any potential important habitats and to indirectly identifyfauna (specifically amphibians) based on calls.

- **SAT surveys** – searches for physical koala presence through scanning of trees present within the Site and searches of koala habitat trees for passive evidence of koala presence(scat and scratch evidence).

- **Canopy transect searches -** were undertaken for koalas. During the GPS tree survey, a complete canopy scan was conducted at every tenth non-juvenile koala habitat tree encountered (i.e. tree 1, tree 10, tree 20 etc.).

- **Spotlighting -** Spotlighting was undertaken from dusk until 10pm. Good coverage of the Site was achieved, although greater effort was focused in areas where Koala and Squirrel glider were considered most likely to occur (notably the more intact habitats associated with Conflagration Creek). Supplementary sampling occurred from dusk until 8 pm in areas where Koala and Squirrel glider were considered most likely to occur (intact habitats associated with Conflagration Creek).

- **Remotely activated camera traps -** Five remote camera detection units were set in riparian habitats along Conflagration Creek and left in position for 10 nights.

- **Arboreal Elliot traps –** 18 Elliot A traps were mounted on platforms and fixed to trees at a minimum height of 6 above natural ground level. Traps were baited with a a standard bait mix of rolled oats, peanut butter and honey, and an area of the trunk above the trap sprayed with a honey-water emulsion to act as an attractant. Traps were set for four consecutive nights. Trapping occurred in habitats along Conflagration Creek where Squirrel gliders were considered most likely to occur.

- **Arboreal mounted hairs tubes –** Hair tubes were mounted concurrent to the Elliot traps in the same habitat. The rationale for doing so is based on the observation that an absence of trap records is not sufficient to conclude absence, and when (if) gliders are trap shy, they are often detected (if

present) by hair tubes. Hair tubes were baited with the standard bait mix and a honey-water emulsion applied to trunk of the tree above the trap.

- **General meander and drive survey of surrounding landscape** – ecological staff conducted meander walk through of nearby habitats/ properties and drive through assessments of surrounding lands to assess ecological values at a landscape scale and identify impediments to ecological process (e.g. barriers to fauna movement such as roads, fencing and vast industrial landscapes).

Table 3 provides an analysis of survey method utilisation for each of the two sampling efforts. Sampling locations are represented in Att C- Figures 1-4 Mapping and Surveys **Figure 4.**

Table 3 - Fauna survey methods employed during 2015 and 2021 survey campaigns

Method	Initial Assessment (October 2015)	Follow-up assessment (February / June 2021)
Active searches of logs, rocks and ground debris	Yes	-
Area and Point census surveys	Yes	-
Timed transects searches	Yes	
Wetland/dam watches at dawn/dusk	Yes	-
Call playback for threatened species which may potentially occur	Yes	Yes[1]
Flushing of taller rank grasslands and wetlands	Yes	-
Active searches for habitat trees	Yes	-
Random meander searches and aural surveys	Yes	Yes[2]
SAT surveys	Yes	Yes[3]

Method	Initial Assessment (October 2015)	Follow-up assessment (February / June 2021)
Canopy transect searches	Yes	Yes[4]
Spotlighting	Yes	Yes[5]
Remotely activated camera traps	Yes	-
Arboreal Elliot traps	Yes	-
Arboreal mounted hairs tubes	Yes	-
General meander and drive survey of surrounding landscape	Yes	-

Notes:

1. Powerful owl only;
2. Aural searches for amphibians 25 March 2021 and, 2 and 16 June 2021;
3. SAT Surveys at 5 locations 2 June 2021;
4. Diurnal canopy transect searches were conducted during SAT surveys and traversing between SAT sites on2 June 2021
5. Spotlighting and targeted call playback were undertaken 2 and 16 June 2021

It is also noted that tree surveys across the entire Site included recording the spatial locationof each tree and any observable to potential habitat features.

Habitat types were qualified based on the presence of the following habitat features:

- vegetation cover and structure;
- size and range of arboreal and terrestrial hollows;
- coarse woody debris and leaf litter;

- rocky outcrops, overhangs and crevices;
- freestanding natural and anthropogenic water bodies, ephemeral drainage or seepage areas;
- disturbances including weed incursion, clearing and/or inappropriate fire regimes;and
- surrounding habitats and connectivity or fragmentation to these.

Flora

Baseline botanical assessment was undertaken between 9 and 13 October 2015, with tree surveys undertaken 2-5, 8 February 2021. This involved a complete traverse of the entire Site, the spatial mapping of all native trees along within the Site (at or above 150mm DBH), and the spatial mapping of all habitat trees throughout the entirety of the Site (i.e. trees with notable habitat features/significance). Surveys also involved an assessment to determine whether theSite:

i. supported vegetation analogous with TEC identified as MNES under the EPBC Act;
ii. supported any plant species identified as MNES under the EPBC Act;
iii. was appropriately omitted or included within the Regulated Vegetation ManagementMap;
iv. supported CREVNT[3] plant species; and
v. supported plant species or communities which were otherwise of conservationinterest.

To ensure that botanical specimens with similar or potential dichotomy with CREVNT with CREVNT[3] species of the same genera were correctly identified, any specimens

[3] Critically Endangered, Endangered, Vulnerable or Near Threatened

with an uncertain identification were submitted to the Queensland Herbarium for verification.

The Site has been heavily modified, due to historical agricultural and rural residential activities and is highly disturbed. The vegetation supported by the Site has been subject to historical broadscale clearing and thinning and includes vegetation types of various age cohorts including scattered canopy trees retained in the floodplain of Conflagration Creek and northern parts of the site. In places garden escape and / or ornamental garden planting form a dense understory or canopy in their own right.

Three (3) vegetation communities were observed during in-field ecological assessments (Att C- Figures 1-4 Mapping and Surveys, **Figure 3**) and all were reflective of the State's classification of Category X vegetation across the Site (see Att F- Attachments 1-12 Reporting and Scoring, **Attachment 5**). A full flora species list is provided in Att F- Attachments 1-12 Reporting and Scoring, **Attachment 9**. **Section 5.3** of this Referral describes the three vegetation communities in detail.

5 Survey Results and Impact Assessment

5.1 Historical Context

The earliest available aerial photography (1946) shows the riparian (alluvial) zone of Conflagration Creek within the Site extensively cleared on native vegetation (Att D- Figures 5 Mapping and Surveys, **Figure 5a**). This situation is similar for other waterways and areas of alluvial substrate and presumably was for improved pasture on more fertile soils. There were some tree copses present within the waterway corridor to the south-west of the Site. Elevated parts of the site retained undisturbed native vegetation coverage. The largest of these copses appears to occur at the confluence of Conflagration Creek and a lower order mapped stream rising in the low hills to the north-west. There are no dwellings or buildings observed on the Site at this time.

Photography from 1949 shows a very similar patterning i.e., no discernible changes to land use (Att D- Figures 5 Mapping and Surveys **Figure 5a**). By 1952 (Att D- Figures 5 Mapping and Surveys **Figure 5b**) clearing had occurred to the south of Conflagration Creek and along the southern boundary of the site and what appears to be a number of informal access tracks have been established through the remnant native open forest vegetation on the site.

The period 1952-1955 (Att D- Figures 5 Mapping and Surveys, **Figure 5b**) marks the beginning of significant changes to landuse patterning; vegetation clearing to the south of Conflagration Creek has continued and clearing along the western portions (present day Lots 5 and 6 on RP79062, refer Att C- Figures 1-4 Mapping and Surveys, **Figure 2**). The cleared western areas have undergone conversion to intensive cropping; the large dam present today was excavated, and a number of agriculture related structures have been formed and a dwelling has been constructed along the eastern boundary (present day Lot 2 on RP118172, refer Att C- Figures 1-4 Mapping and Surveys, **Figure 2**).

1958 photography reveals that (Att D- Figures 5 Mapping and Surveys, **Figure 5c**) further land both on site and off being converted to cropping and establishment of additional dwellings (present day Lots 7 and 9 on RP79062, refer Att C- Figures 1-4 Mapping and Surveys, **Figure 2**) with access off Warner Road. During 1958-1964

the area of land undergoing cropping has expanded within the site and no extends to the south. Parts of the site (represented by Lots 9 and 10 on RP79062, refer Att C- Figures 1-4 Mapping and Surveys, **Figure 2**) to the north of Conflagration Creek have been cleared. Conversely vegetation to the south of the creek on these properties has regenerated. An additional dwelling on Lot 6 on RP79062 is observable.

Vegetation and land use patterning in 1967 is similar to 1964 (Att D- Figures 5 Mapping and Surveys, **Figure 5d**), however by 1971 all vegetation on the site, with the exception of parts of the waterway on Lot 7, RP79062, Lot 2, SP121774 and Lot 2, RP118172 (refer Att C- Figures 1-4 Mapping and Surveys, **Figure 2**) where regrowth is present, has been removed to facilitate cropping.

By 1978 (Att D- Figures 5 Mapping and Surveys, **Figure 5e**) although the Site had been almost completely cleared, intensive cropping of the Site appears to have ceased; although cultivation was still evident on adjoining properties to the west. By 1981-1987 (Att D- Figures 5 Mapping and Surveys, **Figure 5e** and **Figure 5f**), it was observed that regrowth was becoming established along the Conflagration Creek floodplain.

By 1997 (Att D- Figures 5 Mapping and Surveys, **Figure 5f**), the present pattern of rural residential properties both on the site and within the locality had been completed. Further regrowth had emerged on sites to the south of Warner Road. To the north of Warner Road, substantially thinning of the formerly dense regrowth had occurred (Att D- Figures 5 Mapping and Surveys, **Figure 5g**). By 2009, the Site was cleared to a similar extent to which it is today(Att D- Figures 5 Mapping and Surveys, **Figure 5g**).

5.2 Surrounding Landscape Context

5.2.1 Land use

The Site's landscape setting has been discussed in the CAR and subsequent documentation provided to the Department (EPBC Referral 2017/8022) for Ausbuild's Warner North project (adjacent and to the north of Warner South and separated by Warner Road), but it is important to reiterate its peri-urban setting, and the significance of recent development in the vicinity of the Site. Att C- Figures 1-4 Mapping and Surveys, **Figure 1,** shows that the Site is located between the existing high density

residential suburbs of Warner (to the north of Kremzow Road) and Eatons Hill (to the south of Eaton's Crossing Road).

Low density rural residential (peri-urban) land with lots 6000m^2 and greater occur immediately to the south-east (between Eatons Crossing Road and South Pine Road) and to the south- west, west and north-west comprising the suburb of Cashmere.

Vegetated land lies immediately to the west of the Site, and to the north east adjacent to and north of the Warner North development. Beyond this vegetation lies Old North Road, and beyond that is the industrial suburb of Brendale (north of South Pine Road).

Areas further southeast (beyond South Pine Road) are zoned Recreation and Open Space and contain the partly vegetated Wantima County Club (golf course); the South Pine Sports Complex; and other open lands that will transition to active open space uses over time.

5.2.2 Connectivity

Broad landscape connectivity is identified in Att C- Figures 1-4 Mapping and Surveys, **Figure 1** and MBRC's recognised green infrastructure network is shown as **Insert 1**.

Properties to the immediate west of the Site are heavily vegetated, creating an effective north- south habitat connection between vegetated land to the south east (at the convergence of the suburbs of Eatons Hill, Draper, Clear Mountain and Cashmere) and Warner to the north (refer Att C- Figures 1-4 Mapping and Surveys, **Figure 1 Figure 3**).

Before its clearing in 2016, there was a strong connection further north through the CSR quarry land to habitat adjoining Kremzow Road. However, that connection has now been almost completely cleared (Att C- Figures 1-4 Mapping and Surveys, **Figure 2**). Habitat connectivity for areas north of the Site are now being re-established through revegetation of the Conflagration Creek floodplain on the Warner North development as a condition of the controlled action approval.

Similarly, revegetation of the Conflagration Creek floodplain within the Site is proposed as part of this controlled action. This will compliment works at Warner North and provide a logical consolidation of connectivity for green infrastructure (**Insert 1**) through the site to the south west.

Areas to the immediate east and south of the Site support rural residential lots of approximately 6000m^2 and some connectivity is possible and is likely to be in a north-south direction across Coorparoo Road and Warner Road (east)[4]; to and from habitat between the Site and Old North Road (Att C- Figures 1-4 Mapping and Surveys, **Figure 1**). This includes vegetated land between Ausbuild's Warner North development and the high voltage powerline corridor and land to the west once approved Warner North controlled action rehabilitation is completed.

Beyond this however, there is very limited connectivity to the south through the densely configured Eatons Hill residential area, or across the heavily trafficked South Pine Road to the open space areas that lie beyond. Existing high traffic volumes on South Pine Road create a significant threat to movement across the road. Connectivity into this area is likely to be created by the riparian zone of the South Pine River.

5.2.3 Proximity to World and National Heritage protected properties and RAMSAR Wetlands

There are no World Heritage Properties within the 5 km search radius of the Site (refer to the PMST data – **Attachment 3** of Att F- Attachments 1-12 Reporting and Scoring). The nearest World Heritage Property is the Gondwana Rainforests of Australia (specifically, Lamington National Park), which is located approximately 70 km to the south-east of the Site. The Proposed Action is well removed from the Gondwana Rainforests of Australia World Heritage Property and there are no anticipated direct or indirect impacts from the proposed development on this area.

The PMST data (**Attachment 3** of Att F- Attachments 1-12 Reporting and Scoring) indicates that there are no National Heritage Places (**NHP**s) within a 5 km radius of the Site. The nearest NHP is the Gondwana Rainforests of Australia (specifically,

[4] To the east of the Coorparoo Road intersection

Lamington National Park), which is located approximately 70 km to the south-east of the Site. The Proposed Action is well- removed from the Gondwana Rainforests of Australia and is not expected to have any direct or indirect impacts on this area.

The Site is mapped to contain two un-named tributaries of, and the main channel of, Conflagration Creek a north-easterly draining tributary of the South Pine River. The confluence of Conflagration Creek and the South Pine River is some 5.5 km (measured by course of the waterway) to the north-east of the site. Commencing at the site; land uses adjoining the watercourse consist of rural residential land for 1.3 km of this waterway length, 1.0 km emerging industrial land (presently grazing land), 2.1 km of industrial land and then 1.1 km open space.

From the Conflagration Creek – South Pine River confluence, the South Pine River tends north-west and then north-north-east intersecting the North Pine River approximately 0.6 km to the west of the Bruce Highway (Pine River Bridge), a total of some 5.2 km (measured by course of the River). Land use here consists of current and former extractive industry sites (sand and gravel) open space and grazing on the floodplain and adjoining residential use on less flood prone land. At the point of intersection, the combined North Pine and South Pine waterways become the Pine River which discharges into Bramble Bay (Moreton Bay) between Brighton and Redcliffe Peninsula some 8.3 km distant. The Pine River Estuary is predominantly surrounded by intertidal wetlands and wetland reserves. The Pine River is a major catchment for the Moreton Bay RAMSAR Site with a 7.7 km length of estuary extending from the Pine River Bridge on the Bruce Highway eastwards to Bramble Bay.

The Proposed Action is located approximately 7 km directly from the Ramsar Site (and 19 km measured by course of the River). Due to this distance, and the contemporary landuses between the proposed development Site and the Moreton Bay RAMSAR Site, a formal assessment of the ecological character of the Site, as it **currently exists** has not been undertaken. Assessment of the onsite aquatic ecological and limnology services has been undertaken by FRC Environmental, to determine what, if any, impacts from the proposed urban development are anticipated on the onsite waterways, and by extension, the Moreton Bay RAMSAR Wetland.

The outcomes of the onsite assessment determined that the aquatic ecological values over the Site, and immediately upstream and downstream of the Site are consistent with a highly disturbed nature of an urban waterway. Onsite assessments determined that the highly modified nature of the waterways is not consistent with the ecological requirements to maintain a sustainable fish passage or habitat through and off the Site. The onsite dam in the southern central portion of the Site is considered a major barrier to fish movement, with only crustaceans (crayfish and shrimp) identified as present on the Site. No MNES or State significant species or habitat was identified as part of the survey effort.

The applicant has committed to lessening the current impact of the existing dam by reducing the overall size of the dam, reducing the dam wall and removing the fish movement barrier to the overall Conflagration Creek System and creating a “wetland like” habitat and a more natural refugial habitat while still maintaining fish passage to enable fish passage through and off the Site.

The Proponent will obtain necessary State and Local Government approvals for any works within or in proximity to Conflagration Creek and its onsite tributaries. It is understood that the Proposed Action will implement the following measures in line within accepted industry practice:

- Stormwater quality and quantity to be managed in accordance with an approvedStormwater Management Plan.
- Construction Environmental Management Plan including erosion and sediment controlplan.

Considering the above, and importantly the existing circumstances of Site’s geomorphology and hydrology (specifically the catchment wide setting for residential, industrial and extractive industries), it is highly unlikely that the Proposed Action will have direct or indirect impacts upon the ecological character of the Moreton Bay Ramsar wetland.

5.3 Fauna and Flora

5.3.1 Impact Table - Assessment of MNES occurring within the Site

Table 4 below presents an assessment of MNES potentially occurring within the Site and the corresponding potential for a significant impact attributable to the Proposed Action. **Table 5 below** represents a similar analysis for migratory fauna species.

5.3.2 Site Vegetation and Context

Geology and soils

With respect to the major geological structures of the site, the site overlays two landzones:

- Land zone 9-10 – fine / coarse grained sedimentary rocks. On site this geology comprises the more elevated parts of the site.
- Land zone 3 – recent alluvium. On the site this are is associated with waterways.

The Site is located on rolling to hilly terrain with gentle to moderate slopes. The Atlas of Australian Soils (Queensland 1:2,000,000) has defined the soil type as “duplex yellow-grey, hard setting A horizon, A2 horizon conspic bleached, acid pedal mottled B horizon”.

The vegetation supported by the Site has been subject to historical broadscale clearing and modification and includes vegetation communities of various age cohorts including scattered canopy trees, disturbed, uncategorised vegetation types and plantation areas. Additionally, the Vegetation Management Report included in Att F-Attachments 1-12 Reporting and Scoring, **Attachment 5** indicates that the Site does not support any regulated vegetation.

The pre-clear landscape historically contained REs 12.9-10.17/12.9-10.19 on more elevated parts of the Site with REs 12.3.11 and 12.3.6 occurring along Conflagration Creek. The three ground-truthed vegetation communities within the Site are described below.

Vegetation

The Site does not support any Regulated Vegetation[5]; however, it does contain two concise regrowth vegetation patches associated with the Conflagration Creek floodplain which is in generally moderate condition. The pre-clear landscape historically supported RE 12.3.11 (of concern – dominant) on the Conflagration Creek floodplain with the adjoining slopes (comprising the remainder of the site) supporting a mosaic of RE 12.9-10.17/12.9-10. 19a. (least concern - sub-dominant), all of which have been cleared across the whole of the Site for the historical agricultural activities. A description of these REs is provided in Att F- Attachments 1-12 Reporting and Scoring, **Attachment 10**.

Vegetation types present on-site are identified below.

Vegetation Community 1 – Disturbance areas

Historical agricultural activity has resulted in the removal of native vegetation from much of Land zone 9-10, occupying mere elevated parts rolling / hilly terrain of the site, and along the waterway (Land zone 3). Cleared areas of the site are identified as Vegetation Community 1 (VC1). VC1 contains open pastoral grassland paddocks, pastoral paddocks with scattered trees (open-very open woodland), and domestic landscaping. Cross-referencing the historic aerial photography revealed that most of the vegetation now present is reasonably young regrowth. Field survey indicates that much of the regrowth is dominated by brush ironbark wattle (*Acacia disparrima*) and black wattle (*Acacia leiocalyx*).

GPS survey was undertaken to record NJKHT[6] and other native species of potential local value. Species commonly encountered by the survey were Queensland blue gum (*Eucalyptus tereticornis*), small-fruited grey gum (*Eucalyptus propinqua*), northern grey ironbark (*Eucalyptus siderophloia*), spotted gum (*Corymbia citriodora* subsp. *variegata*), tallowwood (*Eucalyptus microcorys*), white mahogany (*Eucalyptus*

[5] A property map of assessable vegetation (PMAV) for the site was lodged and accepted by the Department of Natural Resources and Mines in 2016.

[6] Non-Juvenile Koala Habitat Tree

acmenoides), swamp turpentine, scribbly gum (*Eucalyptus racemosa*) and umbrella cheese tree (*Glochidion sumatranum*). Landscape species such as mango (*Mangifera indica**) and Norfolk Island pine (*Araucaria heterophylla**) were encountered occasionally in paddocks, but these and other landscape species become more common around the Site's dwellings. A small orchard is also present.

Waterways (outside of Conflagration Creek) are simple grassed overland flow paths, with littleto no differentiation from adjoining grassland areas.

Floodplain areas to mapped as part of vegetation community support scattered Queensland blue gum, swamp turpentine and broad-leaved paperbark over rank grassland. Twenty-five (25) of the species recorded are weeds / exotic species. Six of these (Captain cook tree (*Cascabela thevetia*), Chinese celtis (*Celtis sinensis*) Camphor laurel (*Cinnamomom camphora*), Lantana (Lantana camara), salvinia (Salvinia molesta), broad-leaved pepper tree (*Schinus terebinthifolius*), Singapore daisy (*Sphagneticola trilobata*), and Yellow bells (*Tecoma stans*)) are listed as declared weeds under the Biosecurity Act (Qld) 2014. Lantana and salvina are also considered Weeds of National Significance (WoNS).

The character of these paddocks and domestic landscape areas is shown in Att B- Plates 1-10, **Plates 1-4**. A plant species list is provided in Att F- Attachments 1-12 Reporting and Scoring, **Attachment 9**.

Riparian Areas

Despite significant historic disturbance (**Figures 5a-f3a-3e** of Att C- Figures 1-4 Mapping and Surveys), riparian vegetation on Conflagration Creek is the most mature and structurally intact vegetation at the Site. Pre-clear regional ecosystem mapping indicates that the entirety of the floodplain was dominated by RE 12.3.11, but site assessment indicates that areas subject to more frequent inundation (lower levees) are likely to have supported RE 12.3.6. The higher (and drier) levees are likely to have supported RE 12.3.11. The present character of the Conflagration Creek floodplain vegetation is shown in **Plates 5-10** of Att B- Plates 1-10. Areas along Conflagration Creek are excluded from the RVMM; however there are two distinct regrowth patches.

The communities have formed, clustered around relictial individual trees and copses of trees. The degree of naturalness of the understorey is dependent upon the degree of past disturbance and canopy shading,

Vegetation Community 2 – Broad-leaved paperbark - Queensland blue gum – swamp mahogany regrowth

This first regrowth patch extends from the central portions of Lot 2 on SP121774 to the rear of Lot 6 on RP79062 (Att C- Figures 1-4 Mapping and Surveys, **Figure 3**). Within this patch there is an emergent layer of Queensland blue gum (*Eucalyptus tereticornis*) over a canopy of broad-leaved paperbark (*Melaleuca quinquenervia*) and swamp turpentine (*Lophostemon suaveolens*). There is occasional umbrella cheese tree (*Glochidion sumatranum*) and cheese tree (*Glochision ferdinandii*). The shrub layer is of moderate density and dominated by smooth lolly bush (*Clerodendrum floribundum*), wild may (*Leptospermum polygalifolium*) and poison peach (*Trema tomentosa*). Regrwoth wattle (*Acacia spp*.) and lantana (*Lantana camara**[7]) dominate the edges. The ground layer is dominated by bungwall fern (*Blechnum indicum*), harsh ground fern (*Hypolepis muelleri*), wandering jew (*Commelina diffusa*) and shade grass (*Ottochloa gracillima*). Exotic pasture grasses occur in areas between patches, but with assisted regeneration / infill planting resulting in increased shading, these grasses could be largely excluded in time. This community in parts, is also extensively impacted by a number of weeds including Singapore daisy (*Sphagneticola trilobata**).

Twenty-eight (28) of the species recorded are weeds / exotic species. Seven of these (basket asparagus (*Asparagus aethiopicus*), groundsel bush (*Baccharis halimifolia*), Camphor laurel (*Cinnamomom camphora*), Lantana (*Lantana camara*), salvinia (*Salvinia molesta*), broad- leaved pepper tree (*Schinus terebinthifolius*) and Singapore daisy (*Sphagneticola trilobata*)), are listed as declared weeds under the *Biosecurity Act (Qld)* 2014. Lantana and salvina are also considered Weeds of National Significance (**WoNS**).

The character of the Broad-leaved paperbark - Queensland blue gum – swamp mahogany regrowth is shown in Att B- Plates 1-10, **Plates 5-8**.

[7] * exotic naturalised species

No species of conservation significance were recorded by the survey, but the vegetation is a regrowth example of the Least Concern RE 12.3.6.

A plant species list is provided in Att F- Attachments 1-12 Reporting and Scoring, **Attachment 9**.

Vegetation Community 3 – Queensland blue gum - northern grey ironbark – pink bloodwoodregrowth

The second patch (Regrowth Patch 2) is located in the north of Lot 2 on RP11872 (Att C- Figures 1-4 Mapping and Surveys, **Figure 3**). Historic aerial photography shows that this area was largely cleared in 1955, with further areas of clearing evident in 1978. However, there appears to have been consistent regrowth since 1978 (Att C- Figures 1- 4 Mapping and Surveys, **Figures 5a-f3a-3e**). The canopy of Regrowth Patch 2 contains Queensland blue gum, northern grey ironbark (*Eucalyptus siderophloia*), pink bloodwood (*Corymbia intermedia*) and brown bloodwood (*Corymbia trachyphloia*). The sub-canopy layer contains juvenile canopy species and broad-leaved paperbark. The shrub layer is dominated by bracken fern (*Pteridium esculentum*) and tie bush (*Wikstroemia indica*). The ground layer consists of herbaceous natives and weeds. The main channel of Conflagration Creek is dominated by a dense growth of typha (*Typha orientalis*). This community in parts, is also extensively impacted by pasture grasses and a number of weeds including Singapore daisy (*Sphagneticola trilobata**).

Twenty-six (26) of the species recorded are weeds / exotic species. Seven of these (basket asparagus (*Asparagus aethiopicus*), groundsel bush (*Baccharis halimifolia*), Camphor laurel (*Cinnamomom camphora*), Lantana (*Lantana camara*), broad-leaved pepper tree (*Schinus terebinthifolius*), Singapore daisy (*Sphagneticola trilobata*) and Yellow bells (*Tecoma stans*)), are listed as declared weeds under the *Biosecurity Act* (Qld) *2014.* Lantana is also consideredto be a Weed of National Significance (WoNS).

The character of the Queensland blue gum - northern grey ironbark – pink bloodwood regrowth is shown in Att B- Plates 1-10, **Plates 9 and 10**.

No species of conservation significance were recorded by the survey, but the vegetation is a regrowth example of the Of Concern RE 12.3.11.

A plant species list is provided in Att F- Attachments 1-12 Reporting and Scoring, **Attachment 9**.

Threatened Flora and Vegetation Community Searches

Surveys failed to record any species listed as MNES under the EPBC Act, or any EVNT species listed under the NC Act. Nor does it support MNES TECs. Surveys have found that tree species supported on Site are generally consistent with the State Mapping.

Details of surveyed native trees and their location in relation to the Project Footprint are shown in Att C- Figures 1-4 Mapping and Surveys, **Figure 3**. The Proposed Action layout allows for the landscape vegetation to be established within the Conflagration Creek floodplain.

Table 4 - Impact Assessment for MNES Potentially Occurring within the Site

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
Threatened Ecological Communities				
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland	Endangered	EPBC Act – PMST	**Highly unlikely** – In Qld the Coastal swamp oak forest Endangered Ecological Community is represented by RE12.1.1 (*Casuarina glauca* woodland on margins of marine clay plains) and RE 12.3.20 (*Melaleuca quinquenervia*, *Casuarina glauca* +/- *Eucalyptus tereticornis*, *E. siderophloia* open forest (vegetated swamp), but only where dominated by *C. glauca*. Neither REs are indicated as occurring on-site by preclear regional ecosystem mapping. No marine clays (landzone 1 and hence RE12.1.1) are present on site. No *Casuarina glauca* was recorded onsite by surveys. Vegetation survey identified that relictual vegetation present is analogous with the mapped pre-clear Regional Ecosystem types RE 12.9-10.17 and 12.3.11. Neither REs are considered to be representative the Coastal swamp oak forest Endangered Ecological Community. Historical clearing for agriculture and maintenance of the site for rural residential pursuits has significantly modified the native vegetation coverageon the site.	Not detected within or immediately adjacent to the Site. In relation to the significant impact criteria for listed endangered ecological communities (Australian Government 2013), **the Proposed Action will not have significant direct or indirect impacts** on Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			Pre-clear Regional Ecosystem Mapping indicates that the nearest historical records for the Coastal swamp oak forest Endangered Ecological Community (RE12.1.1/12.3.20) were 6.5 km to the north-east towards the confluence of the South and North Pine Rivers.	
Lowland Rainforest of Subtropical Australia	Critically Endangered	EPBC Act – PMST	**Highly unlikely** – In Qld the Lowland Rainforest of Subtropical Australia Critically Endangered Community are represented by Regional Ecosystems 12.3.1, 12.5.13, 12.8.3, 12.11.1, 12.11.10, 12.12.1 and 12.12.16. Pre-clear regional ecosystem mapping does not identify any rainforest REs as occurring on the Site. Vegetation survey identified that relictual vegetation present is analogous with the mapped pre-clear Regional Ecosystem types RE 12.9-10.17 and 12.3.11. Neither Regional Ecosystem types are considered to be part of the Lowland Rainforest of Subtropical Australia Critically Endangered Ecological Community. Historical clearing for agriculture and maintenance of the site for rural residential pursuits has significantly modified the native vegetation coverageon the site. Pre-clear Regional Ecosystem Mapping indicates that the nearest historical records for the Lowland Rainforest of	Not detected within or immediately adjacent to the Site. In relation to the significant impact criteria for listed critically endangered ecological communities (Australian Government 2013**), the Proposed Action will not have a significant direct or indirect impact** on Lowland Rainforest of Subtropical Australia Critically Endangered Ecological Community.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			Subtropical Australia Critically Endangered Ecological Community (RE12.3.1, 12.5.13, 12.8.3, 12.11.1, 12.11.10, 12.12.1 and 12.12.16) were 14.5 km to the south-west of the site in the upper catchment of the South Pine River and 12.5 km to the north-west in the upper catchment of the North Pine River.	
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	EPBC Act – PMST	**Highly unlikely** – In Qld the Poplar Box Grassy Woodland on Alluvial Plains Endangered Ecological Community is represented by Regional Ecosystems 11.3.2, 11.3.17, 11.4.7. 11.4.12 and 12.3.10. With the exception of RE12.3.10 which is a SEQ Bioregion, all are typically Regional Ecosystems of the Brigalow Belt Bioregions which extend westwards of the Great Dividing Range, northwards to Townsville (Qld) and southwards to Tamworth (NSW). The communities occur on alluvial plains of Cainozic, Tertiary and Quarternary (geological period) origin, average with rainfalls 400-800 mm per annum. Pre-clear regional ecosystem mapping does not identify any poplar box REs as occurring on the Site. No poplar box was recorded as present during vegetation survey. Average Rainfall at the site is 1,000-1,100 mm per annum. Survey identifies that the revictual vegetation present is analogous with the mapped pre-clear RE types RE 12.9-10.17 and 12.3.11. Neither REs are considered to be part of the lowland rainforest of	Not detected within or immediately adjacent to the Site. In relation to the significant impact criteria for listed endangered ecological communities (Australian Government 2013), **the Proposed Action will not have a significant direct or indirect impact** on Poplar Box Grassy Woodland on Alluvial Plains Endangered Ecological Community.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			subtropical Australia TEC. Historical clearing for agriculture and maintenance of the site for rural residential pursuits has significantly modified the native vegetation coverageon the site. Regional Ecosystem Mapping indicates that the nearest records for the Poplar Box Grassy Woodland on Alluvial Plains Endangered Ecological Community (12.3.10) are in the Lockyer Creek / Brisbane River Valley between Rosewood and Gatton (50-75 km) to the south-west of the Site.	
Threatened fauna species				
regent honeyeater (*Anthochaera phyrygia*)	Critically Endangered	EPBC Act – PMST (5 km radius)	**Highly unlikely** – The habitat is marginal however there are no contemporary landscape records within 5-10 km of the site. Regent honeyeater mostly inhabits inland slopes of the Great Dividing Range, in areas of low to moderate relief with moist, fertile soils. It is most commonly associated with box-ironbark eucalypt woodland and dry sclerophyll forest, but also inhabits riparian vegetation such as sheoak (Casuarina spp). It sometimes utilises lowland coastal forest, which may act as a refuge when its usual habitat is affected by drought (Regent Honeyeater Conservation Advice – Australian Government,	Limited and low-quality resources are available for the regent honeyeater within the Site. The Site occurs within a peri-urban landscape within an area which has been cleared of native vegetation. There are areas of connected remnanthabitats to the west. Further, the abundance of potential foraging resources available in the surrounding region, particularly the expansive intact areas to the west associated with Lake Samsonvale and the foothills of the D'Aguilar Ranges (containing D'Aguilar National Park), the Site presents an unlikely locality for this
	Critically Endangered	NCA – Wildlife Online (no records within a 10 km radius, since 1980)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			2015). An inspection of the Atlas of Living Australia (ALA) database for a 5 km buffer around the site (-27.3244, 152.9547) did not identify any records for the search area. Although there are ironbarks and occurrences of Queensland blue gum (*Eucalyptus tereticornis*) trees capable of producing resources sufficient to attract the regent honeyeater on the site, detailed survey did not detect any specimens.	species to rely upon and no individuals were observed as part of any onsite survey effort. As detailed survey did not detect any regent honeyeater and none are known from close proximity to the site. In relation to the significant impact criteria for listed critically endangered species (Australian Government 2013), **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on regent honeyeater.
Australasian bittern (*Botaurus poiciloptilus*)	Endangered	EPBC Act – PMST (5 km radius)	**Unlikely** – The habitat is marginal and there are few contemporary records. Australasian bittern prefers freshwater wetlands with dense vegetation, with a particular preference for reeds and sedges (Australasian bittern Conservation Advice – Australian Government 2019, https://birdlife.org.au/bird-profile/australasian-bittern). Australasian bittern favours wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and	The Proposed Action will not impact the preferred habitat for this species, nor does it occur on Site. Detailed survey has not detected any Australasian bitterns and as there is only one contemporary record. In relation to the significant impact criteria for listed endangered species (Australian Government 2013), **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on this species.
	Endangered	NCA – Wildlife Online (no records within a 5 km radius, but1 record within 10 km since 1980)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			seasonal freshwater habitats, particularly those dominated by sedges, rushes and reeds (e.g. *Phragmites, Cyperus, Eleocharis, Juncus, Typha, Baumea, Bolboschoenus*) or cutting grass (*Gahnia*) growing over a muddy or peaty substrate (Australasian bittern Conservation Advice – Australian Government 2019). The Site does contain a farm dam with dense stands of taro (*Colocasia* sp.) and marshy areas with rank pasture grasses along the Conflagration Creek floodplain, however habitat containing dense reeds and sedges is very sparse to absent. There are no records in the ALA database for a 5 km buffer around the point (-27.3244,152.9547).	
red knot (*Calidris canutus*)	Endangered	EPBC Act – PMST (5 km radius)	**Highly Unlikely** – – the habitat is unsuitable although there are numerous records within 10 km, these records are associated with core preferred intertidal habitats.	The Proposed Action will not impact the preferred habitat for this species, nor does it occur on Site.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
	Endangered	NCA – Wildlife Online (no records within a 5 km radius, but 94 records within 10 km since 1980)	Red knot is a non-breeding migrant, the red knot mainly inhabits intertidal mudflats, sandflats and sandy beaches of sheltered coasts and sometimes on sandy ocean beaches or shallow pools on exposed rock platforms. They are occasionally seen on terrestrial saline wetlands near the coast and on sewage ponds andsaltworks. There are no records in the ALA database for a 5 km buffer around the point (-27.3244, 152.9547).	The Site is not important habitat for migratory shorebirds in accordance with Wildlife Conservation Plan for Migratory Shorebirds' (Australian Government 2015). In relation to the significant impact criteria for endangered species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on the red knot.
curlew sandpiper (*Calidris ferruginea*)	Critically Endangered	EPBC Act – PMST (5 km radius)	**Unlikely** – the habitat is unsuitable, although there are numerous records within 5-10 km of the site, these records are associated with core preferred intertidal habitats. Curlew sandpiper is a non breeding migrant to Australia. Although generally occurring within estuarine environments, curlew sandpiper have also been recorded from inland areas around wetlands, bores, permanent lakes and waterholes (DAWE 2019). In Queensland, scattered records occur in the Gulf of Carpentaria, with widespread records along the coast south of Cairns. There are sparsely scattered records inland. No suitable habitat occurs within the Site. In Australia, curlew sandpipers mainly occur on intertidal	The species prefers more open foraging habitat; any bodies of water associated with Conflagration Creek are heavily vegetated, with dense fringing pasture grasses and other riparian weeds. Therefore, the Proposed Action will not remove any suitable habitat for this species. Further, the Site is well removed from suitable estuarine and coastal core habitat areas. The Site is not important habitat for migratory shorebirds in accordance with Wildlife Conservation Plan for Migratory Shorebirds' (Australian Government, 2015).
	Critically Endangered	NCA – Wildlife Online (no records within a 5 km radius, but178 records within 10 km		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
		since 1980)	mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand (Curlew sandpiper Conservation Advice, 2015). The Wildlife online records represent records from the Moreton Bay wetland. There are no records in the ALA database for a 5 km buffer around the point (-27.3244, 152.9547).	In relation to the significant impact criteria for critically endangered species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on the curlew sandpiper.
Coxen's fig parrot (*Cyclopsitta diopthalma coxeni)*	Endangered	EPBC Act – PMST (5 km radius)	**Transient** – the habitat is marginal with few figs and other fruiting trees, and there are no contemporary records for this species within 5-10 km of the site. The primary habitat of Coxen's fig parrot is lowland subtropical rainforest, dry rainforest, littoral and developing littoral rainforest, sub-littoral mixed scrub, riparian corridors in woodland, open woodland and across cleared land, and urbanised and agricultural areas with fig trees (*Ficus* spp.) (Coxen's Fig Parrot Conservation Advice – Australian Government 2016). It feeds on the seeds of figs, but also on fruit of other native and exotic trees, as well as nectar, lichen and insect larvae.	The Proposed Action will not impact preferred habitat for this species, nor was the species identified on Site. The species could utilise habitat within the environmental management zone incorporating Conflagration Creek (to be retained and enhanced) although there are very few mature figs or other fruiting trees present. In relation to the significant impact criteria for endangered species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on Coxen's
	Endangered	NCA – Wildlife Online (no records within a10 km radius, since 1980)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			Clearance of habitat, fragmentation of feeding habitat and invasion by (woody) weeds are listed as known and past threats (Coxen's Fig Parrot Conservation Advice – Australian Government 2016). There are no records for this species in the ALA database for a 5 km buffer around the point (-27.3244, 152.9547).	fig parrot.
red goshawk (*Erythrotriorchis radiata*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Transient** – Although habitat present is suitable, there are no contemporary records for this species within 5-10 km of the Site. The red goshawk prefers sub-coastal tall open forests, woodlands, wetlands and rainforest fringes with very large home ranges several thousand hectares in area (Red Goshawk Conservation Advice – Australian Government 2015). The Site represents marginal foraging habitat largely restricted to patches of vegetation along Conflagration Creek. There are no records for this species in the ALA database for a 5 km buffer around the Site (search point -27.3244, 152.9547).	Limited resources are available for the species and the Site contains no critical habitat for red goshawk. The Site occurs within a peri-urban landscape with extensive cleared areas within and adjoining the site; larger areas of contiguous habitat further to the west. In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on red goshawk.
	Endangered	NCA – Wildlife Online (no records within a10 km radius, since 1980)		
grey falcon (*Falco hypoleucos*)	Vulnerable	EPBC Act – PMST (5 km	**Highly Unlikely/Transient** –Although marginal habitat is present is suitable, there are no contemporary records for this	The Site does not exhibit the landscape characteristics that attract this species.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
		radius)	species within 5-10 km of the Site. Gray falcon occurs in arid and semi-arid Australia, including the Murray-Darling Basin, Eyre Basin, central Australia and Western Australia. The species is mainly found where annual rainfall is less than 500 mm, except when wet years are followed by drought, when the species might become marginally more widespread, although it is essentially confined to the arid and semi-arid zones at all times (Grey Goshawk Conservation Advice – Australian Government 2020). There are no records in the ALA database for a 5 km buffer around the Site (search point -27.3244, 152.9547).	In relation to the significant impact criteria for vulnerable species (Australian Government 2013**) it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on grey falcon.
	Vulnerable	NCA – Wildlife Online (no records within a 10 km radius, since 1980)		
squatter pigeon (*Geophaps scripta scripta*) southern subspecies	Vulnerable	EPBC Act – PMST (5 km radius)	**Unlikely** – Although marginal habitat for the squatter pigeon occurs in areas of the Site to be developed for residential purpose, there are no contemporary records for this species within 5-10 km of the Site. The southern subspecies of the squatter pigeon occurs on the inland slopes of the Great Dividing Range. Itscurrent distribution extends from the Burdekin-Lynd Divide in central Queensland, west to Longreach and Charleville, east to the coast between Port Curtis and Proserpine, and south to New South Wales (NSW) north of 29° S (Australian Government	Limited habitat within the Site is available for the squatter pigeon. No preferred watering points are present within the Site. In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on squatter pigeon.
	Vulnerable	NCA – Wildlife Online (no records within a 10		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
		km radius, since 1980)	2015). It inhabits the grassy understorey of open eucalypt woodland, and less often savannas. It is nearly always found near permanent water such as rivers, creeks and waterholes. Sandy areas dissected by gravel ridges, which have open and short grass cover allowing easier movement, are preferred. It is less commonly found on heavier soils with dense grass (Australian Government 2015). The nearest contemporary records (post 1980) for the species are from the Brisbane River Valley in the area approximated by Minden, Helidon and Esk (https://spatial.ala.org.au/?q=lsid:urn:lsid:biodiversity.org.au:afd.taxon:d5c52cd0-6d21-4322-a5c5-bc11a94d8c3a). There are no records either contemporary or historical in the ALA database for a 5 km buffer around the Site (search point -27.3244, 152.9547).	
white-throated needletail (*Hirundapus caudacutus*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Transient –** White-throated needletails are non-breeding migrants which are primarily an aerial species. There are numerous records for this species within 5-10 km of the Site. A widespread (almost exclusively aerial) species, the white-throated needletail occurs over a wide range of habitats Australian Government 2019). For a time for a time it was commonly believed that they did not land while in Australia. It	This species is wide-ranging, cosmopolitan and highly mobile. It readily forages above urban areas and it is considered that the Proposed Action is highly unlikely to impact this species. In relation to the significant impact criteria for vulnerable species (Australian Government 2013**) it is highly unlikely that the Proposed Action will**
	Vulnerable	NCA – Wildlife Online (no records		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
		within a1 km radius, 5 records within a 5 km radius, 64 records within a 10 km radius, since 1980).	has now been observed that birds will roost in trees, and radio-tracking has since confirmed that this is a regular activity (https://www.birdlife.org.au/bird-profile/white-throated-needletail). Found across all of the Australian landmass, In eastern Australia, it is recorded in all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Dividing Range and occasionally onto the adjacent inland plains. This species is considered a possible occurrence, overflying the Site. There are 234 records in the ALA database, most within the last 8 years for a 5 km buffer around the Site (search point -27.3244, 152.9547).	**have significant direct or indirect impacts** on white throated needletail.
swift parrot (*Lathamus discolor*)	Critically Endangered	EPBC Act – PMST (5 km radius)	**Transient** – swift parrot is endemic to Tasmania. It migrates to the mainland during the winter and early spring and disperses (generally) northwards in search of winter flowering foraging resources throughout the forests and woodlands of Victoria and New South Wales. Their occurrence at the northern extremity being driven by seasonal conditions and availability of food (mainly nectar from eucalypt blossom and lerp on eucalypt foliage) further south (eg, if flowering is poor in Victoria or southern NSW, or drought in the inland box-	This species is wide-ranging, when in South Eastern Queensland and highly mobile. It has been observed to readily forage where large mature *E. tereticornis* are in flower. Given the most significant numbers of large *E. tereticornis* (and other winter flowering myrtaceous species) occur in the Conflagration Creek floodplan and this area will be retained and rehabilitated with addition canopy plantings of large numbers of *E. tereticornis* it is considered that there
	Endangered	NCA - Wildlife Online (no records within a10		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
		km radius since 1980)	ironbark woodlands forces the birds northwards and coastwards). Swift parrot is therefore, transient in South Eastern Queensland with small parties of 8-12 birds arriving in the south east every few years. Its occurrence in Queensland is sporadic and its appearance is typically associated with stands of large winter flowering flowering *Eucalyptus tereticornis* (Queensland blue gum). Although it is mostly associated with *E. tereticornis*, it is highly likely that the species will forage on other large, winter flowering eucalypt. Within the Site the greatest concentration of winter flowering *E. tereticornis* are associated with Conflagration Creek in the area to be retained and rehabilitated as Environmental Management Zone. The Swift parrot is nationally Critically Endangered, with major threats in its breeding range in Tasmania (logging of hollow-bearing trees, nest predation by introduced Sugar Gliders) and loss of winter foraging habitat in coastal and inland parts of NSW and Victoria (Debus *pers. comm*. 2020). There are no records in the ALA database for a 5 km buffer around the Site (search point -27.3244, 152.9547).. The closest post 1980 records for swift parrot are from the North	will be a significant increase both the extent and volume of available Rehabilitation of the waterway (with species appropriate to pre-disturbance vegetation communities analogous to RE12.3.6 and RE12.3.11) will result in foraging resources which flower prolifically during the winter and early spring resource bottlenecking period. This will be a significant foraging resource for Swift parrot Consequently, it is highly unlikely the Proposed Actions will impact this species. In relation to the significant impact criteria for critically endangered species (Australian Government 2013**) it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on swift parrot.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			Pine Nature Reserve, the Narangba area and Mt Mee, 12 km, 15 km and 22 km to the north-west, respectively, and Bardon, 16 km to the south.	
fairy prion (*Pchyptila turtur subantarctica*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Absent -** No habitat for the fairy prion occurs in areas of the Site to be developed for residential purpose and there are no contemporary records for this species within 5-10 km of the Site. the fairy prion is a coastal seabird endemic to Australia. It feeds in large flocks, sometimes in mixed species groups. Its flight is erratic, buoyant and swift, flitting from wave-to-wave top picking food from the water surface. Breeds on islands and rock stacks (2 known sites) on Macquarie Island using crevices and caves in cliffs in rock falls (Fairy Prion Conservation Advice – Australian Government 2015). The species as a whole has a circumpolar distribution, and probably frequents subtropical waters during the non-breeding period. There are no records in the ALA database for a 5 km buffer around the Site (search point -27.3244, 152.9547).	There is no habitat suitable marine habitat for this species on the Site. In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on fairy prion.
	Least Concern	NCA – Wildlife Online (no records within a10 km radius since 1980)		
Australian painted snipe (*Rostratula australis*)	Endangered	EPBC Act – PMST (5 km	**Unlikely** – The habitat is marginal and there are few records for this species within 5-10 km of the Site.	Owing to the complexity of the denser wetland habitats used by Latham's Snipe, the species could

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
		radius)	The Australian painted snipe occurs in shallow freshwater (occasionally brackish) wetlands, especially ephemeral, lakes, swamps, claypans, inundated or waterlogged grassland/saltmarsh, dams, rice crops, sewage farms and bore drains, generally with a good cover of grasses, rushes and reeds, low scrub, lignum, open timber or samphire, especially those wetlands with muddy margins and low lying islands (Australian Painted Snipe Conservation Advice – Australian Government 2013, https://birdlife.org.au/bird-profile/australian-painted-snipe). Suitable wetlands usually support a mosaic of low, patchy vegetation, as well as lignum and canegrass (https://birdlife.org.au/bird-profile/australian-painted-snipe). In Queensland, important areas for Australian Painted Snipe are the Channel Country and the Fitzroy River Basin. prefers a wide range of habitats including ephemeral swamps, dams, rice paddocks, waterlogged grasslands, roadside drains and even brackish waterways. The Australian painted snipe requires mosaics of open mud flats for foraging and denser vegetation for shelter. The Site does contain a farm dam with dese stands of taro (*Colocasia* sp.) and marshy areas with mud drapes and rank	utilise habitats present. The species could be indirectly affected during habitat restoration works within the Conflagration Creek environmental management zone. These effects will be minimal, short term, and recoverable. The Proposed Action will not result in the permanent loss of suitable habitat for this species and the Site is not important habitat for Australian painted snipe. In relation to the significant impact criteria for Listed migratory species (Australian Government, 2013) **it is unlikely that the Proposed Action will have a significant direct or indirect impact** on Australian painted snipe.
	Endangered	NCA – Wildlife Online (5 records within a 10 km radius since 1980)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			grasses along the ConflagrationCreek floodplain, There are no ALA database records for the 5 km search area for a 5 km buffer around the Site (search point -27.3244, 152.9547).	
Australian fairy tern (*Sternula neris neris*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Absent -** No habitat for the Australia fairy tern occurs in areas of the Site to be developed for residential purpose and there are no contemporary records for this species within 5-10 km of the Site. Australian fairy tern occurs along the coasts of New South Wales, Victoria, Tasmania, South Australia and Western Australia. Fairy Terns utilise a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands, beaches and spits. There are no ALA database records for the 5 km search area for a 5 km buffer around the Site (search point -27.3244, 152.9547).	There is no habitat suitable marine habitat for this species on the Site. In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on Australian fairy tern.
	Least Concern	NCA – Wildlife Online (no records within a10 km radius since 1980)		
hooded plover (*Thinornis cucullatus cucullatus*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Absent -** No habitat for the hooded plover occurs in areas of the Site to be developed for residential purpose and there are no contemporary records for this species within 5-10 km of	There is no habitat suitable marine habitat for this species on the Site.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
	Least Concern	NCA – Wildlife Online (no records within a10 km radius since 1980)	the Site. Hooded plover (eastern) is a marine bird widely dispersed on or near sandy beaches in south-eastern Australia. It ranges extends from Jervis Bay in New South Wales to Fowlers Bay in South Australia and includes Tasmania and various offshore islands such as Kangaroo Island, King Island and Flinders Island (hooded plover Conservation Advice – Australian Government 2014, https://birdlife.org.au/bird-profile/hooded-plover). There are no ALA database records for the 5 km search area for a 5 km buffer around the Site (search point -27.3244, 152.9547).	In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on hooded plover.
black-breasted button-quail (*Turnix melanogaster*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Highly Unlikely** – Habitat is generally unsuitable for the black-breasted button-qual and there are only three records within 5-10 km of the site. Black-breasted button-quail prefers leaf litter in drier rainforests, vine thickets, lantana on rainforest edges and mature hoop pine plantations (Black-Breasted Button-Quail Conservation Advice – Australian Government 2015). The Site does not support dense rainforest habitats typically preferred by this species. Searches for the characteristic	There is no habitat suitable habitat for this species on the Site and no indicative signs of presence were observed. In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on black-breasted button-quail.
	Vulnerable	NCA – Wildlife Online (1 record within a 1 km radius, 1		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
		recordwithin a 5 km radius, 1 recordwithin a 10 km radius since 1980)	feeding platelets of this species were undertaken during detailed ecological survey. No platelets were detected, nor were any birds flushed, and it is considered unlikely that this species occurs at the Site due to historical fragmentation and limited suitable habitat regeneration. There are no records in the ALA database for a 5 km buffer around the Site (search point -27.3244, 152.9547). Further afield most records are associated with D'Aguilar National Park 14 km to the west, although there is a record for the species at North Pine Dam Nature Reserve, situated between Lake Samsonvale and Mount Samson Road, 12 km to the north-west of the Site.	
Fleay's frog (*Mixophyes fleayi*)	Endangered	EPBC Act – PMST (5 km radius)	**Highly Unlikely** – Habitat is generally unsuitable for Fley's frog and there are no records within 5-10 km of the site. Fley's frog has a disjunct distribution in wet forests over a restricted range from the Conondale Range south-east Queensland south to Trynney Creek in the Richmond Range in north-east New South Wales at altitudes ranging from 100 - 1000 m above sea level. Adults are found in leaf litter and along watercourses in rainforest and adjoining wet sclerophyll forests (Fleay's Frog Conservation Advice – Australian Government 2021). Males call from rocks in streams or from	The Site does not afford suitable habitat for this species and is below 60 m (ca. 30 m) above sea level. Detailed survey did not detectany specimens. In relation to the significant impact criteria for endangered species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on Fleay's frog.
	Endangered	NCA – Wildlife Online (no records within a10 km radius since 1980)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			pools at the margins of these streams (Corben & Ingram 1987) or from the forest floor. Females have been located well away from streams, over hundreds of metres from known breeding sites. There are no records in the ALA database for a 5 km buffer around the Site (search point -27.3244, 152.9547). Further afield there are two records associated with D'Aguilar National Park 14 km to the west of the Site.	
giant barred frog (*Mixophyes iteratus*)	Endangered	EPBC Act – PMST (5 km radius)	**Highly Unlikely** – Habitat is generally unsuitable for giant barred frog and there are no records within 5-10 km of the site. Giant barred frog ranges from rom Belli Creek near Eumundi, south-east Queensland, south to Warrimoo, mid-east New South Wales. The species occurs along shallow rocky streams in rainforest, wet sclerophyll forest and farmland between 100 and 1,000 m elevation or deep, slow moving streams with steep banks in lowland areas forests (Giant Barred Frog Conservation Advice – Australian Government 2021). There are no records in the ALA database for a 5 km buffer around the Site (search point -27.3244, 152.9547). Further afield there are two records associated with D'Aguilar	The Site does not afford suitable habitat for this species. Detailed survey did not detectany specimens. In relation to the significant impact criteria for endangered species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on giant bared frog.
	Endangered	NCA – Wildlife Online (no records within a10 km radius since 1980)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			National Park 14 km to the west of the Site.	
Australian fritillary (*Argynnis hyperbius inconstans*)	Critically Endangered	EPBC Act – PMST (5 km radius)	**Highly unlikely** – Habitat is generally unsuitable for Australian fritillary or its larval host plant and there are no records within 5-10 km of the site. the Australian fritillary is typically found in lower coastal areas around river estuaries and swampy areas. It is further restricted to localities where its host plant *Viola betonicifolia* (arrowhead violet) occurs (NSWSC 2002). This species and its host plant were absent from the Site and there are no records in the ALA database for a 5 km buffer around the Site (search point -27.3244, 152.9547).	The Site does not contain habitat and detailed survey did not detect any specimens of this species or its host plant. In relation to the significant impact criteria for critically endangered species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on the Australian fritillary butterfly.
	Least Concern	NCA – Wildlife Online (no records within a10 km radius since 1980)		
large-eared pied bat (*Chalinolobus dwyeri*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Unlikely** – Habitat present are generally unsuitable large-eared pied bat and there are no records within 5-10 km of the site. The modelled distribution of the Large-eared Pied Bat revealed a close association with sandstone escarpment (for roosts) and fertile valleys (for foraging), particularly where the valleys support box gum woodland The presence of suitable caves or overhangs may be more important than the precise geology, as Large-eared Pied Bats roost in rhyolite cliffs in south-east Queensland (Large-eared pied bat Conservation	The Site does not contain roosting habitat and detailed survey did not detect this species. In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on the large-eared pied bat.
	Vulnerable	NCA – Wildlife Online (no records within a 10 km radius since 1980)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			Advice – Australian Government 2021). Records in Queensland are known from sandstone escarpments in the Carnarvon and Expedition Ranges, Blackdown Tablelands and Cania Gorge (Large-eared pied bat Conservation Advice – Australian Government 2021). Habitat critical to the survival of this species cannot be practically described and the presence of suitable caves for roosting and maternity roosts is likely most important. There are also no escarpment structures that might have suitable cavernous roost Sites either on the Site or in nearby areas; most suitable habitat is anticipated to be associated with increasing topographic relief associated with the uplifted geology of D'Aguilar National Park, some 14 km to the west. There are no records in the ALA database for a 5 km buffer around the Site (search point -27.3244, 152.9547) and nearest records are Toowoomba and Main Range National Park (both in excess of 100 km to the south-west).	
northern quoll (*Dasyurus hallucatus*)	Endangered	EPBC Act – PMST (5 km radius)	**Highly Unlikely** – Habitats present on Site are generally unsuitable for northern quoll and there are no records within 5-10 km of the site.	The Site does not contain habitat critical to the survival of the northern quoll. Detailed survey did not detectany specimens.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
	Least Concern	NCA – Wildlife Online (no records within a10 km radius)	The northern quoll occurs in Queensland, the Northern Territory and Western Australia. They do not have highly specific habitat requirements; although suitable habitat is most commonly considered to comprise rocky eucalypt woodlands and open forests within 200 km from the coast. Shelter sites are also non-specific and northern quolls have been known to den in tree hollows, rock crevices, logs, termite mounds and goanna burrows. The species has experienced an overall decline in population throughout its range since non-indigenous settlement however, the savannah habitats have experienced the most drastic population declines. A significant threat to the species has been the introduction of cane toads. Habitat fragmentation, urbanization, domestic pets, attack by feral predators and vehicle strike are also treats to the species. Capture records in the 'National recovery plan for the Northern Quoll *Dasyurus hallucatus*' (Hill and Ward 2010) indicates that the species' range has contracted northwards since 1999. The current distribution is discontinuous across northern Australia, with core populations in rocky and/or high rainfall areas. Therefore habitat critical to survival appears to be where northern quolls are least exposed to threats or least likely to be in the future.	In relation to the significant impact criteria for endangered species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on the northern quoll.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			The species was not detected during site survey. Given the present extent of disturbance around and within the site, and the extent of cane toad colonisation it is likely that habitat on site is unsuitable for this species. The most suitable habitat is anticipated to be associated with increasing topographic relief associated with the uplifted geology of D'Aguilar National Park, some 14 km to the west. Although modified woodland is present The Site does not contain suitable habitat for the species. There are no records in the ALA database for a 5 km buffer around the Site (search point -27.3244, 152.9547). The nearest contemporary record for the northern quoll is from the northern parts of D'Aguilar National Park adjacent to Woodford in 1991.	

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
spotted-tailed quoll *(Dasyurus maculatus maculatus*) south-eastern mainland population	Endangered	EPBC Act – PMST (5 km radius)	**Highly Unlikely** – Habitats present on Site are generally unsuitable for spotted-tailed quoll and there are no records within 5-10 km of the site. The spotted-tailed quoll (south-eastern mainland population) occurs in fragmented and isolated populations from Queensland, New South Wales, Australia Capital Territory to western Victoria. It is solitary and carnivourous and mainly a forest dependent species but occurs in a variety of habitats including closed forests (including temperate and sub-tropical rainforest), tall eucalypt forests, open woodlands, open forests, drier rainshadow woodlands and coastal heathlands. During the day spotted-tailed quolls shelter in fallen logs, boulder piles, burrows, tree hollows and occasionally under dwellings (Spotted-tailed Quoll, South-eastern Mainland Conservation Advice – Australian Government 20202). The species has experienced an overall decline in population throughout its range since non-indigenous. A significant threat to the species has been the introduction of cane toads. Habitat loss, modification and fragmentation, urbanization, domestic pets, attack by feral predators, vehicle strike, too frequent fires and timber production are also treats to the species (Spotted-tailed Quoll, South-eastern Mainland	The Site does not contain habitat critical to the survival of the spotted-tailed quoll. Detailed survey did not detectany specimens. In relation to the significant impact criteria for endangered species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on the spotted-tailed quoll.
	Vulnerable	NCA – Wildlife Online (1 recordwithin a 10 km radius since 1980)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			Conservation Advice – Australian Government 20202). The spotted-tailed Quoll, South-eastern Mainland Conservation Advice (Australian Government 2022) considers that in southern Queensland, the species is 'likely extinct from the D'Aguilar Range west of Brisbane and from coastal districts from Coolangatta to Bundaberg' and identifies that National Recovery Plan considers the populations of Main Range-McPherson Range, Lamington Plateau-McPherson Range east and Burnett Range as important for their long-term survival in Queensland. The species was not detected during site survey. Given the present extent of disturbance around and within the site, and the extent of cane toad colonisation it is likely that habitat on site is unsuitable for this species. The most suitable habitat is anticipated to be associated with increasing topographic relief associated with the uplifted geology of D'Aguilar National Park, some 14 km to the west. There are no records (contemporary or historical) in the ALA database for a 5 km buffer around the Site (search point -27.3244, 152.9547). The nearest contemporary record (post 1980) for the spotted-tailed quoll is from White Cedar on the western extent of D'Aguilar National Park (North Brook	

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			Parkway) in 2012.	
southern greater glider (*Petauroides volans*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Unlikely** – Habitats present on Site are generally unsuitable for the southern greater glider. The species was not recorded on site, however inspection of the Atlas of Living Australia database reveals two contemporary records (2019) within 2-3 km to the west of the site, at Clear Mountain Conservation Park (adjacent to Clear Mountain Road, between Eatons Crossing Road and Winn Road). They are from an area of intact, remnant *Corymbia citriodora variegata* (spotted gum) dominated open forest (Regional Ecosystem 12.11.5). The greater glider is an arboreal nocturnal marsupial, largely restricted to eucalypt forests and woodlands. It is primarily folivorous, with a diet mostly comprising eucalypt leaves, and occasionally flowers. It is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows. This typically corresponds with intact remnant vegetation (with respect to the regional ecosystem framework for Queensland). The distribution may	No suitable denning habitat is present or abundant enough within the Site. Foraging habitat and connectivity do not exist to any surrounding properties; the Site does not contain habitat critical to the survival of the southern greater glider. Detailed survey did not detectany specimens. In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on the southern greater glider.
	Vulnerable	NCA – Wildlife Online (no records within a 10 km radius since 1980)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			be patchy even in suitable habitat. The greater glider requires large patches of old growth habitat (Possingham et al., 1994) for denning and favors forests with a diversity of eucalypt species, due to seasonal variation in its preferred tree species. During the day it shelters in tree hollows, with a particular selection for large hollows in large, old trees (Greater Glider Conservation Advice – Australian Government 2016). Although habitats supported within the Site are broadly analogous with this species' habitat associations, fragmentation associated with historical clearing, the lack of suitable old growth trees with hollows and large extent of cleared areas would preclude this species from occurring on the Site. Numerous nocturnal surveys have failed to identify the species. Eyre (2002) suggests greater glider populations in southern Queensland require at least 2-4 live den trees for every 2 ha of suitable forest habitat. Records of this species within the region are noted in larger areas of remnant vegetation to the west of the Site; however, these areas are not connective with the Site. The Site's position in the landscape and poor- quality vegetation and poor connectivity suggests limited to no habitat amenity is available to the southern greater glider	

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			within the Site and immediate surrounds.	
Koala (*Phascolarctos cinereus*)	Endangered	EPBC Act – PMST (5 km radius)	**Known** – koalas are found in a diversity of habitats including temperate, subtropical and tropical forest, woodland and semi-arid communities, and sclerophyll forests, on foothills, plains and coastal areas. A search of relevant WildNet databases within 5 km radius of the Site has identified 3430 records from 2012. There are 98 records from within 1 km of the site. Regionally, the site is mapped as occurring within a koala priority area (there are no core koala habitat or locally refined koala habitat areas within the site), by the Queensland Koala mapping, and it is located near the suburb of Cashmere where koala densities are known to be high (as identified by the Wildnet data). There are 14 records of koala in the ALA database all from the South Pine River at Eatons Hill and Draper to the south of the site; 5 km buffer around the point (-27.3244, 152.9547). The Warner Koala Management Plan (WKMP) was radio tracking study undertaken for the CSR quarry corner of Old North Road and Kremzow Road and included extractive	Koala's are known from **the** locality and have been confirmed as occurring within the area of the proposed action. Whilst it is acknowledged that the Proposed Action will have direct and indirect impacts on koala's, in reference to the significant impact criteria for endangered species (Australian Government 2013), **it is unlikely that the Proposed Action (including the proposed mitigation strategies detailed in Section 6 of this report) will have a long term significant direct or indirect impact on the species**. The assessment against the significant assessment criteria for koala is provided in **Att F – Att 1-2,** Attachment **11**. It is considered that the removal of the Site's poorer-quality habitats for koala, associated with the areas
	Vulnerable	NCA – Wildlife Online (98 records within a 1 km radius, 3430 records within a 5 km radius and 9979 records within a 10 km radius, since 1980)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			industry land, rural residential properties and lands owned by Ausbuild (both to the north ('Warner North/ The Sanctuary') of Warner Road (see EPBC Referral 2017/8022) and those to the south ('Warner South' location of this proposed action). The WKMP tracking data identifies that koala occurred along the northern boundary of Warner South (moving freely across Warner Road, and in land carrying remnant vegetation to the west of the site. Detailed field assessment including targeted observation and passive evidence surveys detected koala on site within the Conflagration Creek floodplain in 2016. Survey for koala included direct positive observation (spotlighting, diurnal canopy scans along transects, canopy scans of non juvenile koala habitat trees during tree survey and trail cameras) and indirect (scat assessment) techniques. Koalas have been detected during preliminary and baseline assessments; indirectly by the presence of scats and by direct observation along Conflagration Creek. Koalas were not recorded outside of the Conflagration Creek riparian area by direct means (camera detection or spotlighting), but scat surveys did indicate use (as expected) of the Site's more widely scattered koala habitat trees. The area of greatest koala activity was associated with regrowth patches along Conflagration Creek. These areas are	of proposed residential development, will be inconsequential in the long term to the koala. The reasons for this are outlined below. The largest, intact areas of koala habitat on the site, and those areas with the greatest koala utilization (direct observation and scat assessment) occur on the Conflagration Creek Floodplain. This area will be retained within a dedicated environmental management zone which will be progressively rehabilitated. Rehabilitation of the waterway will include weed removal and revegetation with species appropriate to pre-disturbance vegetation communities analogous to RE12.3.6 and RE12.3.11, will result in many species of Koala Habitat Trees, being planted, of which *E. tereticornis* is a significant component. This revegetation will provide a significant tract of primary foraging resource for the koala. Rehabilitation will result in improved spatial extent of habitat within the locality and improve connectivity.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			outside of the proposed footprint. These areas support the primary koala habitat tree, Queensland blue gum (*Eucalyptus tereticornis*) and to a lesser extent tallowwood (*Eucalyptus microcorys*). They are also dominated by sclerophyll species providing more general forage habitat and shelter values. Conflagration Creek represents an important north-south corridor for the movement of koalas (and other fauna) in the locality. In summary: • the area is known to support a koala population • koalas were directly observed during baseline ecological assessment in areas that are no longer part of the development footprint (i.e protected, retained and protected as part of the Riparian Reserve) • indirect evidence of koala occurrence (scats) was observed in thedevelopment footprint • the most important koala habitat surrounds the reduced developmentfootprint, and • koala movement across the Site could be expected. A response to the Significant Impact Guidelines 1.1 for Endangered species (Australian Government 2013) is	Rehabilitation of this area is strategically desirable as it will leverage against rehabilitation efforts already underway at the Conflagration Creek crossing on Warner Road, where a koala underpass is being constructed, and habitat restoration being undertaken to the north, along Conflagration Creek. Exclusion fencing to the north of the conservation area will prevent koala accessing the low density detached residential areas of the site. Koala exclusion fencing will not be constructed to the south of the conservation area to facilitate koala movement through the rural residential zone. This is as result of requests by local community representatives. These rural residential lots will feature BLEs with pet proof fencing to restrict pet access to the broader expanse of lots. Koala habitat trees will be retained in areas outside of BLEs and koala friendly fencing will be constructed between the rural residential zone and the conservation area. The species could be indirectly affected during habitat restoration works along Conflagration Creek. However, these effects will be minimal, short term,

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			provided in **Att F – Att 1-2,** Attachment **11**.	and recoverable with the resultant vegetation supporting greater density and diversity of habitat for the black-faced monarch. The rehabilitation associated with the Proposed Action will provide a significantly greater area and level of habitat quantity and quality than the areas affected by the residential components of the proposed action which presently contain paddock trees. Therefore, although koala may be affected by the project, these effects will be short term and recoverable, with an overall benefit to the species resulting from the project.
northern long-nosed potoroo (*Potorous tridactylus tridactylus*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Unlikely** – northern long-nosed potoroo (South East Mainland) inhabits a variety of forests including both wet and dry sclerophyll forests and lowland (coastal) heath (Northern Long-nosed Potoroo Conservation Advice - Australian Government 2022), with the primary micro-habitat requirement being the existence of a dense understorey. The presence of moist loamy soils in which their primary food sources such as hypogeous (underground-fruiting) fungi, larvae and worms are abundant is also a requirement. The habitats on the Site are	The Site does not contain habitat critical to the survival of the northern long-nosed potoroo. Detailed survey did not detectany specimens. In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on northern long-nosed potoroo.
	Vulnerable	NCA – Wildlife Online (no records within 10 km		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
		radius, since 1980)	generally unsuitable for the species; the understorey is sparse, and not consistent with the foraging requirements of the species. In Queensland significant northern long-nosed potoroo populations occur inland and at a higher altitude in forested ranges (eg. the border ranges) and on the coastal lowlands of K'gari (Fraser Island), and Wide Bay Military Training Area (Northern Long-nosed Potoroo Conservation Advice - Australian Government 2022). Post 1980 records for the species in proximity to the Site occur in D'Aguilar National Park (12 km to the west and Conondale and Bellthorpe National Parks in the Sunshine Coast Hinterland. There are no records (either contemporary or historical) in the ALA database for a 5 km buffer around the point (-27.3244, 152.9547).	
grey-headed flying-fox (*Pteropus poliocephalus*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Known** – suitable foraging habitat for grey-headed flying-fox includes rainforests, open eucalypt forest, woodlands, melaleuca swamps and banksia woodlands. Roosts are commonly located within dense vegetation close to water, primarily rainforest patches, stands of melaleuca, mangroves or riparian vegetation. Grey-headed flying-fax have been recorded foraging on the	it is considered that the Proposed Action will not give rise to any significant impacts to this species through the in the removal of marginal foraging habitat; the majority of the tree species on the site will be retained within the waterway corridor which will be rehabilitated to enhance both habitat and connectivity along the waterway.
	Least Concern	NCA – Wildlife Online (no records		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
		within a 1 km radius, 11 records within a 5 km radius, 79 records within a 10 km radius, since 1980)	site during within vegetation on the Conflagration Creek floodplain by site surveys in 2016 and again in June 2021. There is one record of the species in ALA for the 5 km search area. Although the site constitutes general foraging habitat, the site is not a roost or camp site; and none were observed during survey efforts. A review of known flying fox camp locations (DAWE, National Flying-fox Monitoring Viewer (accessed 18 June 2021)) did not identify any 'Nationally Important' camp sites within a 5 km radius of the Site, with the closest Nationally Important camp occurring >19 km north-west of the Site (Railway Street, Dayboro). Two 'Other Flying Fox' camps are known from within the 5 km search radii of the Site. These are located at Kingfisher Street, Albany Creek (2.6 km South of the site) and Pine Rivers Park, Gympie Road, Strathpine (3.6 km northeast from the site). Only the Kingfisher Street Camp is used by grey-headed flying- fox; the Pine Rivers Park camp has not been used by flying fox since 2014. The existing context of the Site's locality is also important to consider when assessing of the likelihood of the grey-headed flying-foxes occurrence within and use of the Site. Grey-headed flying-fox can traverse up to 50 km at night in	Rehabilitation of the waterway (with species appropriate to pre-disturbance vegetation communities analogous to RE12.3.6 and RE12.3.11) will result in foraging resources which flower prolifically during the winter and early spring bottlenecking period. This will be a significant foraging resource for Grey-headed flying-foxes during their breeding/ rearing season In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on grey-headed flying fox.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			search of food (Eby 1991). As such, the Site is within foraging distances of known camps. A review of available state mapped regulated (remnant) vegetation dominated by winter flowering eucalypts (a bottleneck resources) for GHFF, within a 5 km radius of the Site identified that there is 828.5 ha of available, protected remnant resource, and 243 ha of high value regrowth. The Site does contain general foraging habitat, however no regulated or high value regrowth is considered present. This figure does not account for unmapped and unregulated winter flowering species contained within the broader cleared matrix of the 5 km buffer area. Existing potential winter foraging resources identified within the Site would account for the removal of 200 winter flowering trees (Refer to Att D- Figures 6-10 Mapping and Surveys, Figure 10).	
water mouse (*Xeromys myoides*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Highly Unlikely –** water mouse is recorded in recorded in aquatic environments, including coastal saltmarsh, samphire shrublands, saline reed-beds and saline grasslands, mangroves, and coastal freshwater wetlands, and wet heathlands. It occurs from the northern Western Australian coast, through the Northern Territory and Queensland and	The Site does not contain habitat critical to the survival of the water mouse. Detailed survey did not detectany specimens. In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it**
	Vulnerable	NCA – Wildlife		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
		Online (no records within a 10 km radius, since 1980)	into northern New South Wales. In Queensland, the species is known from Cairns to the Queensland/ New South Wales border (Water Mouse Conservation Advice – Australian Government 2021). There is no habitat suitable for the species present on the site. In south-eastern Queensland, the highest density of the species is known to occur within the Great Sandy Strait (including Tin Can Bay, Kauri Creek, and the cattle station 'Tandora'), Maroochy River, Pumicestone Passage (Kaluza 2019), Quandamooka (Moreton Bay), and predominantly the western shores of Minjerribah (North Stradbroke Island) and South Stradbroke Island (Southern Moreton Bay) (Water Mouse Conservation Advice – Australian Government 2021). Post 1980 records for the species in proximity to the Site occur in Southern Moreton Bay (65 km south-east), Stradbroke Island (50 km south-east), Caboolture River and Pumicestone Passage (42 km north-east), Glasshouse Mountains National Park (45 km north), Beerwah (46 km north), Maroochy Wetlands Sanctuary (77 km north-north-east) and the Noosa River (110 km north). There are no records (either contemporary or historical) in the ALA	**is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on water mouse.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			database for a 5 km buffer around the point (-27.3244, 152.9547).	
three-toed snake-tooth skink (*Coeranoscincus reticulatus*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Highly Unlikely** – the three-toed snake-tooth skink occurs on the coast and in the ranges from Atherton in Queensland (February 2020 record) to Kempsey (Macleay River Valley) in New South Wales. In south east Queensland it occurs from K'gari (Fraser Island) and Cooloola in the north to Lamington National Park (Border Ranges) and westward to Main Range National Park (Three-toed Snake-tooth Skink Conservation Advice – Australian Government 2016, https://spatial.ala.org.au/?q=lsid:urn:lsid:biodiversity.org.au:afd.taxon:f1fd00b8-a848-44eb-9cb2-73bbce6a5d14). Three-toed snake-tooth skinks inhabit rainforest and occasionally moist eucalypt forest, on loamy or sandy soils and is found in in leaf litter, often immediately adjacent to fallen tree trunks. Habitats containing the species was found to have projected foliage cover estimated at 70–80%. There is no suitable habitat present on the site. Post 1980 records for the species in proximity to the Site occur at Lamington National Park (border ranges, 100 km	The Site does not contain habitat critical to the survival of the three-toed snake-tooth skink. Detailed survey did not detectany specimens. In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on three-toed snake-tooth skink.
	Least Concern	NCA – Wildlife Online (no records within 10 km radius, since 1980)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			south) and Maroochydore (75 km north-west). There are no records (either contemporary or historical) in the ALA database for a 5 km buffer around the point (-27.3244, 152.9547).	
collared delma (*Delma torquata*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Highly Unlikely** – collard delma occurs from Pullenvale at the southern end of the D'Aguilar National Park to Rockhampton in the north, south-westward to Carnarvon National Park and Mitchell. It is also recorded from Warwick, Millmeran and Toowoomba. this species has very specific habitat requirements and its distribution is highly fragmented. The species generally inhabits eucalypt- dominated woodlands and open forests with land zones constituting alluvium, fine-grained sedimentary rocks and sandstone ranges. Key microhabitat requirements for this species include an abundance of rocks, logs, bark and other woody debris/mats of leaf litter (Collard Delma Conservation Advice – Australian Government 2008). There is no suitable habitat present on the site; this species is only known to occur where soil types include stony and quartzite rock ridges and exposed basalt rocks. Which are not present at the Site, nor were any exposed rocky substrates or surface rock. The Site is found on fine grained alluvium or	The Site does not contain habitat critical to the survival of collard delma. Detailed survey did not detectany specimens. In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on collard delma.
	Vulnerable	NCA – Wildlife Online (no records within a 10 km radius, since 1980)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			soils derived from metamorphosed sedimentary geologies. Post 1980 records for the species in proximity to the Site occur at Pinjarra Hills, Anstead, Karana Downs and Mt Crosby, with the closest known population some 26 km to the south-west of the Site. There are no records in the ALA database (either contemporary or historical) for a 5 km buffer around the point (-27.3244, 152.9547).	
Dunmall's snake (*Furina dunmalli*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Unlikely –** Dunmall's snake is endemic to the Brigalow Belt bioregions and northern part of the South Eastern Queensland Bioregion. It is recorded near the coast between Rockhampton and Bundaberg and then along the Great Dividing Range as far south as Oakey (west of Toowoomba). It has a westward extent of Texas / Dthinna Dthinnawan National Pak (NSW) in the south, northwards to Surat, Mitchell and Claremont (ALA Records - https://spatial.ala.org.au/?q=lsid:urn:lsid:biodiversity.org.au:afd.taxon:c624b083-1077-46a9-8563-f1942f645374). The species is nocturnal and highly cryptic and little is known about its specific ecological requirements. Records indicate that the species inhabits fallen timber, leaf litter and cracks in alluvial clay soils; generally between 200 and 500 m above sea level. Known records of this species	The Site does not contain habitat critical to the survival of Dunmall's snake. Detailed survey did not detectany specimens. In relation to the significant impact criteria for vulnerable species (Australian Government 2013) **it is highly unlikely that the Proposed Action will have significant direct or indirect impacts** on Dunmall's snake.
	Vulnerable	NCA – Wildlife Online (no records within a 10 km radius, since 1980)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			are generally restricted to the Brigalow Belt bioregion west of the Great Dividing Range or in coastal Central Queensland areas. There is no suitable habitat present on the site. Post 1980 records for the species in proximity to the Site occur at Cecil Plains (west of Toowoomba) and Gladstone. There are no records (either contemporary or historical) in the ALA database for a 5 km buffer around the point (-27.3244, 152.9547).	
Threatened Flora Species				
hairy-joint grass (*Arthraxon hispidus*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Unlikely** – hairy-joint grass occurs on the edges of rainforest, within wet sclerophyll forests, often near sandy alluvial creekbanks or swamps as well as woodland. This species has also been recorded in freshwater springs of coastal foreshore dunes. Neither pre-clear Regional Ecosystem mapping or current Regional Ecosystem mapping identifies lowland subtropical rainforest, closed rainforest or complex notophyll vine forest or wet sclerophyll forest as occurring on the site. The Siter does not contain springs or dunes.	Detailed surveydid not identify any specimens. The Site does not containsuitable known habitat.
	Vulnerable	NCA – Wildlife Online (no records within 10 km radius, since 1980)		Detailed survey did not detect any specimens. None are known from close proximity to the site. In relation to the significant impact criteria for listed vulnerable species (Australian Government 2013), **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on hairy joint grass.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			There are no records in the ALA database for a 5 km buffer around the point (-27.3244, 152.9547).	
three-leaved bosistoa (*Bosistoa transversa*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Highly unlikely** – three-leaved bosistoa is recorded from Nightcap Range (north of Lismore) up to Mount Larcom (near Gladstone) in south-east Queensland (DoEE 2019). This species occurs in lowland subtropical rainforest up to 300 m above sea level. Recorded locations include a closed rainforest, complex notophyll vine forest with emergent brush box (*Lophostemon confertus*) and remnant vine forest pockets. This species appears to occur in areas that have experienced minimal disturbance (DAWE 2019). Neither pre-clear Regional Ecosystem mapping or current Regional Ecosystem mapping identifies lowland subtropical rainforest, closed rainforest or complex notophyll vine forest as occurring on the site. There are no records in the ALA database for a 5 km buffer around the point (-27.3244, 152.9547) and no Wildnet records within 10 km.	Three-leaved bosistoa is recorded from Nightcap Range (north of Lismore) up to Mount Larcom (near Gladstone) in south-east Queensland (DoEE 2019). Detailed survey did not detect any specimens. None are known from close proximity to the site. In relation to the significant impact criteria for listed vulnerable species (Australian Government 2013), **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on three-leaved bosistoa.
	Least Concern	NCA – Wildlife Online (no records within 10 km radius, since 1980)		
native jute (*Corchorus cunninghamii*)	Endangered	EPBC Act – PMST (5 km radius)	**Unlikely** - native jute is a perennial semi-herbaceous shrub that grows to 1.5 m tall. It occurs from the Richmond River in north-east New South Wales to the Brisbane River in south-	Detailed survey did not identify any specimens. The Site does not contain suitable known habitats that have not been disturbed historically or presently.

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
	Endangered	NCA – Wildlife Online (no records within 10 km radius, since 1980)	east Queensland. Native jute is found in a mosaic of wet sclerophyll and subtropical rainforest as well as grassy open forest. This species is generally located at low to mid elevations (110–430 m), on upper hill-slopes or hill-crests that have a south- easterly or easterly aspect. The species is associated with soils are shallow, stony and well drained and common canopy species occurring alongside this species include Grey Gum (*Eucalyptus propinqua*), Brush Box (*Lophostemon confertus*) and Grey Ironbark (*Eucalyptus siderophloia*). It occurs on both metamorphic and igneous substrates and on loam or clay soils. The nearest locations to the site where native jute has been recently found are Mt Coot-tha (17 km) and the Enoggera Army Base (13 km) to the south (ALA interactive map database).	Detailed survey did not detect any specimens. None are known from close proximity to the site. In relation to the significant impact criteria for listed endangered species (Australian Government 2013), **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on stinking
stinking Cryptocarya (*Cryptocarya foetida*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Highly unlikely** - stinking cryptocarya is known from Iluka, NSW, to Fraser Island and east of Gympie, southern Queensland. Stinking Cryptocarya grows in littoral rainforest, usually on sandy soils, with mature trees also growing on basalt soils. Historically the site has not contained littoral rainforests as indicated pre-clear Regional Ecosystem mapping, and soils present are derived from sedimentary geologies (land zones 9-10).	Detailed survey did not identify any specimens. The Site does not contain suitable known habitats. Detailed survey did not detect any specimens. None are known from close proximity to the site. In relation to the significant impact criteria for listed vulnerable species (Australian Government 2013), **it is unlikely that the Proposed Action will have**
	Vulnerable	NCA – Wildlife Online (no records		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
		within 10 km radius, since 1980)		**significant direct or indirect impacts** on stinking cryptocarya.
leafless tongue-orchid (*Cryptostylis hunteriana*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Highly unlikely -** in Queensland, leafless tongue-orchid is known from a single plant near the village of Tinnanbar and four additional coastal populations north of the Glasshouse Mountains to Tin Can Bay (Logan 1998). The Queensland populations have been recorded from sandy heathland (Logan 1998). The Site does not support any analogous environments suitable for this species. There are no records in the ALA database for a 5 km buffer around the point (-27.3244, 152.9547).	Survey did not identify any specimens. The Site does not contain suitable known habitats. None are known from close proximity to the site. In relation to the significant impact criteria for listed vulnerable species (Australian Government 2013), **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on leafless tongue-orchid.
	Least Concern	NCA – Wildlife Online (no records within 10 km radius, since 1980)		
wedge-leaf tuckeroo (*Cupaniopsis shirleyana*)	Vulnerable	EPBC Act – PMST (5 km	**Highly unlikely** – wedge-leaf tuckeroo occurs in dry rainforest and scrub on moderate to very steep slopes, screeslope gullies and rocky stream channels from 60 – 550 m above sea level. There are no records in the ALA database for a 5 km buffer around the point (-27.3244, 152.9547).	The Site does not afford suitable habitat for this species and is below 60 m (c. 30 m) above sea level. Detailed survey did not detect any specimens. None are known from close proximity to the site. In relation to the significant impact criteria for listed vulnerable species (Australian Government 2013), **it is unlikely that the Proposed Action will have**
	Vulnerable	NCA – Wildlife Online (no records within 10 km radius)		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
				significant direct or indirect impacts on wedge-leaf tuckeroo.
Bluegrass (*Dichanthium setosum*)	Vulnerable	EPBC Act – PMST (5 km radius)	**Highly unlikely** – bluegrass is reported to occur from inland NSW to Queensland. In QLD, the species is reported from Leichhardt, Morton, North Kennedy and Port Curtis regions and is known to occur in Mistake Range, Main Range National Park and possibly on Glen Rock Regional Park (DAWE 2019). Bluegrass is associated with heavy basaltic black soils and stony red-brown hard-setting loam with clay subsoils. Records of the species in Queensland (https://spatial.ala.org.au/?q=lsid:https:%2F%2Fid.biodiversity.org.au%2Fnode%2Fapni%2F2905357) are generally from the Great Dividing range, and areas with and average annual rainfall of below 1,000 mm/annum.	The Site does not contain preferred soil profile for this this species and surface geologies are also not present. Detailed surveys did not detect any specimens. None are known from close proximity to the site. In relation to the significant impact criteria for listed vulnerable species (Australian Government 2013), **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on bluegrass.
	Least Concern	NCA – Wildlife Online (no records within 10 km radius, since 1980)		
wandering pepper-cress (*Lepidium peregrinum*)	Endangered	EPBC Act – PMST (5 km radius)	**Unlikely** - wandering pepper-cress is a perennial herb to sub-shrub which occurs from the Bunya Mountains, south-east Queensland, to near Tenterfield, in northern New South Wales. It is found at riparian sites with Sandy alluvial soils. The nearest occurrence to the site is Mt Glorious (D'Aguilar Range), 18 km to the south-west, with other locations	Detailed survey did not identify any specimens. The Site does not contain suitable known habitat for wandering pepper-cress. None are known from close proximity to the site.
	Least Concern	NCA – Wildlife		

Listed threatened species or ecological communities (MNES)	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
		Online (one record within 10 km radius, since 1980)	including Rosin's Lookout at Beechmont (Qld), D'Aguilar Range, Deer Reserve State Forest near Kilcoy (Qld), Condamine Gorge near Killarney (Qld), Picnic Point Toowoomba (Qld) and Highfields Falls near Toowoomba (Qld). Habitat is characterized by At Clifton, this species grows in riparian open forest dominated by *Eucalyptus camaldulensis* and *Casuarina cunninghamiana* and was most abundant in the tussock grassland fringe of the riparian open forest (*Poa* sp. - *Lomandra longifolia* - *Paspalum dilatatum*). There are no records in the ALA database for a 5 km buffer around the point (-27.3244, 152.9547).	In relation to the significant impact criteria for Listed endangered species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on wandering pepper-cress.

Table 5 - Assessment of Impacts for Listed Migratory Species

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
fork-tailed swift (*Apus pacificus*)	Migratory	EPBC Act – PMST (5 km radius)	**Possible** - fork-tailed swift is widespread (almostexclusively aerial) species which occurs over a wide range of habitats (including urban areas) (DAWE 2016). This species is considered a likelyoccurrence at the Site.	This species is wide-ranging and highly mobile. It readily forages above urban areas and it is considered that Proposed Action is unlikely to impact this species directly or indirectly. In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on the fork-tailed swift.
oriental cuckoo (*Cuculus optatus*)	Migratory (terrestrial)	EPBC Act – PMST (5 km radius)	**Possible** - The oriental cuckoo is generally associated with rainforest margins, monsoon forest, vine scrub, riverine thickets, wetter densely canopied eucalypt forest, paperbark swamp and mangroves (Morcombe & Stewart, 2013). Riparian habitats along the environmental management zone containing Conflagration Creek supported along the riparian corridor provide foraging habitat for this species. There are two contemporary records for this species within 5 km of the Site records for this species to the south-west in the Suburbs of Bunya and Yugar.	In accordance with the Matters of National Environmental Significance - Significant Impact Guidelines 1.1 (CoA 2013; Pp12):, it is considered that the proposed action will not directly or indirectly impact on any of the following: -impact on important habitat for the Migratory species; or -Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
				-Seriously disrupt the lifecycle of an ecologically significant proposition of the population of the migratory species. Owing to the complexity of the denser habitats used by oriental cuckoo, the species could utilise habitats within the environmental management zone. The development footprint **will not impact directly or indirectly** on the species or habitat considered suitable for the species. EMC Precinct contains a patchwork of suitable closed habitat containing broad-leaved paperbark forest and cleared areas of unsuitable habitat containing rank / pastoral grassland. Habitat in this locality is small and highly fragmented and although suitable in type, there are areas of larger more contiguous habitat elsewhere within the locality, for example the South Pine River, The North Pine River and the denser closed vegetation within gullies and waterways of the vegetated catchment management area of North Pine Dam (which also includes North Pine Dam Nature Refuge). The site is unlikely to support a large number of birds of this species.

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
				The species is known to utilise peri-urban areas where suitable closed habitat is present. Rehabilitation of EMC Precinct will include weed removal and understorey planting within patches of broad-leaved paperbark forest, and habitat fabrication within rank grassland areas (weed removal, suppression and revegetation with canopy, midstorey and groundcover species) to provide for higher quality intact habitats in the medium and long term beyond the existing habitats. In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is anticipated that the Proposed Action will not have significant direct or indirect impacts** on the oriental cuckoo.
white-throated needletail (*Hirundapus caudacutus*)	Vulnerable and Migratory (terrestrial)	EPBC Act – PMST (5 km radius)	**Transient –** White-throated needletails are non-breeding migrants which are primarily an aerial species. A widespread (almost exclusively aerial) species, the white-throated needletail occurs over a wide range of habitats	This species is wide- ranging, cosmopolitan and highly mobile. It readily forages above urban areas and it is considered that the Proposed Action is highly unlikely to impact this species.

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			(Australian Government 2019). For a time for a time it was commonly believed that they did not land while in Australia. It has now been observed that birds will roost in trees, and radio-tracking has since confirmed that this is a regular activity (https://www.birdlife.org.au/bird-profile/white-throated-needletail). Found across all of the Australian landmass, in eastern Australia, it is recorded in all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Dividing Range and occasionally onto the adjacent inland plains. This species is considered a possible occurrence, overflying the Site.	In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on white-throated needletail.
black-faced monarch (*Monarcha melanopsis*)	Migratory (terrestrial)	EPBC Act – PMST (5 km radius)	**Possible** – the black-faced monarch mainly occurs in rainforest ecosystems; however, is occasionally found in nearby wet sclerophyll and dry sclerophyll forest (Australian Government 2019, https://www.birdlife.org.au/bird-profile/black-faced-monarch). Habitats supported along the riparian corridor of Conflagration Creek (retained as an environmental management zone) may providesome foraging habitat for this species.	In accordance with the Matters of National Environmental Significance - Significant Impact Guidelines 1.1 (CoA 2013; Pp12), it is considered that the proposed action will not directly or indirectly impact on any of the following: -impact on important habitat for the Migratory species; or -Result in an invasive species that is harmful to the

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			There are numerous contemporary records for this species within 5 km of the Site records for this species in the localities of Yugar, Eatons Hill, Bunya, Cashmere, Albany Creek and Bray Park.	migratory species becoming established in an area of important habitat for the migratory species; or -Seriously disrupt the lifecycle of an ecologically significant proposition of the population of the migratory species. Owing to the complexity of the denser habitats used by black-faced monarch, the species could occasionally utilise habitats within the environmental management zone. The Proposed footprint will not impact directly or indirectly on the species or habitat considered suitable for the species. Conflagration Creek contains a patchwork of suitable closed habitat containing broad-leaved paperbark forest and cleared areas of unsuitable habitat containing rank / pastoral grassland. Habitat in this locality is small and highly fragmented and although suitable in type, there are areas of larger more contiguous habitat elsewhere within the locality, for example the South Pine River, The North Pine River and the denser closed vegetation within gullies and waterways of the vegetated catchment management

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
				area of North Pine Dam (which also includes North Pine Dam Nature Refuge). The site is unlikely to support a large number of birds of this species. The species is known to utilise peri-urban areas where suitable closed habitat is present. Rehabilitation of Conflagration Creek will include weed removal and understory planting within patches of broad-leaved paperbark forest, and habitat fabrication within rank grassland areas (weed removal, suppression and revegetation with canopy, with canopy, midstorey and groundcover species) to provide for higher quality intact habitats in the medium and long term beyond the existing habitats. In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is anticipated that the Proposed Action will not have significant direct or indirect impacts** on the black-faced monarch.
spectacled monarch (*Monarcha trivirgatus*)	Migratory (terrestrial)	EPBC Act – PMST (5 km radius)	**Possible** - The spectacled monarch is typically associated with rainforest, wet gullies and moist eucalypt forests, wet gullies, waterside vegetation and mangroves	In accordance with the Matters of National Environmental Significance - Significant Impact Guidelines 1.1 (CoA 2013; Pp12):, it is considered

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			(https://birdlife.org.au/bird-profile/spectacled-monarch). Habitats supported along the riparian corridor provide suitable foraging habitat. There are numerous contemporary records for this species within 5 km of the Site records for this species in the localities of Yugar, Eatons Hill, Bunya, Cashmere, Albany Creek and Joyner.	that the proposed action will not directly or indirectly impact on any of the following: -impact on important habitat for the Migratory species; or -Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or -Seriously disrupt the lifecycle of an ecologically significant proposition of the population of the migratory species. Owing to the complexity of the denser habitats used by spectacled monarch, the species could utilise habitats within the environmental management zone. The Proposed footprint will not impact directly or indirectly on the species or habitat considered suitable for the species. Conflagration Creek contains a patchwork of suitable closed habitat containing broad-leaved paperbark forest and cleared areas of unsuitable habitat containing rank / pastoral grassland. Habitat in this

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
				locality is small and highly fragmented and although suitable in type, there are areas of larger more contiguous habitat elsewhere within the locality, for example the South Pine River, The North Pine River and the denser closed vegetation within gullies and waterways of the vegetated catchment management area of North Pine Dam (which also includes North Pine Dam Nature Refuge). The site is unlikely to support a large number of birds of this species. The species is known to utilise peri-urban areas where suitable closed habitat is present. Rehabilitation of Conflgration Creek will include weed removal and understorey planting within patches of broad-leaved paperbark forest, and habitat fabrication within rank grassland areas (weed removal, suppression and revegetation with canopy, midstorey and groundcover species) to provide for higher quality intact habitats in the medium and long term beyond the existing habitats. In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is unlikely that the Proposed Action will have**

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
				significant direct or indirect impacts on the spectacled monarch.
satin flycatcher (*Myiagra cyanoleuca*)	Migratory (terrestrial)	EPBC Act – PMST (5 km radius)	**Possible** - The Site provides broadly suitable habitat for satin flycatcher being found in tall forests, preferring wetter habitats such as heavily forested gullies, but not rainforests (https://www.birdlife.org.au/bird-profile/satin-flycatcher) and the species is considered a possible occurrence. There are numerous contemporary records for this species within 5 km of the Site records for this species in the localities of Yugar, Eatons Hill, Bunya and Joyner.	In accordance with the Matters of National Environmental Significance - Significant Impact Guidelines 1.1 (CoA 2013; Pp12):, it is considered that the proposed action will not directly or indirectly impact on any of the following: -impact on important habitat for the Migratory species; or -Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or -Seriously disrupt the lifecycle of an ecologically significant proposition of the population of the migratory species. Owing to the complexity of the denser habitats used by satin flycatcher, the species could utilise habitats within the environmental management zone. The Proposed footprint will not impact directly or

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
				indirectly on the species or habitat considered suitable for the species. Conflagration Creek contains a patchwork of suitable closed habitat containing broad-leaved paperbark forest and cleared areas of unsuitable habitat containing rank / pastoral grassland. Habitat in this locality is small and highly fragmented and although suitable in type, there are areas of larger more contiguous habitat elsewhere within the locality, for example the South Pine River, The North Pine River and the denser closed vegetation within gullies and waterways of the vegetated catchment management area of North Pine Dam (which also includes North Pine Dam Nature Refuge). The site is unlikely to support a large number of birds of this species. The species is known to utilise peri-urban areas where suitable closed habitat is present. Rehabilitation of Conflgration Creek will include weed removal and understorey planting within patches of broad-leaved paperbark forest, and habitat fabrication within rank grassland areas (weed removal, suppression and revegetation with canopy, midstorey

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
				and groundcover species) to provide for higher quality intact habitats in the medium and long term beyond the existing habitats. In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on the satin flycatcher.
rufous fantail (*Rhipidura rufifrons*)	Migratory (terrestrial)	EPBC Act – PMST (5 km radius)	**Possible** – rufous fantail inhabits wet sclerophyll forests, often in gullies dominated by eucalypts, usually with a dense shrubby understorey often including ferns (DAWE, 2019). During migratory movements, this species traverses drier sclerophyll habitats. Habitats supported along the riparian corridor along Conflagration Creek afford foraging habitat for this species. There are numerous contemporary records for this species within 5 km of the Site records for this species in the localities of Yugar, Eatons Hill, Bunya, Albany Creek, Bridgeman Downs, Warner, Cashmere and Joyner.	In accordance with the Matters of National Environmental Significance - Significant Impact Guidelines 1.1 (CoA 2013; Pp12):, it is considered that the proposed action will not directly or indirectly impact on any of the following: -impact on important habitat for the Migratory species; or -Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or -Seriously disrupt the lifecycle of an ecologically significant proposition of the population of the

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
				migratory species. Owing to the complexity of the denser habitats used by rufous fantail , the species could utilise habitats within the environmental management zone. The Proposed Action will remove open woodland habitat (being areas containing proposed residential development) inconsequential to the survival of the species. The Proposed footprint will not impact directly or indirectly on the species or habitat considered suitable for the species on the; Conflagration Creek. Conflagration Creek contains a patchwork of suitable closed habitat containing broad-leaved paperbark forest and cleared areas of unsuitable habitat containing rank / pastoral grassland. Habitat in this locality is small and highly fragmented and although suitable in type, there are areas of larger more contiguous habitat elsewhere within the locality, for example the South Pine River, The North Pine River and the denser closed vegetation within gullies and waterways of the vegetated catchment management area of North Pine Dam (which also includes North

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
				Pine Dam Nature Refuge). The site is unlikely to support a large number of birds of this species. The species is known to utilise peri-urban areas where suitable closed habitat is present. Rehabilitation of Conflgration Creek will include weed removal and understorey planting within patches of broad-leaved paperbark forest, and habitat fabrication within rank grassland areas (weed removal, suppression and revegetation with canopy, midstorey and groundcover species) to provide for higher quality intact habitats in the medium and long term beyond the existing habitats. In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on the rufous fantail.
common sandpiper (*Actitis hypoleucos*)	Migratory (wetland)	EPBC Act – PMST (5 km radius)	**Highly Unlikely** – found along all coastlines of Australia and in many areas inland, the commonsandpiper is widespread in small numbers. The population when in Australia is concentrated in northern and western Australia (Blakers et al.	The Proposed Action will not remove any suitable habitat for this species. Further, the Site is well removed from suitable core habitats and surrounded by vast areas of cleared waste management

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			1984; Higgins & Davies 1996). Areas of national importance and maximum counts (Watkins 1993) include: Queensland • South-eastern Gulf of Carpentaria,Queensland (235) • Cairns Foreshore, Queensland (42).	operations. In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on the common sandpiper.
sharp-tailed sandpiper (*Calidris acuminata*)	Migratory (wetland)	EPBC Act – PMST (5 km radius)	**Unlikely** – A non breeding migrant, in Queensland they are recorded in most regions, being widespread along much of the coast and are very sparsely scattered inland, particularly in central and south-western regions (Higgins & Davies 1996). They are widespread in most regions of New South Wales (NSW) and Victoria, especially in coastal areas, but they are sparse in the south-central Western Plain and east Lower Western Regions of NSW, and north-east and north-central Victoria (Higgins & Davies 1996). In Tasmania, they mostly occur in coastal areas in the east from George Town to Hobart, with scattered records on the north-west coast, and west coast from Henty River and Port Davey.They also occur occasionally inland and on Bass Strait islands (Higgins & Davies 1996).	The Proposed Action will not remove any suitable habitat for this species. Further, the Site is well removed from suitable core habitats and surrounded by vast areas of urban development. The Site is not important habitat for migratory shorebirds in accordance with Wildlife Conservation Plan for Migratory Shorebirds' (Australian Government, 2015). In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on the sharp-tailed sandpiper.

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
red knot (*Calidris canutus*)	**Endangered** and Migratory (wetland)	EPBC Act – PMST (5 km radius)	**Highly Unlikely** - A non breeding migrant, the red knot mainly inhabits intertidal mudflats, sandflats and sandy beaches of sheltered coasts and sometimes on sandy ocean beaches or shallow pools on exposed rockplatforms. They are occasionally seen on terrestrial saline wetlands near the coast and on sewage ponds and saltworks.	The Proposed Action will not impact the preferred habitat for this species, nor does it occur on Site. In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on the red knot.
curlew sandpiper (*Calidris ferruginea*)	**Critically Endangered** and Migratory (wetland)	EPBC Act – PMST (5 km radius)	**Unlikely** - A non breeding migrant. Although generally occurring within estuarine environments, curlew sandpiper have also been recorded from inland areas around wetlands, bores, permanent lakes andwaterholes (DAWE 2019). In Queensland, scattered records occur in the Gulf of Carpentaria, with widespread records along the coast south of Cairns. There are sparsely scattered records inland. No suitable habitat occurs within the Site. In Australia, curlew sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes,	The species prefers more open foraging habitat; any bodies of water associated with Conflagration Creek are heavily vegetated, with dense fringing pasture grasses and other riparian weeds. Therefore, the Proposed Action will not remove any suitable habitat for this species. Further, the Site is well removed from suitable estuarine and coastal core habitat areas. The Site is not important habitat for migratory shorebirds in accordance with Wildlife Conservation Plan for Migratory Shorebirds' (Australian Government, 2015). In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is unlikely that the Proposed Action will have**

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			dams, waterholes and bore drains, usually with bare edges of mud or sand (Curlew sandpiper Conservation Advice, 2015).	**significant direct or indirect impacts** on the curlew sandpiper.
pectoral sandpiper (*Calidris melanotos*)	Migratory (wetland)	EPBC Act – PMST (5 km radius)	**Unlikely** - A non breeding migrant. In Queensland, most records for the pectoral sandpiper occur around Cairns. There are scattered records elsewhere, mainly from east of the Great Divide between Townsville and Yeppoon. Records also exist in the south-east of the state as well as a few inland records at Mount Isa, Longreach and Oakley. In New South Wales (NSW), the Pectoral Sandpiper is widespread, but scattered. Records exist east of the Great Divide, from Casino and Ballina, south to Ulladulla. West of the Great Divide, the species is widespread in the Riverina and Lower Western regions. In Victoria the Pectoral Sandpiper is mainly found from Port Phillip Bay and the valley of the Murray River between Kerang and Piangil. Pectoral sandpiper prefers shallow fresh to saline wetlands often with low grass or other herbage; swamp margins, flooded pastures sewage treatment ponds, tidal areas and saltmarsh.	The species prefers more open foraging habitat; any bodies of water associated with Conflagration Creek are heavily vegetated, with dense fringing pasture grasses and other riparian weeds. The Proposed Action will not remove any suitable habitat for this species, and the Site is well removed from suitable estuarine and coastal core habitat areas. The Site is not important habitat for pectoral sandpiper in accordance with Wildlife Conservation Plan for Migratory Shorebirds' (Australian Government, 2015). In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on the pectoral sandpiper.

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
Latham's snipe (*Gallinago hardwickii*)	Migratory (wetland)	EPBC Act – PMST (5 km radius)	**Unlikely** – A non breeding migrant, Latham's snipe are seen in small groups or singly in freshwater wetlands on or near the coast, generally among dense cover (https://www.birdlife.org.au/bird-profile/lathams-snipe), saltmarshes and mangrove fringes (Pizzey and Knight, 2013). They are found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration. They also use crops and pasture. Latham's Snipe is a non-breeding visitor to south-eastern Australia and is a passage migrant through northern Australia (i.e. it travels through northern Australia to reach non-breeding areas located further south) (Higgins & Davies 1996). The species has been recorded along the east coast of Australia from Cape York Peninsula through to south- eastern South Australia (including the Adelaide plains and Mount Lofty Ranges, and the Eyre Peninsula). The range extends inland over the eastern tablelands in south-eastern Queensland (and occasionally from Rockhampton in the north), and to west of the Great Dividing Range in New South Wales The species is widespread in Tasmania and is found in all regions of Victoria except for the north-west (Barrett et al. 2003; Blakers et al. 1984; Emison et al. 1987). Most birds spend the non-breeding period at Sites located south of the Richmond River in New South Wales.	In accordance with the Matters of National Environmental Significance - Significant Impact Guidelines 1.1 (CoA 2013; Pp12):, it is considered that the proposed action will not directly or indirectly impact on any of the following: -impact on important habitat for the Migratory species; or -Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or -Seriously disrupt the lifecycle of an ecologically significant proposition of the population of the migratory species. The Proposed footprint will not impact directly or indirectly on the species or habitat considered suitable for the species. Although the species is known to utilise creek edges on migration, generally among dense cover, the disturbed parts of the waterway where open forest vegetation has previously been removed is dominated by rank grasslands of tall Setaria (pigeon) grass. The characteristics of this vegetation are viewed as too

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
			The species is occasionally recorded at Sites located to the west of the core range (e.g. in north-western and south-western Queensland, north-western New South Wales, mid-northern South Australia, the Northern Territory and Western Australia is also an irregular visitor to Norfolk Island and Lord Howe Island, and possibly to Macquarie Island (records are unconfirmed). There are two contemporary records for this species within 5 km of the Site in the localities of Eatons Hill (South Pine River) and Cashmere. S significant number of records are associated with the North Pine Dam and Lake Kurwongba and their tributaries.	dense and are sub-optimal for the species. Therefore, utilization of the habitat is considered unlikely. Rehabilitation of the EMC Precinct will include weed removal and understorey planting within patches of broad-leaved paperbark forest, and habitat fabrication within rank grassland areas comprising weed removal, suppression and revegetation with canopy, midstorey and groundcover species. Although this habitat configuration is not preferred by the species, the more open habitats created along Conflagration Creek may serve to provide occasional habitat. The Proposed Action will not result in the permanent loss of suitable habitat for this species and the Site is not important habitat for Latham's snipe in accordance with Wildlife Conservation Plan for Migratory Shorebirds' (Australian Government, 2015). In relation to the significant impact criteria for Listed migratory species (Australian Government, 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on Latham's snipe.

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
eastern curlew (*Numenius madagascariensis*)	Critically Endangered and Migratory (wetland)	EPBC Act – PMST	**Highly unlikely** – A non-breeding migrant, eastern curlew are widespread in coastal areas, suitable habitats include saline and freshwater wetlands, saltmarshes, estuaries, intertidal mudflats and areas of exposed mud for foraging and sandflats, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours and lagoons. Eastern curlew are also found in coastal saltworks and sewage farms (Marchant & Higgins, 1993). The Site does not contain saline wetland habitats. The Site does contain a farm dam with dense stands of taro (*Colocasia* sp.) and mud drapes along the Conflagration Creek floodplain; however this is not considered habitat for the species.	The Proposed Action will not remove any suitable habitat for this species. Further, the Site is well removed from suitable core habitats and surrounded by vast areas of cleared waste management operations. The Site is not important habitat for eastern curlew in accordance with Wildlife Conservation Plan for Migratory Shorebirds' (Australian Government, 2015). In relation to the critically endangered species (Australian Government, 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on eastern curlew.
Osprey (*Pandion haliaetus*)	Migratory (wetland)	EPBC Act – PMST (5 km radius)	**Possible** - the Site is well removed from larger waterways and marine environments this species is typically associated with and has limited foraging resources available to this larger raptor (e.g. small dam in the northern component of the Site would be marginal at best for this species foraging.	The Proposed Action will not remove any suitable habitat for this species. In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on the osprey.
common greenshank (*Tringa nebularia*)	Migratory	EPBC Act – PMST (5 km	**Possible** – A non-breeding migrant, common greenshank is found in a wide variety of wetlands, mudflats and permanent	The species prefers more open foraging habitat; any bodies of water associated with Conflagration Creek

Migratory Species	Listed Status	Source	Likelihood of Occurrence *(refer to Table 2 for Likelihood ratings)*	Potential for Significant Impact
		radius)	and ephemeral terrestrial wetlands such as swamps, dams, lakes, rivers, billabongs waterholes and flooded plains. Habitats in lower cleared flood prone areas provide marginal habitat for this species.	are heavily vegetated, with dense fringing pasture grasses and other riparian weeds. The Proposed Action will not remove any suitable habitat for this species. Further, the Site is well removed from suitable estuarine and coastal core habitats. The Site is not important habitat for common greenshank in accordance with Wildlife Conservation Plan for Migratory Shorebirds' (Australian Government, 2015). In relation to the significant impact criteria for Listed migratory species (Australian Government 2013) **it is unlikely that the Proposed Action will have significant direct or indirect impacts** on the common greenshank.

5.3.3 Site Fauna Habitat Context

Overview

The Site itself is bound by Warner Road to the north which will be upgraded for future approved residential development[8] and rural residential land to the east, south and west. Historically the Site was cleared of the majority of its native vegetation for agricultural production, primarily livestock production on modified pasture / open woodland.

It is clear that the Site's historic disturbance (refer **Section 5.1**) has significantly affected its ecological values and reduces the likely occurrence of many species (in particular forest- dependent species reliant on intact and contiguous habitat). Habitat values within the Site are generally aligned to the Vegetation Communities mapped in **Figure 3** of Att C- Figures 1-4 Mapping and Surveys and described below.

Within the Site, a number of overarching habitat types and habitat qualities are supported, alllow in ecological significance and condition.

The following sections provide a brief synopsis of each broad habitat type within the Site andtheir relevance to vertebrate fauna.

Disturbance Areas

This habitat is situated over much of the Site and comprises the highly disturbed areas largely devoid of any specific vegetation community. With respect fauna, the habitat is low quality; lacking vegetative structure and/ or microhabitats which are often critical elements for the presence and persistence of conservation significant fauna, forest dependent fauna and cryptic fauna.

The disturbed habitats include open pastoral grassland paddocks, pastoral paddocks with scattered trees (open-very open woodland), and domestic landscaping containing cultivated ornamental groundcovers, shrubs and trees, and garden escapes. Although these areas are generally not suitable for most fauna to inhabit,

[8] Warner North

larger more mobile fauna including koala and grey-headed flying-fox (*Pteropus poliocephalus*), known from the wider locality could utilise the resources present in this area for foraging, and for movement.

This area and disturbed parts of the riparian corridor, are identified as Vegetation Community1 (refer Att C- Figures 1-4 Mapping and Surveys, **Figure 3**).

Riparian Areas

The riparian habitat on the Conflagration Creek floodplain consists of two semi-mature regrowth patches connected by scattered canopy trees along the floodplain and then to vegetation patches beyond the boundaries of the site. The Conflagration Creek floodplain is mapped as part of MBRCs green infrastructure network (refer **Insert 1**) and affords connectivity with Ausbuild's Warner North riparian rehabilitation area.

The two patches (Vegetation Community 2 and Vegetation Community 3) contain mixed understories of native and exotic species with their composition dependent upon the degree of historic disturbance, and proximity of rural residential garden plantings. With respect to fauna habitat, it is of moderate quality; with vegetative structure and the presence of microhabitats which are often critical elements for the presence and persistence of conservation significant fauna, forest dependant fauna and cryptic fauna. The area is extensively impacted by weeds, historic land clearing and disturbance has removed ground structure (coarse woody debris, rocky substrates) and vegetation age is uniform, and these aspects prevent the overall rating being higher.

These areas represent higher quality habitat for all fauna groups and could be utilised by koalaand grey-headed flying-fox which are known to the wider locality.

Queensland blue gum (*Eucalyptus tereticornis*) and broad-leaved paperbark (*Melaleuca quinquenervia*), both important autumn-winter bottle-necking resources and forage resources for species such as grey-headed flying-fox are extensively found along Conflagration Creek.

As noted in **Table 4**, the koala and grey-headed flying-fox were considered 'Likely' to occur within the locality; however, the Proposed Action is considered to have a low

potential toimpact these species due to the protection, retention and rehabilitation of the highest value habitat in the EMC Precinct (refer **Section 6** of this report for further detail). The key reasons to this assessment are:

i. the poor-quality of the habitats proposed to be disturbed on site and the smallsize of these habitats;

ii. the context of the Site in the broader Warner area; and

iii. the historical/ existing disturbances both within and adjoining the Site.

Despite the above, there are few existing impediments/ risks to both species' movements within and through the Site and immediate surrounds and despite the urban / peri-urban and emerging industrial nature of the area, there remains good connectivity to the west and north, centered on Conflagration Creek.

Species

Species identified by the surveys undertaken on-site are outlined in **Attachment 12** of Att F- Attachments 1-12 Reporting and Scoring. MNES species recorded on-site and those reasonably anticipated to utilise the habitats present are:

- Koala (*Phascolarctos cinereus*).
- Grey-headed flying-fox (*Pteropus poliocephalus*).

5.3.4 Koala

As identified in **Table 4** above, the potential to realise a significant impact upon koala by the Proposed Action has been considered against criteria identified by DAWE (Att F- Attachments 1-12 Reporting and Scoring, **Attachment 11**). Koalas were detected indirectly at SAT sites (refer Att C- Figures 1-4 Mapping and Surveys, **Figure 4**) and directly by observation (Att C- Figures 1-4 Mapping and Surveys, **Figure 6**). Assessment of the Site's habitats and context in the locality, the Site has been assigned a score of 5 / 10. As such, and with reference to the EPBC Act Referral Guidelines for the Vulnerable Koala, a habitat score of > 5 does constitute 'habitat

critical to the survival of the koala'. Assessment of the Site and its context it is also relevant to note that:

- The score of the koala occurrence is precautionary, based on historical surveys and assessment of the Site to the north of Warner Road;
- While it is noted that the site is identified as "functionally connected" to broader areas of remnant vegetation, the main connection corridor through the central portion of the Site will be retained, protected and enhanced as a result of this action; and
- The value of the potential koala habitat within the Site is identified as containing no broad areas of woodland or open forest are present on the site. the bulk of the vegetation containing koala food trees / koala habitat trees will be retained within the Conflagration Creek Riparian reserve. On this basis, due to the presence of koala feed trees individually or as copses of trees within cleared and regrowth areas, a vegetation composition score of 1 has been applied. has been assigned a score of 2.

5.3.5 Grey-headed flying-fox

The grey-headed flying-fox has been detected foraging on the site (**Figure 6** of Att E-Figures 6-10 Mapping and Surveys). The potential to realise a significant impact upon grey-headed flying-fox within the Project Footprint has been considered against criteria identified by DAWE. A significant impact is not predicted as:

- The Site does not support an important population of grey-headed flying-fox or habitatcritical to the survival of this species;
- The Site does not support a grey-headed flying-fox camps, but rather only forms a small proportion of foraging habitat within the range of this species;
    - Assessment of available intact/ remnant foraging habitat for this species within a 5km radius of the Site notes an abundance (1,071.5ha) of available, remnant resource. The Site is not considered remnant or intact; however, the existing potential foraging resources

within the Site would account for 0.0043 % of available foraging resources (refer Att E- Figures 6-10 Mapping and Surveys, **Figure 7**).

- One inhabited grey-headed flying-fox (2.1 km south of the site, identified as the Albany Creek, Kingfisher Street) and one un-inhabited (4.1km north east of the Site, identified as the Strathpine, Meeklem Street Roost) camps are known within 5 km of the Site[9]. Despite their ability to travel significant distances each night in search of foraging resource, the Site's position and context within the Warner Residential area reduces habitat amenity for grey-headed flying-fox given the abundance of urban power lines throughout the area (refer Att E- Figures 6-10 Mapping and Surveys, **Figure 7**).

- Measures identified in **Section 6** of this report are expected to manage the potential to directly or indirectly impact this species;

- Suitable habitat is well represented in conservation areas removed from the impact development footprint and will persist through their protected status (refer Att E- Figures 6-10 Mapping and Surveys, **Figure 10**); and

- This species is not considered to be dependent upon any habitat within the Site for anyparticular lifecycle stages.

[9] Based on interactive National Flying fox monitoring viewer maintained by the DAWE. Accessed 18June 2021 at: https://www.environment.gov.au/webgis-framework/apps/ffc-wide/ffc-wide.jsf

5.4 Impact assessment

5.4.1 Direct Impact Assessment

As identified in **Table 4 above**, the removal of the poorer quality koala habitat as a result of the Proposed Action is inconsequential to the survival of koala, or GHFF. A response to the EPBC Act Referral Guidelines for koala is provided in Att F- Attachments 1-12 Reporting and Scoring, **Attachment 11**. The results of this assessment against the referral guidelines have identified that '**Impacts Uncertain, Referral Decision Depends on The Nature of YourAction'**.

Koala's are known from the locality and have been confirmed as utilising the site as a result of the onsite surveys. Landscaping and rehabilitation of habitats along Conflagration Creek as a component of the Proposed Action will provide a significantly greater area and level of habitat quality than the areas affected by the residential components of the proposed action which presently contain paddock trees. A response to the EPBC Koala Referral Guidelines and the Koala Habitat Assessment Tool has been prepared (see Att F- Attachments 1-12 Reporting and Scoring, **Attachment 11**) to qualify this.

5.4.2 Indirect Impact Assessment

Indirect impacts occur when project related activities affect vegetation or habitats in a manner other than a direct loss or clearing. Examples of indirect impacts include; promotion of soil erosion, sedimentation of waterways, dust inhibiting plant pollution, provision of suitable seed bed for invasive plants, or increased noise activity within of directly adjacent to sensitive habitat areas.

The potential indirect impacts that may potentially result from construction activities and/or theoperational phase of the Project has been identified below.

Construction Phase

Weeds

Increased vehicle movement during the construction phase has the potential to increase the spread of weeds in the area, particularly during the vegetation clearing phase. With implementation of standard mitigation measures, the project is likely to result in a negligible impact to ecological values due to the potential introduction/spread of weeds.

Vehicle Movement

During construction, a number of vehicles will be required on the subject site. Direct impacts from vehicle movements on threatened species and vegetation communities include:

- damage or destruction of vegetation or fauna habitat by vehicles traversing theseareas; and
- fauna strike.

Earthworks

Construction activities have the potential to generate dust emissions. Dust emissions duringconstruction will be temporary. The main sources of dust will be generated via:

- wheel-generated dust from the haul roads created for the construction phase;
- dust lift-off from exposed surfaces (e.g. construction roads and pads);
- earthworks, including construction of the embankments, and moving, dumping andshaping material; and
- vegetation and soil clearing of the land.

Excessive deposition of dust on leaves of plants can suppress the growth and photosynthesis, resulting in reduced habitat quality for fauna. High levels of airborne

dust can irritate the respiratory systems of fauna and potentially result in ingestion of dust-coated seeds and other foods. Excessive deposition of dust on open water bodies may also degrade water quality and overall habitat quality for fauna. With implementation of standard mitigation measures, the project is likely to result in a temporary and minor impact to ecological values due to the generation of dust.

Light Emissions During Construction

Artificial light can affect both nocturnal and diurnal animals by disrupting behavioral patterns, with quality of light (e.g. wavelength, colour), intensity and duration potentially evoking different faunal responses. Impacts from increased light levels include disorientation from, or attraction toward, artificial sources of light; mortality from collisions with structures; and effects on light-sensitive cycles of species (e.g. breeding and migration for fauna and flowering in plants). An artificial increase in lighting can also affect abundance of predators.

Presence and intensity of artificial light in the project area will temporarily increase during the construction phase; however, night works will not be common. Lighting will be directed to construction areas within the project area.

Some light spillage will be inevitable and is likely to be contained. Potential impacts associatedwith light emissions will be temporary and unlikely to be significant.

With implementation of standard mitigation measures, the project is likely to result in a negligible impact to ecological values due to the use of light pollution during construction.

Noise and Vibration

Noise levels greater than existing ambient noise levels are expected during the construction within the project area. Sources of noise are likely to consist of noise in short, intense pulses from mobile plant equipment, and more prolonged noise, with consistent vibration, pitch and volume from generators, excavators and pumps, in addition from noise from vehicles.

Both steady continuous and single noise events have the potential to lead to ecological impacts. Construction noise is expected to elicit some avoidance response from fauna using the surrounding vegetation though, with consideration of the extent of habitat available in the subject site, this is likely to be a temporary and negligible to minor impact.

Increased Human Presence

Increased human activity during construction has the potential to disturb fauna within adjacent habitat areas.

Resulting impacts to fauna include heightened vigilance and predator avoidance, which can disrupt foraging and roosting efficiency or deter wildlife from using particular areas. Impacts essentially represent a reduction in core habitat due to edge effects. The project is likely to result in a temporary and minor impact to ecological values due to increased human presence on site during the construction period.

Post Construction Phase

Traffic

While yet to be confirmed, it is anticipated that there will be a relatively small predicted increase in traffic on what is already a well utilised local road network, and as such, is unlikely to generate significant additional threat for koala.

During a recent (ca. 2016) upgrade of Old North Road (from a two-lane to a four-lane road), fauna underpass and overpass structures were established on a waterway to the Site's north (Att C- Figures 1-4 Mapping and Surveys, **Figure 1** and Att B- Plates

1-10, **Plates 1-2**). The culverts conveying Conflagration Creek[10] under Old North Road into Brendale were not upgraded to improve fauna passage [11] (Att B- Plates 1-10, **Plates 3-4**), providing clear indication that east-west connectivity in this locality was to be provided by the waterway furthernorth, rather than Conflagration Creek.

In regard to areas east of Old North Road, this decision reflects: the highly cleared nature of Conflagration Creek to the east of Old North Road; the zoning of the land (industrial); and existing (but yet to be constructed) approvals. These circumstances effectively limit koala movement along Conflagration Creek to areas west of Old North Road (Att C- Figures 1-4 Mapping and Surveys, **Figure 1**).

Waste Disposal

Inappropriate disposal of non-hazardous wastes can attract vermin and other wildlife to site. This may exacerbate potential impacts (e.g. road mortality). Litter may also enter surrounding environments. With implementation of standard mitigation measures, the project is likely to result in a negligible impact to ecological values due to the generation and handling of waste.

Hazardous and Dangerous Goods

Spills and leaks from transfers (e.g. fuel and/or chemicals) and inadequate storage of dangerous goods and hazardous wastes could result in point-source contamination of surrounding land. Direct adverse impacts could include toxic impacts on vegetation (resulting in degradation or loss of vegetation and habitats), direct toxic impacts on fauna (from contact, inhalation or ingestion) or indirect impacts on threatened and migratory species from habitat loss. Direct adverse impacts on surface and groundwater quality are also possible.

With the application of standard mitigation and management measures, impacts from liquid and solid waste disposal will be avoided or localised and small in scale. Further to this, the likelihood of significant spillages is considered extremely low. Therefore,

[10] The Site's major waterway, and focus for fauna movement.

[11] They create a broad soak on the upstream (western side) of the culverts, and the base of the culverts appear to be continuously wet

the project is likely to result in a negligible impact to ecological values due to potential spills and leaks.

Increased Human Presence and interaction with Dogs

Increased human activity after completion of construction has the potential to disturb fauna within adjacent habitat areas.

Resulting impacts to fauna include heightened vigilance and predator avoidance, which can disrupt foraging and roosting efficiency or deter wildlife from using particular areas. Impacts essentially represent a reduction in core habitat due to edge effects. The project is likely to result in a minor impact to onsite and adjacent ecological values due to increased human presence.

Mitigation and management measures, including the utilisation of appropriate fencing and appropriate design and siting of onsite walking and access tracks will minimise interaction potential.

6 Impact mitigation

Unmitigated, the Proposed Action has minor potential to impact the ecological values and function of the landscape given the context of the Site, existing threats/ impediments and poor- quality habitats supported within the Site. Minor, indirect impacts to fauna may also include interaction with people and residential activities, and traffic generated by the Proposed Action. In order to avoid, minimise and mitigate such impacts, the Proponent has adopted a number of measures throughout the evolution of the Proposed Action's design.

The 'avoid – minimise – mitigate' principle is a common tenet of conservation planning and is a standard against which development performance is assessed by all levels of government. The following discussion outlines the ways this principle has been adopted for the Proposed Action in both the: i) Initial Planning Processes; and ii) Refined Design Processes.

6.1 Iterative Design Process Based on In-field Ecological Information.

The iterative design process underpinning the Proposed Action's development demonstrates how it has aimed to achieve the provisions of relevant State and Local Governmentsenvironmental planning outcomes.

It has been an important process of consideration and review of constraints and opportunities available over the Site to accurately capture and protect the Site's environmental values where practicable. The design process was iterative in nature and informed by ongoing accumulation of desktop and Site-based data. This iterative process of informing design has occurred through:

1. Desktop assessments;
2. Site based surveys including a tree survey over the entire Site and a review of Tree Protection Zones (**TPZ**s) regarding design elements;
3. Review and workshop of Site-based survey results;
4. Review and testing of design; and

5. Review of Development Scheme and State Policies.

The following sections provide a synopsis and outline of each of the key steps in this process and how they demonstrate the Proposed Action's 'avoid – minimise – mitigate' framework.

6.2 Design Considerations

One of the key purposes of this report is to identify potential impacts upon ecological values and provide guidance for further design development. Therefore, where practicable, the detailed design stage will consider the extent of the final project footprint in respect to avoiding and minimising impacts to areas of remnant and riparian vegetation, TECs and key habitat values therein.

6.2.1 Mitigation in Design

More refined planning and design of the Proposed Action will be undertaken through the detailed design phase after the initial planning elements have been finalised.

6.3 Planning and Landscape Context

The Site forms a component of the existing rural residential network of landuses, located within MBRC suburb of Warner. The Site is strategically positioned in a residential investigation area within the strategic frameworks of the current MBRC Planning Scheme. Due to the MBRC identification of the Warner investigation area, it is reasonable to expect that similar future residential development of the area is anticipated to continue.

The Site is comprised of a number of rural residential properties on the peri-urban fringe in the north-west of Brisbane. Landuse within 500 m of the site is rural residential properties. Beyond this is extractive industry with a residential approval to the north; industrial, residential and open space to the east; residential to the south; and rural residential to the west. Land immediately adjacent to, on the northern side of Warner Road has current development applications over for higher density, detached residential development.

The Site is strategically positioned within the developing higher density fringe within the Moreton Bay Regional Council. The MBRC Planning Scheme assigns the site to the Rural Residential designation, however, it is further noted that the site is located within the Warner Investigation Area, which is supporting the transition from a peri-urban environment to a higher density urban environment. Additionally, it is noted that the proposed development application when lodged for assessment with MBRC will be assessed as an “Emerging Community” designation, further enhancing its urban landuse.

Given the expanding residential development areas within Warner, which are expanding southwards, it is reasonable to expect that consolidation of similar residential development of the area is anticipated to continue. Further, The Queensland Government has identified the Site as having potential for urban uses by virtue of its inclusion as Urban Footprint in the “Shaping SEQ 2017” Regional Plan.

As such, the Site’s development represents logical and sequential expansion (co-located on existing impacted Site) of existing residential development in this locality; however, the proposed development footprint has considered the constraints and opportunities to ensure the design is appropriate. The Applicant has undertaken significant levels of due diligence over the Site. The Site presents the most logical location for the action due to its identification as in “investigation area” for residential development within the MBRC planning scheme, coupled with the proximate location of higher density residential development to the South andNorth of the Site.

Mitigation of General Ecological Impacts

Ecological Site and desktop investigations undertaken identified that the Site itself possessed low to lo-moderate ecological values. The nature and context of the surrounding land uses has resulted in a highly fragmented and heavily augmented landscape. The Site is bound by Warner Road to the north which exists as key access road from South Pine Road (east) to rural residential land to thew west. To the south and west the Site is bound by rural residential and urban residential landuse, to the north by rural residential, extractive industry and urban residential uses, and the east by rural residential, industrial, future industrial, urban and openspace recreation.

The site has landscape connectivity to the north, south and west with small pockets of vegetation scattered throughout the site with larger, connected pockets along the Conflagration Creek floodplain.

The Site has been subject to historical clearing for agricultural pursuits. As such, the Site is highly degraded and displays a moderate to high level of modification; there are however pockets of canopy trees with regularly slashed / grazed understorey, and pockets of vegetation (regrowth and relictual) with mid and understorey of native and exotic species. These latter pockets occur along Conflagration creek, outside the area of proposed urban development. The Site is currently generally unutilised, with limited agricultural activities occurring across the Site predominantly associated with horses.

Tree density is greatest along Conflagration Creek and along internal property fence lines north of the creek and along the external eastern boundary to the south east of the creekline (see Att E- Figures 6-10 Mapping and Surveys **Figure 9**).

Baseline ecological assessment identified that the waterway vegetation contained within the proposed EMC Precinct provides most in-tact koala habitat within the Site. Koala survey results noted no evidence of koala usage occurred across the entire Site with greatest concentrations of scats and observations within the floodplain vegetation along the creek (there was no direct observation of koala outside of the waterway). Conflagration Creek is likely to be an important north-south corridor for movement however Warner Road remains a potential risk for koala movement with the road creating an ecological impediment in the absence of wildlife management infrastructure. Such infrastructure will be installed as part of road widening and urban development associated with Warner North. To the south west, Conflagration Creek networks with a broad south to north tending landscape connection linking The Pine River at Eatons Hill with the blocks of contiguous koala habitat to the north-west to Four Mile Creek and beyond to Lake Samsonvale in the suburbs of Warner and Cashmere (See Att C- Figures 1-4 Mapping and Surveys, **Figure 2** and Att E – Figures 6-10 Mapping and Surveys, **Figure 8**).

6.4 Impact and Management of Domestic Dogs

The proposed action will increase the occurrence of dogs at the Site, but the significance of this outcome needs to be considered in light of: (i) the existing

occurrence of wild dogs in the locality; and (ii) the relative contribution made by wild and domestic dogs to koala attack, particularly in tightly configured new urban development.

In South East Queensland, wild dog populations exist on the outskirts of suburbs within Brisbane, the Gold Coast and Sunshine Coast. These dogs often go un-noticed, and residents regularly mistake them for domestic dogs without collars. Australian Koala Foundation and Queensland Parks and Wildlife data on koala deaths from these areas show that mortality due to dog attack is far more frequent in the western and northern areas of the greater Brisbane area where wild dogs are prevalent. Given the general public's ignorance of wild dogs living within some areas of Brisbane and surrounds, it would be very easy to blame domestic dogs for every koala found mauled by a dog (Mifsud undated).

In the western part of the MBRC local government area the impact of wild dogs is sufficient for Council to proactively manage the threat through its Hinterland and Rural wild dog management program. Given the Site's direct connection to rural residential and rural areas to the west, it is apparent that wild dogs will already predate koala at the Site.

In the longer term, the proposed action's conservation corridors will create focal points for the management of wild dogs[12]. It is anticipated that Council will manage the corridors in a manner similar to other nearby urban areas as part of their biosecurity obligations under the Qld *Biosecurity Act 2014*.

Further, it is considered that the development configuration would create little opportunity for interaction between dogs and koalas, except where dogs were outside of their designated property, and so *at large*[13]. The proposed action's configuration is significant, because it creates precincts that are either: (i) wholly committed to development, and actively exclude koala (while containing dogs) by way of fencing;

[12] As the corridors are transferred to Council ownership, Council will inherit the general biosecurity obligation established by the *Biosecurity Act 2014*.

[13] MBRC Local Law 2 (Animal Management) 2011; and Subordinate Local Law 2 (Animal Management) 2011 govern control of roaming dogs.

and (ii) wholly committed to conservation and rehabilitation, and actively exclude dogs by way of fencing.

Koala-Specific Mitigation

Many of the above-listed general impact mitigation measures are also relevant in terms of mitigation of potential impacts to koalas. With regards to additional requirements during clearing of koala habitat, the following requirements of the Queensland *Nature Conservation (Koala) Conservation Plan 2017* will be implemented:

- Clearing must be in the presence of a suitably qualified and permitted koala spotter. Prior to the commencement of, and during felling operations, it is the responsibility of the koala spotter to identify trees in which a koala is present and any trees where their crown overlaps trees in which a koala is present and convey this information to the person(s) conducting the clearing. –

How the measure is expected to be effective: By avoiding mortality and injury to fauna, and by safely relocating fauna to suitable habitat that will not be impacted.

Timing- During Vegetation Clearing.

- Construction personnel should be educated in relation to their role in fauna and weedmanagement.

How the measure is expected to be effective: By making personnel aware of their obligations through Site Specific Environmental Management Plans and carrying out pre-start toolbox talks.

Timing- Prior to vegetation clearing and ground disturbance activities.

- No more than 50 percent of the Project Footprint is cleared in any one stage. Between each stage, a period of at least 12 hours that starts at 6 pm and finishes at 6 am is required, during which time no trees are removed. –

How the measure is expected to be effective: By allowing any remaining fauna species time to escape.

Timing – During Vegetation Clearing

- Cleared vegetation is to be stockpiled for a short period of time after clearing. –

How the measure is expected to be effective: By allowing any remaining fauna species time to escape.

Timing – During Vegetation Clearing Activities

- No tree in which a koala is present, and no tree with a crown overlapping a tree in which a koala is present, is cleared. A koala spotter is not to physically move koalas from a tree in which they are residing to another location. Each tree identified by the koala spotter as being a risk to koalas if felled, should not be felled, damaged or interfered with until the koala has moved from the felling site of its own volition.

How the measure is expected to be effective: By preventing injury to fauna, and by safely relocating fauna to suitable habitat that will not be impacted.

Timing- During Vegetation Clearing

Through detailed desktop and in-field ecological assessments in October 2015 and June 2021, a small number of MNES were identified to potentially occur within the Site or immediate surrounds. Of these, only the koala may potentially be impacted by the Proposed Action. A review of other MNES which were identified within the EPBC PMST (Att F- Attachments 1-12 Reporting and Scoring, **Attachment 3**) and Queensland's Wildlife Online database (Att F- Attachments 1-12 Reporting and Scoring, **Attachment 4**) was undertaken against the impacts of the Proposed Action.

A specific response to the EPBC Act Referral Guidelines for the Vulnerable koala is provided in Att F- Attachments 1-12 Reporting and Scoring, **Attachment 11** while assessment of each MNES identified in Att F- Attachments 1-12 Reporting and Scoring, **Attachment 3** is provided in **Table 4** (**Section 5.1.1 of this report**). Approval of the Proposed Action will result in the removal of pockets of canopy vegetation (the understorey is substantially modified by ongoing grazing and slashing within the Site. Development approvals from MBRC will be required prior to the commencement of

construction for the Proposed Action, and as such, additional future development approvals from MBRC will be required prior to construction commencement.

Additionally future development approvals from MBRC will be required prior to the commencement of construction for the Proposed Action, and as such, additional future development approvals from MBRC will identify, mitigate, manage, and if required, offset [14] all impacts. **Specific Design considerations and mitigation measures for koala will be beneficialfor grey-headed flying fox and swift parrot.**

6.5 Environmental Outcome

The proposed environmental outcomes for the project will be the protection and restoration of habitat within the Conflagration Creek Floodplain contained within the Environmental Management Zone.

Habitat would be rehabilitated to pre-disturbance conditions (viz-a-viz. Regional Ecosystems 12.3.6 and 12.3.11) at the time of the development is commenced. It is proposed that rehabilitation of the waterway would occur within with structural and floristic targets in accordance with the Queensland Regional Ecosystem Technical Guidelines produced by the Queensland Herbarium (Department of Environment and Science) and all rehabilitation work would be complete within period of 2 years from the start of the Proposed Action. A maintenance period for the life of the approval or until received in writing that the Department is satisfied with provided written evidence is proposed.

The ultimate target for the rehabilitation will be to achieve remnant status for the restoration area in accordance with Queensland Regional Ecosystem Guidelines[15].

[14] Any applicable environmental offsets will be in accordance with the Environmental Offsets Act 2014 and the MBRC Planning Scheme Policy- Environmental Areas and Corridors

[15] (Sattler and Williams 1999 - The Conservation Status of Queensland's Bioregional Ecosystems, Neldner, V.J., Butler, D.W. and G.P. Guymer (2019) and Queensland's regional ecosystems: Building a maintaining a biodiversity inventory, planning framework and information system for Queensland, Version 2.0, Vegetation Management Act 1999).

7 Design alternatives

7.1 Provide a description of the feasible alternatives?

Alternatives beyond the Site

While it is considered that there are no feasible alternatives locations of for the Proposed Action, due to locational requirements of the action, the siting and design of the development on the site has undergone careful consideration. The Proposed Action is a single component of the wider Warner Road urban development, and the proponent is committed to ensuring that a variety of affordable, high quality housing options is available, especially given the current under supply of residential options.

The Queensland Government has identified the Site as being part of the region's future growth strategy by virtue of its inclusion into the Urban Footprint (SEQ Regional Plan 2017). MBRC planning scheme has recognised the site as a "Investigation Area" as part of its Strategic framework -Settlement pattern and urban form.

By virtue of this planning strategic framework identification, the local government has earmarked the Site for future residential development of this nature. Numerous residential developments are already established throughout the wider area and as such it is relevant to consider that the Site and the broader locality will continue to transition and undergo industrialdevelopment in line with regional growth objectives.

Alternatives within the Site

Due to the current operational requirements of the Proposed Action and the rehabilitation measures required to render the Site as viable for construction, the Project Footprint of the Proposed Action is generally located across the entire Site. The layout has carefully considered the known and mapped environmental constraints and has been the result of an intensive iterative design process which has been responsive to the onsite and adjacent environmental constraints, identified onsite fauna utilisation and movement corridors and riparian reserves. For this reason, alternative locations on the Site are not viable.

Due to the existing constrained nature of the locality (Conflagration Creek Corridor, extensive native vegetation and known fauna utilisation), utilisation of the Site for non-urban landuses is considered unviable. As such, with appropriate mitigation measures for unavoidable environmental impacts as detailed in **Section 5** of this report**,** the action represents a logical approach to alternative waste management within South East Queensland to achieve a balanced outcome across social, environmental and economic imperatives.

Do nothing alternative

Consideration of the **no development alternative** has been undertaking as a logical consequence of the assessment of the Proposed Action and have been further discussed:

- The reduction of affordable housing choices within the MBRC LG area
- Promotion of ad-hoc residential development resulting in removal of the bulk of ecological value.
- The ecological values identified will continue to deteriorate as a result of locational constraints and impacts from historic landuses (specifically animal husbandry and residential degradation).

It is therefore considered that the 'Do Nothing' scenario is not appropriate given the established need for additional available residential allotments, especially affordable, high quality development.

Proposed Action

Consideration of the 'avoid – minimise – mitigate' principle has been central to the formulation of the design. While it is noted that the Site contains vegetation identified as koala habitat careful consideration of the location of the residential allotments (Att F- Attachments 1-12 Reporting and Scoring, **Attachment 11**) has been undertaken to ensure it is generally avoided. The current ecological status of the Site is considered poor and degraded due to thehistorical uses of the Site and its context in the locality.

In summary, the design of the Proposed Action reflects an appropriate balancing of regional growth requirements and ecological outcomes for this Site.

7.2 Relevant alternatives related to your proposed action.

No relevant alternatives are applicable to the Project. Additionally, no suitable alternative options have been identified throughout the assessment phase of the development.

8 Conclusion

The proposed action is **unlikely to constitute a significant impact to MNES**, and it is considered that the any identified likely and potential impacts to MNES will be successfully mitigated. Assessment of the action against the EPBC Act Referral Guidelines for the vulnerable koala (**Attachment 11** of Att F- Attachments 1-12 Reporting and Scoring) indicates that the onsite habitat is critical to the survival of koala; however, it is noted that the onsite habitat identified as being of **greatest significance to the koala resides within areas to be retained and enhanced as riparian reserve**. When considering the Proposed Action in relation to MNES, it is important to review the Site and its features in the context of the surrounding locality. A summary of this context is provided below:

- The Site occurs centrally within the recognised Warner investigation area as detailed in the MBRC Planning Scheme. This action has been identified as a logical sequential step for residential development within the region Att C- Figures 1-4 Mapping and Surveys, **Figure 1**.

- The landscape surrounding the Site and the broader Warner area has been largely cleared for historical agricultural and urban operations.

- Most of the lands surrounding the Site have been historically cleared and are activelymanaged as rural residential or residential land uses.

- The Applicant has gained existing conditional approval over the land immediately to the north of the Site. This action will continue to facilitate the movement of koala through and off the site, through the construction and maintenance of fauna movement infrastructure including designated fauna underpass's under Warner Road, the extensive utilisation of fauna friendly fencing to minimise the interface between fauna and threats (domestic animals, vehicle strikes and other threats) and the preservation and rehabilitation of the Conflagration Creek riparian corridor.

- Significant areas of intact areas of vegetation are limited to the conservation areas to the 2.5km west of the site associated with Clear Mountain Conservation Park.

- Smaller pockets of vegetation have been retained or allowed to regenerate within the immediate vicinity of the Site, namely associated with the rural residential landuses to the West of the Site and the areas associated with Conflagration Creek riparian zone.

- Existing risks and threats to fauna occur throughout the Warner area, most notably:

    - the area has frequent heavy vehicle movement and high-speed limits associated with Eaton Crossing Road to the south of the Site and South pine Road to the East;

    - the current rural residential landuses and proximate higher density residential development have resulted in more fragmented vegetation and greater potential for interaction with domesticated animals and people.

    - the action design has been undertaken with extensive consideration for the known and identified koala habitat through the Central portion of the Site associated with Conflagration Creek;

An assessment of all MNES identified within a 5km buffer search of the PMST identified two key matters that may potential occur within, move through, or occur in proximity to the Site being:

- Koala, listed as a vulnerable species; and

- Grey-headed flying fox, listed as a vulnerable species.

Assessment against the criteria provided in DAWE's Significant Impact Guidelines v 1.1 (**Table 6** below) has been undertaken for each of the two species to support the conclusion.

It is also to be noted that comprehensive mitigation measures will be implemented throughout the design and construction phase to avoid or minimise the impact of the project on flora andfauna (refer **Section 6** of this report).

Table 6- Significant Impact Criteria within the Significant Impact Guidelines 1.1

Significant impact Criteria	Response
-lead to a long-term decrease in the size of an important population of a species	While it is noted that the proposed action may impact on a small area of habitat associated with the areas adjacent to the Conflagration Creek EMC Precinct area. It is considered that the proposed action will not result in a long-term decrease in the size of an important population of a species. It is additionally considered that the proposed action on the Site will: •Not impact either directly or indirectly on a key source population either for breeding ordispersal •Not impact on populations that are necessary for maintaining genetic diversity, and/or •populations that are near the limit of the species range.
-reduce the area of occupancy of an important population	It is noted that the proposed action may impact on a small area of habitat associated with the areas adjacent to the Conflagration Creek EMC Precinct area. It is considered that the proposed action will not reduce the areaof occupancy of an important population.

Significant impact Criteria	Response
	It is additionally considered that the proposed action on the Site will: •Not impact either directly or indirectly on a key source populations either for breeding ordispersal •Not impact on populations that are necessary for maintaining genetic diversity, and/or populations that are near the limit of the species range.
-fragment an existing important population into two or more populations	It is noted that the proposed action may impact on a small area of habitat associated with the areas adjacent to the Conflagration Creek EMC Precinct area. It is considered that the proposed action will not fragment an existing important population into two or more populations. It is additionally considered that the proposed action on the Site will: •Not impact either directly or indirectly on a key source population either for breeding ordispersal •Not impact on populations that are necessary for maintaining genetic diversity, and/or populations that are near the limit of the species range.
-adversely affect habitat critical to the survival of a species	It is noted that the proposed action may impact on a small area of habitat associated with the areas adjacent to the Conflagration Creek EMC Precinct area. It is considered that the proposed action will not adversely affecthabitat critical to the survival of a species. Additionally, due to the location of the proposed development in an urban area transitioning from rural residential to higher density residential land uses, it is considered highly unlikely that the Site would be considered as containing habitat critical to the survival of the species by the koala or grey headed flying foxes.

Significant impact Criteria	Response
	Recent spotlighting surveys determined that the while the site is utilised by koala (as a result of the SAT surveys), no grey headed flying foxes were identified as utilising the site at the time of survey.
-disrupt the breeding cycle of an important population	It is noted that the proposed action may impact on a small area of habitat associated with the areas adjacent to the Conflagration Creek EMC Precinct area. It is considered that the proposed action will not disrupt the breeding cycle of an important population.
-modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	It is noted that the proposed action will impact on poor quality habitat associated with the areas adjacent to the Conflagration Creek EMC Precinct area. It is considered that the proposed action will not modify, destroy, remove or isolate or decrease the availability of high quality of habitat to the extent that the species is likely to decline. Additionally, due to the location of the proposed development in an urban area transitioning from rural residential to higher density residential land uses, the action has been sited and designed to retain the highest quality habitat. It is additionally considered highly unlikely that the action resulting in the removal of the poorer quality habitat is considered consequential to the survival of the species by the koala or grey headed flying foxes, nor is it anticipated that the proposed action will result in a decline of the species.
-result in invasive species that are harmful toa vulnerable species becoming established in the vulnerable species' habitat	The proposed development will incorporate fauna friendly fencing to reduce the potential interface between the retained habitat associated with the EMC Precinct and the residential landuse areas. This fencing will additionally reduce the potential interactions between residents' dogs and the retainedkoala habitat.

Significant impact Criteria	Response
	As such, it is considered that the proposed action will not result in invasive species that are harmful; to a vulnerable species becoming established in the vulnerablespecies habitat.
-introduce disease that may cause the species to decline, or	It is considered highly unlikely that the proposed action will introduce disease that may cause the species to decline.
-interfere substantially with the recovery of the species.	Due to the location of the proposed development in an urban area transitioning from rural residential to higher density residential landuses, it is considered highly unlikely that the Site would be considered as essential to the recovery of the species by the koala or grey headed flying foxes. Recent spotlighting surveys determined that the while the site is utilised by koala (as a result of the SAT surveys), no grey headed flying foxes were identified as utilising the site at the time of survey. As such, it is considered that the proposed action will not interfere substantially with the recovery of the species.

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