



**Trade &
Investment
Resources & Energy**

Reference: OUT12/30005

20 November 2012

The General Manager
Shellharbour City Council
Locked Bag 155
Shellharbour City Centre NSW 2529

SHELLHARBOUR CITY COUNCIL
Doc No.....
7 6 NOV 2012
Doc No.....
Doc No.....

Dear General Manager

Statewide Mineral Resource Audit

NSW Trade & Investment is currently carrying out an audit of mineral resources in NSW as part of an ongoing mapping program to assist councils throughout the state in land use planning.

The data generated updates advice on mineral and extractive resources previously distributed to councils in response to the issuing of local planning Direction G28 – Coal, other Minerals, Petroleum and Extractive Resources under Section 117 (2) of the *Environmental Planning and Assessment Act 1979* by the Minister for Planning in December 1994. (This direction is now called *Direction 1.3 – Mining, Petroleum Production and Extractive Industries*.)

Please find attached a report, maps and ArcGIS file geodatabase/shapefiles which contain updated information about mineral resources in Shellharbour City. Energy resources have not been included in the resource audit mapping however data will be supplied in future updates as information becomes available. To ensure that this data is considered in land use planning decisions, NSW Trade & Investment requests that the package be distributed to the relevant planning and GIS staff within council.

NSW Trade & Investment, Resources & Energy Division would be pleased to meet with council to discuss the data package.

For further information please contact me on 02 4931 6537 or email via cressida.gilmore@industry.nsw.gov.au

Yours sincerely,

Cressida Gilmore
A/Chief Geoscientist, Land Use

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.industry.nsw.gov.au



MINERAL RESOURCE AUDIT SHELLHARBOUR CITY

by.

CRM Gilmore

Geological Survey report: GS2012/1724

Dated: November 2012

Department File: 12/29998

1:250 000	1:100 000 sheets		
SI/56-09	9028		

Accompanying Plans: ShellharbourResourceAudit_Plan1.pdf

Key Words: Shellharbour, Albion Park, Dunmore, latite, hard rock aggregate, construction sand, construction materials, Direction 1.3, quarry, mineral, resource

Disclaimer

The information contained in this publication is based on knowledge and understanding at time of writing (November 2012). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date.

No warranty about the accuracy, currency or completeness of any information contained in this document is inferred (including, without limitation, any information in the document provided by third parties). While all reasonable care has been taken in the compilation, to the extent permitted by law, NSW Department of Trade and Investment, Regional Infrastructure and Services and the State of New South Wales exclude all liability for the accuracy or completeness of the information, or for any injury, loss, or damage whatsoever (including without limitation liability for negligence and consequential losses) suffered by any person acting, or purporting to act, in reliance upon anything contained herein. Users should rely upon their own advice, skills, interpretation and experience in applying information contained in this publication. The product trade names in this publication are supplied on the understanding that no preference between equivalent products is intended and that the inclusion of a product name does not imply endorsement by the department over any equivalent product.

SUMMARY

The purpose of this report is to provide advice on the location and significance of mineral and extractive resources within the Shellharbour City to assist in land use planning within the local government area (LGA). Energy resources have not been included in the resource audit mapping, however data will be supplied in future updates as information becomes available.

Shellharbour City has been an important source of construction materials for many years, particularly hard rock aggregate from latite deposits which occur extensively throughout the LGA. Hard rock aggregate is currently produced from a number of large operations in the Albion Park, Dunmore and Bass Point areas. Construction sand from coastal barrier dune deposits is extracted in the Dunmore area.

An assessment of known mineral and extractive resources and potential resources was undertaken to identify important resources areas that need to be considered in land use planning within the LGA.

Section 117(2) Direction 1.3 – Mining, Petroleum Production and Extractive Industries was issued on 19 July 2007. The direction requires that councils consult NSW Department of Trade & Investment, Regional Infrastructure and Services, Resources & Energy Division when preparing Local Environmental Plans (LEPs) that may restrict or prohibit the potential development of mineral, coal, petroleum and extractive resources. The direction also requires the department to provide advice to the council on mineral resources within the area subject to the draft LEP.

In February 2007 a new State Environmental Planning Policy (SEPP) was introduced. The *SEPP Mining, Petroleum Production and Extractive Industries (2007)* aims to provide for the proper management and development of resources and to facilitate the orderly economic use and development of land containing mineral, petroleum and extractive resources. The SEPP requires a compatibility test to be undertaken by council planners when assessing any proposed development in the vicinity of existing mines, quarries and petroleum production facilities or resources identified as being of state or regional significance.

NSW Department of Trade and Investment, Regional Infrastructure and Services (NSW Trade & Investment) encourages council to zone areas identified in this report using rural or other zones that allow mining, petroleum production and extractive industries.

CONTENTS

INTRODUCTION	5
ROLE OF NSW TRADE & INVESTMENT	5
RESOURCE ASSESSMENT PROCEDURES	
DATA SOURCES	6
SITE IDENTIFICATION	6
MINERAL RESOURCES IN SHELLHARBOUR CITY	7
IMPLICATIONS FOR PLANNING	8
SELECTED BIBLIOGRAPHY	9
APPENDIX 1	
SITE DETAILS – MINERAL & EXTRACTIVE RESOURCES	10
APPENDIX 2	
S117 (2) DIRECTION 1.3 – MINING, PETROLEUM PRODUCTION AND EXTRACTIVE INDUSTRIES	12

PLANS ACCOMPANYING THIS REPORT

Plan 1 Mineral Resource Audit of Shellharbour City

INTRODUCTION

This report, accompanying maps, and ArcGIS file geodatabase/shapefiles have been prepared by the Resources & Energy Division of NSW Trade & Investment as part of an ongoing mineral resource mapping program to assist councils throughout the state in land use planning within their respective LGAs. The program was initiated in 1994 in response to the issuing of a local planning Direction G28 (now 1.3 – *Mining, Petroleum Production and Extractive Industries*), under Section 117(2) of the *Environmental Planning and Assessment Act 1979*.

Direction G28 – Coal, other Minerals, Petroleum and Extractive Resources under Section 117 (2) of the *Environmental Planning and Assessment Act 1979* was issued by the Minister for Planning in December 1994. This ministerial direction was amended in September 2005 and was further amended on 19 July 2007 and re-issued as *Direction 1.3 – Mining, Petroleum Production and Extractive Industries* (see Appendix 2). The purpose of the direction is to prevent the unnecessary loss of access to important mineral, petroleum and extractive resources due to inappropriate zoning.

The direction requires that councils consult with NSW Trade & Investment if proposed LEPs are likely to prohibit or restrict the development of coal, petroleum, mineral and extractive resources. The direction requires NSW Trade & Investment to notify local government agencies of the locations of current operations and resources of state or regional significance.

In February 2007, the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* was gazetted. The SEPP, which applies state-wide, consolidates and updates many existing planning provisions related to mining, petroleum production and extractive industries as well as introducing new provisions to improve and facilitate the sustainable management of the state's mineral, petroleum and extractive resources. The SEPP introduced a requirement for a compatibility test for any proposed development in the vicinity of existing mines, quarries and petroleum production facilities or resources of state or regional significance.

The advice issued to councils by the Resources & Energy Division of NSW Trade & Investment informs councils of location and status of operating mines, quarries and petroleum production facilities, as well as significant identified and potential resources within their LGA.

ROLE OF NSW TRADE & INVESTMENT

NSW Trade & Investment is the principal government agency responsible for the administration of the state's primary industries – agriculture, fisheries, forestry and mineral resources. 'Minerals' and 'petroleum' are defined under the *Mining Act 1992* and the *Petroleum (Onshore) Act 1991* respectively.

Since most extractive resources are not proclaimed minerals in terms of the *Mining Act 1992*, NSW Trade & Investment does not have a formal, statutory role in their development, apart from its role under the *Mine Health and Safety Act 2004*.

However, the department has a long-established accepted role amongst state and local government agencies, of assessing extractive resources and providing advice relevant to their management. Local councils and NSW Department of Planning & Infrastructure are responsible for the approval of extractive industry proposals and the ongoing management of extractive resource operations.

NSW Trade & Investment maintains databases of mineral and extractive resources that provide a basis for informing land use planning, and encouraging mineral exploration in the state. However, changing concepts and knowledge of the geology of the state mean that these databases need regular review. Accordingly the information provided in this report will be updated on a periodic basis.

RESOURCE ASSESSMENT PROCEDURES

Data sources

Identification of sites is based mainly on the Geological Survey's mineral occurrence database MetIndEx. Other important data sources include:

- technical reports of the Geological Survey of New South Wales and NSW Trade & Investment;
- environmental impact statements and environmental assessments for quarrying and mining operations;
- data held by local and state government authorities;
- mineral exploration reports;
- local councils; and
- quarry or mine operators.

Site identification

The sites identified in this report are classified as either identified resources or potential resources. Identified resources comprise significant operating or proposed quarries or mines and undeveloped defined resources. In the case of operating and proposed mines subject to mining titles, the mining leases are used to define the boundaries of the resource.

Potential resource areas comprise either deposits whose potential has not yet been fully assessed or areas that have high potential for the discovery of mineral resources, based upon current knowledge. These sites have been defined using geological boundaries or, where appropriate, cadastral boundaries to facilitate definition on the ground.

It is important to note however, that mineral potential is not restricted to the areas identified in this report and also that mineral potential may change over time as geological knowledge improves and new concepts and exploration techniques are developed.

For operating and proposed quarries and mines, an adjacent area ('transition area') where development may conflict with current or future mining or quarrying operations is also generally identified. These transition areas are indicative of the areas that may be subject to significant impacts from mining or quarrying operations. They are based

upon criteria previously developed by the (then) Environmental Protection Authority as a guide to transition area requirements, where data on operational impacts needed to determine a site specific transition area is not available.

Transition area widths are 1000 m for sites where blasting is, or would be used, and 500 m for sites where blasting is not required. These distances may be reduced to take account of factors such as existing land uses (e.g. national parks) and the physical characteristics of individual sites. Transition areas have generally not been identified for potential resources as these areas are usually sufficiently large to include the lands that could be subject to impacts from any future mines or quarries that may be developed within them.

The identification of resources and transition areas by NSW Trade & Investment does not alter the existing zoning of the land in question, or the range of uses permitted under current zoning. Nor does it negate the existing rights of landowners. The purpose of the advice is simply to identify areas where proposed developments and land use changes may impact upon mineral and extractive operations or resources. These areas must be taken into consideration by council when preparing LEPs or assessing development applications.

In this report, various abbreviations for mining titles issued by NSW Trade & Investment are used. These may include, among others, AL (Assessment Lease), CL (Coal Lease), EL (Exploration Licence), MC (Mineral Claim), ML (Mining Lease), MPL (Mining Purposes Lease), PAL (Petroleum Assessment Lease), PEL (Petroleum Exploration Licence), PLL (Private Lands Lease), PPL (Petroleum Production Lease), and PMA (Private Mining Agreement).

MINERAL RESOURCES IN SHELLHARBOUR CITY

Appendix 1 of this report highlights what are considered the most important mineral and extractive resources and potential resource areas in the LGA. Accompanying Plan 1 indicates the distribution and extent of identified and potential mineral and extractive resources. Council needs to ensure that these resources are protected from land uses incompatible with their continued or future use and possible expansion. Energy resources have not been included in the resource audit mapping however data will be supplied in future updates as information becomes available.

Shellharbour City is underlain by a thick sequence of sedimentary and volcanic rocks of Triassic and Permian age that were deposited in the Sydney Basin. The topographically lower central and eastern part of the LGA is dominated by latite flows (latite is a fine grained volcanic rock similar to basalt), volcanic sandstones and thin interbedded siltstones and conglomerates of the Gerringong Volcanics which are of Permian age and occur within the Shoalhaven Group.

Rocks of the Permian Illawarra Coal Measures and Triassic sandstones of the overlying Narrabeen Group are exposed on the lower slopes of the escarpment bordering the plateau which covers the western part of the LGA. Quartzose sandstones of the overlying Triassic Hawkesbury Sandstone form the surface of the plateau and are exposed in the cliffs of the escarpment.

Unconsolidated alluvial, estuarine and barrier dune deposits occur along the coast.

The Shellharbour area has been an important source of hard rock aggregate for the Sydney and Illawarra markets for over 130 years. Development of these resources began in the second half of the 19th Century to take advantage of their coastal location to supply hard rock aggregate by sea to meet the growing needs of Sydney, where hard rock aggregate resources were few and remote from the centre of population. Latite has been quarried for many years at a number of sites in the Albion Park area where current major operators include Hanson, Cleary Bros, Holcim and Boral. Much of the land is privately owned by the quarry operators. Further undeveloped resources remain in the vicinity of the current operations.

Coarse aggregate is also produced from extraction of latite at the Bass Point Quarry on the headland to the east of Shell Cove. Material has been extracted from the site since the 1880's with the most recent use of the site established in the late 1960s. Hanson is currently seeking to extend the life of the quarry by deepening the floor of the existing quarry as well as some lateral extension within the site boundary.

Construction sand is extracted in Shellharbour City from coastal barrier sands at Dunmore.

IMPLICATIONS FOR PLANNING

Minerals can only be mined where they occur. Economic, environmental and other constraints further limit the areas available for mining. An important aspect of mineral resource evaluation and development from a land use planning viewpoint is that the locations of minable deposits cannot always be predicted. This makes it imperative that known resources should be protected from sterilisation by inappropriate zoning or development, and that access to land for mineral exploration should be maintained over as much of the planning area as possible.

Changes to land use which are incompatible with mineral exploration and mining can result in the loss to the community of valuable mineral resources. It is therefore essential, when planning how land is to be used, to take account of both known mineral resources and the potential for further discoveries.

NSW Trade & Investment recommends that councils adopt the following strategies regarding mineral resources in its planning.

- 1. Operating mines and quarries should be protected from sterilisation or hindrance by encroachment of incompatible adjacent development.**
- 2. Known resources and areas of identified high mineral potential should not be unnecessarily sterilised by inappropriate zoning or development.**
- 3. Access to land for mineral exploration and possible development should be maintained over as much of the planning area as possible.**

Under the provisions of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*, underground mining may be undertaken,

with development consent, on any land. Open cut mining, petroleum production and extractive industry may be undertaken with development consent on land subject to pre-existing mining or petroleum production leases, or where development for the purposes of agriculture or industry may be carried out. Although the SEPP will prevail to the extent of any inconsistency with an LEP, NSW Trade & Investment considers that these provisions should be reflected in LEPs so that the permissibility of mining, petroleum production and extractive industry can be readily ascertained from a single planning instrument without having to also refer to the SEPP or to have prior knowledge of its provisions.

Under the SEPP, a land-use compatibility assessment must be undertaken by the consent authority for any proposed development adjacent to an existing mine, quarry or petroleum production facility or on land identified as containing state or regionally significant mineral, petroleum or extractive resources.

The objective of *Section 117 Direction 1.3* is to ensure that access to state and regionally significant mineral and extractive resources is not compromised by inappropriate development. The direction applies when councils are preparing a draft LEP that would prohibit mining or extractive industry, or would restrict the development of state and regionally significant mineral and extractive resources by permitting incompatible land uses.

All draft Local Environmental Plans should be referred to NSW Trade & Investment (Resources & Energy Division) for comment in order to ensure that resource assessment information is current and up to date. Proposed developments within identified and potential resources lands or transition areas should also be referred to the department.

NSW Trade & Investment would generally object to any proposed zoning changes or developments that may prohibit or restrict mining or quarrying in areas that have been identified as containing operating mines and quarries and identified mineral and extractive resources. The response of NSW Trade & Investment to proposed re-zonings or developments within potential resource lands or transition areas will be based on an assessment of the likely impacts on mineral resources. It should be noted however, that the identification of an area by NSW Trade & Investment does not preclude zoning changes, nor does it mean that NSW Trade & Investment will necessarily oppose any zoning change or proposed development within these areas.

SELECTED BIBLIOGRAPHY

Degeling, PR, 1971. *Aggregate resources of the Illawarra Region of NSW*. Geological Survey of New South Wales Report GS 2000/525 (unpublished).

Bowman HN, 1971. *Geology of the Wollongong, Kiama and Robertson 1:50,000 Sheets*. Geological Survey of New South Wales, Sydney 179pp.

Pienmunne, JT, 2000. *Supply and Demand for Coarse Aggregate in the Sydney Planning Region, Report N*. Geological Survey of New South Wales Report GS 2000/525 (unpubl).

APPENDIX 1

Site details – Mineral & Extractive Resources

SITE DETAILS – MINERAL & EXTRACTIVE RESOURCES

Name: Albion Park Latite
Operator: Nil
Commodity: Coarse aggregate
Rock Type: Latite
Status: Undeveloped
Comment: Area of undeveloped latite resource to the east of existing quarry operations.

Name: Albion Park Quarry - Cleary Bros
Operator: Cleary Bros Pty Ltd
Commodity: Coarse aggregate
Rock Type: Latite
Status: Operating - Continuous
Comment: Major coarse aggregate supplier to Sydney and Illawarra markets. Proponent hopes to increase production to address shortfall in supply of alternative construction materials resulting from shutdown of Bluescope Steel No.6 furnace. Proposal to locate a recycling facility onsite also being assessed.

Name: Albion Park Quarry - Holcim
Operator: Holcim Pty Ltd
Commodity: Coarse aggregate
Rock Type: Latite
Status: Operating - Continuous
Comment: Large operation supplying coarse aggregate to Sydney via road transport. Current consent allows 660,000tpa for 30 years from mid 1990's.

Name: Bass Point Quarry
Operator: Hanson Construction Materials Pty Ltd
Commodity: Coarse aggregate
Rock Type: Latite
Status: Operating - Continuous
Comment: Current production is approximately 1.5 Mt pa. The operator is proposing to deepen and extend the extraction area to extend the life for a further 50 years. The boundary reflects the area identified in the Shellharbour LEP 2011. Two thirds of product goes by road, one third by ship.

Name: Dunmore Lakes Sand
Operator: Dunmore Sand and Soil Pty Ltd
Commodity: Construction sand
Rock Type: Coastal barrier sands
Status: Operating
Comment: Stage 1 (Swamp Road Quarry) has been exhausted and rehabilitated, Stages 2 to 4 are currently being extracted (up to 800,000tpa).

Name: Dunmore Latite Resource
Operator: RailCorp
Commodity: Coarse aggregate
Rock Type: Latite
Status: Undeveloped
Comment: Area of latite yet to be extracted.

Name: Dunmore Quarry
Operator: Boral Resources (NSW) Pty Ltd
Commodity: Coarse aggregate
Rock Type: Latite
Status: Operating - Continuous
Comment: Major coarse aggregate supplier to Sydney and Illawarra markets. Operated by Boral since 1938. Consent to extract 2.5 Mtpa for 25 years granted in 2004. Operation includes an extraction agreement with RailCorp.

Name: Dunmore Waste Facility
Operator: Shellharbour City Council
Commodity: Construction sand
Rock Type: Coastal barrier sands
Status: Unknown
Comment: Sand extracted on site as part of waste facility operations.

Name: Rocklow Deposit
Operator: Boral Resources (NSW) Pty Ltd
Commodity: Coarse aggregate
Rock Type: Latite
Status: Undeveloped
Comment: Area identified by Boral to the south of the main latite resource.

APPENDIX 2

Section 117 (2) - Direction 1.3

Mining, Petroleum Production and Extractive Industries

LOCAL PLANNING DIRECTIONS

Section 117(2) of the *Environmental Planning and Assessment Act 1979*

1.3 Mining, Petroleum Production and Extractive Industries

Objective

- 1) The objective of this direction is to ensure that the future extraction of state or regionally significant reserves of coal, other minerals, petroleum and extractive materials are not compromised by inappropriate development.

Where this direction applies

- 2) This direction applies to all councils.

When this direction applies

- 3) This direction applies when a council prepares a draft LEP that would have the effect of:
 - (a) prohibiting the mining of coal or other minerals, production of petroleum, or winning or obtaining of extractive materials, or
 - (b) restricting the potential development of resources of coal, other minerals, petroleum or extractive materials which are of state or regional significance by permitting a land use that is likely to be incompatible with such development.

What a council must do if this direction applies

- 4) In the preparation of a draft LEP affected by this direction, the council shall:
 - (a) consult the Director-General of the Department of Primary Industries (DPI) to identify any:
 - (i) resources of coal, other minerals, petroleum or extractive material that are of either state or regional significance, and
 - (ii) existing mines, petroleum production operations or extractive industries occurring in the area subject to the draft LEP, and
 - (b) seek advice from the Director-General of DPI on the development potential of resources identified under (4)(a)(i), and
 - (c) identify and take into consideration issues likely to lead to land use conflict between other land uses and:
 - (i) development of resources identified under (4)(a)(i), or
 - (ii) existing development identified under (4)(a)(ii).
- 5) Where a draft LEP prohibits or restricts development of resources identified under (4)(a)(i), or proposes land uses that may create land use conflicts identified under (4)(c), council shall:
 - (a) provide the Director-General of DPI with a copy of the draft LEP and notification of the relevant provisions,
 - (b) allow the Director-General of DPI a period of 40 days from the date of notification to provide in writing any objections to the terms of the draft LEP, and
 - (c) include a copy of any objection and supporting information received from the Director-General of DPI with the statement to the Director-General of the Department of Planning (or an officer of the department nominated by the Director-General) under section 64 of the *Environmental Planning and Assessment Act 1979*.

Consistency

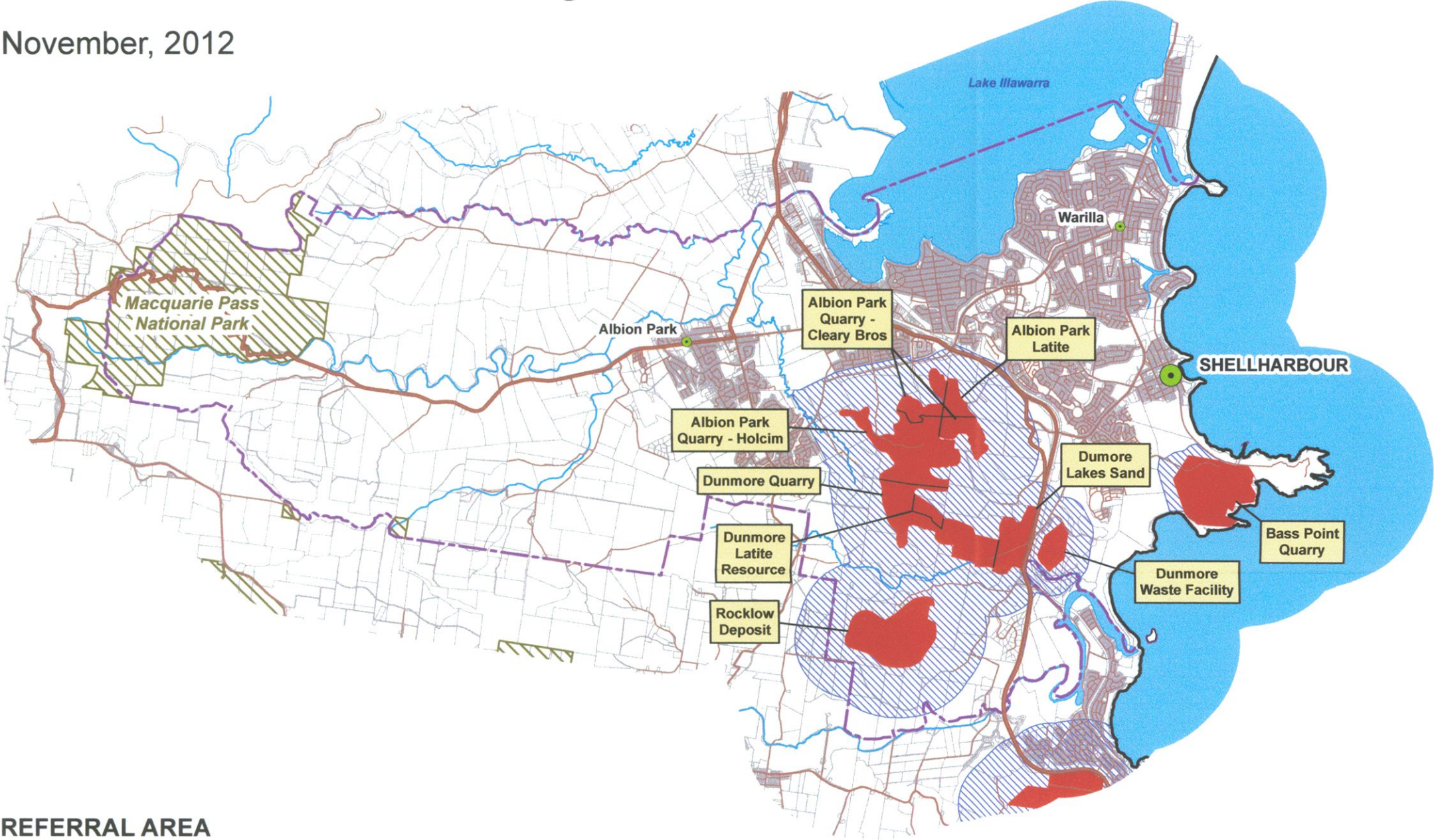
A draft LEP may be inconsistent with the terms of this direction only if council can satisfy the Director-General of the Department of Planning & Infrastructure (or an officer of the department nominated by the Director-General), that the provisions of the draft LEP that are inconsistent are of minor significance.

Mineral Resource Audit of Shellharbour City

November, 2012

SITE TABLE

Site Name	Major Commodity
Albion Park Latite	Coarse aggregate
Albion Park Quarry - Cleary Bros	Coarse aggregate
Albion Park Quarry - Holcim	Coarse aggregate
Bass Point Quarry	Coarse aggregate
Dunmore Lakes Sand	Construction sand
Dunmore Latite Resource	Coarse aggregate
Dunmore Quarry	Coarse aggregate
Dunmore Waste Facility	Construction sand
Rocklow Deposit	Coarse aggregate



REFERRAL AREA

- Identified Resource Area – containing active mineral, petroleum and/or extractive operations and/or identified resources.**

Development within these areas could adversely affect or be affected by **current** or **future** resource development operations. Any proposed zoning changes or developments that may prohibit or restrict **current** or potential **future** operations in these areas should be referred to Resources & Energy Division of NSW Trade & Investment.
- Potential Resource Area – containing potential mineral, petroleum and/or extractive resources.**

Development within these areas could adversely affect or be affected by **future** resource development operations. Any proposed zoning changes or developments that may prohibit or restrict potential **future** operations in these areas should be referred to Resources & Energy Division of NSW Trade & Investment.
- Transition Area – areas adjacent to identified resource areas.**

Development within these areas could adversely affect or be affected by **current** or **future** resource development operations in the adjacent resource areas. Any proposed zoning changes or developments that may prohibit or restrict **current** or potential **future** operations in the adjacent resource areas should be referred to Resources & Energy Division of NSW Trade & Investment.