



Yamatji Marlpa
ABORIGINAL CORPORATION



Final report regarding the archaeological and ethnographic, work program clearance heritage survey undertaken over VRX Silica's Arrowsmith North and Arrowsmith Central project areas undertaken by the Southern Yamatji representatives and Yamatji Marlpa Aboriginal Corporation

December 2018

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Spatial data and GIS

Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 5 m. Geographic co-ordinates in this report are based on the GDA 94 coordinate system, [Zone 50].

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1 Acknowledgements

Yamatji Marlpa Aboriginal Corporation (YMAC) would like to thank the following people who helped prepare or participated in the archaeological and ethnographic heritage survey from 26 November to 02 December 2018.

Southern Yamatji representatives	
Michael (Mick) Taylor	Fred Taylor
Michael (Mick) McKinnon	Reg Brockman
Jeff Farrell	Alex Dodd
Gerald Taylor	Michael (Buddy) Edwards
Barry Dodd	

VRX Silica representatives	
David Reid	TBA

Yamatji Marlpa Aboriginal Corporation representatives	
Kirsty Anderson	Heritage Manager (archaeologist)
Ryan Crawford	Archaeologist
Corey Herrmann	Anthropologist



Plate 1: SYA009-1 heritage team I-r Mick Taylor, Ryan Crawford, Alex Dodd, Fred Taylor (front), Mick McKinnon, Kirsty Anderson, Jeff Farrell, and Reg Brockman

2 Executive summary

This correspondence provides VRX Silica (VRX) with the final results of the archaeological and ethnographic work program clearance (WPC) heritage survey completed on the Southern Yamatji native title claim area (WC2017/002) on 26 November to 02 December 2018.

The heritage survey was undertaken in regards to VRX's heritage notice which requested an archaeological and ethnographic WPC heritage survey of their Arrowsmith North and Arrowsmith Central project areas for the purpose of undertaking an RC infill drilling program. These project areas and their completion status at the end of the survey are summarised in table 1 below.

The survey was undertaken with the full involvement of the Southern Yamatji representatives. These representatives were nominated by the native title group based on the most current selection processes endorsed by the appropriate Native Title Group Committee.

Table 1: Table 1: Summary of scopes

Name / ID	Size	Completion Status	Request
Arrowsmith North	Approx. 12.8 linear kms	Complete	Archaeological and ethnographic WPC
Arrowsmith Central	Approx. 52.4 linear kms	Complete	Archaeological and ethnographic WPC

2.1 Summary of results

- **Arrowsmith North** is **clear** for the stated works to proceed.
- **Arrowsmith Central** is **partially clear** for the stated works to proceed.
- **Two not clear** areas were identified in **Arrowsmith Central**:
 - The northernmost drill holes of lines 16, 17 and 18 are **not clear**; and
 - The southernmost drill hole of line 16 is **not clear**.
- **No** isolated artefacts were identified in Arrowsmith North or Arrowsmith Central.

3 Introduction

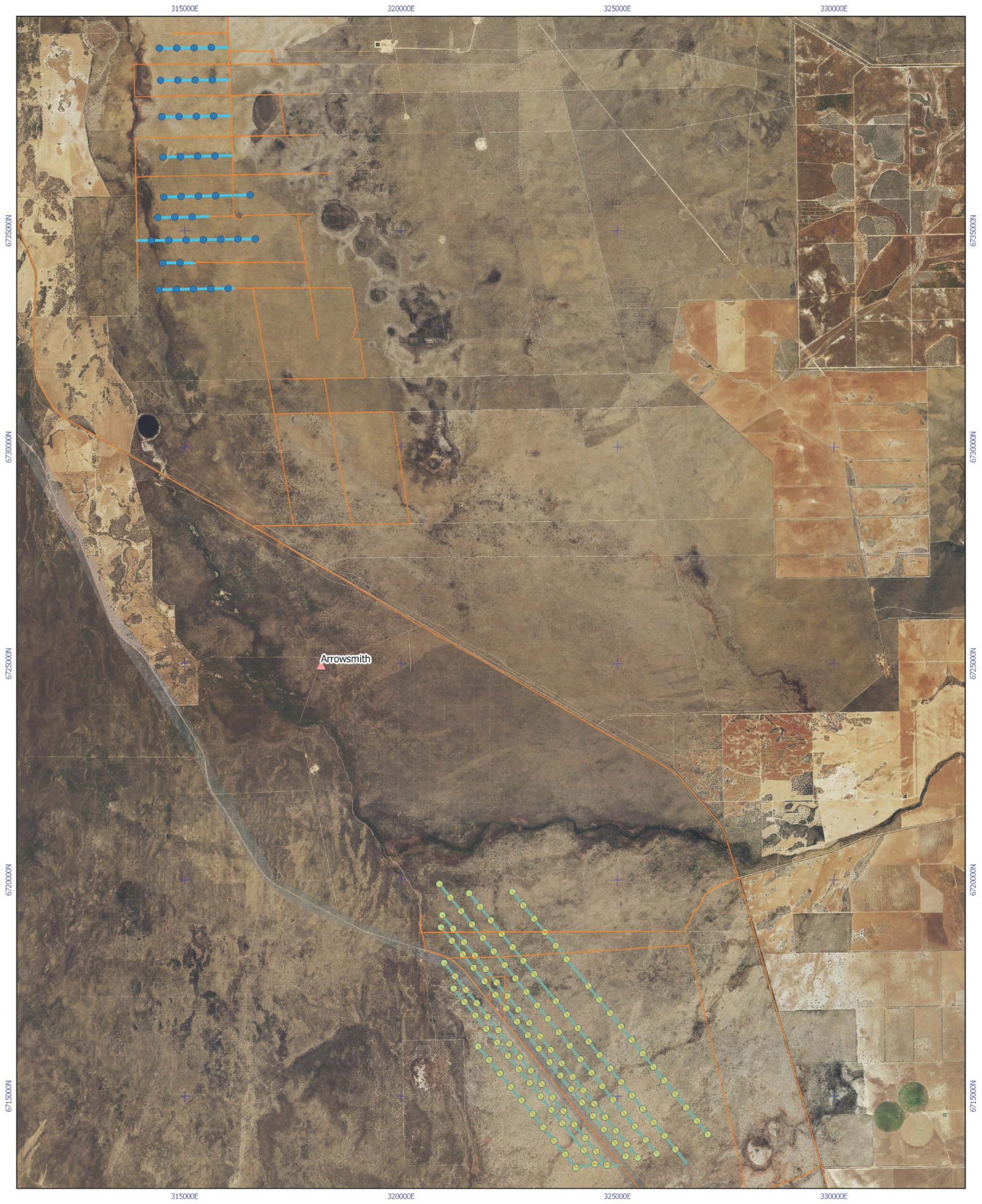
VRX intends to use land contained within the Southern Yamatji native title claim to undertake infill drilling to identify the extent of a sand resource. The drilling will be undertaken using a RC drill rig mounted to a light vehicle. The remaining drill program and access will be confined to existing tracks from previous drill programs and seismic surveys. The heritage survey team surveyed the proposed infill drill tracks and locations that extend beyond the existing tracks.

To meet their obligations under their heritage agreement and the *Aboriginal Heritage Act 1972* (AHA) VRX contacted YMAC as the heritage service provider of the Southern Yamatji native title group to request an archaeological and ethnographic WPC heritage survey over their Arrowsmith North and Arrowsmith Central project areas.

Maps 1-3 below, created by YMAC using the spatial data provided by VRX outlines the location of the survey areas and the extent of the work program.



During the heritage survey the heritage team identified that there were very few access tracks in Arrowsmith Central. As such, the group agreed to walk some additional tie lines which are reflected in the results map and spatial data appended to this report.

VRX work program clearance survey overview map



Legend

- ▲ Locations (Towns)
- Arrowsmith existing access tracks
- Arrowsmith Central uncleared drill holes
- Arrowsmith North uncleared drill holes
- Arrowsmith tracks to clear


 1:80,000 (A3)

 Geographic Projection
 Datum: GDA94



Produced by KAnderson-Bonavia,
Yamatji Marlpa Aboriginal Corporation

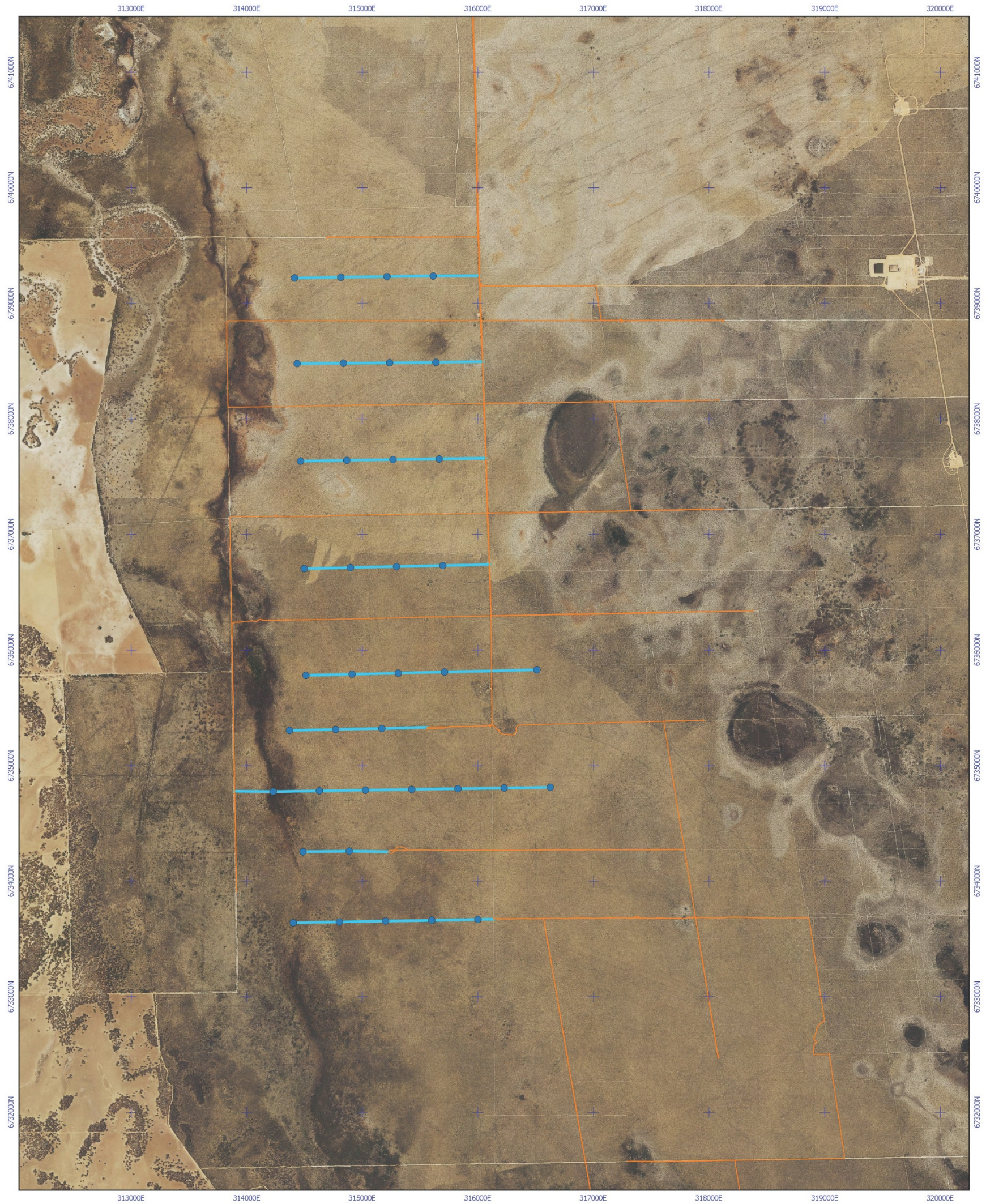

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File Path:

VRX's Arrowsmith North project area



Legend

- Arrowsmith existing access tracks
- Arrowsmith tracks to clear
- Arrowsmith North uncleared drill holes


 1:30,000 (A3)

 Geographic Projection
 Datum: GDA94



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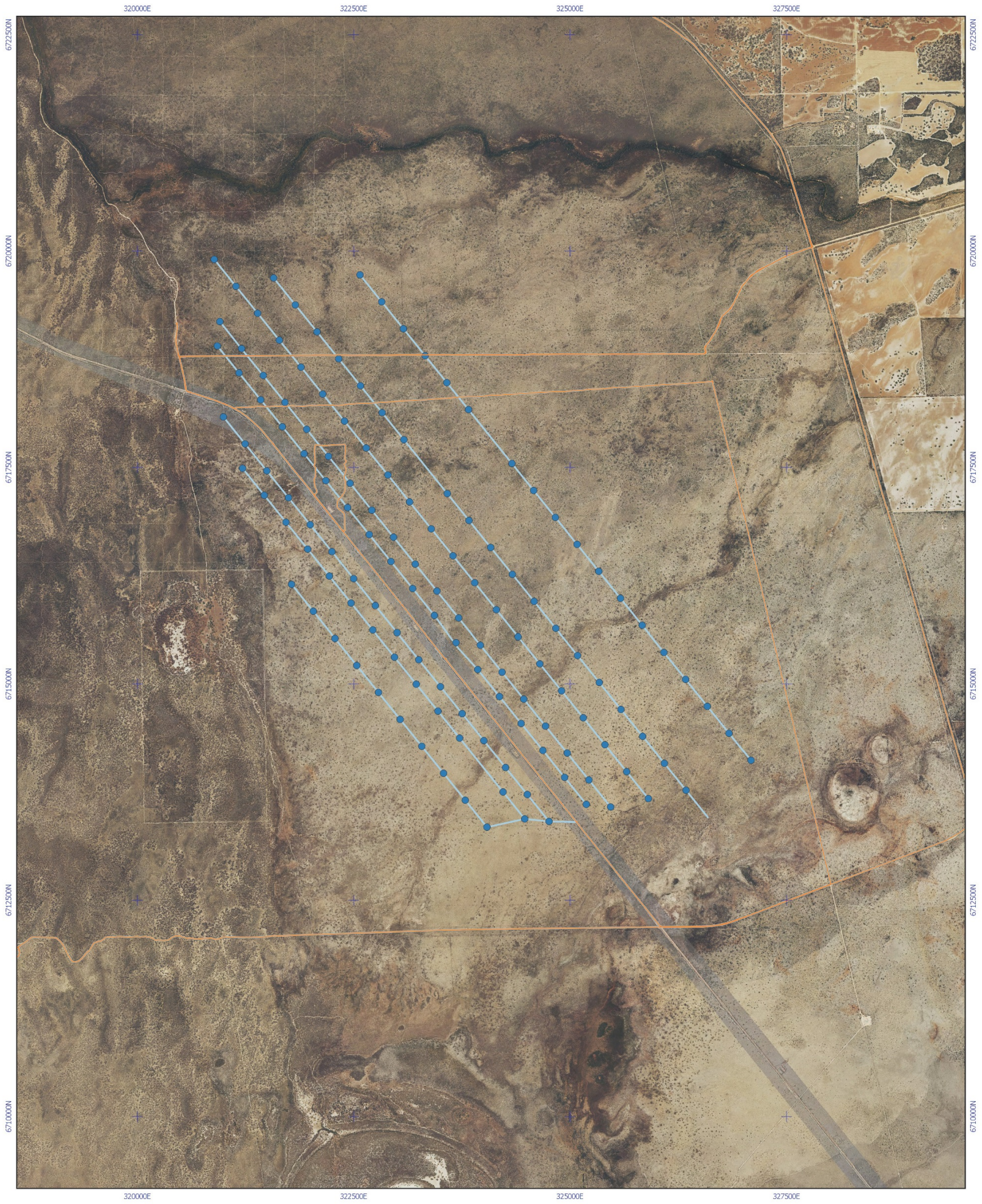

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File Path:

VRX's Arrowsmith Central project area



Legend

- Arrowsmith Access Tracks
- Arrowsmith Central tracks to walk
- Arrowsmith Central uncleared holes

N

1:40,000 (A3)

0 0.5 1 1.5 km

Geographic Projection
Datum: GDA94



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Claim boundaries: National Native Title Tribunal, December, 2018.
Raster Digital Map: © Commonwealth of Australia (Geoscience Australia) 2008.
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4 Desktop research

Prior to undertaking the fieldwork the heritage team completed desktop research of the project areas. The spatial data was entered into the Department of Planning, Lands, and Heritage's (DPLH) Aboriginal Heritage Enquiry System (AHIS) to identify and registered Aboriginal sites, other heritage places (OHPs), prior surveys and associated reports relevant to the project area. Unpublished heritage reports and relevant academic resources were also consulted. These site files and reports were requested from the DPLH and reviewed prior to mobilisation.

Registered Aboriginal sites are sites that have been reported to the DPLH and assessed by the Aboriginal Cultural Materials Committee (ACMC) as meeting the criteria of a site under section 5 and section 39 of the AHA. These sites are added to the permanent register of Aboriginal sites and are protected under the AHA.

There are two types of OHPs, lodged OHPs and 'not a site' OHPs lodged OHPs are sites that have been reported to the DPLH but have not yet been assessed by the ACMC. While they are pending assessment they are entered onto the temporary register. 'Not a site' OHPs are sites which have been submitted to the DPLH and assessed by the ACMC as not meeting the criteria of a site under the AHA.

The AHIS search identified no registered Aboriginal sites or OHPs within the project areas. Though several significant Southern Yamatji sites are located within the surrounding area. One particular site that impacted the survey of Arrowsmith North was the Arrowsmith River which is recorded as a mythological and ceremonial place with great significance to the Southern Yamatji people.

5 Survey areas

5.1 Arrowsmith North

VRX's Arrowsmith North work program area is located approximately 3 km east of the Brand Highway, 30 km southeast of Dongara in the Gascoyne region of Western Australia. The work program is located within the Dongara Gas Field exploration footprint and has several pre-existing north / south and east / west trending tracks.

There are ten drill lines and associated holes which are all east / west extensions of existing tracks. The work program totals approximately 12.8 linear kilometres. Access to the area is good via the existing tracks.

The ground surface is comprised on undulating sand plains and dominated by a mid-storey of *Banksia* spp. Woodland. There are occasional juvenile *Eucalypt* spp. and a dense understorey of native shrubs and wildflowers. Average ground surface visibility ranges from 60-75% throughout Arrowsmith North. No significant water courses were noted within this project area.



Plate 2: Arrowsmith North



Plate 3: Arrowsmith North

5.2 Arrowsmith Central

VRX's Arrowsmith Central project area is located 15 km south east of Arrowsmith North, 4 km west of Brand Highway and 48 kms southeast of Dongara.

There are eight drill lines and associated holes which are all oriented northeast / southwest parallel to the railway access track. The work program totals approximately 52.4 linear kilometres. There are significantly less access tracks in Arrowsmith Central, there are two main access tracks from Brand Highway running east / west and a railway access track that runs northwest / southeast through the project area. During the survey some additional exploration tracks were identified that supported access to the northern section of the project area.

The majority of Arrowsmith Central is sandy and flat, except the northern section which slopes gently upwards to the north. Vegetation to the west of the railway access track is low and relatively open. To the west of the track the vegetation is denser and taller, particularly in the southern area where it is very thick and difficult to traverse. Small, sandy mounds were noted throughout Arrowsmith Central, these may be natural or cultural (see recommendations section 8). An ephemeral creek line runs east / west through the centre of the project area and corresponds with a significant increase in vegetation. There is also a large, culturally significant creek system approximately 1 km to the north of Arrowsmith Central.



Plate 4: Arrowsmith Central north of the access tracks



Plate 5: Arrowsmith Central west of the railway access track



Plate 6: Arrowsmith Central dense vegetation in southern area

6 Survey methodology

The archaeological and ethnographic heritage survey was undertaken to a WPC standard. WPC heritage surveys are designed to inform proponents where they can and cannot undertake works within a survey area.

These types of survey usually occur in the very early stages of project planning and exploration. WPC surveys occur when the proponent has identified the preferred location of the work program, usually a drill program. When heritage places are identified they are given a boundary and delineated as not clear. The consultant will then endeavour to provide an appropriate deviation around the site to allow the work program to continue.

The minimum recording standards for YMAC WPC surveys are:

- Pedestrian transection at a spacing of no greater than 20 m;
- If spacing of greater than 20 m is required for safety reasons, this must be discussed with and agreed to by the Traditional Owner representatives. It is expected that this will be noted in the report where it occurs along with an explanation of why the increased spacing was deemed necessary, accompanying photographs of the terrain and the names of the Traditional Owner representatives that endorsed the change of methodology;
- Recording of outer lines or central lines using tracks on hand held global positioning system (GPS) devices with a minimum accuracy of +/- 5 m;
- Intensive pedestrian transection to determine the extent of heritage values of any identified sites;
- Accurate delineation of a boundary with a suitable buffer to account for GPS accuracy;
- On WPC surveys a deviation may be required by the proponent, these should provide a sufficient buffer around any heritage places;
- Flagging of the boundary using pink and black heritage tape. Please note that some Traditional Owner representatives may request that sites are not flagged to reduce visibility and potential visitation by non-authorized persons. In this instance, the wishes of the Traditional Owner representatives supersede this standard;
- Recording of survey progress by archaeologist / anthropologist using a field notebook; and
- An appropriate photographic record of the survey

On the first day of the heritage survey the heritage team facilitated a detailed brief. During the brief the heritage team discussed the scope of works, proposed use of the land, and the WPC survey methodology. The Southern Yamatji representatives had the opportunity to discuss and comment upon the proposed survey methodology and gave their consent to the proposed WPC methodology. VRX required a clearance of 2 m for each track, due to the number of people walking the heritage team decided to extend this to 5 m to give VRX more flexibility to avoid larger vegetation. Field briefings were completed every morning to ensure ongoing consent and engagement with the project.

The team agreed to split into two heritage teams, each led by one archaeologist to allow the team to clear two lines simultaneously.



Plate 7: SYA009-1 initial survey briefing



Plate 8: SYA009-1 day two field briefing



Plate 9: Heritage team one walking in Arrowsmith North



Plate 10: Alex Dodd and Reg Brockman discussing the Arrowsmith Central project area

6.1 Ethnographic Methodology

The consultant anthropologist incorporated a cultural landscape approach to the methodology to provide context and inform the field work that had been undertaken by the archaeological and ethnographic teams and this methodology was agreed to by the Southern Yamatji representatives. The cultural landscape approach sought to analyse the WPC areas within the broader landscape by understanding the connectivity of the Southern Yamatji sites in and around the area and to incorporate Southern Yamatji understandings of the country's significance and potential impacts of the scope of works. These ethnographic comments were recorded by the anthropologist in a field notebook for further analysis. In consultation with the Southern Yamatji representatives the consultant anthropologist visited the areas of the WPC with Elders and knowledgeable SYA survey participants. They observed the survey areas from a number of landscape vantage points to get a broad overview of the landscape and any significant ethnographic areas/sites that may intersect with the WPC area. The consultant anthropologist also discussed heritage issues based on the results of the archaeological pedestrian transects and site visit, and sought further ethnographic information during breaks and travelling to and from the survey areas.

During the survey, the YMAC anthropologist referred to maps of the work area with the survey participants. Further, the results of the desktop survey (conducted prior to the fieldtrip) and any previously conducted and relevant ethnographic and archaeological reports also informed discussion throughout the trip.

At the end of the fieldwork the heritage team facilitated a debrief. During the debrief the team discussed the results of the survey, sought feedback, and collected recommendations and considerations for the sites and project area.

7 Results

This section details the final results of the archaeological and ethnographic WPC heritage survey of VRX's Arrowsmith North and Arrowsmith Central project areas. The results are summarised in table 2 below and the not clear areas are provided in table 3 below. Please refer to maps 4 and 5 below for a visual representation of the heritage survey results. The spatial data for the clear and not clear areas has been provided along with this report. No isolated artefacts were identified during the course of the survey.

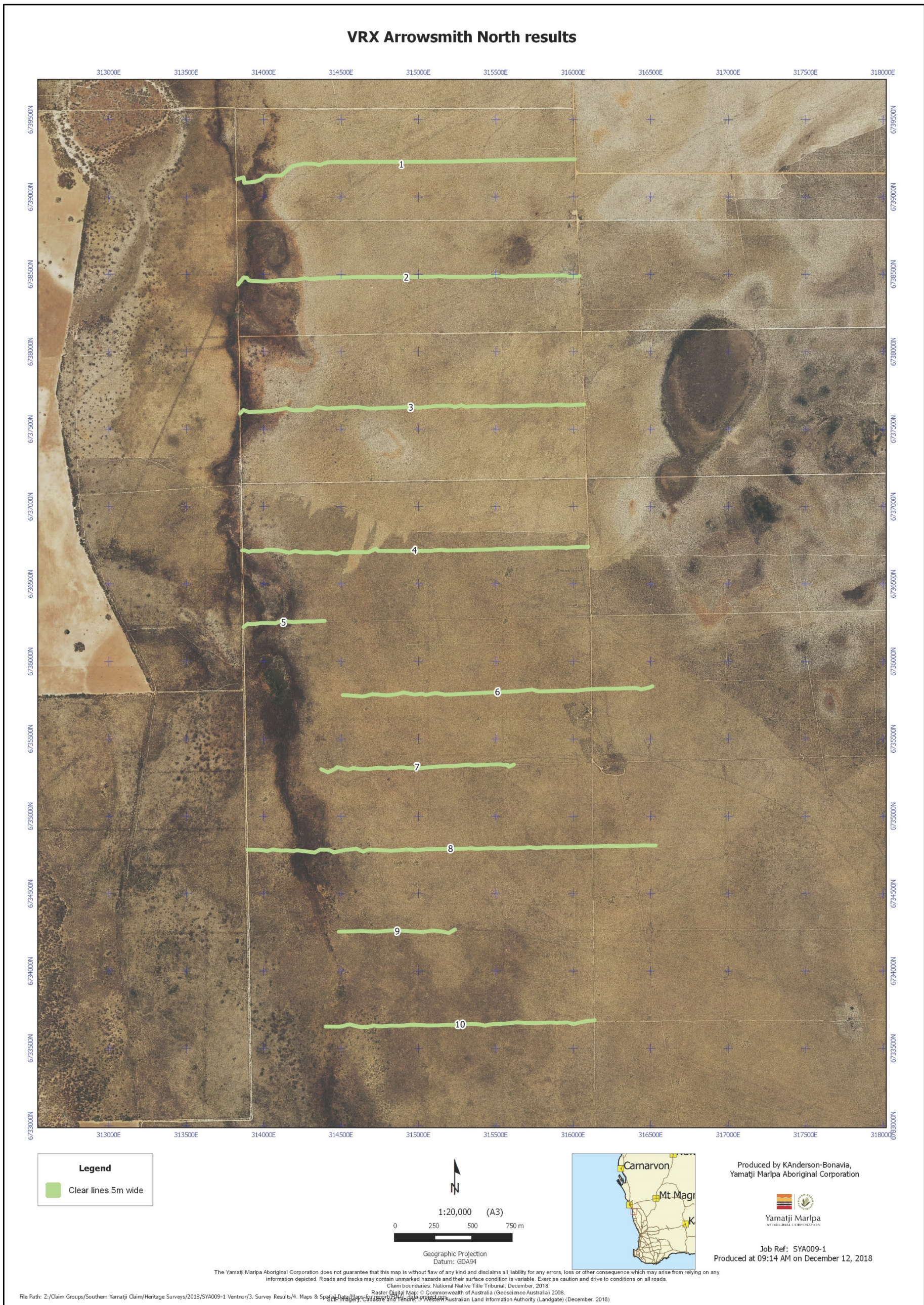
One 'lodged' heritage place identified in the desktop review and in field - **Arrowsmith River (DPLH ID 30068)** was deemed by the Southern Yamatji consultants to be too significant and in too close proximity to the northern Arrowsmith Central project area. This site is extremely significant and important to Southern Yamatji people and forms the basis of the northern 'not clear area' in the Arrowsmith Central scope results. Southern Yamatji consultants requested that YMAC take further steps to provide additional information for this site in the form of a Heritage Information Submission Form (HISF) with the objective of having the site significance further strengthened and preserved. It is likely that the additional ethnographic information from this survey is sufficient to register this place and it is the author's opinion that this place would meet the criteria of a site under section s5 of the AHA.

Table 2: Summary of results from SYA009-1

Scope # / Name	Completion status	Not clear area / Aboriginal heritage sites	DPLH Registered Aboriginal sites	DPLH other heritage places
Arrowsmith North	Complete	Zero not clears	Zero registered Aboriginal sites	Zero other heritage places
Arrowsmith Central	Complete	Two not clear areas	Zero registered Aboriginal sites	Zero other heritage places

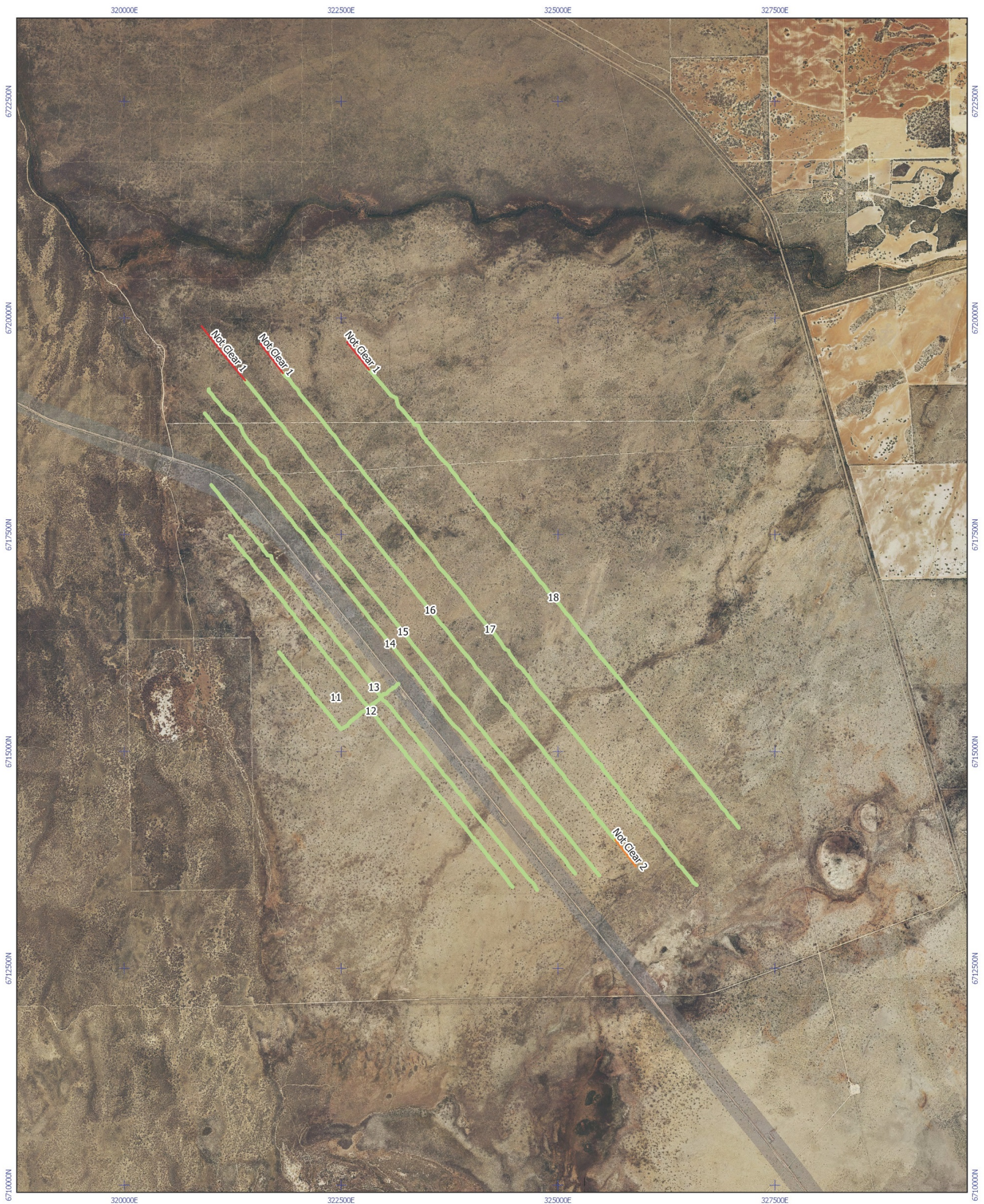
Not clear #	Type
Not clear 1	Proximity to creek
Not clear 2	Mythological / ceremonial

Map 4: Arrowsmith North results map



Map 5: Arrowsmith Central results map

VRX Arrowsmith Central results



Legend

- Not Clear 2
- Not Clear 1
- Clear lines 5m wide

N

1:40,000 (A3)

0 0.5 1 1.5 km

Geographic Projection
Datum: GDA94



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Spatial Data: © Australian Land Information Authority (Landgate) (December, 2018)

File Path: Z:/Claim Groups/Southern Yamatji Claim/Heritage Surveys/2018/SYA009-1 Ventnor/3. Survey Results/4. Maps & Spatial Data/Map 5: Arrowsmith Central Results Map

8 Recommendations and considerations

An archaeological and ethnographic WPC survey of VRX's Arrowsmith North and Arrowsmith Central project areas is now complete. The proposed works are cleared to proceed subject to the following **recommendations**:

1. **It is advised** that except for the **Two not clear areas** the Arrowsmith North and Arrowsmith Central work programs are clear for the proposed drilling program to proceed.
2. **It is recommended** that VRX engage three Southern Yamatji monitors (one from each apical family) for the ground clearing works. Sand mounds were noted throughout the Arrowsmith Central project area and it is thought that these may have cultural significance. In particular the Southern Yamatji representatives are concerned that these may contain sub-surface cultural material of ancestral remains.
3. **It is advised** that VRX should avoid the Grass Trees (*Xanthorrhoea* spp.) during the vegetation clearing for the work program.
4. **It is recommended** that VRX maintain contact regarding the progression of the project with the Southern Yamatji native title claimants and consider employing local Southern Yamatji people and business.
5. **It is advised** that if human remains, skeletal materials that may be human, or materials that may belong to a human grave are discovered during exploration or resource evaluation within the cleared survey areas, VRX must follow the DPLH procedures and stop work immediately, and the materials and the area around them must be left undisturbed. The Western Australian Police must be informed immediately as well as Southern Yamatji traditional owners, through their representative, YMAC, as soon as practicable.
6. **It is recommended** that VRX employees and contractors executing the proposed works be informed of the contents of this report and their obligations under the *Aboriginal Heritage Act 1972*.
7. **It is recommended** that VRX maintain discussions with the Southern Yamatji people, regarding any future matters that may arise in relation to the areas surveyed, including any further proposed excavation or ground disturbance activities or access to uncleared proximate areas.

9 Bibliography

Aboriginal Heritage Act 1972 (WA)

Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth.)

Appendix 1 – acronyms

Acronym	Description
ACMC	The Aboriginal Cultural Materials Committee.
AHA	The <i>Aboriginal Heritage Act 1972</i> .
AHIS	The Aboriginal Heritage Inquiry System. The AHIS is used to search the DPLH's Register of Aboriginal Sites which records the location and other information concerning registered Aboriginal sites and other heritage places that have been reported to the DPLH.
DPLH	The Department of Planning Lands and Heritage.
GIS	Geographical Information systems.
Heritage survey	A survey undertaken by representatives of the native title group in conjunction with suitably qualified heritage professionals (e.g. archaeologists and / or anthropologists), for the purpose of identifying and recording heritage sites and areas within a defined project area.
OHPs	Other heritage places. There are two types of OHPs, lodged OHPs and 'not a site' OHPs lodged OHPs are sites that have been reported to the DPLH but have not yet been assessed by the ACMC. While they are pending assessment they are entered onto the temporary register. 'Not a site' OHPs are sites which have been submitted to the DPLH and assessed by the ACMC as not meeting the criteria of a site under the AHA.
Southern Yamatji representatives	Move to the correct spot in the list. Representatives of the Southern Yamatji native title claimants / holders. These representatives are selected by the native title group via the most up to date selection process endorsed by the relevant committee of the Southern Yamatji.
VRX	VRX Silica
WAC	Work area clearance.
WPC	Work program clearance.
YMAC	Yamatji Marlpa Aboriginal Corporation.