



GREENHEART COMMUNITY PARKLANDS

EPBC Act Referral
Report

City of Gold Coast

September 2025

CITY OF
GOLDCOAST.TM

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Abbreviations, Definitions, and Acronyms

EAR	Ecological Assessment Report for Matters of National Environmental Significance – RB#23/12 Advanced Resource Recovery Centre (December 2023)
EPBC	Commonwealth of Australia Environment Protection and Biodiversity Conservation Act 1999
IAP2	International Association for Public Participation.
LGA	Local Government Area
LGID	Local Government Infrastructure Designation
Ha	Hectares
MNES	Matters of National Environmental Significance
Qld	Queensland
Ramsar	The Convention on Wetlands of International Significance – referring to wetlands designated under the convention.
ShapingSEQ	Queensland Government <i>ShapingSEQ</i> South East Queensland regional plan
TEC	Threatened Ecology Community
The City (capital 'C')	Referring to the Council of the City of Gold Coast
The city (lowercase 'c')	Referring to the Gold Coast city

1. Introduction

This report has been prepared to provide supporting information and details relating to the City of Gold Coast's (the City's) proposed Greenheart Parklands project ('Greenheart') for referral under *the Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This report has been structured in accordance with the EPBC Act Referral Form Template to assist with ease of reference to the online submission. It contains appendices related to the technical and specific reports and studies completed to support the referral of Greenheart (the Proposed Action).

2. About the Project

2.1 Project Details

2.1.1 Project title

The project is titled the 'Greenheart Community Parklands'.

2.1.2 Project industry type

The industry type for Greenheart is 'Tourism and Recreation'.

2.1.3 Project industry sub-type

No sub-type of industry has been applied to this referral.

2.1.4 Estimated start and end date for proposed action

The estimated start date for the proposed action is 1 January 2026 to allow for early and enabling works, and the end date (completion of construction of all stages and elements) is 31 December 2032. Greenheart will operate without an end date after 2032.

2.2 Proposed Action Details

2.2.1 Overview of the Proposed Action, including all proposed activities

Greenheart (the Project) is proposed to be the largest open space destination on the Gold Coast and one of the largest of its kind in Australia. The Project will be an immersive, integrated, and multi-layered parkland offering abundant active and healthy lifestyle opportunities, with an array of sporting, recreational, and cultural experiences for visitors of all ages and abilities. The Project is divided into three primary and five secondary precincts, consisting of:

- Primary precincts:
 - Discovery Hub – functions as the new access to the site from Robina Parkway and Boowaggan Road, this precinct will become Greenheart's new 'front door'. The Centre will provide a visitor and tourist welcome point, school excursion facilities, office and administrative space, amenities, a café, and community spaces for hire. Other facilities within the precinct will include playgrounds, picnic and barbecue facilities, wildlife lookouts, an observation tower, boardwalks,

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- pontoons and pedestrian and cycle paths. The Discovery Hub area will also feature two sports fields for social and formal sports, training and competitions.
- Event Quarter – includes a collection of co-located facilities that provide space for the community to hold small to large scale celebrations and events. The provision of a large event lawn will enable the City to host significant events that could draw crowds of up to 50,000 people including multi-stage festivals and international touring acts. Buildings will include options for a welcome kiosk, café, and restaurant. Other attractions within the precinct will include a playground, picnic and barbecue facilities and amenities.
 - Sports Precinct – a new dedicated space for formal and informal sporting activity including grassroots sport and regional and national sporting events. This precinct will provide much needed facilities in response to the city’s forecast growth in sports participation. The space will provide flexible arrangements to accommodate a variety of sports codes as the need for facilities grows. Facilities within the precinct will include a main sports building, informal spectator seating, extensive car parking, local playground, green bridges, picnic and barbecue facilities and amenities.
 - Secondary precincts:
 - Community Park – acting as the new entrance into the park from Ghilgai Road, this area will provide open space for the neighbouring community and provide access to the rest of the parklands. The space will include a multi-purpose hard court, BMX track, playgrounds, picnic and barbecue areas and kick about spaces that could also be used for community gatherings and events.
 - Renewed Wetlands – the Renewed Wetlands will provide important habitat and feeding grounds for birds and other wildlife. A network of boardwalks, signage and bird hides will be provided to enable visitors to engage with and understand the importance of the wetland in the city’s natural systems.
 - Mudgeeraba Creek – naturalising the banks of Mudgeeraba Creek will improve habitat and water quality and create opportunities for creek side vegetation to establish. An accessible pontoon for launching kayaks and a continuous pedestrian path and boardwalk network along the creek edge. Recreation facilities include viewing platforms, picnic and barbecue areas and bird hides.
 - Big and Little Woody Hills – Big and Little Woody Hills contain protected vegetation communities and indigenous cultural heritage values that will be retained, protected and enhanced. The area will include walking trails and signage to celebrate the natural and cultural heritage significance.
 - Wildlife Corridor – this new woodland area provides an opportunity to connect and regenerate remnant vegetation communities which will support the movement of fauna through the Greenheart site. Recreation opportunities in this precinct will include walking and bike trails.

The Greenheart site is located across 11 lots on plans in the suburb of Merrimac with access from Ghilgai Road and Robina Parkway, and a southern border along Mudgeeraba Creek. The master plan proposes the development of the site into an integrated, cohesive, and multi-layered parkland that will provide a myriad of active and healthy lifestyle opportunities, cultural experiences, and important natural areas for the Gold Coast

community. The development includes the naturalisation of Mudgeeraba Creek to enable flood management in the area, improve and enhance ecosystem health, and enable access to the creek for water-based recreation. Existing and remnant natural areas in the project area will be enhanced through further protection, including replanting and targeted management, and include the establishment of wildlife corridors, ephemeral wetlands, and the enhancement of important vegetation communities at Big and Little Woody Hills. The project will create a vast range of recreational and experiential opportunities that draw upon the parkland's unique natural environments, enabling outdoor recreation and sport in both natural and fit-for-purpose settings and facilities.

The project is to be delivered in phases, with the current phase including concept design, detailed environmental and social impact assessments, and statutory approvals. Construction of the first phase of the project is anticipated to commence in 2027, with the first stage of the parklands open to the community in time for the Brisbane Olympics in 2032.

The total project area of Greenheart is 224.47 ha, including a disturbance footprint of 204.97 ha and an avoidance footprint of 16.38 ha.

There will be direct and indirect impacts to the environment as a result of the construction and operations Greenheart. These will include:

- clearing of native vegetation
- changes to surface level and hydrology on site
- creation of wetlands and alteration to groundwater-surface water interactions
- dewatering during construction
- truck and vehicle movements

More specific details on impacts to Matters of National Environmental Significance (MNES) are provided in the attached ecological assessment reports for terrestrial and aquatic flora and fauna and later in this submission report.

2.2.2 Is the project action part of a staged development or related to other actions or proposals in the region?

No – while Greenheart is proposed to be built in stages, this referral and action relates to the precinct as a whole. There are no other referrals or actions to be considered separately to this referral.

2.2.3 What Commonwealth or state legislation, planning frameworks or policy documents are relevant to the proposed action, and how are they relevant?

The proposed action triggers an assessment under the EPBC Act due to the significance of impact to MNES.

The proposed action has been reviewed in line with the *Aboriginal and Torres Strait Islander Act 2005* and its subordinate instruments. No world or national heritage places recorded on any statutory registers have been identified within or adjoining the project site.

The proposed action is located on the Gold Coast and therefore triggers numerous Queensland state legislation. These include:

- *Environmental Protection Act 1994* (Qld) – numerous triggers, including impacts to wildlife, native vegetation, and habitat.

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- Subordinate legislation triggers includes *Environmental Protection Regulation 2019* (Qld) with regard to General Environmental Duty, *Environmental Protection (Air) Policy 2019* (Qld) with regard to emissions and air quality during construction of the proposed action, *Environmental Protection (Noise) Policy 2019* (Qld) with regard to noise generated by both construction and operations of the proposed action, *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* (Qld) with regard to modifications of and releases to waterways and wetlands in the vicinity from the proposed action during construction and operations.
 - *Vegetation Management Act 1999* (Qld) – triggers due to proposed impacts to native vegetation from the proposed action.
 - Subordinate legislation trigger includes the *Vegetation Management Regulation 2023* (Qld) with regard to clearing codes, exemptions, applications, and species.
 - *Nature Conservation Act 1992* (Qld) – triggers due to impacts to native fauna and wildlife habitat.
 - Subordinate legislation triggers include *Nature Conservation (Animals) Regulation 2020* with regard to the engagement of wildlife ecologists and fauna spotter catchers during construction and operations of the proposed action, and *Nature Conservation (Plants) Regulation 2020* with regard to impacts to protected plants in the vicinity.
 - *Planning Act 2016* (Qld) and *Planning Regulation 2017* (Qld) for numerous triggers to State Development Assessment Codes, including: state controlled roads, coastal development and tidal works (where infrastructure required for the proposed action occurs in such areas), marine plants (where work associated with the proposed action occurs below highest astronomical tide), fish habitat (where work associated with the proposed action occurs in mapped fish habitat areas), native vegetation clearing, waterway barrier works (where works for the proposed action occur in a state-mapped waterway), and southeast Queensland koala habitat.
 - *Fisheries Act 1994* (Qld) and *Coastal Protection and Management Act 1995* (Qld) may apply if aspects of the proposed action impact coastal waters and waterways.

2.2.4 Describe any public consultation that has been, is being, or will be undertaken regarding the project area, including with indigenous stakeholders.

Greenheart has conducted an early 'Have Your Say' community survey for the current masterplan, which includes community pop-up and engagement activities to provide the Gold Coast community as a whole, and in particular local residents and businesses in the vicinity, the opportunity to provide feedback on the proposed action. The consultation report and findings are available on the project webpage:

<https://www.goldcoast.qld.gov.au/Services/Projects-works/Greenheart-master-plan>

Engagement with Indigenous stakeholders is ongoing. Early engagement with the native title holder: Gold Coast Native Title Group (represented by Jabree) has commenced, and the proposed action is working through the development of a cultural heritage agreement and involvement of representatives from the group in the design process. There is a second native title group on the Gold Coast – Yugambah Native Title group represented by Dangan Balun (Five Rivers) People, and while their native title claim does not extend across the proposed

action area, they have been included in the consultation process and are being kept informed of project developments.

2.3 Referring Party

The Referring party is an organisation/business – The City of Gold Coast (ABN: 84 858 548 460), 4217 QLD. The Person proposing to take the action details are the same as the Referring party details. The Action is not proposed as part of a joint venture or a Trust.

2.3.1 History of responsible environmental management

The City of Gold Coast (City) is a local government entity that provides infrastructure and community services to the residents and businesses of the Gold Coast (city). The City currently operates four sewage treatment plants and two active landfills in the city, along with an extensive road network and numerous community facilities, including libraries, swimming pools, sporting facilities, and park. Many of these facilities are subject to Queensland Government approvals and licences with conditions for ensuring environmental harm is minimised and adequately managed. The City operates these facilities using a comprehensive quality procedure program that includes environmental management procedures and principles as well as extensive monitoring programs to control and monitor the impact of the activities on the environment.

The City's infrastructure projects are managed under a strict environmental planning and management framework that ensures environmental experts are involved as key team members from project inception to execution. This process ensures that impacts to the environment, particularly MNES, are avoided where possible, through considered design and alternative methodologies. This team also ensures that appropriate and applicable environmental and planning approvals are obtained prior to the commencement of any actions or activities, that necessary Commonwealth, State, and local agencies are appropriately consulted and engaged, and that the projects comply with any approval conditions. A comprehensive Construction Environmental Management system has been developed for infrastructure projects that ensures environmental impacts from construction activities are identified and appropriately mitigated or controlled as far as reasonably practicable.

The referring party is not a corporation – it is a local government authority.

The Proposed designated proponent details are the same as the Person proposing to take the action.

The person proposing the action will make the payment.

3. Location

3.1 Project Footprint

The map within the portal GIS spatial tool presents the total project footprint (234.86 ha), the disturbance footprint (200.53 ha), and the avoidance area (16.38 ha). Existing native vegetation is to be avoided by the action. The disturbance footprint currently comprises highly disturbed and modified pasture with lone stands of trees, and Mudgeeraba Creek.

3.2 Footprint Details

3.2.1 What is the address of the proposed action?

The proposed action is a precinct spread across 11 lots. The addresses of the proposed action are as follows:

- Lot 1 Boowaggan Road, Clear Island Waters, 4226 (Lot 1 SP204783)
- Lot 2 Robina Parkway, Merrimac, 4226 (Lot 2 RP862191)
- Lot 6 Boowaggan Road, Merrimac, 4226 (Lot 6 SP214289)
- 83 MacAdie Way, Merrimac, 4226 (Lot 14 RP179055)
- 55-59 MacAdie Way, Merrimac, 4226 (Lot 15RP183194)
- 61-65 MacAdie Way, Merrimac, 4226 (Lot 16RP183194)
- Lot 999 MacAdie Way, Merrimac, 4226 (Lot 999 SP241246)
- 2 Sunrise Court, Merrimac, 4226 (Lot 11SP244749)
- Lot 2 Ghilgai Road, Merrimac, 4226 (Lot 2 SP190865)
- 9A County Lane, Merrimac, 4226 (Lot 49RP863018)
- 79A MacAdie Way, Merrimac, 4226 (Lot 900SP294523)

3.2.2 Where is the primary jurisdiction of the proposed action?

The primary jurisdiction of the proposed action is Queensland

3.2.3 Is there a secondary jurisdiction for this proposed action?

No.

3.2.4 What is the tenure of the action area relevant to the project area?

All lot on plans and addresses listed in section 3.2.1 are freehold tenure owned in whole by the City of Gold Coast (the proponent).

4. Existing Environment

4.1 Physical Description

4.1.1 Describe the current condition of the project area's environment

Location

The project is located in the central Gold Coast suburb of Merrimac. The surrounding area of the proposed project is predominantly residential, agricultural, and recreational (golf courses) with some industrial land uses to the north (Merrimac sewage treatment plant and waste recycling centre). The project area is bounded to the south by Mudgeeraba Creek, with a number of its tributaries and unnamed historical agricultural drains also traversing the site. The western edge of the project site is bound by the Queensland Rail Gold Coast rail line. The eastern boundary of the project site is formed by Robina Parkway, a state-controlled road.

Tenure and Land Use

The proposed area for Greenheart is located across 11 blocks of land, all owned by the City of Gold Coast under freehold tenure:

- Lot 1 Boowaggan Road, Clear Island Waters, 4226 (Lot 1 SP204783) is currently utilised as parkland, situated between Robina Parkway and Clear Island Lake and includes community facilities such as a dog off leash area and grass.
- Lot 2 Robina Parkway, Merrimac, 4226 (Lot 2 RP862191) is currently partially vegetated with some stands of regrowth. The lot is currently used in part as special event park and ride facility for the Carrara sports stadium. Historically, this area was utilised as a construction and demolition waste disposal area during the 1960s.
- Lot 6 Boowaggan Road, Merrimac, 4226 (Lot 6 SP214289) and 83 MacAdie Way, Merrimac, 4226 (Lot 14 RP179055) have remnant stands of vegetation around the highest points of the two lots (Big and Little Woody Hill), which also hold significant Indigenous heritage value, and smaller stands of high value regrowth and remnant vegetation adjacent to the residential properties at the end of Ghilgai Road. The remainder of both lots have been extensively cleared, with historical records showing agricultural land uses dating back to the 1870s. Currently these lots are agisted for cattle grazing.
- Lot 999 MacAdie Way, Merrimac, 4226 (Lot 999 SP241246), 55-59 MacAdie Way, Merrimac, 4226 (Lot 15 RP183194), 61-65 MacAdie Way, Merrimac, 4226 (Lot 16 RP183194), 79A MacAdie Way, Merrimac, 4226 (Lot 900 SP294523), 2 Sunrise Court, Merrimac, 4226 (Lot 11 SP244749), and 9A County Lane, Merrimac 4226 (Lot 49 RP863018) are predominantly cleared, grassed, and share boundaries with residential properties. Currently they are not utilised by the community and are maintained as parkland by the City. There are a few individual trees dotted across the landscape; however, these lots are mostly cleared.
- Lot 2 Ghilgai Road, Merrimac, 4226 (Lot 2 SP190865) has been extensively cleared with very little remaining vegetation and is fully agisted for cattle grazing.

The zoning of the lots that comprise the project area are provided as follows:

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- 1SP204783 (City of Gold Coast – part of Greenheart): partially zoned as open space and partially unzoned (canal estate/water)
 - 2RP862191 (City of Gold Coast – part of Greenheart): zoned Limited development (constrained land)
 - 6SP214289 (City of Gold Coast – part of Greenheart): zoned Limited development (constrained land)
 - 14RP179055 (City of Gold Coast – part of Greenheart): zoned Limited development (constrained land)
 - 15RP183194 (City of Gold Coast – part of Greenheart): zoned Limited development (constrained land)
 - 16RP183194 (City of Gold Coast – part of Greenheart): zoned Limited development (constrained land)
 - 900SP294523 (City of Gold Coast – part of Greenheart): zoned Limited development (constrained land)
 - 999SP241246 (City of Gold Coast – part of Greenheart): zoned Limited development (constrained land)
 - 11SP244749 (City of Gold Coast – part of Greenheart): zoned Limited development (constrained land)
 - 49RP863018 (City of Gold Coast – part of Greenheart): zoned open space
 - 2SP190865 (City of Gold Coast – part of Greenheart): zoned Limited development (constrained land)

The majority of the lots are currently zone as Limited development (constrained land) due to their location within the Merrimac, Carrara, and Guragunbah floodplain area and, therefore, their proposed future land use is limited to recreational and suitable conservation areas. Presently, a Local Government Infrastructure Designation (LGID) application is being prepared to designate all 11 lots as community infrastructure (facilities for parks and recreation).

Condition of the Existing Environment

Changes to the land use over time in the area have resulted in loss of native vegetation to agriculture, canal estates, and the encroachment of residential and commercial developments in the vicinity, including the establishment of numerous golf courses. Isolated stands of trees on site provide habitat, predominantly for flighted mammals and birds where the risk of movement in the open is low. Significant remnant stands of vegetation have been retained on Big and Little Woody Hill. The quality and condition of these stands, while being under pressure from pests (in particular, deer) and edge effects, is good. Historical records note that these two stands of vegetation have never been cleared, so provide good habitat value.

In the broader area, outside of the project area, vegetation has mostly been cleared for urban development. Some trees, mostly ornamental, introduced species occur within the numerous golf courses that surround the site. Residential development to the north west and east, as well as associated canal estates, have retained very little native vegetation. Along Mudgeeraba Creek in the vicinity of the project area, riparian vegetation has been completely cleared to enable grazing up to the creek bank or urban development. Upstream from the project area, on the western side of the M1 Pacific Motorway, more native vegetation has been retained and the urban footprint is less dense and more rural-residential, with some remnant vegetation present. Riparian vegetation has been retained along Mudgeeraba Creek, providing some connectivity between the hinterland and the floodplain, as far as the Motorway.

Existing Road Infrastructure

The proposed project area is located to the east of the M1 Pacific Motorway, accessed by Exit 77 at Worongary/Gooding Drive. Access to Greenheart will be from several points around the parkland – a north west access via Ghilgai Road, an eastern access from Robina Parkway, and a new bridge access over Mudgeeraba Creek from Stadium Drive. These roads are a mix of Local Government and Queensland State Controlled roads and will be subject to coordination with Queensland Government Department of Transport and Main Roads, which has not yet commenced.

4.1.2 Describe existing or proposed uses for the project area

The project area is currently an open paddock, with the majority used as a cattle agistment. A small area in the north east of the project area is paved and used as an event day park and ride facility for Carrara Stadium. The broader area surrounding the project area is currently a mix of residential and commercial development, including a number of golf courses. A sewage treatment plant and waste recycling centre are located to the north of the project area, and the Gold Coast rail line and M1 motorway to the west. Two of the lots that make up the Greenheart project area are currently utilised as open space (parkland) and available for community use.

The site is limited in its potential for future development due to the low-lying landscape and risk of flooding. As such, restrictions on the type of development that can occur have been placed on all four lots to prevent development sensitive to flooding impacts, such as commercial or residential development, occurring. In such cases, land that cannot be developed for residential or commercial purposes due to such restriction is purchased by local government (if not already under such ownership, or owned by the State), and either developed into conservation area, parkland, or recreational facilities that can tolerate a certain level of flooding/inundation.

4.1.3 Describe any outstanding natural features and/or other important or unique values that applies to the project area

The project area is relatively low-lying with limited topographical variation, with the exception of Big and Little Woody Hills in the central-northern area of the site. These two hills have been relatively undisturbed by development and remain vegetated with a mixture of remnant and high value regrowth consistent with the pre-cleared regional ecosystems in the surrounding landscape.

4.1.4 Describe the gradient (or depth range if the action is to be taken in a marine area) relevant to the project area

The project area is predominantly low-lying, with much of the site below 5m above sea level. The site forms part of the Guragunbah floodplain and is susceptible to inundation during wet weather.

4.2 Flora and Fauna

4.2.1 Describe the flora and fauna within the affected area and attach any investigations of surveys if applicable

Two seasonal flora surveys, two seasonal fauna surveys, two specialist targeted fauna surveys, and one aquatic field survey were conducted to inform the existing environment assessment of the project area and adjacent environment. Surveys were completed between October 2023 and May 2024, capturing the South East

Queensland winter/dry season and the summer/wet season. Findings of all surveys are provided in the attached Ecological Assessment Report (EAR), prepared by 28 South on behalf of the City. Section 8 of the EAR includes assessments against the EPBC Significant Impact Guideline to determine the significance of impact and whether certain impacts to MNES need to be referred to DCCEEW under the *Environment Protection and Biodiversity Conservation Act 1999*.

The studies completed as part of the EAR included:

- Comprehensive desktop assessment of Commonwealth and Queensland State databases for Matters of National and State Environmental Significance.
- Flora surveys to ground-truth database and mapping results, verify ecological communities and native vegetation present, identify any weeds or pests (including Weeds of National Significance), and identify habitat values.
- Fauna surveys to opportunistically sight fauna, identify evidence of fauna present, identify and confirm suitable habitat and habitat values, and inform the potential for threatened species.
- Targeted surveys by species experts to determine the potential for specific, protected species to utilise the site.
- Aquatic survey to identify aquatic and marine plants, determine waterways at risk of waterway barrier works, assess high-level water quality conditions and potential impacts, and complete aquatic habitat and fauna assessments.

Significant impact assessment for MNES threatened species determined that no significant impact was likely to be significantly impacted by the project. A 0.7-hectare patch of forest red gum woodland to open forest (Queensland Regional Ecosystem 12.3.11), located on the southwest edge of Big Woody Hill, was identified, surveyed, and confirmed to be consistent with the MNES Threatened Ecological Community (TEC) *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* (listed as Endangered).

4.2.2 Describe the vegetation (including the status of native vegetation and soil) within the project area

Details descriptions and information on the vegetation, vegetation communities, and regional ecosystems are provided in Section 5 of the EAR.

Much of the site has been historically cleared to enable agricultural land uses, which are still employed today via cattle and horse agistments. Two significant stands of remnant native vegetation occur around Big and Little Woody Hills, with scattered stands and individual flora species across the remainder of the site that have either reestablish post-clearing or were left as shade for livestock. A small stand of high value regrowth native vegetation occurs near the residential areas north-west of the site, near the Ghilgai Road entrance. Much of the rest of the site is comprised of exotic pasture and degraded palustrine wetlands.

The area is marked by historical drainage channels that were implemented to manage flooding and water shedding across the site. Soils are predominantly characteristic of alluvial floodplain, with areas of erosion and exposure, most likely caused by cattle hooves and grazing activities. The northern bank of Mudgeeraba Creek, in particular, has experienced erosion and vegetation loss due to cattle accessing the creek for water.

Adjacent land uses provided some limited connectivity to similar habitats in the surrounding landscape. This is mainly provided via riparian corridors and contiguous remnant vegetation, which is limited with the area due to extensive industrial, urban, and rural-agricultural land conversion and development.

4.3 Heritage

4.3.1 Describe any Commonwealth heritage places overseas or other places recognised as having heritage values that apply to the project area.

No Commonwealth heritage places overseas, or other places recognised as having commonwealth heritage values apply to the project area.

4.3.2 Describe any Indigenous heritage values that apply to the project area.

The project area is a place with identified Aboriginal tangible and intangible heritage values and contains two sites recorded on the Queensland Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism Cultural Heritage database. These sites encompass Little Woody Hill, Big Woody Hill, and Ochre Knoll (collectively the Woody Hills). The recognised Aboriginal Party is the Gold Coast Native Title Group, represented by Jabree Ltd (Jabree). The City are currently working closely with Jabree to protect the Aboriginal heritage values of the project area and to guide development, conservation, and enable education opportunities where appropriate.

4.4 Hydrology

4.4.1 Describe the hydrology characteristics that apply to the project area and attach any hydrological investigations or surveys if applicable.

Surface Waters

The site is located within the Nerang and Mudgeeraba floodplains which experience frequent flooding with Year 2100 climate 1% AEP flood depths exceeding 2.0m across most of the site. The site is very low-lying, comprised mostly of ephemeral floodplain occurring predominantly at ground levels lower than 2m AHD. The low-lying areas of the site are crossed by a system of formed drainage lines that were constructed as part of the pastoral, farming and dairying uses during early European settlement in the 1880s. The site includes several wetland environments, and due to its location on the Merrimac-Carrara floodplain, it plays a critical role in attenuating local and regional flood events. The local catchments within and immediately surrounding the site drain to Mudgeeraba Creek and Clear Island Lake. Mudgeeraba Creek forms the southern boundary of the site and represents one of the lowest points within the site. The north-east boundary of the site, with the Merrimac Sewage Treatment Plant, includes an unnamed tributary of the Nerang River, and on the eastern side of Robina Parkway, Clear Island Lake forms part of the canal estates associated with the Nerang River, which also receive upstream waters from Mudgeeraba Creek. An area of palustrine wetland remains to the south east of the site and is subject to inundation during periods of wet weather and flooding from Mudgeeraba Creek.

The project area experiences subtropical climatic conditions, typically with warm to hot, higher rainfall summer seasons, and cooler, drier winter seasons. The nearest Bureau of Meteorology weather station (040417) is located at Miami Bardon Avenue (approximately 5km from the project area). Mean rainfall calculated from

records spanning 1968 to 2024 indicate highest mean totals in January (191.3 mm) and lowest in August (51.8 mm).

There is the potential for surface waters to be impacted by the proposed project – through stormwater run-off into surface water drains, tributaries, and Mudgeeraba Creek from the conversion of natural permeable areas into hard stand and roadways. To manage these impacts, the following will be developed and informed by more detailed research and investigation:

- Stormwater management systems, basins, drains, and management plans based on detailed hydrological modelling of the site, taking into the consideration flood and impacts of heavy rainfall events, that limit the transport of pollutants from surfaces into the environment. These may include high-sustainable urban drainage systems and internal drains and swales.
- Construction will be managed under a project-phase specific *Construction Environmental Management Plan*, for which the City of Gold Coast has specific and stringent minimum standards and requirements. Preventative and engineered control measures will likely include erosion and sediment controls (designed and approved by a Certified Erosion and Sediment Control practitioner), scheduling sensitive works outside of high risk (wet season) periods, implementing specific stormwater management measures to prevent the loss of soils or other contaminants from the site during construction, acid sulfate soil management protocols, and soil handling and management protocols.

Groundwater

Groundwater monitoring is currently ongoing on site and the information provided in this section is inferred from the available groundwater monitoring compliance data at Merrimac Sewage Treatment Plant. The regional deep groundwater of the bedrock aquifer is inferred to flow towards the southeast (i.e., towards the Pacific Ocean). Surface waters recharge groundwater aquifers during high rainfall events, and groundwater level bore data reflects this when overlaid with rainfall data. Groundwater in the area is also likely hydraulically connected to the alluvium occurring along creeks and rivers in the area, with recharge and discharge likely to occur through alluvial deposits and underlying bedrock aquifers.

There is the potential that the project may interact with, and subsequently impact, groundwater, particularly due to the change in surface levels proposed – including cut to lower the ground levels in areas where wetlands are proposed to be constructed and restored, and in areas where fill is proposed, excluding any ecology currently utilising the groundwater in these areas from accessing such. Preventative measures specific to the findings of investigations for groundwater specific to the site will be integrated into the design of the project.

5. Impacts and Mitigation

5.1 Impact Details

5.1.1 World Heritage

There are no Direct or Indirect impacts to World Heritage. There are no World Heritage properties in the vicinity of the project area.

5.1.2 National Heritage

There are no Direct or Indirect impacts to National Heritage. There are no National Heritage places in the vicinity of the project area.

5.1.3 Ramsar Wetland

There are no Direct or Indirect impacts to Ramsar Wetlands. There are no Ramsar Wetlands in the vicinity of the project area.

5.1.4 Threatened Species and Ecological Communities

Matters that the action has a direct/indirect impact on

- *Hirundapus caudacutus* (White-throated Needle-tail) – indirect
- *Calidris acuminata* (Sharp-tailed Sandpiper) – indirect
- *Botaurus poiciloptilus* (Australasian Bittern) – indirect
- *Phascolarctos cinereus* (Koala) – indirect
- *Gallinago hardwickii* (Latham's Snipe) – indirect
- *Pteropus poliocephalus* (Grey-headed Flying-fox) – indirect
- *Lathamus discolor* (Swift Parrot) – indirect
- Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions (Endangered) – direct and indirect

Briefly describe why your action has a direct and/or indirect impact on these protected matters.

The project does not involve the direct removal of vegetation or habitat relevant to MNES; however, changes to ground surface level, land use, and access to areas currently inaccessible to the public are likely to have indirect impacts to the threatened species that have been identified as being supported or occurring on site.

Changes to Ground Surface Levels

To accommodate the proposed land uses, some areas of site will be lowered to allow for flooding and the re-establishment of palustrine wetlands. Threatened species that may currently utilise these areas that are not suited to wetland environments or are entirely terrestrial in nature will be pushed out of areas proposed to be fully or periodically inundated.

Conversely, areas that require certain immunity from flooding in order to provide their community function (such as buildings and sporting fields) will have the ground surface level raised, which may alter the availability of groundwater and surface water for species that require certain conditions (i.e., any groundwater dependent species, ephemeral terrestrial or aquatic species, waders, etc.).

Change to Current Land Use

The site is currently inaccessible to the public; however, the project intends to open up the site for full public access, including recreational areas, sporting precincts, and natural areas that provide public amenity. As such, there are likely to be increased interactions with threatened species that frequent the site, which may adversely impact their confidence to utilise the site for refuge. While the site does not currently provide significant habitat for threatened species, some species were sighted during surveys (refer to the attached EAR).

Direct Impacts to Eucalypt Floodplain TEC

Small areas and edge sections of the mapped TEC may be impacted by ancillary works on site, such as the installation of fencing to protect heritage areas, exclude feral species, and provide access to areas of the site by the public on foot (i.e., pathways). While these impacts are not likely to be significant or involve broadscale clearing, some impacts and loss of individual species that contribute to the composition of the TEC may occur.

Describe why you do not consider this to be a Significant Impact.

The proposed action will not result in the significant loss of species. Significant impact assessments, provided in the attached EAR, indicate that there will not be a significant loss or residual impact to the species or TEC identified.

Do you think your proposed action is a controlled action? Please elaborate why.

We do not believe the proposed action is a controlled action.

Significant impact assessments have been conducted in accordance with the Significant Impact Guidelines for the relevant species and TEC, indicating that no significant impact will occur. The Proposed Action will not result in significant impacts to populations of species or fragment the landscape with regard to existing habitat connectivity. Some changes will occur to the site, mainly with regards to the land use and accessibility of the site to the general public. As the site is currently closed, species can utilise the site without disturbance from humans, which will change once the site is developed. However, no habitat is expected to be lost by the Action, and minor changes to existing habitats, such as period inundation or prevention of inundation, will likely be compensated for elsewhere on site.

Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures.

The design of the site incorporates the retention of remnant vegetation, the exclusion of feral species, and more appropriate and pro-active land management practices that will seek to improve habitat quality in the area. The intention for the site is to increase planted areas with appropriate native vegetation representative of pre-cleared regional ecosystems and those currently present on site. The creation of palustrine wetlands will enable any shorebird or wetland species that currently utilise areas of site that are periodically inundated by flooding that are proposed for ground surface level alterations alternate refuge and habitat within the boundary of the site.

Please describe any proposed offsets and attach any supporting documentation relevant to these measures.

No offsets are proposed for this Action.

5.1.5 Migratory Species

Matters that the action has a direct/indirect impact on

- *Gallinago hardwickii* (Latham's Snipe) – indirect
- *Hirundapus caudacutus* (White-throated Needle-tail) – indirect
- *Calidris acuminata* (Sharp-tailed Sandpiper) – indirect
- *Pandion haliaetus* (Osprey) – indirect

Briefly describe why your action has a direct and/or indirect impact on these protected matters.

The project does not involve the direct removal of vegetation or habitat relevant to MNES; however, changes to ground surface level, land use, and access to areas currently inaccessible to the public are likely to have indirect impacts to the threatened species that have been identified as being supported or occurring on site.

Changes to Ground Surface Levels

To accommodate the proposed land uses, some areas of site will be lowered to allow for flooding and the re-establishment of palustrine wetlands. Threatened species that may currently utilise these areas that are not suited to wetland environments or are entirely terrestrial in nature will be pushed out of areas proposed to be fully or periodically inundated.

Conversely, areas that require certain immunity from flooding in order to provide their community function (such as buildings and sporting fields) will have the ground surface level raised, which may alter the availability of groundwater and surface water for species that require certain conditions (i.e., any groundwater dependent species, ephemeral terrestrial or aquatic species, waders, etc.).

Change to Current Land Use

The site is currently inaccessible to the public; however, the project intends to open up the site for full public access, including recreational areas, sporting precincts, and natural areas that provide public amenity. As such, there are likely to be increased interactions with threatened species that frequent the site, which may adversely impact their confidence to utilise the site for refuge. While the site does not currently provide significant habitat for threatened species, some species were sighted during surveys (refer to the attached EAR).

Do you consider this likely direct and/or indirect impact to be a Significant Impact? If not, explain why.

The proposed action will not result in the significant loss of species. Significant impact assessments, provided in the attached EAR, indicate that there will not be a significant loss or residual impact to the species.

Do you think your proposed action is a controlled action? If not, elaborate.

We do not believe the proposed action is a controlled action.

Significant impact assessments have been conducted in accordance with the Significant Impact Guidelines for the relevant species, indicating that no significant impact will occur. The Proposed Action will not result in significant impacts to populations of species or fragment the landscape with regard to existing habitat connectivity. Some changes will occur to the site, mainly with regards to the land use and accessibility of the site to the general public. As the site is currently closed, species can utilise the site without disturbance from humans, which will change once the site is developed. However, no habitat is expected to be lost by the Action, and minor changes to existing habitats, such as period inundation or prevention of inundation, will likely be compensated for elsewhere on site.

Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures.

The design of the site incorporates the retention of remnant vegetation, the exclusion of feral species, and more appropriate and pro-active land management practices that will seek to improve habitat quality in the area. The intention for the site is to increase planted areas with appropriate native vegetation representative of pre-cleared

regional ecosystems and those currently present on site. The creation of palustrine wetlands will enable any shorebird or wetland species that currently utilise areas of site that are periodically inundated by flooding that are proposed for ground surface level alterations alternate refuge and habitat within the boundary of the site.

Please describe any proposed offsets and attach any supporting documentation relevant to these measures.

No offsets are proposed for this Action.

5.1.6 Nuclear

The project does not involve nuclear activity and is not in proximity to or associated with nuclear activity.

5.1.7 Commonwealth Marine Area

There are no Direct or Indirect impacts to any Commonwealth Marine Area. There are no Commonwealth Marine Areas in the vicinity of the project area.

5.1.8 Great Barrier Reef

There are no Direct or Indirect impacts to the Great Barrier Reef. The project area is not located near the Great Barrier Reef.

5.1.9 Water Resource (in relation to a large coal mining development or coal seam gas)

The project is not related to a large coal mining development or coal seam gas.

5.1.10 Commonwealth Land

There are no Direct or Indirect impacts to Commonwealth Land. The project area is not on or adjacent to Commonwealth Land.

5.1.11 Commonwealth Heritage Place Overseas

There are no Direct or Indirect impacts to Commonwealth Heritage Places Overseas. The project area is located in Queensland, Australia.

5.1.12 Commonwealth or Commonwealth Agency

There are no Direct or Indirect impacts to the Commonwealth or Commonwealth Agency. The project area does not interact or impact the Commonwealth or a Commonwealth Agency.

5.2 Alternatives

5.2.1 Do you have any possible alternatives for your proposed action to be considered as part of your referral?

The City has undertaken a review of the current community and public recreational areas and sporting facilities available in the Gold Coast LGA and has determined a need to provide additional facilities in order for the community to be adequately serviced. Due to the constraints on land within the Gold Coast LGA, land availability is scarce for parkland and recreational development. Land that cannot be developed for housing or commercial/industrial land uses due to elevation or vulnerability to flooding or climate change is often retained

by the City to be utilised for restoration, recreation, and open space. To provide the scale of recreational facilities identified as required by the city and sufficient land space and area to accommodate the scale required, there is no alternative land available that falls in the constrained open space category within the LGA.

FOR MORE INFORMATION

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