



Clearing Desktop Report CPS 818

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Western Australia.*

Blina LCSW SLK 2394.5-2435.4
H006 Great Northern Highway
Kimberley Region
EOS 3410

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Document Control

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Reviewer:	Senior Environment Officer	Rev 0	05/08/2024

1 PROPOSAL

1.1 Purpose and Justification

Main Roads Western Australia proposes to increase the seal widths of Great Northern Highway (GNH) from SLK 2394.5 to 2435.4 (referred to as the Blina East and Blina West sections). Increased seal widths are required to meet the regional improvement strategy and Road Safety Management System (ROSMA) interim safety standards.

1.1.1 Main Roads Approach to Road Safety and the Environment

Main Roads is committed to minimising the environmental impacts of all of its activities and manages the State road network to achieve balanced economic, social, safety and environmental benefits for the community. Main Roads recognises that Western Australia's environment is significant from a global perspective and the unique conservation values that are contained within its road reserve. Main Roads road network often adjoins natural areas and, in some locations, the reserve itself hosts remnant vegetation with high environmental values. Although the reserves were not established for this purpose, Main Roads recognises that it has a responsibility to conserve the environmental values that occur within the State's road network and minimise the impact its proposals have on the environment. In addition to providing a safe and efficient road network for all people using the roads under its control, Main Roads is also committed to protecting and enhancing the natural environment.

In accordance with National and State Government road safety policies, Main Roads is also committed to substantially reducing road trauma on the road network through Safe System principles. The Safe System approach acknowledges that more than two thirds of all serious crashes are due to human error rather than deliberate risk taking (e.g. speeding or drink driving) and seeks to improve behaviour through education and enforcement while managing the safety of vehicles, speeds and the road and road infrastructure. It is shown that improving sub-optimal road formation will substantially reduce the likelihood and severity of road crashes. For example, according to the Road Safety Management Guideline, increasing the sealed shoulder from 0.5 m to 2 m will reduce Killed and Seriously Injured numbers by more than 50%.

As the statutory authority responsible for providing and managing a safe and efficient main road network in Western Australia, Main Roads focuses on improving road safety by thoroughly considering all environmental, economic and community benefits and impacts. It operates on a hierarchy of avoiding, minimising, reducing and then, if required, offsetting our environmental impacts. This has been achieved through changes in proposal scope and design. Main Roads regularly reduces its clearing footprint by restricting earthworks limits for proposals, steepening batters, installing barriers, establishing borrow pits in cleared paddocks and avoiding temporary clearing for storage, stockpiles and turn around bays to avoid and minimise its impacts.

Further details on measures to avoid, minimise and reduce are provided in Section 1.5.

1.2 Proposal Scope

Main Roads proposes to upgrade a 41 km section of GNH. The upgrade will comprise the following components:

- 1) Widen existing formation and shoulders (Low Cost Shoulder Widening - LCSW);
- 2) Seal formation to 10m wide (including floodways);
- 3) Maintenance of drainage assets;

- 4) Culvert extensions;
- 5) Install audible and edge lines based on Regional Reseal program;
- 6) Install new and/or reinstall existing signage and guide posts;
- 7) Supporting infrastructure such as stockpiles, turnarounds, material areas, water sources, and side tracks.

1.3 Proposal Location

The Native Vegetation Clearing Area is located on Great Northern Highway (H006), SLK 2394.5 to 2435.4, Shire of Derby East Kimberley as shown in Figure 1. The central coordinate of the proposal is 124.6656145°E 17.9043702°S (Decimal Degrees).

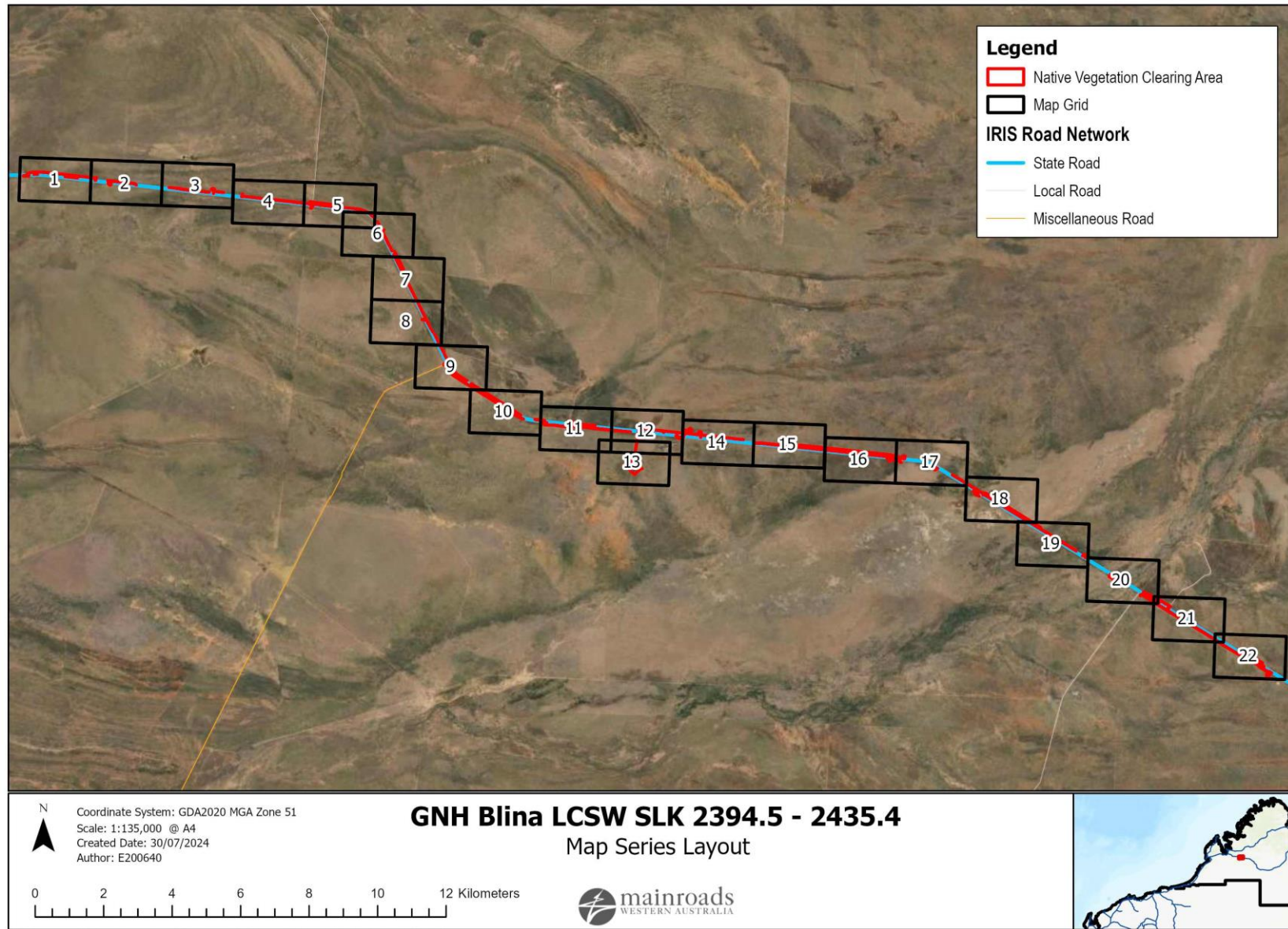


Figure 1. Overview of the Native Vegetation Clearing Area indicating each 2 km map.

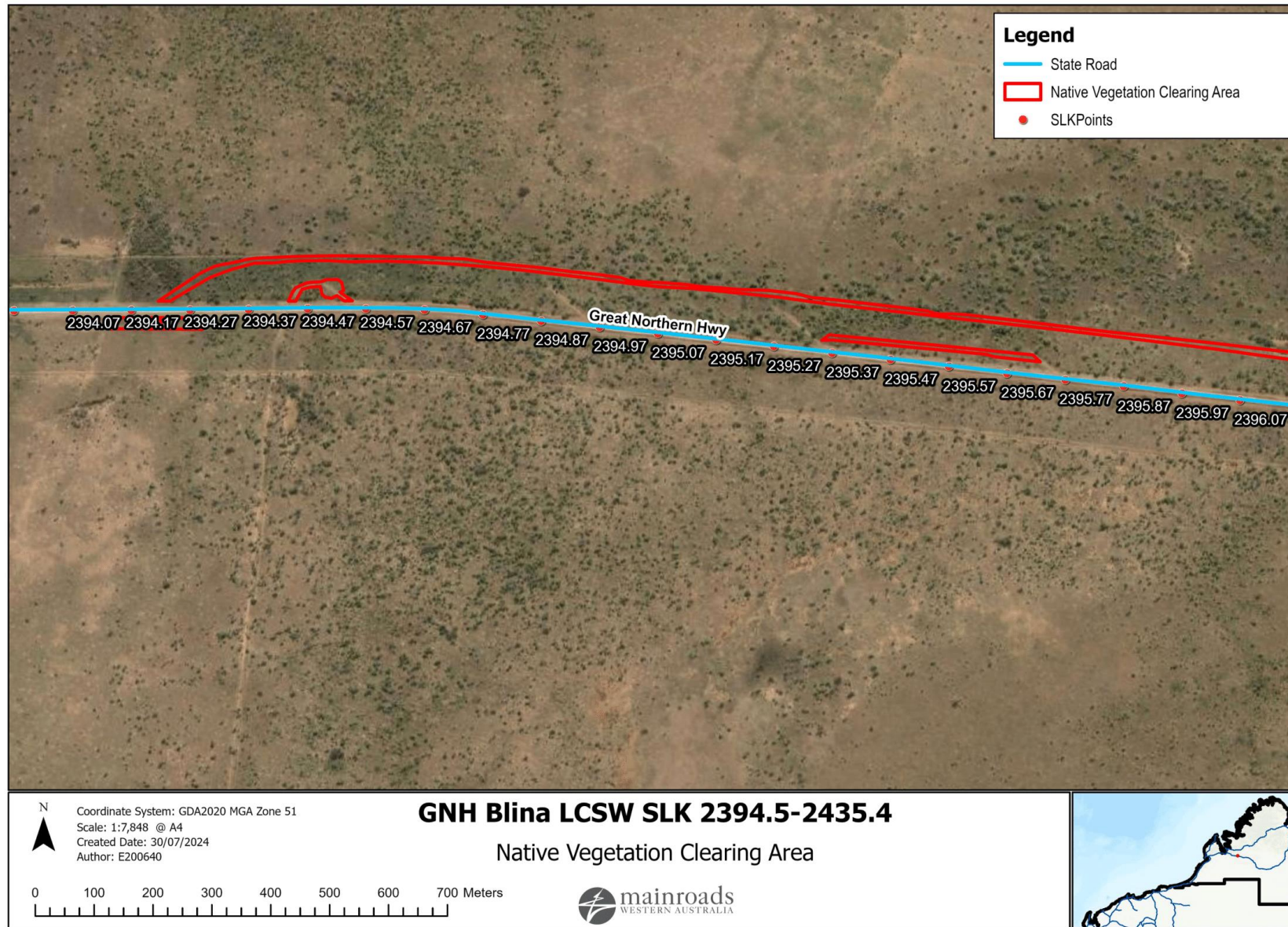


Figure 2. Map 1 of GNH Blina LCSW SLK 2394.5 – 2435.4.



Figure 3. Map 2 of GNH Blina LCSW SLK 2394.5 – 2435.4.



Figure 4. Map 3 of GNH Blina LCSW SLK 2394.5 – 2435.4.



Figure 5. Map 4 of GNH Blina LCSW SLK 2394.5 – 2435.4.

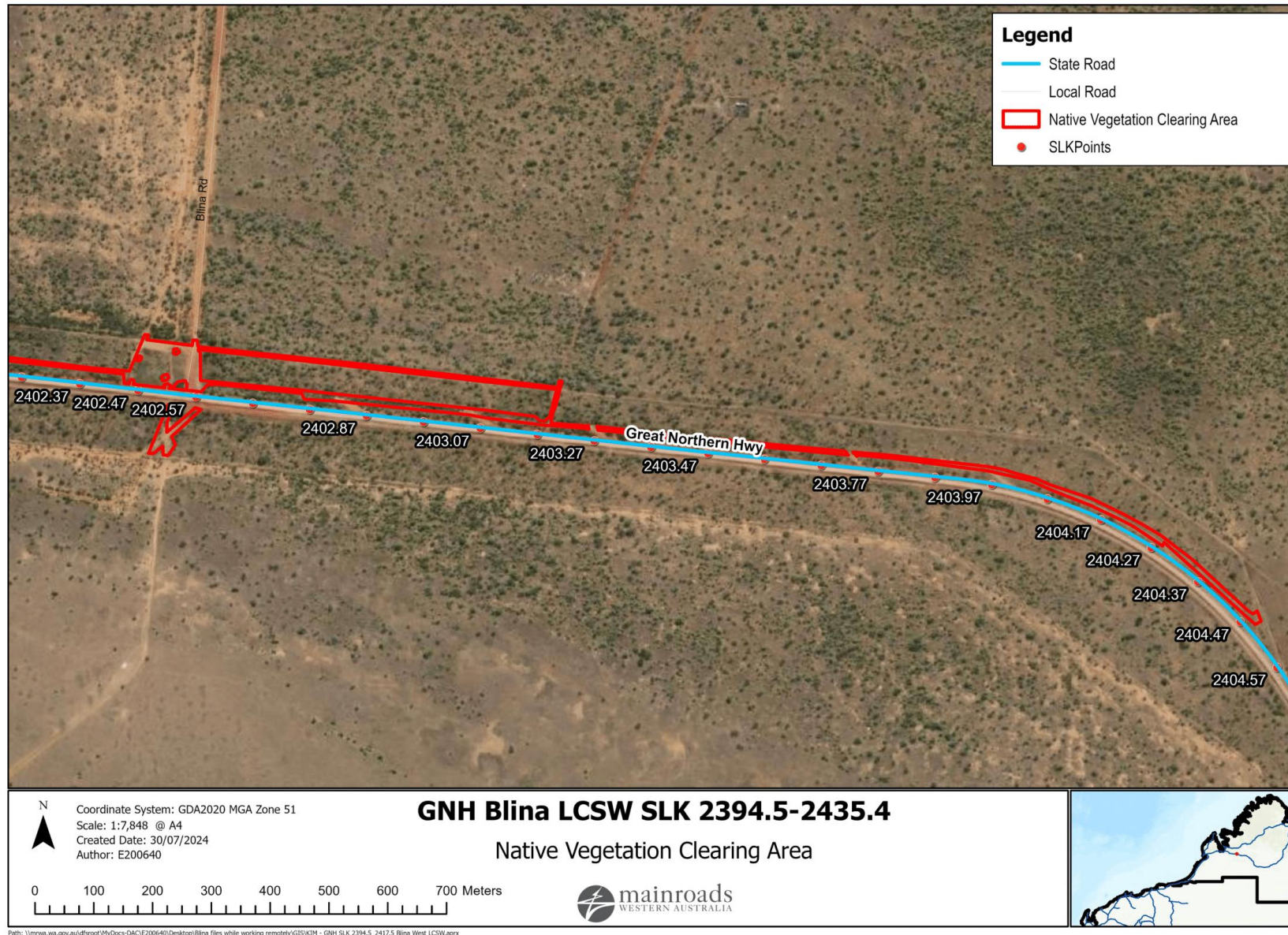


Figure 6. Map 5 of GNH Blina LCSW SLK 2394.5 – 2435.4.

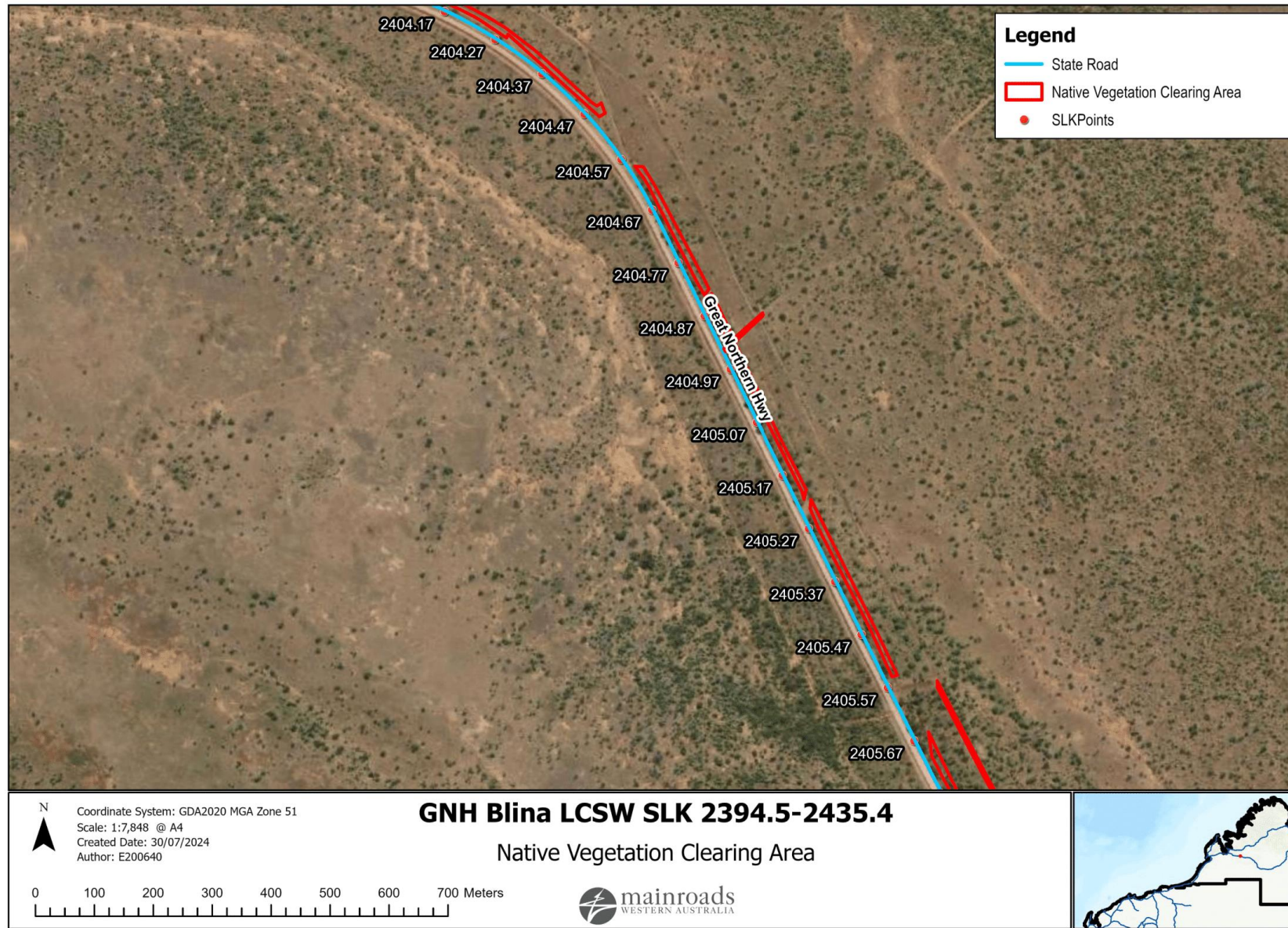


Figure 7. Map 6 of GNH Blina LCSW SLK 2394.5 – 2435.4.



Figure 8. Map 7 of GNH Blina LCSW SLK 2394.5 – 2435.4.

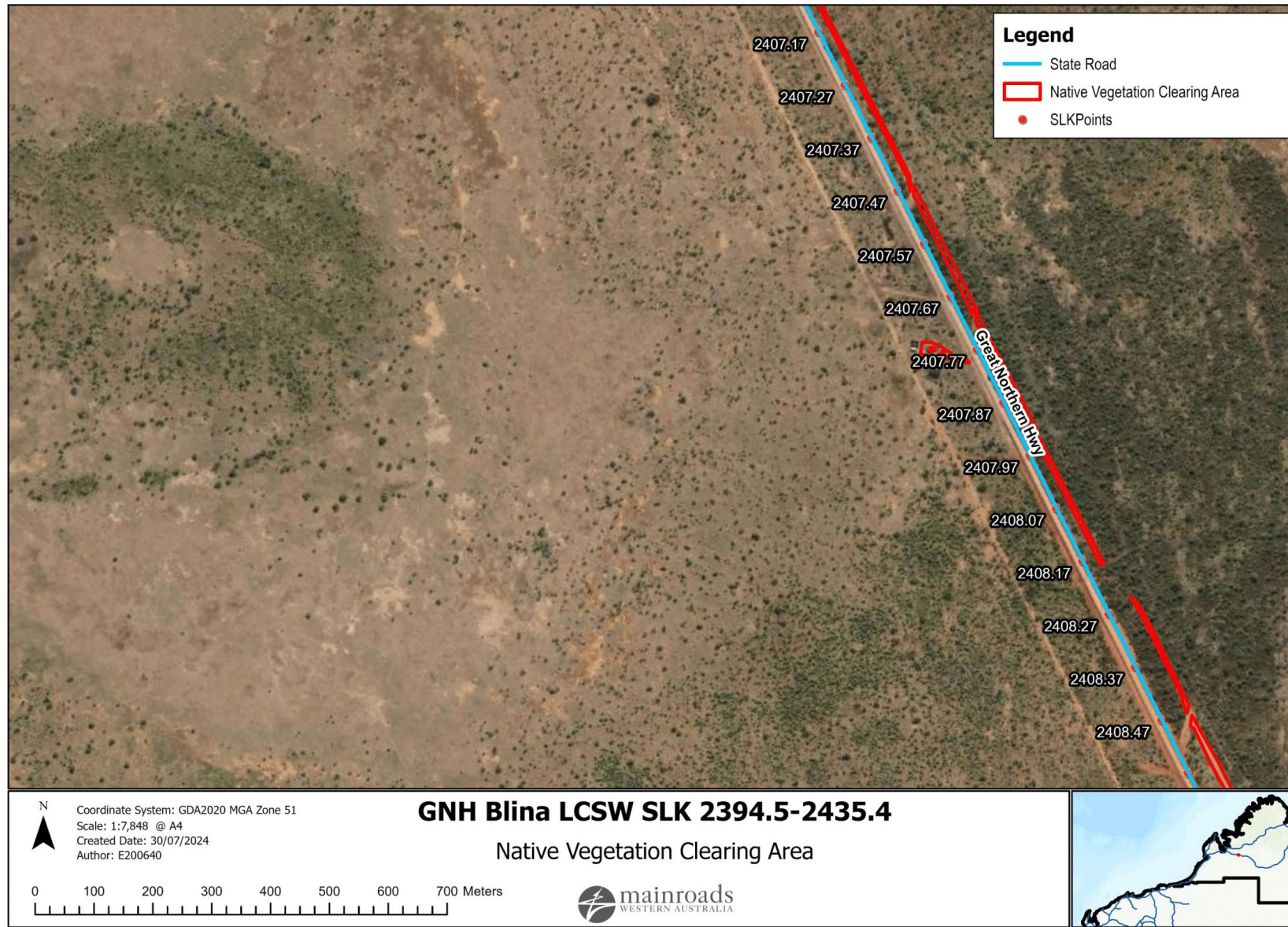


Figure 9. Map 8 of GNH Blina LCSW SLK 2394.5 – 2435.4.

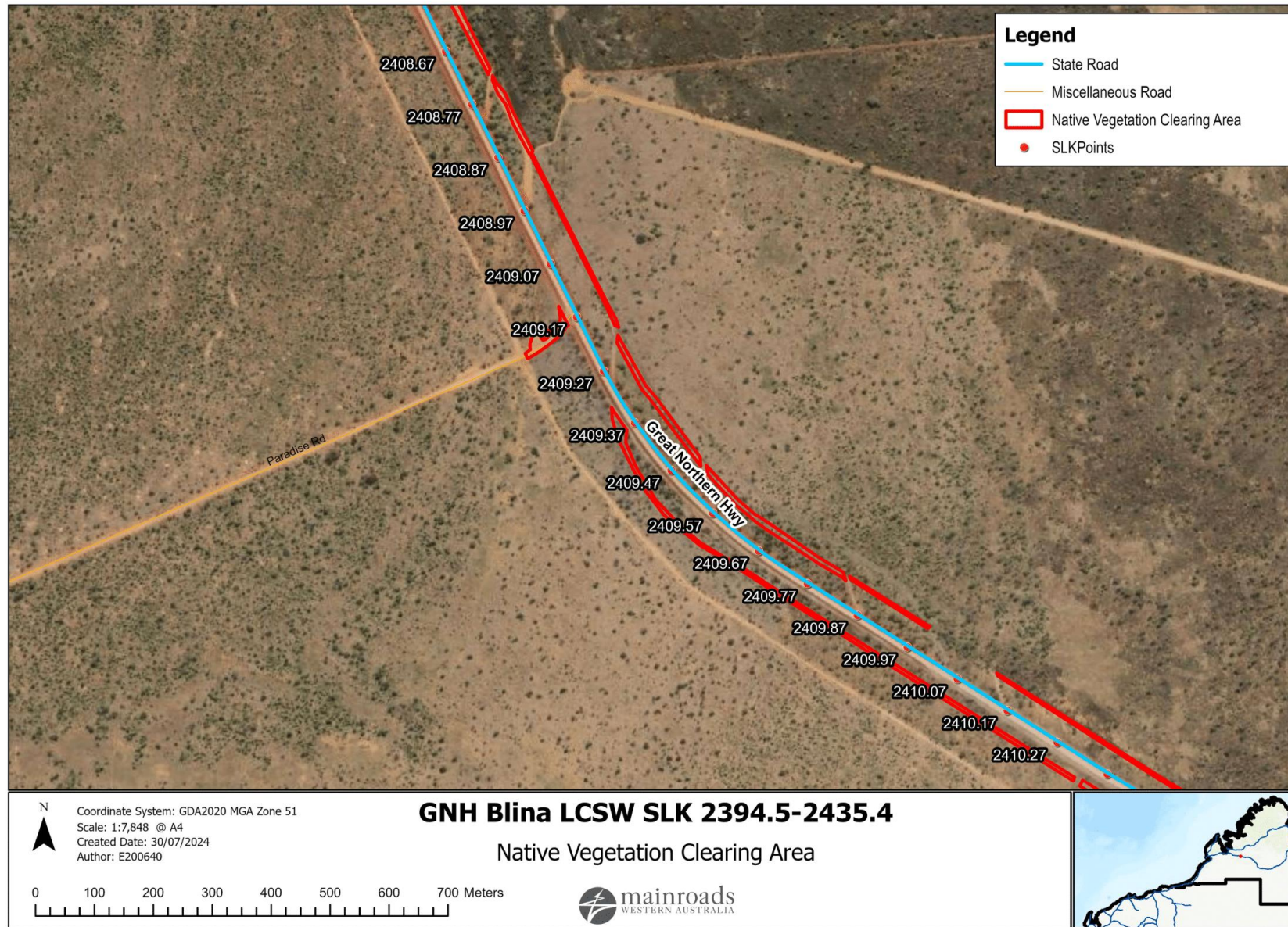


Figure 10. Map 9 of GNH Blina LCSW SLK 2394.5 – 2435.4.

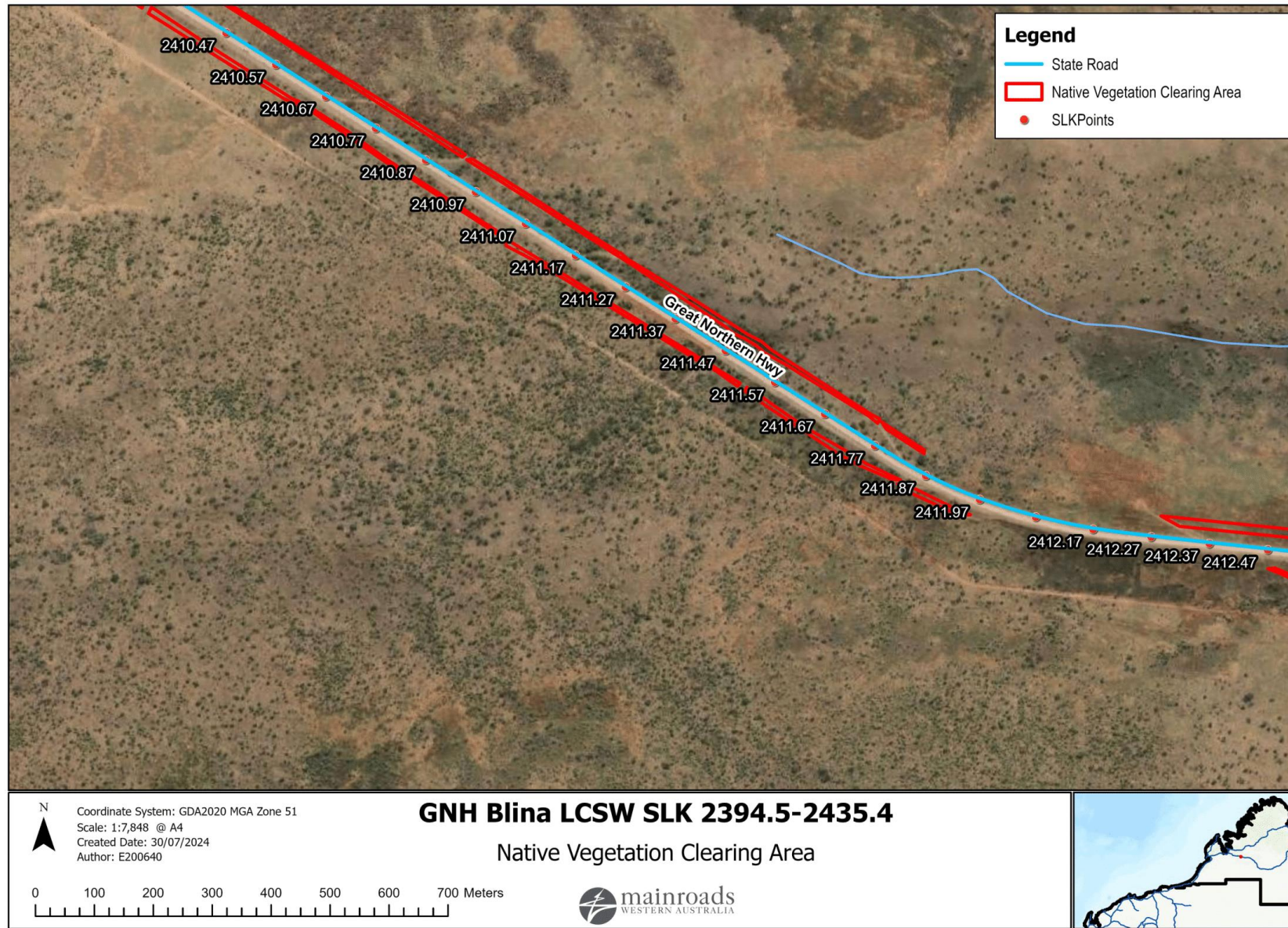


Figure 11. Map 10 of GNH Blina LCSW SLK 2394.5 – 2435.4.

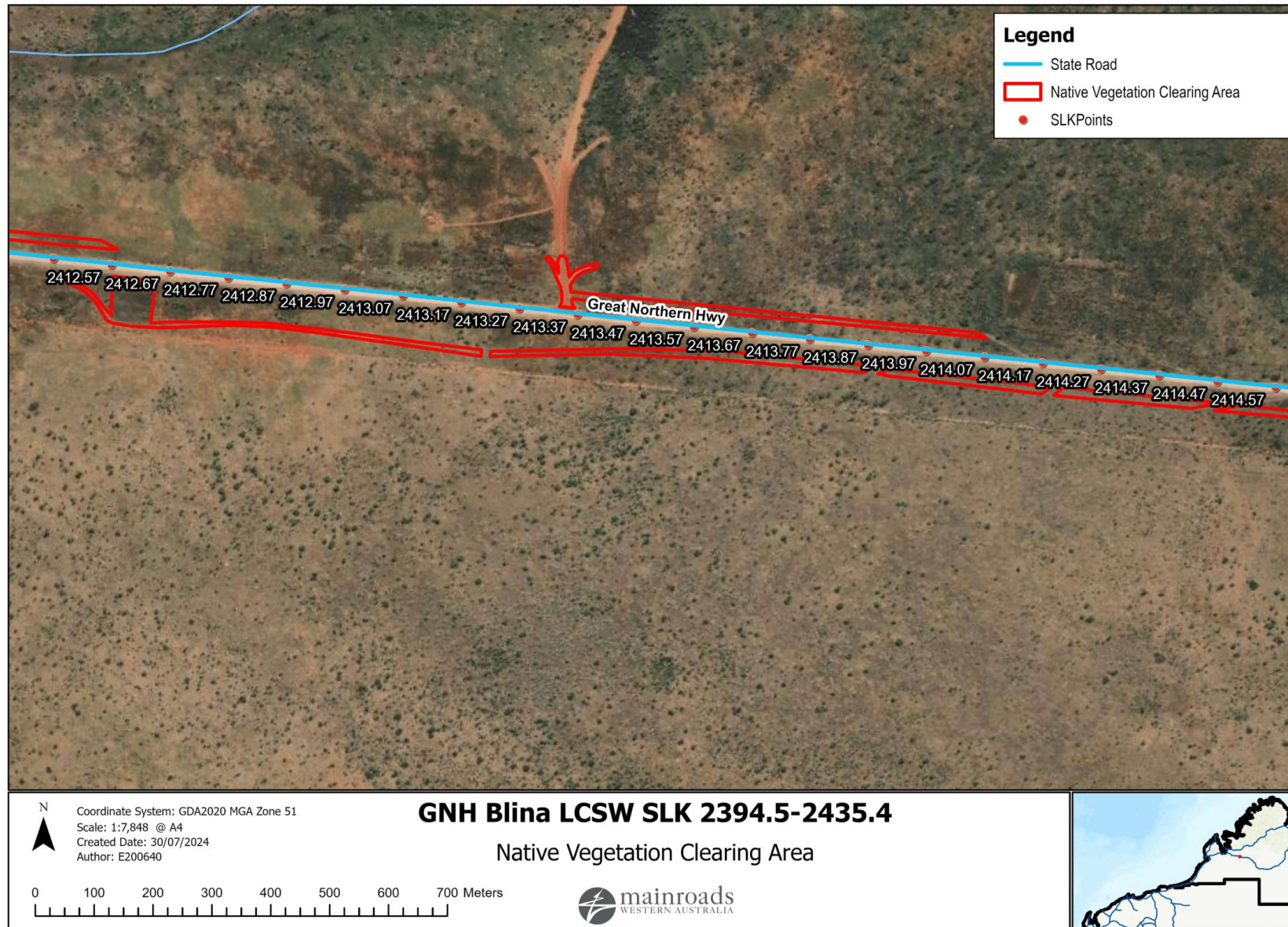


Figure 12. Map 11 of GNH Blina LCSW SLK 2394.5 – 2435.4.

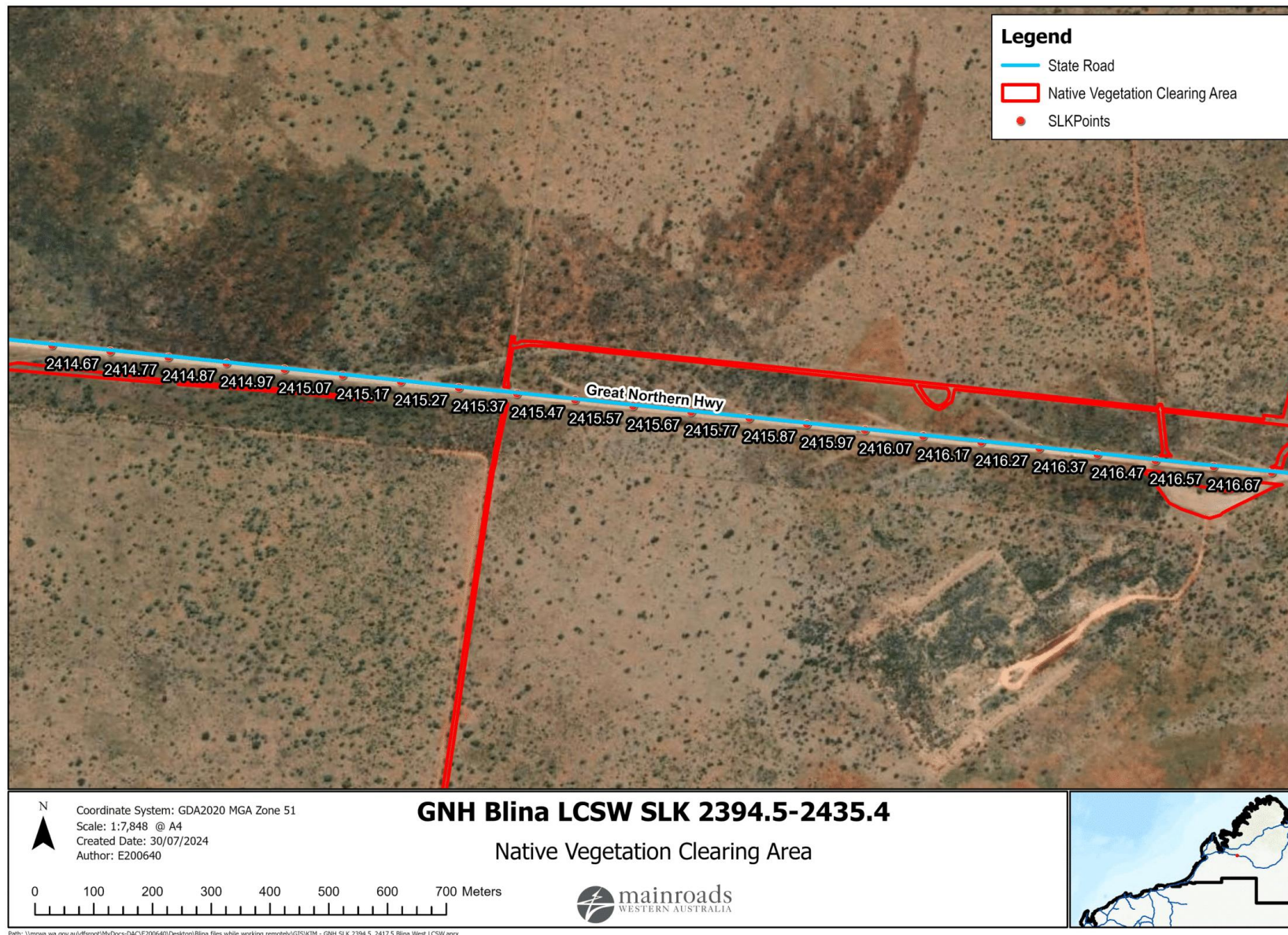


Figure 13. Map 12 of GNH Blina LCSW SLK 2394.5 – 2435.4.

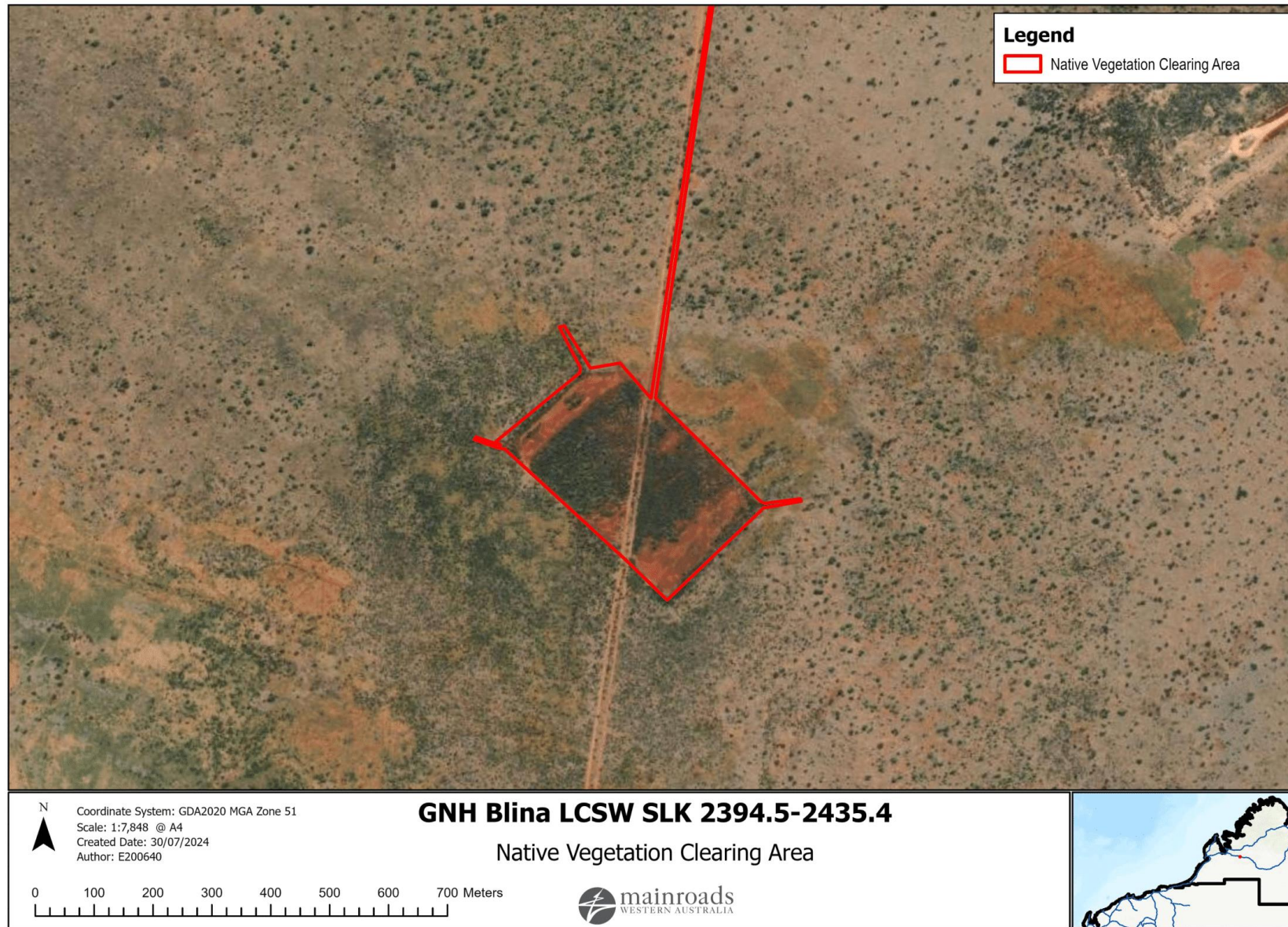


Figure 14. Map 13 of GNH Blina LCSW SLK 2394.5 – 2435.4.

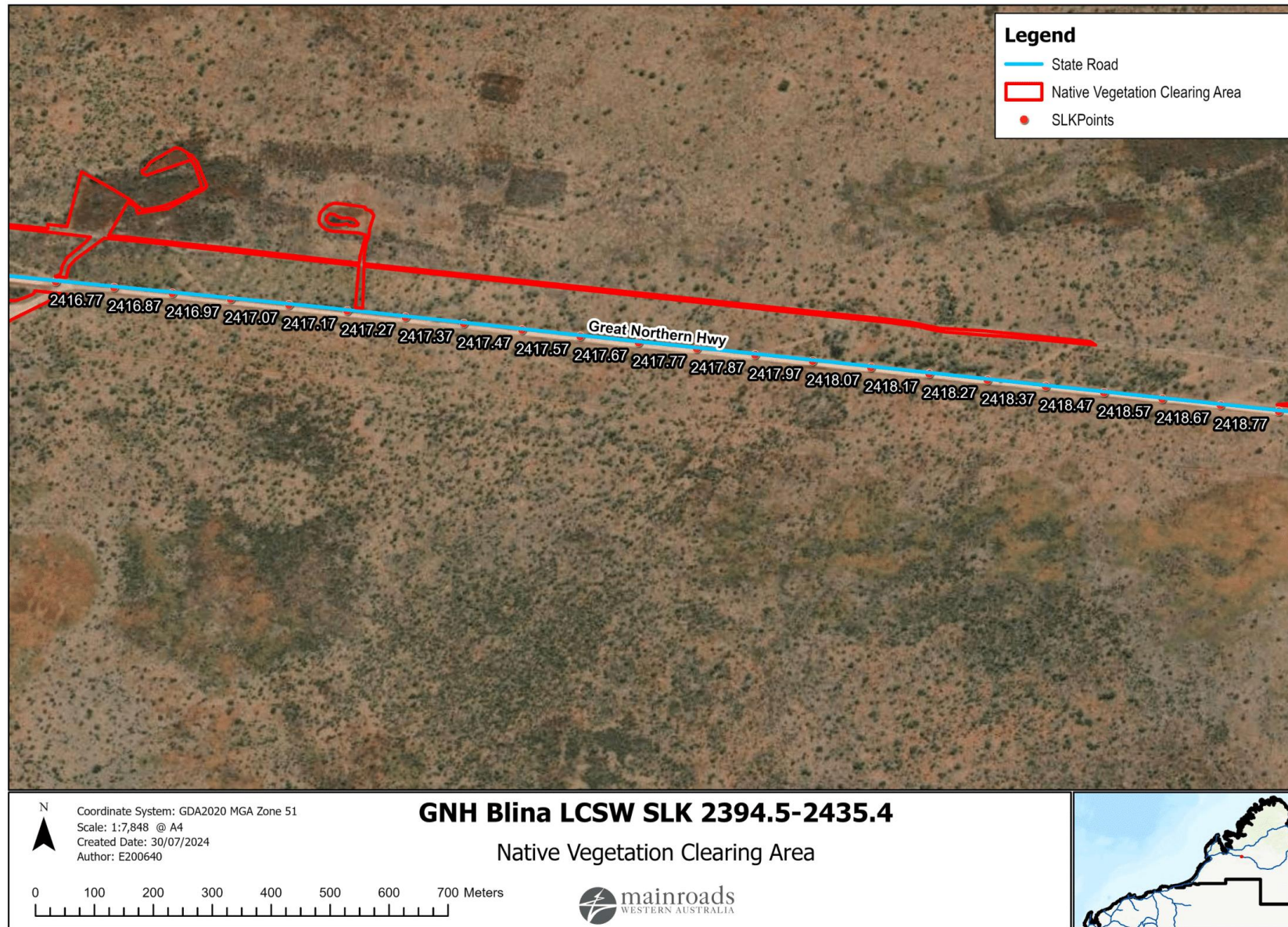


Figure 15. Map 14 of GNH Blina LCSW SLK 2394.5 – 2435.4.



Figure 16. Map 15 of GNH Blina LCSW SLK 2394.5 – 2435.4.

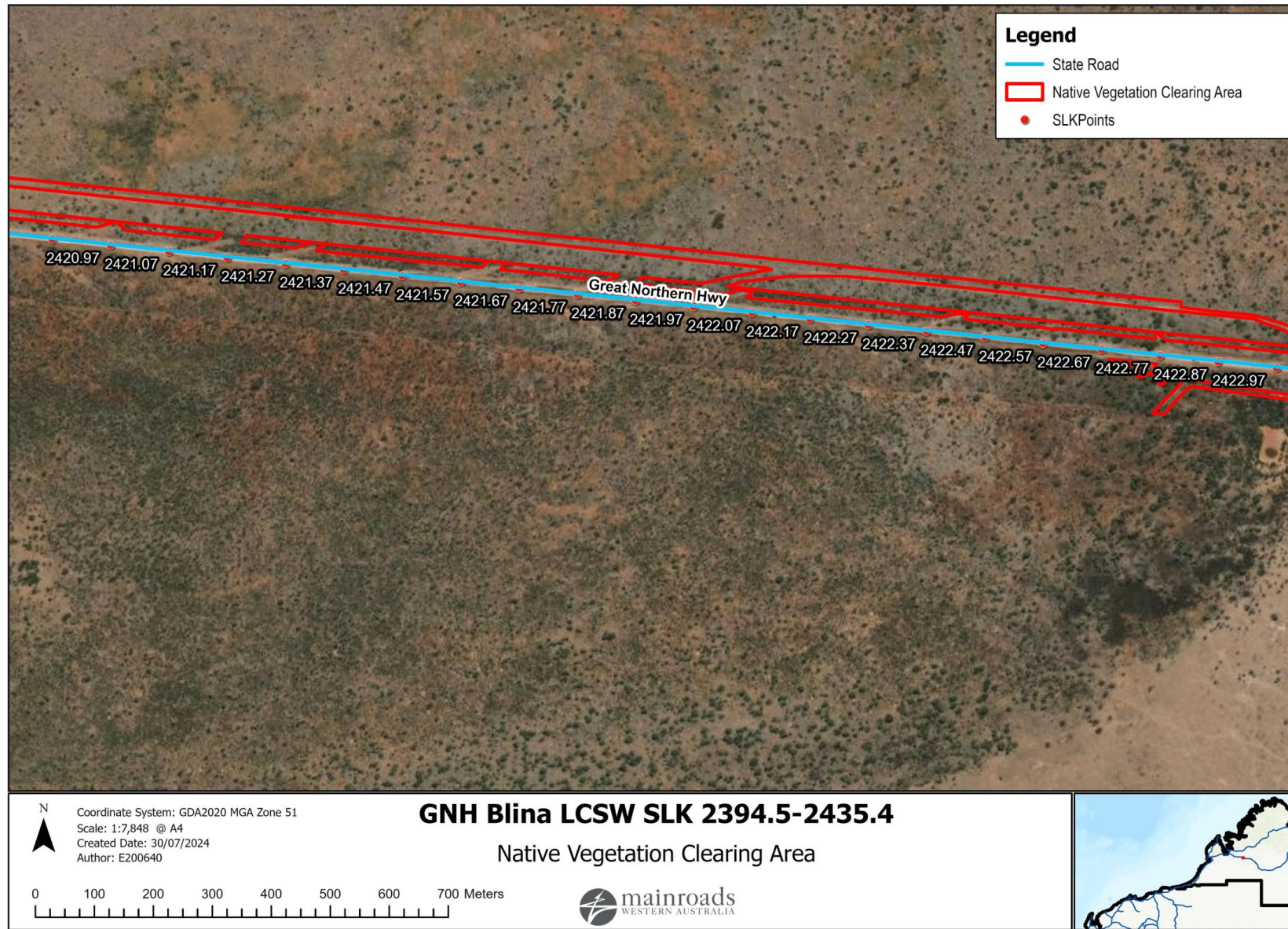


Figure 17. Map 16 of GNH Blina LCSW SLK 2394.5 – 2435.4.

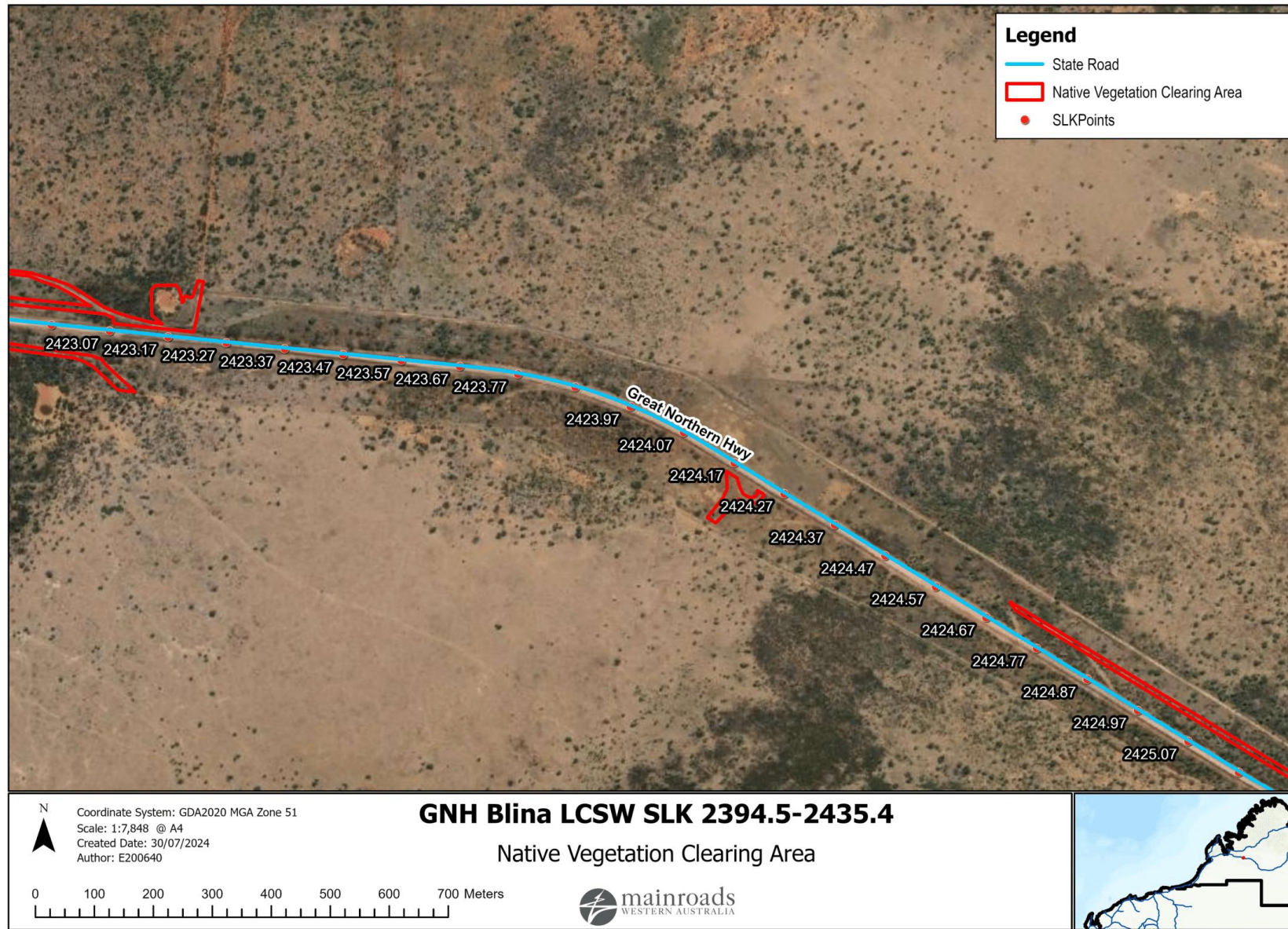


Figure 18. Map 17 of GNH Blina LCSW SLK 2394.5 – 2435.4.

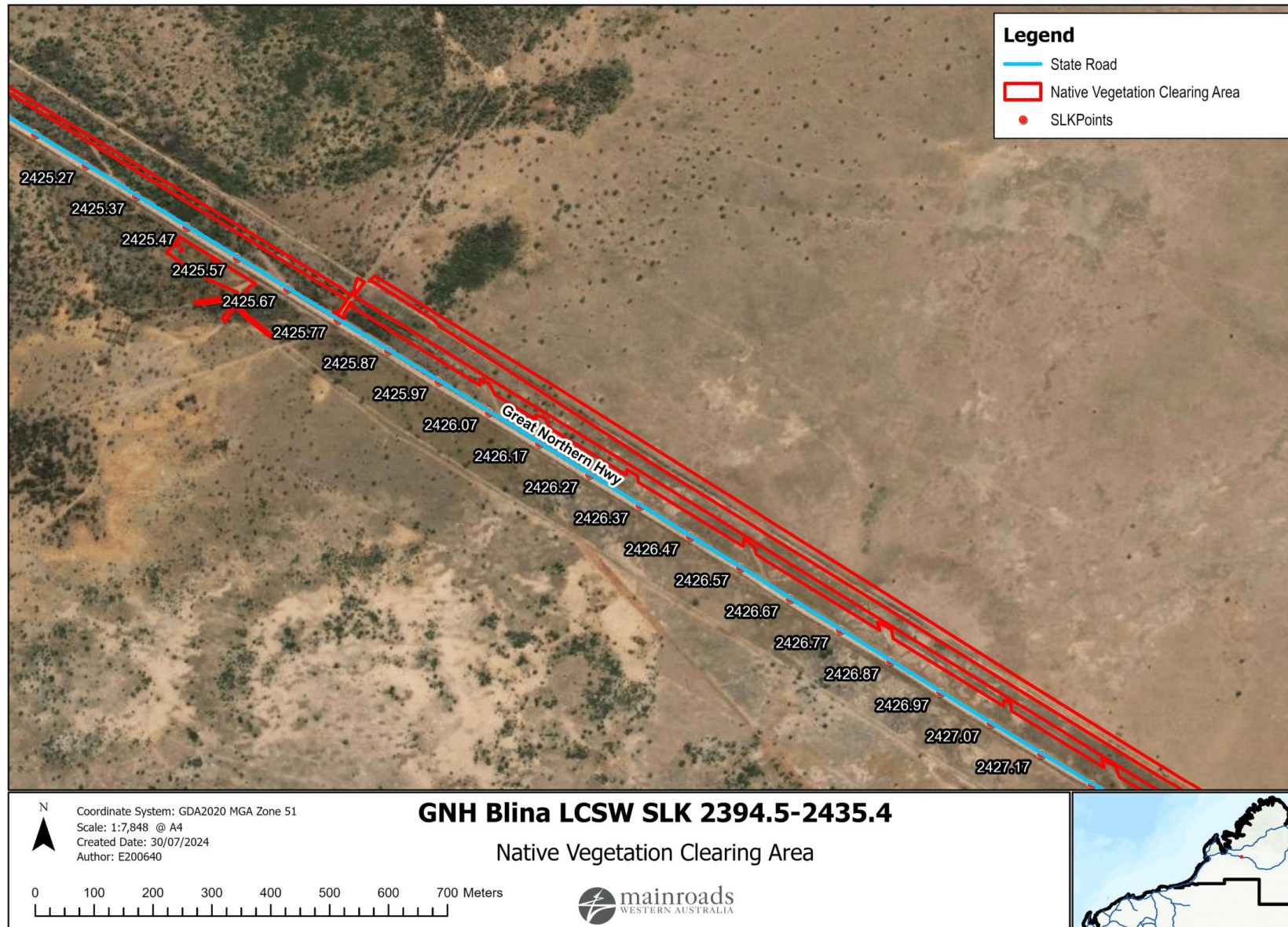


Figure 19. Map 18 of GNH Blina LCSW SLK 2394.5 – 2435.4.

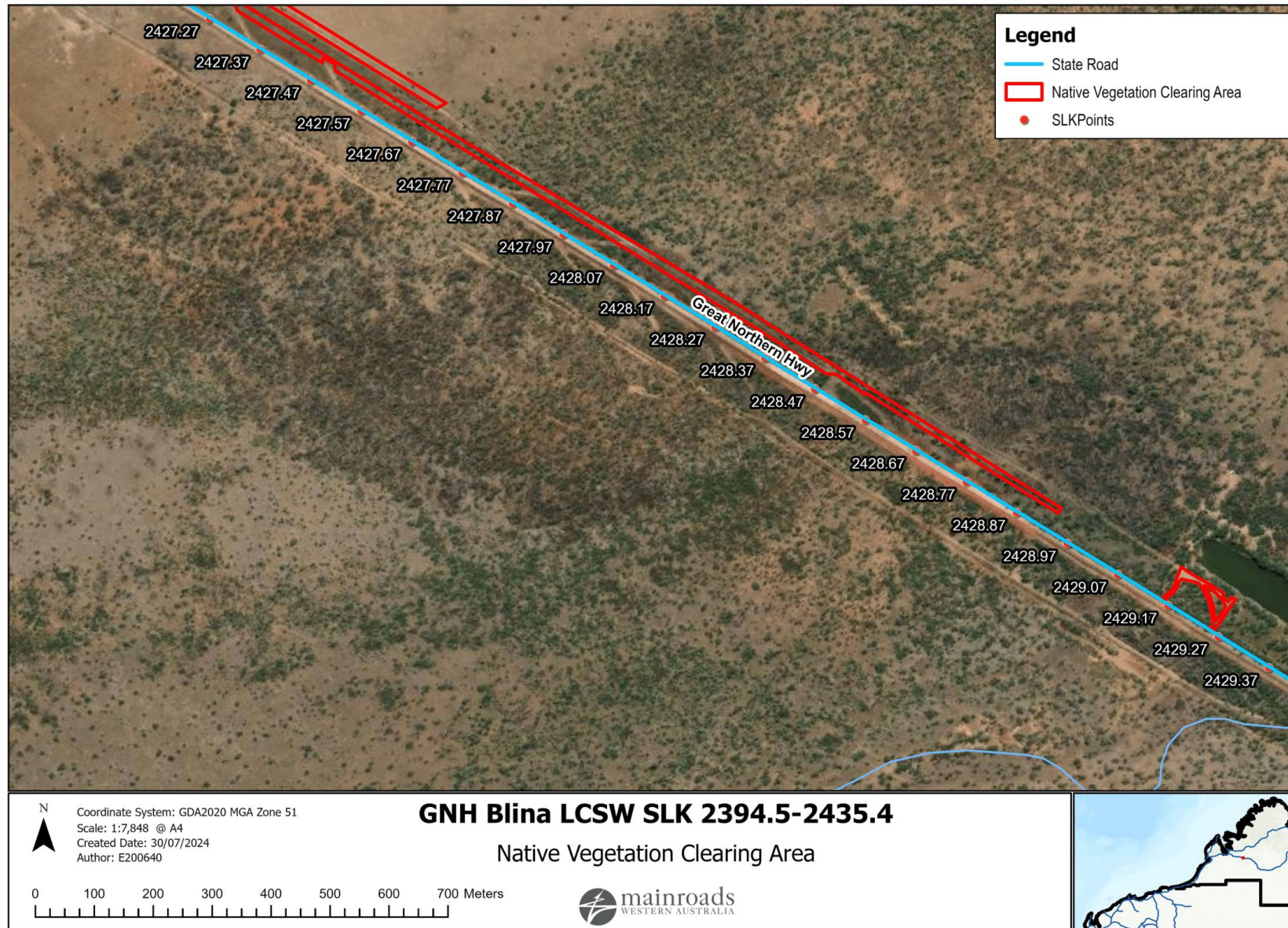


Figure 20. Map 19 of GNH Blina LCSW SLK 2394.5 – 2435.4.

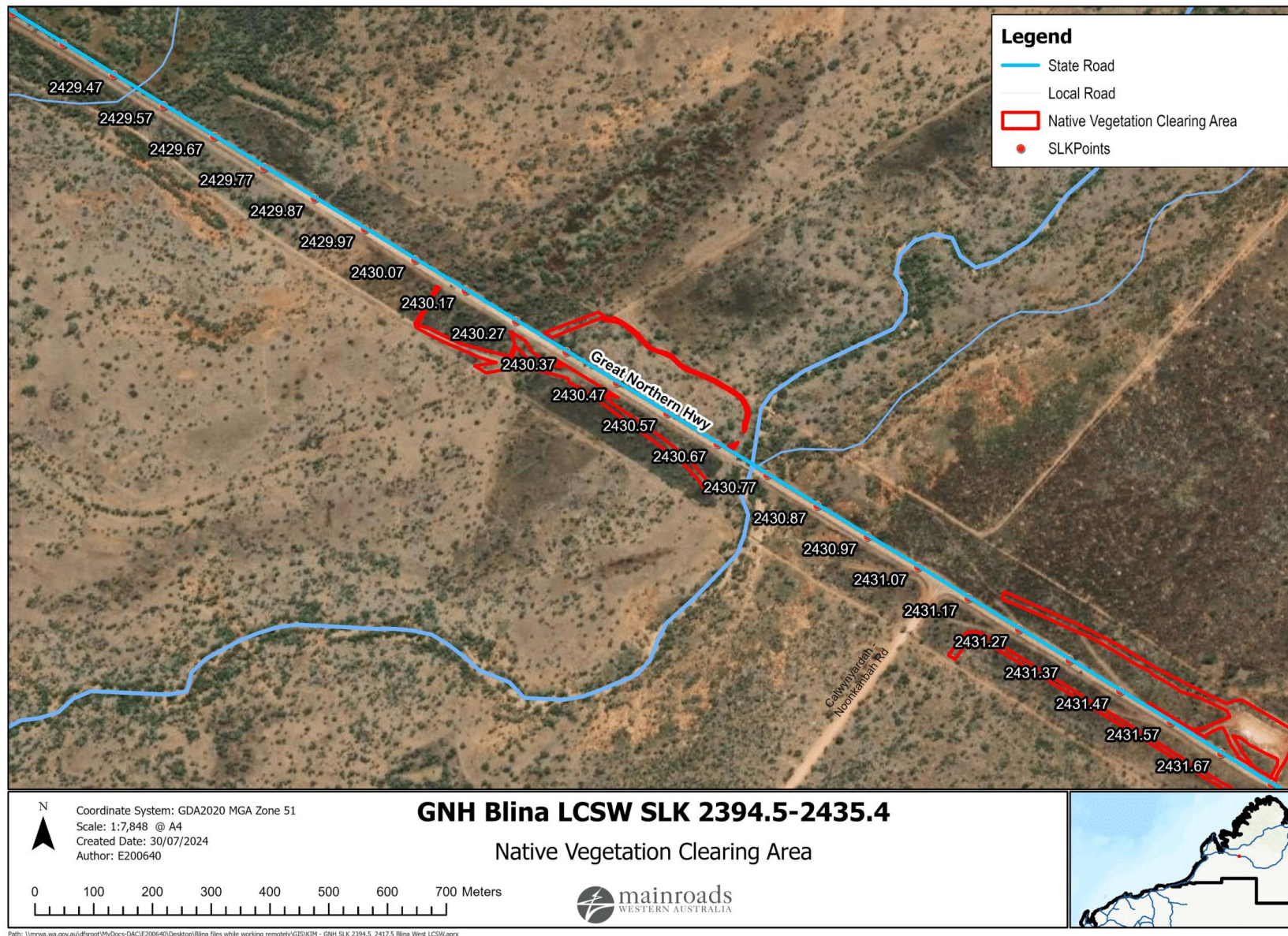


Figure 21. Map 20 of GNH Blina LCSW SLK 2394.5 – 2435.4.

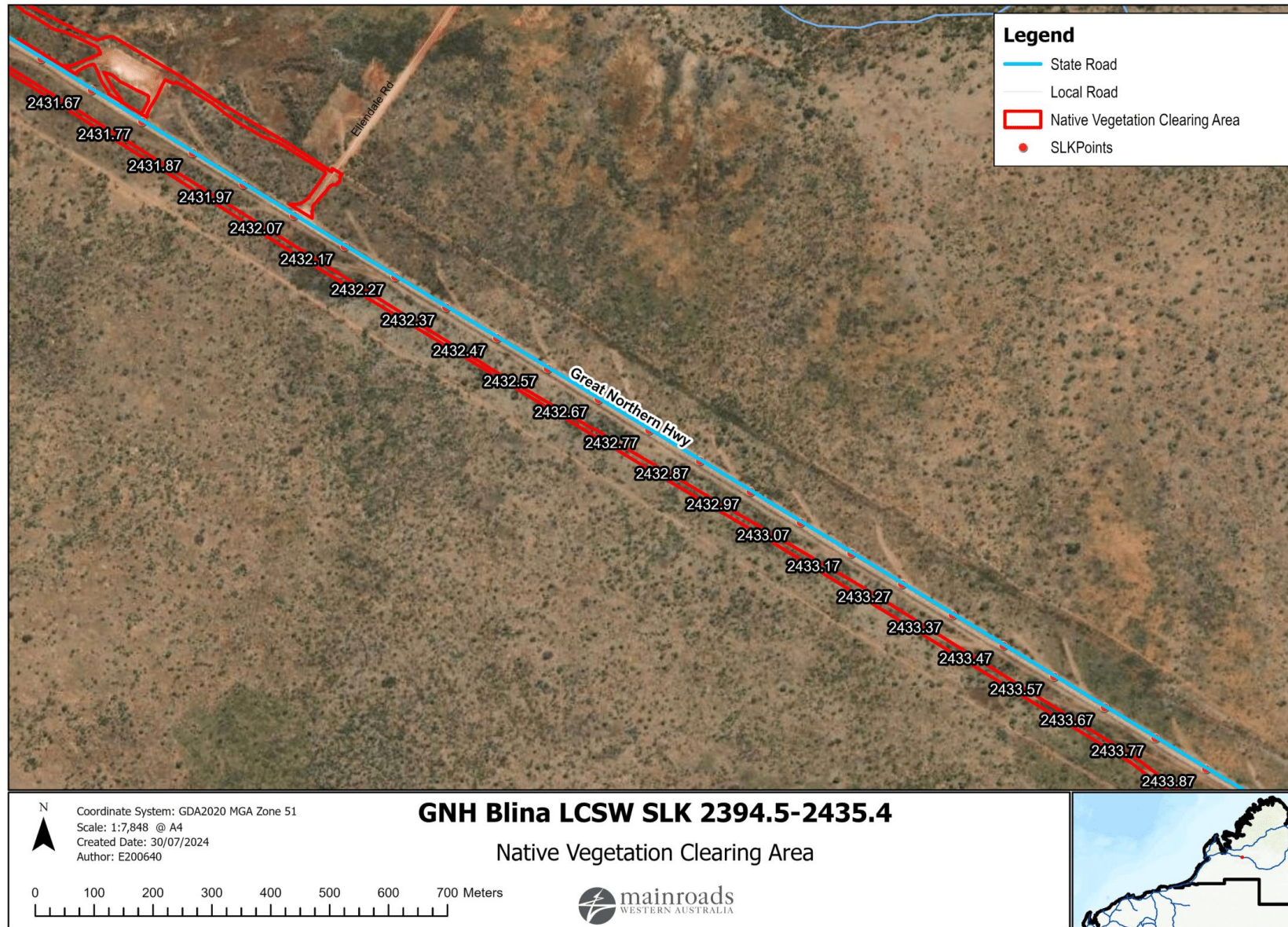


Figure 22. Map 21 of GNH Blina LCSW SLK 2394.5 – 2435.4.

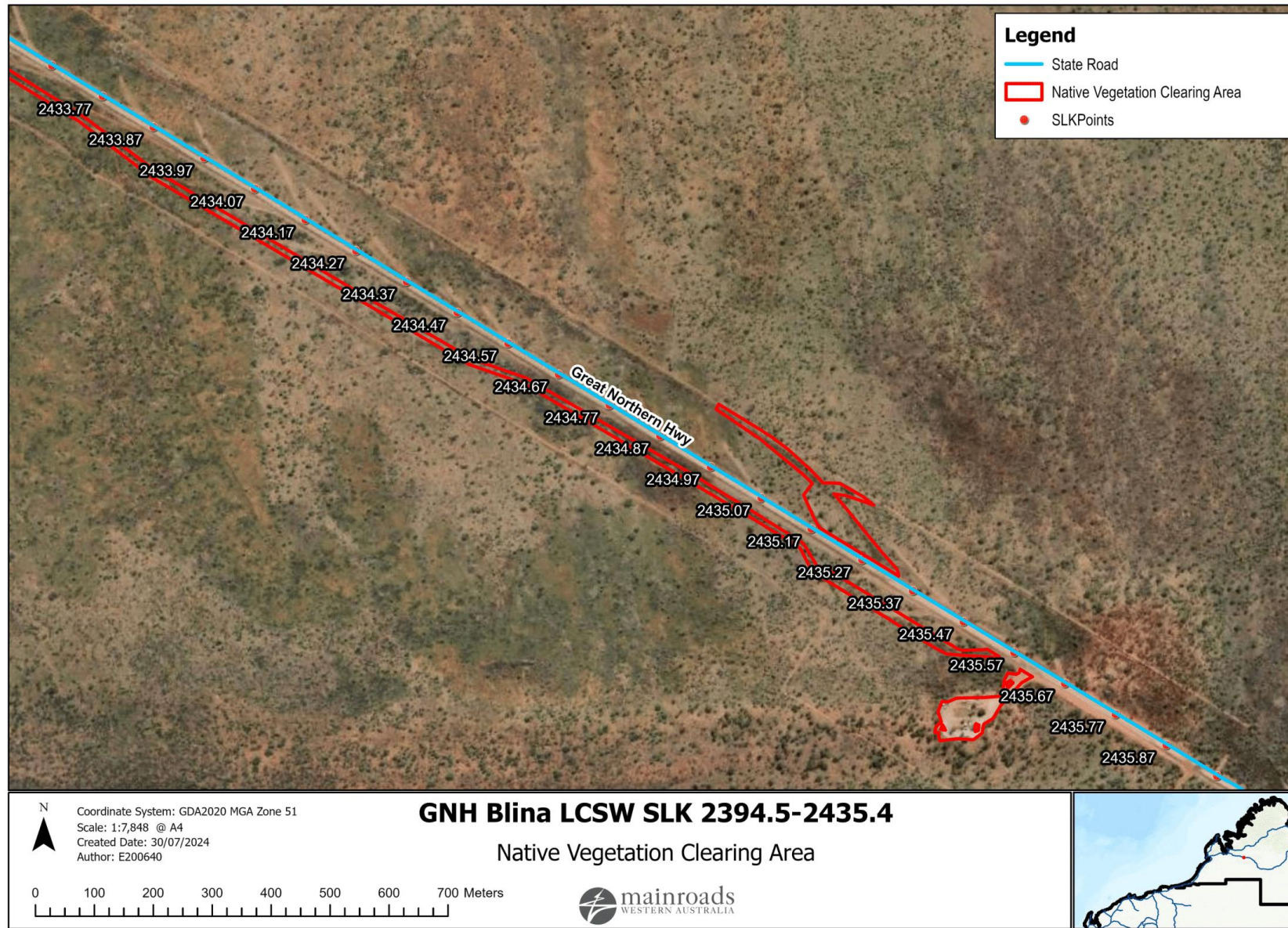


Figure 23. Map 22 of GNH Blina LCSW SLK 2394.5 – 2435.4.

1.4 Clearing Details

Proposed Clearing to be undertaken using CPS 818:

66.92 ha

Areas of Native Vegetation Clearing:

The areas of native vegetation to be cleared are shown in Figures 1 to 23.

Type of Native Vegetation:

Clearing of native vegetation for the proposal comprises four Vegetation Associations including:

- 1.45 ha of Vegetation Association No. 61 – Grasslands, tall bunch-grass open savanna woodland;
- 55.63 ha of Vegetation Association No. 64 – Grasslands, tall bunch-grass low-tree savanna;
- 4.59 ha of Vegetation Association No. 699 – Pindan with low trees;
- 5.23 ha of Vegetation Association No. 706 – Grasslands, tall bunch-grass savanna.

The type of vegetation to be cleared under this Proposal spans four pre-European Vegetation Types as shown below in Figure 24.

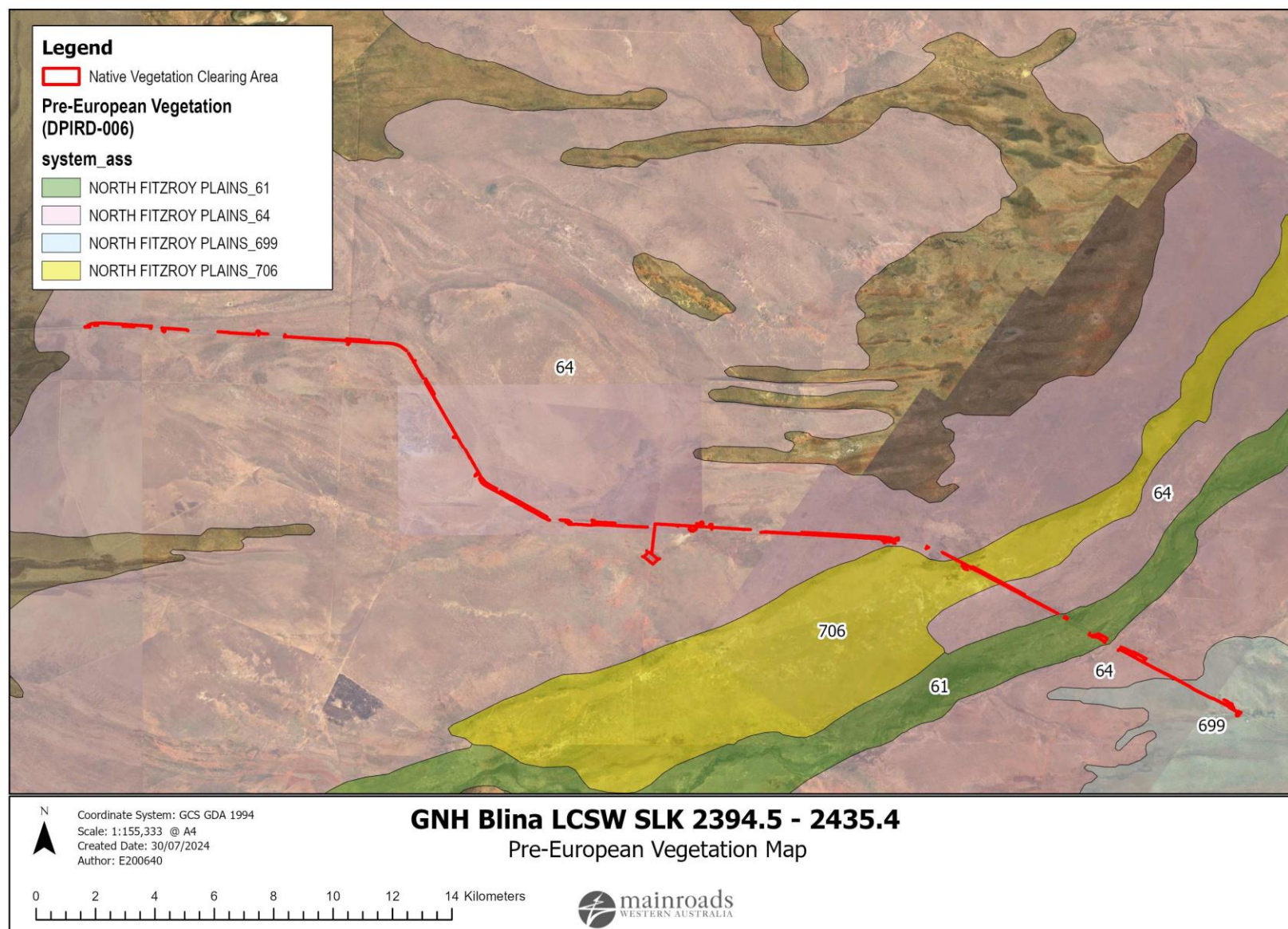


Figure 24. Pre-European Vegetation Map of GNH Blina LCSW SLK 2394.5 – 2435.4.

1.5 Alternatives to Native Vegetation Clearing Considered During Proposal Development

The following alternatives to clearing were considered during the development of the proposal:

- Do not seal or widen the road formation, however, this will potentially result in a poorer safety outcome and may result in future fatalities or serious injuries and further degradation of the State road asset.
- Main Roads retains frangible vegetation where a clear zone is to be established for road projects. For this project, however, clearing will only be required to accommodate the road formation, material areas, turkeys nests and stockpiles areas with no clear zone being established. Accordingly, the retention of frangible vegetation does not apply to this proposal.
- Reducing the speed limit to minimise clearing requirements, while still balancing safety (driver fatigue) and freight efficiency. Speed Limits are an essential mechanism to ensure the safe and efficient operation of road networks. The application of appropriate speed limits and other traffic management measures is a key mechanism in managing vehicle speeds to achieve desired safety, mobility, traffic management, local amenity, and road user expectations. There are several factors involved in road safety, including road conditions, driver behaviour and overall road design. Except in special situations, reducing speed limits below national standards on state and national roads is not typically supported as it has the potential to contribute to driver frustration, impatience, tiredness and recklessness. The environmental values protected by reducing the speed limit, do not justify the impacts on freight efficiencies nor road user safety. Accordingly, the reduction of the speed limits to avoid clearing of native vegetation for this proposal is not proposed.

1.6 Measures to Avoid, Minimise, Reduce and Manage Proposal Clearing Impacts

The design and management measures implemented to avoid and minimise the potential clearing impacts of the Proposal are provided in Table 1.

Table 1. Measures Undertaken to Avoid, Minimise, Reduce and Manage the Proposal Clearing Impacts

Design or Management Measure	Discussion and Justification
Located within pasture or degraded areas	The Native Vegetation Clearing Area is wholly located in areas that have been historically cleared or are subject to ongoing disturbance from vehicular movements. This avoids impacting vegetation that is in good or better condition, reducing overall clearing impacts on vegetation in the local area.
Use of existing cleared areas for access tracks, construction storage and stockpiling	The proposal has been situated within cleared or historically cleared areas, or areas subject to ongoing disturbance from vehicular movements. This avoids impacting native vegetation which has not been previously cleared.
Drainage modification	Drainage modification is not proposed under this scope of works. Existing drainage will be utilised to avoid impacting vegetation that is in good or better condition, reducing overall clearing impacts on vegetation in the local area.

1.7 Approved Policies and Planning Instruments

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act, Main Roads has also had regard to the below instruments where relevant.

Other Legislation potentially relevant for assessment of clearing and planning/other matters:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Country Areas Water Supply Act 1947* (WA) (CAWS Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)
- *Soil and Land Conservation Act 1945* (WA)
- *Rights in Water and Irrigation Act 1914*
- *Aboriginal Heritage Act 1972* (WA).

Environmental Protection Policies:

- Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992
- Environmental Protection (Western Swamp Tortoise Habitat) Policy 2011.

Other relevant policies and guidance documents:

- Environmental Offsets Policy (Government of Western Australia, 2011)
- A guide to the assessment of applications to clear native vegetation (Government of WA, December 2014)
- Procedure: Native vegetation clearing permits (Government of WA, October 2019)
- Environmental Offsets Guidelines (Government of Western Australia, 2014)
- Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
- Technical guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020)
- Approved conservation advice under section 266B of the EPBC Act for threatened flora/fauna/vegetation communities.

2 SCOPE AND METHODOLOGY ASSESSMENT OF CLEARING

Native vegetation will be cleared to accommodate this Proposal. This clearing will be undertaken using the Main Roads Statewide Clearing Permit CPS 818.

To comply with CPS 818, Main Roads must prepare a Clearing Desktop Report (CDR).

The CDR outlines the key activities associated with the Proposal, the existing environment and an assessment of native vegetation clearing. This assessment provides an evaluation of the vegetation clearing impacts associated with the Proposal using the ten Clearing Principles listed under s51 of the *Environmental Protection Act 1986* (EP Act) and strategies used to manage vegetation clearing.

2.1 Report Terminology and Sources

The following terms are used in this Clearing Report:

- **Native Vegetation Clearing Area** – The maximum amount of native vegetation to be cleared for the proposal that will accommodate the designed earthworks and, typically a nominal buffer to allow for the safe movement of machinery during construction.
- **Study Area** – Area covered by the Desktop Assessment. The Study Area for the Proposal is confined to a local area of a 40 km radius.
- **Survey Area** – The area covered by the Biota (March 2023a and November 2023b), Ecoscape (2021), and Astron (2017) Biological Surveys.

2.2 Desktop Assessment

A desktop assessment of the Native Vegetation Clearing Area was undertaken by viewing internal datasets and other government agency managed databases, and consulting with relevant stakeholders where necessary. Results from searches can be found in Appendix 1.

GIS layer viewing and mapping is done using ArcMap and/or Main Roads corporate mapping system known as iMaps. Referencing of the GIS layers accessed is done under the relevant methodology section of each clearing principle. Government-managed databases were searched to locate additional information, which are found under References in Section 8.

2.3 Surveys and Assessments

The following surveys/assessments were undertaken to inform this CDR:

- Basic and Targeted Biological Survey (Biota 2023a);
- Basic and Targeted Flora Survey (Biota 2023b);
- Basic and Targeted Biological Survey (Ecoscape 2021);
- Basic Biological Survey (Astron 2017).

Biological and targeted surveys conducted for the proposal are outlined below in

Table 2 and a summary of the findings in these reports are presented in Sections 3.1 to 3.2.

Table 2. Summary of Biological and Targeted Surveys Relevant to the Proposal

Consultant & Survey Name	Survey Details
Biota (March 2023a) Great Northern Highway Camballin to Blina Vegetation, Flora and Fauna Survey	Survey Area: The Survey comprised approximately 1,380.3 ha from a 24 km section of GNH from SLK 2370 and 2394 (Camballin to Erskine to Blina). Type: Basic Fauna (incl. targeted searches) (September 2022), a Detailed Flora Survey (October 2022), and a Targeted Flora Survey (October 2022). Timing: September and October 2022 Survey Results Shapefile TRIM Ref: D23#302885 Document TRIM Ref: D23#216897
Biota (November 2023b) Great Northern Highway Camballin to Blina Biological Survey and Targeted Flora Survey	Survey Area: The Survey comprised approximately 1,380.3 ha from a 24 km section of GNH from SLK 2370 and 2394 (Camballin to Erskine to Blina). Type: Basic Fauna (incl. targeted searches) (September 2022), a Detailed Flora Survey (October 2022), and a Targeted Flora Survey (October 2022, April 2023). Timing: Flora fieldwork was conducted in the dry and wet seasons, and the detailed fauna survey was conducted just before the wet season in 2022 (with some opportunistic records in 2023). Survey Results Shapefile TRIM Ref: D23#689264 Document TRIM Ref: D23#689178
Ecoscape (2021) Great Northern Highway Material Areas - SLK 2415 Biological Surveys	Survey Area: The Survey Area encompassed 291 ha for a material pit located 0.5 km south of GNH at SLK [REDACTED]. Type: Targeted Survey for the Greater Bilby in addition to a Basic Fauna Survey. Detailed and Targeted flora and vegetation survey. Timing: Wet Season - March 2021 Survey Results Shapefile TRIM Ref: D24#935783 Document TRIM Ref: D21#1020167
Astron (2017) Kimberley Materials Strategy – Part 1: Great Northern Highway & Victoria Highway Biological Survey – Priority 1 Pit Areas	Survey Area: Main Roads engaged Astron in 2017 to conduct a Biological Survey for Part 1 of the Kimberley Material Strategy which included 43 potential material pits (24 priority-1 and 19 priority-2 areas) along the Great Northern Highway and the Victoria Highway. Type: A Flora and Vegetation Assessment and a Terrestrial Fauna and Fauna Habitat Assessment in accordance with the relevant regulatory guidance. Timing: The first field survey was conducted from 4 - 24 July 2017. And the second field survey was conducted from 7 - 14 August 2017. Survey Results Shapefile TRIM Ref: D23#551669 Document TRIM Ref: D19#604558

3 SURVEY RESULTS

3.1 Summary of Flora and Vegetation Surveys

Four Biological surveys overlap portions of the Native Vegetation Clearing Area, conducted by Biota (2023a/b), Ecoscape (2021), and Astron (2017). Biota's 2023b Biological survey built on the information gathered from their 2023a Biological Survey from additional Targeted Flora searches in March 2023. As such, only the 2023b Biological survey will be referenced further throughout this document.

Eight vegetation types were mapped across the three surveys (excluding those areas mapped as Cleared). Vegetation types within the Native Vegetation Clearing Area are listed in Table 3 below.

Table 3: Biological Survey Vegetation Types within the Native Vegetation Clearing Area. Biota 2023b, Ecoscape 2021, and Astron 2017.

Vegetation Type	Native Vegetation Clearing Area (ha)	Mapped in Survey Area (ha)	Vegetation Description
Biota 2023			
Vegetation of Plains P5	0.68	43.40	<i>Corymbia greeniana</i> , (<i>Hakea arborescens</i> , <i>Adansonia gregorii</i>) low woodland over <i>Chrysopogon fallax</i> open tussock grassland.
Vegetation of Plains P1	0.51	1,816.20	<i>Grevillea striata</i> , <i>Hakea arborescens</i> , <i>Lysiphyllum cunninghamii</i> low open woodland over <i>Acacia eriopoda</i> scattered tall shrubs to tall open shrubland over <i>Chrysopogon fallax</i> , <i>Eriachne obtusa</i> tussock grassland to open tussock grassland.
Drainage Areas D1	0.94	924.20	<i>Melaleuca nervosa</i> , (<i>Adansonia gregorii</i>) low open woodland over <i>Acacia colei</i> scattered tall shrubs over mixed open tussock grassland.
Cleared	0.01	78.10	Cleared areas; completely or virtually devoid of vegetation.
Ecoscape 2021			
BcCp	0.32	84.52	<i>Bauhinia cunninghamii</i> , <i>Adansonia gregorii</i> and <i>Corymbia greeniana</i> low open woodland over <i>Chrysopogon pallidus</i> and <i>Sorghum plumosum</i> mid closed tussock grassland.
AaTi	0.46	7.87	<i>Acacia ancistrocarpa</i> and <i>A. eriopoda</i> tall sparse shrubland over <i>Triodia intermedia</i> low hummock grassland.
Regrowth / Cleared	8.54	9.15	Previously cleared/regrowth.
Astron 2017			
Low Woodland over Hummock Grasslands (LWH01)	1.63	255.21	<i>Corymbia greeniana</i> low open woodland over <i>Hakea arborescens</i> and <i>Acacia eriopoda</i> scattered tall shrubs over <i>Indigofera linnaei</i> scattered low shrubs

			over <i>Triodia wiseana</i> hummock grassland with <i>Chrysopogon pallidus</i> scattered tussock grasses.
Low Woodland over Tussock Grasslands (LWT05)	0.12	504.81	<i>Corymbia greeniana</i> low open woodland over <i>Chrysopogon pallidus</i> , <i>Aristida holathera</i> var. <i>holathera</i> and <i>Sehima nervosum</i> tussock grassland to open tussock grassland.
Tussock Grasslands (TG04)	0.05	542.00	<i>Acacia ancistrocarpa</i> tall open shrubland over <i>Sehima nervosum</i> and <i>Chrysopogon pallidus</i> closed tussock grassland.
No Vegetation (Cleared)	3.34	80.80	Vegetation has been removed for existing infrastructure including roads, road verges, drains, access tracks or fence lines.

4 VEGETATION DETAILS

4.1 Proposal Site Vegetation Description

The vegetation in the Native Vegetation Clearing Area consists of only native vegetation regrowth due to historical clearing and ongoing disturbance. The native vegetation clearing area has preferentially been selected over these disturbed and degraded areas to minimise the impacts of clearing. The Native Vegetation Clearing Area occurs across four Pre-European vegetation associations (refer to Table 4). All of the vegetation associations are within the vegetation unit - The North Fitzroy Plains, described as:

- 61: Coolibah over ribbon/blue grass (rivers) *Eucalyptus microtheca*, *Chrysopogon spp.*, *Dichanthium spp.*
- 64: Mainly ribbon grass with low woodland or scattered trees e.g., *Eucalyptus terminalis* over *Chrysopogon spp.*, *Dichanthium spp.*
- 699: Acacia thicket with scattered low trees over spinifex *Acacia eriopoda*, *Corymbia dichromophloia*, *Triodia pungens*, *T. bitextura*
- 706: Mainly Mitchell grass *Astrebla spp.*

As seen in Table 4, over 99% vegetation remains at all scales for each vegetation association.

Table 4. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	% Current Extent in DBCA Managed Land (proportion of pre-European Extent)
Veg Assoc No. 61	Statewide NORTH FITZROY PLAINS 61	185,472.52	185,315.67	99.92	0.55
Grasslands, tall bunch-grass open savanna woodland	IBRA Bioregion <i>Dampierland</i>	130,880.70	130,785.16	99.93	0.77
	IBRA Sub-region Fitzroy Trough	130,664.11	130,568.56	99.93	0.77
	Local Government Authority SHIRE OF DERBY-WEST KIMBERLEY	182,467.61	182,310.76	99.91	0.55
Veg Assoc No. 64	Statewide NORTH FITZROY PLAINS 64	434,783.66	434,560.88	99.95	0.00
Grasslands, tall bunch-grass low-tree savanna	IBRA Bioregion <i>Dampierland</i>	434,783.66	434,560.88	99.95	0.00
	IBRA Sub-region Fitzroy Trough	410,085.60	409,862.82	99.95	0.00
	Local Government Authority SHIRE OF DERBY-WEST KIMBERLEY	427,578.09	427,355.31	99.95	0.00
Veg Assoc No. 699	Statewide NORTH FITZROY PLAINS 699	1,986,450.05	1,984,438.78	99.90	0.55

Pre-European Vegetation Association	Scale	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	% Current Extent in DBCA Managed Land (proportion of pre-European Extent)
Pindan with low trees	IBRA Bioregion <i>Dampierland</i>	1,976,313.50	1,974,958.06	99.93	0.48
	IBRA Sub-region Fitzroy Trough	180,118.58	179,963.89	99.91	0.00
	Local Government Authority SHIRE OF DERBY-WEST KIMBERLEY	357,807.33	357,647.25	99.96	0.00
Veg Assoc No. 706	<i>Statewide</i> NORTH FITZROY PLAINS 706	288,442.81	286,987.92	99.50	0.55
Grasslands, tall bunch-grass savanna	IBRA Bioregion <i>Dampierland</i>	272,836.06	271,872.44	99.65	0.13
	IBRA Sub-region Fitzroy Trough	272,449.03	271,485.42	99.65	0.13
	Local Government Authority SHIRE OF DERBY-WEST KIMBERLEY	282,778.66	281,323.77	99.49	0.12

5 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

In assessing whether the Proposal's proposed clearing is likely to have a significant impact on the environment, the Proposal was assessed against the ten Clearing Principles (EP Act, Schedule 5).

Each principle has been assessed in accordance with the former Department of Environment Regulation (now Department of Water and Environmental Regulation (DWER) '[A Guide to the Assessment of Applications to Clear Native Vegetation](#)' (Department of Environment Regulation, 2014) and other relevant clearing permit application decision reports prepared by DWER.

The proposed clearing is not at, or not likely to be at variance with the ten Clearing Principles.

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Proposed clearing is not likely to be at variance to this Principle.

Assessment

The Native Vegetation Clearing Area is primarily located within the road reserve with only small areas extending out into Crown land for materials and water resourcing. The majority of the proposed clearing is long, linear and adjacent to existing roads; with other areas consisting of existing material pits and turkey nests. Being located primarily in the road reserve and wholly located within historically cleared areas and areas subject to ongoing disturbance, clearing proposed is limited to native vegetation regrowth only. The historical clearing and ongoing disturbance contributes to the biological diversity within the Native Vegetation Clearing Area being lower in comparison to the surrounding area which is in Good, or better condition.

No Threatened or Priority Ecological Communities (TEC/PEC) are located within 1 km of the Native Vegetation Clearing Area, and the vegetation present is not considered representative of any TEC/PEC.

The Native Vegetation Clearing Area occurs across four pre-European Vegetation Associations, all of which retain over 99% of their Pre-European Extent at all levels. Eight vegetation types are represented in the Native Vegetation Clearing Area (Biota 2023, Ecoscape 2021, and Astron 2017), all of which are well represented across the local and regional area. Clearing of native vegetation regrowth along existing linear infrastructure from an area spread across 41 km of the road alignment will not impact on the availability of vegetation locally or regionally.

Flora

A Study Area of 40 km was used to identify conservation-significant flora species utilising data from PMST (DCCEEW), DBCA, WA Herbarium and DBCA's Dandjoo Search. This returned 15 conservation significant flora species. No Threatened flora species were identified.

Information on preferred habitat types, known soil data, vegetation descriptions, topography, date of known records and frequency of records have been used to assess the likelihood of occurrence of 15 conservation significant flora species. Based on this assessment, only one taxa (*Goodenia sepalosa* var. *glandulosa*) was considered 'likely to occur' and two taxa (*Euploca parviantrum* (Craven) M.W.Frohl. & M.W.Chase (previously *Heliotropium parviantrum*) and *Goodenia malvina*) 'possible to occur' in the Native Vegetation Clearing Area.

***Euploca parviantrum* (Craven) M.W.Frohl. & M.W.Chase (previously *Heliotropium parviantrum*) (P1) - Possible**

Erect annual, herb to 0.15 m high. Flowers white, February to June. Occurs in sandy soils on flats, plains, and rocky slopes (WAH 1998). The nearest observation is from 1967 and is over 36 km north of the Native Vegetation Clearing Area. This species has not been identified in any of the three overlapping surveys. Suitable soil and habitat may be present within the Native Vegetation Clearing Area however, even if some individuals may be present, it would be unlikely for the species to be significantly impacted by the proposed clearing given the Native Vegetation Clearing Area consists of historically cleared areas with only regrowth present and large expanses of habitat in adjacent areas in better undisturbed condition. Impacts, if any, on this species will not be significant.

***Goodenia malvina* (P1) – Possible**

Erect or spreading to prostrate annual (ephemeral) herb, 0.07-0.8 m high. Flowers blue-purple-yellow, January to May. Known from cracking black clay and seasonally wet areas. The species was identified in Ecoscape's 2021 Biological Survey; however, this record is 600 m from the Native Vegetation Clearing Area and no other records of the species occur within a 40 km radius. Other Biological Surveys by Astron (2017) and Biota (2023) identified the species as unlikely to occur in their respective Survey Area. The vegetation association of the observed location is BcCp, which is present within the Native Vegetation Clearing Area. As such, this species may occur within the Native Vegetation Clearing Area.

Suitable habitat that may be present within the Native Vegetation Clearing Area will continue to be present for the species after the works have been completed. Vegetation type BcCp (where the nearest flora observation is located) has been assessed to be the same vegetation type as LWH01 (Astron 2017) and P5 (Biota 2023), of which up to 499.38 ha of this vegetation type has been mapped across the three Biological Surveys. This habitat is available along the length of Great Northern Highway and the region. The Native Vegetation Clearing Area is unlikely to constitute a significant location for the species due to the historical clearing and ongoing disturbance. As the proposed clearing is wholly located within historically cleared and disturbed areas and is likely to represent only sub-optimal habitat, no significant impact to the species will occur as a result of the proposed clearing.

***Goodenia sepalosa* var. *glandulosa* (P3) - Likely**

Prostrate to sprawling herb, 0.03-0.3 m high. Flowers yellow, January to December (mainly April-July). Known from Acacia woodlands on red sand or loam; Pindan. The species was observed in Material Pit 14 in Astron's (2017) Biological Survey and assessed as 'May Occur' in Plains (P1-P5) vegetation types by Biota (2023).

Suitable habitat may be present within the Native Vegetation Clearing Area; however, even if some individuals may be present, it would be unlikely for the species to be significantly impacted by the proposed clearing given the Native Vegetation Clearing Area consists of historically cleared areas with only regrowth present and the available habitat will continue to be present for the species after the works have been completed. This habitat extends along the length of Great Northern Highway and outside of the Native Vegetation Clearing Area and the majority of the clearing area is subject to ongoing clearing and disturbance from vehicles. As the proposed clearing is wholly located within historically cleared and disturbed areas and is likely to only represent sub-optimal habitat, no significant impact to this species will occur as a result of the proposed clearing.

Any impacts on the above listed species would not be significant based on the nature and location of the proposed clearing.

Fauna

Biota (2023a/b) mapped Savannah plains and Melaleuca floodplain fauna habitats that are typical of the region and widespread in the surrounding locality. None are restricted to the immediate area.

Ecoscape (2021) mapped Woodland and Shrubland habitats that are common and widespread and representative of the region.

Astron (2017) mapped Eucalypt Woodland Plain, Non-cracking Clay Plain, and Grassland Plain and noted habitats are mostly well connected with habitats in the immediate vicinity and are therefore considered to be well represented within the local context and are also well represented within the regional context, when compared to the extent of the corresponding native vegetation associations.

Given the Native Vegetation Clearing Area is wholly located within historically cleared and disturbed areas and clearing is limited to regrowth only, no significant impact on the local and regional availability of fauna habitat will occur as a result of the proposed clearing.

A search of fauna observations within a 40 km radius of the Native Vegetation Clearing Area from DBCA TPFA, DBCA'S Dandjoo search, and DCCEE's PMST identified 49 conservation-listed species. Of the 49 species, 28 were subject to a likelihood of occurrence assessment based on habitat potential. Based on this assessment, seven species (Bilby; Grey Falcon; Peregrine Falcon; Small Toadlet; Spectacled Hare-wallaby (Mainland); Spotted Ctenotus; and Northern Blue Tongue Skink) were considered 'possible to occur' in the Native Vegetation Clearing Area.

Bilby (VU) (*Macrotis lagotis*) - Possible

A solitary species that shelters in burrows during daylight and intermittently during the night. Occupies three main habitats: open tussock grassland on uplands and hills, *Acacia aneura* (mulga) woodland growing on ridges and rises and hummock grassland in plains and alluvial areas (DCCEE, 2024b). There are two known records of this species within the 40 km Study Area, one 20 km west and one 34 km northwest of the Native Vegetation Clearing Area. The proposal is located within the species known distribution range but the habitat for which the species displays a greater preference occurs outside of the Native Vegetation Clearing Area. The majority of the proposal is adjacent to existing road infrastructure and subject to ongoing vehicular disturbance. As such, Bilby would not utilise or rely on the area as key habitat when adjacent areas provide undisturbed habitat in good or better condition. The proposed clearing is unlikely to impact on this species.

Grey Falcon (VU) (*Falco hypoleucos*) – Possible

Occurs in open habitats, semi-deserts, grassy inland plains, timbered watercourses, pastoral lands (Astron 2017) and nest in the tallest trees along watercourses, particularly River Red Gum (*Eucalyptus camaldulensis*) and Coolibah (*E. coolabah*), and also in telecommunication towers (TSSC 2019). The Native Vegetation Clearing Area does not contain suitable habitat for nesting with vegetation limited to regrowth due to historical clearing and ongoing disturbance. Foraging

habitat for this species is limited with more extensive and higher quality foraging habitat available beyond the Native Vegetation Clearing Area in areas not previously cleared or disturbed. The proposed clearing of regrowth vegetation is unlikely to impact this species.

Peregrine Falcon (OS) *Falco peregrinus* - Possible

The Peregrine Falcon is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near water and may even be found nesting on high city buildings. The Peregrine Falcon is found across Australia, but is not common anywhere (Australian Museum, 2019). The nearest observation of the species was made in 2000 and is over 35 km southwest of the Native Vegetation Clearing Area and was not identified in any of the adjacent Biological Surveys (Biota 2023, Ecoscape 2021, Astron 2017). Due to the wide distribution of the species and suitable habitats, the species if occurring, would likely only flyover the Native Vegetation Clearing Area. The proposed clearing is unlikely to impact this species.

Small Toadlet (Mitchell Plateau) (P3) *Uperoleia minima* - Possible

A small (3 cm) species with moderate legs and occurs in dense grasslands subject to flooding (WA Museum 2014). Suitable habitat for the species may be present within the Native Vegetation Clearing Area in the form of drainage areas during the wet season, however, the proposed works are to occur during the dry season when these areas are not wet or flooded. This habitat will still be present for this species when the wet season returns. The proposed clearing is unlikely to impact this species.

Spectacled Hare-wallaby (Mainland) (P4) *Lagorchestes conspicillatus leichardti* - Possible

The species occurs in a range of tussock and hummock grassland habitats with sparse to moderately dense tree or shrub cover (Menkhorst and Knight 2011). The nearest observation was made in 1958 and is over 7.5 km west of the Native Vegetation Clearing Area and was not identified in any of the adjacent Biological Surveys (Biota 2023, Ecoscape 2021, Astron 2017). Whilst the species has the potential to occur, the habitat present is unlikely to support significant occurrence while the surrounding areas provide extensive available habitat in good, or better condition. Fauna habitat in the Native Vegetation Clearing Area is noted to be common at the local and regional scales (Biota 2023, Ecoscape 2021, Astron 2017). The proposed clearing is unlikely to impact this species.

Spotted Ctenotus (Northeast) (P2) *Ctenotus uber johnstonei* – Possible

Species occupies varied arid habitats, from chenopod shrubland to arid scrubland and open woodland. Subspecies *johnstonei* known from chenopod shrubland at the base of rocky hills, and morphologically similar animals in the Pilbara appear to favour Acacia shrubland (Biota 2023). The closest DBCA record is over 13 km south of the Native Vegetation Clearing Area. The species may occur, however, regrowth vegetation subject to ongoing disturbance is not representative of significant habitat for the species. Habitat is widespread across the region and widely available in good or better condition beyond the Native Vegetation Clearing Area and would be preferential to this species. The proposed clearing is unlikely to impact this species.

Northern Blue-tongue Skink (Null)(CR) *Tiliqua scincoides intermedia* - Possible

As of December 2023, the Northern Blue-Tongue Skink is a federally listed species, however, the species is not a conservation-significant species in WA, where the species is common. No records are available within 40 km of the Survey area from DBCA data, due to the new Federal status and lack of a BC Act status. Significant impacts to the species are predominantly from Cane Toads

(DCCEEW 2023). Clearing for the proposal in an area that is subject to ongoing disturbance will not significantly impact this species while extensive habitat is available in the surrounding areas. It is not expected this species will be impacted by the proposed works.

As all vegetation within the Native Vegetation Clearing Area is regrowth, this vegetation is unlikely to represent significant fauna habitat when vegetation in good or better condition is available in abundance in adjacent areas. Surveys have identified these habitats as neither locally nor regionally significant due to their wide availability on a regional scale (Biota 2023b, Ecoscape 2021, Astron 2017).

The proposed works will not have a significant impact on any conservation significant fauna or fauna habitat.

Considering the above, native vegetation clearing associated with this proposal is not likely to impact a high level of biological diversity, is linear in nature and the clearing area is not large in the local context. Therefore, the proposed clearing is not likely to be at variance to this Principle.

Methodology

- Biological Survey (Biota 2023b)
- Biological Survey (Ecoscape 2021)
- Biological Survey (Astron 2017)
- BoM Website (Accessed June 2024)
- DCCEEW Protected Matters Search Tool Report
- Department of Natural Resources and Environment (2002)
- Government GIS Shapefiles:
 - DBCA Threatened and Priority Ecological Community database search (Accessed June 2024)
 - DBCA Threatened and Priority flora database search (Accessed June 2024)
 - WA Herbarium Threatened and Priority Flora (Accessed June 2024)
 - Threatened and Priority Ecological Community (Accessed June 2024)
- NatureMap Dandjoo (Accessed June 2024)
- Statewide Vegetation Statistics (Government of Western Australia 2018)

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Proposed clearing is not likely to be at variance to this Principle.

Assessment

Biota (2023a/b) mapped Savannah plains and Melaleuca floodplain fauna habitats that are typical of the region and widespread in the surrounding locality. None are restricted to the immediate area.

Ecoscape (2021) mapped Woodland and Shrubland habitats that are common and widespread and represented of the region.

Astron (2017) mapped Eucalypt Woodland Plain, Non-cracking Clay Plain, and Grassland Plain and noted habitats are mostly well connected with habitats in the immediate vicinity and are therefore considered to be well represented within the local context and are also well represented within the regional context, when compared to the extent of the corresponding native vegetation associations.

Given the Native Vegetation Clearing Area is wholly located within historically cleared and disturbed areas and clearing is limited to regrowth only, no significant impact on the local and regional availability of fauna habitat will occur as a result of the proposed clearing.

A search of fauna observations within a 40 km radius of the Native Vegetation Clearing Area from DBCA TPFA, DBCA's Dandjoo search, and DCCEE's PMST identified 49 conservation-listed species.

Of the 49 species, 17 are migratory bird species, and four are marine species. These species are unlikely to be impacted by the proposed works as:

- no watercourses or wetland habitat is present within the Native Vegetation Clearing Area; and
- the proposed clearing of regrowth vegetation does not constitute significant habitat for any migratory species; and
- species are likely to only overfly the Native Vegetation Clearing Area and utilise adjacent vegetation that is in good or better condition and not subject to disturbance.

The remaining 28 species were subject to a likelihood of occurrence assessment based on habitat potential.

Based on the likelihood of occurrence assessment, seven species (Bilby; Grey Falcon; Peregrine Falcon; Small Toadlet; Spectacled Hare-wallaby (Mainland); Spotted Ctenotus; and Northern Blue Tongue Skink) were considered 'possible to occur' in the Native Vegetation Clearing Area.

Bilby (VU) (VU) *Macrotis lagotis* - Possible

A solitary species that shelters in burrows during daylight and intermittently during the night. Occupies three main habitats: open tussock grassland on uplands and hills, *Acacia aneura* (mulga) woodland growing on ridges and rises and hummock grassland in plains and alluvial areas (DCCEE, 2024b). There are two known records of this species within the 40 km Study Area, one

20 km west and one 34 km northwest of the Native Vegetation Clearing Area. The proposal is located within the species known distribution range but the habitat for which the species displays a greater preference occurs outside of the Native Vegetation Clearing Area. The majority of the proposal is adjacent to existing road infrastructure and subject to ongoing vehicular disturbance. As such, Bilby would not utilise or rely on the area as key habitat when adjacent areas provide undisturbed habitat in good or better condition. The proposed clearing is unlikely to impact on this species.

Grey Falcon (VU) *Falco hypoleucos* – Possible

Occurs in open habitats, semi-deserts, grassy inland plains, timbered watercourses, pastoral lands (Astron 2017) and nest in the tallest trees along watercourses, particularly River Red Gum (*Eucalyptus camaldulensis*) and Coolibah (*E. coolabah*), and also in telecommunication towers (TSSC 2019). The Native Vegetation Clearing Area does not contain suitable habitat for nesting with vegetation limited to regrowth due to historical clearing and ongoing disturbance. Foraging habitat for this species is limited with more extensive and higher quality foraging habitat available beyond the Native Vegetation Clearing Area in areas not previously cleared or disturbed. The proposed clearing of regrowth vegetation is unlikely to impact this species.

Peregrine Falcon (OS) *Falco peregrinus* - Possible

The Peregrine Falcon is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near water and may even be found nesting on high city buildings. The Peregrine Falcon is found across Australia, but is not common anywhere (Australian Museum, 2019). The nearest observation of the species was made in 2000 and is over 35 km southwest of the Native Vegetation Clearing Area and was not identified in any of the adjacent Biological Surveys (Biota 2023, Ecoscape 2021, Astron 2017). Due to the wide distribution of the species and suitable habitats, the species if occurring, would likely only flyover the Native Vegetation Clearing Area. The proposed clearing is unlikely to impact this species.

Small Toadlet (Mitchell Plateau) (P3) *Uperoleia minima* - Possible

A small (3 cm) species with moderate legs and occurs in dense grasslands subject to flooding (WA Museum 2014). Suitable habitat for the species may be present within the Native Vegetation Clearing Area in the form of drainage areas during the wet season, however, the proposed works are to occur during the dry season when these areas are not wet or flooded. This habitat will still be present for this species when the wet season returns. The proposed clearing is unlikely to impact this species.

Spectacled Hare-wallaby (Mainland) (P4) *Lagorchestes conspicillatus leichardti* - Possible

The species occurs in a range of tussock and hummock grassland habitats with sparse to moderately dense tree or shrub cover (Menkhorst and Knight 2011). The nearest observation was made in 1958 and is over 7.5 km west of the Native Vegetation Clearing Area and was not identified in any of the adjacent Biological Surveys (Biota 2023, Ecoscape 2021, Astron 2017). Whilst the species has the potential to occur, the habitat present is unlikely to support significant occurrence while the surrounding areas provide extensive available habitat in good, or better condition. Fauna habitat in the Native Vegetation Clearing Area is noted to be common at the local and regional scales (Biota 2023, Ecoscape 2021, Astron 2017). The proposed clearing is unlikely to impact this species.

Spotted Ctenotus (Northeast) (P2) *Ctenotus uber johnstonei* – Possible

Species occupies varied arid habitats, from chenopod shrubland to arid scrubland and open woodland. Subspecies *johnstonei* known from chenopod shrubland at the base of rocky hills, and morphologically similar animals in the Pilbara appear to favour Acacia shrubland (Biota 2023). The closest DBCA record is over 13 km south of the Native Vegetation Clearing Area. The species may occur, however, regrowth vegetation subject to ongoing disturbance is not representative of significant habitat for the species. Habitat is widespread across the region and widely available in good or better condition beyond the Native Vegetation Clearing Area and would be preferential to this species. The proposed clearing is unlikely to impact this species.

Northern Blue-tongue Skink (Null)(CR) *Tiliqua scincoides intermedia* - Possible

As of December 2023, the Northern Blue-Tongue Skink is a federally listed species, however, the species is not a conservation-significant species in WA, where the species is common. No records are available within 40 km of the Survey area from DBCA data, due to the new Federal status and lack of a BC Act status. Significant impacts to the species are predominantly from Cane Toads (DCCEEW 2023). Clearing for the proposal in an area that is subject to ongoing disturbance will not significantly impact this species while extensive habitat is available in the surrounding areas. It is not expected this species will be impacted by the proposed works.

As all vegetation within the Native Vegetation Clearing Area is regrowth, this vegetation is unlikely to represent significant fauna habitat when vegetation in good or better condition is available in abundance in adjacent areas. Surveys have identified these habitats as neither locally nor regionally significant due to their wide availability on a regional scale (Biota 2023b, Ecoscape 2021, Astron 2017). The proposed works will not have a significant impact on fauna or fauna habitat.

Based on the above, the Native Vegetation Clearing Area does not comprise the whole or a part of and is not necessary for the maintenance of a significant habitat for fauna indigenous to Western Australia.

The proposed clearing is not likely to be at variance to this Principle.

Methodology

- Biological Survey (Biota 2023b)
- Biological Survey (Ecoscape 2021)
- Biological Survey (Astron 2017)
- DCCEEW Protected Matters Search Tool Report
- Government GIS Shapefiles:
 - DBCA Threatened and Priority fauna database search (Accessed June)
- NatureMap Dandjoo (Accessed June 2024)
- Species specific conservation listing advice and recovery plans

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

Proposal is not at variance to this Principle.

Assessment

Desktop Database Searches (Main Roads ArcGIS files and PMST report) identified no known records of Threatened flora listed under the Biodiversity Conservation Act 2016 from the project 40km radius desktop search.

The Biological Surveys undertaken by Biota, (2023b), Ecoscape (2021), and Astron (2017) did not record any Threatened flora taxa from within the broader surveyed areas and none are considered likely to occur.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Biological Survey (Biota 2023b)
- Biological Survey (Ecoscape 2021)
- Biological Survey (Astron 2017)
- Florabase (Accessed June 2024)
- Government GIS shapefiles:
 - DBCA Threatened flora database search (Accessed June 2023)
- NatureMap Dandjoo (Accessed June 2024)
- Species specific conservation listing advice and recovery plans

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.**Proposed clearing is not at variance to this Principle.****Assessment**

The Desktop database searches (PMST report and DBCA Shapefiles) show no known records of State or Federally listed Threatened Ecological Communities (TECs) within 1 km of the Native Vegetation Clearing Area. The nearest recorded TEC is the Assemblages of Big Springs organic mound springs (Critically Endangered), located over 108 km northwest of the Native Vegetation Clearing Area.

Biological Survey's undertaken by Biota, (2023b), Ecoscape (2021), and Astron (2017 confirmed vegetation is not representative of any TEC and none are considered likely to occur in the Native Vegetation Clearing Area.

Based on the above, native vegetation does not comprise the whole or a part of, and is not necessary for the maintenance of a TEC.

The proposed clearing is not at variance to this Principle.

Methodology

- Community specific conservation listing advice and recovery plans
- Government GIS shapefiles:
 - DBCA Threatened Ecological Community database search (Accessed July 2024)

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Proposed clearing is not at variance to this Principle.

Assessment

The National Objectives and Targets for Biodiversity Conservation recognise that the retention of 30% or more of the pre-clearing extent of each ecological community is necessary if Australia's biological diversity is to be protected (Commonwealth of Australia 2001) except in constrained areas (Perth & Peel) where 10% representation should be maintained.

The vegetation in the Native Vegetation Clearing Area has been broadly mapped as the following pre-European vegetation associations:

- 61: Coolibah over ribbon/blue grass (rivers) *Eucalyptus microtheca*, *Chrysopogon spp.*, *Dichanthium spp.*
- 64: Mainly ribbon grass with low woodland or scattered trees e.g., *Eucalyptus terminalis* over *Chrysopogon spp.*, *Dichanthium spp.*
- 699: Acacia thicket with scattered low trees over spinifex *Acacia eriopoda*, *Corymbia dichromophloia*, *Triodia pungens*, *T. bitextura*
- 706: Mainly Mitchell grass *Astrebla spp.*

All of the vegetation associations represented in the Native Vegetation Clearing Area have more than 99% of the pre-European extent remaining intact. As such, the proposal is not located in an area that has been extensively cleared with regionally significant remnant vegetation. The vegetation associations are widespread and are well represented locally and regionally. The proposed clearing will not reduce the availability of remnant vegetation.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Aerial photography
- Government GIS shapefiles:
 - Pre-European vegetation (Accessed June 2024)
- Statewide Vegetation Statistics (Government of Western Australia 2018)

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing is not at variance to this Principle.

Assessment

The Native Vegetation Clearing Area intersects the Surface Water Area, Fitzroy River and Tributaries. No vegetation growing in, or in association with any watercourses or wetlands is proposed to be cleared under this proposal.

The nearest defined watercourse and wetland to the Native Vegetation Clearing Area are:

- Mt Wynne Creek (a Minor river) and Bells Creek (Minor non-perennial watercourse) which pass in close proximity of the Native Vegetation Clearing Area under an existing bridge. No works are proposed in association with the bridge or in vegetation associated with this watercourse.
- Camballin Floodplain (Le Lievre Swamp System) located over 8 km southwest of the Native Vegetation Clearing Area.

No clearing of native vegetation growing in, or in association with a watercourse or wetland is proposed.

The proposed clearing is not at variance to this Principle.

Methodology

- Biological Survey (Biota 2023b)
- Biological Survey (Ecoscape 2021)
- Biological Survey (Astron 2017)
- Government GIS shapefiles:
 - Ramsar Wetlands (Accessed July 2024)
 - Important Wetlands (Accessed July 2024)
 - Watercourses (Accessed July 2024)
 - WWYS Geoscience Australia Regional Surface Hydrology Lines
 - RIWI Act Rivers (Accessed July 2024)

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Proposed clearing is not likely to be at variance to this Principle.

Assessment

The Native Vegetation Clearing Area is located in a region prone to severe rainfall events, that could contribute to land degradation via flooding and heavy runoff. Clearing is proposed to be completed during the dry season and is proposed in areas historically cleared and subject to ongoing disturbance. The proposed linear clearing in areas adjacent to existing road infrastructure will not alter the natural surface water flow.

The Native Vegetation Clearing Area intersects four Soil Landscape systems:

- 1. Egan Land System (331)**
 - a. Outcrop plains with low lateritic rises, also minor cracking clay plains.
 - b. Most of the system supports pastures which are attractive to cattle and are prone to degradation where grazing is uncontrolled; the major plains and drainage floors (units 1 & 5) are moderately susceptible to erosion in the form of surface sealing and scalding; controlled stocking required.
- 2. Djada Land System (331)**
 - a. Active flood-plains with levees and levee back slopes, and cracking clay back plains.
 - b. Substantial parts of the system are subject to regular flooding which restricts access. Pastures are highly preferred by cattle and are prone to overuse and degradation. Levee crests and levee back slopes (units 2 & 3) are highly susceptible to erosion; control of grazing pressure is essential.
- 3. Calwynyardah Land System (331)**
 - a. Alluvial plains with scalded tracts downslope from lateritic remnants with yellowish loamy soils.
 - b. Scalded tracts and drainage floors (units 4 & 6) of the system have moderate to high susceptibility to erosion if vegetation cover is lost.
- 4. Camelgooda Land System (331)**
 - a. Sandplains, swales and linear sand dunes.
 - b. System is not generally prone to degradation or erosion although recently burnt areas have minor susceptibility to wind erosion but stabilise rapidly after rain.

These systems are primarily susceptible to degradation from cattle grazing and rainfall patterns of the Kimberley region causing short term impacts to surface water quality through sedimentation and minor risks of land degradation through water erosion.

Acid Sulphate Soils (ASS) have a Low to Extremely low probability of occurring in the proposed Native Vegetation Clearing Area (CSIRO 2015).

Based on the above, the proposed clearing is not likely to cause appreciable land degradation.

The proposed clearing is not likely to be at variance to this Principle.

Methodology

- Government GIS Shapefiles:
 - Acid Sulphate Soil Risk Map (Accessed July 2024)
 - Soil Landscape Mapping – Rangelands (DPIRD-063) (Accessed July 2024)

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Proposed clearing is not at variance to this Principle.

Assessment

The Native Vegetation Clearing Area does not intersect any known conservation areas or DBCA-managed lands, and there are no DBCA-managed lands in close proximity. The closest nature reserve and conservation area is the Balili Conservation Park (Devonian Reef) which is located 31 km North of the proposal. No impact to this or other DBCA-managed lands will occur due to the significant distance between the Native Vegetation Clearing Area and the boundaries of these conservation areas.

The proposed clearing will not impact any buffers, ecological linkages or environmental values of any conservation areas.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Biological Survey (Biota 2023b)
- Biological Survey (Ecoscape 2021)
- Biological Survey (Astron 2017)
- [Environmental Offsets Register](#)
- Government GIS Shapefiles:
 - DBCA Legislated Lands and Waters & Lands of Interest (Accessed June 2024)
 - Geomorphic Wetlands (conservation category wetlands only) (Accessed June 2024)
 - Ramsar Wetlands (Accessed June 2024)
 - Important Wetlands (Accessed June 2024)

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Proposed clearing is not at variance to this Principle.

Assessment

The Native Vegetation Clearing Area intersects the Surface Water Area, Fitzroy River and Tributaries, and the Canning-Kimberley Groundwater Area. The nearest Public Drinking Water Source Area is 35 km southwest, and nearest County Areas Water Supply Act area is 1,745 km southwest of the Native Vegetation Clearing Area. Clearing proposed is limited to historically cleared areas and areas subject to ongoing disturbance by vehicular movements. No modifications to existing drainage will occur from the proposed clearing, therefore, no impacts to the Fitzroy River and Tributaries and Canning-Kimberley Groundwater Area will occur.

No watercourses occur within the Native Vegetation Clearing Area and no riparian vegetation is proposed to be cleared. Clearing is proposed to occur in the dry season further reducing the potential for impact on surface and groundwater.

The proposed clearing is linear in nature and spread across a 40km area adjacent to existing road infrastructure. Clearing of this vegetation is not likely to cause deterioration in the quality of surface or groundwater.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Biological Survey (Biota 2023b)
- Biological Survey (Ecoscape 2021)
- Biological Survey (Astron 2017)
- Government GIS Shapefiles:
 - RIWI Act, Surface Water Areas and Irrigation Districts (Accessed June 2024)
 - CAWSA Part 2A Clearing Control Catchments (Accessed June 2024)
 - RIWI Act, Groundwater Areas (Accessed June 2024)
 - Soil landscape land quality - Salinity Risk (Accessed June 2024)
 - Groundwater Salinity Statewide (Accessed June 2024)
 - Soil Mapping (Accessed June 2024)
 - Acid Sulphate Soil risk mapping (Accessed June 2024)

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Proposed clearing is not at variance to this Principle.

Assessment

The Native Vegetation Clearing Area receives an annual median rainfall of 587.5 mm (Ellendale Station, Site No. 003008) per year (BoM, 2024). The clearing is proposed to be completed in the dry season to avoid heavy rainfall events in the wet season that are common in this region.

The clearing proposed will not alter the existing drainage patterns given clearing is linear in nature along an existing road and is limited to historically cleared or disturbed areas. It is unlikely the proposed clearing will cause or exacerbate the incidence or intensity of flooding.

The Native Vegetation Clearing Area is relatively flat, with a minor downward slope to the west along the length of the alignment from 60 m to 120 m above sea level with local variations (LGATE-015). As such, water is likely to be relatively slow-moving. As local drainage and natural hydrology will be maintained, clearing is not likely to cause or exacerbate the incidence or intensity of flooding.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Biological Survey (Biota 2023b)
- Biological Survey (Ecoscape 2021)
- Biological Survey (Astron 2017)
- BoM Website (Accessed June 2024)
- Government GIS Shapefiles:
 - Contours (Accessed June 2024)

6 REHABILITATION, REVEGETATION & OFFSETS

6.1 Revegetation and Rehabilitation

No temporary clearing will be undertaken as part of the proposal activities.

6.2 Offset Proposal

No offset proposal is required as the proposed clearing will not result in significant residual impacts to native vegetation within the region.

7 COMPLIANCE WITH CPS 818

The clearing associated with the proposal is not at or not likely to be at variance with the Clearing Principles. Additional management actions under CPS 818 are detailed in Table 5.

Table 5. Summary of Additional Management Actions Required by CPS 818

Impact of Clearing	Yes/No or NA	Further Action Required
1. The CDR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles.	No	No further action required.
2. Clearing is at variance or may be at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality or (j) the incidence of flooding.	No	No further action required.
3. Clearing is at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality and (j) the incidence of flooding.	No	No further action is required.
4. The Proposal involves clearing for temporary works (as defined by CPS 818).	No	No further action required.
5a. Proposal is within a Region that: - has rainfall greater than 400mm; and, - is South of the 26th parallel; and, - works are necessary in 'Other than dry conditions'; and, - works have potential for uninfested areas to be impacted.	No	Standard Vehicle and Plant management actions from <u>Hygiene Checklists (D17#859669)</u> and <u>Vehicle, Plant and Machinery Hygiene Register Template (D23#179551)</u> will be applied.
5b. Do the proposed works require clearing within or adjacent to DBCA managed lands in non-dry conditions?	No	No further action required.
6. Main Roads has been notified by DWER or an environmental specialist that the area to be cleared is susceptible to a pathogen other than dieback.	No	No further action required.
7. Weeds are likely to spread to and result in environmental harm to adjacent areas of native vegetation that are in good or better condition.	No	No further action required.

Impact of Clearing	Yes/No or NA	Further Action Required
8. Did an environmental specialist conduct the survey or field assessment?	Yes	The Environmental Specialist undertaking the biological assessments was suitably qualified and had more than three years' experience.
9. Did an environmental specialist prepare the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal?	Yes	The Environmental Specialist preparing the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal was suitably qualified and had more than three years' experience.

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9 APPENDICES

Appendix 1: DBCA Threatened Flora and Fauna Database Searches

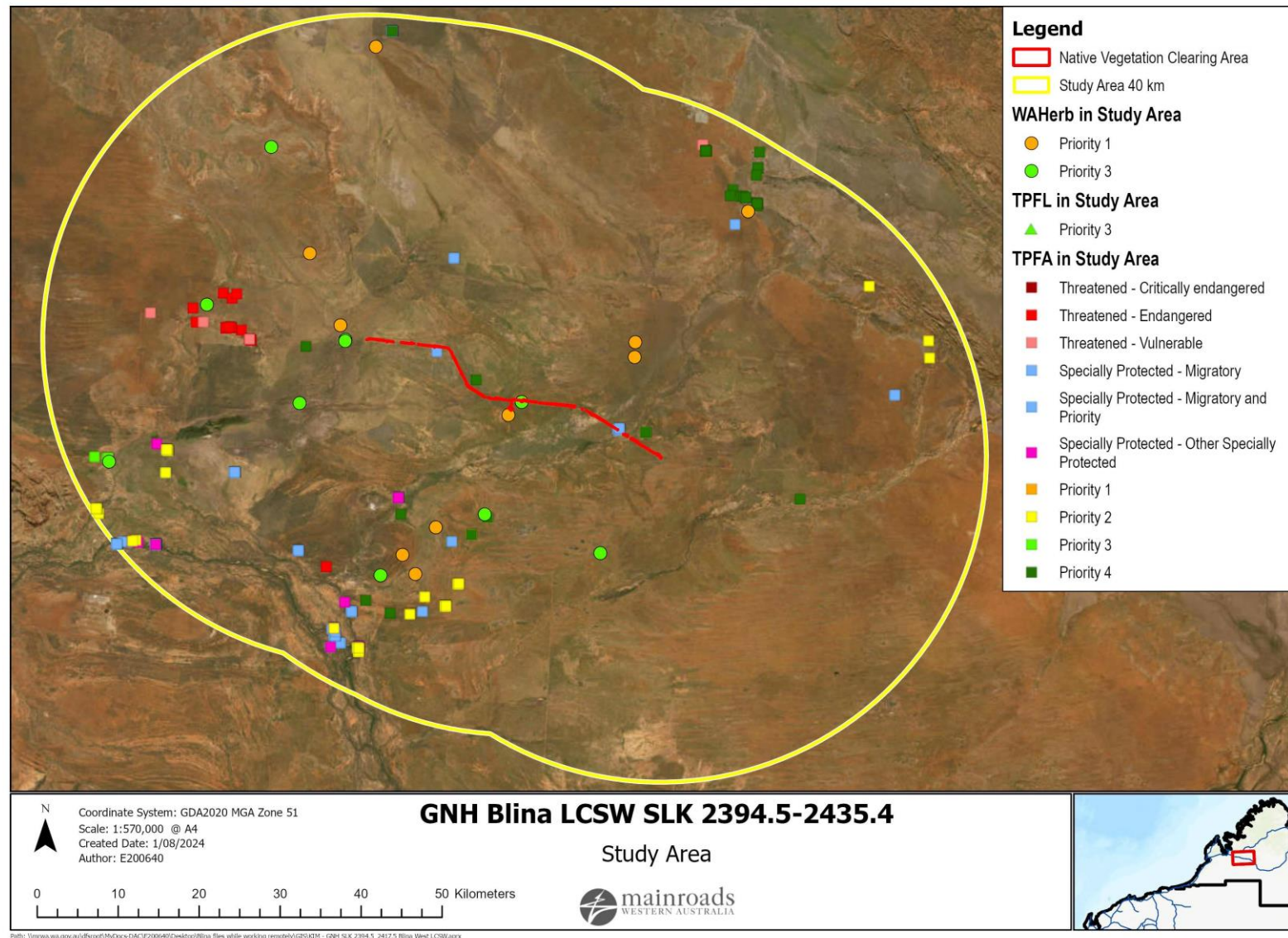


Figure 25. Study Area of GNH Blina Low Cost Should Widening SLK 2394.5 – 2435.4.

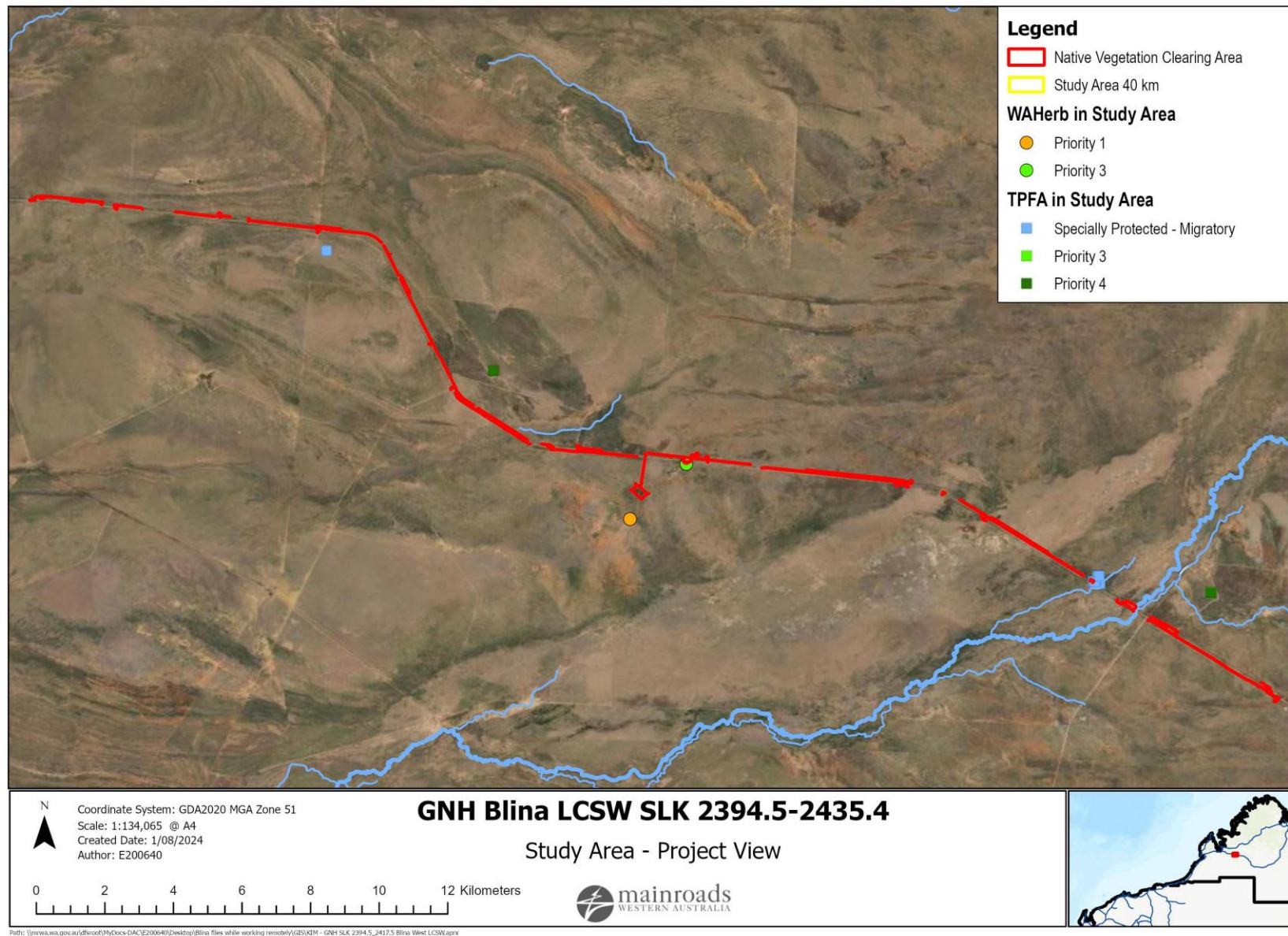


Figure 26. Zoomed in perspective of the Study Area of GNH Blina Low Cost Should Widening SLK 2394.5 – 2435.4.