

Appendix 1

DGR's, EIS Project Team and Schedule of Lands



STATEMENT OF AUTHORSHIP

EIS prepared by

Name: John Merrell
Group Manager, Environment and Community NSW

Qualifications: Bachelor of Environmental Science,
University of Newcastle

Address: Umwelt (Australia) Pty Limited
PO Box 3024
Teralba NSW 2284

In respect of: Proposed continued operations at Cooma Road
Quarry as described in the accompanying
Environmental Impact Statement

Applicant Name: Holcim (Australia) Pty Limited

Applicant Address: 500 Royalla Road
Queanbeyan NSW 2620

Land to be developed: Refer to Schedule of Lands attached

Proposed Development: Cooma Road Quarry Continued Operations Project

Environmental Impact Statement An Environmental Impact Statement is attached.

Certification

I declare that:

- the statement has been prepared in accordance with Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*,
- the statement contains all available information that is relevant to the environmental assessment of the development, activity or infrastructure to which the statement relates; and
- that the information contained in the statement is neither false nor misleading.

Signature:



Name: John Merrell

Date: 26 October 2012



Planning & Infrastructure

**Major Projects Assessment
Mining & Industry Projects**
Contact: Kane Winwood
Phone: 9228 6298
Fax: 9228 6466
Email: kane.winwood@planning.nsw.gov.au

Our Ref: 11/22735

Ms Rachael Heath
Planning & Approvals Manager
Holcim (Australia) Pty Ltd
PO Box 5697
WEST CHATSWOOD NSW 1515

Dear Ms Heath

State Significant Development - Director-General's Requirements Cooma Road Quarry Project (SSD-5109)

I have attached a copy of the Director General's environmental assessment requirements (DGRs) for the preparation of an Environmental Impact Statement (EIS) for the Cooma Road Quarry Project.

Please note that the Department may alter these requirements at any time, and that you must consult further with the Department if you do not lodge a development application and EIS for the project within two years of the date of issue of these DGRs. The Department will review the EIS for the project carefully before putting it on public exhibition, and will require you to submit an amended EIS if it does not adequately address the DGRs.

The Department also advises that key policy and planning documents that are relevant to the project are currently being finalised. These include the Government's Aquifer Interference Policy and guidelines for the preparation of Agricultural Impact Statements. Therefore, these DGRs may be amended to reference these additional documents, to ensure that any are appropriately considered during the preparation of the EIS.

These requirements have been prepared based on the information you have provided to date and in consultation with the relevant government agencies and Queanbeyan City Council. Their comments, which you should consider and address appropriately in preparing the EIS, are also attached (see Attachment 2). Your project may require separate approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Department encourages you to confirm whether such an approval will be required as soon as possible. If an EPBC Act approval is required, I would appreciate it if you would advise the Department accordingly, as the Commonwealth approval process may be integrated into the NSW approval process, and supplementary DGRs may need to be issued.

I would appreciate it if you would contact the Department at least two weeks before you propose to submit the development application and EIS for your project. This will enable the Department to:

- confirm the applicable fee (see Division 1AA, Part 15 of the *Environmental Planning and Assessment Regulation 2000*); and
- determine the number of copies (hard-copy and CD-ROM) of the EIS required for review.

If you have any enquiries about these requirements, please contact Kane Winwood at the details listed above.

Yours sincerely

Howard Reed 14.2.12
A/Director Mining & Industry Projects
Delegate of the Director-General

Director General's Environmental Assessment Requirements

Section 78A(8A) of the *Environmental Planning and Assessment Act 1979*

State Significant Development

Application Number	SSD 5109
Development	<p>The Cooma Road Quarry Project, which includes:</p> <ul style="list-style-type: none"> • expanding an existing hard rock quarry to extract and process up to 1.5 million tonnes of hard rock a year for up to 15 years; • relocating existing site infrastructure and constructing and operating a mobile pug mill and mobile asphalt plant; • receiving concrete for recycling; • transporting product from the site via road; and • rehabilitating the site.
Location	500 Royalla Road, Queanbeyan, in the Queanbeyan LGA
Applicant	Holcim (Australia) Pty Limited
Date of Issue	14 February 2012
General Requirements	<p>The Environmental Impact Statement (EIS) for the development must meet the form and content requirements in Clauses 6 and 7 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i>.</p> <p>In addition, the EIS must include a:</p> <ul style="list-style-type: none"> • detailed description of the development, including: <ul style="list-style-type: none"> – need for the proposed development; – justification for the proposed quarry plan, including efficiency of resource recovery, mine safety, and environmental protection; – likely staging of the development - including construction, operational stage/s and rehabilitation; – likely interactions between the development and existing, approved and proposed mining and quarry operations in the vicinity of the site; – plans of any proposed building works; • consideration of all relevant environmental planning instruments, including Part 3 of the <i>Mining, Petroleum Production and Extractive Industry State Environmental Planning Policy 2007</i>, and identification and justification of any inconsistencies with these instruments; • risk assessment of the potential environmental impacts of the development, identifying the key issues for further assessment; • detailed assessment of the key issues specified below, and any other significant issues identified in this risk assessment, which includes: <ul style="list-style-type: none"> – a description of the existing environment, <u>using sufficient baseline data</u>; – an assessment of the potential impacts of all stages of the development, including any cumulative impacts, taking into consideration relevant guidelines, policies, plans and statutes; and – a description of the measures that would be implemented to avoid, minimise and if necessary, offset the potential impacts of the development, including proposals for adaptive management and/or contingency plans to manage any significant risks to the environment; • consolidated summary of all the proposed environmental management and monitoring measures, highlighting commitments included in the EIS.
Key issues	<p>The EIS must address the following specific issues:</p> <ul style="list-style-type: none"> • Land Resources – including a detailed assessment of the potential

	<p>impacts on:</p> <ul style="list-style-type: none"> - soils and land capability (including salinity and contamination); - landforms and topography, including cliffs, rock formations, steep slopes, etc; and - land use, including agricultural, forestry, conservation and recreational use and potential urban expansion; <ul style="list-style-type: none"> • Water Resources – including: <ul style="list-style-type: none"> - detailed assessment of potential impacts on the quality and quantity of existing surface and ground water resources, including: <ul style="list-style-type: none"> o detailed modelling of potential groundwater impacts; o impacts on affected licensed water users and basic landholder rights; and o impacts on riparian, ecological, geomorphological and hydrological values of watercourses, including environmental flows; - a detailed site water balance, including a description of site water demands, water disposal methods (inclusive of volume and frequency of any water discharges), water supply infrastructure and water storage structures; - an assessment of proposed water discharge quantities and quality/ies against receiving water quality and flow objectives; - identification of any licensing requirements or other approvals under the <i>Water Act 1912</i> and/or <i>Water Management Act 2000</i>; - demonstration that water for the construction and operation of the development can be obtained from an appropriately authorised and reliable supply in accordance with the operating rules of any relevant Water Sharing Plan (WSP) or water source embargo; - a description of the measures proposed to ensure the development can operate in accordance with the requirements of any relevant WSP; - a detailed description of the proposed water management system (including sewage), water monitoring program and other measures to mitigate surface and groundwater impacts; • Biodiversity – including: <ul style="list-style-type: none"> - measures taken to avoid, reduce or mitigate impacts on biodiversity; - accurate estimates of proposed vegetation clearing; - a detailed assessment of potential impacts of the development on any: <ul style="list-style-type: none"> o terrestrial or aquatic threatened species or populations and their habitats, endangered ecological communities and groundwater dependent ecosystems; and o regionally significant remnant vegetation, or vegetation corridors; and - a comprehensive offset strategy to ensure the development maintains or improves the terrestrial and aquatic biodiversity values of the region in the medium to long term; • Heritage – including: <ul style="list-style-type: none"> - an Aboriginal cultural heritage assessment (including both cultural and archaeological significance) which must: <ul style="list-style-type: none"> o demonstrate effective consultation with Aboriginal communities in determining and assessing impacts, and developing and selecting mitigation options and measures; o outline any proposed impact mitigation and management measures (including an evaluation of the effectiveness and reliability of the measures); and - a Historic heritage assessment (including archaeology) which must: <ul style="list-style-type: none"> o include a statement of heritage impact (including significance assessment) for any State significant or locally significant historic heritage items; and, o outline any proposed mitigation and management measures (including an evaluation of the effectiveness and reliability of the measures); • Air Quality – including a quantitative assessment of potential: <ul style="list-style-type: none"> - construction and operational impacts, with a particular focus on dust
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	<p>emissions (including PM₁₀ emissions, and dust generation from transport of quarry products), as well as diesel and blast fume emissions;</p> <ul style="list-style-type: none"> - reasonable and feasible mitigation measures to minimise dust, diesel and blast fume emissions, including evidence that there are no such measures available other than those proposed; and - monitoring and management measures, in particular air quality monitoring; <ul style="list-style-type: none"> • Greenhouse Gases – including: <ul style="list-style-type: none"> - a quantitative assessment of potential Scope 1, 2 and 3 greenhouse gas emissions; - a qualitative assessment of the potential impacts of these emissions on the environment; and - an assessment of reasonable and feasible measures to minimise greenhouse gas emissions and ensure energy efficiency; • Noise, Vibration & Blasting – including a quantitative assessment of potential: <ul style="list-style-type: none"> - construction, operational and off-site transport noise impacts; - blasting impacts on people, livestock and property; - reasonable and feasible mitigation measures, including evidence that there are no such measures available other than those proposed; and - monitoring and management measures; • Traffic & Transport – including: <ul style="list-style-type: none"> - accurate predictions of the road traffic generated by the project; - an assessment of potential traffic impacts on the safety and efficiency of the road network; and - a detailed description of the measures that would be implemented to maintain and/or improve the capacity, efficiency and safety of the road network in the surrounding area over the life of the project; • Visual – including: <ul style="list-style-type: none"> - a detailed assessment of the: <ul style="list-style-type: none"> o changing landforms on the site during the various stages of the project; and o potential visual impacts of the project on private landowners in the surrounding area as well as key vantage points in the public domain, including lighting impacts; and - a detailed description of the measures that would be implemented to minimise the visual impacts of the project; • Waste – including: <ul style="list-style-type: none"> - accurate estimates of the quantity and nature of the potential waste streams of the development, including reject material, receipt and handling of recycled concrete and the overburden emplacement strategy; - a description of measures that would be implemented to minimise production of other waste, and ensure that that waste is appropriately managed; • Hazards – including bushfires; and • Social & Economic – including an assessment of the: <ul style="list-style-type: none"> - potential direct and indirect economic benefits of the project for local and regional communities and the State; - potential impacts on local and regional communities, including: <ul style="list-style-type: none"> o increased demand for local and regional infrastructure and services; and o impacts on social amenity; - a detailed description of the measures that would be implemented to minimise the adverse social and economic impacts of the project, including any infrastructure improvements or contributions and/or voluntary planning agreement or similar mechanism; and - a detailed assessment of the costs and benefits of the development as a whole, and whether it would result in a net benefit for the NSW community; and • Rehabilitation – including the proposed rehabilitation strategy for the site,
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	<p>having regard to the key principles in the Strategic Framework for Mine Closure, including:</p> <ul style="list-style-type: none"> - rehabilitation objectives, methodology, monitoring programs, performance standards and proposed completion criteria; - nominated final land use, having regard to any relevant strategic land use planning or resource management plans or policies; and - the potential for integrating this strategy with any other rehabilitation and/or offset strategies in the region.
Plans and Documents	<p>The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the <i>Environmental Planning and Assessment Regulation 2000</i>. These documents should be included as part of the EIS rather than as separate documents.</p>
Consultation	<p>During the preparation of the EIS, you must consult with relevant local, State and Commonwealth Government authorities, service providers, community groups and affected landowners.</p> <p>In particular you must consult with the:</p> <ul style="list-style-type: none"> • Commonwealth Department of Sustainability, Environment, Water, Population and Communities; • Office of Environment and Heritage (including the Heritage Branch and Environment Protection Authority); • Division of Resources and Energy within the Department of Trade and Investment, Regional Infrastructure and Services; • Department of Primary Industries (including the NSW Office of Water, NSW Forestry, Agriculture and Fisheries sections, and Catchments and Lands (Crown Lands Division)); • Transport for NSW (including Roads and Maritime Services); • Murrumbidgee Catchment Management Authority; and • Queanbeyan City Council. <p>The EIS must:</p> <ul style="list-style-type: none"> • describe the consultation process used and demonstrate that effective consultation has occurred; • describe the issues raised by public authorities, service providers, community groups and landowners; • identify where the design of the development has been amended in response to issues raised; and • otherwise demonstrate that issues raised have been appropriately addressed in the assessment.
Further consultation after 2 years	<p>If you do not lodge a DA and an EIS for the development within 2 years of the issue date of these DGRs, you must consult further with the Director-General in relation to the requirements for lodgement.</p>
References	<p>The assessment of the key issues listed above must take into account relevant guidelines, policies, and plans as identified. While not exhaustive, Attachment 1 contains a list of some of the guidelines, policies, and plans that may be relevant to the environmental assessment of this development.</p>

ATTACHMENT 1 Technical and Policy Guidelines

The following guidelines may assist in the preparation of the Environmental Impact Statement. This list is not exhaustive and not all of these guidelines may be relevant to your proposal.

Many of these documents can be found on the following websites:

<http://www.planning.nsw.gov.au>

<http://www.bookshop.nsw.gov.au>

<http://www.publications.gov.au>

Policies, Guidelines & Plans

Risk Assessment

AS/NZS 4360:2004 Risk Management (Standards Australia)

HB 203: 203:2006 Environmental Risk Management – Principles & Process (Standards Australia)

Land Resources

Draft Agricultural Impact Assessment Guidelines 2011 (DP&I)

Agfact AC25: Agricultural Land Classification (NSW Agriculture)

State Environmental Planning Policy No. 55 – Remediation of Land

Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC)

Biodiversity

Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna – Amphibians (DECCW 2009)

Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft (DECC 2004)

Threatened Species Assessment Guidelines: the Assessment of Significance (DECC 2007)

Guidelines for Threatened Species Assessment (DoP 2005)

BioBanking Assessment Methodology and Credit Calculator Operational Manual (DECCW 2008)

NSW State Groundwater Dependent Ecosystem Policy (DLWC)

Policy & Guidelines - Aquatic Habitat Management and Fish Conservation (NSW Fisheries)

Policy & Guidelines - Fish Friendly Waterway Crossings (NSW Fisheries)

State Environmental Planning Policy No. 44 – Koala Habitat Protection

Water Resources

Surface Water

National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)

National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ)

National Water Quality Management Strategy: Guidelines for Sewerage Systems – Effluent Management (ARMCANZ/ANZECC)

National Water Quality Management Strategy: Guidelines for Sewerage Systems – Use of Reclaimed Water (ARMCANZ/ANZECC)

Using the ANZECC Guideline and Water Quality Objectives in NSW (DEC)

State Water Management Outcomes Plan

Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009

NSW Government Water Quality and River Flow Objectives (DECC)

Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC)

Managing Urban Stormwater: Soils & Construction (Landcom) and associated Volume 2E: Mines and Quarries.

Managing Urban Stormwater: Treatment Techniques (DECC)

	Managing Urban Stormwater: Source Control (DECC)
	Floodplain Development Manual (DIPNR)
	Floodplain Risk Management Guideline (DECC)
	A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH)
	Technical Guidelines: Bunding & Spill Management (DECC)
	Environmental Guidelines: Use of Effluent by Irrigation (DECC)
<i>Groundwater</i>	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
	NSW State Groundwater Policy Framework Document (DLWC, 1997)
	NSW State Groundwater Quality Protection Policy (DLWC, 1998)
	NSW State Groundwater Quantity Management Policy (DLWC, 1998)
	Murray-Darling Basin Groundwater Quality. Sampling Guidelines. Technical Report No 3 (MDBC)
	Murray-Darling Basin Commission. Groundwater Flow Modelling Guideline (Aquaterra Consulting Pty Ltd)
	Guidelines for the Assessment & Management of Groundwater Contamination (DECC, 2007)
	Any relevant Water Sharing Plan for groundwater and surface water resources
Air Quality	
	Protection of the Environment Operations (Clean Air) Regulation 2002
	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (DEC)
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (DEC)
Noise & Blasting	
	NSW Industrial Noise Policy (DECC)
	Environmental Noise Management – Assessing Vibration: a technical guide (DEC)
	NSW Road Noise Policy (DECCW)
	Interim Guidelines for the Assessment of Noise From Rail Infrastructure Projects (DECC)
	Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZECC)
Traffic & Transport	
	Guide to Traffic Generating Development (RTA)
	Road Design Guide (RTA)
Heritage	
<i>Aboriginal</i>	Draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation (DEC 2005)
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
<i>Historic</i>	NSW Heritage Manual (NSW Heritage Office)
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
Greenhouse Gases	
	National Greenhouse Accounts Factors (Australian Department of Climate Change (DCC))
	Guidelines for Energy Savings Action Plans (DEUS)
Waste	
	Waste Classification Guidelines (DECC)
Hazards	
	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
	Hazardous and Offensive Development Application Guidelines - Applying SEPP 33
	Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis

Rehabilitation

Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth of Australia)

Mine Closure and Completion – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth of Australia)

Strategic Framework for Mine Closure (ANZMEC-MCA)

Socio-Economic

Draft Economic Evaluation in Environmental Impact Assessment (DoP)

Techniques for Effective Social Impact Assessment: A Practical Guide (Office of Social Policy, NSW Government Social Policy Directorate)

ATTACHMENT 2
Agency Input into Key Assessment Issues



Howard Reed
Mining and Industry Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Contact Tim Baker
Phone 02 6841 7403
Mobile 0428 162 097
Fax 02 6884 0096
Email Tim.Baker@water.nsw.gov.au

Our ref ER21756
Your ref

Attention: Kane Winwood

Dear Mr Winwood

**Cooma Road Quarry – Continued Operations Project (SSD-5109)
– Request for Input into Director General’s Requirements**

I refer to your letter received on the 20th January, 2012 requesting input into drafting of the Director General Requirements for the proposed Cooma Road Quarry expansion project. The NSW Office of Water has reviewed the Preliminary Environmental Assessment and provides the following advice to be addressed in preparation of the Environmental Impact Statement (EIS).

1. Key Issues

NSW Office of Water requires the EIS for the proposal to demonstrate the following:

1. Adequate and secure water supply for the proposal. Confirmation that water supplies for construction and operation are sourced from an appropriately authorised and reliable supply.
2. Identification of site water demands, water sources (surface and groundwater), water disposal methods and water storage structures in the form of a water balance. The water balance is to outline the proposed water management on the site and to also include details of any water reticulation infrastructure that supplies water to and within the site.
3. An impact assessment on adjacent licensed water users (surface and groundwater), watercourse stability and functioning, and groundwater-dependent ecosystems. This is to meet the requirements of the NSW State Groundwater Policy Framework document in addition to the *Water Act 1912* and *Water Management Act 2000*.
4. An assessment of the potential to intercept groundwater and predicted dewatering volumes, water quality and disposal/retention methods. This is to also include the modelled zone of influence for a number of stages both during quarry operations and post quarry life until equilibrium is achieved.
5. Preparation of a surface water management plan and groundwater management plan to integrate the proposed water balance and management for the site and to identify adequate mitigating and monitoring requirements for both water quality and water volume.
6. Existing and proposed water licensing requirements in accordance with the *Water Act 1912* and *Water Management Act 2000* (whichever is relevant). This is to demonstrate that existing licences (include licence numbers) and licensed uses are appropriate, and to identify where additional licences are proposed. The proponent will be required to ensure they hold adequate licensed entitlement commensurate with the anticipated volume of groundwater take prior to this take occurring. Groundwater take includes the volume of

water intercepted by the proposed activities both via the quarry pit and any extraction bores, in addition to the ongoing take induced by evaporative loss once the pits begin to fill. The annual requirements need to be regularly reviewed through updates of modelling and reviews of metering data.

7. Proposal to carry out works within 40m of a watercourse are in accordance with the Office of Water's Guidelines for Controlled Activities (August 2010).

A general list of environmental assessment requirements to be addressed in the EIS is provided in Attachment 1. The proposal is located within the Lachlan Fold Belt MDB Groundwater Source of the Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources. Any requirement for additional groundwater entitlement will need to be obtained through purchase and trade in accordance with this plan. This plan can be accessed at the following link:

<http://www.water.nsw.gov.au/Water-management/Water-sharing-plans/Plans-commenced/Water-source/NSW-Murray-Darling-Basin-Fractured-Rock/default.aspx>

Should you have any further queries in relation to this submission please do not hesitate to contact Tim Baker on (02) 6841 7403.

Yours sincerely



Mark Mignanelli
Manager Major Projects, Mines and Assessment
8 February 2012



The NSW Office of Water provides the following advice for consideration:

Relevant Legislation

The assessment is required to take into account the requirements of the following legislation (administered by the Office), as applicable:

- *Water Management Act 2000 (WMA)* where a Water Sharing Plan (WSP) has commenced.
- *Water Act 1912*, where a WSP is not yet in place.

In particular, proposals and management plans should be consistent with the Objects (s.3) and Water Management Principles (s.5) of the *WMA*.

Water Sharing Plans

Gazetted Water Sharing Plans (WSPs) prepared under the provisions of the *WMA* establish rules for access to, and the sharing of water between the environmental needs of the surface or groundwater source and water users. If the proposal is within a gazetted WSP area the assessment is required to demonstrate how the proposal is consistent with the relevant access and trading rules of the WSP. Refer to: <http://www.water.nsw.gov.au/Water-Management/Water-sharing/default.aspx> The site is covered by the draft Water Sharing Plan for the NSW Murray Darling Basin Porous Rock Groundwater sources which may be gazetted by mid 2011.

Relevant Policies

The assessment is required to take into account the following NSW Government policies, as applicable:

- *NSW Groundwater Policy Framework Document – General (August 1997)*
- *NSW Groundwater Quality Protection Policy (1998)*
- *NSW State Groundwater Dependent Ecosystem Policy (2002)*
- *NSW State Rivers and Estuaries Policy (1993)*
- *NSW Sand and Gravel Extraction Policy for Non-Tidal Rivers (1992)*
- *NSW Wetlands Management Policy (1996)*
- *Guidelines for the Assessment and Management of Groundwater Contamination (2007)*
- *Guidelines for Groundwater Protection in Australia (1995)*
- *MDBC Guidelines on Groundwater Flow Modelling (2000)*
- *Water Sharing Plan for the NSW Murray-Darling Basin Fractured Rock Groundwater Sources*

These documents can be found at:

<http://www.water.nsw.gov.au/Water-Management/Law-and-Policy/Key-policies/default.aspx> and

<http://www.water.nsw.gov.au/Water-Management/Water-availability/Groundwater/default.aspx>

Guidelines

The assessment is required to take into account the following Guidelines for Controlled Activities (August 2010), as applicable:

- Riparian corridors (and associated Vegetation Management Plans)
- Watercourse crossings
- Laying pipes and cables in watercourses
- Outlet structures
- In-stream works

Refer to: <http://www.water.nsw.gov.au/Water-Licensing/Approvals/Controlled-activities/default.aspx>

Groundwater

The Office of Water is responsible for the management of groundwater resources so they can sustain environmental, social and economic uses for the people of New South Wales.

Groundwater Source

The assessment is required to identify groundwater issues and potential degradation to the groundwater source and provide the following:

- Details of the predicted highest groundwater table at the development site.
- Details of any works likely to intercept, connect with or result in pollutants infiltrating into the groundwater sources.
- Details of any proposed groundwater extraction, including purpose, location and construction details of all proposed bores and expected annual extraction volumes.
- Describe the flow directions and rates and the physical and chemical characteristics of the groundwater source.
- Details of the predicted impacts of any final landform on the groundwater regime.
- Details of the existing groundwater users within the area (including the environment) and include details of any potential impacts on these users.
- Assessment of the quality of the groundwater for the local groundwater catchment.
- Details of how the proposed development will not potentially diminish the current quality of groundwater, both in the short and long term.
- Details on preventing groundwater pollution so that remediation is not required.
- Quantification of impacts on groundwater dependent ecosystems (GDEs).
- Details on protective measures to minimise any impacts on groundwater dependent ecosystems.
- Details of proposed methods of the disposal of waste water and approval from the relevant authority.
- Assessment of the potential for saline intrusion of the groundwater and measures to prevent such intrusion into the groundwater aquifer.
- Details of the results of any models or predictive tools used to predict groundwater drawdown, inflows to the site and impacts on affected water sources.

Where potential impact/s are identified the assessment will need to identify limits to the level of impact and contingency measures that would remediate, reduce or manage potential impacts to the existing groundwater resource and any dependent groundwater environment or water users, including information on:

- Details of any proposed monitoring programs, including water levels and quality data.
- Reporting procedures for any monitoring program including mechanism for transfer of information.
- An assessment of any groundwater source/aquifer that may be sterilised as a consequence of the proposal.
- Identification of any nominal thresholds as to the level of impact beyond which remedial measures or contingency plans would be initiated (this may entail water level triggers or a beneficial use category).
- Description of the remedial measures or contingency plans proposed.
- Any funding assurances covering the anticipated post development maintenance cost, for example on-going groundwater monitoring for the nominated period.
- Any other assurances to account for the post-closure impacts such as retiring held water licences or ongoing pumping return proposals to minimise base flow losses.

Licensing

- All proposed groundwater works, including bores for the purpose of investigation, extraction, dewatering, testing or monitoring must be identified in the proposal and an approval obtained from the Office prior to their installation.
- All predicted groundwater take must be accounted for through adequate licensing.

Groundwater Dependent Ecosystems (GDEs)

The assessment is required to identify any impacts on GDEs. GDEs are ecosystems which have their species composition and natural ecological processes wholly or partially determined by groundwater. GDEs represent a vital component of the natural environment. GDEs can vary dramatically in how they depend on groundwater from having occasional or no apparent dependence through to being entirely dependent. GDEs occur across both the surface and subsurface landscapes ranging in area from a few metres to many kilometres. Increasingly, it is being recognised that surface and groundwaters are often interlinked and aquatic ecosystems may have a dependence on both.

Ecosystems that can depend on groundwater and that may support threatened or endangered species, communities and populations, include:

- Terrestrial vegetation that show seasonal or episodic reliance on groundwater.
- River base flow systems which are aquatic and riparian ecosystems in or adjacent to streams/rivers dependent on the input of groundwater to base flows.
- Aquifer and cave ecosystems.
- Wetlands.
- Estuarine and near-shore marine discharge ecosystems.
- Fauna which directly depend on groundwater as a source of drinking water or that live within water which provide a source.

The *NSW Groundwater Dependent Ecosystem Policy* provides guidance on the protection and management of GDEs. It sets out management objectives and principles to:

- Ensure the most vulnerable and valuable ecosystems are protected.
- Manage groundwater extraction within defined limits thereby providing flow sufficient to sustain ecological processes and maintain biodiversity.
- Ensure sufficient groundwater of suitable quality is available to ecosystems when needed.
- Ensure the *precautionary principle* is applied to protect GDEs, particularly the dynamics of flow and availability and the species reliant on these attributes.

A number of gazetted WSPs list and map priority GDEs and set out the management strategies and actions for sharing and protecting groundwater quality, quantity and dependent ecosystems. As indicated above, any GDEs that may be affected significantly need to be clearly identified and the impacts quantified to enable proper assessment.

Surface Water

The Office of Water is responsible for the management of rivers, estuaries, wetlands and adjacent riverine plains so they can sustain environmental, social and economic uses for the people in New South Wales.

Watercourse/Riparian

The assessment is required to consider the impact of the proposal on the watercourses and associated riparian vegetation within the site and provide the following:

- Identify the sources of surface water.
- Details of stream order (using the Strahler System).
- Details of any proposed surface water extraction, including quantity, purpose, location of existing pumps, dams, diversions, cuttings and levees.
- Details of available surface water licences that could be purchased to account for any proposed extractions.
- Detailed description of any proposed development or diversion works including all construction, clearing, draining, excavation and filling.
- An assessment of the impacts of the proposed methods of excavation, construction and material placement on the watercourse and associated vegetation.
- A detailed description of all potential water related environmental impacts of any proposed development in terms of riparian vegetation, sediment movement, water quality and hydrologic regime.

- A description of the design features and measures to be incorporated into any proposed development to guard against anything more than minimal long term actual and potential environmental disturbances, particularly in respect of maintaining the natural hydrologic regime and sediment movement patterns and the identification of riparian buffers. (See note below)
- Details of the impact on water quality and remedial measures proposed to address more than minimal adverse effects.

Riparian corridors form a transition zone between terrestrial and aquatic environments and perform a range of important environmental functions. The protection or restoration of vegetated riparian areas is important to maintain or improve the geomorphic form and ecological functions of watercourses through a range of hydrologic conditions in normal seasons and also in extreme events.

Note: Recommended Core Riparian Zones (as applicable):

- Minimum of 10m for any intermittently flowing 1st order watercourse;
- 20m for any permanently flowing 1st order watercourse or any 2nd order watercourse;
- 20m – 40m (merit based assessment) for any 3rd order or greater watercourse.

Refer to NSW Office of Water Guidelines for Controlled Activities (August 2010) - available via: <http://www.water.nsw.gov.au/Water-Licensing/Approvals/Controlled-activities/default.aspx>

Water Management Structures/Dams

The Office is responsible for the management and licensing of these structures under water legislation. If the proposal includes existing or proposed water management structures/dams, the assessment should provide information on the following:

- Date of construction (for existing structure/s).
- Details of the legal status/approval for existing structure/s.
- Details of any proposal to change the purpose of existing structure/s.
- Details if any remedial work is required to maintain the integrity of the existing structure/s.
- Clarification if the structure/s is on a watercourse.
- Details of the purpose, location and design specifications for the structure/s.
- Size and storage capacity of the structure/s.
- Calculation of the Maximum Harvestable Right Dam Capacity (MHRDC) for the site.
- Details if the structure/s is affected by flood flows.
- Details of any proposal for shared use, rights and entitlement of the structure/s.
- Details if the proposed development/subdivision has the potential to bisect the structure/s.

NSW Office of Water's Farm Dams Assessment Guide provides details on harvestable rights and the calculation of the MHRDC. Refer to: <http://www.water.nsw.gov.au/Water-Licensing/Basic-water-rights/Harvesting-runoff/Harvesting-runoff/default.aspx>

Basic Landholder Rights

The *WMA* identifies Basic Landholder Rights (BLRs) for access to water whereby landholders over an aquifer or with river or lake frontage can access water for domestic (household) purposes or to water stock without the need for a water licence (although a works approval may still be required for a bore utilising BLR). Pipeline constructions and easements may therefore affect existing BLR users and therefore all potentially affected BLR users need to be identified and the impacts quantified.

Sustainable Water Supply

Competition for water in NSW is extremely high. In areas where a Water Sharing Plan (WSP) has commenced, a long term average extraction limit has been established which constrains overall growth in extractions in an area. In these areas there are limited types of new licenses that can be issued, for example for aboriginal cultural purposes or growth in town water supplies. Therefore in most instances new enterprises are required to enter the water market to purchase adequate water licences to meet their water demand requirements.

In areas where a WSP has not yet commenced, the NSW Government has established embargoes on applying for new licences. There are limited exemptions in some areas which need to be considered and applied for by a proponent. If an exemption does not apply, then again new enterprises need to enter the water market to purchase the required water licences. In some areas where a WSP has not yet commenced, there is still available water and the proponent may be able to apply for a new licence to account for the water taken from that water source.

The onus is on the proponent to assess which of the above is relevant and identify the potential sources of water of an appropriate reliability and quantity to meet their water supply requirements. The water supply requirements and potential water available should be identified in the EA to enable NOW to assess the viability of the water supply required. Assurances should also be made that the proponent will enter the water market as required.

Therefore the assessment is required to address the issue of provision of a sustainable water supply for any project proposal. The assessment should include Water Management Plans detailing how a sustainable water supply can be sourced and implemented. Through the implementation of BASIX, Integrated Water Cycle Management and Water Sensitive Urban Design, any proposed development should also exhibit high water use efficiency.

End Attachment 1
8 February 2012



ENVIRONMENT PROTECTION AUTHORITY

Our reference: DOC12/2382; LIC06/561-02
Contact: Sharon Peters, (02) 6229 7002

Mr Howard Reed
A/Director Mining & Industry Projects
Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

7 February 2011

Dear Mr Reed

**RE: Cooma Road Quarry – Continued Operations Project (SSD-5109)
Request for Director General Requirements (DGR's)**

I refer to your request for the Environment Protection Authority (EPA) requirements in relation to the preparation of an Environmental Impact Statement (EIS) for the proposed expansion and continued operation of the Cooma Road Quarry, received by the EPA on 20 January 2012.

The EPA notes the proponent proposes to increase the current operations at the premises by extending the approved extraction boundary and increasing the annual maximum extraction limit from 1 million tonnes to 1.5 million tonnes per annum. In conjunction, approval is sought to extend the current hours of operation and increase the number of heavy vehicle movements to facilitate the increase in production rate.

Notwithstanding the above, EPA also notes approval is sought to carry out concrete recycling for re-use as product at the premises. The EPA advises activities carried out at the premises must be in accordance with valid development consent.

Should consent be granted for the proposal, the proponent will need to make a separate application to the EPA for a variation to Environmental Protection Licence (EPL) No. 1453 in accordance with the provisions of the *Protection of the Environment Operations Act 1997*. A copy of the current development consent should accompany that application.

The EPA has considered the details of the proposal as provided, and has identified the information it requires to assess the environmental impacts in Attachments A, B and C. The proponent should ensure that the EIS is sufficiently comprehensive and detailed to allow the EPA to determine the

extent of the impact(s) of the proposal. In summary the key information requirements for the proposal will be:

- The impact on air quality, particularly from dust;
- The impact on noise and vibration amenity;
- The impact on surface water and ground water quality and quantity;
- Environmental monitoring and site rehabilitation;
- The potential for the proposal to impact on the biodiversity values of the site;
- Impacts upon threatened species and their habitat;
- Impacts upon Aboriginal cultural heritage values; and
- The actions that will be taken to avoid or mitigate impacts or compensate to prevent unavoidable impacts identified above.

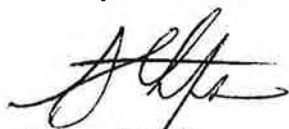
All aspects of the proposal need to be assessed in relation to sensitive receptors. The proponent must clearly identify the nature and scope of the entire project including any ancillary development occurring on alternate sites to ensure these matters are adequately assessed as part of the overall project.

The proponent should be aware that any commitments made in the EIS may be formalised as approval conditions. Consequently pollution control or conservation measures should not be proposed if they are impractical, unrealistic or beyond the financial viability of the development. It is important that all conclusions are supported by adequate data.

To assist the EPA in assessing the EIS it is requested that the EIS follow the format of Department of Planning and Infrastructure's EIS guidelines and/ addresses EPA's specific EIS requirements as outlined in the following attachments. If the necessary information is not adequately provided in the EIS then delays in the development application process may occur. The EPA also requests that the Applicant be provided with a full unaltered version of the EPA's assessment requirements and guidelines as set out in Attachments A, B and C.

The EPA requests that one electronic and two hard copies of the EIS are provided for assessment. These documents should be lodged at the South East Regional Office, PO Box 622, Queanbeyan NSW 2620, and marked to the attention of the Regional Manager – South East. If you have any queries regarding this matter please contact Sharon Peters on 6229 7002.

Yours sincerely



JULIAN THOMPSON
Unit Head – South East Region
Environment Protection and Regulation Group

ATTACHMENT A:

EPA ENVIRONMENTAL ASSESSMENT REQUIREMENTS FOR

Proposed Expansion of Cooma Rd Quarry EPL No.1453

A. Executive Summary

The executive summary should include a brief discussion of the extent to which the proposal achieves identified environmental outcomes.

B. The Proposal

1. Objectives of the proposal

The objectives of the proposal should be clearly stated and refer to:

- a) the size and type of the operation, the nature of the processes and the products, by-products and wastes produced;
- b) a life-cycle approach to the production, use or disposal of products;
- c) the anticipated level of performance in meeting required environmental standards and cleaner production principles;
- d) the staging and timing of the proposal and any plans for future expansion;
- e) the proposal's relationship to any other industry or facility.

2. Description of the proposal

General

- Outline the production process including:
 - a) the environmental 'mass balance' for the process – quantify in-flow and out-flow of materials, any points of discharge to the environment and their respective destinations (sewer, stormwater, atmosphere, recycling, landfill, etc.);
 - b) any life-cycle strategies for the products.
- Outline cleaner production actions, including:
 - a) measures to minimise waste (typically through addressing source reduction);
 - b) proposals for use or recycling of by-products;
 - c) proposed disposal methods for solid and liquid waste;
 - d) air management systems including all potential sources of air emissions, proposals to re-use or treat emissions, emission levels relative to relevant standards in regulations, discharge points;
 - e) water management system including all potential sources of water pollution, proposals for re-use, treatment etc, emission levels of any wastewater discharged, discharge points, summary of options explored to avoid a discharge, reduce its frequency or reduce its impacts, and rationale for selection of option to discharge.

Air

- Identify all sources of air emissions from the development. Emissions can be classed as either:
 - point (e.g. emissions from stack or vent) or
 - fugitive (from wind erosion), leakages or spillages, associated with loading or unloading, conveyors, storage facilities, plant and yard operation, vehicle movements (dust from road, exhausts, loss from load), land clearing and construction works).
- Provide details of the project that are essential for predicting and assessing air impacts including:

- a) the quantities and physico-chemical parameters (e.g. concentration, moisture content, bulk density, particle sizes, etc.) of materials to be used, transported, produced or stored;
- b) an outline of procedures for handling, transport, production and storage;
- c) the management of solid, liquid and gaseous waste streams with potential for significant air impacts.

Noise and vibration

- Identify all noise sources from the development. Detail all potentially noisy activities including ancillary activities such as transport of goods and raw materials.
- Specify the times of operation for all phases of the development and for all noise producing activities;
- For projects with a significant potential traffic noise impact provide details of road alignment (include gradients, road surface, topography, bridges, culverts etc), and land use along the proposed road and measurement locations – diagrams should be to a scale sufficient to delineate individual residential blocks.

Water

- Provide details of the project that are essential for predicting and assessing impacts to waters:
 - a) including the quantity and physico-chemical properties of all potential water pollutants and the risks they pose to the environment and human health, including the risks they pose to Water Quality Objectives in the ambient waters (as defined on www.environment.nsw.gov.au/ieo, using technical criteria derived from the *Australian and New Zealand guidelines for fresh and marine water quality* (ANZECC 2000));
 - b) the management of discharges with potential for water impacts;
 - c) drainage works and associated infrastructure; land-forming and excavations; working capacity of structures; and water resource requirements of the proposal.
- Outline site layout, demonstrating efforts to avoid proximity to water resources (especially for activities with significant potential impacts, e.g. effluent ponds) and showing potential areas of modification of contours, drainage, etc.
- Outline how total water cycle considerations are to be addressed showing total water balances for the development (with the objective of minimising demands and impacts on water resources). Include water requirements (quantity, quality and source(s)) and proposed storm /wastewater disposal, including type, volumes, proposed treatment and management methods, re-use options.

Waste and chemicals

- Provide details of liquid waste and non-liquid waste management at the facility, including:
 - a) the transportation, assessment and handling of waste arriving at or generated at the site;
 - b) any stockpiling of wastes or recovered materials at the site;
 - c) any waste processing related to the facility, including reuse, recycling, reprocessing (including composting) or treatment both on- and off-site;
 - d) the method for disposing of all wastes or recovered materials at the facility;
 - e) the emissions arising from handling, storage, processing, reprocessing of waste at the facility;
 - f) the proposed controls for managing the environmental impacts of these activities.
- Provide details of spoil disposal with particular attention to:
 - a) the quantity of spoil material likely to be generated;
 - b) proposed strategies for the handling, stockpiling, reuse/recycling and disposal of spoil;
 - c) the need to maximise reuse of spoil material in the construction industry;
 - d) identification of the history of spoil material and whether there is any likelihood of contaminated material, and if so, measures for the management of any contaminated material;
 - e) designation of transportation routes for transport of spoil.

- Provide details of procedures for the assessment, handling, storage, transport and disposal of all hazardous and dangerous materials used, stored, processed or disposed of at the site, in addition to the requirements for liquid and non-liquid wastes.
- Provide details of the type and quantity of any chemical substances to be used or stored and describe arrangements for their safe use and storage.
- Reference should be made to the *Waste Classification Guidelines* (DECC 2008).

ESD

- Demonstrate that the planning process and any subsequent development incorporates objectives and mechanisms for achieving ESD, including:
 - a) an assessment of a range of options available for use of a resource, including the benefits of each option to future generations;
 - b) proper valuation and pricing of environmental resources;
 - c) identification of who will bear the environmental costs of the proposal.

3. Rehabilitation

- Outline considerations of site maintenance, and proposed plans for the final condition of the site (ensuring its suitability for future uses).

3. Consideration of alternatives and justification for the proposal

- Consider the environmental consequences of adopting alternatives, including alternative:
 - a) sites and site layouts;
 - b) access models and routes;
 - c) materials handling and production processes;
 - d) waste and water management;
 - e) impact mitigation measures;
 - f) energy sources;
- Selection of the preferred option should be justified in terms of:
 - a) ability to satisfy the objectives of the proposal;
 - b) relevant environmental and other costs of each alternative;
 - c) acceptability of environmental impacts and contribution to identified environmental objectives;
 - d) acceptability of any environmental risks or uncertainties;
 - e) reliability of proposed environmental impact mitigation measures;
 - f) efficient use (including maximising re-use) of land, raw materials, energy and other resources.

C. The Location

1. General

- Provide an overview of the affected environment to place the proposal in its local and regional environmental context including:
 - a) meteorological data (e.g. rainfall, temperature and evaporation, wind speed and direction);
 - b) topography (landform element, slope type, gradient and length);
 - c) surrounding land uses (potential synergies and conflicts);
 - d) geomorphology (rates of landform change and current erosion and deposition processes);
 - e) soil types and properties (including erodibility; engineering and structural properties; dispersibility; permeability; presence of acid sulfate soils and potential acid sulphate soils);
 - f) ecological information (water system habitat, vegetation, fauna);
 - g) availability of services and the accessibility of the site for passenger and freight transport.

2. Air

- Describe the topography and surrounding land uses. Provide details of the exact locations of dwellings, schools and hospitals. Where appropriate provide a perspective view of the study area such as the terrain file used in dispersion models.
- Provide and analyse site representative data on the following meteorological parameters:
 - a) rainfall, evaporation and cloud cover;
 - b) wind speed and direction.

3. Noise and vibration

- Identify any noise-sensitive locations likely to be affected by activities at the site, such as residential properties, schools, churches and hospitals. Typically the location of any noise sensitive locations in relation to the site should be included on a map of the locality.
- Identify the land use zoning of the site and immediate vicinity and the potentially affected areas.

4. Water

- Describe the proximity of the development to any waterways and provide an assessment of their sensitivity/significance from a public health, ecological and/or economic perspective. The water quality and river flow objectives on the website: www.environment.nsw.gov.au/ieo should be used to identify the agreed environmental values and human uses for any affected waterways. This will help with the description of the local and regional area.

5. Soil contamination issues

- Provide details of site history – if earthworks are proposed, this needs to be considered with regard to possible soil contamination, for example if the site was previously a landfill site or if irrigation of effluent has occurred.

D. Identification and Prioritisation of Issues/Scoping of Impact Assessment

- Provide an overview of the meteorology used to identify and prioritise issues. The meteorology should take into account:
 - a) relevant NSW government guidelines;
 - b) industry guidelines;
 - c) EISs for similar projects;
 - d) relevant research and reference material;
 - e) relevant preliminary studies or reports for the proposal;
 - f) consultation with stakeholders.
- Provide a summary of the outcomes of the process including:
 - a) all issues identified including local, regional and global impacts (eg increased/ decreased greenhouse emissions);
 - b) key issues which will require a full analysis (including comprehensive baseline assessment);
 - c) issues not needing full analysis though they may be addressed in the mitigation strategy;
 - d) justification for the level of analysis proposed (the capacity of the proposal to give rise to high concentrations of pollution compared with the ambient environment or environmental outcomes is an important factor in setting the level of assessment).

E. Environmental Issues

1. General

- The potential impacts identified in the scoping study need to be assessed to determine their significance, particularly in terms of achieving environmental outcomes, and minimising environmental pollution.

- Identify gaps in information and data relevant to significant impacts of the proposal and any actions proposed to fill those information gaps so as to enable development of appropriate management and mitigation measures. This is in accordance with ESD requirements.

Note: The level of detail should match the level of importance of the issue in decision making which is dependent on the environmental risk.

Describe baseline conditions

- Provide a description of existing environmental conditions for any potential impacts.

Assess impacts

- For any potential impacts relevant for the assessment of the proposal, provide a detailed analysis of the impacts of the proposal on the environment, including the cumulative impact of the proposal on the receiving environment especially where there are sensitive receivers.
- Describe the methodology used and assumptions made in undertaking this analysis (including any modelling or monitoring undertaken) and indicate the level of confidence in the predicted outcomes and the resilience of the environment to cope with the predicted impacts.
- The analysis should also make linkages between different areas of assessment where necessary to enable a full assessment of environmental impacts eg assessment of impacts on air quality will often need to draw on the analysis of traffic, health, social, soil and/or ecological systems impacts; etc.
- The assessment needs to consider impacts at all phases of the project cycle including: exploration (if relevant or significant), construction, routine operation, start-up operations, upset operations and decommissioning if relevant.
- The level of assessment should be commensurate with the risk to the environment.

Describe management and mitigation measures

- Describe any mitigation measures and management options proposed to prevent, control, abate or mitigate identified environmental impacts associated with the proposal and to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.
- Proponents are expected to implement a 'reasonable level of performance' to minimise environmental impacts. The proponent must indicate how the proposal meets reasonable levels of performance. For example, reference technology-based criteria if available, or identify good practice for this type of activity or development. A 'reasonable level of performance' involves adopting and implementing technology and management practices to achieve certain pollutant emissions levels in economically viable operations. Technology-based criteria evolve gradually over time as technologies and practices change.
- Outline any proposed approach (such as an Environmental Management Plan) that will demonstrate how commitments made in the EIS will be implemented. Areas that should be described include:
 - a) operational procedures to manage environmental impacts;
 - b) monitoring procedures;
 - c) training programs;
 - d) community consultation;
 - e) complaint mechanisms including site contacts;
 - f) strategies to use monitoring information to improve performance
 - g) strategies to achieve acceptable environmental impacts and to respond in event of exceedences.

2. Air

Describe baseline conditions

- Provide a description of existing air quality and meteorology, using existing information and site representative ambient monitoring data.

Assess impacts

- Identify all pollutants of concern and estimate emissions by quantity (and size for particles), source and discharge point.
- Describe the effects and significance of pollutant concentration on the environment, human health, amenity and regional ambient air quality standards or goals.

Note: With dust and odour, it may be possible to use data from existing similar activities to generate emission rates.

Describe management and mitigation measures

- Outline specifications of pollution control equipment (including manufacturer's performance guarantees where available) and management protocols for both point and fugitive emissions. Where possible, this should include cleaner production processes.

3. Noise and vibration

Describe baseline conditions

- Determine the existing background (LA90) and ambient (LAeq) noise levels in accordance with the *NSW Industrial Noise Policy* (EPA 2000).
- Determine the existing road traffic noise levels in accordance with the *NSW Road Noise Policy* (DECCW 2011), where road traffic noise impacts may occur.
- The noise impact assessment report should provide details of all monitoring of existing ambient noise levels including:
 - a) details of equipment used for the measurements;
 - b) a brief description of where the equipment was positioned;
 - c) a statement justifying the choice of monitoring site, including the procedure used to choose the site, having regards to the definition of 'noise-sensitive locations(s)' and 'most affected locations(s)' described in Section 3.1.2 of the *NSW Industrial Noise Policy* (EPA 2000);
 - d) details of exact location of monitoring site and a description of land uses in surrounding areas;
 - e) a description of the dominant and background noise sources at the site;
 - f) day, evening and night assessment background levels for each day of the monitoring period;
 - g) the final Rating Background Level (RBL) value;
 - h) graphs of the measured noise levels for each day should be provided;
 - i) a record of periods of affected data (due to adverse weather and extraneous noise), methods used to exclude invalid data and a statement indicating the need for any re-monitoring under Step 1 in Section B1.3 of the *NSW Industrial Noise Policy* (EPA 2000);
 - j) determination of LAeq noise levels from existing industry.

Assess impacts

- Determine the project specific noise levels for the site. For each identified potentially affected receiver, this should include:
 - a) determination of the intrusive criterion for each identified potentially affected receiver
 - b) selection and justification of the appropriate amenity category for each identified potentially affected receiver
 - c) determination of the amenity criterion for each receiver

d) determination of the appropriate sleep disturbance limit.

- Maximum noise levels during night-time period (10pm-7am) should be assessed to analyse possible effects on sleep. Where LA1(1min) noise levels from the site are less than 15 dB above the background LA90 noise level, sleep disturbance impacts are unlikely. Where this is not the case, further analysis is required. Additional guidance is provided in *NSW Road Noise Policy* (DECCW 2011).
- Determine expected noise level and noise character (e.g. tonality, impulsiveness, vibration, etc.) likely to be generated from noise sources during:
 - a) site establishment
 - b) construction
 - c) operational phases
 - d) transport including traffic noise generated by the proposal
 - e) other services.

Note: *The noise impact assessment report should include noise source data for each source in 1/1 or 1/3 octave band frequencies including methods for references used to determine noise source levels. Noise source levels and characteristics can be sourced from direct measurement of similar activities or from literature (if full references are provided).*

- Determine the noise levels likely to be received at the most sensitive locations (these may vary for different activities at each phase of the development). Potential impacts should be determined for any identified significant adverse meteorological conditions. Predicted noise levels under calm conditions may also aid in quantifying the extent of impact where this is not the most adverse condition.
- The noise impact assessment report should include:
 - a) a plan showing the assumed location of each noise source for each prediction scenario
 - b) a list of the number and type of noise sources used in each prediction scenario to simulate all potential significant operating conditions on the site
 - c) any assumptions made in the predictions in terms of source heights, directivity effects, shielding from topography, buildings or barriers, etc.
 - d) methods used to predict noise impacts including identification of any noise models used. Where modelling approaches other than the use of the ENM or SoundPlan computer models are adopted, the approach should be appropriately justified and validated
 - e) an assessment of appropriate weather conditions for the noise predictions including reference to any weather data used to justify the assumed conditions
 - f) the predicted noise impacts from each noise source as well as the combined noise level for each prediction scenario under any identified significant adverse weather conditions as well as calm conditions where appropriate
 - g) for developments where a significant level of noise impact is likely to occur, noise contours for the key prediction scenarios should be derived
 - h) an assessment of the need to include modification factors as detailed in Section 4 of the *NSW Industrial Noise Policy* (EPA 2000).
- Discuss the findings from the predictive modelling and, where relevant noise criteria have not been met, recommend additional mitigation measures.
- The noise impact assessment report should include details of any mitigation proposed including the attenuation that will be achieved and the revised noise impact predictions following mitigation.
- Where relevant noise/vibration criteria cannot be met after application of all feasible and cost effective mitigation measures the residual level of noise impact needs to be quantified by identifying:
 - a) locations where the noise level exceeds the criteria and extent of exceedence
 - b) numbers of people (or areas) affected
 - c) times when criteria will be exceeded
 - d) likely impact on activities (speech, sleep, relaxation, listening, etc.)
 - e) change on ambient conditions

- f) the result of any community consultation or negotiated agreement.
- For the assessment of existing and future traffic noise, details of data for the road should be included such as assumed traffic volume; percentage heavy vehicles by time of day; and details of the calculation process. Details should be consistent with any traffic study carried out in the EIS.
- Where blasting is intended an assessment in accordance with the *Technical Basis for Guidelines to minimise annoyance due to blasting overpressure and ground vibration* (ANZECC 1990) should be undertaken. The following details of the blast design should be included in the noise assessment:
 - a) bench height, burden spacing, spacing burden ratio
 - b) blast hole diameter, inclination and spacing
 - c) type of explosive, maximum instantaneous charge, initiation, blast block size, blast frequency.

Describe management and mitigation measures

- Determine the most appropriate noise mitigation measures and expected noise reduction including both noise controls and management of impacts for both construction and operational noise. This will include selecting quiet equipment and construction methods, noise barriers or acoustic screens, location of stockpiles, temporary offices, compounds and vehicle routes, scheduling of activities, etc.
- For traffic noise impacts, provide a description of the ameliorative measures considered (if required), reasons for inclusion or exclusion, and procedures for calculation of noise levels including ameliorative measures. Also include, where necessary, a discussion of any potential problems associated with the proposed ameliorative measures, such as overshadowing effects from barriers. Appropriate ameliorative measures may include:
 - a) use of alternative transportation modes, alternative routes, or other methods of avoiding the new road usage
 - b) control of traffic (e.g. limiting times of access or speed limitations)
 - c) resurfacing of the road using a quiet surface
 - d) use of (additional) noise barriers or bunds
 - e) treatment of the façade to reduce internal noise levels buildings where the night-time criteria is a major concern
 - f) more stringent limits for noise emission from vehicles (i.e. using specially designed 'quiet' trucks and/or trucks to use air bag suspension)
 - g) driver education
 - h) appropriate truck routes
 - i) limit usage of exhaust breaks
 - j) use of premium mufflers on trucks
 - k) reducing speed limits for trucks
 - l) ongoing community liaison and monitoring of complaints
 - m) phasing in the increased road use.

4. Water

Describe baseline conditions

- Describe existing surface and groundwater quality – an assessment needs to be undertaken for sampling any water resource likely to be affected by the proposal and for all conditions (e.g. a wet weather program is needed if runoff events may cause impacts).

Note: Methods of sampling and analysis need to conform with an accepted standard (e.g. *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (DEC 2007) or be approved and analyses undertaken by accredited laboratories).

- Provide site drainage details and surface run-off yield.

- State the ambient Water Quality and River Flow Objectives for the receiving waters. These refer to the community's agreed environmental values and human uses endorsed by the Government as goals for the ambient waters. These environmental values are published on the website: www.environment.nsw.gov.au/ieo. The EIS should state the environmental values listed for the catchment and waterway type relevant to your proposal.

Note: A consolidated and approved list of environmental values is not available for groundwater resources. Where groundwater may be affected the EIS should identify appropriate groundwater environmental values and justify the choice.

- State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC 2000)
- State any locally specific objectives, criteria or targets, which have been endorsed by the Government e.g. the Healthy Rivers Commission Inquiries (www.hrc.nsw.gov.au)
- Where site-specific studies are proposed to revise the trigger values supporting the ambient Water Quality and River Flow Objectives, and the results are to be used for regulatory purposes (e.g. to assess whether a licensed discharge impacts on water quality objectives), then prior agreement from OEH on the approach and study design must be obtained.
- Describe the state of the receiving waters and relate this to the relevant Water Quality and River Flow Objectives (i.e. are Water Quality and River Flow Objectives being achieved?) by sourcing available data and information.

Assess impacts

- No proposal should breach clause 120 of the *Protection of the Environment Operations Act 1997* (i.e. pollution of waters is prohibited unless undertaken in accordance with relevant regulations).
- Identify and estimate the quantity of all pollutants that may be introduced into the water cycle by source and discharge point including residual discharges after mitigation measures are implemented.
- Include a rationale, along with relevant calculations, supporting the prediction of the discharges.
- Describe the effects and significance of any pollutant loads on the receiving environment. This should include impacts of residual discharges through modelling, monitoring or both, depending on the scale of the proposal. Determine changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, wetland hydrologic regimes and groundwater).
- Describe water quality impacts resulting from changes to hydrologic flow regimes (such as nutrient enrichment or turbidity from changes in frequency and magnitude of stream flow).
- Identify any potential impacts on quality or quantity of groundwater describing their source.
- Identify potential impacts associated with geomorphological activities with potential to increase surface water and sediment runoff or to reduce surface runoff and sediment transport. Also consider possible impacts such as bed lowering, bank lowering, instream siltation, floodplain erosion and floodplain siltation.
- Identify impacts associated with the disturbance of acid sulfate soils and potential acid sulfate soils if acid sulphate soils are present at the site.
- Containment of spills and leaks shall be in accordance with the technical guidelines section 'Bundling and Spill Management' of the *Authorised Officers Manual* (EPA 1995) (www.environment.nsw.gov.au/mao/bundingspill.htm) and the most recent versions of the Australian Standards referred to in the guidelines. Containment should be designed for no discharge.
- The significance of the impacts listed above should be predicted. When doing this it is important to predict the ambient water quality and river flow outcomes associated with the proposal and to demonstrate whether these are acceptable in terms of achieving protection of the Water Quality and River Flow Objectives. In particular the following questions should be answered:

- a) will the proposal protect Water Quality and River Flow Objectives where they are currently achieved in the ambient waters; and
 - b) will the proposal contribute towards the achievement of Water Quality and River Flow Objectives over time, where they are not currently achieved in the ambient waters.
- Consult with OEH as soon as possible if a mixing zone is proposed (a mixing zone could exist where effluent is discharged into a receiving water body, where the quality of the water being discharged does not immediately meet water quality objectives). The mixing zone could result in dilution, assimilation and decay of the effluent to allow water quality objectives to be met further downstream, at the edge of the mixing zone). OEH will advise the proponent under what conditions a mixing zone will and will not be acceptable, as well as the information and modelling requirements for assessment.

Note: The assessment of water quality impacts needs to be undertaken in a total catchment management context to provide a wide perspective on development impacts, in particular cumulative impacts.

- Where a licensed discharge is proposed, provide the rationale as to why it cannot be avoided through application of a reasonable level of performance, using available technology, management practice and industry guidelines.
- Where a licensed discharge is proposed, provide the rationale as to why it represents the best environmental outcome and what measures can be taken to reduce its environmental impact.
- Reference should be made to relevant guidelines e.g. *Managing Urban Stormwater: Soils and Construction* (Landcom 2004), *Guidelines for fresh and marine water quality* (ANZECC 2000).

Describe management and mitigation measures

- Outline stormwater management to control pollutants at the source and contain them within the site. Also describe measures for maintaining and monitoring any stormwater controls.
- Outline erosion and sediment control measures directed at minimising disturbance of land, minimising water flow through the site and filtering, trapping or detaining sediment. Also include measures to maintain and monitor controls as well as rehabilitation strategies.
- Describe waste water treatment measures that are appropriate to the type and volume of waste water and are based on a hierarchy of avoiding generation of waste water; capturing all contaminated water (including stormwater) on the site; reusing/recycling waste water; and treating any unavoidable discharge from the site to meet specified water quality requirements.
- Outline pollution control measures relating to storage of materials, possibility of accidental spills (e.g. preparation of contingency plans), appropriate disposal methods, and generation of leachate.
- Describe hydrological impact mitigation measures including:
 - a) minimising runoff
 - b) minimising reductions or modifications to flow regimes
 - c) avoiding modifications to groundwater.
- Describe groundwater impact mitigation measures including:
 - a) site selection
 - b) retention of native vegetation and revegetation
 - c) artificial recharge
 - d) providing surface storages with impervious linings
 - e) monitoring program.
- Describe geomorphological impact mitigation measures including:
 - a) site selection
 - b) erosion and sediment controls
 - c) minimising instream works
 - d) treating existing accelerated erosion and deposition
 - e) monitoring program.

5. Soils and contamination

Describe baseline conditions

- Provide details (in addition to those provided in the location description in Section C) that are needed to describe the existing situation in terms of soil types, properties and soil contamination.

Assess impacts

- Identify any likely impacts resulting from the construction or operation of the proposal, including the likelihood of:
 - a) disturbing any existing contaminated soil
 - b) contamination of soil by operation of the activity
 - c) subsidence or instability
 - d) soil erosion
 - e) disturbing acid sulfate or potential acid sulfate soils.
- Reference should be made to relevant guidelines e.g. *Contaminated sites – guidelines for consultants reporting on contaminated sites* (EPA 1997); *Contaminated sites – guidelines on significant risk of harm and duty to report* (EPA 1999).

Describe management and mitigation measures

- Describe and assess the effectiveness or adequacy of any soil management and mitigation measures during construction and operation of the proposal including:
 - a) erosion and sediment control measures;
 - b) proposals for site remediation – see *Managing land contamination, planning guidelines SEPP 55 – remediation of land* (Department of Urban Affairs and Planning and EPA 1998);
 - c) proposals for the management of these soils – see *Assessing and managing acid sulfate soils* (EPA 1995) (note that this is the only methodology accepted by OEH).

6. Waste and chemicals

Describe baseline conditions

- Describe any existing waste or chemicals operations related to the proposal.

Assess impacts

- Assess the adequacy of proposed measures to minimise natural resource consumption and minimise impacts from the handling, transporting, storage, processing and reprocessing of waste and/or chemicals;
- Reference should be made to relevant guidelines e.g. *Waste Classification Guidelines* (DECC 2009).

Describe management and mitigation measures

- Outline measures to minimise the consumption of natural resources.
- Outline measures to avoid the generation of waste and promote the re-use and recycling and reprocessing of any waste.
- Outline measures to support any approved regional or industry waste plans.

7. Cumulative impacts

- Identify the extent that the receiving environment is already stressed by existing development and background levels of emissions to which this proposal will contribute.
- Assess the impact of the proposal against the long-term air, noise and water quality objectives for the area or region.

- Identify infrastructure requirements flowing from the proposal (e.g. water and sewerage services, transport infrastructure upgrades).
- Assess likely impacts from such additional infrastructure and measures reasonably available to the proponent to contain such requirements or mitigate their impacts (e.g. travel demand management strategies).

F. List of Approvals and Licences

- Identify all approvals and licences required under environment protection legislation, including details of scheduled activities, types of ancillary activities and types of discharges (air, land, water).

G. Compilation of Mitigation Measures

- Outline how the proposal and its environment protection measures would be implemented and managed in an integrated manner to demonstrate that the proposal is capable of complying with statutory obligations under OEH licences or approvals (e.g. outline of an environmental management plan).
- The mitigation strategy should include the environmental management and cleaner production principles which would be followed when planning, designing, establishing and operating the proposal. It should include two sections, one setting out the program for managing the proposal and the other outlining the monitoring program with a feedback loop to the management program.

H. Justification for the Proposal

- Reasons should be included which justify undertaking the proposal in the manner proposed, having regard to the potential environmental impacts.

ATTACHMENT B:

EPA ENVIRONMENTAL ASSESSMENT REQUIREMENTS FOR

Proposed Expansion of Cooma Rd Quarry EPL No.1453

ASSESSMENT OF FLORA AND FAUNA ISSUES

Introduction

The *Environmental Planning and Assessment Act (1979) (EP&A Act)* requires that proponents of a development/activity and the Consent/Determining Authorities adequately assess the impact on flora and fauna by a development or activity.

Australian flora and fauna comprise many endemic taxa and are therefore unique in the world. Although a proposed development site may be disturbed by various land-uses, any native vegetation, including remnants, riparian and wetland areas, is of significant natural heritage value. The area of vegetation and habitat at the proposed site may provide an area of high biological diversity, high conservation value or may not be well represented or protected elsewhere. It may also act as a corridor or migratory route for wildlife, drought refuge habitat or have other important values. Native vegetation including wetland, riparian and remnant environments provide significant areas of habitat for fauna. Therefore, any development in such areas should fully consider the impact on fauna and its habitat, including modification, fragmentation, reduction in size, loss of connectivity and edge effects.

Because of the reasons outlined above, the NSW community places a high value on those areas of native vegetation that remain. Careful planning should precede any development that involves further vegetation clearance or other significant impact within areas of native vegetation.

Threatened Species and the 'Test of Significance'

The concurrence of the Director-General of the Environment Protection Authority (EPA) is required for all development on land that is, or is a part of, critical habitat, or development that is likely to significantly affect a threatened species, population, or ecological community, or its habitat. Accordingly, the requirements of EPA regarding flora and fauna relate to sections 5A and 78A(8)(b) of the *EP&A Act*.

A comprehensive EIS must include a detailed flora and fauna survey, some typical requirements of which are provided in the section "General Flora and Fauna Considerations". If, during a flora or fauna assessment or survey, threatened species, populations or ecological communities, or their habitats are found or are likely to occur in the area, the proponents must undertake a 'Test of Significance' as outlined in section 5A of the *EP&A Act*. This test is a statutory mechanism undertaken to determine whether any development is likely to have a significant impact upon threatened species, populations or ecological communities, or their habitats. The *Threatened Species Conservation Act (1995) (TSC Act)* contains lists of threatened species, which are divided into 5 categories – those presumed extinct, endangered species, endangered

populations, endangered ecological communities and vulnerable species. The *TSC Act* also allows for the declaration of critical habitat, key threatening processes and the preparation of both Recovery Plans and Threat Abatement Plans. These listings and plans must be considered as part of the EIS process.

Species Impact Statements

Following a threatened species assessment via the 'Test of Significance', it may be necessary to prepare a Species Impact Statement (SIS) in accordance with the *TSC Act*.

If a SIS is required, the applicant for the development consent or the proponent of the activity must request from the Director-General of EPA, the requirements concerning the form and content of the SIS. The SIS must then be prepared in accordance with these requirements and provided to the Director-General. General SIS requirements are described in the *TSC Act*, however, requirements specific for each development consent must be sought.

General Flora and Fauna Considerations

If the concurrence of the Director-General of EPA is not required, EPA has no formal role in the assessment of flora and fauna issues and the determination of these issues lies solely with the Consent Authority(s). Notwithstanding the above, EPA recommends that the Consent Authority(s) requests that the following details be included in the EIS to be prepared by the proponent:

- detailed location map and identification of the area surveyed (including the location of photographs, transects, areas of significance etc),
- at least one of the following: a land satellite image, vegetation communities map, aerial photograph, or a remnant vegetation map,
- a complete plant list (including scientific names of those plants) of all tree, shrub, ground cover and aquatic species, categorised according to whether they are native or exotic,
- a complete list of all known and likely terrestrial and aquatic fauna species that may utilise the area for habitat, breeding and migration (eg birds, mammals, reptiles and amphibians including scientific names). It is suggested that invertebrates also be considered as they form part of the food chain for many fauna species,
- a detailed description of vegetation structure (in terms of a scientifically accepted classification system) and spatial distribution (ie. plant densities and patterning) on the site, including a vegetation map,
- describe the condition and integrity of the vegetation including a description of any past disturbance,
- an account of the likely original vegetation communities (pre-, or at early settlement), and an assessment of the likely regional distribution of the original communities,
- an assessment of whether the plant communities are adequately represented in conservation reserves or otherwise protected,
- an account of the hydrology of the area and how this relates to the dynamics of the vegetation communities,
- assessment of the importance or otherwise of the location as a corridor, migratory route or drought refuge, in relation to other remnant vegetation, riparian and wetland areas or habitat in the region,
- a list of known and likely threatened species as listed by the *TSC Act* which might occur at the site. EPA database needs to be accessed and the likelihood of occurrence of threatened flora species determined,
- an assessment of the impacts of the proposal on flora and fauna, on-site and at the regional scale (eg. siltation, water availability or drainage changes) and measures to mitigate these impacts,
- a detailed rehabilitation/management plan including a list of the plant species to be used during rehabilitation (if required),

- detail methodologies used and a list of the reference literature cited,
- a conclusion specifically addressing the components of the 'Test of Significance', and
- any other issues that may be considered relevant.

It is the responsibility of the proponent (and subsequently the consent and/or determining authorities) to determine the detail and comprehensiveness of assessment required to form legally defensible conclusions regarding the impact of the proposal. The scale and intensity of the proposed development should dictate the detail of investigation. It is important that all conclusions are supported by adequate data and that these data are clearly presented in the EIS.

To assist the proponent and consent authority(s) EPA has produced a set of draft guidelines on how to conduct a satisfactory flora and fauna assessment survey titled, *Guidelines for Threatened Species Assessment*. These guidelines are available from the Department of Planning and Infrastructure.

ATTACHMENT C:
EPA ENVIRONMENTAL ASSESSMENT REQUIREMENTS FOR
Proposed Expansion of Cooma Rd Quarry EPL No.1453

ASSESSMENT OF ABORIGINAL CULTURAL HERITAGE ISSUES

Legislative framework and implications for timing

New provisions

On 1 October 2010, new provisions in the National Parks and Wildlife Act 1974 (NPW Act) relating to Aboriginal Heritage Impact Permits (AHIPs) commenced.

How have AHIPs changed?

Before the changes to the NPW Act, two permits were needed for the majority of activities involving Aboriginal objects and Aboriginal places; one for the potential impact of the initial excavation type work (section 87) and a second for the impact on known (and likely) objects due to the activity itself, such as disturbance from earthworks (section 90). A single permit can now be issued in relation to Aboriginal objects and Aboriginal places, or types or classes of Aboriginal objects and Aboriginal places (new section 90).

The changes to the NPW Act are complemented by the "*Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*" (DECCW 2010) that sets out the requirements for archaeological investigation in NSW where an application for an AHIP is likely to be made. A copy of this Code can be obtained from <http://www.environment.nsw.gov.au/licences/archinvestigations.htm>

Any excavation that can be carried out in accordance with the Code will not need an AHIP. However, excavations that are not consistent with the Code, or are in areas where the Code does not apply, will need an AHIP in order to have a defence to a prosecution for any harm to Aboriginal objects and/or Aboriginal places.

Further, before undertaking any archaeological investigation, reference is required to be made to the "*Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW*" (DECCW 2010). A copy is can be obtained from <http://www.environment.nsw.gov.au/licences/archinvestigations.htm>

EIS Requirements

The EIS should comprehensively assess Aboriginal Cultural Heritage issues where any ground disturbance is anticipated. This assessment should include but not be limited to:

- An archaeological survey and assessment must be undertaken by an archaeologist in accordance with the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010). This archaeological assessment must be included in the EIS in final form. OEH requires three additional copies of the final archaeological assessment.
- This Code has been developed to support the process of investigating and assessing Aboriginal cultural heritage. It specifies the minimum standards for archaeological

investigation undertaken in NSW under the *National Parks and Wildlife Act 1974* (NPW Act). An Aboriginal cultural heritage assessment that requires an archaeological investigation to be undertaken must be done in accordance with the requirements of this Code. The Code applies from 1 October 2010.

- OEH recommends that the requirements of this Code also be followed where a proponent may be uncertain about whether or not their proposed activity may have the potential to harm Aboriginal objects or declared Aboriginal places and the proponent is required to:
 - undertake further investigation to understand and establish the potential harm their proposal may have on Aboriginal cultural heritage, and
 - the further investigation involves archaeological assessment.

Note: For guidance on whether or not further investigation is required, refer to the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW.

- When undertaking this assessment the significance of the sites must also be assessed. The archaeological survey must determine the sites where disturbance can be avoided. Note that damage or destruction of some sites may be unacceptable or special safeguards may be required.
- Test excavations are often needed to verify the location of aboriginal sites. Such excavations need to be undertaken prior to lodgement of the Development Application and in accordance with the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010).

The EIS should contain:

1. A description of the Aboriginal objects and declared Aboriginal places located within the area of the proposed development.
2. A description of the cultural heritage values, including the significance of the Aboriginal objects and declared Aboriginal places, that exist across the whole area that will be affected by the proposed development, and the significance of these values for the Aboriginal people who have a cultural association with the land.
3. A description of how the requirements for consultation with Aboriginal people as specified in clause 80C of the National Parks and Wildlife Regulation 2009 have been met.
4. The views of those Aboriginal people regarding the likely impact of the proposed development on their cultural heritage. If any submissions have been received as a part of the consultation requirements, then the report must include a copy of each submission and your response.
5. A description of the actual or likely harm posed to the Aboriginal objects or declared Aboriginal places from the proposed activity, with reference to the cultural heritage values identified.
6. A description of any practical measures that may be taken to protect and conserve those Aboriginal objects or declared Aboriginal places.
7. A description of any practical measures that may be taken to avoid or mitigate any actual or likely harm, alternatives to harm or, if this is not possible, to manage (minimise) harm.
8. A specific Statement of Commitment that the proponent will complete an Aboriginal Site Impact Recording Form and submit it to the Aboriginal Heritage Information Management System (AHIMS) Registrar, for each AHIMS site that is harmed through the proposed development.
9. A description of the Aboriginal objects and declared Aboriginal places located within the area of the proposed development.
10. A description of the cultural heritage values, including the significance of the Aboriginal objects and declared Aboriginal places, that exist across the whole area that will be affected by the proposed development, and the significance of these values for the Aboriginal people who have a cultural association with the land.

11. A description of how the requirements for consultation with Aboriginal people as specified in clause 80C of the National Parks and Wildlife Regulation 2009 have been met.
12. The views of those Aboriginal people regarding the likely impact of the proposed development on their cultural heritage. If any submissions have been received as a part of the consultation requirements, then the report must include a copy of each submission and your response.
13. A description of the actual or likely harm posed to the Aboriginal objects or declared Aboriginal places from the proposed activity, with reference to the cultural heritage values identified.
14. A description of any practical measures that may be taken to protect and conserve those Aboriginal objects or declared Aboriginal places.
15. A description of any practical measures that may be taken to avoid or mitigate any actual or likely harm, alternatives to harm or, if this is not possible, to manage (minimise) harm.
16. A specific Statement of Commitment that the proponent will complete an Aboriginal Site Impact Recording Form and submit it to the Aboriginal Heritage Information Management System (AHIMS) Registrar, for each AHIMS site that is harmed through the proposed development.
17. The assessment must also include strategies and recommendations for amelioration or avoidance of impacts to Aboriginal objects.

In addressing these requirements, the proponent must refer to the following documents:

- a) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010)
- b) *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW, 2010)
- c) *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (DECCW 2011)
- d) *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010).

Copies of the above documents can be obtained from OEH's website:
www.environment.nsw.gov.au

Document that the OEH Aboriginal Heritage Information Management System (AHIMS) has been accessed in the initial planning stage to determine if there are any already known sites which will require protection. It should be noted that the AHIMS database is not a conclusive indicator that sites exist in the development area. Information from the AHIMS database may be sourced through the AHIMS Registrar by contacting the Cultural Heritage Branch of OEH on 02 95856471.

Demonstrate that the Aboriginal community (which may include Local Aboriginal Land Councils, Native Title Groups and Elders Groups) have been consulted and have been advised about anticipated impact to sites relevant to their heritage. There also may be knowledge in the community about sites within the development area, particularly those related to oral traditions. The process of Aboriginal consultation must be maintained throughout the entire assessment procedure. As such, the provisions of OEH *"Aboriginal Cultural Heritage Consultation Requirements for Proponents"* (DECCW 2010) should be considered in the preparation of the EIS. A copy can be obtained from <http://www.environment.nsw.gov.au/licences/consultation.htm>

Please note Section 91 cards must be referred directly to the OEH and must **not** be submitted with the EIS.

Effect of not fully documenting Aboriginal objects and Aboriginal places in the EIS

Aboriginal sites are widespread throughout New South Wales with considerable regional variation in the types of sites, their age, their contents and how they are situated on the landscape. Under the NPW Act it is an offence to knowingly destroy, deface or damage an Aboriginal place or object without a statutory consent.

Any Section 90 Consent that may be granted based on the EIS will be limited to the matters documented in the EIS. Accordingly, Section 90 Consents are specific.

Therefore, in the event that additional Aboriginal objects are identified during construction, that construction must cease immediately and the nature and extent of the objects assessed, as described above. Accordingly, to avoid delays during construction and the possibility that the development may need to be amended if a (additional) Section 90 Consent is not granted a comprehensive assessment should be undertaken.



**Resources
& Energy**

TRIM reference: OUT12/2037
12/629

02/02/2012

Howard Reed
A/Director
Mining and Industry Projects
Department of Planning & Infrastructure
GPO Box 39
Sydney NSW 2001

Dear Mr Reed

**Re: Cooma Road Quarry – Continued Operations Project (SSD – 5109)
Request for Input into Director-Generals Requirements (DGRs)**

Thank you for your letter received by DTIRIS – Mineral Resources on 20th January 2012 regarding the proposed Cooma Road Quarry expansion. This is a coordinated response from DTIRIS Resources & Energy Division, and Primary Industries - Agriculture. Primary Industries – Fisheries may provide advice in separate correspondence. There are no issues relevant to the interests of Forests NSW.

Minerals

Granite and dacite, and most other extractive materials, are **not** prescribed minerals under the Mining Act, 1992. Therefore, DTIRIS – Mineral Resources has no statutory role in authorising or regulating the extraction of these commodities, apart from its role under the Work Health & Safety Act 2011 and the Mine Health and Safety Act 2004 and associated regulations, for ensuring the safe operations of mines and quarries.

The key issues that need to be addressed in the EA are the size and quality of the resource. The proponent must be able to demonstrate that the size and quality of the resource have been adequately assessed and provide details of methods used to assess the resource. The proposal should aim to maximise the extracted resource subject to the requirements of a free draining final landform.

DTIRIS - Mineral Resources collects data on the quantity and value of construction materials produced annually throughout the State. Forms are sent to all operating quarries at the end of each financial year for this purpose. The statistical data thus collected is of great value to Government and industry in planning and resource management, particularly as a basis for analysing trends in production and for estimating future demand for particular commodities or in particular regions. In order to assist in the collection of construction material production data, it is requested that a

NSW Department of Trade and Investment, Regional Infrastructure and Services
RESOURCES & ENERGY DIVISION
PO Box 344 Hunter Region Mail Centre NSW 2310
Tel: 02 4931 6666 Fax: 02 4931 6726
ABN 51 734 124 190
www.dtiris.nsw.gov.au

commitment to provide annual production data to DTIRIS - Mineral Resources be included in the proponent's Statement of Commitments.

Should you require further assistance please contact Spencer Hopcroft on 02 4931 6710 or by email spencer.hopcroft@industry.nsw.gov.au.

Agriculture

The Department of Primary Industries has now produced and continues to draft guidelines in relation to specific types of development that may impact on agriculture. These guidelines are available from the I&I NSW land use planning and development web portal:

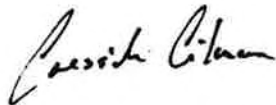
<http://www.dpi.nsw.gov.au/environment/landuse-planning/agriculture>.

These guidelines can be used to determine the aspects of a particular development proposal that require consideration. For the proposed extraction of sandstone at Maroota, the following information may be able to assist you:

http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0005/367763/Agricultural-Issues-for-extractive-industries.pdf

Should you require further assistance please contact Wendy Goodburn on 02 4828 6635 or by email wendy.goodburn@industry.nsw.gov.au.

Yours sincerely



Team Leader Land Use

NSW Department of Trade and Investment, Regional Infrastructure and Services
RESOURCES & ENERGY DIVISION
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Our Ref: STH12/00014
Contact: Andrea Boes 4221 2771
Your Ref: SSD-5109



Transport
Roads & Maritime
Services



PCU030295

Department of Planning
GPO Box 39
Sydney NSW 2001

1 FEB 2012

Attention: Kane Winwood

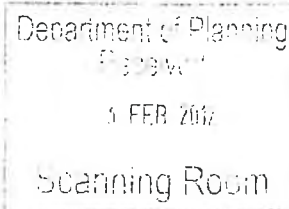
**QUEANBEYAN COUNCIL – DEVELOPMENT PROPOSAL – COOMA ROAD QUARRY
CONTINUED OPERATIONS PROJECT (SSD-5109)**

Dear Sir

Reference is made to your letter received 20 January 2012 forwarded to Roads and Maritime Services (RMS) regarding the subject development proposal.

RMS have reviewed the information provided and considers that the following should be included in the Director General's Requirements:

- A description of the proposed works.
- A description of the increase in traffic generation as a result of the expansion of operations, including the total number of employees and drivers required to operate at the maximum level permitted.
- A description of the traffic impacts associated with the development including a plan showing existing and proposed access arrangements.
- A Traffic Impact Study is required. As a guide Table 2.1 of the RMS's Guide to Traffic Generating Developments outlines the key issues that may be considered in preparing a Traffic Impact Study.
- RMS requires clarification of the sight distance available at the existing/proposed access/accesses. It should be noted that RMS requires sight distance to comply with the safe intersection sight distance in accordance with Austroads *Guide to Road Design – Part 4a: Unsignalised and Signalised Intersections* Table 3.2, in both directions.
- The applicant should identify suitable infrastructure required to ameliorate any traffic impacts and safety impacts associated with the development.



Roads & Maritime Services

- RMS strongly recommends that the developer considers the environmental impacts of any proposed roadworks as part of the Statement of Environmental Effects. If these impacts are not considered, then the RMS would require the applicant to provide a separate environmental impact assessment, a 'Review of Environmental Factors' prior to commencing any works that were conditioned as requirements of the development

Note: RMS has a responsibility to ensure that all environmental impacts are considered to the fullest extent possible under Section 111 of the Environmental Planning and Assessment Act.

Should you require any clarification on this matter please call Andrea Boes on 4221 2771.

Yours faithfully



Brian Lefoe
Manager, Road Safety and Traffic Management
Southern Operations and Engineering Services

Roads & Maritime Services

Level 4, Southern Regional Office, 90 Crown Street, Wollongong NSW 2500 | PO Box 477 Wollongong East NSW 2520
T 02 4221 2460 | F 02 4221 2777 | www.rmservices.nsw.gov.au |



3 February 2012

Mining & Industry Projects
NSW Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: Kane Winwood

Dear Sir

Department of Planning
Received
7 FEB 2012
Scanning Room

**RE: COOMA ROAD QUARRY – CONTINUED OPERATIONS PROJECT
(SSD-5109)**

Reference is made to your letter of 20 January 2012 advising of the subject proposal and inviting Council's input into the formulation of the Director-General's Requirements for the project.

Council officers have reviewed the Preliminary Environmental Assessment report prepared by Umwelt Environmental Consultants and have also been briefed on the proposal by representatives of Holcim (Australia) Pty Limited and the consultant.

Council requests that the EIS should address the following matters –

Water Quality

The site currently contains a water settlement pond. The EIS needs to address whether the pond requires an upgrade due to the increased extraction on the site. As a result, will there be an impact on the quality of water released from the pond that flows into a creek, then into the Queanbeyan River?

Will a revised sampling schedule be required as a result of the increased extraction on site?

Will the further extraction result in an impact on ground water and ground water quality in the locality?

Air Quality

The EIS needs to address how the increased operation will impact on the dust emissions from the site.

Details need to be included on how the concrete recycling and asphalt plant will impact on air quality.

Odours and any emissions resulting from the operations including the asphalt manufacturing and concrete crushing need to be addressed.

The impact on air quality from the significant increase in the number of vehicle movements transporting materials to and from the site.

A complete sampling regime needs to be submitted to ensure that the additional extraction will not detract from the air quality in the area.

Noise

The increased extraction will result in increased noise. The frequency of blasting will need to be considered due to the close proximity of residential dwellings surrounding the quarry. The closest dwelling is within 400m from the boundary of the edge of the new extension of the infrastructure zone. The existing site containing the office, etc will be relocated, moving the extraction zone closer to residential properties.

Details of blasting will need to be provided. Of particular concern are the hours of which blasting will occur at the site. Obviously, if the blasting is to occur outside the 6am to 6pm currently approved time and extend into the evening, there will be an increase in noise intrusion to the local community. (map attached indicating closest dwelling)

The noise will also raise issues associated with the vehicle and truck movements to and from the site. The increased truck movements and hours of operation may give rise to community concern and issues between the conflicting land uses. The EIS needs to address the impacts of road noise on the residents of Jerrabomberra, Karabar and Queanbeyan from the additional traffic created by the increased quarry operations and the additional uses for concrete crushing and asphalt plant. This needs to take into account the impacts resulting from the extended operating hours and truck movements on roads up to 10.00pm at night. In particular the impacts to residents adjacent to Edwin Land Parkway, Cooma Street, Old Cooma Road, Southbar Road, Rutledge Street and Bungendore Road should be addressed.

Flora and Fauna

The requirements should be considered as per the requirements in the EIS preparation guidelines.

Visual Impacts

The current quarry is visible from various locations within Queanbeyan. On occasion, depending on the amount of material stockpiled, the stockpiles are visible. The impact needs to be addressed.

Contamination

The site identified as being for the infrastructure extension, was in 2007 the subject of a Development Consent for the placement of Category 2 inert waste. This waste was conditioned to be clean fill, however, Council has not received any details which prove that the fill was in fact contaminant free. There is also anecdotal evidence that the same site was used for disposing of various materials over several years before the landfill operations were approved.

As such, it is requested that detailed contamination studies be conducted on the land prior to any determination being made. If the site does contain contaminated materials, these should be dealt with in accordance with the provisions of State Environmental Planning Policy No. 55 - Contaminated Land.

The relocation of the infrastructure component of the Quarry may result in contaminants remaining in the soil on the existing site where quarry operations are to be extended. It is requested that a contamination report be prepared to ensure that if there is any remnant contamination from the operations, it is remediated prior to the extraction being commenced in that location.

Details of the storage and handling of dangerous goods needs to be included. That is the bitumen, explosives, fuel etc.

Social and Health Issues

The main issues for the local community relate to dust and noise. These have been previously addressed. The biggest issue relates to the extended hours of operation of the site. A detailed justification needs to be provided for this.

Economic Impacts

A written justification needs to be provided detailing why there is a need for increased extraction and increased hours of operation are necessary for the quarry. The increased life of the quarry also needs to be addressed.

Cumulative Issues

Council believes that the increased vehicle movements from the quarry coupled with the increased hours of operations will create the most significant impact to the locality.

Rehabilitation

Holcim have identified an issue to Council which relates to the site in the ownership of Holcim. Once the quarry ceases operating from the site, the block will be land locked. This means, it has no legal or practical physical access to a public road. This needs to be addressed to ensure that the site is not land locked. Currently the site is accessed via adjoining sites that are leased to Holcim.

The applicant needs to supply a progressive plan for rehabilitation of the site. The applicants and owners in partnership need to start considering the long term use of the site, following completion of extraction.

The rehabilitation plan should also identify measures to remove all contamination from the site post extraction operations.

Public Consultation

Council recommends that the public consultation process is extended further afield. The possible impacts are more far reaching, than the immediate residents. The public consultation should be extended to include residents along Edwin Land Parkway, all residents in Jerrabomberra, Googong and Royalla. Public meetings should be conducted with all local residents. The reason for the extensive consultation is that the vehicular movements are going to impact greatly on the surrounding road system.

It is recommended that all local Aboriginal Landowners owners and groups be consulted.

Crown Road Reserve

The site of the infrastructure extension contains a crown road reserve. There have been reports that this has been closed, however, Council has no formal documentation proving this. The applicant needs to ensure that the road is closed prior to any consent being granted.

Section 68 Application

The site is currently not serviced by any sewerage system. As such the applicant must seek consent for the installation of an appropriately sized on site wastewater disposal system for the purposes of disposal of effluent from the site. A report should be prepared by a suitably qualified consultant detailing disposal fields, soil quality, etc.

Transport

The EIS should provide a detailed traffic impact assessment for the proposed development. It should describe in detail the routes proposed to be utilised for –

- transport of the extracted quarry product,

- for importation of concrete recycling material and distribution of the end product,
- for importation of the mobile batch plant materials and distribution of end product, and
- other vehicle movements associated with the proposal (staff, deliveries etc).

The traffic impact assessment should examine the impacts caused by the development on the Queanbeyan road network, particularly with regard to the traffic volumes and Levels of Service as described in Council's adopted *Googong and Tralee Traffic Study (2031)* (Gabites Porter 2010). In this regard a TRACKS Model should be used to undertake the above traffic analysis for direct comparison with the results of the above traffic study. Council favours undertaking this work at the applicant's cost for a negotiated fee.

Council notes that the EIS for the current development approval for the quarry limits transportation to the north along Old Cooma Road. The recent approval for Stage 1 of the Googong township to the south of the quarry with access via Old Cooma Road provides a potential market for quarry product. The assessment should examine impacts on the preliminary design plans for the relocation of Old Cooma Road being prepared by Council at present with regard to performance of the proposed intersection of the proposed Old Cooma Road deviation with the exiting road alignment (that will revert to a side road primarily for access to the quarry) and haulage up the grade to the south. The anticipated completion of the extension of the Edwin Land Parkway from Jerrabomberra to Old Cooma Road will provide a potential haulage route to proposed developments in the South Jerrabomberra area within the Queanbeyan LGA and to Hume Industrial area (ACT). The potential need to utilise these routes should be examined.

Furthermore, the proposed Ellerton Drive extension identified in Council's traffic study will provide a haul route to the north of Queanbeyan and this route should also be examined. The study should provide for any nominated haul route that would currently include Cooma Street to be replaced with Ellerton Drive once the Ellerton Drive link has been constructed. Once the Ellerton Drive link has been constructed, Cooma Street should not be included in any haulage route.

The amenity of residents along all haulage routes should be assessed as part of the EIS to assist with the identification of appropriate haulage routes.

The applicant should undertake pavement condition surveys on the nominated haulage routes to determine a pavement rehabilitation strategy to be applied over the life of the approval.

Strategic Planning

There is the issue of permissibility of quarrying in the extended area plus permissibility of the proposed additional land uses.

The DGR's should include a requirement to review these in terms of the current relevant planning instruments including draft Queanbeyan Local Environmental Plan 2011 and to make recommendations if it is found that these are not permissible.

The next issue is the impact on the buffer area and the DGR's should require the EIS to address any impact of quarrying in the extended area plus the additional proposed uses on site on the buffer area as identified in the Quarry Buffer Area Map - Sheet QBA_001 of draft Queanbeyan Local Environmental Plan 2011 with appropriate recommendations if this is affected and/or needs some sort of adjustment.

The expansion of operations from 1 Mtpa to 1.5Mtpa together with the other additional proposed uses will almost certainly require an upgrade of the current Extractive Industries Contribution Plan.

Should you require any further assistance in regard to this matter please contact Keith Davies, Senior Engineer – Development on 6285 6120 or at e-mail keith.davies@qcc.nsw.gov.au.

Yours faithfully



PHIL HANSEN
GROUP MANAGER
CITY INFRASTRUCTURE

encl

Attachment

Draft Queanbeyan Local Environmental Plan 2011 extracts

Landuse tables:

Zone RU2 Rural Landscape

1 Objectives of zone

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.
- To provide for a range of compatible land uses, including extensive agriculture.

2 Permitted without consent

Environmental protection works; Extensive agriculture; Home-based child care; Home occupations;

3 Permitted with consent

Agriculture; Airstrips; Animal boarding or training establishments; Bed and breakfast accommodation; Building identification signs; Business identification signs; Cemeteries; Cellar door premises; Crematoriums; Community facilities; Correctional centres; **Dwelling houses**; Electricity Generating Works; Emergency Services Facilities; Environmental facilities; Entertainment facilities; Extractive industries; Farm buildings; Farm stay accommodation; Flood mitigation works; Function centres; Helipads; Home businesses; Home industries; Information and educational facilities; Landscaping material supplies; Markets; Recreation areas; Open cut mining; Plant nurseries; Recreation Facilities (indoor); Recreation Facilities (outdoor); Recreation Facilities (major); Research stations; Roads; Roadside stalls; Rural industries; Rural supplies; Secondary dwellings; Transport depots; Veterinary hospitals; Water supply systems

4 Prohibited

Any development not specified in item 2 or 3

Zone E2 Environmental Conservation

1 Objectives of zone

- To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- To prevent development that could destroy, damage or otherwise have an adverse effect on those values.
- To protect threatened species and rivers, creeks and gully eco-systems within the Queanbeyan Local Government Area
- To identify and protect escarpment areas which enhance the visual amenity of the Queanbeyan Local Government Area and possess special aesthetic or conservational value.

- To protect water quality by preventing inappropriate development within catchment areas

2 Permitted without consent

Environmental protection works; Extensive agriculture; Home occupation; Home based child care

3 Permitted with consent

Bed and breakfast accommodation; Environmental facilities; Information and education facilities; Research stations; Roads

4 Prohibited

Business premises; Hotel or motel accommodation; Industries; Multi dwelling housing; Recreation facilities (major); Residential flat buildings; Restricted premises; Retail premises; Seniors housing; Service stations; Warehouse or distribution centres; Any other development not specified in item 2 or 3

Quarry Buffer Clause

7.12 Development in proximity of Cooma Road Quarry [local]

(1) This clause applies to land shown on the Quarry Buffer Map.

(2) The objective of this clause is to protect the operational environment of the quarry operations on the land subject to the buffer.

(3) In this clause, the Quarry Buffer Map means the *Queanbeyan Local Environmental Plan 2010 Quarry Buffer Map*.

(4) Before granting development consent to development on land to which this clause applies, the consent authority must take into consideration the following matters:

(a) the impact of noise, vibration and other emissions from the quarry on the development,

(b) whether any opportunities exist to carry out the development on other land,

(c) whether the development will adversely affect the operational environment of the quarry.

Definitions

open cut mining means mining carried out on, and by excavating, the earth's surface, but does not include underground mining.

extractive industry means the winning or removal of extractive materials (otherwise than from a mine) by methods such as excavating, dredging, tunnelling or quarrying, including

the storing, stockpiling or processing of extractive materials by methods such as recycling, washing, crushing, sawing or separating, but does not include turf farming. Note. Extractive industries are not a type of **industry**—see the definition of that term in this Dictionary.

industry means any of the following:

- (a) general industry,
 - (b) heavy industry,
 - (c) light industry,
- but does not include:
- (d) rural industry, or
 - (e) extractive industry, or
 - (f) mining.

resource recovery facility means a building or place used for the recovery of resources from waste, including works or activities such as separating and sorting, processing or treating the waste, composting, temporary storage, transfer or sale of recovered resources, energy generation from gases and water treatment, but not including re-manufacture or disposal of the material by landfill or incineration.



Queanbeyan Local Environmental Plan 2011

Queanbeyan City Council

Quarry Buffer Area Map - Sheet QBA_006

Quarry Buffer
Buffer Area

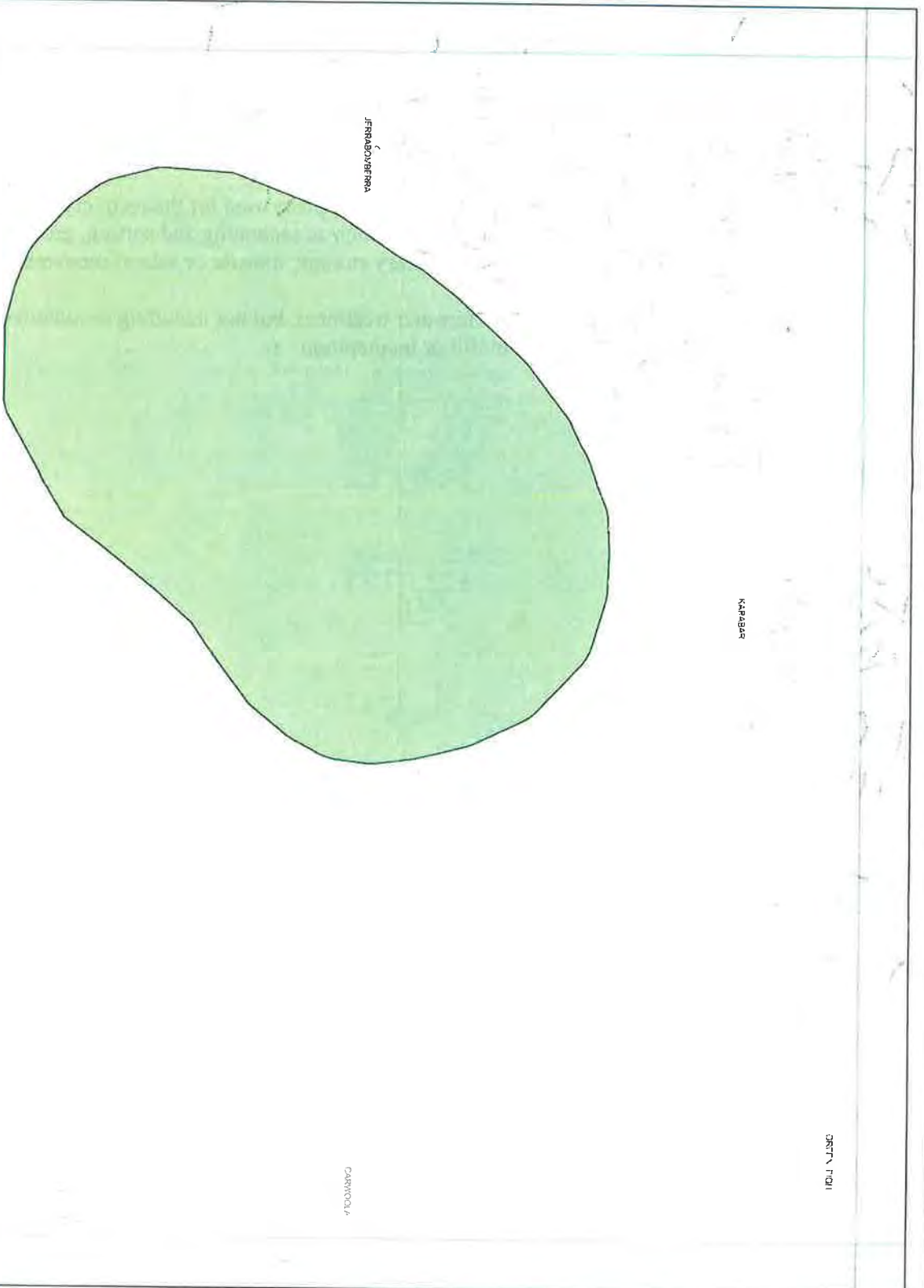
Cadastral

Cadastral 25-08-11 Land and Property Information (LPI)



Scale 1:20000 METRES

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SHEET 006

CARRICOOLA

PALEFRANGLIA

CROCODING

JERRABOMBERRA

KARABAR

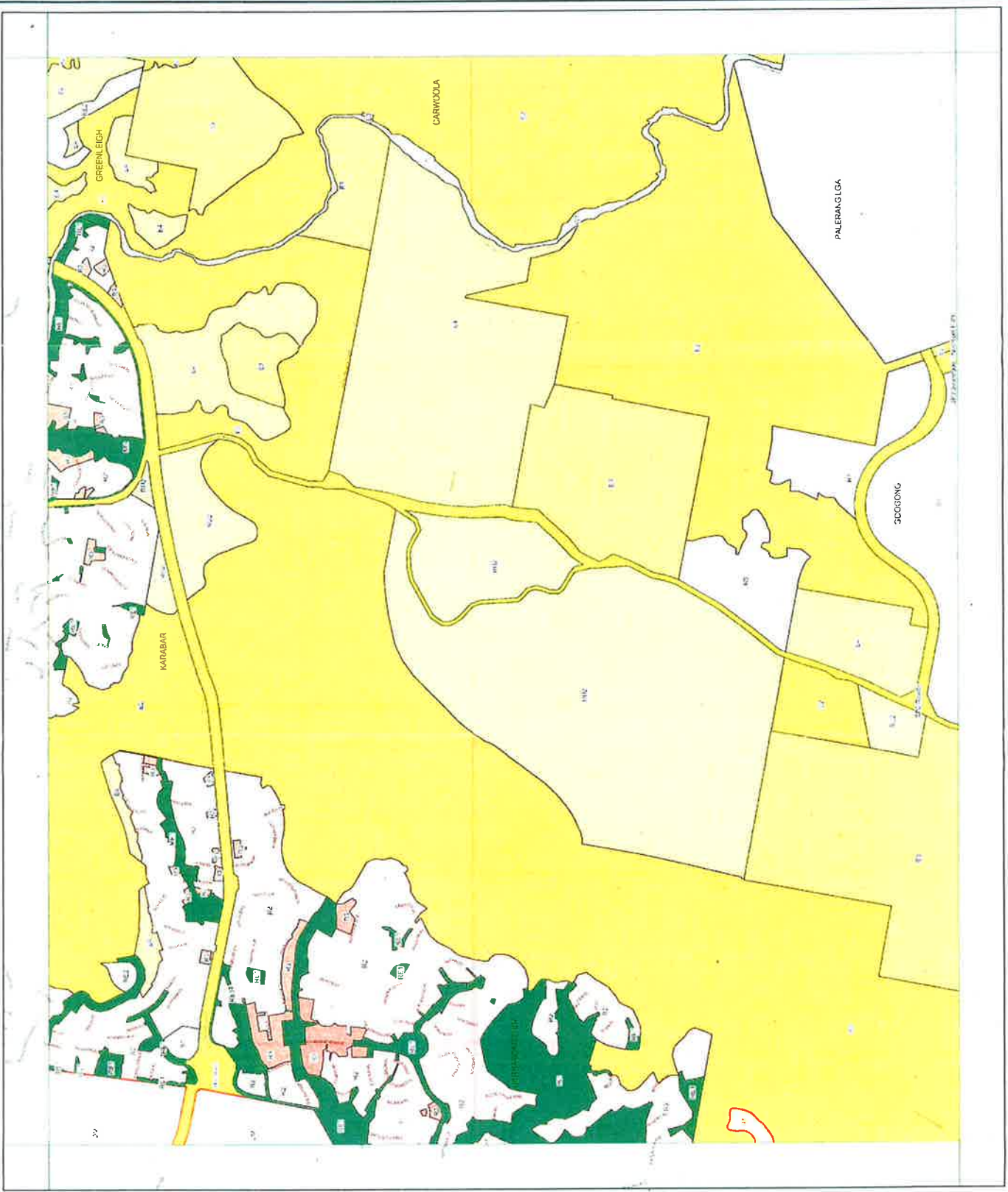
- Zone**
- B1 Neighbourhood Centre
 - B2 Local Centre
 - B3 Commercial Core
 - B4 Mixed Use
 - B5 Business Development
 - E1 National Parks and Nature Reserves
 - E2 Environmental Conservation
 - E3 Environmental Management
 - E4 Environmental Living
 - IN1 General Industrial
 - IN2 Light Industrial
 - R1 General Residential
 - R2 Low Density Residential
 - R3 Medium Density Residential
 - R4 High Density Residential
 - R5 Large Lot Residential
 - PR Public Recreational
 - PR2 Private Recreational
 - RU2 Rural Landscape
 - SA1 Special Activities
 - SP2 Special Activities
 - W1 Natural Waterways
 - D1/ Deferred Water

Cadastral
Cadastral 28/08/11 Land and Priority Information (LPI)

22	235	005
22	235	010
235	237	001
074		238



Scale 1:20000 @ A3



Project Team

Umwelt (Australia) Pty Limited – Environmental Impact Statement Preparation

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<p>Kerrie Hine, Project Administrator</p>	Administration Support

Other Specialist investigations

SKM	Air Quality Assessment
Foresight Partners	Economic Assessment and Needs Analysis
Coffey Geotechnics	Groundwater Assessment
Transport and Urban Planning	Traffic Impact Assessment

Holcim (Australia) Pty Ltd

The assistance of the following Holcim personnel during the preparation of this EIS is gratefully acknowledged. In addition, personnel from Holcim provided details regarding the project and participated in the community consultation process.

Rachel Heath	NSW Planning and Approvals Manager
Damon Bird	Geology and Development Manager
Peter Hewson	ACT Aggregates Operations Manager

Schedule of Lands

Cooma Road Quarry Continued Operations Project

Lot	DP	County	Parish
1	808393	Murray	Queanbeyan
124	754881	Murray	Queanbeyan
110	754881	Murray	Queanbeyan
111	754881	Murray	Queanbeyan
103	754881	Murray	Queanbeyan
104	754881	Murray	Queanbeyan

Appendix 2

Economic Assessment and Needs Analysis



ECONOMIC ASSESSMENT AND NEEDS ANALYSIS

Cooma Road Quarry Continued Operations Project

Prepared for
Holcim (Australia) Pty Ltd

July 2012

12014

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Disclaimer

The sole purpose of this report is to provide Holcim (Australia) Pty Ltd (the Client) with information in accordance with Foresight Partners Pty Ltd's scope of services set out in its proposal to the Client. Foresight Partners has relied upon information relevant to this report provided by government agencies, the Client and others. Except as otherwise stated in the report, Foresight Partners has not attempted to verify the accuracy or completeness of such information. The assumptions underlying the findings, observations, forecasts and conclusions presented in this report are subject to significant uncertainties and contingencies. Therefore, actual results may differ significantly from forecast results. Foresight Partners do not make or imply any warranty or guarantee with respect to the data reported or to the findings, observations, forecasts and conclusions expressed in this report. Foresight Partners cannot confirm or guarantee achievement of any forecast growth or performance, as future events, by nature, are not amenable to independent confirmation or substantiation.

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SUMMARY

The following economic assessment and needs analysis addresses the proposed extension of operations at Holcim Australia's Cooma Road Quarry in Googong, south of Queanbeyan, NSW.

To meet current and future market demand for quarry materials in the Queanbeyan and Canberra regions, Holcim Australia is seeking to continue quarry operations for another approximately 20 years at its existing Cooma Road Quarry.

This analysis demonstrates that the proposed extension of the Cooma Road Quarry:

- Is needed to meet future population growth and infrastructure requirements within the broader ACT-Queanbeyan region;
- Has an important role in meeting the road, housing and other construction markets in the region; and
- Has obvious and compelling economic and community benefits.

Holcim Australia currently extracts an average rate of 880,000 tonnes of hard rock products per year (averaged over five years) from the Cooma Road Quarry. The current approved production limit at Cooma Road Quarry is 1 million tonnes per annum.

Cooma Road Quarry mainly serves the Australian Capital Territory (ACT) and Queanbeyan areas, approximately within a 30 to 40 kilometre radius of the site. Products from the Cooma Road Quarry are also supplied as far as Yass and Goulburn to the north, Ulladulla to the east and Moruya and Batemans Bay to the south east.

There are four other operating hard rock quarries currently serving the Queanbeyan/ACT markets. These are located in Woden to the west of the site, Williamsdale to the south of the site, and Murrumbateman and Jeir to the north. Both the Woden quarry (operated by Boral) and the Williamsdale quarry (operated by Hanson) are understood to have similar production capacities and hard rock quality to the Cooma Road Quarry.

Demand for hard rock is primarily driven by population growth, and concomitant road and other infrastructure construction, and residential and commercial developments.

The NSW Department of Planning and Infrastructure and the ACT Government forecast that the population of Queanbeyan and ACT will grow by around 100,000 people over the fifteen years to 2026, a 25% increase in the total population.

Forecast demand for hard rock in the total supply area of the Cooma Road Quarry has been estimated using different scenarios, in particular low, medium and high estimates for demand per capita (4.0, 4.5 and 5.0 tonnes).

It is estimated that in the total supply area:

- Annual demand for hard rock will vary from a low of 2.88 million tonnes per annum to a high of 3.59 million tonnes per annum in 2026, compared to the actual production level of 2.43 million tonnes in 2011; and
- By 2026, when compared to 2011, annual demand for hard rock will have increased in the range 0.46 to 0.57 million tonnes.

The proposed continued operations of Cooma Road Quarry is expected to generate continued economic and community benefits for the greater Canberra region. The quarry is strategically located to service growth in its key markets, as well as a number of planned major residential, commercial and infrastructure projects.

Cooma Road Quarry employs 20 staff at the site, plus 13 directly employed truck drivers, and up to a further 30 contractor drivers (depending on the day). In 2011, employee wages totalled approximately \$4.5 million. The proposal will increase peak employment on site (to 25 staff and 17 truck drivers), transportation personnel and those involved in directly related activities, such as road construction, as a result of the increased lifespan and extension of the quarry.

The continued operations will take place from 2013 for approximately 20 years. The project itself will cost an estimated \$3.5 million, with a total contribution of \$9.786 million to the economy once multiplier effects are taken into account.

Holcim Australia's Cooma Road Quarry



1 INTRODUCTION

1.1 Background

Holcim (Australia) Pty Ltd (Holcim Australia) operates Cooma Road Quarry located in Queanbeyan, NSW. The quarry, which produces the hard rock products of granite and dacite, is a significant supplier of construction materials in the Australian Capital Territory (ACT) region.

Cooma Road Quarry is located approximately 6 kilometres south of Queanbeyan and 11 kilometres south east of Canberra, and has been operating at the current site since 1959.

The current development consent for Cooma Road Quarry was granted on 26 October 1995 by the Queanbeyan City Council. Cooma Road Quarry is a significant regional supplier of granite and dacite hard rock aggregates with a current maximum annual production limit of 1 million tonnes per annum.

The quarry itself is currently located within Lot 1 DP808393 (101.6 hectares), while the current infrastructure and stockpile areas are located on Lots 103, 110 and 111 DP754881 (52.6 hectares total).

1.2 Proposed quarry extension

Holcim Australia is seeking a new development consent for its operations at Cooma Road Quarry to allow for the extraction of remaining resources within the existing approved quarry pit area and for quarrying beyond the currently approved footprint, and for a further 20 years beyond its current development consent, which expires in 2015.

In seeking approval under the Environmental Planning and Assessment Act 1979 (EP&A), Holcim Australia is also pursuing approval to:

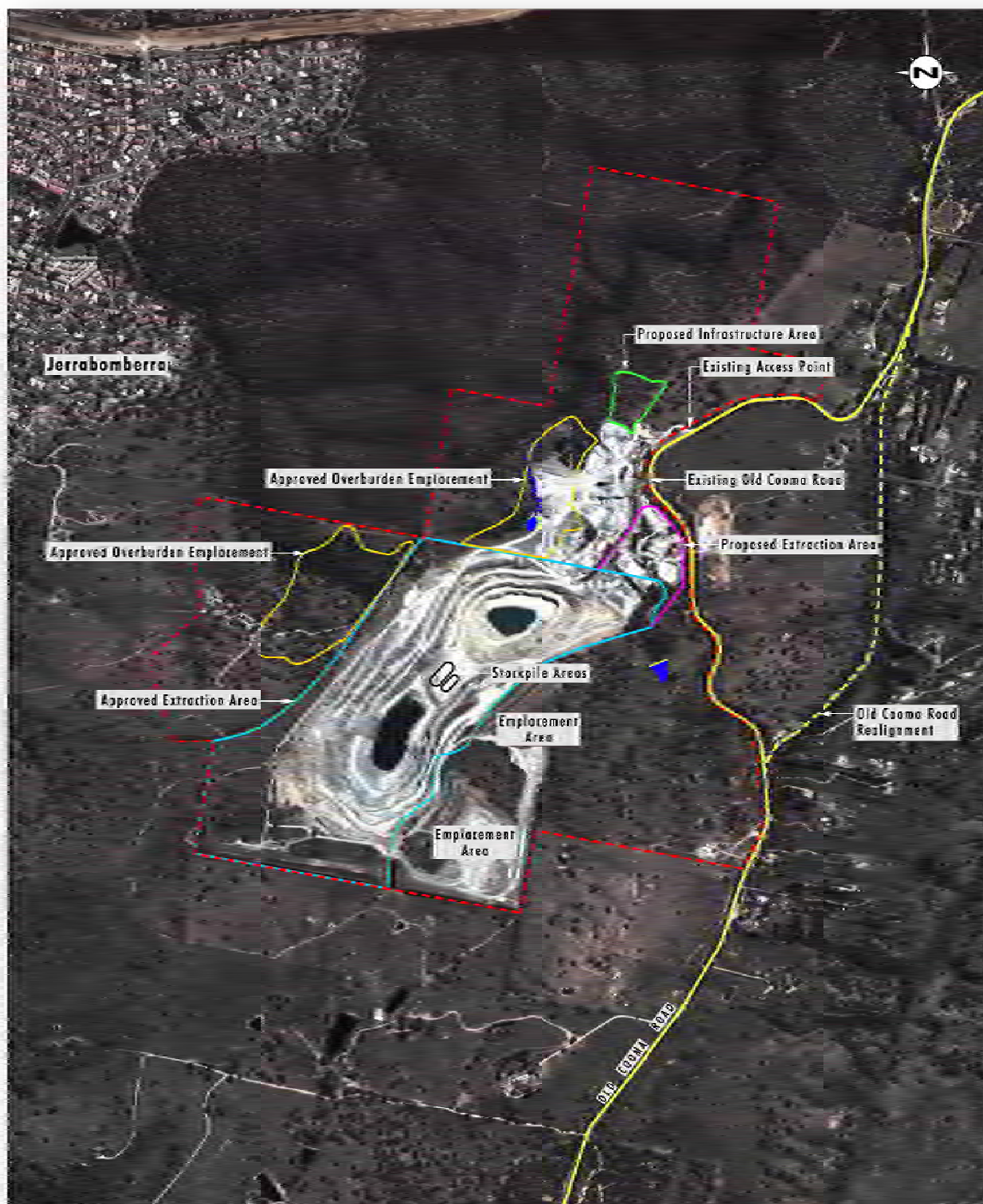
- construct surface water management system components on the quarry site;
- relocate the existing workshop, truck parking and temporary stockpiles to alternate infrastructure area;
- increase its annual extraction limit from 1Mtpa to 1.5Mtpa;
- allowance to receive quarry materials from other sites for crushing and screening and then sale;
- extend its hours of operation from 6am to 6pm Monday to Saturday to 6am to 10pm Monday to Friday for certain activities and 6am to 6pm Saturdays;
- add a mobile pug mill; and
- undertake recycling of concrete waste on-site.

The proposed relocation and extended extraction areas are shown in Figure 1.1.

Construction of the surface water management system components are scheduled to take place between 2013 and 2014. Between 2018 and 2020, the quarry's infrastructure area

is to be relocated. This will involve relocation of the existing workshop, truck parking and temporary stockpiles, the construction of new internal road and planting of vegetation screening. The extension of the quarry pit will be a gradual process as part of the quarry's normal operations.

Figure 1.1: Holcim Australia's Cooma Road Quarry



1.3 Methodology

Foresight Partners Pty Ltd was commissioned to assess the community and economic need and benefit of the Cooma Road Quarry Continued Operations Project.

The following investigations were carried out:

- Overview of existing operations, including resource uses and current operations, including production, markets served and employment;
- Reconnaissance of the supply area;
- Investigation of current and potential supply of hard rock quarry resources serving the Canberra/Queanbeyan market;
- Supply and uses of recycled construction materials and alternative materials in place of natural quarry products;
- Analysis of trends in demand and demand per capita to forecast future demand for hard rock over the next 15 years in the total supply area of the Cooma Road Quarry. Data used in the analysis include historic production rates, consumption per capita and projected population growth in the region;
- Identification of major residential, commercial and infrastructure projects committed or planned with the quarry's main area of supply; and
- Examination of the key economic and community benefits of the proposal.

2 OVERVIEW OF EXISTING OPERATIONS

2.1 Resource uses

The shape and size distribution of hard rock largely affects what the natural or derived hard rock product can be used for. As it is often referred to, and as it is categorised by the Queensland Department of Mines and Energy (DME), hard rock is mainly subdivided into the categories of broken rock, coarse aggregate (>5 mm), fine aggregate (<5 mm), road base and unprocessed construction materials. Details of each category are as follows:

- broken rock - comprising armour stone, boulder and rip rap, is used as retaining walls, landscaping rock and for protection against wave erosion respectively;
- coarse aggregate - mainly used in the building and construction industries for the manufacturing of concrete, as a surface-course material layered onto fresh bitumen and for pre mixing with bitumen. Other materials include railway ballast used for railway base and crusher fines that serve various purposes as a road making material, such as a fill for various types of road making applications;
- road base and sub base - often referred to as pavement materials, are used as base material and sub-base layer for various types of roads. Other uses include car parks, filling underneath concrete slabs and select fill;
- overburden - mainly used as a foundation material for the construction of roads, including ramps, overpasses and interchanges;
- fine aggregate (manufactured sand) - used as an alternative to natural sand, for example as aggregate in concrete; and
- unprocessed construction materials - such as weathered rock, are used for road base.

Examples of hard rock products and typical market uses are presented in Table 2.1.

Table 2.1: Examples of hard rock products and market uses

<i>Hard rock products</i>	<i>Market uses</i>
Concrete aggregate	Concrete for roads, drainage, pre-cast products such as pipes and septic tanks
Road base and sub base	Base layer for various types of roads. Also used for car parks, filling underneath concrete slabs and select fill
Crusher fines/dust	Fill for road making applications (i.e. driveways), house site fill, landscape yards
Unprocessed construction materials	Road base and land fill

Hard rock products	Market uses
Manufactured sand	Used in place of natural sand for applications such as concrete
Broken rock (armour stone, boulder, rip rap)	Retaining wall and landscaping rock, protection against wave erosion
Rail ballast	Railway base
Sealing aggregate and asphalt aggregate	Used as surface-course material layered onto fresh bitumen and for pre-mixing with bitumen (roads)

Source: QLD Department of Mines and Energy

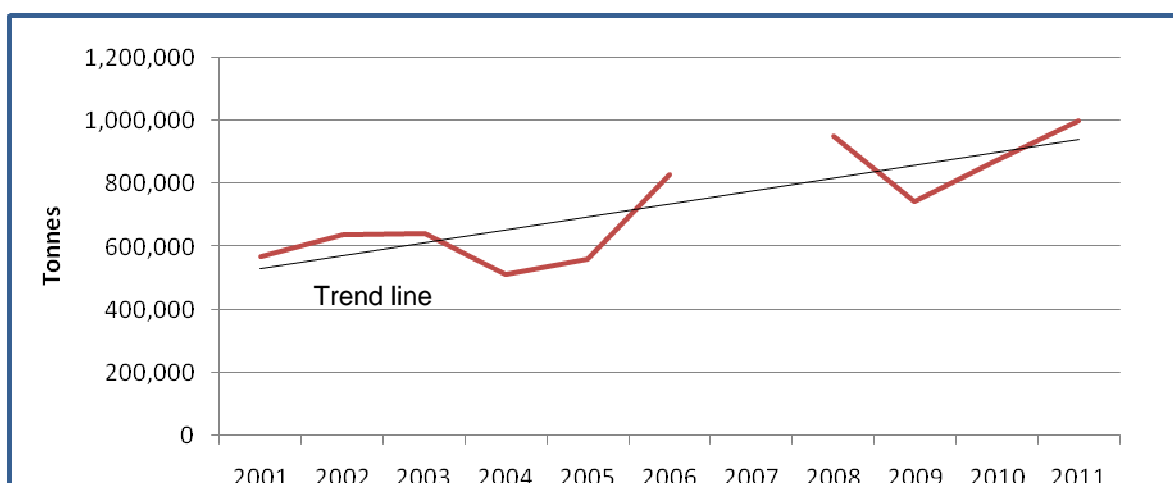
2.2 Current operations

2.2.1 Production

Cooma Road Quarry produces granite and dacite hard rock aggregates. According to the 2010 New South Wales Minerals Industry Annual, Cooma Road Quarry was the 7th highest producing quarry in New South Wales in 2008-09.

Although there have been some fluctuations, annual production at the Cooma Road Quarry has generally followed an increasing trend over the past ten years (see Figure 2.1). Production has increased from 567,000 tonnes in 2001 to 1 million tonnes in 2011, which is equal to the quarry's maximum annual production limit.

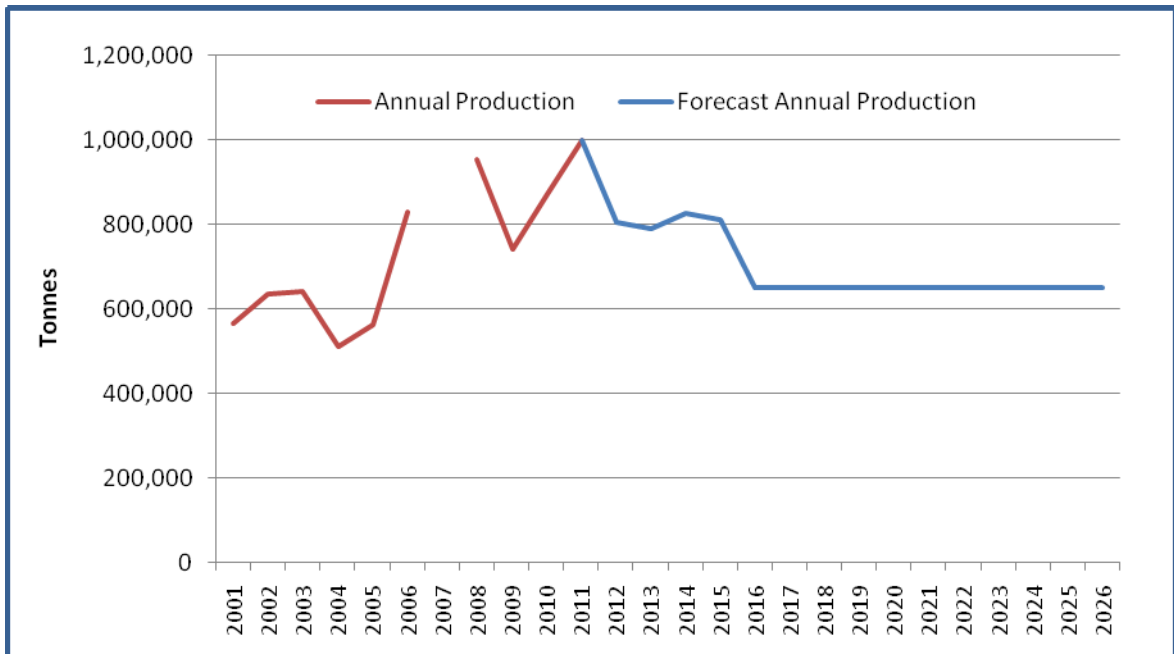
Figure 2.1: Annual production volume at Cooma Road Quarry, 2001-2011*



Source: Holcim Australia 2012 *2007 has not been included due to a significant change in reporting period (9 month period only for 2007)

Our discussions with Holcim Australia indicate that over the next fifteen years, annual production is expected to fall slightly and stabilise at around 650,000 tonnes per annum (Figure 2.2). Fluctuations around this figure are expected and depend on construction activity and the timing and demand from major projects in the local region.

Figure 2.2: Actual and forecast production volume at Cooma Road Quarry, 2001-2026*



Source: Holcim Australia 2012 *2007 has not been included due to a significant change in reporting period (9 month period only for 2007)

2.2.2 Employment

As at June 2012, there were 20 full-time staff members at the Cooma Road Quarry, plus 13 truck drivers. On peak days, the quarry can also engage up to 30 contracted truck drivers.

Once the extension of the quarry is complete, it is estimated that the number of staff working at the quarry will increase to 25, while the number of truck drivers will grow to 17, an increase of 9 staff directly employed by Holcim Australia.

2.3 Markets served

Extractive resources, including hard rock materials, are high volume, low cost products and are particularly sensitive to transport costs. Transport costs alone can represent a large portion of the delivered cost of the material. In some cases, the limitation of alternative hard rock sources in an area means that the delivery of the product beyond a certain distance results in transportation costs per tonne exceeding the cost of the hard rock per tonne ex-bin (sold directly at the quarry site).

For this reason, quarries generally need to establish (where the resource location permits) close to major centres or towns. The comparatively high transportation costs mean that quarries generally service a limited area that is within reasonable distance to the quarry. Cooma Road Quarry generally transports materials within a 30 to 40km radius, although, if required, it can supply materials to markets located further afield.

The 'core' area served by Cooma Road Quarry consists of the ACT and Queanbeyan Local Government Areas (LGAs). Discussions with Cooma Road Quarry staff indicate that at least 95% of the hard rock produced at the quarry is delivered within this core area. Major customers of the quarry include the following, which are also shown in the map in Figure 2.3:

- Holcim Australia's concrete plants in Fyshwick and Mitchell;
- Elvin's concrete plants in Mitchell and Hume; and
- Hewatt Earthworks in Molonglo and Kings Highway.

The quarry also supplies an extended area reaching as far as 150km from the quarry site. This supply area encompasses the towns of Goulburn and Yass to the north, Cooma to the south, Ulladulla to the east and Moruya and Batemans Bay to the south east. The quarry supplies various road and infrastructure projects (e.g. windmill farms) within this region, and also supplies Holcim Australia-owned concrete plants in Moruya, Mogo and Batemans Bay on the far south coast of NSW. The LGAs included in this extended area are:

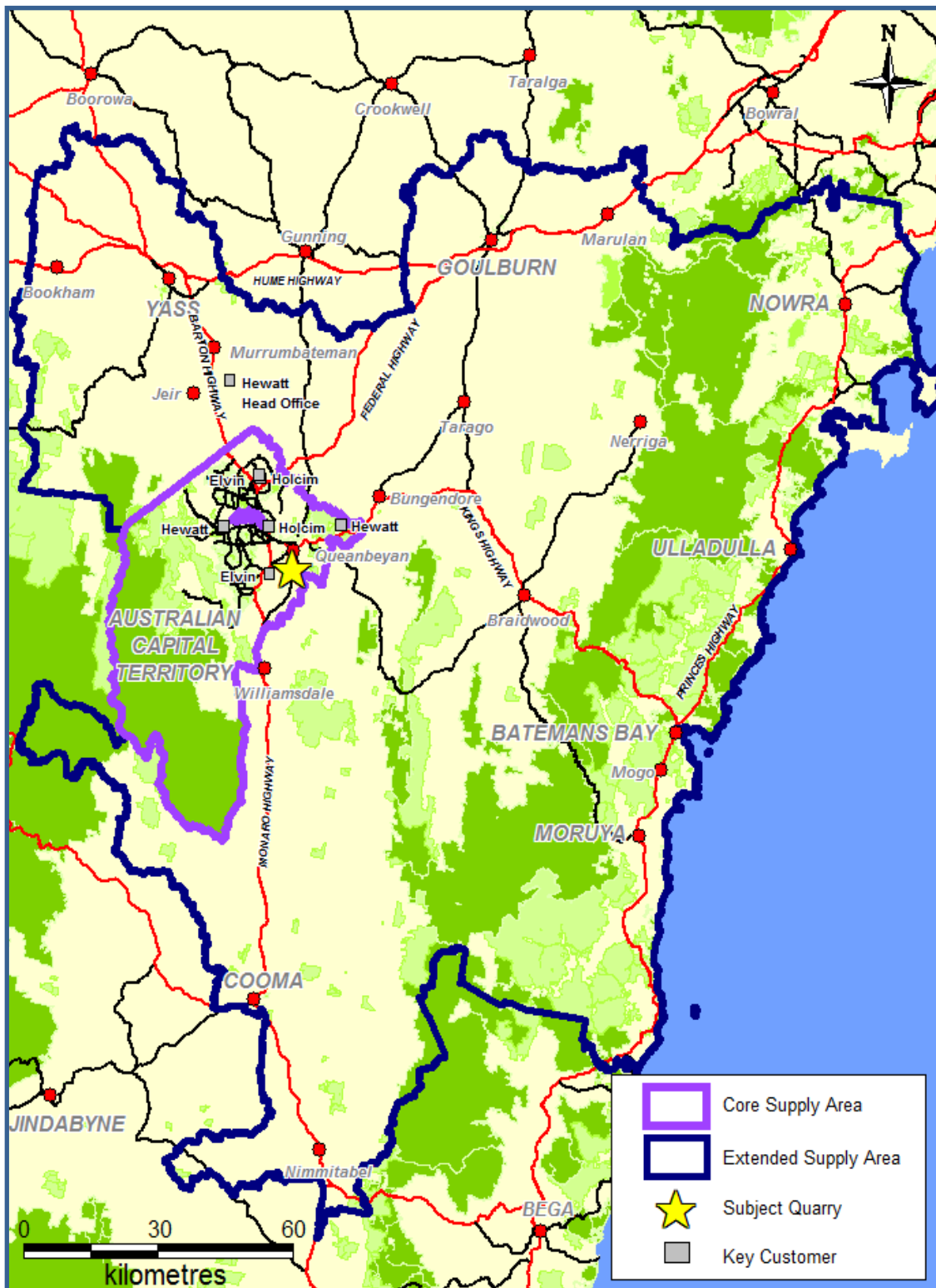
- Cooma Monaro;
- Eurobodalla;
- Goulburn Mulwaree;
- Palerang;
- Shoalhaven; and
- Yass Valley.

Although this extended supply area is very large, less than 5% of the quarry's output is supplied within this area. This is for two main reasons:

- there is a limited amount of construction activity as the population is small and relatively dispersed in this regional area and growth is modest; and
- there are other quarries better located to the north and east to service any construction projects in these areas.

A map showing the approximate extent of these two supply areas (by LGA boundary) is provided in Figure 2.3.

Figure 2.3: Approximate supply areas of Cooma Road Quarry



3 SUPPLY OF HARD ROCK PRODUCTS

Cooma Road Quarry is one of several servicing the ACT and Queanbeyan region. This section broadly examines the hard rock industry, then details the major quarries throughout the region and examines recycled materials as substitutes for hard rock.

3.1 Industry analysis

The market for hard rock in the ACT and Queanbeyan areas derives largely from demand within the construction and building industries, driven by population growth, economic activity and specific infrastructure projects.

In NSW in general, large national and multi-national companies often dominate the supply of quarry materials, with local government owned quarries and smaller operators providing significant competition, if strategically located.

Australian construction companies often exhibit high levels of vertical integration with joint control of the supply of raw quarry materials, the manufacturing of concrete, asphalt and other derived products in addition to the running of substantial truck fleets. In doing so, up-stream and down-stream operations are often controlled by the same company to minimise risk exposure to external market factors.

The main target markets for quarry firms include:

- internal sales;
- manufacturers;
- re-sellers;
- contractors and sub-contractors; and
- the government.

3.2 Hard rock supply in ACT, Queanbeyan and surrounds

Including Cooma Road Quarry, there are currently five hard rock quarries that are likely to service the ACT/Queanbeyan region. A brief overview of each quarry is provided below, sourced from various company websites. There are also several other hard rock quarries located in surrounding localities which are outlined in Table 3.1. The approximate locations of these quarries are shown in Figure 3.1.

- **Holcim Australia's Cooma Road Quarry** on Cooma Road, Googong, NSW (the subject site). The quarry produces both dacite and granite and produces up to 1 million tonnes of hard rock per annum. Around 95% of the quarry's products are delivered within the ACT/Queanbeyan area.
- **Boral's Mugga** quarry on Mugga Lane, Woden, ACT. This quarry is located in Canberra's south about a 17km drive from the Cooma Road Quarry, and is in close proximity to concrete recycling and other waste management facilities. The current lease for the quarry expires in the year 2020. In the Preliminary Assessment submitted with the application for the

current lease in 1999, Boral stated that the Mugga quarry produced up to 350,000 tonnes of crushed rock products per year and that the quarry had reserves of 18 million tonnes of mixed grades¹.

- **Hanson's Williamsdale** quarry located on Williamsdale Road, Williamsdale, NSW, is a 25 to 30 minute drive south of the subject site. It produces a range of high quality materials including crusher dust, gravels, road base, pebbles, asphalt and sand.
- **Boral's Hall** quarry in Jeir, NSW. This quarry is located around 30km north of Canberra's city centre and 50km from the Cooma Road Quarry and produces aggregates and hard rock. The quarry is well located to service the Canberra region.
- **Schmidt's Murrumbateman** quarry in Murrumbateman, NSW. This hard rock quarry is located a 50km drive north of central Canberra and 70km from the subject site.

Other hard rock quarries included in Figure 3.1 and Table 3.1 include:

- Holcim Australia's Marulan quarry
- Glenella's Bogo quarry in Bookham
- Schmidt's quarries in Nerriga, Nimmitabel and Braidwood
- Gunlake quarry in Marulan

Future supply of hard rock is limited by the finite nature of the resource itself. However, it is difficult to ascertain the potential lifespan of competing quarries, given the commercially sensitive nature of such information.

In addition, restrictions of the hours of operations, and maximum yearly extraction rates of quarries, as specified in approvals, at times limit the ability of quarries to meet spikes in demand. Cooma Road Quarry, for example, is approved to operate the quarry only between the set times of 6am to 6pm Monday to Saturday. Therefore, quarries in general are limited in their annual production capabilities and as such a single quarry may not be capable of acting as a sole supplier for a major infrastructure project, even if it is located near the project.

The proposed continuation and increase of the annual extraction limit will help provide for security of supply in future major infrastructure projects, as well as meeting the demand generated by population growth.

In recent years, approval has been granted for the development of two major hard rock aggregate quarries in the Marulan area in the Goulburn Mulwaree LGA (Lynwood (Holcim Australia) and South Marulan (Boral)) that will ultimately produce up to 8.5 million tonnes of aggregates per year². However, production in these two quarries will primarily supply the Sydney market to the north-east.

¹ Southern Broadacre Planning Study, SMEC, 2005

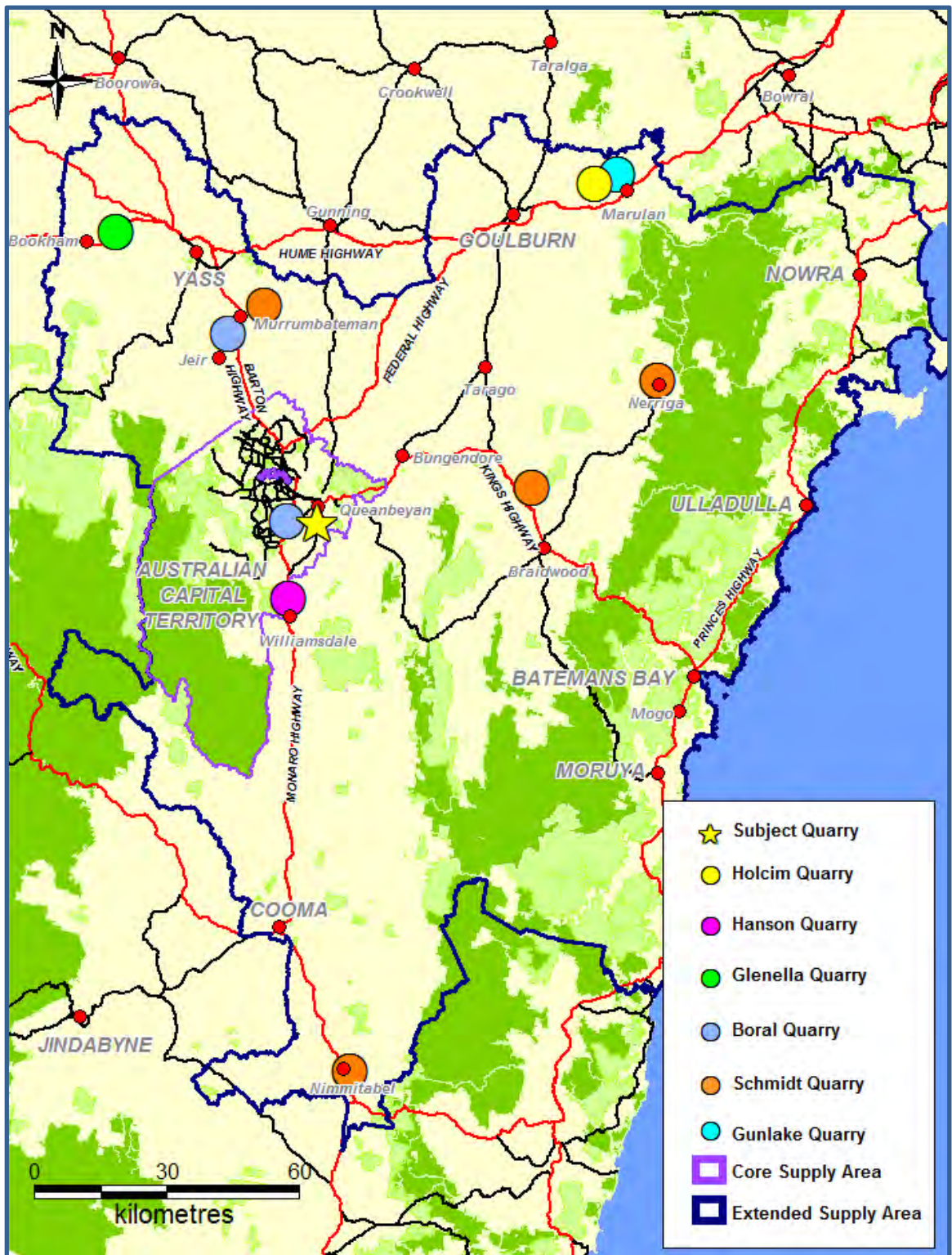
² 2010 New South Wales Minerals Industry Annual

Table 3.1: Selected hard rock quarries in the supply area of Cooma Road Quarry

Company	Name of quarry	Address	Distance from Cooma Road Quarry	Materials produced
Holcim Australia	Cooma Road	Cooma Rd, Googong	-	Granite and dacite
Boral	Canberra	Mugga Lane, Woden	17km	Bitumen and asphalt
Hanson	Williamsdale	Williamsdale Rd, Williamsdale	25km	Crusher dust, gravels, road base, pebbles, asphalt
Boral	Hall	Dog Trap Rd, Jeir	50km	Concrete and asphalt
Schmidt Quarries	Murrumbateman	Greenwood Road, Murrumbateman	70km	Hard rock aggregate
Schmidt Quarries	Braidwood	Kings Hwy, Braidwood	75km	Sand, Soil and Gravel
Glenella	Bogo	Paynes Rd, Bookham	110km	Re-coat Aggregates, Roadbase, Select Fill and Crusher Dust
Schmidt Quarries	Nerriga	Nerriga Rd, Nerriga	120km	Basalt rock
Holcim Australia	Johniefields	Brayton Rd, Marulan	130km	Hard rock aggregate
Gunlake Quarry	Marulan	715 Brayton Road, Marulan	130km	Hard rock aggregate
Schmidt Quarries	Nimmitabel	Monaro Hwy, Nimmitabel	140km	Tertiary basalt and hard rock aggregate

Source: Various company websites

Figure 3.1: Selected hard rock quarries, ACT and surrounding areas



3.3 Recycled construction and demolition materials

Re-use and recycling of construction and demolition waste is becoming industry standard practice in Australia. Concrete reprocessing involves the use of relatively uncomplicated and well-established crushing techniques and can result in quality recycled aggregates.

In some metropolitan locations, reprocessing sites can produce products that are commercially competitive with quarry products. Depending on transportation costs, recycled aggregate can be less expensive than virgin material.

In 2006-07, 206,000 tonnes of construction and demolition waste was recycled in the ACT and this figure decreased slightly to 175,000 tonnes in 2007-08. Compared to other Australian states and territories, the ACT has the highest rate of recycling for construction and demolition waste. As shown in Table 3.2, the ACT has historically recycled over 80% of the construction and demolition waste generated each year, while the Australian average has remained around 55%.

Table 3.2: Construction and demolition waste recycling in ACT, 2006-07 and 2007-08

	C&D waste recovered ('000 tonnes)	C&D waste disposed ('000 tonnes)	Total C&D waste ('000 tonnes)	Recycling rate
2006-07	206	21	227	91%
2007-08	175	40	215	81%

Source: *Management of Construction and Demolition Waste in Australia*, Hyder Consulting, 2011; *Waste and Recycling in Australia*, Hyder Consulting, 2009.

Recyclers of construction and demolition waste in ACT include Canberra Concrete Recyclers in Pialligo and ACT Recycling at the Mugga Lane Resource Management Facility in Symonston. The Mugga Lane Facility diverts approximately 100,000 tonnes of construction and demolition materials from landfill per annum³, giving it an approximate 50% market share in the construction and demolition recycling market.

There are obvious benefits in using recycled aggregates. However, some recycled aggregates have limited uses given their chemical properties and are suitable only for lower strength applications like road bases and select fills.

Recycled materials form a significant and sustainable source of supply of construction materials in the ACT/Queanbeyan region, and will continue to complement the production output of the region's existing quarries.

As part of the proposal at the Cooma Road Quarry, approval is sought to enable the site to carry out concrete recycling for re-use as product. Strict control conditions will apply to the concrete recycling process including:

- the receipt of clean concrete from approved suppliers only;
- proof of origin of the concrete; and

³ ACT Recycling Pty Ltd, <http://www.actrecycling.com.au/index.html>, June 2012

- validation of returned concrete material to confirm it is free of general waste materials, wood, paper and metals.

The validated clean concrete material will be stored on site and recycled through the current on-site processing plant in accordance with all appropriate environmental management controls.

3.4 Summary

There are limited sources of quarry material within the region served by Cooma Road Quarry, with only one other hard rock quarry operating within the core supply area and three others within reasonable transportation distance. Each quarry is limited in the amount it can produce, and produces only certain products.

Having several hard rock quarries within ACT and Queanbeyan ensures a healthy competitive market capable of responding to growth in demand, including periodic spikes associated with major projects. There are no known proposals for future quarries being developed in ACT or Queanbeyan.

Additional quarries are located a significant distance from ACT and Queanbeyan, with most of them located 100km or more from the Cooma Road Quarry, in proximity to towns such as Yass, Goulburn and Cooma. Given their location, they mainly serve different markets to the Cooma Road Quarry.

4 DEMAND FOR HARD ROCK PRODUCTS

This section discusses the drivers of demand for hard rock, trends in demand and demand per capita, and then examines forecast demand for hard rock.

The market for extractive materials is known as derived demand, as it is derived by the demand for goods and services that use aggregates and quarry products, such as roads and buildings. As most hard rock quarry products are used for construction purposes, a number of factors contribute to the demand for aggregates and related products. The primary, and interrelated, sources of demand are:

- population growth;
- residential development;
- commercial and industrial developments; and
- road and other infrastructure construction.

Demand for construction materials is closely linked to activity in the construction industry, which is in turn linked to general economic conditions.

4.1 Historic production of hard rock

The most comprehensive source of information available for the production of hard rock and construction materials in NSW (excluding ACT) is produced annually by the Industry Coordination Unit, Industry and Investment NSW. Production statistics are available at the Local Government Area level.

Types of materials included in the production data include:

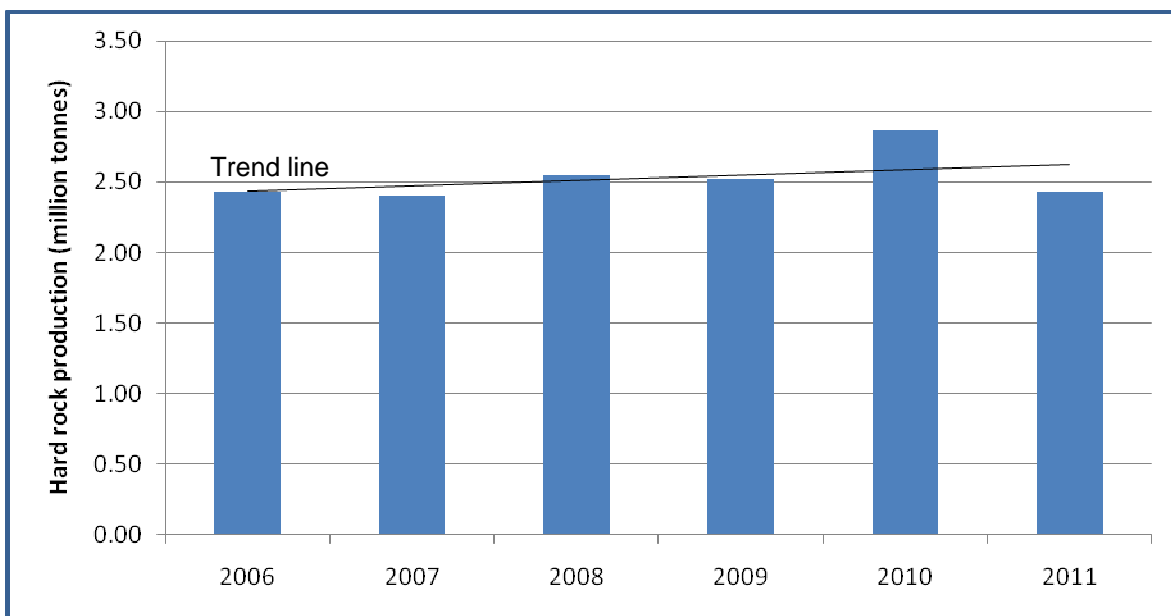
- Argillite
- Basalt
- Chert
- Conglomerate
- Dacite
- Decorative Aggregate
- Dolerite
- Granite
- Latite
- Quartzite
- Rhyodacite
- Rhyolite
- Sandstone
- Shale
- Other Virgin Materials

River gravel, loam, and all types of sand were excluded from the production figures.

The production data provided for the Queanbeyan City Council area was updated with the production data for Cooma Road Quarry provided by Holcim Australia. In addition, because ACT production figures were not included, it has been assumed that production at Boral's Mugga Lane quarry (the only hard rock quarry in ACT) is similar to production at Cooma Road Quarry, as the two have the similar production capacities.

Figure 4.1 shows estimated production of the above hard rock materials in the total supply area between 2006 and 2011. Over the six years, annual production has trended upwards, with a slight decline in 2011 to 2.43 million tonnes. Over this period, annual production has averaged 2.53 million tonnes.

Figure 4.1: Estimated production of hard rock in total supply area of Cooma Road Quarry, 2006-11



Source: New South Wales Government Department of Industry and Investment, 2012 (unpublished data), Holcim Australia 2012

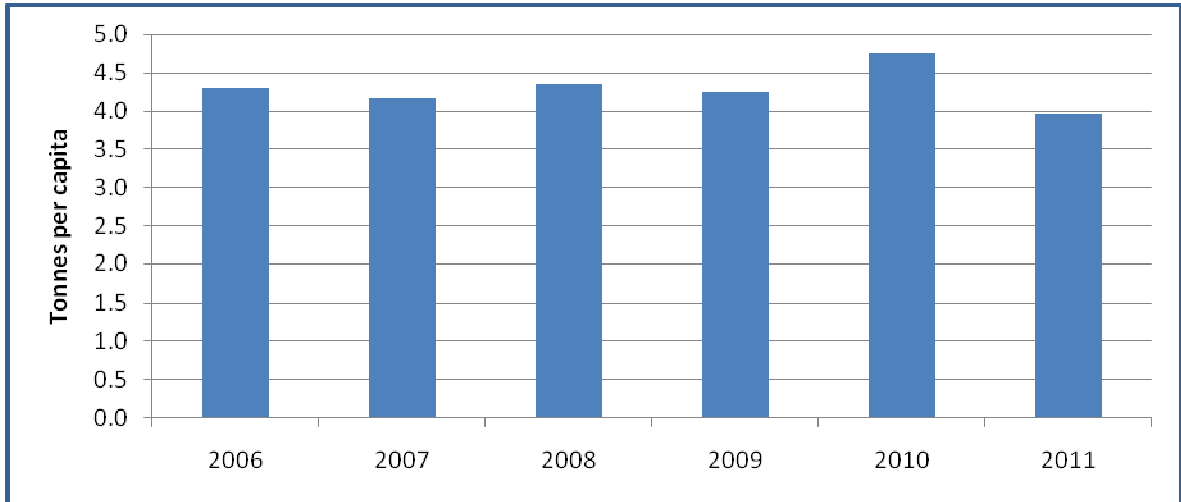
4.2 Production per capita

The amount of hard rock produced per capita each year provides a reasonably robust means of forecasting the future demand for these products. Per capita forecasts for hard rock, as calculated below, encompass demand for all development projects, including residential, road and infrastructure.

Historic and current production per capita figures, shown in Figure 4.2 were derived using yearly production data from the NSW Government Department of Industry and Investment and production data provided by Holcim Australia, and Australian Bureau of Statistics (ABS) population estimates by LGA.

Over the six years, hard rock production per capita has remained relatively stable, with a minimum of 4.0 tonnes per capita and a maximum of 4.7 tonnes per capita. Over this period, production has averaged 4.3 tonnes per capita.

Figure 4.2: Per capita production of construction materials in total supply area of Cooma Road Quarry, 2006-11



Source: Foresight Partners estimates based on New South Wales Government Department of Industry and Investment, 2012 (unpublished data); Holcim Australia 2012; 3218.0 ABS Regional Population Growth.

4.3 Population projections

Population projections for the quarry's supply areas are presented in Table 4.1 and Figure 4.3. The distribution of population growth is shown on the map in Figure 4.4.

As at June 2011, the population of the quarry's core supply area was almost 400,000. Within the core supply area, around 90% of the population resides in the ACT with the remainder residing in Queanbeyan.

Over the 20-year period to 2031, the population of this core area is projected to grow by 100,000 people to 500,000, with an annual growth rate of 1.34%. This represents a population increase of about 25% for the core supply area of the quarry over the next 20 years.

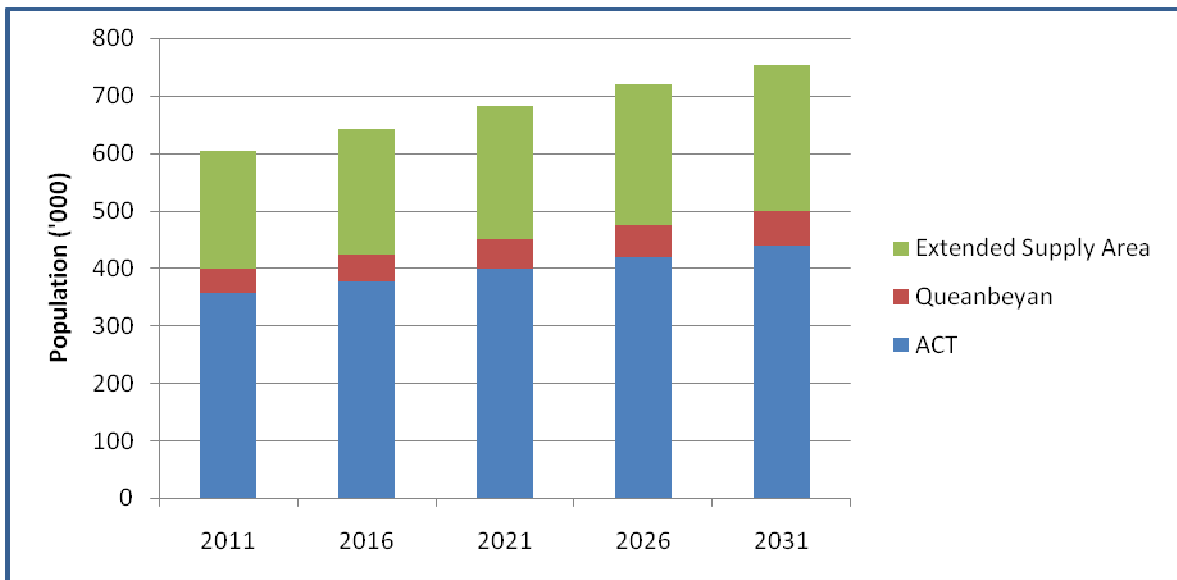
The extended supply area, with a 2011 population of around 200,000, is projected to grow at a slightly slower rate than the core supply area. Between 2011 and 2031, the population is projected to increase by around 50,000 people. The largest population growth in the extended supply area is expected in coastal areas which are a significant distance from the Cooma Road Quarry.

Table 4.1: Population projections for the core and extended supply areas of Cooma Road Quarry, 2011-2031

Supply Area	'000 persons					Increase 2011-31 ('000)	% annual increase, 2011-31
	2011	2016	2021	2026	2031		
Queanbeyan	42	47	52	56	61	19	1.83%
ACT	356	377	399	419	438	82	1.04%
Core	399	424	450	475	499	100	1.34%
Extended	205	219	231	244	255	50	1.29%
Total	604	643	681	719	754	150	1.33%

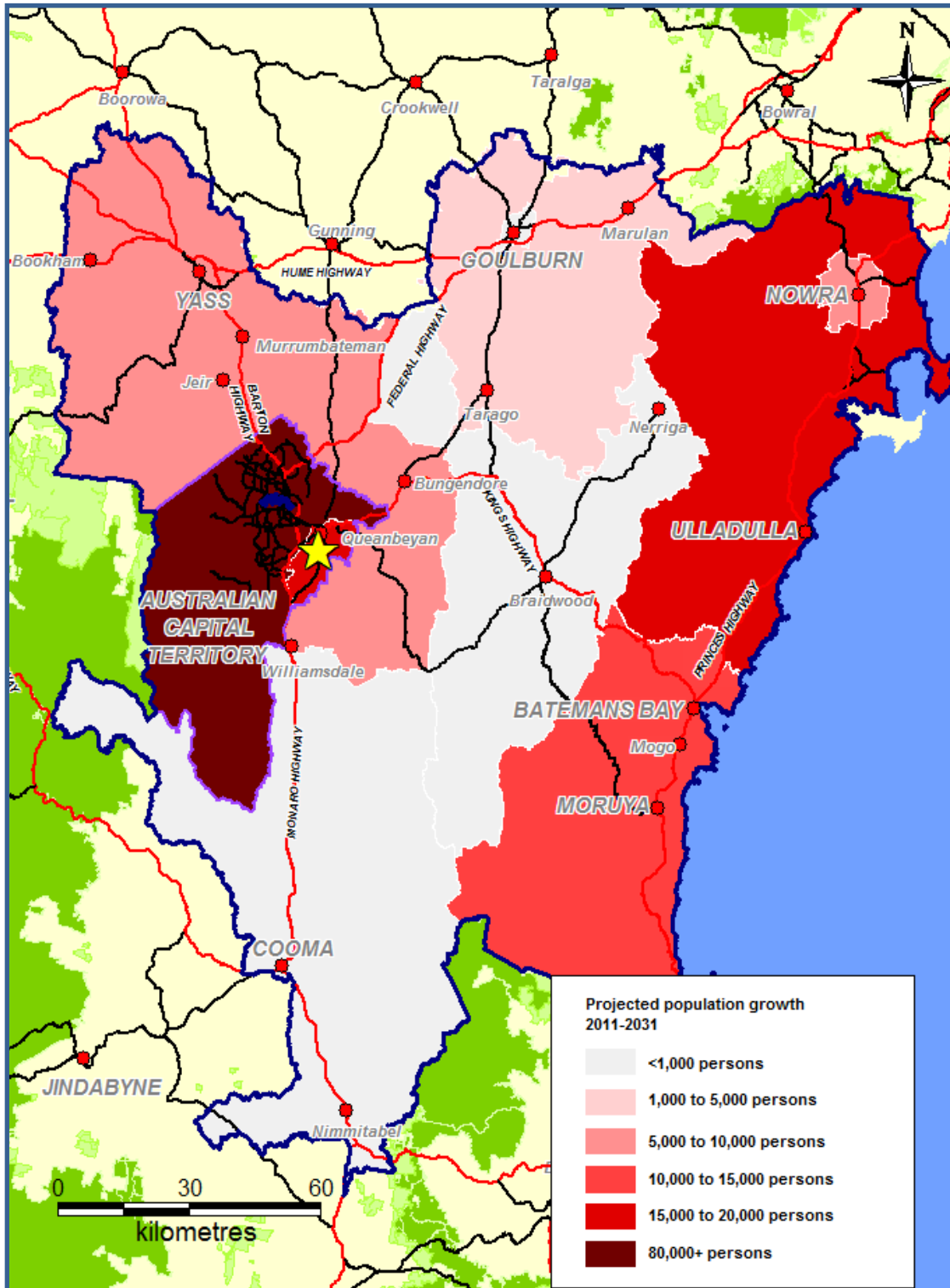
Source: 2010 NSW SLA Population Projections, Department of Planning (for NSW LGAs); 2009 ACT Population Projections 2007 to 2056

Figure 4.3: Population projections for the core and extended supply areas of Cooma Road Quarry, 2011-2031



Source: 2010 NSW SLA Population Projections, Department of Planning (for NSW LGAs); 2009 ACT Population Projections 2007 to 2056

Figure 4.4: Distribution of projected population growth, total supply area of Cooma Road Quarry, 2011 to 2031



Source: 2010 NSW SLA Population Projections, Department of Planning (for NSW LGAs); 2009 ACT Population Projections 2007 to 2056

4.4 Forecast demand for hard rock

Historical data on population growth and hard rock production data in the total supply area show a close correlation, as it does in other quarry product markets investigated by Foresight Partners. Forecasts of future population growth should provide a close approximation of the overall future demand for hard rock in the total supply area.

Production per capita is strongly influenced from year to year by major projects and economic cycles. The former can generate spikes in demand for short periods during construction, and the latter's impact is most noticeable in economic downturns. Government policy also influences demand, as it can bring forward major road and infrastructure investment to help ameliorate the impacts of economic recessions.

4.4.1 Demand forecasts

Historical data on per capita production suggests that it could grow to 5.0 tonnes per capita. In order to estimate the likely range of future demand for hard rock, three scenarios (low, medium, high) are used.

- Low: 4.0 tonnes of demand per capita – Slightly lower than the average demand per capita in the total supply area over the past six years.
- Medium: 4.5 tonnes of demand per capita – About 5% higher than the average production per capita over the past six years.
- High: 5.0 tonnes of demand per capita – around 15% higher than current demand per capita, but is not unreasonable over the medium to longer term given a level of 4.7 tonnes of demand per capita was achieved in the total supply area in 2010.

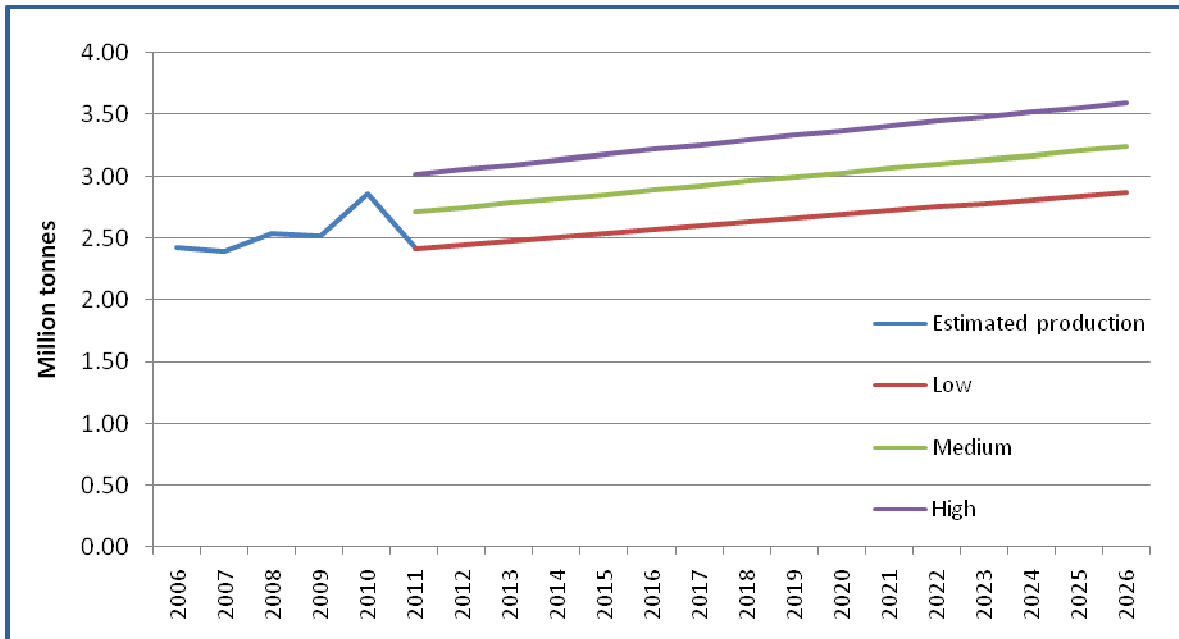
Figure 4.5 shows forecast demand per annum for hard rock from 2011 to 2026 for the total supply area based on the low, medium and high scenario assumptions and Table 4.2 summarises the demand in tonnes.

By 2026, annual demand for hard rock in the total supply area is forecast to fall within a range of 2.88 million tonnes to 3.59 million tonnes, with a medium scenario estimate of 3.23 million tonnes per annum.

Under these scenarios, the increase in additional annual demand for hard rock ranges from 0.46 - 0.57 million tonnes over the fifteen year period, or 0.45 – 1.16 million tonnes above actual 2011 production levels of 2.43 million tonnes.

Cooma Road Quarry represents a major source of potential supply that will be able to provide for the increasing demand for hard rock in the ACT and Queanbeyan markets. The Cooma Road Quarry is well positioned to cater for this growth given its strategic location close to major highways and urban development areas, and the limited number of major resources to serve these markets over the next 15 years.

Figure 4.5: Forecast demand for hard rock in total supply area of Cooma Road Quarry, 2011 to 2026 (million tonnes)



Source: Foresight Partners estimates based on New South Wales Government Department of Industry and Investment, 2012 (unpublished data), Holcim Australia 2012, 2010 NSW SLA Population Projections, Department of Planning (for NSW LGAs), 2009 ACT Population Projections 2007 to 2056

Table 4.2: Forecast demand estimates for hard rock in total supply area of Cooma Road Quarry, 2011 to 2026 (low, medium and high scenarios)

	Demand per capita assumption (tonnes per capita)		
	Low (4.0)	Medium (4.5)	High (5.0)
Year	Total demand (million tonnes)		
2011	2.42	2.72	3.02
2016	2.57	2.89	3.21
2021	2.73	3.07	3.41
2026	2.88	3.23	3.59
Increase 2011-26	0.46	0.52	0.57
Increase from 2011 production (2.43 million tonnes)	0.45	0.81	1.16

Source: Foresight Partners estimates based on New South Wales Government Department of Industry and Investment, 2012 (unpublished data), Holcim Australia 2012, 2010 NSW SLA Population Projections, Department of Planning (for NSW LGAs), 2009 ACT Population Projections 2007 to 2056

4.4.2 Demand drivers

The following sets out examples of residential and non-residential projects planned or proposed in the short and medium term which will contribute to the demand for quarry products and construction materials generally.

Major residential projects

Residential development will be a significant driving force in the ACT and Queanbeyan areas over the next ten to 15 years. Perusal of company websites, including the ACT Government Business Development Projects list, identified a number of residential projects currently underway or proposed in the ACT/Queanbeyan area.

Details of these projects are presented in Table A1 in the Appendix and Figure 4.6 shows their approximate locations.

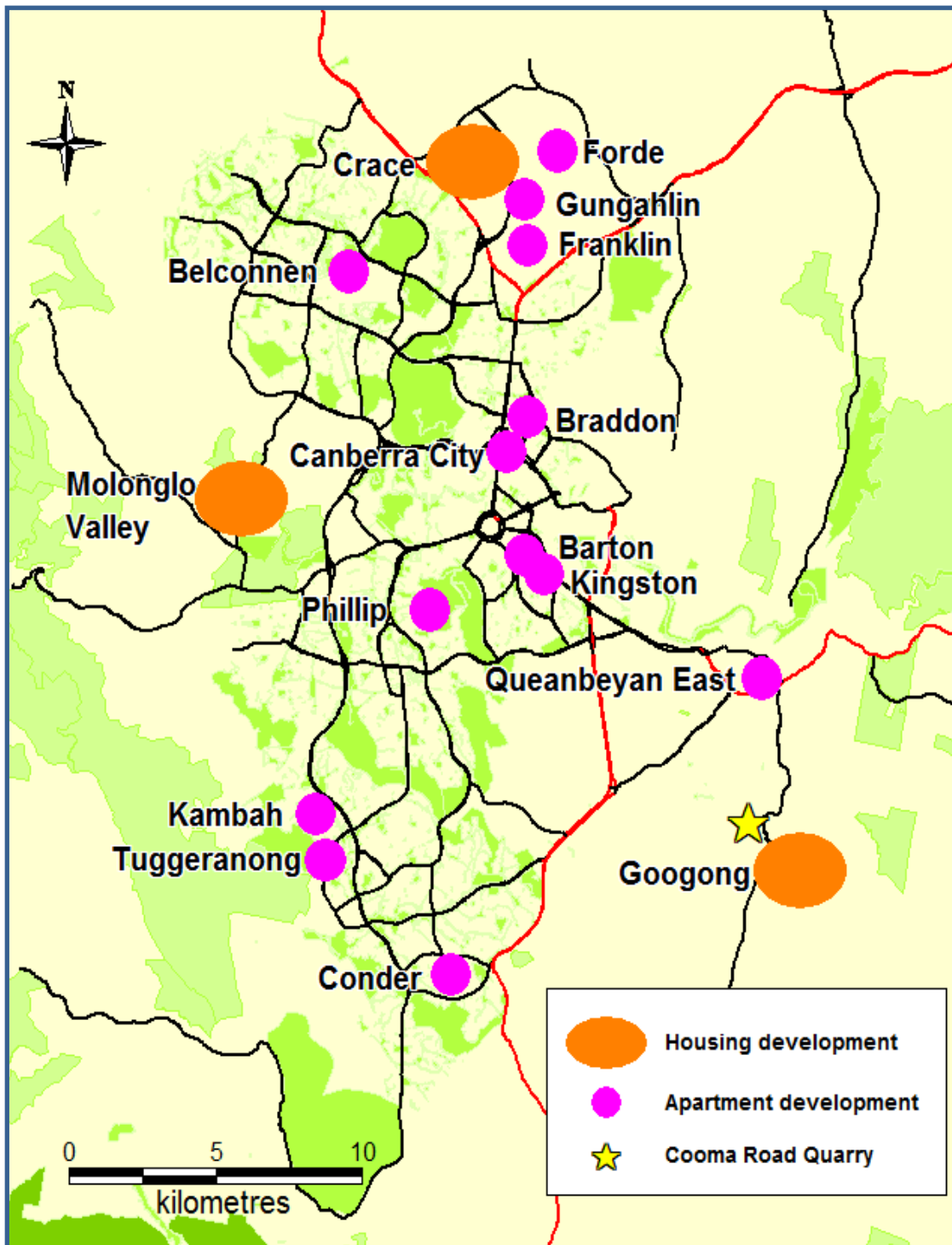
The largest residential projects include the development of entire new suburbs and townships. These developments will bring with them complementary development, such as shopping centres, health and community facilities and schools, as well as related road and other urban infrastructure. Some of these developments include:

- The Molonglo Valley subdivision to the west of Canberra, which will create 13 new suburbs, including Wright and Coombs which are already being developed. Molonglo Valley will eventually house 55,000 people over the next 30 years.
- The Googong township development in Queanbeyan, which will see the construction of 5,550 homes housing up to 16,000 residents over the next 20 to 25 years.
- A master planned community in Crace in Northern ACT, with around 1,250 new dwellings.

These major residential construction projects are located within an approximately 30km radius of the Cooma Road Quarry.

The Institute of Quarrying Australia estimates that construction of a typical brick veneer house requires around 100 tonnes of aggregate, including driveway and landscaping. In addition, Cement Concrete and Aggregates Australia (CCAA) estimate that one kilometre of suburban road requires 1,200 tonnes of asphalt and concrete and 5,000 tonnes of crushed rock.

Figure 4.6: Locations of selected residential projects, ACT and Queanbeyan



Major non-residential projects

As noted for major residential projects, significant non-residential development such as schools, office buildings and shopping centres will accompany housing growth to support the needs of future residents. Other non-residential development, such as major infrastructure and road projects will underpin a significant component of future demand for aggregates.

Table A2 in the Appendix is a compilation of selected ongoing, committed, planned and proposed projects in the ACT and Queanbeyan regions sourced from various authorities including the ACT Government Business Development Projects list, Territory and Municipal Services Major Road Projects list and Cordells. Figure 4.7 shows their approximate locations.

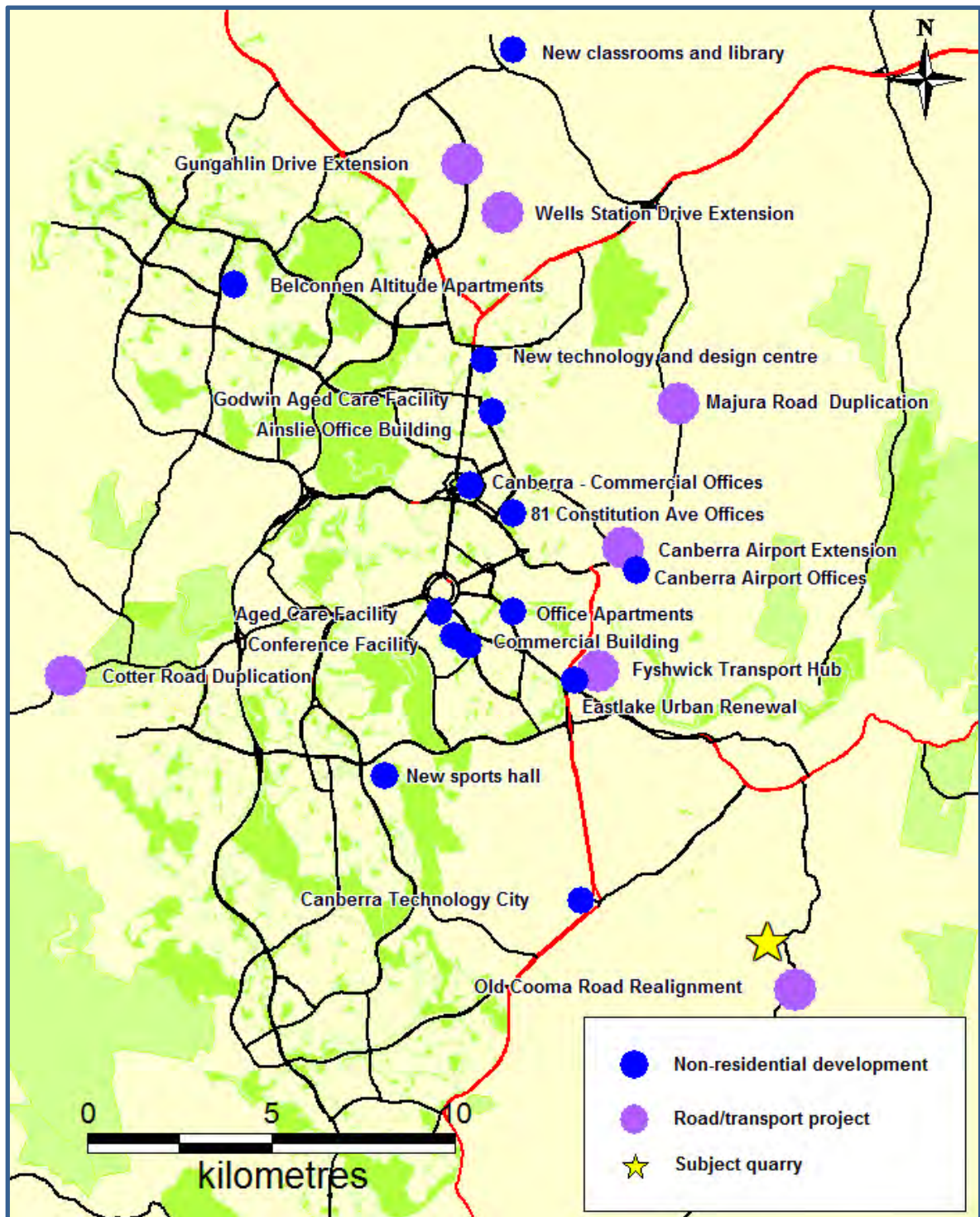
The upgrade and realignment of Old Cooma Road, where the quarry is located, is scheduled to begin mid 2012. The purpose of the realignment is to provide a better link between Queanbeyan and the new Googong township. The project will also have the added benefits of providing a straighter road for safer truck movements, and will make the quarry less visible from the road. The Stage 1 realignment, which is illustrated in Figure 5.5, will take around seven months to complete.

Other major projects listed in Appendix Table A2 include numerous road upgrades and duplications and the construction of commercial buildings throughout Canberra, including:

- the construction of office buildings in central Canberra, Griffith, Kingston, Majura, and Belconnen;
- the extension of the Canberra Airport terminal and corresponding roads (valued at \$107 million); and
- a duplication of Majura Road in eastern ACT (\$288 million).

The quarry is well positioned to supply part of the demand for several up-coming committed and planned major residential, commercial and infrastructure projects within its core supply area.

Figure 4.7: Locations of selected non-residential projects, ACT and Queanbeyan



4.5 Summary

Considerable population growth is forecast for Queanbeyan, ACT and other regions which are supplied by the Cooma Road Quarry. Using population projections produced by NSW Department of Planning and Infrastructure and the ACT Government, the population of the core supply area will increase its population by 25% between 2011 and 2031 and add around 100,000 persons to its population. Population growth in the extended supply area will add another 50,000 persons over this period.

Production of hard rock per capita is expected to range between 4.0 and 5.0 tonnes per annum. Forecast demand scenarios for hard rock in the total supply area indicate:

- Annual demand for hard rock will vary from a low of 2.88 million tonnes per annum to a high of 3.59 million tonnes per annum, compared to the actual production level of 2.43 million tonnes in 2011; and
- By 2026 annual demand for hard rock will have increased in the range 0.45 – 1.16 million tonnes per annum over current production levels.

In addition, major projects will further boost demand for hard rock periodically.

Therefore, demand for hard rock is expected to increase significantly in the supply area of the Cooma Road Quarry, which is well positioned to cater for this growth.

5 ECONOMIC AND COMMUNITY NEED

Quarry materials play a critical role in everyday life as they are the basic raw materials needed to build and maintain highways, roads, rail lines, homes, schools, factories and other buildings and infrastructure. This section outlines the community need, demand and benefits of the continued operations of the Cooma Road Quarry.

5.1 Community need and benefits

The proposed continued operations of the Cooma Road Quarry is expected to continue to generate considerable economic and community benefits in terms of securing an ongoing supply of aggregates and hard rock to help sustain infrastructure development improvements, housing construction and commercial development throughout Queanbeyan and the ACT.

5.1.1 Continuation of an existing quarry operation

The Cooma Road Quarry is a major regional supplier in the hard rock market in the Canberra and Queanbeyan area.

The current development consent for the Cooma Road Quarry will expire in 2015; however, there will still be rock resources available for quarrying at the site at this time. The proposed continuation and extension of the quarry pit will allow for extraction of these remaining resources. Extending the life of the existing quarry is consistent with best practice utilisation and sustainability of natural resources.

The Cooma Road Quarry has existed since 1959. Its location, operation and haul routes are well established. The Rural Landscape zone in which the Cooma Road Quarry is located has been successfully protected over the past five decades from the encroachment of incompatible land uses, such as residential, by Queanbeyan City Council's planning schemes. In addition, buffers and other management of noise, dust, traffic and other amenity factors associated with the quarry's operation are well established. Access and transport networks are well established and of a high standard. The longer the Cooma Road Quarry can remain in production, the greater the likely benefits to the community with respect to efficient use of a scarce economic resource and the greater the likelihood of conserving greenfield areas.

The NSW Government Minerals and Land Use Assessment program recognises that extractive resources are essential to state and regional economies and to the community as materials for the construction industry. As such, there is a need to ensure these valuable, and finite, extractive resources and nearby areas are protected from developments that would prevent their future extraction and land use, and that they are not compromised by encroaching incompatible land uses.

5.1.2 Proximity to markets

Cooma Road Quarry is exceptionally well located to serve the Queanbeyan and ACT region.

Proximity to markets is highly advantageous and can provide invaluable advantages to customers in terms of shorter delivery timing and delivery costs. Given its location on Cooma Road just south of Queanbeyan close to both the Kings and Monaro Highways, Cooma Road Quarry represents a highly efficient source of hard rock to these markets, in terms of accessibility, distance and load haulage. However, the quarry is also located in a rural area away from residential areas, hospitals, schools and commercial areas.

Major projects

Tables A1 and A2 in the Appendix present details of selected major projects in the core supply area of the Cooma Road Quarry. The Cooma Road Quarry's central location and accessibility means it is well positioned to supply part of the demand for aggregates and other products required for up-coming committed and planned major infrastructure projects. Continued population growth in ACT and Queanbeyan over the next 20 years and beyond is likely to generate further demand for additional major infrastructure in the coming years.

The demand for material of many larger infrastructure projects, such as major road upgrades, usually means that two or more quarries are needed to meet their needs. The scale of demand during the course of a major project might consume the entire output of a quarry, which would leave it unable to service its other clients. It is also advantageous, and even essential, that the project contractor be able to draw upon more than one source to meet construction programs and ensure security of supply.

Environmental benefits

The quarry is located within easy transport of Queanbeyan and ACT's major urban development areas and therefore helps to reduce costs in delivering the resource. This has substantial environmental benefits such as greatly reduces haul vehicle movements, less fuel consumption and consequently fewer greenhouse gas emissions.

Downstream industries and plants

Quarries are highly interlinked with many sectors and industries in the economy. Logistics, in terms of coordinating linkages between quarries and downstream industries, is therefore particularly important. There are major advantages for quarries to be located nearby downstream industries or plants, such as concrete batching plants, for further processing of hard rock materials.

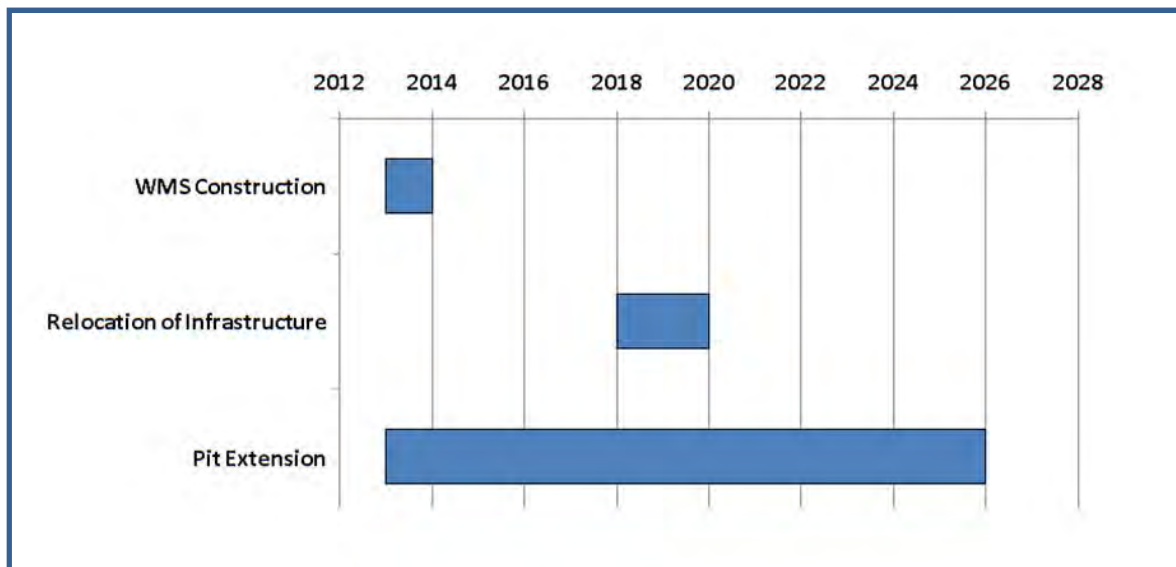
In particular, Holcim Australia Australia operates two concrete batching plants (located in Fyshwick and Mitchell), which are located 13km and 28km from the Cooma Road Quarry respectively. The material required by these plants would be supplied even if it were not sourced from the Cooma Road Quarry, but it would have to come from other quarries further away, entailing more truck movements on the roads to move the same quantity of material, resulting in higher delivered costs. As previously discussed, transport costs play a major role in the delivered price of hard rock and transporting materials for longer distances implies higher prices, affecting construction material costs and in turn the various construction industries.

5.2 Economic impacts

5.2.1 Impacts of proposed continued operations

The continued quarry operations are to take place in two distinct phases, as shown in Figure 5.1. The economic impact of the continued operations is based on a two year construction phase (2013 and 2014) and a later three year relocation phase (2018 to 2020). The total estimated cost of the quarry pit extension and associated modifications is \$3.5 million including labour, materials and equipment.

Figure 5.1: Indicative timeline of continued quarry operations



Source: Holcim Australia 2012

The construction of water management system components is scheduled to take place between 2013 and 2014. The construction of the water management system components is estimated to cost in the order of \$1.2 million, including labour, machinery and materials.

Between 2018 and 2020, the quarry's infrastructure area is to be relocated. This will involve relocation of the existing workshop, truck parking and temporary stockpiles, the construction of new internal roads and planting of vegetation screening. Holcim Australia estimates this phase will cost approximately \$800,000.

The extension of the pit will be a gradual process as a part of the quarry's normal operations. Therefore, no extra costs beyond regular operational costs are involved in the pit extension process, which will begin in 2013 and continue through to 2026.

Employment generation

Current and expected future employment for the continued operations at the Cooma Road Quarry is detailed in Table 5.1.

As at June 2012, there were 20 full-time staff members at the Cooma Road Quarry, plus 13 truck drivers. Once the extension of the quarry pit is complete, it is estimated that the

number of staff working at the quarry will increase to 25, while the number of truck drivers will grow to 17, an increase of 9 staff directly employed by Holcim Australia.

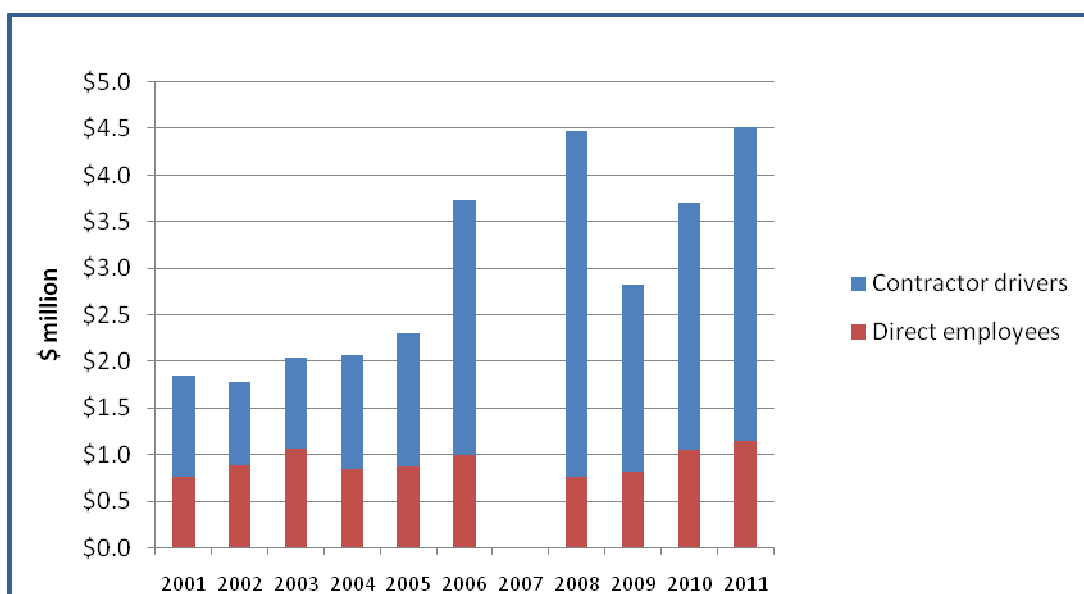
Table 5.1: Current and expected future employment at Cooma Road Quarry

	Current (May 2012)	Future (expected)
Quarry staff	20	25
Truck drivers	13	17
Total (excluding contractors)	33	42
Contractors	Up to 30 per day	Not provided

Source: Holcim Australia May 2012

The annual wages paid to staff at the quarry and driving contractors reached \$4.5 million in 2011 (Figure 5.2). This sum has increased from \$1.8 million in 2001. It is expected that the annual wages paid to quarry staff and drivers will continue to increase in accordance with new staff hired as a result of the continued quarry operations.

Figure 5.2: Annual wages of quarry staff and contractors, 2001-2011*



Source: Holcim Australia 2012 *2007 has not been included due to a significant change in reporting period (9 month period only for 2007)

Note: values include a small number of trucks also used at Holcim Australia's Bungendore sand plant.

Employment provision is among the most tangible and important local economic benefits of quarrying and, given the large array of products and uses of hard rock, a quarry usually supports a significant number of employees, directly and indirectly, through multiplier effects. In particular, quarry operations, as a result of their revenue generating capacity and their investment in land, equipment, services and labour, can have significant positive benefits for the local economies in which they operate.

The Cooma Road Quarry also employs a wide variety of local businesses as contractors or service providers, including truck fleet servicing and maintenance, electrical services and drilling services.

Holcim Australia operates two concrete batching plants in Canberra which are supplied by the quarry (as well as Holcim Australia's Bungendore sand plant).

The project will continue to support employment on site, transportation personnel, the various subcontractors involved on and off site, the concrete plant personnel and to all those involved in directly related activities as a result of the increased life span of the quarry.

Flow-on effects to the economy

Multiplier analysis is a standard tool of economic analysis used to assess the flow-on effects on the economy of a proposed increase in investment or production. The multiplier effect occurs because the initial activity requires the purchase of labour, goods and other services and these purchases generate further flow-on expenditure.

At each round of investment and expenditure, the effect diminishes until a final total increase in the economy can be calculated. It is the ratio of the value of the final impact across the economy to the initial investment that is termed the multiplier.

Transaction tables, from which multipliers for each industry are derived, have been developed by the Australian Bureau of Statistics at a national level and for some states and regions – although there are no publically available local or state tables published for ACT or NSW. As a result, the multipliers used in this current analysis are based on the National tables (Table 5.2).

Table 5.2: Output multiplier analysis for Cooma Road Quarry Continued Operations

	<i>Multiplier</i> <i>(construction industry)</i>	<i>Economic impact</i> <i>(\$3.5 million expenditure)</i>
Initial effects	1.000	\$3,500,000
Production induced effects	0.881	\$3,083,500
Consumption induced effects	0.915	\$3,202,500
Total Multipliers	2.796	\$9,786,000

Source: Table 22. Output multipliers 1998-99 ABS, Foresight Partners estimates.

For construction activities, such as those proposed at the Cooma Road Quarry, the total multiplier relevant to this analysis is 2.796. Thus, a total expenditure of \$3.5 million on the water management system component construction and infrastructure relocation (both classified as construction activities) will have an overall total economic impact of \$9.786 million.

5.3 Summary

The proposed continued operations of the Cooma Road Quarry are expected to generate considerable economic and community benefits for the greater Canberra region. These benefits include:

- The longer the Cooma Road Quarry can remain in production, the greater the likely benefits to the community with respect to efficient use of a scarce economic resource and the greater the likelihood of conserving greenfield areas;
- The Cooma Road Quarry is well positioned close to both the Kings and Monaro Highways, making it within easy transport of ACT and Queanbeyan's major urban development areas and therefore helping to reduce costs and greenhouse gas emissions in delivering the resource;
- The quarry is well positioned to supply part of the demand for several major residential, commercial and road projects within a 30km radius of the site;
- A total continued operations expenditure of \$3.5 million will be spent on labour, machinery and materials sourced from the local area. This is estimated to contribute a total of \$9.786 million to the economy once multiplier effects are taken into account;
- As Cooma Road Quarry retains significant market share in the production of hard rock in the ACT/Queanbeyan area, it is also envisaged that the continued operations will effectively aid in moderating price increases across the sector that are expected to be brought about by rising demand for hard rock in the next decade and beyond; and
- The continued operations will lead to an increase of at least 9 staff employed at the quarry, plus numerous contracted drivers. In addition, a variety of local businesses which service the quarry will continue to be supported. In 2011, a total of approximately \$4.5 million was spent on wages to Holcim Australia's quarry staff and drivers and this amount is expected to increase in accordance with the increase in total employment following the quarry's continued operations.

Appendix

Table A5.3: Details of selected residential projects in the ACT/Queanbeyan region

<i>Project</i>	<i>Description</i>	<i>Location</i>	<i>Budget/Cost</i>	<i>Timing</i>
Northern ACT				
Crace Suburban Homes	Master planned community with 1,250 dwellings	Crace, Northern ACT	\$340 million	2013-14
Belconnen Medium Density Units	Medium density apartments and mixed use	Belconnen, Northern ACT	\$49 million	TBA
Franklin Apartments	104 apartments	Franklin, Northern ACT	\$23 million	TBA
Franklin Multi Unit Development	Residential apartments	Franklin, Northern ACT	\$12 million	TBA
Forde Multi Unit Development	Residential apartments	Forde, Northern ACT	\$7 million	TBA
Gungahlin Multi Unit Development	Residential apartments	Gungahlin, Northern ACT	\$7 million	TBA
Central ACT				
Myuna Complex	Residential apartments and offices	Canberra City	\$180 million	2013-14
22-24 Lonsdale St	Mixed use apartments	Braddon, Central ACT	\$34 million	TBA
Barton Mixed Use Development	Mixed use apartments	Barton, Central ACT	\$36 million	TBA
Kingston Multi Unit Development	Multi unit residential	Kingston, Central ACT	\$12 million	TBA
Kingston Multi Unit and Commercial Development	Multi unit residential plus commercial development	Kingston, Central ACT	\$13 million	TBA
Southern ACT				
Phillip-Woden Green Future Stages	Stage 1 – 179 apartments Stage 2 – 201 apartments plus medical facility	Phillip, Southern ACT	\$250 million	2012-14
Conder Community Housing	Community housing	Conder, Southern ACT	\$7 million	TBA
Block 11 Section 156	Residential apartments	Phillip, Southern ACT	\$7 million	TBA
Greenway Office/Residential	Residential and offices	Tuggeranong, Southern ACT	\$27 million	2015-16
Kambah Multi Unit Development	Multi unit development	Kambah, Southern ACT	\$9 million	TBA
Western ACT				
Molonglo Valley	13 new suburbs in Western ACT.	Molonglo Valley,	N/A	2012-32+

Project	Description	Location	Budget/Cost	Timing
	Will eventually house 55,000 people and is being completed in three stages (see below)	Western ACT		
Molonglo Valley residential Stage 1	Stage 1 – Coombs, Wright and north Weston	Molonglo Valley, Western ACT	N/A	Currently being developed and sold
Molonglo Valley residential Stage 2	Stage 2 – south of Molonglo River	Molonglo Valley, Western ACT	N/A	20 to 30 years
Molonglo Valley residential Stage 3	Stage 3 – North of Molonglo River	Molonglo Valley, Western ACT	N/A	10 years
Queanbeyan				
Googong township	A new township to be created, eventually with 5,550 homes housing up to 16,000 people, plus schools, shops and businesses	Googong, Queanbeyan, NSW	N/A	20 to 25 years
Queanbeyan East Multi Unit Development	Residential apartments	Queanbeyan East	\$6 million	TBA

Source: ACT Government Business Development Projects, ACT Land Development Agency, CIC Australia, various company websites

Table A5.4: Details of selected non-residential projects in the ACT/Queanbeyan region

<i>Project</i>	<i>Description</i>	<i>Location</i>	<i>Budget/Cost</i>	<i>Timing</i>
Northern ACT				
Goodwin Village Aged Care Facility	Aged care facility	Ainslie, Northern ACT	\$90 million	TBA
Ainslie Office Building and Apartments	Offices and apartments	Ainslie, Northern ACT	\$9 million	TBA
Burgmann Anglican School	New classrooms and library	Forde, Northern ACT	\$29 million	TBA
Additions to Westfield	Renovations and add-ons	Belconnen, Northern ACT	\$50 million	TBA
Belconnen Altitude Apartments	Office building	Belconnen, Northern ACT	\$85 million	2013-14
Daramalan College	New technology and design centre	Dickson, Northern ACT	\$7 million	TBA
Gungahlin Drive Extension Stage 2	Arterial road upgrade connecting the northern section of Canberra to the Tuggeranong Parkway in Canberra Central – 9 kilometres	Gungahlin, Northern ACT	\$85.5 million	2008-2013
Wells Station Drive Extension	Extension to Horse Park Drive	Franklin, Northern ACT	\$7 million	2013-14
Central ACT				
ANU College of Science	Laboratory and teaching facilities renovations	Acton, Central ACT	\$240 million	2013-14
Canberra City Commercial Offices	Commercial offices, located on London Circuit	Canberra City	\$150 million	2014-15
81 Constitution Ave	Commercial offices	Campbell, Central ACT	\$75 million	2013-14
Canberra City Section 63 Building 4	Commercial offices	Canberra City	\$68 million	2013-14
Cathedral Precinct Aged Care	Aged care facility	Forrest, Central ACT	\$40 million	2014-15
Serviced Apartments/Conference Facility/Restaurant	Serviced apartments, conference facility and restaurant	Griffith, Central ACT	\$27.5 million	TBA
Kingston Office Apartments	Stage 1- base works up to ground slab	Kingston, Central ACT	\$16 million	TBA
Kingston Island	Office building	Kingston, Central ACT	\$80 million	2013-14
18 Canberra Ave	Commercial building	Griffith, Central ACT	\$40 million	2013-14

Project	Description	Location	Budget/Cost	Timing
Southern ACT				
Canberra Technology City	High density computing data centre	Hume, Southern ACT	\$750 million	2012-15
Marist College	New sports hall	Pearce, Southern ACT	\$10 million	TBA
Records and Removals Warehouse Stage 1 and 2	Commercial building	Hume, Southern ACT	\$8 million	TBA
Western ACT				
Cotter Road Duplication Stage 1	Works between Dunrossil Drive and Yarralumla Creek Bridge	Weston Creek, Western ACT	\$6.5 million	2011-NA
Eastern ACT				
Majura, Canberra Airport Commercial Offices	Commercial offices	Majura, Eastern ACT	\$108 million	TBA
Canberra Airport Extension	Extension to terminal and corresponding roads	Canberra International Airport, Eastern ACT	\$107 million	TBA
Eastlake Sustainable Urban Renewal	Office buildings	Fyshwick, Eastern ACT	\$50 million	2020-21
Fyshwick Rail Infrastructure Transport Hub	Rail infrastructure and transport hub	Majura, Eastern ACT	\$100 million	Completion 2016
Fyshwick Showroom Light Industrial	Showroom, bulky goods, light industrial building	Fyshwick, Eastern ACT	\$7 million	2013-14
Majura Road Duplication	11.5km of dual carriageway linking the Monaro Highway (Pialligo) with the Federal Highway	Eastern ACT	\$288 million	2012-16
Queanbeyan				
Old Cooma Road Realignment	Stage 1 realignment south of Wickerslack Lane to the top of the Talpa ridge. The Stage 2 duplication is required by 2031.	Queanbeyan, NSW	\$7.8 million	2012-13

Source: ACT Government Business Development Projects, Territory and Municipal Services Major Road Projects, Cordells, various company websites