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Clean Energy Link Wangara - Neerabup Terminal Phytophthora Dieback Management Plan

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This report has been prepared in accordance with the scope of work agreed between Western Power and Glevan Consulting and contains results and recommendations specific to the agreement. Results and recommendations in this report should not be referenced for other projects without the written consent of Glevan Consulting.

Procedures and guidelines stipulated in various manuals, particularly Phytophthora Dieback Interpreters Manual for lands managed by the Department (DBCA), are applied as the base methodology used by Glevan Consulting in the delivery of the services and products required by this scope of work. These guidelines, along with overarching peer review and quality standards ensure that all results are presented to the highest standard.

Glevan Consulting has assessed areas based on existing evidence presented at the time of assessment. The Phytophthora pathogen may exist in the soil as incipient disease. Methods have been devised and utilised that compensate for this phenomenon; however, very new centres of infestation, that do not present any visible evidence, may remain undetected during the assessment.

Executive Summary

Western Power's Clean Energy Link – North program will deliver new transmission line infrastructure across Perth's northern suburbs and metropolitan area to support the State's decarbonisation objectives. The works involve vegetation clearing and ground disturbance in areas susceptible to *Phytophthora cinnamomi*, which can be spread through the movement of soil and plant material on vehicles, machinery, equipment, footwear, and raw construction materials. Glevan Consulting was engaged by AECOM Australia Pty Ltd on behalf of Western Power to complete a Phytophthora Dieback assessment and prepare this site-specific Dieback Management Plan (DMP) to support environmental approvals and guide hygiene management across pre-construction, construction, and post-construction activities associated with the Clean Energy Link Wangara - Neerabup Terminal Project.

The Project Area extends approximately 23 km and covers 218.78 hectares (ha) across a mix of Department of Biodiversity, Conservation and Attractions-managed land, public reserves, and private property. The assessment identified two previously known Phytophthora Dieback infestations associated with Joyce Road, with no evidence of expansion during the 2025 assessment. Most of the Project Area is Excluded due to cleared or heavily disturbed land, with smaller areas mapped as Uninfested Protectable and Permanently Uninterpretable Protectable vegetation that require priority protection.

A risk assessment was undertaken in accordance with DBCA's management guidelines. The works are considered Very Likely to introduce or spread Phytophthora Dieback due to the use of heavy earthmoving equipment, and the consequence was assessed as Intermediate based on expected impacts to susceptible understorey (and limited overstorey) if *P. cinnamomi* were introduced. As a result, the overall risk rating is High under Dry, Moist, and Wet soil conditions, requiring strict hygiene controls.

Key management measures include:

- Implementing Inspection/Clean on Entry (CoE) and Clean on Exit principles at access points to Protectable Areas and infestations,
- Maintaining vehicles and machinery in a "clean" condition (free of soil lumps, mud, slurry, and plant debris),
- Applying brushing or washdown where required based on soil conditions.

- Scheduling works in vegetated areas preferentially during the Summer/Autumn dry period and avoided during wet soil conditions where practicable,
- Personnel training (including Dieback Working Group 'Green Card' training),
- Clear communication of Protectable Areas via toolbox meetings and job packages,
- Maintaining a Raw Material Register to verify disease-free supplier accreditation.

Monitoring and compliance are managed through inspection and record keeping (Vehicle Inspection and Clean-Down Register, Raw Material Register, Environmental Incident Register), with incidents and significant non-compliances reported and addressed through Western Power's incident management processes (including Guardian), and in accordance with the agreed communication protocol for DBCA-managed land.

Table of Contents

1 Introduction 9
1.1 Background – Phytophthora Species and Dieback Disease 9
1.2 Objectives 10
1.3 Scope of Works 10
1.4 Site Description 10
2 Assessment Method 12
2.1 Desktop Assessment 12
2.2 Phytophthora Dieback Occurrence Assessment 12
2.2.1 Collection of Evidence of Phytophthora Dieback 12
2.2.2 Soil and Tissue Samples 13
2.2.3 Phytophthora Dieback Occurrence Categories 13
3 Summary of Assessment Results 14
3.1 Desktop Assessment 14
3.1.1 Climate 14
3.1.2 Vegetation 14
3.1.3 Assessable Remnant Vegetation 15
3.1.4 Known Occurrences of Phytophthora Dieback 15
3.2 Phytophthora Dieback Occurrence Assessment 17
4 Dieback Management Plan 18
4.1 Scope of the Dieback Management Plan 18
4.2 Risk Assessment 18
4.2.1 Moisture Conditions 18
4.2.2 Likelihood of Introduction or Spread 19
4.2.3 Consequence of Introduction or Spread 19
4.2.4 Overall Risk Rating 21
4.3 Risk Management Tactics 22
4.3.1 Protectable Areas & Hygiene 23
4.3.2 Timing of Activities 24
4.3.3 Training and Communication 24
4.3.4 Raw Materials 24
4.3.5 Access 25
4.3.6 Green Bridges 25

4.4 Monitoring and Maintenance 25
4.5 Non-Compliance Management 26
4.6 Summary of Management Actions 26
5 References 28
6 Appendices 30
6.1 Phytophthora Dieback Hygiene Management Map 30
6.2 Mapping Metadata 30
6.3 Shapefile Spatial Data 32

List of Figures

Figure 1 – Project Area. 11
Figure 2 – Contextual Phytophthora Dieback information for the Project Area. 16
Figure 3 – Phytophthora Dieback Protectable Areas Map 1. 33
Figure 4 – Phytophthora Dieback Protectable Areas Map 2. 34
Figure 5 – Phytophthora Dieback Protectable Areas Map 3. 35
Figure 6 – Phytophthora Dieback Protectable Areas Map 4. 36

List of Tables

Table 1 – Phytophthora Dieback Assessment for Vegetation Condition. 13
Table 2 – Vegetation Complexes within the Project Area. 14
Table 3 – How to Assess Soil Conditions. 18
Table 4 – Activity descriptions to determine the Likelihood of introducing or spreading Dieback during an activity as extracted from the Phytophthora Dieback Risk Assessment and Management Plan Form (Department of Biodiversity, Conservation and Attractions, 2025). 19
Table 5 – Conditions to determine the potential Consequence that introducing or spreading Dieback may cause as extracted from the Phytophthora Dieback Risk Assessment and Management Plan Form (Department of Biodiversity, Conservation and Attractions, 2025). 20
Table 6 – Risk matrix for disturbance activities that are undertaken in Dry Soil Conditions. Modified from the Phytophthora Dieback Risk Assessment and Management Plan Form (Department of Biodiversity, Conservation and Attractions, 2025). 21
Table 7 – Risk matrix for disturbance activities that are undertaken in Moist Soil Conditions. Modified from the Phytophthora Dieback Risk Assessment and Management Plan Form (Department of Biodiversity, Conservation and Attractions, 2025). 21
Table 8 – Risk matrix for disturbance activities that are undertaken in Wet Soil Conditions. Modified from the Phytophthora Dieback Risk Assessment and Management Plan Form (Department of Biodiversity, Conservation and Attractions, 2025). 22
Table 9 – DMP Objectives and Targets 22
Table 10 – General Dieback Clean Down Requirements. 23

Table 11 – Dieback Plan Monitoring Actions. 25

Table 12 – Dieback Management Actions. 26

Glossary

Assessment Area	The portion of the Project Area where Phytophthora occurrence assessment is possible or will be possible after vegetation recovery.
Biomass	The total quantity or weight (density) of organisms in a given area.
Buffer	The area between the edge of visible disease symptoms and demarcation.
Clean On Entry	A requirement at a defined, signposted point where entering machinery and vehicles are to be free of soil, plant, and other material to minimise the risk of spreading weeds, pests and diseases.
DBCA	Department of Biodiversity, Conservation and Attractions.
Demarcation	The physical installation and representation of boundaries between hygiene categories after interpretation.
Phytophthora Dieback	The disease of plants caused by infection by the soil-borne organisms of the genus *Phytophthora*, of which *P. cinnamomi* is the most widespread and destructive.
Disease Impact	The degree of harm caused by Phytophthora Dieback (high, moderate, low).
Excluded Area	An area of high disturbance where natural vegetation is unlikely to recover.
Host	A plant species that may be infested with the pathogen but not cause disease.
Indicator Species	Plant species susceptible to Phytophthora disease and reliably show early symptoms.
Infection	The invasion of the disease to an individual plant and not the population.
Infestation	The invasion of the disease into a population of plants.
Infested	An area that a registered interpreter has determined is expressing disease symptoms that indicate the presence of the pathogen *P. cinnamomi*.
Incipient Disease	A disease that is not visibly symptomatic.
Interpretation	Determining disease presence or absence in natural ecosystems using observable factors.
Not Yet Resolved	Phytophthora occurrence diagnosis cannot be made because of inconsistent evidence.
Pathogen	Phytophthora species.
Phytophthora Occurrence Assessment	The entire scope of work that relates to the delivery of a Phytophthora occurrence map and report.
Project Area	The proponent's area of interest, including the area where disturbance activities could occur, including access and egress to activity areas.
Protectable Area	Portions of the Project Area over which hygiene management rules for the plant pathogen *Phytophthora*, including clean on entry, will apply. These areas are generally free of disease.
Susceptible	Likely or liable to be harmed by Phytophthora pathogen.
Uninfested	An area that a registered interpreter has determined may be free of plant disease symptoms that indicate the presence of the pathogen *P. cinnamomi*.
Uninterpretable	A natural area with inadequate visible symptoms present to make a diagnosis.
Temporarily Uninterpretable	A naturally vegetated area that has had disturbance and is likely to recover from that disturbance in the short term.
Unprotectable	A disease-free area that is likely to become infested within a given time.
Vector	Any agent that acts as a carrier or transporter.

1 Introduction

Western Power's Clean Energy Link – North program forms part of the State's broader decarbonisation objectives and involves the planning and delivery of new transmission line infrastructure across areas of Perth's northern suburbs and metropolitan region. The proposed works will require construction activities within areas that contain native vegetation and are susceptible to *Phytophthora cinnamomi*, a soil-borne plant pathogen responsible for *Phytophthora* Dieback. This disease represents a significant threat to native vegetation in Western Australia and may be spread through vegetation clearing, ground disturbance, and the movement of vehicles, machinery, and raw construction materials.

Glevan Consulting was commissioned by AECOM Australia Pty Ltd on behalf of Western Power to undertake a *Phytophthora* Dieback assessment of the Clean Energy Link Wangara - Neerabup Terminal Project Area (Figure 1) and to prepare a site-specific Phytophthora Dieback Management Plan (DMP) (this document). The assessment and DMP have been developed to support environmental approval requirements and to guide the management of on-ground works in a manner that minimises the risk of dieback introduction and spread.

This DMP has been prepared to inform Western Power's environmental approvals by documenting the presence or absence of *Phytophthora* Dieback within the designated works area and associated access tracks. The DMP outlines the hygiene measures and risk mitigation tactics required to ensure that there is no spread or introduction of *Phytophthora* species, particularly *P. cinnamomi*, associated with the pre-construction, construction or post-construction phases of the planned works.

1.1 Background – Phytophthora Species and Dieback Disease

Phytophthora Dieback is a key threatening process for biodiversity of south-west Western Australia. *Phytophthora* Dieback is described by the Department of Biodiversity, Conservation and Attractions (DBCA) as the disease caused by soil-borne plant pathogens from the genus *Phytophthora* (Department of Biodiversity, Conservation and Attractions, 2017). Forty-two *Phytophthora* species have been identified in Western Australia (Commonwealth of Australia, 2018).

Microscopic plant pathogens from the genus *Phytophthora* live in soil and infested plant material and can be spread by any mechanism in which infested soil, plant material or water is moved into

Uninfested areas. Although *Phytophthora* can be spread by native and feral animals, in surface and subsurface water or by root-to-root contact; human activities have the capacity to move it further and faster than any other means of spread (Department of Biodiversity, Conservation and Attractions, 2017). Consequently, vehicles and equipment need to remain free from infested plant material and soil when working on vulnerable lands.

1.2 Objectives

The Objective of the DMP is to:

- Prevent the introduction and spread of Phytophthora Dieback into the Clean Energy Link Project Area during the pre-construction, construction and post construction phases of the project as a result of Western Power's activities.

1.3 Scope of Works

Glevan Consulting undertook the following Scope of Works to prepare the DMP:

- A Desktop Assessment was completed for the Project Area, examining available historical Phytophthora Dieback records and evaluating the susceptibility of the site to Phytophthora Dieback.
- A comprehensive and linear Phytophthora Dieback assessment and associated Phytophthora Dieback Occurrence Report and spatial data.
- Development of this DMP inclusive of current Occurrence data and recommendations for ongoing hygiene.

1.4 Site Description

The Project Area extends for approximately 23 kilometres across a combination of public land, private property, and land managed by the Department of Biodiversity, Conservation and Attractions (DBCA). The Project Area covers an area of 218.78 hectares (ha) (Figure 1). The northern extent of the Project Area is located east of the Neerabup Terminal Substation, between Skink Road and Cecil Road. The southern extent spans approximately five kilometres along Ocean Reef Road until the western side of the Wanneroo Road intersection. Land use within the Project Area includes remnant bushland, paddocks, powerline corridors, public road reserves, and a range of private properties and commercial premises.

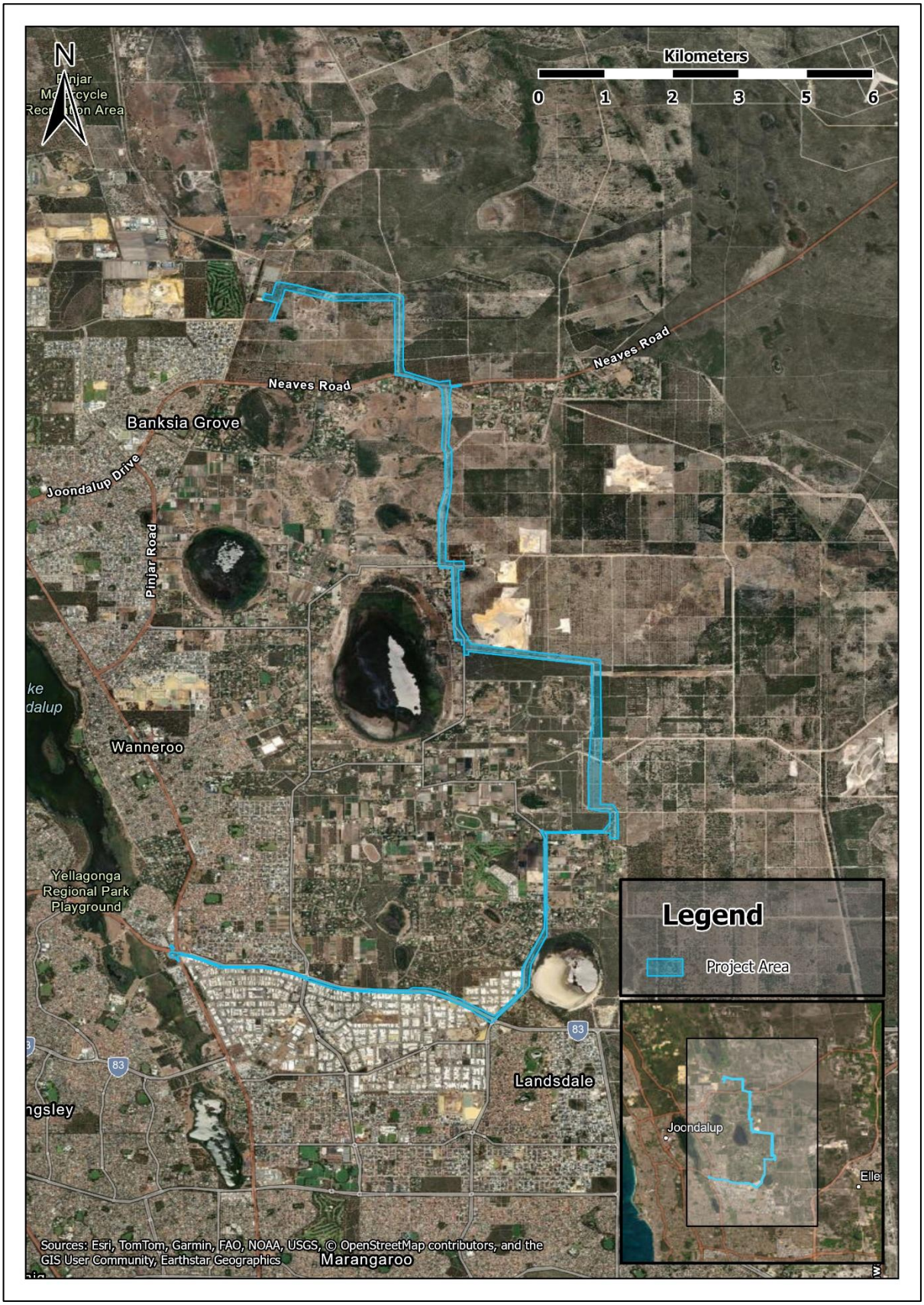


Figure 1 – Project Area.

2 Assessment Method

2.1 Desktop Assessment

The Desktop Assessment involved reviewing spatial and environmental datasets relevant to known Phytophthora Dieback occurrences and vegetation and flora values within the Project Area. The review was conducted using the following information sources:

- Native Vegetation Extent (DPIRD-005) (Department of Primary Industries and Regional Development, 2025).
- Vegetation Complexes - Swan Coastal Plain (DBCA-046) (Department of Biodiversity, Conservation and Attractions, 2018).
- Phytophthora Dieback Occurrence - Infested Only (DBCA-082) (Department of Biodiversity, Conservation and Attractions, 2025).
- DBCA Fire History (DBCA-060) (Department of Biodiversity, Conservation and Attractions, 2025).

2.2 Phytophthora Dieback Occurrence Assessment

All Phytophthora Dieback detection, diagnosis and mapping was performed to standards and procedures defined in FEM047 Chapter 6 (Department of Parks and Wildlife, 2015). These procedures are grounded on the presence in the vegetation of Indicator Species, and the observance of deaths in these plants.

The full methodology for a Phytophthora Dieback Occurrence Assessment can be referred to in the associated Phytophthora Dieback Occurrence Report (Glevan Consulting, 2026).

2.2.1 Collection of Evidence of Phytophthora Dieback

During the assessment process, the collection of evidence to support the field diagnosis was recorded using a tablet running the Environmental Systems Research Institute (ESRI) Field Maps application. Evidence recorded during a comprehensive assessment is collected along a series of transect lines spaced 50 meters apart, with evidence collected no more than every 100 meters along the transect lines.

Waypoint evidence, sample sites and results, and field demarcations are then digitised into a Phytophthora Dieback Occurrence Map according to the standards defined by the *FEM047*

Phytophthora Dieback Interpreter's Manual for lands managed by the department (Department of Parks and Wildlife, 2015).

2.2.2 Soil and Tissue Samples

Soil and tissue samples collected during the assessment were taken to standards and prescriptions defined in Chapter 11 of *FEM047 Phytophthora Dieback Interpreter's Manual for lands managed by the Department* (Department of Parks and Wildlife, 2015). All samples were analysed in the Vegetation Health Service laboratory using best-practice techniques (Department of Parks and Wildlife, 2015).

2.2.3 Phytophthora Dieback Occurrence Categories

Areas within the Project Area were categorised as Excluded if the vegetation was suffering from significant disturbance. Significant disturbance is based on Vegetation Condition Scale (Keighery, 1994). Any remaining areas were categorised post-assessment into Phytophthora Dieback occurrence categories (Table 1).

Table 1 – Phytophthora Dieback Assessment for Vegetation Condition.

Vegetation Condition	Phytophthora Occurrence Category
Naturally vegetated areas. Keighery (1994) disturbance rating of 3 or less Phytophthora occurrence categorisation is possible.	Infested - Determined to have plant disease symptoms consistent with the presence of *P. cinnamomi.*
	Uninfested - Determined to be free of plant disease symptoms that indicate the presence of *P. cinnamomi*
	Permanently Uninterpretable - Undisturbed areas where susceptible plants are absent, or too few to make a determination of the presence or absence of *P. cinnamomi.*
	Not yet resolved.
Vegetation structure temporarily altered.	Temporarily Uninterpretable - Areas of disturbance where natural vegetation is likely to recover.
Vegetation structure severely altered. Keighery (1994) disturbance rating 4 or greater. Phytophthora occurrence assessment is not possible	Excluded.

3 Summary of Assessment Results

3.1 Desktop Assessment

3.1.1 Climate

The area experiences a Mediterranean climate, characterised by hot, dry summers from December to February and cool, wet winters from June to August. Long-term climate data from the nearby Wanneroo Weather Station (Station Number 009105) indicate an average annual rainfall of 784.40 mm for the period between 1905 and 2025 (Bureau of Meteorology, 2025). This places the Project Area within the ≥600 mm rainfall zone, where conditions are considered suitable for the widespread establishment and persistence of *P. cinnamomi* across the landscape.

3.1.2 Vegetation

Mapping from the DBCA *Vegetation Complexes – Swan Coastal Plain (DBCA-046)* dataset (Department of Biodiversity, Conservation and Attractions, 2018) identifies five vegetation complexes occurring within the Project Area (Table 2).

Table 2 – Vegetation Complexes within the Project Area.

Vegetation Complex	Description
Bassendean Complex-North (43)	Woodland of *Eucalyptus marginata* subsp. *marginata-Corymbia calophylla* and low woodland of *Melaleuca preissiana-Banksia littoralis* on slopes in the subhumid zone.
Bassendean Complex-Central and South (44)	Open forest of *Eucalyptus marginata* subsp. *marginata-Corymbia calophylla* mixed with *Eucalyptus patens* on slopes, *Eucalyptus rudis* and *Banksia littoralis* on valley floors in the humid zone.
Bassendean Complex-North Transition (45)	Open forest of *Corymbia calophylla-Eucalyptus marginata* subsp. *marginata* with some *Eucalyptus wandoo, Eucalyptus patens* and *Eucalyptus cornuta* on slopes and woodland of *Eucalyptus rudis-Melaleuca rhaphiophylla* on lower slopes in subhumid and semiarid zones.
Karrakata Complex Central and South (49)	Open woodland of *Allocasuarina fraseriana-Banksia* spp.-*Xylomelum occidentale-Nuytsia floribunda* on sandy soils on valley slopes in the subhumid zone.

Vegetation Complex	Description
Pinjar Complex (54)	Mosaic of woodland of *Eucalyptus marginata* subsp. *marginata-Corymbia calophylla* on slopes, and woodland of *Eucalyptus occidentalis-Melaleuca cuticularis-Melaleuca rhaphiophylla*, low woodland of *Melaleuca preissiana-Banksia littoralis* and tall shrublands of *Melaleuca viminea* on broad depressions in humid to semiarid zones.

3.1.3 Assessable Remnant Vegetation

Spatial data from the *Native Vegetation Extent (DPIRD-005)* dataset (Department of Primary Industries and Regional Development, 2025) indicates that native vegetation is largely absent across much of the Project Area. Where intact vegetation persists, several recognised indicator species, including *Banksia* species and *Eucalyptus marginata*, are expected to occur. In these interpretable areas, conditions are considered suitable for the expression of Phytophthora Dieback should *P. cinnamomi* be present.

Review of the DBCA *Fire History (DBCA-060)* database (Department of Biodiversity, Conservation and Attractions, 2025) shows that several fire events have occurred along sections of the Project Area in recent years, with recorded fires in 2020, 2021, 2023 and 2024. Areas affected by these fire events do not contain native vegetation within the Project Area and are therefore not expected to influence the outcomes of the assessment. Based on the timing of the most recent fire events, vegetation within the Project Area is anticipated to have sufficiently recovered from fire disturbance at the time of field investigations.

3.1.4 Known Occurrences of Phytophthora Dieback

An assessment of Glevan Consulting's internal records, together with publicly available information from the *Phytophthora Dieback Occurrence – Infested Only* (DBCA-082) dataset (Department of Biodiversity, Conservation and Attractions, 2025) identifies historical detections of *P. cinnamomi* within the Project Area. Specifically, three positive sample results were recorded along Joyce Road and Steel Road, with samples collected by Glevan Consulting in 2021. Contextual *Phytophthora* Dieback information is visualised in Figure 2.

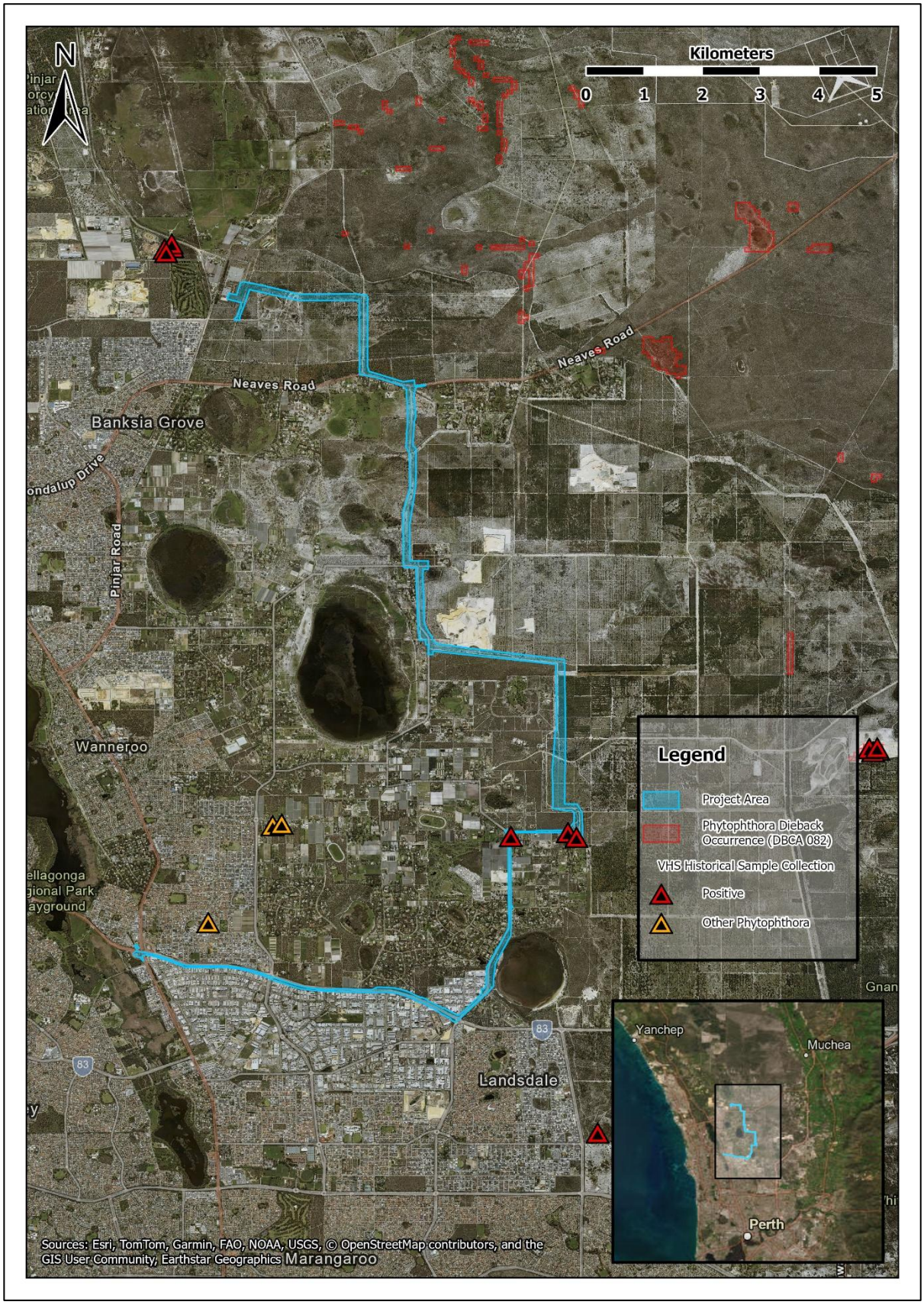


Figure 2 – Contextual Phytophthora Dieback information for the Project Area.

3.2 Phytophthora Dieback Occurrence Assessment

The Project Area contains two previously known Phytophthora Dieback infestations, both associated with Joyce Road. One infestation is located at the corner of Sydney Road and Joyce Road within private property, while the second starts approximately 240 metres from the cul-de-sac on Joyce Road then continues into DBCA land onto Steel Road and adjacent sand tracks. The infestation then heads north along a sand track located 80 metre west of Steel Road for approximately 180 metres (Figure 4). No evidence of disease expansion beyond these known infestations was observed during the assessment.

The majority of the Project Area (203.28 ha; 92.92 %) was classified as Excluded due to the absence or severe degradation of native vegetation in cleared or highly disturbed areas. A further 3.66 ha (1.67 %) was classified as Permanently Uninterpretable, primarily within wetland vegetation dominated by non-susceptible species, limiting reliable disease interpretation. Uninfested Protectable vegetation accounted for 8.26 ha (3.77 %) and was generally observed to be in good condition, with indicator species present and only isolated background plant deaths unrelated to Phytophthora Dieback.

Infested areas totalled 3.58 ha (1.64 %) and showed disease expression ranging from subtle to moderate, including indicator species deaths, reduced biomass along disease edges, and weed invasion suppressing native regeneration in some locations. Two soil and tissue samples collected during the survey returned negative results for *P. cinnamomi*.

Refer to Glevan Consulting (2026) for the full Phytophthora Dieback Occurrence Report.

4 Dieback Management Plan

4.1 Scope of the Dieback Management Plan

Phytophthora Dieback management measures must be implemented to meet the objectives of this DMP, with priority given to safeguarding vegetation identified as Protectable within the Project Area. These actions are designed to minimise the risk of introducing or spreading *Phytophthora* pathogens during pre-construction, construction and post-construction works. The DMP specifies the responsibilities and timeframes associated with each recommended action.

This DMP applies to all ongoing ground-disturbing activities within the Project Area. All recommended measures should be incorporated into work plans or job packages prepared by Western Power and its contractors. These requirements should also be reflected in relevant operational procedures and included within site mapping documents.

4.2 Risk Assessment

The following Risk Assessment has been undertaken following the steps outlined in the Phytophthora Dieback Management Manual (Department of Biodiversity Conservation and Attractions, 2020).

4.2.1 Moisture Conditions

Elevated soil moisture at the time of disturbance increases the potential for soil to stick to vehicles, equipment, and footwear, and also increases the risk of the pathogen becoming established if it is transported into areas supporting susceptible species.

Accordingly, the initial step in the risk assessment process is to determine the soil moisture conditions during the proposed activity. For the purposes of this assessment, soil conditions are categorised as Dry, Moist, or Wet (Table 3).

Table 3 – How to Assess Soil Conditions.

Dry Soil	Where dust forms when exposed soil is disturbed
Moist Soil	Where soil is damp but does not stick to tyres, equipment and/or footwear
Wet Soil	Where soil and moisture combine so that soil sticks to tyres, equipment and/or footwear

4.2.2 Likelihood of Introduction or Spread

The likelihood of introducing or spreading Phytophthora Dieback is largely influenced by the type, scale, and intensity of proposed activities, as well as the movement of potentially *P. cinnamomi*-infected soil, vegetation, or other materials onto or within the site. Table 4 outlines the activity descriptors used to assess the likelihood of introduction or spread, with the overall Likelihood Rating assigned based on the highest applicable criterion.

Table 4 – Activity descriptions to determine the Likelihood of introducing or spreading Dieback during an activity as extracted from the Phytophthora Dieback Risk Assessment and Management Plan Form (Department of Biodiversity, Conservation and Attractions, 2025).

Disturbance Type (E.G. Action)	Introduction of Raw Material	Access	Complexity of Activity	Extent of Activity	Duration of Activity	Drainage	Unmanaged Access	Likelihood Rating
Heavy earth moving, tracked vehicles	Infested or unknown raw material	Access crosses water (irrespective of frequency)			Activity area disturbed & map expired so impossible to revalidate boundaries		Increased public access in area of high public use	**Very Likely**
Soil disturbance over a distance		Activity requires frequent access to site	Highly complex	Vehicle traverses several mini-catchments	Activity extends over several wet seasons	Surface water increased		**Likely**
Soil disturbance at single points	Crushed rock with no organic fraction		Complex		Activity occurs during a single wet season		Increased public access, but access restricted and/or site remote	**Possible**
Rubber tyred vehicle, bicycle	'High confidence' uninfested raw material	Activity requires infrequent access to site		Single mini-catchment	Entry in short timeframe under dry conditions	Minimal increase in surface water		**Unlikely**
Human, animal traffic			Not complex	Point or human traffic	Single entry in short timeframe under dry conditions		Activity does not alter frequency of access to site	**Very Unlikely**

The Likelihood Rating for the operations undertaken within the Project Area is Very Likely as a result of the use of heavy earth moving equipment during potential vegetation clearing.

4.2.3 Consequence of Introduction or Spread

The consequences associated with the introduction or spread of Phytophthora Dieback during disturbance activities are evaluated by considering the size of the area at risk, the anticipated severity

of impacts at the site, and the presence of biodiversity values or environmentally sensitive areas that could be affected. Table 5 outlines the conditions used to assess consequence, with the overall Consequence Rating assigned according to the highest applicable criterion.

Table 5 – Conditions to determine the potential Consequence that introducing or spreading Dieback may cause as extracted from the Phytophthora Dieback Risk Assessment and Management Plan Form (Department of Biodiversity, Conservation and Attractions, 2025).

Area Put at Risk	Predicted Impact	Biodiversity And Sensitive Areas at Risk	Consequence Rating
Ongoing potential to completely infest all protectable areas in activity landscape unit	Predicted **very high** impact: (majority of species at the activity area are susceptible and/or introducing dieback will result in extinction of species or populations) **or** Wet areas which contain any *Banksia* species or jarrah	>1 threatened/priority plant or animal species, critical habitat, TEC and/or Ramsar wetlands that is susceptible to dieback **and/or** Old-growth jarrah forest	**Severe**
Potential to infest all protectable areas in activity landscape unit	Predicted **high** impact: (many susceptible species and/or introducing the pathogen will result in loss of populations or localised extinction of species) **or** Where predicted impact cannot be determined, jarrah forest on upland areas	At least one threatened/priority plant or animal species, critical habitat, TEC and/or Ramsar wetlands that is susceptible to dieback **and/or** Sensitive neighbouring property	**Significant**
Potential to infest more than 5% of any protectable area or 4 ha's (whichever is greater – assessor may set a lower minimum protectable area where appropriate)	**Predicted moderate impact: (moderate numbers of susceptible species and/or introducing the pathogen will result in a reduction in species/populations)**		**Intermediate**
	Predicted **low** impact (low numbers of susceptible species)	Fauna Habitat Zones	**Minor**
No protectable areas estimated within any related landscape unit **and/or** The area is already infested	No susceptible species and/or the activity area is in the 'excluded' category. **or** Introducing dieback will have no impact discernible outside natural variation[3]	No threatened/priority plant or animal species; critical habitat; TEC; and/or Ramsar wetlands that are susceptible to dieback. **or** As the activity area is already infested there will be no increased risk to threatened species and communities present[3]	**Insignificant**

The Consequence of introducing or spreading Phytophthora Dieback within the Project Area is Intermediate as it is estimated that <10% of overstorey and high numbers of understorey would die with the introduction of *P. cinnamomi*.

4.2.4 Overall Risk Rating

The Likelihood Rating and Consequence Rating are combined with the expected moisture conditions to determine the Overall Risk Rating. Table 6 to Table 8 document the Overall Risk Rating under Dry, Moist and Wet soil conditions.

Table 6 – Risk matrix for disturbance activities that are undertaken in Dry Soil Conditions. Modified from the Phytophthora Dieback Risk Assessment and Management Plan Form (Department of Biodiversity, Conservation and Attractions, 2025).

Dry Soil Conditions						
		Consequence				
		Insignificant	Minor	Intermediate	Significant	Severe
Likelihood	Very Likely	Low	Moderate	High	High	High
	Likely	Low	Moderate	Moderate	High	High
	Possible	Low	Low	Moderate	Moderate	High
	Unlikely	Low	Low	Low	Moderate	Moderate
	Very Unlikely	Low	Low	Low	Low	Low

Table 7 – Risk matrix for disturbance activities that are undertaken in Moist Soil Conditions. Modified from the Phytophthora Dieback Risk Assessment and Management Plan Form (Department of Biodiversity, Conservation and Attractions, 2025).

Moist Soil Conditions						
		Consequence				
		Insignificant	Minor	Intermediate	Significant	Severe
Likelihood	Very Likely	Low	High	High	High	High
	Likely	Low	Moderate	High	High	High
	Possible	Low	Moderate	Moderate	High	High
	Unlikely	Low	Low	Low	Moderate	High
	Very Unlikely	Low	Low	Low	Moderate	Moderate

Table 8 – Risk matrix for disturbance activities that are undertaken in Wet Soil Conditions. Modified from the Phytophthora Dieback Risk Assessment and Management Plan Form (Department of Biodiversity, Conservation and Attractions, 2025).

Wet Soil Conditions						
		Consequence				
		Insignificant	Minor	Intermediate	Significant	Severe
Likelihood	Very Likely	Low	High	High	High	High
	Likely	Low	High	High	High	High
	Possible	Low	Moderate	High	High	High
	Unlikely	Low	Moderate	Moderate	High	High
	Very Unlikely	Low	Low	Low	Moderate	Moderate

The Overall Risk Rating for the operations undertaken within the Project Area is High under all soil moisture conditions due to the use of heavy earth moving equipment and expected impact on understory species should *P. cinnamomi* be introduced within vegetated areas.

4.3 Risk Management Tactics

The Objective of the DMP is to 'Prevent the introduction and spread of Phytophthora Dieback into the Clean Energy Link Project Area during the pre-construction, construction and post-construction phases of the project as a result of Western Power's activities'. In order to achieve this objective, a number of Targets have been established (Table 9).

Table 9 – DMP Objectives and Targets

Objective	Target	Performance Indicator
Prevent the introduction and spread of Phytophthora Dieback into the Clean Energy Link Project Area during the pre-construction, construction and post construction phases of the project as a result of Western Power's activities.	No movement of vegetation and topsoil into the Protectable sections of the Project Area.	No incidents that may have resulted in the movement of Dieback Infested materials. Vehicle inspection and clean down register. Environmental Incident Register.
	No vehicles or machinery entering native vegetation or tracks beyond the Project Area boundary.	No incidents that may have resulted in the movement of vehicles into vegetated areas outside the current disturbance area. Environmental Incident Register.
	All vehicles and machinery are free of soil and plant material before arriving on site.	Vehicle Inspection and Clean-Down Register.

4.3.1 Protectable Areas & Hygiene

A total of seven areas of Uninfested Protectable and Permanently Uninterpretable Protectable vegetation have been delineated as Protectable Areas and are illustrated in Figure 3 to Figure 6. Clean on Entry (CoE) principles are to be implemented and maintained for the duration of all works, including pre-construction, construction and post-construction phases, within the Protectable Areas.

Western Power should establish CoE or Inspection points at each Protectable Area, as per the standards described in Appendix 15 of the Phytophthora Dieback Management Manual (Department of Biodiversity, Conservation and Attractions, 2020). The CoE points established by Western Power should be displayed on site maps and be incorporated into relevant job packages.

Before travelling to site, vehicles and machinery should be cleaned at the yard or depot so that only minimal cleaning, if any, is needed upon arrival to the Protectable Areas. For the purposes of this DMP, a vehicle or machine is considered 'clean' when it is free of soil lumps, mud, slurry and plant debris. A light film of dry dust or surface grime is not regarded as a biosecurity concern (Table 10). All CoE practices should align with the standards outlined in Appendices 13 to 16 of the Phytophthora Dieback Management Manual, with provision made for vehicles or machinery that do not meet the hygiene standard to exit safely without entering the surrounding vegetation (Department of Biodiversity Conservation and Attractions, 2020).

Table 10 – General Dieback Clean Down Requirements.

Vehicle/Machinery/Tools/Footwear Condition	Action(s) Required
Clean or contains thin layer of dust or grime	None.
Dry clumps of soil/mud or moist sand present	Dry brush down.
Moist clods/slurry of soil or plant material	Washdown.

Clean down at CoE points is not always necessary. Vehicles, machinery, tools and footwear must firstly be inspected to determine whether a clean down is required. Generally, it is not expected that clean down will be required under dry soil conditions, as soil or plant material should not adhere to vehicles under such conditions (Table 3). An inspection should still be performed to be certain that the vehicle is clean. In wet conditions, if access to vegetated areas is required, washdown facilities must be available at designated CoE points. These should include a solid, free-draining surface and a mobile

high-pressure washdown unit. Additional information regarding washdown facilities is available in the Phytophthora Dieback Management Manual (Department of Biodiversity, Conservation and Attractions, 2020).

Maintain a vehicle clean down log on-site in the form of a *Vehicle and Machinery Inspection Register*. The Register should record the vehicle or machinery check for plant and soil material prior to entry into any Protectable Area, and whether a clean down process was undertaken due to the presence of organic matter. Each check and clean down should be signed by driver or nominated responsible person.

4.3.2 Timing of Activities

There are three main methods by which *Phytophthora* could potentially be transmitted during the works within the Project Area:

- Movement of machinery and vehicles.
- Soil adhering to digging equipment (then being transported to other sections of the Project Area).
- Introduction of contaminated basic raw materials.

It is for these reasons that all works within the vegetated sections of the Project Area should be carried out during the Summer/Autumn dry period; and access and works should be avoided if at all possible during the Winter wet period and under wet soil conditions (Table 3).

4.3.3 Training and Communication

Relevant personnel should receive training in best-practice vehicle and equipment cleaning procedures to ensure hygiene measures are applied effectively and to minimise the risk of spreading *Phytophthora* species. Formal training, such as the Dieback Working Group's 'Green Card', is available for this purpose. The locations of Protectable Areas should be clearly communicated to all personnel through toolbox meetings and incorporated into relevant job packages.

4.3.4 Raw Materials

Documentation verifying the accreditation status of suppliers providing disease-free raw materials should be retained in a Raw Material Register for all materials brought onto the site. Supplier accreditation should be confirmed once for each material type, with annual reviews conducted to ensure certifications remain valid for the duration of the construction phase.

4.3.5 Access

Access tracks adjacent to Protectable Areas should be managed to ensure that road drainage does not adversely affect nearby vegetation, and CoE procedures must be applied whenever vehicles or personnel move from formed roads into surrounding vegetation. Where practicable, all personnel should avoid traversing areas where Phytophthora Dieback may be present, such as low-lying ground, waterlogged creeks, and standing water.

4.3.6 Green Bridges

A Green Bridge is a constructed, continuous, well-drained running surface of Dieback-free basic raw material (BRM) laid over Infested, low-lying or permanently wet sections of road to prevent vehicles from contacting and transporting Phytophthora-infested soil into protectable areas (Department of Biodiversity, Conservation and Attractions, 2020). Construction of a Green Bridge must be in accordance with Appendix 23 of the Phytophthora Dieback Management Manual (Department of Biodiversity, Conservation and Attractions, 2020).

4.4 Monitoring and Maintenance

The achievement of performance targets (listed in Table 9) will be measured through monitoring as described in Table 11.

Table 11 – Dieback Plan Monitoring Actions.

Dieback Monitoring Guidelines				
DMP Component	**Monitoring activity**	**Responsible Person**	**Timing and Duration**	**Record Log**
Vehicles (including machinery and equipment)	Inspections	Works Crew leader	For all vehicle movements into and through the maintenance corridor.	Vehicle Inspection and Clean-Down Register.
Basic Raw Material register	Record keeping of each instance of raw material importation	Works Crew leader	Duration of the project.	Basic Raw Material Register.
Incident management	Record keeping of breaches related to Dieback management	All personnel	All incidents to be recorded, reported and resolved Incidents to be reported to Works Crew leader and DBCA District Office.	Environmental Incident Register.

4.5 Non-Compliance Management

Non-compliance with this Phytophthora Dieback Management Plan will be dealt with in accordance with Western Power's existing internal investigation and incident-management processes and procedures, which are managed through the Guardian Incident Management System.

Significant non-compliances include activities such as:

- Soil and/or plant material present on vehicles, machinery, tools or footwear inside Protectable areas.
- Use of unauthorised tracks.
- Missed CoE inspections, incomplete or insufficient CoE records.

Non-compliances involving contractors may also be resolved through the contracting process depending on the severity of the non-compliance including recurrent minor non-compliances.

Western Power and DBCA have agreed a communication protocol for Western Power's works within DBCA-managed land, which includes notification and follow up in the case of non-compliance with the protocol. Non-compliances with this DMP will also be dealt with in accordance with the provisions of the protocol.

4.6 Summary of Management Actions

Table 12 summarises actions and site responsible persons for the DMP.

Table 12 – Dieback Management Actions.

DMP Component: Management Action	Responsible Person	Timing
Training, Induction and Pre-Start Requirements: • Training (inductions/toolbox talks) undertaken for site personnel (including sub-contractors) must include Phytophthora Dieback, Phytophthora Dieback management procedures, Phytophthora Dieback clean down procedures, how to undertake vehicle hygiene checks and fill out Vehicle and Plant hygiene checklists and CoE hygiene logs, and the importance of preventing the spread of the pathogen. Evidence of training and site inductions to be provided to Western Power including names of participating staff and date(s). • Provide the Phytophthora Dieback Protectable Areas Map indicating Project Area extent and Western Power established CoE points to all relevant personnel.	Works Crew Leader or Site Supervisor	Prior to commencing any works within the Project Area.

DMP Component: **Management Action**	**Responsible Person**	**Timing**
• The job package for the planned inspection, construction or maintenance works to contain the DMP. • The toolbox meeting should review the requirements of the DMP prior to the works being undertaken in the Project Area.		
Pre-construction, construction and post-construction activities: • Remove soil and plant material from all vehicles, machinery, equipment and footwear at designated Western Power established CoE points - vehicles, equipment and machinery must be cleaned prior to entering the Uninfested and Permanently Uninterpretable areas. • Movement from Uninfested to any other category does not require a clean down. • Restrict movement of machines, personnel and vehicles to the limits of the areas in which they are required to work within the Project Area. • All run-off and potentially Infested material from CoE points is to be retained on site and must not be permitted to dissipate into the surrounding vegetation. • Washdown areas should be located on a hard, well-drained surface (e.g. limestone or blue metal aggregate. Any washdown effluent should be collected on-site and must not be allowed to drain into bushland.	All Personnel	Duration of the project.
Record Keeping: • Each inspection and clean down record for each CoE point (as relevant) should be signed by the driver or Works Crew Leader. • The Works Crew Leader to file the original filled and signed inspection and clean down register for each vehicle and machine/plant used for the planned works, on the Job package/project file. • Raw Material Register for all materials brought onto the site.	Works Crew Leader or Site Supervisor	Duration of the project.

Non-conformance / Incidents Non-compliance with hygiene procedures onsite:
• Investigate cause.
• Implement remedy, which could include:
  ○ Review of hygiene measures,
  ○ Improve induction for staff/contractors,
  ○ Increase educational signage,
  ○ Improve clean down facilities available on site.
• Monitor success of remedy.
	Western Power Responsible Person	Duration of the project.

5 References

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6 Appendices

6.1 Phytophthora Dieback Hygiene Management Map

The provided map (Figure 3 – Figure 6) is the Phytophthora Dieback Protectable Areas map.

The assessment area is displayed as a blue boundary line. The following categories are also shown (if present in the assessment area):

- Excluded (shown as yellow). Areas of high disturbance where natural vegetation has been cleared and is unlikely to recover to a level that is interpretable.
- Infested (shown as red). Determined from the assessment to have the plant disease caused by *P. cinnamomi*. Phytophthora Dieback caused by other *Phytophthora* species will be displayed as other colours, typically shades of orange and yellow.
- Uninfested (shown as green). Determined from the assessment to be free of plant disease Phytophthora Dieback.
- Permanently Uninterpretable (shown as purple). Undisturbed areas where susceptible plants are absent, or too few to decide the presence or absence of Phytophthora Dieback.

6.2 Mapping Metadata

Dataset Description	
Title	Dieback_Wangara_Neerabup_Terminal_Draft2
Data Created	12-01-2026
Date Last Updated	04-03-2026
Document Number	GC-25-0040
Contact Organisation	[redacted]
Lineage	All field data recorded using ESRI Field Maps application on a GPS enabled tablet.
Datum / Coordinate System	GDA2020 MGA Zone 50
Restrictions	None

Dataset Description	
Title	WP2A_SampleSites_Wangara_Neerabup_Terminal_Draft2
Data Created	12-01-2026
Date Last Updated	04-03-2026
Document Number	GC-25-0040
Contact Organisation	[redacted]
Lineage	All field data recorded using ESRI Field Maps application on a GPS enabled tablet.
Datum / Coordinate System	GDA2020 MGA Zone 50
Restrictions	None

Dataset Description	
Title	AECOM_Wangara_Neerabup_Terminal_2025_Evidence
Data Created	12-01-2026
Date Last Updated	04-03-2026
Document Number	GC-25-0040
Contact Organisation	[redacted]
Lineage	All field data recorded using ESRI Field Maps application on a GPS enabled tablet.
Datum / Coordinate System	GDA2020 MGA Zone 50
Restrictions	None

Dataset Description	
Title	WP1_SurveyDetails_Wangara_Neerabup_Terminal_Draft2
Data Created	12-01-2026
Date Last Updated	04-03-2026
Document Number	GC-25-0040
Contact Organisation	[redacted]
Lineage	All field data recorded using ESRI Field Maps application on a GPS enabled tablet.
Datum / Coordinate System	GDA2020 MGA Zone 50
Restrictions	None

Dataset Description	
Title	AECOM_Wangara_Neerabup_Terminal_2025_Protectable_Areas
Data Created	12-01-2026
Date Last Updated	04-03-2026
Document Number	GC-25-0040
Contact Organisation	[redacted]
Lineage	All field data recorded using ESRI Field Maps application on a GPS enabled tablet.
Datum / Coordinate System	GDA2020 MGA Zone 50
Restrictions	None

6.3 Shapefile Spatial Data

Shapefile Spatial Data	
File Contents	**File Name**
Occurrence	Dieback_Wangara_Neerabup_Terminal_Draft2
Samples	WP2A_SampleSites_Wangara_Neerabup_Terminal_Draft2
Evidence	AECOM_Wangara_Neerabup_Terminal_2025_Evidence
Project Area	WP1_SurveyDetails_Wangara_Neerabup_Terminal_Draft2
Protectable Areas	AECOM_Wangara_Neerabup_Terminal_2025_Protectable_Areas

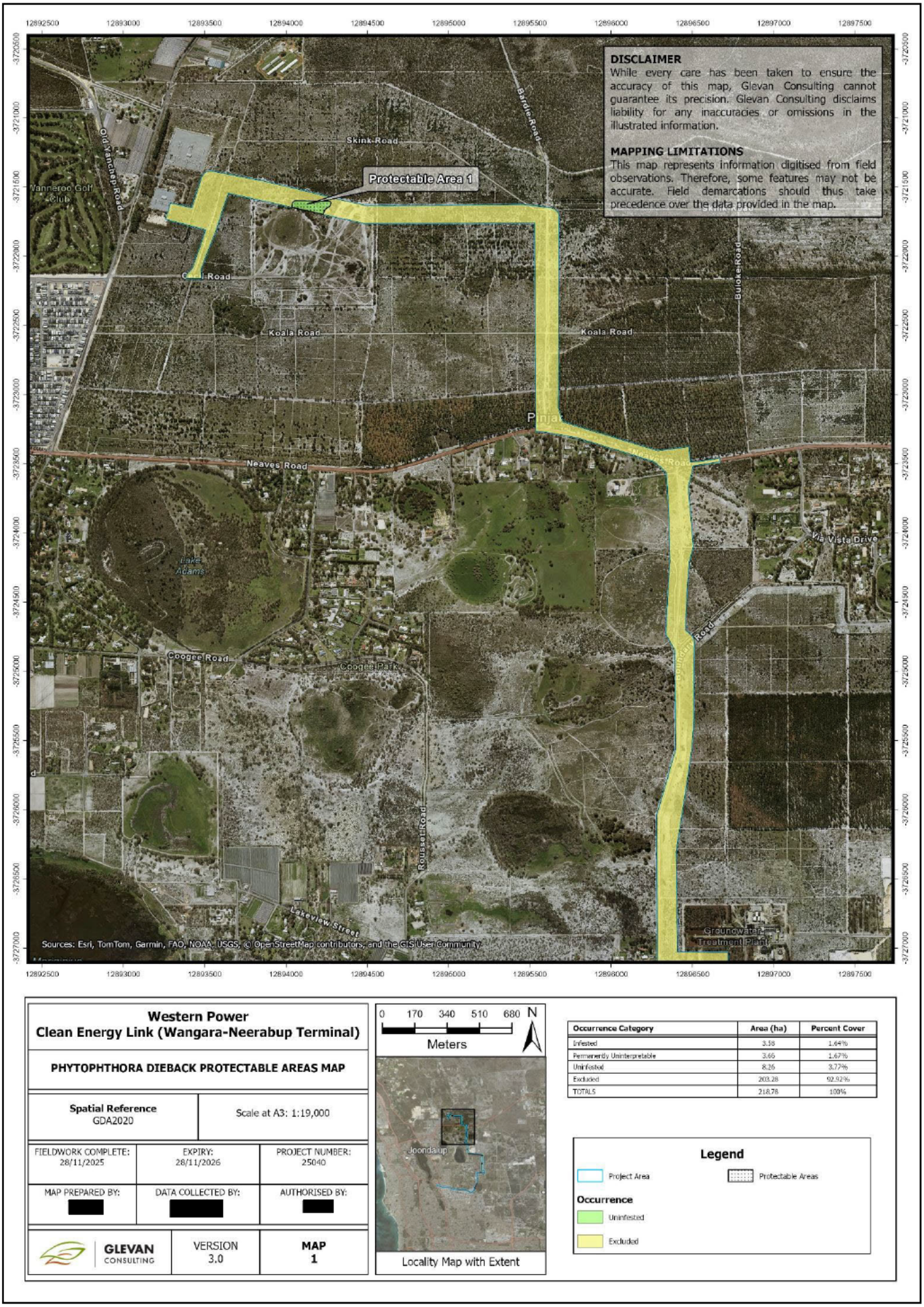


Figure 3 – Phytophthora Dieback Protectable Areas Map 1.

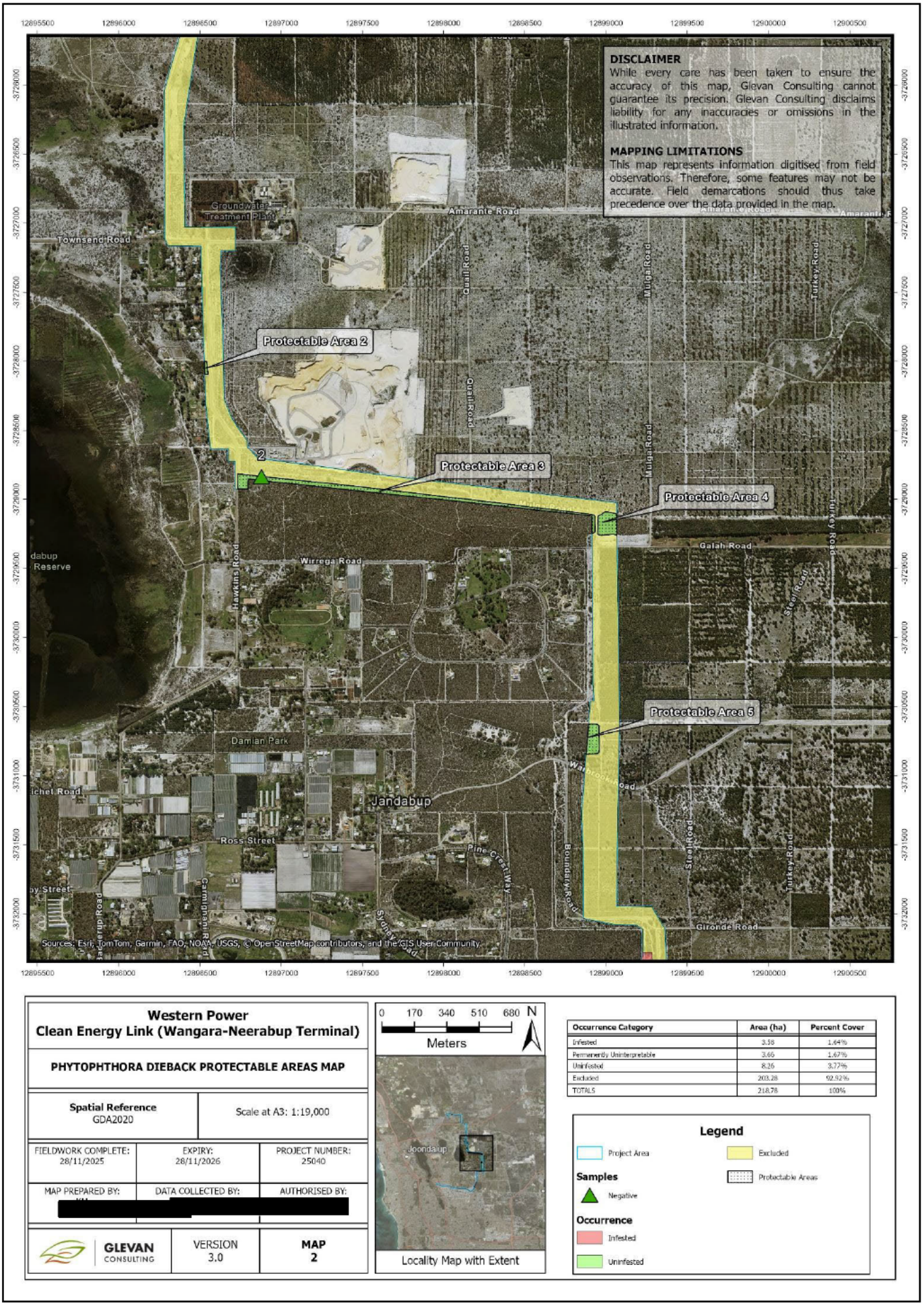


Figure 4 – Phytophthora Dieback Protectable Areas Map 2.

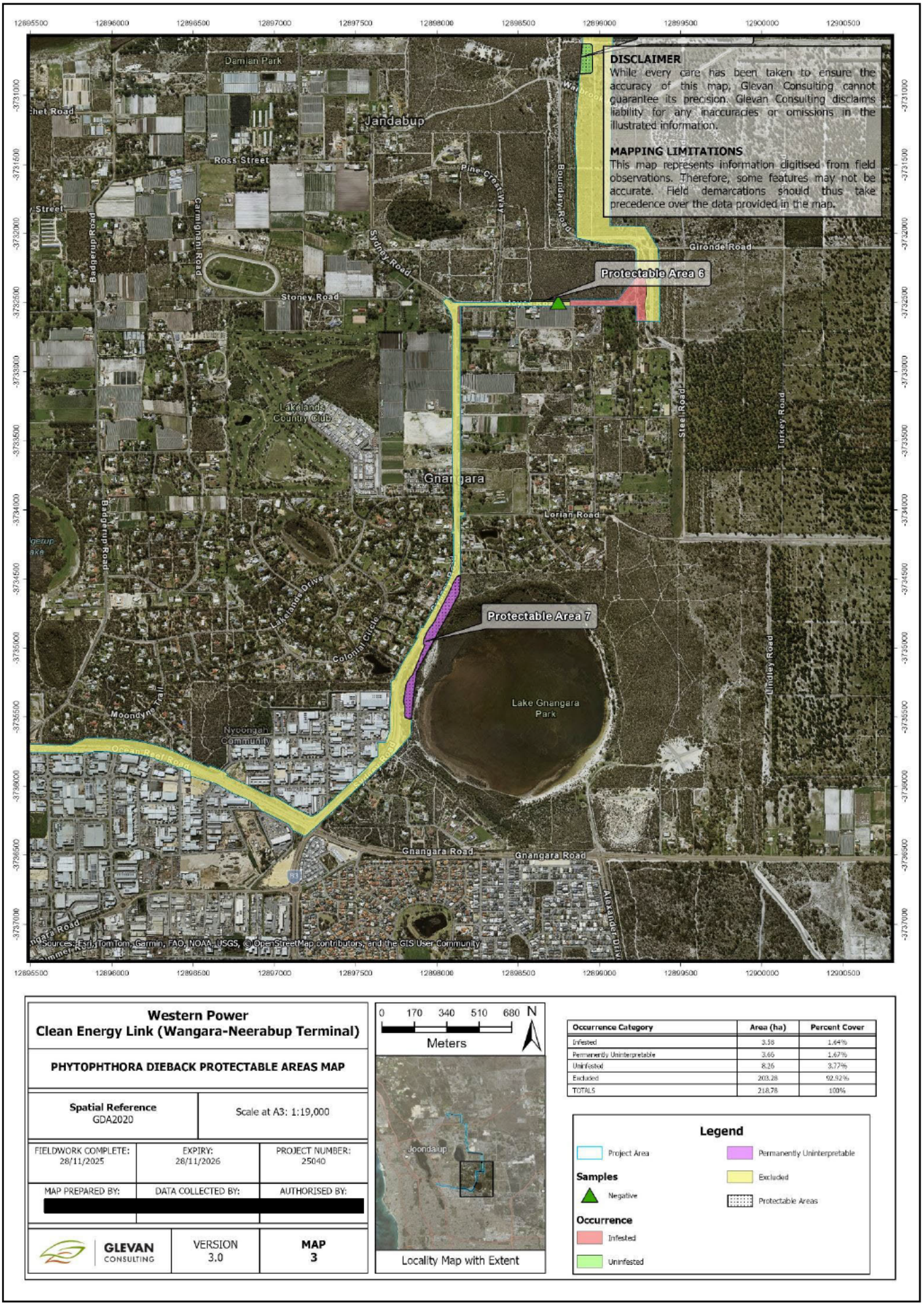


Figure 5 – Phytophthora Dieback Protectable Areas Map 3.

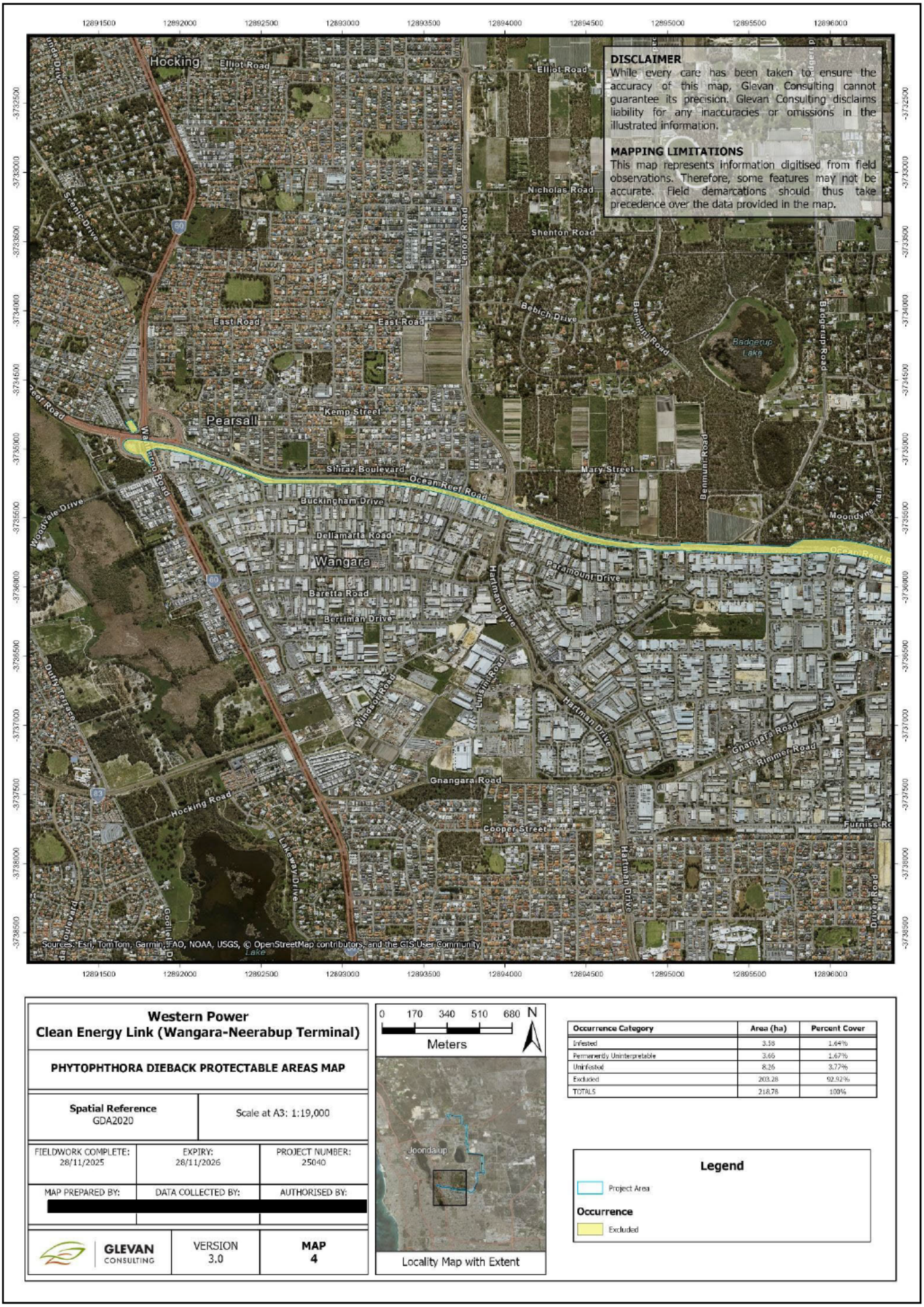


Figure 6 – Phytophthora Dieback Protectable Areas Map 4.



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