

**Exploration Dieback Management Plan**  
***Beharra silica sands – Stage A South***

<b>Exploration licence</b>	E 70/5221
<b>Project name</b>	Beharra silica sands – Stage A South
<b>Proposed activity</b>	Exploration air-core sample drilling on sandplain
<b>DMIRS Condition #</b>	#6. In areas of native vegetation within the tenement, no activities commencing until the licensee provides a plan of management to prevent the spread of ( <i>Phytophthora</i> sp.) to the Executive Director, Resources and Environmental Compliance, DMIRS for assessment and until his written approval has been received. All exploration activities shall then comply with the commitments made in the management plan.
<b>Report Version</b>	1.2019

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# **Exploration Dieback Management Plan**

## **Beharra silica sands – Stage A South**

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## BACKGROUND

This **Exploration Dieback Management Plan** has been prepared to prevent and mitigate the risk of *Phytophthora* disease spread and introduction during the proposed exploration activities at Beharra-Stage A South. The subject area falls within the vulnerable zone for *Phytophthora* disease to develop and was inspected by a Dieback Interpreter on 22/10/2019. The remnant vegetation within the area contains a number of susceptible plant species and soil/plant tissue sampling has confirmed the presence of *Phytophthora*.

The requirement for this management plan is listed in Exploration Licence E 70/5221, Condition #6 as follows:

**Exploration Licence 70/5221; Condition #6:** *In areas of native vegetation within the tenement, no activities commencing until the licensee provides a plan of management to prevent the spread of (Phytophthora sp) to the Executive Director, Resources and Environmental Compliance, DMIRS for assessment and until his written approval has been received. All exploration activities shall then comply with the commitments made in the management plan.*

## THE PROPOSED ACTIVITY

Perpetual Resources Ltd proposes to undertake initial silica sand exploration sampling under the requirements of Exploration Licence 70/5221. This activity comprises utilising existing historic drill lines to access the Beharra Stage A South exploration area in a 4WD ute with an air-core drill-rig mounted on it. Then sampling the soil profile at points over an approximate 400 x 400m grid up to a depth of 20m. Test holes will then be backfilled with insitu soil. A number of Dieback Hygiene protocols have been identified and detailed in this **Exploration Dieback Management Plan** to ensure the proposed activities do not present an unacceptable risk to the receiving environment.

Subject to the outcomes from exploration, should extensive sand mining be proposed within any areas of vulnerable native vegetation, a comprehensive Dieback Assessment will be undertaken by qualified Dieback Interpreters and a site-specific Dieback Management Plan (DMP) will be prepared for agency approval, prior to commencement.

## SITE DESCRIPTION AND HISTORICAL DISTURBANCE

*Beharra Stage A South area -*

The Stage A area is bounded in the west by an existing north-south gravel-sheeted road, in the north by the gravel-sheeted Mt Adams Road and the south and east comprise contiguous native vegetation. The landform is a gently undulating sandplain. Evidence of previous low impact exploration activities can be seen on aerial imagery that includes a series of cleared east-west sand tracks.

Pre-European Vegetation Units present include: 392 - Melaleuca shrubland and 378 - Banksia mixed isolated trees / Acacia mixed open shrubland / Banksia mixed heath.

A prescribed burn has significantly reduced the biomass over extensive parts.

An experienced Dieback Interpreter inspected the area on 22.10.2019 and identified a range of plant species present that are susceptible to *Phytophthora* disease. Evidence of points of *Phytophthora* Dieback infestation was observed within the subject area alongside the north-south gravel-sheeted road that forms the western boundary. To confirm this, three soil/plant-tissue samples were collected and

sent to the Department of Biodiversity Conservation and Attractions laboratory for testing. Two samples collected in the vicinity of the western boundary/gravel road were found to contain *Phytophthora arenaria* which is common on the northern sandplain (see table 1).

**Table 1: Soil and Tissue Sample Results – Beharra Stage A South**

Sample Date	Sample No.	Plant Sampled	Map Reference GDA 94 (Zone 50H)	Result
22.10.2019	S1 - Beharra	Banksia sp.	E 315994 N 6740857	Positive <u><i>P. arenaria</i></u>
22.10.2019	S2 - Beharra	Petrophile sp.	E 315957 N 6742094	Positive <u><i>P. arenaria</i></u>
22.10.2019	S3 - Beharra	Xanthorrhoea sp.	E 317508 N 6744763	Negative

## PHYTOPHTHORA AND DIEBACK MANAGEMENT

*Phytophthora* Dieback caused by the group of soil-borne water moulds in the *Phytophthora* genus is known for its capacity to invade and destroy the root system functions of susceptible plants and trees. *Phytophthoras* spread through the movement of soil, plant material or water that contains its spores. Activities not limited to exploration, clearing vegetation, mining, earthworks, vehicle movements, horse riding and bushwalking all present a risk of spreading this plant disease by transporting and depositing infected soil/plant material in vulnerable bushland. When bushland is infested with this disease it can result in permanent loss of one or more susceptible plants/trees, reduced biodiversity and ecosystem collapse in severe cases (DPaW, 2015a).

The native vegetation within the Beharra State A South area has been assessed as vulnerable to *Phytophthora* Dieback. An experienced Dieback Interpreter and former Biosecurity Officer will be on-site to guide operations and record compliance with the standard *Phytophthora* management protocols detailed in this Exploration Dieback Management Plan (see Appendix A). The key objective is to prevent the spread of *Phytophthora* disease within and outside of the proposed exploration area. Employing these precautionary dieback hygiene measures during exploration, will also compliment weed prevention.

## REFERENCES

- Conservation and Land Management (CALM). 2003. Phytophthoracinnamomi and disease caused by it, Volume 1: Management Guidelines. CALM, Western Australia.*
- DPaW (2015) Forest and Ecosystem Management Division 2015. Phytophthora Dieback Interpreter's manual for lands managed by the department, DPaW, Perth, WA.*
- DWG (no date). Management of Phytophthora Dieback in Extractive Industries.*

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*The data and advice herein are specific to the project area and the proposed activity described herein. It should only be reviewed and applied by a competent environmental practitioner specialising in *Phytophthora* Dieback disease detection and management. Where reports, searches, third party information, data, reference or similar work has been performed and recorded by others, the data is included and used in the form provided by others. The responsibility for the accuracy of such data remains entirely with the issuing authority, not in any form with BARK.*

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This plan identifies the project phases, management measures, measure of compliance and responsibility for implementing each measure. It will be provided to relevant personnel and contractors prior to their commencement and reinforced during site inductions, with any non-conformances addressed and recorded as soon as practicable. An experienced Dieback Interpreter will be engaged to guide operations on site and record compliance with the standard *Phytophthora* management protocols detailed in this Exploration Dieback Management Plan.

**Key objective: To prevent the spread of *Phytophthora* disease within and outside of the proposed exploration area.**

Project Timing: Planning Phase		
Management Measure	Measure of Compliance	Responsibility
<ol style="list-style-type: none"> <li>1. Include the Dieback Management Plan requirement in contractors' documentation.</li> <li>2. Train personnel/contractors in Green Card Dieback Hygiene.</li> <li>3. Schedule exploration activities in dry-soil conditions to minimise risk of spread.</li> <li>4. Dieback Interpreter to demarcate drill-line access tracks, Clean-Down points and inform Project Manager.</li> <li>5. Inform all site personnel/contractors to clean-down their machinery, vehicles, work-boots and equipment free of mud, soil, seeds and plant material prior to arriving to the site and that compliance checks will be undertaken upon arrival.</li> <li>6. Ensure appropriate Clean-Down tools and equipment are available on-site for the workforce. I.e. a sign-posted area with stiff bristled brushes, spades and crow-bars to dislodge dry materials from vehicles and machinery; and a high-pressure low volume spray unit (if Clean-Down in unavoidable wet conditions is required).</li> </ol>	<ol style="list-style-type: none"> <li>1. Contracts include DMP</li> <li>2. Training attendance records</li> <li>3. Rainfall records</li> <li>4. Photographic evidence</li> <li>5. Record of correspondence</li> <li>6. Record of correspondence/photo</li> </ol>	<ol style="list-style-type: none"> <li>1. Project Manager</li> <li>2. Environ Officer/Contractors</li> <li>3. Project Manager/Contractors</li> <li>4. Dieback Interpreter/Project Manager</li> <li>5. Project Manager</li> <li>6. Project Manager/Contractors</li> </ol>
Project Timing: Initiation Phase		
Management Measure	Measure of Compliance	Responsibility
<ol style="list-style-type: none"> <li>1. Complete Site Environmental Inductions – include information that supports compliance with this Dieback Management Plan.</li> <li>2. Establish a Clean-On-Entry/Exit Site Protocol as follows: <ul style="list-style-type: none"> <li>• Inform all site personnel contractors to clean-down their machinery, vehicles, work-boots and equipment free of mud, soil, clods of mud, seeds and any organic plant material prior to arrival at a designated check-point.</li> <li>• Apply and record a dry Clean-on-Entry point check each time the vehicle exits the gravel-sheeted road in the west and along the drill-lines as identified by the Dieback Interpreter.</li> <li>• Develop a temporary single site Clean Down Area on a stable surface to avoid ponding of water and vehicles driving through any effluent containing dislodged material that does not drain into an <u>uninfested</u> area.</li> <li>• Any water used for Clean-Down must be sourced from a scheme or rainwater-tank supply.</li> <li>• Re-use any disturbed soil/cleared vegetation in-situ during rehabilitation.</li> <li>• Monitor implementation and compliance of these Dieback hygiene management measures.</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Signed induction records</li> <li>2. Signed induction records and photos</li> </ol>	<ol style="list-style-type: none"> <li>1. &amp; 2. Project Manager/Environ Officer/Contractors</li> </ol>
Project Timing: Closure Phase		
<ol style="list-style-type: none"> <li>1. Apply Clean-on-Exit Dieback hygiene protocols to all vehicles, equipment and footwear, prior to departing the area.</li> <li>2. Monitor implementation and record compliance with this Dieback Management Plan.v1.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compliance records/photos</li> <li>2. Compliance records/photos</li> </ol>	<ol style="list-style-type: none"> <li>1. &amp; 2. Project Manager/Environ Officer/Contractors</li> </ol>