



An Environmental Assessment under Part 3A of the Environmental Planning and Assessment Act 1979, (MP06-0305).

Concept Plan Application for the Illawarra Ridge Golf Resort, Princes Highway, Darkes Forest, Wollongong, NSW.

for Links Illawarra Developments Pty Ltd



28th March 2008

PROJECT NO: 207.063

[ACN 100 209 265 / ABN 90 100 209 265](#)

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Submission of Environmental Assessment (EA) Prepared under Part 3A of the <i>Environmental Planning and Assessment Act (EP&A Act) 1979</i> .	
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Project to which Part 3A applies	
Proponent name	Links Illawarra Developments Pty Ltd
Proponent address	Suite 6/622 Ferntree Gully Road, Mulgrave, Victoria 3170
Land on which the development is to be carried out: address	The Land Area subject of this application is illustrated in Figure 1.3 and described in Table 1.1 within this Assessment Report. Address: Illawarra Golf Course, Princes Highway, Darkes Forest, Wollongong.
Proposed development	The Illawarra Ridge Golf Resort is the subject of this Concept Plan Application. The Resort will include a 9 hole golf course (2 sets of tees), a club house including a pro shop, restaurant, bar and other facilities, short term accommodation with approximately 100 rooms, 100 serviced apartments and approximately 200 villas for temporary accommodation. Where the description of the proposed development is different from that described in the Preliminary Application the description of the proposed development is to be read as the one in this Environmental Assessment Report.
Environmental Assessment	An Environmental Assessment (EA) is attached.
Certificate	I certify that I have prepared the contents of this document and to the best of my knowledge: It is in accordance with the requirements of Part 3A, It contains all available information that is relevant to the environmental assessment of the development, and It is true in all material particulars and does not, by its presentation or omission of information, materially mislead.
Signature / Name / Date	 Stephen Hills / 28 th March 2008

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- (B1) *QS Report* – Milliken Berson Madden, December 2006
- (B2) *Site Survey Plans*
- (B3) *The Concept Plan* – GNP Golf Design (November 2007),
- (B4) *The Design Statement and Building Plans*, the MPS Partnership Pty Ltd, November 2007.
- (B5) *The Building Envelopes*, the MPS Partnership Pty Ltd, November 2007.
- (B6) *Landscape Report* - Gamble McKinnon Green, November 2007.
- (B7) *Draft Conceptual Subdivision Plan & Community Management Statement*.
- (B8) Department of Lands letter (Owner's consent) dated 19/02//2008.

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- *Water Catchment Advice* – SEEC Morse McVey.(re SEPP 58)

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- *Economic Impact Assessment* – MacroPlan Australia November 2007.

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- *Services Strategy* – ARUP November 2007.

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- *Traffic Report* – ARUP November 2007.

Appendix G: Hazard Management – Contamination, Bushfire, Geotechnical, Flooding

- (G1) *Contamination Investigation* – JET.
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Appendix H: Water Cycle Management

- (H1) *Water Cycle Management Statement* – SEEC Morse McVey.
- (H2) (a)*Conceptual Soil and Water Management Plan*, (b) *Construction-Phase Soil and Water Management Plan* - SEEC Morse McVey
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EXECUTIVE SUMMARY

History of the site and concept

The site of this concept application is the 55.78ha of land currently occupied by the Illawarra Country Club at Darkes Forest, Wollongong. The site is made up of 6 parcels of land (4 in freehold tenure and 2 in leasehold). A detailed history of the development of a concept proposal for a golf resort on this site is included within **Appendix A**.

The proposed site is mainly zoned 7(c) Environmental Protection (Water Catchment) pursuant to the *Wollongong Local Environmental Plan No 38, (LEP 38)*. A small portion of the site remains zoned 1 (non-urban) within *Wollongong Local Environmental Plan 1990 (LEP1990)*. Clause 11 of LEP 38 permits with consent a "Golf Resort" on Portions 74, 76 and 160 and Lots 2 and 3, DP 250566, Princes Highway, Darkes Forest. LEP No 38 was gazetted in March 1984.

Concept Application under Part 3A of the EP & A Act 1979 (ref MP No.06-0305)

A Clause 6 request and Preliminary Assessment was lodged with the Department of Planning (DoP) on 22/12/06 as part of a Concept Application under Part 3A of the *EP & A Act 1979*.

On 19/7/07 the Minister declared the proposed development to be a project for which Part 3A applies for the purposes of Section 75B of the *EP&A Act 1979*. On the same day the Minister authorised a Concept Plan application pursuant to section 75M of the *EP&A Act 1979*.

Director General's Requirements (DGRs) were issued for application ref *MP No.06-0305* on 02/08/07.

This concept application Environmental Assessment (EA) has been prepared in response to and in compliance with those DGRs.

The Concept Proposal

The concept proposal seeks approval for a golf resort, on land mainly zoned for that purpose and on a site currently used as a golf course. The proposal relates to short stay, tourist style accommodation and will not include any permanent accommodation. The proposed golf resort will contain a broad range of services and facilities appropriate for all temporary occupants of the resort.

The golf resort will include a 9 hole golf course (2 sets of tees), a club house including a pro shop, restaurant, bar and other facilities, short term accommodation with approximately 100 resort hotel suites, 100 serviced apartments and approximately 200 accommodation villas for temporary accommodation. The resort has always been envisaged to be a "holiday home" type of development particularly in relation to the villas. The target group of residents are people who own a primary place of residence elsewhere and who would use the golf resort as a holiday retreat.

The site is close to the existing Wollongong communities of Helensburgh to the north and Thirroul to the south, if access is needed for higher order services and facilities. The site has good vehicular access via the Princes Highway to the F6 Freeway.

Consultation

The proposal has developed through a process of extensive consultation with Council, Government Departments and Agencies, and other stakeholders. A brief and targeted consultation and communications plan has been developed by Elton Consulting to provide a framework for all communications and community engagement activities.

October 2007 Amended Golf Course Layout

Since the lodgement of the preliminary assessment with the DoP and the receipt of DGRs, further consultation has occurred with government departments and agencies. Further studies and assessments have also been undertaken to comply with the DGRs. As a result of this work, it has been decided to amend the golf course layout in the southern part of the site to retain more of the native vegetation and to keep development to the north of the Riparian Corridor alongside Madden's Creek. This amendment particularly responds to the expressed concerns of the DECC.

The key issues and how adverse impacts will be mitigated

The key issues (identified in the DGRs) and how their potential impacts will be mitigated are summarised below:

- *Strategic Planning and Tourism*

The project will provide the city with an identified demand for additional high quality accommodation and conference facilities in the tourism market. The project will be developed as a tourist resort facility and will be managed via an appropriate community management structure to ensure that it will not revert to permanent accommodation and will only be used for short term accommodation (as defined in this Assessment Report). A *Community Management Statement* and *Conceptual Subdivision Plan* have been prepared and included as **Appendix B7**.

The demand for the facilities which are proposed to be provided at the Illawarra Ridge site is demonstrated in the “*Economic Impact Assessment Illawarra Ridge Golf Resort*” prepared by MacroPlan Australia dated 22nd November 2007 and attached within **Appendix D**. The demand for the proposed facilities is generated from the demonstrated need for high quality recreational experiences (golf, etc) in this tourism region, and for temporary and tourist accommodation

The Illawarra Ridge development will provide a new product attraction for tourism. The proposal will generate tourism expenditure in the order of \$331 million. A proportion of the tourists associated with the project will be attracted from Interstate and Overseas. Conservative estimates, based on attendance achieved at other golf courses in the region, indicate that 10% of the expenditure will be induced to New South Wales from course and hotel patrons from interstate and overseas. This represents \$33 million of additional expenditure in the New South Wales economy over the 20 year analysis period.

- *Sustainability*

The Project’s Sustainability Statement, which is included in **Appendix N**, demonstrates how sustainability considerations have been integrated into the proposed development. It also includes commitments by the Proponent to integrate sustainability throughout the subsequent phases of project planning, design, construction and operation.

- *Urban Design*

The built form and urban design is described in the *Design Statement* and the *Building Envelopes* prepared by the concept architects MPS Partnership Pty Ltd, which are attached within **Appendix B**.

In designing the resort, natural ground levels have been maintained to respect the gentle slope of the land and to ensure that existing trees are retained wherever possible. The proposed structures are a combination of one, two and three-storeys and sit comfortably under the established tree canopy.

The majority of the site will remain as open space and golf course, retaining the majority of the existing established vegetation. New buildings will be substantially set back from all boundaries and existing copses buffering the site will be retained as landscaped buffers.

Buildings are designed to a domestic scale with 2-3 storey height limits within nominated building envelopes. The resort hotel component is broken up into a cluster of pavilions arranged around artificial lakes and has a sub-tropical style with dramatic masonry frame structures with steep-pitched roofs and wide eaves.

The villas are set in clusters and are a combination of one and two storeys. Materials include painted masonry, stone, timber and steel roofs.

The architecture of the buildings will be fully controlled by a comprehensive set of design and building controls specific to the site. The guidelines will be framed to insist on a consistent theme of architectural style.

- *Visual Impact*

The potential visual impacts of the proposed development were assessed (see **Appendix P**) in terms of:

- Visibility of the proposed development, and
- The number of people who will see the proposed development (visual usage), as well as the distance and context of those views.

The wider visual catchment is illustrated by the views gained from a selection of locations including main roads, public reserves, as well as district elevated areas. These views were assessed in the light of the proposed building envelopes and 2-3 storey development of the resort.

Most of the site and the development within it will not be visible from the views available from the public vantage points within the surrounding local area and road system. The development will be effectively screened by existing and proposed vegetation and it will not create an adverse environmental impact.

- *Infrastructure Provision*

The proposed *Servicing Strategy* (included in **Appendix E**) will ensure appropriate connections to the various utilities necessary to service the future development. A connection will be made to potable mains water. Effluent will be treated at an on-site tertiary sewage treatment plant (STP) with treated effluent used to irrigate the golf course. The site will be serviced by a low-pressure sewer system. The project will have separate connection to two independent electrical supply networks, and the existing telecommunication infrastructure network will be upgraded.

- *Traffic and Access*

Channelised right turn lanes will be installed on the Old Princes Highway for vehicles entering the Illawarra and Boomerang sites from the north, and approximately 425 parking spaces will be provided to service the proposed site development.

- *Hazard Management and Mitigation*

There is no evidence of ground contamination anywhere on the site and acid sulphate soils are not present. To address bushfire risk, asset protection zones have been applied to the perimeter of the development footprint, fire-fighting water supplies identified, and the need to prepare an evacuation plan acknowledged.

In relation to the 1 in 100 year ARI storm event, all floor levels within the proposed resort will be designed to a minimum of 377.5 RL to meet Council's 500mm freeboard requirements.

- *Water Cycle Management*

Water is considered a key issue in this project as it encompasses the water cycle and riparian corridor, stormwater management, flooding and water quality. The SEEC Morse McVey report (included within **Appendix H**) includes a detailed water cycle management plan for the construction and ongoing use of the resort. Modelling conducted as part of this plan demonstrates that the proposed project will have a neutral or beneficial effect on receiving waters (for example, resulting in a -90.3% reduction in Gross Pollutant levels from pre- to post- development). A Concept Stormwater Plan prepared by Arup is attached within **Appendix H**.

- *Riparian Corridor Management*

The Maddens Creek corridor has been identified as an environmentally sensitive zone both in terms of water quality and ecology. Within the concept, a number of strategies have been employed to protect the creek from potential water quality pollutants, and protect and enhance the existing vegetation and habitat types. A *Concept Riparian Corridor Management Plan* (CRCMP) for native vegetation on Maddens Creek forms part of the application (see **Appendix I**). The final concept (adopted in October 07) has been designed to restrict development to the northern side of the creek. The existing Sedgeland Heath Mosaic to the south of Maddens Creek will be unaffected by the proposed development.

- *Aquatic Ecological Assessment*

The Ecology Lab Pty Ltd has undertaken an aquatic ecology assessment in relation to Maddens Creek (see **Appendix I**). The main impacts of the proposed works are associated with damage to riparian vegetation/microphyte beds and temporary increases in turbidity. Providing that the adopted recommendations to minimise or eliminate these impacts are implemented and maintaining or improving riparian corridor requirements considered, then disturbance during construction and long term effects should be minimal. These recommendations have been included in the projects Statement of Commitments (see **Section 6**).

- *Heritage and Archaeology*

An “*Aboriginal and European Heritage Assessment*” of the site and proposal has been undertaken by Andrew Roberts Consultants in November 2007 (see **Appendix J**) and its recommendations are adopted in the Statement of Commitments included in this concept application. The three identified sites of aboriginal significance within the property are in locations which will not be impacted by the proposed works. They consist of an ochre/gypsum quarry, artifact scatter and PAD and are located on the bed and banks of Madden’s Creek. Advice in relation to the extinguishment of Native Title has been provided by Minter Ellison, and is included within **Appendix J**. The subject site has no items of European heritage significance.

- *Flora and Fauna*

A “*Flora and Fauna Report*” was been undertaken by LesryK Environmental Consultants in November 2007 and its recommendations are adopted in the Statement of Commitments included in this concept application (see **Appendix K**). These commitments will ensure that the proposal does not have an adverse impact on those habitats that occur beyond the limits of the proposed development area.

The proposal will avoid any direct or indirect impact on the Ironstone Woodland and Sedgeland-Heath Mosaic vegetation communities that line and occur south of Maddens Creek which are identified as having high conservation significance.

- *Noise*

Arup Acoustics has undertaken an acoustic assessment of the existing environment of the proposed Illawarra Ridge development (see **Appendix L**). Provided reasonable care is taken during the development of the design, e.g. detailed master planning, building façade construction, etc., noise intrusion to occupied spaces within the various buildings in the development can be adequately controlled to meet the ECRTN limits and the recommended targets detailed in AS2107:2000. Similarly, noise impact to the surrounding community will need to be controlled with careful building planning and adequate noise control treatment.

- *Socioeconomic Impacts*

The “*Economic Benefit Strategy*” undertaken by MacroPlan in November 2007, included in **Appendix D**, states that the total expenditure generated throughout the 20 year period (2006-2025) is estimated at \$493 million dollars which equates to \$275 million in net present terms (discount rate of 7%). At completion, the Illawarra Ridge development is estimated to support a total worker population of approximately 160 workers. These jobs will be provided at the hotel, golf course and limited retail offering.

The project expenditure will also generate significant employment within New South Wales. Total employment generated from the expenditure levels has been estimated at 851 jobs during the construction phase of the project and 431 jobs post construction (including multiplier effects). Employment is weighted towards construction during the early years of the project, moving towards goods and service support for tourists in later years.

The Illawarra Ridge development will provide a new product attraction for tourism. The proposal will generate tourism expenditure in the order of \$331 million. Conservative estimates, based on attendance achieved at other golf courses in the region, indicate that 10% of the expenditure will be induced to New South Wales from course and hotel patrons from interstate and overseas. This represents \$33 million additional expenditure in the New South Wales economy over the 20 year analysis period.

In addition to the employment and tourism benefits identified above there are a wide range of social and economic benefits that will be derived from the project. The majority of these benefits are associated with the provision of infrastructure and high amenity environment to stimulate and entice recreational activity.

The provision of recreational activities delivers a wide range of benefits to the community, ranging from personal satisfaction and a sense of well-being to reductions in the cost of health care and improved economic well-being. A selection of these benefits include: Social cohesion, Community diversity, Medical cost reduction, Community pride, Crime reduction, Strengthening a productive workforce, and Contribution to environmental health and rehabilitation.

Benefits associated with employment e.g. a decrease in the negative social aspects of unemployment, increased employment opportunity and choice will result. Significantly the project will provide growth in employment of the burgeoning tourism and hospitality industry.

Benefits associated with higher amenity provision instil pride and a greater sense of place and community. Respect and pride for a location has the inherent value of positive marketing of the area from both residents and visitors.

- *Impacts on the adjoining Dharawal Nature Reserve*

The direct or indirect impacts of the development on the Dharawal Nature Reserve (adjoining the south-western boundary of the site), has been addressed in accordance with DECC's *Guidelines for Development Adjoining DEC Lands*.

The October 2007 modification of the concept, such that there will be no development proposed within the subject site to the south of Madden's Creek, significantly increases the buffer distance between the golf course and the Nature Reserve. The restoration and maintenance of a fully vegetated buffer (20 metres in width) along the northern side of Maddens Creek is further anticipated to adequately protect bushland in the Nature Reserve. In addition, it is assessed that water quality in the Creek will improve as the result of the integrated Water Quality Management Plan which is an integral part of the proposal.

- *Owner's consent*

The Concept Application provides evidence of Owner's Consent (including Crown Land).. A letter from the Department of Lands) has been included as **Appendix B8**, and legal advice from Minter Ellison regarding the extinguishing of Native Title has been included as **Appendix J2**.

Conclusions and Benefits of the Project

This environmental assessment concludes that the proposed golf resort concept will result in limited potential adverse environmental impacts which can be appropriately mitigated.

The proposed Illawarra Ridge Golf Resort involves the conversion of the existing 18-hole layout to a 9-hole course and the creation of a modern golf resort with associated accommodation and recreation facilities. The Illawarra Ridge Golf Resort will be an integrated tourism precinct offering comprehensive resort and spa experiences, conference facilities as well as golf.

The proposed development will be low-key in scale and contained well within the site and within proposed building envelopes. It will have minimal impact on its surroundings. It will integrate well with the adjoining natural vegetation, particularly in its treatment of the Maddens Creek riparian corridor and the adjacent Dharawal Nature Reserve to the south. It will enhance the attraction of a superior golf course and create a valuable tourist facility for the local area.

All potential adverse impacts can be mitigated by conditions of development consent during the staged development of the concept. Mitigation measures are included in the project commitments.

The proposed project will be a significant investment in the Illawarra region. It will result in the provision of infrastructure services to the locality, a range of community sporting and leisure facilities, and will be a generator for local tourism and employment. The resort will be serviced by its own package sewage treatment plant without the need to augment the existing sewerage system. Major upgrades to water and other utilities to service the project will also benefit the local area.

We support this concept application and recommend its approval by the Minister.

1. OUTLINE OF THE SCOPE OF THE PROJECT

The Links Group propose to construct a golf resort on the site currently occupied by the Illawarra Golf Course at Darkes Forest, Wollongong.

The golf resort will include a 9 hole golf course (2 sets of tees), a club house including a pro shop, restaurant, bar and other facilities, short term accommodation consisting of 100 resort hotel suites, 100 serviced apartments and 200 accommodation villas.

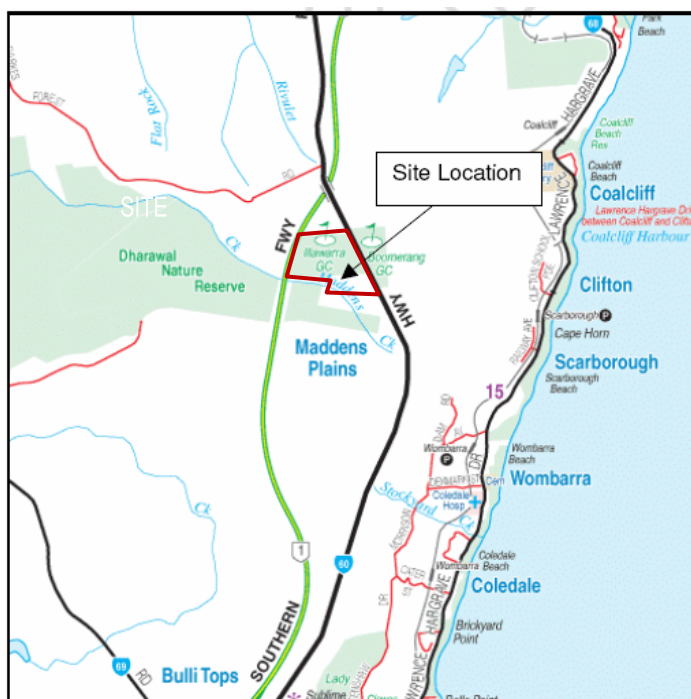
The site covers about 55.7ha, within which the golf course would occupy 40-45ha and the remaining facilities occupying the residual 10ha.

1.1 EXISTING SITE AND CONTEXT

The site is the current Illawarra Country Club on the Princes Highway some 7km north of Thirroul, on the Illawarra coast, north of Wollongong (refer to **Figure 1.1**).

The 55.78ha site is currently an 18 hole golf course, with a number of dams dispersed throughout the property. The site is located above and to the west of the Illawarra escarpment and is gently undulating land, generally sloping down to the F6 freeway. It is bounded by the Princes Highway to the east and the F6 freeway to the west. The site abuts the Dharawal Nature Reserve/Crown Reserve to the south-west, the Boomerang Golf Course to the east (across the Princes Highway), grazing land to the north and rural residential holdings to the west (across the F6 Freeway).

Figure 1.1: Location Plan



1.1.1 Metropolitan Context

The Illawarra region is located between the cities of Wollongong and Sydney on the NSW south coast. The Illawarra region is defined as the area of the south coast within Eurobodalla Shire, Kiama, Shellharbour City, Shoalhaven City, Wingecarribee Shire and Wollongong City Council's areas. Towns below the Illawarra escarpment are connected to the two city centres by a rail link, whilst towns on top of the escarpment are principally serviced by the F6 Freeway/Princes Highway.

Whilst the site will be principally serviced from Wollongong given its proximity, the F6 Freeway also provides ease of access to and from Sydney.

Immediately to the south of the site, consideration is being given by the National Parks Association to a further expansion of the Dharawal Nature Reserve into the Loddens Creek / Maddens Plains area, bounded on the west by the Appin-Bulli Road and on the east by the Princes Highway.

1.1.2 The Site

The site has an area of 55.78 ha. The location of the site is illustrated in **Figure 1.2**. The site is made up of 6 parcels of land (4 in freehold and 2 in leasehold); see **Figure 1.3** and **Table 1.1**. The site is relatively flat and has been developed previously as an 18-hole golf course. The site has copses of trees that define the fairways and the golf playing areas. The existing site has 2 small weatherboard cottages, a pro-golf shop, a basic amenities block, various ironclad sheds, and twelve dams. Photographs of existing buildings within the site are included within **Figure 1.4**.

1.1.3 Adjoining Property

The land is adjoining by the following properties:

- To the north, a rural residential property and riding school,
- To the west, the Southern Freeway (F6),
- To the south, the Dharawal Nature reserve, and
- To the east, the Princes Highway and Boomerang Golf Course.

The land to the north forms a triangle with its apex at the intersection of the Southern Freeway and the Old Princes Highway. This land is used for farming and an equestrian centre and contains a dwelling, large sheds and has been extensively cleared, except for some copses at the south eastern boundary with the subject land. It is understood a site near the apex of the Freeway and Old Princes Hwy is a school.

The F6 (Southern Freeway) runs along the western boundary of the side. No access is permitted from the Freeway to the subject site.

Figure 1.2: Site Plan



Source: Figure 3.1 Vegetation Management Plan

Land on the western side of the Southern Freeway has extensive tree cover and comprises part of the “special areas” within the Upper Nepean and Woronora water catchment areas. The Special Areas protect the water supply by acting as a buffer zone to help stop nutrients and other substances that could affect the quality of water entering the storages.

Portion 73 of DP 752054 is the land immediately adjoining the south-eastern part of the site. The Dharawal Nature Reserve is located to the south and west of this Portion 73 land, as well as being immediately adjoining the south western portion of the site. The Dharawal Nature Reserve adjoins the south-eastern tip of Dharawal State Recreation Area, south of Darkes Forest Road and west of the Princes Highway, and forms only a small part of the total 5,940 ha of the combined reserves.

The Old Princes Highway forms the eastern boundary of the site. Adjoining, and to the east of the Princes Highway is the Boomerang Golf Course which contains fairways, clubrooms, maintenance sheds and workshops.

Figure 1.3: Land Titles and Zoning

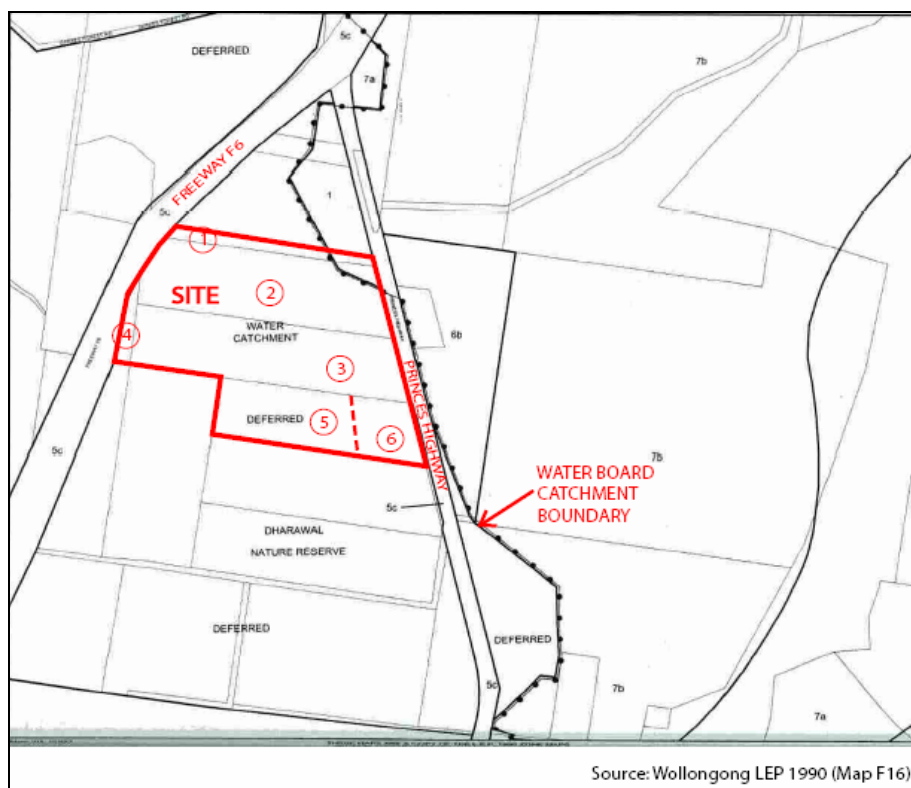


Table 1.1: Land Titles

Ref*	Lots	DP Number	Area/Zoning	Comments
Freehold				
(1)	2	240566	7(c) – LEP 38 (Sch 8) 1(non-urban) LEP 1990	Northern part
(2)	3	240566	7(c) – LEP 38 (Sch 8) 1(non-urban) LEP 1990	North-eastern part
(3)	1 (Por 76)	10488471	7(c) – LEP 38 (Sch 8)	Central part (adjoins Dharawal Nature Reserve in SW corner)
(4)	4	240566	7(c) – LEP 38 (deferred but not in Sch 8)	(Adjoining Freeway), golf course
	Total		40.8ha	
Leasehold				
(5)	74 (Por 74)	752054	7(c) – LEP 38 (Sch 8)	South-western part. Adjoining Dharawal Nature Reserve to the south-west
(6)	160 (Por160)	752054	7(c) – LEP 38 (Sch 8)	South-eastern part.
		Total	14.98ha	
		Grand Total	55.78ha	

Note: * see Figure 2.3

Zone 7(c) Environmental Protection (Water Catchment) – City of Wollongong LEP 38,
 Zone 1(non-urban) – City of Wollongong LEP 1990

Figure 1.4: Photographs of the Existing Buildings (Source: Heritage Assessment 2007)



Plate 30: Shop



Plate 31: Machinery Shed



Plate 33: Managers House



Plate 34: Residence



Plate 39: Car Park



Plate 40: Garages and Workshops



Plate 41: Pro Shop and Green



Plate 42: Utility Shed

1.1.4 The Zoning of the Site

The proposed project site is mainly Zoned 7(c) Environmental Protection (Water Catchment) pursuant to the Wollongong Local Environmental Plan No 38 (see **Figure 1.3**). A small portion of the site remains Zoned 1 (non-urban) within LEP 1990. The Model Provisions are not adopted by LEP 38.

Given the above zoning the golf development would be prohibited. However, Clause 11 of LEP 38 permits, with consent, on Portions 74, 76 and 160 and Lots 2 and 3, DP 250566, Princes Highway, Darkes Forest a "Golf Resort". The concurrence of the Department and the Metropolitan Water Sewerage and Drainage Board would be required prior to development consent being granted by the Council.

The term "Golf Resort" is not defined in LEP 38 or the *EP&A Act Model Provisions*.

Both John Whitehouse from Minter Ellison Lawyers and Ian Hemmings, Barrister, have advised that the term "Golf Resort" includes the following development:

"It also includes other development, such as a resort clubhouse (including restaurants, bars, shopping facilities, crèche, other related sports facilities and so on), driving range, serviced apartments, semi-permanent and permanent residential development (including a dwelling house or unit), as long as such development is linked or related, in a fundamental way, to the golf course."

1.2 SITE ANALYSIS

A comprehensive analysis of the existing site conditions is provided in Section A of the *Landscape Report* prepared by Gamble McKinnon Green dated November 2007 and included within **Appendix B**.

Section A of the landscape report documents and reviews the existing site conditions. Much of the information in that section of the report is drawn from investigations undertaken by the project team's specialist consultants in the following areas:

- Bush Fire Hazard
- Flora & Fauna Surveys (significant species)
- Topography
- Water Catchment Identification
- Services Strategies
- Flood Studies
- Aboriginal Heritage Assessment
- Geotechnical Site Characteristics
- Land Contamination
- Existing Site Characteristics

- ESD Principles and Application

That section of the Landscape Report summarises the findings of those investigations and provides a site analysis overview and context related issues and drawings. These site analysis drawings provide a framework for the proposed development concept.

1.3 DEVELOPMENT OPTIONS

In considering the proposed development the following main options have been considered:

- Maintaining the current situation,
- Redeveloping the site with a 9 hole course, resort accommodation and permanent accommodation, and
- Redeveloping the site with a 9 hole course and resort accommodation.

1.3.1 Maintaining the Current Situation

The existing 18 hole golf course could be maintained as existing but little space would be available outside of the playing areas to provide associated and updated facilities. The current course is defined by copses of trees which line the fairways and the golf playing areas. The existing site has two small weatherboard cottages, a pro-golf shop, a basic amenities block, various ironclad sheds, and twelve dams which could be maintained and continue operating as they currently are.

The owners however do not wish to pursue this option. They wish to redevelop the site to create a modern Golf Resort facility, in line with the current zoning of the site.

1.3.2 Redeveloping the Site with a 9 Hole Course, Resort Accommodation and Permanent Accommodation

Initially the preferred option included permanent accommodation. Permanent accommodation however was not supported by the DoP. The following comment in the DoP letter dated 24/7/07 is noted:

"Your attention is drawn to the Minister's comment when he formed his opinion and authorised a concept plan application that a restrictive covenant for tourist only uses will be essential for this project to be approved".

This option was previously considered in an application to Council and the DoP. The permanent accommodation part of the application has been removed in this application as it was not supported by the DoP. No permanent accommodation is included in this application.

1.3.3 Redeveloping the Site with a 9 Hole Course and Resort Accommodation

This option is the preferred option and has developed into the concept application which is the subject of this application. The concept is described in more detail in **Section 2** of this EA.

1.3.4 October 2007 Revised Layout Option

Since the lodgement of the preliminary assessment with the DoP and the issue of DGRs, further consultation has occurred with government departments and agencies. Further studies and assessments have been undertaken to comply with the DGRs. As a result of this work, it has been decided to amend the golf course layout in the southern part of the site to retain more of the native vegetation and to keep development to the north of the Riparian Corridor alongside Madden's Creek (see **Figure 1.5**).

Figure 1.5: Illustration of October 2007 Layout Amendment to Southern Lot.

(A) Original Treatment



(B) October 2007 Amendment (development retained north of creek)



1.3.5 Other Options Considered

Other options considered during the development of this project are as follows:

Inclusion of the Boomerang Golf Course

The inclusion of the Boomerang Golf Course on the eastern side of the Princes Highway (possible golf buggy underpass) has been considered as part of the total development. This was not pursued as the Boomerang Golf Course owners were not interested in a combined development.

Sewerage treatment Options

Sewerage treatment options considered include either the “on-site” package treatment plant or a pipeline to connect with the existing reticulation system. Both options are addressed in more detail in the Services Strategy – ARUP November 2007 attached as **Appendix E**.

An initial consultation with Sydney Water Corporation (SWC) was held on the 9th March 2005. The general discussion outlined the process by which SWC follow in establishing a new connection to their system. Accordingly, ARUP submitted a formal Feasibility Application and accompanying report on behalf of Links Illawarra to SWC on 28 April 2005 (Case number 78544). Subsequent to this meeting and Feasibility Application, SWC advised that a traditional rising main connection to Helensburgh would not be feasible due to odour problems arising from the length of the service. It is believed that partial treatment or chemical dosing could overcome this issue.

However following the development of the concept, the option to on-site treat and dispose of the sewage has been identified as the preferred solution and has been developed for the concept design. This strategy for the disposal of sewerage will be detailed further following concept approval.

1.4 JUSTIFICATION FOR THE PROJECT

The project is justified following a consideration and assessment of potential environmental impacts, the suitability of the site and an assessment that the project will be in the public interest.

Assessment of potential environmental impacts

This EA document assesses the potential environmental impacts that will result from the proposed development and concludes that the identified impacts are not significant and can be appropriately managed. The assessment of potential environmental impacts, including the key issues identified in the DGRs is included in **Section 4** of this EA. The assessment also includes a review of the detailed specialist consultant reports included in the Appendices. The key elements of the assessment which support the proposed concept are as follows:

Tourism

Demand for the proposed Illawarra Ridge Golf Resort is justified by the need for high quality recreational experiences (golf, etc) in this tourism region, and the demand for temporary and tourist accommodation. The project will provide Wollongong with an identified demand for additional high quality accommodation and conference facilities in the tourism market. The project will be developed as a tourist resort facility with an appropriate community management structure; it will not become a “permanent settlement”. The proposal will generate tourism expenditure in the order of \$331 million.

Economic Impact

The total expenditure generated throughout the 20 year period (2006-2025) is estimated at \$493 million dollars which equates to \$275 million in net present terms (discount rate of 7%). At completion, the Illawarra Ridge development is estimated to support a total worker population of approximately 160 workers. These jobs will be provided at the hotel, golf course and limited retail offering.

Urban Design and Visual Impact

In designing the resort, natural ground levels have been maintained to respect the gentle slope of the land and to ensure that existing trees are retained wherever possible. The proposed structures are a combination of one, two and three-storeys and sit comfortably under the established tree canopy and within the proposed building envelopes. The majority of the site will remain as open space and golf course, retaining most of the existing established vegetation. New buildings will be substantially set back from all boundaries and existing copses buffering the site will be retained as landscaped buffers.

Most of the site and the development within it will not be visible from views available from public vantage points within the surrounding local area and road system. The development will be effectively screened by existing and proposed vegetation and is not assessed to create an adverse environmental impact.

- *Riparian Corridor Management*

The Maddens Creek corridor has been identified as an environmentally sensitive zone both in terms of water quality and ecology. Within the concept, a number of strategies have been employed to protect the creek from potential water quality pollutants, and protect and enhance the existing vegetation and habitat types. A *Concept Riparian Corridor Management Plan* (CRCMP) for native vegetation on Maddens Creek forms part of the application. The final concept (adopted in October 07) has been designed to restrict development to the northern side of the creek. The existing Sedgeland Heath Mosaic within the site and to the south of Maddens Creek will be unaffected by the proposed development.

- *Heritage and Archaeology*

The three identified sites of aboriginal significance within the property are in locations which will not be impacted by the proposed works. They consist of an ochre/gypsum quarry, artifact scatter and PAD and are located on the bed and banks of a Madden's Creek. The nominated Aboriginal site will be protected and managed with the involvement of the Illawarra Local Aboriginal Land Council and other Aboriginal custodians.

The subject site has no items of European heritage significance.

The suitability of the site

The proposal seeks approval for a golf resort, on land mainly zoned for that purpose and on a site currently used as a golf course. The proposed golf resort concept is suitable for the site. The site is an attractive tourist destination with short stay tourist accommodation, located between Wollongong and Sydney and with good access to the Princes Highway and the F6 Freeway. The F6 Freeway provides good access to Sydney Airport. The proposed resort will contain a broad range of services and facilities appropriate for all temporary tourists/visitors of the resort. The site is in proximity to the existing Wollongong communities of Helensburgh to the north and Thirroul to the south if access is needed for higher order services and facilities.

The project will be in the public interest

The proposal will assist in generating positive economic impact for the Illawarra Region by providing additional tourist dollars into the economy and flow-on effects for other tourist locations in the area as well as local employment.

The improved recreational facilities will benefit the general public. The golf course will continue to be open to the public. Employment will be available to local people. Approximately 160 jobs are expected to be available.

The treatment of the riparian corridor along the northern edge of Madden's Creek and the implementation of the vegetation management plan will complement the attributes of the adjoining, and adjacent Dharawal Nature Reserve. Appropriate interpretive and management measures will protect the identified items of aboriginal heritage significance.

1.5 STAGED IMPLEMENTATION OF THE PROJECT

The proposed "golf resort" project is to be staged over five stages within a 4 year period. The proposed staging of works for the Illawarra Ridge Golf Resort is provided below in **Table 1.2** and **Figure 1.6**.

Table 1.2: Indicative Staging of Works (see Figure 1.6)

Stage / Year	Proposed development
Stage 1 - Year 1	<ul style="list-style-type: none"> ▪ Resort entry road works and landscaping ▪ Water trunk mains (from Helensburgh) ▪ Sewer treatment plant installation ▪ Electrical substation installation ▪ Business identification signage ▪ Building site compound installation (including construction access road and associated sheds - to be later used as permanent resort maintenance shed) ▪ Amendments to the existing golf course layout, including any bulk earthworks, reshaping, irrigation dams and system, including golf practice facilities and driving range.
Stage 2 - Year 2	<ul style="list-style-type: none"> ▪ Construction of the clubhouse and APZ ▪ Construction of the health and well being centre including swimming pool, tennis courts and APZ. ▪ Construction of resort villas (southern precinct 38 No. villas) and APZ. ▪ Community Title Subdivision of resort villas (southern precinct)
Stage 3 - Year 3	<ul style="list-style-type: none"> ▪ Construction and Community Title Subdivision of 100 serviced apartments and APZ.
Stage 4 - Year 4	<ul style="list-style-type: none"> ▪ Construction and Community Title Subdivision of resort villas (northern precinct 162 No. villas) and APZ. ▪ Community Title Subdivision of resort villas (northern precinct)
Stage 5 - Year 4	<ul style="list-style-type: none"> ▪ Construction and Community Title Subdivision of 100 hotel suites and APZ. ▪ Construction of conference faculty as part of hotel building and APZ.

Environmental Assessment

Links Illawarra Developments Pty Ltd
Concept Plan for the Illawarra Ridge Golf Resort



STAGING PLAN

ILLAWARRA RIDGE
LINKS-ILLAWARRA DEVELOPMENTS PTY LTD



Figure 1.6

2. THE CONCEPT PROPOSAL

2.1 THE CONCEPT PLAN

The Illawarra Ridge Concept Plan (included below as **Figure 2.1**) has been designed to facilitate a staged development which will allow a balanced provision of accommodation release and resort services. The Indicative Staging of Works is illustrated earlier in **Table 1.2**.

The Concept Plan for the project includes provision for the following future development:

- A 9 hole golf course,
- A resort clubhouse with associated golf facilities,
- A driving range,
- 100 resort hotel suites,
- 100 serviced apartments,
- 200 accommodation villas, and
- A maintenance complex comprising administration, maintenance, machinery storage, lunch room and 40 cart storage area.

Concept approval is also sought for the Building Envelopes included within **Appendix B**.

2.2 THE INTENDED OPERATIONAL STRUCTURE

The intended operational structure at Illawarra Ridge, to protect (in perpetuity) the ongoing viability of the resort, will be as follows:

1. The ultimate operating structure to be adopted is still currently being resolved. The principle structure to be employed will be as set out in the attached draft *Conceptual Subdivision Plan* and *Community Management Statement* which are included within **Appendix B7**).
2. LINKS LIVING Ltd has successfully employed both community title/strata schemes and company structures as operating structures in the past. A Strata Scheme sits at the heart of Sanctuary Lakes Resort whilst a Company Structure sits behind the Sandhurst Club. Links are proposing similar structures across all of their other future projects, these being Whitsunday Springs Resort, and other similar projects like the Geelong Golf Club.
3. Illawarra Ridge Resort ("Resort") will be established to operate as one collective Central Fund. Essentially it will be an Owners Corporation. This seems to be the most universally preferred structure for the operation of these unique kinds of resorts within NSW legislation.

4. The Resort will own all of the golf course land, all road infrastructure, the maintenance shed complex and appurtenant facilities including recreation club building and will have secured rights for its members to use the clubhouse.
5. The Resort will effectively comprise 4 categories of membership:
 - i) Resort Member – (Class ‘1’ membership)* will exclusively comprise of owners of the 200 proposed resort villas. The occupiers of these villas will be afforded full course and playing rights and use of all facilities. Annual Fees will be levied on these members, via an encumbrance on the property, and all proceeds would be received by the Resort.
 - (ii) Resort Golf Members – (Class ‘2’ membership)* will comprise regular golfers who prefer organised competition golf. Annual fees will be levied on these members and all proceeds will be collected by the Resort. Each member will enjoy full golf playing rights.
 - (iii) Green Fee and Public Access – (Class ‘3’ membership)* will essentially be green fee players and guests. Daily fees will be levied on these persons with all proceeds received by the Resort.
 - (iv) Resort Recreation Members – (Class ‘4’ membership)* will comprise members from the wider community who can utilise all the facilities at preferred community participation rates. This will extend not only to the golf but to all of the recreational facilities within in the Resort.
6. All of the 200 accommodation villa, hotel and serviced apartment complex owners will form a single Owners Corporation. That entity in turn will enter into a fixed and binding contract with the Resort where:
 - The Resort will maintain all ‘Common’ resort assets, including resort nature strips, parks and gardens.
 - Villa owners will be issued with ‘Resort Member’ memberships,
 - The Resort will commit to maintaining the golf course in good order.
7. A combination of Owners Corporation income, golf fees, green fees and recreation fees will ensure in perpetuity the on-going maintenance and protection of the golf resort facilities.

A chart outlining the intended operating structure is provided below as **Table 2.1**.

2.2.1 Proposed Mechanisms to ensure that the Resort is used for Resort Accommodation Purposes Only

To ensure that the Illawarra Ridge Golf Resort is not used for residential purposes, and is only used as a tourist facility, Links Illawarra Development Pty Ltd (LID) commits to implementing the mechanisms outlined below for this Project. The mechanisms will:

- ensure that the accommodation components of the Illawarra Ridge Golf Resort will only be used as “temporary accommodation”; and
- guarantee the financial viability of the community owned facilities, such as the golf course.

1. Development Consent Conditions

LID agrees to the imposition of an approval condition which provides that the accommodation must only be used for tourism purposes and cannot be occupied for more than 42 consecutive days or in aggregate, no more than 150 days in any 12 month period.

This condition can be enforced by any person under section 124 of the *Environmental Planning & Assessment Act 1979* ('EP&A Act').

2. Community Management Statement

(i) Operation of by-laws

The proponent proposes a community title subdivision under the *Community Land Development Act 1989*.

As part of the subdivision, a community association would be formed comprising owners of all lots in the scheme which would be established upon registration of the community plan with the Land Property & Information.

Owners of the relevant lots will be required to fund the operation of the golf course and other community property in the event that there is a short fall in revenue from the operation of these facilities.

Registered with the community plan must be a community management statement (**CMS**) (included within **Appendix B7**) which is a statement of the by-laws and other particulars governing how each of those who own a lot entitlement in the scheme must participate.

By-laws will be included which provide that the accommodation must only be used for tourism purposes and cannot be occupied for more than 42 consecutive days or in aggregate, no more than 150 days in any 12 month period. These conditions will only be able to be amended or revoked with the consent of a public authority such as Wollongong City Council (**WCC**).

LID commit to the inclusion in the CMS of a prohibition against permanent residential usage or occupation of the lots within the scheme for more than 42 consecutive days or in aggregate, no more than 150 days in any 12 month period.

Further, the community association will be obliged to regularly monitor compliance with this by-law and provide reports on the monitoring if requested by WCC. In addition, the association will be required to instigate legal proceedings to ensure compliance with this by-law and the project conditions (mentioned above) if there has been a non-compliance.

(ii) Letting Agreements

The CMS will require that owners must maintain an agency (sometimes called letting) agreement with the resort operator. This is a functional provision that firstly ensures that compliance checks can easily be made and secondly ensures that the only person who can access the premises is authorised by the resort operator using the resort operators keying system.

(iii) Summary of Authority By-laws

The following provisions in the CMS will be imposed as "Authority By-Laws" and will only be able to be amended or revoked with the consent of the relevant authority:

- (a) a strata lot may only be occupied by a person for a period of 42 consecutive days or in aggregate, no more than 150 days in any 12 month period;
- (b) an owner must make available all documents relating to the use and occupation of a lot including lease agreements and agency agreements to any authorised representative of council and to the community association for the purpose of ensuring compliance with the by laws and any covenants;
- (c) the community association must maintain a record about the use of all strata lots and make such record available to WCC on request;
- (d) the proprietor or occupier of a lot must comply with the terms of any restriction on use or public positive covenant burdening the lot;
- (e) the proprietor of a lot maintains at all times an agreement with a letting agent which is bound by contract;
- (f) the community association at all times maintains an agreement with a qualified and suitable person or corporation upon terms and conditions determined by the community association to enable proprietors of lots to offer through that person or corporation their lots for rental by members of the public as holiday accommodation;
- (g) by laws (a) to (f) cannot be amended or revoked without the consent of the Council.

3. Title Restriction

A restrictive covenant will be imposed on the title under section 88E of the *Conveyancing Act 1919* restricting the use of the accommodation lots to tourism accommodation purposes.

This restriction or covenant will not be able to be amended or revoked without Council's consent.

The covenant will assist in notifying potential purchasers of the lots of the restriction on use being for tourism accommodation purposes and not for residential purposes.

4. Built Form of Resort Villas

Resort Villa components of the Project will abide to the hotel industry standard form of accommodation design inline with typical "spa" villas floor plan arrangements.

5. Summary

The above described mechanisms will ensure the proposed development is solely used for tourism purposes and not residential purposes. The mechanisms will ensure that the system of monitoring is open, transparent and robust. These mechanisms will also guarantee the financial viability of the community owned facilities, such as the golf course.

The above mechanisms are inline with other similar projects within NSW that have maintained the intent of tourist zonings.

Table 2.1: Proposed Operating Structure

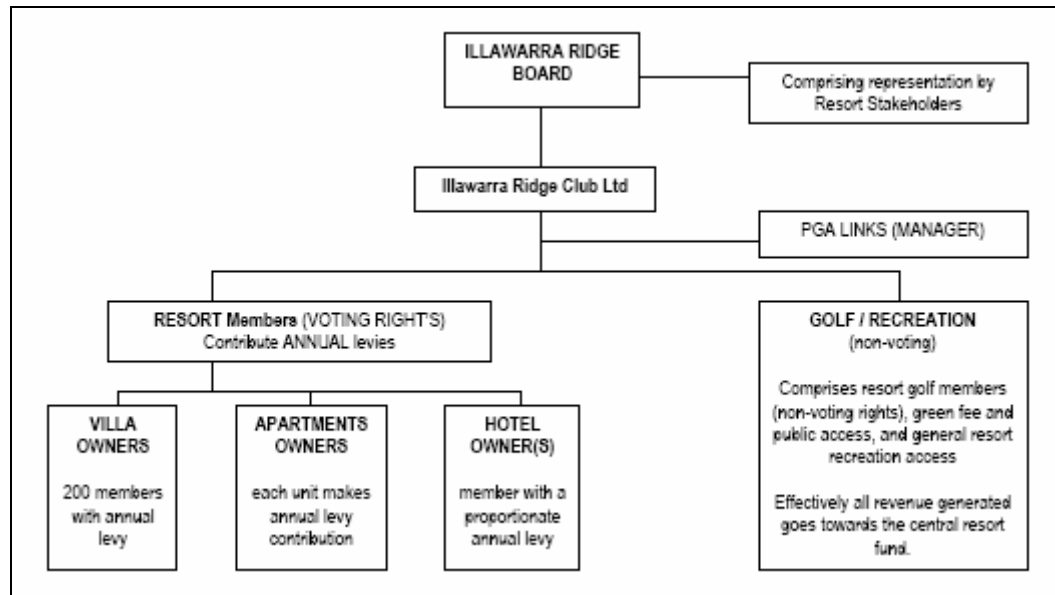


Figure 2.1: Concept Plan (October 2007 Revised Layout)



2.3 BUILT FORM

The built form is described in the *Design Statement* prepared by the concept architects MPS Partnership Pty Ltd, which is attached within **Appendix B4**. The built form is to be contained within the proposed building envelopes attached as **Appendix B5**.

The built form can be divided into;

- The resort hotel suites/serviced apartment complex,
- The accommodation villas; and
- The maintenance facility.

The identified items (A to V) in the above legend to the Concept Plan are included in the following description of the proposed development.

2.3.1 The Entry

The Resort entry (A) is from the Princes Highway, at a point approximately 230m from the northern site boundary. The main entry road has a central median and connects to an “entry roundabout”. The roundabout is designed to split the accessing traffic:

- The main entry comprises a motor court (B) with porte cochere and visitor parking as well as a mini-bus drop off point.
- To the south, to the gym (G), golf club/sports facilities (H), and to the southern resort villas (I) (southern precinct (38 No. villas),
- To the west, to the arrival court (B), the reception / lounge (C), and then either north or south of the lake to access Conference Facilities (S), the kitchen facilities (T), the resort hotel (D), and the serviced apartments (E), and
- To the north, to the resort spa and health well-being (F), car parking (Q), the Regency Club (J), and to the northern resort villas (I) (northern precinct (162 No. villas).

Perspective of the entry



Source: MPS Architects 2164 SK-02

2.3.2 The Resort Hotel Suites and Serviced Apartments

The resort hotel (D) and serviced apartments (E) are located in two separate buildings fronting each other across a lake area. The two buildings are joined by a foot bridge crossing the lake and will be a composite form, with the different elements expressed within the design. It is expected that these buildings will be 2 storeys in height (including attic space) and will respond to the contours of the site. The kitchen (T), pro-shop and function centre will generally be single storey buildings and will aim to create a village centre atmosphere. The tennis courts will also have two single storey buildings to house a tennis pro-shop and storage/toilet facilities (H).

There will be 100 key resort hotel suites. All rooms are to accommodate as a minimum a double bed.

Resort Precinct

This area consists of the following main elements: clubhouse and conference centre. It is envisaged that the clubhouse (Regency Club (J)), will consist of:

- Administration,
- A pro-shop,
- Change rooms,
- Small restaurant, and
- A member's lounge.

It is envisaged that the conference centre (S) will consist of:

- A café, and
- A function room (150 seats, combined with café & lounge).

Health Wellbeing & Spa Centre (F)

It is envisaged that this centre will consist of:

- A 25 metre pool,
- Spa,
- Sauna,
- 3 x massage/treatment rooms,
- Small gymnasium, and
- Multi-purpose yoga/pilates function room.

2.3.3 Holiday Serviced Apartments

It is envisaged that there will be a total of 100 serviced suites within two buildings (E). These suits will be of 'short stay' nature. These suites may provide a small kitchenette, laundry, living room and bedrooms with ensuites. The holiday serviced apartments will be of one or two bedrooms in a two or three storey structure (see Building Envelope: **Appendix B5**), linked to bar and dining areas off the main entry lobby (C).

2.3.4 The Accommodation Villas

The resort villas are grouped in clusters of two and four villas off an internal road with individual parking areas. The 200 accommodation villas will be a mix of:

- One-two storey clustered villas (clustered villas), and
- One-two storey semi-detached villas (presidential villas).

The accommodation villas will have a mix of layouts each containing 2 bedrooms. The villas are more self-contained than the hotel accommodation and have two bedrooms with kitchens and large outdoor decks with barbeques. The villas are illustrated in the drawings of MPS Architects included within **Appendix B**.

Cluster villas

The Cluster Villas consist of a "cluster" of 8 villas (4 villas attached and 2 sets of 2 attached villas), each containing 2 bedrooms. Two of the eight villas are two storeys with the remaining 6 villas of single storey. Each of the accommodation villas includes a lounge and dining area, kitchen and laundry. Each is also provided with a balcony and BBQ. 8 parking spaces are available for the occupants of the cluster villas.

Cluster Villas – Front elevation



Source: MPS Architects 2164 SK-06

Presidential Villas

The presidential villas consist of 2 individual villas joined by one common wall over a single storey. Each villa includes 2 bedrooms with a combined kitchen, lounge and dining area. Each villa also has a garage, balcony and BBQ.

Presidential Villas – Front elevation



Source: MPS Architects 2164 SK-08

2.3.5 The Maintenance Complex

The maintenance complex (P) is located within the south-eastern corner of the site close to the Princes Highway. It will accommodate the working staff of the golf course and the equipment needed to service the resort. This will be a single storey pavilion encompassing a lunch room, cart storage area, utilities rooms, administration office and machinery storage area. It is envisaged that the maintenance shed will be used for machinery storage and as a general workshop.

2.4 URBAN DESIGN / ARCHITECTURAL DESIGN STATEMENT

2.4.1 Design Statement

The built form and urban design is described in the *Design Statement* and the *Building Envelopes* prepared by the concept architects MPS Partnership Pty Ltd, which are attached within **Appendix B**.

In designing the resort, natural ground levels have been maintained to respect the gentle slope of the land and to ensure that existing trees are retained wherever possible. The proposed structures are a combination of one, two and three-storeys and sit comfortably under the established tree canopy.

The majority of the site will remain as open space and golf course, retaining the majority of the existing established vegetation. New buildings will be substantially set back from all boundaries and existing copses buffering the site will be retained as landscaped buffers.

Buildings are designed to a domestic scale with 2-3 storey height limits within nominated building envelopes. The resort hotel component is broken up into a cluster of pavilions arranged around artificial lakes and has a sub-tropical style with dramatic masonry frame structures with steep-pitched roofs and wide eaves.

The villas are set in clusters and are a combination of one and two storeys. Materials include painted masonry, stone, timber and steel roofs.

The architecture of the buildings will be fully controlled by a comprehensive set of design and building controls specific to the site. The guidelines will be framed to insist on a consistent theme of architectural style.

2.4.2 Sustainability & Environmentally Friendly Design Sustainability

All buildings will be designed to strictly meet the guidelines of BASIX. The guidelines will also ensure that leading edge energy management and water conservation principles will be standard. All buildings will be mandated to include rainwater tanks and incorporate solar energy principles. These principles exceed BASIX principles.

Sustainability & Environmentally Friendly Design Sustainability has been considered on both the environmental and social issues. The proposed development will contribute to reduction in energy consumption by:

- Incorporating environmentally responsive design including wide eaves,
- Utilization of reticulated natural gas for water heating (on demand), cook tops and ovens,
- Installing sensor lighting to common areas, and
- Incorporating high efficiency lighting throughout the resort.

The proposed development will contribute to the reduction in water consumption and the improvement in water quality by:

- Utilising “best practice” water saving devices in all tap ware and sanitary ware,
- Capturing and storing roof water for landscape irrigation,
- Utilising landscape design which has lower demand for watering, and
- Utilising on-site sewerage treatment plant and water recycling.

2.4.3 Landscaping, Vegetation and Open Space

The Landscape Concept has been developed very much as an integral element of the overall Resort concept (see **Appendix B6**; Landscape Report). The landscape concept has been developed following detailed consideration of the site’s values (see Site Analysis – **Section 1.2**).

The landscape design develops contemporary innovative design solutions that offer an alternative to conventional residential golf course developments. The design solution for this development is driven by the desire to establish a Resort Precinct while placing considerable emphasis on:

- Water Sensitive Urban Design principles
- Australia’s best practice standards and
- Adherence to ESD principles.

In order to achieve these goals, the design solution seeks to ensure that:

- The existing Maddens Creek Corridor and associated buffers are protected and/or enhanced.
- The redevelopment is sensitively integrated into the existing landscape.
- ESD principles are embraced and incorporated into the design at every phase of the development.
- Water Sensitive Urban Design principles are embraced and incorporated into the design at every phase of development.
- Custodianship of the natural environment is encouraged.

The submitted Concept Plan addresses and embraces the above approach.

Figure 2.2 (4 plans): Vegetation and Landscaping Areas provides an overview of:

- The existing vegetation within the site (existing land use) – Fig 2.2a
- The existing vegetation to be removed) – Fig 2.2b,
- The additional landscaping to be planted – Fig 2.2c, and
- The Landscape Concept Plan – Fig 2.2d.

The open space and vegetated areas will be used for golf purposes, as natural amenity and landscaping, and to the south of Maddens Creek, as a conservation area. Landscaped buffers will be retained and enhanced along the northern, eastern and western boundaries. The golf course use has been restricted to the northern part of Madden's Creek and a riparian corridor established and maintained by means of a *Vegetation Management Plan*. The existing copses along the Princes Highway and the Southern Freeway have been retained and integrated into the visual buffering of the development. Significant trees within the site have also been retained where possible.

The *Landscape Report - Illawarra Ridge Golf Resort* prepared by Gamble McKinnon Green (November 07 Update) is included within **Appendix B6**.

Landscaping and the Accommodation Villas

Adherence to ESD principles, the implementation of stormwater harvesting and reuse strategies and the seamless integration of private and community use spaces are design objectives being embraced and applied throughout the development site as part of the landscape design.

Following are some of the strategies being employed to apply those principles to the proposed accommodation villas:

- The collection and reuse of grey water for irrigation purposes.
- Minimising the water requirement of planting areas through appropriate plant selection.
- Heat reduction through the use of shade trees and/or structures.
- The use of 'rain gardens' and water tanks.
- The appropriate use of permeable surface treatments.
- The minimal use of turf.
- A landscape treatment that blends private and community use spaces.

Figure 2.2a: Existing Vegetation



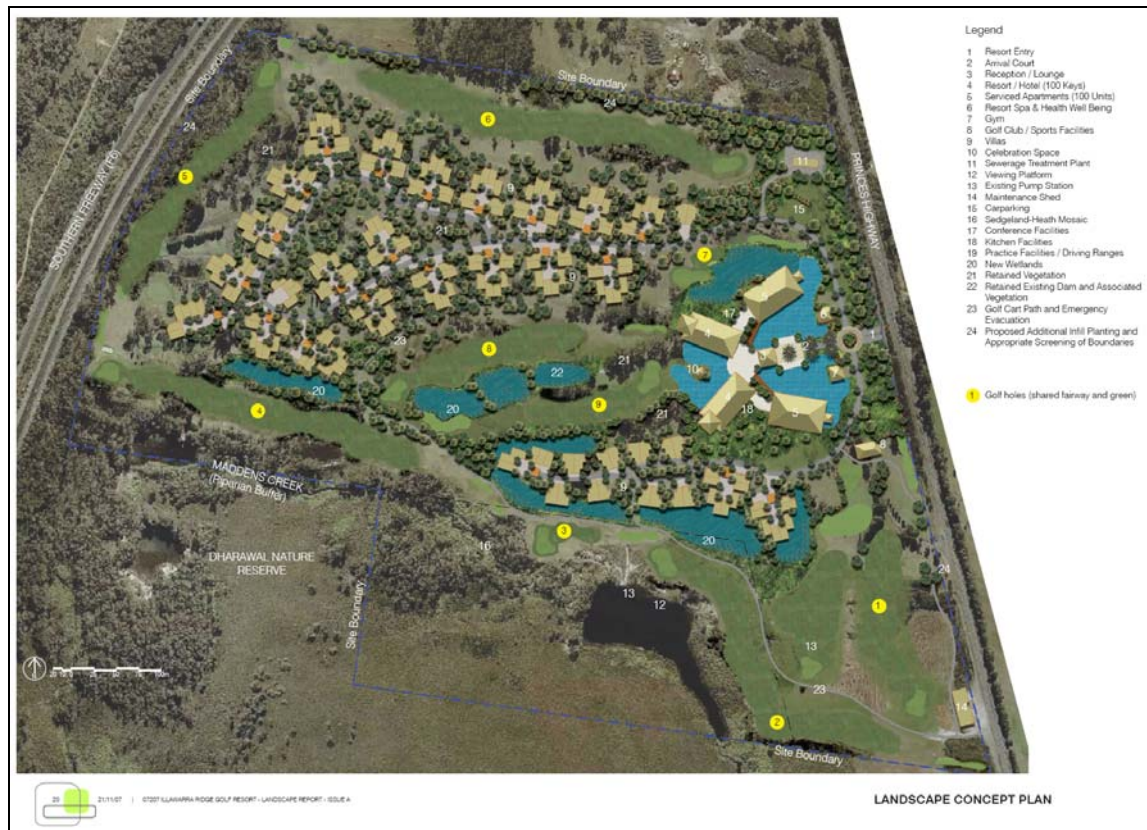
Figure 2.2b: Vegetation Removal Plan



Figure 2.2c: Additional Vegetation Plan



Figure 2.2d: Landscape Concept Plan



2.5 ROAD ACCESS AND PARKING

A specialist Traffic Report has been prepared by ARUP and is attached within **Appendix F**. The proposed road access to the site and parking is described below.

Vehicular Access

Both vehicular and pedestrian access to the site is from Old Princes Highway. No access will be permitted from the Freeway to the site. The existing site entry is shown in **Figure 2.3**.

The proposed future road access to the site is directly opposite to the existing Boomerang Golf Club access. The vehicular access driveway inside the site will be two-way and will provide for entry and exit of vehicles at the same time.

Internal roads are 6.5 metres wide with traffic calming devices and low speed limits. The proposed loop roads are designed to simplify access and legibility as well as providing a manageable circulation for service and emergency vehicles.

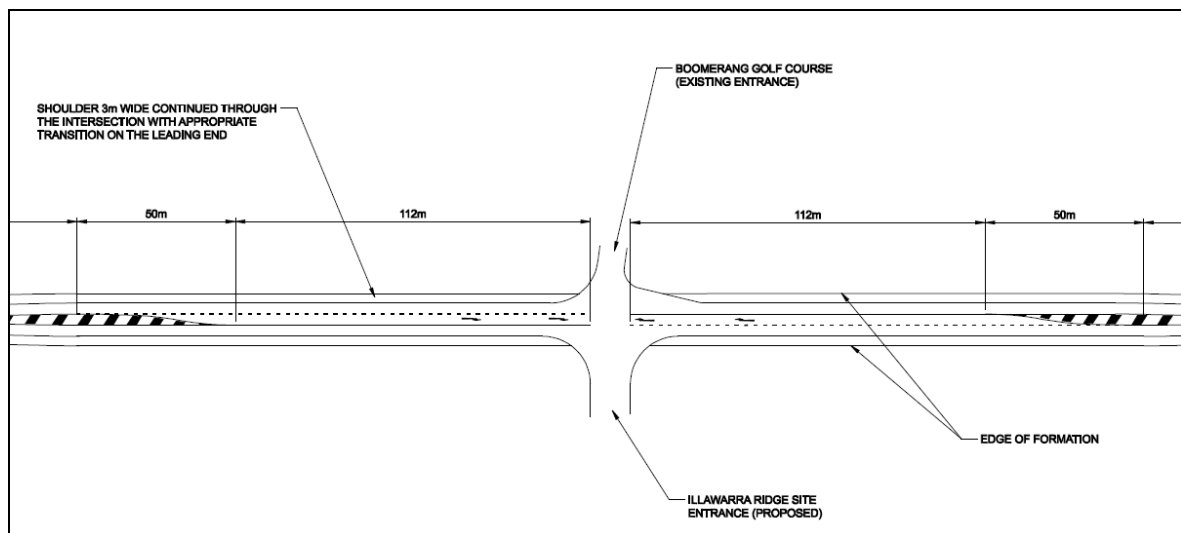
Figure 2.3: View looking south towards the existing entry off Old Princes Highway



Source: Photograph 5: Traffic Report October 2007 ARUP.

The proposed improvements to the site access as part of this concept application are illustrated in **Figure 2.4**.

Figure 2.4: Proposed concept access intersection arrangement on Princes Highway



Source: Appendix A of Traffic Report by ARUP November 2007 (see EA **Appendix F**).

Parking Provision

A total of 425 car parking spaces will be provided at the proposed development.

Approximately 50% of the car spaces will be provided in the main car park (Q) and remaining 50% in angle parking car spaces at locations adjacent to the cluster villas or in the garages of the presidential villas.

Loading Facilities, Disabled Parking and Service Vehicle Provision

Future disabled parking zones and internal site service vehicle loading zones will be provided adjacent to the main site kitchen buildings in accordance with Australian Standard 2890.2 and 2890.6 respectively.

An additional access road for site maintenance vehicles and emergency services will be provided approximately 450m south of the main entrance. The service vehicle access intersection will be designed in accordance with RTA Road Design Guide.

Pedestrian Access

The site redevelopment is considered unlikely to generate a significant number of pedestrians along the Princes Highway.

Within the site, pedestrian access is proposed along the internal roads as the roads will be designated as Shared Zones. There will be no footpath along the access road into the site. However, there will be internal pedestrian access paths between the site car parks and buildings.

Parking Generation

A total of 425 parking spaces will be provided at the site. The facility may operate with up to 50 staff on any one day. It is anticipated that the majority of the staff will come to the site by driving. There will be no designated allocation of site parking spaces between the staff and visitors, however, it is envisaged that one parking space will not be required for every individual room at all times of the day. Therefore, staff should park their vehicles on site without any difficulty at any time of the day.

2.6 INFRASTRUCTURE PROVISION

The required infrastructure provision as part of this Concept Application is described in *Services Strategy Report – ARUP November 2007* (see **Appendix E**), and summarised later in **Section 4.4**.

3. SUMMARY REVIEW OF RELEVANT ENVIRONMENTAL PLANNING INSTRUMENTS AND CONTROLS

This section of the EA responds to Item 4 of the DGRs which required consideration of any relevant statutory and non-statutory provisions and the identification of any non-compliance with such provisions. **Table 3.1** below is a summary of the main review included as **Appendix C**.

Table 3.1: Summary of relevant Environmental Planning Instruments and Controls

EPIs	Comments – no “non-compliances”
Commonwealth Environmental Protection and Biodiversity Conservation Act (EPBC) Act 1999	No nationally listed threatened plants or animals have been recorded within the study area. Similarly, no nationally listed Endangered Ecological Communities or populations had been detected as listed under the <i>EPBC Act</i> . <i>EPBC Act</i> considered within the “ <i>Flora and Fauna Report – LesryK Environmental Consultants</i> ” November 2007 which is attached within Appendix K . There is no impact on all matters of NES and hence no requirement for approval under the <i>EPBC Act</i> .]
NSW Environmental Planning and Assessment Act 1979	The proposal was declared to be a Project for which Part 3A applies for the purposes of Section 75B of the <i>EP&A Act 1979</i> on 19 July 2007 (Reference MP No 06-0305). Authorisation for submission of a Concept Plan Application was provided by the DoP on 24 th July 2007, and DGRs were received from the DoP by letter dated 2 nd August 2007.
Threatened Species Conservation Act (TSC) 1995	None of the vegetation communities recorded within the study area is, or forms a component of, an Endangered Ecological Community as listed under the <i>TSC Act</i> . One of the native animals, the Gang-gang Cockatoo (<i>Callocephalon fimbriatum</i>), is listed as vulnerable under the <i>TSC Act</i> . As this species is only considered to forage occasionally within the subject site (due to a lack of suitable breeding hollows), the redevelopment of this area is not considered to have a significant impact on this species, its populations or any major components of its necessary habitats. <i>TSC Act</i> is considered within the “ <i>Flora and Fauna Report – LesryK Environmental Consultants</i> ” November 2007 which is attached within Appendix K .
Native Vegetation Act 2003	The principles and objectives of the <i>Native Vegetation Act</i> (-see Appendix C) have been followed in the final resolution of the golf course design, especially with the decision to restrict development so that Riparian Corridor in the vicinity of Maddens Creek will be maintained and improved. There will be a full native vegetation buffer (20m) on either side of the creek.
Fisheries Management Act 1994	The Aquatic Assessment Report by the Ecology Lab (-see Appendix I) has found that there are no threatened species on the site. There is however potential for threatening processes related to the development. The Ecology Lab’s Assessment provides recommendations on how to minimise any negative impacts and they shall be followed accordingly.

EPIs	Comments – no “non-compliances”
STATE ENVIRONMENTAL PLANNING POLICIES	
SEPP (Major Projects) 2005	The combined villas and hotel component of the facility has a capital investment value of more than \$100 million (see Appendix B – QS Report) and will employ around 160 people. Accordingly subclause Clause 17(a) Schedule 1 applies to the proposed development.
SEPP 11 – Traffic Generating Development	The proposed development would fall into the developments listed in Schedule 1 of SEPP 11 and accordingly SEPP 11 applies. The application should be referred to the Roads and Traffic Authority. Consultation has been undertaken with the RTA as part of the preparation of this EA.
SEPP 58 – Protecting Sydney’s Water Supply	SEEC Morse McVey have advised that the site lies outside the Woronora Catchment area to the north of the site and the Cataract Catchment to the south, and that Maddens Creek is not a Tributary managed by the Sydney Catchment Authority. Accordingly SEPP 58 does not apply to this development.
REGIONAL ENVIRONMENTAL PLANS	
Drinking Water Catchments REP No. 1	The site is not within the Sydney Metropolitan Drinking Water Catchment and, as such, the requirements of REP 1 do not apply. However, SEEC Morse McVey has been advised that the site drains into the O’Hares Creek Special Area and that Wollongong Council are seeking a neutral or beneficial effect on water quality leaving the site. As such, the project achieves a neutral or beneficial effect on water quality in the receiving waters.
Illawarra REP No. 1	Clauses relating to energy, waterways, the escarpment, recreation and tourism have been considered and detailed in Appendix C .
Illawarra Regional Strategy: 2006-31	Clauses relating to the Illawarra Escarpment as well as economic and environmental challenges have been considered further (Refer to Appendix C)
LOCAL ENVIRONMENTAL PLANS	
Wollongong LEP 1990	Wollongong LEP 1990 repealed LEP No 38, but only in relation to the land to which LEP 1990 applies. LEP 1990 does not apply to the majority of the site (the site is shown on the relevant planning map but is referred to as “deferred” land, see also clause 2 of the LEP 1990) and accordingly LEP 38 is the relevant local environmental planning instrument for the large majority of the Illawarra Golf Course site. A small portion (approximately 1.2ha) of the north eastern corner of the site is zoned (1) Non-urban under LEP 1990. The existing use of the site as a golf course applies to the whole of the subject site.
Wollongong LEP 38	<p>The site the subject of the development application for the development of the “golf resort” is zoned 7(c) Environmental Protection (Water Catchment) under Wollongong Local Environment Plan 38 (LEP 38). Pursuant to clause 11 and schedule 8 of LEP38 a ‘golf resort’ is permissible on the site with consent. Other relevant clauses of the LEP 38 are discussed in Appendix C.</p> <p>Schedule 8 of LEP 38 – Typographical Error It has been noted that a typographical error exists in Schedule 8 of LEP 38 in that Lots 2 and 3 of <u>DP 240566</u> have been described as Lots 2 and 3 of <u>DP 250566</u>. The latter lots are located in Parklea in Blacktown LGA and clearly were not intended to be the subject of LEP 38. This error should be corrected via an amendment to LEP 38 made pursuant to section 73A of the <i>EP&A Act 1979</i>.</p>

EPIs	Comments – no “non-compliances”
	As part of the consideration and assessment of this concept application it is requested that the Department of Planning progress this amendment.
OTHER PLANS	
<i>DCP 6 – Commercial and Industrial Development</i>	Development standards including design, site coverage, landscaping, neighbourhood amenity, traffic and land constraints where relevant have been addressed in Appendix B .
<i>DCP 54 – Managing our Flood Risks.</i>	ARUP’s report (Appendix H) and Section 4.6.6 detail issues and recommendations relating to the management of development within floodplains. In relation to the 1 in 100 year ARI storm event, all floor levels within the proposed resort will be designed to a minimum of 377.5 RL to meet Council’s 500mm freeboard requirements.
<i>Illawarra Escarpment Strategic Management Plan</i>	The site only partially occupies land in the escarpment area. In line with this, the objectives of the IESMP have been considered in the assessment of the project (outlined in Appendix C). The IESMP aims to uphold the amenity of the escarpment and the proposal has been sympathetic of this. The development is screened by a buffer of vegetation. The vast majority of the site is open space and vegetation, similar to the character of the escarpment, and the heights of the buildings are well within the canopy of the trees.
<i>Darkes Forest Local Environmental Study Jan 2007</i>	The LES informed Council’s comprehensive LEP review and assisted in the current preparation of the <i>draft Wollongong Local Environmental Plan 2007</i> for land (including the subject site) within the study area. The proposed zoning is considered in Appendix C .
<i>The NSW State Plan</i>	The Illawarra Golf Resort proposal is consistent with the targets of the State Plan. The proposal includes 100 hotel suites, 100 serviced apartments and 200 accommodation villas. Potentially this will generate increased tourism, contributing to the targets relating to visitor nights outlined in the State Plan. The proposal specifically addresses objectives of relevant Acts relating to the natural environment.

4. KEY ISSUES

Due to the nature of the project and its history, as well as the fact that this proposal has been slightly altered in accordance with the Department's guidance, some of the previous reports have been updated and amended. Relevant specialist reports to address key issues are included as Appendices to this Environmental Assessment.

4.1 STRATEGIC PLANNING

Strategic Planning is identified as Key Issue 1 within the DGRs. Specific requirements to address are stated as follows:

- | | |
|-----|---|
| 1.1 | <i>Justify the proposal with relevance to relevant local, regional and State planning strategies. Provide justification for any inconsistencies with these planning strategies.</i> |
| 1.2 | <i>Demonstrate consistency with the Sustainability Criteria set out in the Illawarra Regional Strategy.</i> |

4.1.1 Introduction

Section 3 of the EA, in response to Item 4 of the DGRs, provides a summary of the relevant statutory and non-statutory planning provisions relating to the proposed development. **Section 3** also identifies any non-compliance with such provisions. The main review of Environmental Planning Instruments and Controls is included as **Appendix C**.

In addition to the DGRs, reference to the *Illawarra Regional Strategy* is also included in Wollongong Council's letter of 16th February 2007 re "Housing & Settlement" and "Natural Environment".

Specific and relevant strategic planning documents are considered to be:

- *Illawarra Regional Strategy 2006-31,*
- *Illawarra Escarpment Strategic Management Plan, and*
- *Illawarra Regional Environmental Plan No 1.*

4.1.2 Justification in Relation to Planning Strategies

Illawarra Regional Strategy - Natural Environment:

Objective - The Regional Strategy will support the maintenance and enhancement of the Region's biodiversity. Impacts of development should be offset by protecting and enhancing the long-term viability of vegetation and habitat corridors, as well as rehabilitating degraded areas e.g. riparian corridors. Redevelopment will be controlled to ensure additional pressure on the environment is minimised.

Impacts on native vegetation should be avoided as a first principle. Where this is not possible, offsetting the loss of vegetation should be on the basis of protecting and enhancing a larger area of native vegetation of equivalent or better biodiversity value. All future development is to apply water sensitive urban design principles and meet stormwater management targets that support the environmental values of the catchment.

The Illawarra Regional strategy applies to land in Kiama, Shellharbour and Wollongong Municipalities. In relation to the proposal it addresses issues including the 'escarpment', 'economic challenges', and 'environmental challenges (**Appendix C**)'.

Illawarra Escarpment Strategic Management Plan

The vision for the escarpment is to protect, conserve and manage the environmental values and assets of the Illawarra escarpment consistent with the principles of Ecologically Sustainable Development (ESD). Issues relating to the IESMP are discussed in **Appendix C**.

4.1.3 Sustainability Strategy within the Illawarra Regional Strategy

There are guidelines concerning sustainability that allow development proposals to be considered by the government, even if they are outside the *Illawarra Regional Strategy* process. It allows for innovative development to be assessed on criteria outlined in **Table 4.1** below.

Table 4.1: Compliance with Illawarra Regional Strategy Sustainability Index

<i>Threshold Sustainability Criteria for any proposed development site outside designated areas in the Illawarra Strategy.</i>	<i>Measurable explanation of criteria</i>	<i>Comments Re Proposed Golf Resort</i>
1. Infrastructure Provision Mechanisms in place to ensure utilities, transport, open space and communication are provided in a timely and efficient way.	<ul style="list-style-type: none"> ▪ Development is consistent with the Illawarra Regional Strategy, any subregional strategy, the State Infrastructure Strategy and relevant section 117 directions. ▪ The provision of infrastructure (utilities, transport, open space, and communications) is costed and economically feasible based of government methodology for determining infrastructure development contributions. ▪ Preparedness to enter into development agreement. 	Consistent with Regional Strategy and s117 directions. Consultation undertaken with relevant authorities in relation to provision of utilities (refer to Section 5.1).
2. Access Accessible transport options for efficient and sustainable travel between homes, jobs, services and recreation to be existing or provided.	<ul style="list-style-type: none"> ▪ Accessibility of the area by public transport and / or appropriate road access in terms of: <ul style="list-style-type: none"> ○ Location /land use – to existing networks and related activity centres ○ Network – the area's potential to be serviced by economically efficient transport services. ○ Catchment – the area's ability to contain, or form part of the larger urban area which contains adequate transport patterns to make a positive contribution to achievement of travel and vehicle use goals. 	Accessible via road. Tourists coming from locally, interstate and from overseas (detailed in Macroplan's Report included in Appendix D).

Threshold Sustainability Criteria for any proposed development site outside designated areas in the Illawarra Strategy.	Measurable explanation of criteria	Comments Re Proposed Golf Resort
	<ul style="list-style-type: none"> No net negative impact on performance of existing subregional road, bus, rail, ferry and freight network. 	
3. Housing diversity Provide a range of housing choices to ensure a broad population can be housed.	<ul style="list-style-type: none"> Contributes to the geographic market spread of housing supply, including any government targets established for aged, disabled or affordable housing. 	NA – no permanent accommodation is included as part of this application.
4. Employment Lands Provide regional/local employment opportunities to support the Illawarra's expanding role in the wider regional and NSW economies.	<ul style="list-style-type: none"> Maintain or improve the existing level of subregional employment self-containment. Meets subregional employment projections. <ul style="list-style-type: none"> Employment-related land is provided in appropriately zoned areas. 	Employment generated by this proposal and the economic benefits this will contribute to the local and state economies are discussed in Macroplan's Report included in Appendix D .
5. Avoidance of Risk Land use conflicts, and risk to human health and life, avoided.	<ul style="list-style-type: none"> No residential development within 1:100 year floodplain. Avoidance of physically constrained land, e.g. <ul style="list-style-type: none"> High slope. Highly erodible. Avoidance of land use conflicts with adjacent existing or future land use as planned under relevant subregional or regional strategy. Where available safe evacuation route (flood or bushfire). 	No permanent accommodation is included in this proposal. The constraints of the site are discussed in Section 1.2 . No land use conflicts. Sympathetic to Dharawal Nature Reserve (Section 4.13). Evacuation routes available during bushfire or flood.
6. Natural Resources Natural resource limits not exceeded/environmental footprint minimised.	<ul style="list-style-type: none"> Demand for water within infrastructure capacity to supply water and does not place unacceptable pressure on environmental flows. Demonstrates most efficient/suitable use of land: <ul style="list-style-type: none"> Avoids identified significant agricultural land. Avoids productive resource lands – extractive industries, mining and fishing. Demand for energy does not place unacceptable pressure on infrastructure capacity to supply energy – requires demonstration of efficient and sustainable supply solution. 	Infrastructure and the provision of water are included in ARUPs Report in Appendix E . The land is currently used as a golf course and therefore this use would be retained whilst providing the new golf resort as well.
7. Environmental Protection Protect and enhance biodiversity, air quality, heritage and waterway health.	<ul style="list-style-type: none"> Consistent with government –approved Regional Conservation Plan (if available). Maintains or improves areas of regionally significant terrestrial and aquatic biodiversity (as mapped and agreed by DEC). This includes regionally significant vegetation communities and their habitats. Maintain or improve existing environmental condition for air quality. Maintain or improve existing environmental condition for water quality: <ul style="list-style-type: none"> Consistent with community water quality objectives for recreational water use and river health (DEC and CMA). 	Flora and Fauna and Fish are discussed in Appendix K and I respectively. Water Quality is assessed in Appendix H and Section 4.7

Threshold Sustainability Criteria for any proposed development site outside designated areas in the Illawarra Strategy.	Measurable explanation of criteria	Comments Re Proposed Golf Resort
	<ul style="list-style-type: none"> ○ Consistent with catchment and stormwater management planning (CMA and Council). ▪ Protects areas of Aboriginal cultural heritage value (as agreed by DEC). 	Heritage Assessment is included in Appendix J .
8. Quality and Equity in Services Quality health, education, legal, recreational, cultural and community development and other Government services are available.	<ul style="list-style-type: none"> ▪ Available and accessible services: <ul style="list-style-type: none"> ○ Do adequate services exist? ○ Are they at capacity or is some capacity available? ○ Has Government planned and budgeted for further service provision? ○ Developer funding for required service upgrade/access is available. 	Infrastructure and the provision of services are discussed in Appendix E .

4.1.4 Sustainability Statement for the Links Illawarra Golf Resort

An updated *Sustainability Statement* by ARUP November 2007 is attached as **Appendix N** of this assessment.

Arup Sustainability was commissioned to prepare a Sustainability Statement and Strategy for the proposed development of Illawarra Ridge. The Sustainability Statement documents how sustainability considerations have been integrated into the proposed development. It also demonstrates **commitments** (see also **Section 6**), to integrate sustainability throughout the subsequent phases of project planning, design, construction and operation. Through the use of SPeAR®, Arup Sustainability have assessed the sustainability performance of the proposed development using information and technical data gathered by the project team across a range of disciplines (eg: vegetation, engineering, stormwater) and non-legislative reports (eg: architectural design guidelines).

The SPeAR® process was implemented not only to conduct a baseline sustainability assessment of the development, but also to advance the understanding of sustainability, identify potential areas where sustainability performance could be optimised and to assist with the practical application of sustainability initiatives within the development.

Key features of the development in terms of sustainability design and planning, and commitments made by Links for the operation stages are outlined below.

Water

Under the current planning regulations, BASIX requires a 40% reduction in water consumption. However the proposed development at Illawarra Ridge will aim for a higher level of reduction in consumption. This will be through a variety of water saving measures including rainwater tanks and roof runoff collection systems, water efficient fittings and equipment, planting with local drought-tolerant native flora and potential recycling of effluent treated on site. A total water management strategy will be implemented to ensure that natural water flows and water quality are maintained.

Transportation

The development will aim to minimise the number of car trips generated, through the provision of a shuttle bus between the site, train station and local national parks, viewing areas and sightseeing opportunities. Suitable facilities to encourage walking and cycling will also be provided including bike shelter and provision of pathways.

Waste

The waste management hierarchy will be adopted through the design, construct and operation stages of development – that is to avoid and minimise the generation of waste and promote reduce, reuse and recycling of wastes to avoid disposal at landfill. A *Waste Management Strategy* has been developed for the site, (ARUP, May 2005 – see **Appendix O**) including separation of recyclables and on site composting of organic materials for use in golf course landscaped areas.

Visual Amenity

Sixty five per cent of the site will be dedicated as open green spaces including wetlands, golf course areas, water collection ponds and buffer reserves. Extensive landscaping will be implemented throughout the site using native species to improve the current presentation of the golf course. The physical appearance of the buildings will be designed and constructed by the developer. The building design will follow a consistent theme of architectural style. Illawarra Ridge will be fully built out by Links, rather than sold as individual lots for development, therefore enabling Links to retain control over all of the building styles. All power, telecommunications and other utility services will be placed underground.

Energy

Under current planning regulations, BASIX requires a 40% reduction in greenhouse gas emissions. Links will aim for a 5 star energy rating or more for its development through a variety of energy saving measures including provision of energy efficient lighting and appliances, insulation, design using natural ventilation and solar passive design. Renewable energy sources will be investigated for use on the site including solar energy for street lighting, hot water and supplementing power use on the site. Energy will also be considered during the specification of materials including the use of low energy materials, avoidance of high embodied energy materials and use of energy efficient facades.

Design and Operation

The design of the masterplan and individual buildings will be assessed for its sustainability and performance using SPeAR®, BASIX and energy rating tools to ensure that they achieve the required levels of performance. Design and building controls will also be set by Links Illawarra to ensure that all buildings meet the required standards.

Flora and Fauna

To restore the quality of native vegetation and wildlife habitats throughout the site area and within defined areas of crown land bordering the site, seed collection, propagation and introduction of local indigenous planting will be conducted. A theme of indigenous plantings will be carried throughout the new golf course design layout. The aim of which is to create additional wildlife corridors and habitats especially around newly created wetland ponds and sanctuaries and establish a riparian buffer zone adjacent to Maddens Creek. Links will establish and resource a community group to be actively involved with seed collection and propagation of crown land reserves and the establishment of riparian buffer zones.

Education

Links is implementing a resort “*Living with Nature*” program which will involve bird watching programs. This program will also be developed further for guests, golfers and visitors to inform and educate them of the initiatives undertaken at Illawarra Ridge, and further promote the unique character of the area and setting.

Economic

An *Economic Benefit Assessment* has been prepared for the proposed development by MacroPlan Australia Pty Ltd, November 2007 (see **Appendix D**). The Assessment concludes that the project is deemed viable in economic terms and will result in the enhancement of primary sectors that drive economic activity in Wollongong and surrounding areas. The project will also provide a new product attraction for tourism and is expected to generate average annual tourism expenditure of \$3.9million. Links are committed to investing funds in the development to achieve the sustainability principles, such as provision of solar power (PV cells).

Employment and Skills

The proposed development will result in both direct employment (jobs created on the site) as well as generating indirect employment through project expenditure and supply chain. Links Group employees are provided with training programs and have the opportunity for the sharing of skills.

Societal

Public access to the site and its facilities will be maintained. There is also the potential for the development to improve external and internal community interaction and inclusion through the increased provision of recreational facilities, business facilities and organised group activities. The local community will also benefit from the increase in availability recreational and leisure facilities in the local area including swimming pool, tennis courts and health club.

Summary

This preliminary SPeAR® assessment shows that the Links Illawarra development is demonstrating commitment to a range of sustainability principles in the proposed development. At this early stage only overall strategies and design intent for the development can be assessed, and the sustainability ratings will be re-evaluated in more detail as part of the Development Application for the first phase of engineering design and construction. However, many of the proposed sustainability initiatives go well beyond compliance and, when implemented, should make the Illawarra Ridge Golf Resort an example of leading practice in a number of areas.

4.2 TOURIST ISSUES

Tourist Issues are identified as Key Issue 2 within the DGRs. Specific requirements to address are stated as follows:

Tourist Uses

- *Demonstrate the viability of the proposed extent of short term accommodation through market analysis.*
- *Outline of the provisions for a Community Management Statement incorporating details in relation to occupancy, management systems, use of amenities and facilities and body corporate roles and responsibilities etc. Demonstrate that no part of the development will be used for permanent accommodation. Provide details of appropriate mechanisms, including restrictive covenants to ensure that the development is used for short stay tourist uses only.*

Since the lodgement of the Preliminary Assessment (The Planning Group - December 2006), the following additional work has been undertaken and is attached within **Appendix D**:

“Economic Impact Assessment–MacroPlan Australia November 2007”.

4.2.1 Viability of the proposed short term tourist accommodation

The viability of the project and the “Temporary Accommodation” has been raised as an issue in Wollongong Council’s Letter of 16th February 2007.

Demand for the facilities which are proposed to be provided at the Illawarra Ridge site is documented in the *“Economic Impact Assessment Illawarra Ridge Golf Resort”* prepared by MacroPlan Australia dated 22nd November 2007 and attached within **Appendix D**. The demand for the proposed facilities is generated from primarily two sources:

- Demand for high quality recreational experiences (golf, etc) in this tourism region, and
- Demand for temporary and tourist accommodation

Federal and state governments in the past five years have increased their efforts to foster tourism through various initiatives. They have also encouraged growth of regional tourism as this industry is integral to the livelihood of these areas. The introduction of Tourism Australia by the Federal government, a 20 year NSW Tourism Master Plan and regional 3 year plans have all been a part of this process. The Grand Pacific Drive Project is expected to fuel tourist numbers in the Illawarra / South Coast region over the next decade.

Tourism expenditure in NSW has increased 8.3% over the past 3 years to March 2007 and increased by 42.5% in the Illawarra region. Domestic overnight visitors drove more than half of this increase. This market is a key source of income and demand for the proposed development.

Tourism visitor nights in NSW increased by 9.5% in the latest year to March 2007 and increased by 20% in the Illawarra region. This increase coincided with the completion of the Sea Cliff Bridge in December 2005.

Less than 10% of visitors to the Illawarra played golf during their trips, highlighting a significant opportunity for the golfing industry and its contribution to the tourism sector within Illawarra region.

Analysis of recreational activities undertaken by people over the age of 45 years (ABS, Sport and Physical Activity Participation, 2005/06) has indicated the dominant pursuits and associated regular participation rates. Golf has a 7% participation rate. Typically with most recreational activities, participation decreases sharply after 45 years of age. With golf however, participation remains at a consistently high level as people age.

Tourism Benefits

The Illawarra Ridge development will provide a new product attraction for tourism. The proposal will generate tourism expenditure in the order of \$331 million. A proportion of the tourists associated with the project will be attracted from Interstate and Overseas. Conservative estimates, based on attendance achieved at other golf courses in the region, indicate that 10% of the expenditure will be induced to New South Wales from course and hotel patrons from interstate and overseas. This represents \$33 million additional expenditure in the New South Wales economy over the 20 year analysis period.

4.2.2 Community Management Statement

The intended operational structure has been included in full in **Section 2.2** previously. A Community Management Statement and Draft Conceptual Subdivision Plan have been included within **Appendix B7** of this EA. The intended operational structure at Illawarra Ridge will be as follows:

1. The principle structure will be a Community Title Structure / Strata Scheme.
2. Operating structures: A Strata Scheme .

3. Illawarra Ridge Resort ("Resort") will be established essentially to operate as one collective Central Fund.
4. The Resort will own all of the golf course land, all road infrastructure, maintenance shed complex and appurtenant facilities including Recreation Club building and have secured rights for its members to use the Clubhouse.
5. The Resort will comprise 4 categories of membership: Resort Member, Resort Golf Members, Green Fee and Public Access, and Resort Recreation Members.
6. All of the 200 accommodation villa owners, Hotel and Serviced Apartment Complex will form a single Owners Corporation.
7. A combination of Owners Corporation income, Golf Fees, Green Fees and Recreation Fees will ensure in perpetuity the on-going maintenance and protection of the golf course facilities.

4.3 URBAN DESIGN, VISUAL IMPACT AND SUSTAINABILITY

Urban design, visual impact and sustainability are identified as Key Issue 3 within the DGRs. Specific requirements to address are stated as follows:

Urban Design, Visual Impact and Sustainability

- *Demonstrate suitability of the proposal with the surrounding area in relation to potential character, height, bulk, scale, built form, amenity (including noise) and visual amenity from all public places including roads and freeway.*
- *Address the visual impact of the proposal in the context of surrounding development and relevant mitigation measures.*
- *Use visual aids such as scale model photomontage to demonstrate visual impacts. Amelioration of visual impacts through design, use of appropriate colours and building materials, landscaping and buffer areas must be addressed.*
- *An indicative external materials and finishes schedule is to be submitted.*
- *Address the landscape setting and retention of existing significant vegetation on the site. Demonstrate that any removal of vegetation on the site will have minimal visual impacts.*

Since the lodgement of the Preliminary Assessment (The Planning Group - December 2006), the following additional work has been undertaken and is attached within **Appendix B** and **Appendix P**:

- *The Design Statement and Building Plans*, the MPS Partnership Pty Ltd, November 2007 (**Appendix B**)
- *The Building Envelopes*, the MPS Partnership Pty Ltd, November 2007 (**Appendix B**).
- *Updated Concept Plan November 2007* (**Appendix B**).
- *Landscape Report* - Gamble McKinnon Green, November 2007 (**Appendix B**).
- *Visual Impact Assessment* – TPG NSW November 2007 (**Appendix P**).

4.3.1 Suitability of the proposal

Demonstrate suitability of the proposal with the surrounding area in relation to potential character, height, bulk, scale, built form, amenity (including noise) and visual amenity from all public places including roads and freeway.

The concept proposal seeks approval for a golf resort, on land zoned for that purpose and on a site currently used as a golf course. The proposal relates to short stay, tourist style accommodation and does not seek to create a new urban settlement. The proposed golf resort will contain a broad range of services and facilities appropriate for all temporary Tourists/visitors of the resort.

Potential character and built form

The existing environment creates the setting for the proposed redevelopment, and as such it is intended that the landscape architectural design solutions aim for sensitive integration and cohesion with the surrounds.

Local native species will be extensively used throughout the site. Boundaries will be appropriately screened to adjoining properties. Resort villas will be sited sensitively and landscape treatments will be used to create seamless integration of the villas into the existing vegetation that surrounds the golf course fairway.

Materials palettes, textures and colours for the villas and associated landscape treatments will be subdued and complementary to the existing landscape. Materials include painted masonry, stone, timber and steel roofs.

Proposed buildings are of domestic scale with 2 and 3-storey height limits. The resort hotel component is broken up into a cluster of pavilions arranged around artificial lakes. The resort has a sub-tropical style with dramatic masonry frame structures with steep-pitched roofs and wide eaves.

The villas are set in clusters and are a combination of one and two storeys.

Height, bulk, scale

The resort will consist of one and two storey buildings (and potentially three storeys) within a low density landscaped environment. The height, bulk and “domestic resort” scale is illustrated in the building envelope plans and Building plans by MPS Architects and included in **Appendix B**.

The resort buildings and the “accommodation units” are described and illustrated in **Section 2.3**.

Amenity (including noise)

The majority of the site will be given over to open space and golf course retaining the majority of the existing established vegetation. It will be substantially set back from all boundaries and existing copses buffering the site will be retained as landscaped buffers to the site. Natural ground levels have been maintained within the courtyard respecting the gentle slope of the land and ensuring that existing trees are retained wherever possible.

The proposed structures are a combination generally of one and two-storeys and sit comfortably under the established tree canopy. The proposed development is low-key in scale and contained well within the site to have minimal impact on the surroundings and integrates well with the adjoining natural vegetation.

The proponent will take reasonable care during the development of the design, (e.g. detailed master planning, building façade construction), to ensure an appropriate measure of amenity for future occupants. An ideal golf resort environment will be created within a range of accommodation units, all with immediate access to recreational and ancillary facilities.

It is assessed that noise intrusion to occupied spaces within the various buildings in the development can be adequately controlled to meet the ECRTN limits and the recommended targets detailed in AS2107:2000 (see **Appendix L**). Similarly it is assessed that noise impact to the surrounding community will need to be controlled with careful building planning and adequate noise control treatment particularly to the mechanical services to the building on site. An operational management plan will also be considered to control the noise emission from outdoor activities on the development, e.g. golf course and on site traffic.

Visual amenity from public places including roads and freeway

Visual amenity is considered further in the detailed visual analysis provided within **Appendix P** and summarised below in **Section 4.3.2**.

4.3.2 Visual Impact

The potential visual impacts of the proposed development were assessed in terms of:-

- Visibility of the proposed development, and
- The number of people who will see the proposed development, as well as the distance and context of those views.

Visual Catchment

The wider visual catchment of the site includes areas from which the proposed development is potentially visible. The potentially longer distance views are from the following locations:

- Princes Highway
- Dharawal Nature Reserve
- Boomerang Golf Course
- Southern Freeway

A selection of locations including main roads, public reserves, as well as elevated areas of the local topography were selected for assessment and are indicated on **Figure P2 in Appendix P**.

Visual Usage and Sensitivity

The sites assessed in this report indicate the extent to which the existing population is likely to be affected by the proposed development in terms of both visual usage and sensitivity.

The number of potential viewers of the site from each site assessed is referred to as the visual usage. Sensitivity is a measure of how critically the development will be regarded by these viewers, as a result of any change to the character of existing views.

Proposed Mitigation and Management

The main mitigation and management of any perceived adverse visual impact of the proposed development has occurred with the design of the proposed buildings and their building envelopes restricting their height and bulk within the site. As detailed above, most of the site and the development within it, will not be visible from the vast majority of public vantage points within the surrounding local area and road system.

4.3.3 Visual Aids

Use visual aids such as scale model photomontage to demonstrate visual impacts. Amelioration of visual impacts through design, use of appropriate colours and building materials, landscaping and buffer areas must be addressed.

The Golf Resort has been designed as a one, two, and three storey development within a well landscape setting. The main resort buildings are situated within the north eastern sector of the site addressed and accessed from the Princes Highway.

Elevational drawings to illustrate the proposed architecture, together with proposed building envelopes for this concept application are attached within **Appendix B**. A Landscape Report is also attached within **Appendix B**.

The visual impact assessment in **Appendix P** demonstrates that the proposed resort will not be visible from most public vantage places, especially with the retention and enhancement of a significant amount of vegetation both within and as a buffer around the site. Scale model photomontages were not considered necessary at this concept stage to demonstrate visual impact, beyond the information described above.

4.3.4 External Materials

An indicative external materials and finishes schedule is to be submitted.

An indicative external materials and finishes schedule is attached within **Appendix B**.

4.3.5 Landscaping

A *Landscape Report - Illawarra Ridge Golf Resort* prepared by Gamble McKinnon Green and dated November 2007 is attached within **Appendix B6**. This document describes the proposed landscape concept for the resort. The landscape concept for the resort is as stated on page 17 of that document (repeated below).

LANDSCAPE CONCEPT

This section of the report introduces the Landscape Concept which has been developed following detailed consideration of the site values detailed in the previous section. The landscape design emphasis will be on developing contemporary innovative design solutions that offer an alternative to conventional residential golf course developments.



The design solutions for this development are driven by the desire to establish a Golf Resort Precinct while placing considerable emphasis on:

- *Water Sensitive Urban Design principles,*
- *Australia's best practice standards, and*
- *Adherence to ESD principles.*



In order to achieve these goals, the design solutions must ensure that:-

- *The existing Maddens Creek Corridor and associated buffers are protected and/or enhanced.*
- *The redevelopment is sensitively integrated into the existing landscape.*

- *ESD principles are embraced and incorporated into the design at every phase of the development.*
- *Water Sensitive Urban Design principles are embraced and incorporated into the design at every phase of development.*
- *Custodianship of the natural environment is encouraged.*

The proposed Concept Plan addresses and embraces the above landscape approach.

The attached landscape plan includes:

- Proposed Landscape Initiatives,
- Landscape Design Intent,
- Character,
- Residential Resort Entry and Facilities Precinct,
- Roadways,
- Roadway/Golf Course Interface,
- Maddens Creek, and
- An Indicative Plant Species Palette.

4.4 INFRASTRUCTURE PROVISION

Infrastructure Provision is identified as Key Issue 4 within the DGRs. Specific requirements to address are stated as follows:

Infrastructure Provision

- *Address existing capacity and requirements of the development for sewerage, water, electricity, waste disposal, telecommunications and gas in consultation with relevant agencies. Address opportunities for utilisation of recycled water for golf course purposes. Identify and describe staging, if any, or infrastructure works.*
- *Address and provide the likely scope of any planning agreement and/or developer contributions with Council/Government agencies.*

4.4.1 Introduction

Since the lodgement of the *Preliminary Assessment* (The Planning Group - December 2006), the following additional work has been undertaken and is attached within **Appendix E**:

- *Services Strategy Report – ARUP November 2007.*

The *Servicing Strategy Report* outlines the strategy that the proponent will implement to establish appropriate connections to the various utilities necessary to service the future development.

4.4.2 Potable Water

The Darkes Forest area is currently not connected to a potable water mains supply and generally relies on rainwater storage tanks for its potable water. For a development the size of the proposed golf resort sole reliance on rainwater is not viable. Therefore a connection to a mains supply is required. The nearest feasible connection point to mains supply is in Helensburgh. This connection is to Sydney Water Corporation's Woronora Dam mains system.

Accordingly, a connection to a mains supply is required to service the proposed golf resort. ARUP submitted a formal Feasibility Application and accompanying report on behalf of Links Illawarra to Sydney Water Corporation (SWC) on 28 April 2005 (Case number 78544) and SWC. Due to the time lapse since these original discussions, SWC has been reapproached in October 2007 to confirm that the outcomes of the original discussions remain valid. To confirm the water supply strategy, SWC are required to issue a Notice Letter Pending Consent. This will be provided in due course.

Infrastructure

Consultation with SWC has identified that the potable water connection could be made at Helensburgh. However, the Helensburgh network is limited in capacity and an upgrade will be necessary from the Woronora Dam to the Helensburgh Reservoir. This pipe is 300mm diameter and approximately 13km in length. The necessary upgrade would be to a 375mm main. SWC has plans to undertake this upgrade but no time frame for when it will occur. Therefore SWC would require the Illawarra Ridge Development to cover the costs for this upgrade work, with possible partial reimbursement by SWC in the future. Due to the higher elevation of the site relative to the Helensburgh connection, a pump will be required to transfer water to the site. The destination will be an elevated reservoir on the site. It is envisaged that this rising main would run in an easement adjacent to the Princes Highway. SWC have advised that the installation of this water main will be at the expense of the project, but will be owned and operated by SWC upon completion. The exact connection point to the SWC system is yet to be confirmed by SWC. Possible connection points are in the vicinity of Parkes Street and Cemetery Road, Helensburgh. The proposed potable water infrastructure as part of this concept application is therefore:

- Upgrade pipe from 300mm diameter to 375mm and approximately 13km in length – (Woronora Dam to the Helensburgh Reservoir),
- Water pump,
- Rising main in easement along Princes Highway (Helensburgh to the site), and
- Elevated water reservoir (north-east corner of the site).

Forecasted Demand

The calculated demands are a conservative estimate of the future potable water usage of the development. The *total maximum day demand for final development* is estimated at 765kL/day, (This figure excludes construction demands from building works and sheds and assumes 100% occupancy of all accommodation). The calculated demand figure does not reflect the reduction in potable water demand resulting from the use of water saving approaches currently available.

Other water sources

To supplement the potable water supply from Helensburgh other sources of water are being investigated in order to meet, and where possible, exceed BASIX requirements. These include rainwater harvesting and grey water recycling. Potential uses include hot water supply, toilet flushing and garden irrigation. Should these prove viable, they may be utilised in the project.

The concept proposal also includes the reuse of treated effluent (from the on-site STP). The recycling process will comply with the relevant health regulations. Potential uses include garden irrigation, golf course irrigation, public landscape irrigation and toilet flushing.

4.4.3 Sewer

The Darkes Forest area is currently not connected to a sewer main and generally relies on septic tanks for the disposal of effluent. For a development the size of the proposed golf resort this approach is not considered viable. The nearest feasible connection point to a sewer main is in Helensburgh into Sydney Water Corporation's Helensburgh/Cronulla sewer system.

Forecast Demand

The forecast sewer demand is a total equivalent population for final development of 1660. This figure excludes contribution from construction building works and sheds.

Servicing Strategy

An initial consultation with Sydney Water Corporation (SWC) was held on the 9th March 2005. Accordingly Arup submitted a formal Feasibility Application and accompanying report on behalf of Links Illawarra to SWC on 28 April 2005 (Case number 78544).

Subsequent to this meeting and Feasibility Application, SWC advised that a traditional rising main connection to Helensburgh would not be feasible due to odour problems arising from the length of the service. It is believed that partial treatment or chemical dosing could overcome this issue. However the option to on-site treat and dispose of the sewerage has been identified as the preferred solution and has been developed for the concept design.

This strategy for the disposal of sewerage shall be confirmed during the detailed design. Due to the time lapse since these original discussions, SWC has been reapproached in October 2007 to confirm that the outcomes of the original discussions remain valid.

Infrastructure

Effluent will be treated on-site in a tertiary sewage treatment plant (STP) to be located in the north-eastern corner of the property. The treatment technique will vary depending on the unit adopted. However, it will typically involve a combination of aerobic biological treatment, ultrafiltration through a membrane, reverse osmosis and UV filtration. The treatment options generally require a footprint area of between 50-200m². A preliminary water balance has been undertaken to determine the approximate storage volume required for the treated effluent. The results of the water balance are contained in Appendix C of the Services Strategy Report by Arup within **Appendix E**.

Treated wastewater will be used to irrigate the golf course, but only in areas at least 100 metres from Maddens Creek. Site soils have been tested to establish the soils' ability to absorb nutrients. An appropriate maximum application rate, and the amount of wet-weather storage has been established (i.e. for days when irrigation with treated wastewater is not possible because the soils are saturated, resulting in runoff).

Two options for sewerage collection within the site are feasible (see **Appendix E**):

- A typical gravity system following the natural slope of the land and draining to a pump station in the south-west corner of the site, connected to a rising main to transfer sewerage to the on-site treatment plant in the north-east of the site, or
- A low-pressure system.

4.4.4 Electricity

The Darkes Forest area is serviced by Integral Energy's electricity network. Current infrastructure is not able to service the future demands of the proposed project and the surrounding area. Integral has identified the Darkes Forest Zone Substation and potentially Wombarra Zone Substation as feasible supply networks.

The project will require a separate connection to two independent electrical supply networks. It is envisaged that these network connections will be adjacent to the project on the Princes Highway. These supplies will connect through a switching mechanism to an underground 11kV reticulation ring main. This ring main will service the project with four, 500kVA transformers and soft starters located at appropriate locations on the ring main. The future electrical demands for the project are estimated at 2MVA.

To supplement the electricity supply from Integral Energy other methods of supply are being investigated in order to meet and where possible exceed BASIX requirements, such as utilising solar hot water systems and installing solar powered infrastructure (such as external lighting).

4.4.5 Natural Gas

The Darkes Forest area is not currently serviced by natural gas and the nearest connection point is Agility's Natural Gas network at Bulli some 8 kilometres away.

Though technically feasible, the establishment of a natural gas connection to the project is likely to be unviable and at this stage, alternate sources such as solar and electrical, will be utilised to meet all the energy requirements of the project.

4.4.6 Telecommunications

The existing Illawarra Golf Club utilises a Telstra copper cable connection for its telephony and a satellite dish to access other telecommunication services such as pay TV. This infrastructure will not be capable of servicing the proposed development in its current state and, as there is limited additional infrastructure in the Darkes Forest area, an upgrade of telecommunications infrastructure is required.

To service the future telecommunication demands of the development, upgrades of the existing telecommunication infrastructure are required. Under legislation, Telstra is required to carry out these upgrades. Further consultation is required with Telstra to ensure the coordination of the upgrades with the development's demands.

Telecommunication services are constantly developing. As these services develop there is also a demand for access. This future demand for access will be met by the installation of both the latest technology (namely optical fibre) as well as spare servicing ducts in the servicing trenches. These measures should ensure that telecommunication services are 'future proof'.

The provision of utility services to this project (especially water and sewer) is a key issue in that it will provide much needed extra capacity into the existing overloaded network around Helensburgh and Darkes Forest.

4.4.7 Planning Agreement / Developer Contributions

In the case of the proposed development the levy would be 1%, considering the development has a capital value of over \$100 million. The payable contribution would be over \$1 million.

The proponent is prepared to enter into a voluntary planning agreement such that the construction of major proposed infrastructure external to the site and part of this application will be accepted as an "in-kind" contribution or material public benefit in lieu of a developer contribution levy (pursuant of clause 19 of Wollongong S94 Contributions Plan).

As part of the proposed development, the reticulated water network will be extended to the site, which will be available to the greater community once complete. These works and others will cost in excess of \$2 million. It is considered that these works will be beneficial to the local community.

4.5 TRAFFIC AND ACCESS

Traffic and Access is identified as Key Issue 5 within the DGRs. Specific requirements to address are stated as follows:

Traffic and Access

- *Preparing a traffic impact study in accordance with Table 2.1 of the RTA's Guide to Traffic Generating Developments which addresses, but is not limited to the following matters:*
 - *The capacity of the road network to safely and efficiently cater for the additional traffic generated;*
 - *Access to and within the site;*
 - *Servicing and parking arrangements;*
 - *Intersection site distances;*
 - *Connectivity to existing developments*
 - *Impact on public transport (including school bus routes);*
 - *Provision of access for pedestrians and cyclists to, through and within the site; and*
 - *Identify suitable mitigation measures, if required to ensure the efficient functioning of the road network.*

4.5.1 Introduction

Since the lodgement of the Preliminary Assessment (The Planning Group - December 2006), the following additional work has been undertaken and is attached within **Appendix F**:

- *Updated Traffic Report – ARUP November 2007.*

Additional regard has been made to the RTA Letter of 8th March 2007. Traffic noise has also been considered in response to a request from DECC in a letter dated 8th February 2007. An acoustic assessment has been undertaken by ARUP and included within **Appendix L**.

4.5.2 Road Network and Access

The site has good access from the Princes Highway. The access point will be opposite the entrance to the Boomerang Golf Course. The vehicular access driveway inside the site will be two-way and will provide for entry and exit of vehicles at the same time.

An additional site maintenance vehicle and emergency services access road will be provided approximately 450m south of the main entrance. The service vehicle access intersection will be designed in accordance with the *RTA Road Design Guide*. No access is permitted from the Freeway to the site.

The ARUP Traffic Study (**Appendix F**) predicts that traffic movements into and out of the site could total 345 vehicle movements within peak hour, once the proposal is completed. As both the major regional (Sydney) and local (Helensburgh) destinations are located north of Darkes Forest, the trips generated from nearby urban areas will be primarily coming from the north through Old Princes Highway. As such, the majority of the future site trips (approximately 85%) are assumed to be generated to and from the north.

Right Turn Lanes for a Four-way Intersection

Warrants for “back to back” channelised right turn lanes for a four-way intersection for the proposed site and Boomerang Golf Course are generally met and therefore should be provided. However, warrants for left turn lanes to either the Boomerang Golf Course or the proposed site are not met.

Possible Left-Turn Deceleration Lane

According to the letter received from RTA on 3 April 2007, a left turn deceleration lane must be provided to allow access to the site from the Old Princes Highway. The left turn deceleration lane is to be designed in accordance with *RTA Road Design Guide*.

However, ARUP have assessed that the future operation of the site access intersection will be similar with or without the left turn deceleration lane. In both cases, the intersection will operate at an acceptable level of service. Section 5.1.3, Figure 7 (see **Appendix F**) shows that such a provision is not warranted.

The concept application accepts the recommendations of ARUP to install channelised right turn lanes on the Old Princes Highway for vehicles entering the Illawarra and Boomerang sites from the north and south but not to install left turn lanes as they are not warranted at this location. It is noted that left turn lanes at this location on the Old Princes Highway will also potentially cause conflicts with cyclists using the road shoulder.

DCP No 6 – Application to the RTA

Application has been made to the RTA regarding the proposal, in accordance with the requirements of Wollongong Council's *Commercial and Industrial Development – DCP No 6*, as the proposal will result in a facility with more than 200 car spaces.

4.5.3 Servicing and Parking

The peak parking demand is calculated to be 269 spaces, which can be accommodated within the two proposed 140 lot parking areas.

Approximately 425 parking spaces will be provided for the proposed site development. The staff, visitor and service vehicle parking will be easily accommodated in the car spaces provided at the carpark and in designated service vehicle parking bays.

Bushfires

The nominated perimeter fire trails along the northern and southern boundaries of the site have been designed in accordance with the specifications in Section 4.3.3 of *Planning for Bushfire Protection*. The fire trails, main estate road and the potential of freeway (emergency only) access will together provide adequate evacuation alternatives in the event of a bushfire. The *Bushfire Protection Assessment* (see **Appendix G**) recommends an asset protection zone throughout the site. The interior road adjacent to the eastern boundary falls within this zone. Construction and use of the driveway complies with the requirements of the asset protection zone.

4.5.4 Summary

The key issues resulting from the traffic assessment are, where appropriate, adopted as part of the Concept Application. The key issues are as follows:

- The forecast vehicular traffic generated by the Golf Resort can be accommodated by the surrounding road network with minimal impact.
- Warrants for “back to back” channelised right turn lanes for a four-way intersection for the proposed site and Boomerang Golf Course are generally met and therefore should be provided. However, warrants for left turn lanes to either the Boomerang Golf Course or the proposed site are not met.
- The Concept Application adopts the recommendations of ARUP “to install channelised right turn lanes on the Old Princes Highway for vehicles entering the two sites from the north and south but not to install left turn lanes as they are not warranted at this location”. Left turn lanes at this location on the Old Princes Highway are also considered to potentially cause conflicts with cyclists using the road shoulder.
- Give way signposts with associated line marking will be installed at the exit from the site at the Old Princes Highway.
- Application has been made to the RTA regarding the proposal, in accordance with the requirements of Wollongong Council’s *Commercial and Industrial Development – DCP No 6* as the proposal will result in a facility with more than 200 car spaces.

The future golf resort operation as an overall integrated facility is considered to be acceptable from a traffic viewpoint.

4.6 HAZARD MANAGEMENT AND MITIGATION

Hazard Management and Mitigation is identified as Key Issue 6 within the DGRs. Specific requirements to address are stated as follows:

Hazard Management and Mitigation

- Contamination
 - Identify any contamination on site and appropriate mitigation measures in accordance with the provisions of SEPP 55- Remediation of Land.
- Acid Sulphate Soils
 - Identify the presence and extent of acid sulphate soils on the site and, where relevant, appropriate mitigation measures.
- Bushfire
 - Address the requirements of Planning for Bushfire Protection 2006 (RFS).
- Geotechnical
 - Provide an assessment of any geotechnical limitations that may occur on the site and if necessary, appropriate design considerations that address these limitations.
- Flooding
 - Provide an assessment of any flood risk on site in consideration of any relevant provisions of the NSW Floodplain Development Manual (2005).
 - Consider the potential impacts of any filling on the flood regime of the site and adjacent lands.

4.6.1 Introduction

Since the lodgement of the *Preliminary Assessment* (The Planning Group - December 2006), the following additional work has been undertaken and is attached within **Appendix G**:

- *Updated Bushfire Assessment – Conacher Travers Oct 2007 (update of The Planning Group Report of 2005).*

Additional related work undertaken is:

- *Landscape Report - Illawarra Ridge Golf Resort - Gamble McKinnon Green (Appendix B),*
 - *Contamination Investigation – JET (Appendix G),*
 - *Geotechnical Investigation –ARUP (Appendix G), and*
 - *Flood Study – ARUP (Appendix G).*

These reports were submitted with the previous Preliminary Assessment and have been updated as required and attached with this detailed Environmental Assessment.

4.6.2 Contamination

A Stage 1 contamination investigation by JET Environmental found that there is no evidence of ground contamination anywhere on the site, including the works depot areas and sheds where chemicals and fuels are stored and mixed. No underground fuel or chemical storage tanks have ever been present on the site.

4.6.3 Acid Sulfate Soils

DGRs reference 6.2 pertaining to acid sulfate soils is adequately addressed in the SEEC Morse McVey Report (see **Appendix H**). Acid sulfate soil risk mapping by the Department of Land and Water Conservation (now part of DECC) did not identify this area as being at risk due to its elevation and topographic conditions. Site inspections by SEEC Morse McVey staff confirm that acid sulfate soils are not present at this site.

Description of Soils on the Site

The site lies completely on Hawkesbury Sandstone, with soils being derived from in situ weathering of this parent material. High rainfall and low slope gradients have contributed to the development of sandy peats and loams, with common waterlogging and seasonally high water tables. Hanging swamps and dells are common on the heathlands of the Maddens Plains such as those found to the south of the site.

Sandstone porosity is limited by the iron which limits further infiltration. This causes soil profiles to rapidly become waterlogged as soil pore spaces fill. Soils do not retain water for long term plant availability, due mainly to their very sandy texture.

Soils on the site are extremely acidic, causing dissolved aluminium to become toxic to most plants. The presence of aluminium is apparent in the iron-stained bed and banks of Maddens Creek, where it flocculates eroded iron particles out of the water. Site inspections by SEEC Morse McVey & Associates confirm that acid sulfate soils are not present at this site.

Characteristics of Maddens Plains soil are described as:

- Seasonal and permanent waterlogging;
- Permanently high water tables;
- Extremely low fertility;
- Highly organic, acidic soils; and
- Low plant - available water holding capacity.

The Maddens Plains Soil Landscape is recognised as an important recharge area for groundwater aquifers and contributes significant volumes of subsurface flow into creeks.

A Stage 1 Geotechnical Investigation by ARUP concludes that construction of foundations on different bearing strata will increase the risk of differential movements of the foundations. The report recommends that all of the foundations for individual buildings should be founded on the same bearing stratum. The report also recommends a number of suitable foundation solutions that would be suitable depending on the development type.

Soil impacts are not considered a key issue however it is recognised that the soil types described, in combination with the above means that land use of the site will have to be carefully managed in order to preserve groundwater quality.

4.6.4 Bushfire

Travers Environmental has prepared a Bushfire Report (see **Appendix G**) to assess the proposed development. A summary of the findings of this report is included below:

Classification as a Special Protection Development

The proposal is considered a Special Fire Protection Purpose Development (SFPPD) in 'Planning for Bushfire Protection 2006'. Under a 3A Project Application a bushfire safety authority is not required to be issued but the RFS must be consulted and to provide their advice.

Construction Level

Building construction levels for SFPPD are predetermined under the *Planning for Bushfire Protection 2006* to a Level 1 Construction Standard relying on Asset Protection Zones as the primary mechanism of defence against bushfires.

Identification of Bushfire Threats

The proposed golf resort is located on land that is mapped by Wollongong Council as being bushfire prone. Category 1 (Woodland Group 2) vegetation is located on the southern portions of the property as well as external to the southern and western property boundaries.

The main area of bushfire threat identified within the property occurs within the Riparian Buffer Zone within the southern portion of the development. The rainforest vegetation category can be applied to the vegetation located on the northern bank of the southernmost water body.

Vegetation located to the west of the southern water body - Ironstone Woodland, will contain vegetation exceeding the 40m wide criteria and is therefore generally classified as either woodland or forest category of threat subject to the peak natural fuel loads of Ironstone Woodland.

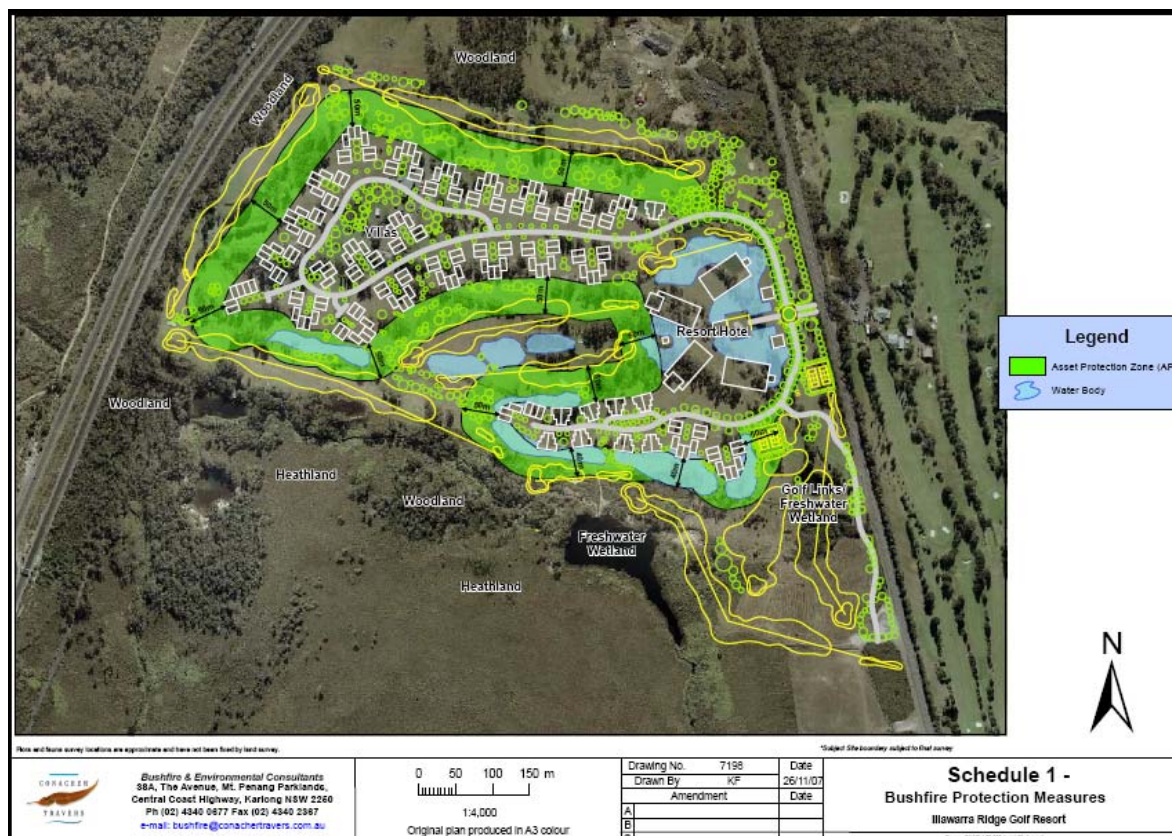
Asset Protection Zones (APZs)

Following site verification and based on the development plan, supplied vegetation map and available slope data Travers Environmental have recommended 40m and 50m wide APZs to be applied to the perimeter of the development footprint (see **Figure 4.1**).

Availability of Fire Fighting Services

There is a Volunteer Rural Fire Brigade located at Darkes Forest approximately 3.5 kilometres to the northwest of the site (road distance). The RFS Brigade would have a response time of approximately 10-20 minutes to service the development if they are not assisting elsewhere.

Figure 4.1: Plan of Bushfire Protection Measures



Source: Schedule 1- Bushfire Protection Assessment, Travers Environmental Consultants- (See **Appendix G**)

The proposed Tourist Golf Course and associated habitable infrastructure is to be located within lands that will be managed as a golf course. This land management is akin to a well managed peripheral and internal asset protection zone and fully accords with the principles outlined by the RFS in their policy *PBP 2006*. The assessment of bushfire protection found that the aims and objectives of PBP can be complied with for the proposed development and no performance assessment is required.

The four bushfire assessment recommendations are incorporated as commitments within this application (see **Section 6**):

- (i) The development and bushfire protection measures will be as indicated on Schedule 1 'Plan of Bushfire Protection Measures' attached in **Appendix G**,
- (ii) Asset protection zones will be provided to the proposed development. They will be measured from the exposed wall of the any dwelling towards the hazardous vegetation.

(iii) A fuel management plan will be prepared to manage the fuels in perpetuity. Fuel management within the asset protection zones will be maintained by regular maintenance of the landscaped areas / mowing of lawns in accordance with the guidelines provided in **Appendix G**,

(iv) An Evacuation Plan will be produced for the development in line with the existing evacuation plan for this facility. This plan will address the need for evacuation of residents either off site or to a safe site within the development property.

4.6.5 Geotechnical

A Geotechnical Investigation has been undertaken by ARUP and is included within **Appendix G**.

The objectives of the geotechnical investigation were to provide the following:

- Identification of the various soil and rock horizons.
- Identification of groundwater levels encountered in test pits.
- Classification of the site in accordance with AS2870–1996, Residential Slabs and Footings – Construction.
- Recommendation of suitable foundation types and founding levels, and
- Recommendation of California Bearing Ration (CBR) values for pavement design.

Future detailed developments will be designed and constructed in accordance with the engineering recommendations within section 5 of this Geotechnical Report.

4.6.6 Flooding

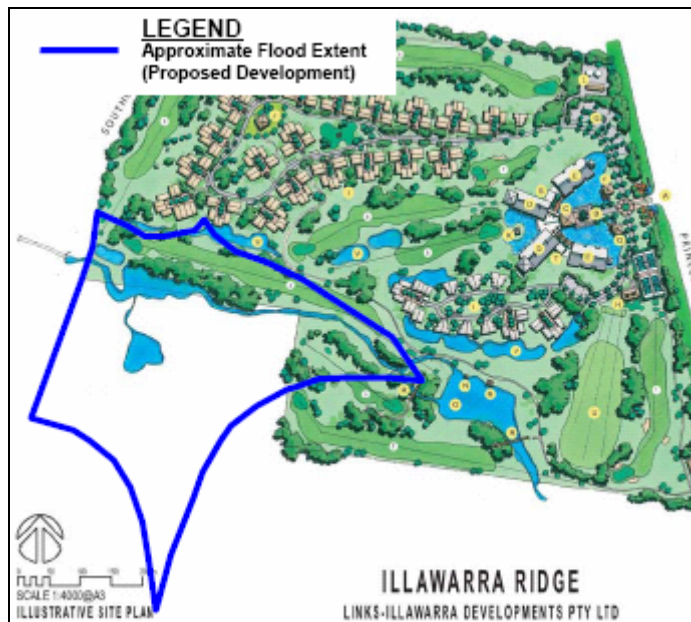
The assessment of flood risk has been undertaken by ARUP and is included as **Appendix G**.

Development of the proposed golf resort will result in an increase in the “hard” surfacing associated with the proposed structures and paved areas. A number of approaches are to be utilised to minimize the increase in runoff associated with this hard surfacing.

It was a specific requirement of Wollongong City Council to consider the culverts under the Freeway as being fully blocked during the analysis of the flooding from a 1 in 100 year ARI storm event. The analysis undertaken for the preliminary Flood Study report shows that with this conservative assumption the extent of flooding is determined by the spillway level created by the Freeway. This spillway level is at approximate RL 377m and thus the flood extent has been approximated by the 377m contour.

This approximate extent has been plotted for the existing and proposed site plans and is provided in **Figure 4.2** below. It is noted that this conservative flood extent within the proposed development will inundates some fairways, greens and tees and come near to several of the accommodation units.

Figure 4.2: Approximate extent of flood.



Source: Preliminary Flood Study, ARUP October 2007

All floor levels within the proposed resort could be designed to a minimum of 377.5 RL to meet Council's 500mm freeboard requirements.

4.7 WATER CYCLE MANAGEMENT

Water Cycle Management is identified as Key Issue 7 within the DGRs. Specific requirements to address are stated as follows:

Water Cycle Management

- Address and outline measures for Integrated Water Cycle Management (including stormwater) based on Water Sensitive Urban Design Principles. Include consideration of impacts on the surrounding environment, drainage and water quality controls for the catchment and use of treated grey water for the golf course.
- Address impacts of pollutants in runoff from the site, treatment of waste, effluent disposal and sediment and erosion control and their potential impacts on the water quality of surface and groundwater, particularly on Maddens Creek, during construction and operation.
- Address the potential impacts from the use of fertilisers, herbicides and pesticides for maintenance of the golf course and particularly on Sydney Catchment Special Areas and Maddens Creek.
- Demonstrate that removal of any upland swamp vegetation in the southern part of the site will not cause erosion and sedimentation downstream and will not impact on water quality of Maddens Creek.
- Address the NSW Groundwater Policy Framework Document- General, NSW Groundwater Quality Protection Policy, NSW Groundwater Dependant Ecosystem Policy, State Rivers Policy and Statement of Joint Intent established by the Healthy Rivers Commission.
- Review anticipated dam capacities with regard to harvestable water rights.

4.7.1 Introduction

Since the lodgement of the *Preliminary Assessment* (The Planning Group - December 2006), the following additional work has been undertaken and is attached within **Appendix H**

Updated Water Cycle Management Statement – SEEC Morse McVey October 2007.

Additional related studies which have assisted in the assessment of water cycle management issues are:

- *Concept Stormwater Plan – ARUP, February 2008 (Appendix H3)*
- *Landscape Report - Illawarra Ridge Golf Resort - Gamble McKinnon Green (Appendix B),*
- *Flood Study – ARUP (Appendix G),*
- *Flora and Fauna Statement – and Threatened Species Targeted Survey – LesryK Environmental Consultants November 2007 (Appendix K).*
- *Fish Assessment: The Ecology Lab, November 2007 (Appendix I)*
- *Vegetation Management Plan – West of the Divide Consultants – November 2007, (Appendix I)*

Regard has also been made to water cycle management issues identified in the following responses from agencies/government departments:

- DNR letter of 8 March 07, and
- DEC Letter of 8 February 07 (Water Quality Impacts).

The site is located completely outside of any catchments either directly administered by the Sydney Catchment Authority (SCA), or catchments draining into lands administered by SCA. The requirements of SEPP 58 (Protecting Sydney's Water Supply) do not apply to the proposed project. Water is considered a key issue in this project as it encompasses the water cycle and riparian corridor, stormwater management, flooding and water quality.

4.7.2 Water Cycle and the Riparian Corridor

Surface drainage at the site consists of two drainage lines including Maddens Creek and an unnamed artificial drainage channel flowing in a south-south-west direction approximately 150m from, and parallel to, the site's western boundary. All of the lands across the site drain into Maddens Creek except for a very small (< 2ha) portion in the north-east corner of the site. These lands are on a crest that comprises the watershed between the Maddens Creek and Coalcliff Dam catchments. A number of shallow drains have been constructed within the existing golf course in an obvious attempt to facilitate effective drainage and improve trafficability (detail of drainage lines to be utilised is included in **Appendix H3**) A large number of dams have been constructed across the site to service the irrigation requirements of the golf course.

The freeway crosses Maddens Creek immediately downstream of the golf course. Here, flow is directed into two 3m x 2m box culverts under the freeway and the road surface has been built up using fill to a level approximately 5m to 10m above the natural creek surface level. Based on the factors detailed above, Maddens Creek is considered to be a *Category 2 River* under the present classification system employed by the Department of Natural Resources (DNR). Classifying it as a Category 2 river means that its condition is to be maintained and/or improved, with particular regard towards terrestrial and aquatic habitat.

Riparian corridor buffers (a Core Riparian Zone - CRZ) of 20m from the top-of-bank on either side of the creek are to be set aside for protecting the riparian habitat. Additionally, a 10m “urban interface zone” applies adjacent to the CRZ in which only limited land use can occur (such as recreational facilities).

The SEEC Morse McVey report notes the most significant changes to the water cycle management regime that will occur under the proposed project are in the runoff/infiltration characteristics. The increase in impervious surface strata as a result of the proposed project will lead to greater levels of runoff and more potential pollution unless appropriate mitigation measures are implemented to prevent these impacts. Use of rainwater tanks will help in reducing storm-event initial shock-loads on the stormwater system, as will the use of storage dams as detention basins. The *Concept Stormwater Plan*, included as **Appendix H3**, details location of these dams and basins, as well as other mitigation measures such as drainage swales, and stormwater culverts.

The riparian corridor will be maintained at a minimum of 20m either side of Maddens Creek over its complete length with no encroachments by golf course fairways or urban development. Riparian corridors are to be bordered by golf fairways, not urban development. This is considered a permissible activity in the 10m Urban Interface Zone that extends beyond the CRZ.

It is acknowledged that there is a risk that nutrient-rich runoff from the golf course could lead to water quality issues in Maddens Creek or to weed infestations in the riparian corridor. As such mitigation and management measures which will achieve the following are included in the proposed project:

- (i) Minimise the risk of water quality or riparian health being affected by high nutrient loads,
- (ii) Achieve water flow regimes into Maddens Creek that are similar to the existing pattern and amount, and
- (iii) Encourage effective infiltration of water into the soil to reflect the natural runoff/infiltration characteristics at this site.

The SEEC Morse McVey report includes a detailed water cycle management plan for the construction and ongoing use of the resort. Modelling conducted as part of this plan demonstrates that the proposed project will have a neutral or beneficial effect on receiving waters (for example, resulting in a -90.3% reduction in Gross Pollutant levels from pre- to post- development).

4.7.3 Summary

Issues of water quality have been appropriately addressed at a conceptual level given the nature of this concept application (e.g. wetland sizes and locations, capture of rainwater from roofs etc). The SEEC Morse McVey report demonstrates that water quality can be feasibly managed and that water sensitive urban design (WSUD) measures can (and will) be incorporated. Good water management is feasible, and can easily, and will be incorporated into the project.

The proposed integrated approach to water quality management within the Illawarra Ridge site includes the following:

1. Source controls (e.g. reduction of effective, connected impervious areas, use of landscaped areas as raingardens);
2. The use of rain- and storm-water detention devices to reduce peak flows into local watercourses;
3. Extensive re-use of detained water for non-potable and non-contact purposes (e.g. toilets, laundries, irrigation within 100m of the creek);
4. Integration of water quality control ponds and wetlands within the overall landscape strategy to capture and treat stormwater before it is discharged to Maddens Creek;
5. Establishment of multiple outlet points (from wetlands etc) to Maddens Creek to help maintain appropriate flow and moisture regimes along the whole riparian zone;
6. Embracing the inherent treatment benefits offered by the soils in this region by returning treated stormwater to subsurface flow (via irrigation, raingardens etc). This will help to maintain the significant subsurface moisture reservoir which provides baseflow in Maddens Creek during dry periods;
7. Establishing the nutrient status of soils to develop appropriate fertilizer requirements. This should help minimize the risk of over-fertilizing the golf course which, in turn, helps minimize the risk of excess nutrients leaching via groundwater into Maddens Creek;
8. Treating effluent onsite in a tertiary plant to be located in the NE corner. Treated wastewater will be used to irrigate the golf course, but only in areas at least 100 m from Maddens Creek. Application rates will be determined by the soils' ability to absorb nutrients and wet weather storage will be provided.

4.7.4 DGRs Ref 7.1 (WSUD Water Sensitive Urban Design)

The WCMS prepared by SEEC Morse McVey includes an integrated plan that incorporates many of these principles. Since the completion of the Preliminary Assessment Report in December 2006 minor updating has been undertaken to embrace new technologies and to reflect latest research.

4.7.5 DGRs Ref 7.2 (Wastes, Pollutants, Erosion and Sediment Control)

The WCMS prepared by SEEC Morse McVey includes recommendations for managing wastes, stockpiling of substances, plus modelling to show how sediment and pollutants will be managed during the operations phase of the development. Some updating has been undertaken since December 2006 to reflect the present application and understanding of water quality modelling.

4.7.6 DGRs Ref 7.3 (Fertilizers etc)

The management measures recommended in the WCMS have been backed up with soil sampling and testing. These samples quantify the soil's nutrient requirements and its ability to absorb and assimilate fertilizer nutrients. Characterisation of subsurface water flows was also determined by a site-scale soil survey at the same time.

4.7.7 DGRs Ref 7.4 (Effects on Upland Swamps and Erosion/Sediment Control)

SEEC Morse McVey has consulted directly with LesryK Environmental, The Ecology Lab and ARUP to clarify the functioning of the upland swamp in the site's south to allow an assessment from a water, vegetation and soil perspective. The collective assessment has allowed the impact potential to be determined and a management plan developed. The initial concept put forward in December 2006 has now been amended to respond to the assessed potential impact on this area.

Erosion / Sediment Control Plan – SEEC Morse McVey

The final Conceptual Construction-Phase Soil and Water Management Plan (drawing and report) has been prepared by SEEC Morse McVey and is attached as **Appendix H**. The plan illustrates the preliminary calculations undertaken and provides sufficient detail to show clearly that the works could proceed without undue pollution to receiving waters.

This plan shows that the development can feasibly go ahead and the requirements of the guidelines contained in *Managing Urban Stormwater: Soils and Construction* (Landcom 2004) (The "Blue Book") can be met.

4.7.8 DGRs Ref 7.5 (Groundwater)

The WCMS makes extensive reference to subsurface water movements. Further clarification and quantification has been added since December 2006. The Maddens Plains area has a high risk of groundwater pollution. In consultation with other consultants, SEEC Morse McVey has determined patterns of runoff/infiltration and groundwater recharge/discharge.

4.7.9 DGRs Ref 7.6 (Dam Capacities and Harvestable Rights)

SEEC Morse McVey have conducted a basic water balance for the site to determine potential irrigation demand, potential for integration of rainwater re-use, stormwater harvesting and re-use, plus treatment requirements (i.e. sizing of water quality control ponds). SEEC Morse McVey have coordinated with ARUP to determine the harvestable rights and water supply

4.7.10 Stormwater Management

A stormwater management statement (flooding) (**Appendix G**) and Concept Stormwater Plan (-see **Appendix H3**) has been prepared by ARUP to outline the design intent for stormwater management and set the strategy that will be implemented during the design, construction and operation of each phase of the project. The following measures will be adopted as part of the Illawarra Ridge Project:

- Roof runoff from all buildings will be directed to re-use/detention tanks.
- A series of constructed water bodies are proposed across the site. These will collect and treat stormwater from the site, and provide storage for water for on-site reuse. The lakes/dams will incorporate littoral and open water zones with in order to achieve both treatment and detention functions.
- Vegetated or grassed 'V-shaped' drainage swales will be used in lieu of a traditional kerb and channel concrete lined drainage systems where appropriate.
- Bioretention swales will be used to collect runoff from car parking areas in lieu of a traditional kerb and channel concrete lined drainage systems. These will enable treatment of stormwater prior to discharging into the on site lakes/dams for reuse in irrigation of the golf course and landscaping.
- Rain gardens may be used to attenuate flows via storage and treatment.

The Water Cycle Management Study provides additional detail on the management techniques and measures that will be adopted to minimise impacts on water quality. To ensure the proper functioning of these systems maintenance will be carried out during all phases of construction and operation.

4.7.11 Flooding

An Interim Flood Study has been compiled by ARUP and is attached as **Appendix G**. Flooding is discussed earlier in **Section 4.6.6**.

In relation to this proposal all water issues are manageable, but nevertheless in the context of this assessment water could be described as a key issue. Important in the assessment are issues related to water quality, treatment of the riparian corridor and the measures to mitigate against flooding.

4.8 RIPARIAN CORRIDOR MANAGEMENT

Riparian Corridor Management is identified as Key Issue 8 within the DGRs. Specific requirements to address are stated as follows:

Riparian Corridor Management

- *Demonstrate suitable riparian corridor management or buffering between the development and adjacent waterways of natural drainage lines and demonstrate adequate protection of riparian and aquatic habitats.*
- *Address Policy and Guidelines for Fish Friendly Waterway Crossings and Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (Department of Primary Industries 2004) should crossings be proposed over Maddens Creek.*
- *Prepare a concept Vegetation Management Plan which incorporates a strategy to revegetate the core riparian and buffer zones to restore ecological biodiversity and improve post development water quality of Maddens Creek and adjacent waterways.*

Since the lodgement of the *Preliminary Assessment* (The Planning Group - December 2006), the following additional work has been undertaken and is attached within **Appendix I**:

- *Fish Assessment: The Ecology Lab, November 2007*
- *Vegetation Management Plan – West of the Divide Consultants – November 2007*

Additional work undertaken of relevance to the assessment of the riparian corridor is as follows:

- *Landscape Report - Illawarra Ridge Golf Resort - Gamble McKinnon Green (Appendix B),*
- *Flood Study – ARUP (Appendix G),*
- *“Flora and Fauna Report – Lesryk Environmental Consultants” November 2007 (Appendix K, and.*

4.8.1 Riparian Corridor Management (Re DGRs ref 8.1)

SEEC Morse McVey's updated WCMS has addressed this issue and made appropriate recommendations in consultation with The Ecology Lab and Lesryk Environmental.

The Maddens Creek corridor has been identified as an environmentally sensitive zone both in terms of water quality and ecology. As such a number of strategies have been employed to protect the creek from potential water quality pollutants, and protect and enhance the existing vegetation and habitat types.

Some of these strategies include:

- The establishment and maintenance of a riparian buffer zone.
- The revegetation of degraded areas within the riparian corridor and buffer.
- The installation of biofiltration trenches to collect runoff and treat runoff from the golf course.

4.8.2 Aquatic Ecological Assessment

The Ecology Lab Pty Ltd has undertaken an aquatic ecology assessment in relation to the proposed Illawarra Ridge Golf Resort (**Appendix I**). The overall aim of their assessment report was:

- To provide specialist information on the aquatic ecology of Maddens Creek (and surrounding watercourses and wetlands in the vicinity of the golf course),
- Identify environmental constraints associated with the proposal and
- Recommend measures to minimise or eliminate identified impacts.

Background

Background information on the physical setting, water quality, habitats and associated biota of the region was compiled with resources from the Ecology Lab Library and online databases where necessary. Databases were also searched for threatened and protected species, populations and communities which could potentially be affected by the golf resort development. Field investigations included habitat assessments and fish surveys.

At representative sites within and adjacent to the proposed development, habitats were described and assessed using the '*Riparian, Channel and Environmental Inventory*' (RCE), assigned a fish habitat classification and sampled for water quality. Sampling for fish was conducted at each site using bait trapping and electro fishing methods. Macrophyte cover and aquatic vegetation were also recorded.

Results

Results indicated that all five sites were very similar in terms of habitat quality and class of fish habitat. Sites were generally considered in good condition, due to the health of riparian vegetation and the general stream structure, although some disturbance was recorded associated with the presence of non-native weeds/grasses and surrounding land use, which was cleared for existing golf course.

Potential for fish habitat at all sites was considered moderate. The main stream bed consisted of mostly bedrock and some sand/silt in the deeper areas of small pools. The water table was fairly high near the top of Maddens Creek. There was a large amount of macrophytes at the top of the creek, consisting mainly of the reed *Juncus* sp.

Despite moderate fish habitat no fish were caught or observed at any sites sampled. Several yabbies (*Cherax destructor*) and freshwater shrimp (Atyidae) were collected at a few sites, and two Spiny Sydney Crayfish (*Eustacus spinifer*), and two eels (*Anguilla australis*) at the downstream end of the culvert under the F6 freeway.

Assessment Summary

No threatened species of fish were found, or thought to occur in the immediate vicinity of the study area, although a number of key threatening processes (as listed under the *Fisheries Management Act 1994*), were identified.

Whilst there is a species of dragonfly with a distribution that includes the study area, an assessment of significance was not considered necessary due to lack of required habitat within the project site.

Main impacts of the proposed works are likely to be associated with damage to riparian vegetation/microphyte beds and temporary increases in turbidity. Providing that recommendations to minimise or eliminate these impacts are implemented and maintaining or improving riparian corridor requirements considered, then disturbance during construction and long term effects should be minimal. These recommendations have been included within the project commitments (see **Section 6**).

4.8.3 Concept Riparian Corridor Management Plan

West of the Divide Environmental Consultants ('WODEC') has prepared a *Concept Riparian Corridor Management Plan* (RCMP) for native vegetation on Maddens Creek, which flows through the Illawarra Golf Club at Darkes Forest, NSW, (see **Appendix I**).

A field survey and review of literature was conducted to assess management issues required for the vegetation in the Riparian Zone. Guidelines for bushland restoration, regeneration strategies and weed control are also considered.

Aims and Objectives

The aims and objectives of the RCMP will ensure the development of appropriate planning and management policies to conserve the natural areas identified by this Plan.

The aims and objectives of the RCMP are:

- To protect the riparian vegetation on Maddens Creek and its tributaries from the impacts of the proposed development,

- To rehabilitate vegetation damaged as the result of construction works, and maintain this vegetation to serve as a buffer to the proposed development;
- To manage the bushland rehabilitation and restoration process to ensure the retention of suitable habitat for native flora and fauna present within the Subject Property and environs;
- To promote local biodiversity values;
- To maintain connectivity locally between bushland outside and within the Subject Property itself; and
- To fulfil the Proponent's legal obligations

Management Issues & Recommendations

Management issues and recommendations in relation to the riparian corridor are detailed in Section 4 of the CRCMP under the following headings:

- Retention of local hydrological patterns & water quality
- Maintenance & restoration of core riparian vegetation
- Protection of fish stocks & fish habitats
- Protection of bushland on adjoining land
- Protection of other native bushland within the golf course
- Weed control
- Connectivity and linkages
- Bush fire hazard

Implementation and Review

Implementation and review procedures in relation to the riparian corridor are detailed in Section 8 of the CRCMP under the following headings:

- Bushland restoration sites
- Policy & performance
- Plan review
- Works program
- Work priorities
- Monitoring and assessment
- Management responsibility
- Performance indicators and milestones

Key elements of the plan have been specifically identified in **Section 8** – as project commitments.

4.9 HERITAGE AND ARCHAEOLOGY

Heritage and Archaeology is identified as Key Issue 9 within the DGRs. Specific requirements to address are stated as follows:

Heritage and Archaeology

- *Identify whether the site has significance to Aboriginal cultural heritage and identify appropriate measures to preserve any significance (Aboriginal community consultation should be undertaken in accordance with DEC's Interim Community Consultation Requirements for Applicants).*
- *Identify any items of European heritage significance and, where relevant, provide measures for the conservation of such items.*

4.9.1 Introduction

In addressing this key issue, regard has also been given to the additional comments received on Aboriginal Cultural Heritage values (see DEC Letter of 8/2/07).

Since the lodgement of the Preliminary Assessment (The Planning Group - December 2006), the following additional work has been undertaken and is attached within **Appendix J**:

"Aboriginal and European Heritage Assessment – Andrew Roberts Consultants – November 2007"

This work updates the previous document entitled *Aboriginal Heritage Assessment* – prepared by Wugan Heritage Consultants in May 2005.

4.9.2 Aboriginal Heritage

The Aboriginal Heritage Assessment Surveys have assessed the impacts of the redevelopment of the golf course on known or unknown places of significance to the Illawarra Aboriginal Community. They have reviewed the regions prehistory, ethnography and describe the features of the cultural landscape.

Further assessment of the particular impacts of each stage of the proposed project on the identified heritage sites may be required before approval of each future development stage.

The *Commonwealth Native Title Act 1993* will be complied with in relation to any issues of Native Title that may exist at the site. A letter of advice regarding Native Title has been prepared by Minter Ellison and is included within **Appendix J**.

Meetings and Site Inspection

A meeting was undertaken with Sharlene Robinson from the ILALC on 23 October 2007. She advised on the appropriate people to accompany the consultants on the survey.

Advertisements

The heritage survey was advertised in Public Notices on Wednesday 26th and on Saturday 29th, Wednesday 3rd October and Saturday 6th October in the Illawarra Mercury and the Advertiser. The consultants also submitted an AHIMS request and will contact the relevant ATSI organisations in forthcoming weeks in lieu of a field visit sometime in October depending upon availability of interested parties.

Recommendations

The following recommendations of the heritage assessment are adopted as commitments within this EA (see **Section 6** later):

- Registration of the Aboriginal Site,
- Minimising the impact to Aboriginal heritage by delineating an exclusion area around the nominated site,
- Including the Traditional owner groups in a 'watching brief',
- Site induction workshops for plant operators in cultural heritage features, and
- A 'Stop works' provision if further sites are found.

4.9.3 European Heritage

The features of the European landscape present in the study area have been assessed to be of limited significance from a historical perspective. While the site reflects the style of a low intensity country golf course that has been universally popular in post war Australia it has no remarkable features that would justify the retention of its built environment.

4.9.4 Summary

The Aboriginal and European Heritage Impact Assessment has determined that there is an unregistered site comprising an ochre/gypsum quarry, artifact scatter and PAD located in the bed and banks of a Madden's Creek. This site type is rarely reported in the archaeological literature and is significant to the local Aboriginal community and the understanding of the wider cultural landscape.

There is a need for further research at this site to determine the nature of its links with other sites in the local and perhaps regional cultural landscape to understand its rarity.

The development proposal is assessed not to have any significant direct impacts on the heritage site although it is noted that care needs to be taken to keep development activities away from the heritage site area. The need is recognized to manage and educate golfing activity in the vicinity of the heritage site.

Continued involvement from the local Aboriginal community in site development and management works is a further adopted recommendation of the assessment.

4.10 FLORA AND FAUNA

Flora and Fauna is identified as Key Issue 10 within the DGRs. Specific requirements to address are stated as follows:

Flora and Fauna

- Outline potential impacts on aquatic and terrestrial flora and fauna and their habitats (within the meaning of the Threatened Species Conservation Act 1995 and the Fisheries Management Act 1994). Provide measures for their conservation, where relevant.
- Outline measures for the conservation of existing wildlife corridor values and/or connective importance of any vegetation on the subject land.
- Assess proposed native vegetation clearing with the consideration of potential impacts and, if applicable, provide details of an offset strategy or other suitable mitigation measures to ensure that there is no net loss of native vegetation values.

4.10.1 Introduction

In addressing this key issue, regard has also been given to the additional comments received on Flora and Fauna (see DECC Letter of 8/2/07).

Since the lodgement of the *Preliminary Assessment* (The Planning Group - December 2006), the following additional work has been undertaken and is attached within **Appendix K**:

- *"Flora and Fauna Statement and Threatened Species Targeted Survey – LesryK Environmental Consultants" November 2007.*

Additional related work undertaken and attached within **Appendix I** is:

- *Fish Assessment: The Ecology Lab, November 2007*
- *Vegetation Management Plan – West of the Divide Consultants – November 2007*

4.10.2 Flora

Within the site, the following 3 regionally significant species were recorded, these being:

- Casuarina (*Allocasuarina paludosa*) - scattered occurrences through the Ironstone Woodland in the southern portion of the study area;
- Privet-leaved Stringybark (*Eucalyptus ligustrina*) - small stand (< 6 individuals) located on northern boundary of the Ironstone Woodland in the southern portion of the study area; and
- Gynea Lily (*Doryanthes excelsa*) – scattered through the Ironstone Woodland adjacent to the F6 Freeway west of the existing golf course.

Three native vegetation communities were recognised within the study area (see **Figure 4.3**), these being:

- An Ironstone Woodland;
- A Ti-tree Thicket; and

- A Sedgeland-Heath Mosaic.

In addition to these, there is some native aquatic vegetation, particularly in association with the fringe of the aquatic areas and Maddens Creek.

Assessment

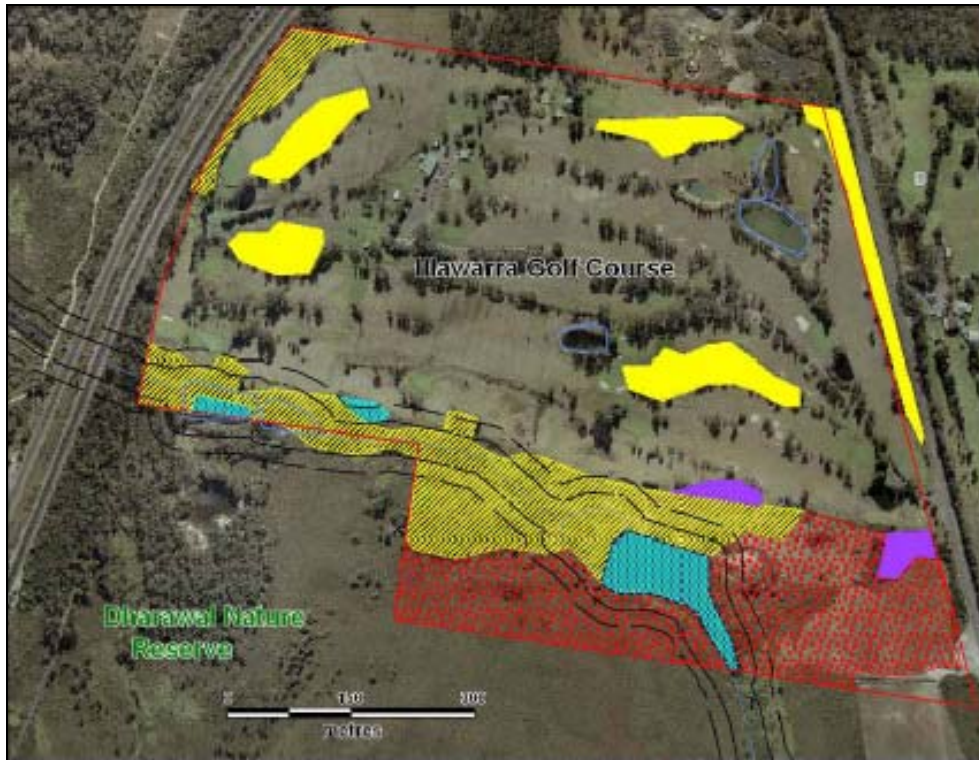
None of the vegetation communities recorded within the study area is, or forms a component of, an Endangered Ecological Community as listed under the *EPBC* and/or *TSC Acts*. However, each of the 3 native vegetation communities - Ironstone Woodland, Ti-tree Thicket and Sedgeland-Heath Mosaic – are considered to be of regional ecological significance.

The main stand of native vegetation community occurs in the southern portion of the study area, beyond the current golf course footprint. This area is in very good condition, with a high level of species diversity, and very few weeds. This area also has good connectivity to those vegetation communities that occur beyond the study area (to the south).

The linear stand of native vegetation adjacent to the F6 Freeway is considered to be in a good to fair condition. It appears that there are a few more weeds in this area, and less native species diversity than the stand to the south. The linear, western stand forms a continuous link between vegetation to the north and south of the study area.

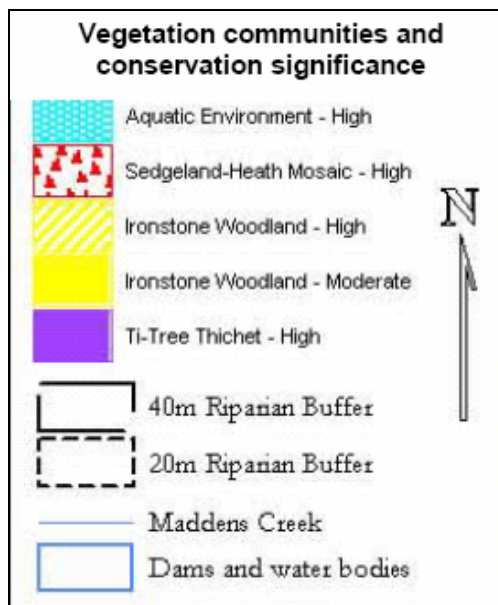
The scattered stands of simplified Ironstone Woodland that occur throughout the golf course possess some ecological significance as they still contain a number of native tree, shrub and groundcover species. Of these stands, the ones of better quality are identified as being of moderate ecological significance (**Figure 4.3**). While they are not considered to cause a constraint to the development of the study area, they have been retained where possible.

Figure 4.3: Location of vegetation communities.



Note: boundaries are approximate.

Source: Figure 5, Flora and Fauna Report – LesryK Environmental Nov 2007 (see **Appendix K**)

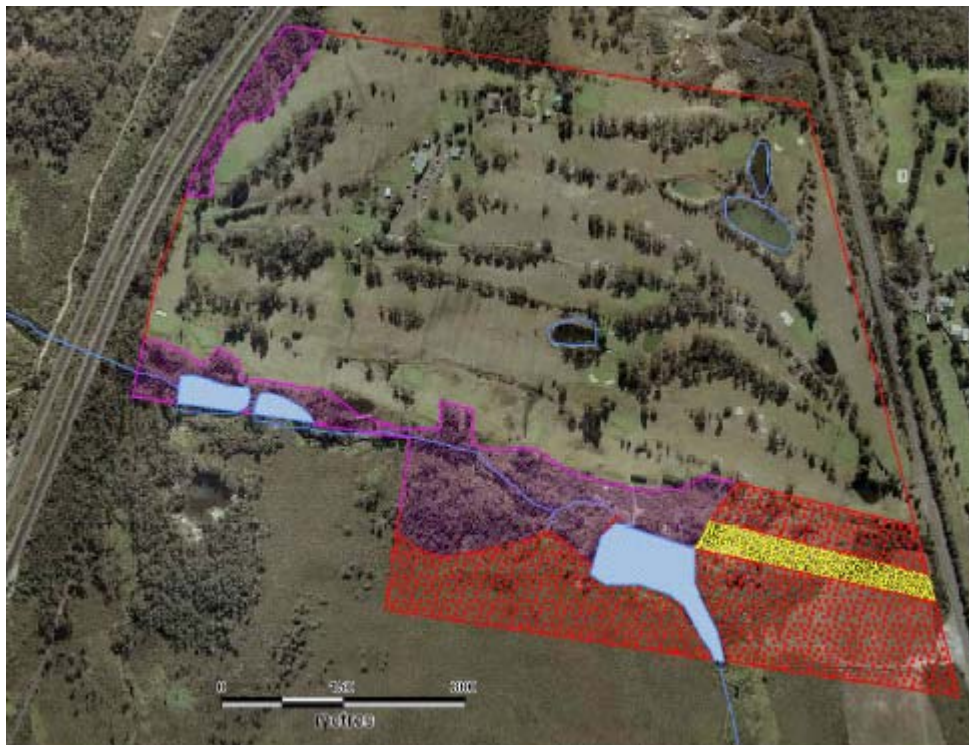


4.10.3 Fauna

By the completion of the field investigation, four habitat types available for use by native fauna species had been recorded (see **Figure 4.4**), these being:

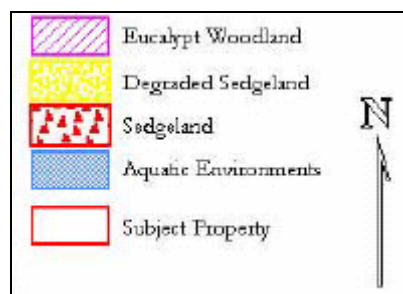
- A modified environment;
- A eucalypt woodland;
- A Sedgeland-Heath Mosaic (hereafter referred to as sedgeland); and
- An aquatic environment.

Figure 4.4: Location of Habitat Types



Source: Figure 6 Flora & Fauna Report LesryK November 2007. Habitat boundaries are approximate.

Note: Areas not mapped conform to those identified as modified environments.



Fauna Species Recorded.

By the completion of the field surveys, 10 native mammals, 46 native birds, 8 reptiles and 6 frogs had been recorded within the study area.

Of those native animals recorded:

- One, the Gang-gang Cockatoo (*Callocephalon fimbriatum*), is listed as vulnerable under the TSC Act; and
- Three, the Southern Emu-wren (*Stipiturus malachurus*), Haswell's Frog (*Paracrinia haswelli*) and Jervis Bay Tree Frog (*Litoria jervisiensis*) are of regional conservation concern.

4.10.4 Ecological Assessment

Environment Protection and Biodiversity Conservation Act 1999.

Though their presence was considered (giving consideration to the quality of the habitats and vegetation communities present), and whilst targeted surveys were undertaken, no nationally listed threatened plants or animals had been recorded within the study area. Similarly, no nationally listed Endangered Ecological Communities or populations had been detected.

The redevelopment of the subject site would not have a detrimental impact on any species of national conservation significance and therefore it is not considered that the matter requires referral to the Federal Minister for the Environment and Water Resources for further consideration and approval.

State - Environmental Planning and Assessment Act 1979

Flora.

No flora species listed under the Schedules to the *TSC Act* were recorded within, or in close proximity to, the study area. Targeted surveys of potential habitat for the state listed vulnerable plant – *Pultenaea aristata* – did not detect any individuals of this species. Given the survey effort, it is considered unlikely that the study area supports a locally viable population of *Pultenaea aristata*.

Giving consideration to the assessment criteria listed under Section 5A of the *Environmental Planning and Assessment Act 1979*, the undertaking of the Proposal within the area surveyed would not have a significant effect on any threatened plant species, populations, ecological communities, or their habitats.

The disturbance of this portion of the study region would not remove any local or regionally significant areas of habitat for any threatened plants. Further, it would not isolate or fragment any areas important to these species. "*Clearing of native vegetation*" is listed as a Key Threatening Process under Schedule 3 of the *TSC Act*. However, as no threatened flora species, populations or communities were recorded, none are expected to be adversely affected as a result of undertaking the Proposal.

Fauna

The potential impacts associated with the Proposal on the local and regional viability of those threatened species recorded during the field surveys has been considered with reference to Part 3A of the *Environmental Planning and Assessment Act 1979*. As noted, at the time of report preparation only draft guidelines were available to assist with the assessment of threatened species under Part 3A.

As such, the likely impacts of the Proposal on these species is assessed using the criteria listed under Section 5A of the *Environmental Planning and Assessment Act 1979* (these commonly referred to as the 'seven part test'), these are considered to meet the assessment requirements as provided within the draft Part 3A guidelines. The Section 5A criteria are designed to determine whether a Proposal is likely to have a significant effect on threatened species, their populations, ecological communities, or habitats".

The threatened species recorded, or considered to occur based on the detection of native species with similar habitat requirements, and for which seven part tests have been conducted are the:

- Gang-gang Cockatoo (*Callocephalon fimbriatum*); and
- Greater Broad-nosed Bat (*Scoteanax rueppellii*).

Given the detection of the hollow associated Large Forest Bat (*Vespadelus darlingtoni*), and the possible presence of the Greater Broad-nosed Bat, there is also the potential for other threatened hollow dependant microchiropterans to be present. As such, in line with the guidelines provided by the NPWS on the seven part test (NPWS 1999), the hollow dependant microchiropterans have been grouped together and assessed accordingly due to the similarity in their habitat requirements.

It is noted that each of the threatened species recorded is considered to be a hollow dependant animal. In relation to this it is noted that the "*Loss of Hollow bearing Trees*" has been listed as a Key Threatening Process on Schedule 3 of the *TSC Act*. This Key Threatening Process has been listed due to the number of native species, including threatened animals that are dependant upon this resource. The Proposal would require the removal of some hollow bearing trees where the development would have an impact on the stands of eucalypt woodland.

The “removal of dead wood and dead trees” has also been listed as a Key Threatening Process on Schedule 3 of the TSC Act. This threatening process has been listed as the removal of this material would result in the loss of important habitat such as hollows and decaying wood for a wide variety of vertebrates, invertebrates and microbial species. Development works within the eucalypt woodland would also result in the removal of dead wood and trees.

Ecological Conclusions

Generally, no ecological constraints were identified in relation to the redevelopment of the existing golf course proceeding as planned.

By the completion of the site investigations, one state listed bird, the Gang-gang Cockatoo (*Callocephalon fimbriatum*), and three regionally significant fauna species, the Southern Emu-wren (*Stipiturus malachurus*), Haswell’s Frog (*Paracrinia haswelli*) and Jervis Bay Tree Frog (*Litoria jervisiensis*), had been recorded within the study area. In addition, the regionally significant plants, Casuarina (*Allocasuarina paludosa*), Privet-leaved Stringybark (*Eucalyptus ligustrina*) and Gynea Lily (*Doryanthes excelsa*), and ecological communities, Ironstone Woodland, Ti-tree Thicket and Sedgeland-Heath Mosaic, were also detected.

The dominant location of the regionally significance ecological communities is to the south of the existing golf course, either side of Maddens Creek. Occurrences of the Ironstone Woodland are also present within the north eastern and western portions of the subject site, and throughout the existing golf course. The regionally significant fauna and flora were mainly recorded in association with those fauna habitats and vegetation communities that line Maddens Creek. The woodlands at this location also expected to provide habitat resources for several of the threatened hollow dependant microchiropterans known or likely to be present.

The maintenance of a 20m wide buffer to the north of Maddens Creek, combined with the retention of the area to the south of this creek line, would ensure that the impacts of the development on the regionally significant animals, plants and vegetation communities recorded are minimised or avoided totally.

Due to their limited and restricted distribution in this locality the Ironstone Woodland and Sedgeland-Heath Mosaic are considered to be of highly significant ecological communities. The value of this is increased due to the detection of both regionally significant flora and fauna species within these environments. It is acknowledged that the portion of the Sedgeland-Heath Mosaic that occurs to the east of Maddens Creek has been previously slashed and disturbed, and currently supports a number of exotic species, including listed noxious weeds. Although disturbed, there is significant natural regeneration within the native shrub and ground layers.

In relation to the Gang-gang Cockatoo, as this species is only considered to forage occasionally within the subject site (due to a lack of suitable breeding hollows), the redevelopment of this area is not considered to have a significant impact on this species, its populations or any major components of its necessary habitats.

Though using targeted species-specific survey methods, none of the other state listed threatened plants, animals or ecological communities previously recorded within the study region had been observed or indicated as being present within the subject site.

By the completion of the field investigations, no flora or fauna species listed under the Schedules to the *EPBC Act* had been recorded within, or in the vicinity of, the areas likely to be affected by the Proposal. Similarly, no nationally listed Endangered Ecological Communities had been recorded.

The Proposal will not have a detrimental impact on any species or communities of national conservation significance and therefore it is considered that the matter would not require referral to the Federal Minister for the Environment and Water Resources for further consideration or approval.

Recommendations of the Flora and Fauna Report are incorporated into the Commitments of this Concept application (see **Section 6** of this EA).

4.10.5 Biodiversity, Sustainability and ESD

Biodiversity, Sustainability and ESD issues are addressed in the following reports:

- *Water Cycle Management Statement* – SEEC Morse McVey (**Appendix C**).
- *Flora and Fauna Report* – LesryK Environmental Consultants November 2007 (**Appendix K**).
- *ESD Performance Statement* by ARUP (**Appendix N**)
- *Landscape Report* (**Appendix B**)

Within the key principles of the sustainability statement, the proponent is committed to planning, designing, constructing and operating the golf resort as a sustainable development. Within the category of ecology and cultural heritage the intent is to:

“manage ecology and cultural heritage issues by conserving habitat, enhancing biodiversity and monitoring for items of cultural heritage”.

The proposal will not create any threat to the biological diversity or ecological integrity of species, populations or communities. The ecological assessment concluded that:

“it is not considered that there are any ecological constraints to the proposal proceeding as planned. The proposed works would not significantly affect any populations of any plants or animals such that they are placed at risk of extinction. Similarly the works would not remove or significantly affect any habitat important to any threatened species”.

The riparian corridor will be maintained at a minimum of 20m either side of Maddens Creek over its complete length with no encroachments by golf course fairways or urban development. Riparian corridors are to be bordered by golf fairways, not urban development. This is considered a permissible activity in the 10m Urban Interface Zone that extends beyond the core riparian zone (CRZ).

It is acknowledged that there is a risk that nutrient-rich runoff from the golf course could lead to water quality issues in Maddens Creek or to weed infestations in the riparian corridor. As such mitigation and management measures will be included in the project which will achieve the following:

- (i) Minimise the risk of water quality or riparian health being affected by high nutrient loads;
- (ii) Achieve water flow regimes into Maddens Creek that are similar to the existing pattern and amount;
- (iii) Encourage effective infiltration of water into the soil to reflect the natural runoff/infiltration characteristics at this site.

In addition a bridge construction for golf course access over the entirety of the Maddens Creek riparian corridor is to be incorporated instead of surface level crossings.

Given the above and studies conducted to date, biodiversity is not considered to be a key issue. Further detailed study and assessment of the particular impacts of each stage of the proposed project may be required before approval of each development stage.

4.10.6 Threatened species, populations, communities or habitat

Information relating to threatened species, populations, communities and on-site habitats has previously been addressed in **Section 4.2.1** (Flora and Fauna) above.

4.11 NOISE

Noise is identified as Key Issue 11 within the DGRs. Specific requirements to address are stated as follows:

Noise

- *Address potential noise impacts, in particular road traffic noise from the adjoining freeway, for future occupants and provide appropriate mitigation measures.*

4.11.1 Introduction

In addressing this key issue, regard has also been given to the additional comments received on Noise (see DECC Letter of 8/2/07).

Since the lodgement of the Preliminary Assessment (The Planning Group - December 2006), the following additional work has been undertaken and is attached within **Appendix L**:

Noise Impact Assessment – November 2007 – ARUP Acoustics

The Illawarra Ridge development is sandwiched between the Southern Freeway on the west and Old Princes Highway on the east, Darkes Forest. The nearest residential noise sensitive receiver is the residence adjoining the northern boundary of the development. Other receivers include the Boomerang public golf course to the east and Dharawal Nature Reserve to the west.

4.11.2 Summary

Arup Acoustics has undertaken an acoustic assessment of the existing environment of the proposed Illawarra Ridge development.

Traffic on the Southern Freeway and Old Princes Highway are the dominant noise sources in the vicinity of the subject site. The measured existing noise levels showed that the current traffic noise is marginally above the criteria as outlined in the ECRTN guidelines but is unlikely to increase.

Noise Impact to Future Occupants within the Resort

Provided reasonable care is taken during the development of the design, e.g. detailed master planning, building façade construction, etc., noise intrusion to occupied spaces within the various buildings in the development can be adequately controlled to meet the ECRTN limits and the recommended targets detailed in AS2107:2000.

Noise Impact to the Surrounding Community from the Resort

As the existing background noise level is relatively low, noise impact to the surrounding community will need to be controlled with careful building planning and adequate noise control treatment particularly to the mechanical services to the building on site. An operational management plan will also be considered to control the noise emission from outdoor activities on the development, e.g. golf course and on site traffic.

Detailed acoustic and vibration assessment will occur as part of the approvals for later stages, when greater details regarding the built form are available.

4.12 SOCIOECONOMIC IMPACTS

Socioeconomic impacts are identified as Key Issue 12 within the DGRs. Specific requirements to address are stated as follows:

<i>Socioeconomic Impacts</i>

- | |
|--|
| <ul style="list-style-type: none">▪ <i>Address the potential social and economic impacts of the development.</i> |
|--|

4.12.1 Introduction

Since the lodgement of the Preliminary Assessment (The Planning Group - December 2006), the following additional work has been undertaken and is attached within **Appendix D**:

“Economic Benefit Strategy –MacroPlan Australia November 2007”.

This November 2007 work updates the previous document.

The capital investment value of the project has been identified in the Valuer’s Report included in **Appendix B**.

The Macroplan Report (included in **Appendix D**) estimates at completion, the Illawarra Ridge development will support a total worker population of approximately 160 workers. These jobs will be provided at the hotel, golf course and limited retail offering.

4.12.2 Social Impacts

The *“Economic Impact Assessment”* by Macroplan Australia (included in **Appendix D**) has reviewed the overall project impact subject to the original plans for the development. The primary change is that all accommodation at the resort is defined as temporary and tourist based. The MacroPlan Australia report assesses the likely economic and social impacts of the operation of the project on the Wollongong Economy.

The Macroplan report finds that *“the participation in recreational activities delivers a wide range of benefits to the community, ranging from personal happiness and a sense of well-being to reductions in the cost of health care and improved economic well-being”*. A selection of these benefits includes:

- Social cohesion,
- Community pride,
- Preventative health outcomes,
- Job creation,
- Crime reduction,
- Strengthening a productive workforce, and
- Contributing to environmental health and rehabilitation.

The report also outlines other social benefits associated with the development including reduction in unemployment, increased employment and choice as well as increased job skilling and training. Higher amenity provision instils pride and a greater sense of place and community.

4.12.3 Economic Impacts

The “*Economic Benefit Strategy*” by Macroplan has been updated to include the current proposal. The report is an independent analysis of the economic and social benefits associated with the proposed project. The report assesses the likely economic impacts of the operation of the project on the Wollongong Economy.

The report finds demand for the resort is supported by analysis of recreational activities undertaken by people over the age of 45 years (*ABS, Sport and Physical Activity Participation*), which indicates that the proposed project will offer six of the top seven recreational/leisure pursuits demanded by persons aged over 45 years. Demand is further supported by the trend of ageing population moving to coastal and regional locations throughout Australia. This migration trend is witnessed by strong increases in property values and increased dwelling construction over the past decade in these locations.

It is expected that the total expenditure generated by the project throughout the 20 year period (2006-2025) is estimated at \$572 million dollars which equates to \$323 million in net present terms (discount rate of 7%). Total employment generated from the expenditure levels has been estimated at between 546 and 969 employment positions sustained on average each year during the first 20 years of the project (including multiplier effects). Employment is weighted towards construction during the early years of the project moving towards goods and service support for Tourists/visitors in latter years. The report estimated the local employment proportion (i.e. Wollongong City) of this employment is 49% of direct employment retained within the Wollongong region during the construction phase of the project (i.e. first five years) and 41% during latter years. The result will be the creation of between 100 to 209 employment opportunities (net annually) in Wollongong over the 20 year period.

The proposal is expected to generate average annual tourism expenditure in the order of \$3.9 million. Conservative estimates, based on attendance achieved at other golf courses in the region, indicate that 15% of the expenditure will be induced to New South Wales from course and hotel patrons from interstate and overseas. This represents \$12 million additional expenditure in the New South Wales economy over the 20 year analysis period and is therefore considered to be a key issue.

Within the *Regional Strategies Background Paper* of Feb 2006, the only “Key Direction” of relevance to the subject proposal, is that of facilitating economic development and employment growth by identifying suitable employment opportunities. The proposal fully complies with this direction.

Further detailed study and assessment of the particular impacts of each stage of the proposed project may be required before approval of each development stage.

4.13 IMPACTS ON ADJOINING DHARAWAL NATURE RESERVE

Impacts on the adjoining Dharawal Nature Reserve are identified as Key Issue 13 within the DGRs. Specific requirements to address are stated as follows:

Impacts on Adjoining Dharawal Nature Reserve

- *Address Guidelines for Development Adjoining Department of Environment and Conservation Land (DEC August 2006)*
- *Address potential construction impacts resulting from earthworks and changes to overland flow and sedimentation from imported fill and ongoing operational impacts such as edge effects and stormwater runoff.*
- *Provide appropriate mitigation measures and assess effectiveness and reliability of the measures and any residual impacts after implementation of the measures.*

4.13.1 Introduction

In addressing this key issue, regard has also been given to the additional comments received on proximity to the Dharawal Nature Reserve (see DECC Letter of 8/2/07). Since the lodgement of the Preliminary Assessment (The Planning Group - December 2006), the following additional work has been undertaken of relevance to the review of impacts on the Dharawal Reserve. The additional work is attached within the following stated appendices:

- *Bushfire Assessment – Travers Environmental November 2007 (Appendix G).*
- *Water Cycle Management Statement – SEEC Morse McVey November 2007 (Appendix H).*
- *Concept Stormwater Plan – ARUP February 2008 (Appendix H).*
- *“Flora and Fauna Report – LesryK Environmental Consultants” November 2007 (Appendix K).*
- *Fish Assessment: The Ecology Lab, November 2007 (Appendix I).*
- *Vegetation Management Plan – West of the Divide Consultants – November 2007 (Appendix I).*

The Dharawal Nature Reserve is located to the south of the subject site although its main extent is within the area to the west of the Southern Freeway (see **Figure 4.5**). Only the south western part of the subject site has a common boundary with the nature reserve.

Figure 4.5: Relationship of the site to the Dharawal Nature Reserve



Source: Figure 1.1 Vegetation Management Plan, WODEC October 2007 (EA **Appendix I**).

4.13.2 Guidelines for Development adjoining DECC Land

Dharawal Nature Reserve adjoins the Subject Property to the south-west (see **Figure 4.4**).

Direct or indirect impacts of any development on land adjoining land reserved or acquired under the *National Parks & Wildlife Act 1974* must be addressed in accordance with DECC's *Guidelines for Development Adjoining DEC Lands*. Additionally, Wollongong City Council (correspondence 16 February 2007) has expressed concern about the impacts of the proposal on native flora and fauna in nearby bushland, in particular, the potential for the spread of exotic species (weeds).

The October 2007 modification of the concept, such that there will be no development proposed within the subject site to the south of Maddens Creek, significantly increases the buffer distance between the golf course and the Nature Reserve. The restoration and maintenance of a fully vegetated buffer (20 metres in width) along the northern side of Maddens Creek is further anticipated to adequately protect bushland in the Nature Reserve. In addition, it is assessed that water quality in the Creek will improve as the result of the integrated Water Quality Management Plan which is an integral part of the proposal.

The implementation of this Plan, and the retention and appropriate management of the Sedgeland-Heath Mosaic located between the riparian corridor and the Dharawal Nature

Reserve will effectively buffer or more accurately, negate direct or indirect impacts of the proposal.

The bushland in the riparian corridor (and beyond) is floristically and structurally intact, with few weed species present. However, in order to address concerns about exotic introductions or weeds spreading from the golf course land to nearby bushland, a targeted weed control program is proposed to be undertaken prior to commencement of construction.

The weed control program will be on-going after the completion of works (see **Appendix I Vegetation Management Plan** - Section 6).

4.13.3 Construction Impacts

Construction impacts will be addressed by ensuring compliance with the guidelines provided as Appendix 5 within the *Vegetation Management Plan* prepared by the West of the Divide Consultants – October 2007 (**Appendix I**).

The generic guidelines for protection of bushland during construction provide guidance in relation to:

- 1) Erosion Control Measures
- 2) Stormwater Runoff Control
- 3) Placement of Essential Services through Bushland
- 4) Protection of Nearby Vegetation

4.14 OWNERS CONSENT

Matters pertaining to Owner's Consent are identified as Key Issue 14 within the DGRs. Specific requirements to address are stated as follows:

Owners Consent

- *Provide evidence of land owner's consent to make application for all components of the proposal on Crown Land.*
- *Demonstrate that the Native Title has been extinguished from the Crown land or a non-claimant application has been approved by the National Native Title Tribunal.*

Of relevance to these matters are the comments made in the Department of Lands letter dated 12th February 2007, and the subsequent Department of Lands letter dated 18th February 2008 (included as **Appendix B8**).

4.14.1 Summary

Details of owner's consent and the extinguishment of Native Title (Key Issue 14 of DGRs) have been addressed in the Letter of Advice by Minter Ellison dated 20th March 2008 which is included within **Appendix J**.

4.15 OTHER ISSUES

4.15.1 Air Impacts

A specialist Air Quality Assessment has not been undertaken for this project to date.

The proposed project is for a golf resort development and does not propose any form of development which is likely to produce any negative air quality impacts.

Whilst there may be dust generation during the construction process, this will be controlled by the usual building construction controls and procedures. With the proper implementation of these measures this is not considered to be a key issue.

Tourist accommodation units are considered to be located far enough away from the Freeway and Princes Highway to be unaffected by any adverse air quality resulting from the level of traffic on those roads.

4.15.2 Land Use Impacts

The proposed Golf Resort Project will be a unique project within Wollongong and should not be assessed as a standard “*urban settlement*”. People living and working in the resort are there very much for the golf experience (ie tourism and recreation). The main use of the golf resort is the provision of private recreation, with hotel, short stay residential and clubhouse uses being ancillary to that main use. The land tenure arrangement will be a community title arrangement within the resort management structure. The usual Torrens Title subdivision of an “*urban settlement*” is not contemplated.

The site is not considered to be isolated. The site is located at the current Illawarra Country Club on the Princes Highway some 7.5km north of Thirroul and 6.5kms south of Helensburgh, on the Illawarra coast, north of Wollongong. The proximity of the site to Thirroul and Helensburgh will allow, if required, short stay Tourists/visitors of the golf resort easy access to these centres and their services. This area is the local service catchment area for the resort.

This local catchment area contains a wide range of community services and facilities including some 17 places of worship, 193 shops and various retail services, and numerous fire brigade facilities as well as libraries and community centres.

The proponent’s vision for the resort is to see the staged development of a fully managed, integrated resort comprising a wide range of recreational, and social facilities all designed to attract tourists and support the main golf focus of the project.

5. CONSULTATION

5.1 INTRODUCTION

The DGRs included the following requests in relation to Community Consultation:

Community Consultation

- Public:

Document all community consultation undertaken to date or discuss the proposed strategy for undertaking community consultation. This should include contingencies for addressing any issues arising from the community consultation and an effective communications strategy.

- *The consultation process and the issues raised should be described in the Environmental Assessment.*

This Section details the specific DGRs by providing details of:

- The responses from Agencies and Government Departments within **Section 5.2**.
- The initial responses from the community when the proposal was exhibited by Wollongong City Council in late 2006 (see **Section 5.3**).
- The ongoing program of community involvement which is being managed by Elton Consultants is described within **Section 5.4**.

5.2 AGENCIES AND GOVERNMENT DEPARTMENTS

The consultation undertaken with Agencies and other Authorities includes the following:

- Wollongong City Council
- NSW Department of Planning – South Coast Regional Office
- Department of Environment and Climate Change
- Department of Primary Industries
- NSW Rural Fire Service
- Department of Water and Energy
- Roads and Traffic Authority
- Department of Lands
- Sydney Catchment Authority
- Sydney Water
- Southern Rivers Catchment Management Authority
- Local Aboriginal Land Council/s and other Aboriginal community groups
- Relevant infrastructure providers

Their responses are noted in **Table 5.1** below:

Table 5.1: Responses to Authority Consultation

Respondent:	Issues Raised:	Addressed in EA:
1) Wollongong City Council (WSC)	Council sent a copy of the previous consultation letters they received in response to the previous Land and Environment Court case and a covering letter in response on the 5 th October 2007.	Consultation letters considered in Tables 5.2 and 5.3
2) NSW Department of Planning – South Coast Regional Office, DoP	<p>Graham Towers of the Southern Region Office of the Department of Planning responded via email on 4th October 2007.</p> <p>There were no additional items that they would like to add to those already included in the DGRs.</p> <p>He was concerned by the reference to <i>"the occupiers of these dwellings"</i> in point 5. i) on the 3rd page of the attachment to the letter.</p> <p>Any proposed 'dwellings' would be inconsistent with the description of the development in the DGRs which states that the villas are to be used for 'short stay tourist accommodation'.</p> <p>He further considered that the term <i>"dwellings"</i> is also inconsistent with section 2.2 of the DGRs which require the applicant to demonstrate that no part of the development will be used for permanent accommodation and to also provide details on mechanisms to ensure that the development is used for short stay tourist uses only.</p>	<p>The EA repeatedly confirms that the concept application relates to short term tourist accommodation and not to long term permanent residential occupancy.</p> <p>Section 2.2 includes a description of the intended operational structure of the Resort accommodation units.</p>
3) Department of Environment and Climate Change (DECC)	DECC responded by letter dated 18 th October 2007.	
	Also attached were previous comments from DECC to Council and DECC comments on the Preliminary Assessment. Guidelines for developments adjoining DECC land and Guidance material was also attached.	
	The main issues raised were:	
	1. The environmental impacts of the project (including water quality impacts and traffic and air quality impacts).	<p>All environmental issues assessed in this EA,</p> <ul style="list-style-type: none"> • water quality (Appendix H, Section 4.7); • traffic (Appendix F, Section 4.5), and • Air Quality (Section 4.15.1).
	2. The impacts of the project on threatened species and their habitat	Flora and Fauna Appendix K (LesryK) Section 4.10
	3. The impacts of the project on Aboriginal cultural heritage values.	Appendix J Section 4.9
	4. The direct and indirect impacts of the project where it adjoins land reserved or acquired under the National Parks and Wildlife Act 1974.	Flora and Fauna Appendix K (LesryK) Section 4.10 and 4.13
	5. The actions that will be taken to avoid or mitigate impacts or compensate for unavoidable impacts identified in 1-5 above.	Mitigation actions summarised in Section 6: Statement of Commitments
4) Department of Primary Industries	6. Other broad environment protection or conservation issues of concern in the proposed project.	Flora and Fauna Appendix K (LesryK) Section 4.10 and 4.13
	7. Landowner Consent for Crown Lands.	Appendix B Section 4.14
	DPI responded in a letter dated 2 nd October 2007. They attached a copy of their previous advice to the Department of Planning and stated that they have no further issues or comments to make at that time.	Appendix A
5) NSW Rural	Letter received from the RFS dated 17 th October 2007.	Assessed in accordance

Respondent:	Issues Raised:	Addressed in EA:
Fire Service	The letter stated that the development should consider the new <i>Planning for Bush Fire Protection 2006 Guidelines</i> .	with Guidelines, see Section 4.6.4 and Appendix G .
6) Department of Water and Energy	Letter was received dated 15 th October 2007. Included a copy of their response to DoP dated 8 March 2007. This included reference to the following: <ul style="list-style-type: none"> ▪ Surface Water License Issues ▪ Farm Dams Policy ▪ Existing Licences ▪ Groundwater Licence Issues ▪ Groundwater Considerations for Commercial Water Extraction ▪ The NSW Groundwater Policy Framework Document – General. 	DWE concerns addressed in Section 4.7 (Water Cycle Management) and in Appendix H .
7) Roads and Traffic Authority	A letter was received by ARUP from the RTA on 3 April 2007 containing advice on access requirements (see Section 3.3 – Traffic Report October 2007 ARUP – Appendix F.).	RTA advice included in concept. Roads and traffic issues addressed in Section 4.5 and Appendix F
8) Department of Lands	No response received	DoL initial concerns in relation to targeted ecological surveys were addressed with initial DA together with receipt of land owner's consent (Crown Land).
9) Sydney Catchment Authority	The subject property is mostly located within the O'Hares Creek Special Area which, while not a drinking water catchment as set out in the <i>Drinking Water Catchments Regional Environmental Plan No 1</i> , remains subject to the <i>Sydney Water Catchment Management Act 1998</i> and, in particular, the <i>Special Areas Strategic Plan of Management (SASPoM)</i> – a copy of which is available on the SCA's website. The SCA would expect the EA to fully address the maintenance of water quality and ecological integrity in Maddens Creek and the Special Area during both construction and operation of the Resort.	SCA concerns addressed in Section 4.7 (Water Cycle Management) and in Appendix H .
10) Southern Rivers Catchment Management Authority	Response dated 23 October 2007 included the following comments: The SRCMA is a consent Authority under the Native Vegetation Act 2003 (NVA). The NVA incorporates an assessment methodology which aims to "maintain or improve" native vegetation. This concept of improve or maintain is assessed using a tool called the <i>PVP Developer</i> . The negative impact of clearing is "offset" by areas that are managed for environmental purposes. The NVA does not apply to major projects under Part 3A the SRCMA suggests that the principles incorporated into the PVP Developer assessment represent "best practice" in vegetation management. Suggested that the assessment requirements reflect those articulated in the <i>Environmental Outcomes Assessment Methodology</i> which underpins the PVP Developer.	SRCMA comments considered, together with those of DECC, leading to an adjustment of the initial golf course design such that holes 1to3 remain to the north of Maddens Creek. Flora and Fauna Appendix K (LesryK) Section 4.10 and 4.13 Riparian Corridor Management Appendix I (WODC & Ecology Lab)
11) Local Aboriginal Land Council/s and other Aboriginal community groups	Refer to Heritage Report	Appendix J (Heritage and Archaeology)
12) Relevant	Refer to Updated Services Strategy – ARUP October	Appendix E (Infrastructure)

Respondent:	Issues Raised:	Addressed in EA:
infrastructure providers Sydney Water	2007.	Provision)

5.3 INITIAL COMMUNITY CONSULTATION

Community consultation was undertaken by Wollongong City Council when the initial DA was exhibited in late 2006. The then proposed development concept was similar to the current concept plan apart from the inclusion of 200 permanent dwellings. The current concept now only includes tourist, short stay accommodation, and development within the southern lot has been adjusted to include golf holes 1 to 3 within the area north of Maddens Creek. This adjustment of the golf course design has been in response to expressed concerns of DECC and in the light of further ecological and vegetation assessment.

Table 5.2 provides a summary of the issues raised during the 2006 community consultation, and a response to those issues.

Table 5.2: General Responses to Initial Community Consultation

General Issues raised	Number of times issue raised	Summary response & where to find further information in the EA
1 Catchment management: <ul style="list-style-type: none"> The proposal is located between Woronora and Cataract Special Areas Catchment. These are “special areas” feeding into the Woronora, Georges and Nepean-Hawkesbury River Systems Due to the current water crisis, a further strain would be put on the Woronora supply to the Helensburgh area if the catchment is interfered with. The use of pesticides and herbicides to maintain the golf course will have an impact on the drinking water. 	66 (form letters) 8 (stand alone letters) 3 (stand alone letter) 1 (stand alone letter)	Section 4.7 addresses water cycle management Appendix H includes the <i>Water Cycle Management Statement – SEEC Morse McVey November 2007</i> . The site is located completely outside of any catchments either directly administered by the Sydney Catchment Authority (SCA), or catchments draining into lands administered by SCA. The requirements of <i>SEPP 58/REP1</i> do not apply to the proposed project. The project can achieve <i>neutral to beneficial effects</i> .
1. Bush fire risk: <ul style="list-style-type: none"> The Rural Fire Service has zoned the site as having an extreme high risk to bushfires. The proposed buffer zones are inadequate to address the bushfire risk. 	66 (form letters) 7 (stand alone letters)	Section 4.6.4 addresses bush fire management. Appendix G includes the <i>Bushfire Assessment –Travers Environmental Nov 2007</i> . Appropriate APZs can be provided in accordance with the 2006 Bushfire Guidelines.
2. Environmental impacts: <ul style="list-style-type: none"> The area surrounding the development is regarded as having high bio-diversity, being home to endangered animals, amphibians and birds The 10 year construction plan will place an extra strain on air quality and disturbance to flora and fauna due to truck movements. 	63 (form letters) 7 (stand alone letters) 4 (stand alone letters)	Section 4.10 addresses flora and fauna. Appendix K includes the <i>Flora and Fauna Report – LesryK Environmental Consultants November 2007</i> . <i>The Oct 07 amended layout minimises impact on existing vegetation</i> . Construction staging amended to 5 stages over 4 years. (Table 1.2)
3. Distance to public services and resultant traffic impacts:	65 (form letters) 8 (stand alone)	The concept application no longer includes permanent accommodation –

General Issues raised	Number of times issue raised	Summary response & where to find further information in the EA
<ul style="list-style-type: none"> There are no hospitals within the locality and the closest town is Helensburgh which is 10 km away. The train station is 10 km away which means that transport to and from the area will have to be undertaken by private cars leading to an increase of traffic on the local road network. 	letters)	only tourist short-stay visitors. Section 5.4 addresses traffic and access Appendix F includes the <i>Traffic Report – ARUP November 2007</i> .
4. Traffic impacts: <ul style="list-style-type: none"> An increase of people in the area will put a strain on the local road networks, this will lead to the Princes Highway needing regular maintenance and repair work which will come from ratepayers' funds. 	8 (form letters) 6 (stand alone letters)	Section 5.4 addresses traffic and access. Minimal traffic impact expected. Appendix F includes the <i>Traffic Report – ARUP November 2007</i> .
5. Design of the golf resort: <ul style="list-style-type: none"> Golfing enthusiasts will not use a nine hole course, further world class tournaments can not be held on this type of course. If this was a true 'golfing development' it would not reduce the size of the course in half. 	59 (form letters) 2 (stand alone letters)	Section 1.3 describes the layout options considered and Section 1.4 addresses the justification for the project. Section 2 describes the Concept Proposal and Section 4.2 assesses Tourist Issues. Appendix D includes the <i>Economic Benefit Strategy – MacroPlan Australia November 2007</i>
6. Sewerage: <ul style="list-style-type: none"> The in ground tanks needed for the proposed sewerage system will place another burden on the surrounding environment and local water situation 	8 (form letters) 5 (standalone letters)	Section 4.4.3 addresses sewerage options and management. Both can be built to avoid a burden on the surrounding environment. Appendix E includes the <i>Services Strategy – ARUP November 2007</i>
7. Scale of development: <ul style="list-style-type: none"> The scale of the development does not suit the character of the area Existing infrastructure can not sustain growth in the area. 	6 (stand alone letters) 6 (stand alone letters)	The Resort is low rise (maximum 2 storeys) and its scale is screened by its location, topography and vegetation. Section 2 describes the Concept Proposal and Section 2.3 assesses the built Form. The resort will include infrastructure improvements. Appendix E includes the <i>Services Strategy – ARUP November 2007</i> .
8. Construction impacts: <ul style="list-style-type: none"> Dust and noise impacts on neighbours and horses in adjacent riding school. 	5 (stand alone letters)	Section 4.11 addresses noise impacts and Section 4.15.1 addresses air quality impacts Appendix L includes the <i>Acoustic Assessment – November 2007 – ARUP</i> . The impacts of construction on neighbours can be appropriately handled.
9. Visual impacts: <ul style="list-style-type: none"> The development will be highly visible from all directions, impacting on the character of the natural area. 	4 (stand alone letters)	The development will not be highly visible from all directions. Potential views from public places are from Princes Highway and the Freeway. Section 4.3.2 addresses visual impacts

Within the consultation process three letters of support were submitted which relate to the positive benefits of the proposal are outlined in **Table 5.3** below:

Table 5.3: Letters of Support

Issue	Number of times raised	Summary response and where to find further information in this EA
1. Improved amenities: <ul style="list-style-type: none"> The project will greatly benefit the surrounding environment and offer an enhancement to the quality of life for the community. 	2	Section 1.4 addresses the justification for the project. Section 2 describes the Concept Proposal and Section 4.2 assesses Tourist Issues. Appendix D includes the <i>Economic Benefit Strategy –MacroPlan Australia November 2007</i> .
2. Sewerage: <ul style="list-style-type: none"> The modern technology proposed for storm water mitigation and sewerage treatment would resolve the outflow of sewerage and storm water on this project. 	1	Section 4.4.3 addresses sewerage options and management. Both can be built to avoid a burden on the surrounding environment. Appendix E includes the <i>Services Strategy – ARUP November 2007</i>
3. Economic benefits to the area: <ul style="list-style-type: none"> Due to the increase of golf patrons and tourists. 	1	Section 1.4 addresses the justification for the project. Section 2 describes the Concept Proposal and Section 4.2 assesses Tourist Issues. Appendix D includes the <i>Economic Benefit Strategy –MacroPlan Australia November 2007</i>
4. Accommodation and tourism opportunity: <ul style="list-style-type: none"> The Helensburgh area has virtually no accommodation; the hotel rooms will bring people to the area to see the tourist attractions of the region. Helensburgh, Otford and Stanwell could become tourist villages. 	2	Section 1.4 addresses the justification for the project. Section 2 describes the Concept Proposal and Section 4.2 assesses Tourist Issues. Appendix D includes the <i>Economic Benefit Strategy –MacroPlan Australia November 2007</i>
5. Employment opportunities: <ul style="list-style-type: none"> Increased opportunities for people to be able to work close to home. 	1	Appendix D includes the <i>Economic Benefit Strategy –MacroPlan Australia November 2007</i>

5.4 AN EFFECTIVE CONSULTATION STRATEGY

A consultation and communications plan has been prepared for Links Illawarra Pty Ltd by Elton Consulting to provide a framework for consultation and communications to meet the requirements of the Part 3A planning process. The plan outlines targeted activities that will be undertaken by Links pre and post lodgement of this EA.

5.4.1 Proposed Consultation and Communications Activities

The proposed consultation and communications activities are outlined below:

• Initial Stakeholder Analysis

A preliminary list of stakeholders has been identified as having direct relevance to the proposal. It is likely that during the course of consultation activities, other stakeholders will be identified for inclusion in consultation and communications activities.

- **Initial Issues Identification**

The identified issues have emerged from:

- An assessment of the submissions received on the previous proposal,
- An assessment of how these have been addressed through the amended proposal and
- Issues that are likely to be of interest to stakeholders in relation to the revised proposal.

During the course of consultation and communications activities, any further issues raised will be addressed and responded to.

- **Preparation of Consultation Plan**

This plan provides an overview of consultation activities undertaken to date, demonstrates an understanding of the stakeholders who are likely to have an interest in the Links proposal and issues arising on the previous proposal and those likely to relate to the amended proposal. The plan provides contingencies to address issues arising from community consultation during the assessment phase and an effective communications strategy targeting community stakeholders.

- **Agency Consultation**

During the preparation of the EA, the following agencies were contacted for input on the amended proposal, as per the advice outlined in the DGRs:

- Wollongong City Council
- NSW Department of Planning - South Coast Regional Office
- Department of Primary Industries
- Department of Environment and Climate Change
- Department of Water and Energy
- Roads and Traffic Authority
- Department of Lands
- Sydney Catchment Authority
- Southern Rivers Catchment Management Authority
- NSW Rural Fire Service
- Illawarra Aboriginal Land Council
- Sydney Water Corporation.

Evidence of this consultation is summarised in **Table 5.1**.

5.4.2 Consultation Activities: During the Assessment Process

The following consultation activities are being undertaken to coincide with the lodgement of the EA and the beginning of the DoP's assessment process, to help identify issues and to work towards the minimisation of community concerns.

- **Frequently asked Questions (FAQ) Document**

An FAQ document is being developed to provide stakeholders with clear information on the proposal including an overview of the project, information on the planning process, consultation opportunities and timeframes.

- **Website**

A project specific website is being established to provide a free and accessible electronic repository of information. The website will provide detailed information on the project and updates on the planning process. The Q&A will be uploaded on the site to enable wide coverage.

The website will also include a feedback function to enable issues to be raised and addressed through the assessment process.

- **Project Newsletter**

A project newsletter will be developed and distributed to the local area. This will:

- Outline the planning process
- Contain a shortened version of the FAQ document
- Direct stakeholders to the website for further information
- Alert stakeholders to the opportunity for stakeholder and small group briefings.

- **Stakeholder Meetings**

One-on-one stakeholder meetings will be undertaken to talk through the proposal, issues and address concerns at an early stage of the assessment process. These meetings will be organised with specific stakeholder groups to discuss issues directly related and relevant to them. Stakeholders will be drawn from the initial analysis and others who are identified as consultation progresses.

Elton Consulting will organise, independently facilitate and report on these meetings.

- **Community Information and Feedback Session (CIFS)**

Depending on the level of stakeholder and community interest, consideration would be given to the organisation of a CIFS at an early stage of the project's exhibition phase.



The event would be a 'drop in' style information session, held at a venue close to the subject site, with display panels on exhibition to explain the project specifics and how the session works. The session would enable Links to demonstrate an open, public process underpinning its consultation activities. Members of the consultant team would be available to answer technical questions. Feedback would be collected on the day and through a written form (also available on the website) for a period immediately following the session – generally two weeks.

Following the CIFS, Elton Consulting would collate stakeholder feedback for inclusion in a consultation outcomes report to show the key issues raised and guide possible amendments needed for the proposal and detailed design.

6. STATEMENT OF COMMITMENTS

Table 6.1 includes the draft Statement of Commitments which details the suggested actions and mitigation measures which the proponent is willing to undertake for the project.

Table 6.1: Statement of Commitments

Key Issues	Commitments (Actions/Mitigation)
Strategic Planning	<p>1. The project will be undertaken in accordance with the Illawarra Ridge Sustainability Statement & Strategy</p> <p>The Sustainability Statement, prepared by Arup Sustainability, documents how sustainability considerations have been integrated into the proposed development at Illawarra Ridge. The Links Illawarra project will be undertaken in accordance with this statement and strategy.</p> <p>2. The proponent will ensure continued compliance with the Illawarra Regional Strategy Sustainability Index (see Table 4.1).</p>
Tourist Use	<p>3. The resort will be operated and managed for short term visitors only.</p> <p>The proposed tourist resort will be operated and managed for short term Tourists/visitors only. The operation and management structure will be operated as described in Section 2.2 and Table 2.1.</p>
Landscaping	<p>4. A Landscape Plan and Landscape Management Plan will be prepared</p> <p>A Landscape Plan will be prepared to provide details and guidelines for the on-going management of the whole golf course site. This will be based on the principles already outlined in the Gamble McKinnon Green <i>Landscape Report and Landscape Concept Plan</i> (see Appendix B).</p> <p>A Landscape Management Plan will be prepared to guide grounds staff in the care and management of all bushland areas retained with the Golf Resort, and to provide effective weed control in other parts of the golf course, (as recommended in the <i>Concept Riparian Corridor Management Plan</i> see Appendix I).</p>
Infrastructure provision	<p>5. The Concept Application adopts the recommendations of ARUP as detailed in the <i>Services Strategy Report</i> within Appendix E. The major items of infrastructure which will be provided as part of the proposed development include the following:</p> <p><i>Potable water infrastructure</i></p> <ul style="list-style-type: none"> • Upgrade pipe from 300mm diameter to 375mm and approximately 13km in length – (Woronora Dam to the Helensburgh Reservoir), • Water pump, • Rising main in easement along Princes Highway (Helensburgh to the site), and • Elevated water reservoir (north-east corner of the site). <p><i>Sewerage infrastructure</i></p> <ul style="list-style-type: none"> • Construct on-site tertiary STP, • Effluent reuse on the golf course, • Sewage collection within site. <p><i>Electricity infrastructure</i></p>

Key Issues	Commitments (Actions/Mitigation)
	<ul style="list-style-type: none"> • Make separate connections to Darkes Forest Zone Substation and Wombarra Zone Substation, • Underground 11kV reticulation ring within the site.
Traffic and Access	<p>6. The Concept Application adopts the recommendations of ARUP</p> <ul style="list-style-type: none"> - “to install channelised right turn lanes on the Old Princes Highway for vehicles entering the two sites from the north and south but not to install left turn lanes as they are not warranted at this location”. - Give way signposts with associated line marking will be installed at the exit from the site at the Old Princes Highway. - 425 car parking spaces will be provided to service the proposed resort activities.
Geotechnical	<p>7. Identified geotechnical requirements will be used in future designs</p> <p>Future detailed developments will be designed and constructed in accordance with the engineering recommendations within section 5 of the Geotechnical Report prepared by Arup and attached within Appendix G.</p>
Bushfire	<p>8. The development will comply with the requirements of the 2006 Bushfire Guidelines as detailed by Travers Environmental (see Appendix G of this EA). The four recommendations are incorporated as commitments within this application:</p> <ul style="list-style-type: none"> (i) The development and bushfire protection measures will be as indicated on Schedule 1 ‘Plan of Bushfire Protection Measures’ attached in Appendix G, (ii) Asset protection zones will be provided to the proposed development. They will be measured from the exposed wall of the any dwelling towards the hazardous vegetation. (iii) A fuel management plan will be prepared to manage the fuels in perpetuity. Fuel management within the asset protection zones will be maintained by regular maintenance of the landscaped areas / mowing of lawns in accordance with the guidelines provided in Appendix G, (iv) An Evacuation Plan will be produced for the development in line with the existing evacuation plan for this facility. This plan will address the need for evacuation of residents either off site or to a safe site within the development property.
Flooding	<p>9. The development will comply with WCC’s requirements in the event of a 1 in 100 ARI storm event.</p> <p>All floor levels within the proposed resort will be designed to a minimum of 377.5 RL to meet Council’s 500mm freeboard requirements.</p>
Contamination	<p>10. No further investigations of soil/land contamination are proposed (as a Stage 1 contamination investigation by JET Environmental found that there is no evidence of ground contamination anywhere on the site).</p>
Water	<p>11. A detailed water cycle management plan will be implemented during the construction and ongoing use of the resort (as outlined in the SEEC Morse McVey report – see Appendix H).</p> <p>The proposed project will achieve and maintain a neutral or beneficial effect on receiving waters.</p>
Erosion and sediment Control	<p>12. The project will be constructed under strict erosion and sediment control measures</p> <p>The construction will be undertaken as described in the SEEC Morse McVey Erosion and Sediment Control Plan Report (see Section 4.7.5 and Appendix H). Particular regard will be made of Section 4.2 Key Erosion Control Measures, Section 4.3 Key Sediment Control Measures and Section 6 The Conceptual Plan of the SEEC Morse McVey report.</p>

Key Issues	Commitments (Actions/Mitigation)
Riparian Corridor Management	<p>13. The recommendations of the Concept Riparian Corridor Vegetation Management Plan Nov 2007 by Wodec will be implemented, (see Appendix I) Vegetation</p> <ul style="list-style-type: none"> • The retention of the existing creek line edge; • The retention of a 20-metre vegetated buffer on either side of the creek line; • The retention of this vegetated buffer adjacent to Maddens Creek throughout its entire subject property length; • The rehabilitation and restoration (where appropriate) of gaps in this buffer using locally indigenous species (only); and • The minimisation of access across Maddens Creek to the minimum necessary for the operation of the golf course. <p>Vegetation Management</p> <p>To implement the recommendations of the <i>Concept Riparian Corridor Management Plan</i> (see Appendix I). Note particularly the 18 key tasks to be undertaken in order of priority within Section 8.5 of the CRCMP.</p>
Heritage and Archaeology	<p>14. The adopted recommendations of the Andrews Roberts Heritage Report will be implemented before and during the construction of the resort.</p> <p>(i) Registration of Aboriginal site in Madden's Creek.</p> <p>The ochre quarry and artefact scatter with a Potential Archaeological Deposit are unregistered and details will be submitted to the Aboriginal Heritage Information Management System, managed by the Department of Environment and Climate Change for registration.</p> <p>(ii) Minimisation of impacts on Aboriginal heritage</p> <p>Impacts on Aboriginal cultural heritage will be avoided wherever possible.</p> <p>The nominated Aboriginal site will be protected and managed with the involvement of the Illawarra Local Aboriginal Land Council and other Aboriginal custodians.</p> <p>(iii) Exclusion areas</p> <p>Access to Aboriginal sites and areas of PAD will be avoided during construction works. Delineation and maintenance of an 'exclusion zone' of 30m that contains the quarry site, artefact scatter and PAD will be undertaken to enable preservation of the site's integrity.</p> <p>No materials will be stockpiled within this area and no machinery will cross the area.</p> <p>(iv) Aboriginal watching brief</p> <p>The Madden's Creek area and Dharawal nature reserve are of cultural significance to Aboriginal people.</p> <p>A watching brief will be initiated with interested Aboriginal stakeholders. The level of Aboriginal presence on site during construction activities will be determined in consultation with the Illawarra Local Aboriginal Land Council.</p> <p>(v) Site induction</p> <p>Prior to commencement of works all workers and contractors will be inducted as to the Aboriginal heritage significance of the Madden's creek ochre quarry and the measures that exist in order to protect and preserve heritage items.</p> <p>This induction shall be conducted by an archaeologist or a representative from</p>

Key Issues	Commitments (Actions/Mitigation)
	<p>the Illawarra Local Aboriginal Land council who is familiar with the recommendations of this report.</p> <p>(vi) Future works</p> <p>Any future works not discussed in this assessment, that may impact the fabric of the Madden's creek ochre quarry site will be assessed and relevant recommendations provided. This recommendation is particularly pertinent should a southern extension to the current proposal ever be considered.</p> <p>(vii) Stop work provision</p> <p>As required by the NSW National Parks and Wildlife Services Act 1974 in the event that Aboriginal cultural fabric or deposits are encountered, works will cease immediately to allow an archaeologist to make an assessment of the find. The archaeologist will consult with the NSW Department of Environment and Conservation and the relevant local Aboriginal stakeholder groups.</p> <p>(viii) Communication of Aboriginal use of Madden's Creek Ochre quarry.</p> <p>Provision will be made for interpretive signage that communicates the Aboriginal significance and importance of the ochre quarry and artefact scatter at the Madden's Creek site to users of the golf course.</p> <p>(ix) Provision of draft report for comment.</p> <p>A copy of the draft report will be forwarded to:</p> <ul style="list-style-type: none"> - the Illawarra Local Aboriginal Land Council, - the Wodi Wodi Elders Corporation, - the Wadi Wadi Coomaditchie Aboriginal Corporation and - the Korewal Elouera Jerrungarugh Tribal Elders Aboriginal Corporation. <p>Any comments and recommendations made by the Aboriginal community will be incorporated into the final heritage report.</p>
Flora and Fauna	<p>15. The recommendations of the Flora and Fauna Report November 2007 by Lesryk Environmental will be implemented (see Section 8, Appendix K).</p> <p>The following adopted ecological recommendations are the commitments to ensure that the proposal does not have an adverse impact on those habitats that occur beyond the limits of the proposed development area. These commitments are provided to ensure that the works are undertaken in an ecologically sustainable manner:</p> <ul style="list-style-type: none"> • Due to their restricted and limited distribution in the surrounding region, the Ironstone Woodland and Sedgeland-Heath Mosaic vegetation communities that line and occur south of Maddens Creek, are identified as having high conservation significance. The proposal's commitment is to avoid any direct or indirect impact on these areas. • Consideration will be given to off setting the disturbance of a portion of the Sedgeland-Heath Mosaic by offering the remaining area (i.e. that which occurs to the west/south of Maddens Creek) to the DECC. As such, discussions will be entered into with the DECC to consider options for the inclusion of this portion of the subject site into the nearby Dharawal Nature Reserve. Adoption of this recommendation would provide benefits not only for the regionally significant species and communities detected, but also assist in maintaining the movement patterns of fauna species along Maddens Creek and the water quality of this drainage line.

Key Issues	Commitments (Actions/Mitigation)
	<ul style="list-style-type: none"> • Those stands of Ironstone Woodland that are present within the grounds of the existing golf course will be retained where possible and incorporated into the development layout. • Where the retention of the isolated stands of Ironstone Woodland is not feasible, the seed will be collected and propagated from these areas and the resultant plants will be used in any landscaping works post-development. • Any collection and propagation of plant material will be undertaken by a qualified horticultural / bush regeneration firm. The limits of clearing adjacent to Maddens Creek (i.e. associated with the 20m buffer) will be clearly identified through the erection of temporary fencing. The erection of temporary fencing will be done in consultation with a qualified ecologist, preferably on site. • No vehicles, machinery or other equipment will be stored or parked within those fenced off bushland areas identified for retention. • Consultation with Wollongong City Council will be undertaken with regard to the appropriate suppression of recorded noxious weeds • Any wetlands / water features that are to be created will include reed beds that incorporate <i>Eleocharis</i>. • <i>Eleocharis</i> reeds will be collected / germinated / translocated from local stock, particularly in the case of any wetlands / ponds that support this plant and are to be destroyed. The provision of water bodies that support reed beds will assist with the local conservation of the two regionally significant frog species detected. • In addition to reed beds, any created ponds will include submerged and partially exposed logs, these resources being utilised by a number of water associated species as sheltering and breeding sites. • Any habitat recreation will be undertaken in consultation with a qualified ecologist to ensure it meets the life cycle requirements of a number of locally occurring native species. • If it is necessary to destroy a wetland / pond to permit the redevelopment of the site, a qualified ecologist will be provided with an opportunity to investigate this part of the site and, if noted, collect and relocate locally any native species associated with this water body (i.e. tadpoles or frogs). • Any plantings proposed to be placed adjacent to the site's fairways will endeavour to provide connectivity between the study area and the adjacent habitats, particularly where this connectivity provides dispersal opportunities in a southerly direction from Maddens Creek and its riparian buffer. • The extent of disturbance to the better stands of native vegetation will be restricted to the minimum necessary for the safe construction and occupation of the development. • Due to their restricted distribution in the region, where feasible, the bushland areas that provide habitat for the regionally significant Casuarina (<i>Allocasuarina paludosa</i>), Privet-leaved Stringybark (<i>Eucalyptus ligustrina</i>) and Gynea Lily (<i>Doryanthes excelsa</i>) will be retained and incorporated into the development layout. Establishment of a 20m buffer adjacent to Maddens Creek, and retention of the strip of woodland that is present adjacent to the F6 Freeway, will ensure that these plants are preserved on site. • A layout will be developed that minimises the loss and clearing of hollow bearing trees. Those hollow bearing plants that line Maddens Creek will be retained and incorporated into the site's riparian buffers. Similarly, dead wood and trees will

Key Issues	Commitments (Actions/Mitigation)
	<p>not be cleared unless they present a significant safety risk. (It is noted that most of the hollow bearing trees observed are present within either the proposed 20m riparian buffer, or in the woodland areas that occurs to the south of this drainage line, beyond the limits of any clearing).</p> <ul style="list-style-type: none"> • The ecological value of Maddens Creek, particularly its water quality, will not be detrimentally affected by the Proposal. The water quality of this creek line and it's ecological value will be maintained and, where feasible, enhanced. • Buffers adjacent to the northern side of Maddens Creek that are at least 20m wide will be maintained within the development's layout. The provision of this band of vegetation will provide local resources for native species, as well as a corridor for any dispersing animals. • A water management plan will be developed that ensures there is no deterioration in the quality of Maddens Creek or those ponds / wetlands being retained. This plan will include as a minimum the filtering of any runoff from the site prior to its discharge into Maddens Creek. Where feasible, created wetlands and their associated reed bed will be used as filters prior to the release of any runoff into the natural drainage system. • Any drainage works will be consistent with the objectives of the <i>Dharawal Nature Reserve and Dharawal State Conservation Area Draft Plan of Management</i>, particularly where these relate to Maddens Creek and the downstream aquatic environments.
Noise	<p>16. The project will be designed to ensure an appropriate acoustic environment for occupants of the resort, whilst controlling potential acoustic impacts on the surrounding community.</p> <p>The proponent will take reasonable care during the development of the design, (e.g. detailed master planning, building façade construction), to ensure, noise intrusion to occupied spaces within the various buildings in the development can be adequately controlled to meet the ECRTN limits and the recommended targets detailed AS2107:2000.</p> <p>As the existing background noise level is relatively low, noise impact to the surrounding community will be controlled with careful building planning and adequate noise control treatment particularly to the mechanical services to the building on site. An operational management plan will also be considered to control the noise emission from outdoor activities on the development, e.g. golf course and on-site traffic.</p>
S94 Contributions / Planning agreement	<p>17. The proponent is prepared to enter into a voluntary planning agreement such that the construction of major proposed infrastructure external to the site and part of this application will be accepted as an "in-kind" contribution or material public benefit in lieu of a developer contribution levy.</p>

7. CONCLUSION

Director General's Requirements (DGRs) for this concept application ref *MP No.06-0305* were received in August 2007. This Concept Application Environmental Assessment (EA) has been prepared in response to those DGRs.

The Concept Proposal

The concept proposal seeks approval for a golf resort, on land mainly zoned for that purpose and on a site used for many years as a golf course and country club. The proposal relates to short stay, tourist style accommodation and does not seek to create a new urban settlement. The proposed golf resort will contain a broad range of services and facilities appropriate for all temporary tourists/visitors of the resort.

The golf resort will include a 9 hole golf course (2 sets of tees), a club house including a pro shop, restaurant, bar and other facilities, short term accommodation with approximately 100 resort hotel rooms, 100 serviced apartments and 200 accommodation villas for temporary accommodation.

The site is close to the existing Wollongong communities of Helensburgh to the north and Thirroul to the south, if access is needed for higher order services and facilities. The site has good vehicular access via the Princes Highway and/or the F6 Freeway.

Tourist/Short Stay Accommodation

This project has always been envisaged to be a holiday home type of development in relation to the villa part of the development. The target group of tourists/visitors are people who own a primary place of residence elsewhere and who would use the golf resort as a holiday retreat.

Demand for the facilities which are proposed to be provided at the Illawarra Ridge site is documented in the *"Economic Impact Assessment Illawarra Ridge Golf Resort"* prepared by MacroPlan Australia dated 22nd November 2007 and attached within **Appendix D**. The demand for the proposed facilities is generated from primarily two sources:

- demand for high quality recreational experiences (golf, etc) in this tourism region, and
- demand for temporary and tourist accommodation

The Illawarra Ridge development will provide a new product attraction for tourism. The proposal will generate tourism expenditure in the order of \$331 million. A proportion of the tourists associated with the project will be attracted from Interstate and Overseas. Conservative estimates, based on attendance achieved at other golf courses in the region, indicate that 10% of the expenditure will be induced to New South Wales from course and hotel patrons from interstate and overseas. This represents \$33 million additional expenditure in the New South Wales economy over the 20 year analysis period.

Urban Design, Architecture and Visual Impact

The built form and urban design as described in the *Design Statement* and the *Building Envelopes* provide a set of design and building controls specific to the site. The controls insist on a consistent theme of architectural style. In designing the concept for the golf resort, natural ground levels have been maintained to respect the gentle slope of the land and to ensure that existing trees are retained wherever possible. The proposed structures are a combination of one, two and three storeys and sit comfortably under the established tree canopy.

The majority of the site will remain as open space and golf course, retaining the majority of the existing established vegetation. New buildings will be substantially set back from all boundaries and existing copses buffering the site will be retained as landscaped buffers. The development will have minimal impact on available views from adjoining public places.

October 2007 Amended Golf Course Layout

Since the lodgement of the preliminary assessment with the DoP and the receipt of DGRs, further consultation has occurred with government departments and agencies. Further studies and assessments have been undertaken to comply with the DGRs. As a result of this work, it was decided to amend the golf course layout in the southern part of the site to retain more of the native vegetation and to keep development to the north of the Riparian Corridor alongside Madden's Creek. This amendment particularly responds to the expressed concerns of the DECC.

Consultation

The proposal has developed through a process of extensive consultation with Council, Government Departments and Agencies, and other stakeholders.

Conclusions and Benefits of the Project

This environmental assessment concludes that the proposed golf resort concept will result in limited potential adverse environmental impacts. All potential adverse impacts can be mitigated by conditions of development consent during the staged development of the concept. Mitigation measures are included in the project commitments.

The proposed project will be a significant investment in the Illawarra region. It will result in the provision of infrastructure services to the locality, a range of community sporting and leisure facilities for the community, and will be a generator for local tourism and employment. The resort will be serviced by its own package sewage treatment plant without the need to augment the existing sewerage system. Major upgrades to water and other utilities to service the project will also benefit the local area.

We support the concept application and recommend its approval by the Minister.



APPENDIX A

- *History of the Concept Proposal*

APPENDIX B

Concept Proposal Application Plans, QS Report.

- (B1) QS Report- Milliken Berson Madden, December 2006
- (B2) Site Survey Plans
- (B3) The Concept Plan – GNP Golf Design (November 2007)
- (B4) The Design Statement and Building Plans, the MPS Partnership Pty Ltd, November 2007.
- (B5) The Building Envelopes, the MPS Partnership Pty Ltd, November 2007.
- (B6) Landscape Report – Gamble McKinnon Green, November 2007.
- (B7) Draft Conceptual Subdivision Plan – ARUP (February 2008) and Community Management Statement – Minter Ellison (March 2008).
- (B8) Department of Lands Letter (Owner's Consent) – 19th February 2008.



APPENDIX C

Review of Environmental Planning Instruments and Controls

- *Water Catchment Advice – SEEC Morse McVey. (re SEPP 58)*



APPENDIX D

Economic Impact Assessment

Economic Impact Assessment –MacroPlan Australia October 2007



APPENDIX E

Infrastructure Provision

- *Services Strategy – ARUP November 2007.*



APPENDIX F

Traffic and Access

- *Traffic Report – ARUP November 2007.*

APPENDIX G

Hazard Management – Contamination, Bushfire, Geotechnical, Flooding

- *(G1) Contamination Investigation – JET.*
- *(G2) Bushfire Assessment – Travers Environmental Consultants, November 2007*
- *(G3) Geotechnical Investigation – ARUP.*
- *(G4) Flood Study – ARUP.*

APPENDIX H

Water Cycle Management.

- *(H1) Water Cycle Management Statement – SEEC Morse McVey.*
- *(H2) (a) Conceptual Soil and Water Management Plan, (b) Construction Phase Soil and Water Management Plan- SEEC Morse McVey.*
- *(H3) Concept Stormwater Plan – ARUP*



APPENDIX I

Riparian Corridor Management

- *(I1) Aquatic Ecology Assessment: The Ecology Lab*
- *(I2) Vegetation Management Plan – West of the Divide Consultants – November 2007*

APPENDIX J

Heritage and Archaeology

- *(J1) Aboriginal and European Heritage Assessment – Andrew Roberts A.R.C, November 2007.*
- *(J2) Letter of Advice re: Native Title dated 19th February 2008 – Minter Ellison*



APPENDIX K

Flora and Fauna

Flora and Fauna Survey - LesryK Environmental Consultants November 2007



APPENDIX L

Noise

- *Acoustic Assessment – November 2007 - ARUP*



APPENDIX M

DGRs and Responses from Government Departments and Agencies



APPENDIX N

ESD

- *ESD Performance Statement – ARUP – October 2007.*



APPENDIX O

Waste Management Plan – ARUP – October 2007



APPENDIX P

Visual Assessment

- *Visual Impact Assessment – TPG NSW November 2007*