ARCHAEOLOGICAL SURVEY FOR THE PROPOSED SUNRISE AQUACULTURE ESTATE AT POINT CEYLON, BYNOE HARBOUR

A report for EcOz

on behalf of

Suntay Aquaculture

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SUMMARY

Begnaze Pty Ltd was contracted by Ecoz on behalf of Suntay Aquaculture to undertake a survey to locate any archaeological places or objects that may be disturbed and / or destroyed during a proposed development of the Sunrise Aquaculture Estate near Bynoe Harbour.

No archaeological objects or sites were located within the area of the proposed development. Therefore there are no archeological or heritage constraints that need to be implemented.

Only one archaeological site was identified in the survey, Ceylon Point 1. It is located outside of the proposed development area and is considered to be of low archaeological significance. Concrete floor foundations and other objects were located in the area of the proposed hatchery. As these objects are of recent construction, they are considered to have no historical significance.

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1.0. INTRODUCTION

This report describes an archaeological survey over the proposed subdivision of sections 1476 and 1477 Hutchison. Begnaze Pty Ltd was engaged Ecoz on behalf of Suntay Aquaculture to locate and record any archaeological objects or places, as defined under the *Northern Territory of Australia Heritage Conservation Act 1991*

The proposed development on Ceylon Point is located approximately 35 kilometres from the Mandorah Rd turn-off along the Dundee Beach Rd. The areas to be surveyed can be seen in Figure 1 and consist of:

1. Ponds, three at 350,000 square metres
2. Buildings, two at 4,000 square metres
3. Hatcheries at 4,000 and 5,000 square metres
4. Maturation area at 10,00 and 40,000 square metres
5. Dam at 40,000 square metres
6. Reservoirs, one at 40,000, and two at 90,000 square metres
7. Access route from the Dundee Beach Rd.

Archaeological fieldwork took three days in November 2002 and was carried out by Christine Crassweller and Scott Mitchell.

1.1. Consultancy Brief.

The aim of the study is to locate and record any archaeological objects or places to ensure that the provisions of the *Northern Territory Heritage Conservation Act 1991* are not contravened. The archeological survey will be carried out as follows:

- The archaeological and heritage study will identify archaeological material within the designated area by means of a survey carried out in a manner that will ensure the highest possible coverage of the area.
- Any archaeological or heritage places, objects or classes of objects located during the survey will be recorded in such detail as to permit independent assessment of their significance. The location of any archaeological places and objects will include coordinates obtained by a hand-held Global Positioning System. All sites will be named in order to identify the sites on the ground.
- After assessing the significance of the archaeological place or object, recommendations will be made regarding compliance with the provisions of the *Northern Territory Heritage Conservation Act 1991*.

2.0. THE ENVIRONMENTAL SETTING

The geomorphology, geology and vegetation in the general area of the proposed development are key factors influencing the type and visibility of any archaeological material and sites that exist in the area.

The area is located on the dissected foothills geomorphic unit, which consists of skeletal, gravelly and lateritic soils (Pietsch and Smith 1987) forming undulating rubbly rises and low hills which are dominated by stunted woodlands, mixed scrubland and palm forests. This unit overlay early the Proterozoic Welltree Metamorphic Unit of biotite gneiss and quartz-mica schist, which rarely outcrops and when it does it is deeply weathered or silicified.

Directly to the west of the proposed study is the remnant of the Koolpinyah Surface which forms the Northern Plains geomorphic unit and contains sandstone, claystone and siltstone which are deeply weathered and exposed in intertidal rock ledges and low coastal cliffs (Pietsch and Smith 1987:22)

Mangrove forests are well developed along the coastline and tidal creeks. Chenier ridges, perched on alluvium, are common in areas facing the open sea and lie parallel to the present coastline. Older chenier ridges are located further inland behind the mangrove belt and lie parallel to the past coastline. In low-lying areas vegetation varies between *Melaleuca* sp, freshwater mangroves and grasslands.

3.0. CULTURAL SETTING

Ethnohistoric and ethnographic information can provide valuable archaeological data that may assist in the interpretation of the archaeological record. Ethnohistoric accounts of Aboriginal behaviour are important in that they describe social organizations and behaviour before they were altered significantly by contact with Europeans. Ethnographic data can be used to construct models that describe the archaeological record in terms of subsistence and settlement patterns of the Aboriginal occupants of the land in the past. Both these sources of information should however be used with caution as while the Aboriginal people of a particular area may not have had direct contact with Europeans, new diseases and new knowledge of technologies may have preceded contact (Leichhardt 1847:413-414).

3.1. Ethnographic background.

Basedow (1907) and Foelsche (1882) give general accounts of subsistence activities in the Top End of Australia and they describe swamps and lagoons as being focal points of subsistence activities providing sources of fish, geese, ducks, turtles, crocodiles and their eggs, shell fish and the roots of water lilies and rushes. Away from the lagoons, wallabies, snakes, goannas and other small game were hunted. Brockwell (1995) notes that the only items likely to survive in the archaeological record are shell fish hooks, hearths containing cooking stone or termites nests, stone tools such as spear heads, axe heads and knives, and shells used either in the manufacture of implements or large shells such as *Melo amphora*, used as water vessels.

3.2. Historic record.

The main European activity, beside pastoral pursuits in the area was tin mining. High grade tin was found at Bynoe Harbour in 1888. The Levithian mine was located approximately 20 kilometres south east of Indian Point and other tin mines, such as Hang Gong, Lees and Bells Mona, and a gold mine, the Golden Boulder, were located approximately 25 kilometres east of Ceylon Point and commenced operation around the turn of the century (Jones 1987).

3.3. Archaeological background.

Very little archeological research has been carried out in the region around the Bynoe Harbour. Further a field surveys by Guse (1997), Hiscock (1997) and Brockwell (1996) identified shell mounds, artefact scatters and several stone arrangements which are unique to the Darwin area.

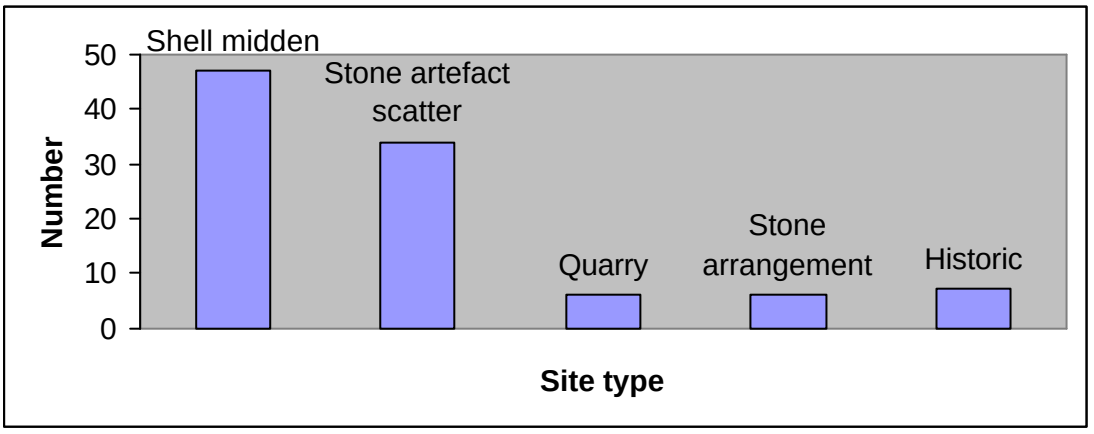
A summary of regional archaeological patterns for the region was developed by Guse (1998;12) and he found that sites are concentrated in zones which are low-lying and have direct access to rivers or the coast. The coastal areas are dominated by middens while the dissected foothills are dominated by middens and artefact scatters.

Guse (1994) also identified a very large artefact scatter and quarry site on the north of Indian Island that is located 2 kilometres northwest of Ceylon Point. Stone artefacts were located for a kilometre along the top of a siltstone/conglomerate cliff. There was a high density of quartz artefacts and a small proportion of fine-grained sedimentary rock. Artefacts included flakes, cores retouched flakes, bifacial points, axe fragments and ochre. Also in the area were shell scatters, consisting mainly of *Nerita* sp. The presence of a high percentage of bipolar cores in an area close to a quartz quarry, suggested to Guse (1994:16) that there had been a long term

occupation at the site. Guse (pers. com.) located two more artefact scatters approximately 20 kilometres to the west of Ceylon Point on the Fog Bay coastal area. The dominant raw material was quartz and there were also shell scatters at the two sites.

A search of the archaeological register at the Heritage Conservation Branch, Department of Infrastructure Planning and the Environment identified 81 sites within the Bynoe 1:100,000 map sheet, 52-5072. It should be noted that a site may be listed as having more than one site type. Also present are one engraving site and one earth mound. No sites have been recorded within the proposed development area. Shell middens and artefact scatters are the most common site type in the area.

Table 1. . Archaeological sites recorded at the Heritage Conservation Branch on Bynoe 1:100,000 map sheet.



As the area of the proposed development is located on the dissected foothills adjacent to the coast and contains a wet season creek located in the southern section there is a high probability for the presence of shell middens and artefact scatters.

4.0. METHODOLOGY

All areas except for the access route, were surveyed on foot, in transects that were at the most 150 metres apart. The access routes from the dam turn-off were surveyed on foot and the track from the Dundee Beach Road to the dam turn-off were surveyed by 75% pedestrian and 25% vehicular transects.

4.1. Types of archaeological sites.

There are six types of sites previously recorded in the area and can broadly be defined as follows:

- *Artefact scatters.* These may contain flaked or ground artefacts and hearthstones. They occur as surface scatters of materials or as stratified deposits when there has been repeated occupations.
- *Stone arrangements.* These can range from simple cairn to more elaborate arrangements. These stone arrangements were used in ceremonial activities and represent sacred or totemic sites. Other stone arrangements were constructed for route or territory markers, the walls of huts.
- *Earth mounds* which are artificial accumulations of sediment that may contain stone artefacts or organic material such as bone.
- *Stone quarries* are generally sites where stone for flaked or edge ground artefacts have been extracted from an outcropping source of rock (Hiscock and Mitchell 1993).
- *Shell middens* contain mollusc material in the form of surface scatters or mounded deposits (Gregory 1998:222), which represent the remains of human meals.

4.2. Site definition.

An archaeological site is defined for this survey as having ten or more stone artefacts or shells within an area of 2 m^2 or a concentration of artefactual material with an average density that is 5 times greater than the average density of the background scatter (Heritage Surveys 1997:6). A site will have an identifiable boundary where either artefact densities decrease to the extent as to be classified as background scatter or environmental features determine the boundary.

Background scatter is generally a very low density, more or less continuous distribution of artefacts over the landscape. Although these artefacts do not constitute a site they will be given location details for research purposes.

4.3. Artefact identification.

A requirement for a successful archaeological project involves the accurate identification of archaeological materials. The following principles were used in artefact identification.

Each time sufficient force is applied to the surface of an isotropic rock it will fracture into two pieces, the core and the flake. For an object to be identified as a flaked object it needs to possess one or more of the following:

- a positive or negative ring crack.
- a distinct positive or negative bulb of percussion.
- a distinct eraillure scar in an appropriate position below the platform.
- definite remnants of flake scars on dorsal surface or ridges.

Stone artefacts are divided into four main technological types; cores, unretouched flakes, retouched flakes and flaked pieces (Hiscock 1984:128-129). They are defined as follows:

- *cores* are pieces of stone that have one or more negative scars and the absence of positive flake scars.
- *unretouched flakes* are pieces of stone that have been struck off another piece of stone and ideally possess platforms, positive bulbs of percussion, concentric ripples, ring cracks and /or eraillure scars on the ventral surface.
- *retouched flakes* are flaked flakes. They are identified by the presence of negative scars that must have been created after the ventral surface of the flake had been created. There will be either negative scars on the ventral surface or negative scars on the dorsal surface, which have been formed by the flake being hit on the ventral surface.
- *flaked piece*s are stone artefacts that have been formed by knapping but cannot be identified as either a core or a flake.

Other artefact and implement types that have been identified in the region are listed below following characteristics outlined by McCarthy (1976).

- *Unifacial points* are flakes that have been retouched along the margins from one surface, either ventral or dorsal to give or enhance its pointed shape. They are sometimes symmetrical or leaf shaped.
- *Bifacial points* are retouched along both ventral and dorsal surfaces of a flake to enhance or give the artefact its pointed shape. They may have the platform removed and the proximal end rounded.
- *Edge ground axes* have been shaped by the process of flaking, pecking and polishing. They generally have only one working edge that has been ground to a sharp margin although occasionally they may have two leading edges.
- *Grindstone* are characterized by a worn and abraded surface or surfaces. There also may be a concave surface.
- *Hammerstones* have use-wear on the surface in the form of the abrasion, pitting, edge fracturing with some negative scarring.

- *Manuports* are stone material that are not found naturally in an area and must have been carried in by humans.

4.4. Assessment of significance and heritage management principles.

According to Sullivan and Bowdler (1984) archaeological significance means that it has scientific, archaeological or research value, that is, it has the potential to assist current or future research into problems of human history or other areas of enquiry. The Australian ICIMOS Charter for the Conservation of Places of Cultural Significance, otherwise known as the Burra Charter (Maquis-Kyle and Walker 1992:73) states that the scientific value or research potential of a place depends upon the importance of the data involved, on its rarity, quality or representativenesss, and on the degree to which the place or object may contribute to further substantial information.

Therefore the significance of a site is firstly related to the intactness or integrity of a site, that is, the state of preservation as well as the stratigraphic reliability of the cultural material. Secondly, the representativeness of a site is important either because a site is unusual or because the site has research potential when taken in conjunction with other sites. Thirdly a site may provide chronology extending back into the past.

5.0. RESULTS

The majority of the area surveyed had been burnt in the dry season and new vegetation had started to appear. Ground visibility over these areas ranged from 70 - 90%. Small patches on the end of Point Ceylon, mostly vine thickets, had not been burnt and visibility was lower at 30-40%.

No archeological objects or sites were located south of the Point Ceylon promontory. A shell scatter was located on the small chenier ridge that runs south from the eastern side Ceylon Point.

The most northern section of the promontory, in the area of the proposed hatchery and maturation pond was highly disturbed by a previous development and included a dam structure and vehicular tracks some of which have been made by a squatter who has set up a camp in the area. The remains of the previous activity included at least six concrete floor foundations, dumped vehicles, a washing machine, corrugated iron, batteries, and stubbie beer bottles. Adjacent to several of the concrete floor foundations were the remains of sets

concrete blocks in association with P.V.C. pipes that are probably the remains of ablution blocks.

The margins of the access route from the Dundee Beach Road were also highly disturbed by previous track maintenance works that cleared the track. Some areas within 100 metres of the track had also been cleared leaving deposits of surface gravel. These mounds may be the remains of gravel used to maintain the track or mining investigations. Some of the mounds had been shaped into small (20x 20 metres) dam-like structures.

5.1. Ceylon Point 1

Type: Shell scatter

Location

Grid reference: 669207E 8594565N

1:100,000 Map Sheet: Bynoe 5072, 1:100,000, SD 52.

A shell scatter of approximately 40 *Telescopium telescopium* was located half way along a fifty metre chenier ridge that runs south and parallel to the eastern side of Point Ceylon. The ridge is situated on the western side of the mouth of mangrove lined tidal inlet and has been used as an access track for the launching of boats through the mangroves into the inlet.

The chenier ridge is presently covered in sand and there are sections on the top where lateritic gravel has been deposited to make the area more accessible to vehicles. Three areas along the western side of the ridge have been eroded by water runoff uncovering large numbers of *Anadarra granosa* in the lower levels of the ridge. The *Anadarra* are extremely water worn suggesting that they have been either re-deposited in the area by storm action or taphonomic processes of tidal movement on the ridge had affected them.

Ground visibility: 98%

Dimensions: 21 x 2 metres

Site's and relationship to proposed development.

The site is located approximately 100 metres south of the proposed development. The proposed plans indicate that this area will not be affected by the development.

6.0. SIGNIFICANCE AND CONCLUSIONS

The absence of any stone artefact scatters in the area of the proposed development is unexpected, especially as the areas surveyed covered several different environments that could have been used to access various resources by Aboriginal people in the past. This may

indicate that either the Ceylon Point area was not used frequently in the past for obtaining resources or the archaeological visibility for sites in the area is poor. It is more likey that the widespread surface disturbance observed in the area by the more recent activities may have destroyed sites on the higher ground. Along the coastal areas, the discovery of the buried *Anadarra* shell indicate that there has been environmental changes which may have covered any evidence of sites in this area.

The Ceylon Point 1 site consists of a shell scatter and the possible remains of a shell mound. The site is not located in an area that will be affected by the proposed development. The *Terebralia* shell scatter indicates that this site was formed after the consumption of a single meal in the past and is referred to as a "dinner time camp" in the archaeological literature. As no other archaeological material was identified at the site and further research of this site would not reveal any more substantial information, the shell scatter is considered to have low archaeological significance.

The location and condition of the *Anadarra* shell found on the chenier ridge suggest that the shell has undergone one of two different taphonomic processes after it was deposited at the site. As the shell in the eroded areas is made up of only one species it is hypothesised that the *Anadarra* shell was originally deposited by human activity either at this site or in the area. All shell mounds in the Darwin region are made up of *Anadarra granosa* and have been dated to between approximately 2,000 to 500 years ago (Bourke 2000).

Any further research of the area to ascertain how the shell was deposited would be inconclusive, as the area has been disturbed by both human activity and environmental processes resulting in the destruction of the stratigraphic integrity of the site. Therefore this area is also considered to have low archaeological significance.

The concrete floor foundations and other objects located in the area of the proposed hatchery appear to be the result of relatively contemporary activities. Therefore the site does not hold any historical significance and no further action is required.

7.0. RECOMMENDATIONS

As no archaeological or historical material were located within the boundaries of the proposed development of an aquaculture estate on Point Ceylon, no further action is required for compliance with the provisions of the *Northern Territory Heritage Conservation Act 1991*.

The developers should be made aware of the Ceylon Point 1 site and ensure that it is a “no go” area for the development. If the site is to be destroyed a permit is required from the Minister for the Environment before any work commences in the area.

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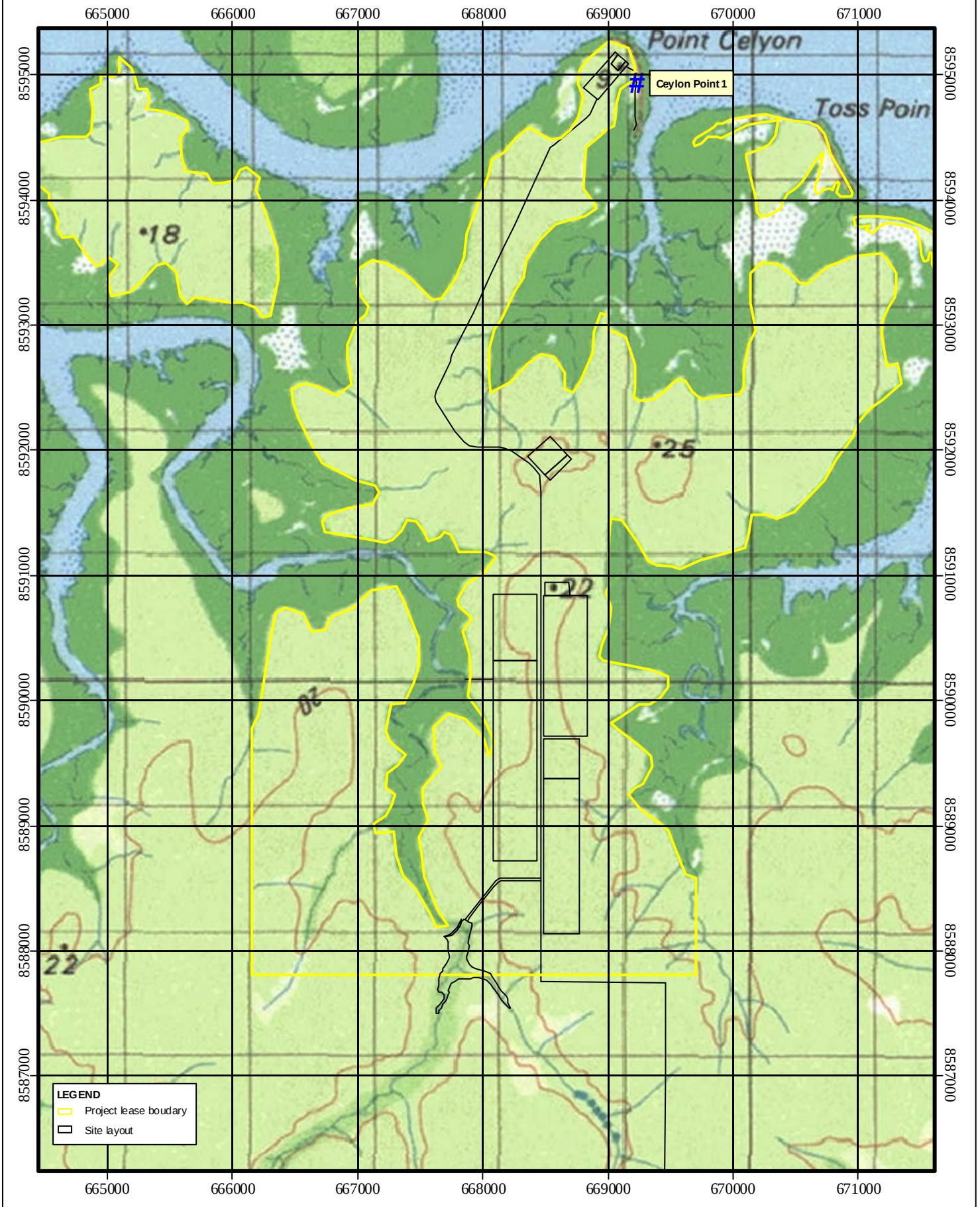

SUNTAY AQUACULTURE PTY. LTD.

SUNRISE AQUACULTURE ESTATE DRAFT EIS

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SCALE 1 : 40 000

0 0.5 1 1.5 Kilometers

Grid = WGS84 datum

Source:
Archaeological site location provided by Bengaze Pty. Ltd.

Raster100K topographic map data was supplied by Geoimage and AUSLIG.

FIGURE 1
LOCATION OF ARCHAEOLOGICAL SITE

Map produced by:
EcOz Environmental Services
June 2003

Plate 1. Shell scatter at Ceylon Point 1

Plate 2. One section of the exposed *Anadarra* at Ceylon Point 1