EROSION & SEDIMENT CONTROL MANAGEMENT OBJECTIVES

The purpose of this document is to outline the current sustainable farming practices, vegetation clearing protocols and ongoing operational management that will be undertaken over the proposed High Value Agriculture Development to minimise adverse impacts to the environment.

This Plan outlines:

1. Site Context and Condition
2. Site Clearing and Preparation
3. Operational Management

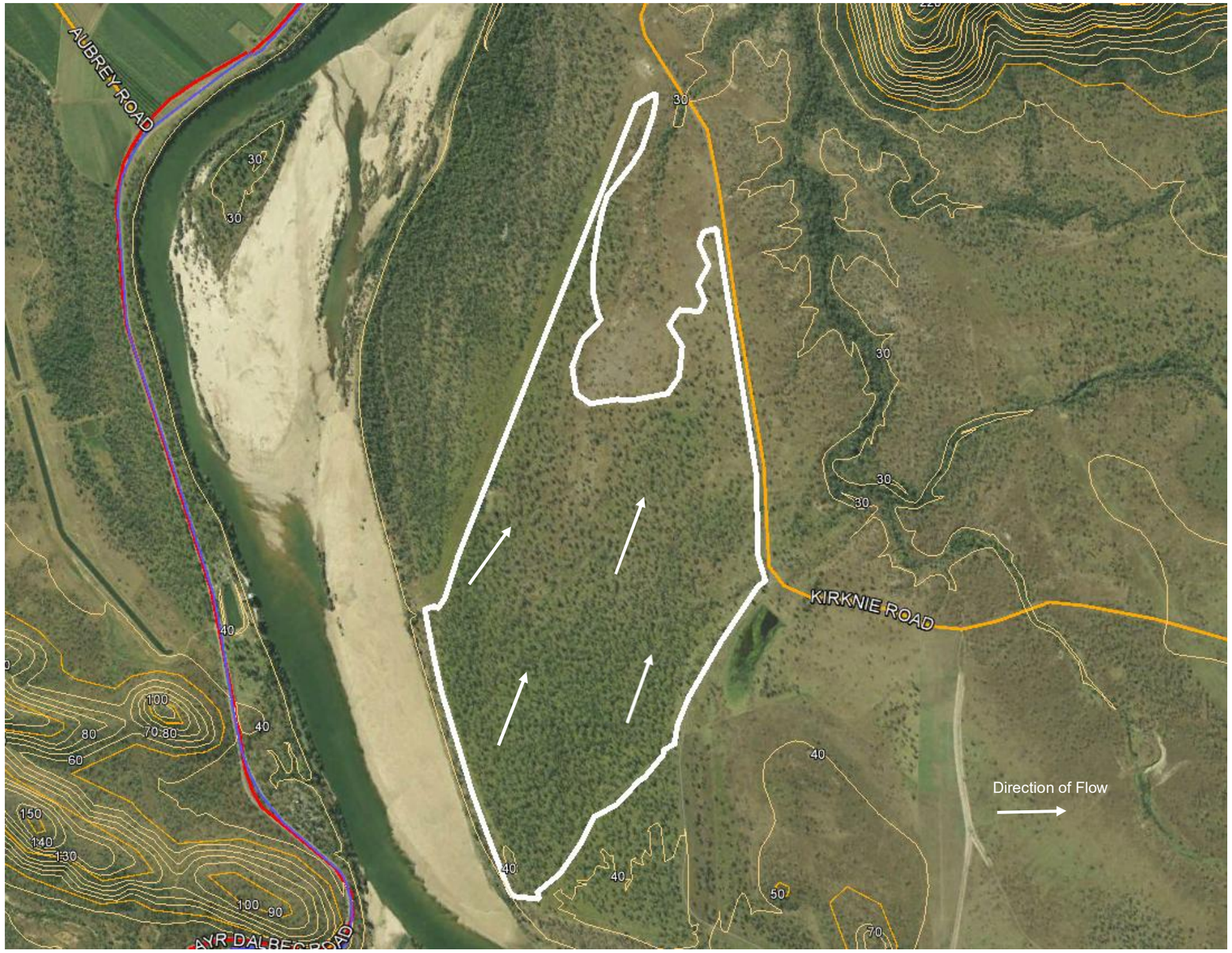
SITE CONTEXT & CONDITION

The site, described as Byrne Valley (Lot 4 on SP117921) is located approximately 35km to the south west of Home Hill in Queensland. The land will be cleared in stages to produce forage, grain and/or legume crops to supplement the current Byrne Valley livestock operation. Clearing will be undertaken using dozers in an ecologically sustainable manner and following the wet season to ensure minimal disturbance to the land, minimal impacts to surface water features and minimal erosion and sediment related impacts.

Byrne Valley Station is primarily located within the Townsville Plains subregion (BBN1) of the Brigalow Belt bioregion, which is dominated by Eucalyptus woodlands comprising Eucalyptus and Corymbia sp with a thick grass understorey.

Elevations across the proposed clearing area range from approximately 44m in the south to 39m in the north with an average slope of <1%. The area slopes to the north and away from the Burdekin River and a natural contour occurs on the upper bank of the River that prevents runoff from entering the River to the south. Instead, water flows north across very gently sloping terrain toward alligator creek approximately 2.7 kilometers form the banks of the Burdekin River.

The flat topography, coupled with extensive ground cover is an important consideration in evaluating the potential for the deposition of sediments and nutrient laden runoff into receiving environments.



BASE CONSULTING GROUP

Erosion &and Sediment Control Management – Byrne Valley High Value Agriculture Project

CLIENT:	DRAWING NO:	SCALE:	-
Heatley Cattle Co.	ESCP- 01	N/A	

SITE CLEARING & PREPARATION

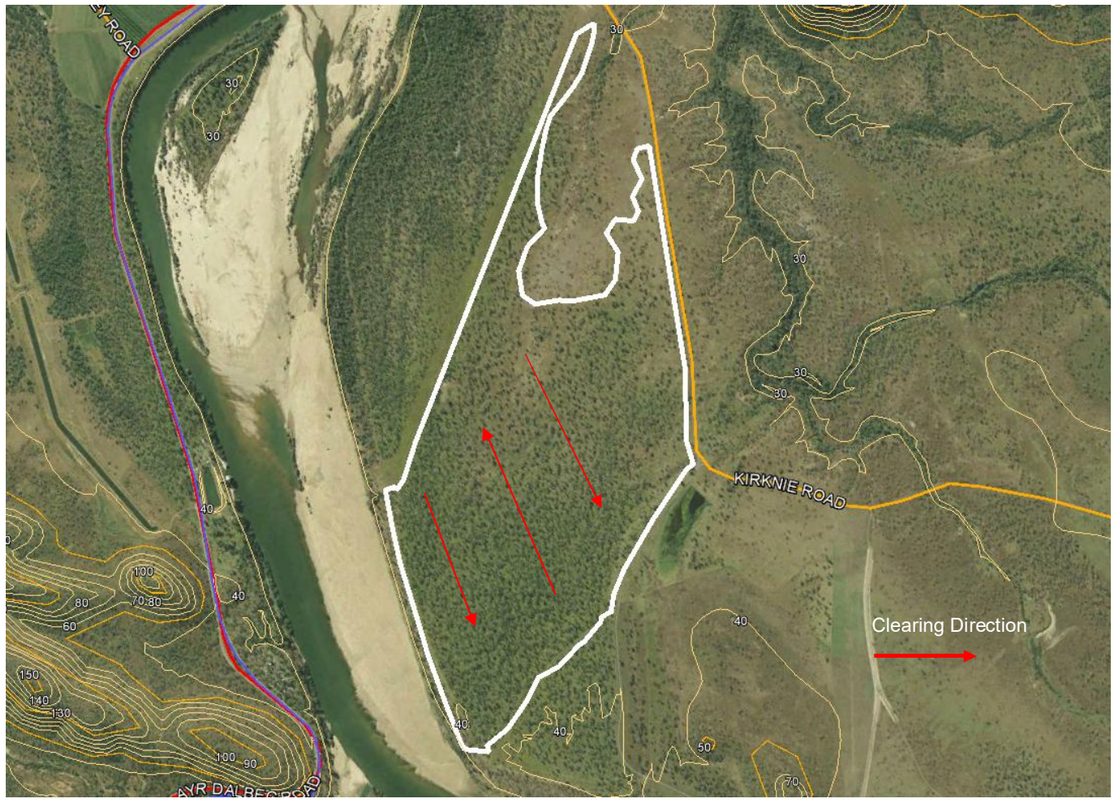
The primary activity that has the potential to result in erosion and sediment movement is disturbance to soil stabilising cover, particularly during periods of high rainfall. Such activities have the potential to impact on local and regional waterways when topsoil is mobilised and deposited in these waterways. However, several management measures can be implemented that will reduce and/or avoid any potential impacts.

POTENTIAL IMPACTS

- Exposure of soil to erosive forces (wind and rain) during clearing will be an ongoing potential environmental impact. Soil erosion and sediment transport can result in increased nutrient, sediment, salt and other contaminant concentrations being deposited into receiving waters. This has the potential to result in a deterioration of water quality and of aquatic environmental health. Sedimentation in vegetated areas can also result in reduced vegetation growth and health;
- Vegetation clearing also has the potential to modify natural overland flow paths that can lead to increased and altered sediment movement; and
- Entrainment of sediment off site by vehicles/machinery can also result in increased nutrient, sediment, salt and other contaminants in receiving waters as well as the deterioration of water quality.

KEY MANAGEMENT MEASURES

- Minimising disturbance – Land disturbance that exposes bare earth is one of the main factors that cause erosion and sedimentation. Developing a site clearing plan suitable to the environment is critical to reducing the potential for ESC related impacts;
- Clearing will follow as close as possible the end of wet weather when soil is moist and vegetation is easily pulled without the need for extensive earthworks.;
- Vegetation will be progressively cleared along the contour. Felled timber will be placed downslope to stabilise exposed soils and to provide additional filtration and sediment capture to that of the existing ground covers;
- Due to the open woodland setting, the above approach will limit ground exposure. This coupled with the extensive grass cover and flat nature of the site will limit the potential for mobilization of sediments;
- The mechanical removal of vegetation will occur as close as possible the end of the wet season as ground cover will be at its maximum which will minimise mobilisation of sediments;
- Where possible, the removal of vegetation will be limited to an area of land suitable to complete eight weeks' worth of agricultural work (i.e. crop planting) if rainfall is predicted (as per the International Erosion Control Association (IECA) guidelines);
- All machinery used to clear vegetation will be retained within the property and will utilise cleared areas away from waterways when moving from site to site;
- Install where possible and practical for ongoing farming operations, contours that will divert clean water around the temporarily disturbed areas;
- Cleared areas will be prepared and sowed prior to the wet season to ensure ground cover is maintained; and
- Minimal tillage will be undertaken during the wet season or periods of significant rainfall to ensure ground disturbance and hence soil exposure, is kept to a minimum.



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CLIENT:	DRAWING NO:	SCALE:
Heatley Cattle Co	ESCP- 02	N/A

OPERATIONAL MANAGEMENT

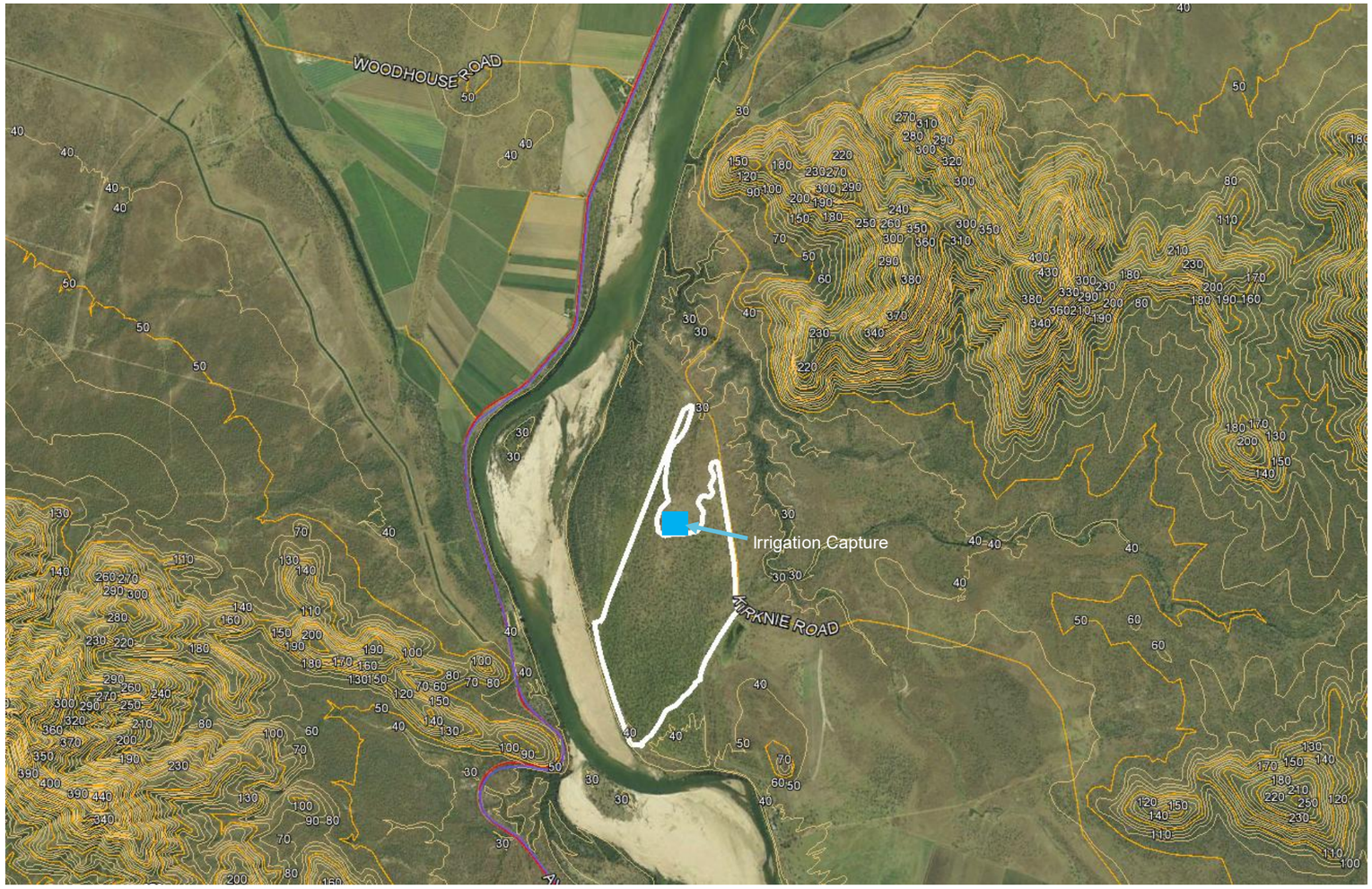
Byrne Valley Station is currently operated in a sustainable manner and any expansion of the operation will continue these practices. Operating the station in this manner not only conforms to the ethical nature of the property owners but also maximises productivity and hence, economic output of the land.

The current practices are implemented to minimise impacts to not only the property itself, but also the wider environment and include:

- Zero fertiliser usage;
- Use of minimal till and contour farming;
- Zero to minimal water run off;
- Zero to minimal erosion and sediment run off;
- Zero to minimal water logging;
- Zero salinization; and
- Annual wet season shutdown of areas used for fodder production.

The establishment of cropping will include best practise crop layout and irrigation design. This will include measures to ensure minimal runoff, and should runoff occur, capture and reuse the water. Laser laser levelling and furrow design will be used to ensure even spread of irrigated water along the cropping area. The establishment of a downstream capture dam will act as both a capture facility for any excess water and a sediment basin to prevent any unforseen downstream runoff.

Practically the proposed cropping area is approximately 1.8km from the nearest downslope watercourse with extensive areas of dense pasture grassland / open woodland immediately adjoining the cropping area. The implementation of the above measures coupled with the sites context within the existing environment means there is low probability of impacts to the Burdekin River and eventually the Great Barrier Reef Marine Park.



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Heatley Cattle Co	ESCP- 03	N/A