Stormwater and Surface Runoff Management: Stormwater planning must ensure interception and treatment of stormwater, including first flush containment. Stormwater released to the sandbeds must meet the requirements of the protected waters criteria. The Hydrology Report enclosed as Appendix D offers an indicative drainage and grading diagram to illustrate the way that stormwater can be managed on site to ensure that it does not impact the quality of groundwater. The plan includes the appropriate inception and treatment of stormwater, including the first flush containment. The key elements of the stormwater strategy will include:

- On-site treatment of stormwater before release (ie. removal of litter, sediments, nutrients and hydrocarbons);
- Inclusion of source controls within road reserves (eg. grass swales and bioretention) and end of line controls (including gross pollutant traps, bioretention areas and sandfilters;
- Controls on the storage and handling of chemicals; and
- Management of chemical spills including the requirement for contingency response plans.

HWC will be further consulted on the initiatives to be contained in the proposed Stormwater Management Plan. Port Stephens Council advise that the Plan would have to address the requirements of the Department of Water and Energy (DWE) as defined under its jurisdiction. The northern part of the site is within a gazetted HWC Special Area, which represents the extent of Hunter Water's ground water resources. The Hunter Water (Special Areas) Regulation 2003 imposes controls on the bringing of potential pollutants within the gazetted Special Area. Special care will need to be taken to ensure groundwater and surface water in this area is not subject to pollution.

2.7.2 Additional Land Investigated

The additional land is completely within the Hunter Water Special Area. On-site treatment of stormwater will be necessary to remove potential pollutants. Stormwater management will also require the inclusion of source controls within road reserves; controls on the storage and handling of chemicals; and careful management of chemical spills.

Due to the similar nature of the additional lands to the originally Selected Site, it was not considered necessary to consult with Hunter Water again for this site at this stage. The additional lands would be included in the Stormwater Management Plan that would be referred to the Hunter Water Corporation for advice as part of the process of consultation with public authorities pursuant to Section 62 of the Act.

2.8 Ecological Characteristics

2.8.1 Site Description

The site is primarily rural in character with the area immediately south and in the vicinity of the civil airport and RAAF Base facilities used for grazing purposes on an intermittent basis.

The topography is predominantly flat with substantial areas of lower lying wetlands and a smaller area of coastal sand dune rising and falling sharply over short distances within the flatter landscape.

The nature of the soil landscape introduces limitations resulting from permanently high water tables with seasonal waterlogging, foundation hazard, flooding hazard and potential acid sulfate soils. The surrounding areas are of a similar character.

Significant areas of vegetation within the study area have been cleared. Some remnant patches and isolated trees remain as is evident in the aerial photograph (Refer to Figure 2). Remnant vegetation in some areas not permanently inundated has been under scrubbed. The larger areas of remnant vegetation have a denser more intact understorey and tend to coincide with the 'Blind Harry Swamp Soil Landscape'.

The ecological constraints and opportunities assessment assigned areas of high, medium and low conservation significance. The Ecology Report (dated January 2007) is enclosed as Appendix G.

2.8.2 Additional Investigation Area

The additional study area comprises privately owned rural land. The majority of the additional land investigated adjoining the western boundary of the Selected Site is heavily vegetated with the central part of this land exhibiting evidence of past sand extraction activities. There appears to be no regular agricultural activity being undertaken on the land, with extensive regeneration of woodland vegetation in previously cleared areas, particularly in the northwestern portion of the study area.

The additional land investigated includes one lot, Lot 11 DP 10306501, the most easterly of the three portions just west of the originally Selected Site and the northern portion of two part lots, Lots 131 and 132 DP 609165. Lot 11 is characterised by a tall eucalypt forest with dense undergrowth comprising long grasses, reeds, bracken and low shrubs. The southern portion of this lot largely comprises uncleared swamp forest, defining the northern boundary of the Blind Harry Swap soil landscape group. Just west of Lot 11, the northern parts of Lots 131 and 132 are characterised by dense undergrowth comprising long grasses, bracken and low shrubs with extensive areas of small to medium sized paper bark trees sand scattered tall eucalypts. The central portion of Lot 131 is vegetated with long orange grasses and scattered stands of mature eucalypts.

2.8.3 Ecological Value Rating

The results of this assessment identified a number of important conservation issues within the study area. Refer to Figure 4, in relation to the vegetation communities present on the site. Two targeted amphibian surveys were also required. The results of the investigation lead to the mapping of the ecological value ratings attributed using the assessment criteria in the following section.

2.8.4 Factors Influencing Ecological Values Across the Study Area

Factors influencing the distribution of ecological values across the study area include:

- Substantial areas of vegetation have been identified as remnants of two EECs listed on the TSC Act;
- The threatened Wallum Froglet is present throughout the study area and disturbance to the existing hydrological regime and / or removal of any habitat would be considered likely to affect the long-term survival of this local population;
- Much of the study area is mapped as Preferred Koala Habitat, Buffer Habitat or Link Over Cleared habitat, all of which are considered important habitat for the protection of the threatened Koala;
- Linkages between areas of Preferred Koala Habitat occur within cleared areas, including the sand-mined area;
- Koalas heard calling and directly observed within the study area indicate current use of the site;
- Drainage lines are present throughout the study area and are essential in the maintenance of the current hydrological regime of the study area. The existing hydrological regime is likely to play a key role in the survival of existing species and communities. Disruption of this drainage system may have a significant effect on the long-term survival of these species and communities;
- Swampy areas and ephemeral water-bodies provide habitat for threatened species and are of high ecological value. In particular, the threatened Wallum Froglet is likely to exploit temporary ponds formed after significant rainfall as breeding habitat. Vegetation removal and changes in landscape values are likely to alter the hydrological regime and seasonal waterlogging patterns, and therefore affect the vegetation composition, and the habitat values of these areas; and
- Hollow-bearing trees, stags and mature eucalypts present within *Melaleuca linariifolia/Eucalyptus robusta/Angophora costata* Swamp Forest and *Angophora costata/Corymbia gummifera* Forest provide potential habitat for many threatened arboreal species, including the Squirrel Glider, certain microchiroptan bats, and are a limited resource.

2.8.5 Factors Influencing Ecological Values Across the Additional Lands

Factors influencing the distribution of ecological values across the additional lands investigated include the following:

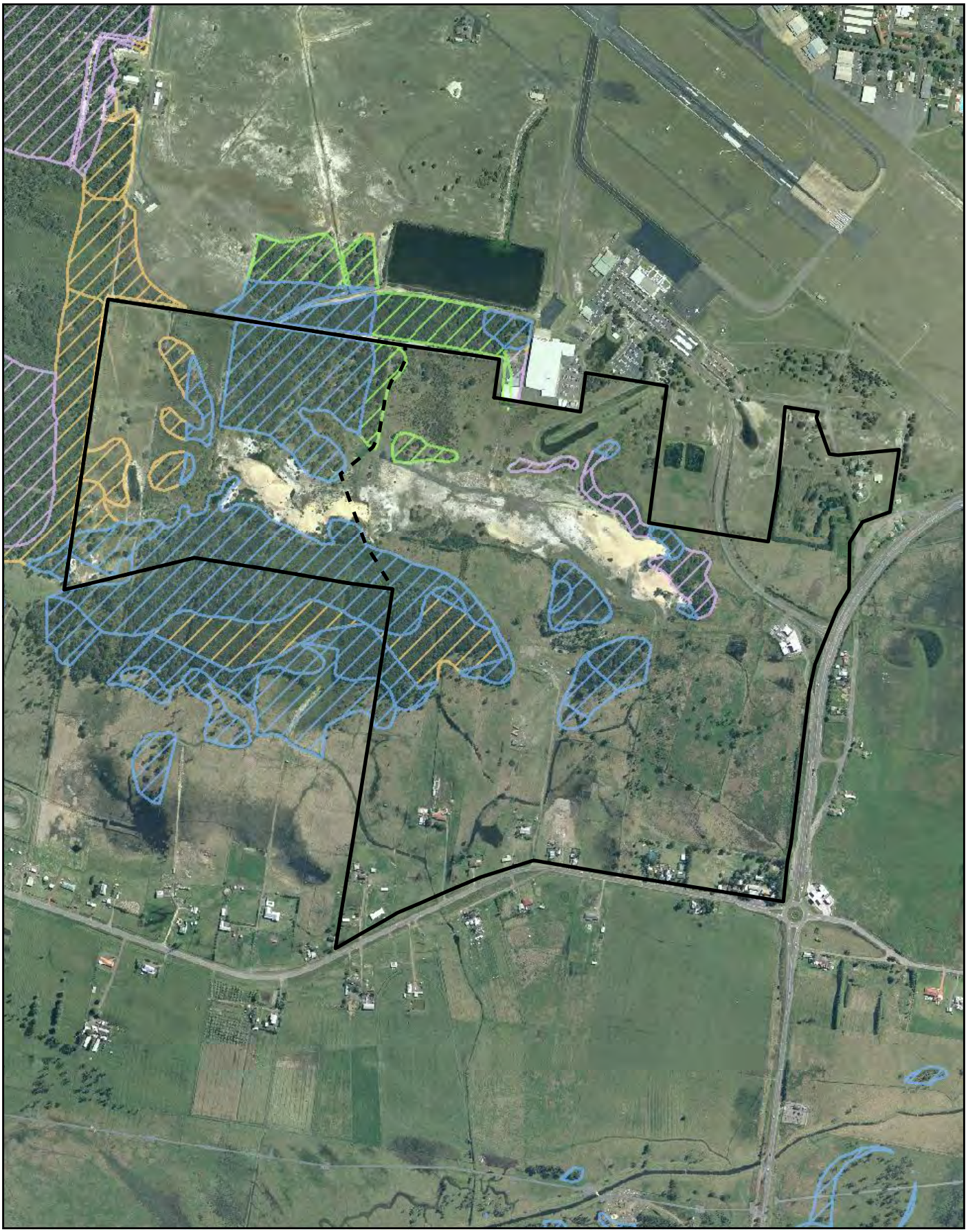
- The diversity of vegetation structure, floristics and habitat resources;
- Connectivity with other areas of habitat in the surrounding landscape;
- Representativeness and intactness of the vegetation communities occurring on-site;
- The occurrence of an endangered ecological communities (EEC) listed on the TSC Act within the study area: Swamp Sclerophyll Forest on Coastal Floodplains;
- Known habitat for the threatened Wallum Froglet occurs within the study area;
- The occurrence of Earp's Red Gum (*Eucalyptus parramattensis subsp. decadens*), a species listed as 'vulnerable' on both the TSC Act and the EPBC Act;
- The occurrence of Tomago Sand Swamp Woodland, a regionally vulnerable and regionally specialized vegetation community, within the study area;
- Potential habitat for Wallum Froglet occurs in low-lying habitats such as sand swamp woodland/heath and swamp sclerophyll forest throughout the study area;
- Ephemeral soaks and water-bodies provide habitat for threatened species and are of high ecological value. In particular, the threatened Wallum Froglet is likely to exploit temporary ponds formed after significant rainfall as breeding habitat;
- Vegetation removal and changes in landscape values are likely to alter the hydrological regime and seasonal waterlogging patterns and therefore affect the vegetation composition, hence habitat values of these areas;
- Much of the study area is mapped as Preferred Koala Habitat, Buffer Habitat or Link Over Cleared habitat, all of which are considered important habitat for the protection of the threatened Koala;
- Linkages between areas of Preferred Koala Habitat occur within cleared areas, including the sand-mined area;
- DECC Atlas of NSW Wildlife database record dated 1992 indicates historic use of the site by the threatened Koala;
- Koalas directly observed and heard calling within the study area confirm current use of the site by the species;
- Scribbly Gum / Smooth-barked Apple Woodland within the study area supports an abundance of hollow-bearing trees, providing potential nesting and/or roosting habitat for many threatened species, including the Squirrel Glider and tree-roosting microchiroptan bats. 'Loss of hollow-bearing trees' is now listed as a 'key threatening process' under the TSC Act; and
- The disturbance history across the site and its impact on habitat condition.

Table 2-2 Ecological Assessment Criteria

Community codes: **1** = *Banksia aemula/B.integrifolia* woodland; **2** = *Melaleuca linariifolia/Eucalyptus robusta/Angophora costata* Swamp Forest; **3** = *A.costata/Corymbia gummifera* Forest; **4** = *B.aemula* Open Forest; **5a,b,c** = *M.quinquenervia* Swamp Forest; **6** = *Leptospermum juniperinum/Acacia longifolia* Shrubland; **7** = *Casuarina glauca* woodland; **8** = scattered *M.quinquenervia*; **SM** = sand-mined area.

	Relevant Communities/Areas										
Assessment Criteria (listed under ratings of High, Medium and Low)	**1**	**2**	**3**	**4**	**5a**	**5b**	**5c**	**6**	**7**	**8**	**SM**
High											
Endangered Ecological Community on the TSC Act.		√			√	√	√		√		
Vegetation contains hollow-bearing trees (critical resource for hollow-dependent fauna such as microchiropteran bats, gliders, owls, glossy black-cockatoo)		√	√								
Confirmed habitat for Wallum Froglet.		√	√		√		√		√		√
Drainage Lines - potential habitat for Wallum Froglet; essential for the maintenance of the current hydrological regime of the area.		√	√	√	√	√	√	√	√	√	√
Presence of Koalas		√	√								
Preferred Koala Habitat Ecological Assessment Criteria		√	√		√	√	√		√		
Medium											
Ephemeral ponds which fill during inundation of the site (provide suitable breeding habitat for the Wallum Froglet).											√
Koala Linking Habitat											√
Potential foraging habitat for threatened microchiropteran bats.	√	√	√	√	√	√	√		√	√	

	Relevant Communities/Areas										
Assessment Criteria (listed under ratings of High, Medium and Low)	**1**	**2**	**3**	**4**	**5a**	**5b**	**5c**	**6**	**7**	**8**	**SM**
Potential habitat for threatened woodland birds such as Brown Treecreeper and Grey-crowned Babbler.		√	√		√	√	√		√	√	
Potential habitat for Port Stephens endangered population of Emu.	√		√	√					√	√	√
Suitable foraging habitat for Grey-headed Flying-fox	√	√	√	√	√	√	√	√		√	
Vegetated areas with sufficient ground cover and foraging areas for small terrestrial mammals and open grassy areas for macropods.	√	√	√	√	√	√	√	√	√	√	√
Potential ephemeral habitat for threatened wetland birds, within swampy and moist areas, extending throughout the study area during flooding.		√	√	√	√	√	√	√	√	√	√
Koala Habitat Linking Areas and Buffer Areas over Cleared (includes open grass / slashed areas linking vegetation communities)	√	√	√	√	√	√	√	√	√	√	√
Low											
Areas support poor quality habitat for threatened fauna.	Highly modified lands devoid of intact native vegetation.										



N

LEGEND

- Investigation Area (Including Additional Land)
- Additional Land for Investigation
- Coastal Sand Apple - Blackbutt Forest
- Coastal Sand Wallum Woodland - Heath
- Swamp Mahogany - Paperbark Forest
- Tomago Sand Swamp Woodland

1:12,000 for A4

0 50 100 200 300 400

Metres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geodetic Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56

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LHCCREMS Vegetation Mapping

29 October 2007

Figure 04

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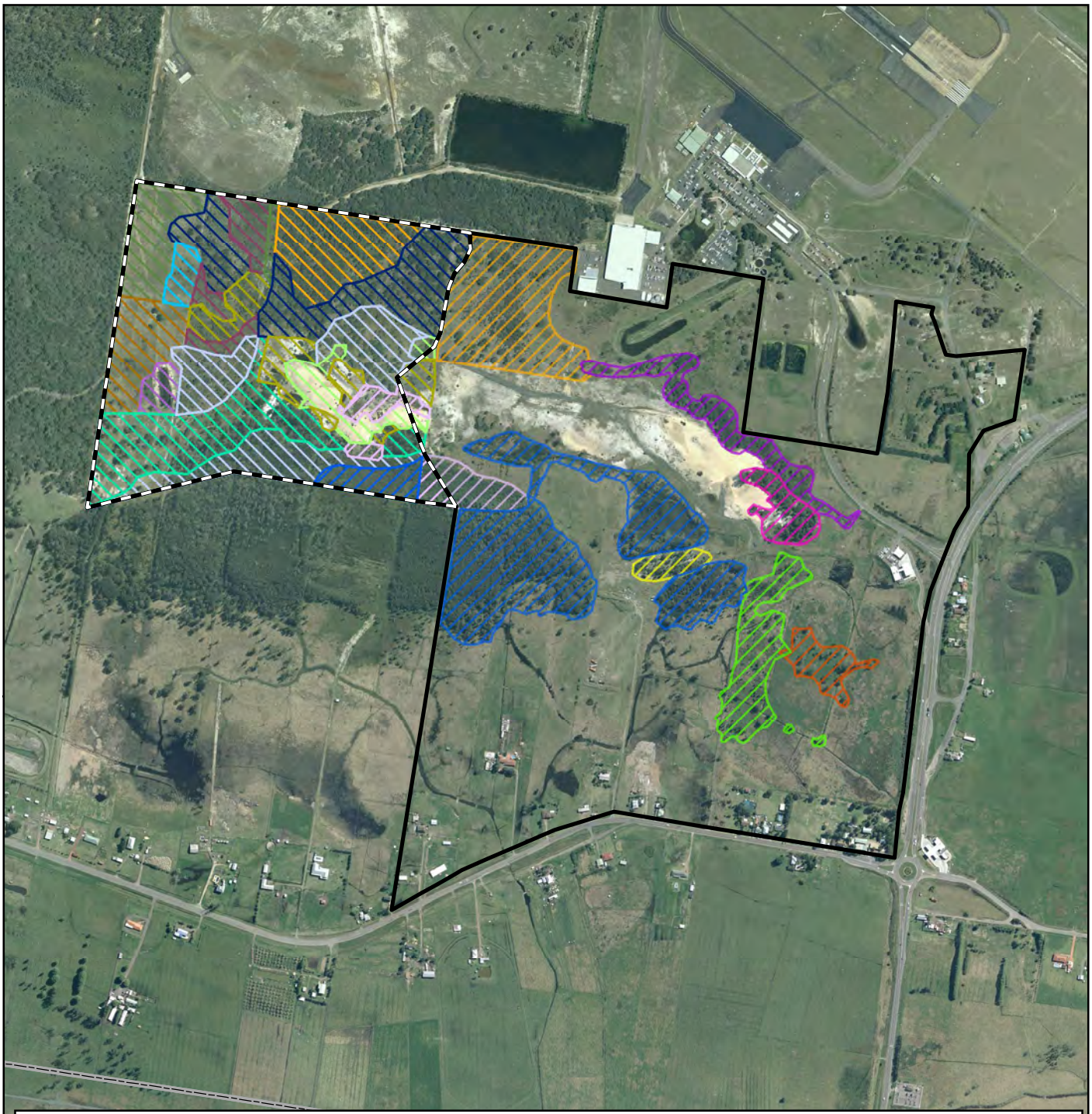

N

LEGEND

Additional Land for Investigation

Investigation Area
(Including Additional Land)

1:12,000 for A4

0 55 110 220 330 440

Metres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geodetic Datum of Australia 1994
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Vegetation Communities (Investigation Area)

19 December 2007

Figure 05

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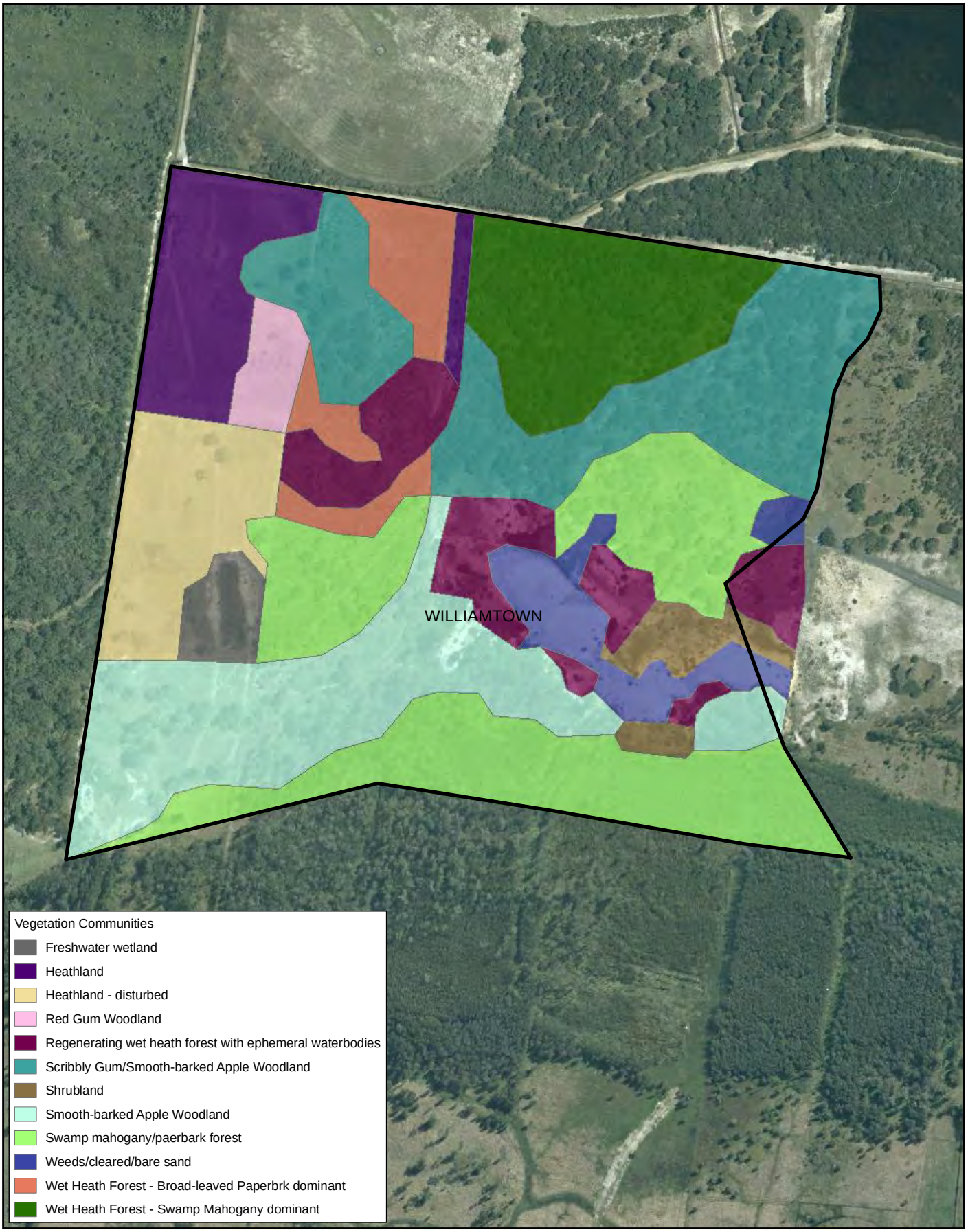

N

LEGEND

Additional Land for Investigation

1:5,000 for A4

0 25 50 100 150 200

Metres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geodetic Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56

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Vegetation Communities (Additional Area)

29 October 2007

Figure 06

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2.8.6 Rating of Ecological Values

Three factors contribute significantly to the high ecological value ratings attributed to parts of the Site. Firstly, part of the Site provides suitable habitat for threatened flora, fauna and ecological communities. Development within those parts of the Site assessed as having medium to high ecological value is expected to impact on certain threatened species, endangered populations and ecological communities. Secondly, any changes to the existing hydrological regime of the area is likely to significantly affect the vegetation communities within the Site as well as threatened species habitat, and in turn affect the long-term survival of some local Site populations.

The third factor is that part of the Site contains Preferred Koala Habitat as well as other buffer and linking habitats. The CKPoM 2002 (PSC 2006) considers these habitats as essential and deserving of the highest level of protection. The mapping of the Site into the three levels of ecological value is illustrated in Figure 7.

The Port Stephens Comprehensive Koala Plan of Management supersedes State Environmental Planning Policy No 44 – Koala Habitat Protection. Justification of any inconsistency with this Plan will need to be resolved with the relevant authorities.

2.8.7 Areas of Lesser Ecological Constraint

Areas less constrained by ecological issues identified during the assessment include:

- The old sand mining area;
- Modified and disturbed areas along the southern boundary and southwest corner of the study area within privately owned properties; and
- Slashed and maintained grass / paddock areas.

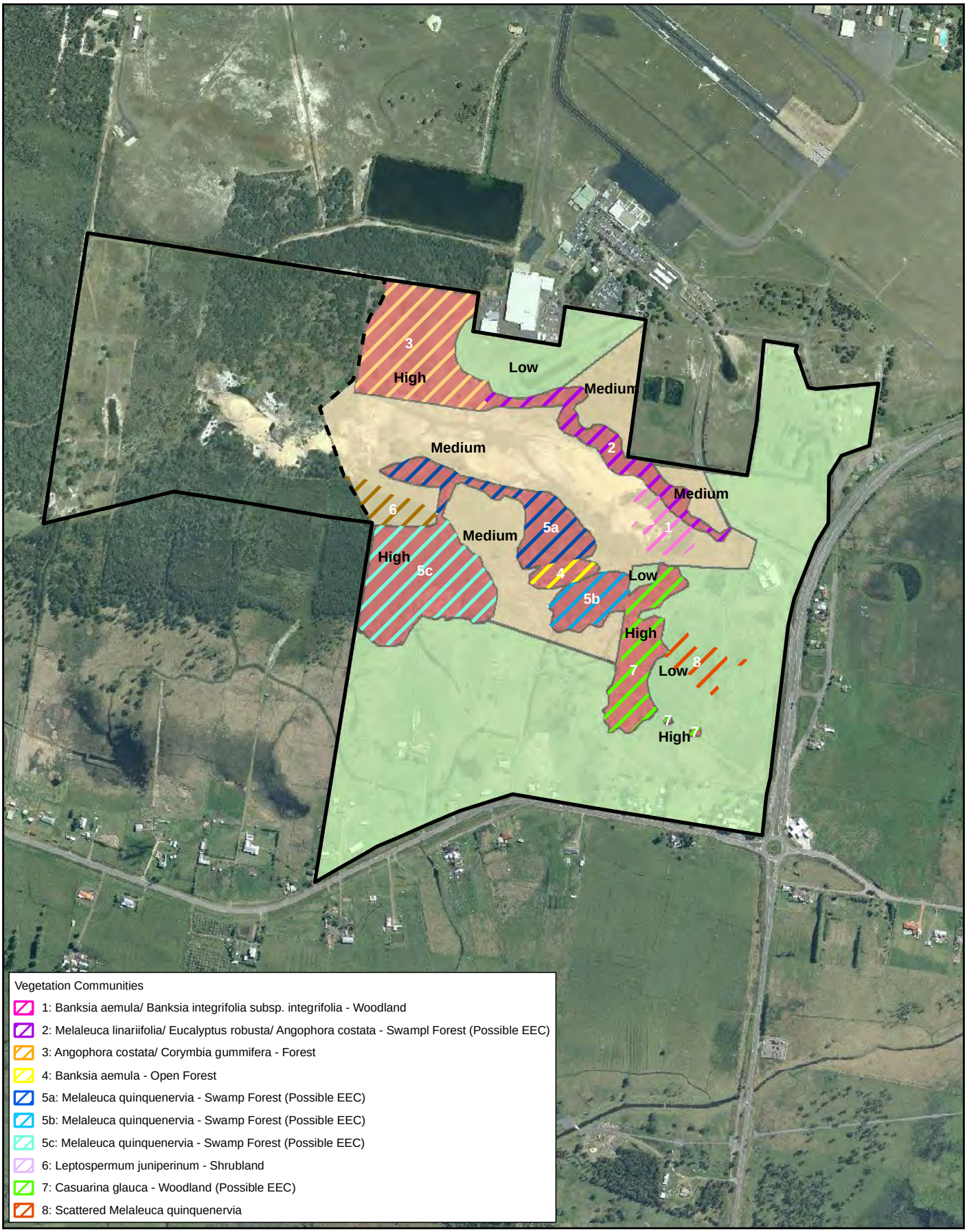
2.8.8 Additional Investigation Area

The Report for Supplementary Ecological Investigations, October 2007 is included as Appendix G. As can be seen from Figure 5 and Figure 6, the ecology of the additional area is extremely complex, with a variety of vegetation communities present, functioning as either preferred habitat or habitat linkages for a number of threatened species including Koala, Wallum Froglet and Sea Eagle. The importance of the site, particularly for the koala is confirmed by mapping provided in the Port Stephens Comprehensive Plan of Management which indicates that the entire area is likely to be classified as either Preferred Koala Habitat, 50m Buffer to Preferred Habitat or a Link Over Cleared Areas between Preferred Habitat.

With the exception of those areas previously disturbed by sand extraction, the ecological assessment has identified the majority of the additional area as being of either high or medium conservation value (refer to Figure 8 - Ecological Value Rating (Additional land)). As such, from a purely ecological stand point, the preferred scenario is for all of the land having medium or high conservation value to be preserved.

However, as previously noted, the subject site has been identified in the Lower Hunter Regional Strategy as having potential as an important hub for employment generating development associated with the operation of the Newcastle Airport and RAAF Base Williamtown. This has been acknowledged by DECC in the preparation of the draft Regional Conservation Plan.

Further discussion is provided in the following sections in relation to the regional context of the site and the need to consider opportunities for offsets should it be determined that vegetation within the site is to be removed to facilitate development of the land.



Vegetation Communities

- 1: Banksia aemula/ Banksia integrifolia subsp. integrifolia - Woodland
- 2: Melaleuca linariifolia/ Eucalyptus robusta/ Angophora costata - Swampl Forest (Possible EEC)
- 3: Angophora costata/ Corymbia gummifera - Forest
- 4: Banksia aemula - Open Forest
- 5a: Melaleuca quinquenervia - Swamp Forest (Possible EEC)
- 5b: Melaleuca quinquenervia - Swamp Forest (Possible EEC)
- 5c: Melaleuca quinquenervia - Swamp Forest (Possible EEC)
- 6: Leptospermum juniperinum - Shrubland
- 7: Casuarina glauca - Woodland (Possible EEC)
- 8: Scattered Melaleuca quinquenervia

N

LEGEND

- Investigation Area (Including Additional Land)
- Additional Land for Investigation

Ecological Value Rating

- High
- Medium
- Low

1:12,000 for A4

0 50 100 200 300 400

Metres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geodetic Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56

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Ecological Value Rating (Investigation Area)

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Figure 07

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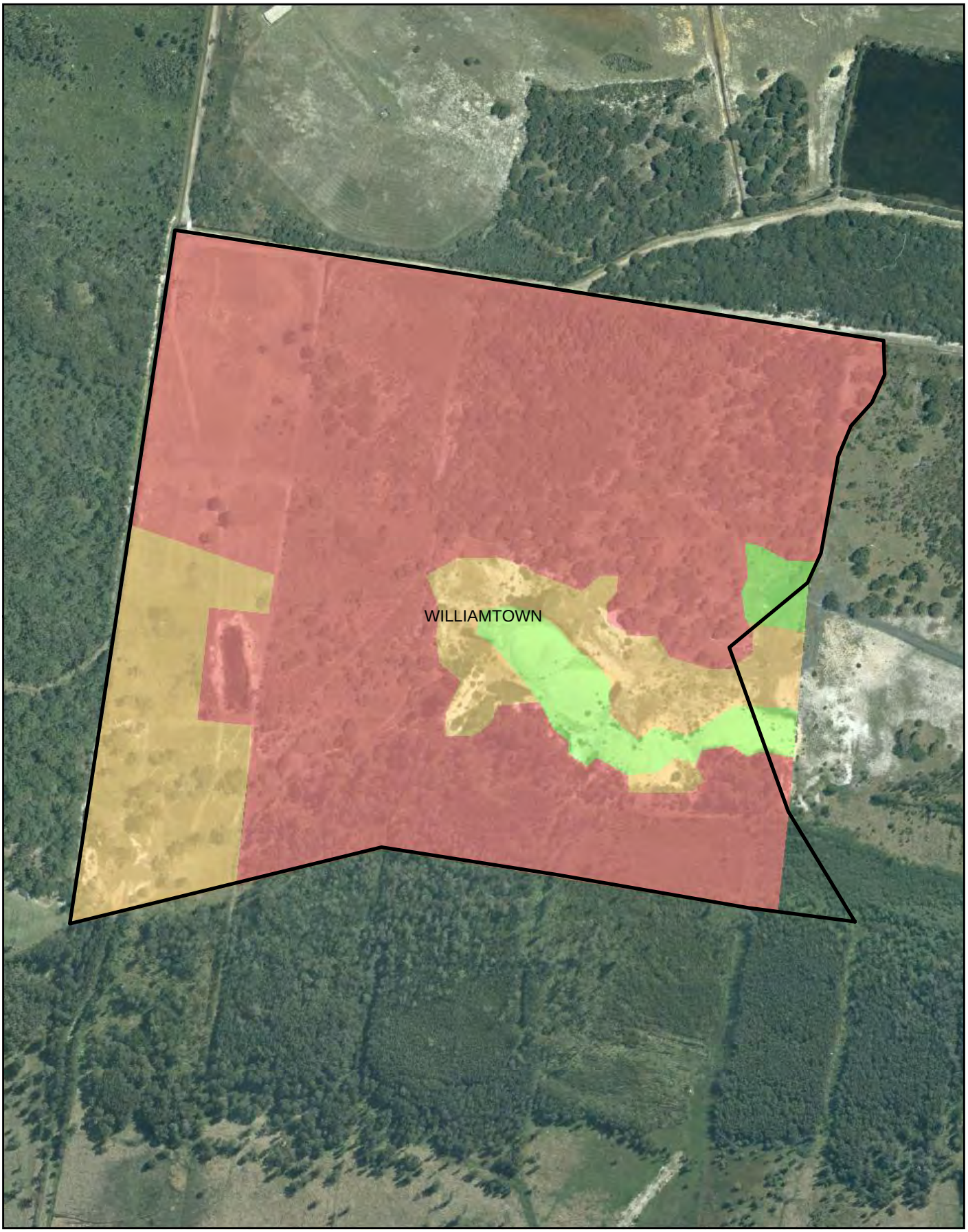

N

LEGEND

Additional Land for Investigation

Ecological Value Rating

High

Medium

Low

1:5,000 for A4

0 25 50 100 150 200

Metres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geodetic Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56

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Ecological Value Rating
(Additional Area)

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Figure 08

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8. Land Capability and Suitability Analysis.

8.1 Selected Site - Opportunities and Constraints to Development

A summary of the opportunities and constraints that the site presents for the future development of a specialised employment zone are listed below. The Site has been identified as only one of six specialised centres and an area to provide significant opportunities for employment. However, there are significant constraints for this Site.

Opportunities

- The State Government recognises the unique opportunity for a specialised defence and airport related employment centre close to the RAAF Base and Newcastle Airport (NAL);
- Existing vegetation with a high ecological value presents opportunity to connect to a larger expanse of vegetation that is part of the Draft Hunter Regional Conservation Plan and the Stockton to Watagans Wildlife Corridor;
- Land owners to the West and south of the selected site are interested in the expansion of the area should that be feasible and/or desirable;
- The lack of a defined drainage pattern in the area offers opportunity to better channel drainage paths and alleviate inundation effects;
- The land is generally low lying without any steep slopes, thus presenting opportunities for effective screening of development from public view using landscape planting;
- The landowner immediately south of the NAL area is cooperating and interested in developing, offering opportunities for the first stage of development to be linked closely to the existing airport operations;
- Large lot sizes present better opportunity for coordination in the development of the area;
- Williamtown Drive provides opportunity for direct access to the employment land; and
- The absence of a large settlement on the site that could complicate and cause greater upheaval of existing land holders.

Constraints

- The operational requirements for both the RAAF Base and Newcastle Airport must not be compromised. This includes security issues for the base, lighting and height restrictions;
- There are significant areas of threatened species habitat including that for koalas, the Wallum Froglet and the potential for others;
- To retain vegetation of both moderate and high ecological significance would reduce the land for development by approximately 50%;
- The presence of bushfire prone land will influence the design of any subdivision for development purposes;
- The entire site is low lying and flood prone with drainage paths not well defined. Water pools after rain and takes some time to clear;

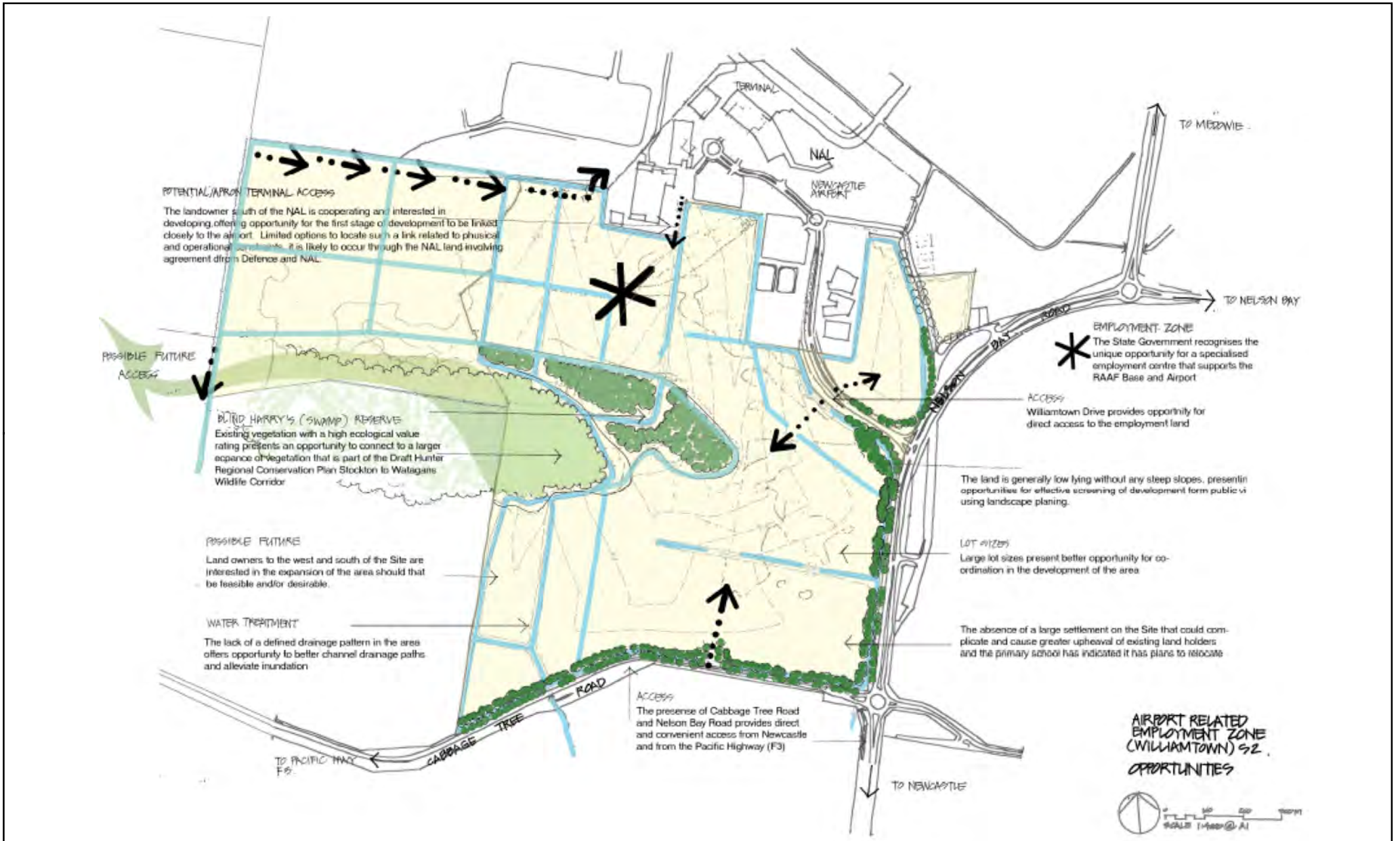
- A significant part of the site is affected by soil landscapes with severe limitations for development;
- Approximately half of the site has a high potential for acid sulphate soils;
- The site is affected by unstable soils with severe and high limitations to development;
- The Site is remote from connection to sewage works;
- The presence of an aboriginal burial site and associated camp site to be preserved by way of a “keeping site”;
- Land closer to the base and about a quarter of the site, is within the 30-35 ANEF contour;
- Approximately 70% of the site is within the 25-30 ANEF contour;
- Defence will control any direct access and do not support any increase in direct airside access, except in very limited circumstances such as by allowing such access to a specified contractor, in respect of land abutting RAAF Base Williamtown (on the southern boundary only). This would be strictly limited on a contract by contract basis to specific requirements to fulfil core obligations in Defence contract(s). It is intended that once the contract(s) expires or is otherwise terminated, airside access would be revoked. Separate written approval from Defence would be required for each contractor to Defence, seeking airside access. It is intended that the access requirements would be dealt with within the terms of the contract. Note: It is envisaged that security arrangements for access will be by way of a secured gate that is controlled by Defence. Further detailed requirements and arrangements will be negotiated between the contractor and the Department of Defence; and
- Indirect access through the NAL land would be controlled by NAL in accordance with the operating agreement with Defence.

8.2 Additional Land Investigated – Opportunities and Constraints to Development

The additional land investigated adjoins the original Selected Site and as such has many of the same opportunities and constraints to development. However, it is important to note that there are some additional points:

- Opportunity exists for the creation of at least one additional access point off Cabbage Tree Road, improving traffic distribution in the long term;
- Opportunity exists for a consolidated straight forward development of the employment land with the additional land including three land holders, one being the largest landholder within the Selected Site who is supportive and interested in development for this purpose;
- Approximately 85% of the additional land investigated was found to contain vegetation of either moderate or high ecological significance;
- Approximately 20% of the additional land investigated is affected by soil landscapes with severe limitations for development, the remainder of which has only moderate limits;
- The additional lands are mapped as flood prone; and
- The additional land has a low potential for the presence of acid sulfate soils.

The main opportunities and constraints for the future development of the specialised centre are summarised above and shown diagrammatically in Figures 15 and 16 for the Selected Site and the Additional Land investigated.



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Airport Related Employment Zone (Williamtown)
Opportunities

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Figure 15

30 November 2007

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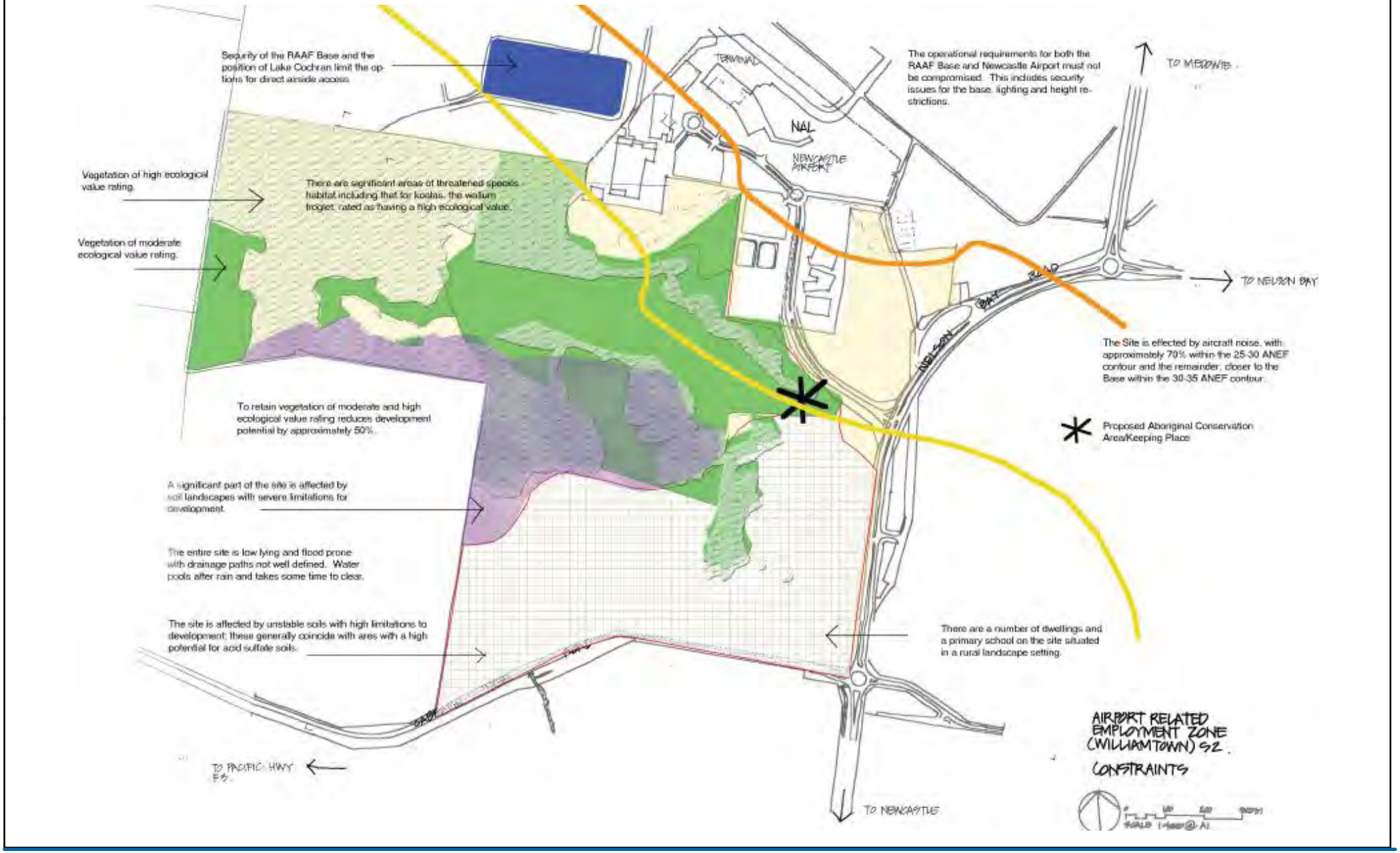

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Airport Related Employment Zone (Williamtown)
Constraints

job no. 22-12808
rev no. A

Figure 16

30 November 2007

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8.3 Land Suitability and Development Options

The Land Capability and Suitability Assessment identified a number of issues considered fundamental matters to be resolved for the future development of the Site. They will, to varying degrees, influence the ultimate development potential and conservation outcomes for the site. These issues are summarised below. Detailed discussion is provided in previous sections of this report as referenced.

8.3.1 Regional Context

The Lower Hunter Regional Strategy, 2006 identifies the subject site as potentially suitable for airport and defence related employment generating development. The Newcastle Airport Economic Opportunities Study 2005 assessed this potential based on economic grounds and recognised the positive economic outcomes to be realised from such an initiative. Similarly, the Draft Lower Hunter Regional Conservation Plan (LHRCP) has as its primary purpose *"to ensure that adequate land is available and development is appropriately located to sustainably accommodate the projected housing, employment and environmental needs of the region's population over the next 25 years".* As such, the draft LHRCP acknowledges the potential for some loss of vegetation in locations critical to efficient development outcomes while balancing this with the need to secure significant ecological communities and habitats in long term reservations.

It is important to keep in mind the regional context and the far-reaching and long-term economic and social benefits that could be gained from an appropriately located and designed specialised employment centre in the vicinity of the Newcastle Airport and Williamtown RAAF Base when consideration is given to the development options for the Site.

The development options for the specialised defence and airport related employment zone consider five alternative land use options as development scenarios for the area. These range in intensity from Option A, a no-development scenario, to Option E a maximum development scenario (refer to Section 8.5). This comparative approach assists in recognising the opportunity for development of varying intensity, the likely effects and the viability of those development scenarios.

8.3.2 Economic and Social Considerations

The development of the specialised centre as a Defence and Airport Related Employment Zone (DAREZ) will capitalize and materialise potential stemming from existing activity at Newcastle Airport and the RAAF Base. It will facilitate the broad base establishment of business in direct, indirect and ancillary airport activity. This will extend to a range of airport related commercial, industrial tourism and retail operations.

Investigations found that the allocation of up to 100 hectares of land could yield in excess of 420,000 square meters of developed floor space. Land use parcels will need to range from smaller lots of 3,000 m^2 to up to 5 hectares to accommodate small commercial offices through to large scale hanger space. The land take up will span a 10 to 20 year period.

The “near” airport environment has the potential to be attractive to a range of uses. Apart from uses seeking a nexus to defence and airport activity, others that are compatible to and supportive of the environment and not be inclined to be close to urban areas will also be attracted. This attraction will be carefully directed through land use controls and development controls that ensure the area remains a specialised employment centre for defence and airport related development. The intent is not to compete with other centres such as Medowie and Heatherbrae but to create a new employment centre that supports and builds on the presence of the Williamtown RAAF Base and the Newcastle Airport.

The DAREZ will have capacity to provide for almost 6,000 jobs and will generate considerable expenditure impacts in both construction and operational phases. With this change there are expected to be some negative social impacts in relation to future development. These are likely to be mitigated by the pace at which change will occur and the considerable positive benefits that will arise from the establishment of the DAREZ.

The long term economic benefits of establishing the DAREZ will be significant. Improvement in employment prospects and the likelihood the DAREZ will appeal to businesses located outside the region will provide a considerable fillip to the local land regional economy. The DAREZ will also have the potential to build on businesses within the region. The DAREZ will have a recognized capacity to relocate business locally, but it is not considered that this will occur to the extent that the viability of existing areas would be seriously compromised.

8.3.3 Environmental Considerations

The Draft RCP recognises that a major role of the LHRS is to focus and constrain the development footprint across the landscape, while at the same time ensuring an adequate supply of employment land within identified centres and other specialised/industrial lands to accommodate 66,000 new jobs projected in the Strategy, within the locations identified.

Although the development footprint within the Strategy has been located to maximise use of already cleared or degraded land, the Draft RCP recognises there will be losses of biodiversity values as the strategy is implemented, including areas of high conservation value vegetation. Mechanisms that will contribute to offsetting the anticipated biodiversity impacts resulting from development in the Lower Hunter, including employment lands identified in the LHRS, are provided by the Draft RCP.

The main considerations include:

- Environmental sensitivities including vegetation and habitat with high and medium ecological rating, water quality and acid sulphate soils;
- The low lying nature of the Site which is subject to flooding and unstable soils requiring extensive fill (1-2 metres across the site to gain sufficient grade to achieve runoff);
- Complex drainage solutions; and
- Landscape character.

These issues will, to varying degrees, influence the ultimate development potential and conservation outcomes for the Site. Table 8-1 summarises the recommended approach to address the various elements raised throughout the report as issues in relation to the development of the land as a specialised defence and airport related employment zone.

Table 8-1 Summary of Recommendations

Discipline	Recommendation	Proposed Implementation
Soils and Geotechnical	Regrade over-steepened scarps to avoid erosion of localised instability of dune slopes. Use vegetation to avoid erosion and potential scouring of channels/environmental degradation. Use geotextiles, bridging layers, light weight fill materials and preloading (including staged construction) to induce settlement prior to development and to allow strength gain over time. Assess site and review site history to identify any areas of potential contamination.	DCP Framework
Acid Sulphate Soils	Reduce excavation quantities where possible. A detailed ASS Management Plan is to plan for the treatment of spoil with lime and dewatering for construction purposes. Use of timber driven piles.	DCP Framework
Hydrology, Flooding and Drainage	Minimise soil disturbance to natural soils and carry out detailed hydraulic assessment to determine fill levels, potential impacts of flooding and settlement effects on adjacent land.	DCP Framework/ S94 Contribution/ Planning Agreement
Built Environment	Raise the subgrade level, improve subgrade, prove appropriate pavement and subsoil drainage and reinforce with geotextiles to minimise pavement failure and/or differential settlement for pavement and construction on soft ground. Minimise differential settlement, low or variable bearing capacity and lateral discontinuity of foundation materials and layers for building footings on soft ground. Reduce bearing pressures of design for higher settlements. Use of piled raft slab.	DCP Framework
Traffic and Transport	Provide safe access points on Williamtown Drive and/or Cabbage Tree Road. Provide a direct link road to the airport terminal for limited direct access for specialised airport/Defence related development. Provide a direct link road to the airfield for limited direct access for specialised airport/Defence related development.	DCP Framework

Discipline	Recommendation	Proposed Implementation
Ecology	Accurately establish the extent and quality of habitat to be lost. Establish the criteria for the assessment of off-sets. Assist in the preparation of detailed management strategies to ensure the long term survival of retained habitat. Accurately delineate the boundaries between areas to be rezoned for development and areas to be conserved on-site including the area for the proposed aboriginal conservation area/keeping place.	DCP Framework
Bushfire	Place buildings away from retained vegetation, bushfire hazard, as far as practicable when planning building envelopes, parking, roads and open spaces. Minimise the perimeter of the development exposed on the bushfire hazard side of the site eg. buildings from vegetation using open space adjacent, car parks between vegetation and buildings and perimeter road design. Avoid placing inappropriate developments in hazardous situations; on the placement of combustible materials in the Inner Protection Area; and ensure bushfire hazard reduction is not prohibited in the Asset Protection Zone. A site management plan is to detail bushfire prevention measures for construction and operation of the facility and emergency procedures for anyone located at the site during bushfire season. Notify the Local Rural Fire Service Control Centre of construction work highlighting dates of 'hot works' to enable the RFS to advise when weather conditions are not appropriate for such works.	DCP Framework
Archaeology	The 'Cultural Heritage Assessment, August 2007' was undertaken by Harper Somers for Lots 10 and 11 DP 1036501 and Part Lots 131 and 132 DP 609165. An Aboriginal Heritage Assessment would be required to accompany any development proposal for other land.	DCP Framework
Infrastructure	Sewage must be either taken off site (ie pump-out system) or pumped to an exiting sewerage system.	DCP Framework, Planning Agreements

Discipline	Recommendation	Proposed Implementation
RAAF Base Operational	Comply with the PSC policy on Aircraft Noise Exposure and the Australian Standard against aircraft noise intrusion, for the siting and construction of new buildings. Exclude development that will cause confusion, distraction or glare to pilots including extraneous lights, putrescible waste, gaseous omissions etc. Protect operational airspace from transient intrusion. Exclude inappropriate obstacles and impose height limits where necessary that pose a hazard to aircraft operations. Maintain the operational capability of the RAAF Base Williamtown and ensure that proposed land uses do not compromise this capability. The location of new development must consider existing navigational markers (in Defence land). Complement Base security by compliance with RAAF and aviation security requirements specified by DOTARS.	LEP DCP Framework
NAL Operational	Ensure proposed land uses do not compromise the Operating Agreement, including caps on civilian aircraft movements. Ensure any plan caters for the establishment of an air freight hub.	LEP DCP Framework
Scenic and Landscape	Use vegetation and development controls to screen the development from existing homes and public view (airport arrivals and passing traffic on Nelson Bay and Cabbage Tree Roads).	DCP

8.4 Opportunities for Future Development

During initial consultation with the landowners, those situated to the west and south of the Site expressed interest in being a part of future development of the Specialised Centre or Defence and Airport Related Employment Zone. In particular, this lead to two separate submissions made by different land holders. The largest landholder has land immediately to the south of the NAL area and also land immediately west of the Site. This landowner suggested any future land needs could be accommodated on this land adjacent to the Site and to the west. A landowner further to the west of the Site, but somewhat remote to the subject investigations has also made a submission. However, the preferred option includes future development scenarios and links that may include one or more of these areas.

8.4.1 Infrastructure Costs and Funding Options

To address the environmental constraints of the site, there will be considerable costs associated with site preparation and development and thus affecting the viability of the future development of the site. The following summarises the main costs for the infrastructure likely to be required from the developer:

- Water and waste water charges for the Employment Zone (approx. $3.27m);
- Transfer system and reticulation and $24.3m;
- Extensive fill to raise the Site above the flood planning level– estimates for the filling of land in the south of the investigation area suggest that approximately one million cubic metres of fill would be required. An indicative figure for this would be $30 / m3 = $30m. It should be noted that this estimate applies to the lower lying southern area (still requiring further investigation). Filling on the higher northern land will be significantly less;
- Landscaping, bushfire and onsite water detention requirements;
- Transport infrastructure would include contributions to upgrade Cabbage Tree Road;
- Contributions towards biodiversity offsets both onsite and offsite; and
- Contributions towards the new intersections at Williamtown Drive, Nelson Bay Road and Cabbage Tree Road. Cost sharing and design for the upgrading of these roads will need to be resolved in consultation with the RTA and NAL.

8.4.2 Infrastructure Costs and Funding for the Additional Lands

The costs listed above remain the same for the additional lands for all aspects except the estimations for fill. These costs for the additional land investigated were examined by the land owner and Port Stephens Council. It was found that to prepare the additional land for development was likely to be more feasible and economically viable than the more southern part of the Selected Site due to the softer soils and more serious flooding issues found in that lower lying area. That is, the land closer to Cabbage Tree Road was found to be more costly and time consuming to develop due to the flooding issues and loading requirements associated with the softer soils located in this area.

8.5 Alternative Development Scenarios

The various alternative development scenarios considered include:

a) No Development

Under the provisions of the Environmental Planning and Assessment Act 1979, a Local Environmental Study must consider the implications of development not occurring on the site. The implications of the 'No Development' scenario are discussed further below.

b) Preserve All Areas of Medium and High Ecological Value

The Ecological Assessment has identified that approximately 45% of the study area may be considered to have either medium or high ecological value for one or more reasons. The remaining disturbed and cleared areas of low or no ecological value constitute approximately 55% of the land or approximately 62 hectares. The feasibility of the proposal would be compromised with such an option for a number of reasons. The shape and nature of the land would impose extremely difficult engineering solutions that would be likely to exclude successfully retaining the habitat to effectively fill the majority of the site to overcome drainage and flooding issues. In addition, the return on investment for the provision of infrastructure and development costs would be insufficient to make this an economically feasible option and therefore not warranting further consideration in this assessment.

c) Preserve All Areas of High Ecological Value

Those areas of the site identified as having high ecological value would constitute approximately 30% of the site (or 33 hectares) leaving approximately 70% (or 80ha) available for development. Similar to scenario (b) above, the feasibility and success of this option is doubtful given the difficulty and costs involved in retaining the vegetation of high ecological value in the odd shape that it forms, whilst filling the site to overcome flooding and drainage issues. As a consequence of the significant costs associated with the provision of infrastructure and the constraints on development of the land, the preservation of all high conservation areas is not considered to be economically viable nor physically achievable. In the interests of ascertaining the feasibility of this scenario, it was considered appropriate for consideration as an option.

d) Maximum Development with Selected Exclusions

Some areas of land identified as having high ecological value perform multiple roles in supporting threatened fauna species and as part of the broader ecological community that extends west outside the study area. Development of the majority of the land (approximately 93 ha gross of the 113 ha in the study area) with selected exclusions (approximately 20 ha gross) could offer a realistic compromise in that those areas of particular ecological value could be incorporated and preserved within a feasible development option. This scenario would yield approximately 70 hectares (net) of developable land (excluding roads, drainage, buffers etc).

e) Full Development

This scenario maximises the development potential of the entire study area (113 ha) and would preserve none of the ecological values of the site. It would yield approximately 85 hectares of developable land (net). In addition to the works involved in scenario (d) above, this scenario would also involve the removal of wet and heavily vegetated areas underlain with potential acid sulphate soils. There would be a need to carefully control runoff during this process to minimise environmental impacts on downstream waters and it would require special attention to the subsequent stabilisation of fill to make the land suitable for development purposes. Additionally, the costs associated with land acquisition and reservation as offsets for the loss of this prime habitat would suggest that the financial returns on investment for these additional areas would be minimal at best. It is suggested that the negative ecological implications and the costs associated with developing the heavily constrained areas would exceed any financial returns that might be gained from its development. A better indication of financial viability of this scenario might be gained from the assessment of scenario (d) above. At this stage the full development scenario has been excluded from consideration due to its unlikely viability.

On the basis of the above analysis, development scenarios (a) No Development, (c) Preserve All Areas of High Ecological Value, and (d) Maximum Development (With Selected Exclusions) were selected as feasible options for further examination.

8.6 Option 1 - No Development Option

The Lower Hunter Regional Strategy identifies this site as a specialised centre with regional significance for economic activity and employment. However, the Strategy also identifies land surrounding the site as having high conservation value that should be managed for conservation reasons and that joins key green corridors of the region. In addition, considering options for the development of any land, the 'do nothing' option has some relevant consequences. One consideration with this option is that the potential of the land for industrial development has been recognised since the 1980s. The owners of land have reasonable expectations of a rezoning. If no rezoning occurs, existing zonings would be retained which do not recognise conservation values and are relatively restrictive in terms of permitting employment generating activities.

8.6.1 Positive Implications

- Preservation of areas of significant habitat that has been given a high and medium rating of ecological value;
- No displacement to existing land owners; and
- No concerns for compromise to the RAAF Base Williamtown as a leading jet fighter Base.

8.6.2 Negative Implications

- Loss of the specialised airport related employment zone in close proximity to a major economic driver Newcastle Airport and RAAF Base;
- Local residents would become more reliant on work in other locations (ie. Sydney and Newcastle). Commuting would become even more pronounced;
- Inefficient use of land given the proximity to transport services and large pool of workers from nearby planned residential areas;
- Inconsistent with regional planning policy which seeks to promote local employment in this location; and
- Short term loss of development potential for most land owners within the DAREZ could create political problems as expectations will not be realised.

8.7 Option 2 – Preserve All Areas of High Ecological Value

8.7.1 Positive Implications

- Preservation of areas of significant habitat that has been given a high rating of ecological value that could supplement the Watagans to Stockton Corridor identified in the Draft Regional Conservation Plan, which recognises that, a major role of the LHRS is to focus and constrain the development footprint across the landscape;
- Protection of local species known to be found on the Site;
- Lesser concern for the continued operation of the RAAF Base Williamtown as a leading jet fighter Base; and
- Generally consistent with regional planning policy which seeks to promote local employment in this location.

8.7.2 Negative Implications

- Loss of the close synergy and potential links to the specialised airport related employment zone from the Newcastle Airport and RAAF Base, the major economic driver;
- Questionable success of the economic feasibility of a lesser and disjointed developable area for the employment centre;
- High costs to engineer flooding and drainage solutions that could still potentially compromise the ecological value rating of the habitat on site;
- Higher servicing costs in relation to roads, drainage and fill due to the more irregular and disjointed shape of the residual developable land once the land of high rating of ecological value was conserved;
- Inefficient use of land given the proximity to transport services and large pool of workers from nearby planned residential areas;
- Lesser consistency with regional planning policy which seeks to promote local employment in this location; and
- Short term loss of development potential for most land owners within the DAREZ could create political problems as expectations will not be realised.

8.8 Option 3 – Maximum Development With Selected Exclusions (Balanced Development)

8.8.1 Positive Implications

- Consistent with regional planning policy which seeks to promote local employment in this location and which aims to protect the regional;
- Consistent with the aims of the Draft Regional Conservation Plan, which recognises that, a major role of the LHRS is to focus and constrain the development footprint across the landscape, while at the same time ensuring an adequate supply of employment land within identified centres and other specialised/industrial lands to accommodate the 66,000 new jobs projected in the Strategy;
- The flooding and drainage requirements could be more efficiently resolved and may be shared over a larger number of lots created, in this respect this option may be cheaper to service the employment land;
- The potential to share servicing costs and the omission of funding environmental controls to manage development impacts, cheaper industrial development costs although may be impacted by high infrastructure costs;
- Option 3 would be expected to result in the creation of an employment cluster of approximately 93 hectares (70 hectares net). An area found to be economically viable and desirable at this stage of the process and which would result in the creation of employment opportunities for up to 6,000 people; and
- Flooding and drainage issues would be improved through the development of defined drainage routes on site. Stormwater quality treatment would be by way of the constructed wetlands.

8.8.2 Negative Implications

- Extensive filling and clearing of sensitive threatened species habitat and Endangered Ecological Communities (see Figure 5);
- It excludes the protection of some land identified as being of high conservation value;
- High upfront infrastructure costs, extensive and expensive landfill and compaction; and
- Losses of vegetation of high and medium ecological value – approximately 20 hectares.

8.9 Options for the Inclusion of Additional Land Investigated

The three options outlined above were based on the analysis of the originally Selected Site for investigation. It was concluded that the Balanced Development: Option 3 was favoured because of the economic advantages it offered, whilst minimising the ecological effects and maximising the practical development potential. Since that time the investigations broadened to include land to the west of the Selected Site.

The reasons for investigating the additional land were that the flooding issues and soft soils found to be located in the more southern part of the Selected Site presented economic and time constraints that could jeopardise the development of the land in the short to medium term.

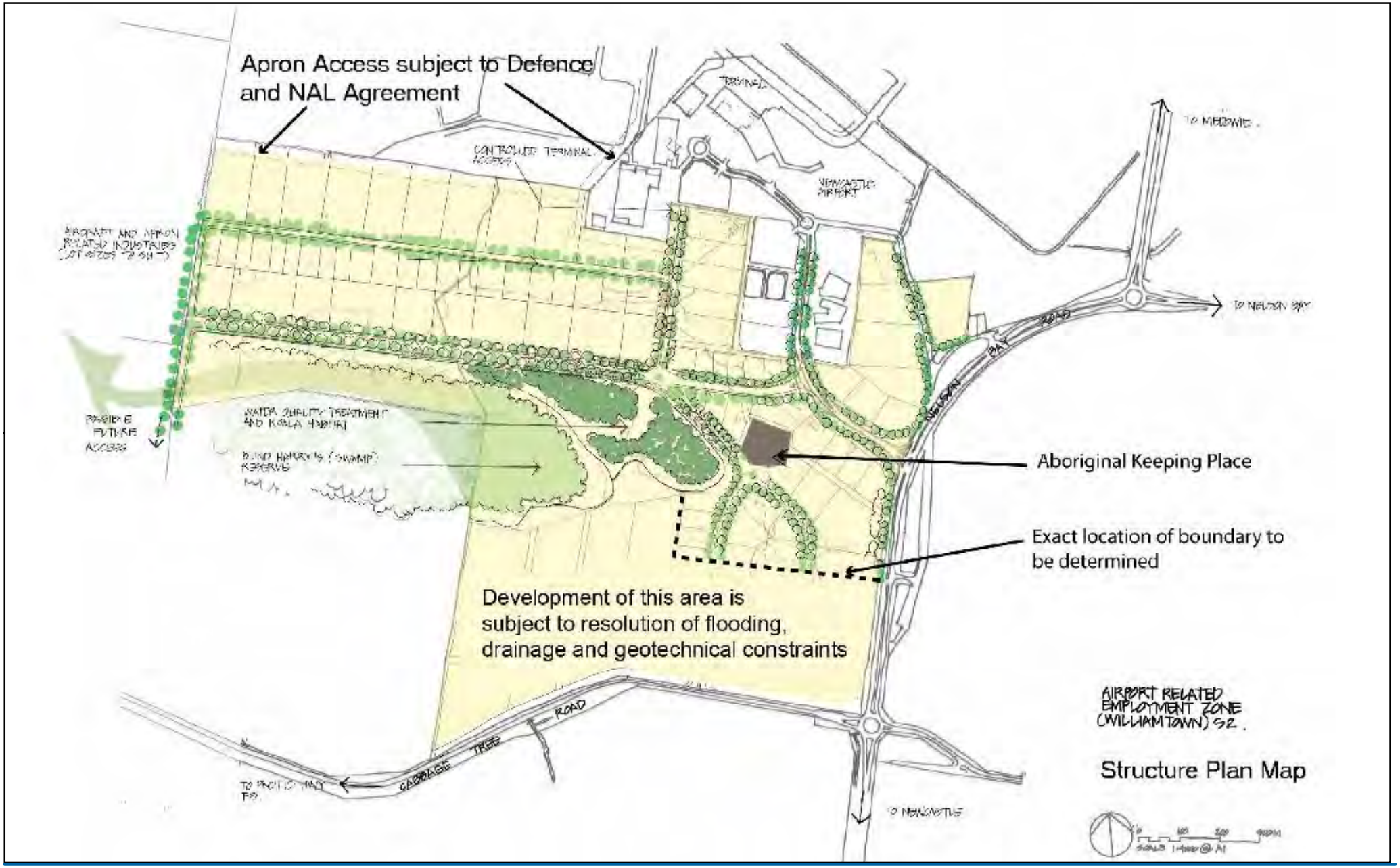
Thus, the economic and time constraints relating to the preparation of the land for development were considered by the Project Control Group and it was found to be desirable to pursue lands considered more feasible in the short to medium term. This approach includes future links that would enable the lower lying more southern land along Cabbage Tree Road to be developed in the medium to long term. Given the priority for development placed on a specialised employment centre in this vicinity by the Lower Hunter Regional Strategy, a maximum development scenario which included the additional land with selected exclusions was considered most appropriate to achieve viable thresholds in the short to medium term.

Consequently the preferred option was reviewed in light of the physical constraints identified and the additional land investigated. Option 4 was therefore identified as outlined below.

8.10 Option 4: Concept Plan Including Additional Land (Figure 17)

Subsequent geotechnical and hydrological investigations of the originally Selected Site identified potentially significant and costly constraints to development in the southern more low lying land along Cabbage Tree Road. Subsequent analysis of the impacts of development on flood levels and the economic implications of the presence of compressible soils in this area, resulted in a decision by the Project Control Group (PCG) to include additional land for investigation to the north-west of the previously selected site.

The additional land is approximately 40 ha in area. A preferred concept plan (refer to Figure 17) including this additional land has been subsequently prepared based on the same philosophy as the Balanced Development: Option 3. That being, “maximum development with selected exclusions”. The more constrained low lying area to the south, which has a similar area, has been excluded from the currently preferred Concept Plan (although it is acknowledged that this land may become viable for development at some time in the future).



NSW Department of Planning
Airport Related Employment Zone (Williamtown)
Concept Design
Option 4
5 December 2007

job no. 22-12808
rev no. A

Figure 17

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8.11 Land Capability and Suitability Conclusion

The employment centre would be likely to provide a broad range of employment opportunities for almost 6,000 people. The size and location of the DAREZ was found to be appropriate for the market and is expected to meet an existing demand. The landuses considered as preferred uses were found to generate employment opportunities that would have far reaching local and regional economic benefits over a long period of time. Whilst it is extremely important not to loose sight of the operational issues of both the Base and the NAL, these issues were not found to be an insurmountable barrier to the economic feasibility of the proposal nor to limit the economic benefits expected.

The Land Capability and Suitability Assessment identified some important matters that will need to be resolved prior to the rezoning and/or the future development of the Site. Solutions to resolve these matters have been discussed throughout the body of the report with the major matters discussed under the concluding Chapter 9:

- There are to be no new or direct access points onto Nelson Bay Road;
- There are two options for additional controlled access to the DAREZ from Cabbage Tree Road;
- The layout encourages good internal connectivity;
- The concept plan proposes development that is set back from Cabbage Tree Road thus having a lesser visual impact on passing traffic;
- Landscape buffers are proposed to soften the effect on the rural character of the surrounding land from main roads and from Williamtown Drive which is the access point for the airport and thus visitors to the region;
- Extensive use of open drains to control runoff will improve the current issues of inundation and ponding in an area that does not have clearly defined water courses and is flood prone;
- Incorporation of swales on main thoroughfares are intended to improve water quality from runoff and maximise infiltration, particularly of road water;
- On site drainage detention to ensure water quality is not compromised;
- A range of proposed lot sizes which reflect the findings of the economic investigation and which are illustrated in Table 5-2;
- Perimeter roads around retained vegetation will act as both a bushfire protection measure and a buffer to protect the ecological value of the area; and
- On site and off site ecological offsets ensure a balance to biological diversity of the area.

8.12 Comments on the Preferred Concept Plan (Option 4 Including Additional Land Investigated)

The Preferred Concept Plan (including the additional land) has the same positive implications as the previously Preferred Option 3 in relation to:

- Consistency with the applicable regional planning policies;
- It offers the most effective solution in terms of addressing flooding and drainage issues (higher land requiring less fill and leaving options for stormwater management initiatives both within and to the south of the development area);
- Sharing of servicing costs and reduced development costs per square metre;
- The more stable soil landscapes of the additional land are likely to offer fewer complications in respect to this option and may be cheaper to service the employment land;
- The majority of the land within this option is owned by one land holder that has indicated an immediate interest in the defence and airport employment centre. This is likely to reduce the complexities of staging and development compared to a number of land holders; and
- A comparable area of approximately 90 hectares gross (57 hectares net) generating employment opportunities for up to 5,500 people.

It has the added advantage of facilitating greater synergies with the RAAF Base and Newcastle Airport operations due to the developable land being in closer proximity. Additionally, the revised layout offers more land with a common boundary with the RAAF Base and therefore potential opportunity for runway apron access should it be justified.

The negative implications primarily relate to:

- The loss of vegetated land identified as being of high conservation value. Loss of vegetation of high and medium ecological value would be approximately 63 hectares in area; and
- The upfront infrastructure costs will remain high. However, the more stable soils will reduce construction costs.

8.13 Key Elements of the Option 4 -Concept Plan

- There are to be no new or direct access points onto Nelson Bay Road;
- There are two options for additional controlled access to the DAREZ from Cabbage Tree Road;
- The layout encourages good internal connectivity;
- The concept plan proposes development that is set back from Cabbage Tree Road thus having a lesser visual impact on passing traffic;
- Landscape buffers are proposed to soften the effect on the rural character of the surrounding land from main roads and from Williamtown Drive which is the access point for the airport and thus visitors to the region;
- Extensive use of open drains to control runoff will improve the current issues of inundation and ponding in an area that does not have clearly defined water courses and is flood prone;

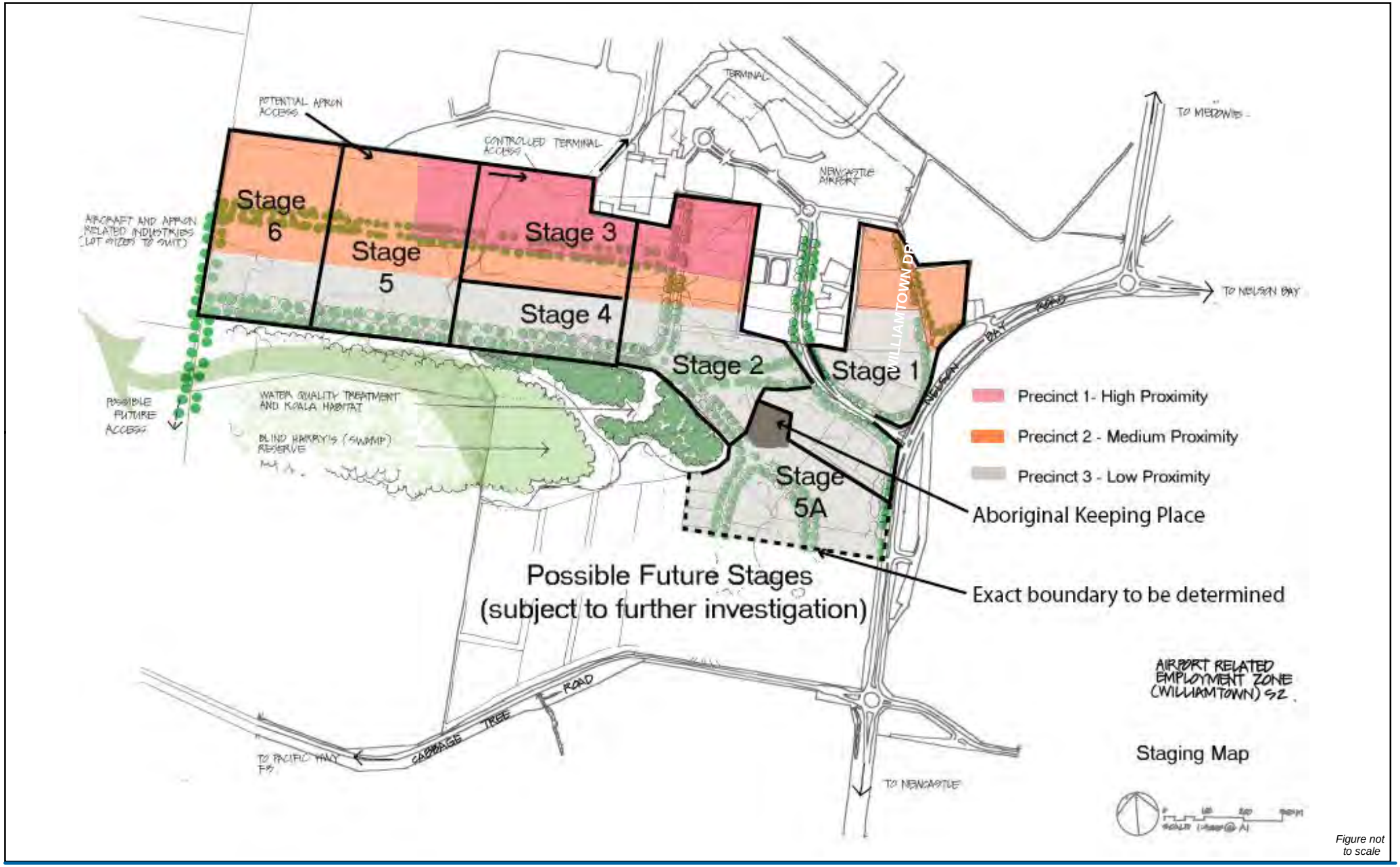
- Incorporation of swales on main thoroughfares are intended to improve water quality from runoff and maximise infiltration, particularly of road water;
- On site drainage detention to ensure water quality is not compromised;
- A range of proposed lot sizes which reflect the findings of the economic investigation and which are illustrated in Table 5-2;
- Perimeter roads around retained vegetation will act as both a bushfire protection measure and a buffer to protect the ecological value of the area; and
- On site and off site ecological offsets ensure a balance to biological diversity of the area.

8.14 Indicative Staging Plan

An indicative staging plan is shown in Figure 18. The staging strategy aims to firstly utilise and then build upon the existing road network. Thus the early stages of development (1 and 2) would include the land to the north of Slades Road and that land that will be a core area of airport related employment with strong synergies with the airport facilities. Future stages (3 to 6) would extend progressively west at a rate dictated by demand. All stages offer a range of lot sizes and varying degrees of proximity to the Base and airport.

Stage 5A includes the land in the south-eastern that is likely to require preloading of land to address the presence of compressible soils and greater depth of filling.

It should be noted that the Staging Plan is indicative only. A more detailed staging plan will be formulated once the conservation outcomes have been finalised and the Conceptual Development Plan has been adopted.



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Staging Plan
Williamtown
30 November 2007

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Figure 18

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9. The Way Forward

9.1 The Next Step

The previous Chapter offered a number of development scenarios before recommending a preferred option in the form of a conceptual layout. The next step in the project involves the preparation of the Stage 3 – Structure Plan, a draft Local Environmental Plan and a Development Control Framework. This document will draw together the findings and recommendations of this report and provide the further detail needed to guide the development of the land in the long term. To achieve this, the issues that remain unresolved will need to be further discussed and strategies implemented to ensure they are properly addressed at the appropriate time. The unresolved issues are identified below.

9.2 Issues to be Resolved to Progress the DAREZ

To progress the concept to the rezoning stage the following issues would need to be addressed either prior to the preparation of an amending plan or in some cases prior to the development application or construction stages. The issues to be addressed are summarised under the discipline headings below:

9.2.1 Geotechnical

The initial geotechnical assessment found soft soils evident for a large proportion of the Site with high or severe limitations for urban / industrial development. Testing identified that these softer soils are generally within the low lying land to the south. To progress the concept the following would be necessary:

- Detailed geotechnical investigations to determine the nature of the subsurface conditions at greater depth and to assess the method of treatment for the Site, including the methodology for extensive site filling and on-site stormwater management initiatives; and
- Detailed geotechnical risk register to advise of the likelihood and severity of each hazard, and to determine the necessary controls to reduce risks and associated constraints that may apply to certain developments.

It is preferable that the first dot point be addressed prior to changing the land use zone. The geotechnical risk register could be addressed by the developer prior to development approval.

The Acid Sulfate Soil Risk Map for Williamtown indicates that there is a low probably of occurrence of ASS at a depth of greater than 3m below the existing surface in this slightly elevated area (above RL 4m AHD). This elevated area is described by the Risk Map as a Pleistocene Aeolian Sandplain/Dune and, if present, ASS are expected to be sporadic and buried by alluvium and/ or Aeolian sediments. Notwithstanding the low likelihood of occurrence of ASS, appropriate pre-testing and management plans will be required to be in place before any substantial earthworks can commence.

9.2.2 Hydrology, Flooding and Drainage

Chapter 2 of this report summarises the findings of Appendix D Hydrology, Flooding and Drainage Assessment. This assessment established the flood characteristics of the Site, the flooding, stormwater and drainage requirements and presents a stormwater strategy. The entire Site is subject to flooding and to pursue the concept the following would be required:

- Provide a more detailed hydraulic assessment of the site with final fill levels to provide nil flooding impact on adjacent lands. This would require a detailed site survey with sufficient resolution to generate contours with a 100 mm resolution. This could be set as a requirement of the development control framework;
- Use the results of the geotechnical investigations to determine the ground conditions for the filling of the Site; this would be best addressed prior to changing the land use zone;
- Once the conceptual lot layout and road layout are determined, the stormwater layout is to be configured and areas recommended for trunk drainage stormwater treatment. This is to be completed in the Stage 3 component of this Land Use and Development Strategy; and
- Satisfy Section 117 of the Environmental Planning and Assessment Act 1979; Ministerial Direction No. 4.3 requirements by justifying an inconsistency with the Direction and satisfying the Director-General (or an officer of the department nominated by the D-G) that any particular provision of area should be varied or excluded having regard to the provisions of Section 5 of the EP& A Act 1979, and the rezoning is in the opinion of the Director- General, of a minor significance.

9.2.3 Hunter Water Special Area

The additional land is completely within the Hunter Water Special Area. On-site treatment of stormwater will be necessary to remove potential pollutants. Stormwater management will also require the inclusion of: source controls within road reserves; controls on the storage and handling of chemicals; and careful management of chemical spills.

Specific controls on land use and the bringing of potential pollutants within the gazetted Special Area will require measures to ensure groundwater and surface water are not polluted. The soils of this additional area include permeable sands highly vulnerable to contamination of ground waters.

9.2.4 Ecology

Consideration of the Draft Lower Hunter Regional Conservation Plan (the 'Conservation Plan') is the important first step in the path to securing biodiversity certification for new Local Environmental Plans (LEPs). The intent of this Conservation Plan is that the biodiversity certification is to largely 'switch off' the need for consideration of the test of significance, otherwise known as a Section 5A assessment or seven-part test at individual sites.

This has important implications for the development of this employment zone and for the subsequent process and requirements for the consent and determination by authorities. The certified LEP is intended to create a high degree of certainty with respect to biodiversity management on a site-by-site basis. Legislative reforms are underway to amend the Threatened Species Conservation Act 1995 to implement a Biobanking Scheme in NSW, providing a structure for offsetting biodiversity losses using a market-based mechanism.

The Draft Conservation Plan and the Lower Hunter Regional Strategy (the Strategy) operate at a regional level directing future land use and conservation planning with the Strategy informing the Conservation Plan. To pursue a Draft LEP (such as the rezoning to enable the employment zone would require the following to be addressed:

- Accurately establish the extent and quality of habitat to be lost due to the development (Note: It has been estimated that the loss of vegetation of high and medium ecological value would be approximately 63 hectares in area);
- Establish the criteria to be used in the assessment of off-sets;
- Identify and secure appropriate offsets;
- Prepare and have adopted detailed management plans to ensure the long term survival of retained habitat; and
- Accurately delineate boundaries between areas to be developed and areas to be protected.

It is noted that the Site is not identified as being part of any regional investment priority in the Draft Regional Conservation Strategy. It was however identified as being one of six specialised centres identified in the adopted Lower Hunter Regional Strategy.

9.2.5 Opportunities for Offsetting Potential Biodiversity Impacts

The DAREZ is an area identified as a special area for defence and airport related employment in the Lower Hunter Regional Strategy. The partner document to this is the Draft Lower Hunter Regional Conservation Plan. Together these documents aim to take a realistic approach to the economic and development needs for the support of the projected population for the Region whilst simultaneously recognising and planning for the conservation values of the Region. This regional approach assists an understanding of the bigger picture and allows for a more strategic approach to the planning process. The Site has significant constraints associated with the land use change proposed. However, there are opportunities for offsets both on and off site aiming to ensure there is a net improvement of biodiversity assets in the area. These opportunities need to be explored by the developer and landowners in consultation with the Department of Environment and Climate Change (DECC). More detailed discussion on this is provided in Chapter 2 of this report.

A future developer/proponent will need to consult with DECC for advise on any additional ecological survey work that may be required. The developer will be responsible for the commissioning of any additional surveys required.

9.3 Conclusion

The more detailed investigations carried out in this Land Capability and Suitability Assessment have found that there were potentially decisive issues relating to flooding impacts and compressible soils in the lower lying areas that subsequently raised questions about the economic feasibility of developing that land. From the information available at the time, the costs involved in addressing these particular constraints, in combination with other upfront infrastructure costs, appeared to be a barrier to development of the lower lying land in the short term. The land may be more feasible in the longer term following further analysis and formulation of appropriate engineering solutions, and once the initial stages of the DAREZ are established and the market for additional land is proven. The PCG subsequently resolved to investigate additional lands to the north west of the original site to ensure an adequate land stock was to be considered for rezoning.

A Concept Plan has been prepared as basis for further discussion and investigation (if needed). The Stage 3 Structure Plan and Development Control Framework will address any outstanding issues and will present further discussion in relation to the necessary controls on development, the staging of land release, the implications for the provision of infrastructure, and the protection of environmentally sensitive areas within the site.

Appendix A

References

Refer to Disk – Stage 2 Land Capability and Suitably Assessment Revised Oct 2007

Appendix B

Preliminary Geotechnical Assessment November 2006

Refer to Disk – Stage 2 Land Capability and Suitably Assessment Revised Oct 2007

Appendix C

Acid Sulphate Soil Study

Refer to Disk – Stage 2 Land Capability and Suitably Assessment Revised Oct 2007

Appendix D

Hydrology, Flooding and Drainage Assessment

Refer to Disk – Stage 2 Land Capability and Suitably Assessment Revised Oct 2007

Appendix E

Water and Wastewater Strategy

Refer to Disk – Stage 2 Land Capability and Suitably Assessment Revised Oct 2007

Appendix F

Bushfire Constraints Assessment November 2006

Refer to Disk – Stage 2 Land Capability and Suitably Assessment Revised Oct 2007

Appendix G

Ecology Report January 2007 and the Report for Supplementary Ecological Investigations October 2007

Refer to Disk – Stage 2 Land Capability and Suitably Assessment Revised Oct 2007

Appendix H

Traffic and Transport Report

Refer to Disk – Stage 2 Land Capability and Suitably Assessment Revised Oct 2007

Appendix I

Economic Analysis

Refer to Disk – Stage 2 Land Capability and Suitably Assessment Revised Oct 2007

Appendix J

Cultural Heritage Assessment

Refer to Disk – Stage 2 Land Capability and Suitably Assessment Revised Oct 2007

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