



**GREYSTANES ESTATE
NORTHERN EMPLOYMENT LANDS
PRECINCT**

**PLAN OF MANAGEMENT
FOR
PUBLIC OPEN SPACE**

November 2003

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FOREWORD

This Plan of Management has been prepared for the proposed public open space lands in the Northern Employment Lands Precinct of Greystanes Estate (as defined in SEPP No. 59).

The development of this site has involved the construction of four roads, a riparian zone, and water quality ponds at the northern end of the creek line, and the subdivision of eight (8) industrial allotments.

This Plan of Management covers the public areas of the NEL which feature:-

- the public riparian zone between Road 1 and Road 4, and
- two water quality ponds, (one pre-existing and one new), which have no public access, but there is an easement for access to allow Holroyd City Council to maintain them.

This document was originally prepared in January 2002 by Landscape Architect Consultants, Spackman and Mossop, and was updated as of July 2003 by Council prior to conducting public consultation. At the completion of the public consultation process, during which no public comments were received, the document was again revised taking account of a review of the document undertaken for Council by Environmental Partnership (NSW) Pty Ltd. The review comments facilitated editing the presentation of some sections but did not lead to any changes to the proposals in the Plan.

At this stage all the public works and landscaping are constructed to practical completion and are under the maintenance phase of the contracts. The landowner, Boral Resources Limited, proposes to hand over the ownership of these public areas and the associated infrastructure to Holroyd City Council. Prior to accepting dedication of the land, Council resolved to complete the Plan of Management process to ensure that the broader community was satisfied as to the current status of the development of the land.

The Plan of Management is now complete but will be revised as the adjoining communities become established in the surrounding greenfield residential areas.

Introduction

Section 1.0

BACKGROUND DETAILS

Details of Greystanes Estate

The development of Greystanes Estate Greystanes Estate was one of the largest privately owned parcels of land in Western Sydney. The 300 hectare site was owned by Boral and Sydney Water and has been used for quarrying and associated activities. The quarry, known as Prospect Quarry, has been producing aggregate used in construction materials for the last 100 years. It is however, nearing the end of its economic life.

In February 1999, the State Government gazetted State Environmental Planning Policy No. 59 – Central Western Sydney Economic and Employment Area (SEPP) which applies to a number of landholdings in western Sydney including the Greystanes Estate. The SEPP rezones the Greystanes Estate for urban development including employment generating and residential landuses and establishes the planning framework for the development of the land.

Benefits of the development The development of the Greystanes Estate will provide employment opportunities, a range of residential areas and housing types as well as new areas of public open space. Benefits include improved transport options (both road and public transport); improved access to Prospect Reservoir and surrounding recreation areas; new landscaping incorporating local indigenous species to enhance the existing character of Greystanes; the creation of pedestrian tracks and cycleways with links to the Lower Prospect Canal Reserve; more open space and parkland; and a community shopping centre to service the existing and proposed community (ERM 2001).

Staging of the development The Estate is being developed in two stages: Stage 1 comprises the Northern Employment Lands (NEL) and Northern Residential Lands (NRL) and later Stage 2 will comprise the Southern Employment Lands (SEL) and Southern Residential Lands (SRL). Figure (a) in Section 2 details the extent of each of these areas.

In accordance with the recommendations of SEPP 59, a Precinct Plan was prepared for the Estate development, followed by the Urban and Landscape Form Controls. Consent for the Development Application for the NEL was granted with conditions by DUAP on 28 June 2001, and construction of all public infrastructure has been completed. All the lots in the NEL have now been sold. The development of the Southern Employment Lands and Southern Residential Lands is not expected to commence until at least 2006.

Land covered by this plan This document has been prepared for the public open space areas within the Northern Employment Lands, which include a riparian corridor, water bodies, paths and cycleways.

Status of the land The land is currently owned by Boral Resources Pty Ltd. Following completion of the maintenance contracts for the open space areas, these areas will be transferred to Holroyd Council for ownership and future management.

Under the 1993 Local Government Act, a Plan of Management is required for public open space areas, before any changes can be made to the nature or uses of the open space areas.

The Scope of this Plan

This Plan was prepared to provide long-term development and management direction for the areas zoned as open space within the NEL.

The areas covered by this Plan comprise Lot 503 DP 1042806 with an area of 2.39ha and referred to as The Riparian Zone; and Lot 602 DP 1047403 with an area of 1.423ha and referred to as The Water Quality Ponds. These two areas are separated by Road 1 (Reconciliation Drive) and private lands (the TDG property outside the NEL and Lot 602 of the NEL).

Because the Plan covers two separate parcels of land, under the provisions of the Local Government Act it is considered to be a *generic* plan (as opposed to a *specific* plan). However, in essence, because the Plan applies to two specific and relatively limited sites in close physical proximity that have already been constructed to a mature form, this Plan has more of the character of a specific Plan of Management.

Due to the current undeveloped nature of the surrounding industrial and residential areas, many of the long-term planning issues and management decisions cannot be determined until such time as the local residents and industrial landowners can contribute to the planning process.

This Plan forms the basis for the management of the open space areas covered by it during their early use. The Plan will be further developed in future reviews through a program of consultation with the local community as that community is established following development of the surrounding areas.

The release of employment lands is planned to progress from the northern section of the estate through to the south of the existing quarry pit as shown on Figure A.1 in Appendix A. The development of the Southern employment Lands (SEL) will allow the extension of the proposed areas of open space, into the SEL, with potential connections back into the Northern Residential Lands (NRL) and the Southern Residential Lands (SRL). Whilst this Plan does not direct the management or development of open space areas beyond the NEL, it does consider the potential uses of these areas and the possible open space linkages. Similarly, connections to other off-site open space areas are discussed and their implementation will require that these proposals are supported by managers and planning frameworks under which they operate.

Status of this Plan This Plan of Management has been developed to provide a management framework to identify values, issues, objectives and management strategies for the proposed parks.

Early versions of this document informed the design process. The outcome of the design process was a set of Landscape Documentation on Plans NELD001-010. These plans are cited within the documents approved as consent to Development Application No. 23-02-01 by the Hon Andrew Refshauge, Minister for Urban Affairs and Planning on 28 June 2001.

These Landscape Plans have now been fully implemented and have defined a completed environment. The relevant part of the Landscape Plans are provided in Appendix C.

Any significant change to the present condition of the areas would be inappropriate in the short term. The intention is to facilitate a process of gradual improvement to realise the full potential of the areas and to accommodate any new opportunities that become identified as the surrounding areas develop.

Consultation Undertaken In preparing the early versions of this Plan, the consultants who prepared it, Spackman and Mossop working for their client Boral Resources, had discussions with Holroyd City Council (Manager, Parks and Recreation), the Department of Local Government, and CRI Australia (Project Managers for Boral).

Subsequently, Spackman and Mossop provided the draft report to Council for further development. Following revision by Council to bring it up to date with subsequent progression of the site works, Council resolved at its meeting of 15 July 2003 to:

- Classify the parcels as *community land*, category “parks” subject to completing the public consultation process.

- Place the above resolution on Public Notice (required by LGA Section 34)
- Place on public exhibition the Draft Plan of Management (required by LGA Section 38)
- Hold a Public Hearing to categorise the land as “park” (LGA Section 40A).

Council placed the Plan of Management on public exhibition from 6 August for 28 days with submissions open for 42 days until 18 September 2003. During this period Council advertised the exhibition and wrote directly to 19 external bodies representing Aboriginal Groups and other stakeholders, enclosing a copy of the document and inviting comments.

No submissions were received up to the date of closure or in the subsequent month.

Council conducted a Public Hearing on Monday 1 September 2003 commencing at 6pm at Council’s Administrative Centre in Merrylands. Present were staff from consultants “Environmental Partnership (NSW) Pty Ltd” to facilitate the process, Council staff and the Mayor of Holroyd. No members of the public attended and the Hearing was deemed closed without discussion at 7pm.

PLANNING CONTEXT

The development of these open space areas has been guided by a number of planning instruments produced by State and Local Governments, including:-

- *State Environment Planning Policy 59 – Central Western Sydney Economic and Employment Area*
- *Threatened Species Act (1995)*
- *Local Government Act (1993)*
- *Holroyd Local Environment Plan (LEP)*
- *Holroyd Open Space Strategy*
- *Department of Land and Water Conservation – “The Constructed Wetlands Manual”*

Planning for the management of these lands and the preparation of this document has been guided by:-

- *Local Government Act (1993) as amended*
- *Local Government (General) Regulation (1999)*

- *Department of Local Government Circular to Councils – “Public Land Management - Revised Practice Note” (May 2000)*

Categorisation under the Local Government Act (1993)

Under the Local Government Act (1993), Holroyd Council is required to classify all open space areas as either *community land*, or *operational land*.

The two land parcels that are the subject of this Plan are considered to be important to the community as part of the open space network being established through the Greystanes and Prospect areas that feature habitat enhancements. Access for nature study, walking and other types of passive recreation is a main feature of the Riparian Zone parcel, and while at present there is no public access to the Water Quality Ponds it is anticipated this may be arranged in future as the adjoining areas develop.

The land is not developed to serve Council’s functions as a construction authority and is not needed to support an operational role. Both areas will be accessed by Council in undertaking maintenance activities to ensure its drainage and water quality maintenance services are facilitated and to maintain the landscape and habitat elements. Drainage channels, water treatment devices and wetlands are commonly found as features of community accessible parks.

Given the importance of these two parcels to the community it is appropriate to classify them as community land. Under the Act such land is restricted in its usage to ensure that its qualities are preserved. Accordingly it cannot be sold, or leased for more than 21 years, and must be subject to a Plan of Management which is regularly reviewed.

The Act then requires that any lands classified as community lands be further **categorised** based on an analysis of the functions and values of the lands, into categories such as: Park, Natural area, Area of Cultural Significance, Bushland, Watercourse, Sportsground, etc.

A series of core objectives for each categorisation are provided within the Act, and clearly state the management objectives for each type of community land. Further discussion of the categorisation of these two parcels of community lands, and the objectives for each area, is presented in more detail in Sections 3 and 4 of this document after consideration of the characteristics of the land in Section 2.

THE STRUCTURE OF THIS DOCUMENT

This Plan comprises an assessment of the values and issues related to the open space areas of the NEL, together with management recommendations in the form of objectives and strategies. The content of each section is summarised below:-

- Section 2.0* provides information about the site prior to its recent reconstruction, as it exists today, relationships to adjoining land, and to existing and future communities.
- Section 3.0* identifies what are the values of the site, and why they are important.
- Section 4.0* categorises the open space in accordance with the Local Government Act 1993 and provides details of core management objectives.
- Section 5.0* identifies what are the key issues that need to be addressed in order to establish the parks and protect their inherent values and provides management strategies to address each of the key issues.

LAND DETAILS AT A GLANCE

There are two separate land areas:

Riparian Zone:

Location:	See Appendix A, Plan A.3
Land Parcels:	Lot 503 DP 1042806
Current Ownership:	Boral Resources Pty Ltd
Current Zoning:	Industrial: Extractive 4(d)
Proposed Ownership:	Holroyd City Council
Proposed Zoning:	Open Space 6(a)
Existing Uses:	Drainage, Riparian Zone, Habitats Walking, Cycling and Nature Study
Proposed Uses:	As above
Leases / Licences:	None
Easements:	Various for public utility services – see Appendix B

Water Quality Ponds:

Location:	See Appendix A, Plan A.3
Land Parcels:	Lot 602 DP 1047403
Current Ownership:	Boral Resources Pty Ltd
Current Zoning:	Industrial: Extractive 4(d)
Proposed Ownership:	Holroyd City Council
Proposed Zoning:	Open Space 6(a)
Existing Uses:	Drainage, Riparian Zone, Wetland

	Habitats, Stormwater Treatment and Nature Study
Proposed Uses:	As above
Leases / Licences:	None
Easements:	Various to protect the riparian zone of the adjacent creek and to serve the proposed uses – see Appendix B.

Site Description

Section 2.0

THE SITE AND ITS LOCALITY

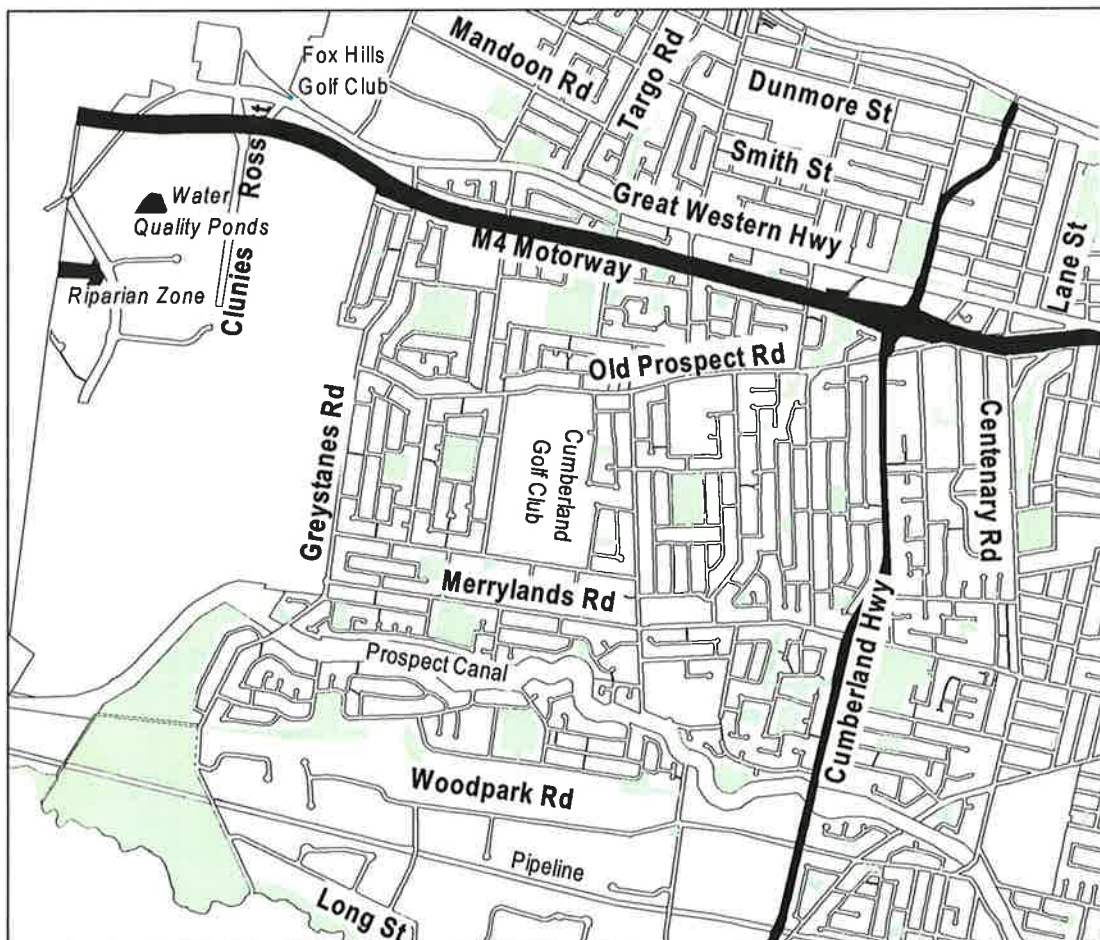
Location

The Greystanes Estate is located approximately 34 kilometres west of Sydney's central business district and about 9 kilometres west of Parramatta, just south of the M4 Motorway, and east of the Prospect Reservoir. The Estate comprises over 300 hectares and includes large quarries, administrative and operational areas, and some areas of indigenous vegetation. The Greystanes Estate is located across three Local Government Areas: Blacktown City Council, Holroyd City Council and Fairfield City Council.

Site Plans are shown in Appendix A as follows:-

- Plan A:1 Greystanes Estate Employment Lands Precinct.
- Plan A:2 NEL Road Layout
- Plan A:3 Diagram showing the subject lots to be classified as Community Land.

Figure (a) Locality Plan



BRIEF SITE HISTORY

Aboriginal use of the area Prior to European settlement and exploration, Prospect Hill and its immediate surrounds were significant to local and regional Aboriginal communities. Prospect Hill was a suggested meeting and trading place for several tribes and family groups from some of the major river systems in the Sydney area, and is also significant as a place representative of the years of conflict between Aboriginal people and white settlers, particularly in relation to the Aboriginal warrior Pemulwuy (ERM & Boral, Jan 2000).

European settlement Captain Phillip discovered Prospect Hill on his first expedition to the west just after settlement, and recorded its discovery on April 26, 1788. He named the hill “Bellevue” which can be interpreted as “good prospect” or “fine prospect”. The hill eventually became known as Prospect Hill. As the highest point between Sydney and the Blue Mountains, Prospect Hill was a significant regional landmark and was often used as a navigation landmark in the early days of European settlement by explorers such as Captain Watkin Tench, who led expeditions to the west and to the Blue Mountains.

Quarrying began at the site in 1870, and although none of the original or early structures dating to the preceding pastoral dwellings (of the explorer William Lawson) or early quarry machinery or buildings remain on site, Prospect Quarry is listed as an archaeological site in the Holroyd LEP (1991). (ERM & Boral, Jan 2000). Established *Ficus macrophylla* on the ridgeline are believed to be associated with the original Greystanes Homestead.

Many of the lands within and around the Estate were initially used for agriculture and quarrying and some of the earliest examples of European agricultural and quarrying developments occurred in this area. In more recent years, this part of western Sydney has been subject to considerable development of urban areas and infrastructure. Currently the area is a mosaic of urban developments, infrastructure, agricultural lands, and public open space (ERM & Boral, Jan 2000).

SITE CONTEXT

Greystanes Estate has two industrial areas, the Northern Employment Lands and the Southern Employment Lands of approximately 216 gross hectares. This will generate employment opportunities for some 500 workers during the construction phase, and when fully developed a minimum of 3,000 persons.

Northern Employment Lands The NEL has a gross area of approximately 82 hectares and extends from the entrance at Reservoir Road to approximately 250 metres south of the proposed east-west link road. The Precinct Plan for the NEL (ERM 2001) details the key development proposals for the NEL as follows:-

- ecologically sustainable initiatives and practices;
- open space linkages that provide a mosaic of walking and bicycle tracks within and through the site to Prospect Reservoir;
- a service centre in the Northern Residential Lands providing convenient retailing facilities for the local workforce.

The range of works and infrastructure required for the development of the NEL will include the following:-

Water quality and management systems

- upgrading of the DUAP regional water detention basin external to the site;
- construction of a wetland/basin within the northern section of the site; and
- construction of a wetland/riparian corridor which will also capture overland flow entering the site from the Sydney Water Corporation land on the western border.

Road construction

- a north-south link road from Reservoir Road to approximately 250 metres south of the proposed east-west link road;
- service roads as required to provide access to other areas of the site; and
- reticulation services for water, sewer and electricity services from the north.

Public domain and open space

- The public domain areas within the NEL will comprise riparian corridors, water bodies, paths and cycleways and roads. The treatment of these areas will be important in creating a unique setting and encouraging development throughout the Estate.
- Landscaping in the public domain areas includes areas adjacent to the site entrance, areas along both sides of the four public roads, the medians in the north-south link road, areas around the wetlands and riparian corridor, and the western side of Prospect Hill.
- Cycle and pedestrian networks are to be developed along roads and open space corridors to improve access through the site and to connect with off-site networks.

Northern Residential Lands The NRL are bounded to the north by the new entry road, to the east by Greystanes Road, to the west by the prominent ridgeline of Prospect Hill and to the south by the Southern Residential Lands and the Old Sydney Water Canal. Due to a long history of farming and associated land uses, large areas of the NRL have been extensively disturbed and largely cleared.

Housing proposed for the NRL will consist of a mixture of standard lots, integrated housing lots, attached villas and townhouses. Internal street systems will be highly legible, generally in a grid pattern, focussing on the proposed parks and open spaces. Housing near the ridgeline will take advantage of elevations and views to the east (Spackman and Mossop 2001). Cross-site open space and pedestrian links will be located to allow access from the existing residential areas to the Prospect Hill ridgeline within the site. A number of parks are proposed for the NRL including the Ridgeline Park, the Woodland Park and the Linear Park. The area also contains the proposed village, community facilities and village square. This will be a focus for the new and existing communities.

Southern Residential Lands The Southern Residential Lands are located to the south of the NRL, encompassing the area to the south-west of the Estate, between the ridgeline and the Prospect Canal corridor.

Housing in this area will need to be carefully designed and sited to deal with the land slope and orientation. The housing mix will include larger blocks for detached housing together with specially designed multi-unit housing (Spackman and Mossop 2001).

ROLES OF THE OPEN SPACE AREAS

The open space areas within the NEL include water quality ponds, riparian zone and pedestrian and cycle corridors. The roles and functions of each of these areas are as follows:-

- The riparian corridor within the NEL, between Road 1 and Road 4, constitutes the main open space area. The riparian area, as well as serving important stormwater conveyance functions, will also form part of the broader open space network of the Estate, providing pedestrian and cycle access throughout the NEL to other areas, and also by improving the ecological, visual and scenic values of the area.
- The constructed water quality ponds at the northern end of the site have the primary function of cleaning stormwater prior to the flows leaving the site. These ponds also have an important ecological function. They also have some flood storage capacity. There is no public access to this area at present.
- The pedestrian and cycle corridors form part of the broader networks across the estate and connect to other local and regional networks, predominantly east into the suburb of Greystanes and west towards Prospect Reservoir, enhancing the accessibility of a range of other passive and active recreational areas.

As the Northern and Southern Residential Lands are developed, there is potential to extend these corridors south to connect with proposed open space and residential areas.

PHYSICAL LANDSCAPE FEATURES OF THE NORTHERN EMPLOYMENT LANDS

Most of the NEL is highly disturbed due to previous quarrying activities. Some of the areas dedicated for open space within the NEL have been less disturbed than other parts of the Estate, and the vegetation and visual quality of these areas is varied. Landscape features of the open space areas are briefly described below.

Regional topography

Located within the Cumberland Plain, much of the land in and around the NEL is typical of the regional topography with broad round hillcrests and gently inclined slopes. The Greystanes Estate lands fall gently away from Greystanes Road toward the existing Greystanes Creek (which bisects the NEL running south to north), then rises towards the

ridgeline with steeper slopes near the ridgetop. At 139m AHD the crest of Prospect Hill forms a distinct feature of the landscape.

Site topography Due to a long history of quarrying and associated land uses, large areas of the NEL have been extensively disturbed and largely cleared. The majority of the land has been regraded and reshaped with gently undulating contours across the site, and creeklines have been reconstructed.

Hydrology The NEL has been designed and constructed to drain into the water quality ponds area constructed as part of the development, and then continue to the DUAP regional flood mitigation basin to the north. The outflow from the DUAP basin then flows under the M4 Motorway joining Greystanes Creek just upstream of the Great Western Highway. Greystanes Creek flows northwards eventually linking with Toongabbie Creek which flows into the Parramatta River.

Vegetation Most of the vegetation within the NEL has been cleared as part of its long history of quarrying and associated land uses. The Tree Survey prepared by Ian Perkins Consultancy Services (December 2000) identified four categories of existing vegetation including:-

- Remnant Woodland trees (remnants of the original Cumberland Plain Woodland Community), which are of high ecological value and have been individually identified;
- Native plantings, some locally indigenous, which have been planted by Boral in the last 25 years and are considered to be of low ecological value;
- Pinus Radiata exotic plantings, planted in the last 25 years and considered to be of low ecological value; and
- Mixed plantings of predominantly native species along creeklines and road verges, planted in the last 10 years, and stands of exotic Salix babylonica, which have established on the creekbanks. Most plantings do not represent the original plant communities of the area, have no significant fauna/habitat values and are considered to be of low ecological importance.

The areas of remnant woodland vegetation are located on private land and are to be retained and protected as far as practicable.

The public lands have potential for improved vegetation value as areas as the vegetation established in the riparian corridors and wetland matures through time. The management guidelines provided in the Vegetation Management Plan (submitted as part of the Development

Application) clearly apply to all vegetation that falls within the open space areas.

Fauna and habitat No specific fauna or habitat studies have been undertaken as part of the preparation of this Plan. However, a number of threatened fauna species have been recorded in other parts of the Estate and may inhabit or visit the open space areas (such vulnerable bat species including the Greater Broad-nosed Bat, the Eastern Falsistrelle and the Eastern Freetail Bat).

The Cumberland Plain Woodland remnants and the riparian corridor along the creekline and wetland areas are likely to provide important habitat and this will be addressed in the ongoing management of these areas.

Fauna movement corridors are also an important consideration, to enable faunal movement to and from external ecological resources (such as the woodlands around Prospect Reservoir). Within the NEL, fauna movement has been facilitated through the vegetation planted in the riparian corridor, other open space areas and street trees.

Archaeological and ecological artefacts Due to a long history of quarrying and associated activities the majority of the Northern Employment Lands have been extensively disturbed and largely cleared. Some archaeological and ecological remnants of conservation significance remain although these are largely located within the residential areas (ERM, 2001).

There are no archaeological and ecological remnants of conservation significance within the open space areas covered by this Plan of Management.

The Key Values of the Open Space Areas

Section 3.0

INTRODUCTION

The open space areas within the NEL have characteristics that are valued for their role or potential role in making the parks important community assets. These should be retained and strengthened.

These values include their use as neighbourhood open space areas, serving the needs of the local employees and nearby residential community, and including low-key facilities such as walking and cycle tracks, and linkages to play areas, and bushland areas.

The open space areas have ecological values relating to the replanted native vegetation and ecological value as wildlife habitat. The water quality pond area and the riparian zone will have increased ecological values once the plantings in the areas are fully established.

The values of the open space areas are assessed under 4 headings: recreation values, natural values, cultural heritage values and aesthetic and urban values, and are briefly described below.

RECREATIONAL VALUES

- The size and configuration of the riparian zone with its associated pedestrian and cycle paths, provides an area large enough to walk through and explore, and provides informal recreation opportunities as well as vantage points for viewing.
- The water quality ponds are not presently accessible to the public. However, there is the potential to create a public right of way over private lands to provide access to this area and to create links to other public areas.
- The water quality pond area and riparian zone could combine informal recreation with the opportunity to experience and interpret their ecological values.
- The pedestrian and cycle connections provide recreational value in their connectivity to other areas of open space which may provide recreational pursuits not available within the NEL or the broader estate (such as Prospect Reservoir).

NATURAL VALUES

- The open space areas have existing ecological values

relating to their waterway systems and to remnant native vegetation (as identified in the Vegetation Management Plan for the NEL – IPCS 2002). The water quality ponds area and riparian zone will have increased ecological values once the habitats in the areas are fully established.

- There is value in the remnant woodlands vegetation found throughout the NEL, particularly in these areas that connect to the wetland areas and riparian zone. The proposed revegetation of the creekline (within the open space reservation) will enhance, in the long term, habitat linkages in the area, forming important regional fauna corridors.



Figure (b) The Riparian Zone soon after initial shaping and planting

CULTURAL HERITAGE VALUES

There are no cultural heritage values within the open space areas. However, adjacent areas outside the boundaries of this POM have significance as follows:-

- As part of the broader estate and its landscape features and connections, the Aboriginal significance of Prospect Hill and surrounds draws connections between the higher ridgeline areas and local Aboriginal Communities.
- Prospect Hill is significant as a place representative of the years of conflict between Aboriginal people and white settlers, particularly in relation to the Aboriginal warrior Pemulwuy. Prospect Hill and the upper ridgeline areas also have European heritage significance as a landmark for early exploration to the west.
- Greystanes Estate is also important because of the role of the quarry in meeting the demands of the ever expanding Sydney settlement over the last 100 years. Prospect Hill quarry supplied necessary materials for construction and road building projects during this vast urban expansion.

AESTHETIC AND URBAN VALUES

- The riparian zone forms a prominent landscape feature within the Northern Employment Lands area and has visual significance within its locality, acting as a green buffer to the developed areas of the NEL, and providing an important zone of visual and recreational amenity from surrounding development. The Water Quality Pond is not visible from public areas but may be of aesthetic value to staff in the surrounding developments.
- The open space areas offer future residents and workers the opportunity for recreational experiences that include views over the NEL and surrounding areas to the east and west.



Figure (c) Wetland areas during establishment



Riparian Zone: View from Reconciliation Drive to the west



Riparian Zone: View from Picrite Close to the east showing main creek and Bridge.



Riparian Zone: View showing the creek confluence, looking south-east

Figure (d) Views of the Riparian Zone in October 2003

Categorisation of the Community Lands under the Local Government Act

Section 4.0

REQUIREMENTS UNDER THE LOCAL GOVERNMENT ACT

The land within the open space areas, being the riparian zone and the water quality ponds, will be **classified** as *community land* under the Local Government Act 1993.

Under the Local Government Act, Council is required to categorise all community lands, and the categorisation of land comprising these parks brings with it several core objectives as defined by the Act. The selection of appropriate categories is based on a careful analysis of the values of each of the areas. Land is to be categorised as one or more of the following (LGA Section 36 (4)):-

- (a) a natural area,
- (b) a sportsground,
- (c) a park,
- (d) an area of cultural significance,
- (e) general community use.

Land that is categorised as a *natural area* is to be further categorised as one or more of the following (LGA Section 36 (5)):-

- (a) bushland,
- (b) wetland,
- (c) escarpment,
- (d) watercourse,
- (e) foreshore, or
- (f) a category prescribed by the regulations.

Guidelines for categorisation of land are provided in Sections 10 to 19 of the Local Government (General) Regulation 1999.

A series of prescribed core objectives are provided within Section 36 of the Act for each of the categories listed above, which set the framework within which a series of management objectives and strategies are developed. These objectives directly correlate to the key issues discussed in Section 5.0 of this Plan.

CATEGORISATION

The following factors have been taken into account in selecting the appropriate category:

- The areas are not *bushland*, *escarpment* or *sportsground*. They have been completely reformed by man's activities and contain no significant natural features. In researching the history of the site or through public consultation, no known cultural significance of the areas has been uncovered.
- The two areas have some sense and qualities of "naturalness" that has been created in them by the recent replanting and establishment of a natural looking water course and ponds achieved by "soft" landscaping. However, these systems are man-made to serve the human needs of: conveying catchment flows in order to facilitate the adjacent industrial developments; controlling downstream flooding; and treating the stormwater generated by the developed area to improve its quality (through the process of impoundment in the ponds). The ponds have an adjustable outlet structure to regulate water levels. The two areas have not been identified as wildlife corridors in the Northern Employment Lands Precinct Plan and are not formally set up for that purpose. They will however, hopefully serve to assist wildlife movements through the Greystanes and Prospect areas.
- Categorisation as *natural areas* would involve setting the core objectives for management as:
 - To conserve the biodiversity and maintain ecosystem function;
 - To maintain the land in its natural state and setting;
 - To provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion.

These core objectives do not reflect the current condition of the land and may inappropriately constrain the use of the areas for the purposes for which they have been developed.

Therefore, although it would be feasible to categorise these areas as "a natural area" and categorise the Riparian Zone as "watercourse" and the Water Quality Ponds as "wetland", this would not adequately convey that the areas are man made to serve the human purposes of drainage and flooding control, as well as passive recreation, and access through the area for cyclists.

- Categorisation as "*general community use*" is not considered appropriate as this is a "residual category" when none of the others fit. Its core objective is to focus on community use and development and envisages leases and licences for developments that

would serve that purpose. It is not proposed that these land areas be available for developments serving further community needs other than those that they currently provide.

(v) Categorisation as “*park*” promotes core objectives of encouraging recreational, cultural and social pastimes and activities; to provide for passive recreational activities and to improve the land in such a way as to promote its use for those purposes.

The Local Government Regulation (Section 12) offers the following Guideline for classification as park:

“Land should be categorised as a park under Section 36 (4) of the Act if the land is, or is proposed to be, improved by landscaping, gardens or the provision of non-sporting equipment and facilities, for use mainly for passive or active recreational, social, educational and cultural pursuits that do not unduly intrude on the peaceful enjoyment of the land by others”.

This fits quite well with the two areas’ characteristics, as they are essentially remediated and landscaped old quarry areas. Lack of public access to the Water Quality Ponds restricts the applicability at this time, but future availability of public access and linkages to downstream areas (when they are created) will overcome this limitation.

Because of the multi-faceted qualities of these sites and the broad range of uses they embody, they do not fall cleanly into any category.

After consideration of the Key Values described in Section 3 and the provisions in the Act and Regulation (as discussed above) and from consultation with the Department of Local Government, it was concluded that the best fit of the characteristics and uses of the open space areas within the NEL would be to categorise them as “**(c) parks**”. This is primarily a result of the level of disturbance on the site and the fact that the majority of the open space areas have been completely regraded and replanted, and therefore are not consistent with a natural area. The areas have the broader purpose of providing open landscaped vistas that serve the open space requirements of the adjacent developed areas which is a characteristic of park areas.

Key issues and objectives

Section 5.0

A FRAMEWORK FOR MANAGEMENT

There are a number of key issues that need to be considered in the further development and management of the two open space areas within the NEL. The following section provides a framework for these issues, by discussing potential impacts on the open space areas, followed by a number of key management strategies.

The key considerations are analysed as follows:-

- Profile and access
- Natural systems
- Cultural heritage
- Visual and aesthetic qualities
- Recreation needs and opportunities
- Land management
- Management partnerships

PROFILE AND ACCESS

Profile and access are key physical issues in establishing the open space areas within the Northern Employment Lands. In order to function successfully the open space areas will require appropriate access at both local and regional scales, well-connected to existing and proposed systems.

Key Considerations

- **Local levels of access**

As these areas are the main open space elements in the NEL, access to the parks for workers and residents will be important. Access to the riparian area from the proposed residential areas in the NRL will be local in scale and character, with pedestrian and cycle access available from footpaths and adjoining cycleways. This access should be integrated with proposed areas of development across the Estate.

The timely pursuit of public access into the water quality ponds and continuing downstream along the Greystanes Creek riparian corridor will be key issues for the future development of this open space.

- **Regional levels of access**

The Riparian Zone provides regional access for those activities that are unique and for those that are part of a broader regional recreational experience. This will mainly focus on pedestrian and cycle connections through the NEL to connect to Prospect Reservoir.

- **Ensuring safety through Water Quality Ponds**

To ensure safety within the wetland areas and riparian zone, access will be restricted by fencing in some areas. However, adjacent to the restricted and/or fenced areas pedestrian or cycle paths will be provided where public access is provided for.

- **Staged access to adjoining Open Space**

As the Greystanes Estate is developed, it is important to continue to integrate the parks within the NRL, SEL, SRL and the broader Greystanes Estate, establishing pedestrian and cycle links with nearby parks and streets. A key issue for Council as Land Manager will be to promote continued access to other open space areas particularly across the planned parks within the NRL to the Southern Residential Lands.

- **Equitable access**

In designing any future facilities within these areas, consideration will be given to providing access for people with disabilities, including limited mobility, impaired vision and wheelchair access. Managing the access to facilities within the park will require close consultation between Council, adjoining land managers and the broader community.

Management Strategies

- Establish appropriate access and address points for the parks as part of gradual growth in response to the surrounding residential development and increasing uses of the parks.
- Ensure where possible that this access and address links into existing networks from regional transport infrastructure, facilities for private vehicles, and local and regional pedestrian walkways and cycleways.
- As residential development in adjacent neighbourhoods is completed, further develop pedestrian access at key locations along the boundaries of the NEL connecting open space to residential areas and civic spaces, using streetscape connections. Integrate the public spaces within the broader network of open space, particularly other major open space areas planned within the Greystanes Estate and the Prospect Reservoir. Establish links with nearby parks and streets, providing access points as well as integrating with established movement networks.

NATURAL SYSTEMS

The proposed open space areas contain natural value in their disturbed natural systems and their potential for restorations, which have intrinsic value as well as contributing to the character and recreational opportunity of the park. These must be effectively managed.

Key Considerations

- **Remnant Vegetation**

Remnant vegetation is largely restricted to small patches of fragmented and disturbed Cumberland Plain Woodland (Grey Box) in the north-west of the NEL on private allotments, and remnant vegetation within the wetland areas. New plantings within the parks have been designed to further enhance their ecological value and provide a range of habitat for fauna, as well as providing regional flora and fauna corridors. The protection and long-term restoration of the remnant Grey Box woodland and associated species in this area is an important aim, and will require the development of a bushland management strategy for the broader Greystanes and Prospect area to preserve and re-establish the remnant plant communities.

- **Wetland and Riparian Zone**

The revegetation of the creekline, and the establishment of the wetland areas and riparian zone is significant to the natural values of the open space areas. Appropriate species selection, construction techniques and maintenance regimes have been selected and applied to promote the ecological success of these areas.

- **Weed Infestation**

There were a number of woody weed species throughout the open space areas. Mechanical treatment of woody weeds (in conjunction with strategic herbicide application) is the most practical and environmentally sensitive measure of control for the woody weed species and has been applied to remove them. Replacement habitat is being established for the many small native birds that were using the woody species. Herbaceous weeds are also certainly present, but from an environmental management perspective these do not constitute a significant weed management problem. Maintenance to remove any reinfestation is an especially important management task for these areas.

- **Fauna**

Regional records indicate a range of native species (particularly birds) which may frequent or reside within the proposed open space areas. The re-established vegetation has endeavoured to provide improved habitat for the native fauna.

- **New Plantings**

New plantings within the parks have been appropriately selected, using locally indigenous species wherever possible. The progressive reintroduction of a vegetation community will require staged management considerations.

- **Soils**

There have been changes to the soil structures of the open space areas from former uses of the site, ranging from minimal to high levels of change. Local topsoils are moderately fertile, but during park development, may benefit from some additional or organic matter and fertiliser in areas of regeneration and/or new planting.

Management Strategies

- Facilitate the continuing implementation of the Vegetation Management Plan and Wetland Management Plan for the NEL (IPCS 2002) including the following objectives:-
 - maintain the existing level of biodiversity during and after development;
 - conservation/recovery of significant vegetation communities (ie: CPW and riparian/wetland communities);
 - assist threatened species populations by enhancing their habitats;
 - through revegetation of selected areas and long term vegetation management, create fauna movement corridors within the site and to external ecological resources; and
 - balance the ecological values of the site with other development requirements;
- Establish clear directions and methods for the management of all existing vegetation and new plantings within the parks.
- Across all open space areas, maximise the provision of suitable habitat for native fauna and minimise any adverse effects on native fauna arising from weed control and other park management practices.

- Minimise the effects of soil erosion and remediate areas of the park if affected by erosive processes.
- Minimise the impact of runoff from adjacent properties.
- Establish methods for the control of weed species and replacement with native species and regenerate native riparian vegetation along the creekline.
- Foster public education aimed at promoting the environmental values and management of the parks.

CULTURAL HERITAGE

The retention, enhancement and opportunities to interpret the cultural heritage values of the site adds meaning and interest to the open space areas, and need to be considered in the further development of these open space areas.

Key Considerations

- **Continuing changing uses**

The Aboriginal and early European elements of the broader surrounding areas are significant and serve to demonstrate community uses and values and changing landuses within the area. A major landuse (quarrying) is coming to an end and this fact will also become part of the history of the site.

- **Potential for Interpretation**

The interpretation of cultural heritage areas should be related to and cased within the framework of the original landscape features.

Interpretive signage (based on the pedestrian and cycle networks) will aim to characterise the landscape, its resources and the importance of both to the initial Aboriginal occupation of the area and the subsequent European settlement of the Estate.

Management Strategies

- Draw on the documentation of the cultural heritage of Greystanes Estate.
- Encourage the interpretation of the heritage of the broader Estate development as an integral part of the management in each area. Interpretation could involve signage, plaques, displays, documentation, guided tours, stories and a variety of other activities.

VISUAL AND AESTHETIC QUALITIES

The retention and enhancement of the essential landscape elements will be critical in preserving the visual and aesthetic qualities of the open space areas.

Key Considerations

- **Common qualities to be preserved**

The open space areas are valuable for local workers and residents in an area of urban development. This will undoubtedly increase with the potential connections south into the NRL, SEL and SRL and also to Prospect Reservoir. The visual and aesthetic qualities will need to be managed for the long-term and should guide future design and development decisions regarding landscape design and materials selection.

- **Wetland and Riparian areas**

The wetland and riparian areas have visual and aesthetic value with the riparian zone being visually prominent within the NEL. These areas will offer future workers and residents the opportunity for recreational experiences and the provision of a green buffer between developed urban areas of the Estate and quarrying areas to the west.

- **Pedestrian and Cycle corridors**

The pedestrian and cycle corridors provide an important zone of visual and recreational amenity from the surrounding residential areas, linking different areas of open space to areas beyond the NEL, such as the Prospect Reservoir. Visually, the associations between these corridors and the open space areas they connect to is significant in that they both must be interpreted as part of the same open space system. This has been expressed through the landscape design and materials selection for all open space areas.

Management Strategies

- Protect the inherent landscape qualities of the open space areas within the NEL, promote vantage points over surrounding areas as part of the landscape and recreational experience, and protect and enhance views of the open space areas.
- Enhance the edges of open space areas to provide a high-quality visual buffer between open space areas and surrounding development, particularly residential areas.
- Ensure that any future landscape design, species selection and materials selection is responsive to the visual and aesthetic qualities of each of the areas.

RECREATION NEEDS AND OPPORTUNITIES

The future working communities of the NEL will require a range of recreation opportunities that are local and accessible. There is potential to cater for a range of recreation activities within the proposed parks, whilst managing and protecting the inherent values of each of the sites.

Key Considerations

- **Recreation opportunities for the local working and residential community**

The open space areas will be highly valued by both local workers and residents of the NEL and NRL. The proposed parks will be a focus for the community, and will need to be well-connected to residential areas. Any further enhancement of facilities should respond to the recreation needs of the local residents.

- **Determining appropriate uses**

It will be important that the parks develop activities based on the unique qualities of their landscape and heritage, to protect the inherent natural and cultural values of each of the open space areas. Certain activities and uses of the parks may impact on site values.

It is recommended that the parks focus on informal recreation opportunities, including passive recreation facilities, opportunities for walking, jogging, viewing platforms, interpretation of local history and natural systems, relaxation and bird watching. These recommendations would be the subject to community consultation once the Estate is developed.

- **Extending recreation linkages**

There is much potential to link the open space areas to other local and regional open space facilities, such as parks proposed within the NRL, and existing parks within Prospect Reservoir, Gipps Road Park, other walking tracks / cycleways provided by Council and also to the planned open space areas in the SEL and SRL. These connections would increase recreation opportunity for the local community, as the linkages provide community access to a range of activities not available in a single park. Facilitating these linkages should be considered in the future development of the park system and be constructed as part of the staged development process of the Estate.

Management Strategies

- Ensure the sensitive integration of recreation activities into the parks by focussing on informal recreation activities that respect the inherent values of each of the parks.
- Embrace opportunities to connect the parks to other areas of open space across the Greystanes Estate, and off the site to Prospect Reservoir and other regional open space areas.

- Ensure ongoing suitability of those recreational opportunities offered within the park through consultation with future workers and residents of the NEL and the NRL at appropriate times.

LAND MANAGEMENT

There are a number of key operational issues that need to be considered in managing the proposed parks. In addition to the management strategies below all of these issues should be managed in accordance with the Environmental Management Plan for the Greystanes Estate Residential Lands (ERM 2001), the Vegetation Management Plan (IPCS 2002), and the Wetland Management Plan (IPCS 2002) prepared for the Northern Employment Lands development consent.

Key Considerations

- **Bushfire management**

Fire management can be a significant issue in open space management, and will be considered as part of the ongoing management activities. The management of the park interface with surrounding landuses, the form of fire buffer zone, if provided, and the way this buffer effects other issues like access and existing vegetation are relevant. Bushfire risk is defined as the probability of a fire starting and spreading. Overall the proposed parks are not considered to have significant bushfire risks because of their small size and low levels of fine fuel (live and dead plant matter less than 6mm in diameter) (Department of Bushfire Services 1991, and ERM, 2001).

- **Stormwater management**

The management of stormwater across the urban and open space areas will be critical in the protection of remnant vegetation systems. The effective maintenance of water quality pond areas will be a critical factor in stormwater management.

- **Rubbish control**

Land used a public open space is often subject to rubbish dumping from a number of sources. This problem detracts from the values of the park and can also lead to increased weed infestation. Weed material is often introduced to an area as a result of rubbish dumping, through grass clippings and other rubbish forms being dumped in the park, or along waterways.

- **Soil erosion**

The impact of sediment entering the site from active development areas – management of the parks needs to ensure that effective sediment and erosion controls are implemented on adjoining lands to prevent increased sediment loads in aquatic habitats and other areas.

- **Landuse Planning**

In the protection of park values and the development facilities, the park is reliant on landuse planning outcomes that occur on land beyond the responsibility of Council. Therefore, managerial relationships with stakeholders are imperative for the long-term success of the open space areas.

- **Demonstrating best practice in Land Management**

Co-operative partnerships and ongoing liaison with authority bodies is important to understand and implement best practice techniques for a number of land management issues. This is particularly important with the NSW National Parks and Wildlife Service and Sydney Water Corporation regarding the management of the remnant vegetation communities and bushland areas and the relevant strategies for recovery.

Management Strategies

- Develop co-operative partnerships with relevant landowners, stakeholders, authority bodies and the community to develop desirable boundary treatments for open space areas, to optimise park access, define suitable edge treatments and to manage adjoining areas in a complementary manner.
- Develop co-operative partnerships to ensure that best practice techniques are identified and implemented in the management of the proposed open space areas.

ACTION PLAN

ACTION	RESPONSIBILITY	PRIORITY	TIMEFRAME	PERFORMANCE INDICATOR
Prepare a Maintenance Management Plan (MMP)	Manager Works	High	Jan 04	Plan completed and involved staff committed to its implementation
Additional resources allocated to maintain new parks	Manager Works	High	Mar 04	Council allocates additional resources in maintenance budget (ongoing)
Established vegetation communities maintained	Bushland Supervisor (BS)	High	On going	Annual review by BS shows condition not degrading
Habitat values enhanced	Bushland Supervisor (BS)	High	mid 2004 onwards	Annual review by BS shows habitat is improving as plantings mature, new plantings established and weeds are controlled
Infrastructure maintained to high standard	Maintenance Engineer	High	On going	Inspection schedule (as defined in MMP) carried out. Repairs and maintenance undertaken as required.
Hydraulic conveyance of creek channel maintained	Parks Supervisor	High	On going	Inspection reveals creek channel not overgrown so as to reduce flow capacity
Water Quality Pond Capacity Maintained	Parks Supervisor	Medium	On going	Volume capacity checked by survey annually. Desiltation carried out when required (as defined in MMP)
Access Control (ensure no unauthorised vehicular entry)	Parks Supervisor	High	On going	Vehicular entry controlled (barriers erected if required)
Park Cleanliness (removal of rubbish and dumpings)	Parks Supervisor	High	On going	Users satisfied with Park Condition (no public complaints received)
Water Quality Pond Water Level Regulation (by outlet control device)	Parks Supervisor	Medium	On going	Water quality, flood mitigation and aquatic plants optimised
Public Access to Water Quality Pond Area from south	Manager – Assets and Engineering Support (MAES)	High	Within 5 years	Public access to Water Quality Ponds from Reconciliation Drive achieved.
Public Access to Water Quality Pond Area from northern land	MAES, Manager Strategic Planning (MSP) & DIPNR	Medium	Within 10 years	Public access to Water Quality Ponds from area to the north achieved.
Advocate development of connecting regional cycleways	MSP, Manager Traffic and Development	Medium	On going	Increased connectivity to the regional cycleway network
Promote the values of the parks and foster public education	Parks Supervisor, Environmental Officer	Medium	On going	Promotional material and signage produced.
Revise the Plan of Management	Landscape Architect	Medium	Within 5 years	PoM revised (and approved by Council)
Enhance the Initial Improvements: <ul style="list-style-type: none"> ▪ Identify potential enhancements; ▪ Obtain funding 	Landscape Architect and Bushland Supervisor	Medium	On going	Capital funds expended (\$). Grant funds as a % of Capital funds expended Number of Projects completed.
Control Erosion (maintain vegetative cover and surface drainage paths)	Bushland Supervisor	High	On going	No visible erosion other than periodic flood event scour
Engage with NEL businesses – build sense of ownership	Place Manager, Bushland Supervisor	Medium	July 2004 onwards	Number of joint activities undertaken or support provided
Integrate with other open space areas of Greystanes Estate and adjoining areas (Prospect Reservoir, Greystanes Creek Corridor and Stocklands Estate)	Manager Strategic Planning, DIPNR, Parks Supervisor	Medium	Long term	Integrated open space network developed in stages with strong linkages

REFERENCES

Department of Local Government, Local Government Act 1993 – Section 36, *Preparation of Draft Plans of Management for Community Land*.

Environmental Resources Management Australia, June 2001: *Greystanes Estate – Employment Lands Precinct Plan*.

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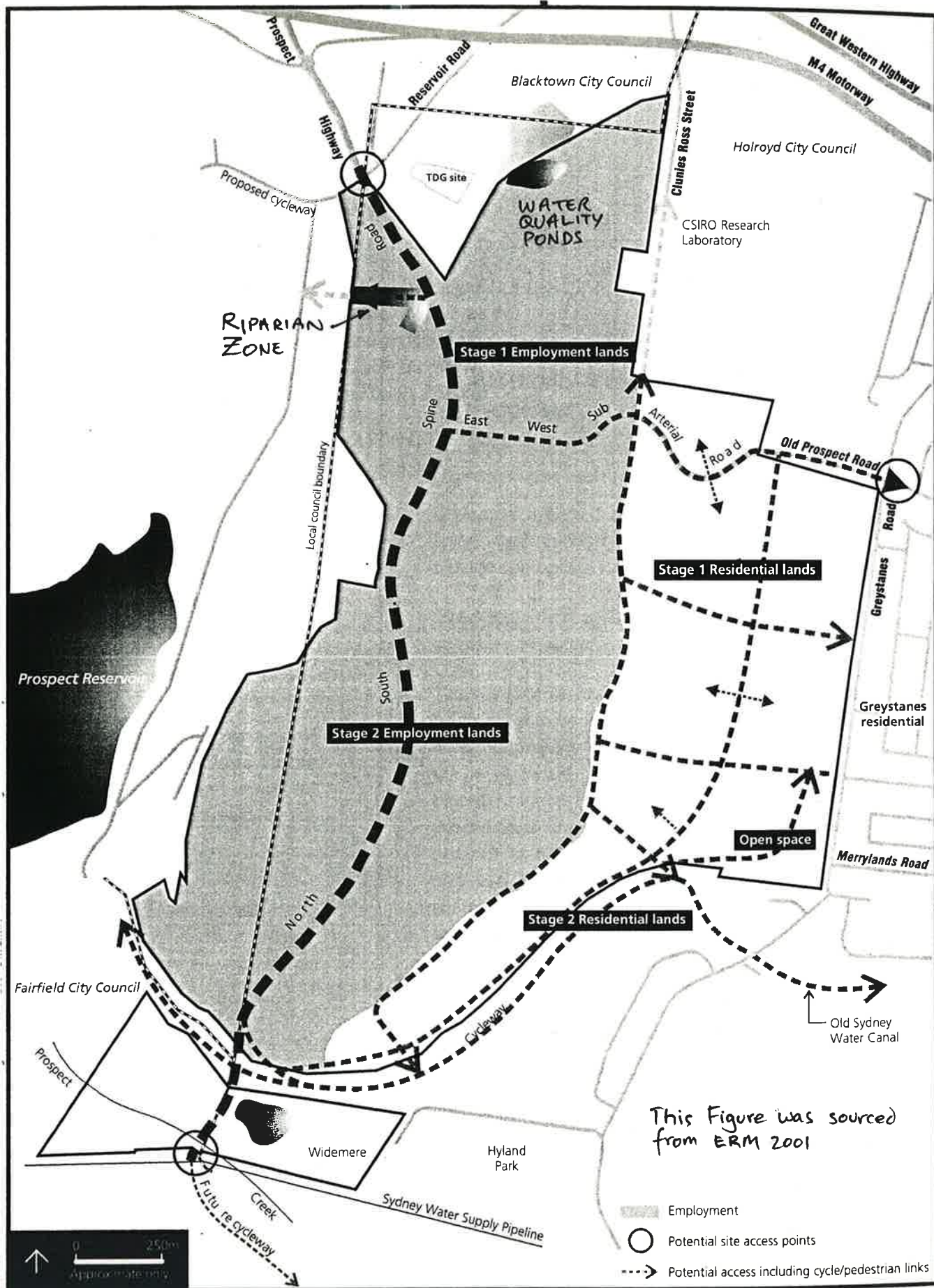
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Appendix A

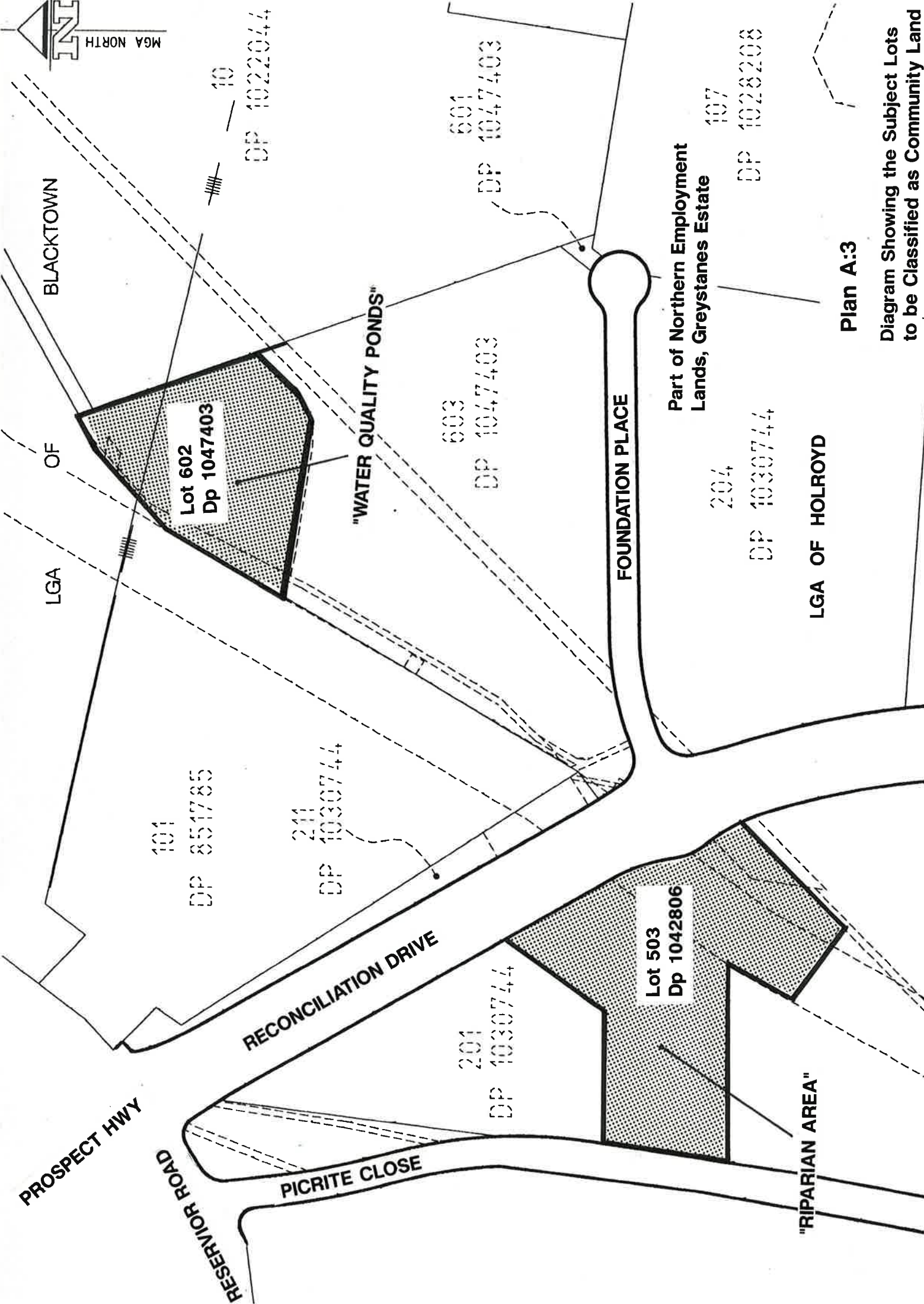
Plans



PLAN A:1

Greystanes Estate Employment

Lands Precinct

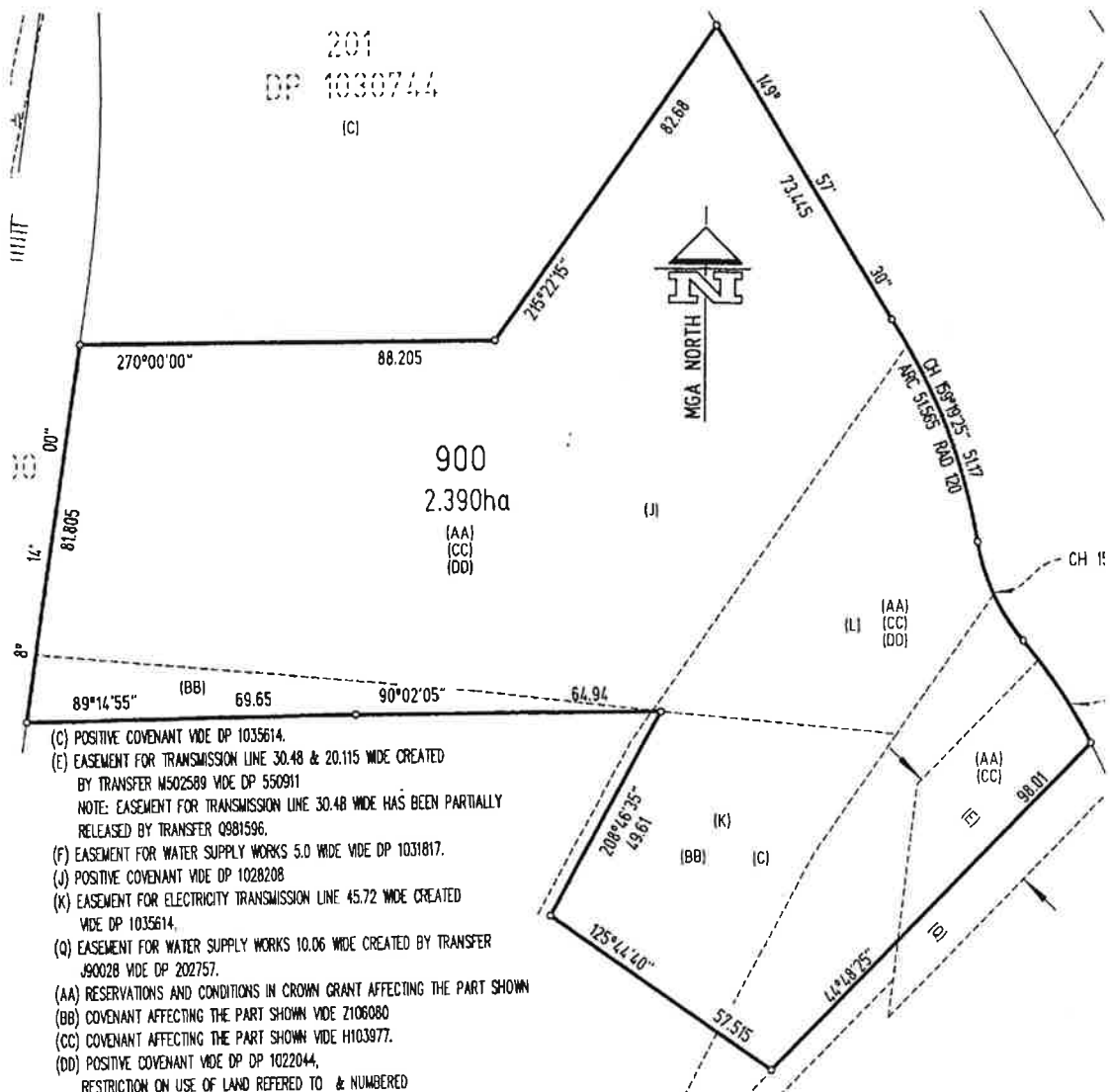


Plan A:3

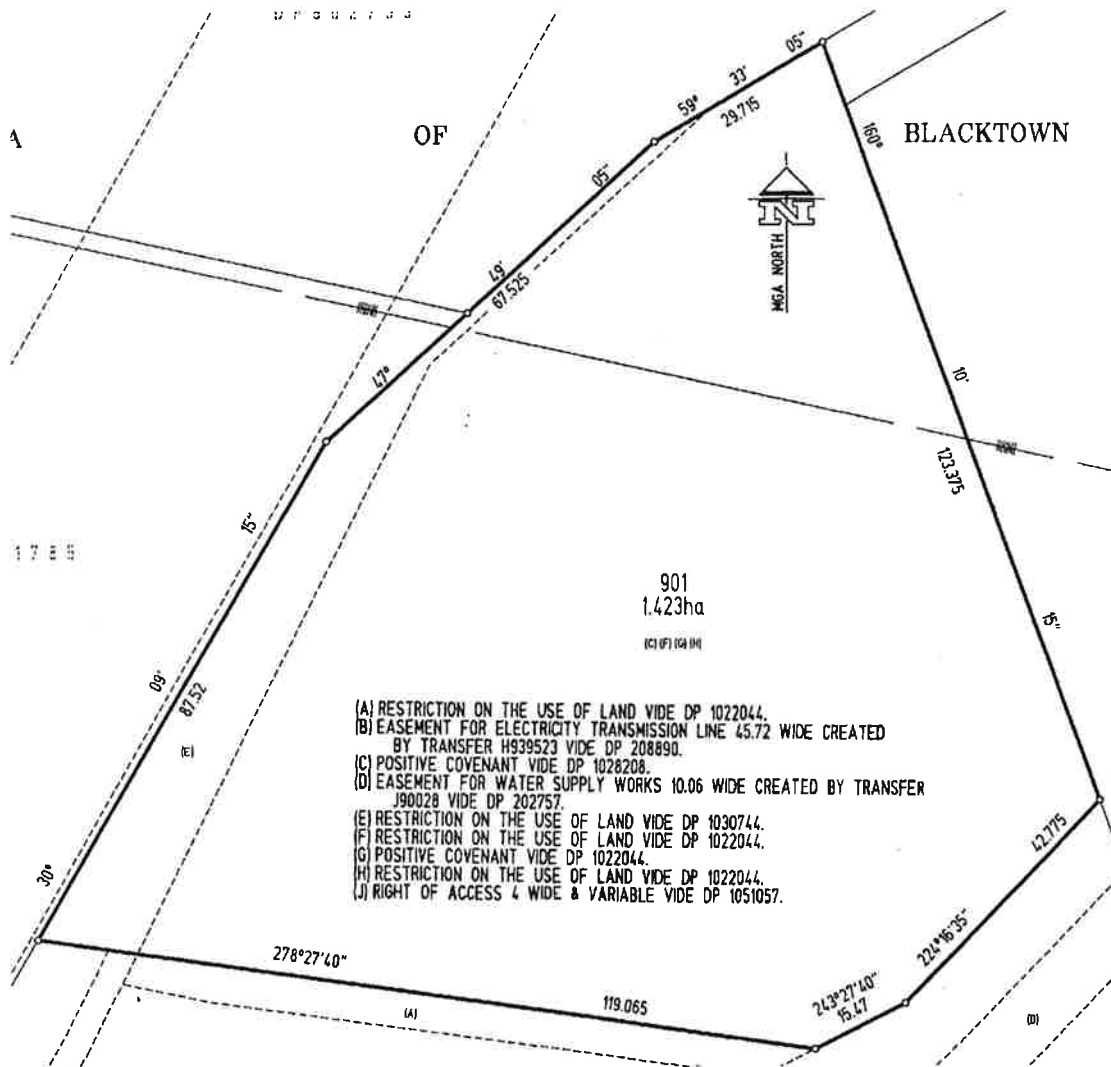
Diagram Showing the Subject Lots
to be Classified as Community Land

Appendix B

Easements and Restrictions



- (C) Positive Covenant: OSD with UPRCT and Holroyd Council. Over whole of this lot.
- (E) Easement for transmission line for construction and maintenance. Blue Metal Quarries to Integral (M502589 for ptA , ptB) Created 1972
Release ROW A960804, Covenants H103977, Easements H939523; J90028;
M502589; P869765 and Q805096 created 1979
- (F) Easement for water supply works for construction and maintenance at or below, but not above, ground level. Created 2001.
- (J) Positive Covenant: OSD UPRCT and Holroyd Council. For construction and connection to the Northern Employment Lands, a community basin. Created 2001.
- (K) Easement for overhead electricity lines. Created 2000.
- (Q) Easement for construction and maintenance of water supply works for surface and subsoil. Blue Metal Quarries to Water Board created 1961.
- (AA) Reservations and conditions of the original Crown Grant. Usually mineral rights and sometimes includes, removal of trees for naval use, Fenced by a certain date, etc
- (BB) Covenant Waterboard to RTA no access allowed in any form from this lot to Picrite Close, unless road classification changes. Created 1990.
- (CC) Covenants: Messrs Hicks with Blue Metal Quarries: No dividing fence without permission of adjoining owners, or, at no cost the seller. The residue, the "no fence" is void (H103977 re Lot B). Created 1958.
- (DD) Positive covenant for OSD for Blacktown Council and Holroyd Council. Created 2000.



- (A) Restriction to no development unless approved by separate request. Created 2000.
- (B) Easement transmission lines Blue Metal Quarries with Prospect Electricity construct and maintain electricity lines (H939523 re Lot B) Created 1963.
- (C) Positive Covenant for whole of the lot for OSD UPRCT and Holroyd Council. For construction and connection to the Northern Employment Lands, a community basin.
- (D) Easement for water supply (J90028 RELEASED Q981596 1978).
- (E) Restriction to no building or structures permitted without Holroyd City Council approval. Created 2001.
- (F) Restriction to no structures without OSD design and any other structures to be separately approved by DA with Blacktown and Holroyd Council. Created 2000.
- (G) Positive covenant for OSD for Blacktown Council and Holroyd Council.
- (H) See (F).
- (J) Right of access over lot for access to OSD.

Appendix C

Landscape Drawings

DRAINAGE CORRIDOR PLANTING SCHEDULE

DRAINAGE CORRIDOR PLANTING SCHEDULE

WETLAND

Water- shallow to moderate depth 'marsh' vegetation
Wetland edge (wetland edge and bank upslope from waterline))

Species for moderate depth water (shallow to deep marsh)

SYMBOL	SPECIES	COMMON NAME	SIZE	RATE	DENSITY
S	Baumea articulata	Jointed twig-rush	cell	1/sqm	5 cells/sqm
S	Schoenoplectus velidus	River club rush	cell	2/sqm	
S	Triglochin pruriens	Water ribbon	cell	2/sqm	

Species for shallow depth water (shallow marsh)

SYMBOL	SPECIES	COMMON NAME	SIZE	RATE	DENSITY
S	Baumea articulata	Bamboo reed	cell	1/sqm	5 cells/sqm
S	Bolboschoenus fluviatilis	River bamboo	cell	1/sqm	
S	Cyperus exaltatus	Reef rush	cell	1/sqm	
G	Eleocharis acuta	Common spike rush	cell	1/sqm	
G	Phragmites australis	Common reed	cell	1/2sqm	
S	Schoenoplectus velidus	River club rush	cell	1/2sqm	

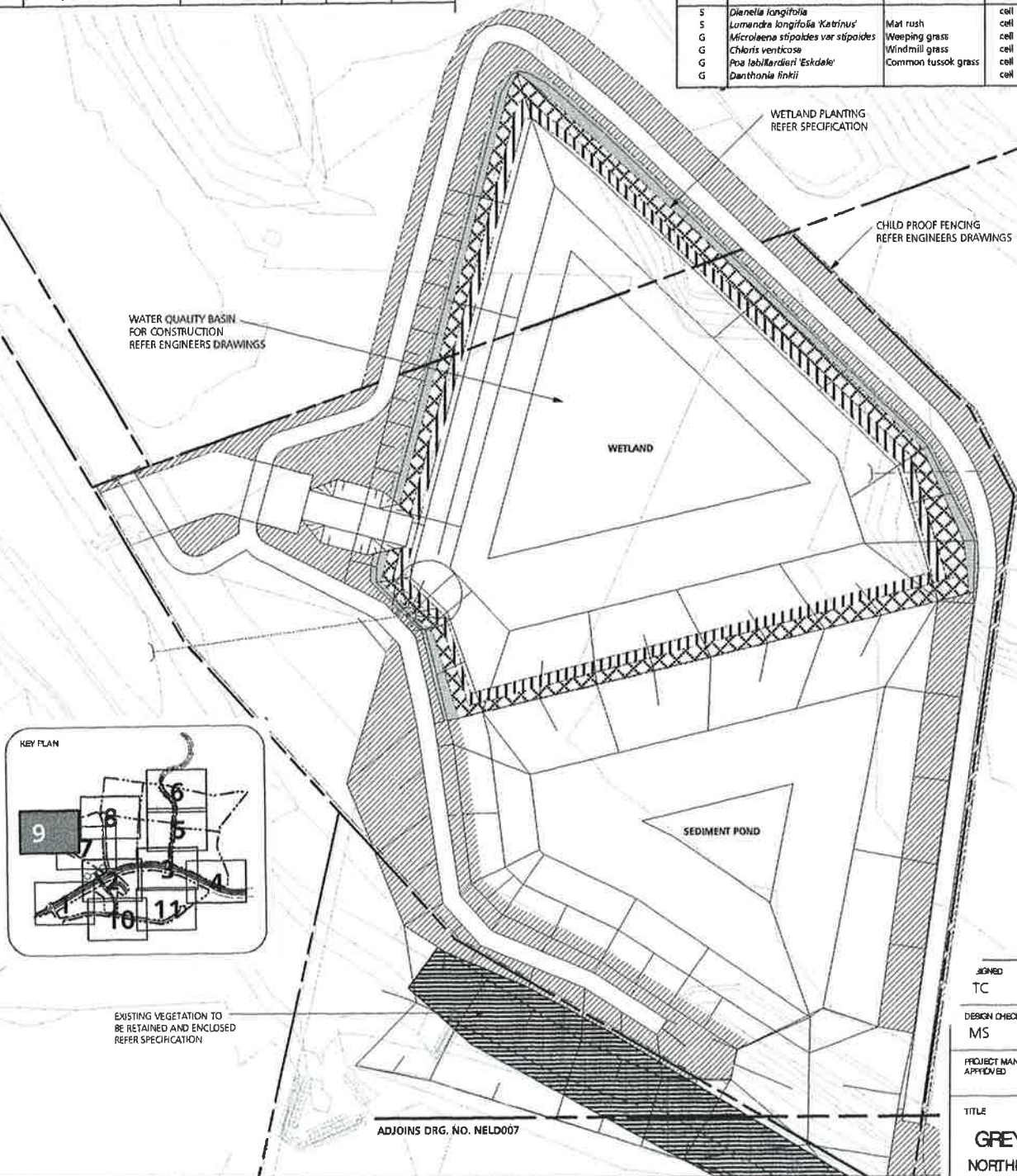
G - Grass
T - Tree
H - Herb/perennial
SH - Shrub

Species for wetland edge (wetland edge and bank upslope waterline)

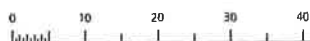
SYMBOL	SPECIES	COMMON NAME	SIZE	RATE	DENSITY
T	Acacia parramattensis	Parramatta wattle	tube	1/10sqm	3 1/2 10sqm
T	Casuarina glauca	Swamp oak	tube	1/10sqm	
T	Melaleuca styphelioides	Prickly paperbark	tube	1/10sqm	
S	Juncus ustulatus	Spliny rush	cell	1/2sqm	9 cells/sqm
H	Alisma plantago-aquatica	Bull rush	cell	1/2sqm	
S	Carex appressa	Strap leaf sedge	cell	1/2sqm	
H	Centella asiatica		cell	3/2sqm	
S	Cyperus polytachyos		cell	1/sqm	
S	Gahnia sieberiana	Red fruited sawsedge	cell	1/5sqm	
S	Juncus ustulatus	Common rush	cell	1/2sqm	
S	Lomandra longifolia 'Katrinus'	Mat rush	cell	1/2sqm	
H	Philydium lanuginosum	Woolly frogmouth	cell	1/2sqm	
G	Paspalum distichum		cell	1/sqm	
H	Cyperus exaltatus		cell	1/2sqm	
G	Phragmites australis	Common reed	cell	1/2sqm	

Species for dry banks around wetland

SYMBOL	SPECIES	COMMON NAME	SIZE	RATE	DENSITY
T	Angophora floribunda	Apple myrtle	tube	1/20sqm	3 1/2 10sqm
T	Acacia parramattensis	Parramatta wattle	tube	1/20sqm	
T	Casuarina glauca	Swamp oak	tube	1/20sqm	
T	Melaleuca styphelioides	Prickly paperbark	tube	1/10sqm	
SH	Dodonaea falcata 'Cuneate'	Hop bush	tube	1/10sqm	
S	Dianella longifolia		cell	1/2sqm	9 cells/sqm
S	Lomandra longifolia 'Katrinus'	Mat rush	cell	1/2sqm	
G	Microlaena stipoides var stipoides	Weeping grass	cell	5/2sqm	
G	Chloris verticillata	Windmill grass	cell	1/sqm	
G	Poa labillardieri 'Eskdale'	Common tussock grass	cell	5/2sqm	
G	Danthonia linkii		cell	5/2sqm	



SPECIFIC NOTES :
ALL CO-ORDINATES ARE RELATED TO GREYSTANES ESTATE GRID (GEG).
ALL HEIGHTS ARE RELATED TO AUSTRALIAN HEIGHT DATUM (AHD).



PROPOSED LOT 3

SIGNED	DATE	DRAWN	DATE
TC	15.12.00	TC	23.04.01
DESIGN CHECK	DATE	DRAWING CHECK	DATE
MS		MS	
PROJECT MANAGER APPROVED		SHEETS	
		SHEET 9 OF 11	

TITLE
GREYSTANES ESTATE
NORTHERN EMPLOYMENT LANDS

WETLAND PLANTING
LANDSCAPE DOCUMENTATION

SCALE: 1:500 @ A1

DRG NO. **NELD009** REV. **H**

CLIENT **BORAL RESOURCES**

Appendix C Landscape Plan 1:

Water Quality Ponds

STREET POINT
INTERSECTION OF PRK
CONTROL LINE ROAD 1
AND CONTROL LINE ROAD 3

CONTROL LINE

BEED BRIDGE
REFER ENGINEERS
DRAWINGS

PAINTING

RIPIARIAN ZONE
(within electricity easement)

RIPIARIAN ZONE

TUBESTOCK PLANTING
REFER DETAIL

PROPOSED
LOT 1

3000mm WIDE REINFORCED
CONCRETE PATH
REFER DETAIL

KEY PLAN

SPECIFIC NOTES:

ALL CO-ORDINATES ARE RELATED TO GEOSTANES ESTATE GRID (GEG),
ALL HEIGHTS ARE RELATED TO AUSTRALIAN HEIGHT DATUM (AHD).

See Landscape Plan 3



REFER DRG. NO. NELD001
FOR STREET PLANTING SCHEDULE

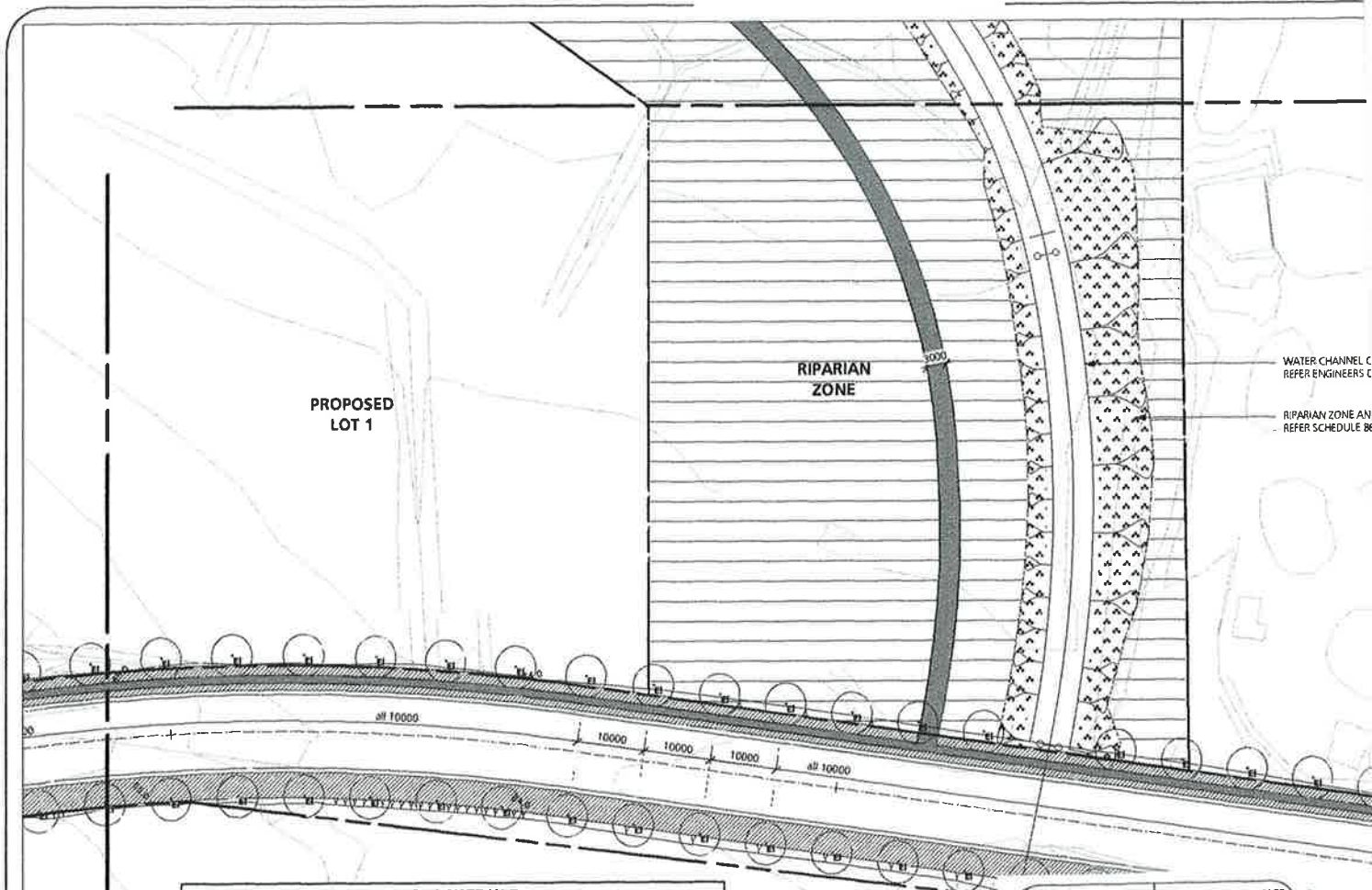
ADJOINS DRG. NO. NELD010

RIPIARIAN ZONE AND CREEK PLANTING
REFER SCHEDULE ON DRG. NO. NELD010

TITLE		DRAWN		DATE
GREYSTANES ESTATE		TC		23.04.01
NORTHERN BAYLOWMONT LANDS		TC		15.12.00
ROAD 1, 2 OF 4		MS		
LANDSCAPE DOCUMENTATION		MS		
DESIGNED		DATE	DATE	
TC		15.12.00	23.04.01	
CHECKED		DATE	DRAWING CHECK	DATE
MS			MS	
PROJECT MANAGER		SHEETS		
APPROVED		SHEET 2 OF 11		
CLIENT		BORAL RESOURCES		
DWB NO		REV		
NELD002		H		
SCALE		1:500 @ A1		

ADJOINS DRG. NO. NELD003

Appendix C Landscape Plan 2: Riparian Zone (northern)



ADJOINING DRC. NO. NELD001

RIPIARIAN ZONE PLANTING SCHEDULE

RIPIARIAN ZONE

Riparian corridor area above 100 ari flood level - no electricity easement
 Riparian corridor area above 100 ari flood level - under electricity easement
 Clump tree species into small stands

Species for riparian corridor with no electricity easement

SYMBOL	SPECIES	COMMON NAME	SIZE	RATE	RATE
T	<i>Acacia parramattensis</i>	Parramatta wattle	tube	1/25sqm	3V/10sqm
T	<i>Casuarina glauca</i>	Swamp oak	tube	1/25sqm	
T	<i>Mealeuca styphelioides</i>	Prickly paperbark	tube	1/25sqm	
T	<i>Angophora floribunda</i>	Apple myrtle	tube	1/25sqm	
T	<i>Eucalyptus tereticornis</i>	Forest red gum	tube	1/25sqm	
SH	<i>Dodonaea falcata</i> 'Cuneata'	Hop bush	tube	1/10sqm	9 cells/sqm
S	<i>Lomandra longifolia</i> 'Katrinus'	Mat rush	cell	1/2sqm	
G	<i>Microlaena stipoides</i> var <i>stipoides</i>	Weeping grass	cell	5/2sqm	
G	<i>Chloris venticosa</i>	Windmill grass	cell	1/sqm	
G	<i>Poa labillardieri</i> 'Eskdale'	Common tussock grass	cell	5/2sqm	
G	<i>Danthonia linkii</i>		cell	5/2sqm	
S	<i>Dianella longifolia</i>	Blue flax lily	cell	1/2sqm	
S	<i>Dianella longifolia</i>	Blue flax lily	cell	1/2sqm	

Species for riparian corridor with electricity easement

SYMBOL	SPECIES	COMMON NAME	SIZE	RATE	RATE
T	<i>Acacia parramattensis</i>	Parramatta wattle	tube	1/25sqm	5V/20sqm
T	<i>Mealeuca styphelioides</i>	Prickly paperbark	tube	1/25sqm	
SH	<i>Dodonaea falcata</i> 'Cuneata'	Hop bush	tube	1/10sqm	
S	<i>Lomandra longifolia</i> 'Katrinus'	Mat rush	cell	1/2sqm	9 cells/sqm
G	<i>Microlaena stipoides</i> var <i>stipoides</i>	Weeping grass	cell	5/2sqm	
G	<i>Chloris venticosa</i>	Windmill grass	cell	1/sqm	
G	<i>Poa labillardieri</i> 'Eskdale'	Common tussock grass	cell	5/2sqm	
G	<i>Danthonia linkii</i>		cell	5/2sqm	
S	<i>Dianella longifolia</i>	Blue flax lily	cell	1/2sqm	

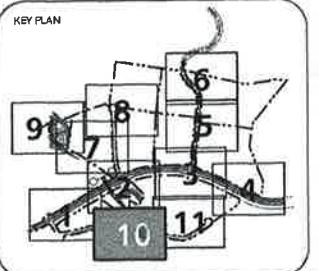
Creekline verge

Bed to be rock armoured (as per PPK drawings)
 Bed (1 in 3) to be rock lined with plantings up to 100 year ARI flood level
 (L): Species for lower slope positions

SYMBOL	SPECIES	COMMON NAME	SIZE	RATE	DENSITY
S	<i>Lomandra longifolia</i> 'Katrinus'	Mat rush	cell	1/2sqm	10 cells/sqm
G	<i>Microlaena stipoides</i> var <i>stipoides</i>	Weeping grass	cell	5/sqm	
S	<i>Juncus usitatus</i>	Spiny rush	cell	1/2sqm	
S	<i>Carex appressa</i>	Strap leaf sedge	cell	1/2sqm	
G	<i>Paspalum distichum</i> (L)	Water couch	cell	15/2sqm	
S	<i>Cyperus exaltatus</i> (L)		cell	1/sqm	
S	<i>Cyperus polystachyos</i> (L)	Leaf rush	cell	3/2sqm	

S - Sedge
 G - Grass
 T - Tree
 H - Herb/perennial
 SH - Shrub

DESIGNED TC	DATE 15.12.00	DRAWN TC	DATE 23.04.01
DESIGN CHECK MS	DATE	DRAWING CHECK MS	DATE
PROJECT MANAGER APPROVED		SHEETS SHEET 10 OF 11	
TITLE GREYSTANES ESTATE NORTHERN EMPLOYMENT LANDS RIPIARIAN ZONE, ROAD 4 LANDSCAPE DOCUMENTATION			
SCALE 1:500 @ A1			
DRC. NO. NELD010		REV. H	
CLIENT BORAL RESOURCES			



GENERAL NOTES:

- DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY.
- VERIFY ALL DIMENSIONS ON SITE.
- REFER ANY DISCREPANCIES TO THE SUPERINTENDENT.
- ALL UNDERGROUND SERVICE LOCATIONS TO BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO ANY EXCAVATION.

Appendix C Landscape Plan 3:

Riparian Zone (southern)