



**PRELIMINARY AND DETAILED SITE INVESTIGATION –
771 Cudgen Road, Cudgen, NSW 2487.**

PART 2 of 3

Prepared For: Health Infrastructure NSW c/o-TSA Management

Date: 17 October 2018

APPENDIX D MASTERPLAN

ESSENTIAL ENERGY
SWITCHING STATION



NOTES

LANDSCAPE INDICATIVE ONLY - REFER LANDSCAPE ZONAL PLAN L-MP-12

LEGEND

- SITE BOUNDARY
- MAXIMUM PLANNING ENVELOPE
- TREE TRUNK LINE
- APZ OFFSETS
- PROBABLE MAXIMUM FLOOD LEVEL
- ➡ INDICATIVE BUILDING ENTRIES



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ISSUED FOR INFORMATION

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PROJECT MANAGER



CLIENT



PROJECT

TWEED VALLEY HOSPITAL
771 Cudgen Road, Cudgen

DRAWING TITLE

MASTERPLAN
CONCEPT PLAN

SCALE	DATE	DRAWN BY	CHECKED
1:2500 @ A3	19/09/2018	CE	MH
PROJECT No	DRAWING No	REVISION	
10363	AR-SKE-10-006	04	

APPENDIX E COUNCIL AND GOVERNMENT SEARCHES



00550163

Vol. 550 163

CANCELLED

GRANT OF LAND PURCHASED BY CONDITIONAL SALE WITHOUT COMPETITION.

VICTORIA, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, and so forth:—
TO ALL to whom these presents shall come, Greeting:—

WHEREAS on the fourth day of March in the Year of Our Lord One thousand eight hundred and eighty-one Henry Robert Cazala of Budgen in Our said Colony, became, under and by virtue of the 13th section of the Crown Lands Alienation Act of 1861, the Purchaser by Conditional Sale without Competition of the Parcel of Land hereinafter described: And whereas the said Henry Robert Cazala has duly paid into the Office of the Colonial Treasurer of the said Colony, the sum of One hundred and fifty pounds being the Purchase Money payable by him for the said Lands: And whereas the said Henry Robert Cazala has made the declaration required by the 18th section of the said Act, and the Minister for the time being charged with the administration of the public lands is satisfied that the said Henry Robert Cazala has done all things required by law to be done by him to entitle him to the said Henry Robert Cazala to a grant of the fee simple of the said Lands, subject to the Reservations hereinafter contained: Now Know Ye, That for and in consideration of the said sum, for and on Our behalf well and truly paid into the Colonial Treasury of Our said Colony, before these presents are issued, and of all and singular the premises, We, for Us, Our Heirs and Successors, Do hereby GRANT unto the said Henry Robert Cazala his Heirs and Assigns, subject to the several and respective reservations hereinafter mentioned, All that Allotment or Parcel of Land in Our said Colony, containing by Admeasurement One hundred and fifty acres be the same more or less, situated in the County of Russ and Parish of Budgen

Position V



Scale 20 Chains to an Inch

The land designated.....X.....is coloured.....Pink.....

COMMENCING at the North Eastern corner of portion VI of these hundred and twenty acres and bounded thus on the West by part of the Eastern boundary of that portion bearing South forty two chains forty links on the South by a line bearing East thirty three chains on the East by the Western boundary of portion XI of forty seven acres bearing North fifty six chains fifty links on the North West by a line bearing South fifty six degrees forty five minutes West twenty five chains seventy links and on the North by a line bearing West eleven chains fifty links to the point of commencement & thence by a road one chain wide passing through this land in a North Eastern direction the area of which has been deducted from the total area

As per plan in the margin hereof: with all the Rights and Appurtenances whatsoever thereto belonging: To Hold unto the said Henry Robert Cazala his Heirs and Assigns for ever: Subject nevertheless, to the reservations, provisions, and conditions hereinafter contained, that is to say: **Provided Nevertheless, AND We do HEREBY Reserve** unto Us, Our Heirs and Successors, all Minerals which the said Land contains, with full power and authority for Us, Our Heirs and Successors, and such person or persons as shall from time to time be authorized by Us, Our Heirs and Successors, or by the Governor for the time-being of Our said Colony, to enter upon the said Lands, and to search for, mine, dig, and remove the said Minerals, with full right of ingress, egress, and regress, for the purposes aforesaid: **Provided Also, AND We do HEREBY FURTHER EXCEPT AND RESERVE** unto Us, Our Heirs and Successors, all such parts and so much of the said Land as may hereafter be required for a Public Way, or Public Ways, Canals, or Railroads, in, over, and through the same, to be set out by Our Governor for the time-being of Our said Colony, or some person by him authorized in that respect; AND also all Sand, Clay, Stone, Gravel, and Indigenous Timber, and all other Materials, the natural produce of the said Land, which may be required at any time or times hereafter by the Government of Our said Colony, for the construction and repair of any Public Ways, Bridges, or Canals, or for Naval purposes, or Railroads, or any Fences, Embankments, Dams, Sewers, or Drains necessary for the same, together with the right of taking and removing all such Materials; AND also all Land within One hundred feet of High Water Mark on the Sea Coast, and on every Creek, Harbour, and Inlet of the Sea, AND also the right of full and free ingress, egress, and regress, into, out of, and upon the said Land, for the several purposes aforesaid, or any of them: In Testimony Whereof, We have caused this Our Grant to be Sealed with the Seal of Our said Colony.

WITNESS Our Right Trusty and Well-beloved Counsellor SIR AUGUSTUS WILLIAM FREDERICK SPENCER LOFTES (commonly called LORD AUGUSTUS LOFTES), Knight Grand Cross of Our Most Honorable Order of the Bath, Governor and Commander-in-Chief of Our Colony of NEW SOUTH WALES and its Dependencies, at Government House, Sydney, in NEW SOUTH WALES aforesaid, this twenty-seventh day of June in the forty-ninth year of Our Beign, and in the year of Our Lord One thousand eight hundred and eighty-one

Handwritten signature: Charles H. H. H.

Handwritten signature: Augustus Loftes



Provided by CITEC Confirm

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

14/8/2018 11:59AM

FOLIO: 102/870722

First Title(s): VOL 550 FOL 163 VOL 925 FOL 26

Prior Title(s): 1/129735

Recorded	Number	Type of Instrument	C.T. Issue
18/9/1997	DP870722	DEPOSITED PLAN	FOLIO CREATED EDITION 1
21/3/2007	AD5476	TRANSMISSION APPLICATION	EDITION 2
15/10/2010	AF819889	CAVEAT	
18/11/2010	AF887933	TRANSFER	EDITION 3

*** END OF SEARCH ***

J8961

PRINTED ON 14/8/2018

Provided on 14/08/2018 11:59 AM by CITEC Confirm

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NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 102/870722

SEARCH DATE	TIME	EDITION NO	DATE
14/8/2018	11:56 AM	3	18/11/2010

LAND

LOT 102 IN DEPOSITED PLAN 870722
AT KINGSCLIFF
LOCAL GOVERNMENT AREA TWEED
PARISH OF CUDGEN COUNTY OF ROUS
TITLE DIAGRAM DP870722

FIRST SCHEDULE

DUANE JOHN JOYCE
KERRY DOUGLAS PRICHARD
AS TENANTS IN COMMON IN EQUAL SHARES (T AF887933)

SECOND SCHEDULE (3 NOTIFICATIONS)

- 1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
- 2 B670447 EASEMENT FOR TRAMWAY AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 3 C665298 EASEMENT FOR TRAMWAY AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

J8961

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Council Reference: EH000129 [Contaminated Lands Search Letter]
Your Reference: Not stated



TWEED
SHIRE COUNCIL

6 July 2018

Customer Service | 1300 292 872 | (02) 6670 2400

OCTIEF Pty Ltd
PO Box 6033
YATALA QLD 4207

tsc@tweed.nsw.gov.au
www.tweed.nsw.gov.au

Fax (02) 6670 2429
PO Box 816
Murwillumbah NSW 2484

Please address all communications
to the General Manager

ABN: 90 178 732 496

Dear Applicant

Contaminated Lands Search Information Request EH000129
Address: Lot 102 DP 870722 No. 771 Cudgen Road CUDGEN
NSW 2487

In reply to your enquiry to Council regarding the above referred property, Council advises that a search of its records disclosed the following:

1. The radial search revealed there to be no known Cattle Dip Site within 200 metres of the subject property.
2. The current topographical map indicates no known potentially contaminating activities on the subject site.
3. Council's historical aerial photography (1944, 1962, 1976, 1987 & 1995) indicates areas of agricultural activity on the subject site. Agricultural/horticultural activities have been listed within NSW State Government Guidelines as a potentially contaminating activity due to the association of the activity with chemical usage. In light of the above search Council may require further information with any subsequent development application.
4. Data records reveal no known potentially contaminating activities on the subject site.

A site inspection has not been conducted.

It should be noted that for a final determination to be made regarding contamination of a lot, an assessment would be necessary in accordance with the NSW Department of Environment and Climate Change (formerly NSW EPA) document 'Guidelines for Consultants Reporting on Contaminated Sites 1997'.

You may contact the NSW Department of Primary Industries - Agriculture for any additional information in respect to the proximity of any known dip site to the subject property and any implications that any such known dip site may have in respect to the occupation of the subject property.

NSW Agriculture maintains a web site for access to fundamental dip site information at www.dpi.nsw.gov.au/agriculture/livestock/health/specific/cattle/ticks/cattle-dip-site-locator.

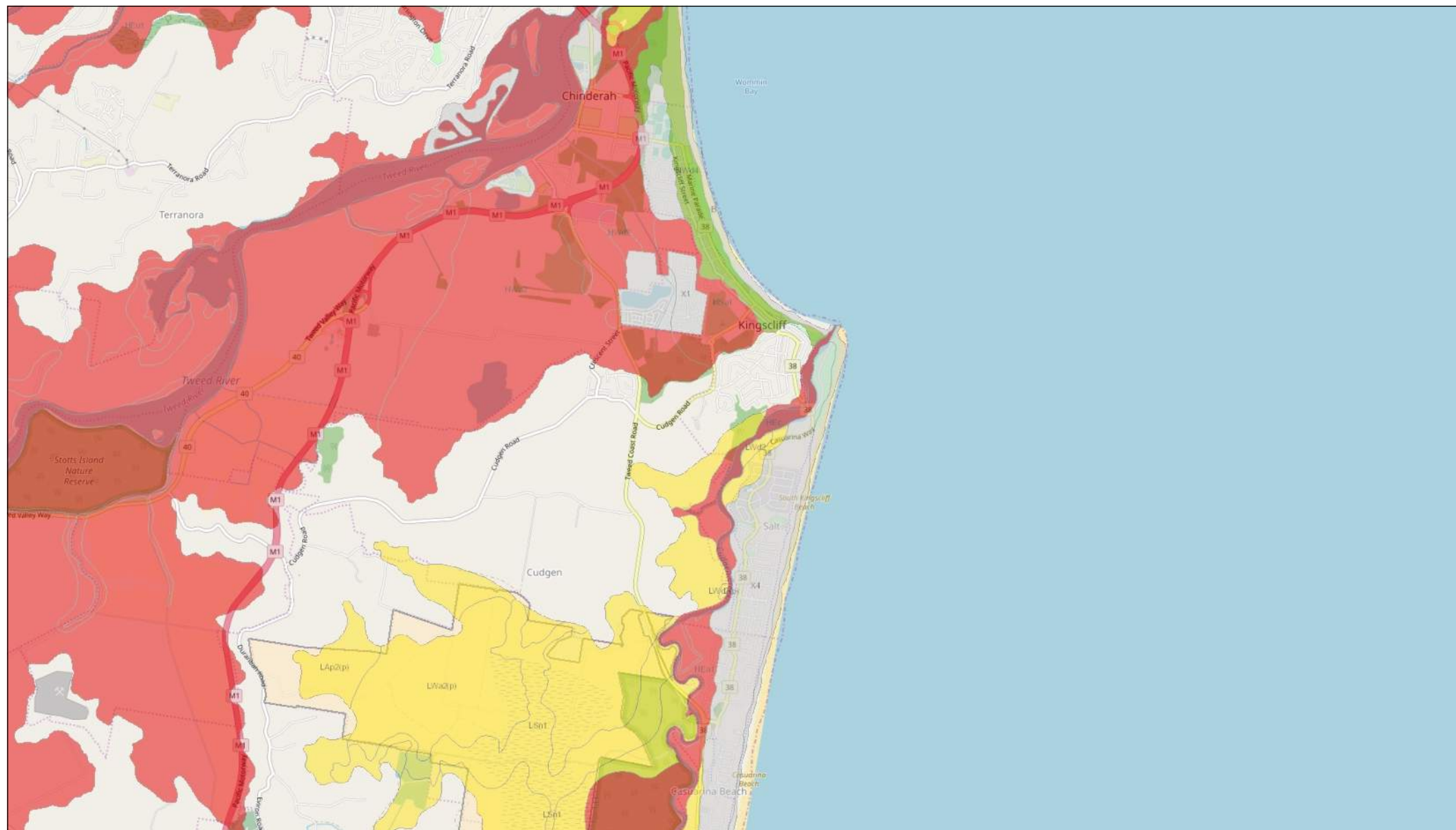


SEED

Sharing and Enabling Environmental Data

SEED Map

Map may contain errors and omissions. Neither the NSW Government nor any other data custodian will accept liability for any loss, damage, cost or expenses incurred as a result of the use of, or reliance upon, the information in the map. Map copyright the State of NSW through the Office of Environment and Heritage.



3.3 0 1.66 3.3 Kilometers

Scale 1: 66,538.43

WGS_1984_Web_Mercator_Auxiliary_Sphere

Generated from SEED web map. Created 2:12 AM 16/8/2018

© OpenStreetMap contributors | Land and Property Information 2015 | Division of Resources & Energy | Department of Primary Industries NSW | Department of Primary Industries (Water) NSW | Office of Environment and Heritage NSW | Environment Protection Authority NSW | Department of Planning and Environment NSW | Geological Survey of NSW, 2016


Legend


 **State Environmental Planning
Policy (State Significant
Precincts) 2005**

Labels


 **Boundaries**

Areas

 High probability of occurrence

 Low probability of occurrence

 No known occurrence

 Not assessed



Water supply bores

- Water supply

Monitoring bores

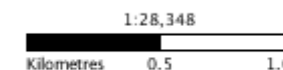
- Monitoring

Stock and domestic bores

- Stock and domestic

Irrigation bores

- Irrigation



Data Source: Bureau of Meteorology, Geoscience Australia and State/Territory lead water agencies. Refer to metadata for further information: [Click here](#)

Australian Albers GDA94



Terrestrial GDE (no data)



No ecosystems analysed

Terrestrial GDE



Known GDE
(regional study)



High potential GDE
(regional study)



Moderate potential GDE
(regional study)



Low potential GDE
(regional study)



Unclassified potential GDE
(regional study)



High potential GDE
(national assessment)



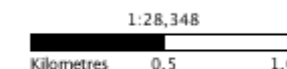
Moderate potential GDE
(national assessment)



Low potential GDE
(national assessment)



Unclassified potential GDE
(national assessment)



Data Source: Bureau of Meteorology, Geoscience Australia and State/Territory lead water agencies. Refer to metadata for further information: [Click here](#)

Australian Albers GDA94

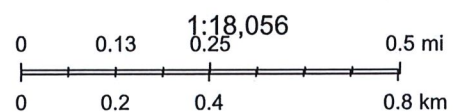
Property Map



8/16/2018, 1:57:34 AM

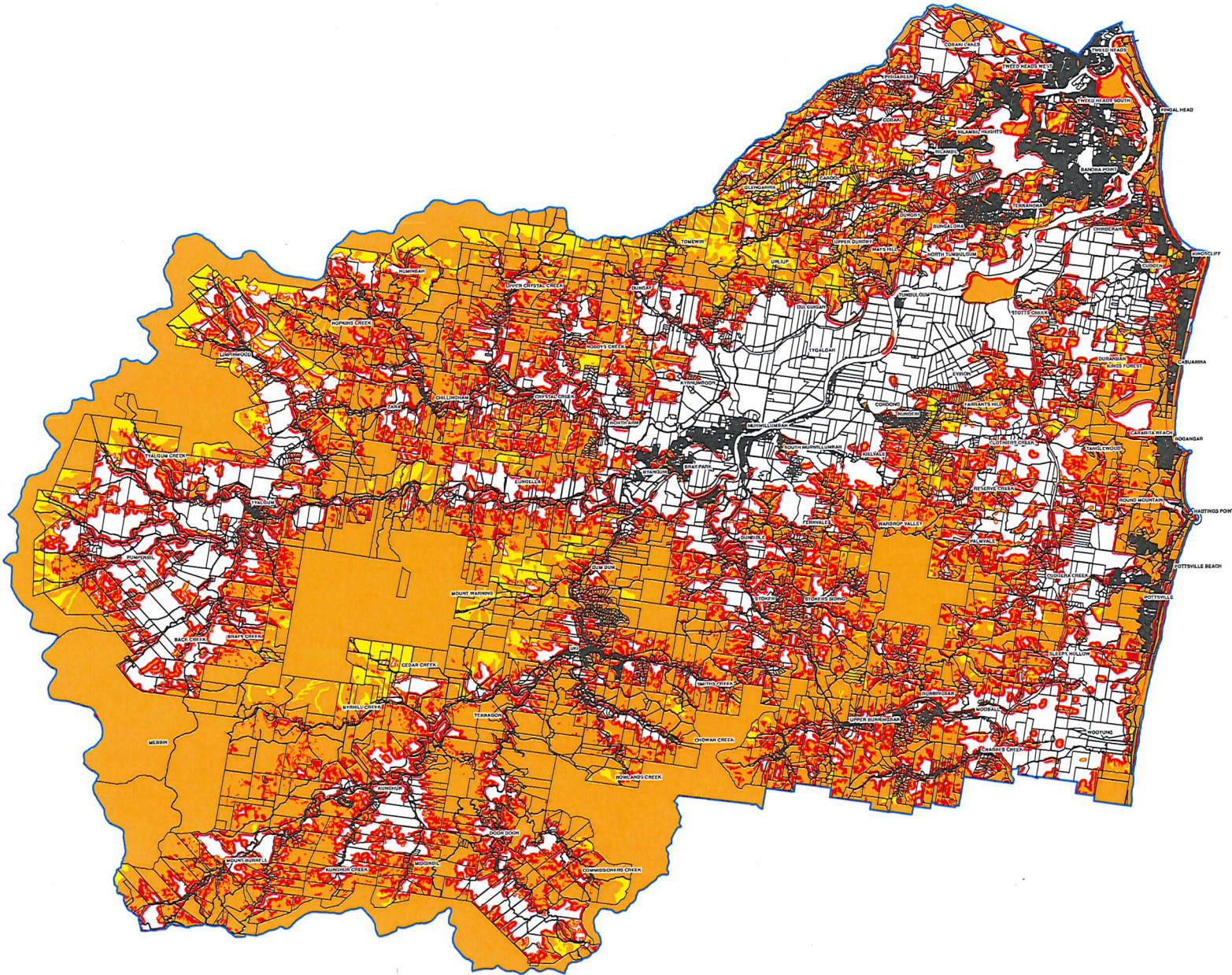
Property Boundaries
Koala Metapopulations 2010

- High activity
- Significant activity
- Preferred Koala Habitat - INDICATIVE ONLY
- Tweed Shire Boundary



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Tweed Shire Council
Cadastre - TSC and LPI.



Certification
For the Purposes of Section 146 (2) of the
Environmental Planning and Assessment Act 1979,
this map is hereby certified as being a Bush Fire
Prone Land Map for the Local Government Area
of Tweed Shire Council in NSW.

Rob Rogers, AFSM
Director Operational Services
NSW Rural Fire Service

Date: _____

Tweed Shire Council ~ Bush Fire Prone Land Map

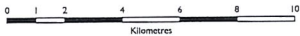
Data supplied by various Stakeholders under ANZLIC* Guidelines.
The information contained herein has been provided in good faith.
Effort has been made to ensure its accuracy and completeness.
The Stakeholders take no responsibility for errors or omissions nor
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*Australia New Zealand Land Information Council.



Data Dictionary		
Theme	Source	Date
Property Information	NSW LPI	2011
Bush Fire Prone Vegetation	NSW RFS / Council	2012
Bush Fire Prone Buffer	NSW RFS / Council	2012
Local Government Boundary	NSW LPI	2010

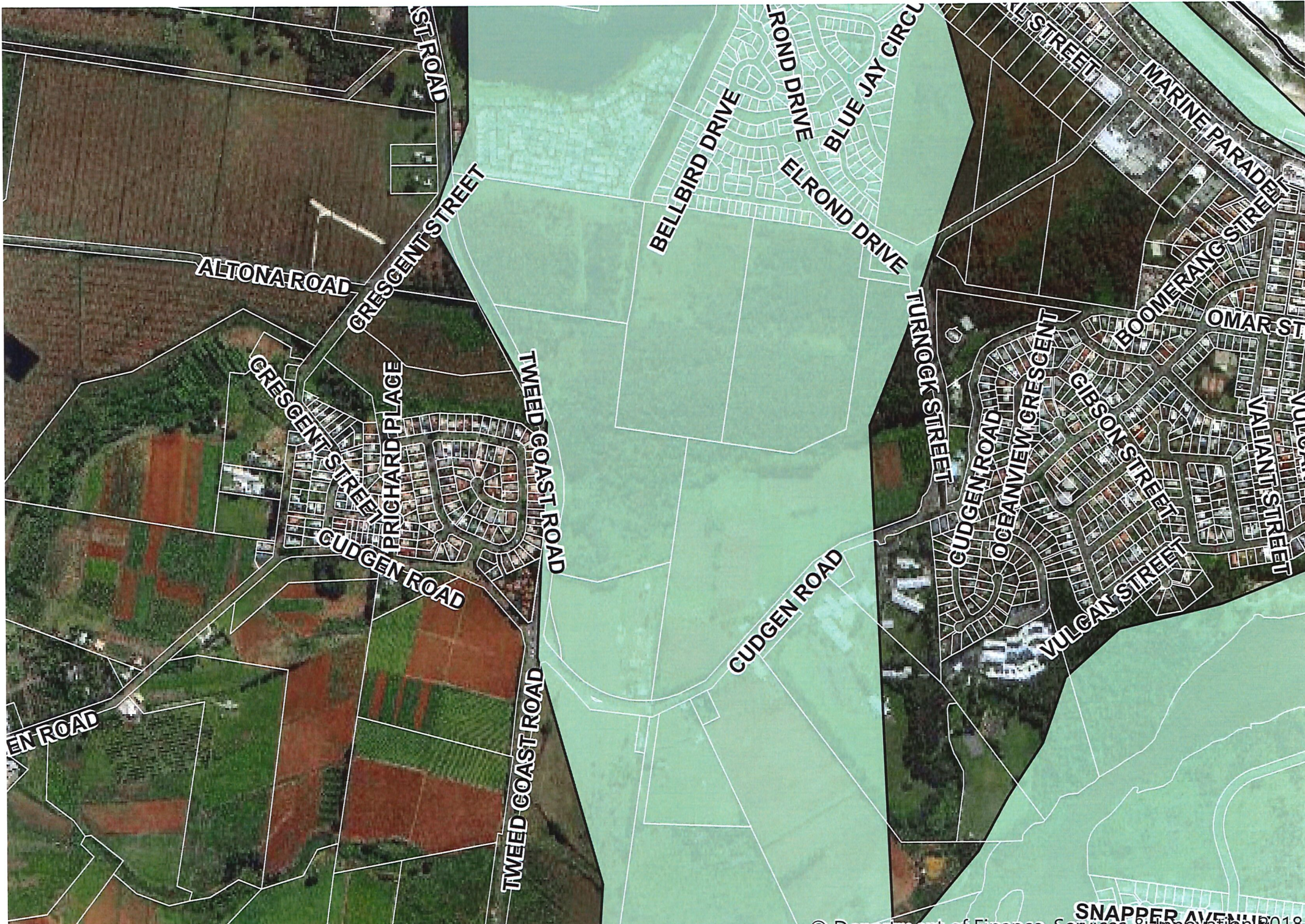


Bush Fire Prone Land
Vegetation Category 1
Vegetation Category 2
Vegetation Buffer
Tweed LGA



Produced by the
GIS Services Unit
26 April 2012





ALTONA ROAD

CRESCENT STREET

CRESCENT STREET

PRICHARD PLACE

CUDGEN ROAD

TWEED COAST ROAD

TWEED COAST ROAD

BELLBIRD DRIVE

ELROND DRIVE

BLUE JAY CIRCLE

ELROND DRIVE

TURNOK STREET

CUDGEN ROAD

CUDGEN ROAD

OCEANVIEW CRESCENT

GIBSON STREET

VULCAN STREET

BOOMERANG STREET

OMAR STREET

VULCAN STREET

MARINE PARADE

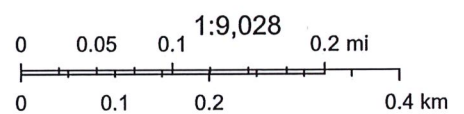
SNAPPER AVENUE

contour map



9/7/2018, 3:47:56 AM

 Property Boundaries



NSW Contaminated Sites List (Cronulla to Darlinghurst)

CRONULLA	Breen Holdings	Bate Bay ROAD	Other Industry	Regulation under CLM Act not required	-34.03861737	151.1614114
CROWS NEST	Caltex Service Station	111-121 Falcon STREET	Service Station	Regulation under CLM Act not required	-33.82868236	151.2060317
CROYDON	BP Ashfield	584 Parramatta ROAD	Service Station	Regulation under CLM Act not required	-33.87399409	151.1267296
CROYDON	Caltex Service Station	404-410 Liverpool ROAD	Service Station	Regulation under CLM Act not required	-33.88853994	151.115879
CROYDON PARK	Mobil Service Station	334 Georges River ROAD	Service Station	Regulation under CLM Act not required	-33.89771626	151.0999194
CULCAIRN	Caltex Service Station	2883 Olympic HIGHWAY	Service Station	Regulation under CLM Act not required	-35.67441635	147.0356845
CULLEN BULLEN	Baal Bone Colliery	Castlereagh HIGHWAY	Other Industry	Regulation under CLM Act not required	-33.27193875	150.0587194
CUNDELTOWN	Caltex Service Station (1 Manning River Drive)	Old Pacific HIGHWAY	Service Station	Regulation under CLM Act not required	-31.89329598	152.5068225
CURL CURL	John Fisher Park	Corner Harbord and Abbott ROADS	Landfill	Regulation under CLM Act not required	-33.76352692	151.2798462
DACEYVILLE	Astrolabe Park	Cook AVENUE	Landfill	Regulation being finalised	-33.92963704	151.221773
DAPTO	RailCorp Dapto	(Rear of property) 12-14 Hamilton STREET	Other Industry	Regulation under CLM Act not required	-34.50045405	150.787353
DARLINGHURST	18-28 Neild Avenue, Darlinghurst	18-28 Neild AVENUE	Landfill	Regulation under CLM Act not required	-33.87876581	151.2276546
DARLINGHURST	Cross City Tunnel	Riley Street and William STREET	Service Station	Contamination was addressed via the planning process (EP&A Act)	-33.87424636	151.2158305
DARLINGHURST	Proposed Retail Unit	139-155 Palmer STREET	Unclassified	Regulation under CLM Act not required	-33.87504688	151.2168106

POEO Register					
Number	Name	Location	Type	Status	Issued date
12385	GALES-KINGSCLIFF PTY LIMITED	Altona Drive, CUDGEN, NSW 2487	POEO licence	Issued	18-Nov-05
1096630	GALES-KINGSCLIFF PTY LIMITED	Altona Drive, CUDGEN, NSW 2487	s.58 Licence Variation	Issued	8-Jan-09
1509651	GALES-KINGSCLIFF PTY LIMITED	Altona Drive, CUDGEN, NSW 2487	s.58 Licence Variation	Issued	11-Dec-12
11453	HANSON CONSTRUCTION MATERIALS PTY LTD	CRESENT STREET, CUDGEN, NSW 2487	POEO licence	Issued	27-Jul-01
4686	SOUTH EAST EXCAVATIONS PTY. LIMITED	LOT 71 LOADERS ROAD, CUDGEN, NSW 2487	POEO licence	Surrendered	11-Jul-00
1010166	SOUTH EAST EXCAVATIONS PTY. LIMITED	LOT 71 LOADERS ROAD, CUDGEN, NSW 2487	s.58 Licence Variation	Issued	22-Aug-02
1044842	SOUTH EAST EXCAVATIONS PTY. LIMITED	LOT 71 LOADERS ROAD, CUDGEN, NSW 2487	s.58 Licence Variation	Issued	24-Feb-05
1045391	SOUTH EAST EXCAVATIONS PTY. LIMITED	LOT 71 LOADERS ROAD, CUDGEN, NSW 2487	s.58 Licence Variation	Issued	14-Mar-05
1051066	SOUTH EAST EXCAVATIONS PTY. LIMITED	LOT 71 LOADERS ROAD, CUDGEN, NSW 2487	s.58 Licence Variation	Issued	21-Sep-05
1053870	SOUTH EAST EXCAVATIONS PTY. LIMITED	LOT 71 LOADERS ROAD, CUDGEN, NSW 2487	s.58 Licence Variation	Issued	25-Nov-05

cu**CUDGEN**

Landscape—low undulating hills and rises on Tertiary basalt plateau. Relief is 20–40 m; elevation 30–40 m; slopes 2–10% and steepening to 20% on plateau margins. Completely cleared closed-forest (rainforest).

Landscape Variant—**cua**—narrow drainage depression.

Landscape Variant—**cub**—sandy Krasnozems.

Soils—deep (>100 cm), well-drained Krasnozems (Uf5.12, Uf6.12, Uf6.21).

Limitations—acid and highly erodible soils with high aluminium toxicity potential.

LOCATION

Low hills and rises on Lamington Basalts forming on the north-easterly extension of the Burringbar Hills, extending into Kingscliff. Also includes Fingal Head and Cook Island. Type location is on the Cudgen Plateau (Area reference 5 55000E, 68 73000N).

LANDSCAPE**Geology**

Lamington Volcanics—Tertiary basalt, with members of rhyolite, trachyte, tuff, agglomerate, conglomerate.

Topography

Very low to low undulating hills and rises on the Cudgen Plateau and nearby basalt caps. Elevation is 30–40 m on the Cudgen Plateau. Relief is 20–40 m and slopes are 2–10%, steepening to 20% on the flanks and edges of the Cudgen Plateau. Slope lengths are long (up to 1 500 m) on the plateau. Sideslopes are moderately long (150–200 m). Slope shape is simple within the plateau, progressively waxing towards the edges. Drainage is generally incipient. Drainage depressions are common.

Vegetation

Completely cleared closed-forest (rainforest). Most of this landscape is cultivated, but the original vegetation would have been similar to that of the Limpinwood (**li**) or Green Pigeon (**gp**) soil landscapes.

Land Use

Vegetables (sweet potatoes, tomatoes, zucchinis, sweet corn, cucumbers, peas and beans) and tropical fruits (avocados, bananas, custard apples, mangoes, etc.). Residential at Cudgen and Kingscliff.

Existing Land Degradation

Topsoil erosion is a serious problem in the Cudgen area (Cole-Clark 1993). Soil structure decline is also a major problem (Riddler *et al.* 1982). Sheet and rill erosion have been observed during this survey.

Landscape Variants

The area mapped as **cua** is a narrow (up to 150 m) drainage depression. Otherwise, this variant has similar landscape features to the Cudgen soil landscape.

The area mapped as **cub** consists of Krasnozems mixed with aeolian sand, generally within the surface material.

SOILS

Detailed soil profile and distribution information can be found in Riddler *et al.* (1982).

Dominant Soil Materials

cu1—Red self-mulching light clay (topsoil and subsoil—Ap and B horizons)

Colour dark reddish brown (2.5YR 3/3, 5YR 3/6)

Texture light clay, often subplastic (increase <2 grades)

Structure	strong, closely packed polyhedral, 5–10 mm parting to 2–5 mm
Fabric	smooth-faced and rough-faced, distinct clay coatings are common (10–50%)
Exposed condition	self-mulching
Permeability	moderate to high
Field pH	6.0–7.0
Coarse fragments	none observed
Roots	common, 1–2 mm
Type location	cutting 100 m south of Curragundi (Grid Ref. 2 52900E, 68 68250N). Soil Data System card 32, 0–20 cm

cu2—Red medium clay (topsoil and subsoil—Ap and B horizons)

Colour	dark reddish brown (2.5YR 3/4, 5YR 3/4)
Texture	light medium to medium clay, often subplastic (increase <2 grades)
Structure	strong, polyhedral closely packed, 10–20 mm parting to 5–10 mm and 2–5 mm
Fabric	smooth-faced, occasionally rough-faced; distinct clay coatings can be common (10–50%)
Exposed condition	self-mulching
Permeability	moderate to high
Field pH	4.5–5.5
Coarse fragments	often common (10–20%) sub-angular gravels (6–60 mm) of parent material common, 1–5 mm
Roots	common, 1–5 mm
Type location	cutting 100 m south of Curragundi (Grid Ref. 2 52900E, 68 68250N). Soil Data System card 32, 20–100 cm

Associated Soil Materials

The following materials from Carool (ca) soil landscape occur in localised steeper areas, generally on the plateau margins:

ca2—Dark friable clay

ca3—Brown crumbly clay.

Occurrence and Relationships

The soils of the Cudgen soil landscape are predominantly Krasnozems. Riddler *et al.* (1982) has a very detailed soils map and report of this area.

Plateau. Up to 40 cm of red, self-mulching light clay (**cu1**) overlies up to 100 cm or more of red medium clay (**cu2**). Boundaries are gradual to diffuse. **cu2** may often be the only soil material due to sheet and rill erosion [well-drained Krasnozems (Uf5.12, Uf6.12, Uf6.21)]. Total soil depth is 100–>200 cm.

Localised, steeper areas may have 5–10 cm of dark, friable clay (**ca2**) gradually overlying up to 100 cm of brown, crumbly clay (**ca3**) [well-drained Chocolate Soils (Uf6.21)]. Total soil depth is up to 100 cm.

QUALITIES AND LIMITATIONS

Productive arable land

Landscape Limitations

Mass movement hazard (localised)

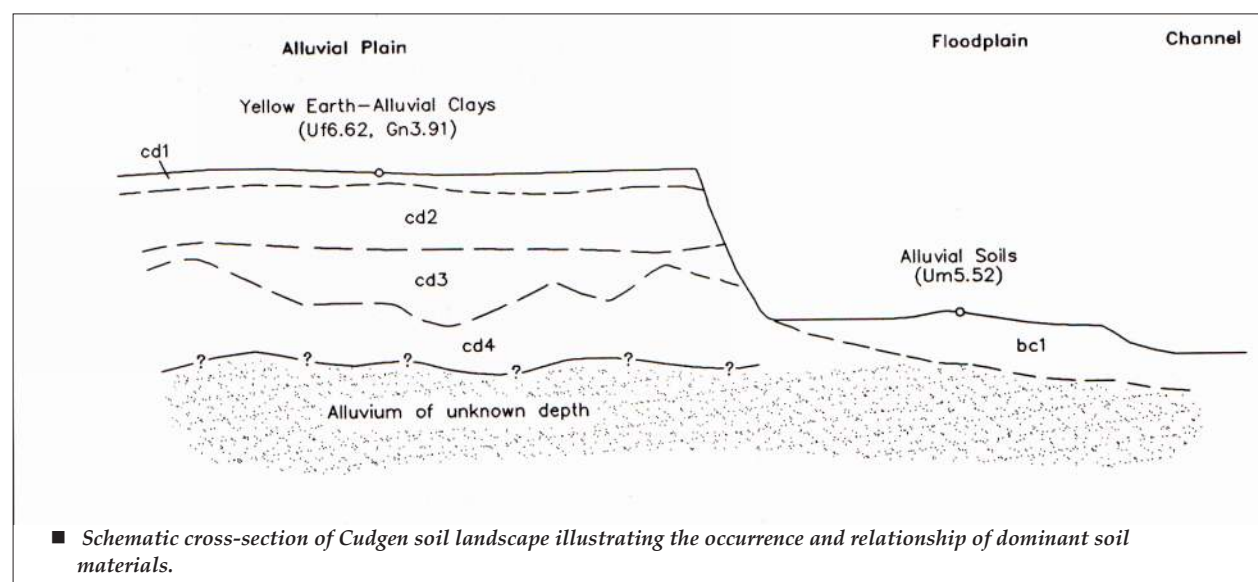
Water erosion hazard on cultivated land

Soil Limitations

cu1	High shrink-swell High erodibility Moderate plasticity
cu2	Strong acidity High aluminium toxicity potential High erodibility Moderate plasticity

Fertility

Soil Materials as Growth Media. Krasnozems have excellent physical qualities but have some chemical problems—soil material fertility is moderate to high. Soils are strongly structured, have very high pH buffering capacities and have high organic matter contents. All soil materials have very high P sorption and therefore very low available phosphorus. Topsoil (**cu1**) is neutral and subsoil (**cu2**) is strongly acid and has a high aluminium toxicity potential. CEC ranges from low (**cu2**) to high (**cu1**). Base saturation is very high and response to fertilisers may be minimal. Riddler *et al.* (1982) note that there has been a decline in phosphorus since the 1970s and a serious recent decline in calcium levels.



Soil Profile Fertility. Moderate to high suitability as a growth medium for deep, well-drained Krasnozems. Soil volumes available for root penetration are high.

Erodibility

	K factor	Non-concentrated flows	Concentrated flows	Wind
cu1	0.006	very low-high	very high	high
cu2	0.015	low-high	very high	high

Erosion Hazard

	Non-concentrated flows	Concentrated flows	Wind
grazing	moderate	high	slight
cultivation	high	very high	high
urban	high	very high	moderate

Foundation Hazard

Low to moderate foundation hazard on plateau due to the shrink-swell potential of topsoils. Localised areas of moderate to high foundation hazard may exist on steeper slopes where mass movement hazard exists. Topsoil depth is 20–40 cm. Total soil depth is 100–>200 cm.

Septic Absorption

Generally low for **cu1** and **cu2**. **cu1** has high shrink-swell and soil materials can have high rock content and moderate to high permeability. Sites on slopes >15% should be avoided.

Urban Capability

Generally low limitations for urban development, but this land is best left under cultivation.

Rural Capability

Generally low limitations for cultivation and low limitations for grazing.

Sustainable Land Use Suggestions

This land is best retained as agricultural land due to the favourable characteristics and versatile nature of Krasnozems. Where residential development exists, appropriate waste disposal systems should be used (i.e., not septic).

Use of aggressive tillage practices should be avoided due to the associated decline in soil structure. See Cole-Clark (1993) for erosion control management recommendations.

