



Operational Hygiene Management Plan

Albany Heritage Park Link Trails Network



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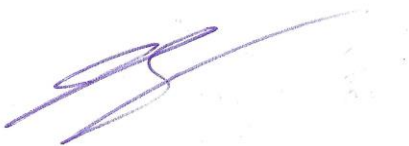
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Executive Summary

The City of Albany (CoA) is currently planning the construction and upgrade of new and existing trails across the Albany Heritage Park (AHP) precinct. The proposed Link Trails Network (Project Area) is intended to provide for a broad range of recreational site users and incorporates various assets of Corndarup / Mount Clarence and Irerup / Mount Adelaide. As part of project planning and regulatory approvals comprehensive Phytophthora Dieback occurrence data has been collected and this Operational Hygiene Management Plan (OHMP) including strategies for Phytophthora Dieback and weed management been developed.

Phytophthora Dieback

The comprehensive Phytophthora Dieback data was collected during a Comprehensive Transect Survey of the Project Area in June 2022. The survey collected 7 soil and tissue samples and assessed all vegetation on foot. Sample results provided 5 positive recoveries for *Phytophthora cinnamomi* bring the total number of positive sample recoveries from across the AHP to 22.

Two Phytophthora Dieback disease categories were applied across the Project Area. These are Infested and Uninterpretable. The Infested category has been applied to all susceptible vegetation, occurring in areas of sufficient size to be classified, exhibiting symptoms of impact by the pathogen. The uninterpretable category has been applied to all vegetation with insufficient numbers of susceptible species to allow accurate detection of the pathogen. No vegetated areas of sufficient size were found to be free from visible evidence of Phytophthora Dieback expression within the Project Area.

Application of the Protectability criteria found all areas were unprotectable from future infestation and/or spread of the disease. This is because all Uninterpretable areas directly adjoin Infested vegetation meaning the demarcation of the Infested area is unlikely to represent the full extent of disease occurrence. Instead, it represents the extent of visual disease expression within susceptible vegetation, and it is likely that infested soils and infested host species that are not susceptible to the disease are situated within the Uninterpretable areas but cannot be detected.

Due to the absence of Protectable vegetation within the Project Area, operational hygiene is not required when moving across the Project Area. To ensure that Phytophthora Dieback from the Project Area cannot impact sites external to the AHP, hygiene must be applied when leaving.

Weeds

Weeds have been defined as all introduced plant species that are listed in relevant legislation and/or currently managed by the CoA in accordance with the CoA Environmental Weed Management Plan (2019). Weed occurrence data was sourced from existing flora and vegetation survey reports and through consultation with CoA staff. No additional assessment of weed occurrence was undertaken as part of the development of this OHMP.

There are 21 introduced plant species recorded from across the AHP with five weeds species known to occur within the Project Area. Weed occurrence can be grouped into five general areas, typically associated with sites that have been previously subject to disturbance activities. These have been described and labelled as High Risk management zones but accurate delineation of these areas will require site visitation to accurately determine weed extents.

Operational Hygiene

To ensure that trails planning and construction is undertaken in a manner that mitigates the risk of associated introduction and/or spread of phytophthora Dieback and/or weeds, a range of operational hygiene requirements have been developed and presented in this OHMP. Responsibilities for implementation of each requirement have also been identified.

The objectives of the OHMP are to ensure that:

- The risk of spreading Phytophthora Dieback from the Project Area to other areas that may be uninfested and protectable from the disease is mitigated by the implementation of appropriate hygiene measures applied when exiting the trails network.
- The risk of spreading weeds into areas where they do not currently exist is mitigated through the identification of High Risk weed management zones and appropriate hygiene measures applied when moving between zones.

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1 INTRODUCTION

1.1 Background

The City of Albany (CoA) is currently planning the construction and upgrade of new and existing trails across the Albany Heritage Park (AHP) precinct. The proposed Link Trails Network is intended to provide for a broad range of recreational site users and incorporates various assets of Corndarup / Mount Clarence and Irerrup / Mount Adelaide. As part of project planning and regulatory approvals, the Department of Water and Environmental Regulation (DWER) have requested additional environmental information to inform the project approval assessment. Additional information requested includes comprehensive Phytophthora Dieback occurrence data and development of an Operational Hygiene Management Plan (OHMP) including strategies for Phytophthora Dieback and weed management.

Phytophthora Dieback is an introduced soil borne plant pathogen that affects up to 40% of native plant species within Western Australia. Most commonly the disease is caused by the species *Phytophthora cinnamomi*, however, other species such as *P. multivora* can also have significant impact under specific environmental conditions. Phytophthora Dieback is commonly introduced to an area through infested soils carried as basic raw materials or as dirt on vehicles, plant and machinery. In favourable conditions the pathogen can result in the collapse of entire vegetation communities. Once introduced to an area, Phytophthora Dieback will spread through further human vectoring and also via water movement and root to root contact, resulting in extensive infestations which may cause significant impact to native vegetation communities. There is currently no practical method of eradication of the pathogen.

There have been several previous Phytophthora Dieback assessments across the AHP. The previous assessments have identified large areas of infested vegetation and uninterpretable vegetation and have provided advice regarding the protectability of areas from Phytophthora Dieback. Many of the previous surveys were Broad Area assessments rather than comprehensive assessment. The Broad Area assessment does not include intensive ground coverage required to accurately delineate all disease categories and accordingly, many previous reports acknowledge the potential for small uninfested areas to persist within the park.

Weeds have not been accurately defined in any project conditions issued to the City of Albany as part of project approvals and permits. For the purpose of this OHMP, weeds are defined as Declared Plants (DP), Weeds of National Significance (WoNS) and weed species targeted by CoA weed management programs.

The most recent weed occurrence data (Southern Ecology, 2021) identifies 21 weed species occurring within the AHP. These species represent Declared Plants, Weeds of National Significance, National Environmental Alert weeds and Environmental Weeds. The available weed occurrence data was developed in 2021 as part of a detailed flora and vegetation survey. No additional weed survey was undertaken as part of this management plan, however, CoA staff associated with weed management were consulted.

2 METHOD

In accordance with the agreed project scope of works, this OHMP has been developed with reference to the *Phytophthora Dieback Management Manual (PDMM)* (DBCA 2020) and is also suitable to provide avoidance and mitigation measures for invasive weeds. All associated field work was performed within the AHP Link Trails Network Project Area, referred to hereon as the Project Area. The Project Area represents a defined trails construction area within the AHP as presented in Figure 1.

The PDMM defines a staged process for assessing the risk of specific activities and requires activities classified as moderate or high risk to be implemented in accordance with specific protocols. Activities that involve heavy earth moving machinery are defined in the PDMM as high-risk activities that will disturb and move soil and, accordingly, a PDMP informed by valid comprehensive disease occurrence information is mandatory (DBCA 2020). This OHMP combines the PDMP with invasive weed hygiene and management.

2.1 Phytophthora Dieback Assessment

In accordance with the agreed project scope of works, the field survey was undertaken using the *Phytophthora Dieback Comprehensive Transect Survey* method defined in the DBCA guideline, *Phytophthora Dieback Interpreters Manual for lands managed by the Department* (2015). The information produced using this method of survey provides operational level disease hygiene information for application across all assessable vegetation within Project Area.

Due to the mobility of the disease through autonomous spread and human vectoring, all operational scale disease occurrence data has a limited life of 12 months. A summary of key survey activities is provided below.

2.1.1 Desktop Interpretation

The proposed Project Area was subject to an initial desktop assessment involving a review of previous survey reports, the Vegetation Health Service (VHS) *Phytophthora* sample database and examination of available aerial imagery to assess:

- disease evidence data from previous surveys;
- the occurrence of site-specific vectors including but not limited to roads, creek lines, gravel pits and other potentially threatening features; and
- evidence of existing disease signatures such as areas of obvious vegetation decline.

2.1.2 Comprehensive Transect Survey

A disease occurrence survey was completed in May 2022 using the comprehensive transect survey method. The survey was undertaken by a DBCA registered disease interpreter (Registration No. DPW PDI018) and involved visual diagnosis of the disease within areas of assessable remnant vegetation within the Project Area. Visual diagnosis was supported by laboratory assessment of soil and tissue samples.

All areas of remnant vegetation were traversed on foot to confirm the presence/absence of the disease. Where the shape of the Project Area allowed, transects were walked across the Project Area at a distance of 50 m between transect lines. In several areas, the Project Area follows a linear trail alignment buffered to a width of 15 m either side of the proposed trail alignment, resulting in a 30 m wide Project Area corridor. Transects along these sections of the Project Area involved walking a meandering route within the defined Project Area.

Visual diagnosis involves identification of susceptible species deaths occurring in patterns consistent with disease spread, such as radiating from an identified vector. Plant deaths associated with *Phytophthora* are rapid and complete rather than partial. Further, the disease presents a chronologic pattern of deaths, with the oldest deaths closest to the disease vector and most recent deaths further from the vector, forming a disease front.

Visual diagnosis can be confirmed through the collection and analysis of representative soil and tissue samples collected from a sub-set of indicator species deaths. Diagnosis utilises both current and historic DBCA VHS recorded positive sample recoveries to identify disease presence with direct influence over a site. The extent of disease occurrence is mapped using topography and visual evidence consistent with expression associated with positive sample recoveries.

All disease hygiene boundaries were demarcated and mapped using a hand-held GPS unit. Demarcation of disease hygiene boundaries was performed in the field using appropriately coloured flagging tape. Additional field evidence was also collected using a hand-held GPS unit.

Demarcation of disease hygiene boundaries was performed in accordance with the requirements defined in the *Phytophthora Dieback Interpreters Manual for lands managed by the Department (2015)*. Flagging tape used for demarcation of hygiene boundaries is defined below:

- Infested vegetation – Dayglo Pink tape
- Uninterpretable – Pink and Black striped tape
- Uninfested – No demarcation

Demarcation tapes are tied on trees and other suitable bushes or shrubs along the category boundary. Knots on the demarcation tapes face the category being demarcated. When demarcating infested vegetation adjoining uninfested vegetation, the tapes are placed 10 -15 m into the uninfested vegetation to allow a buffer between the hygiene categories. When demarcating uninterpretable vegetation adjoining uninfested vegetation, the tapes are placed approximately 20 m into the uninfested vegetation to allow a buffer between the hygiene categories. It should be noted that uninterpretable boundaries adjoining uninfested vegetation are typically transitional zones between vegetation types and do not represent a clear edge.

During demarcation it was noted that fauna Habitat trees have also been identified using pink tape. To avoid confusion between the two demarcation types, Dieback demarcation has been performed using both Dieback pink and uninterpretable black and pink tapes.

Field data including disease presence and vegetation information was collected using a hand-held GPS unit and converted to ArcGIS™ shapefiles. Collected field data included all sample locations, a point file of all identified individual plant deaths attributed to *Phytophthora*, disease hygiene boundaries and track files of the area covered during survey.

2.1.3 Sampling Program

Sampling for *Phytophthora* Dieback involves the collection of soil and tissue samples from fresh deaths of plants considered to be reliable indicator species of *Phytophthora* expression. Where suspicious deaths were identified, soil and root tissue material was collected into heavy duty plastic bags and forwarded to the Vegetation Health Service (VHS) laboratory for analysis.

All sampling undertaken was performed in accordance with the methods described in the *Phytophthora Dieback Interpreters Manual for lands managed by the Department* (DBCA, 2015).

It is important to understand that testing for *Phytophthora* involves culturing a living organism from sample material. Due to variables in the sample collection, handling and analysis process, false negative results may occur. Therefore, a positive recovery of *Phytophthora* from sample material can be used to confirm the presence of the pathogen in a single plant death but cannot be used to confirm the cause of death associated with all susceptible species deaths within the Project Area. Further, a negative result may be used to support the uninfested classification of an area based on visual evidence, however, a negative result does not confirm the absence of the pathogen in an area.

2.2 Weed Hygiene and Management

As defined in the DWER request for additional information, the process for managing weeds during development of the AHP Trails network also requires documentation. Current CoA weed management processes are defined in the CoA Environmental Weed Management Plan (2019). CoA staff also provided information relating to the known occurrence of weed hotspots within the AHP that are the subject of current and ongoing weed control programs. The weed species associated with these weed hotspots have been included in the definition of weeds used in this OHMP.

Weed occurrence data developed during flora and vegetation surveys (Southern Ecology, 2021) of the AHP trails area has also been used to inform the OHMP.

3 OHMP ASSESSMENT CRITERIA

3.1 Phytophthora Dieback Assessment

DBCA (2015) guidelines identify six potential disease hygiene categories based on presence/absence of the disease, or the unknown disease status of an area. An area can have an unknown disease status if the vegetation at the site is not susceptible to the disease or it cannot be assessed because of disturbance, e.g., fire. As a result, even if the pathogen is present, there may be no interpretable signs.

Only areas with suitable remnant native vegetation can be assessed. Areas that have been cleared or significantly altered are excluded from survey. In some cases, small, excluded areas may be afforded a hygiene category if they are small enough to be influenced by adjacent surveyed vegetation or situated such that topographical influences can be used to determine disease presence or absence.

The six possible disease categories are listed and described below:

1. **Infested** – Areas a registered interpreter determines to have plant disease symptoms consistent with the presence of *Phytophthora cinnamomi*.
2. **Uninfested** – Areas determined by a registered interpreter to be free of plant disease symptoms that indicate the presence of *P. cinnamomi*.
3. **Uninterpretable** – Natural, undisturbed areas where susceptible plants are absent, or are too few to make a determination regarding the presence or absence of *P. cinnamomi*.
4. **Temporarily uninterpretable** – Areas where disease presence or absence cannot be determined due to a level and type of site disturbance that will recover within the short to medium term, e.g., fire, rehabilitation.
5. **Not yet resolved** – *Phytophthora* occurrence diagnosis cannot be made because of inconsistent or incomplete evidence (including sample results). The category is only to be used in low interpretability zones (400 mm to 600 mm rainfall range).
6. **Disease risk roads (DRR)** – Interpreters will use the DRR category to show the disease status is unknown because of suspected or apparent recent use under unknown hygiene conditions.

Following the determination of disease categories, protectable areas are identified to determine areas that are likely to remain free from the disease with the application of appropriate disease hygiene as required.

Protectable areas are defined in the *Phytophthora Dieback Management Manual* (2020) as being areas that are likely to be classified Uninfested but may also include areas that are Uninterpretable. Protectable areas may also include areas of high conservation and/or socioeconomic value (e.g., a small uninfested area which contains a known population of a susceptible species of threatened flora) and which fall within the Vulnerable Zone. The protectable area criteria include areas that:

- are situated in zones receiving greater than 600 mm per annum average rainfall, or in lower rainfall zones in areas that are water gaining (e.g., granite outcrops, impeded drainage or engineering works which aggregate rainfall)
- are determined to be free of Dieback by a registered Phytophthora Dieback Interpreter (Uninterpretable areas may be classified as protectable) and

- are positioned in the landscape and of sufficient size (greater than four ha with a minimum axis greater than 100 m) such that an Interpreter judges that *Phytophthora Dieback* will not autonomously infest it, in the short term (a period of up to several decades).

3.2 Weeds

The City of Albany *Environmental Weed Management Plan* (2019) prioritises weeds for appropriate management across its reserve network. Priority weeds are defined as Declared Plants (DP), Weeds of National Significance (WoNS), National Environmental Alert Weeds (Alert Weeds) and common environmental weeds.

3.2.1 Declared Plants

To protect Western Australian agriculture, the Department of Primary Industries and Regional Development regulates harmful plants under the Biosecurity and Agriculture Management Act 2007 (the BAM Act). Plants that are prevented entry into the State or have control or keeping requirements within the State are known as declared pests.

If a declared plant is found in the area, landowners/occupiers and other persons must adhere to requirements under the BAM Act 2007 and its subsidiary legislation.

3.2.2 Weeds of National Significance

Thirty-two species have been classified WONS by Australian governments, based on an assessment process that prioritised these weeds based on their invasiveness, potential for spreading and environmental, social and economic impacts.

3.2.3 National Environmental Alert Weeds

The National Environmental Alert List identifies species that are in the early stages of establishment and have the potential to become a significant threat to biodiversity if they are not managed. There are currently 28 species on this list with only six of these known to occur in Western Australia.

3.2.4 Environmental Weeds

The Environmental Weed Strategy for Western Australia defines environmental weeds as “plants that establish themselves in natural ecosystems (marine, aquatic and terrestrial) and proceed to modify natural processes, usually adversely, resulting in the decline of the communities they invade” (CALM 1999).

3.3 Weed Definition and Categories

For the purpose of this OHMP the term weed is defined as being either a DP, WoNS or a weed species associated with an infested area currently subject to active weed control by the CoA. Areas containing weeds as defined above are classified High Risk weed management zones.

All other areas are classified Low Risk weed management zones. It is acknowledged that Low Risk weed management zones may contain introduced plant species, but because these species do not currently present a significant threat to the AHP they have not been identified for management.

4 GENERAL DESKTOP ASSESSMENT

4.1 Project Area

The Project Area, shown in Figure 1, includes the proposed new trail alignments and a buffer distance of 15 meters either side of the trail. The Project Area covers approximately 34.5 ha, extending across the Albany Heritage Park from Corndarup / Mount Clarence in the west to Irerrup / Mount Adelaide in the east. While the majority of the Project Area is situated on the northern aspect of the two mounts, there is also some proposed trail development on the southern aspect of Irerrup / Mount Adelaide, which crosses to the south of Marine Drive.

4.2 Land Use

The AHP is used for a broad range of activities and has experienced a high level of land use for an extended period time. Most notably, both mounts have memorials, artefacts and development dedicated to the ANZAC heritage of the region. Recently, the National ANZAC Centre and associated infrastructure has been developed in these regions. Historical military sites including gun emplacements, bunkers and lookouts are also distributed across Irerrup / Mount Adelaide.

The area is also used extensively for recreational walking and cycling, and a wide network of both formal and informal trails traverse the AHP. Access to this network can be gained from all sides of the AHP through entrance points from residential areas and access roads. No disease hygiene infrastructure is in place to limit the human vectoring of vegetation diseases.

The CoA maintain a series of strategic firebreaks across the AHP and the Water Corporation also maintains a water pipeline that leads to a storage tank situated on the flanks of Corndarup / Mount Clarence. Marine Drive traverses the eastern and southern slopes of Irerrup / Mount Adelaide, bisecting the Project Area, forming a major link between the CBD and Binalup / Middleton Beach, while Apex Drive and Forts Road are sealed roads with imported gravel sub-bases that run nearly to the summit of Corndarup / Mount Clarence and Irerrup / Mount Adelaide, respectively. Both roads incorporate drainage infrastructure that directs water runoff across sections of the Project Area.

4.3 Climate

The Bureau of Meteorology (BoM) broadly classifies the climate across the southwest region of Western Australia as warm summers with cold winters. The BoM maintains a network of weather stations across Australia to record weather data, with the nearest station to the AHP being Albany. The long-term average annual rainfall data from Albany shows that that annual average rainfall is 947.6mm/yr. while the average maximum temperatures range from 15.1°C (July) to 21.9°C (Feb).

These are important figures as the accepted distribution of *Phytophthora* is generally restricted by the 400 mm isohyet with distribution in the 400-600 mm/yr zone further restricted to sites with high summer rainfall averages or associated with water gaining sites. Based on the BoM climate classification and rainfall data it can be seen that the Project Area experiences suitable conditions for *Phytophthora Dieback* to have a significant impact.

4.4 Vegetation

Broad level vegetation information for the Albany Heritage Park is provided in the Albany Regional Vegetation Survey (ARVS - (Sandiford and Barrett, 2010)) and detailed vegetation survey data was

developed by Southern Ecology in 2020. The 2020 Southern Ecology data was provided as map products only, in the Albany Heritage Park Link Trails (V2) – Project overview, distributed by the City of Albany.

The ARVS identifies four primary vegetation categories with multiple vegetation units within each category. The primary vegetation categories consist of:

- Granite outcrops;
- Upland Eucalypt woodland and forest;
- Coastal dune systems; and
- Wetlands and damplands

The Southern Ecology vegetation map identifies 19 separate vegetation units across the entire Albany Heritage Park precinct. Of these only six are intersected by the current Project Area. These are reported as:

- *Gastrolobium bilobum/Hakea elliptica* Granite Shrubland/ Yate Woodland
- *Taxandria marginata* Granite Shrubland
- Marri/Jarrah Coastal Hills Forest
- Jarrah Woodland
- Jarrah/Sheoak/*E. staeri* Sandy Woodland
- Coastal *Banksia ilicifolia*/Peppermint Low Woodland

From the vegetation data available for review it was anticipated that the Upland Eucalypt woodland and forest defined in the ARVS may contain suitable numbers of disease indicator species to enable disease interpretation. It was also anticipated that the Jarrah/Marri and Sheoak woodlands and forests, and the Coastal *Banksia ilicifolia*/Peppermint woodland vegetation units defined in the Southern Ecology map may also contain suitable numbers of disease indicator species to enable disease interpretation.

4.5 Topography

Topography is highly influential to *Phytophthora Dieback* occurrence as the primary mechanism for autonomous disease spread is through downhill movement of the disease in soil water and drainage lines. Once introduced to an area, the highest rates of disease spread are directly downslope, however, some upslope disease movement does occur through root-to-root contact.

The AHP is dominated by Corndarup / Mount Clarence in the west to Irerrup / Mount Adelaide in the east. Both represent regional high points at either end of the Project Area and are directly influential on drainage patterns across the park. Due to the highly fractured and uneven nature of the granites, there is significant variability in surface drainage patterns which is likely to be replicated across sub-surface drainage lines also.

A third, minor granite outcrop also influences site drainage patterns south of Marine Drive where a lower rise along the coast isolates a small area of vegetation from drainage off the west to Irerrup / Mount Adelaide and Marine Drive.

5 DISEASE OCCURRENCE SURVEY

The disease occurrence, protectable vegetation and location of soil and tissue samples across the Project Area are shown in Figures 2-1 and 2-2. Appendix A presents the VHS laboratory certificates for all samples collected during the survey.

All operational scale disease occurrence data and field demarcation have an operational life of 12 months. Following this, a recheck assessment will be required to assess active disease fronts and all uninfested categories.

5.1 Desktop Assessment

There have been several previous *Phytophthora* Dieback assessments undertaken across the Albany Heritage Park precinct. The first known assessment was performed in 2011 and is only known from a positive sample recovery recorded on the VHS positive sample data base. It is not known if there was an accompanying survey or a defined area or whether it was just a single soil and tissue sample collection.

The other known *Phytophthora* Dieback assessments were performed by Great Southern Bio Logic and are listed below:

- *Phytophthora Dieback Occurrence Survey Mt Clarence Downhill Trail*, Comprehensive assessment, 2019
- *Phytophthora Dieback Occurrence Survey Albany Heritage Park, CBD to Mids Link Trail*, Comprehensive Assessment, 2018
- *Phytophthora dieback Hygiene Survey of the proposed Corndarup / Mount Clarence and Irerrup / Mount Adelaide Mountain Bike Trails Area*, Broad Area Assessment, 2016
- *Phytophthora Dieback Assessment and Associated Management Plan for the Padre White Lookout Construction Project*, Comprehensive Assessment, 2012

All of the previous survey project areas are either influential to the current project area due to topography and drainage or intersect directly with the current Project Area. The following points present a summary of findings from the previous surveys:

- A total of 17 positive sample recoveries have been collected across the Albany Heritage Park as part of all previous assessments.
- All vegetation within the Albany Heritage Park has previously been classified as either Infested with *Phytophthora* Dieback or Uninterpretable for *Phytophthora* Dieback.
- No areas of uninfested vegetation have been identified, however, the broad area assessment report (GSBL 2016) identifies that small uninfested pockets of healthy vegetation are likely to exist within areas of the park that have not been accessed and traversed on foot as part of the on ground survey works.

5.2 Comprehensive Transect Assessment

5.2.1 Vegetation

The majority of the vegetation on the mid to lower slopes of Irerrup / Mount Adelaide was considered to be interpretable for *Phytophthora* Dieback based on suitable densities of indicator species, however, the

granite shrublands on the upper slopes and to the south of Marine Drive were considered to be uninterpretable due to the lack of indicator species presence.

Most of the vegetation on Corndarup / Mount Clarence was also considered to be largely uninterpretable due to the paucity of disease indicator species. This area is also dominated by the granite shrubland communities. Common indicator species found across the interpretable areas of the Project Area and used to determine the presence/absence of *Phytophthora* included:

- *Banksia attenuata*
- *B. coccinea*
- *B. formosa*
- *B. grandis*
- *Jacksonia horrida*
- *Gompholobium scabrum*
- *Leucopogon obovatus*
- *Patersonia umbrosa*
- *Persoonia longifolia*
- *Xanthorrhoea gracilis*
- *X. preissii*

5.2.2 Soil and tissue sampling program

Seven soil and tissue samples were collected across the Project Area during the current survey. All are situated within the refined trails development area. All sample results and locations are shown on Figures 2-1 and 2-2.

Five samples returned positive results for *Phytophthora cinnamomi* while two were negative for all *Phytophthora* species.

5.2.3 Disease Hygiene Categories and Protectability

A summary of key assessment statistics is presented in Table 1 below with discussion provided in Section 5.3.

Table 1: Disease hygiene categories and protectable areas

Disease Hygiene Categories and Protectable Areas – Albany Heritage Park Project Area	
Area Classification	Area (Ha)
Total Project Area	34.5
Uninfested Vegetation	0
Infested Vegetation	16.1
Uninterpretable Vegetation	18.4
Protectable Vegetation	0

5.3 Discussion

Consistent with previous surveys, *Phytophthora Dieback* was identified widely across the current Project Area, however, visually active disease expression was limited to vegetation that contained suitable numbers of disease indicator species.

These areas were typically the Eucalypt woodlands and forests situated on the mid to lower slopes of Irerrup / Mount Adelaide and Corndarup / Mount Clarence. Where suitable numbers of disease indicator species were present in vegetation communities, disease expression was evident through both recent and historic deaths of susceptible species. This presence of deaths of varied age is indicative of vegetation impact caused by *Phytophthora Dieback*, as it selectively impacts multiple plants over the course of many years. All observed deaths were noted to be full and rapid plant deaths, rather than partial or staged death of individuals. This is also a key diagnostic feature used when visually assessing *Phytophthora Dieback* presence and impact.

The infested categories are further supported by the presence of multiple positive recoveries of *Phytophthora* spp., mostly *P. cinnamomi*, from sample locations situated upslope of the infested areas. A single historic *P. multivora* is also influential upon the Project Area.

The topographical position of sample locations is another key diagnostic feature of pathogen presence. As *Phytophthora Dieback* is known to move most rapidly via surface and sub surface drainage, positive sample locations can be used to extrapolate anticipated disease occurrence to vegetation situated downslope of the sample site. Caution must be applied when using this technique as water movement in sub surface drainage is not typically uniform. This is especially true in areas like the AHP where there is significant sub surface drainage influenced by impermeable granites that may significantly influence drainage patterns.

During the field survey it was noted that upland woodland and forest areas were typically dominated by an overstorey of Jarrah/Marri/Sheoak over tall open scrub, open heath, low shrubland, sedgeland or herbland. In some areas the woodland vegetation units transitioned into Sheoak dominated woodland over an open understorey with minimal indicator species. It is noted that the vegetation descriptions presented in the 2010 ARVS species lists include *Banksia attenuata*, *B. coccinea*, *B. grandis* and *Persoonia longifolia* as common species in the secondary tree strata and shrub layers of these units (Sandiford and Barrett, 2010).

While these species were observed across the Project Area they were not noted in significant numbers and dead individuals were often recorded during the current survey. This absence of the listed species, all considered highly susceptible to the disease, has been used to classify some woodland and forest vegetation areas as infested despite the absence of recent visual disease expression. In nearly all situations, there are positive sample recoveries situated upslope of the area classified as infested and it is considered likely that the change in vegetation composition (abundance of those species since 2010) is the result of *Phytophthora Dieback* through autonomous spread.

The highest points of both Irerrup / Mount Adelaide and Corndarup / Mount Clarence are vegetated with granite shrubland communities which contain very few to no susceptible disease indicator species. On Corndarup / Mount Clarence, these communities extend nearly to the base of the hill, covering the mid to lower slopes of the Project Area. While some *Xanthorrhoea platyphylla* were noted on Corndarup / Mount Clarence, the current Project Area has been classified as uninterpretable due to paucity of numbers. The indicator species do not occur widely enough to allow accurate determination of disease presence/absence and the deaths are too old to sample however there are two historic positive sample

recoveries on the western slopes of Corndarup / Mount Clarence, in vegetation that is otherwise Uninterpretable. At the time of the current survey there was no visual evidence of disease expression at either historic sample site and due to the lack of visual disease expression it is not possible to accurately demarcate these infested areas so a disease buffer has been applied to the two positive sample locations. All adjoining uninterpretable vegetation has been classified as unprotectable due to the potential presence of undetectable disease occurrence.

All of the Uninterpretable vegetation including the granite shrubland communities have been assessed for Protectability from future disease introduction and spread of the disease and determined to be Unprotectable. In accordance with the protectability criteria presented in Section 3, Protectable Areas must be determined to be free from infestation by a DBCA registered interpreter and also must not be of suitable size and positioned so that they will remain free from the disease for a significant period of time. As shown in Figures 2-1 and 2-2, much of the Uninterpretable vegetation occurs on the upper slopes but adjoins infested vegetation. This means the demarcation of the infested area is unlikely to represent the full extent of disease occurrence. Instead, it represents the extent of visual disease expression within susceptible vegetation, and it is likely that infested soils and infested host species that are not susceptible to the disease are situated within the uninterpretable areas but cannot be detected. This means while uninfested soils may occur within the Uninterpretable area, they cannot be isolated and appropriately managed. Areas of Uninterpretable vegetation situated downslope of known infested vegetation are likely to be completely infested but cannot be classified Infested under current disease assessment guidelines (DBCA 2015) These areas have been classified as Uninterpretable and Unprotectable as they are too far from the known infestations to allow extrapolation of the infested category.

The Unprotectable classification of all Uninterpretable vegetation is further supported by the long history of site disturbance and development activities associated with historic and current land use, of which most has been undertaken without disease hygiene protocols in place. Evidence that these activities have introduced *Phytophthora Dieback* to the AHP precinct is shown through the 22 positive recoveries of *Phytophthora Dieback* from soil and tissue samples collected during this and previous assessments. Many of these positive recoveries are situated on the upper slopes of both Irerrup / Mount Adelaide and Corndarup / Mount Clarence, in positions that are upslope of uninterpretable vegetation and influential over most of the AHP.

The surveyed areas of coastal heath can be described as a diverse open heath with large clumps of *Agonis flexuosa* with other dominant species including *Bossiaea linophylla*, *Hakea florida*, *Adenanthos cuneatus* and *Leucopogon obovatus*. Banksia species listed in the ARVS and in the Coastal *Banksia ilicifolia*/Peppermint Low Woodland described by Southern Ecology were noted to be generally absent. There are several historic positive sample recoveries upslope of and within the Project Area where it intersects this vegetation unit on Irerrup / Mount Adelaide. As a result, sections where the Project Area traverses coastal heath have also been classified as infested, despite the absence of recent disease expression through some areas.

To the south of Marine Drive, an elevated granite hilltop was identified as a priority Project Area due to its position, which isolates it from the larger catchment of Irerrup / Mt Adelaide. Vegetation on this low hill consisted of a granite shrubland dominated by a dense stand of *Gastrolobium bilobum*. This vegetation is consistent with granite shrubland communities on both Irerrup / Mount Adelaide and Corndarup / Mount Clarence and has also been classified as uninterpretable. While this area is isolated from drainage from known infested areas, it is also has a history of significant site disturbance and land use activities

undertaken without disease hygiene protocols in place. Therefore, this area has also been classified as Unprotectable.

5.4 Limitation of Results

Phytophthora Dieback is a soil borne plant pathogen that spreads autonomously via root-to-root transmission, independently through the soil and with the movement of water. The disease is also widely spread by human activities involving the movement of infested soil and plant material. As a result, the edge of a disease infestation is considered to be an actively spreading disease front, and all uninfested areas of vegetation that are associated with human vectors such as tracks and access ways are considered to be at risk of future infestation unless appropriate management is applied.

6 WEED SURVEY

6.1 Desktop Assessment

A desktop review of available weed occurrence data was performed by reviewing the City of Albany's Environmental Weed Management Plan (CoA 2019) and previous flora and vegetation reports that identified weed species (Sandiford and Barrett, 2010, Southern Ecology, 2020). City of Albany Parks and Reserves staff were also consulted and provided additional weed occurrence and weed management information relevant to the AHP (CoA Reserves Team pers. comm 26-07-2022).

The CoA Environmental Weed Management Plan identifies priority weed species that occur across the City of Albany and are targeted for management. These include:

- eight Declared Pest (DP) species
- thirty-two Weeds of National Significance (WoNS) species
- two species of Alert Weeds and
- thirty-six Environmental Weed species.

The available flora and vegetation survey data identified 21 species of introduced plant within the Project Area including:

- three DP species (*Ulex europaeus*, Gorse and *Zantedeschia aethiopica*, Arum Lily, *Asparagus asparagoides*, Bridal Creeper)
- two WoNS (*Ulex europaeus*, Gorse, *Asparagus asparagoides*, Bridal Creeper)
- one Alert Species (*Senecio glastifolius*, Pink Ragwort) and
- nine Environmental Weeds

From the available information above, target weeds identified for management across the Project Area include all weed species listed within applicable legislation plus weeds currently subject to CoA management across the AHP. These target weed species are shown on Figure 3 and listed below.

- *Acacia paradoxa* (Kangaroo Thorn) Environmental Weed
- *Asparagus asparagoides* (Bridal Creeper) DP, WONS
- *Senecio glastifolius* (Pink Ragwort) Alert Species
- *Ulex europaeus* (Gorse) DP, WONS
- *Zantedeschia aethiopica* (Arum Lily) DP

6.2 Weed Field Survey

No specific weed survey has been undertaken as part of the development of this OHMP. All weed occurrence data was developed during the flora and vegetation surveys performed as part of the AHP Trails project, the results of which are summarised above.

6.3 Weed Occurrence and Hygiene Categories

The occurrence of target weeds across the Project Area as identified in Southern Ecology (2020), is shown in Figure 3. This figure shows weeds to be widely distributed across the Project Area, however, the



distribution does appear to be focused around disturbed sites where there are significant recreational and management site use activities. There are five distinguishable areas associated with weed occurrence including:

- west of the Padre White Lookout
- around the general public carpark at the top of Clarence/Corndarup (base of the stairs)
- surrounding the ANZAC Memorial Complex including carparks, gun placements and cafes
- south of the Binalup / Middleton Beach commercial precinct and
- along the bitumen dual use path south of Marine Drive.

These five general areas of weed occurrence have been defined as High Risk weed management zones as per the definition in Section 3.3. The five High Risk weed management zones have not been presented on an OHMP Figure as the weed data from previous assessments (Southern Ecology 2020) identifies single locations where numerous individual plants were identified. It does not accurately map the extent of infestations. Mitigation strategies presented in the OHMP in Section 7 include a requirement to revisit known weed occurrences and accurately identify and spatially map the current extent of infestations so that hygiene measures can be effectively applied.

Current weed management activities undertaken by the CoA are focused around existing hotspot areas where weed control practices are performed in accordance with the CoA Environmental Weed Management Plan. There are currently three hotspot areas intersecting with the Project Area where active weed control activities are undertaken. These are:

- a small section west of the Padre White Lookout – controlling *Senecio glastifolius*
- south of the Middleton Beach commercial precinct – controlling *Acacia paradoxa* and
- along the bitumen dual use path south of Marine Drive – Controlling *Vinca major*.

All three current management areas fall within one of the five High Risk weed management zones.

6.4 Objectives for Weed Management

Weed management objectives for the construction phase of the AHP Link Trails construction project are to:

- support current CoA weed control program by mitigating the risk of spread of target weeds from current treatment areas into surrounding vegetation and
- mitigate the risk of weed spread from High Risk weed management zones into Low Risk weed management zones.

7 OPERATIONAL HYGIENE MANAGEMENT PLAN

Activity	Risk	Mitigation Strategy	Timing	Responsibility
Project Planning				
Site reconnaissance	Introduction of infested soil or plant material on field vehicles and/or footwear	Ensure all field vehicles undergo regular effective clean down inspections and are clean and free from soil and vegetative material before accessing the AHP.	Site visit preparation	CoA Major Projects and all contractors
		All vehicles must travel to the Project Area via sealed roads or by well-formed gravel roads during dry soil conditions only. This will ensure potentially infested soil or plant material is not collected after the effective clean down inspection.	Site visit preparation	CoA Major Projects and all contractors
		Footwear is to be maintained in a condition that is clean and free from soil and vegetative material before accessing the site.	Site visit preparation	CoA Major Projects and all contractors
Phytophthora Dieback information	Expired disease information may not account for recent disease incursions and spread since the date of survey	Check that Phytophthora Dieback occurrence information is current. Due to widespread disease occurrence, there are no protectable areas within the Project Area. If areas external to the Project area require soil movement activities to be undertaken as part of the AHP Trails Project, additional disease occurrence survey may be required.	Project planning	CoA Major Projects

Activity	Risk	Mitigation Strategy	Timing	Responsibility
Weed occurrence information	Expired weed occurrence data may not account for recent weed incursions and spread since the date of survey	Check that available weed occurrence information is current. All High Risk weed management zones must be surveyed and spatially mapped to accurately determine current weed distributions prior to trail construction works.	Project planning	CoA Major Projects
On-ground signage plan.	A lack of effective signage may result in inadvertent transport of infested soil or plant material into areas not currently impacted by disease and weed occurrence	<p>Prior to construction works establish Clean on Entry/Exit points based on most current Phytophthora Dieback and Weed Occurrence data.</p> <ul style="list-style-type: none"> As there are no Protectable Areas within the Project Area, only Phytophthora Dieback Clean on Exit points are required. These are to be located at any point of exit from the Link Trail Network to areas external to the AHP. Weed Clean on Entry/Clean on Exit points are to be located on the perimeter of <i>High Risk*</i> weed management zones. Educational signage to be installed at trail heads, trail entry and trail exit points. 	Planning - <i>Develop plan to be implemented during construction.</i>	CoA Major Projects

Activity	Risk	Mitigation Strategy	Timing	Responsibility
General Site Access				
Entering AHP	Introduction of infested soil or plant material on field vehicles, plant and/or footwear	Vehicle inspections are to be performed prior to entry to the site. All vehicles, machinery and equipment must be Clean on Entry when accessing the AHP.	Duration of planning, construction and maintenance.	CoA Major Projects and Contractors
Exiting Project Area	Transportation of infested materials and/or weed seed/materials on field vehicles, plant and/or footwear to external sites	Vehicle inspections are to be performed prior to exit from the site. All vehicles machinery and equipment must be Clean on Exit when leaving the Project Area.	Duration of planning, construction and maintenance.	CoA Major Projects and Contractors
Vegetation Clearing				
Staff and Contractor awareness	Staff and contractors without understanding of disease or weed management may inadvertently breach hygiene controls.	Ensure all staff and contractors working within the Project Area have undertaken appropriate site inductions and relevant Biosecurity awareness training. Records of inductions are to be maintained.	Project Planning and project induction.	CoA Major Projects
Vegetation Clearing	Movement of potentially infested soil or plant material into uninfested protectable areas.	Vegetation cleared from trail alignments in <i>High Risk*</i> weed management zones is not to be used for rehabilitation of areas outside the identified <i>High Risk*</i> management zone.	Project clearing phase.	CoA Major Projects and construction contractor

Activity	Risk	Mitigation Strategy	Timing	Responsibility
		Vegetation cleared from trail alignments is not to be used for rehabilitation of sites external to the AHP.		CoA Major Projects and construction contractor
Link Trail Construction Works				
Staff and Contractor awareness	Staff and contractors without understanding of disease or weed management may inadvertently breach hygiene controls.	Ensure all staff and contractors working within the Project Area have undertaken appropriate site inductions and relevant Biosecurity awareness training. Records of inductions are to be maintained.	Project Planning and project induction.	CoA Major Projects
Accessing <i>Low Risk**</i> weed areas from <i>High Risk*</i> weed areas	Movement of vehicles, equipment and machinery from <i>High Risk*</i> weed areas to <i>Low Risk**</i> weed areas may result in the spread of weed seed to <i>Low Risk**</i> weed areas.	Conduct hygienic clean down inspections of all vehicles, machinery, equipment and footwear prior to exiting <i>High Risk*</i> weed management zones and entering <i>Low Risk**</i> weed management zones. If the inspection identifies any soil or plant material then a detailed hygienic clean down must be performed within the <i>High Risk*</i> management zone	Inspections to be performed when crossing CoE points.	CoA Major Projects and/or hygiene contractor
Accessing AHP areas outside the Project Area from <i>High Risk*</i> weed areas	Movement of vehicles, equipment and machinery from <i>High Risk*</i> weed areas to any area external from the Project Area may result	Conduct hygienic clean down inspections of all vehicles, machinery, equipment and footwear prior to exiting <i>High Risk*</i> weed management zones and the AHP.	Inspections to be performed when crossing CoE points.	CoA Major Projects and/or hygiene contractor

Activity	Risk	Mitigation Strategy	Timing	Responsibility
	in the spread of infested soil or plant material to uninfested areas.	If the inspection identifies any soil or plant material, then a detailed hygienic clean down must be performed prior to exiting the area.		
Construction of trails for ongoing hygienic use of trails by AHP users	Movement of trail users may spread weed seed from <i>High Risk*</i> Areas to <i>Low Risk**</i> Areas along the Link Trail Network.	Assess the efficacy of public clean down infrastructure*** to remove soil and plant material from footwear and bike tyres.	Planning and Construction.	CoA Major Projects and trails planning contractor
		Install and maintain appropriate public clean down infrastructure at Trail Heads and Trail Exit locations.		CoA Major Projects and construction contractor
		Consider installation of Rattle Plates for shaking seed and soil material off bikes on the perimeter of <i>High Risk*</i> weed management zones.		CoA Major Projects and trails planning contractor
Record Keeping and Monitoring				
Staff and Contractor Inductions	Staff and contractors without understanding of disease or weed management may inadvertently breach hygiene controls.	All staff and contractor inductions are to include the disease and weed hygiene requirements defined in this OHMP. A record of all inductions is to be maintained and provided for inclusion in closure reporting.	Project duration.	CoA Major Projects
Clean down inspections	Ineffective application of hygiene may result in a	Clean on Entry/Exit inspection reports are to be developed and inspections completed upon entry/exit of site and between	Project duration.	CoA Major Projects and/or

Activity	Risk	Mitigation Strategy	Timing	Responsibility
	breach of hygiene controls.	management zones. Completed inspection forms**** to be included in project closure reporting.		hygiene contractor
Hygiene inspections	Ineffective application of hygiene may result in a breach of hygiene controls.	A minimum of two opportunistic site inspections are to be conducted by an appropriate hygiene specialist during construction, to review appropriate operational hygiene application.	Opportunistic inspections during construction works.	CoA Major Projects and/or hygiene contractor
Project closure report		A project closure report is to be developed and be available for review by the Regulator if required. The report must demonstrate effective implementation of the OHMP and include induction records, updated disease and weed occurrence assessment reports and hygiene inspection reports.	Within 2 months of construction completion.	CoA Major Projects and/or hygiene contractor

* High Risk weed management zone – Areas known to be hot spot infestations of invasive weed species targeted for management by the CoA or locations of DP and/or WoNS species. To be developed following weed assessment extent and mapping and prior to construction.

** Low Risk – Areas where introduced plants may occur but are not targeted for management by CoA. Low Risk weed areas will not contain known occurrences of DP or WoNS species.

*** Cleandown Infrastructure – Cleandown infrastructure may include but is not limited to boot cleaning stations, bike cleaning stations and rattle plates.

**** Hygiene inspections must be recorded to demonstrate application of the OHMP. An example hygiene inspection record is provided in Appendix B.

8 REFERENCES

- Bureau of Meteorology (BoM) (2022):** <http://www.bom.gov.au/climate/data/>
- City of Albany (2019):** *Environmental Weed Management Plan*, internal MP developed by City of Albany
- Department of Parks and Wildlife (DBCA) (2015):** *Phytophthora Dieback Interpreters Manual for lands managed by the department*, Perth
- Department of Parks and Wildlife (DBCA) (2020):** *Phytophthora Dieback Management Manual*, Perth
- Keighery, B.J. (1994):** *Bushland plant survey. A guide to plant community survey for the community*. Wildflower Society of WA (Inc.), Nedlands, Western Australia.
- Great Southern Bio Logic (2013):** *Phytophthora Dieback Assessment and Associated Management Plan for the Padre White Lookout Construction Project*, unpublished report for the City of Albany
- Great Southern Bio Logic (2016):** *Phytophthora Dieback Hygiene Survey of the propose Mt Clarence/Cornadup and Irerrup / Mount Adelaide Mountain Bike Trails*, unpublished report for the City of Albany
- Great Southern Bio Logic (2018):** *Phytophthora Dieback Occurrence Survey Albany Heritage Park*, unpublished report for the City of Albany
- Great Southern Bio Logic (2019):** *Phytophthora Dieback Occurrence Survey Mt Clarence Downhill Trail*, unpublished report for the City of Albany
- Sandiford and Barrett (2010):** *Albany Regional Vegetation Survey, Extent, Type and Status*, Unpublished report Department of Environment and Conservation.
- Southern Ecology (2020):** *Vegetation Condition and Weeds, Albany Heritage Park Map D1&2*, maps only, provided by CoA

9 DISCLAIMER

This report was prepared for the City of Albany, solely for the purposes set out in the scope of works and it is not intended that any other person use or rely on the contents of this report.

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Figures

Operational Hygiene Management Plan – Albany Heritage Park Trails Network



Figure 1: Regional Location and Survey Area

- 200521 AHP Stage 1 Revised Trail alignments
- Environmentally Sensitive Areas DWER
- Survey Area



Operational Hygiene Management Plan -
Albany Heritage Park Link Trails Network 2022
prepared for the City of Albany, August 2022



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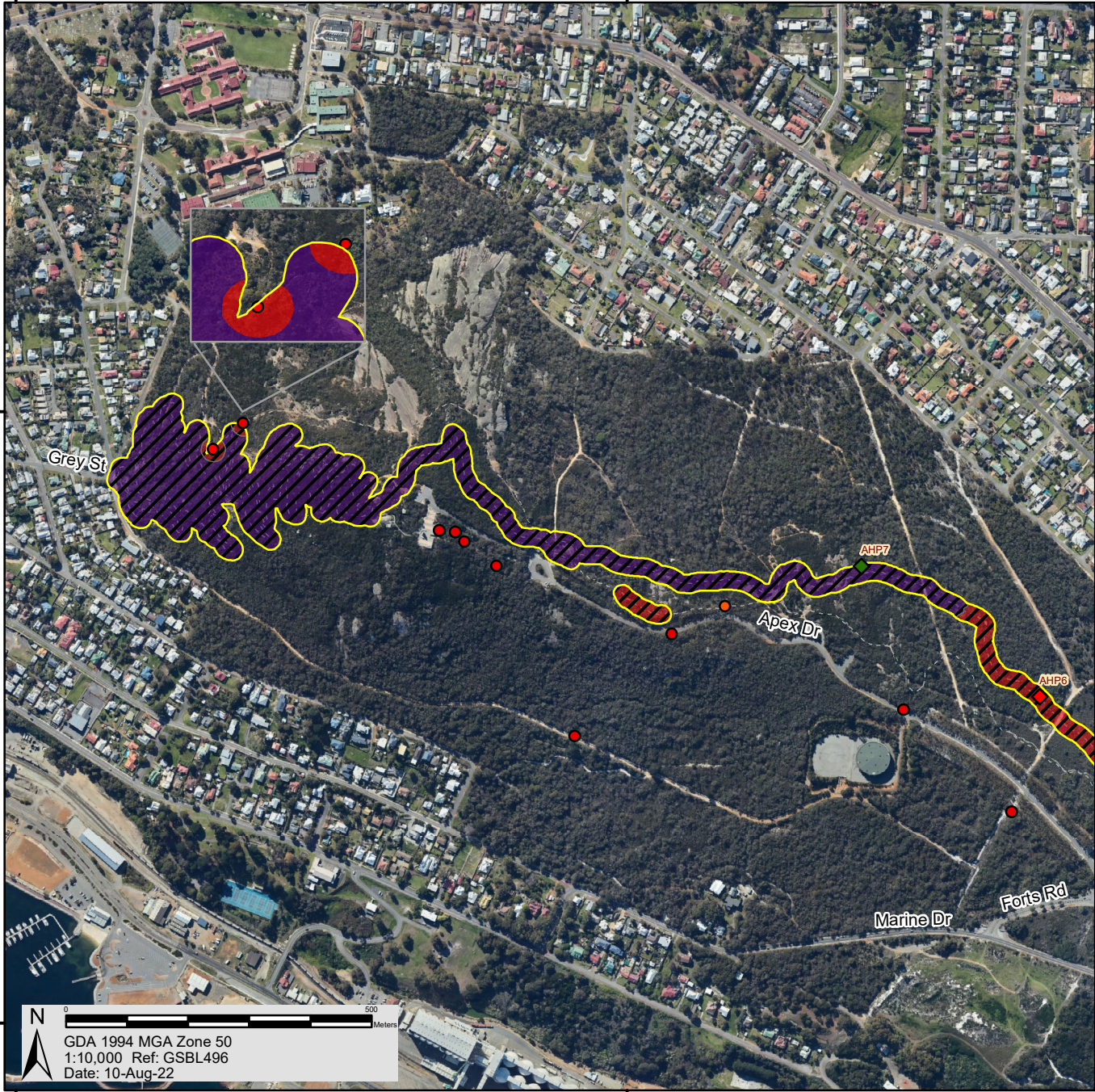


Figure 2-1: Phytophthora Dieback Occurrence showing Sample Locations - Albany Heritage Park 2022 (West)

Dieback Status

- Infested
- Uninterpretable
- Unprotectable

Sample Result

- ◆ *P. cinnamomi*
- ◆ Negative
- Historic *P. cinnamomi*
- Historic *P. multivora*
- 20521 AHP Stage 1 Revised Trail alignments
- Survey Area



Operational Hygiene Management Plan - Albany Heritage Park Link Trails Network 2022 prepared for the City of Albany, August 2022



**GREAT SOUTHERN
BIO LOGIC**

Phytophthora Dieback occurrence as at June 2022 - Comprehensive Survey. Recheck required from June 2023.

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0 500 Meters
 GDA 1994 MGA Zone 50
 1:10,000 Ref: GSBL496
 Date: 10-Aug-22

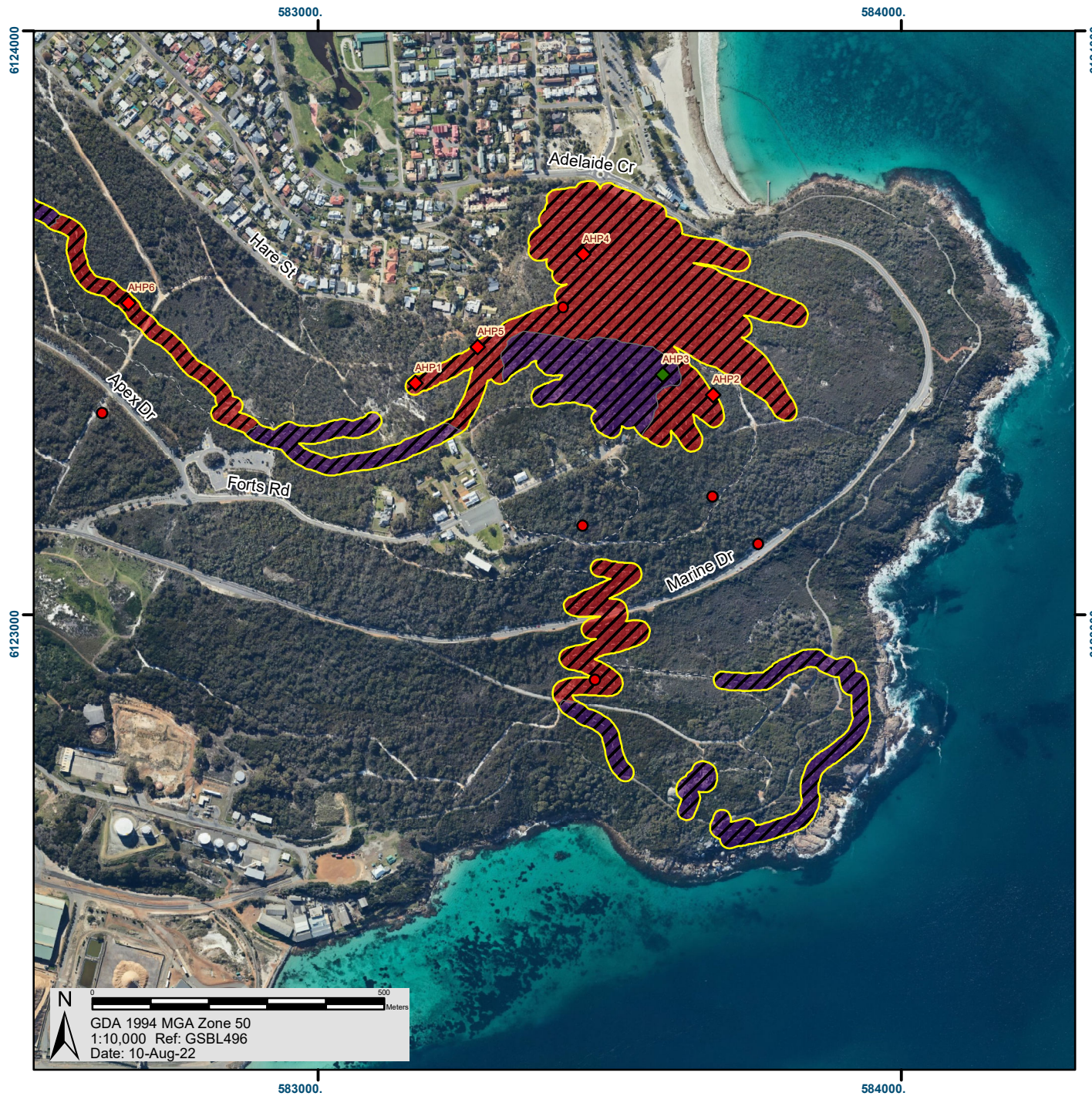


Figure 2-2: Phytophthora Dieback Occurrence showing Sample Locations - Albany Heritage Park 2022 (East)

Dieback Status

- Infested
- Uninterpretable
- Unprotectable

Sample Result

- ◆ *P. cinnamomi*
- ◆ Negative
- Historic *P. cinnamomi*
- Historic *P. multivora*
- 200521 AHP Stage 1 Revised Trail alignments
- Survey Area



Operational Hygiene Management Plan - Albany Heritage Park Link Trails Network 2022 prepared for the City of Albany, August 2022



Phytophthora Dieback occurrence as at June 2022 - Comprehensive Survey. Recheck required from June 2023.

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Figure 3: Weeds of Concern Indicative Extents 2022 Albany Heritage Park

- Weeds of Concern**
- *Acacia paradoxa* (Kangaroo Thorn)
 - *Asparagus asparagoides* (Bridal Creeper)
 - *Senecio glastifolius* (Pink Ragwort)
 - *Ulex europaeus* (Gorse)
 - *Zantedeschia aethiopica* (Arum Lily)
 - 200521 AHP Stage 1 Revised Trail alignments
 - ▭ Survey Area



Operational Hygiene Management Plan - Albany Heritage Park Link Trails Network 2022 prepared for the City of Albany, August 2022



Weeds of Concern extracted from Southern Ecology 2020. Full distribution extent survey required.

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Appendix A

VHS soil and tissue sample analysis report

Vegetation Health Service – Phytophthora sample information sheet

FORM FEM046

SEND TO: VHS Lab, Ecosystem Health Branch - DBCA, 17 Dick Perry Ave KENSINGTON 6151 Phone: (08) 9219 9587

CONTACT DETAILS of sender
 Name: Jeremy Spencer Email: Jeremy@gsbio logic.com.au
 Phone No: 0400 113 093
 DBCA Office or Company Name: GS Bio Logic

GDA (1)
 GDA 94 _____

Job Type (Please indicate)
 Private (P) _____ Other _____

VHS use only
 Date received 24.5.22
 Date reported 7.6.22

Notify DPIRD?
 Y / N
 (VHS use only)

VHS Identification No. (VHS use only)	Sample Date	Sample label (Give location, eg. Forest Block or Shire, etc. and sample number)	Plant Genus sampled	Plant Species sampled	Site Impact (2)	Zone 50 or 51	Map Reference (3)	Land Tenure (4)	RESULT s/s root (5)	RESULT bait (5)
VHS 44326	15-5-22	Albany Heritage Park 1	Petrophile	diversifolia	low	50	E 583676 N 6123396	R		CIN
VHS 44327	15-5-22	Albany Heritage Park 2	Xanthorrhoea	platyphylla	low	50	E 583676 N 6123376	R		CIN
VHS 44328	15-5-22	Albany Heritage Park 3	Patersonia	umbrosa	low	50	E 583590 N 6123411	R		NEG
VHS 44329	15-5-22	Albany Heritage Park 4	Xanthorrhoea	platyphylla	low	50	E 583454 N 6123617	R		CIN
VHS 44330	15-5-22	Albany Heritage Park 5	Xanthorrhoea	gracilis	low	50	E 583273 N 6123458	R		CIN
VHS 44331	16-5-22	Albany Heritage Park 6	Xanthorrhoea	platyphylla	low	50	E 582675 N 6123533	R		CIN
VHS 44332	16-5-22	Albany Heritage Park 7	Xanthorrhoea	platyphylla	low	50	E 582383 N 6123747	R		NEG

NOTES:

- Please tick this box if your map references are supplied in the **GDA 94** standard. If not, please specify the datum used.
- Site impact - Low, Moderate, or High (as in the Dieback Interpreter's Manual).
- An MGA map reference with prefixes **must** be supplied for all samples.
- Land Tenure - State Forest (SF), National Park (NP), Reserve (R), Westrail (W), Private (P), Gravel Pit (GP), or other. (Other - describe in comments below).
- Result codes used - **CIN** = *Phytophthora cinnamomi*, **MUL** = *P. multivora*, **PSEUDOCRY** = *P. pseudocryptogea*, **PI** = *P. inundata*, **ARE** = *P. arenaria*, **ELO** = *P. elongata*, **THE** = *P. thermophila*, **PN** = *P. nicotianae*, **CON** = *P. constricta*, **ALT** = *P. alticola*, **NEG** = negative, **SUB** = subcultured for further tests

Please Note: a) It cannot be concluded that an entire site or an entire stockpile of basic raw material is dieback-free from a single or a small number of samples where *Phytophthora* was not detected (i.e. a **NEG** result), and; b) Information from your samples will be incorporated into the VHS database.

COMMENTS:

Appendix B

Example Hygiene Inspection Form

Environmental Hygiene Inspection Check List

Vehicle/Machinery/Equipment DETAILS	
Inspection Date	Inspected By
Vehicle/Machine	
Clean on Entry Location	

ITEMS Inspected: ✓ to confirm they have been inspected and are free of soil/vegetation or N.A if Not applicable					
Item/s	Yes	N.A	Item/s	Yes	N.A
Suspension	<input type="checkbox"/>	<input type="checkbox"/>	Radiators/air vents	<input type="checkbox"/>	<input type="checkbox"/>
Tray	<input type="checkbox"/>	<input type="checkbox"/>	Engine compartment	<input type="checkbox"/>	<input type="checkbox"/>
Wheels	<input type="checkbox"/>	<input type="checkbox"/>	Ground Engaging Tools	<input type="checkbox"/>	<input type="checkbox"/>
Spare Wheel	<input type="checkbox"/>	<input type="checkbox"/>	Trays/Bumpers/Racks/Covers	<input type="checkbox"/>	<input type="checkbox"/>
Mud Flaps	<input type="checkbox"/>	<input type="checkbox"/>	Screens/Belts	<input type="checkbox"/>	<input type="checkbox"/>
Wheel wells	<input type="checkbox"/>	<input type="checkbox"/>	Chassis/Sub Frame	<input type="checkbox"/>	<input type="checkbox"/>
Rock guards	<input type="checkbox"/>	<input type="checkbox"/>	Running Gear/Belly Plate	<input type="checkbox"/>	<input type="checkbox"/>
Augers	<input type="checkbox"/>	<input type="checkbox"/>	Ladders Footsteps and Platforms	<input type="checkbox"/>	<input type="checkbox"/>
Fencing wire and hardware	<input type="checkbox"/>	<input type="checkbox"/>	Machine bucket/ blade	<input type="checkbox"/>	<input type="checkbox"/>
Tool boxes	<input type="checkbox"/>	<input type="checkbox"/>	Tracks	<input type="checkbox"/>	<input type="checkbox"/>
All tools kept in vehicles and machinery are also clean and free from soil and plant material				<input type="checkbox"/>	<input type="checkbox"/>
Interior and any storage areas free of mud, soil and vegetation				<input type="checkbox"/>	<input type="checkbox"/>
Equipment okay to enter/leave site/project area				<input type="checkbox"/>	<input type="checkbox"/>

Comments	

Inspected By				
Name	Signature	Date		