

**BOX HILL NORTH**

**EPBC Interim Management Plan**

For:

**Celestino Developments Pty Limited**

April 2017

**Revised Final Report**



**PO Box 2474  
Carlingford Court 2118**

**Report No. 15062RP3**

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The preparation of this report has been in accordance with the brief provided by the Client and has relied upon the data and results collected at or under the times and conditions specified in the report. All findings, conclusions or recommendations contained within the report are based only on the aforementioned circumstances. The report has been prepared for use by the Client and no responsibility for its use by other parties is accepted by Cumberland Ecology.

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Approved by: David Robertson

Position: Director

Signed: REVISED FINAL REPORT

Date: 27 April, 2017

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Project EPBC Number 2014/7119

Project Name The Gables, Box Hill North

Proponent/approval holder E.J.Cooper & Son Pty Ltd

ACN 000 269 750

Proposed/approved action Development of a 339 ha parcel of land to accommodate residential dwellings, community centres, a town centre, school, roads and associated infrastructure

Location of action Box Hill North, New South Wales

**Declaration of accuracy**

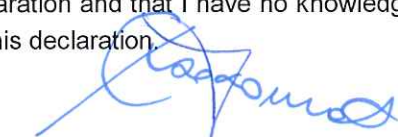
In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed

Full name (please print)

Organisation (please print)

Date



GEORGE TSEKOURAS

E.J. Cooper & Son Pty Limited

9, 05, 17

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## Executive Summary

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The Gables is a 339 hectare parcel of land ('the subject land') at Box Hill North, NSW that is to be developed to accommodate residential dwellings, community centres, town centre, schools, roads and associated infrastructure. The subject land is divided into nine separate development 'Precincts', namely Precincts A – I.

The Gables development was referred to the Commonwealth Department of Environment and Energy (DoEE) and was determined as a controlled action (EPBC 2014/7119) due to its likely impacts upon Matters of National Environmental Significance (MNES), namely endangered ecological communities and threatened species.

The purpose of this Interim Management Plan (IMP) is to prescribe measures for the conservation and management of MNES in the BioBank sites as required under Condition 5 of the DoEE Approval, dated 19 July 2016 with due consideration to the requirements for establishment of BioBank sites under the NSW BioBanking scheme. The intent of the IMP is to protect and maintain MNES and MNES habitat in the BioBank sites until the respective BioBanking agreements are approved by the NSW Office of Environment and Heritage (OEH) and DoEE.

The interim management actions that will be undertaken under this IMP are as follows:

- Settlement of relevant properties;
- Fencing and signage;
- Site remediation;
- Dam dewatering;
- Monitoring, including site inspections, threatened ecological community condition monitoring and photopoint monitoring; and
- Weed and *Phytophthora cinnamomi* monitoring and management

The environmental outcome to be achieved by implementing these management actions is to maintain the condition of the site as it was characterized at the time of EPBC assessment.

As part of this IMP, a monitoring strategy will be implemented, comprising flora monitoring inspections and the establishment of photomonitoring points around the perimeter of the two BioBank sites to detect changes in vegetation condition, weed outbreaks or breaches of the perimeter fence. The flora monitoring is to be conducted every six months while the photomonitoring is to be conducted every three months. During the flora monitoring inspections, the condition of threatened ecological communities in the Biobank sites

(Cumberland Plain Woodland and Shale Sandstone Transition Forest) will be monitored by collecting a range of ecological data from transects. The site remediation and dam dewatering will also be monitored during implementation of works to ensure that adjacent vegetation is not impacted. The monitoring program is to continue until the BioBanking agreement is approved by OEH and DoEE.

Key risks to manage are potential weed invasion, inadvertent damage to vegetation during dam dewatering or site remediation, infection by *Phytophthora cinnamomi*, or breaches in the perimeter fence permitting unauthorised access. This IMP provides a risk analysis and contingency actions to be implemented in the case of these risks occurring. This includes initiating a weed control program if required, remediation of damaged vegetation, or a complete stop of work if *Phytophthora cinnamomi* is detected.

An annual performance report will be prepared following the second round of 6 monthly flora monitoring conducted each year or when the BioBanking agreement is approved. The report will be submitted to DoEE. The annual performance report will contain details of the implementation of the IMP, including the results of the following key interim management actions.

# Introduction

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## 1.1 Background

The Gables is a 339 hectare parcel of land ('the subject land') at Box Hill North, NSW that is to be developed to accommodate residential dwellings, community centres, town centre, schools, roads and associated infrastructure. The subject land is divided into nine separate development 'Precincts', namely Precincts A – I (**Figure 1.1**).

The Gables development was referred to the Commonwealth Department of Environment and Energy (DoEE) and was determined as a controlled action (EPBC 2014/7119) due to its likely impacts upon Matters of National Environmental Significance (MNES), namely endangered ecological communities and threatened species. The affected MNES include:

- Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (CPW);
- Shale Sandstone Transition Forest of the Sydney Basin Bioregion (SSTF); and
- Grey-headed Flying Fox.

The MNES and MNES habitats are restricted to Precincts E, F, G and I (hereafter collectively referred to as 'the subject site') and the DoEE conditions of approval are limited to these four precincts.

CPW is present within the area known as Precinct I while SSTF predominantly occurs within Precinct G with smaller occurrences within Precincts E and F (**Figure 1.2**). The CPW and SSTF vegetation also constitute potential foraging habitat for the Grey-headed Flying Fox.

Parts of the CPW and SSTF communities present within Precincts I and G respectively are zoned E4 – Environmental Living under the Hills Shire Council Local Environment Plan and are to be conserved as two separate BioBank sites under the NSW BioBanking scheme (**Figure 1.2**). As these BioBank sites are yet to be established, the DoEE requires interim measures to be implemented to protect MNES in these sites until the BioBanking agreements are approved by the NSW Office of Environment and Heritage (OEH) and DoEE.



## 1.2 Objectives of the Interim Management Plan

The purpose of this Interim Management Plan (IMP) is to prescribe measures for the conservation and management of MNES in the BioBank sites as required under Condition 5 of the DoEE Approval, dated 19 July 2016 (see **Appendix A**) with due consideration to the requirements for establishment of BioBank sites under the NSW BioBanking scheme.

The specific objectives of this plan are to:

- Maintain existing habitat condition scores for CPW and SSTF threatened ecological communities within BioBank sites; and
- Prevent weed incursion and environmental degradation over the whole of the BioBank site until BioBank agreements are finalised

The intent of the IMP is to protect and maintain MNES and MNES habitat in the proposed BioBank sites until the respective BioBanking agreements are approved by OEH and DoEE. Due to the potentially conflicting requirements of the BioBanking process, any management actions listed in the Management Action Plans (MAPs) for the BioBank sites have largely been excluded from the IMP (see **Section 2.2** for more details).

The objectives of this IMP are to maintain the condition of the BioBank sites as they were characterized at the time of EPBC assessment. In particular the aim is to prevent any significant degradation of vegetation, including MNES and MNES habitat within the BioBank sites. The proposed actions to be implemented to achieve these objectives are outlined in **Section 2.2**. Performance criteria for these proposed actions are provided in **Section 2.4**.

This IMP will be included within any future Vegetation Management Plans prepared for the subject site in accordance with Condition 6 of the DoEE Approval.

## 1.3 Site Description

The site comprises 380 ha of land, located along Boundary Road, at Box Hill North. It is bounded by Maguires Road to the north, Janpieter Road to the east, Old Pitt Town Road to the south and Boundary Road to the west. The land has recently been rezoned to permit residential and other related development.

The terrain within the study area is flat to gently undulating with well-structured clay soils derived from Wianamatta Shale and Tertiary and Quaternary alluvial soils associated with the Hawkesbury-Nepean River system. Several small tributaries drain into the main stream feature within the study area, Cataract Creek in the north east. This area also supports a different underlying geology with sandstone outcroppings occurring within the stream bank area. A total of 52 dams and water bodies exist on the study area as well as numerous farmhouses, sheds and other infrastructure. These are mainly concentrated along the road accesses bordering and bisecting the study area, Boundary Road, Maguires Road, Janpieter Road, Old Pitt Town Road and Red Gables Road.

The subject land has historically been used for cattle grazing, cropping and hobby farming purposes. As a result of these past and current land uses, the majority of the subject land has been historically cleared of native vegetation and is dominated by exotic grasses. Treed vegetation is mainly represented by a mosaic of regenerating patches of open forest and woodland at various stages of canopy regeneration. These comprise patches of CPW and SSTF.

CPW and SSTF are listed as a Critically Endangered Ecological Communities (CEECs) under both the NSW *Threatened Species Conservation Act 1995* (TSC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The most intact and mature patches of woodland are found in the north-west and north-east parts of the subject land, mainly Precincts I and G with minor occurrences in Precincts E and F.

Scattered remnant native trees also occur within Precincts A and H. Whilst they are comprised of canopy species indicative of CPW (*Eucalyptus crebra* (Narrow-leaved Ironbark), *E. moluccana* (Grey Box) and *E. tereticornis* (Forest Red Gum)) they lack understorey and ground cover vegetation and do not comprise CPW. The vegetation in the remainder of the precincts (B, C and D) comprises exotic vegetation and planted trees, mainly exotic palms.

## 1.4 Description of the Project

The development of the subject land will involve construction of approximately 4,100 residential dwellings along with a primary school, retail buildings, a town centre, parks, pedestrian and cycleway networks, passive open space, roads and associated infrastructure.

The project comprises a staged development and future development will include progressive land subdivision. Additional works outside of the subject land boundary include ancillary infrastructure works including road widening works along Boundary Road, Old Pitt Town Road and Maguires Road.

Precincts A, B, C, D and H are not subject to DoEE conditions of approval and works commenced within these five precincts in July 2016 in accordance with conditions of approval from the Hills Shire Council. Works conducted to date mainly include demolition of existing buildings and bulk earthworks with associated vegetation removal and dam decommissioning.

Works conducted to date are largely limited to areas south of Red Gables Road (see **Figure 1.1**), the exception being works associated with the construction of a Local Water Centre in the southern half of Precinct D.





**Legend**

- Subject Site
- Subject Land
- Development Precincts
- Properties excluded from the assessment

Image Source:  
Image © 2015 Aerometrex  
(dated 01-01-2014)

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**Figure 1.1. Aerial view of the Subject Land**

100 0 100 200 300 400 m





#### Legend

- Subject Site
- Subject Land
- Development Precincts
- Proposed Biobank Site
- Properties excluded from the assessment

#### Vegetation Community

- Cumberland Plain Woodland
- Shale Sandstone Transition Forest

#### Species Record

- Grey-headed Flying Fox record

Image Source:  
Image © 2015 Aerometrex  
(dated 01-01-2014)

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**Figure 1.2. Vegetation communities and Grey-headed Flying Fox records within the Subject Land**

100 0 100 200 300 400 m



## Biobank Site Interim Management Actions

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### 2.1 Biobanking Agreement Management Plans

Two separate BioBank sites, located within Precinct I and Precinct G respectively are to be established. These include the Boundary Road Biobank Site for conservation of CPW within Precinct I and the Maguires Road BioBank Site for conservation of SSTF within Precinct G.

In accordance with the requirements of the BioBanking scheme, the following documents are being prepared for each BioBank site and are to be submitted for approval by OEH.

- Biodiversity Assessment Report (BAR);
- Management Action Plan (MAP); and
- Total Fund Deposit (TFD).

The BAR provides a detailed assessment of the current conditions and biodiversity values of the respective sites. It also provides calculations of the number of BioBanking credits generated based on the current conditions at each site and identifies management actions required to improve biodiversity values at each respective site. The BAR also includes a chapter that outlines the Commonwealth consent conditions, proposed measures to address these conditions and how they relate to the requirements and timeline of the proposed Biobanking site management actions.

The MAP consists of a standard template document of management actions which is filled in by the landowner and submitted to OEH with an application to establish a biobank site while the TFD consists of an excel spreadsheet with built in formulas to calculate annual costs for the proposed management actions in perpetuity.

The MAP and TFD provide the details of the specific management actions that need to be implemented at each site and include costing, timing and frequency of effort for the various actions for each BioBank site. These actions include, but are not limited to:

- Exclusion Fencing;
- Weed Control;
- Fire Management;

- Management of Human Disturbance;
- Retention of Regrowth;
- Replanting;
- Retention of Dead Timber;
- Erosion Control;
- Retention of Rocks;
- Feral Animal Control; and
- Pest Management.

These management actions are defined as either standard management actions or additional management actions under the NSW BioBanking scheme and are addressed in detail in the MAP. **Table B1** of **Appendix B** outlines the sections of the MAP that address the management actions requested in the DoEE conditions for MNES.

### ***2.1.1 Finalisation of BioBanking Application***

The BAR, MAP and TFD for the Biobanking sites will be submitted to OEH for approval. Following refinement of the BioBank sites, if required, in consultation with OEH, draft Biobanking Agreements will be prepared. The draft agreements will be submitted to DoEE for approval prior to signing of the agreement with OEH.

Upon approval, the BioBanking Agreement is a legally binding document that requires all vegetation and habitat within each BioBank site to be managed in perpetuity. The managers of BioBank sites, as listed on the agreement, receive an annual payment from the NSW BioBank Trust Fund in order to conduct the agreed management actions. The management actions under a BioBanking Agreement begin once the Biodiversity credits are retired. Retiring of credits has to occur prior to any clearing. It is therefore recommended that the BioBanking sites are established as soon as possible and credits retired early in order to start the management actions under the BioBanking Agreement that are fully funded in perpetuity.

## **2.2 Interim Management Actions**

The management actions listed in **Section 2.1** above form the basis of the assessment of the BioBanking application and approval of a BioBanking agreement. It should be noted that under the BioBanking scheme, implementation of primary management actions that significantly improve vegetation condition (eg intensive weeding, revegetation) listed in the MAP prior to approval of the BioBanking application alters the final outcome of the application and requires a full reassessment to recalculate BioBanking credits. Therefore, this plan aims to maintain rather than improve condition prior to finalising the BioBanking agreement.

The interim monitoring and management actions that will be undertaken in the BioBank sites as part of this IMP are as follows:

- Settlement of relevant properties;
- Installation of fencing and signage;
- Site remediation;
- Dam dewatering;
- Site inspections;
- Weed monitoring and management;
- *Phytophthora cinnamomi* monitoring and management; and
- CPW and SSTF threatened ecological condition monitoring.

The environmental outcome to be achieved by implementing these management actions is to maintain the condition of the site as it was characterized at the time of EPBC assessment.

Further details of these interim management actions are provided below. Performance criteria for each are provided in **Section 2.3**.

### ***2.2.1 Settlement of Relevant Properties***

The properties contained within the subject site are currently subject to a variety of land uses including grazing by livestock and mowing of grassy areas which have the potential to degrade the current conditions of the vegetation within the subject site.

The approval holder is not the current landowner of all the properties contained within the subject site. As management actions cannot be implemented until ownership of all the properties are fully transferred to the approval holder, initial works for the IMP include settlement of all properties within the subject site to enable implementation of further management actions. The settlement of the majority of the properties within the subject site, including those within and immediately adjacent to the BioBank sites has been completed with settlement of a final property (Lot 5 DP658286) estimated to be completed by June 2017.

#### *i. Objectives*

The transfer of ownership of the relevant properties will result in the cessation of current land use practises that have the potential to degrade current conditions such as grazing by livestock. The removal of livestock, in particular will contribute towards the protection, conservation and management of MNES and MNES habitat.

The objective of this management measure therefore is to settle the remaining properties to allow damaging land practices to be halted.

### **2.2.2 Fencing and Signage**

Following settlement of individual properties, measures will be implemented to restrict access to the Biobank sites until the BioBanking agreements are approved. This includes installation of a 1.8m high chain wire boundary fence between the adjacent road reserves and the Biobank sites to restrict access to people as well as vehicles. Fauna passage measures comprising a short 'tunnel' of PVC pipe with a minimum dimension of 150mm diameter will be placed at ground level, every 50 m along the fenceline to allow for movement of small, ground dwelling native fauna. Barbed wire will not be utilised so as to reduce risk of injury and/or entanglement to mobile species such as birds, bats and gliders.

This design is expected to be adequate to prevent most rock removal, firewood removal and rubbish dumping while maintaining movement of native fauna known to occur in the area.

Signage designating each Biobank site area as an 'Environmentally Sensitive Area' will also be installed. Vehicular and heavy machinery access required for remediation works, potential archaeological salvage works and dam dewatering (see **Sections 2.2.3 - 2.2.5**) within the Biobank sites will be limited to existing trails and designated areas, identified by ecologists prior to commencement of works.

Appropriate additional temporary fencing and sediment control measures will be installed as required to further delineate the Biobank sites from approved work sites in the adjacent areas of Precinct G and I. The installation of any temporary work site fencing and sediment fencing will be in accordance with the requisite Construction Environment Management Plan for the work site and any Vegetation Management Plans prepared for areas within the subject site. As management actions outlined in the BioBanking agreement commence following the retirement of credits, additional chain wire boundary fencing between the BioBank sites and adjacent development properties will also be installed, if required, during the period between approval of the BioBank sites and commencement of management actions under the BioBanking agreements.

#### *i. Objectives*

The objective of installing fencing and signage is to restrict access to the Biobank sites until the BioBanking agreements are approved. This will prevent inadvertent damage and degradation to the MNES values that the BioBank sites contain.

### **2.2.3 Site Remediation**

Environmental assessments conducted for the Gables development have identified pockets of contaminants, including asbestos containing materials, within the Biobank sites and the wider subject site. These contaminants not only constitute a potential health hazard to humans but also have the potential to degrade the quality of the soils within the Biobank sites in the long-term, thus potentially affecting the long-term health of MNES vegetation within the Biobank sites.



Remediation of contaminants within the subject site is required to be conducted in accordance with an appropriate Remedial Action Plan (RAP), to fulfil conditions of consent issued by Council.

As potential excavation and removal of sediments constitute works that are not allowed within an approved BioBank site, the remediation of contaminants present within the BioBank sites will be conducted under the IMP, prior to approval of the BioBank site. All remediation works within the BioBank sites will be conducted in accordance with the RAP. An overview of the locations of contaminants present within the Biobank sites and proposed methods for removal is provided in **Appendix C**.

Vehicles and heavy machinery required for remediation works within the BioBank sites will be limited to tracks and designated work areas identified by ecologists with due consideration to the locations of identified contaminated areas. If inadvertent damage of vegetation outside these areas occurs during site remediation activities, rehabilitation of vegetation will be undertaken (see **Section 2.2.6**).

*i. Objectives*

The objective of site remediation is to remove asbestos containing materials and other contaminants from within the BioBank sites and the wider subject site. This will remove the potential these contaminants have to degrade the quality of the soils within the Biobank sites in the long-term, thus maintaining the long-term health of MNES vegetation within the BioBank sites. By restricting access to the designated work areas, inadvertent damage of vegetation beyond the work areas will be avoided.

#### **2.2.4 Archaeological Salvage Works**

Archaeological salvage works are required within three archaeological sites across Precincts E, G and I. These include sites BHN2, BHN5 and BHN6 as indicated in the Heritage Clearance Map provided in **Appendix D**.

The archaeological excavation areas are to be demarcated in accordance with the proposed Salvage Excavation Methodology provided in the Box Hill North Cultural Heritage Assessment Report. Works will take place in three phases as summarised below;

- Phase 1; A series of 1 m<sup>2</sup> squares will be excavated on a transect grid overlain on each site to mark the spread of lithics and related geomorphic activity;
- Phase 2: A series of 9 m<sup>2</sup> expansion squares (3 m x 3 m area made up of 9x1 m<sup>2</sup>) will be excavated around information bearing deposits along the excavation grid. Information bearing deposits are identified by triggers such as significant quantities of artefacts; and
- Phase 3: Open area salvage of significant deposit. The location of Phase 3 open area investigation will be based on Phase 1 and 2 results and is anticipated to encompass an excavation area of 50m<sup>2</sup> for each salvage location,

The identified archaeological sites lie outside the Biobank site and therefore the proposed salvage works will not have any direct impacts upon MNES within the Biobank sites. As the nearest identified archaeological site is approximately 50m away from the Biobank site boundary, there is limited potential for indirect impacts from the proposed open area salvage excavation process. Nonetheless, with due consideration to the Critically Endangered status of the MNES vegetation within the Biobank site, mitigation measures are recommended as a precautionary approach.

Prior to commencement of excavation works for each Phase, an ecologist is to inspect the demarcated archaeological work zones to determine the potential for indirect impacts to MNES within the Biobank site and recommend appropriate buffer zones and mitigation measures in consultation with the archaeologists to minimise potential indirect impacts on MNES while allowing archaeological works to continue.

If inadvertent damage of vegetation due to requisite expansion of archaeological work sites (based on results of ongoing investigations) occurs within the Biobank site, rehabilitation of vegetation will be undertaken (see **Section 2.2.6**).

*i. Objective*

The objectives of the proposed archaeological salvage excavation program are:

- To salvage a representative sample of the identified archaeological sites prior to development impact; and
- To analyse the salvaged archaeological material to gain and conserve knowledge and understanding of the scientific and cultural information exhibited by the activities associated with landforms along Cataract Creek.

By consulting with ecologists to establish suitable buffer zones prior to commencement of excavation works, inadvertent damage of vegetation beyond the work areas will be avoided.

### **2.2.5 Dam Dewatering Protocol**

The ecological assessments conducted to date have identified a total of 24 farm dams within the subject site (4 in Precinct E, 6 each in Precincts F and G, and 8 in Precinct I), with one dam being located within each of the proposed BioBank sites. A small section of a dam also lies within the southern border of the Precinct G Biobank site. These dams largely lack any fringing vegetation, show signs of degradation along the banks and do not provide any habitat for MNES.

All dams within the subject site are required to be dewatered in accordance with an Ecological Work Method Procedure for Dam Dewatering. This Ecological Work Method Procedure will be based on the Dam Decommissioning Ecological Work Method Procedure (15133RP2, dated April 2016) prepared by Cumberland Ecology for Precincts A, B, C and H and approved by the Hills Shire Council, and is to be tailored for specific conditions within the subject site.

As construction works associated with decommissioning of a dam (excavation of sediments, infilling of dam area) are not allowed within an approved BioBank site, the decommissioning of the dams within and immediately adjacent to the BioBank sites will be conducted under the IMP and in accordance with protocols outlined in the Dam Decommissioning Ecological Work Method Procedure prior to approval of each BioBank site.

Vehicular and machinery access for the dewatering process of dams within and immediately adjacent to the BioBank sites will be limited to designated tracks and work zones. These tracks and work zones will be established prior to commencement of dewatering works and will be located within the current exotic grassland areas of the Biobank sites. A minimum buffer zone of 10m around existing MNES vegetation in the vicinity of the dams will be clearly marked up with high visibility tape to further delineate no go zones for all equipment and machinery required for the dewatering process.

Water extracted from the dam will either be pumped into mobile tanks and utilised for dust suppression within approved construction areas outside of the subject site or used for irrigation of lands adjacent to the BioBank site via use of a pump and sprinkler system, in accordance with Council conditions of consent for the Gables Masterplan Development Application.

All native aquatic fauna present within the dam in the proposed BioBank sites will be relocated and pest species euthanased in accordance with the protocols outlined in the approved Ecological Masterplan for Dam Decommissioning. In the event that excavation of sediments is required to assist in the aquatic fauna rescue process, the placement of all machinery and equipment as well as excavated sediments will be limited to work zones as identified by ecologists prior to commencement of dewatering works.

Following removal of aquatic fauna, the sediments within the dam will be allowed to dry prior to filling the dam area with an appropriate sediment mix for Cumberland Plain vegetation and the infilled areas will be graded to conform with the surrounding landform. Topsoil from areas of MNES vegetation approved for clearing from Precincts E, F, G and I will be stockpiled and transferred to the Biobank sites to maximise the regeneration of MNES vegetation within the decommissioned dam areas.

#### *i. Objectives*

The objective of the dam dewatering protocol is to ensure that the dewatering of dams is conducted so as to minimise impacts to nearby MNES vegetation from machinery access or dumping of sediments as well as minimise harm to native fauna present within the dams.

The objective of the removal of dams from within the two proposed Biobank sites is to remove the potential long-term risk of harm from the artificial water bodies to the surrounding MNES as well as create further areas for additional planting of MNES vegetation within the Biobank sites.

### **2.2.6 Rehabilitation of Disturbed Vegetation**

If required due to inadvertent damage of vegetation in the Biobank sites during dewatering or site remediation activities, rehabilitation of vegetation will be undertaken. This will involve returning the soil surface to its original condition and configuration, and then replanting the area with native plants that have been recorded from the immediate vicinity. Native plants will be replaced at the density they occur in areas directly adjacent to the disturbance. Plantings will be managed for a period of one year following establishment or until the BioBank agreement is approved. If any native plants die during this period, they will be replaced by another specimen of the same species.

#### *i. Objectives*

The objective of rehabilitation of disturbed vegetation is to minimise the impact to biodiversity of inadvertently damaging native vegetation in the BioBank sites.

### **2.2.7 *Phytophthora cinnamomi* Risk Management**

Construction works within the Biobank sites will be limited to works for remediation of contaminants and dam decommissioning. Standard hygiene protocols will be applied for items that can harbour potentially infested soil or plant material such as footwear and tools during construction of the fencing around the BioBank sites. Large machinery and light vehicle access, if required, will be restricted to existing tracks within the sites and will be washed down prior to entering the designated work areas.

Standard hygiene protocols will also form part of the Construction Environment Management Plan of any future approved work sites adjacent to the BioBank sites.

Based on current conditions within the sites, these measures are considered sufficient to prevent and/or minimise any potential introduction of *Phytophthora cinnamomi* into the BioBank sites.

#### *i. Objectives*

The objective of *Phytophthora cinnamomi* risk management is to minimise the risk of inadvertently introducing *Phytophthora cinnamomi* into the BioBank sites.

## **2.3 Monitoring Program**

This section presents details of a monitoring program that will be implemented in the Biobank sites. The main objective of the monitoring program is to record the condition of MNES within the BioBank sites and to identify any threatening processes occurring within these areas that could degrade the integrity of MNES within the Biobank site until approval of the BioBanking agreement, including weed invasion, *Phytophthora* infection, or a breach in the perimeter fence. The monitoring program also includes specifications for monitoring the dam dewatering to ensure impacts on MNES are minimised.

The monitoring program will demonstrate the effectiveness of the proposed management actions and provide measurable trigger levels that will result in corrective actions being implemented to prevent performance objectives from being compromised.

The program will include the following monitoring and reporting in the Biobank sites:

- Site inspections to assess the integrity of fencing and signage and identify unauthorised disturbances;
- CPW and SSTF threatened ecological community condition and weed monitoring;
- Site remediation and dam dewatering;
- Photomonitoring points; and
- *Phytophthora cinnamomi* monitoring

### **2.3.1 Site Inspections and Photo Monitoring**

Following the installation of fencing and signage, an initial site inspection of both BioBank sites will be conducted by a qualified ecologist.

Photo-monitoring points will also be established around the boundary of the BioBank sites during the initial inspection. A minimum of four monitoring points, one along each of the northern, western, southern and eastern boundaries of each site, will be established. The objective of the photomonitoring points is to record any significant changes in vegetation condition between detailed flora monitoring periods and requirements for fence maintenance.

Following the initial inspection, photo-monitoring and fence inspections will be conducted every three months until approval of the BioBanking agreement. Observations on any significant changes in vegetation condition and requirements for fence maintenance will be noted during the photo-monitoring period and will be outlined in the monitoring report. The perimeter fence will be traversed during the site inspections and its condition noted. Any breach will be recorded and reported immediately. Any unauthorised disturbance to native vegetation in the Biobank sites will be noted and reported immediately. This includes inadvertent damage due to site remediation and dam dewatering activities.

Any unexplained dieback of native vegetation will be recorded and investigated as to the potential occurrence of *Phytophthora cinnamomi*.

### **2.3.2 Vegetation Community Monitoring**

Concurrent with the initial site inspection to establish photomonitoring points, both BioBank sites will be traversed and observations on the ecological integrity of the sites will be recorded to provide the baseline condition for maintenance until approval of the BioBanking agreement.

Random meanders will be conducted in both woodland and grassland habitats in the proposed BioBank site data recorded will include:

- Dominant species present in each strata in each habitat type;
- Presence of Declared noxious weeds and/or Weeds of National Significance (WoNS) in each habitat type; and
- Percentage cover of dominant species and weeds in each habitat type;
- General health of the vegetation; and
- New disturbances or changes to previous conditions.

Monitoring transects will also be established in areas of CPW and SSTF that occur in the BioBank sites.

Fixed 50m transects will be established in representative areas of the MNES communities and a range of ecological data will be collected to establish the baseline condition for maintenance until the BioBanking agreement is approved.

Data recorded within each transect will include

- Percentage cover of each stratum (canopy, mid-storey and groundcover) every 10m;
- Percentage cover and identity of exotic species every 10 m;
- Percentage cover and identity of noxious weeds and/or WoNS every 5 m;

Vegetation community monitoring will be conducted every six months following the initial baseline survey until approval of the BioBanking agreement.

### ***2.3.3 Site Remediation, Archaeological Salvage Works and Dam Dewatering Monitoring***

Site remediation works will be conducted and monitored in accordance with the protocols outlined in an appropriate Remedial Action Plan (RAP).

Archaeological Salvage works will be conducted and monitored in accordance with the Salvage Excavation Methodology provided in the Box Hill North Cultural Heritage Assessment Report in consultation with the ecologist prior to commencement of excavation works.

Dam dewatering works will be conducted in accordance with work method procedures outlined in a Dam Dewatering Ecological Work Method Procedure plan.

Monitoring will be conducted prior to commencement of dam dewatering to ensure that the works areas and no-go zones have been adequately demarcated, and will continue

throughout the process to ensure it is being conducted according to the Dam Dewatering Ecological Work Method Procedure. This will include ecological supervision of dewatering works and aquatic fauna rescue and relocation, and certification that the dams have been appropriately infilled.

## 2.4 Monitoring and Management Schedule

A summary of the monitoring measures proposed, the location and the frequency of monitoring and the performance criteria associated with each measure is presented in **Table 2.1**, below. The objective of the monitoring is to determine that the proposed management actions are maintaining the condition of MNES within the proposed Biobank sites as characterised at the time of EPBC assessment.

**Table 2.1 Monitoring and Maintenance Schedule and Performance Criteria**

Management/ Monitoring Measures	Where	When	Performance Criteria	Responsible Person
Settlement of Relevant Properties	n/a	To be completed by April 2017	All properties settled as specified	Celestino
Fencing and Signage	Around both BioBank sites	Within 2 weeks of approval of IMP/settlement of properties	Fencing and signage erected as specified	Celestino and nominated contractors
Site remediation	At both BioBank sites	Subject to timing of detailed contamination assessment	All sites remediated in accordance with relevant Remediation Action Plan	Contamination Specialist
Archaeological Salvage	50m west of Precinct G Biobank Site	Subject to timing of preliminary assessment works	All works clearly demarcated and conducted in accordance with Salvage Excavation Methodology. Buffer zones established as required.	Archaeologist Ecologist (identification of buffer zones, if required)
Dam dewatering - works areas	At the dam present in each BioBank site	Prior to commencement of dewatering	Dam dewatering buffer zones appropriately demarcated	Ecologist
Dam dewatering – vehicle/machinery access	At the dam present in each BioBank site	During dewatering	No vehicle or material intrusion beyond the limits of the marked buffer zones at each dam to be dewatered	Ecologist
Dam dewatering - draining of water and fauna rescue	At the dam present in each BioBank site	During dewatering	Dams dewatered according to the Dam dewatering ecological protocols	Ecologist



**Table 2.1 Monitoring and Maintenance Schedule and Performance Criteria**

Management/ Monitoring Measures	Where	When	Performance Criteria	Responsible Person
Dam dewatering – infilling	At the dam present in each BioBank site	Following dewatering	Infilling conducted as per the dam dewatering protocols	Ecologist
Site inspections	Throughout each BioBank site	Initial inspection within 2 weeks of fencing installation, Ongoing, every 3 months until approval of Biobanking agreement	Site inspections conducted as specified in plan and include monitoring of fences and signage, unauthorized disturbances, <i>Phytophthora cinnamomi</i> and photopoints	Ecologist
CPW and SSTF threatened ecological community condition monitoring	CPW and SSTF patches within the BioBank Site	Initial inspection within 2 weeks of fencing installation, Ongoing, every 6 months until approval of Biobanking agreement	Monitoring conducted as specified in plan	Ecologist
Weed and <i>Phytophthora</i> monitoring	Throughout each BioBank site	Initial inspection within 2 weeks of fencing installation, Ongoing, every 6 months until approval of Biobanking agreement	Monitoring conducted as specified in plan	Ecologist
Weed and <i>Phytophthora</i> <i>cinnamomi</i> management	Throughout each BioBank site	As required, until approval as a BioBank site	Weed and <i>Phytophthora</i> <i>cinnamomi</i> management conducted as specified in plan	Ecologist

## 2.5 Adaptive Implementation Strategy

An adaptive implementation strategy will be put into place regarding the actions proposed in this IMP. It is expected that new information will become available over time as the plan is

implemented, and all relevant information will be incorporated into this plan to ensure that it is capable of providing optimum management solutions. This will include new information derived from external sources (e.g. academic literature and EPBC policy statements) as well as site specific information gathered from the site during monitoring.

Furthermore, the adaptive implementation strategy will ensure that any new risks that are identified are incorporated into the plan to ensure that appropriate strategies are developed to minimise these risks and contingency responses are identified.

## 2.6 Risk Assessment and Contingency Response

A risk assessment has been completed that identifies the risks to key biophysical elements that are relevant to MNES in the BioBanking sites (see **Table 2.2**). This table provides sufficient detail to see into decision-making, including for the purpose of reassessing risk during plan implementation.

**Table 2.2 Risk Assessment for Biophysical Risks to the BioBank Sites**

Event or circumstance	Likelihood	Consequence	Risk level	Trigger	Contingency/s	Related monitoring activity
Properties unable to be settled	Possible	Moderate	Low	Properties not settled	Conduct management of all accessible areas until settlement is achieved	N/A
Breach in fence	Possible	Moderate	Low	Observed breach in fence	Repair breach in fence within 3 days	Site inspection
Disturbance to vegetation beyond the designated work areas in site remediation areas or archaeological excavation areas	Possible	Moderate	Low	Observed damage to vegetation beyond designated work areas	Report to remediation/archaeological team supervisor immediately, cease all works until measures have been put in place to prevent further unauthorized disturbance. Implement rehabilitation as specified in the plan within 1 month of disturbance.	Daily inspection during remediation by site supervisor, Site inspection.
Disturbance to vegetation beyond the designated work areas in dam dewatering areas	Possible	Moderate	Low	Observed damage to vegetation beyond designated work areas	Report to dewatering team supervisor immediately, cease all dewatering until measures have been put in place to prevent further unauthorised disturbance. Implement rehabilitation as specified in the plan within 1 month of disturbance.	Daily monitoring during dewatering by site supervisor (ecological supervision/ fauna rescue). Site inspection
Rehabilitation failure	Possible	Moderate	Low	Greater than 30% mortality of replanted plants	All dead plants will be replaced within 1 month.	Site inspection
Significant weed incursion	Possible	Moderate	Low	Recorded increase in weed levels, diversity or new species recorded	Implement a weed control program to prevent weed seed set and dispersal.	Site inspection and weed monitoring

**Table 2.2 Risk Assessment for Biophysical Risks to the BioBank Sites**

Event or circumstance	Likelihood	Consequence	Risk level	Trigger	Contingency/s	Related monitoring activity
Outbreak of Phytophthora recorded	Unlikely	High	Low	as informed by the CPW and SSTF condition monitoring ANY observed dieback of native vegetation that has potential to be attributable to Phytophthora	Work to cease immediately until the cause of the dieback can be verified and Phytophthora ruled out or confirmed as the cause. If Phytophthora is confirmed to be the cause, work will remain on hold until a Phytophthora management strategy is prepared and approved by DoEE.	Site inspection, CPW and SSTF condition monitoring
Decline in CPW and SSTF habitat quality	Possible	Moderate	Low	Decline in baseline habitat quality. If percentage cover of any stratum reduces by more than 30% from baseline or species diversity reduces by more than 30% over a 2 year period.	Investigations to commence to determine if reduction in condition is attributable to actions of the project. If so, then work will cease immediately and a management strategy will be prepared to address the impacts of the project.	CPW and SSTF condition monitoring

## 2.7 Reporting

An annual performance report will be prepared following the second round of 6 monthly monitoring conducted each year or upon approval of the BioBanking agreement. The report will be submitted to DoEE. In accordance with the requirements of Condition 5 of the EPBC approval, the annual performance report will contain details of the implementation of the IMP, including the results of the following key interim management actions:

- Settlement of relevant properties
- Installation of fencing and signage;
- Site remediation;
- Dam dewatering;
- *Phytophthora cinnamomi* risk management;
- Rehabilitation of disturbed vegetation (if required); and
- Monitoring.

The annual performance report will also include a record of incidents, non-compliance, and implementation of corrective actions.

The report will provide details of the monitoring methods employed over the preceding year; include photographs to support the assessments of vegetation condition and copies of all data sheets used. The annual performance report will contain details of the adaptive management actions implemented during the reporting period, and condition outcomes maintained or achieved during that period.

In addition to the annual performance report, a report will also be prepared and submitted to DoEE if *Phytophthora cinnamomi* is confirmed to be present in the sites.

## 2.8 Roles and Responsibilities

The approval holder is responsible for the implementation of the IMP and management of the two BioBank sites. The approval holder is responsible for commissioning suitably qualified specialists for the implementation of the actions outlined in this IMP.

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*Appendix A*

# EPBC Approval Conditions

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**Table A.1 Consistency of Interim Management actions with EPBC consent condition 5**

Consent Condition 5 requirements	Where addressed in IMP
measures to protect, conserve and manage Grey-headed Flying-fox habitat, CPW and SSTF at the impact site;	Section 2.2
details of the management actions to be undertaken;	Section 2.2
clear objectives and performance indicators for all management actions;	Section 2.2. The objectives of each management action is provided after each management action. Performance criteria are provided in Section 2.4
details of a comprehensive monitoring and reporting program to demonstrate the effectiveness of proposed management actions;	Section 2.3 provides a monitoring program Section 2.7 outlines the reporting program.
measurable trigger levels that will result in corrective actions being implemented to prevent performance objectives from being compromised;	Section 2.4
details of corrective actions should trigger levels be exceeded, measures to manage weeds;	Section 2.6
measures to prevent the occurrence of dieback by <i>Phytophthora cinnamomi</i> during construction	Section 2.2.5
a commitment to manage the two BioBank sites for the life of the impacts and the persons responsible for management actions	Section 2.8



## Approval

### Residential and commercial development, Box Hill North, NSW (EPBC 2014/7119)

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

#### Proposed action

person to whom the approval is granted **E.J. COOPER & SON PTY. LIMITED**

proponent's ACN (if applicable) **ACN 000 269 750**

proposed action **To develop a 339 hectare parcel of land at Box Hill North, New South Wales, to accommodate residential dwellings, community centres, town centre, school, roads and associated infrastructure. [See EPBC Act referral 2014/7119]**

## Approval

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approve, subject to conditions

#### conditions of approval

This approval is subject to the conditions specified below.

#### expiry date of approval

This approval has effect until 16 June 2031

#### Decision-maker

name and position **Kim Farrant**  
**Assistant Secretary**  
**Assessments (NSW, ACT) and Fuel Branch**

signature

date of decision

19/7/16



## Conditions attached to the approval

1. The **approval holder** must not clear more than:
  - a) 8.78 hectares of **CPW**, at the **impact site**
  - b) 5.81 hectares of **SSTF**, at the **impact site**
2. To compensate for the loss of **Grey-headed Flying-fox habitat**, **CPW**, and **SSTF** at the **impact site**, prior to the **commencement of the action** at **Precincts E, F, G and I**, the **approval holder** must **purchase and retire** no less than (as identified in Annexure A):
  - a) 467 **BioBanking Credits** for the loss of **SSTF**; and
  - b) 449 **BioBanking Credits** for the loss of **CPW**.

The **approval holder** must provide written evidence to the **Department** of the **retirement** of these **BioBanking credits** prior to the **commencement of action** at **Precincts E, F, G and I**.

3. To minimise impacts to **Grey-headed Flying-fox habitat**, **CPW**, and **SSTF** ecological communities, the **approval holder** must secure two **BioBank Sites** within the **E4 zones** at the **impact site**, as identified in Annexure B, through a **BioBanking Agreement**.
4. The **approval holder** must obtain an approved **BioBanking Agreement**, for the establishment of two **BioBank Sites** within the **E4 zones** (referred to in Condition 3), with the **NSW Office of Environment and Heritage** prior to **commencement of the action** at **Precincts E, F, G and I**. The **BioBanking agreement** for the **BioBank Sites** within the **E4 zones** must:
  - a) contain a specific reference to **EPBC Act** listed ecological communities and species impacted by the proposed action
  - b) reference relevant **EPBC Act** guidelines and policies, and the requirements of these conditions
  - c) be registered on title
  - d) provide for the legal protection of the land in perpetuity
  - e) prevent any future development activities
  - f) include a provision that ensures the active conservation management of the two **BioBank Sites** in accordance with the approved management plan(s) referred to in Conditions 5 and 6.

The draft **BioBanking agreement** must be submitted to the **Department**, for the Minister's approval, prior to signing of the **BioBanking Agreement** with **NSW Office of Environment and Heritage**.

The **approval holder** must ensure that the **BioBank Sites** are managed in accordance with the approved **BioBanking agreement**, as outlined in Conditions 3 and 4 (a – f), with **NSW Office of Environment and Heritage**.

5. Until such time as a **BioBanking agreement** (referred to in Conditions 3 and 4) is approved by the **Department** and **NSW Office of Environment and Heritage**, the **approval holder** must prepare and implement a BioBank Site Management Plan for the conservation and management of **MNES** present within the two **BioBank Sites** within the **E4 zones** (as identified in Annexure B). The plan(s) must be prepared by a **suitably qualified person** and be included in the Vegetation Management Plan referred to in Condition 6. The BioBank Site Management Plan must be submitted to the **Department**, for the **Minister's** approval, within three (3) months of the approval of this action. The management plan(s) must include:

- a) measures to protect, conserve and manage **Grey-headed Flying-fox habitat, CPW** and **SSTF** at the **impact site**;
- b) details of the management actions to be undertaken;
- c) clear objectives and performance indicators for all management actions;
- d) details of a comprehensive monitoring and reporting program to demonstrate the effectiveness of proposed management actions;
- e) measurable trigger levels that will result in corrective actions being implemented to prevent performance objectives from being compromised;
- f) details of corrective actions should trigger levels be exceeded, measures to manage weeds; and
- g) measures to prevent the occurrence of dieback by *Phytophthora cinnamomi* during construction
- h) a commitment to manage the two **BioBank sites** for the life of the impacts and the persons responsible for management actions.

The approved BioBank Site Management Plan must be implemented at the **BioBank Sites** for the management and conservation of **Grey-headed Flying-fox habitat, CPW** and **SSTF**.

6. The **approval holder** must prepare and implement a Vegetation Management Plan for the management and conservation of **Grey-headed Flying-fox habitat, CPW** and **SSTF**. The Vegetation Management Plan must be prepared by a **suitably qualified person**. The Vegetation Management Plan must be submitted to the **Department**, for the **Minister's** approval, prior to the **commencement of the action** at **Precincts E, F, G and I**. The Vegetation Management Plan must include:

- a) details of the management actions to be undertaken;
- b) clear objectives and performance indicators for all management actions;
- c) measures to revegetate cleared areas with **CPW** and **SSTF** at the **impact site**;
- d) measures for pre-clearance surveys (particularly for **Grey-headed Flying-fox** species);
- e) measures to manage weeds;
- f) measures to prevent the occurrence of dieback by *Phytophthora cinnamomi* during construction;

- g) details of the monitoring and reporting to be undertaken to demonstrate the effectiveness of the measures referred to in (a – f), including the parameters to be monitored, methods, timing, frequency and location of monitoring;
- h) conditions specified in this approval for which the plan(s), strategy or program(s) is being provided; and
- i) the relevant folder, chapter, section number and page number in the plan(s), program(s) or strategies where the condition has been addressed.

### **Standard Conditions**

- 7. Within 14 days after the **commencement of the action**, the **approval holder** must advise the **Department** in writing of the actual date of **commencement**.
- 8. The **approval holder** must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement all management plans required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the **EPBC Act**, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.
- 9. Within three months of every 12 month anniversary of the **commencement of the action**, the **approval holder** must publish a report on their website addressing compliance with each of the conditions of this approval, including details on the implementation of required management actions, and the implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the compliance report is published. The **approval holder** must continue to publish the annual compliance report until such time as agreed to in writing by the **Minister**.
- 10. Upon the direction of the **Minister**, the **approval holder** must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.
- 11. If the **approval holder** wishes to carry out any activity otherwise than in accordance with any management plan as specified in these conditions, the **approval holder** must submit to the **Department** for the **Minister's** written approval a revised version of the relevant management plan(s). The varied activity shall not commence until the **Minister** has approved the varied management plan(s) in writing. The **Minister** will not approve a varied management plan(s) unless the revised management plan(s) would result in an equivalent or improved environmental outcome over time. If the **Minister** approves the revised management plan(s), that management plan(s) must be implemented in place of the management plan(s), originally approved.

12. If the **Minister** believes that it is necessary or convenient for the better protection of **MNES** to do so, the **Minister** may request that the **approval holder** make specified revisions to any management plan specified in these conditions, and submit the revised management plan(s) for the **Minister's** written approval. The **approval holder** must comply with any such request. The revised approved management plan(s) must be implemented. Unless the **Minister** has approved the revised management plan(s), then the **approval holder** must continue to implement the management plan(s) originally approved.
13. If, at any time after five (5) years from the date of this approval, the **approval holder** has not **commenced the action**, then the **approval holder** must not **commence the action** without the written agreement of the **Minister**.
14. Unless otherwise agreed to in writing by the **Minister**, the **approval holder** must publish all management plans referred to in these conditions of approval on their website. Each management plan must be published on the website within one (1) month of being approved.



## Definitions

**Approval holder** – the person to whom the approval is granted, or to whom the approval is transferred to under section 145B of the **EPBC Act**.

**BioBanking agreement** – means an agreement relating to the action and entered into by the **approval holder** under the NSW BioBanking Scheme established under the NSW *Threatened Species Conservation Act 1995*. The **BioBanking agreement** identifies management actions that must be undertaken on the site and places restrictions on how the site can be used.

**BioBanking Credits** – means ecosystem credits for vegetation types that meet the definition of **Grey-headed Flying-Fox habitat**, **CPW** and **SSTF** ecological communities, under the EPBC Act, calculated under the **BioBanking methodology**.

**BioBanking methodology** is the BioBanking assessment methodology under the NSW BioBanking Scheme administered by **NSW Office of Environment and Heritage**. The 2014 **BioBanking methodology** is used to determine both the number and type of credits that may be created for particular management actions, and the number of credits that must be retired to offset the impact of a development and ensure that it improves or maintains biodiversity values.

**BioBank Sites** – landowners entering a **BioBanking agreement** under the NSW *Threatened Species Conservation Act 1995* to establish a **BioBank Site**. **BioBank sites** can be established on any land.

**Clearance of native vegetation** – The cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of native vegetation.

**Commencement/Commencement of the action** – the undertaking of any preparatory works (excluding fences and signage), earthworks / clearing of EPBC Act listed ecological communities and species habitat, the erection of any onsite temporary structures/building compound facilities, or the first instance of any use of heavy duty equipment for breaking ground, or of clearance of any vegetation.

**CPW** - *Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest* ecological community is listed as critically endangered under the EPBC Act. This critically endangered ecological community is present in three separate patches at the **impact site**. The community is mapped at Annexure C.

**Department** – the Commonwealth Department responsible for administering the *Environment Protection and Biodiversity Conservation Act 1999*.

**E4 zones** – Environmental Living zone under the Hills Local Environment Plan 2012. Refer to Annexure B.

**EPBC Act** – the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

**Grey-headed Flying-Fox habitat** – the Grey-headed Flying-fox (*Pteropus poliocephalus*) is a vulnerable species under the EPBC Act. The Grey-headed Flying-fox habitat at the **impact site** includes remnant patches of **SSTF** and **CPW** in the north of the **impact site**. Eucalypt trees within the **impact site** present potential foraging habitat for the species (as discussed in the Recommendation Report).

**Impact/s/ed site** – means the Box Hill North Precinct, being:

- Lots 15 – 18, Lots, 21, 23, Lots 25-27, Lots 29-31, Lots 40 & 41, and Lots 43 – 47; in DP 255616;
- Lots 1 – 3 in DP 11126;
- Lots 4A & 4B in DP 135304;
- Lot 1 in DP 207750;
- Lots 9 & 10 in DP 593517;
- Lot 5 in DP 658286; and
- Lot 1 in DP 564211

at Box Hill North in the Hills Local Government Area. Refer to [Annexure C](#).

**Minister** – the Minister responsible for the administration of the **EPBC Act** and includes a delegate of the Minister.

**MNES** –Matters of National Environmental Significance, including **Grey-headed Flying-Fox habitat**, **CPW**, and **SSTF**.

**NSW Office of Environment and Heritage** is the NSW Department responsible for administering the NSW BioBanking Scheme established under the NSW *Threatened Species Conservation Act 1995*.

**Precincts E, F, G and I** – the development precincts E, F, G and I, as identified in [Annexure C](#), where various amounts of **Grey-headed Flying-Fox habitat**, **CPW**, and **SSTF** (referred to in [Table 1](#)) are to be cleared.

**Table 1: Areas of MNES Vegetation to be cleared from each Development Precinct**

Precinct	MNES	
	<i>Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest</i>	<i>Shale Sandstone Transition Forest in the Sydney Basin Bioregion</i>
A	0	0
B	0	0
C	0	0
D	0	0
E	0.08	1.27
F	0	0.04
G	0.0003	11.62
H	0	0
I	10.19	0.003
Total	10.27	12.95

**Retire / Retirement** – means retire/retirement in accordance with BioBanking methodology to make credits no longer available to be bought or sold.

**SSTF** - *Shale Sandstone Transition Forest of the Sydney Basin Bioregion* ecological community is listed as critically endangered under the EPBC Act. This critically endangered ecological community is present in three separate patches at the **impact site**. The community is mapped at Annexure C.

**Suitably qualified person** – any individual with relevant tertiary qualification and/or a minimum of five (5) years demonstrated experience in the restoration and management of threatened ecological communities.

## BioBanking credit report



Office of  
Environment  
& Heritage

This report identifies the number and type of credits required at a DEVELOPMENT SITE.

Date of report: 1/02/2016

Time: 4:25:18PM

Calculator version: v4.0

### Development details

**Proposal ID:** 0057/2016/2387D  
**Proposal name:** 15062 - Development (V1=updated layout;V2=updated layout E4)  
**Proposal address:** PO Box 2474 Carlingford Court NSW 2118  
  
**Proponent name:** Cumberland Ecology  
**Proponent address:** PO Box 2474 Carlingford Court NSW 2118  
**Proponent phone:** 0298681933  
  
**Assessor name:** David Robertson  
**Assessor address:** PO BOX 2474 Carlingford Court NSW 2118  
**Assessor phone:** 02 9868 1933  
**Assessor accreditation:** 0057

### Improving or maintaining biodiversity

An application for a red flag determination is required for the following red flag areas

Red flag	Reason
Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion	Vegetation type being > 70% cleared; or it contains an endangered ecological community;
Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin Bioregion	Vegetation type being > 70% cleared; or it contains an endangered ecological community;

The application for a red flag determination should address the criteria set out in the BioBanking Assessment Methodology. Please note that a biobanking statement cannot be issued unless the determination is approved.

#### Additional information required for approval:

- ☐ Change to percent cleared for a vegetation type/s
- ☐ Use of local benchmark
- ☐ Change negligible loss
- ☐ Expert report...
- ☒ Request for additional gain in site value
- ☐ Predicted threatened species not on site
- ☐ Change threatened species response to gain ( Tg value )



## Ecosystem credits summary

Plant Community type	Area (ha)	Credits required	Red flag
Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion	10.27	466.27	Yes
Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin Bioregion	12.95	448.68	Yes
<b>Total</b>	<b>23.22</b>	<b>915</b>	

## Credit profiles

### 1. Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion, (HN528)

Number of ecosystem credits created

466

IBRA sub-region

Cumberland - Hawkesbury/Nepean

Offset options - vegetation types	Offset options - CMA sub-regions
Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion, (HN528)	Cumberland - Hawkesbury/Nepean and any IBRA subregion that adjoins the IBRA subregion in which the development occurs

### 2. Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin Bioregion, (HN556)

Number of ecosystem credits created

449

IBRA sub-region

Cumberland - Hawkesbury/Nepean

Offset options - vegetation types	Offset options - CMA sub-regions
<p>Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin Bioregion, (HN556)</p> <p>Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion, (HN513)</p> <p>Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion, (HN604)</p>	Cumberland - Hawkesbury/Nepean and any IBRA subregion that adjoins the IBRA subregion in which the development occurs



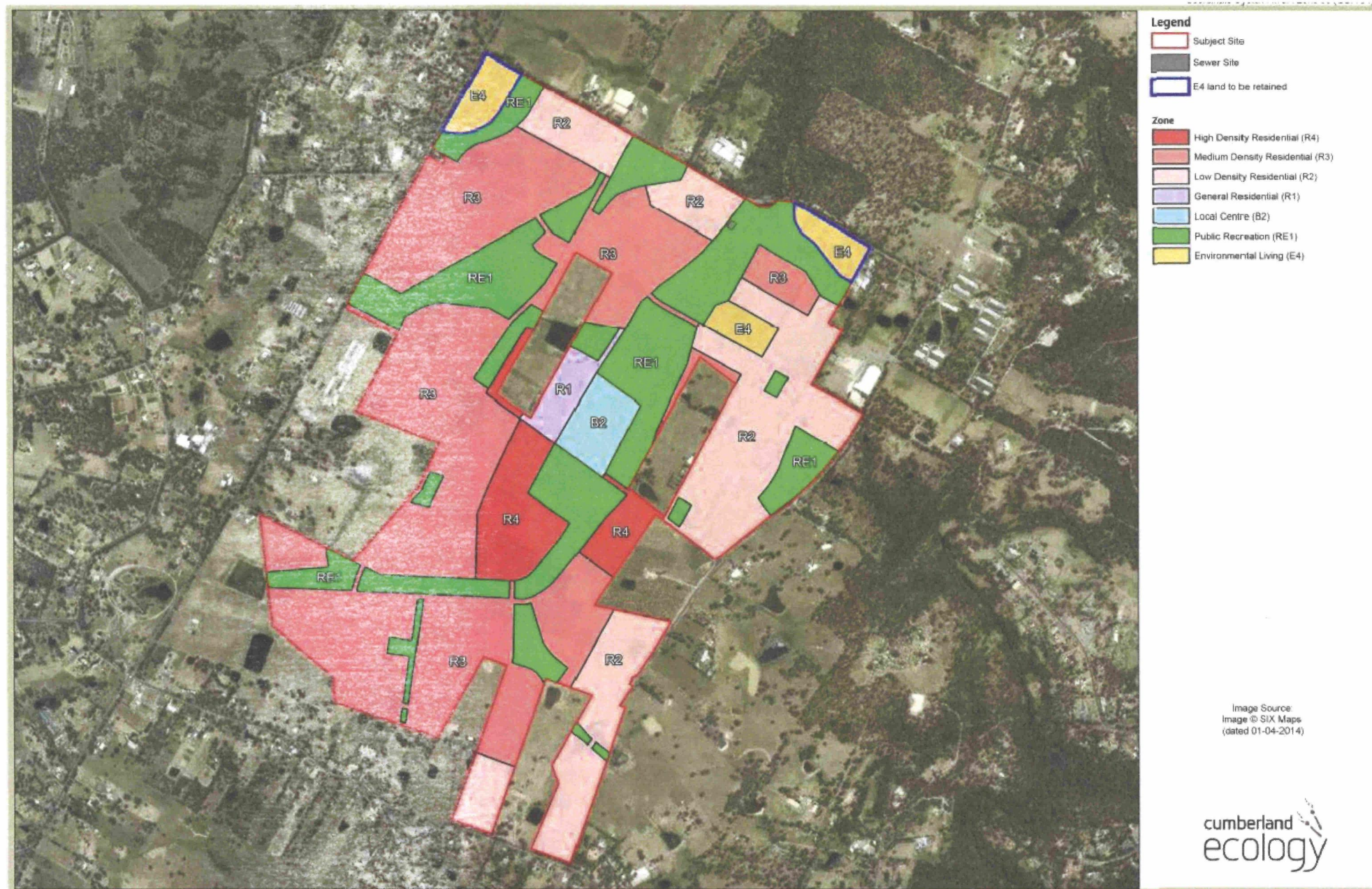


Figure 3. E4 areas to be registered as Biobank Site





Figure B.3. Native Vegetation at the Subject Site

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*Appendix B*

Consistency of Biobank Site Management  
Actions with EPBC requirements for MNES

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**Table B.1 Consistency of BioBank site management actions with EPBC requirements**

EPBC Requirement	NSW BioBanking	Consistent	Comment
Requirement as per EPBC conditions	Section in Biobank Site Management Action Plan (MAP) that address EPBC requirement		
5 a) measures to protect, conserve and manage Grey-headed Flying-fox habitat, CPW and SSTF at the impact site;	Section 1 – Standard Management Actions Item 1: Management of grazing for conservation Item 2: Weed control Item 3: Management of fire for conservation Item 4: Management of human disturbance Item 5: Retention of regrowth and remnant native vegetation Item 6; Replanting or supplementary planting where natural regeneration will not be sufficient Item 7: Retention of dead timber Item 8: Erosion control Item 9: Retention of rocks Section 2 – Additional Management Actions Item 10: Control of feral and overabundant native herbivores Item 11: Vertebrate Pest Management	✓	

**Table B.1 Consistency of BioBank site management actions with EPBC requirements**

EPBC Requirement	NSW BioBanking	Consistent	Comment
Requirement as per EPBC conditions	Section in Biobank Site Management Action Plan (MAP) that address EPBC requirement		
5 b) details of the management actions to be undertaken;	Sections 1 & 2, Items 1 - 11	✓	
5 c) clear objectives and performance indicators for all management actions;	Sections 1 & 2, Items 1 - 11	✓	
5 d) details of a comprehensive monitoring and reporting program to demonstrate the effectiveness of proposed management actions;	Annexure D - Monitoring, reporting and record keeping requirements	✓	
5 e) measurable trigger levels that will result in corrective actions being implemented to prevent performance objectives from being compromised;	Section 3 – Standard Management Plans	✓	
5 f) details of corrective actions should trigger levels be exceeded, measures to manage weeds;	Section 3 – Standard Management Plans	✓	
5 g) measures to prevent the occurrence of dieback by <i>Phytophthora cinnamomi</i> during construction	-	n/a	Phytophthora control forms part of standard site access protocols.
5 h) a commitment to manage the two BioBank sites for the life of the impacts and the persons responsible for management actions	MAP, Biobanking Agreement	✓	

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*Appendix C*

# Contamination Assessment

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21 February 2017

Jude Adikari  
Development Manager  
Celestino Developments Pty Ltd  
Via email: [jude.adikari@celestino.net.au](mailto:jude.adikari@celestino.net.au)

### **The Gables, Box Hill – Remediation within Bio Banking Sites**

Dear Jude,

JBS&G Australia Pty Ltd (JBS&G) was engaged by Celestino Developments Pty Ltd to undertake environmental consulting services including contamination investigations and preparation of a Remedial Action Plan (RAP) for The Gables development in Box Hill North, NSW.

The Gables Master Plan includes two Bio Banking areas, one each in the northeast (Precinct G) and northwest (Precinct I) of the development site. It is understood that these areas are to be remediated in accordance with the RAP, but that no bulk earthworks involving bulk excavation or filling is proposed, and existing vegetation is to remain. This advice provides an outline of remediation requirements to address any identified contamination issues within these Bio Banking areas.

The northeast area incorporates the northern portions of 151 and 169 Maguires Road. The northwest area incorporates the western portions of 207-217 and 195-205 Boundary Road, and possibly a small portion in the northwest of 181-191 Boundary Road. Previous investigations across the development site identified very little by way of contamination requiring remediation, with only a few locations where asbestos on or in soil, and/or in structures, was reported. Other minor potential issues include minor stockpiles of waste, potential ecological risks and sediments in dams.

In addition to removal of hazardous building materials such as asbestos from existing structures and demolition of structures, the following remedial actions are anticipated for these two Bio Banking areas, consistent with the requirements of the RAP (JBS&G 2015):

- Completion of data gap investigations, involving shallow soil sampling, to define the extent of previously identified contamination requiring remediation, and confirm there are no potential ecological risks;
- Assessment of sediments in dams to be dewatered;
- Remediation of identified isolated impacts, likely involving very limited excavation based on current data;
- Remediation of any unexpected finds, such as asbestos in former building structures or as may be identified during data gap investigations and dam sediment assessment. Based on experience in the southern portions of The Gables, and the data from previous investigations, there are unlikely to be any gross or widespread unexpected impacts within the two Bio Banking areas that would require more than isolated remedial excavation works.



Should you require clarification, please contact the undersigned on 02 8245 0300 or by email [mdelandro@jbsg.com.au](mailto:mdelandro@jbsg.com.au).

Yours sincerely:



Matthew Bennett  
Principal Contaminated Land  
**JBS&G Australia Pty Ltd**



Michelle Delandro  
Environmental Consultant  
**JBS&G Australia Pty Ltd**

Attachments:

(1) Limitations

## **Attachment 1 – Limitations**

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquires.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

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*Appendix D*

# Heritage Clearance Map

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