Section 1

Introduction

PREAMBLE

This section introduces the proposed Tomingley Gold Project ("the Project") and includes:

- *an outline of the scope of the Environmental Assessment;*
- *details about the Proponent, Alkane Resources Ltd;*
- *relevant background to the Project including a review of the history of mining and exploration in the area surrounding the Project Site and an overview of the Project resources and reserves;*
- *the format of the Environmental Assessment; and*
- *identification of the personnel involved in the Project design, document preparation and specialist consultant investigations.*

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1.1 SCOPE

This *Environmental Assessment* has been prepared by R.W. Corkery & Co. Pty. Limited to support the application for project approval (application number MP 09_0155) of Alkane Resources Ltd ("the Proponent") to construct and operate the Tomingley Gold Project ("the Project"). The Project, which is to be located near Tomingley in central western NSW (see **Figure 1.1**), would comprise four open cut mines, an underground mine, a processing plant, three waste rock emplacements and a residue storage facility, as well as associated infrastructure, most notably a water supply pipeline to the processing plant. All areas of proposed disturbance associated with the Project are contained within the "Project Site" described in more detail in Section 1.3.1. A copy of the application for project approval is included as **Appendix 1**.

The Project is classified as a "Major Project" in accordance with Paragraph 5 of Schedule 1 of *State Environmental Planning Policy (Major Development) 2005* ("Major Development SEPP"). As a result, project approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) is required. The Minister for Planning and Infrastructure is the approval authority and an *Environmental Assessment* is required to be submitted to support the application. This document has been prepared in satisfaction of that requirement and in accordance with the requirements of Section 75H of the EP&A Act.

It is noted that the Project requires the construction and operation of an Electricity Transmission Line from Peak Hill to the site of the mining and processing operations. However, as the Electricity Transmission Line would be owned and operated by Essential Energy (formerly Country Energy), application has been made for this 'activity' under Part 5 of the EP&A Act. Reference to the Electricity Transmission Line is retained in the documentation where this information provides relevant information or context to the description or assessment of the Project. It is also noted that specialist assessments in the fields of ecology and cultural heritage (Parts 4 and 5 of the *Specialist Consultant Studies Compendium*) contain reference to, and assessment of, the Electricity Transmission Line (as the assessment of the Project and Electricity Transmission Line was completed as a single assessment in each case).

The application for project approval is made possible by virtue of the fact that mining and ancillary activities, including construction of a water supply pipeline, are permissible under Clause 9 of the *Narromine Local Environment Plan 1997* and Clause 9 of the *Parkes Local Environment Plan 1990.*

The information provided in this document is presented to a level of detail which adequately addresses all relevant issues identified by the various stakeholders including government agencies, surrounding residents and the local community (refer to Section 3 and **Appendix 2**). Emphasis has been placed upon comprehensively addressing the key issues and limiting coverage of those issues that are not central to the determination of the project approval application.

1.2 THE PROPONENT AND THE PROJECT SITE

1.2.1 The Proponent

Alkane Resources Ltd is an Australian, publicly listed mining and exploration company which has been in existence since 1969 and has approximately 5 400 shareholders. The Company has a long term involvement and ongoing commitment to the Central West of New South Wales and has substantial investment in the people and resources of the region. Alkane Resources Ltd developed and operated the Peak Hill Gold Mine on the outskirts of Peak Hill from 1996 to 2005 and has now largely rehabilitated that mine site.

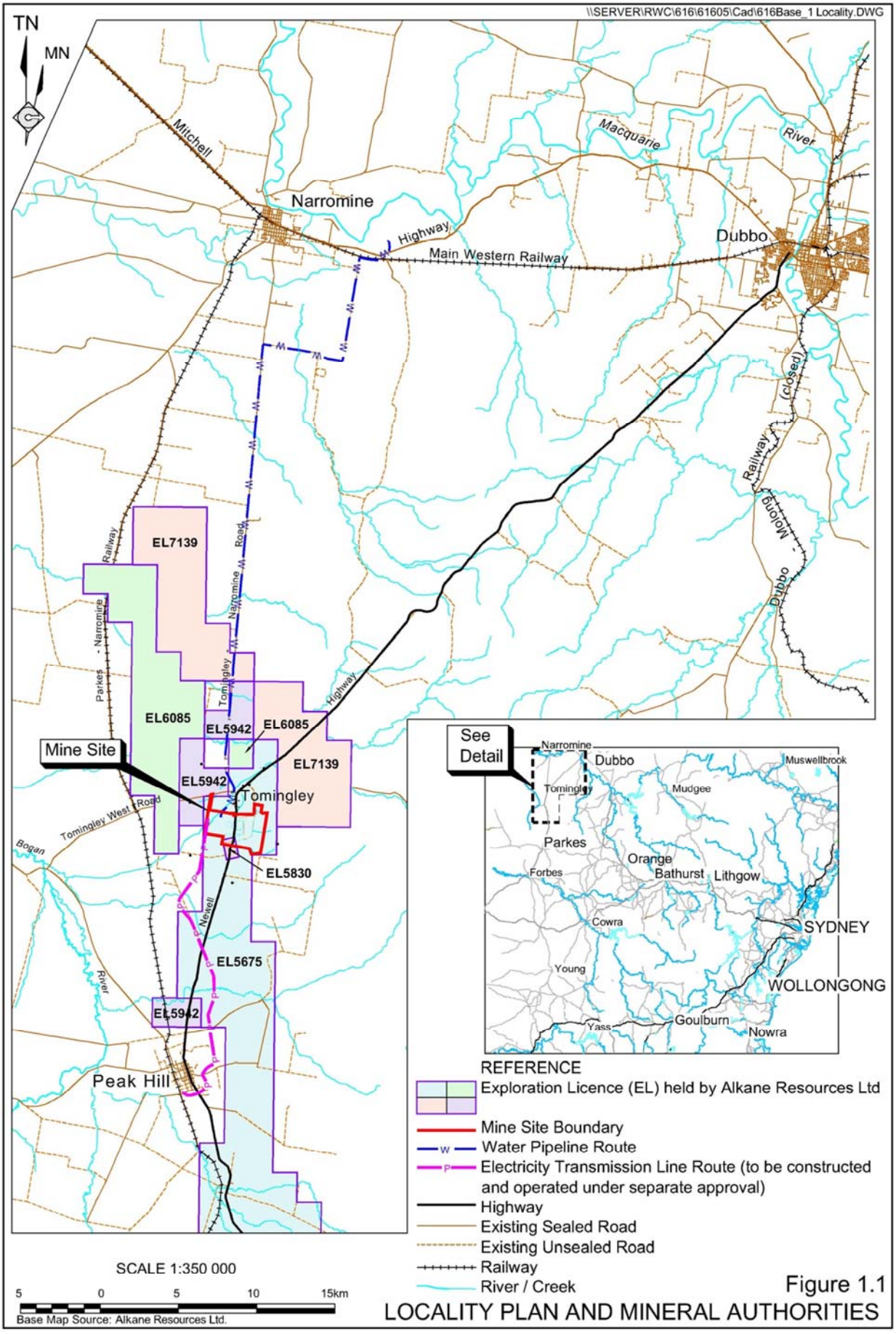

Figure 1.1
LOCALITY PLAN AND MINERAL AUTHORITIES

1.2.2 The Project Site

The Project Site comprises two areas.

1. The Mine Site - comprising an area of approximately 776ha that would incorporate all areas of proposed Project-related disturbance associated with the mining, processing, waste emplacement operations and related activities (**Figure 1.2**). The Proponent has negotiated options to purchase all land within the Mine Site that it does not currently own.

2. The Water Pipeline Route - comprising a corridor approximately 46km long and 5m wide within road and rail reserves associated with:

   – the Mitchell Highway;
   – Webbs Siding Road;
   – Sunnyside Lane;
   – Bootles Road;
   – Pinedene Road;
   – Narromine-Tomingley Road;
   – Tomingley West Road; and
   – Main Western Railway

   In addition, the pipeline would cross two portions of private land at the northern and southern ends of the route, namely the "Woodlands" and "Wyoming" properties respectively (**Figures 1.3** and **1.4**).

Table 1.1 identifies the land parcels within each of these areas comprising the Project Site.

The Electricity Transmission Line Route, which is to be assessed separately under Part 5 of the EP&A Act, comprises a corridor approximately 19.2km long and 30m wide and would incorporate all areas of the proposed electrical easement for the proposed power transmission line from Peak Hill to the Mine Site (**Figure 1.5**).

Table 1.1
Project Site Land Titles

Lot	DP	Lot	DP	Lot	DP
Mine Site (see Figure 1.2)					
1	254193*	105	755110	162	755110
162	755093*	111	755110*	163	755110
173	755093*	112	755110	1	824086
94	755110	122	755110*	1	1151198
95	755110	160	755110	2	1151198
103	755110	161	755110	3	1151198
104	755110				
Road Reserve associated with Newell Highway Crown roads (unnamed)					
Water Pipeline Route					
185	43458	70	755110	104	755110
A	380855	74	755110	111	755110
7003	1032703	81	755110	18	755119
7002	1032703				
Road Reserves associated with the Mitchell Highway, Webb's Siding Road, Dappo Road, Bootles Road, Pinedene Road, Narromine-Tomingley Road and Tomingley West Road and the easement for the Main Western Railway. Crown roads (unnamed) (see **Figures 1.3** and **1.4**).					
Note: * Indicates part lot.					

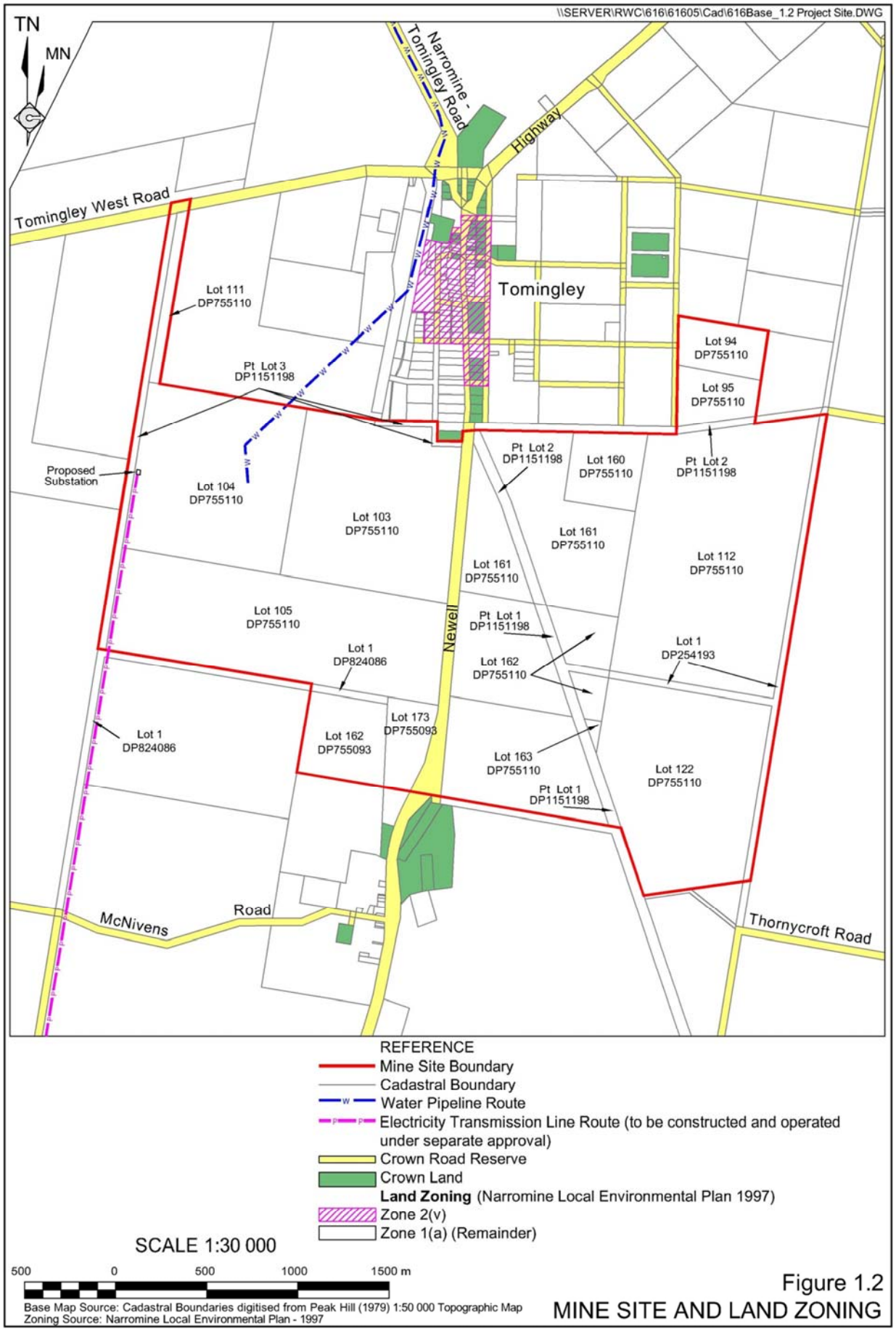

Figure 1.2
MINE SITE AND LAND ZONING

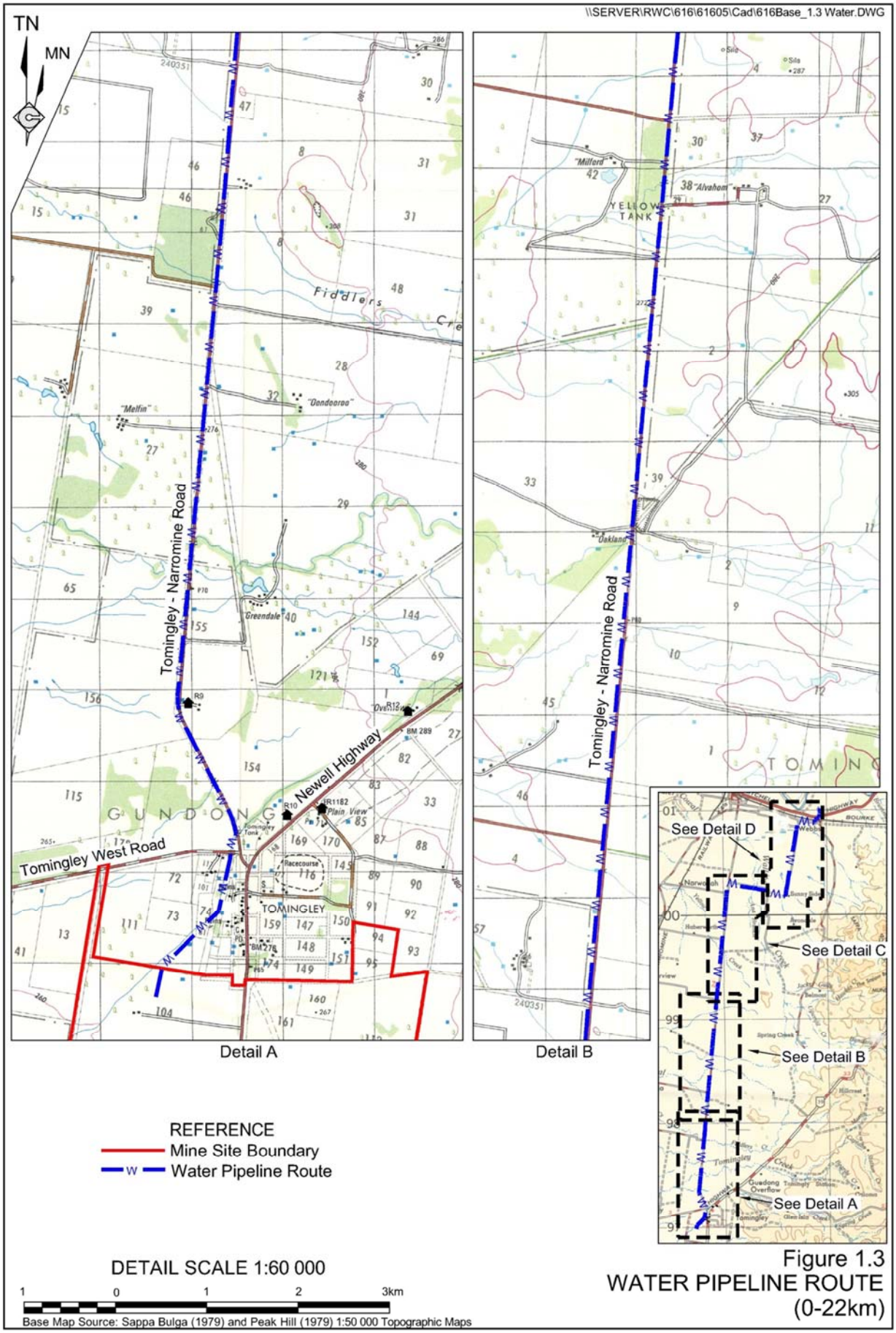

Figure 1.3
WATER PIPELINE ROUTE
(0-22km)

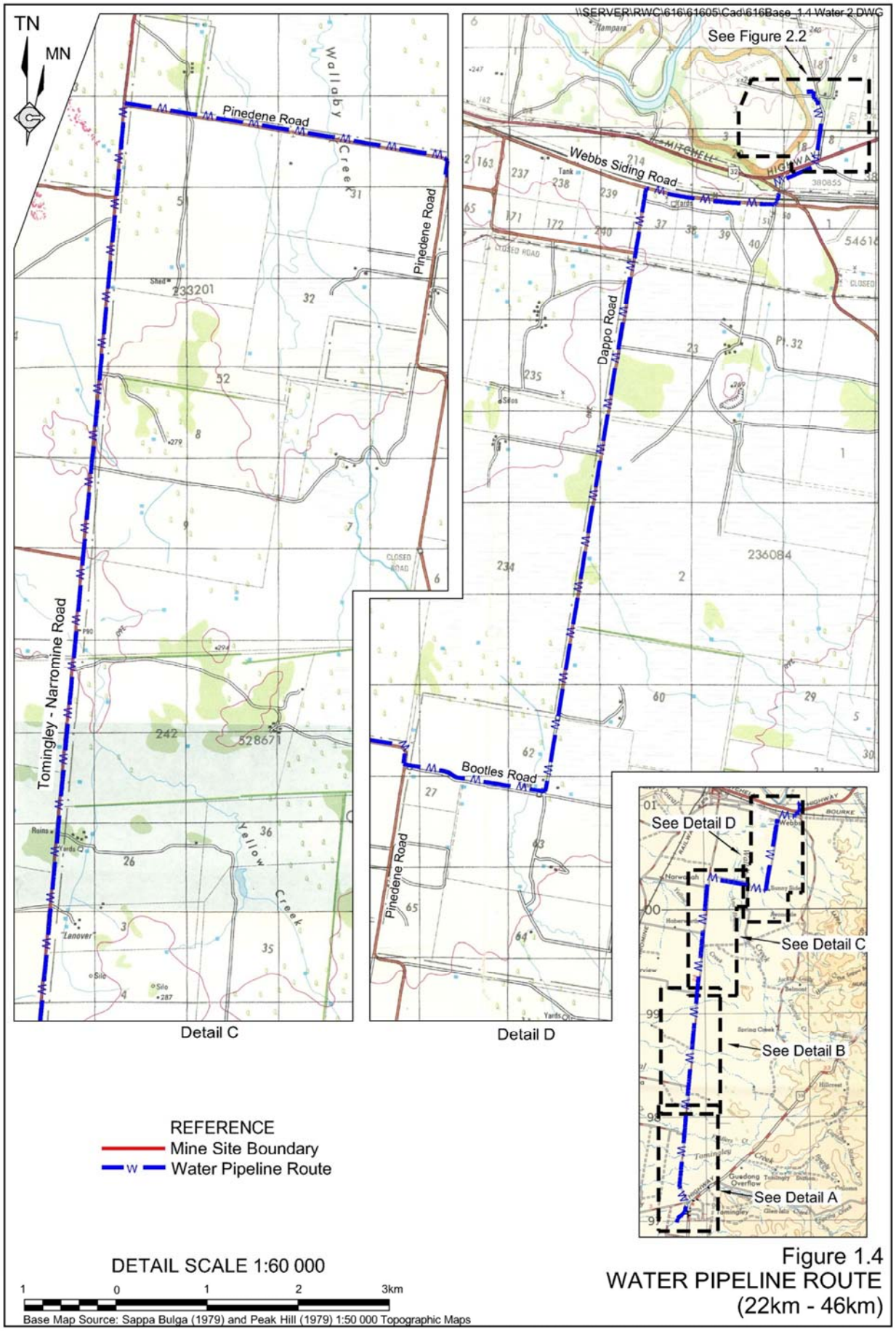

Figure 1.4
WATER PIPELINE ROUTE
(22km - 46km)

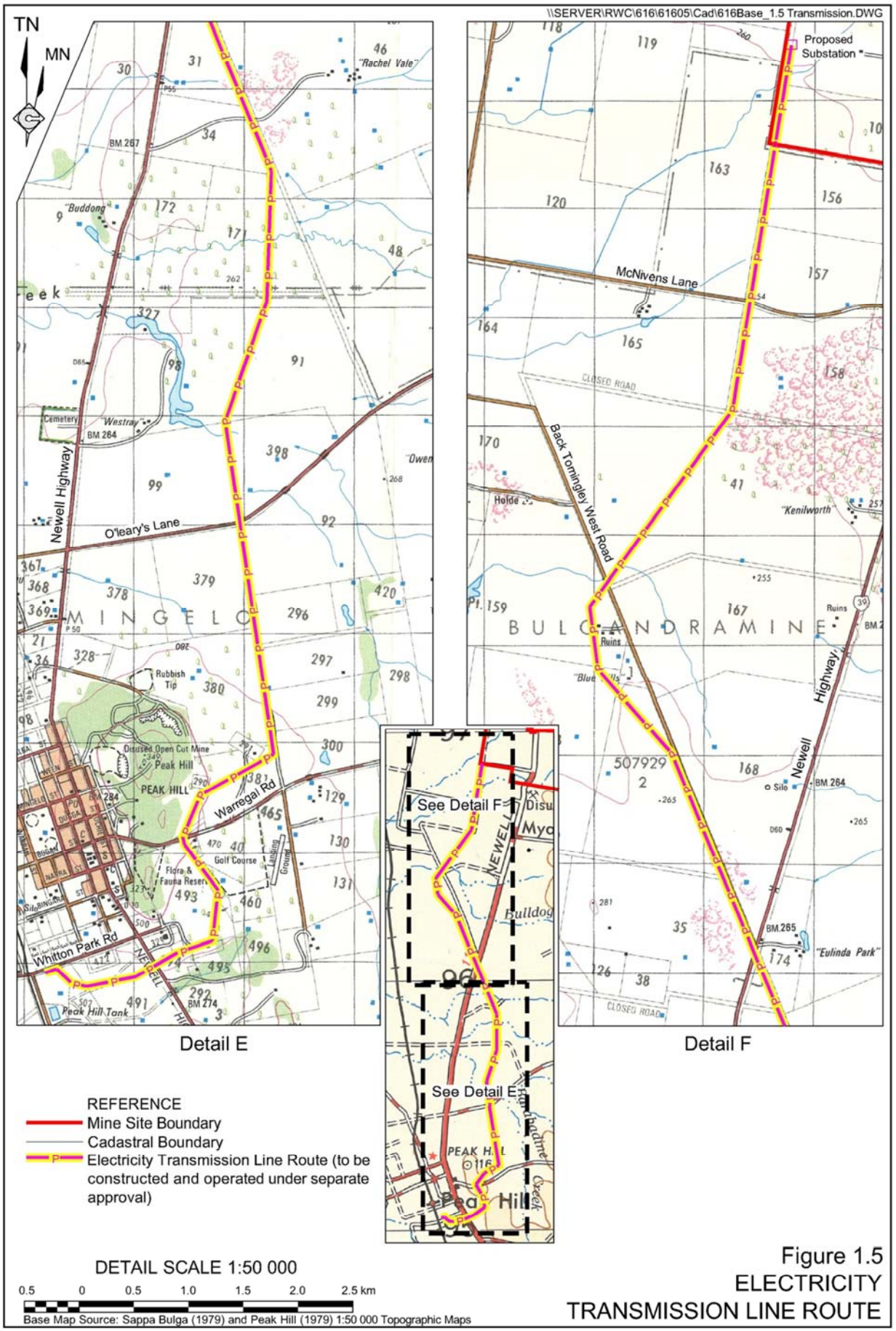

Figure 1.5
ELECTRICITY
TRANSMISSION LINE ROUTE

1.3 BACKGROUND TO THE PROJECT

1.3.1 Existing Mineral Authorities

Figure 1.1 and **Table 1.2** present the mineral authorities that cover and surround the Mine Site. In summary, the Mine Site is covered by the northern sections of EL5675 and EL5830.

The process to renew EL5830 and EL6085 is currently underway.

The Proponent will lodge an application for a mining lease over the Mine Site. With the exception of an area surrounding the Main Site Access Road and an area to the northeast of Waste Rock Emplacement 3 (see Section 2.1.2), the entire Mine Site is within the Mining Lease Application area. There is no requirement for a mining lease over the Electricity Transmission Line Route or the Water Pipeline Route.

Table 1.2
Mineral Authorities[2]

Authority	Act year	Date Granted	Expiry Date	Mineral Groups[1]
Exploration Licences				
EL5942	1992	03 May 2002	02 May 2012	1
EL5830	1992	05 April 2001	04 April 2011[3]	1
EL5675	1992	17 January 2000	16 January 2012	1
EL6085	1992	20 May 2003	20 May 2011[3]	1
EL7139	1992	14 May 2008	14 May 2012	1
Note 1: Mineral groups as defined under the *Mining Act 1992*. Note 2: All authorities are held by Alkane Resources Ltd. Note 3: Applications to renew have been lodged with DTIRIS.				
Source: Alkane Resources Ltd				

1.3.2 Previous Mining and Exploration Operations

There has been a long history of mining and exploration for gold in the vicinity of the Mine Site. This sub-section provides a brief overview of previous mining-related operations.

Gold was first discovered at Tomingley in 1879, with the Tomingley Goldfield proclaimed on 19 June 1882 and the village of Tomingley proclaimed on 15 June 1894. A number of underground mining operations were located adjacent to the village and in the McPhail area, immediately south of the Mine Site. One of these, the Myall United Gold Mine, produced approximately 70 000 ounces of gold over a 30 year period from 1883.

In 1913, mining ceased at McPhail, with tailings and slimes re-treated until 1924. These materials were again re-treated in the late 1990s by Tailings Treatment Pty Ltd during which time a new tailings dam, namely the McPhail Tailings Dam, was constructed.

In 2001, the Proponent entered into an agreement with Compass Resources NL in relation to EL 5675 and Golden Cross NL in relation to EL 5830 to earn 100% of both tenements. Initial scout drilling programs to identify and test the basement geology beneath approximately 10m to 30m of cover material were centred on the interpreted strike extensions of the Myall United Mine and as follow up of results from shallow drilling completed by earlier explorers.

In 2001, the Proponent identified the Wyoming One deposit, followed by the Wyoming Three deposit in 2002, the Caloma deposit in 2006 and the Caloma Two deposit in 2010.

1.3.3 Resources

A description of the regional and local geology and the mineralisation associated with each of the deposits is presented in Section 4.1.4. This section provides an overview of the estimated resources and reserves that have been defined within the Mine Site.

Resource estimates were prepared for Wyoming One, Wyoming Three and Caloma One deposits, in accordance with the requirements of the JORC Code (JORC, 2004), by Lewis Mineral Resource Consultants Pty Ltd in January and July 2009. The results of these estimates for gold grades above 0.75g/t gold are presented in **Table 1.3**. A resource calculation has yet to be completed for the Caloma Two deposit, however, initial estimates indicate a resource of approximately 500 000t.

Table 1.3
Ore Resources

DEPOSIT	MEASURED		INDICATED		INFERRED		TOTAL		
	Tonnage (t)	Grade (g/t)	Tonnage (t)	Grade (g/t)	Tonnage (t)	Grade (g/t)	Tonnage (t)	Grade (g/t)	Ounces
Caloma One	2 048 000	2.04	440 000	1.71	1 372 000	1.36	3 859 000	1.76	218 500
Wyoming Three	630 000	1.87	58 000	1.73	154 000	1.25	842 000	1.75	47 300
Wyoming One	2 226 000	2.07	882 000	2.25	3 477 000	1.62	6 587 000	1.86	393 200
Total	**4 904 750**	**2.03**	**1 380 050**	**2.06**	**5 003 620**	**1.54**	**11 288 420**	**1.82**	**658 900**
Source: Lewis Mineral Resource Consultants Pty Ltd									

Within these total resources an Open Pit Ore Inventory has been calculated by Mining One Pty Ltd for each deposit, based on specific economic, mining dilution and engineering criteria. These inventories are presented in **Table 1.4**.

Table 1.4
Summary of Open Pit Ore Inventory

DEPOSIT	MEASURED		INDICATED		INFERRED		TOTAL		
	Tonnage (t)	Grade (g/t)	Tonnage (t)	Grade (g/t)	Tonnage (t)	Grade (g/t)	Tonnage (t)	Grade (g/t)	Ounces
Caloma	1 736 740	1.98	321 125	1.70	851 568	1.41	2 909 433	1.78	166 506
Wyoming Three	536 872	1.59	16 456	1.42	85 457	1.51	638 785	1.57	32 329
Wyoming One	1 723 388	1.54	197 731	1.41	413 846	1.28	2 334 965	1.48	111 187
Total	**3 997 000**	**1.74**	**535 312**	**1.58**	**1 350 871**	**1.38**	**2 909 183**	**1.64**	**310 022**
Source: Mining One Pty Ltd									

Sterilisation drilling completed in 2009 (incorporating analyses of earlier exploration drilling) has confirmed that the locations of the proposed surface processing and office infrastructure, waste rock and residue management facilities do not occur over mineable gold resources. Notably, as a result of the sterilisation drilling, the Caloma Two resource was identified resulting in the inclusion of the Caloma Two Open Cut and modification to Waste Rock Emplacement 3 as part of final Project design. Section 4.1.4.4 provides a more detailed summary of the sterilisation drilling completed on the Mine Site.

1.4 ENVIRONMENTAL ASSESSMENT FORMAT

The *Environmental Assessment* includes six sections of text, a reference section, glossary and a set of appendices. The information presented in this document covers all aspects of the planning, development, operation, rehabilitation and environmental monitoring of the Project at a level of detail reflecting the environmental risk posed by each issue. The issues and their relevant importance to the assessment of the Tomingley Gold Project have been identified through consultation with government agencies, surrounding residents and the local community, and specialist consultant assessments.

The format of the *Environmental Assessment* is as follows.

Section 1: (this section) introduces the Tomingley Gold Project, the Proponent, the Project Site and the mineral authorities held by the Proponent. Background information in relation to previous mining and mineral exploration operations and the estimated resources within the Mine Site are provided. The section concludes with information on the structure of the document and management of investigations.

Section 2: describes the Proponent's objectives and proposed infrastructure establishment, open cut and underground mining operations, waste rock management, processing operations, residue management, rehabilitation and ancillary activities.

Section 3: provides a description of the process used to identify and prioritise the key issues for assessment with reference to the Director-General's Requirements, stakeholder consultation, specialist consultant assessments. The section also provides a general environmental risk analysis undertaken to establish the assessment priority of the key issues based on the specific environmental risk(s) posed by each.

Section 4: commences by describing the setting of the Project Site with reference to aspects of the local environment likely to influence the level of impact on other environmental aspects. The section then presents a description of a range of environmental features of the local environment that may or would be influenced by the Project, i.e. the key environmental issues. The order of presentation of those issues and level of detail reflects the level of priority attributed to each key issue. The operational safeguards and controls, and where appropriate, the management procedures that have been incorporated into the Project design to protect the local environment, are also presented. This section also analyses the potential impact the Project would have on the physical, biological and social environment once the proposed safeguards and procedures are adopted.

Section 5: provides a draft Statement of Commitments the Proponent would implement with respect to environmental management and monitoring for the Project.

Section 6: provides a conclusion to the document which justifies the Project in terms of biophysical, economic and social considerations and ecologically sustainable development and records the consequences of not proceeding with the Project.

References: lists the various source documents referred to for information and data used during the preparation of the *Environmental Assessment*.

Glossary: presents a list of the acronyms, symbols and units and technical terms used throughout the *Environmental Assessment*.

Appendices: present the following additional information.

1. A copy of the Proponent's major project application.
2. An itemised and tabulated summary of the Director-General's requirements, including the requirements provided by the various government agencies consulted, and reference to the section within the *Environmental Assessment* or *Specialist Consultant Studies Compendium* where each is addressed.
3. A risk screening and preliminary hazard analysis completed in accordance with the requirement of State Environmental Planning Policy (SEPP) 33.

A two volume *Specialist Consultant Studies Compendium* has been placed on exhibition with the *Environmental Assessment*. The contents of these reports are summarised into the appropriate section(s) of the *Environmental Assessment.*

1.5 MANAGEMENT OF INVESTIGATIONS

The preparation of this document has involved a study team managed by Mr Mitchell Bland (MEcon BSc (Hons), Geol, LLB), Principal Environmental Consultant with R.W. Corkery & Co Pty. Limited and Mr Alex Irwin (BSc (Hons)), Senior Environmental Consultant with the same Company. Internal peer review was undertaken by Mr Rob Corkery (BApplSc (Hons), MAppl Sc), Principal with the same Company.

Several professional staff within Alkane Resources Ltd assisted with the preparation of this document including, but not limited to:

- Mr Ian Chalmers (MSc) - Managing Director;
- Mr Terry Ransted (BAppSc) - Chief Geologist; and
- Mr Mike Sutherland (BSc, GCComRel) - General Manager NSW.

Ms Fiona Morgan (BE (Hons)) Lead Mechanical Engineer with Mintrex (the consulting division of Holtfreters Pty Ltd) was the Project Manager for the *Tomingley Gold Project Feasibility Study* and has coordinated the provision of technical advice and input.

Finally, strong emphasis has been placed upon a multi-disciplinary team approach to the design of the Project, the description of the existing environment, identification of key environmental issues, development of appropriate safeguards and assessment of impacts. The following consultancy firms were commissioned by the Proponent to prepare nominated specialist consultant studies for the Project.

- Ecology and Heritage – OzArk Environmental and Heritage Management Pty Ltd.
  - Dr Jodie Benton (PhD, BA (Hons)) and Mr Phil Cameron (BSc, AssDip AppSci).
- Noise and Blasting – SLR Consulting Pty Ltd.
  - Messrs Dick Godson (MSc (Eng), MIEAust, CPEng), Mark Blake (BE (Mech)) and Ryan Wakeling (MSc Design Science (Audio Design).

- Air Quality and Greenhouse Gases – PAE Holmes.
  - Ms Judith Cox (BEng (Hons)).
- Soils and Land Capability – Sustainable Soils Management Pty Ltd.
  - Dr Pat Hulme (PhD BSc Ag (Hons)) and Mr David Duncan (BApplSc-Ag).
- Surface Water – SEEC.
  - Messrs Jason Armstrong (AssDipCivil) and Andrew McLeod (B.Sc (Hons).
- Groundwater – The Impax Group.
  - Mr James Morrow (BEng Env (Hons)) of The Impax Group.
  - Mr Duncan Irvine (BSc) of Australasian Groundwater and Environmental Consultants Pty Ltd.
- Traffic and Transportation – FJF Group Pty Ltd.
  - Mr Frank Foley (BEng (Mech) (Hons)).