POTENTIAL IRRIGATED AGRICULTURAL CROPS

Irrigated Crop Group	*Group No.*	*Individual crops assessed*
Tree and fruit vine crops	1	Tropical/sub-tropical – mango, dragonfruit (pitaya), longan, fig, pomegranate, soursop, guava, cashew, avocado, passionfruit.
	2	Citrus – lime, lemon, mandarin, pomelo, grapefruit.
Annual row crops	3	Cucurbits – watermelon, honeydew melon, rockmelon, pumpkin, cucumber, Asian melons, zucchini, squash. Fruiting vegetable crops – Solanaceae (capsicum, chilli, eggplant, tomato), strawberry, sweet corn.
	4	Leafy salad vegetables (e.g. lettuce, baby spinach, rocket), Asian greens and vegetables.
Row crops	5	Asparagus.
Root crops	6	Carrot, onion, potato, sweet potato, shallots, taro, Jerusalem artichoke, jicama.
Forestry	7	Sandalwood.
Annual field crops	8	Cotton, grains – sorghum, maize, sweet corn, rice. Pulses – mung bean, soybean.
Hay and forage	9	Grass hay – Rhodes grass, panics, forage sorghum, oats, barley, lucerne. Forage legumes – lucerne, peanut.

LAND SUITABILITY CLASSES FOR IRRIGATED AGRICULTURE

Class 1 **Suitable land with negligible limitations**
Highly productive land requiring only simple management practices to maintain sustainable production.

Class 2 **Suitable land with minor limitations**
Land with minor limitations that either constrain production or require more than the simple management practices of Class 1 land to maintain sustainable production.

Class 3 **Suitable land with moderate limitations**
Land with moderate limitations that further constrain production or require more than the management practices of Class 2 land to maintain sustainable production.

Class 4 **Unsuitable land with severe limitations**
Currently unsuitable land with severe limitations that preclude successful or sustained use under existing conditions. Future changes in knowledge, economics or technology may alter this.

Class 5 **Unsuitable land with extreme limitations**
Land with extreme limitations that preclude any possibility of successful or sustained use, either now or in the future.

GENERAL LAND CAPABILITY CLASSES

Class 1 **Land with negligible constraints** that require only a basic level of inputs, expertise and investment to develop and manage the land sustainably.
(gilgai absent, ECe <2 dS/m; 0-1% slope; >1.0 m soil depth; rapid to well-drained soil; no surface rock)

Class 2 **Land with minor or moderate constraints** that require a greater level of inputs, expertise and investment than Class 1 to develop and manage the land sustainably.
(gilgai vertical interval <0.3 m; and/or ECe 2-4 dS/m; and/or 1-2% slope; and/or soil depth 0.5-1.0 m; and/or moderately drained soil; and/or 0-2% surface rock)

Class 3 **Land with severe constraints** that require a high level of inputs, expertise and investment to develop and manage the land sustainably.
(gilgai vertical interval 0.3-0.6 m; and/or ECe 4-8 dS/m; and or 2-3% slope; and/or 0.25-0.5 m soil depth; and/or imperfectly drained soil; and/or 2-10% surface rock)

Class 4 **Land with extreme constraints** that generally require an unacceptable level of inputs, expertise and investment to develop and manage the land sustainably; making it either impractical, uneconomic or environmentally unsound to proceed. Where development must proceed the effects must be mitigated.
(gilgai vertical interval >0.6 m; and/or ECe >8 dS/m; and/or >3% slope; and/or <0.25 m soil depth; and/or poor to very poorly drained soil; and/or >10% surface rock)

LEGEND - LAND RESOURCES

Soil Sites
- Soil description
- Soil description and laboratory analysis
- Previous investigations

Extent of Mapping

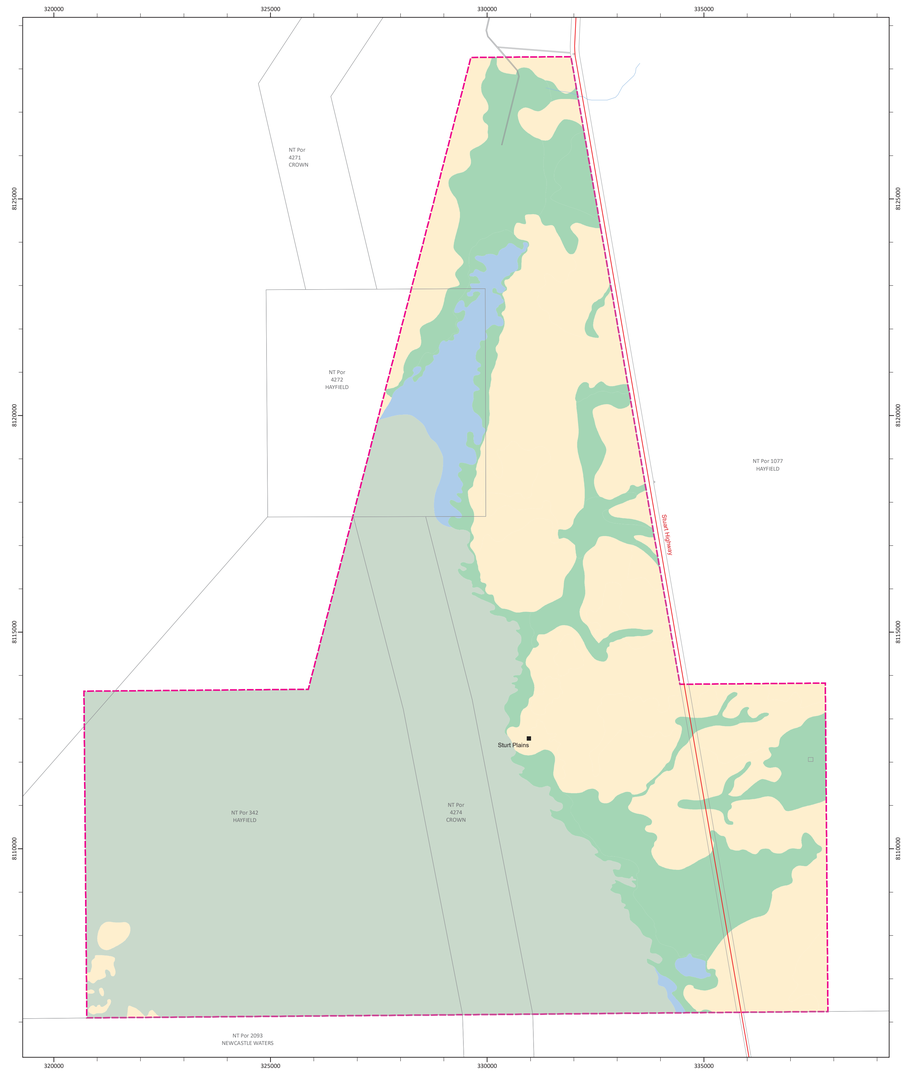
7a Land Units

Landform Class
- Low Rises
- Plains
- Downs Plains
- Inland Wetlands
- Swamps

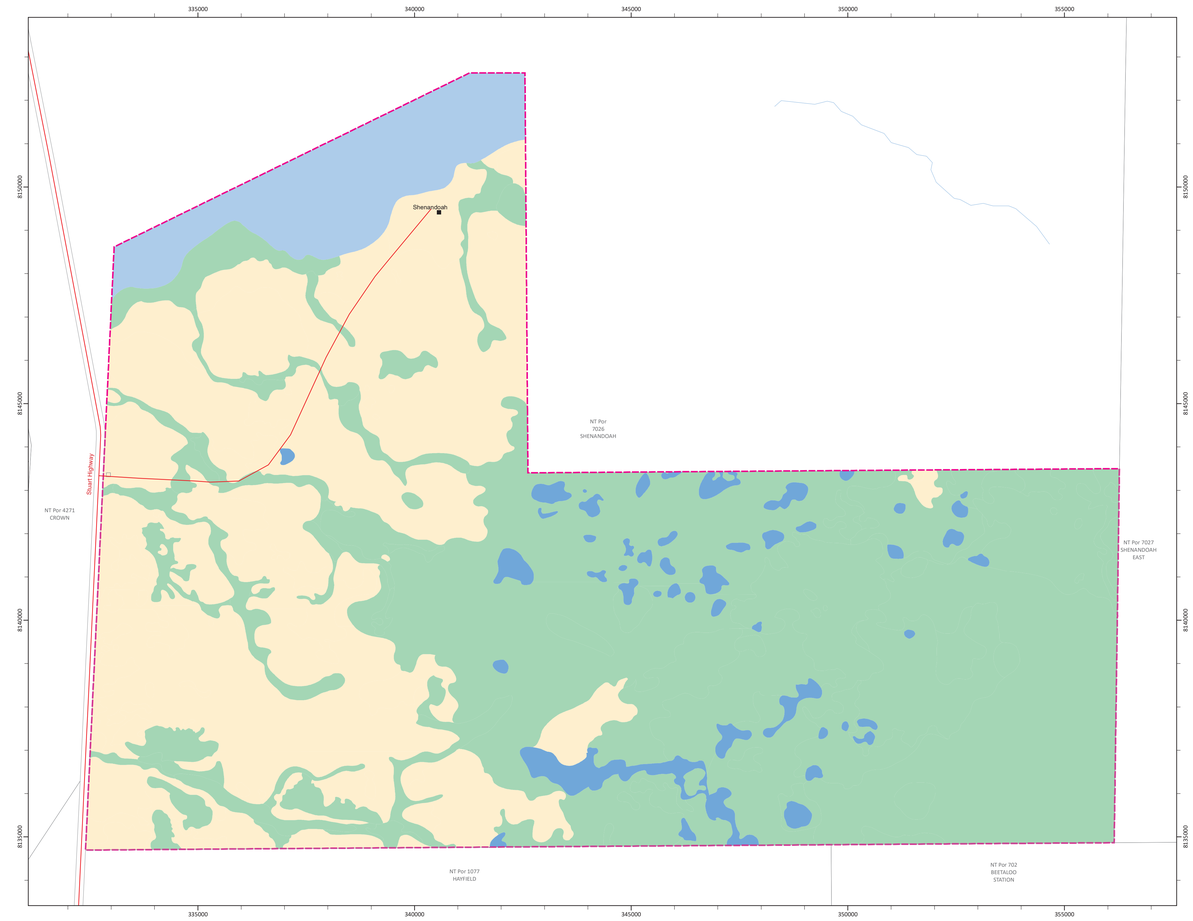
Dominant Soil Order
- Hydrosol
- Kandosol
- Rudosol
- Tensosol
- Vertosol

Dominant Veg Structure
- Mid woodland
- Low woodland
- Mid open woodland
- Low open woodland
- Mid tussock grassland
- Mid open tussock grassland
- Tall shrubland

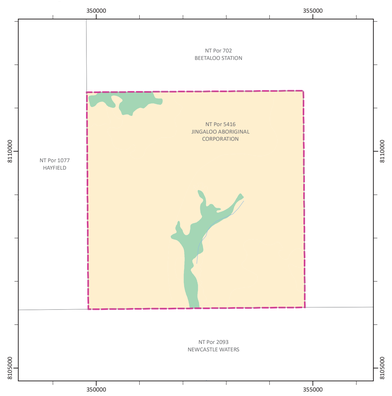
Study Area: HAYFIELD



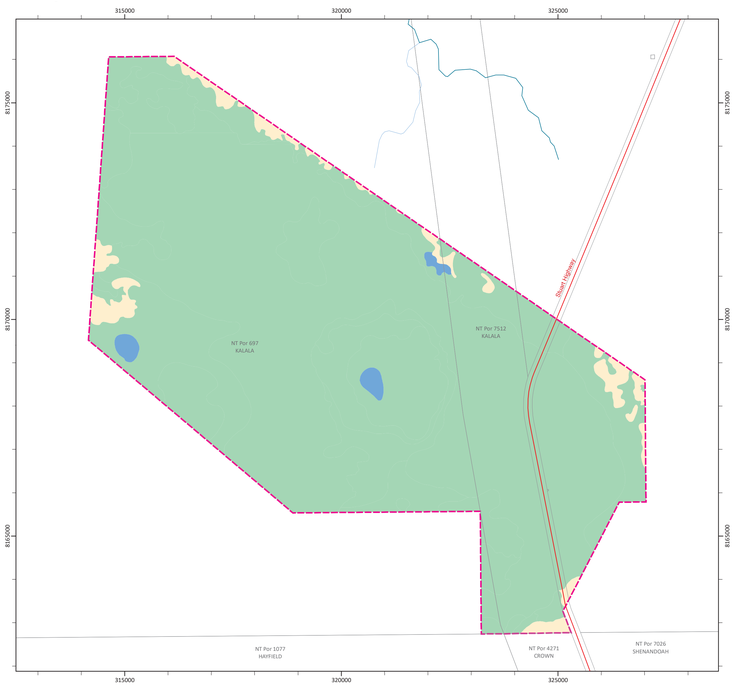
Study Area: SHENANDOAH



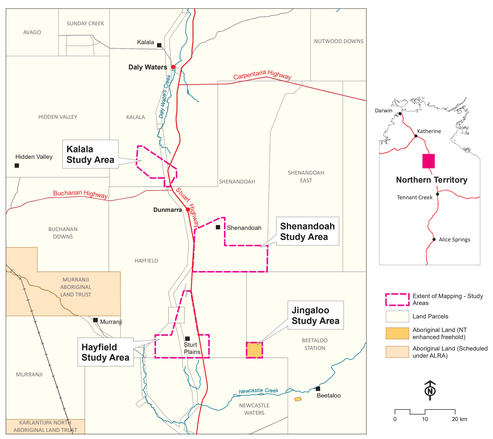
Study Area: JINGALOO



Study Area: KALALA



Study Area Location Map



LIMITATIONS OF USE - ALL STUDY AREAS

Land unit boundaries were derived using satellite imagery in association with a digital elevation model, geological and topographic data. Landform, soil and vegetation field assessments conform to national standards and support mapping at a scale of 1:50,000. This mapping is presented at a scale of 1:50,000.

When assessing specific areas within the mapping, it is recommended a site inspection be undertaken to establish unmapped variation and confirm mapping accuracy on the ground.

This map does not indicate, imply or ascertain the likelihood of groundwater availability or the granting of appropriate water extraction licensing needed to satisfy the irrigation requirements of the potential agricultural development options needed.

Black numbered lines are 1 000 metre intervals of the
Map Grid of Australia (MGA), Zone 53 Transverse Mercator Projection.
Horizontal Datum: Geocentric Datum of Australia (GDA94)

Map production: 30/05/2019, C.Green, Geospatial Services
Drawing Ref: DENR2019081
Department of Environment and Natural Resources

Soil and Land Suitability Assessment for Irrigated Agriculture in the Dunmarra Area

Landform Class

About this PDF map
Page 1 of this file is an interactive PDF map best viewed on screen using Adobe reader. If using Adobe Reader DC protected view, enable all features to see the map layers.
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- Turn off layers above to view layers that are masked underneath
- Titles will automatically turn on to match the thematic display
- Only print one thematic display, so the titles do not merge
- To print this map, use page size A0 with no scaling

Scroll to pages 2 - 4
for summarised descriptions of land units (page size A3)

For further information, please contact:

Director, Land Assessment Branch
Department of Environment and Natural Resources (DENR)
Level 3, Goyder Centre, 25 Chung Wah Terrace, Palmerston
Northern Territory of Australia.
Email: rangelands@nt.gov.au
Web: land-soil-vegetation-information

NORTHERN TERRITORY GOVERNMENT

How to access land resource information for this survey

Technical Report — Download report (PDF) from the Northern Territory Library
About the spatial data — Metadata record

This land resource spatial data and other environmental information can be accessed for download via the DENR Geospatial Resources webpage. See Spatial data package.

View soil site data and descriptions in the DENR web application NRmaps.nt.gov.au
Data layer: Land Resources\SALI Soil Profile Descriptions

Data source
Land Resources: Rangelands Division, Department of Environment and Natural Resources
Cadastre/Roads/Placenames: Department of Lands, Planning and Logistics
Drainage: 250k Commonwealth of Australia (Bureau of Meteorology) 2014
Parks: Parks and Wildlife Commission NT, Department of Tourism and Culture

Bibliographic reference
Burley P, Camarras M and Hempel J (2019).
Agricultural Land Suitability Series – Report 10.
Soil and Land Suitability Assessment for Irrigated Agriculture in the Dunmarra Area
Technical Report 5/2019D. Department of Environment and Natural Resources, Northern Territory Government, Darwin, NT.

Technical references
National Committee on Soil and Terrain (2009).
Australian Soil and Land Survey Field Handbook. Third Edition.
Canberra, Australian Collaborative Land Evaluation Program, CSIRO Publishing, Melbourne.

Isbell, R.F. and National Committee on Soil and Terrain (2016).
The Australian Soil Classification. Second Edition.
CSIRO Publishing, Melbourne.

Executive Steering Committee for Australian Vegetation Information (ESCAVI) (2003).
Australian Vegetation Attribute Manual: National Vegetation Information System, Version 6. Department of Environment and Heritage, Canberra.

Soil and Land Suitability Assessment for Irrigated Agriculture in the Dunmarra Area

LAND UNIT DESCRIPTION SUMMARY

This document should be read in conjunction with the following report:

Burley P, Carnavas M and Hempel J (2019).
Agricultural Land Suitability Series, Report 10.
Soil and Land Suitability Assessment for Irrigated Agriculture in the Dunmarra Area.
Technical Report 5/2019D, Department of Environment and Natural Resources

Spatial data details and web links to the report and maps are noted in the Metadata record.

For further information, please contact;

Department of Environment and Natural Resources (DENR)
Director, Land Assessment, Rangelands Division
Level 3, Goyder Centre, 25 Chung Wah Tce, Palmerston
Northern Territory
Email: rangelands@nt.gov.au
Web: soil-land-vegetation-information

Land Unit descriptions: Core Attributes

Land Unit	*Landform*	*Dom Soil*	*Dom Veg Structure*	*Dom Veg Species 1*	*Dom Veg Species 2*	*Dom Veg Species 3*	*Landform Description*	*Soil Description*	*Vegetation Description*
7a	Low Rises	Kandosol	Low open woodland	Corymbia dichromophloia	Terminalia canescens	Bauhinia cunninghamii	Gently undulating dissected gravelly low rises and pediment slopes	Shallow to moderately deep (0.25-1 m), brown or red massive earths over ferricrete (sandy topsoil) (Brown or Red Kandosols).	Corymbia dichromophloia low open woodland
7b	Low Rises	Kandosol	Low woodland	Acacia shirleyi	Corymbia dichromophloia	Bauhinia cunninghamii	Scoured gravelly level to gently undulating low rises and pediment slopes	Shallow to moderately deep (0.25-1 m), brown or red massive earths over ferricrete (clay loamy topsoil) (Brown or Red Kandosols).	Acacia shirleyi low woodland
7c	Low Rises	Rudosol	Low open woodland	Eucalyptus leucophloia subsp. euroa			Gently undulating weathered sandstone low rises	Shallow (0.25-0.5 m), moderately gravelly, undeveloped sandy soil over ferruginised sandstone (Clastic Rudosols)	Eucalyptus leucophloia subsp. euroa low open woodland
7d	Low Rises	Kandosol	Mid tussock grassland	Eriachne obtusa	Eulalia aurea	Sporobolus australasicus	Marginally elevated level to gently undulating residual low rises on fine grained sedimentary rocks within downs plains	Very deep (>1.5 m), brown massive earths (clayey throughout) (Brown Kandosols)	Eriachne obtusa mid tussock grassland
8a1	Plains	Kandosol	Mid open woodland	Corymbia dichromophloia	Erythrophleum chlorostachys	Corymbia ferruginea	Level plains of residual plateau surface	Very deep (>1.5 m), red massive earths (Red Kandosols)	Corymbia dichromophloia, Erythrophleum chlorostachys, Corymbia ferruginea mid open woodland
8a2	Plains	Tenosol	Mid woodland	Corymbia dichromophloia	Corymbia ferruginea		Level plains on margins of residual plateau surface	Moderately deep to very deep (>0.5 m) earthy sands over ferricrete (Leptic Tenosols)	Corymbia dichromophloia, Corymbia ferruginea mid woodland
8a3	Plains	Tenosol	Low open woodland	Corymbia dichromophloia	Macropteranthes kekwickii	Corymbia ferruginea	Level wash-slope plains and pediments	Shallow (0.25-0.5 m), earthy sands (Leptic Tenosols) or moderately deep (0.5-1 m), brown massive earths (Brown Kandosols) over ferricrete	Corymbia dichromophloia low open woodland
8a4	Plains	Kandosol	Low open woodland	Melaleuca nervosa	Corymbia dichromophloia	Eucalyptus chlorophylla	Broad, imperfectly drained lower-lying areas on level plains	Deep to very deep (>1.0 m), grey or yellow massive earths over ferricrete (Grey or Yellow Kandosols)	Melaleuca nervosa low open woodland
8a5	Plains	Tenosol	Low open woodland	Corymbia dichromophloia	Eucalyptus bigalerita	Brachychiton diversifolius	Level to gently undulating gravelly wash-slope plains and pediments	Very shallow to shallow (<0.5 m), gravelly, bleached earthy sands over ferricrete (Bleached-Leptic Tenosols)	Corymbia dichromophloia low open woodland
8b1	Plains	Kandosol	Mid woodland	Erythrophleum chlorostachys	Corymbia dichromophloia	Corymbia terminalis	Level colluvial plains and valley flats within narrow relict drainage features	Very deep (>1.5 m), red massive earths (Red Kandosols)	Erythrophleum chlorostachys, Corymbia dichromophloia, Corymbia terminalis mid woodland
8b2	Plains	Kandosol	Low woodland	Erythrophleum chlorostachys	Corymbia dichromophloia	Corymbia terminalis	Level colluvial plain margins and valley flats within narrow relict drainage features	Moderately deep to deep (0.5-1.5 m), red massive earths over ferricrete (Red Kandosols)	Erythrophleum chlorostachys, Corymbia dichromophloia, Corymbia terminalis low woodland
8b3	Plains	Kandosol	Low open woodland	Erythrophleum chlorostachys	Corymbia dichromophloia	Bauhinia cunninghamii	Level, imperfectly drained, colluvial valley flats and margins within relict drainage features	Deep (1-1.5 m), brown massive earths over ferricrete (clayey subsoil) (Brown Kandosols)	Erythrophleum chlorostachys, Corymbia dichromophloia, Bauhinia cunninghamii low open woodland
8c1	Plains	Kandosol	Low open woodland	Macropteranthes kekwickii	Eucalyptus chlorophylla	Bauhinia cunninghamii	Broad, level, colluvial brown clay plains	Moderately deep to very deep (>0.5 m), massive brown clays (Brown Kandosols)	Macropteranthes kekwickii, Eucalyptus chlorophylla low open woodland
8c2	Plains	Kandosol	Tall shrubland	Macropteranthes kekwickii	Terminalia volucris	Capparis lasiantha	Level clay plains within steep-sided open depressions	Moderately deep (0.5-1.0 m), massive brown clays over ferricrete (Brown Kandosols)	Macropteranthes kekwickii, Terminalia volucris tall shrubland
8d	Plains	Kandosol	Low woodland	Eucalyptus microtheca	Corymbia terminalis	Macropteranthes kekwickii	Level plains intergrading red soil uplands and downs plains	Deep to very deep (>1.0 m), mottled, massive yellow clays (Yellow Kandosols)	Eucalyptus microtheca low woodland
11a	Swamps	Hydrosol	Low open woodland	Eucalyptus microtheca	Corymbia terminalis	Lophostemon grandiflorus	Localised shallow, level closed depressions and seasonal swamps	Very deep (>1.5 m), seasonally-wet, mottled soils (Redoxic Hydrosols)	Eucalyptus microtheca low open woodland
13a	Inland Wetlands	Vertosol	Low open woodland	Eucalyptus microtheca	Excoecaria parvifolia	Terminalia volucris	Seasonally inundated level clay plains with gilgai microrelief	Very deep (>1.5 m), seasonally-wet, self-mulching, cracking-clays (Aquic Vertosols)	Eucalyptus microtheca low open woodland
14a	Downs Plains	Vertosol	Mid open tussock grassland	Astrebla pectinata	Aristida latifolia	Neptunia dimorphantha	Level cracking-clay downs plains with gilgai microrelief	Very deep (>1.5 m), self-mulching, grey cracking-clays (Grey Vertosols)	Astrebla pectinata, Aristida latifolia, Neptunia dimorphantha mid open tussock grassland

Land Unit descriptions:		Landscape criteria used to assess general land capability						Agricultural Suitability Class for a range of potential crop groups								
Land Unit	*Drainage Class*	*Slope Class*	*Surface Rock Class*	*Soil Depth Class*	*Microrelief Class*	*Salinity Class*	*Land Capability Class*	*Group 1*	*Group 2*	*Group 3*	*Group 4*	*Group 5*	*Group 6*	*Group 7*	*Group 8*	*Group 9*
7a	Well Drained	Moderate	Moderate	Shallow	None	Low	**3**	4	5	5	5	5	5	4	5	5
7b	Well Drained	Moderate	Moderate	Shallow	None	Low	**3**	4	5	5	5	5	5	4	5	5
7c	Moderately Well Drained	High	Abundant	Shallow	None	Low	**4**	4	5	5	5	5	5	4	5	5
7d	Moderately Well Drained	Low	None	Deep to very deep	None	Low	**2**	4	4	5	5	5	5	4	5	5
8a1	Well Drained	Low	None	Deep to very deep	None	Low	**1**	1	2	2	3	2	3	2	2	2
8a2	Well Drained	Low	None	Moderately deep	None	Low	**2**	2	3	4	4	3	4	3	3	3
8a3	Moderately Well Drained	Low	None	Moderately deep	None	Low	**2**	2	4	4	4	3	4	4	3	3
8a4	Imperfectly Drained	Low	None	Deep to very deep	None	Low	**3**	3	3	3	3	3	3	3	3	3
8a5	Imperfectly Drained	Moderate	None	Very shallow	None	Low	**4**	4	5	5	5	5	5	5	5	5
8b1	Well Drained	Low	None	Deep to very deep	None	Low	**1**	1	1	2	2	2	3	2	2	2
8b2	Well Drained	Low	None	Moderately deep	None	Low	**2**	2	3	2	2	2	3	3	2	2
8b3	Imperfectly Drained	Low	None	Deep to very deep	None	Low	**3**	3	3	3	3	3	3	3	3	3
8c1	Imperfectly Drained	Low	None	Moderately deep	None	Low	**3**	3	3	3	3	3	3	3	3	3
8c2	Moderately Well Drained	Low	None	Shallow	None	Low	**3**	4	4	4	4	4	4	4	4	4
8d	Imperfectly Drained	Low	None	Deep to very deep	None	Low	**3**	4	4	4	4	4	4	4	4	4
11a	Poorly Drained	Low	None	Deep to very deep	None	Low	**4**	5	5	5	5	5	5	5	5	5
13a	Poorly Drained	Low	None	Deep to very deep	Moderate	Low	**4**	5	5	5	5	5	5	5	5	5
14a	Imperfectly Drained	Low	None	Deep to very deep	Moderate	Low	**3**	4	4	4	4	4	4	4	4	4

Potential Irrigated Agricultural Crops

Irrigated Crop Group	*Group No.*	*Individual crops assessed*
Tree and fruit vine crops	1	Tropical/sub-tropical – mango, dragonfruit (pitaya), longan, fig, pomegranate, soursop, guava, cashew, avocado, passionfruit.
	2	Citrus – lime, lemon, mandarin, pomelo, grapefruit.
Annual row crops	3	Cucurbits – watermelon, honeydew melon, rockmelon, pumpkin, cucumber, Asian melons, zucchini, squash. Fruiting vegetable crops – Solanaceae (capsicum, chilli, eggplant, tomato), strawberry, sweet corn.
	4	Leafy salad vegetables (e.g. lettuce, baby spinach, rocket), Asian greens and vegetables.
Row crops	5	Asparagus.
Root crops	6	Carrot, onion, potato, sweet potato, shallots, taro, Jerusalem artichoke, jicama.
Forestry	7	Sandalwood.
Annual field crops	8	Cotton, grains – sorghum, maize, sweet corn, rice. Pulses – mung bean, soybean.
Hay and forage	9	Grass hay – Rhodes grass, panics, forage sorghum, oats, barley, lucerne. Forage legumes – lucerne, peanut.

Land capability class and generalised assessment criteria

Class	*Description*
1	Land with negligible constraints that require only a basic level of inputs, expertise and investment to develop and manage the land sustainably. *gilgai absent, ECe <2 dS/m; 0-1% slope; >1.0 m soil depth; rapid to well-drained soil; no surface rock*
2	Land with minor or moderate constraints that require a greater level of inputs, expertise and investment than Class 1 to develop and manage the land sustainably. *gilgai vertical interval <0.3 m; and/or ECe 2-4 dS/m; and/or 1-2% slope; and/or soil depth 0.5-1.0 m; and/or moderately drained soil; and/or 0-2% surface rock*
3	Land with severe constraints that require a high level of inputs, expertise and investment to develop and manage the land sustainably. *gilgai vertical interval 0.3-0.6 m; and/or ECe 4-8 dS/m; and or 2-3% slope; and/or 0.25-0.5 m soil depth; and/or imperfectly drained soil; and/or 2-10% surface rock*
4	Land with extreme constraints that generally require an unacceptable level of inputs, expertise and investment to develop and manage the land sustainably; making it either impractical, uneconomic or environmentally unsound to proceed. Where development must proceed the effects must be mitigated. *gilgai vertical interval >0.6 m; and/or ECe >8 dS/m; and/or >3% slope; and/or <0.25 m soil depth; and/or poor to very poorly drained soil; and/or >10% surface rock*

Agricultural suitability class assessment for a range of potential crop groups

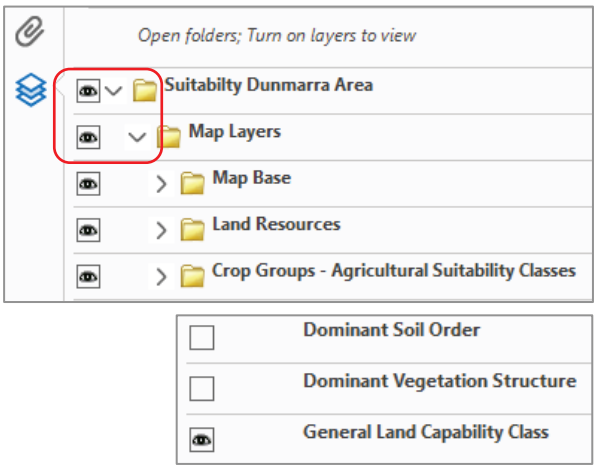
Class	*Description*
1	Highly productive land requiring only simple management practices to maintain sustainable production.
2	Land with minor limitations that either constrain production or require more than the simple management practices of Class 1 land to maintain sustainable production.
3	Land with moderate limitations that further constrain production or require more than the management practices of Class 2 land to maintain sustainable production.
4	Currently unsuitable land with severe limitations that preclude successful or sustained use under existing conditions. Future changes in knowledge, economics or technology may alter this.
5	Land with extreme limitations that preclude any possibility of successful or sustained use, either now or in the future.

About viewing this interactive PDF map using Adobe Reader

Interactive layers are not visible via web view. Download the map to your computer.

Click to **View Map**

Click to **View Land Unit Summary Descriptions**



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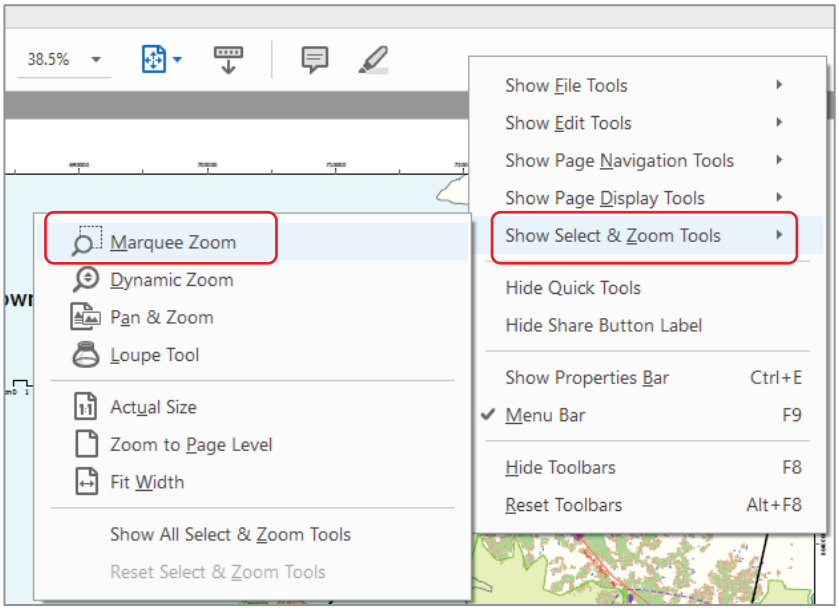
Scroll to Pages 2 - 4 to view the Land Unit Summary descriptions

Each land unit polygon is described with a large set of attributes. The page size is A3.

This summary description should be read in conjunction with the survey report.



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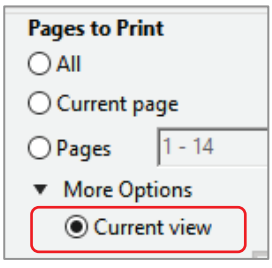

Page 1 - Print to a large format printer as size A0 with no scaling.

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