LIMITATIONS OF USE

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 1:25,000. This mapping is presented at a scale of 1:25,000.

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.

POTENTIAL IRRIGATED AGRICULTURAL CROPS

Irrigated Crop Group	*Group No.*	*Individual crops assessed*
Field crops	1	Cotton, grains (sorghum, maize, sweet corn, rice), pulses (mung bean, soybean)
	2	Peanut
Hay and forage	3	Sub-tropical grass hay/forage (Rhodes grass, Panics, Forage Sorghum)
Tree crops	4A	Monsoonal tropical tree crops (0.5 m root zone) – Mango, Coconut, Dragonfruit, Kakadu Plum
	4B	Monsoonal tropical tree crops (1.0 m root zone) – Cashew, Jackfruit, Tamarind, Morinda citrifolia
	5	Tropical Citrus – Lime, Lemon, Mandarin, Pommelo, Lemonade, Grapefruit
Row crops	6	Cucurbits – Watermelon, Honeydew melon, Rockmelon, Pumpkin, Cucumber, Asian melons, Zucchini, Squash
	7	Fruiting vegetable crops – Solanaceae (Capsicum, Chilli, Eggplant, Tomato), Okra, Snake bean, Drumstick tree
	8	Leafy vegetables and herbs – Kangkong, Amaranth, Lettuce, Chinese cabbage, Bok Choy, Pak Choy, Choy Sum, Spring onions, Basil, Coriander, Dill, Mint, Spearmint, Chives, Oregano, Lemon grass
Root crops	9	Carrot, Onion, Sweet potato, Shallots, Ginger, Turmeric, Galangal, Yam bean, Taro
Forestry	10	Sandalwood
	11	Mahogany, *Eucalyptus spp., Acacia spp.*
Rainfed Crop Group	*Group No.*	*Individual crops assessed*
Hay and forage	12	Sub-tropical grass hay/forage (Jarra, Strickland, Tully, Cavalcade, Forage Sorghum)

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.
(ASS not present; flood-free; gilgai absent, ECe <2 dS/m; ESP <6%; 0-1% slope; >1.0 m soil depth; rapid to well-drained soil; no surface rock; low wind erosion hazard)

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.
(ASS not present; and/or flooding extremely rare; and/or gilgai vertical interval <0.3 m; and/or ECe 2-4 dS/m; and/or ESP 6-15%; 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; and/or moderate wind erosion hazard)

Class 3 — **Land with severe constraints** that require a high level of inputs, expertise and investment to develop and manage the land sustainably.
(ASS not present; and/or flooding rare; and/or gilgai vertical interval 0.3-0.6 m; and/or ECe 4-8 dS/m; and/or ESP 15-20%; 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; and/or high wind erosion hazard)

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.
(ASS present; and/or regular to permanent flooding; and/or gilgai vertical interval >0.6 m; and/or ECe >8 dS/m; and/or ESP >20%; and/or >3% slope; and/or <0.25 m soil depth; and/or poor to very poorly drained soil; and/or >10% surface rock; and/or very high wind to extreme erosion hazard)

LAND SUITABILITY CLASSES FOR IRRIGATED AGRICULTURE

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

Class 2 — **Suitable land 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 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.

LEGEND - LAND RESOURCES

Field Sites (2018)
- Detailed field site
- Detailed field site and analytical site

Legacy Field Sites
- Matar 1994, Roper 1988

Extent of Mapping

Land Units

Landform Class

Low Rises
- 7a1

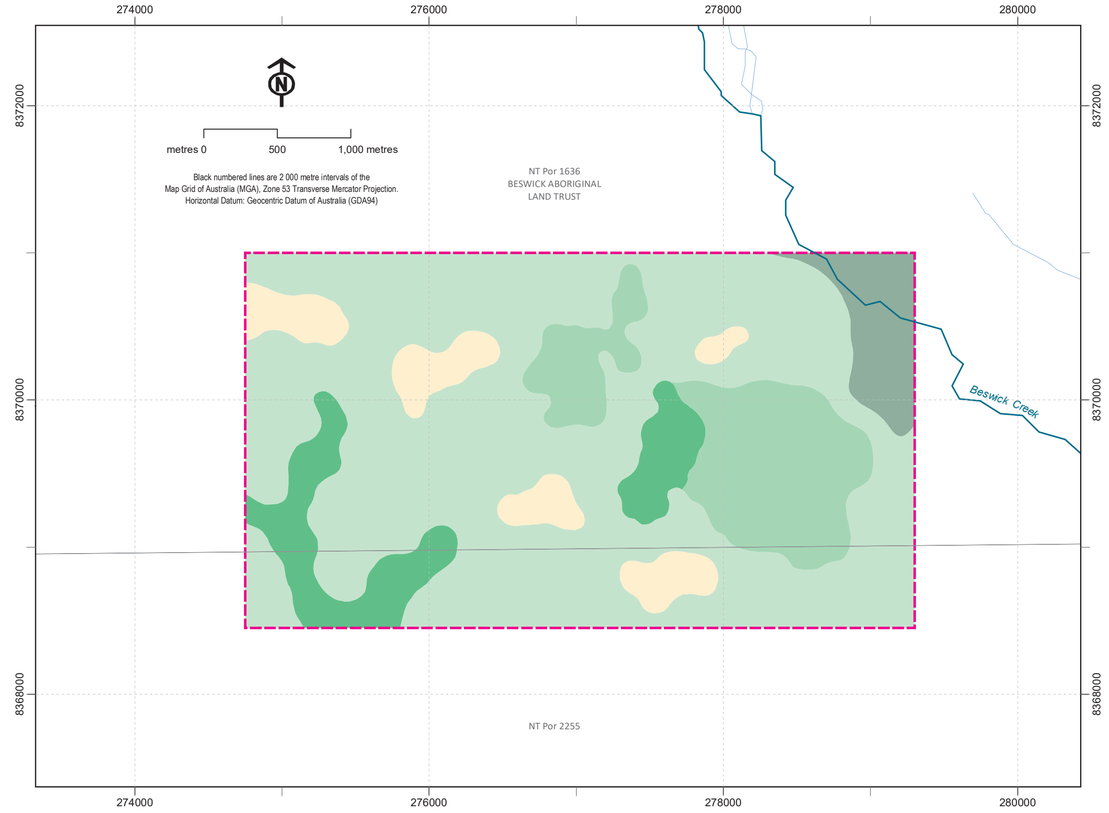
Plains
- 8a2
- 8b1
- 8c1

Alluvial Plains
- 9a2

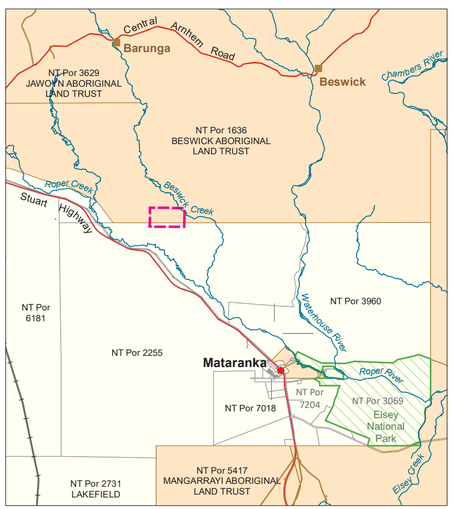
Dominant Soil Order
- Chromosols
- Kandosols
- Tenosols

Dominant Vegetation Structure
- Mid woodland
- Low woodland
- Mid open woodland

General Land Capability Class
- 2 - Minor or moderate constraints
- 3 - Severe constraints
- 4 - Extreme constraints



Survey Area - Region Location



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
McGrath N. and Andrews K. (2019).
Agricultural Land Suitability Series – Report 13.
Soil and Land Suitability Assessment for Irrigated Agriculture on part of Beswick Aboriginal Land Trust. Technical Report 13/2019D. 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. 3rd 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.

Map production: 7/02/2019, C.Green, Geospatial Services
Drawing Ref: 2019021
Department of Environment and Natural Resources

Soil and Land Suitability Assessment for Irrigated Agriculture on part of Beswick Aboriginal Land Trust

Dominant 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.
- Open folders in the left panel to view the individual map layers
- Users may turn layers ON or OFF
- 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 B2 with no scaling

Scroll to pages 2 - 4
for summarised descriptions of land units (page size A4)

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

Soil and Land Suitability Assessment for Irrigated Agriculture on part of Beswick Aboriginal Land Trust, Northern Territory

LAND UNIT DESCRIPTION SUMMARY

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

McGrath N. and Andrews K. (2019)

Agricultural Land Suitability Series, Report 13.
Soil and Land Suitability Assessment for Irrigated Agriculture
on part of Beswick Aboriginal Land Trust
Technical Report 13/2019D, Department of Environment and Natural Resources

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, NT
Email: rangelands@nt.gov.au
Web: soil-land-vegetation-information

Metadata: for spatial data details and web links to reports and map products.

Land Unit Core Attributes

Land Unit	*Landform Class*	*Dominant Soil Order*	*Dominant Veg Structure*	*Dominant Veg Species 1*	*Dominant Veg Species 2*	*Dominant Veg Species 3*	*Landform Description*	*Soil Description*	*Vegetation Description*
7a1	Low Rises	Tenosols	Low woodland	*Erythrophleum chlorostachys*	*Eucalyptus tectifica*		Gently undulating to undulating residual low rises; local relief 3-9 m; slopes 1-8%.	Very shallow to moderately deep (0.2-0.55 m), gravelly, firm or hardsetting, bleached, massive brown earthy sand (LS-SL subsurface); overlying hard ferricrete or petroreticulate (Petroferric Bleached-Orthic Tenosol).	*Erythrophleum chlorostachys* and *Eucalyptus tectifica* low woodland.
8a2	Plains	Tenosols	Low woodland	*Corymbia setosa*	*Corymbia confertiflora*	*Corymbia terminalis*	Very weakly dissected, level to gently undulating residual pediments and plains; local relief <1-5 m; slopes <1-2% (occasionally to 3%).	Shallow to moderately deep (0.35-0.7 m), slightly gravelly, firm or hardsetting, massive brown earthy sand (S subsoil); overlying hard ferricrete or petroreticulate (Ferric-Petroferric or Petroferric, Brown-Orthic or Leptic Tenosol).	*Corymbia setosa, Corymbia confertiflora* and *Corymbia terminalis* low woodland or *Corymbia grandifolia* , *Eucalyptus miniata* and *Eucalyptus patellaris* mid open woodland.
8b1	Plains	Kandosols	Low woodland	*Vachellia pallidifolia*	*Eucalyptus tectifica*	*Corymbia setosa*	Level to very gently undulating plains and lower pediment slopes; local relief <1-5 m; slopes <0.5-2%.	Very deep (>1.5 m), firm or hardsetting, sandy surfaced, massive red gradational earth (CLS subsoil) with a fine to medium sand fraction (Mesotrophic Red Kandosol).	*Vachellia pallidifolia, Eucalyptus tectifica* and *Corymbia setosa* low woodland.
8c1	Plains	Kandosols	Mid woodland	*Corymbia dichromophloia*	*Corymbia ferruginea*	*Corymbia confertiflora*	Level to gently undulating plains and lower pediment slopes; local relief <1-5 m; slopes <1- 2% (occasionally to 3%).	Very deep (>1.5 m), soft or firm, thick sandy surfaced, massive red gradational earth (SCL-CLS subsoil) with a medium to coarse sand fraction (Mesotrophic Red Kandosol).	*Corymbia dichromophloia, Corymbia ferruginea* and *Corymbia confertiflora* mid woodland or *Eucalyptus miniata, Corymbia greeniana* ± *Erythrophleum chlorostachys* low woodland.
9a2	Alluvial Plains	Chromosols	Mid open woodland	*Corymbia latifolia*	*Eucalyptus bigalerita*	*Gardenia megasperma*	Level alluvial plain of Beswick Creek; local relief 5-15 m below surrounding plains; slopes <0.5%, subject to flooding and temporary saturation for at least a period of weeks during the Wet season (ARI more frequent than 1 in 2 years).	Very deep (>1.5 m), hardsetting, bleached, sandy surfaced, massive, mottled, brown texture contrast soil (LC subsoil) on recent alluvium (Eutrophic Brown Chromosol or Chromosolic Redoxic Hydrosol).	*Corymbia latifolia, Eucalyptus bigalerita* and *Gardenia megasperma* mid open woodland.

Landscape criteria used to assess general land capability

Land Unit	*Slope %*	*Slope Class*	*Surface Rock %*	*Surface Rock Class*	*Soil Depth m*	*Soil Depth Class*	*Drainage Class*	*Flooding Class*	*Salinity Class*	*Sodicity Class*	*Microrelief*	*Land Cap Class*
7a1	1-8%	Level to substantial	2-5%	Moderate	0.2-0.55 m	Very shallow to moderately deep	Moderately well	Never	Low salinity	Non-sodic	None	**4**
8a2	<1-2%	Level to gentle	0-2%	None to negligible	0.35-0.7 m	Shallow to moderately deep	Moderately well to well	Never	Low salinity	Non-sodic	None	**3**
8b1	<0.5-2%	Level to gentle	0%	None	>1.5 m	Very deep	Well	Never	Low salinity	Non-sodic	None	**2**
8c1	<1-2%	Level to gentle	0%	None	>1.5 m	Very deep	Well	Never	Low salinity	Non-sodic	None	**2**
9a2	<0.5%	Level	0%	None	>1.5 m	Very deep	Poor to imperfect	Regular	Low salinity	Non-sodic	None	4

Land Cap Class	*General land capability class description and associated assessment criteria.*
1	**Land with negligible constraints** that require only a basic level of inputs, expertise and investment to develop and manage the land sustainably.
	(ASS not present; flood-free; gilgai absent, ECe <2 dS/m; ESP <6%; 0-1% slope; >1.0 m soil depth; rapid to well-drained soil; no surface rock; low wind erosion hazard)
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.
	(ASS not present; and/or flooding extremely rare; and/or gilgai vertical interval <0.3 m; and/or ECe 2-4 dS/m; and/or ESP 6-15%; 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; and/or moderate wind erosion hazard)
3	**Land with severe constraints** that require a high level of inputs, expertise and investment to develop and manage the land sustainably.
	(ASS not present; and/or flooding rare; and/or gilgai vertical interval 0.3-0.6 m; and/or ECe 4-8 dS/m; and/or ESP 15-20%; 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; and/or high wind erosion hazard)
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.
	(ASS present; and/or regular to permanent flooding; and/or gilgai vertical interval >0.6 m; and/or ECe >8 dS/m; and/or ESP >20%; and/or >3% slope; and/or <0.25 m soil depth; and/or poor to very poorly drained soil; and/or >10% surface rock; and/or very high wind to extreme erosion hazard)

Agricultural suitablity class for a range of potential crop groups

Land Unit	Group 1	Group 2	Group 3	Group 4A	Group 4B	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	Group 12
7a1	5	5	5	5	5	5	5	5	5	5	5	5	5
8a2	5	5	4	3	4	4	5	5	5	5	5	5	5
8b1	2	2	2	1	1	2	2	2	3	3	2	1	2
8c1	2	2	2	1	1	2	2	2	3	3	2	1	2
9a2	5	5	5	4	4	5	5	5	5	5	5	5	5

Irrigated Crop Group	Group no.	Individual crops assessed
Field crops	1	Cotton, grains (sorghum, maize, sweet corn, rice), pulses (mung bean, soybean)
	2	Peanut
Hay and forage	3	Sub-tropical grass hay/forage (Rhodes grass, panics, forage sorghum)
Tree crops	4A	Monsoonal tropical tree crops (0.5 m root zone) – Mango, Coconut, Dragonfruit, Kakadu Plum, Bamboo
	4B	Monsoonal tropical tree crops (1.0 m root zone) – Cashew, Jackfruit, Tamarind, Morinda citrifolia
	5	Tropical Citrus – Lime, Lemon, Mandarin, Pommelo, Lemonade, Grapefruit
Row crops	6	Cucurbits – Watermelon, Honeydew melon, Rockmelon, Pumpkin, Cucumber, Asian melons, Zucchini, Squash
	7	Fruiting vegetable crops – Solanaceae (Capsicum, Chilli, Eggplant, Tomato), Okra, Snake bean, Drumstick tree
	8	Leafy vegetables and herbs – Kangkong, Amaranth, Lettuce, Chinese cabbage, Bok Choy, Pak Choy, Choy Sum, Spring onions, Basil, Coriander, Dill, Mint, Spearmint, Chives, Oregano, Lemon grass
Root crops	9	Carrot, Onion, Sweet potato, Shallots, Ginger, Turmeric, Galangal, Yam bean, Taro
Forestry	10	Sandalwood
	11	Mahogany, *Eucalyptus spp., Acacia spp.*
Rain-fed Crop Group	*Group no.*	*Individual crops assessed*
Hay and forage	12	Sub-tropical grass hay/forage (Jarra, Strickland, Tully, Cavalcade, Forage Sorghum)

Definitions for land suitability classes 1-5 for agricultural crops

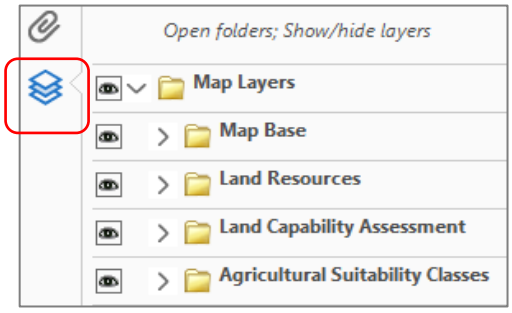
Class	Description
1	**Suitable land with negligible limitations** Highly productive land requiring only simple management practices to maintain sustainable production.
2	**Suitable land with minor limitations** Land with minor limitations that either constrain production or require more than the simple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

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**

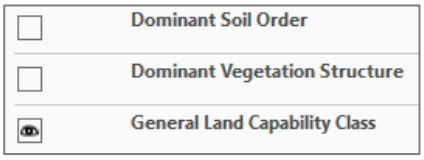


Page 1 of this document contains an Interactive Map with layers

In Adobe Reader, open the left panel to reveal the map layers.

Open each folder to see the individual map layers.

Hide or show layers on the main map



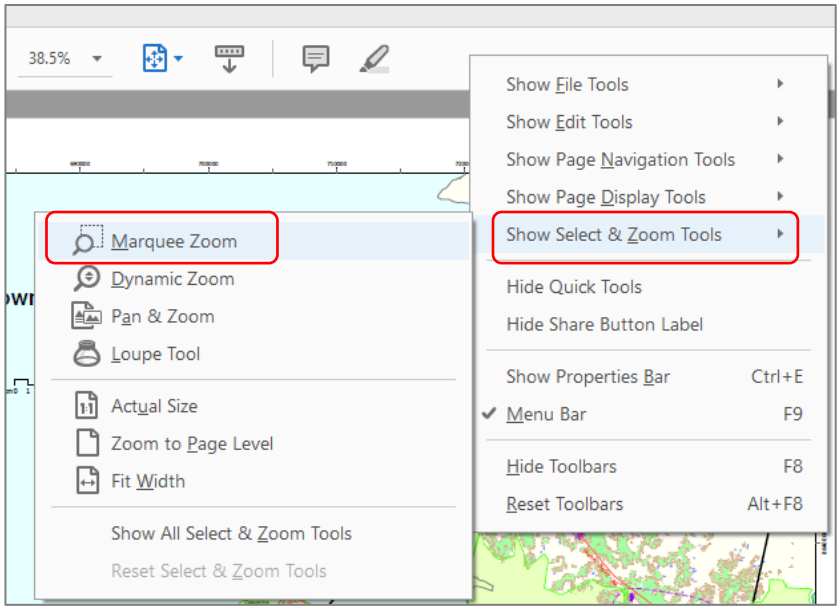
Turn off layers above as they will mask the layer below.

Titles will automatically turn on to match the layer.

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 A4.

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



How to add new Adobe tools

Right mouse click on the grey menu toolbar to see Adobe viewing tools.

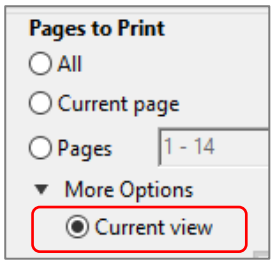
Tick the tool to view on the menu bar.

The **Marquee Zoom tool** is useful to view a small area on the PDF, eg zoom to the map or the legend.

Show Select & Zoom Tools > Marquee Zoom

Click on the map and draw a rectangle to zoom to that location.

Printing



Page 1 is 70 x 42 cm. Print to a large format printer as size B2 with no scaling.

Only turn on one layer, so the titles do not merge.

A smaller area on the map page may be printed using the Current View printing option.

Eg. Zoom to the Map Legend and print to an A4 page to assist with map interpretation while viewing on screen.