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Cropping development business plan for <Property>

Prepared <Date>

Note: *This business plan template is provided as a guide to assist with addressing key elements of a business plan that may be required for internal evaluation of the proposed cropping development option, and external approval by financiers, joint venture partners, development approvals, government regulators, etc.*

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1. Business details

1.1 Property information

Summarise property and ownership details in the table below and insert a map showing the location and extent of the property in the following figure.

Mapping data may be obtained from Queensland Globe: https://qldglobe.information.qld.gov.au/

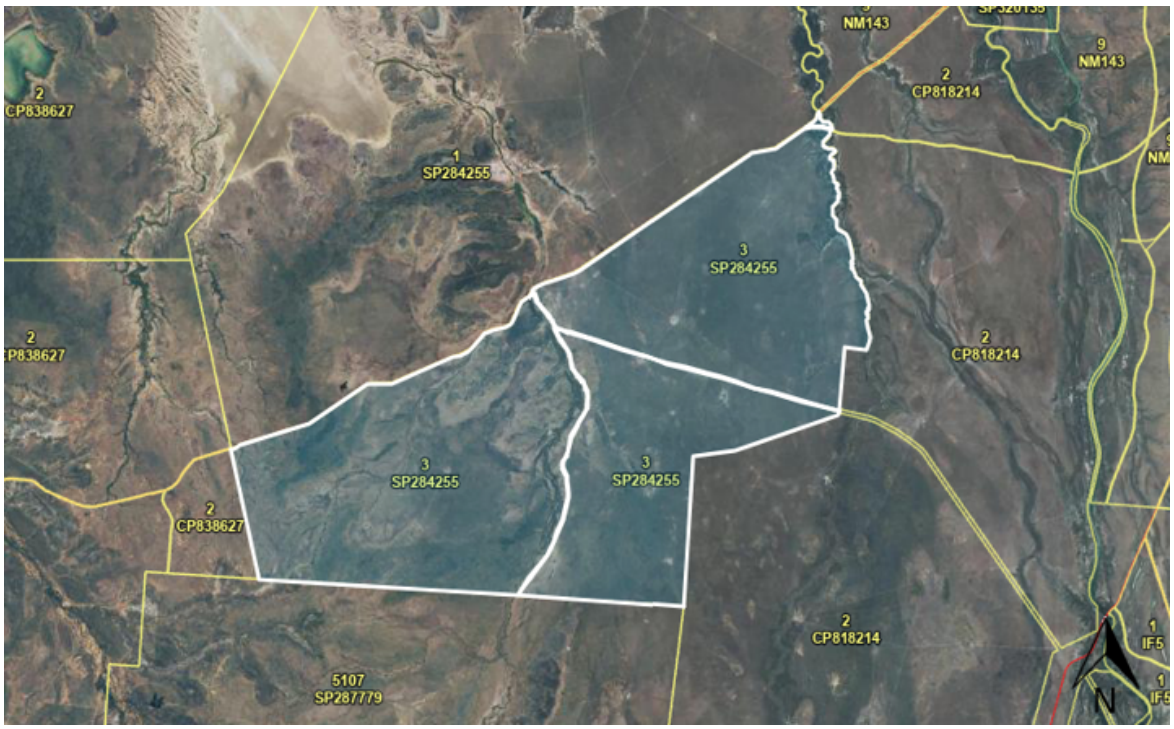
- *Go to: Layers/Add layer/Planning cadastre/Land use/Land parcel label.*

Alternatively, if you know the Lot Number you can go to:

- *Search/Lot on plan/Add to places*

Property ownership:	<Insert owner details>
Contact details:	<Insert owner phone number and email address>
Property address:	<Insert full property address>
Property description:	<Insert lot and plan numbers of the intended cropping area>
Land tenure:	<Insert land tenure, including tenure description>
Property size:	<Insert whole property size>
Site area:	<Insert area of land intended for crop development>
Permits; notices and existing approvals	<Insert any permits, licences and approvals relating to the enterprise>
Property map:	<Insert a property map showing cadastral boundaries>

Figure 1: Example of property map and cadastral boundaries (Source: Queensland Globe)



1.2 Business ownership and structure

Provide a brief outline of the business ownership and management structure.

1.3 Business operation overview

Describe your proposed cropping development operation; what your intentions are for wanting to develop cropping land and why such development will be feasible.

1.4 Historical land use

Describe the historical land use, including a summary of any prior crop production, production system, yields, produce markets etc.

1.5 Vision of proposed production

Outline the current farming practices and your short and long-term vision for the proposed cropping development. Ensure you explain why you wish to develop the land into cropping enterprise, and the benefits it may have to your existing operation and the community.

2. Climate, land and water resources

2.1 Climate

Climate will strongly influence crop suitability and crop risk. The climatic characteristics for the proposed cropping area should be described. This should include:

- Mean monthly, maximum *and minimum temperate*
- *Mean number of days > 35oC*
- *Mean monthly, maximum and minimum rainfall*
- *Decile 1 and Decile 9 rainfall*
- *Mean monthly evaporation*

Average climate statistics for the nearest weather station may be obtained from Bureau of Meteorology http://www.bom.gov.au/climate/data/

- Select "weather and Climate", "Statistics, Monthly", then search the location of interest.

Alternatively, long term daily gridded climate data may be from SILO https://www.longpaddock.qld.gov.au/silo/

Where possible, potential climate change effects should be considered in relation to the risk of the proposed enterprise (particularly the likely increased frequency of days over 35°C.

2.2 Land resources

2.2.1 Topography

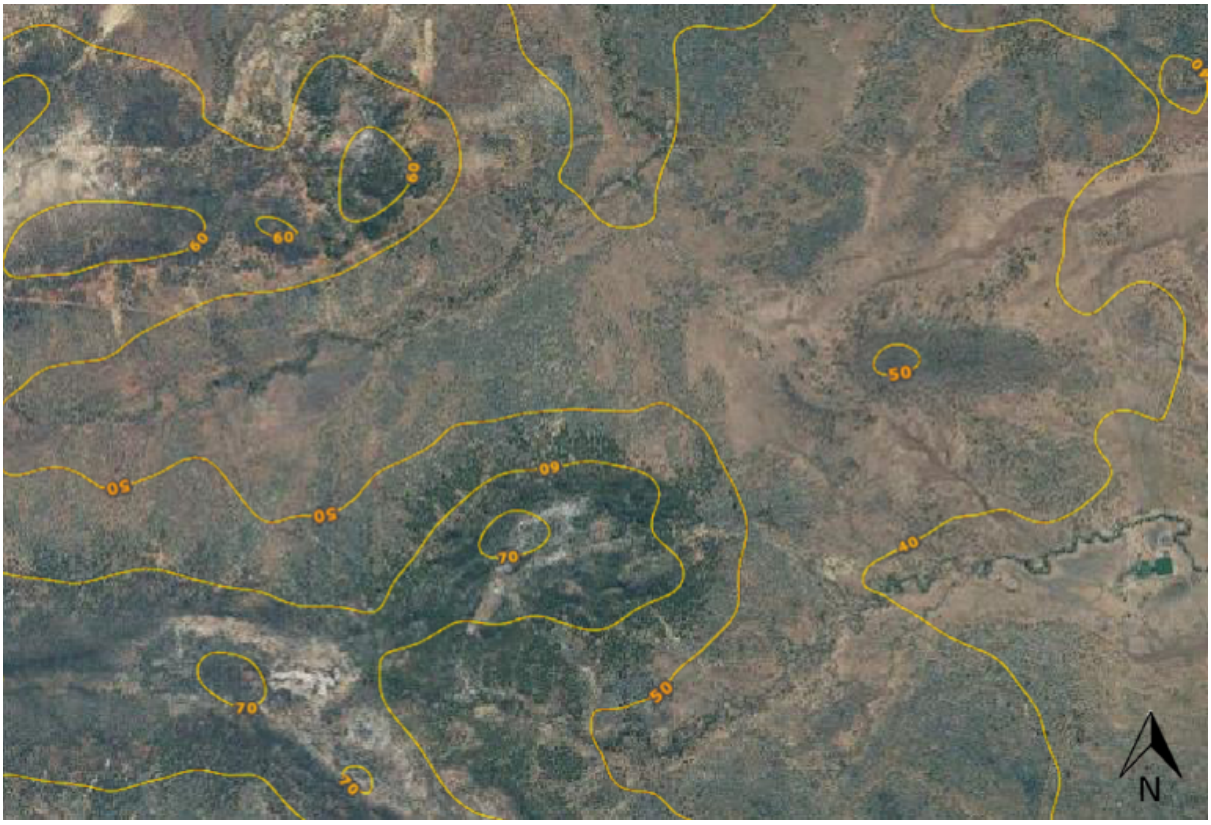
Describe the topography (slope, surface condition, land dissection) across the proposed cropping area. Show on a map or overlay, contours of ground level at a spacing suitable for cropping development. Topography may be obtained from:

- *Queensland Globe https://qldglobe.information.qld.gov.au/: Elevation/ Contours (generally low resolution).*

The desirable level of contour detail will vary with the management approach:

- Surface irrigation - 0.2m contour interval;
- Drip irrigation - 0.5m contour interval;
- Dryland cropping or Spray irrigation - 1m contour interval.

Figure 2: Example of topographical map (Source: Queensland Globe)



2.2.2 Soil type

Soil type is a key driver of land capability for viable cropping development, and appropriate planning will enable maximisation of efficiency and productivity.

Where clearing of regulated vegetation is proposed and coordinated project approval is required, landowners must demonstrate that the land is suitable for the proposed crop(s) (and irrigation if applicable) having regard to topography, and soil attributes.

The Queensland Government requires the collection of soil and land resource data to support sound decision making under the SDAP State Code 16: Native Vegetation Clearing.

More information on the requirements can be found in the Queensland Soil and Land Resource Survey Information Guideline.

Projects requiring regulatory approval will require soil type mapping by an experienced professional.

At a minimum, soil types can be obtained from Queensland globe https://qldglobe.information.qld.gov.au/:

- *Layers/Add layer/ Geoscientific information/ Soils/ Soil mapping/ Soils - 1:2,000,000 scale.*

A flowchart describing soil assessment for identification of potential crop management units is illustrated in Figure 3.

A map of soil type distribution across the proposed cropping area should be included. An example soil type map is illustrated in Figure 4.

Soil type descriptions in the area of intended development can be obtained from Queensland Globe:

- *Spanner (top right hand corner)/Identify/Identify point/ Click on the soil type you wish to identify/Layers/Project polygon 1:2,000,000/Soil type*

Additional information on soil data and soil properties can be found here: Soil management | Environment, land and water | Queensland Government (www.qld.gov.au)

Soil type description data should be presented in tabular form. An example soil type description is presented in Table 1.

Where sampling is required, soils should be sampled to a depth of 0.9 to 1.2m. Surface samples should be analysed for a complete suite of nutritional and physico-chemical properties. Sub-soil samples should be analysed for pH, EC and cations to inform drainage properties and risks.

Soil maps should be at a minimum of 1:25,000 scale, however, 1:50,000 may be appropriate for very large areas. The following table can be used as a guild to soil sampling intensity.

Area (ha)	***Soil sampling intensity***
12.5	*1*
12.5 to 50	*1- 4*
50 to 100	*4 - 8*
100 to 250	*8 - 20*
>250	*1 per 12.5 ha or 8 per 100ha*

Source: Queensland Soil and Land Resource Survey Information Guideline

Development involving the disturbance of acid sulphate materials must assess the hazards associated with disturbance and consider potential impacts.

The Atlas of Australian Soils can also be used to further investigate soils in the Gulf Savannah https://www.asris.csiro.au/themes/Atlas.html

Figure 3: Flowchart describing soil assessment for identification of potential crop management units

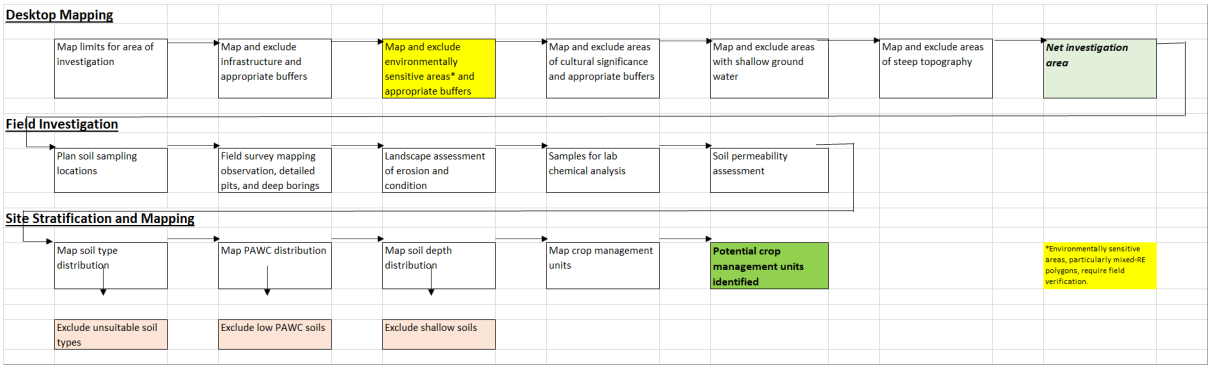


Figure 4: Example of soils map (Source: Queensland Globe)

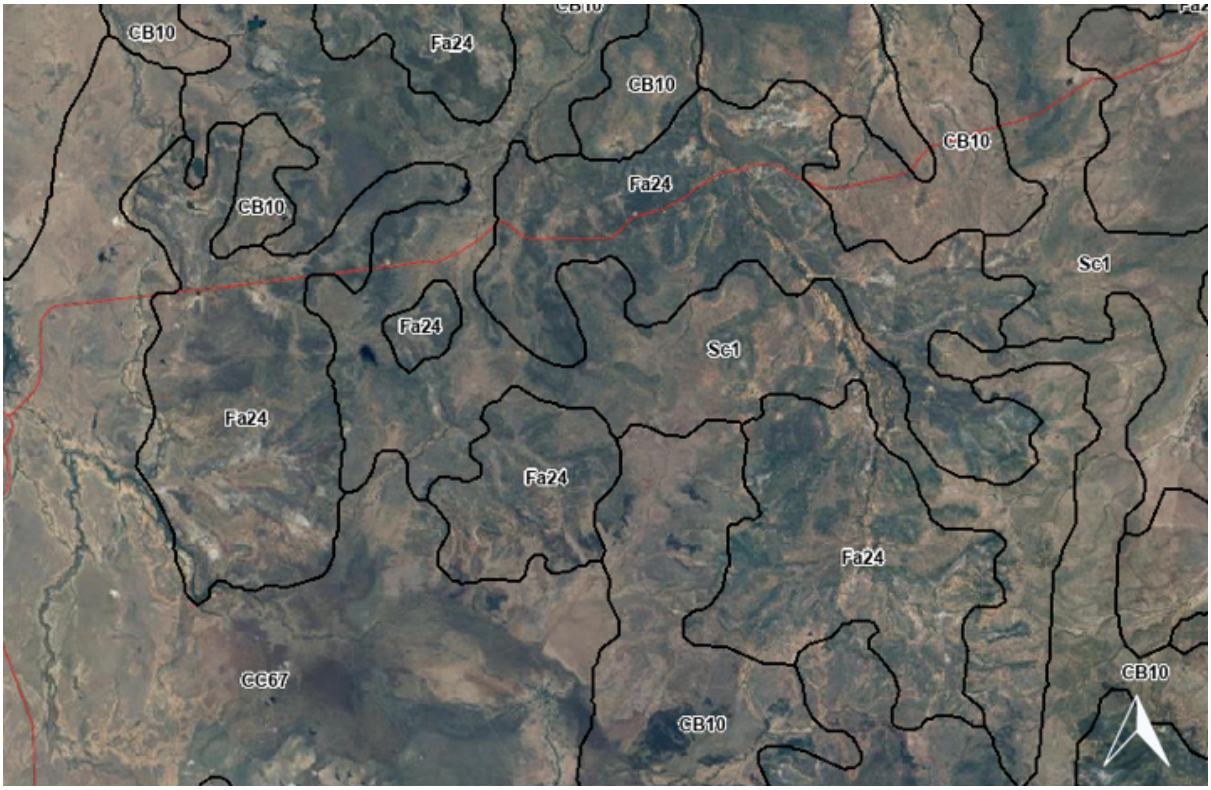


Table 1: Example of soil description table (Source: Queensland Globe)

Soil type	Soil description
E.g. Sc1	duplex yellow-grey, hard setting A horizon, no A2 horizon, alkaline pedal whole col B horizon

2.2.3 Land capability/suitability

Map and describe the Land suitability for the proposed crop x management combinations across the proposed development area.

Land suitability mapping involves determining the potential of land for alternative, and possible competing forms of land use and identifying management requirements for sustainable use. It is based on assessment of suitability for the proposed crop and management system (irrigation type or dryland). Land is classified into five classes:

- *Class 1 Suitable land with negligible limitations*
- *Class 2 Suitable land with minor limitations*
- *Class 3 Suitable land with moderate limitations*
- *Class 4 Unsuitable land with severe limitations*
- *Class 5 Unsuitable land with extreme limitations*

Where regulatory approval is required for development, Class 1, 2 and 3 may be considered acceptable, where appropriate management interventions are undertaken to mitigate limitations. Class 4 and 5 land is considered unacceptable.

The methodology for the determination of agricultural land suitability is outlined in the Guidelines for agricultural land evaluation in Queensland (DSITI & DNRM 2015).

Agricultural land suitability is mapped for some areas of Queensland, however, is limited for the Gulf Region, and will need to be determined by an experienced professional.

Broad scale mapping of Agricultural land classification (Class A, B, C and D) may be accessed from Queensland Globe https://qldglobe.information.qld.gov.au/:

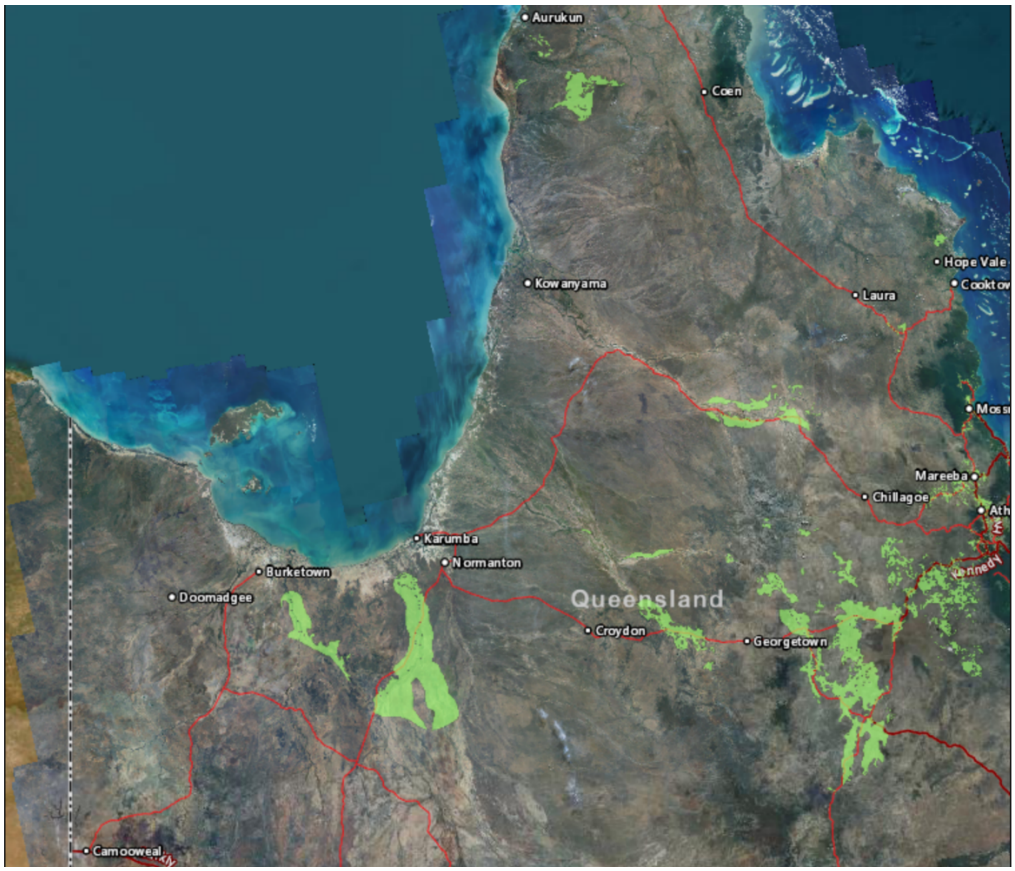
- *Farming / Agricultural land classification (ALC)*

Broad scale mapping of potential for broadacre cropping may also be accessed from Queensland Globe (an examples is shown in Figure 5) https://qldglobe.information.qld.gov.au/:

- *Potential agriculture / Broadacre cropping*

Rudimentary land capability for cotton throughout the Gulf Region, including approximate estimates of potential yield, is show in the StoryMap <LINK>.

Figure 5: Example map of potential *Broadacre cropping*



2.3 Water resources

For irrigated projects, describe available and potential water resources. For each water source/entitlement to be used for the proposed development, including the nominal volume or annual yield (bore, river and or rainfall). Describe the water quality (including electrical conductivity, sodium adsorption ratio, residual alkali) for each water source including how water use is metered for different sources.

3. Proposed cropping development and farming systems

3.1 Proposed production

Describe the proposed cropping enterprise including crops, crop rotations, location within the property, target soil and land types, area, how the land will be cropped (i.e., dryland/irrigated), estimated water requirement and target yield.

Provide a map or overlay that shows the location of the proposed development including:

- Infrastructure (fencelines, tracks, buildings power lines fuel stores etc);
- field boundaries;
- soil type overlay;
- proposed block layout, crop types, row direction etc.
- crop type that will be grown;
- water sources, e.g. bores, storages etc. (if applicable);
- irrigation zones and water delivery infrastructure (if applicable);
- environmental values (if applicable).

3.2 Development timeline

Outline the proposed schedule for the planned cropping developments. List all planned development activities and routine operational activities supporting new crop development, e.g.:

- *Regrading service tracks;*
- *Landform and cultivate new paddocks;*
- *Install soil moisture sensors;*
- *Plant legume fallow crop;*
- *Revegetate/enrich conservation areas;*
- *Enrichment/plant bare areas within the protected vegetation envelope;*
- *Cultivate new paddocks and establish plant crop.*
- *Provide a schedule of dates by which activities identified above will be undertaken.*

3.3 Crop management

Describe the schedule of agronomic practices to ensure agronomic requirements for the target crop have been determined and scheduled. Outline the schedule of annual operations describing:

- *Site preparation;*
- *Establishment;*
- *Nutrient applications;*
- *Weed and pest control;*
- *Harvesting;*
- *Crop cycles;*
- *Fallow management.*

3.4 Crop water balance

Outline the estimated water you will require in most years for your crop development (dryland or irrigated). This should include.

- *The expected annual water requirements for each crop.*
- *The seasonal and annal variation in crop water demand.*

Describe the range in total annual rainfall (average, 10% and 90% rainfall years). Describe the dominant rainfall season (months), amount and proportion of average annual rainfall. Farm specific data may be sourced from SILO https://www.longpaddock.qld.gov.au/silo/

Estimate crop water requirement and water balance using a recognised model (Irrigweb, HowLeaky? etc). Deep drainage may also be estimated using the SALF2 salinity modelling tool;

http://www.irrigweb.com/

https://howleaky.com/

- *Tabulate and graph annual crop requirements by month (ML/ha);*
- *Accommodate variation in average annual rainfall;*
- *Document water balance elements (Rainfall, Irrigation, Evapotranspiration (ET), Runoff, Deep drainage).*
- *Compare results with generalised estimates.*

Describe the average annual water demand and peak water demand season, for the target crop for each major soil type in:

- *An average rainfall year;*
- *A 10th percentile rainfall year;*
- *A 90th percentile rainfall year.*

For irrigated crops, it will be necessary to ensure no adverse salinity or waterlogging effects. Describe the average annual deep drainage for the target crop and irrigation system for each major soil type in:

- *An average rainfall year;*
- *A 10th percentile rainfall year;*
- *A 90th percentile rainfall year.*

Deep drainage can be modelled using the SALF2 salinity modelling tool: https://www.publications.qld.gov.au/dataset/salinity-management-handbook/resource/4b2b58ae-1b6d-46f0-a64f-e5d6ff17d308

3.5 Farm management requirements

Describe the proposed harvesting approach, required machinery, infrastructure and personnel. Detail machinery requirements. Estimate labour requirements and variation in seasonal labour demand.

4. Regulatory approvals and natural hazard planning

4.1 Regulatory approvals

4.1.1 Regulated vegetation

Describe the regulated vegetation status across the proposed cropping development area and identify any Local, State or Federal required approvals. Describe the pathway to obtaining relevant approvals. This should be identified in the response from a SARA pre-lodgement application.

Vegetation mapping information may be obtained:

from the StoryMap <LINK>; or

via DAMS (Development Assessment Mapping System) (Refer to Appendix 1): https://dams.dsdip.esriaustraliaonline.com.au/damappingsystem/; or

via Queensland Globe https://qldglobe.information.qld.gov.au/:

- *Biota (Flora & Fauna)/ Vegetation management information/ Regulated vegetation management map (RVM);*
- *Biota (Flora & Fauna)/ Vegetation management information/ Vegetation management regional ecosystem map/*

4.1.2 Essential habitat

Describe any essential habitat within the proposed cropping development area and identify any required approvals. Describe the pathway to obtaining relevant approvals. This should be identified in the response from a SARA pre-lodgement application.

Essential habitat information may be obtained:

via DAMS (Development Assessment Mapping System) (Refer to Appendix 1): https://dams.dsdip.esriaustraliaonline.com.au/damappingsystem/; or

via Queensland Globe https://qldglobe.information.qld.gov.au/:

- *Biota (Flora & Fauna)/ Vegetation management information/ Vegetation management regional ecosystem map/*

4.1.3 EPBC matters

Describe any Environment, Protection and Biodiversity Conservation (EPBC) matters within the proposed cropping development area and identify any required approvals. Describe the pathway to obtaining relevant approvals. This may be identified in the response from a SARA pre-lodgement application.

EPBC matters maybe searched via the public portal: https://epbcpublicportal.awe.gov.au/guides-resources/

4.1.4 Waterways, wetlands and groundwater systems

Describe any regulated waterways, wetlands or groundwater systems that may be impacted by the proposed development and identify any required approvals. Describe the pathway to obtaining approvals. This should be identified in the response from a SARA pre-lodgement application.

Watercourses and drainage lines may be obtained from Queensland Globe https://qldglobe.information.qld.gov.au/::

- Inland waters/ Watercourse;
- Inland waters/ Water Feature;
- Inland waters/Water management information/Watercourse identification map (Water Act 2000).

Wetlands may be obtained from Queensland Globe https://qldglobe.information.qld.gov.au/::

- Inland waters/ Watercourse;
- Inland waters/ Water Feature;
- Inland waters/Water management information/Watercourse identification map (Water Act 2000).

4.1.5 Cultural heritage and native title

Describe any known cultural sites within or adjacent the proposed development area (or absence thereof) and the proposed approach to consultation and meeting duty of care requirements (if required). This may be identified in the response from a SARA pre-lodgement application.

Cultural heritage may be identified by searching the Cultural Heritage Register via the on line portal: https://culturalheritage.datsip.qld.gov.au/achris/public/home.

4.1.6 Native title

Describe any Native title claims within or adjacent the proposed development area (or absence thereof) and the proposed approach to consultation and meeting duty of care requirements (if required).

Native Title claim areas may be identified by searching the Native Title Tribunal maps: https://culturalheritage.datsip.qld.gov.au/achris/public/home.

4.1.7 Local government planning scheme

Describe any local government planning scheme approval requirements and the pathway to obtaining relevant approvals. This should be identified in the response from a SARA pre-lodgement application.

4.1.8 Other regulatory requirements

Describe any other regulatory requirements that may be identified in the response from a SARA pre-lodgement application and the pathway to obtaining relevant approvals.

4.2 Natural hazard identification

Where possible, areas subject to natural hazards that may impact the proposed cropping development should be avoided. Where this is not possible, these risks should be recognised, and mitigation measures described.

4.2.1 Flood risk

Describe any flood risk (or absence thereof) that may affect the proposed development area, and proposed mitigation measures.

Flood risk may be obtained from:

DAMS (refer Appendix 2 to access, then):

- *SPP Assessment Benchmark Mapping/ Flood hazard area; or*

Queensland Globe https://qldglobe.information.qld.gov.au/::

- *Events and incidents/ Basin level flood modelling/ Basin 1% AEP Flood level;*
- *Events and incidents/ Basin level flood modelling/ Extreme basin events flood level.*

4.2.2 Storm tide

If relevant, describe any storm tide that may affect the proposed development area and proposed mitigation measures.

Storm tide risk may be obtained from:

DAMS (refer Appendix 2 to access, then):

- *SPP Assessment Benchmark Mapping/ Medium or High Storm tide inundation area; or*

Queensland Globe:

- *Planning cadastre / Coastal management/ Storm tide*

4.2.3 Bushfire hazard

Describe any storm bushfire risk that may affect the proposed development area and proposed mitigation measures.

Bushfire risk may be obtained from:

Bushfire hazard risk may be obtained from DAMS (refer Appendix 2 to access, then):

- *SPP Assessment Benchmark Mapping/ Bushfire hazard area.*

4.2.4 Groundwater depth and salinity

Describe the depth to watertable and any potential implications for waterlogging or salinity. Shallow groundwater may lead to irrigation salinity and loss of productive potential. Where relevant, describe measures to minimise deep drainage and groundwater rise.

Groundwater bore monitoring locations are available from Queensland Globe:

- *Inland waters/ Groundwater/ Groundwater monitoring.*

Then use the identify/identify point function to bring up further detail as follows:

- *Click on identify/identify point function;*
- *Expand the relevant bore data in the Attribute column;*
- *Scroll down to "Bore report and click on "Link".*

4.2.5 Erosion risk

Describe any erosion risk that may affect the proposed development area and proposed mitigation measures.

Erosion risk may be obtained from:

DAMS (Appendix 2 to access, then):

- *SPP Assessment Benchmark Mapping/ Erosion prone area; and*

Queensland Globe (gully erosion only):

- *Geoscientific information/ Soils/ Land degradation/ Erosion.*

4.2.6 Acid sulphate soils

Describe any Acid Sulphates Soil risk that may impact the proposed development area and proposed mitigation measures to ensure that farming practices do not disturb Acid Sulphates Soil layers in the soil profile.

This layer may be sourced from Queensland Globe:

- *Geoscientific information;*
- *Soils;*
- *Land degradation (may only present for the Acid sulphate soils - National scale layer).*

4.2.7 Other areas of concern, e.g., salinity, erosion, waterlogging, etc.

Describe any other areas of concern that may affect the proposed development area and proposed mitigation measures. These should be mapped from first-hand knowledge, or based on site investigation studies.

5. Marketing plan

5.1 Key target crops

Detail the list of potential crops that are deemed suitable as per the land suitability classification and soil constraints.

5.2 Market outlook

Outline the outlook for each crop. Information including weekly commodity price updates, demand forecasts; and potential external environmental factors that could impact price and supply: This information can be found on ABARES and detailed historical data on Agsurf.

- *AGSURF Data - Australian Burea of Agricultural and Resource Economics and Sciences (agriculture.gov.au)*
- *Farm Data Portal - Beta - DAFF (agriculture.gov.au)*

Additional market information may be found for selected crops in the following North-West Queensland Economic Diversification Strategy reports:

- *Twenty Opportunities, Identifying Diversification Opportunities in North West Queensland. (3.2 MB)*
- *Mungbean, the $70M Diversification Opportunity in North West Queensland. (2.7 MB)*
- *Shea, the $40M Diversification Opportunity in North West Queensland. (5.9 MB)*
- *Sesame, the $250M Diversification Opportunity in North West Queensland. (5.7 MB)*

5.3 Target markets

Identify the target markets, and key suppliers and buyers for each crop and provide a brief overview. Market specific information can be sources from:

- *https://grdc.com.au/about/who-we-are/corporate-governance/annual-reports*
- *https://www.abs.gov.au/statistics/industry/agriculture/agricultural-commodities-australia/latest-release*

5.4 Marketing strategy

The marketing plan should outline how the enterprise is positioned; what and who are the target markets; what are the routes to market; and the overriding objectives of what the marketing plan is aiming to deliver.

5.5 Logistics Strategy

Identify the means of harvest and machinery required. Detail a post-harvest processing and logistics plan for each commodity.

6. Operational capacity

6.1 Existing staff resources

Outline the existing staff resources and capabilities.

Detail the capability to deliver the operational demands and requirements of the development. For example: machinery, staff, time, grain traders, seed suppliers etc.

Provide an overview of the historical operational success of the existing enterprise and how the new development will be managed and operated.

6.2 Organizational chart

Describe the proposed organisational chart required to deliver the implement the proposed cropping development.

6.3 Required staff resources

Describe the required additional staff resources, skills and capabilities to implement the proposed cropping development. Outline a plan to secure the required personnel.

6.4 Supporting resources

Outline supporting skills and resources (e.g. agronomy advice, financial advice, legal advice) required to implement the proposed cropping development).

7. Financial plan

Note: The financial plan provides an overview of the projected financial performance for the proposed cropping development.

Financial returns are estimates based on the assumed cost of inputs and outputs. Actual yields, commodity prices, capital and operating costs may be different to the assumed values, and small changes may affect modelled returns significantly.

7.1 Project budget budge and cash flow

Prepare a project budget. This may be assisted by utilising the template budget sheet <LINK>.

Example crop budgets and commodity prices may be sourced from the Agbiz tools - Plants - Field Crops and Pastures website:

https://www.publications.qld.gov.au/dataset/agbiz-tools-plants-field-crops-and-pastures

Key financial performance data for each crop type scenario may be summarised in Table 2

Table 2: Example of potential returns summary table

Crop type	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5	Crop 6
Area (ha)						
Payback Period (yrs)						
Net cash Income/ha						
Rate of Return (%)						
Whole Farm NPV ($)						
NPV per Hectare ($/ha)						

7.2 Capital requirement

Summarize the total required capital for the development. Seek financial advice from a financial advisor in relation to capital requirements for your specific development and include it in this section of the business case.

7.3 Financing plan

Detail how you plan to finance the development, e.g., debt, operating capital, joint venture. Detail how financing and capital investment will be scheduled.

7.4 Modelled inputs and assumptions

List and explain the assumptions for the development.

Seek financial advice from a financial advisor and agronomist in relation to the below on-farm costs for the cropping development. The following input assumption should be considered:

- *Yield*
- *Farm gate crop price*
- *Pre-harvest cost*
- *Harvest and post-harvest cost*

The AgBiz tool is a resource used help calculate profit, construct budgets and cashflows, and improve decision-making. The tool provides information on various crops in agricultural regions around Queensland. Crop production for the Gulf is not included in the tool as there is currently no cropping information or data available from the region. Due to this, the spreadsheets may only be used as a guide.

https://www.publications.qld.gov.au/dataset/agbiz-tools-plants-field-crops-and-pastures

7.5 Modelled returns

Generate and display the potential returns as cashflow statements for all the proposed cropping options utilising the input assumptions above and the estimated capital requirement.

Summarise each crop scenario and display the following:

- *Payback period*
- *Farm net cash income/ha*
- *Rate of return*
- *Whole farm NPV*
- *NPV per hectare*

Seek financial advice from a financial advisor in relation to the modelled returns. Include the financial information on the modelled returns in this section of the business case.

8. Risk assessment

8.1 Issue identification and risk assessment

Identify and assess risks (e.g., salinity, erosion, water quality, market access, weather, capital cost etc) that impact on the proposed enterprise, and identify design, management and monitoring practices to mitigate these risks.

A standard approach to risk assessment consistent with AS/NZS ISO 31000 (as detailed in Appendix 3 should be applied, involving an objective evaluation of risk likelihood and risk consequence to determine a risk rating. Do not proceed if any risks have a residual rating of 15 or more.

Risk categories may include:

- *Agronomic production risks*
- *Pest and disease risk*
- *Abiotic risk (bushfire, drought)*
- *Environmental risks (salinity,*
- *Labour hire risks*
- *Market risks*
- *Financial risks*
- *Legal risks*
- *Regulatory risks*

Risk	Likelihood	Consequence	Risk score	Key Mitigation/ Management Strategies

9. SWOT Analysis

9.1 Strengths

Identify the physical, intellectual, organisational, and financial resources available and why they're strengths to the enterprise

9.2 Weaknesses

Identify constraints such as time, rarity of the development, and crop value should be identified an evaluated.

9.3 Opportunities

Identify political; economic; socio-cultural factors; environmental; and legal factors

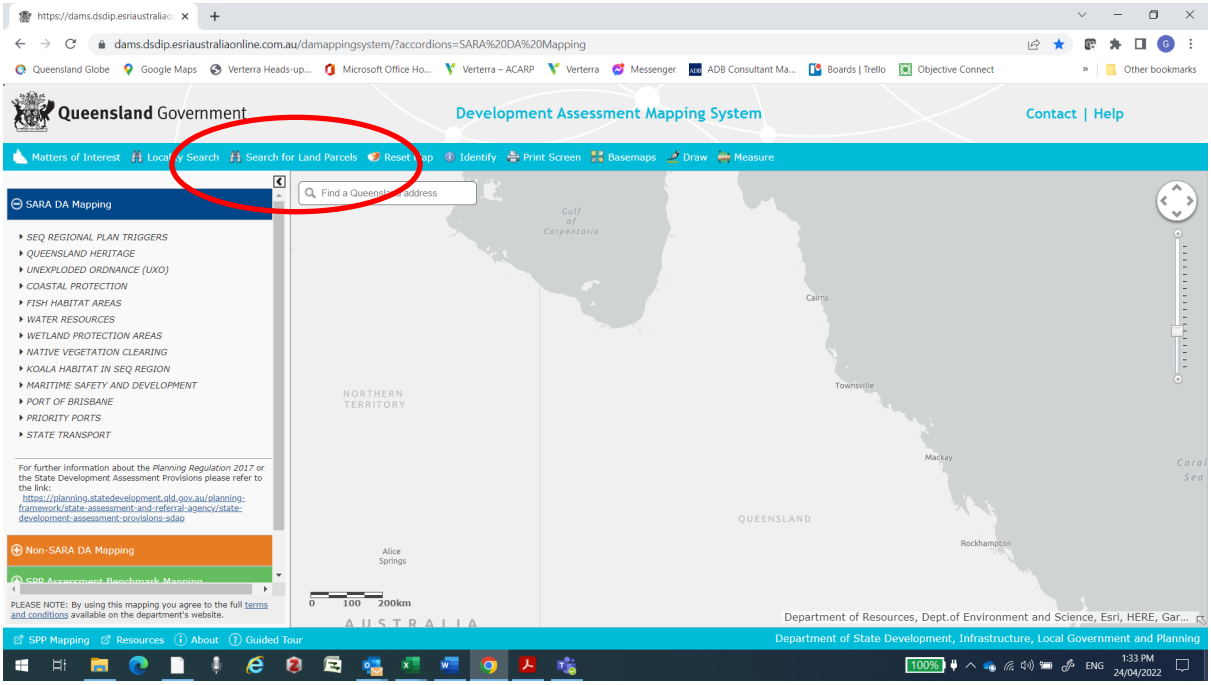
9.4 Threats

Identify the barriers to entry; growing food and fibre production; supplier power; competitive rivalry; and threat of substitutes.

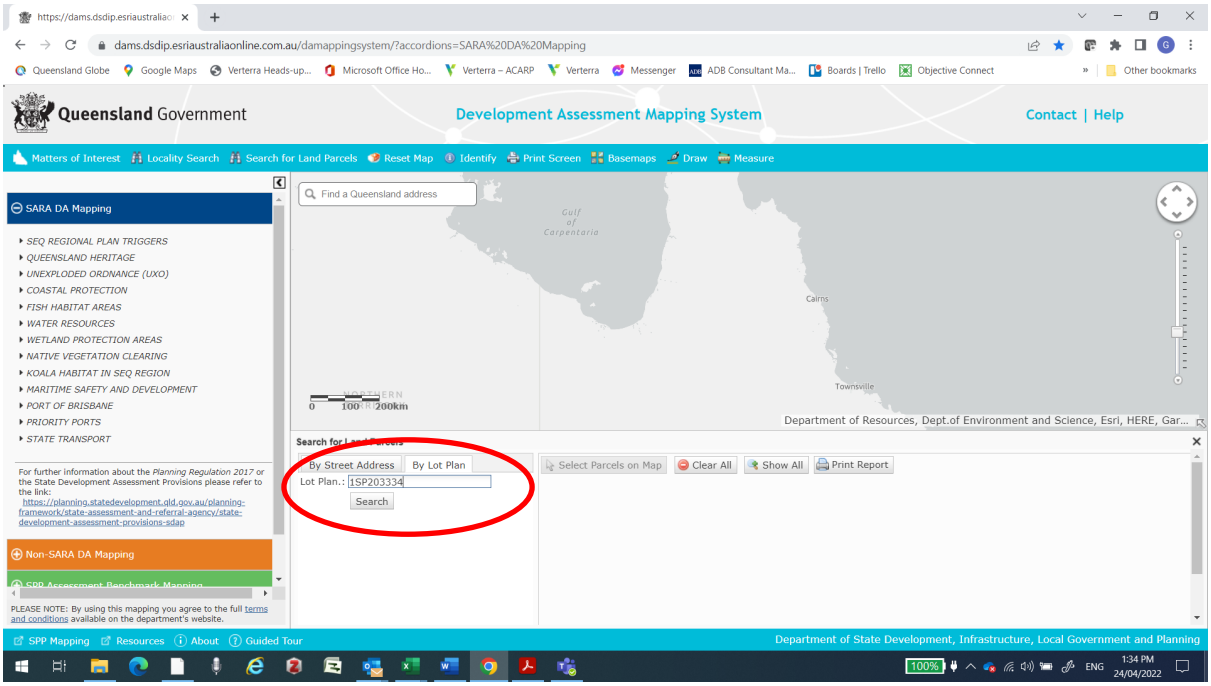
Appendix 1: Development Approval Mapping

1. Log in to DAMS:
https://dams.dsdip.esriaustraliaonline.com.au/damappingsystem/?accordions=SARA%20DA%20Mapping

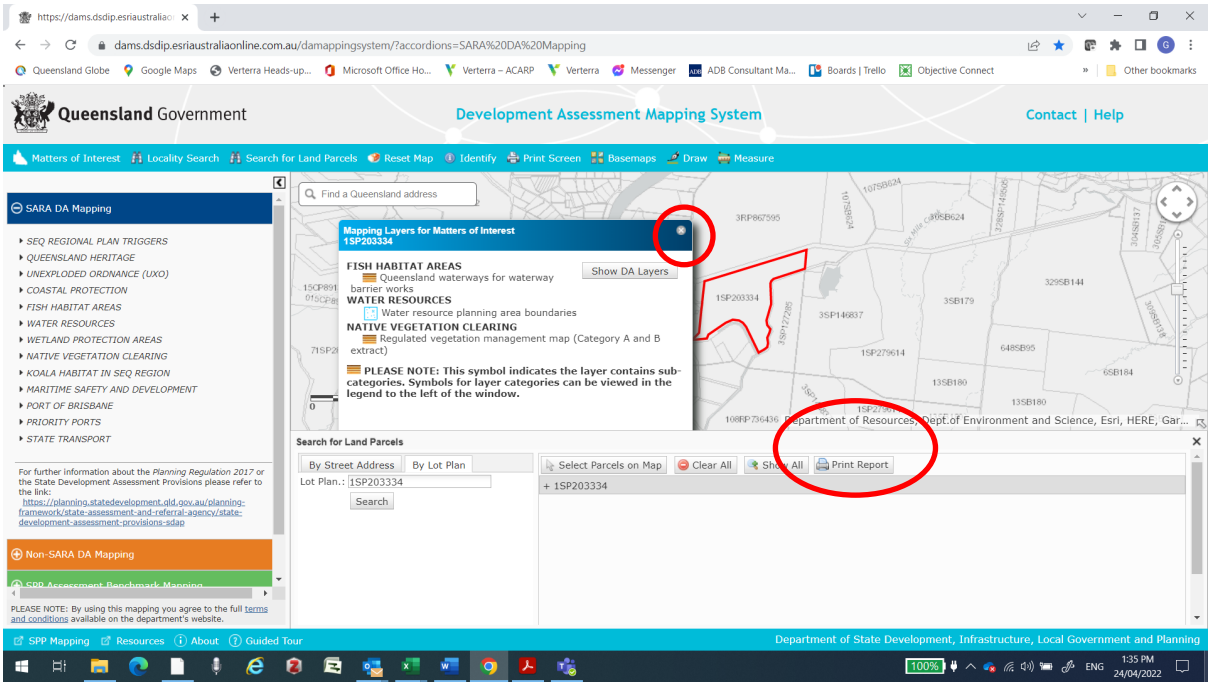
2. Click on search for land parcels



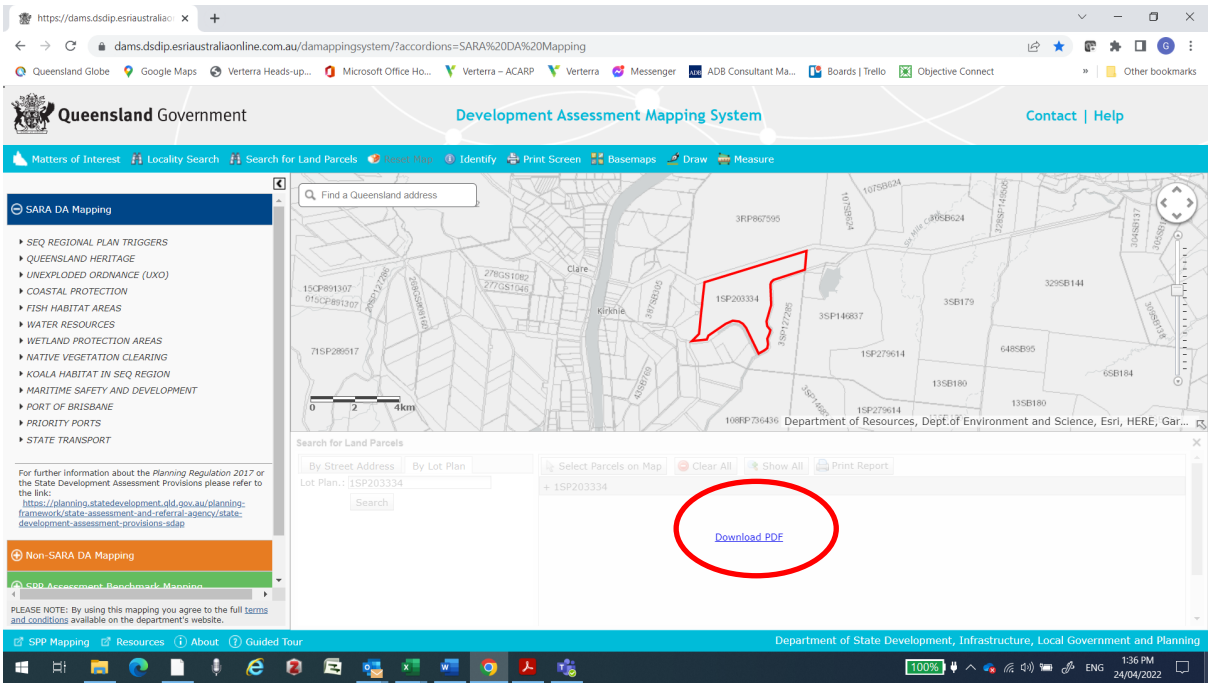
3. Enter lot on plan and then click "Search". If your property comprises multiple land parcels, you can repeat the search for each land parcel and they will be added into the report.



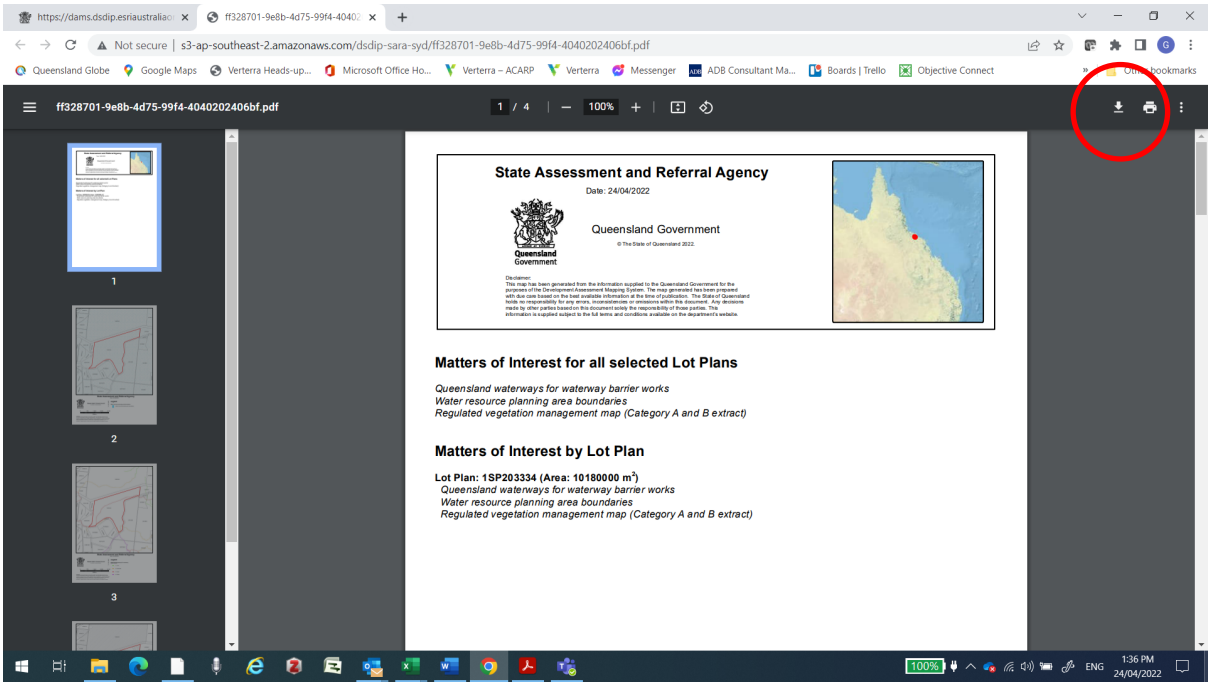
4. Click on the cross at the top right corner of the "Mapping Layers for Matters of Interest" inset to close this box, then then click "Print report"



5 Click on Download PDF

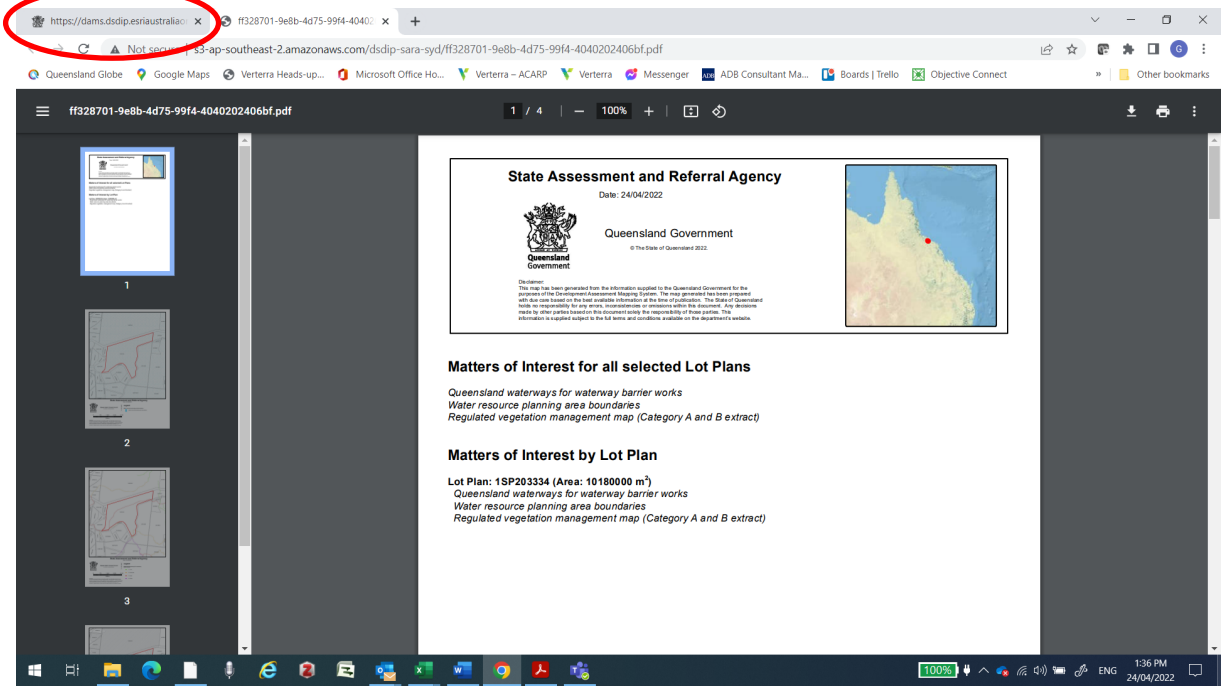


6. Click on the download icon and save to your location of choice



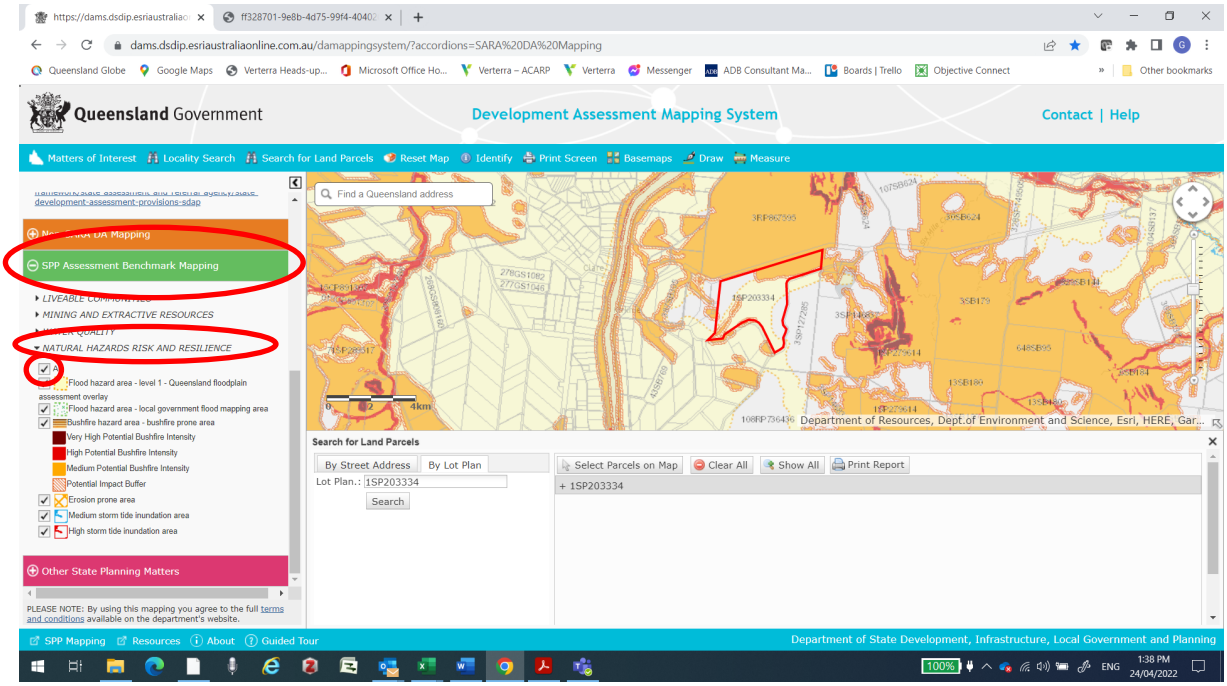
Appendix 2: Natural Hazard Mapping

1. Return to the Development Assessment Mapping System tab by clicking in the tabs men at the top of the screen



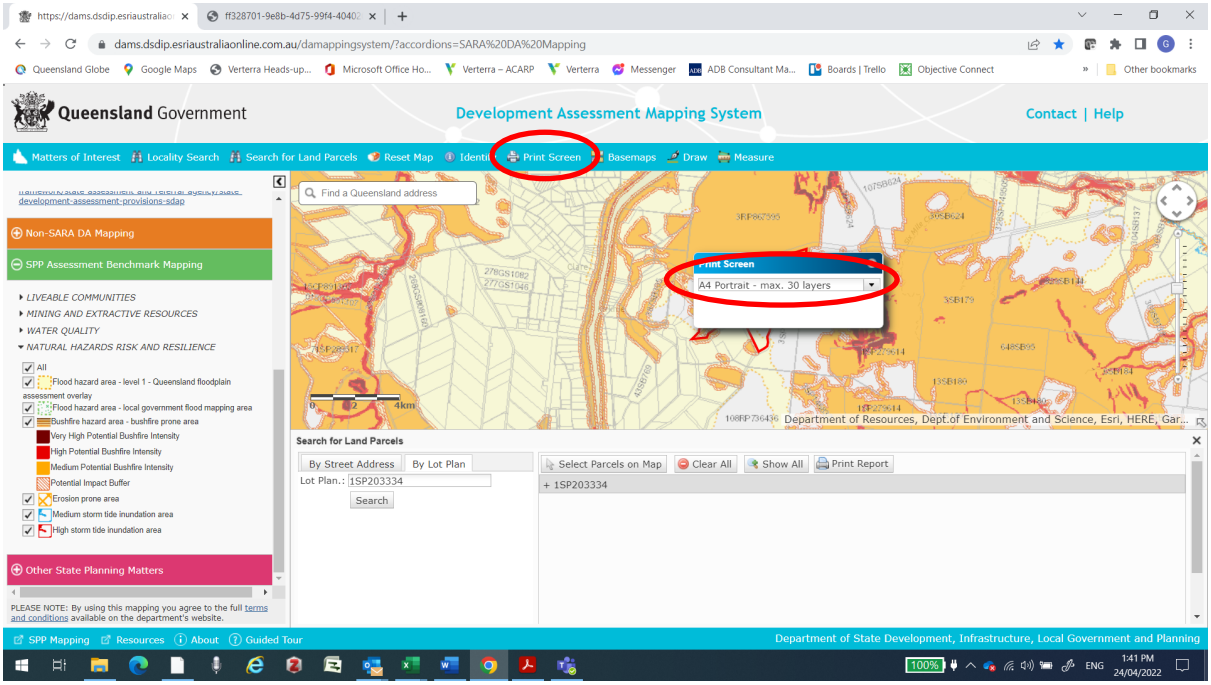
2. To generate a map for local hazards click on:

- ***"SPP Assessment Benchmark Mapping" (Green bar)***
- ***"Natural hazards risk and resilience"***
- ***Now tick "All"***

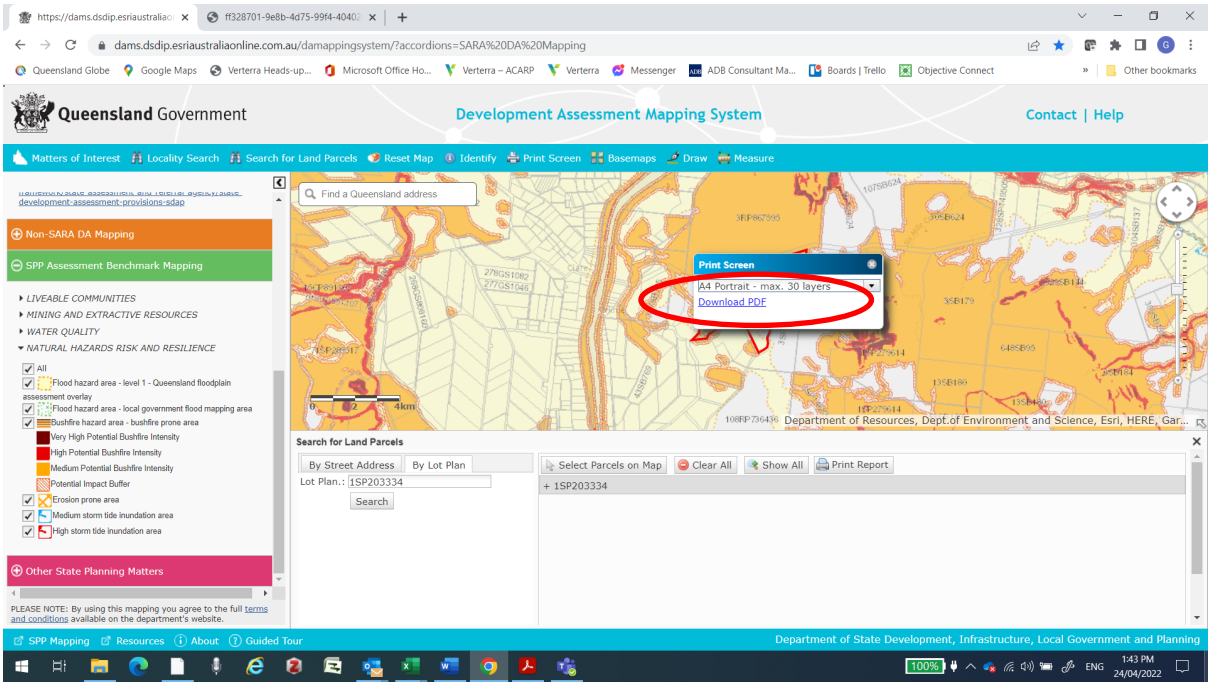


3. To get a report,

- ***Click on "Print screen";***
- ***then click on the default option that pops up ("A4 Portrait max. 30 layers"). Note, if another message pops saying "The current basemap is not supported for PDF printing", click "OK".***



4. Map generation may take 30 seconds. When complete, click "Download PDF"



5. Click on the Download icon and save to your preferred location

Appendix 3: Risk assessment

Issue identification and risk assessment

A standard approach to risk assessment consistent with AS/NZS ISO 31000 is presented below for evaluation of environmental risks associated with the activities proposed under this cropping proposal plan. The approach involves an objective evaluation of risk likelihood and risk consequence according to the criteria set out in the aspects and impacts risk matrix (Table 4), then evaluation of each risk in accordance with this matrix, with rating categories as detailed in Table 3.

Table 3: Residual risk rating level

Risk rating code	Risk rating score	Risk rating description
E	15-25	Extreme Risk – Detailed action plan required
H	8-12	High Risk – Needs senior management attention
M	3-6	Moderate Risk – Specify management responsibilities
L	1-2	Low Risk – Manage by routine procedures

Likelihood and risk rating have been evaluated:

a) Assuming no risk mitigation; and

b) Following implementation of routine risk mitigation practices.

Aspects and impacts matrix

Table 4: Aspects and impacts matrix

Consequence Category			Minor	Moderate	Severe	Major	Catastrophic
Compliance			No breach of EA or legislation.	Breach of regulations resulting in notification to DES.	Serious breaches of regulation resulting in reporting to DES. Investigation, issuance or fines relating to contaminant release or contravention of approval conditions.	Material environmental harm resulting in costs of $5000-$50,000, prosecution or litigation.	Serious environmental harm resulting in costs of >$50,000 to prevent, minimise, rehabilitate or restore, prosecution/class action
Reputation			Not noticed by public.	No adverse publicity.	Interest by local media/regulator/community.	Serious deterioration in community relations, national media attention.	Catastrophic deterioration in community , international media attention.
Environmental values (water, land, air, flora, fauna, waste)			Little or no discernible impacts.	Localised and short-term impact.	Significant localised and short-term impact.	Major and some long-term effect.	Severe, widespread and permanent impacts.
Likelihood			1	2	3	4	5
Almost Certain >90% probability	Expected in most circumstances	5	5	10	15	20	25
Likely 51-90% probability	Will probably occur in most circumstances	4	4	8	12	16	20
Possible 31-50% probability	Might occur at some time	3	3	6	9	12	15
Unlikely 10-30% probability	Could occur at some time	2	2	4	6	8	10
Rare <10% Probability	May occur only in exceptional circumstances	1	1	2	3	4	5

Appendix 4: Investment appraisal definitions

Financial Metric Definitions	Description
Annual Return on Investment (ROI)	Annual net profit divided by total capital and annual operating costs.
Gross Margin	Gross margin is the amount remaining after subtracting the cost of goods sold (variable costs) from total sales revenue. In other words, gross margin is the profit before subtracting selling, general and administrative, and interest expenses. Gross margin may be expressed as a dollar amount or a percentage.
Internal Rate of Return (IRR)	The internal rate of return (IRR) is the annual rate of growth that an investment is expected to generate. IRR is used to analyse capital projects to understand and compare potential rates of annual return over time. The higher the IRR, the more desirable an investment is to undertake.
Net Present Value (NPV)	Net present value is used to calculate the current total value of a future stream of costs and returns. If the NPV of a project or investment is positive, it means that the discounted present value of all future cash flows related to that project or investment will be positive relative to the target interest rate of return.
Overhead Costs	Fixed operating costs that do not change with the level of production, including administrative expenses and permanent labour costs.
Payback Period	The amount of time required for net operating profits to recover all capital expenses and any previous operating losses incurred.