

APPENDIX E

Targeted Survey for Lesser Swamp Orchid

Technical Note

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1 Introduction

This short report presents the results of the targeted survey for Lesser Swamp Orchid *Phaius australis* carried out by Arup consultants on the Sunshine Coast Council (SCC) reserve land to the north of the existing runway 18/30 at Sunshine Coast Airport (Lot 101 CG6395). This area is mapped as part of the Project Area for the Sunshine Coast Airport Expansion Project (SCAEP). The purpose of this paper is to outline the survey methodology, provide a description of the results, including the number, location and supporting habitat of the plants and provide a map of the plant locations.

Lesser Swamp Orchid is listed as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *Queensland Nature Conservation Act 1992* (NC Act). It is a terrestrial orchid that occurs in wet heath, sedgeland, swampy grass land, swampy rainforest and Broad-leaved Paperbark *Melaleuca quinquenervia* and Swamp Mahogany *Eucalyptus robusta* open forest. The plant consists of 4-8 pleated leaves and 1-2 flower stalks appear in spring from September – November. Identification of Lesser Swamp Orchid in the field is difficult without flowers, as the species is very similar to other members of the *Phaius* genus.

Known populations in south-east Queensland are at Yandina, Bellthorpe, Deception Bay, Bribe Island, Stradbroke Island and Gold Coast. Main threats to existing populations include illegal collection, habitat clearing, weeds, altered fire regimes.

2 Background

Previous flora surveys were carried out in January 2013 within the southern edge of the proposed construction compound on Lot 101 CG6395 as part of the flora surveys for the SCAEP Environmental Impact Statement (EIS). These surveys were concentrated along the proposed sand dredge alignment, primarily within regrowth sedgeland, heath and paperbark forest communities (Figure 1). At this time of this survey, the construction compound was not included in the project description and the entire Lot 101 CH6395 was not surveyed in detail.

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During this survey no Lesser Swamp Orchid plants were observed and the habitat for these species within this area is less suitable. Despite the lack of any direct observations of the species, the habitat suitability mapping for significant flora species in the EIS indicated that there may be high quality habitat for Lesser Swamp Orchid within the proposed construction compound. This approach deals with the inherent limitations of survey work in detecting cryptic and difficult to observe flora species.

3 Methodology

A targeted area search was carried out over the 2.67ha site on the 28th October 2014 by an Arup ecologist and environmental consultant. Current aerial photography and the results of previous flora surveys carried out for the SCAEP project were reviewed and the vegetation communities stratified into Broad-leaved Paperbark forest, regrowth heathland and drainage areas. The survey focused on areas of Broad-leaved Paperbark forest with a less dense groundcover of sedges.

Due to the relatively small area of the site, the entire area was traversed by two people for a period of approximately four hours. During the traverse any possible Lesser Swamp Orchids observed were photographed and their location recorded with a handheld GPS. Observations on the size, age and evidence of seeding were also recorded. The location of the plants was mapped using ArcGIS. Survey methodology was in accordance with the draft *Survey guidelines for Australia's threatened orchids*.

Leaf samples were taken from three plants and a single seed capsule from one plant, under Arup's Scientific Purposes Permit (WISP13086413). These were submitted to the Queensland Herbarium on 28th October 2014 for identification and species confirmation purposes.

4 Results

The targeted surveys revealed the presence of a population of Lesser Swamp Orchid within the site. A total of 42 plants were recorded over an area of 0.27ha (Figure 1). A confirmation email has been received from Dr Michael Mathieson, curator of the family Orchidaceae, at the Queensland Herbarium that the observed plants are Lesser Swamp Orchid.

Plants were at various ages and sizes, indicating recent recruitment with some young plants with only 1 or 2 small leaves (Photograph 1) and several older plants several leaves up to 70cm in length (Photograph 2). No plants were observed to be flowering during the time of the survey, but two plants had seed capsules (Photograph 3). The plants were either located singly or in clumps of up to 4 plants (Photograph 4).

All plants were located in Broad-leaved Paperbark open forest in areas where the sedge groundcover was less dense, with the exception of one plant which was in an area of weedy/grassy regrowth under a Broad-leaved Pepper Tree *Schinus terebinthifolius*.

The majority of the vegetation on the site consists of weedy, regrowth wallum heath, sedgeland and constructed drainage lines. Most of the site can be described as disturbed and there are several declared pest plants present, including Lantana *Lantana camara*, Groundsel *Baccharis halimifolia* and Broad-leaved Pepper Tree. The Broad-leaved Paperbark forest that supports the population of Lesser Swamp Orchid is also likely to be regrowth vegetation, due to the low canopy height, weed coverage and dense sedge groundcover in places.

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Photograph 1: Young plant, single leaf



Photograph 2: Older plant, 50cm



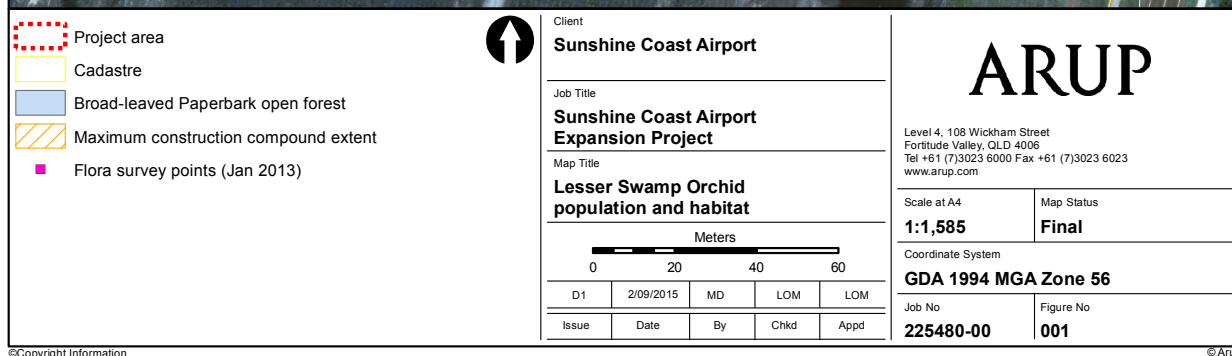
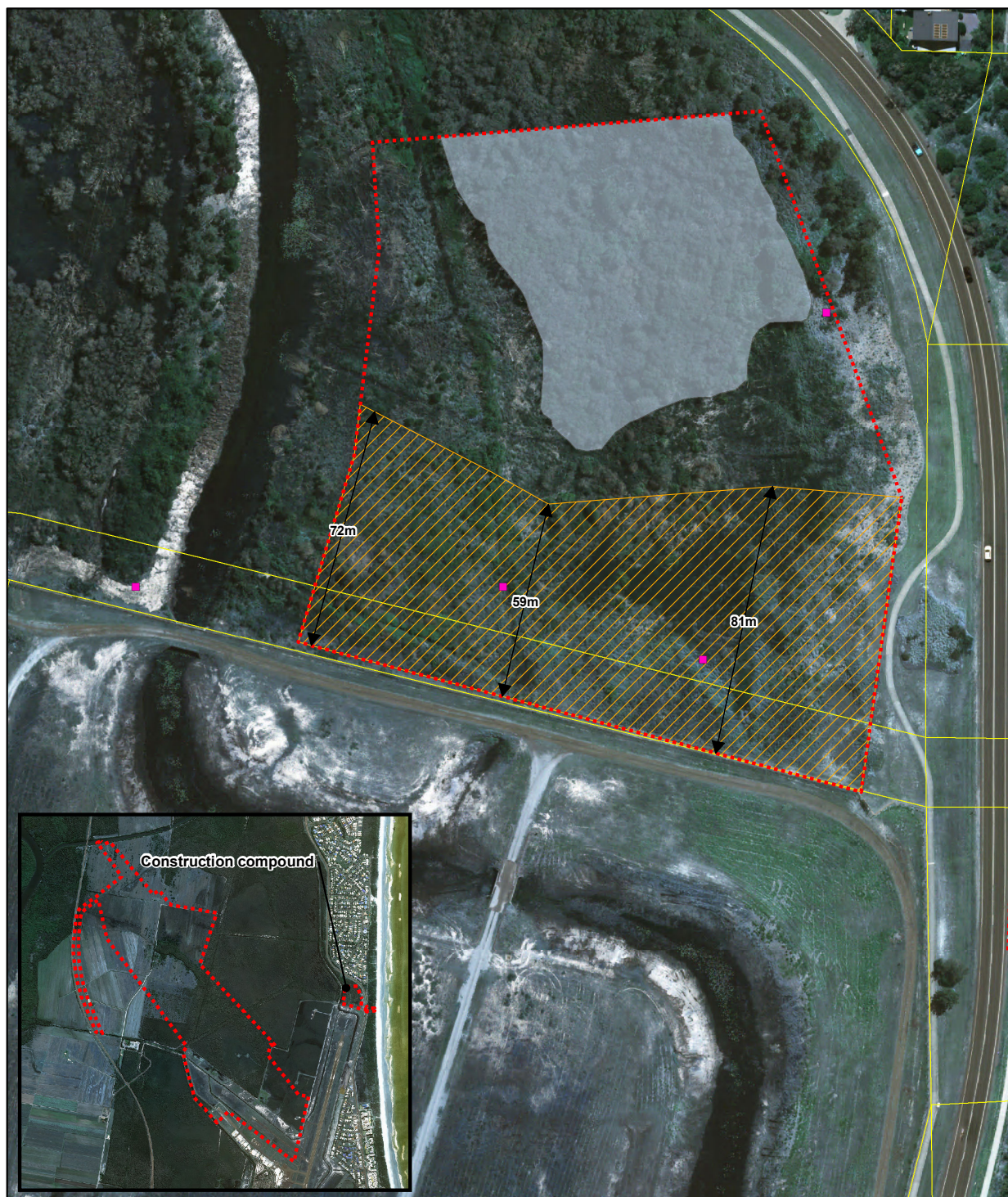
Photograph 3: Seed capsules



Photograph 4: Clump of four plants

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5 Recommendations

It is recommended that the entire population and supporting habitat (Broad-leaved Paperbark open forest) for Lesser Swamp Orchid is retained and the presence of these plants is treated as a constraint to the use of the site. It is recommended that disturbance be restricted to the area shown on Figure 1.

If the construction methodology requires land that will impact on the Lesser Swamp Orchid population or supporting habitat further advice on the required approvals and liaison with the Queensland and Commonwealth governments will be required.

If the population is able to be retained it is recommended that the following measures are incorporated into the Environmental Management Plan for the project:

- Limit vegetation clearing and any construction activities to areas outside of the Lesser Swamp Orchid population and any supporting habitat within the site;
- Tree protection fencing and signage to be established prior to the commencement of works;
- Temporary stormwater, wastewater, erosion/sediment control and spill prevention measures to avoid sediment-laden or contaminated stormwater entering the population area;
- Revegetation works to be carried out in cleared areas following construction;
- Removal and treatment of weeds within the area of supporting habitat and buffer, with a focus on *Lantana camara* and Groundsel *Baccharis halimifolia*.

It is also recommended that the Queensland Herbarium is provided with the coordinates of the population, so that the submitted specimen can be included in their collection and the population is recorded within the HERBRECS database.

DOCUMENT CHECKING (not mandatory for File Note)

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Name	Matt Davis	Lillian O'Mahony	Lillian O'Mahony
Signature			