



SYDNEY PORTS

FIRST PORT, FUTURE PORT

Green and Golden Bell Frog

FROG PROTECTION PLAN

Intermodal Logistics Centre at Enfield



Prepared by Biosphere Environmental Consultants Pty Ltd

ILC – E – ECOL – Frog Protection Plan June 2009

Revision 3

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1. Background

1.1 Introduction

This Frog Protection Plan (FPP) provides the measures required to protect any Green and Golden Bell Frogs (GGBF) that may be found during construction works on the proposed Intermodal Logistics Centre at (ILC) at Enfield. The Plan has been prepared by Sydney Ports Corporation's (Sydney Ports') Consulting Herpetologist, Dr Arthur White of Biosphere Environmental Consultants Pty Ltd.

This Frog Protection Plan must be included in the Construction Environmental Management Plans (CEMPs) prepared for all construction works to be undertaken on the ILC Site. This FPP and the Frog Management Plan (provided as a separate document) have been prepared in accordance with the requirements of Conditions 2.48 and 6.3 d iv) of the Project Approval and undertakings provided in the Statement of Commitments in the Preferred Project Report (SKM, 2006).

1.2 Frog Management Plan Objectives

The objectives of this Frog Protection Plan are to:

1. Identify potential threats to Green and Golden Bell Frogs on the ILC Site during construction works (refer Section 2).
2. Detail the measures required to provide maximum protection for the Green and Golden Bell Frogs on the ILC Site during construction works (refer Section 3).

1.3 Location

The ILC Site is located at Strathfield South, approximately 15 km by road from the Sydney CBD. It covers an area of about 60 ha extending from the intersection of the Hume Highway and Roberts Road in the north, through to the intersection of Punchbowl Road and Cosgrove Road in the south.

The southern part of the ILC Site has been designated for the creation of a Green and Golden Bell Frog Habitat Creation Area (FHCA) as shown on Figure 1.

1.4 GGBF Habitat Creation Area and Movement Corridor

The main components of the ILC's GGBF FHCA, as shown on Figure 1, are:

1. Permanent frog ponds constructed adjacent to the Coxs Creek canal.
2. Frog foraging habitat consisting of an expanse of grassland around the ponds.
3. A frog movement corridor to assist GGBF to move between the ILC FHCA, the Juno Parade Frog Habitat Area to the west and the RailCorp pond to the north-west.

The management of the FHCA is provided in the Frog Management Plan which has been prepared as separate document.



Figure 1: Indicative Location of GGBF FHCA and Movement Corridor

1.5 Environmental Management Structure and Responsibility

The responsibility and authority of key project personnel pertaining to environmental performance and frog protection is described in Table 1.1 below.

Table 1.1: Project Environmental Roles and Responsibilities

Role	Name	Phone	Responsibilities
Sydney Ports' Project Manager	Bruce Royds	1800 059 233 0417 278 386	<ul style="list-style-type: none"> Responsible for delivery of the ILC enabling works, including construction of the FHCA and movement corridor. Emergency contact. Authorised to stop or direct works.
Sydney Ports' Consulting Herpetologist	Dr Arthur White	9599 1161 or 0427 021 059	<ul style="list-style-type: none"> Prepares Frog Protection Plan. Identifies potential frog habitat areas and locations for frog protection fencing. Carries out frog clearances and issues clearance letters prior to the commencement of works. To be contacted immediately if frogs are found during site inspections or during works activities.
Sydney Ports' Planning and Environmental Manager	Ricardo Prieto-Curiel	1800 059 233 0488 220 642	<ul style="list-style-type: none"> Has primary responsibility for environmental management of the enabling works. Second contact if Consulting Herpetologist is not available and frogs are found during works.
Sydney Ports' Project Administrator	Virginia Mullins	1800 059 233 0407 214 962	<ul style="list-style-type: none"> Responsible for project administration including maintaining records, updating the website and answering enquiries. Responsible for maintaining the Complaints Register.
Sydney Ports' Site Manager	Kim Bailey	1800 059 233 0417 288 551	<ul style="list-style-type: none"> On-site requirements
Contractor/s	TBA		<ul style="list-style-type: none"> Carries out works in accordance with the requirements of the Frog Protection Plan

1.6 Emergency Contacts and Response

Sydney Ports' 24 hour number is ☎1800 059 233. Sydney Ports' nominated person who can deal with emergencies and has the authority to stop or direct works is Bruce Royds.

2. Potential Threats to GGBF during Construction

Injury or death to GGBF may occur as a result as a result of direct and indirect impacts from the proposed works as outlined below.

2.1 Direct Impacts

1. Hibernating frogs being run over or injured by heavy vehicle movements.
2. Frogs sheltering in grass being impaled or injured during fence construction.
3. Frogs entering the work area overnight and sheltering under machinery, vehicles or stored construction materials being squashed or injured when these items are required for use.
4. Frogs sheltering in grass or bushes being killed or injured during earthworks.

These impacts will be mitigated through the use of frog fences and frog clearances as outlined in Sections 3.1 to 3.4

2.2 Indirect Impacts

1. Chemical, fuel or solvent spills contaminating the soil or waterways being used by the frogs and causing death or injury to frogs and/or tadpoles.
2. Wind-blown cement dust or industrial fumes causing burns or injury to frogs or contaminating water that is being used as a breeding site.
3. Soil, mulch or other landscaping materials containing spores of *Batrachochytrium*, causing illness or death to frogs and tadpoles.
4. Water containing spores of *Batrachochytrium* being imported onto the site, causing illness or death to frogs and tadpoles.
5. Water containing the Plague Minnow *Gambusia holbrooki* being imported onto the site.
6. Use of herbicides on site.

Measures to mitigate these impacts are contained in Section 3.5.

3. Frog Protection Measures

No populations of GGBF have been found at the ILC Site during inspections carried out for the project Environmental Assessment or during more recent inspections. However, frogs could enter the ILC Site from off-site habitats (eg the Juno Parade frog habitat area) under suitable weather conditions. Frog protection measures are therefore required to protect GGBF from injury or damage during the construction works on the ILC Site. The measures are intended for implementation in areas where potential habitat for GGBF occurs at the site (at locations at the southern and north-eastern portions of the site, as shown on Figure 3).

3.1 Site Inspections and Frog Searches

3.1.1 Identification of Potential Frog Habitat Areas

Sydney Ports' Consulting Herpetologist identified areas of potential frog habitat on the site through site inspection and review of existing information prior to any work commencing on the ILC Site, as shown on Figure 3. The remaining areas of the site were classified as non-potential frog habitat areas.

The requirements for frog searches and mitigation measures depend on the location in which work is to be carried out. If there is uncertainty regarding in which zone the proposed work area is located then Sydney Ports' Consulting Herpetologist must be consulted.

3.1.2 Potential Frog Habitat Areas

Frog protection fences (refer Section 3.2 below) must be erected around areas of potential frog habitat **prior to works commencing in the vicinity** of these areas to contain frogs within the habitat areas.

Prior to any works being carried out within the potential frog habitat areas, frog clearances must be carried out by Sydney Ports' Consulting Herpetologist and a clearance letter issued by the Consulting Herpetologist. Works must not commence until the clearance letter has been issued by the Consulting Herpetologist. Refer Section 3.3 for more details on frog clearance requirements.

3.1.3 Non-Potential Frog Habitat Areas

In non-potential frog habitat areas, frog searches must be carried out by the Contractor before commencement of works in that area. The searches must comprise the checking of grass, timber or other potential shelter sites for the presence of frogs. The Contractor can issue the frog clearance after the frog search has been carried out.

3.2 Frog Protection Fences

As stated above, temporary frog protection fences must be erected around areas of potential GGBF habitat **prior to any works** being carried out either in or adjacent to these areas. The fences provide a barrier to minimise the likelihood of GGBF being injured or killed as a result of construction works. Fences may need to include frog proof gates to allow access to the work sites. The gates must be shut at the end of each day.

Figure 2 provides an indicative arrangement for the temporary frog protection fences. Figure 3 shows the proposed indicative locations of the frog fencing.

3.2.1 Project Staging

The FPP will be implemented in accordance with the project staging, as discussed below. The timing of the project staging is indicative only and will be subject to change as the project progresses.

Stage 1 - Enabling Works

The project enabling works include:

- demolition and remediation;
- construction of the FHCA;
- heritage stabilisation and relocation works;
- removal of RailCorp's 11 kV aerial cable;
- construction of wheel lathe rail corridor at the northern part of the site.

The enabling works will be carried out during 2009 and 2010. Demolition and remediation will take place mainly in the north-eastern part of the site in 2009. This area was surveyed for the presence of frogs in December 2008 and the north-eastern frog protection fence erected prior to works commencing in this area. The remainder of the enabling works will be undertaken once demolition and remediation works are complete. The southern frog protection fence will be erected in stages, with the first phase erected prior to the commencement of enabling works in the southern portion of the site.

Stage 2 - Main Construction Works

Main construction works will follow completion of the enabling works and are targeted to commence in 2010 and be completed in 2011. These works will be carried out in areas to the west and north of the FHCA.

Rail corridor works will be carried out in the west portion of the site adjacent to the western end of the frog movement corridor. The FHCA and movement corridor will be separated from the main construction works by frog fencing (refer Figure 3) which will constrain the FHCA area to the curtilage of the ponds until construction to the west of the FHCA is complete.

3.2.2 Phases of Frog Protection Fence Construction and Removal

Figure 3 shows the proposed indicative locations and phasing of construction of the frog protection fencing. Table 3.1 lists the required locations and phasing of the erection and removal of the frog protection fences on the site.

Frog protection fences may also be required in other areas as identified by Sydney Ports' Consulting Herpetologist.

Table 3.1: Frog Protection Fence Locations and Phasing

Phasing of fence construction	Fence Location	Purpose	Phasing of fence removal
1. Prior to commencement of enabling works in the vicinity of potential frog habitat area (shown red on Fig 3)	<ul style="list-style-type: none"> ▪ Around potential frog habitat area adjacent to open channel 1, in the north-east of the site. ▪ Around potential frog habitat area near Coxs Creek, in the south of the site. 	To prevent any frogs in potential frog habitat areas from entering any nearby construction areas.	<ul style="list-style-type: none"> ▪ Northern-eastern fence to be removed on completion of nearby construction works. ▪ Southern fence to be removed on completion of all site construction works in the vicinity of the frog habitat areas or if superseded by new fencing in Phases 2 or 3.
2. Prior to construction of FHCA ^{1,2} (shown yellow on Fig 3)	<ul style="list-style-type: none"> ▪ Around the location of the proposed FHCA in the south of the site. 	<ul style="list-style-type: none"> ▪ During construction of the FHCA, to exclude any frogs from the FHCA. ▪ Once the FHCA has been commissioned, to prevent any frogs that may be in the FHCA from entering other areas of the site during the remainder of site construction. 	<ul style="list-style-type: none"> ▪ Northern section to be removed on completion of site construction works north of this area. ▪ Southern section to be removed on completion of site construction works south of this area (heritage relocation, landscaping, access road etc).
3. Following construction of movement corridor (shown white on Fig 3)	<ul style="list-style-type: none"> ▪ Around the constructed movement corridor in the south of the site. 	Once the movement corridor has been commissioned , to prevent any frogs in the corridor from entering the construction areas during the remainder of site construction.	<ul style="list-style-type: none"> ▪ Northern section to be removed on completion of site construction works north of this area. ▪ Southern section to be removed on completion of site construction works south of this area (heritage relocation, landscaping, access road etc). ▪ Western section to be retained until completion of rail works on western portion of site.

- Notes:
- 1 The southern side of this fence may be built during Phase 1.
 - 2 The final location of frog fences in the southern area will be determined once the design of the FHCA has been finalised

3.2.3 Inspection and Maintenance

All frog fences must be inspected at the start of work each day by the Contractor with control of the site to ensure that they are functional and not torn or holed. The Contractor must ensure that any required repairs to the fence are made **before** nightfall so that the frog clearance remains valid for the enclosed area. If gaps in the fence or the access gate are left open overnight, the frog clearance will become invalid and work must cease until a new frog clearance is carried out and the enclosed area is again declared safe for frogs.

3.3 Frog Clearances

Frog clearances will be carried out within the works areas enclosed by the frog protection fences after the frog protection fences have been erected and before construction commences. Frog clearances comprise night-time searches for GGBF under favourable weather conditions. Frogs will be located using headlamps and be processed before being released. All frog handling procedures will comply with the NSW National Parks and Wildlife Service's frog hygiene protocol.

Once the frog clearance has been completed and the area is free of GGBFs (as best can be determined), Sydney Ports' Consulting Herpetologist will issue a clearance letter to Sydney Ports and the Contractor. **Works must not begin in the designated potential frog habitat area until Sydney Ports' Consulting Herpetologist has supplied the clearance letter to Sydney Ports and the Contractor.**

3.4 Found Frogs

All frogs that are collected by hand during frog clearances or during monitoring surveys will be measured, sexed and micro-chipped, if not already tagged, and inspected by the Consulting Herpetologist for signs of disease or injury. Frogs that are not diseased or injured will be released in the Juno Parade Frog Habitat Area (subject to approval by DECC) by the Consulting Herpetologist.

Frogs that are injured will be taken into captive care, treated and when fully recovered, returned to the FHCA (once commissioned) or the Juno Parade Frog Habitat Area (subject to approval by DECC). If the injury is a permanent one, the frog may be kept in captivity as a potential breeding animal.

If diseased frogs are found, they will be placed in small, plastic aquaria and taken to an approved quarantine area where they will be treated. In cases where chytrid disease is suspected, the frog may be forwarded to Taronga Zoo for diagnosis and treatment. Frogs suspected of having chytrid disease will not be returned to the FHCA.

Should any live frogs be discovered while construction works are being undertaken, the Contractor must place the frogs into a holding container with some water and immediately advise Sydney Ports and Sydney Ports' Consulting Herpetologist. Pet pack containers will be supplied by Sydney Ports' Consulting Herpetologist for this purpose.

The Contractor must retain the carcass of any dead GGBFs found during construction works and immediately advise Sydney Ports and Sydney Ports' Consulting Herpetologist. If the cause of death is not obvious, Sydney Ports' Consulting Herpetologist will preserve the frog in buffered alcohol and forward it to Taronga Zoo for pathological testing.

3.5 Measures to Address Indirect Impacts

3.5.1 Construction Spills and Air Quality Impacts

Items 1 and 2 in Section 2.2 above are addressed in the Construction Environmental Management Plans (CEMPs) prepared under the Part 3A Approval for the project. The CEMPs include sub-plans including Dust Management Plans (DMPs) and Soil and Water Management Plans (SWMPs).

The FHCA will be identified and signposted as an area where solvents, petrochemicals and detergents are not permitted. Fuel and chemical storage sites will be established away from the frog habitat areas. Should these sites be established upslope from frog habitat areas, low earthen bunds will be constructed to prevent surface spills from entering the FHCA.

Wind-blown cement dust or construction fines will be contained through the use of silt screens, where possible, around the work sites. Water tankers will be used to settle dust in exposed areas. Volatile chemicals will not be permitted near the FHCA and these substances must be used in approved storage locations.

3.5.2 Importation of Soil or Mulch to the Site

Soil, mulch and other landscaping materials may harbour spores of *Batrachochytrium*, a virulent and highly contagious frog disease that has been recognised as a Key Threatening Process for Green and Golden Bell Frogs (*Threatened Species Conservation Act 1995*). Site landscaping materials must comply with the specifications and relevant Australian Standards as documented in the ILC's Landscape and Ecological Area Management Plan.

3.5.3 Importation of Water to the Site

Water may be used on site for dust-control. This water could be sourced from stormwater runoff from the site catchment, either from the site bio-retention basin or direct runoff from the area to the south of the FHCA. Mains water could also be used as it is chlorine-treated and cannot transmit chytrid spores. No water from outside sources that has not been chlorine-treated will be accepted on site.

Water imported onto the site from other water bodies could potentially contain juvenile Plague Minnows, a noted predator of the tadpoles of Green and Golden Bell Frogs and a recognised Key Threatening Process (*Threatened Species Conservation Act 1995*). Water will not be accepted on site unless it has been demonstrated to be fish free. For water sourced from open water bodies, this means that the water must have been screened through 600 micron mesh before it will be accepted.

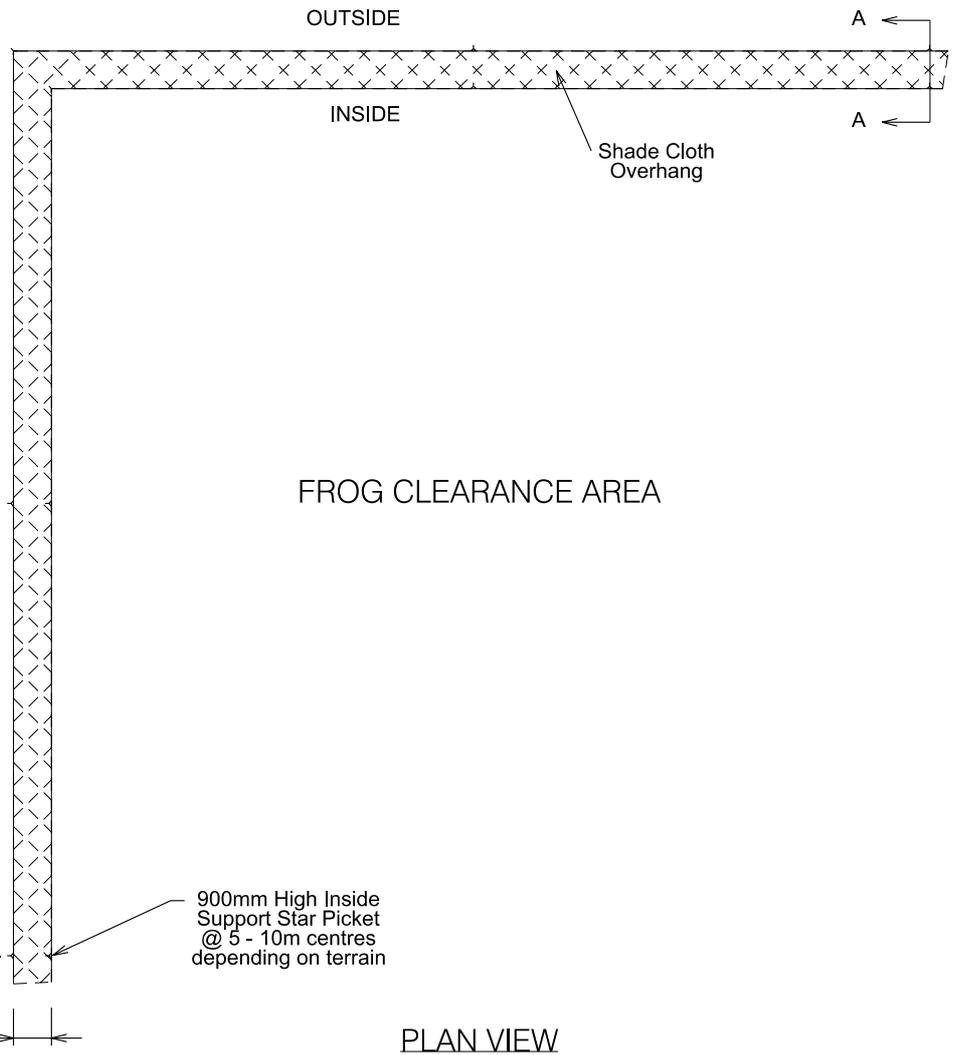
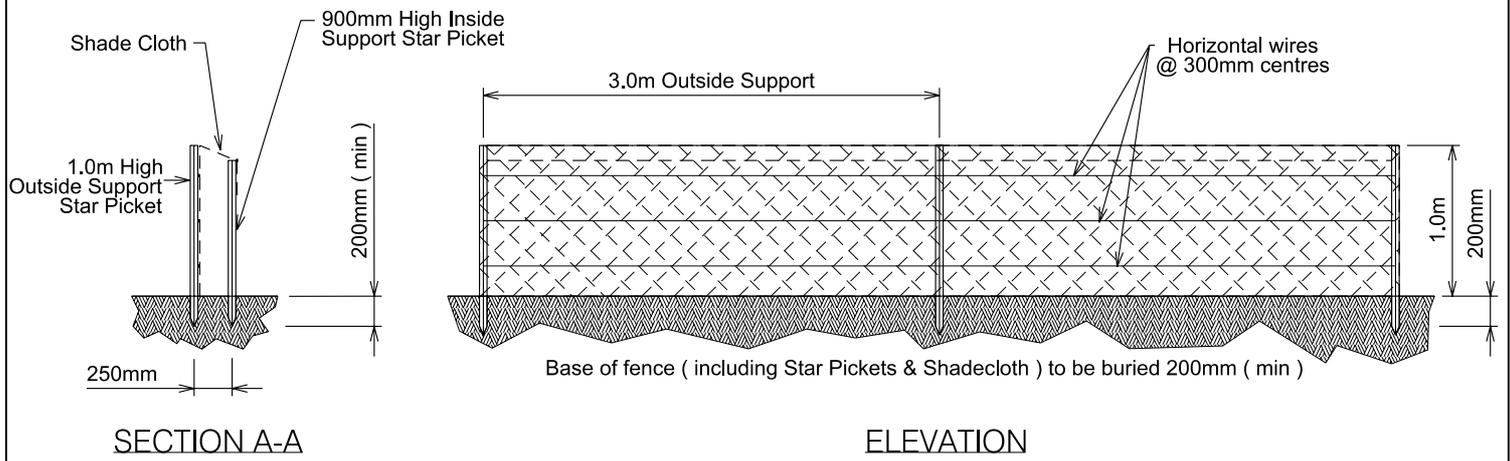
3.5.4 Use of Herbicides

Herbicides, particularly glyphosate products, should generally not be used in the vicinity of the FHCA and the movement corridor. If herbicides are required to be used in the FHCA, approval must be given by Sydney Ports in consultation with the Consulting Herpetologist. In general, spraying of herbicides is **not** permitted, however cutting and painting weeds may be acceptable under some circumstances.

Herbicides may be used on other parts of the site provided spray drift cannot reach the FHCA and surface sprays cannot enter the FHCA in solution via surface water runoff.

Signs must be erected around the FHCA indicating that herbicides, particularly glyphosate products, should not to be used around the ponds without approval of Sydney Ports in consultation with the Consulting Herpetologist.

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NOTES

- ATTACH SHADE CLOTH TO THE HORIZONTAL WIRES BY TWIST TIES OR TIE WIRE.
- THE TIE WIRE MUST NOT BE TOO THIN OR SHARP TO PREVENT DAMAGE TO THE FENCE FABRIC DUE TO WIND MOVEMENT OVER TIME.
- HORIZONTAL WIRE TO BE 2.5mm GALVANISED FENCE WIRE (2kN STRAIN)
- THE SHADE CLOTH MUST BE DURABLE (IE WILL NOT TEAR UNDER WIND OR BREAK DOWN QUICKLY DUE TO EXPOSURE TO SUN)

PLAN LIMITATION STATEMENT

This plan has been prepared in accordance with accepted practice for the use only of Sydney Ports Corporation for a specific purpose. No Warranty or representation, expressed or implied is made to any other party regarding this survey and plan. This plan should not be relied upon for any other purpose or use by any party including Sydney Ports Corporation as the plan may not contain sufficient information for that purpose or use.

THIS NOTE IS AN INTEGRAL PART OF THIS PLAN

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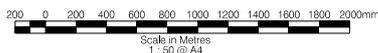
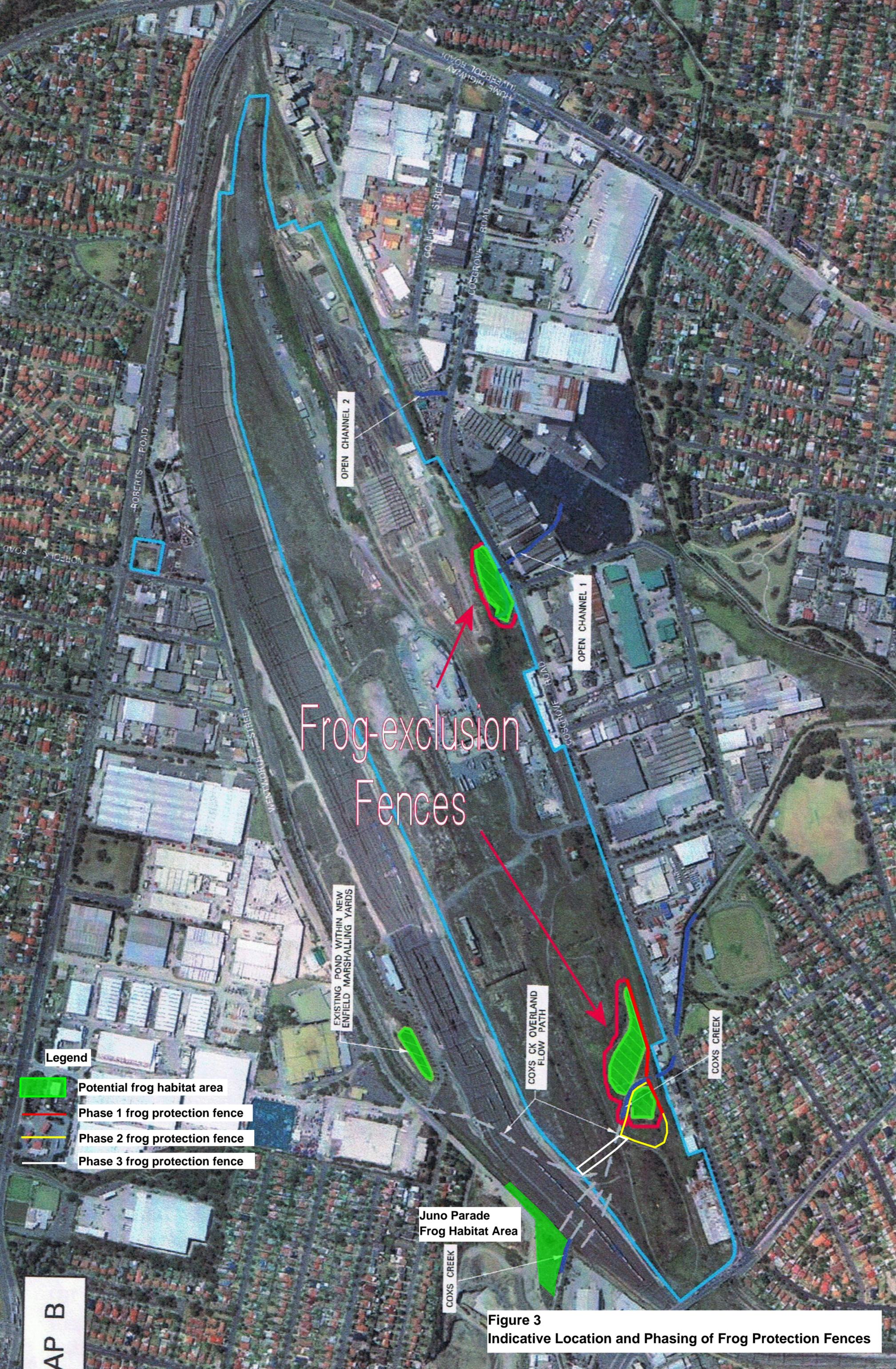


Figure 2 FROG EXCLUSION FENCE GENERAL ARRANGEMENT

DRAFTED BY: J.T.	DATE: 08/09/2008
PLAN SCALE: AS PER SCALE BAR	DWG NO: SEDP090A

PLAN PRODUCED ON MGA GRID



Frog-exclusion Fences

Legend

- Potential frog habitat area
- Phase 1 frog protection fence
- Phase 2 frog protection fence
- Phase 3 frog protection fence

Juno Parade Frog Habitat Area

Figure 3 Indicative Location and Phasing of Frog Protection Fences

AP B