

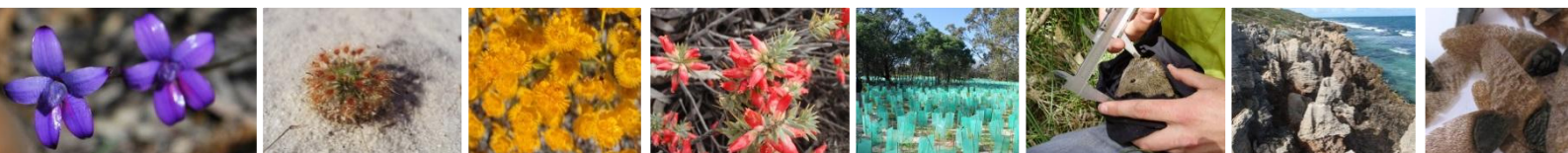


Natural Area
CONSULTING MANAGEMENT SERVICES

City of Cockburn

Manning Park Trails Audit, Categorisation and Mapping

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Ngala kaaditj Noongar moort keyen kaadak nidja boodja.

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Executive Summary

Natural Area Consulting Management Services (Natural Area) was contracted by the City of Cockburn (the City) to undertake an audit of all trails within Manning Park, located within the suburbs of Hamilton Hill and Spearwood. The audit will inform the future closure plan for trails in Manning Park. Each trail within Manning Park was mapped and assessed against the known flora, fauna, vegetation and heritage values within Manning Park. The condition, frequency and type of use and potential impacts on the environmental and heritage values of the site were assessed against each trail. A recommendation was made to keep open or close each trail based on the outcomes of the evaluation.

The results of the trail audit found:

- A total of 126 trails within Manning Park.
- An assessment using the Strava application found:
 - A total of 119 trails recorded running as the main use type, 4 trails recorded biking as the main use type and 1 trail recorded walking as the main use type.
 - A total of 76 trails had a high frequency of use, 26 trails had a medium frequency of use, and 22 trails had a low frequency of use.
 - Two trails have not been mapped on Strava.
- The on-ground trails audit found:
 - A total of 75 trails recorded walking as the main use type, 31 trails recorded running as the main use type and 20 trails recorded biking as the main use type.
 - A total of 52 trails recorded a high frequency of use, 49 trails had a medium frequency of use and 25 trails had a low frequency of use.
 - A total of 42 trails in good condition, 45 trails in medium condition and 39 trails in poor condition.
 - A total of 15 trails observed to be causing harm, a total of 52 trails could potentially cause harm and 59 trails were recorded as unlikely to cause harm to the environment or heritage.
- An analysis of usage types and frequencies combining both Strava and on ground data found:
 - The most common use type was walking/running (104 trails) followed by mixed use (20 trails) and biking (2 trails).
 - A total of 90 trails were recorded as high frequency, 19 trails were recorded as medium frequency, and 17 trails were recorded low frequency of use.

It was determined a total of 59 trails are recommended to remain open (12.14 km) and 65 trails are recommended to be closed (10.97 km). A total of 2 trails are recommended to be partially closed (0.55 km).

Trails recommended to be closed included trails that:

- Have or may cause harm to environmental or heritage values.
- Are in poor to medium condition.
- Are not frequently used.
- Do not add value to connectivity.

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1.0 Introduction

1.1 Background and Purpose

Natural Area Consulting Management Services (Natural Area) was contracted by the City of Cockburn (the City) to undertake an audit of all trails (formal and informal) within Manning Park, located in the suburbs of Hamilton Hill and Spearwood. The audit is required to determine the size, condition, usage and potential impacts on environmental and heritage values of each trail. This data will be used to provide recommendations to the City on whether the status of each trail should remain open or closed, and in turn will be used to inform the preparation of the City's trail closure plan.

1.1 Location

The site is located within Manning Park in the suburbs of Hamilton Hill and Spearwood and shares its western boundary with the suburb of North Coogee (Figures 1 and 2). Manning Park is located within the City of Cockburn Local Government Area and is approximately 17 km from the Perth Central Business District. Manning Park falls within an Environmentally Sensitive Area (Department of Water and Environmental Regulation (DWER), 2021).

1.2 Objectives

The objective of the Manning Park trail audit was to provide recommendations on whether each trail present should remain open or be closed based on the attributes of each trail (trail condition, trail use and frequency and potential harm to environmental and heritage values). The scope of works included a desktop assessment to review relevant documents and obtain background information on environmental and social values of the site. A field survey was conducted to assess the length, width, condition, usage level and type. The potential environmental harm was determined and recommendations to close or leave each trail open was developed from a synthesis of the desktop and field surveys.

1.3 Legislative Context

State and Federal environment-related laws impact how environmental values are governed in Western Australia. The following legislation and policies are relevant to this report.

1.3.1 Relevant Legislation

Aboriginal Heritage Act 1972 (WA)

The *Aboriginal Heritage Act 1972 (WA)* makes provision for the recognition, protection, conservation, and preservation of Aboriginal heritage in Western Australia.

Biodiversity Conservation Act 2016 (WA)

The *Biodiversity Conservation Act 2016 (WA)* (BC Act) aims to protect and conserve biodiversity as well as to promote the ecologically sustainable use of biodiversity components in the State. The BC Act provides the statute relating to conservation and legal protection of flora, fauna, and ecological communities. The BC Act follows the principles of ecologically sustainable development, detailing that decision-making processes should effectively integrate long-term and short-term economic, environmental, social, and equity considerations.

Environmental Protection Act 1986 (WA)

The *Environmental Protection Act 1986* (WA) (EP Act) provides for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement, and management of the environment connected with the foregoing. The Environmental Protection Authority (EPA) is established under this act and provides a structured policy framework that is consistent with the EP Act. The EPA produces the guidelines and procedures associated with conducting environmental assessments in line with the EP Act.

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) serves to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places. The primary objective of the EPBC Act is to promote the conservation of biodiversity and the sustainable use of natural resources while allowing for ecologically sustainable development. The EPBC Act allows for the creation of conservation agreements between the Australian government and individuals, communities, or organisations to support the conservation of biodiversity.

Heritage Act 2018 (WA)

The *Heritage Act 2018* (WA) recognises the importance of and promotes understanding and appreciation of Western Australia's cultural heritage; and provides for the identification and documentation of places of cultural heritage significance and for the conservation, use, development and adaptation of such places.

Soil and Land Conservation Act 1945 (WA)

The *Soil and Land Conservation Act 1945* (WA) serves to conserve soil and land resources, and to mitigate the impacts of erosion, salinity, and flooding. This Act outlines the mitigation and prevention of land degradation, promoting soil conservation and land management and the administration of Land Conservation District Committees (LCDC).

1.3.2 Relevant Planning and Policy

Australian Weeds Strategy 2017-2027

The Australian Weeds Strategy 2017-2027 provides a strategic framework for managing weeds at a national level (Invasive Plants and Animals Committee, 2016). As part of the implementation of the National Weeds Strategy, 32 Weeds of National Significance are identified as nationally agreed priority plant species for control and management based on the criteria of invasiveness and impact characteristics, potential and current area of spread and economic, environmental, and social impacts.

Australia's Biodiversity Conservation Strategy 2010-2030

Australia's Biodiversity Conservation Strategy 2010-2030 aims to protect biological diversity and maintain ecological processes and systems (Natural Resource Management Ministerial Council, 2010).

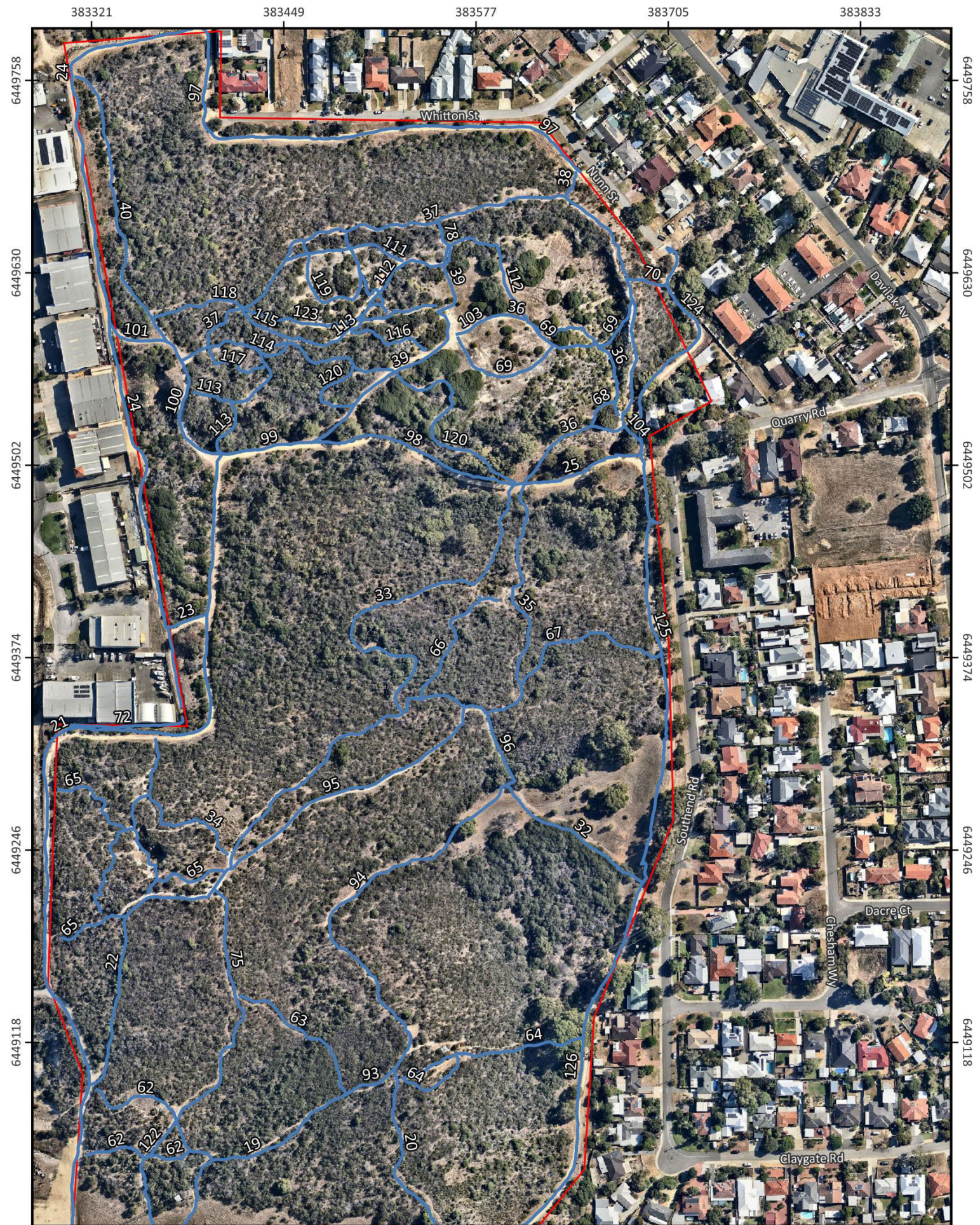


Figure 1:
Site Location
Northern Section

Legend

- Trails
- Site Boundary

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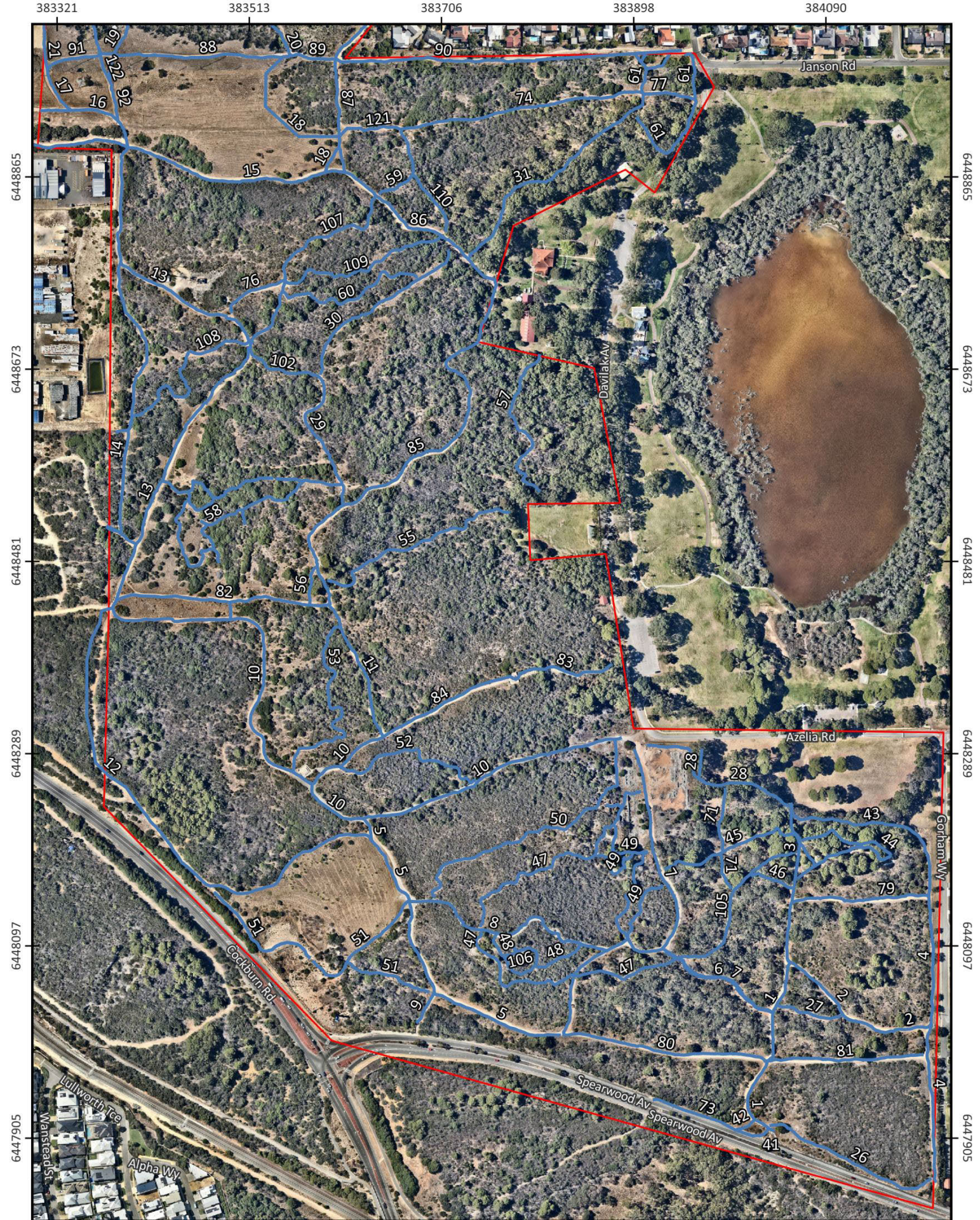


Figure 2:
Site Location
Southern Section

Legend

- Trails
- Site Boundary

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 Scale: 1: 4800



2.0 Methodology

2.1 Desktop and Literature Review

The desktop survey included reviewing online databases to gather contextual knowledge and determine preliminary site characteristics including:

- Native and non-native flora and fauna species present.
- Current extent and condition of native vegetation.
- Presence of threatened or priority flora and fauna species.
- Presence of any threatened or priority ecological communities.
- Locations of current formal trails.
- Aboriginal and European heritage values.

The following literature and applications were accessed to obtain relevant information:

- Detailed Fauna and Fauna Assemblages Survey of Manning Park - Hamilton Hill (FaunaTrack, 2024).
- Flora and Vegetation Assessment of Manning Park Reserve (Focused Vision Consulting, 2024).
- Report of an Aboriginal and Historic Heritage Assessment of Manning Park, Western Australia (Archae-aus, 2024).
- Strava.
- City of Cockburn Manning Park Trails App (City of Cockburn, 2025).

2.2 On-ground Survey

Natural Area environmental scientists undertook the survey between May 7 and 8, 2025, with key data recorded using QField software on a handheld tablet. Survey activities included:

- Traversing and recording tracklogs along all trails present on site.
- Recording key data including:
 - The average width of each trail.
 - The condition of each trail (good, medium or poor).
 - The level of usage of each trail (low, medium or high) based on evidence of use (footprints, tyre tracks or direct observations).
 - The predominant usage type of each trail (walking, biking, running or other use).

2.3 Data Analysis

Data from the desktop and field surveys were synthesised, with final recommendations derived from a combination of information collected during the desktop and field components. The use and frequency, condition, potential to cause harm to environmental or heritage values, start and end point of each trail and the requirements of the City were all considered when providing final recommendations. Due to the differences between data collection methods using data from a single point in time (field survey) and collated data over an unknown length of time (Strava), combinations of usage categories were developed to better understand the predominant users of the Manning Park trail system. Where usage frequencies differed between the field data and Strava data, the highest frequency was used.

2.4 Limitations

The limitations associated with the trail audit undertaken at Manning Park are outlined in Table 1 below.

Table 1: Survey limitations identified during the Manning Park trails audit

Potential Limitation	Degree of Limitation	Comments
Availability of contextual information	None	All contextual information required for the surveys were readily available to Natural Area. Previous environmental and heritage reports prepared for Manning Park were provided by the City on contract award. Trail usage information was readily available through public applications.
Competency/ experience of team	None	Survey activities were undertaken by experienced environmental scientists who are capable of undertaking infrastructure assessments in an environmental context within the Swan Coastal Plain.
Survey effort and extent	None	All trails (formal and informal) were able to be traversed and assessed over the two-day survey period.
Access restrictions	None	All trails within Manning Park were accessible to Natural Area on the days of the survey.
Disturbances	None	No recent disturbances which may have had an impact on survey results (e.g. fire, recent clearing or floods) were identified during the survey.
Data collection methods	Moderate	It is highly unlikely that individuals undertaking illicit activities will use a tracking program such as Strava while undertaking such activities. As such, the usage frequency of trails such as the unauthorised mountain biking trails in the north section of Manning Park are not likely to show the actual frequency of use.
	Minor	Data collected in the field was collected at a single point in time, where data collected through Strava is a compilation of data over an unknown period of time. To mitigate this limitation, usage data was further separated into categories showing the most common uses. Where frequencies differed between Strava and on site observations, the highest frequency recorded between the two methods was used to determine the frequency of use of each trail.

3.0 Survey Results

A desktop assessment identified several Aboriginal and European heritage sites, conservation significant flora and fauna and threatened and priority ecological communities. A total of 126 trails were identified within Manning Park. Trail uses included running, walking and biking at varied frequencies and condition. Details of the results found during the trails audit have been provided in the sections below. A summary of each trail and the use type and frequency, condition, potential to cause harm and recommendations have been provided in Appendix 1.

3.1 Desktop Survey

3.1.1 Heritage

The desktop survey showed several matters of Aboriginal and European heritage within Manning Park [REDACTED] all of which are currently intersected by trails (Figure 3). The European heritage site is the Davilak Ruins and is present within the southern portion of the site. The Aboriginal heritage sites are present [REDACTED]. These consist of:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

3.1.2 Flora and Vegetation

Two priority flora are located within Manning Park, *Pimelea calcicola* (P3) and *Dodonaea hackettiana* (P4) (Focused Vision Consulting, 2024). All populations of *Pimelea calcicola* are located adjacent to trails and are at risk of negative effects should further unauthorised trails be made or weed spread and erosion be exacerbated by the use of unauthorised trails (Figure 4). The population of *Dodonaea hackettiana* is located in the north of Manning Park and is located approximately 30 m from both a formal trail and an unauthorised trail.

Three threatened and priority ecological communities (TEC/PEC) are located within Manning Park (Focused Vision Consulting, 2024):

- SCP 24 Northern Spearwood shrublands and woodlands (P3).
- SCP26a *Melaleuca huegelii* - *M. systema* shrublands of limestone ridges/Honeymyrtle shrubland on limestone ridges of the SCP ecological community (CR).
- Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain Ecological Community (CR/P3).

Formalised trails were excluded from the TEC and PEC boundaries, with the exception of the Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain ecological community (Focused Vision Consulting, 2024). Trails both formal and informal intersect with the 30 m buffer for this community. Several unauthorised trails intersect with all three threatened or priority ecological communities (Figure 4).

Vegetation condition within Manning Park ranges from completely degraded to excellent and includes other classifications including other uses (includes cleared, firebreak/tracks, other uses), parkland and revegetated areas (Focused Vision Consulting, 2024). All formal trails are located within the vegetation classification

other uses (including cleared, firebreak/tracks, other uses). Most unauthorised trails traverse areas of vegetation classed as good or better and revegetation areas (Figure 5). The unauthorised mountain bike trails in the north of Manning Park are located within vegetation classified as completely degraded. Several trails within the southern section intersect with revegetated areas.

3.1.3 Fauna

Seven conservation significant fauna species have been recently identified during a survey undertaken within Manning Park (FaunaTrack, 2024). These included five birds, one mammal and one reptile (FaunaTrack, 2024). Additionally, fourteen locally significant bird species and one locally significant reptile species was also detected. The site is also an area of black cockatoo foraging, roosting and potential breeding habitat (FaunaTrack, 2024). Several threats to these species have been identified within Manning Park (FaunaTrack, 2024), that may be exacerbated by the creation of trails, either formal or informal:

- weed infestations
- dieback
- habitat loss and fragmentation
- erosion.

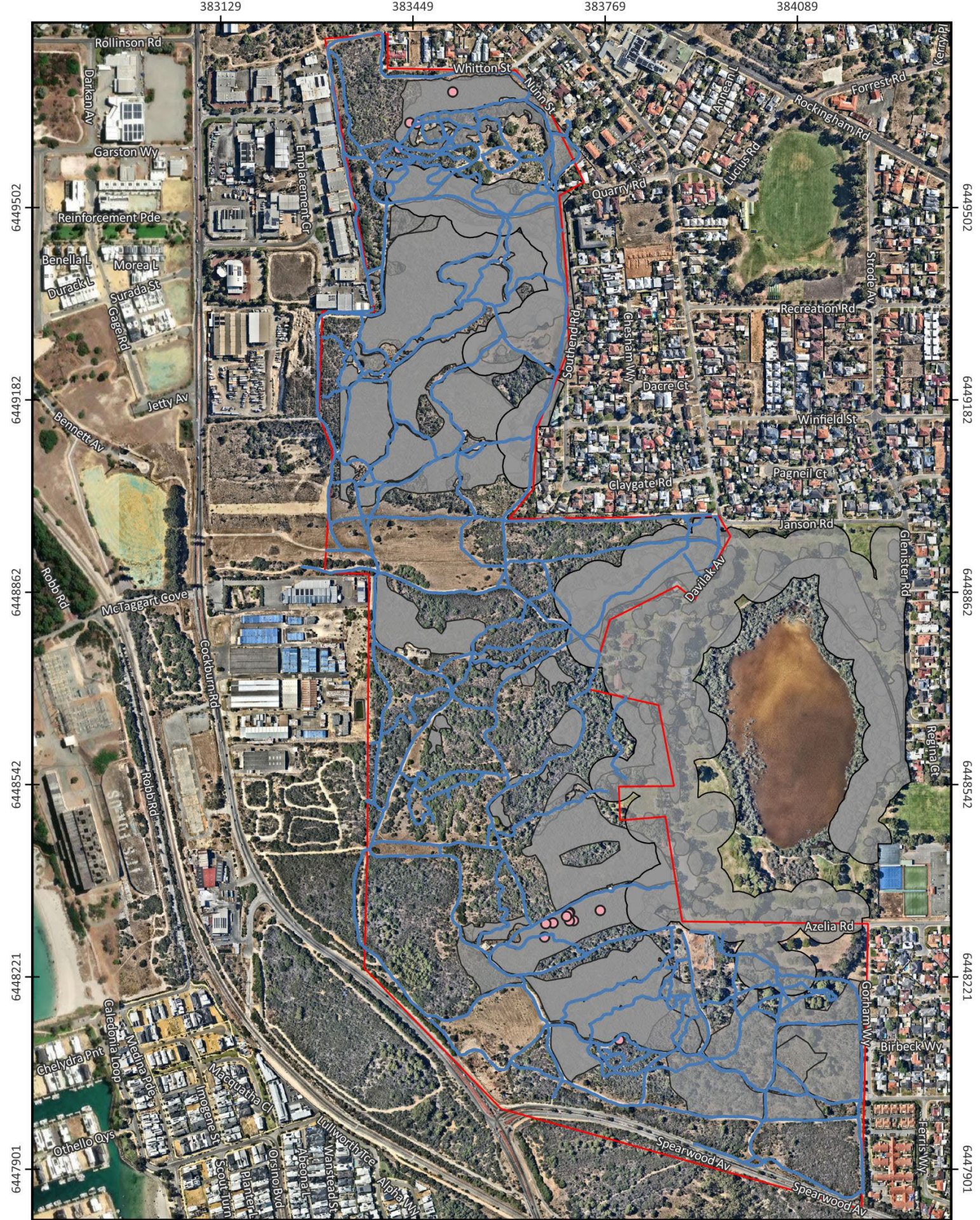
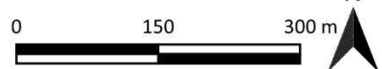


Figure 4:
Significant Flora Values

Legend

- Significant Flora
- Trails
- Ecological Communities
- Site Boundary

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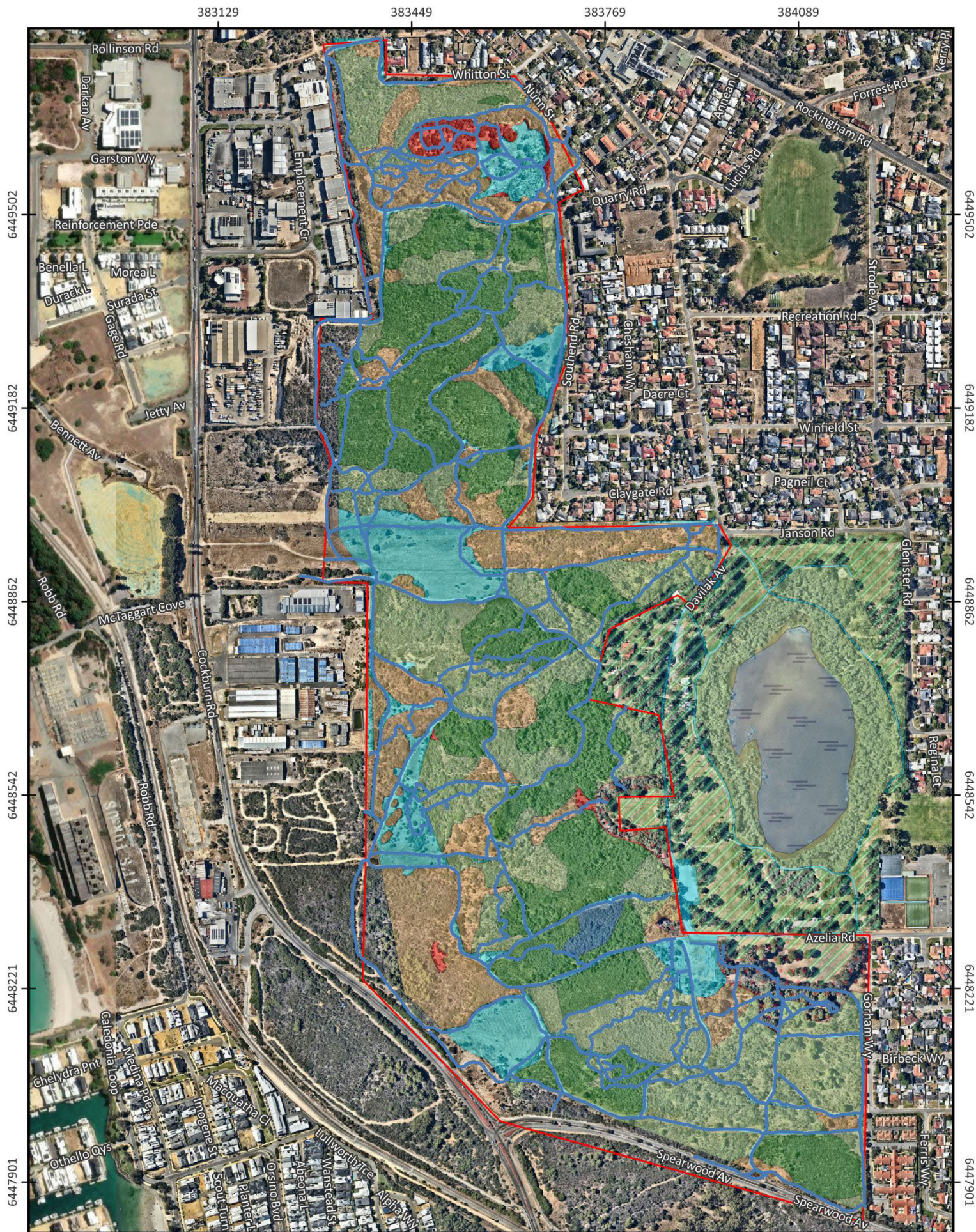


Figure 5:

Vegetation Condition

Legend

Trails

Vegetation Condition

Excellent
Very Good
Good
Degraded

Completely Degraded

Parkland

Open Water

Other Uses

Revegetated

Site Boundary

Client: City of Cockburn

Date: 27/10/2025

Created by: B. Daniels

Image Source: Nearmap, 2025

Datum: GDA2020 / MGA zone 50

Scale: 1: 8000

0 150 300 m



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3.1.4 Strava Trail Use and Frequency

The most common use and frequency of use was derived from the Strava heatmap, where the thicker and darker coloured trails represented a higher frequency and the lighter thinner trails represented a lower frequency of use. Each trail was assigned a frequency of use based on this heatmap, relative to all other trails mapped on Strava at Manning Park. The most common usage type recorded on Strava was running, with 119 trails recording running or trail running as the main use type. A total of 4 trails recorded biking as the main use type and 1 trail recorded walking as the main use type (Figure 6). There was a total of 76 trails with a high use frequency, consisting of biking, running and walking activities. A total of 26 trails recorded a medium frequency of use, consisting of running and biking activities and 22 trails recorded low frequency of use, consisting of running activities only (Table 2). Two trails had no record of any use according to Strava at the time of the survey.

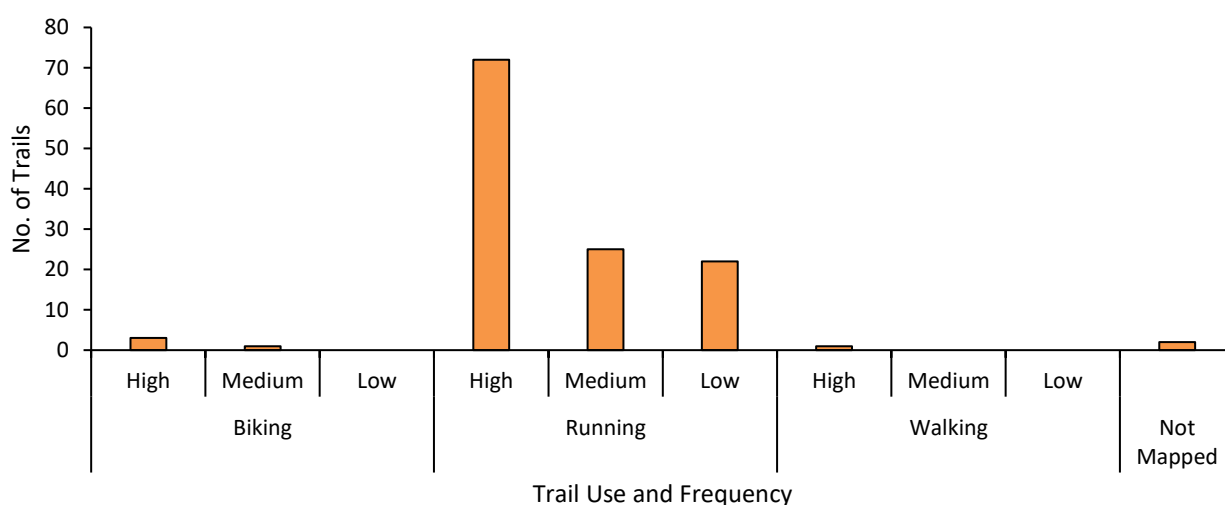


Figure 6: Trail use and frequency determined by Strava.

3.2 Field Survey Results

3.2.1 Trail Condition

Trails were considered in good condition if the trail had good footing (little to no dangerous aspects such as uneven ground, rocks, branches or potholes), clear of encroaching vegetation, and appeared overall well maintained (Figure 7). Trails in medium condition may have some instances of dangerous aspects or encroaching vegetation but appear to be safely traversable. Trails in poor condition consist entirely or almost entirely of poor footing, overgrown vegetation or other dangerous elements, and did not appear maintained. A total of 42 trails were recorded in good condition, 45 trails were recorded in medium condition, and 39 trails were recorded in poor condition (Figure 8).