COONGAN PTY LTD
ABN: 75 154 448 094

Report on an Archaeological Aboriginal Cultural Heritage Avoidance Survey of a Proposed Fibre Optic Cable Corridor along Chichester Road, Marble Bar Road and Great Eastern Highway, Eastern Pilbara

Conducted by KNAC Representatives and Coongan Pty Ltd for Karlka Nyiyaparli Aboriginal Corporation and Vocus Fibre Pty Ltd

Vocus Reference: Project Horizon
KNAC Reference: 23VOC-02, 23VOC-03
Coongan Reference: CO2312, CO2343

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Disclaimer

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The authors advise that all coordinates quoted in this document were obtained with a Samsung Tablet QField using the GDA datum. All grid references are projected in MGA Zone 50, unless otherwise stated. Dependent on external conditions, Samsung Tablets afford spatial accuracy of ± 4 m.

Photographs

All photographs in this report were taken by Coongan heritage consultants during the Survey. The KNAC Representatives gave permission for their photographic images and photographs of all objects and features to be reproduced in this report.

Acknowledgement of Country

The team at Coongan Pty Ltd acknowledges the Nyiyaparli People, who are the Traditional Custodians of the Country we work on together in the Pilbara region.

We pay our respects to their Elders past, present, and emerging, and to their continuing cultural and spiritual connections to their lands.

Cultural Safety Warning

Aboriginal and Torres Strait Islander readers are warned that this report may contain images and quotes of people who have since passed away.

Table of Contents

List of Figures

List of Tables

Table 1: Abbreviations, Terms and Definitions

Term:	Definition:
Aboriginal cultural heritage (ACH)	The tangible and intangible elements that are important to the Aboriginal people of the State, and are recognised through social, spiritual, historical, scientific or aesthetic values, as part of Aboriginal tradition, including: • **Aboriginal place**: an area in which tangible elements of Aboriginal cultural heritage are present. • **Aboriginal object**: an object that is a tangible element of Aboriginal cultural heritage. • **Cultural landscape**: A group of areas interconnected through tangible or intangible elements of Aboriginal cultural heritage. • **Ancestral remains**: the bodily remains of a deceased Aboriginal person, other than remains that are buried in a cemetery where non-Aboriginal persons are also buried or remains that have been dealt with or are to be dealt with under a law of the State relating to the burial of the bodies of deceased persons
Aboriginal person	Means a person who — a) is wholly or partly descended from the original inhabitants of Australia; and b) identifies as an Aboriginal person; and c) (c) is accepted as an Aboriginal person by an Aboriginal community in which the person lives, or with which the person identifies
Aboriginal tradition	Includes: • The living, historical and traditional observances, practices, customs, beliefs, values, knowledge and skills of the Aboriginal people of the State generally, or of a particular group or community of Aboriginal people of the State. • Any such observances, practices, customs, beliefs, values, knowledge and skills relating to particular persons, areas, objects or relationships.
ACH Act	Aboriginal Cultural heritage Act 2021 (WA) (repealed 15/11/2023)
ACHIS	Aboriginal Cultural Heritage Inquiry System (database of ACH places and surveys submitted to DPLH)
ACH place	Aboriginal cultural heritage place (may not have been submitted to DPLH, *or* may be a lodged place or historic record with DPLH)
ACMC	Aboriginal Cultural Material Committee
AHIS	Aboriginal Heritage Inquiry System (database of ACH places and surveys submitted to DPLH now renamed “ACHIS”)
BIF	Banded iron formation
BP	Before present (the present considered to be 1950)

Term:	Definition:
CEV	Controlled environmental vault
Coongan	Coongan Pty Ltd
Culturally sensitive information	Means information that, in accordance with Aboriginal tradition, is information that is not to be shared with people who are not the knowledge holders for the Aboriginal cultural heritage to which the information relates
DPLH	Department of Planning, Lands and Heritage (WA)
EIA	Environmental Impact Assessment
EPA	Environmental Protection Authority (WA)
Gibber	Ground surface characterised by closely packed, interlocking angular and rounded pebbles and cobbles.
Gilgai	Raised or depressed area of dried and cracked clay that may form wetlands after rain
GIS	Geographic information system
GPS	Global positioning system
HISF	Heritage Information Submission Form (to submit ACH information to DPLH)
ICOMOS	International Council on Monuments and Sites, Australia
KNAC	Karlka Nyiyaparli Aboriginal Corporation RNTBC
KNAC Representative	Nyiyaparli and Nyiyaparli #3 (WCD2018/008) or invited participants
Knowledge holder	For the purposes of this report: a KNAC Representative who has knowledge of the Aboriginal cultural heritage of — and is authorised by KNAC to speak for — the country that the survey/excavation occurred on (ACH Act Section11)
Located (heritage)	Aboriginal cultural heritage is located in an area if — (a) the area is, or is part of, an Aboriginal place or a cultural landscape; or (b) there are Aboriginal ancestral remains or an Aboriginal object in the area
LGM	Last glacial maximum
MGA	Map Grid of Australia
Mining tenement	An entity that holds, or has made an application for, a mining tenement under the Mining Act (1978) in respect of the land; or in accordance with the Mining Act (1978), holds, occupies, uses, or enjoys in respect of the land a mining tenement within the meaning of the Mining Act (1904)
NNTT	National Native Title Tribunal
Registered Aboriginal Site	A heritage place which has been determined as meeting criteria under section 5 of the Aboriginal Heritage Act 1972 (WA), and has been registered by the Registrar of Aboriginal Sites (DPLH status R - registered)
RNTBC	Registered Native Title Body Corporate has the meaning given in section 253 of the Native Title Act (1993, Cwlth).
s16	Section 16 of the Act (under this section, the Minister may grant approval to excavate/investigate an Aboriginal site and to remove Aboriginal objects)
s18	Section 18 of the Act (under this section the Minister may grant consent to disturb an Aboriginal site)

Term:	Definition:
Secret or Sacred Object	Means an Aboriginal object that is secret or sacred to an Aboriginal person, group or community in accordance with Aboriginal tradition
Site	ACH place that has been registered with DPLH
SoW	Scope of works
Survey team	The Coongan consultants and KNAC Representatives
The Act	Aboriginal Heritage Act 1972 (as amended; 1980, 2021, 2023) (WA)
Vocus	Vocus Fibre Pty Ltd

Executive Summary

Vocus Fibre Pty Ltd (Vocus) is installing a fibre optic cable along the length of Western Australia. This project entails shallow groundworks along a corridor within the Nyiyaparli and Nyiyaparli #3 Native Title Determination Area (NNTT no. WCD2018/008). Vocus consulted with Karlka Nyiyaparli Aboriginal Corporation (KNAC), the registered native title body corporate for the Nyiyaparli Native Title Holders. As a result of that consultation, KNAC engaged Coongan Pty Ltd (Coongan) to undertake an archaeological Aboriginal cultural heritage (ACH) avoidance survey (the Survey) of the approximately 240 km proposed corridor (the survey area). The Survey is being undertaken over multiple trips.

This document reports on the first two trips. The first trip was carried out between 23 and 31 May 2023 (excluding travel) by six KNAC Representatives and two Coongan heritage consultants. Four Vocus representatives were also present. The second trip was undertaken between 22 and 27 October 2023 by four KNAC Representatives and two heritage consultants from Coongan. Four Vocus representatives were also present, and three Fortescue representatives joined the survey team for sections of the Survey located on Fortescue tenements.

The survey areas north and south of Newman were each partially completed to ACH avoidance standard. The results are summarised in Table 2. Table 3 summarises the heritage management recommendations.

Table 2: Survey Results Summary

Survey Area:	Location:	Status:	Results Summary:
North of Newman	T12–T15	Partially complete	• Twenty-eight (28) isolated artefacts were recorded. • Two (2) previously recorded artefacts scatters are located in this area: CB11-122 and CB11-123. • Due to access issues and time constraints, this survey area was partially completed.
	Lead-in Paths 1 & 2	Complete	• Four (4) isolated artefacts were recorded. • No ACH places were identified.
	CEV Laydown Areas: XMAS CK CEV 1 XMAS CK CEV 2 XMAS CK CEV 3	Complete	No ACH was identified.
	MABL CEV	Complete	This location was not surveyed as existing Fortescue infrastructure would prevent Vocus installing the cable.

Survey Area:	Location:	Status:	Results Summary:
South of Newman	T12–T15	Partially complete	Six (6) new ACH places were identified: • CO2312-01 • CO2312-02 • CO2312-03 • CO2312-04 • CO2312-05 • CO2312-06 • 525 isolated artefacts were recorded.
	CAPC V6 CEV	Complete	No ACH was identified.

Table 3: Summary of Recommendations

Pertaining to:	Recommendations:
• CO2312-01 • CO2312-02 • CO2312-03 • CO2312-04 • CO2312-05 • CO2312-06 • CB11-122 • CB11-123	It is recommended that: • Vocus avoid these heritage places during the proposed works. • If Vocus is unable to avoid any/all of these ACH places, they should consult further with KNAC. • Vocus request the spatial data for CB11-122 and CB11-123 from Fortescue as it was not provided to Coongan.
• CO2312-01 • CO2312-02 • CO2312-03	It is recommended that: • Vocus consult with KNAC regarding the possibility of avoiding impact by drilling directly underneath the ACH places without impacting the surface extent of these ACH places. Cultural monitors must be present for this strategy.
• CO2312-04 • CO2312-05	It is recommended that: • Vocus install the cable on the eastern side of the road corridor within the deviation provided.
• CO2312-06	It is recommended that: • Vocus arrange for the identification of a deviation around this newly identified ACH place during a future trip.

Pertaining to:	Recommendations:
Isolated Artefacts	It is recommended that: • Vocus consult with KNAC to arrange the cultural salvage of the 557 isolated artefacts. • Until the artefacts can be salvaged/relocated, they must be avoided.
Fortescue tenure Isolated artefacts	It is recommended that: • Vocus provide Fortescue with the spatial data for the 28 isolated artefacts on their tenure at Christmas Creek. • Vocus advises Fortescue that these artefacts are scheduled for salvage.
T12–T15 – North of Newman	It is recommended that Vocus consult with DPLH regarding the possible application of the ACH Act, as the second survey was undertaken while it was in effect.
T12–T15 – North of Newman Driving	It is recommended that within the survey areas, Vocus employees and contractors drive only on the 35 m wide corridor that has been cleared by the survey team.
T12–T15 – North of Newman Cultural monitors	It is recommended that: • Vocus employ KNAC cultural monitors to be present during all proposed works. Vocus should consult with KNAC to decide how many monitors are required and who they should be.
T12–T15 – North of Newman Creek lines	It is recommended that: • Wherever the cable corridor must cross a creek line, Vocus should use underground drilling techniques only. • Spoil heaps should not be located within creek lines, and creek banks should be preserved. • If Vocus cannot avoid impacting any creek line, they should consult further with KNAC prior to commencing works.
T12–T15 – North of Newman Ethnographic consultation	It is recommended that Vocus consult with KNAC to arrange an ethnographic consultation of the area with the appropriate Nyiyaparli Seniors.
T12–T15 – North of Newman Educating employees and contractors	It is recommended that Vocus educate all employees and contractors working within the survey areas about the locations and boundaries of all ACH places and isolated artefacts identified and clearly instruct them avoid impacting them.

Pertaining to:	Recommendations:
Additional Works	If Vocus proposes to alter the type of proposed works, or to expand their program of works beyond what was subject to the heritage survey, they must consult further with KNAC prior to the commencement of works.
Issues or Queries	It is recommended that Vocus consult directly with KNAC for any further clarification on the contents of this report

Introduction

This document reports on the results of the first two trips in a series for an Aboriginal Cultural Heritage (ACH) survey (the Survey) of a proposed fibre optic cable corridor. The survey area is located within Nyiyaparli and Nyiyaparli #3 Native Title Determination Area (NNTT no. WCD2018/008) in the eastern Pilbara, Western Australia. The trips were conducted for Vocus' Project Horizon, which involves installing a fibre optic cable throughout Western Australia. Vocus consulted with Karlka Nyiyaparli Aboriginal Corporation (KNAC), the registered native title body corporate for the Nyiyaparli Native Title holders. KNAC engaged Coongan Pty Ltd (Coongan) to conduct the Survey of the proposed cable corridor. The first trip was carried out between 23 and 31 May 2023 (excluding travel). The second trip was undertaken between 22 and 27 October 2023. The survey teams comprised Coongan heritage consultants and KNAC Representatives, who were joined by Vocus and Fortescue personnel. The second trip was originally scheduled for July 2023. However, that trip was cancelled. When the second trip ultimately went ahead it was labelled *Trip 3*. To avoid confusion, this report refers to *the first trip* and *the second trip*.

Scope of Works

The heritage notice from Vocus dated 10 January 2023 provided a brief outline of the proposed works and the scope of works (SoW), requiring an ACH avoidance survey of a 240 km long optic fibre cable corridor. The corridor runs through the full extent of the Nyiyaparli Determination Area, passing through Newman. The cable is to be installed 1 m below the ground surface along major roads including Chichester Road, Marble Bar Road and Great Northern Highway or along Roy Hill Station fence line (Figure 1). The spatial data also showed three polygons of survey area that were proposed locations for above ground controlled environmental vaults (CEVs).

The original spatial data showed the survey area to be 200 m wide. However, Vocus indicated that only 10 m width was required to undertake to the proposed works. For the first trip, they requested that only a 35 m corridor be surveyed except where ACH was identified. Where ACH was identified, Vocus requested that deviations be identified to avoid it. They requested that deviations be *within* the 200 m corridor wherever possible, as KNAC had instructed that the survey teams were not to survey outside the 200 m corridor. The SoW shows that the survey areas are contained within road reserve and the following tenements:

- E 46/1176
- E 46/1213
- E 46/1333
- E 46/1334
- E 46/1465
- E 46/1474
- E 46/1481
- E 46/1483
- E 46/1485
- E 46/580-I
- E 46/611-I
- E 46/612-I
- E 46/621-I
- L 47/642
- E 52/3934
- E 52/3935
- E 52/4022
- E 52/4050
- E 52/4064
- E 52/4109
- E 52/4110
- E 52/4149
- E 52/4153
- E 52/4156
- E 52/4177
- L 1SA
- L 47/346
- L 47/772
- L 52/123
- L 52/157
- L 52/189
- L 52/195
- L 52/236
- ML 244SA
- M 266SA
- M 46/320-I
- M 46/321-I
- M 46/322-I
- M 46/334-I

- E 47/4570
- E 52/1894-I
- E 52/2350
- E 52/3217
- E 52/3364
- L 46/100
- L 46/137
- L 46/138
- L 46/139
- L 46/141
- M 46/335-I
- M 46/336-I
- M 46/342-I
- M 46/343-I
- M 46/412-I

Several amendments were made to the original SoW before the first trip. On 23 May, following the commencement of the Survey, Vocus communicated that the northern-most controlled environmental vault (CEV), XMAS CK CEV 3, was not accessible, and would therefore not be surveyed during the first trip. Additionally, Vocus requested that the eastern side of the Great Northern Highway not be surveyed, unless the western side was found to be unusable. Unusable was defined as any area containing an ACH place exceeding 300 m of the survey area length.

Vocus further amended the SoW just before the second trip. They provided new spatial data showing a narrower, 70 m corridor, and revised the required width to be surveyed and cleared to 10 m. Several sections of the original survey area were amended and re-routed and two lead-in paths were added. The resulting corridor at the start of the second trip is approximately 150 km long (Figure 2). The northern-most 22 km of proposed survey area is within Fortescue Christmas Creek. The survey areas are summarised in Table 4.

The survey team was required to:

- Identify any ACH values that exist within the survey area, and
- Undertake any research and/or consultation that may be required.

Table 4: Status of Scope of Work

Location:	Survey Area:	Survey Standard:	Survey Status:
North of Newman	T12–T15	Archaeological ACH avoidance	Partially complete
	Lead-in Path 1 & 2	Archaeological ACH avoidance	Complete
	XMAS CK CEV 1	Archaeological ACH avoidance	Complete
	XMAS CK CEV 2	Archaeological ACH avoidance	Complete
	XMAS CK CEV 3	Archaeological ACH avoidance	Not surveyed due to accessibility issue
	MABL CEV	Archaeological ACH avoidance	Complete
South of Newman	T12–T15	Archaeological ACH avoidance	Partially complete
	CAPC V6 CEV	Archaeological ACH avoidance	Complete

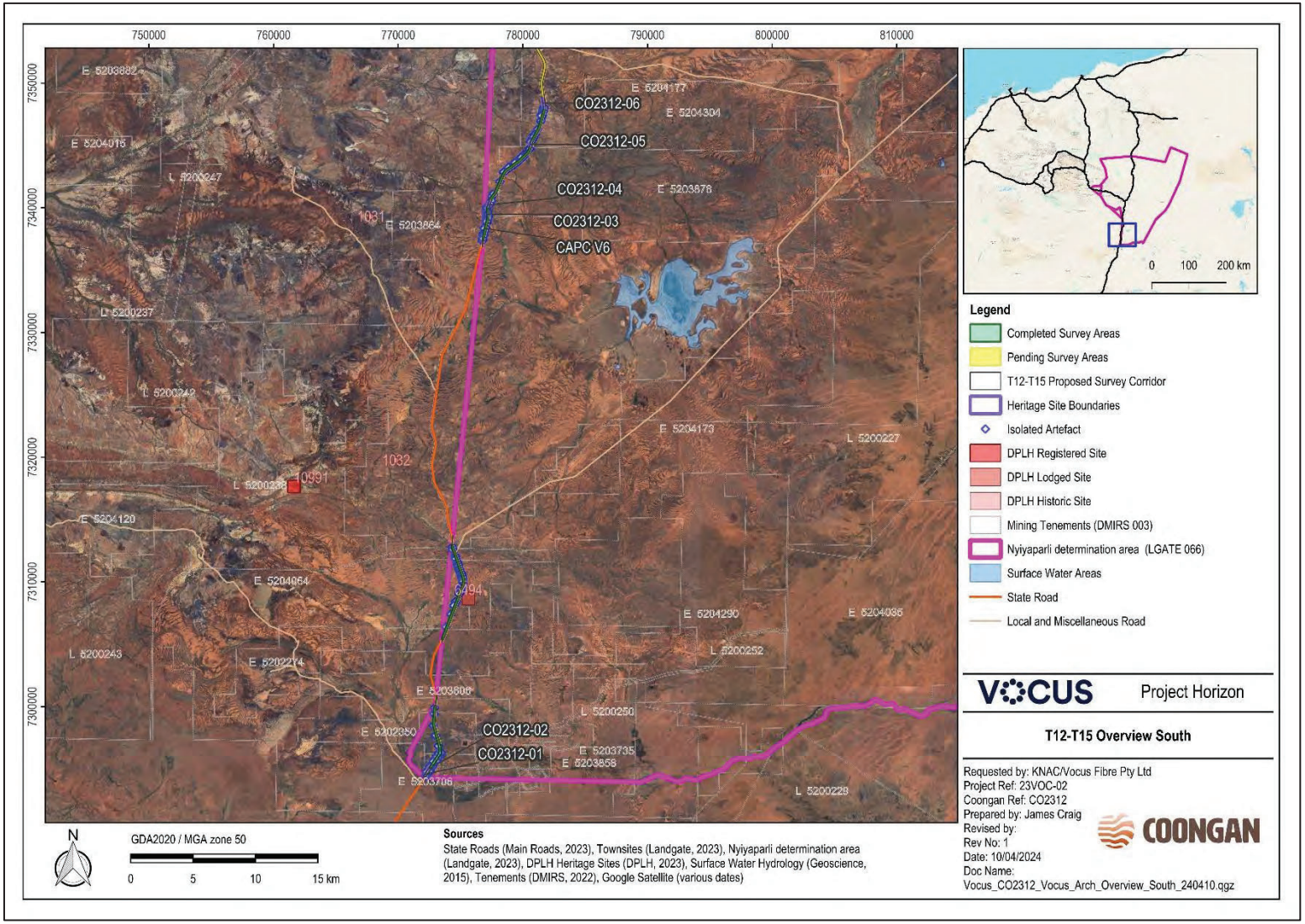

Figure 1: Overview of proposed fibre optic cable corridor south of Newman

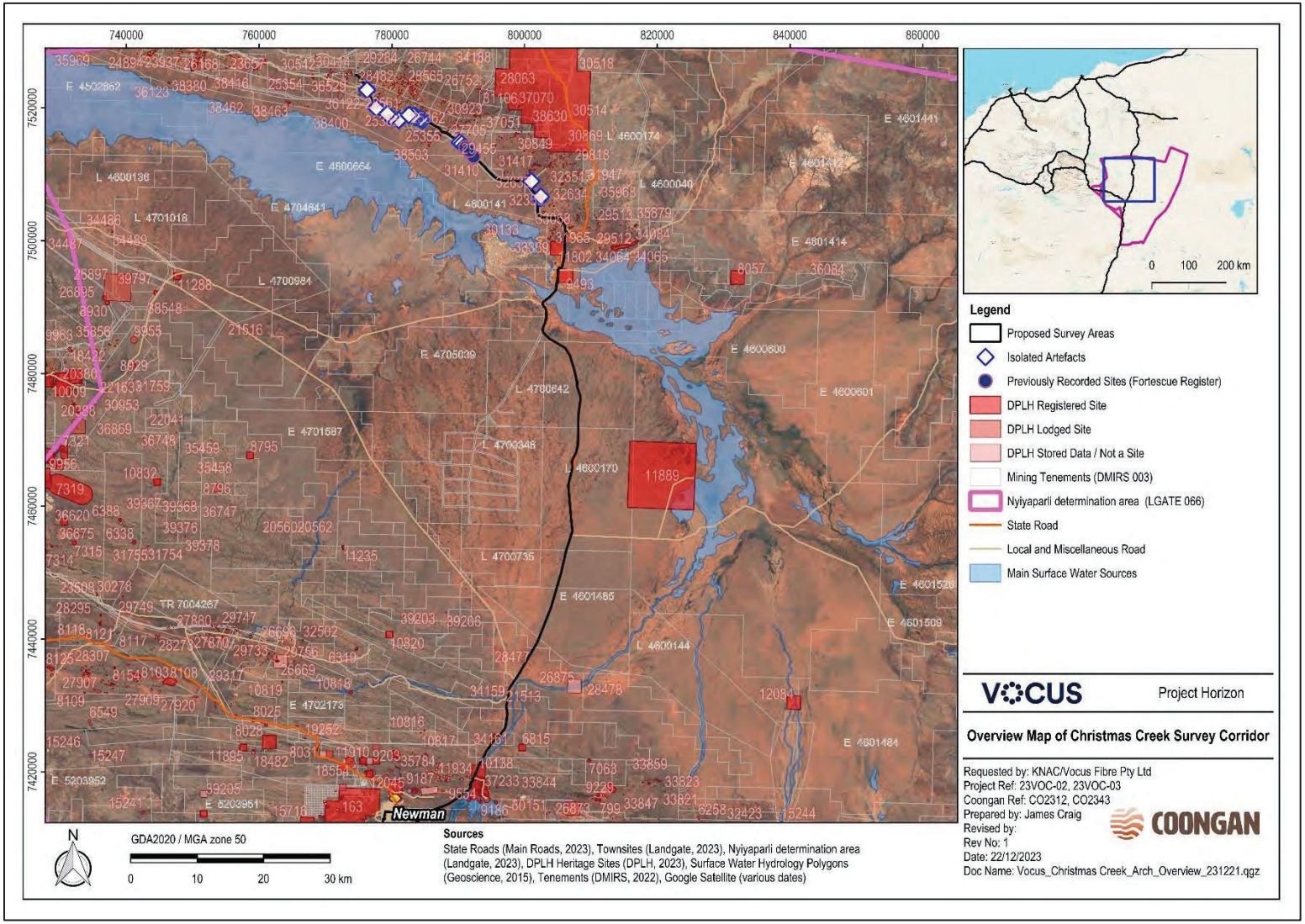

Figure 2: Overview of proposed fibre optic cable corridor north of Newman

Survey Team

The two surveys were carried out by different survey teams. The KNAC Representatives on each team were selected by KNAC as the appropriate knowledge holders for the survey area and consented to participate in the Survey.

The first survey was undertaken by six KNAC Representatives and two Coongan heritage consultants. Four Vocus representatives were also present to support the team. The first survey was carried out by the following people:

- **KNAC Representatives:** Coppin, Dudley; Coppin, Waylon; Ingie, Alastin; Jones, Clifford (Jim); Turner, Antony Sr.; Wilson, Sheldon
- **Coongan Heritage Consultants:** Reid, Tim and Tearle, Jasmine
- **Vocus Representatives:** Geyer, Nick; Bridgman, Graeme; Leemon, Rodney and Mooney, Paul

Figure 3 shows the survey team on the first survey from (left to right): Alastin Ingie, Jasmine Tearle, Tim Reid, Antony Turner Sr., Rodney Leemon, Waylon Coppin, Clifford (Jim) Jones, Dudley Coppin and Sheldon Williams.

Figure 3: Survey team – first trip

The second survey was completed by four KNAC Representatives and two heritage consultants from Coongan. Three Vocus representatives were also present during this time to support the survey team. Four Fortescue representatives joined the survey team for the survey on Fortescue's Christmas Creek tenure. The second survey was carried out by the following people:

- **KNAC Representatives:** Munda, Alzzrol; Narrier, Deygan; Narrier Ivan Jr. and Sampi, Tristan
- **Coongan Heritage Consultants:** Ariotti, Alex and Sheehan, Bridget
- **Vocus Representatives:** Pevinsky, Michael; Leemon, Rodney; Wall, Damien, and Horton, Stuart
- **Fortescue Representatives:** Gomboc, Jason; Harrold, Brady; and Kenny, Leah

Figure 4 shows the survey team on the second trip (left to right): Michael Pevinsky, Alzzrol Munda, Ivan Narrier Jr., Deygan Narrier, Alex Ariottie, Bridget Sheehan, Tristan Sampi and Rodney Leemon, Rodney.

Figure 4: Survey team – second trip

Heritage Legislation and Guidelines

The first trip was carried out between 23 and 31 May 2023 during the transition from the *Aboriginal Heritage Act 1972* to the *Aboriginal Cultural Heritage Act* 2021. The second trip was carried out between 22 and 27 October 2023 under the *Aboriginal Cultural Heritage Act* three weeks before it was officially repealed and replaced with the amended *Aboriginal Heritage Act 1972*. The recommendations are consistent with both Acts.

Aboriginal Cultural Heritage Charters

The Australian International Council on Monuments and Sites (ICOMOS) Burra Charter and the Australian Natural Heritage Charter provide frameworks for best practice methodology for the identification, protection, and management of ACH in Australia.

Aboriginal Heritage Act 1972 (Western Australia)

At State level, the primary heritage protect legislation in Western Australia is the *Aboriginal Heritage Act 1972* (as amended; 1980, 2021, 2023) (the Act). Under Section 17 of the Act, it is an offence to disturb ACH without the required authorisation of the Registrar under Section 16 (s16) or consent from the Minister under Section 18 (s18), unless it is "sanctioned by relevant custom."

Environmental Protection Act 1986 (Western Australia)

The *Environmental Protection Act 1986* (EP Act) may be used in conjunction with the Aboriginal Heritage Act 1972, "for example, in cases where actual physical protection of the environment is required to protect sites of heritage significance. The EP Act can also give attention to matters of a social nature, such as traditional hunting activities, by providing for the retention of habitat for native fauna to enable those activities to continue," (EPA 2023).

Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Australian Government)

Section 4 of the Aboriginal and Torres Strait Islander *Heritage Protection Act 1984* states that, "The purposes of this Act are the preservation and protection from injury or desecration of areas and objects in Australia and in Australian waters, being areas and objects that are of particular significance to Aboriginals in accordance with Aboriginal tradition."

Where an application is received to prevent imminent harm to significant Aboriginal heritage, the federal Minister for the Environment may make a declaration to temporarily stop the project in accordance with the specified heritage law.

In addition, under s20(1), the discovery of any Aboriginal or suspected Aboriginal remains must be reported to the Minister for Environment detailing the remains and their location.

Coroners Act 1996 (Western Australia)

The *Coroners Act 1996* applies to any discovered human or suspected human remains. Section 17(1) states, "A person must report a death that is or may be a reportable death to a coroner or a member of the Police Force immediately after he or she becomes aware of the death, unless the person has reasonable grounds to believe that the death has already been reported." In addition, information must be provided to assist the coroner.

Mining Act 1978 (Western Australia)

The *Mining Act 1978* applies to Aboriginal heritage with regards to human remains. Section 20(5)(d) states that a mining tenement holder may not interfere with a burial ground, or within 100 m of a burial ground.

Environmental Protection and Biodiversity Conservation Act 1999 (Australian Government)

The *Environmental Protection and Biodiversity Conservation Act* (1999) (EPBC Act) is "a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places" (DCCEEW, 2022).

The EPBC Act lists heritage sites per category of protection under the Act in the National Heritage List, the Commonwealth Heritage List, and the World Heritage list. These heritage sites are available on the Australian Heritage Database (DCCEEW, 2022).

Environmental Context

In archaeological practice, careful consideration of both the archaeological and environmental context of a project is essential when determining survey, assessment, and recording methodologies. An integrated approach establishes a structured framework for comparing ACH places and landscapes, thereby facilitating the determination of individual ACH place significance within context.

The Pilbara biogeographical region is described using various key characteristics, including geology, climate, landform or topology, and vegetation, among other attributes (Thackway & Cresswell, 1995 as referenced in Pepper, Doughty & Keogh, 2013). Geologists commonly refer to the "Pilbara Craton," characterized as an ovoid, plateaued, and rugged region featuring surface outcrops of ancient rocks (Pepper, Doughty & Keogh, 2013.

Geology

The geology of a region is relevant to the study of Aboriginal archaeology for a several reasons. First, it affects the availability of natural resources, for instance, rock shelters may be used for habitation, and outcrops of suitable material may be quarried for making tools. In addition, geological processes such as sedimentation and erosion affect the likelihood of archaeological sites being preserved intact. It also has potential to be used in research to ascertain the source locations of knapped stone materials. However, to date such petrological data has been little used in archaeology in the Pilbara (Ditchfield & Ward, 2019).

The Pilbara region rests on the Pilbara Craton geological formation. This base layer was formed between 3.5 and 2.8 billion years ago and is subdivided into two sections (van Vreeswyk et al., 2004, p. 70). The northern section is based on granite-greenstone terrane, an area bounded by faults. The southern section comprises Archaean and Proterozoic sequences (van Vreeswyk et al., 2004, pp. 39–41). The later Hamersley Basin sequence was laid down between 2.76 and 1.7 billion years ago (van Vreeswyk et al., 2004, p. 72). Within the determination area, this comprises primarily volcanic-sedimentary rocks of the Mt Bruce Supergroup. It forms an almost unbroken layer over the craton and includes volcanic rocks, shale, siltstone, sandstone, conglomerate, dolomite and BIF. The basin has been warped by tectonic plate movement and is folded in places (van Vreeswyk et al., 2004, pp. 41, 72). This has led to rugged terrain containing many rock outcrops and rock shelters.

Surface Lithographic Layer and Topography

The surface lithographic layer of the determination area can be broadly divided into three main sections: the Chichester Ranges in the north, the Hamersley Plateau in the south, and the Fortescue Valley, curving through the centre and to the west (van Vreeswyk et al., 2004, p. 70).

The Chichester Ranges comprise surface geology of quartzite and sandstone with basalt also being readily available (van Vreeswyk et al., 2004, pp. 70, 80). Rock outcrops are numerous and range from extensive rugged ridges to small, localised areas of exposed bedrock. This area contains numerous rocks suitable for knapping. In particular, ironstone and chert occur in stone and cobble form. Dolerite—which is often used for grindstones—and other sources of knappable material, such as basalt, also occur. Many of the larger BIF outcrops contain rock shelters, some of which retain evidence of occupation (e.g. Bird et al., 2016). Sediment

traps often exist inside such shelters, creating an opportunity for stratified sediments to build up (Cropper & Law, 2018, p. 17; Edwards & Murphy, 2003, p. 44).

The Hamersley Plateau comprises tablelands dissected by gorges with local relief of up to 450 m (van Vreesywk et al., 2004, p. 72). It is an extensive upland area stretching over 450 km and draining into the Fortescue River to the north and the Ashburton River to the south (Brown, 1987, p. 3). The geology is based on flat or folded sandstone and quartzite, with abundant BIF outcrops (van Vreeswyk et al., 2004, pp.70, 80). Numerous rock shelters occur in the larger outcrops. The surface geology of the Hamersley Ranges is based on jaspilite, chert, and shale with basalt and dolerite also available in the local landscape (van Vreeswyk et al., 2004, pp. 70–72; Brown, 1983, p. 5). Within the ranges, ridges with rock shelters were used as protection from the weather and as vantage points to survey the surrounding areas (Brehaut & Vitenburgs, 2001, p. 28; Clarke, 1983, pp. 3–24).

The Fortescue River Valley cuts through the middle of the determination area, curving around from the south to the north-west. It contains the Fortescue River, the Fortescue Marsh, and their surrounding alluvial plains (van Vreeswyk et al., 2004, p. 70). Archaeological sites within the valley may contain intact stratigraphic layers, which have been protected by these deposits. However, post depositional processes, including water movement, can move surface artefacts around in the horizontal plain (Rapp & Hill, 1998, p. 59). The valley is one of the most significant sources of silcrete in the Pilbara, although smaller deposits are found scattered around drainage channels throughout the region (Barnett & Commander, 1986 as cited in van Vreeswyk et al., 2004, p. 41). Silcrete is a reasonably common material type in knapped artefact assemblages throughout the region.

Climate

Situated within Australia's expansive arid zone, the Pilbara region encounters scorching summers and mild winters. Throughout the year, extreme temperatures prevail, with peak highs reaching approximately 39 degrees Celsius in December and January. Conversely, during the cooler months of June and July, minimum temperatures can drop to around 7 degrees Celsius. Typically, the eastern Pilbara receives minimal rainfall, although substantial downpours are common during the cyclone season, spanning from December to April. Newman Airport has recorded an average annual rainfall of 317.4 mm since 1971. According to data from the Bureau of Meteorology, the mean average temperature in the region has been 32.2 degrees Celsius since 1996.

Weather

For the duration of the first survey (23 to 31 May 2023) there was an average low temperature of 5.72˚C with an average high of 25.07˚C with zero rainfall and an easterly wind as recorded from Newman Airport (Bureau of Meteorology, 2024). The area reached a temperature of 14.80 to 17.60˚C by 9 AM and 22.40 to 26.60˚C by 3 PM with a relatively low humidity averaging at 16% (Bureau of Meteorology, 2024).

For the duration of the second survey (22 to 27 October 2023) there was an average low temperature of 20.33˚C with an average high of 38.30˚C with zero rainfall and variable wind direction as recorded from Newman Airport (Bureau of Meteorology, 2024). The area reached a temperature of 27.70 to 34.00˚C by 9 AM and 35.90 to 38.40˚C by 3 PM with low humidity averaging at 9.75% (Bureau of Meteorology, 2024).

Vegetation

In each of the three main surface geological areas within the Nyiyaparli Determination Area, different vegetation communities dominate. The Chichester Ranges support shrub steppe dominated by kanji bush (*Acacia pyrifolia* or *munturru* in Nyiyaparli) with ground cover of soft spinifex (*Triodia pungens*). Snappy gums (Eucalyptus leucophloia or marntarru in Nyiyaparli) also occur on the ranges. The Fortescue Plains contain areas of river valley and alluvial plains. The river valleys and drainage lines support river gum woodlands (*Eucalyptus camaldulensis* or *wurrangkura* in Nyiyaparli), while salt marsh, mulga-bunch grass and short grass communities thrive on the alluvial plains. The Hamersley Ranges and plateau sustain low mulga woodland (*Acacia aneura* or *wirntamarra* in Nyiyaparli) with snappy gums on the ranges and ground cover of spinifex (*Triodia brizoides*) (Thackway & Cresswell, 1995, p. 69). The survey area traversed all these areas.

Landscape Context

The survey area begins north of Fortescue Marsh in the lower Chichester Ranges and trends south-east through the marsh then south through the Christmas Creek area. The Roy Hill–Warrie Road, leading to the Christmas Creek Aerodrome, intersects with Christmas Creek. Notably, sections of the survey area align with existing corridors for these roads.

The survey area south of Newman traverses the road reserve Great Northern Highway. The highway leave the determination area in several places. As a result. The survey area is broken into discrete sections, which begin/end where the proposed cab le corridor enters/leave the determination area.

Vocus proposes the installation corridor for the cable to encompass disturbed ground and road or rail reserves (Internal Due Diligence Report, 2023, p. 2). Their drainage system policy, shaped by prior consultations with traditional owners (although not specifically with Nyiyaparli), aims to circumvent mature native trees and avoid native vegetation along waterways by routing the cable through conduits attached to bridges, where available. In areas lacking bridges, conduits with a diameter of 150 mm are bored at least 1.5 m deep beneath riverbeds. Vocus stipulates they will bore beneath drainage systems with cultural heritage significance, ensuring that bores commence and terminate at least 20 m outside riparian vegetation and well beyond any buffer zones established around the rivers. Vocus asserts that this approach does not disrupt the flow within the waterways being traversed.

Aboriginal Landscape

Natural resources within the Pilbara region are unevenly distributed across the landscape. Their availability in an area correlates with the likely intensity of occupation by Aboriginal people in the past. In particular, sources of water, food and stone influenced the desirability of a place for occupation. Nyiyaparli ancestors utilised plants for everything from food to making spears. Spinifex grasses (*Triodia* spp.) and more than a dozen species of Acacia dominate the vegetation in the determination area. Acacia alone provides resources for food (fruit, seeds, beans, and gum) medicine, firewood, bough sheds, brooms, paint (made from ash), boomerangs, spears, shields, and later, the handles for stock whips. The branches of several Acacia species are still used as fly swats. Witchetty grubs are found living in some Acacia trees (and also Eucalypts), and these were collected for food. Honey was collected from beehives within smooth-barked coolabahs *(Eucalyptus victrix* or *piyarrpa* in Nyiyaparli) and rough-leaved ghost gums (*Corymbia aspera* or *malykampa* in Nyiyaparli), which may display scars from the bark removal required to access the hives.

Spinifex provided seeds that were ground for damper, string and cordage for nets and resin gum for hafting spears (Pitman & Wallis, 2012; Roy Hill & KNAC, 2021). Today, Nyiyaparli People still utilise many of these plant resources in the same ways.

Past Aboriginal people used animals for various purposes (Hamm et al., 2016). There are accounts of animals being used as bait to catch birds of prey (e.g. Brown, 1987, p. 11). Baler shells were traded from coastal communities (Marsh et al., 2018, p. 4) and used to carry water (Clarke, 1983, p. 25), and dingoes were used for hunting (Koungolous & Fillios, 2020). Of course, numerous animals were food resources. Some of the Pilbara species still on the menu today include kangaroo, bush turkey, and goanna. Skeletal remains identified at archaeological ACH places also include quoll, bandicoot, bilby, possum, bettong, rock wallaby, bat, mouse, and rat. Various species of reptile, bird and frog, and emu eggs are also represented (Edwards & Murphy 2003, pp. 45–46; Cropper & Law, 2018, p. 91). Finally, although it is not often reported on, the role of animals as "informants" of environmental conditions should not be overlooked, as traditionally, Nyiyaparli People understood animal behaviour and its implications.

In the Pilbara, the most obvious correlations between environment and ACH are those involving water sources and rock outcrops. Rock outcrops were used as quarries for sources of material to make tools. Larger outcrops often contained rock shelters, which were sometimes used to shelter from the weather. In an arid environment, knowledge of water sources was essential to survival. Many large artefact scatters representing camp sites are associated with large water courses, which were also used as travel pathways. While plant and animal resources rapidly decay, leaving little evidence of exploitation, waterways and rock outcrops may retain occupational evidence for millennia.

Aboriginal Archaeology

ACH sites may be located anywhere in the environment. Different site types tend to be located in different areas based on the availability of natural resources. The following site types have been recorded in the Nyiyaparli Determination Area: artefact scatters, quarries, rock shelters, stone arrangements, potential archaeological deposits (PADs), modified trees, grinding grooves/patches, rock art, burials, spiritual/mythological sites, ceremonial sites and contact sites. Site types are categorised as either intangible or tangible. A description of each site type is provided below.

The following list of sensitive landforms includes intangible sites that may contain no physical evidence of human activity:

- Rock shelters,
- Rock outcrops,
- Terraces,
- Hills,
- Wetlands,
- Water sources,
- Areas with mature trees,
- Mound formations, and
- Raised areas with a good view of the surrounding landscape.

The following types of physical evidence are examples of tangible cultural heritage:

- Artefact scatter,
- Burial (skeletal remains),
- Built structures at contact sites such as fences or wells,
- Cache/repository,
- Camp:
    - Dry season,
    - Wet season,
- Ceremonial site,
- Food processing site,
- Gnamma hole/water source,
- Ground stone tools.,
- Grinding grooves/patches,
- Knapped stone or glass,
- Hunting site,
- Materials site,
- Modified/scarred tree
- Rock art:
    - Petroglyphs (engravings),
    - Paintings,
- Rock shelter,
- Structure and features (stone arrangement/standing stone),
- Quarries, and
- Wooden objects (either modified or clearly placed in an "unnatural" location such as at the back of a rock shelter).

Artefact scatters

Artefact scatters are the most commonly recorded site type in Nyiyaparli Country (as per the DPLH ACHIS website at the time of writing). They comprise concentrations of knapped and/or ground stone tools and cores that are too large and dense to be considered "background scatter" and appear to represent concentrated human activity. Other material types may occasionally include wood, glass, bone, or shell. Large artefact scatters tend to be located and associated with large, reliable water sources. In the determination area, these include rivers, such as the Oakover and the Fortescue, major creeks such as the Weeli Wolli or large pools or rock holes, or, of course, the Fortescue Marsh. These sites likely supported many people at a time. Reliable water sources could support larger populations of plants and animals and consequently larger populations of people, too. Smaller artefact scatters tend to be located further from water sources.

Rock shelters

The determination area contains many rock shelters in the Chichester and Hamersley Ranges, and the many smaller ranges and elevated areas. The majority of these have the potential to contain evidence of human habitation. Artefacts are often found on the surface of the rock shelter, on the talus slope below the entrance or on the ridge above the shelter. Other evidence of occupation includes stone arrangements.

These include pyramid-shaped rock piles (sometimes with a hollow centre), and rock walls, which may partially or completely seal off a chamber, entrance, or niche. Further evidence of occupation may include grinding patches or charcoal from hearths.

Mythological sites

Spiritual or mythological sites are sites associated with the Dreamtime or ancestral spirits, and they hold special meaning for Nyiyaparli People. They are associated with songs and stories and may be located in any place in the landscape. However, most major water sources and other geographical features have spiritual associations. These places are sacred and, for cultural/spiritual safety, should not be entered without the advice of Nyiyaparli Elders.

Ritual/ceremonial sites

Ceremonial sites are sites where Nyiyaparli People practiced or continue to practice lore and other ceremonial activities. They include song lines and *thalu* (resource increase/control) sites. Large ceremonial sites are typically associated with reliable water sources and periods of abundant food resources; song lines tend to follow water courses, minerology, or astronomical phenomena. However, smaller sites may be further from water. Nyiyaparli Elders should be consulted for advice when approaching these places.

Historical sites

Many places in Nyiyaparli Country have historical significance to Nyiyaparli People. These include old stockyards and wells (many of which were built by them during the station days). Some of these sites are intangible and do not contain any physical evidence of past activities. KNAC Representatives often have stories about these sites and the people they are associated with. They may be located anywhere in the landscape.

Water sources

The majority of water sources in Nyiyaparli Country are currently ephemeral, flowing only after seasonal rains. Nevertheless, many are part of traditional song lines or travel pathways, and are, therefore culturally significant.

Sub-surface cultural material

Sub-surface cultural material is also referred to as potential archaeological deposit (PAD). It is an area of sediment at least 15 cm deep within a rock shelter that has the potential to contain archaeological deposits (such as stone tools or hearths). It should be noted that the presence of surface artefacts is not necessarily a good indicator of archaeological deposit (Cropper & Law 2018, p. 450).

Quarries

Quarries are sites where naturally occurring stone resources show signs of the extraction of stone or ochre. They occur in rocky areas such as ridgelines, or as outcrops on rocky plains. Additionally cobbles of useable stone often occur in riverbeds.

Modified trees

Modified or "scarred" trees are trees with one or more scars from having a section of the bark removed with an axe to make tools or collect food such as honey. The scars start to grow over and heal. If the tree continues to grow, they become more elevated over time. The modified tree may be living or dead. Species in Nyiyaparli country that may display scars include—but are not limited to—snappy gum (*Eucalyptus leucophloia* or *marntarru* in Nyiyaparli), rough-leaved ghost gum (*Corymbia aspera* or *malykampa* in Nyiyaparli) and smooth-barked coolabah *(Eucalyptus victrix* or *piyarrpa* in Nyiyaparli) (Roy Hill & KNAC, 2021). Any large tree may display scarring. They are typically located close to permanent or ephemeral water sources.

Petroglyphs (engravings)

Rock art in Nyiyaparli Country typically consists of engravings (also called petroglyphs). Engraving sites are typically located adjacent to water sources, such as rock holes, rivers, or creeks. They are often on rocky pavements or cliffs surrounding such areas. Flat rock areas adjacent to water sources have the potential to contain rock art.

Grinding areas/grooves

Grinding grooves/patches are rock outcrops which show wear or polish from being used for grinding activities. These activities include grinding seeds—or other plant or animal material for food—, grinding ochre, or sharpening tools. As such they may be flat areas of polish or long, straight grooves. These may be associated with rock shelters or occur on open areas. They are sometimes found close to a water source and/or in association with artefact scatters (Fullagher et al., 2016, pp. 78, 1). Grinding grooves or patches may be found anywhere there are suitable large, flat rock outcrops.

Burials

Burials are sometimes encountered in rock shelters. These may be located within walled off chambers. They also occur in open areas, where they may be identified by rock piles.

Archaeological Survey Methods

The survey team conducted the archaeological survey to ACH avoidance standard. The methods applied to the Survey are as follows:

1. Archival and database research
2. Field survey and consultation
3. Data analysis

The Survey methods described in this section are designed in accordance with the following set of principles.

Principles

Principles relating to the management of activities applied in this document recognise that:

i. Places, objects, and landscapes have a range of different values for different individuals, groups or communities, and those values may change for an individual, group, or community over time; and
ii. those values include social, spiritual, historical, scientific, economic, and aesthetic values.
iii. the range of different values for places, objects and landscapes held by different individuals, groups, or communities, at particular times and over time, should be recognised and respected.
iv. places and objects exist within landscapes and should be considered in that context.
v. as far as practicable, in order to utilise land for the optimum benefit of the people of Western Australia, the values held by Aboriginal people in relation to Aboriginal cultural heritage should be prioritised when managing activities that may harm Aboriginal cultural heritage.

Archival and Database Research

Coongan completed archival and database research before the field survey to ascertain the extent of previous heritage research undertaken within the proposed development corridor. This relied primarily on the Aboriginal Heritage Inquiry System (AHIS), which is a database of ACH records and survey reports submitted to DPLH. The terminology used in this database has since been altered slightly since the first trip, and it has been renamed the Aboriginal Cultural Heritage Inquiry System (ACHIS). The database categorises ACH as follows:

- Registered sites,
- Lodged places (submitted but not yet assessed by the ACMC), and
- Historic records (previously called “stored data” either determined not to be a site by the ACMC *or* disturbed/destroyed under Section 16 or Section 18 approval under the Act).

The Coongan consultants entered the survey areas into ACHIS. The purpose of this search was:

- To identify any previously recorded ACH within the survey areas,
- To determine the types of sites/places within the survey area to contribute to predicting what ACH might be discovered during the Survey, and
- To ascertain what heritage surveys had been previously undertaken within the survey area and submitted to DPLH.

Field Survey and Consultation

Coongan designed a survey method to provide Vocus with an alignment within the survey area clear of ACH values. As Vocus do not require the whole survey area to be surveyed, the plan involved the survey team surveying a smaller corridor *at least* 10 m wide and generally wider, due to the number of people in each survey team. The team was to walk transects spaced between 5 and 25 m apart depending on ground surface visibility and terrain. This spacing samples 100% of the area surveyed.

The method was designed to enable the survey team to identify and record any ACH located within the ≥10 m alignment and provide deviations around it, still within the greater survey area.

The survey team recorded all places deemed likely to meet the Section 5 and/or 6 criteria of the Act to ACH avoidance level. For newly identified ACH places, this involves:

- Identification of the ACH place type/s as per ACHIS terminology,
- Recording a boundary to encompass all the heritage values of the ACH using a Samsung tablet,
- Brief recording of the nature of the ACH place (describing the ACH; photography), and
- Marking the boundary of the ACH at intervals (as practical) with pink and black heritage tape.

Designation of Archaeological ACH Boundaries

The Coongan consultants determined ACH boundaries using a number of factors, including the extent and/or density of heritage features and objects, and/or natural or artificial features (for example, roads, creek banks or outcrop margins), the potential for disturbance to impact the ACH, and the significance of the place type. They consulted with the KNAC Representatives regarding all boundaries to ensure all important and significant ACH values were sufficiently encompassed.

Stone Artefact Recording

If the consultants deemed a collection of Aboriginal objects (artefacts) to be of insufficient density, or importance to constitute a site under the meaning of the Act, artefacts were recorded as isolated. (For the second trip, the ACH Act was also taken into consideration; although its repeal had been announced, it was still in effect.) This involved recording location, material type and tool type. Each artefact was then returned to its original location and orientation.

The consultants deemed artefacts to be isolated unless one or more of the following conditions existed:

- The heritage place displayed clear, purposive activity.
- The heritage place and its objects were relatively intact and in sufficient condition for an assessment of their importance and significance to be made.
- The material was identified in association with other heritage place elements; and/or
- The KNAC Representatives indicated that the material held cultural significance and requested that it be recorded as a heritage place.

Consultation

The Coongan consultants held a briefing meeting with the KNAC Representatives at the beginning of the Survey to discuss the known ACH within the proposed corridor and explain the proposed survey methodology. The KNAC Representatives present approved the Survey methodology.

At the end of the Survey, the Coongan consultants held a debrief meeting with the KNAC Representatives. This enabled them to provide feedback on the survey methodology and recommendations. In addition, all Coongan heritage reports are reviewed by KNAC. This process ensures that:

- Culturally sensitive information is appropriately indicated,
- The wider group has a chance to assess the recommendations, and
- Amendments are made in line with the suggestions of the KNAC and/or any existing Agreements.

Whilst any feedback provided is considered during the final edit, Coongan utilises professional standards to respond to feedback. Coongan reports impartially as an independent party on the results of the Survey.

ACH Avoidance

ACH avoidance level recording is designed to enable Vocus to effectively avoid the ACH in the course of the proposed works. It is not sufficient for a significance assessment to be made, or for the submission of heritage information submission forms (HISFs) to DPLH.

Survey Results – South of Newman

Location

The survey area south of Newman is primarily along the Great Northern Highway. Vocus' cable alignment leaves the Nyiyaparli Determination Area in several places, returning towards the south. As a result, the survey area is split into three discrete sections, all within similar physical environments.

Environment

The survey area south of Newman is predominantly on flat, silty land within flood plains. At the time of the Survey, parts of the flood plains were flooded or slick with mud due to recent rains, while other areas had turned to dry, brittle, cracked silty clay. Yet other areas contained small but steep erosional gullies. The area is vegetated with open Acacia woodland dominated by scattered mulga trees. Bush tomato (*Solanum diversiflorum* or *kapumarta* in Nyiyaparli) was also identified. Cattle have trampled some areas. The ground surface is red sandy silt overlaid with sparsely distributed patches of banded iron formation (BIF) gravel interspersed with bare areas. Ground surface visibility was generally high (up to 100%) due to the disturbed nature of the survey area within the road reserve. A few areas contained dense spinifex (*Triodia* spp.) or leaf litter, and in these places, visibility was as low as 50%.

As it is located largely within road reserve, the survey area is disturbed in many places. The main forms of disturbance are vehicle tracks and cattle trampling. It is also likely that some areas have been levelled for the construction/maintenance of the highway.

Summary of Archival and Database Research

The results of the archival and database research revealed five DPLH places within the survey areas south of Newman (5). No other previously recorded places are known to be within the survey areas.

Table 5: DPLH ACH within the Survey Area South of Newman

DPLH ID:	DPLH Name:	DPLH Status:	Site Type:
17388	Tjimmari Quarry	Registered	Ceremonial, quarry
17390	Jingudarrdi (Round Hill)	Lodged	Ceremonial/mythological
35614	Wartukapunmara	Registered	Ceremonial/mythological
38827	Minderoo Well	Registered	Artefact/scatter/ceremonial/historical /mythological
11237	DJAKATITINA HILL	Registered	Ceremonial, repository/cache, camp, other

Some of the DPLH sites/places have more than one site type therefore the total count of site types is larger than the total number of sites/places. The site types within the survey area south of Newman are: one artefacts/scatter, five ceremonial, one historical, three mythological, one camp, one repository/cache and on unspecified.

Predictions

The proposed corridor south of Newman is primarily located within the road reserve and is generally disturbed. It is likely that most of the ACH within the area has been disturbed or destroyed. Based on known DPLH ACH in the area, the most likely archaeological site types to be identified are artefacts, comprising scatters, quarries or camps. Quarries are dependent on outcrops or boulders of knappable material. However, previous road works are likely to have levelled any such outcrops. Historical archaeological sites are generally represented by built structures. Minderoo Well is the only DPLH historical site within the proposed corridor south of Newman. It is expected that any historical sites along a main road would have been identified during previous surveys or during road construction. Therefore, it is unlikely that any will be located during the Survey. Repositories/caches are typically located in rock shelters. It is very unlikely that any rock shelters are within the proposed corridor within the road reserve as these areas are mostly levelled.

Mythological and ceremonial sites are cultural and may contain no tangible (archaeological) evidence of occupation. Several are located within the proposed corridor. While such sites would be inspected for archaeological evidence, they are expected to be assessed during an anthropological survey.

Summary of Field Survey Results

Figure 5, Figure 6 andFigure 7 show the sections of the survey area south of Newman that were completed during the first trip.

- No DPLH sites or places are located within the surveyed areas,
- Six (6) new ACH places were identified and recorded:
    - CO2312-01
    - CO2312-02
    - CO2312-03
    - CO2312-04
    - CO2312-05
    - CO2312-06, and
- 525 isolated artefacts were recorded (these are included in the accompanying spatial data.)

Statement of Significance

An ACH avoidance methodology does not result in sufficient data for a comprehensive significance assessment to be made.

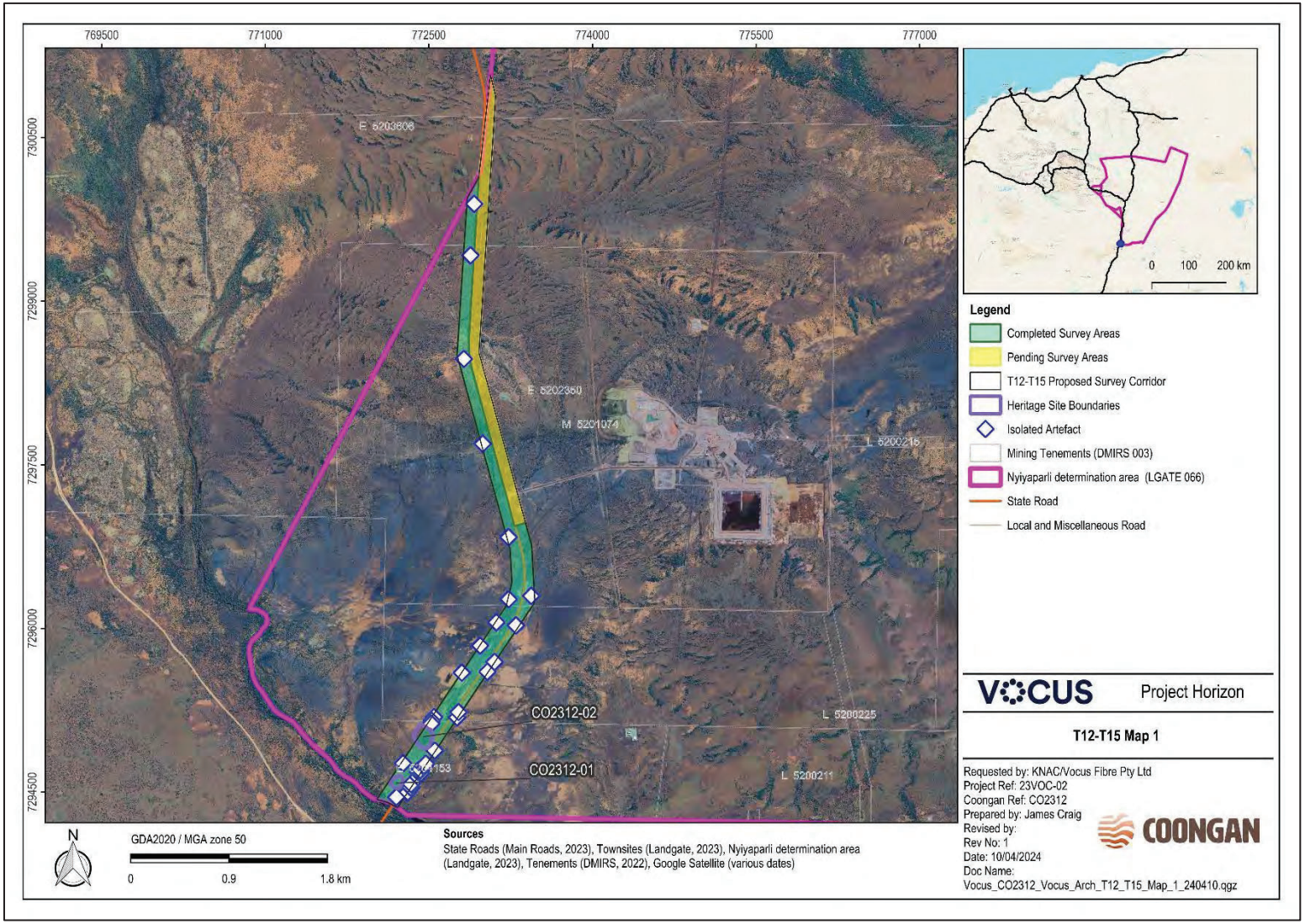

Figure 5: South of Newman T12–T15 Map 1

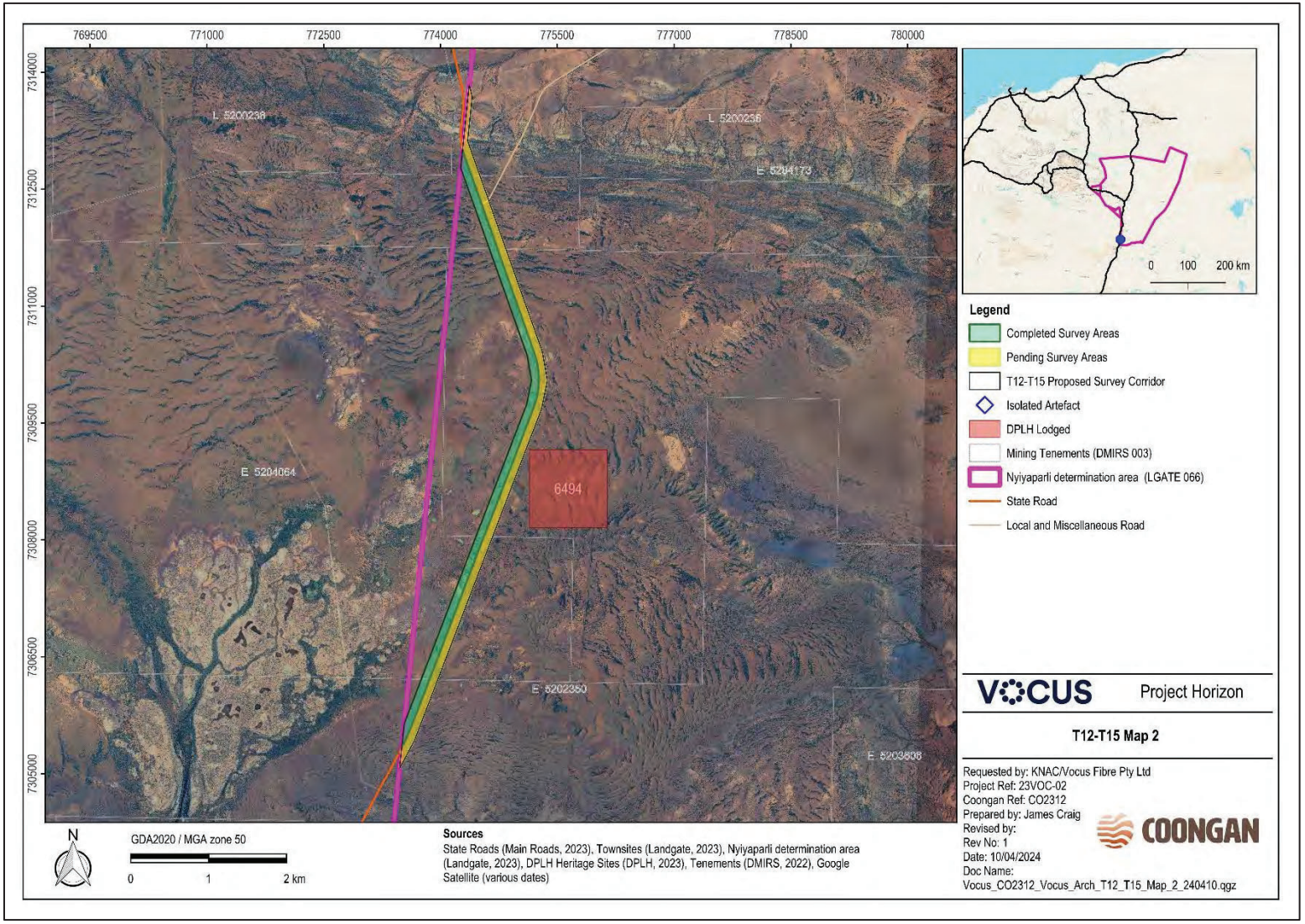

Figure 6: South of Newman T12–T15 Map 2

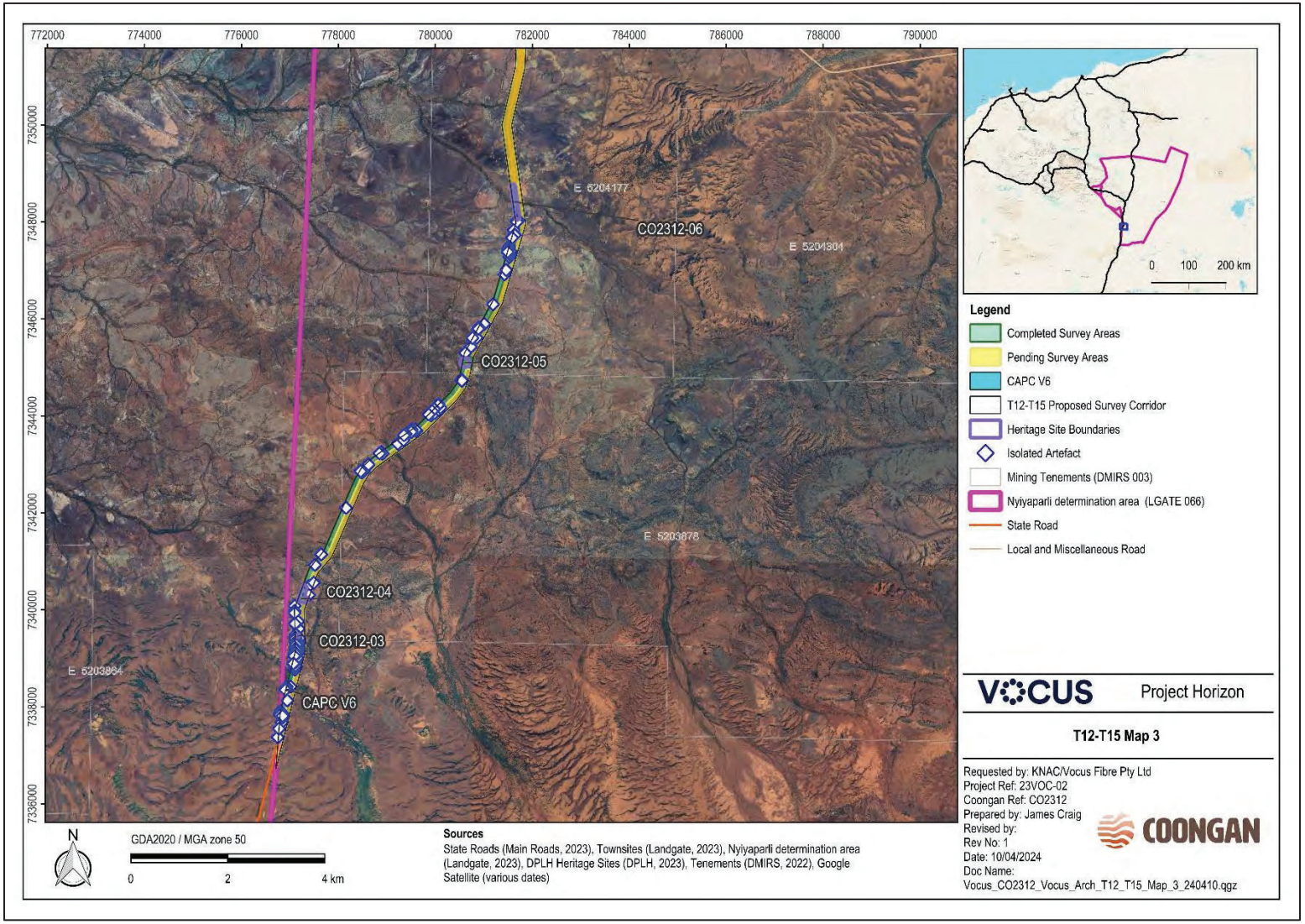

Figure 7: South of Newman T12–T15 Map 3

CO2312-01

CO2312-01 is characterised by a large, moderate-density artefact scatter measuring 121 m north–south and 115 m east–west. It was recorded to ACH avoidance standard on 23 May 2023.

Location

CO2312-01 is located in the north-western road reserve of the Great Northen Highway approximately 120 km south of Newman and 10 km north of Collier Range National Park (Figure 8, Figure 13).

To the north, south and west, the boundary was based on the extent of the ACH material, in this instance, flaked artefacts, which are most concentrated towards the centre of the ACH place. The eastern boundary was defined by the Great Northern Highway. The boundary of the place was established by visual inspection of the area. Once defined, it was marked by flagging tape, and GPS coordinates were collected. The KNAC Representatives assisted with determining the boundary and were satisfied that it encompassed all the ACH values of the place.

Figure 8: CO2312-01 looking south

ACH place description

CO2312-01 is situated on an alluvial plain approximately 220 m north-east of a tributary of Ilgari Creek. During the Survey, the ground surface visibility ranged from 80% to 95%. The ground surface is generally brownish-red sandy clay overlaid with gibber of laterite and manganese. Occasional cobbles and boulders of laterite conglomerates and goethite cobbles are dispersed across the surface. Some areas contain small erosional gullies or clay pans. The ground is mostly bare, with scattered spinifex (*Triodia* spp.), and small tufted grasses, mulla mulla (*Ptilotus exaltatus*), bush

tomato (*Solanum* spp.), *Calandrinia creethae*, creeper vines, and other small woody herbs. The lower stratum is primarily small woody and floral herbs. Mid and upper stratums are dominated by *Acacia aneura, Acacia* spp., *Senna glutinosa, Eucalyptus* spp., and *Grevellea* spp. (Figure 9).

The assemblage comprises flakes, flake fragments and single platform cores featuring minor retouch and use-wear. The material types represented are silcrete, chert, chalcedony, and banded ironstone formation (BIF). The flakes are generally medium sized, averaging about 5 cm in length (Figure 10, Figure 11 and Figure 12).

The place is in a reasonable condition. The remains of a small campfire are located on the western side of the ACH place. Modern detritus, such as, glass bottles, cans, tins, rubber fragments, polycarbonate plastic, and numerous other artefacts strewn across the surface.

The KNAC Representatives indicated that all places along this stretch of the survey area would be related, with people travelling along waterways and camping nearby. This includes artefact scatter CO2312-02, situated 320 m to the north-east.

Potential impact

The proposed works have potential to destroy the south-eastern part of CO2312-01. The potential cultural impact of the proposed works would be the loss of physical representation of history.

Recommendations for CO2312-01

Coongan makes the following recommendations in regard to CO2312-01:

- The KNAC Representatives would prefer that CO2312-01 be avoided entirely by the proposed works,
    - One possibility for avoidance is to bore under the ACH place. This was discussed with the KNAC Representatives, who approved this method. Vocus should only do this if there will be no impact to the ground surface. If Vocus prefers this option, they should consult further with KNAC.
    - Alternatively, Vocus could deviate the cable corridor around the ACH place to the south-east.

Figure 9: CO2312-01 looking east

Figure 10: Silcrete flake at CO2312-01

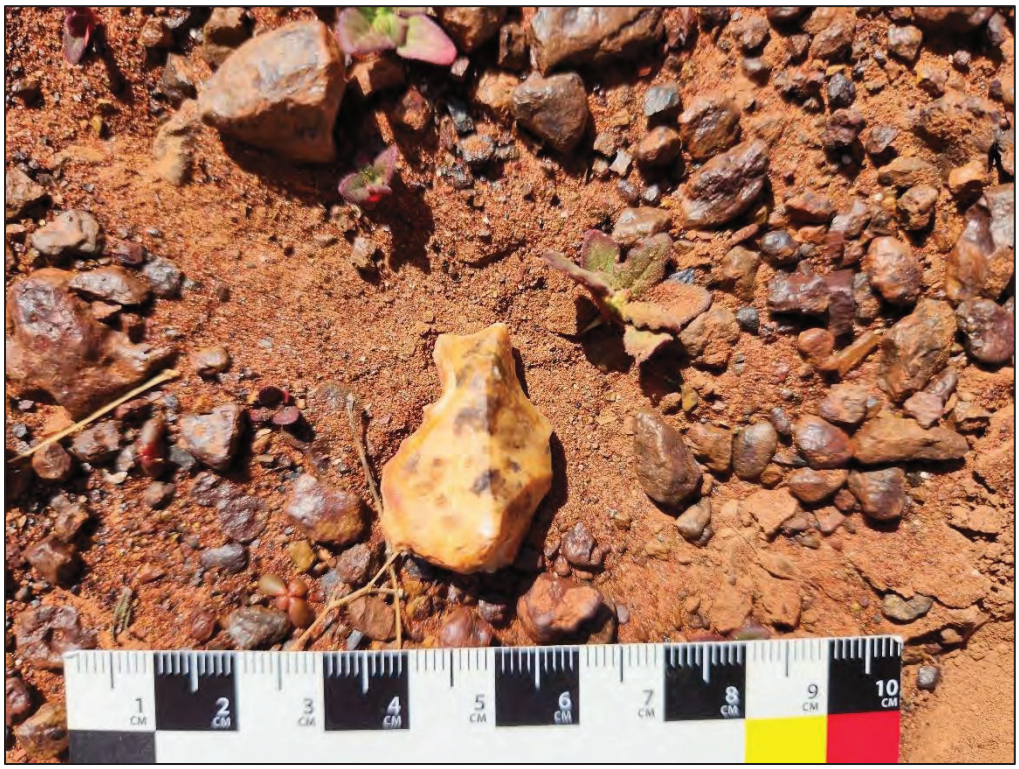

Figure 11: Flake at CO2312-01

Figure 12: Retouched flake at CO2312-01

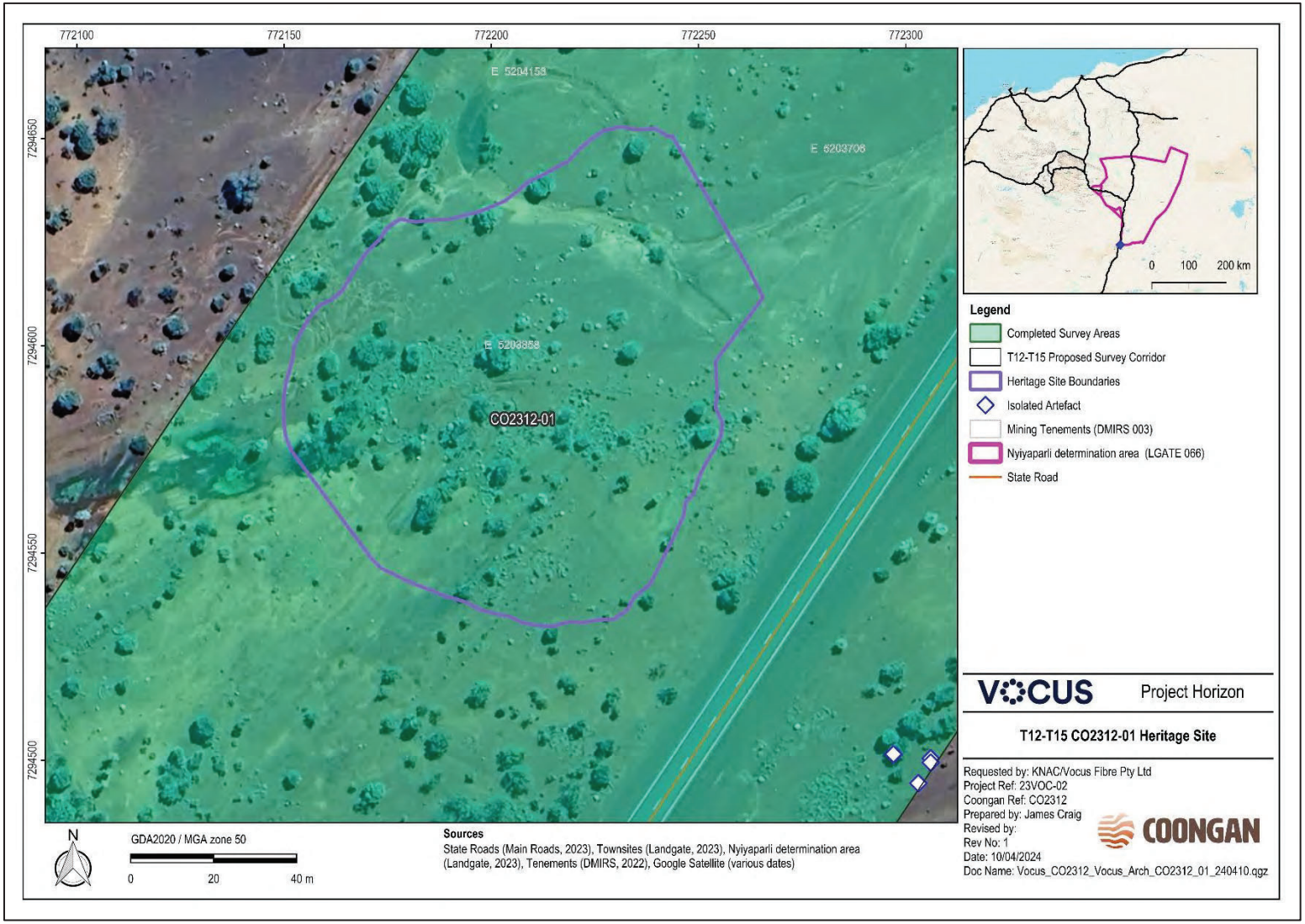

Figure 13: CO2312-01

CO2312-02

CO2312-02 is characterised by a very large low-density artefact scatter measuring 224 m north–south and 179 m east–west (Figure 14). It was recorded to ACH avoidance standard on 24 May 2023.

Location

CO2312-02 is located in the north-western road reserve of the Great Northen Highway approximately 120 km south of Newman and 10 km north of Collier Range National Park.

To the north, south and west, the boundary was based on the extent of the ACH material, in this instance, flaked artefacts, which are most concentrated towards the centre of the ACH place. The eastern boundary was defined by the Great Northern Highway. The boundary of the place was established by visual inspection of the area. Once defined, the boundary was marked by flagging. The KNAC Representatives assisted with determining the boundary and were satisfied that it encompassed all the ACH values of the place (Figure 19).

Figure 14: CO2312-02 looking south

ACH place description

CO2312-02 is situated on an alluvial plain approximately 550 m north-east of a tributary of Ilgari Creek. During the Survey, the ground surface visibility was 95% to 100%. The ground surface is generally brownish-red sandy clay overlaid with scattered gravel of pebbles. At the time of the Survey,

the site had very little vegetation cover. It comprised open Acacia woodland including shrubs and small trees such as mulga (Figure 15).

The assemblage comprises numerous BIF and silcrete flakes, a basal grindstone fragment and a muller broken into two pieces. Some flakes feature minor retouch (Figure 16, Figure 17Figure 18).

The KNAC Representatives indicated that all places along this stretch of the survey area would be related, with people travelling through hunting areas. This includes artefact scatter CO2312-01, situated 320 m to the south-west.

The ACH place is in a reasonable condition with no obvious surface disturbance. Telstra services have been put through the area underground, however they do not appear to have not affected the integrity of the surface scatter.

Potential impact

The physical impact of the proposed works would be the destruction of CO2312-02. For the KNAC Representatives and other Nyiyaparli People, the potential cultural impact of the proposed works would be the loss of ability to visit a place with a tangible connection to their ancestors and feel connection with Country.

Recommendations for CO2312-02

Coongan makes the following recommendations in regard to CO2312-02:

- The KNAC Representatives would prefer that CO2312-01 be avoided entirely by the proposed works.

Figure 15: CO2312-02 looking east

Figure 16: Mulla at CO2312-02

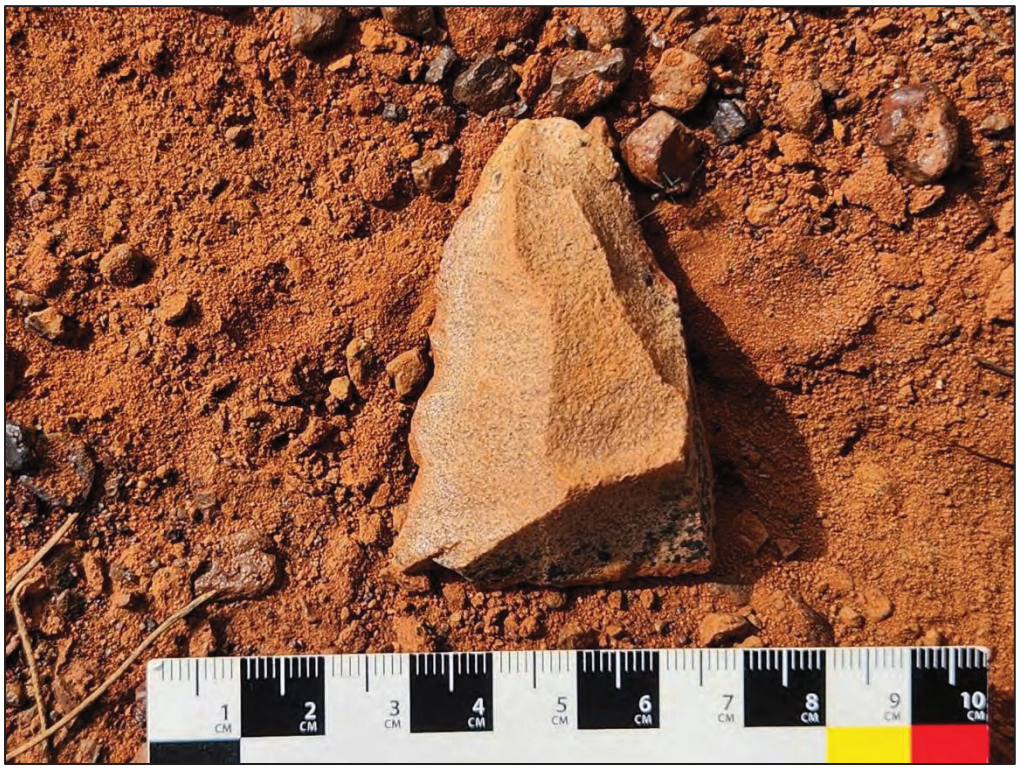

Figure 17: Silcrete flake (dorsal) at CO2312-02

Figure 18: Silcrete flake (ventral) at CO2312-02

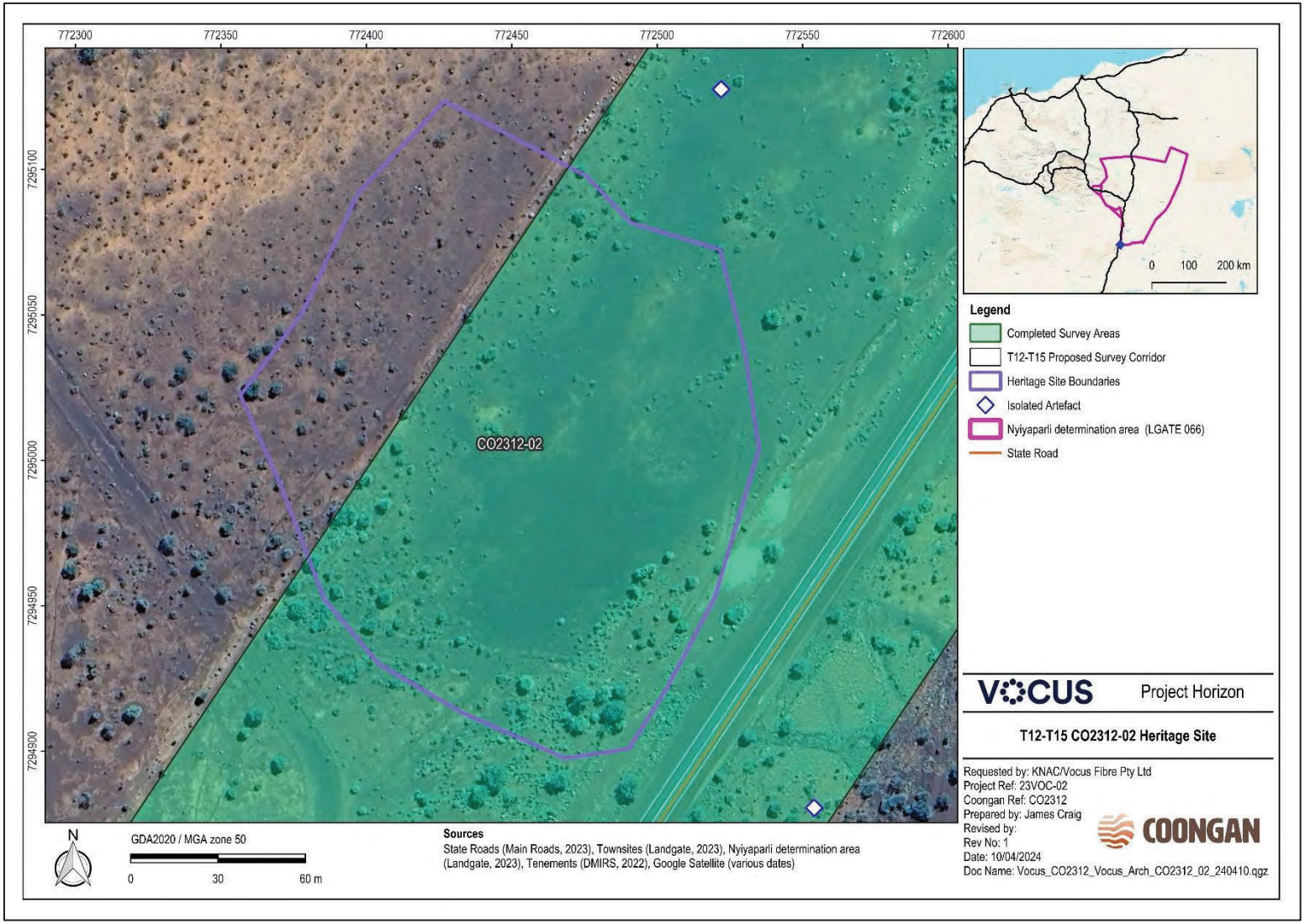

Figure 19: CO2312-02

CO2312-03

CO2312-03 is characterised by a large, moderate-density artefact scatter (Figure 20, Figure 25). It measures 81 m north–south and 79 m east–west. It was recorded to ACH avoidance standard on 27 May 2023.

Location

CO2312-03 is located in the western road reserve of the Great Northen Highway, approximately 73 km south of Newman. Sheepskin Well is located 2.5 km to the north-east. CO2312-03 is 650 m south of artefact scatter CO2312-04.

The boundary was defined based on the concentration of artefacts, disturbed areas and a rock outcrop. The western side is bounded by a drainage ditch, while the eastern boundary abuts the Great Northern Highway. The northern side is marked by an area disturbed by vehicle tracks. The southern boundary is marked by a small low rock outcrop trending east–west. The boundary was established by visual inspection of the area. Once defined, it was marked by flagging tape. The KNAC Representatives participated in defining the boundary and were satisfied that the boundary encompassed all the ACH values of the place.

ACH place description

CO2312-03 is situated on a broad flat plain, approximately 280 m west of an ephemeral creekline. The soil is reddish-brown silt and clay overlaid by sand and sub-rounded to rounded to pebbles of ironstone/BIF and quartz. To the south lies a low outcrop of BIF. The ACH place is in an area of open Acacia woodland punctuated by occasional mulga trees (*Acacia aneura*) and Eucalypts (Figure 21). During the Survey, ground visibility ranged from approximately 90% to 98%. The ACH place is in fair condition. Some disturbance is apparent at eastern and northern edges, which appear to have been levelled.

The assemblage comprises flakes, flake fragments, multi-platform cores, basal grindstone fragments and a quartzite manuport. Some of the flakes show signs of retouch. The material types represented are silcrete, chert, quartz, chalcedony and basalt (Figure 22Figure 23Figure 24).

The KNAC Representatives indicated that all places along this stretch of the survey area show a pattern of people travelling through Country. They stated that this would occur more in winter than summer as it would be very open and hot in summer, but the mulga trees could provide a windbreak. One of them noted that it is good country for hunting.

Figure 20: CO2312-03 looking south

Potential impact

The physical impact of the proposed works on CO2312-04 would be the destruction of the artefacts. The cultural impact of destroying the ACH place would be loss of traditional knowledge. One of the KNAC Representatives stated:

> ***"Like when you lose a best friend, and you can't go back to that house...it's like that...that's still happening today for families in community...they can't go to that house coz they lost that family member."***
>
> (pers.com., KNAC Representative—name withheld—27 May 2023)

He went on to say that if they lose these places they cannot go there and use them to teach the younger generations:

> ***"I mean what are we going to teach them? There's nothing there to teach."***
>
> (pers.com., KNAC Representative—name withheld—27 May 2023)

Recommendations for CO2312-03

Coongan makes the following recommendations in regard to CO2312-03:

- The KNAC Representatives would prefer that CO2312-03 be avoided by the proposed works.
    - One possibility for avoidance is to bore under the ACH place. This was discussed with the KNAC Representatives, who approved this method. Vocus should only do this if there will be no impact to the ground surface. If Vocus prefers this option, they should consult further with KNAC.

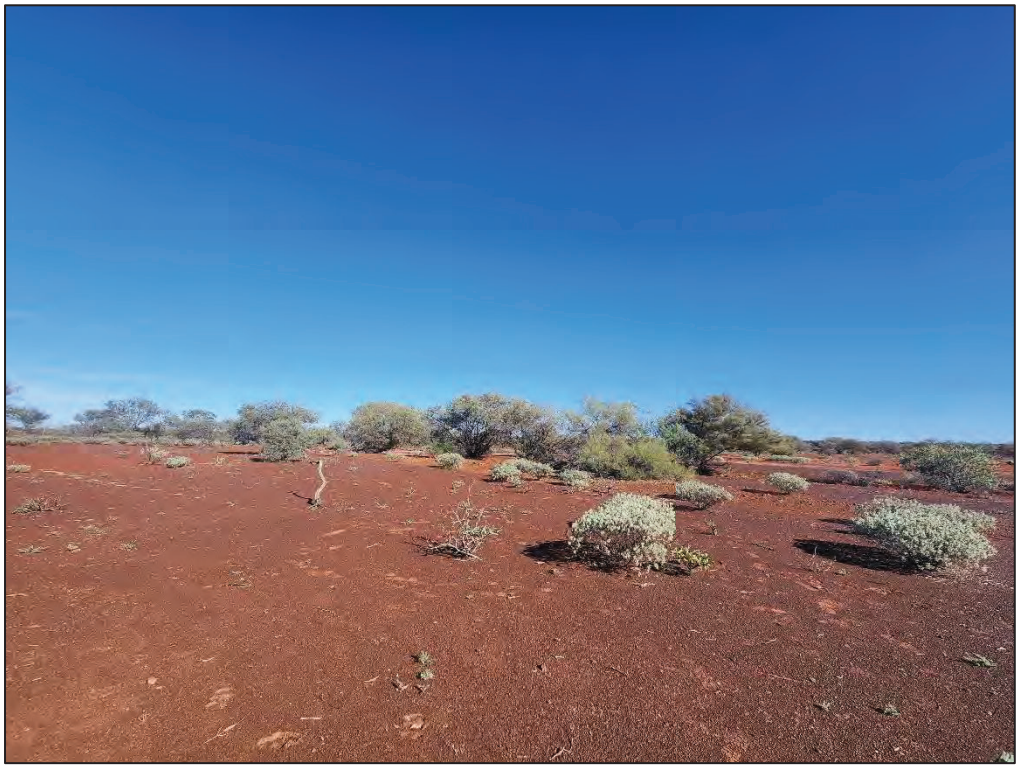

Figure 21: CO2312-03 looking west

Figure 22: Chert multi-platform core at CO2312-03

Figure 23: Basalt basal grindstone fragment at CO2312-03

Figure 24: Flake at CO2312-03

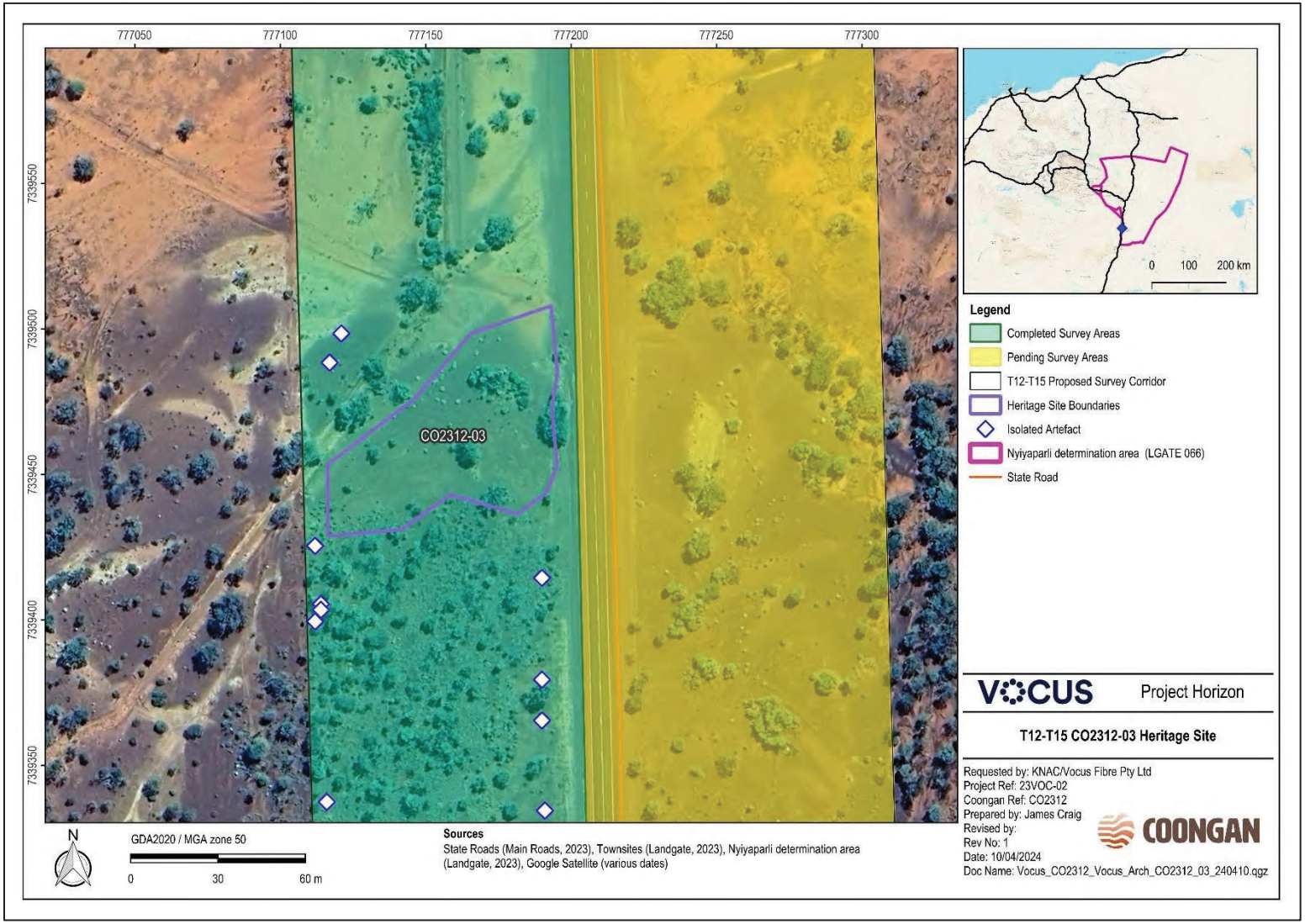

Figure 25: CO2312-03

CO2312-04

CO2312-04 is characterised by a very large, moderate-density artefact (Figure 26, Figure 31). It was recorded to ACH avoidance standard on 27 May 2023. The ACH place measures 235 m north–south and 414 m east–west.

Location

CO2312-04 is located across both the eastern and western road reserves of the Great Northern Highway, approximately 65 km south of Newman.

The ACH place boundary was designed to encompass the extent of the cultural material. The KNAC Representatives assisted with determining the boundary and were satisfied that it encompassed all the ACH values of the place.

Figure 26: CO2312-04 looking north

ACH place description

CO2312-04 is an artefact scatter situated on a flat plain and incorporates ACH on both sides of the Great Northern Highway. Gilgai are present 10 m to the north-west of the ACH place indicating that the area likely becomes wetland in the rainy season. An ephemeral creekline is located approximately 300 m to the east. The ground surface within the ACH place is reddish-brown clay overlaid with sandy silt and BIF pebbles and rocks up to 15 cm in maximum dimension (Figure 27). The place is vegetated with spinifex (*Triodia* spp.) and open Acacia woodland dominated by mulga.

The assemblage comprises flakes, broken flakes, single and multi-platform cores, core fragments and debitage. The artefacts were manufactured from silcrete, chert, chalcedony, and BIF (Figure 28Figure 29,Figure 30). Some flakes show signs of use-wear and/or retouch.

CO2312-04 is located 645 m north of artefact scatter CO2312-03 and 5.5 km south of potential burial and artefact scatter CO2312-05.

One of the KNAC Representatives said that he still uses artefacts when he goes hunting and his knife is blunt. He will either find an artefact or make one. He learnt to knap from his dad:

"to skin kangaroos still these days. Plus, still use it for the future younger generations... My dad taught me, and I teach my son."

(pers.com., KNAC Representative—name withheld—27 May 2023)

Potential impact

The site is in fairly poor condition being bisected by the highway and bounded by disturbance on all sides. The physical impact of the proposed works on CO2312-04 would be the destruction of the artefacts. The cultural impact of destroying the ACH place would be loss of traditional knowledge.

Recommendations for CO2312-04

Coongan makes the following recommendations in regard to CO2312-04:

- The KNAC Representatives would prefer that CO2312-04 be avoided by the proposed works.
    - One possibility for avoidance is to bore under the ACH place. This was discussed with the KNAC Representatives, who approved this method. Vocus should only do this if there will be no impact to the ground surface. If Vocus prefers this option, they should consult further with KNAC.
    - Alternatively, if Vocus prefer to deviate around this ACH place, it is recommended that they consult with KNAC to arrange further survey around the ACH place to determine an acceptable deviation.

Figure 27: CO2312-04 looking south-east

Figure 28: Chert single platform core at CO2312-04

Figure 29: Chert flake at CO2312-04

Figure 30: Silcrete broken flake at CO2312-04

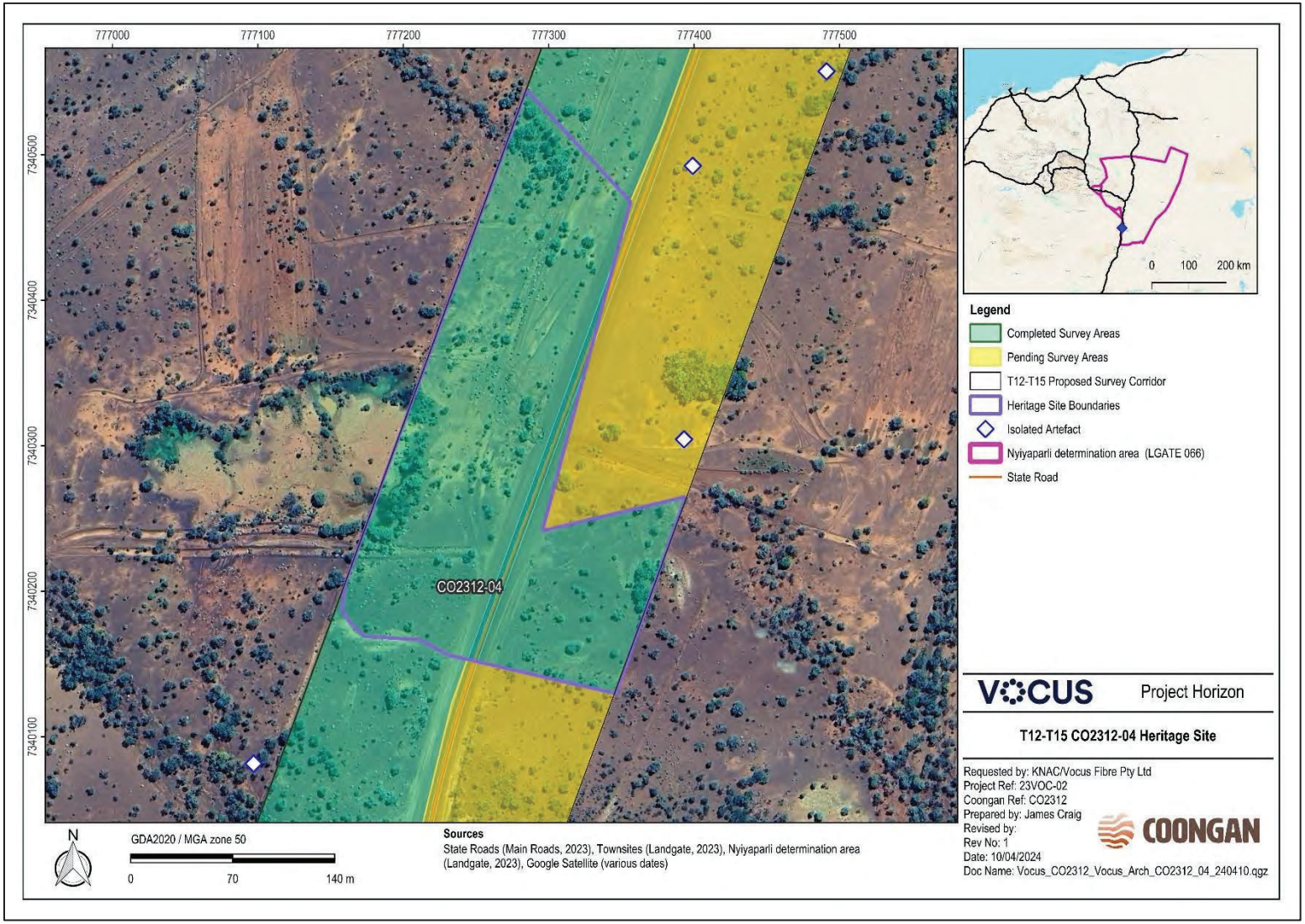

Figure 31: CO2312-04

CO2312-05

CO2312-05 is very large ACH place characterised by a potential burial site and an artefact scatter (Figure 33, Figure 36). It was recorded to ACH avoidance standard on 30 May 2023. The place measures 200 m north–south and 200 m east–west.

Location

CO2312-05 is located 64 km south of Newman on the western side of the Great Northern Highway road reserve, although the boundary also encompasses 43 m of the eastern road reserve. This ACH place is located 2.9 km south of artefact scatter CO2312-06 and 5.6 km north-east of artefact scatter CO2312-04.

The boundary is a 200 m diameter around the potential burial to ensure that it is not disturbed. It also encompasses a small associated artefact scatter. The KNAC Representatives were satisfied that the boundary encompassed all the ACH values of the place.

Figure 32: View south-west from CO2312-05

ACH place description

CO2312-05 is a potential burial situated on a plain adjacent to a north–south ridgeline to the west. The ground surface is reddish-brown sandy silt overlaid with poorly sorted angular gravel from pebbles to boulders dominated by silcrete but with some basalt. The vegetation is Acacia woodland dominated by mulga (*Acacia aneura*) and scattered spinifex (*Triodia* spp.) (Figure 32, Figure 34).

The main feature, which was described as a burial by the KNAC representatives, consists of a series of rocks in a circular pattern (Figure 35). Three silcrete flakes were identified nearby e.g. Figure 35.

Potential impact

The physical impact of the proposed works on CO2312-05 would be the desecration of the potential burial and human remains. The stone circle is intact and one of the KNAC Representatives said he thought it was the grave of a child due to the:

"Big rock at the top and little ones around."

(pers.com., KNAC Representative—name withheld—30 May 2023)

To the KNAC Representatives, the cultural impact of destroying the ACH place would be loss of a tangible connection to their ancestors. One of them stated it felt good to be able to visit that place because it created a feeling of closeness to his nan and other Elders.

Recommendations for CO2312-05

Coongan makes the following recommendations in regard to CO2312-05:

- The KNAC Representatives request that CO2312-05 be avoided by the proposed works.

Figure 33: CO2312-05 potential burial

Figure 34: View north-east from CO2312-05

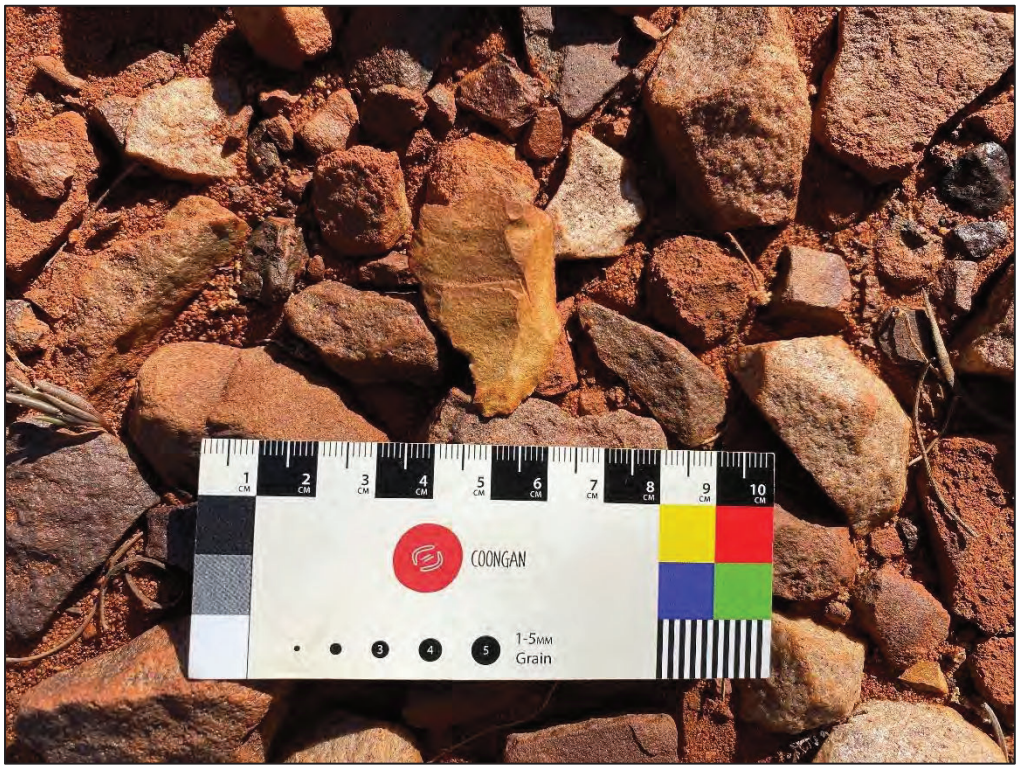

Figure 35: Silcrete flake at CO2312-05

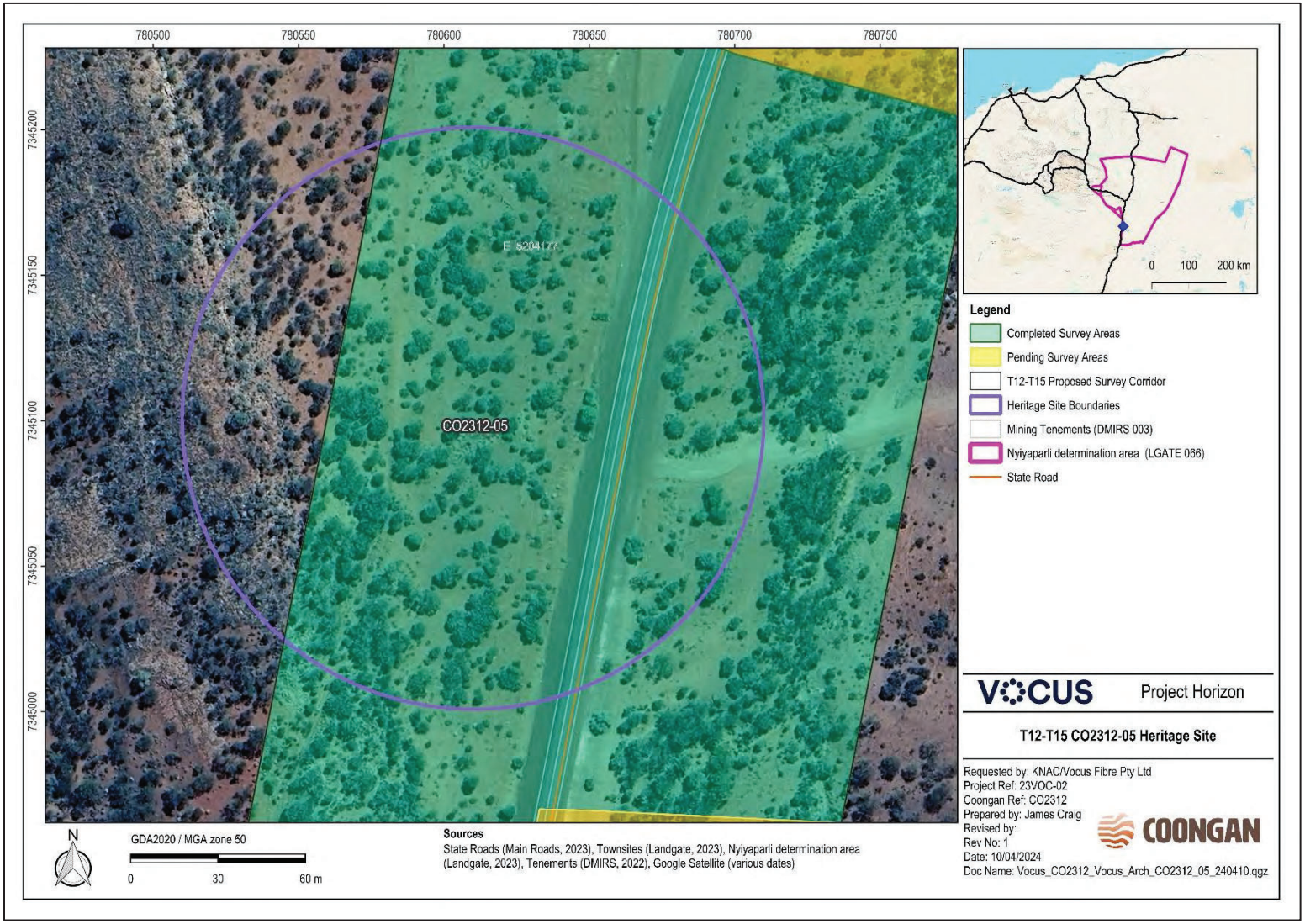

Figure 36: CO2312-05

CO2312-06

CO2312-06 is a very large ACH place comprising a water source and moderate-density artefact scatter (Figure 37, Figure 41). It measures 749 m north–south and 208 m east–west. It was recorded to ACH avoidance standard on 27 May 2023.

Location

CO2312-06 is located in the western road reserve of the Great Northern Highway. It is approximately 60 km south of Newman and 3 km north of potential burial CO2312-05.

The boundary was determined by the extent of cultural material in the north and south and the Great Northern Highway to the east. The boundary outside the survey area to the west remains undetermined.

Figure 37: CO2312-06 looking west

ACH place description

CO2312-06 is situated on an alluvial plain punctuated by low hills and ridgelines. It is bisected by a creekline running north-east to south-west (Figure 38). The ground surface is gravel with occasional larger rocks near the creekline. The vegetation comprises Acacia woodland dominated by mulga (*Acacia aneura*). The occasional bush tomato plant (*Solanum diversiflorum*) was also identified.

The assemblage comprises flakes, broken flakes, single and multi-platform cores and a basal grindstone fragment (Figure 39, Figure 40). The artefacts exhibit moderate retouch and use-wear and have been manufactured from a variety of raw materials including silcrete, chert, chalcedony, basalt, crystal quartz, mudstone, and BIF.

Potential impact

CO2312-06 is reasonably intact except for a narrow corridor housing an underground Telstra cable. The physical impacts of the proposed works would be the destruction of the ACH. In addition, potential impacts to water movement, such as installing culverts, may change the water flow and move artefacts around. The cultural impact of destroying the ACH would be loss of traditional knowledge.

Recommendations for CO2312-06

Coongan makes the following recommendations in regard to CO2312-06:

- It is recommended that Vocus deviate around the ACH place by using the deviation that was surveyed on the eastern side of the road.

Figure 38: Creek through CO2312-06

Figure 39: Chert flake at CO2312-06

Figure 40: Basal grindstone fragment at CO2312-06

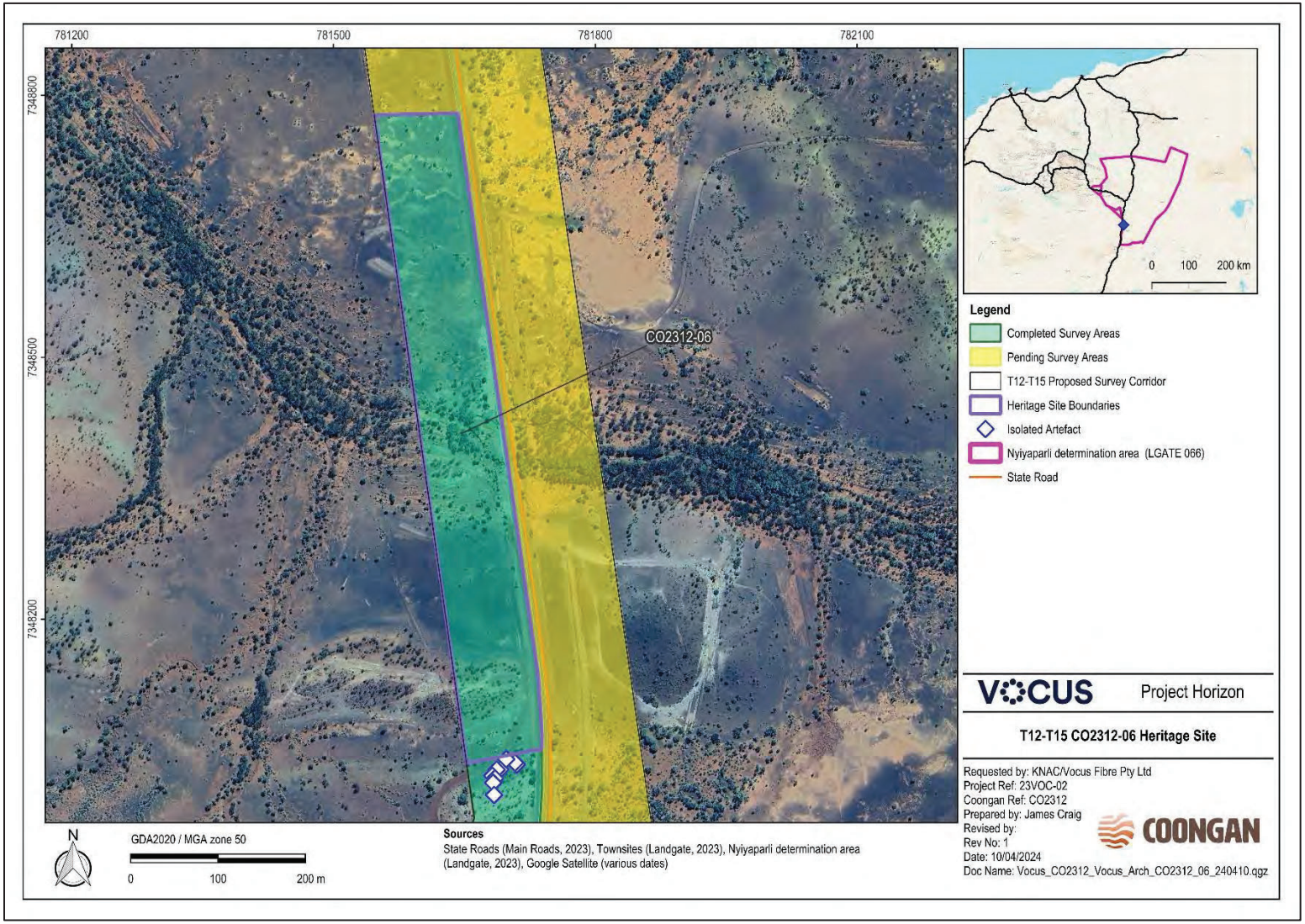

Figure 41: CO2312-06

Survey Results – North of Newman

Location

The survey area north of Newman runs from Christmas Creek Camp, in the north, to Newman in the south. It runs along Cloudbreak Access Road, Chichester Road and Marble Bar Road, passing through Fortescue tenement and Roy Hill Station. In addition to the main corridor (T14–T15), this survey area also includes lead-in paths and CEV laydown areas (Table 2). These areas are close to, or within, T14–T15 (Figure 42 and Figure 43).

Environment

The T14–T15 section of the survey area north of Newman covers low-lying, flat terrain. It intersects with Fortescue River (*Mangkurtu*) drainage creeks, such as Kalgan Creek, where the terrain is flat or undulating and contains occasional scalable ironstone and BIF outcrops. Beyond Fortescue River, the survey area consists of red silty sand and sparse BIF scatters. Vegetation varies from stretches of tall, very dense spinifex, and clearings with scattered mulga trees and Eucalypts. These are most dense along creek lines. During the Survey, ground surface visibility ranged between 5% (in areas with dense spinifex) to 90% (in wooded clearings). Christmas Creek is characterised by low shrubland flora such as samphire, commonly found in the Fortescue subregion.

Various activities have disturbed the T14–T15 survey area, both recently and historically. It contains faded vehicle tracks throughout, and several broken-down cars. Pastoral use has also impacted the area; cattle have left tracks, and fences have been erected both recently and historically. South of the Fortescue gatehouse, the survey area follows alongside Roy Hill Station fence lines and accompanying tracks which have been well maintained and/or recently used. Approximately 85% of the surveyed area was on disturbed ground.

The CEV laydown areas (XMAS CK CEVs 1, 2 and 3) are located along the Cloudbreak Access Road, approximately 7 km west of Christmas Creek Airport. Kuadumaiyinda, a large archaeological and ethnographic area, is 6 km to the north-west. The proposed CEV areas are situated on heavily disturbed land within Fortescue tenement; they have been previously cleared for the construction of Fortescue infrastructure (Figure 42). CEV 3 was not surveyed as the extent of Fortescue infrastructure prevents Vocus from utilising this area.

Lead-in paths 1 & 2 trend north-east off the Chichester Road section of the survey area, 95 km north-east of Newman, and 32 km south-east of Christmas Creek Airport. Lead-in Path 1 is 1 km long, while Path 2 is 1.4 km long. Each path follows a previously established track alongside pre-existing infrastructure such as pipelines. Both paths terminate at laydown areas. At least 95% of the paths' area overlaps with the road, so they are highly disturbed. Mankarlyirrkurra, a significant archaeological and ethnographic area, is 5 km north-east of the lead-in paths.

Summary of Archival and Database Research

Table 6 shows the DPLH ACH located within the survey area north of Newman (as revised for the second trip).

Table 6: DPLH ACH within the Survey Area North of Newman

DPLH ID:	DPLH Name:	DPLH Status:	Site Type:
8032	NAT HWY, NEWMAN ACCESS 1	Registered	Artefacts/scatter
9079	BORROW PIT MRD NEWMAN	Historic	Artefacts/scatter
9554	Trugellendon Pool 1	Registered	Artefacts/scatter
10136	FORTESCUE RIVER, NEWMAN	Historic	Artefacts/scatter
10138	TRUGALLENDEN AREA WEST	Registered	Artefacts/scatter
10139	Newman Calcrete Ridge	Registered	Artefacts/scatter
10144	FORTESCUE RIVER, NEWMAN	Registered	Artefacts/scatter
18505	Kalgan Siding	Historic	Artefacts/scatter
25249	CB08 - 19	Historic	Artefacts/scatter
25261	CB08 - 167	Historic	Artefacts/scatter
25263	CB08 - 170	Historic	Artefacts/scatter
25264	CB08 - 171	Historic	Artefacts/scatter
25265	CB08 - 172	Historic	Artefacts/scatter
25266	CB08 - 173	Historic	Artefacts/scatter
25267	CB08 - 125	Historic	Artefacts/scatter
25506	CB08 Isolated Finds	Historic	Artefacts/scatter
29055	CB 08-174	Historic	Artefacts/scatter
29059	CB 10-29	Historic	Artefacts/scatter
29060	CB 10-30	Historic	Artefacts/scatter
29061	CB 10-31	Historic	Artefacts/scatter
29062	CB 10-32	Historic	Artefacts/scatter
29063	CB 10-33	Historic	Artefacts/scatter
29064	CB 10-34	Historic	Artefacts/scatter
29065	CB 10-35	Historic	Artefacts/scatter
31410	CB11 - 161	Registered	Artefacts/scatter, Modified tree
32032	Christmas Creek Phase 22 Isolated Finds	Lodged	Other: 10 Isolated artefacts
32040	CB11-135	Historic	Artefacts/scatter
33355	RH13-32	Historic	Artefacts/scatter

DPLH ID:	DPLH Name:	DPLH Status:	Site Type:
36753	MR16-003	Registered	Not stated (male only access)
37206	PIL_1047	Historic	Not stated

Some of the DPLH sites/places have more than one site type. As a result, the site type count is slightly higher than the total number of sites. Out of a total of 33 sites/places, the survey area contains 30 artefact scatters (including one collection labelled "isolated artefacts"), one modified tree, one ceremonial site, one mythological site and one quarry. The records for two sites do not state their types.

The Coongan heritage specialists were advised to avoid site MR16-03, which is a series of male only areas near Roy Hill Station; these sites are visible in Figure 46 and Figure 47. As both archaeologists present were female, the team completely avoided the 3 km stretch of survey area alongside these sites. However, this area had been recently surveyed by Roy Hill for pipeline installation, and our consultants confirmed with KNAC on 25 October 2023 that this area did not need to be resurveyed. Hence, while Coongan archaeologists did not survey this area, it has been confirmed as complete by KNAC.

Two previously recorded ACH places are located within the survey area within Fortescue tenement:

- CB11-122, and
- CB11-123

ACH Place CB11-122

CB11-122 is a small artefact scatter that was recorded to site identification level in 2011 (Sinclair & Jimenez-Lozano, 2014, pp. 614–617). They provide the following coordinate for the place: 791671mE / 7513469mN (GDA94, Zone 50). However, Fortescue did not provide the spatial data to Coongan. The scatter is located approximately 22 km south of Christmas Creek Camp and 44 km south-east of Cloudbreak Camp. It measures 25 m^2 and contains four flakes and a broken flake, all basalt. Artefact density is 0.2/m^2. It was noted that none of the prices refitted back together.

The authors considered the scatter to be a site as per Section 5 of the Act and recommended that the recording be submitted to DPLH. They recommended that it be avoided until it had been assessed by the ACMC, and that Fortescue apply for a Section 18 consent to disturb the site on the condition that the option for salvage of the artefacts be discussed with the Nyiyaparli Native Title Claimant Group (now KNAC) (Sinclair & Jimenez-Lozano, 2014, p. 616).

ACH Place CB11-123

CB11-123 is a small artefact scatter and reduction area recorded to site identification level in 2011 (Sinclair & Jimenez-Lozano, 2014, pp. 618–622). They provide the following coordinate for the place: 791977mE / 7513244mN (GDA94, Zone 50). However, Fortescue did not provide the spatial data to Coongan. The scatter is located approximately 22 km south-east of Christmas Creek Camp and 44 km

south-east of Cloudbreak Camp. It measures 28 m^2 and contains nine artefacts: flakes, single platform cores flake fragments and flaking debris. The material types are BIF, basalt, dolerite and chert. Artefact density is 0.3/m^2.

The authors considered the scatter to be a site and recommended that the recording be submitted to DPLH. They recommended that it be avoided until it had been assessed by the ACMC, and that Fortescue apply for a Section 18 consent to disturb the site on the condition that the option for salvage of the artefacts be discussed with the Nyiyaparli Native Title Claimant Group (now KNAC) (Sinclair & Jimenez-Lozano, 2014, p. 620).

Predictions

The corridor north of Newman is primarily located within the road reserve and is generally disturbed. Nonetheless, numerous DPLH sites are located within the area, particularly around Ophthlamia Dam. Based on known DPLH ACH, the most likely archaeological site type to be identified is artefacts/scatter. So-called "camps" are also generally represented by artefact scatters. In any area where knappable material outcrops, quarries may have been present. However, previous road works are likely to have levelled any such outcrops. Modified trees are typically mature. As most of the corridor appears to have been cleared of vegetation, it is unlikely that any modified trees will be identified.

Summary of Field Survey Results

Figure 42,Figure 43Figure 44,Figure 45Figure 46Figure 47Figure 48,Figure 49Figure 50Figure 51 show the sections of the survey areas north of Newman that were completed during the second trip. The results are as follows:

- No new ACH places were identified,
- Thirty-two (32) isolated artefacts were recorded (these are included in the accompanying spatial data),
- No DPLH registered sites are within the surveyed areas,
- No DPLH lodged places are within the surveyed areas, and
- The following DPLH historic records are within the surveyed areas. All are classified as "artefacts/scatter":
    - 25265 (CB08-172)
    - 25266 (CB08 - 173)
    - 25367 (CB08 - 125)
    - 29059 (CB 10-29)
    - 29060 (CB 10-30)
    - 29061 (CB 10-31)
    - 29062 (CB 10-32)
    - 29063 (CB 10-33)
    - 29065 (CB 10-35)

- 32040 (CB11-135)

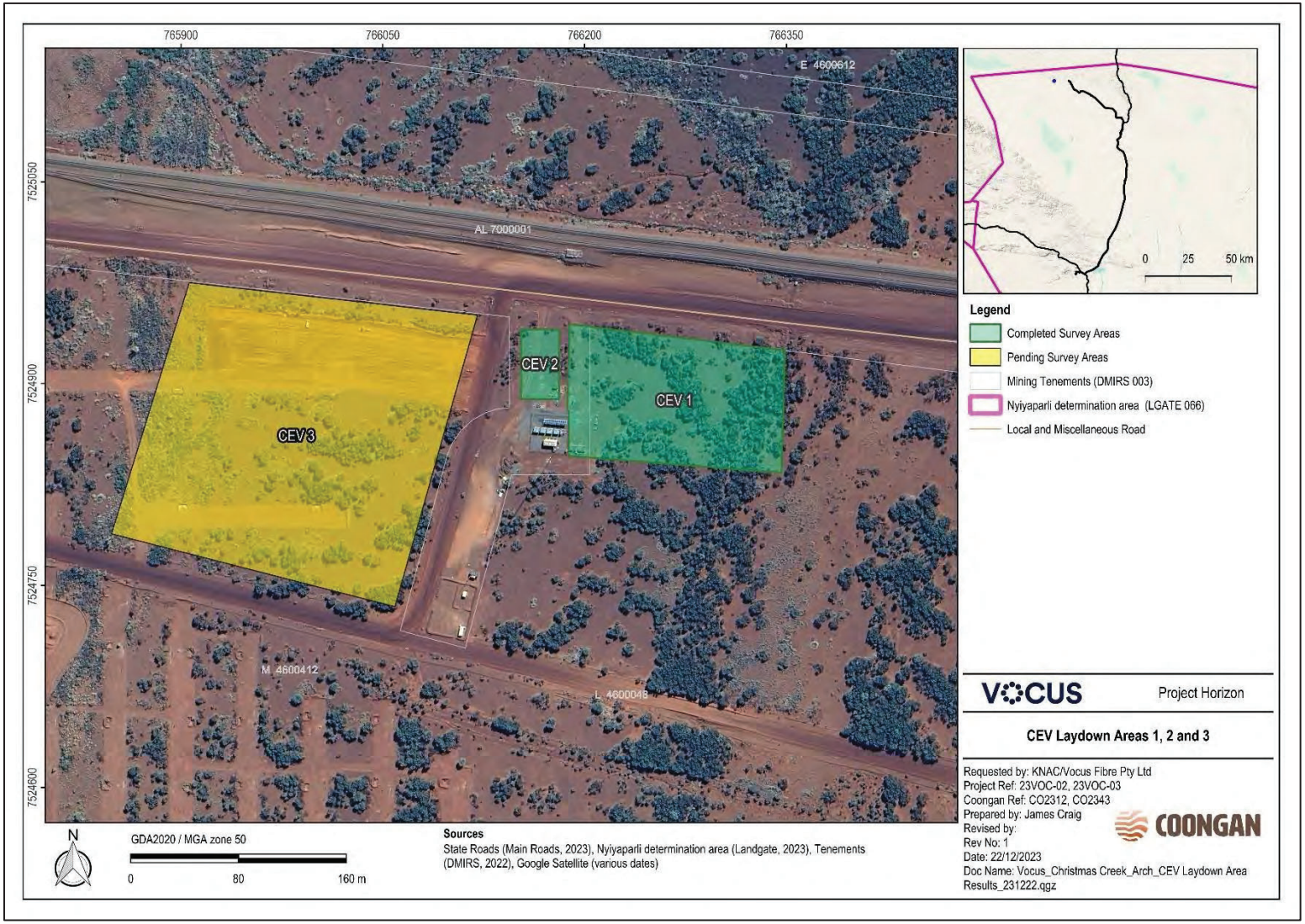

Figure 42: North of Newman XMAS CK CEV laydown areas 1, 2 and 3

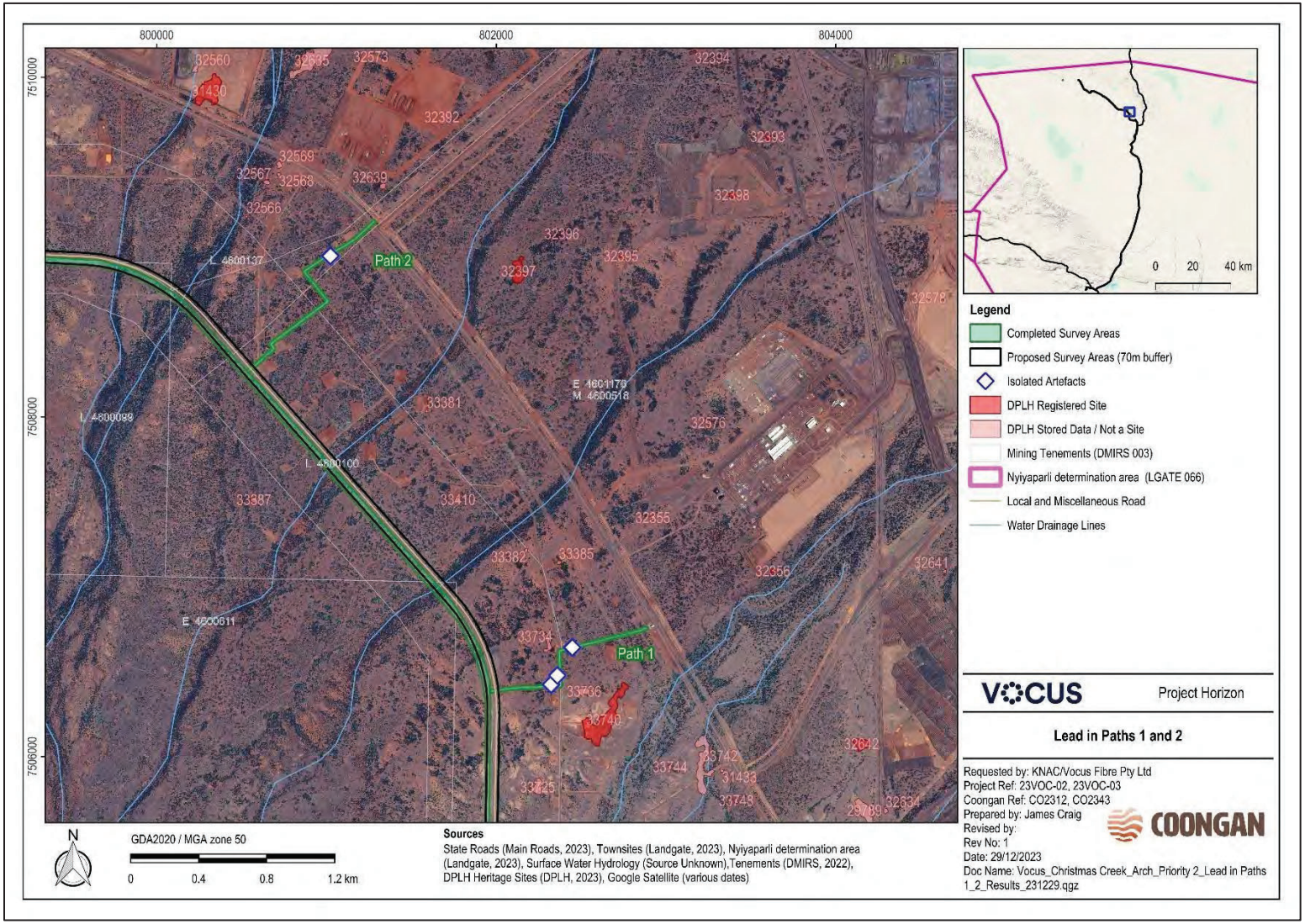

Figure 43: North of Newman Lead in Paths 1 and 2

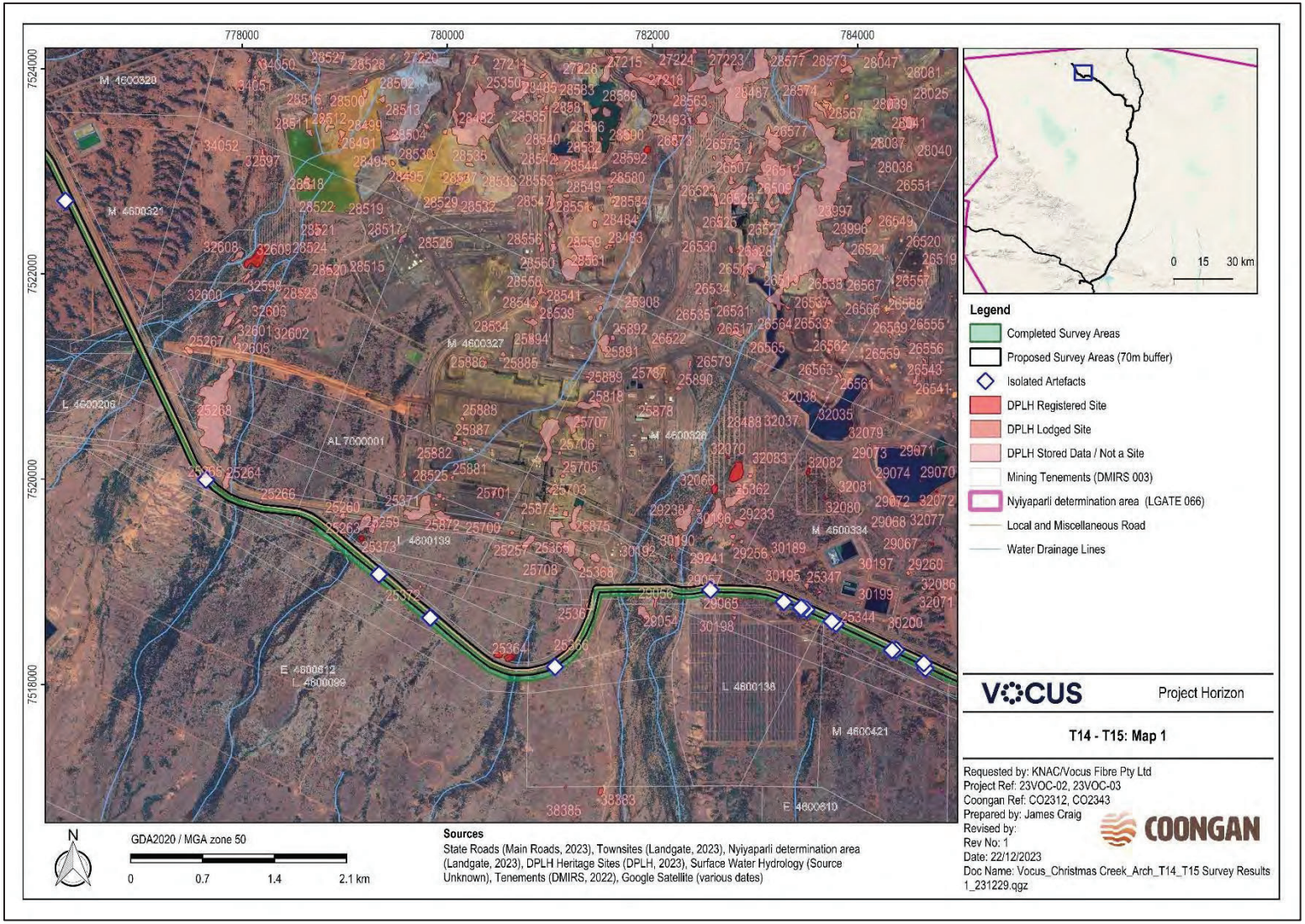

Figure 44: North of Newman T14–T15 Map 1

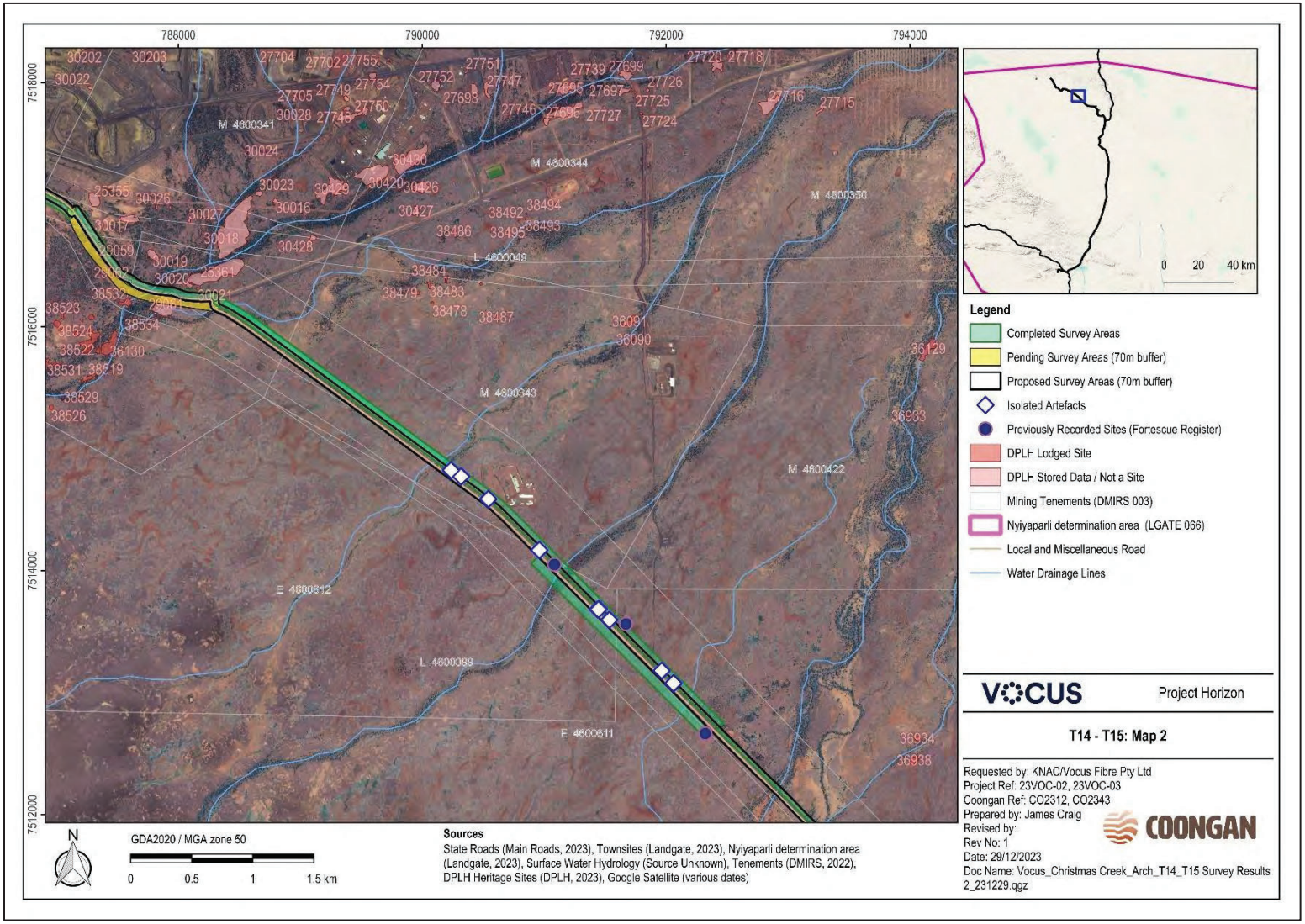

Figure 45: North of Newman T14–T15 Map 2

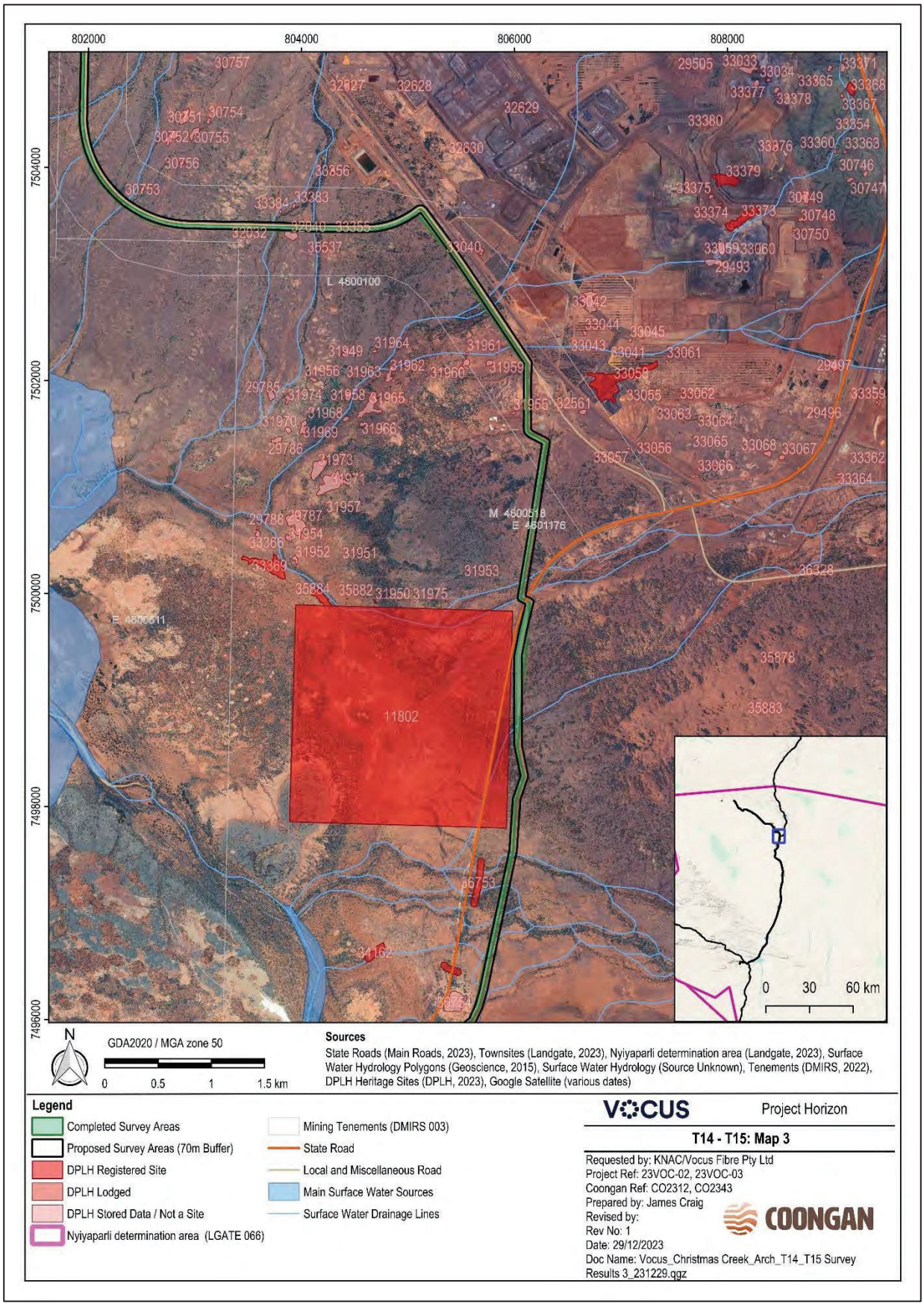

Figure 46: North of Newman T14–T15 Map 3

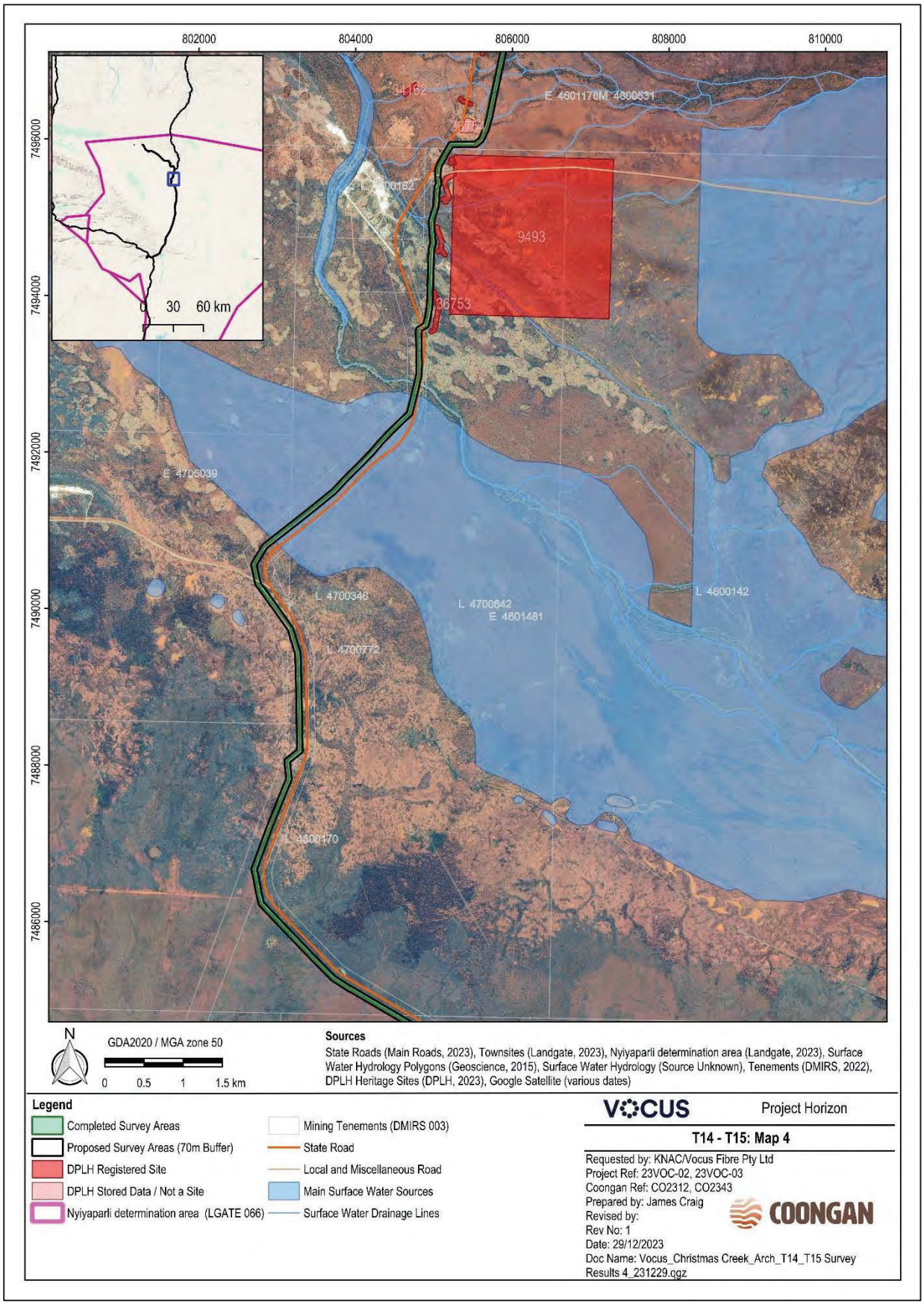

Figure 47: North of Newman T14–T15 Map 4

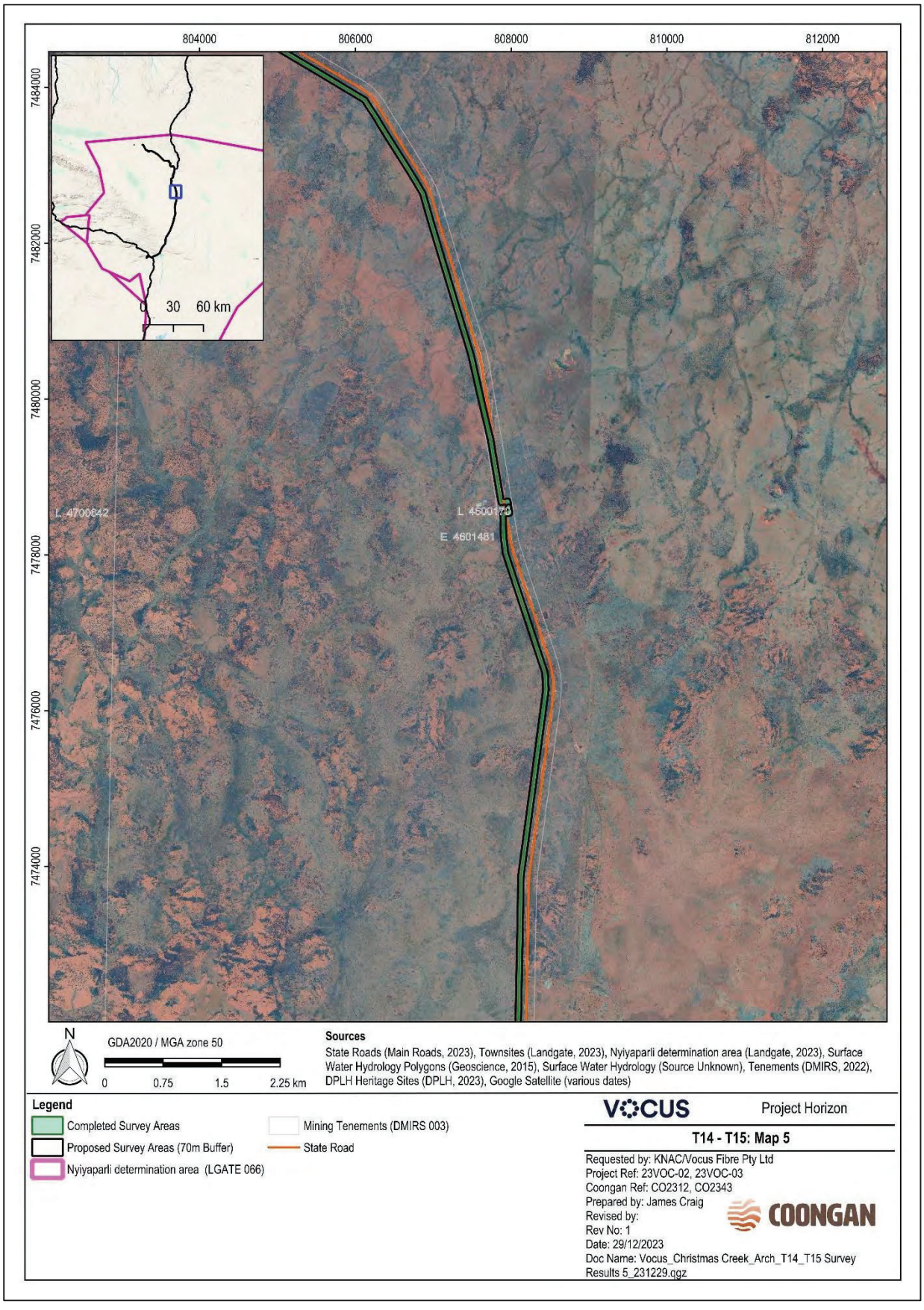

Figure 48: North of Newman T14 -T15 Map 5

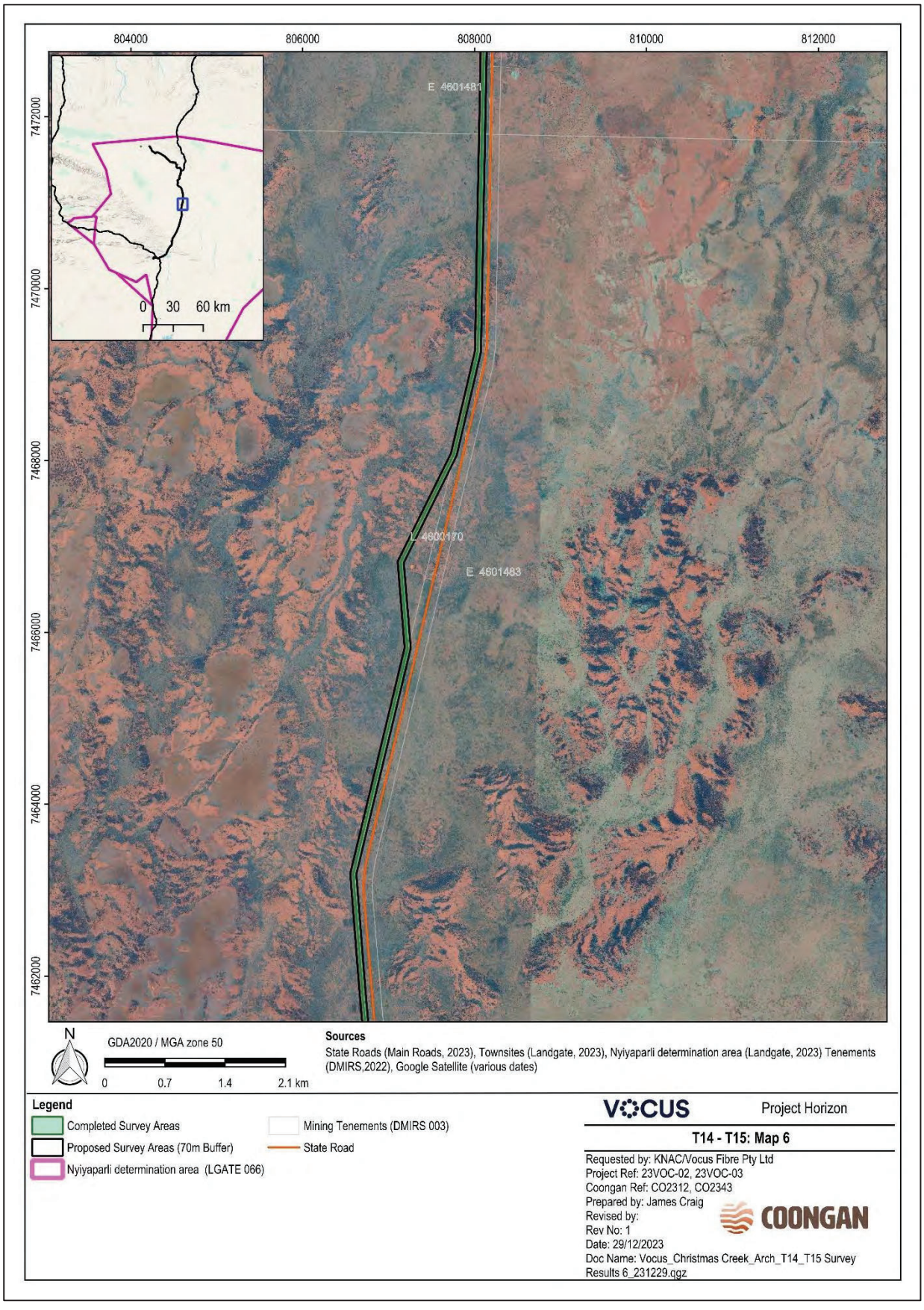

Figure 49: North of Newman T14–T15 Map 6

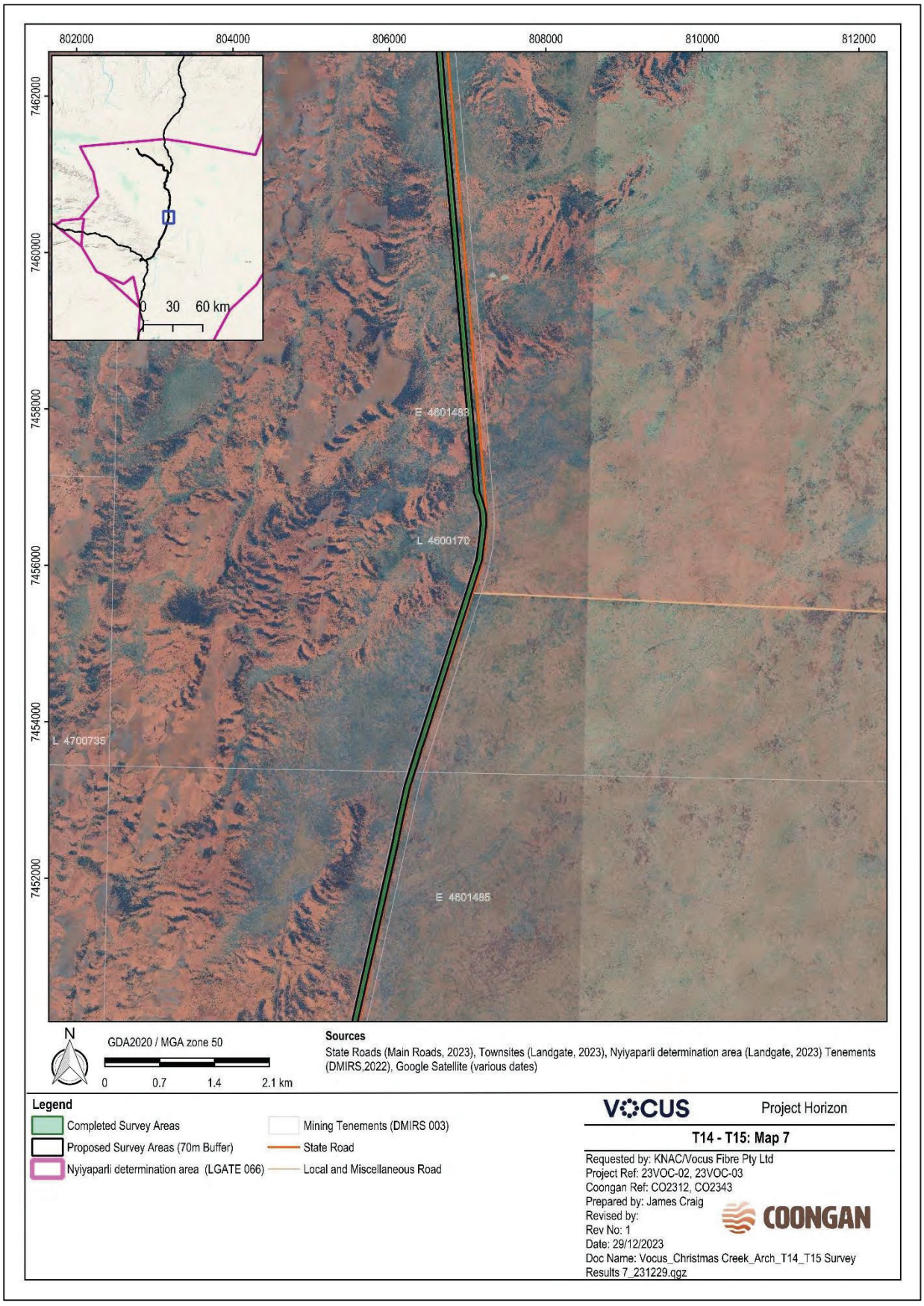

Figure 50: North of Newman T14–T15 Map 7

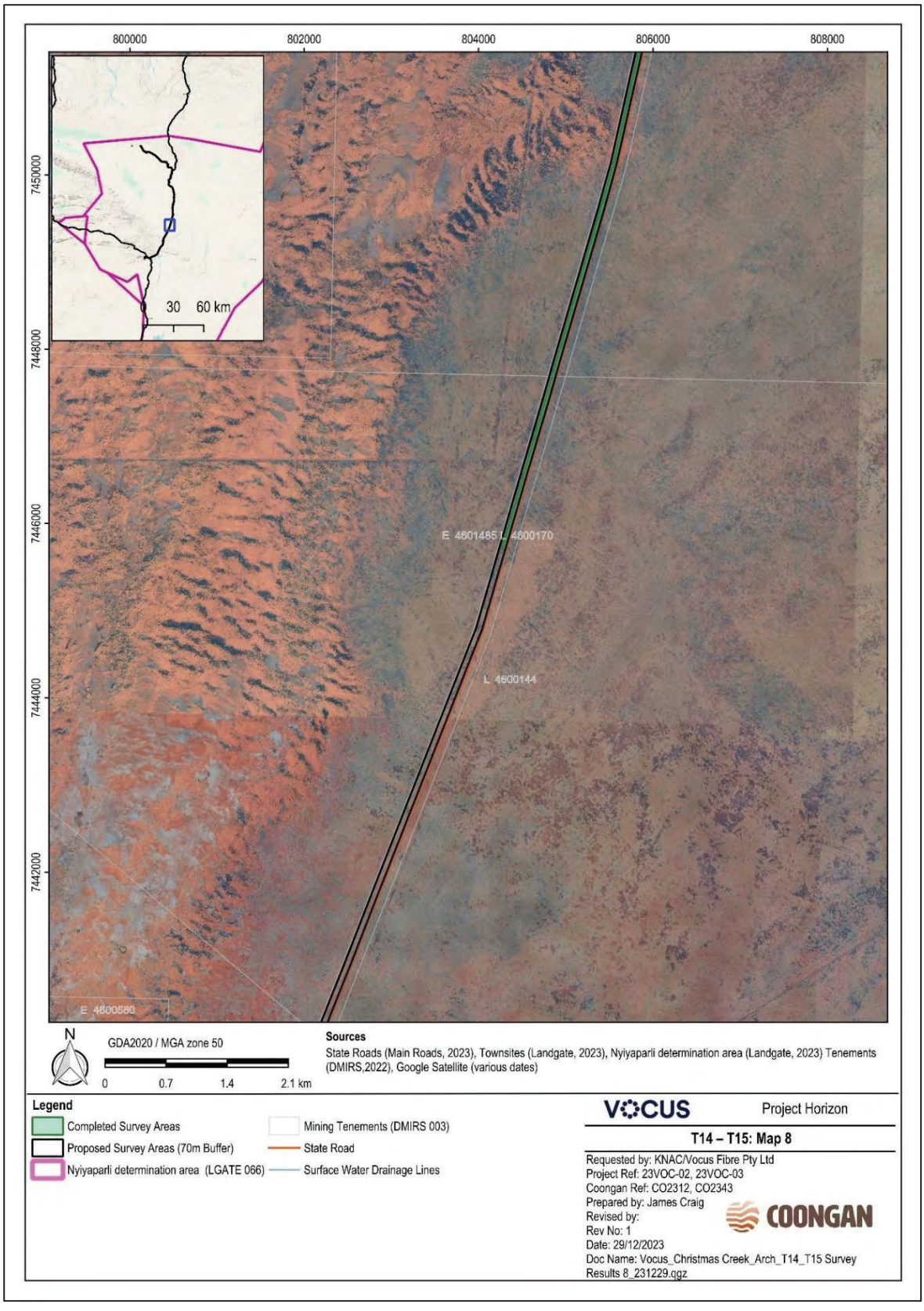

Figure 51: North of Newman T14–T15 Map 8

Heritage Recommendations

Based on the Survey outcomes and consultation with the KNAC Representatives, Coongan has developed the following recommendations to assist Vocus with the management of the identified ACH in the surveyed areas (Table 7).

Table 7: Recommendations for Heritage Management

Pertaining to:	Recommendations:	Details:
• CO2312-01 • CO2312-02 • CO2312-03 • CO2312-04 • CO2312-05 • CO2312-06 • CB11-122 • CB11-123	It is recommended that: • Vocus avoid these heritage places during the proposed works. • If Vocus is unable to avoid any/all of these ACH places, they should consult further with KNAC. • Vocus request the spatial data for CB11-122 and CB11-123 from Fortescue as it was not provided to Coongan	These places are of significance to the KNAC Representatives and are therefore deemed likely to constitute Aboriginal sites under Section 5 of the *Aboriginal Heritage Act 1972* (the Act). Avoidance of these ACH places is preferred. Vocus must consult further with KNAC if this is not possible. CB11-122 and CB11-123 are located in Fortescue's Christmas Creek tenure.
• CO2312-01 • CO2312-02 • CO2312-03	It is recommended that: • Vocus consult with KNAC regarding the possibility of avoiding impact by drilling directly underneath the ACH places without impacting the surface extent of these ACH places. Cultural monitors must be present for this strategy.	This strategy is only acceptable if impact to the ground surface can be avoided entirely.
• CO2312-04 • CO2312-05	It is recommended that: • Vocus install the cable on the eastern side of the road corridor within the deviation provided.	The accompanying spatial data includes deviations around both of these newly identified ACH places.

Pertaining to:	Recommendations:	Details:
• CO2312-06	It is recommended that: • Vocus arrange for the identification of a deviation around this newly identified ACH place during a future trip.	Due to time constraints, it was not possible to identify a deviation around this newly identified ACH place.
Isolated Artefacts	It is recommended that: • Vocus consult with KNAC to arrange the cultural salvage of the 557 isolated artefacts. • Until the artefacts can be salvaged/relocated, they must be avoided.	As salvage requires the artefacts to be legally defined as Aboriginal Cultural Material as per the Act (as amended) an application for salvage in terms of Section 18 of the Act (as amended) would be required. Alternatively, in the spirit of the legislation, the appropriately sanctioned KNAC Representatives may act as cultural monitors and relocate the artefacts to an area not within the disturbance area. This would be consistent with Section 17 of the Act.
Fortescue tenure Isolated artefacts	It is recommended that: • Vocus provide Fortescue with the spatial data for the 28 isolated artefacts on their tenure at Christmas Creek. • Vocus advises Fortescue that these artefacts are scheduled for salvage.	This will ensure that Fortescue are aware that these artefacts must be protected until salvage/collection has occurred.

Pertaining to:	Recommendations:	Details:
T12–T15 – North of Newman	It is recommended that Vocus consult with DPLH regarding the possible application of the ACH Act, as the second survey was undertaken while it was in effect.	Under the ACH Act 2021, the tier of an activity must be determined. Tier 2 activities require an ACH Permit, while Tier 3 activities require an approved or authorised AHC Management Plan. Under the current legislation, if impact to the ACH can be avoided, no permit or ACH Management Plan is required. This potentially applies to the survey area north of Newman and specifically to CB11-122, CB11-123 and the 32 isolated artefacts.
T12–T15 – North of Newman Driving	It is recommended that within the survey areas, Vocus employees and contractors drive only on the 35 m wide corridor that has been cleared by the survey team.	Vocus is advised to note that only 35 m of the proposed survey area have been surveyed. All Vocus employees and contractors are to contain transport and works within this 35 m, to limit disturbance to any unknown ACH places that may be located within the broader area.
T12–T15 – North of Newman Cultural monitors	It is recommended that: • Vocus employ KNAC cultural monitors to be present during all proposed works. Vocus should consult with KNAC to decide how many monitors are required and who they should be.	During the Survey of the T12-15 North of Newman, the KNAC Representatives highlighted how dense vegetation impeded the ability of the survey team to adequately assess the surface for ACH.
T12–T15 – North of Newman Creek lines	It is recommended that: • Wherever the cable corridor must cross a creek line, Vocus should use underground drilling techniques only. • Spoil heaps should not be located within creek lines,	The KNAC Representatives were satisfied with the method proposed by Vocus to drill under creek lines to avoid disturbing the creeks or impeding their water flow.

Pertaining to:	Recommendations:	Details:
	and creek banks should be preserved. • If Vocus cannot avoid impacting any creek line, they should consult further with KNAC prior to commencing works.	
T12–T15 – North of Newman Ethnographic consultation	It is recommended that Vocus consult with KNAC to arrange an ethnographic consultation of the area with the appropriate Nyiyaparli Seniors.	The KNAC Representatives relayed numerous stories about growing up within the area, including visiting nearby water sources, and the passing down of oral stories from Seniors. Due to the lived knowledge expressed by the KNAC Representatives present, Vocus is advised to facilitate an ethnographic consultation of the survey area, to record this information, in collaboration with KNAC. This ethnographic consultation will assist in fostering positive connections between Vocus and the Nyiyaparli People.
T12–T15 – North of Newman Educating employees and contractors	It is recommended that Vocus educate all employees and contractors working within the survey areas about the locations and boundaries of all ACH places and isolated artefacts identified and clearly instruct them avoid impacting them.	It is an offence to disturb an Aboriginal place without prior written consent under Section 16 (s16) or Section 18 (s18) of the Act. Financial penalties may be applied against individuals or corporations who disturb a heritage place, regardless of whether or not that place is catalogued by the DPLH. Please note that amendments to the Act are current from 15/11/2023, as per the *Aboriginal Heritage Legislation Amendment and Repeal Act 2023* and these include amendments to penalties.
Additional Works	If Vocus proposes to alter the type of proposed works, or to expand their program of works beyond what was subject to the	If the works are expanded in scale, they may extend beyond the survey areas. Any such area/s cannot be considered clear for works.

Pertaining to:	Recommendations:	Details:
	heritage survey, they must consult further with KNAC prior to the commencement of works.	
Issues or Queries	It is recommended that Vocus consult directly with KNAC for any further clarification on the contents of this report	As the RNTBC for the Nyiyaparli People, KNAC should be consulted for clarification on any information reported on in this document.

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