



Karratha-Tom Price Road, Stage 4

Impact Reconciliation Procedure

EPBC 2020/8725

Ministerial Statement 1205

Revision | 7

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Main Roads Western Australia



Impact Reconciliation Procedure

Karratha-Tom Price Road, Stage 4

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Glossary

Acronym	Definition
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
IBRA	Interim Biogeographic Regionalisation for Australia
IRP	Impact Reconciliation Procedure
IRR	Impact Reconciliation Report
MRDH	Manuwarra Red Dog Highway
MS	Ministerial Statement
PEC	Priority Ecological Community
PEOF	Pilbara Environmental Offsets Fund
TEC	Threatened Ecological Community

1 Introduction

Stage 4 of the Manuwarra Red Dog Highway (MRDH) is located in the Pilbara region of WA within the Shire of Ashburton and will be undertaken entirely within the Development Envelope (i.e. the maximum area within which the disturbance will be located). The northern end of the Development Envelope is located approximately 130 km north-north-west of Tom Price and approximately 120 km south-east of Karratha. The southern end of the Development Envelope is located approximately 22 km north-north-west of Tom Price and 215 km south-east of Karratha. The Development Envelope is located approximately 1,150 km from Perth at its closest point.

Main Roads Western Australia (Main Roads) referred the Manuwarra Red Dog Highway (then known as the Karratha – Tom Price Road) to the WA Environmental Protection Authority (EPA), under section 38 of the *Environmental Protection Act 1986* (EP Act), in September 1998. The Proposal was granted conditional Ministerial approval via Ministerial Statement (MS) 677 in April 2005. Main Roads has since sought approval to modify the design for Stage 4 (only) of the MRDH to incorporate changes to road design standards and community expectations regarding safety of regional roads. The Revised Proposal was approved by the Western Australian Minister for Environment on 03 July 2023 (MS 1205)

Main Roads also referred the Karratha-Tom Price Road, Stage 4 as a Proposed Action (under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 9 July 2020 (EPBC 2020/8725). The Proposed Action was approved by a delegate of the Minister for Environment on 24 January 2023.

The purpose of this Impact Reconciliation Procedure (IRP) is to outline the method the Proponent intends to use to calculate:

- the extent of impacts to environmental values that are required to be offset by MS 1205 under the WA EP Act; and
- the extent of impacts to protected matters that are required to be offset by EPBC Act approval decision notice 2020/8725.

This IRP has been prepared in accordance with the EPA's Instructions for preparing Impact Reconciliation Procedures and Impact Reconciliation Reports (EPA 2021) and modified following advice from DCCEEW in relation to the presentation of sections relevant to protected matters and Commonwealth Offsets Policy requirements.

2 The Proposal and Condition Requirements

2.1 Description of Proposal

Stage 4 of MRDH comprises approximately 112 km of new road from the southern end of Stage 3 of the MRDH (Wallyinya Pool) to the Nanutarra - Mujina Road. The road will be a standard two-lane single carriageway with associated waterway crossings.

The Development Envelope for Stage 4 of MRDH is 7,142 ha. All disturbance, including that for laydown areas, site offices, side tracks, turnaround locations and other construction activities, will occur within the Development Envelope.

The approved extent of ground disturbance within the Development Envelope varies between the State and Commonwealth approvals due to the differing approval processes. The extent of clearing approved under the State process is based on Refinement Case A (as the worst case presented option). Approved clearing under the State process is up to approximately 657 ha of which approximately 557 ha is permanent clearing (e.g. road, drainage infrastructure) and approximately 100 ha is temporary clearing which will be rehabilitated. The extent of clearing approved under the Commonwealth process is based on the base case Indicative Disturbance Footprint which is approximately 650 ha in area. Of this area, approximately 550 ha is permanent clearing and approximately 100 ha is temporary clearing which will be rehabilitated.

2.1.1 Layout plan

An indicative layout plan for MRDH is provided in Figure 1. It should be noted that the detailed design of the Project is currently underway. As such, the alignment shown in the layout plan is subject to change, however; it will remain within the Development Envelope and impacts such as disturbance to vegetation will be within the limits authorised under MS 1205 and EPBC 2020/8725.

Table 2-1 Key activities of the Proposal

ELEMENT	PROPOSED EXTENT
Physical Elements	
Road construction and associated infrastructure	<p>Stage 4 of Revised Proposal under the State process</p> <p>Clearing and disturbance of no more than 657 ha including approximately 557 ha of permanent clearing and 100 ha of temporary clearing that will be subject to rehabilitation.</p> <p>Proposed Action under the Commonwealth process</p> <p>Clearing and disturbance of no more than 650 ha including approximately 550 ha of permanent clearing and 100 ha of temporary clearing that will be subject to rehabilitation.</p>
Waterway crossings	Bridges, culverts and low-level floodways across watercourses, as determined by the conditions at each crossing (to be confirmed during the alignment definition phase).
Operational Element	
Operations	Operation of the new road including standard maintenance activities.

2.1.2 Anticipated timing

Construction of the MRDH Stage 4 is planned to commence in 2024.

Once constructed and open for public use, operation of the MRDH Stage 4 will be ongoing. The completed road will be subject to normal routine, recurrent and periodic maintenance during operation.

2.1.3 Rehabilitation activities

Vegetation clearing for material pits, laydown and stockpile areas, site offices and other temporary purposes will be rehabilitated using locally native species, which will be selected to reflect the surrounding vegetation and be characteristic of significant fauna habitat.

Revegetation along the Development Envelope will comply with *MRWA Vegetation Placement within the Road Reserve* Doc. No. 6707/022 (Main Roads, 2013). This guide defines the recommended setbacks and clearance requirements that apply to all revegetation or landscaping associated with new road construction.

2.2 Approval Condition Requirements

2.2.1 EP Act Approval Conditions Relating to Offsets

Condition B6 of MS 1205 outlines the offset requirements for the Proposal and is presented in Table 2-2.

Table 2-2 MS 1205 Approval Conditions Relating to Offsets

CONDITION NUMBER	CONDITION
B6	Pilbara Environmental Offsets Fund
B6-1	<p>The proponent must contribute funds to the Pilbara Environmental Offsets Fund calculated pursuant to condition B6-2, to achieve the objective of counterbalancing the significant residual impacts to:</p> <ol style="list-style-type: none"> 1) 'Good' to 'Excellent' condition native vegetation; 2) 'Themeda grasslands on cracking clays (Hamersley Station, Pilbara)' threatened ecological community; 3) 'Brockman Iron cracking clay communities of the Hamersley Range' priority ecological community; 4) northern quoll (<i>Dasyurus hallucatus</i>) critical habitat, subject to any reduction approved by the CEO under condition B6-8; 5) ghost bat (<i>Macroderma gigas</i>) critical habitat, subject to any reduction approved by the CEO under condition B6-8; and 6) northern quoll (<i>Dasyurus hallucatus</i>) supporting habitat, ghost bat (<i>Macroderma gigas</i>) supporting habitat, Pilbara leaf-nosed bat (<i>Rhinonictis aurantia</i>) supporting habitat and Pilbara olive python (<i>Liasis olivaceus barroni</i>) supporting habitat, subject to any reduction approved by the CEO under condition B6-8.
B6-2	<p>The proponent's contribution to the Pilbara Environmental Offsets Fund must be paid biennially, with the amount to be contributed calculated based on the clearing undertaken in each year of the biennial reporting period in accordance with the rates in condition B6-3. The first biennial reporting period must commence from ground disturbing activities of the environmental value(s) identified in condition B6-3.</p>
B6-3	<p>Calculated on the 2021-2022 financial year, the contribution rates are:</p> <ol style="list-style-type: none"> 1) \$841 AUD (excluding GST) per ha of the following environmental values

	<p>cleared as a result of the proposal within the Chichester IBRA subregion:</p> <ol style="list-style-type: none"> a) 'Good' to 'Excellent' condition native vegetation; and b) northern quoll (<i>Dasyurus hallucatus</i>) supporting habitat, ghost bat (<i>Macroderma gigas</i>) supporting habitat, Pilbara leaf-nosed bat (<i>Rhinonictis aurantia</i>) supporting habitat and Pilbara olive python (<i>Liasis olivaceus barroni</i>) supporting habitat. <p>2) \$890 AUD (excluding GST) per ha of the following environmental values cleared as a result of the proposal within the Hamersley IBRA subregion:</p> <ol style="list-style-type: none"> a) 'Good' to 'Excellent' condition native vegetation; and b) northern quoll (<i>Dasyurus hallucatus</i>) supporting habitat, ghost bat (<i>Macroderma gigas</i>) supporting habitat, Pilbara leaf-nosed bat (<i>Rhinonictis aurantia</i>) supporting habitat and Pilbara olive python (<i>Liasis olivaceus barroni</i>) supporting habitat. <p>3) \$1,780 AUD (excluding GST) per ha of the following environmental values cleared as a result of the proposal within the Fortescue IBRA subregion:</p> <ol style="list-style-type: none"> a) 'Good' to 'Excellent' condition native vegetation; and b) northern quoll (<i>Dasyurus hallucatus</i>) supporting habitat, ghost bat (<i>Macroderma gigas</i>) supporting habitat, Pilbara leaf-nosed bat (<i>Rhinonictis aurantia</i>) supporting habitat and Pilbara olive python (<i>Liasis olivaceus barroni</i>) supporting habitat. <p>4) \$1,780 AUD (excluding GST) per ha of the following environmental values cleared as a result of the proposal within the Hamersley IBRA subregion:</p> <ol style="list-style-type: none"> a) 'Themeda grasslands on cracking clays (Hamersley Station, Pilbara)' threatened ecological community; b) 'Brockman Iron cracking clay communities of the Hamersley Range' priority ecological community; c) northern quoll (<i>Dasyurus hallucatus</i>) critical habitat; and d) ghost bat (<i>Macroderma gigas</i>) critical habitat.
B6-4	<p>The rates in condition B6-3 change annually each subsequent financial year in accordance with the percentage change in the CPI applicable to that financial year.</p>
B6-5	<p>To achieve the objective in condition B6-1 the proponent must prepare a Manuwarra Red Dog Highway Project Impact Reconciliation Procedure and submit to the CEO. This procedure must:</p> <ol style="list-style-type: none"> 1) spatially define the environmental value(s) identified in condition B6-1; 2) spatially define the areas where offsets required by condition B6-1 are to be exempt; 3) include a methodology to calculate the amount of clearing undertaken during each year of the biennial reporting period for each of the environmental values identified in condition B6-3; 4) state that clearing calculation for the first biennial reporting period will commence from ground disturbing activities in accordance with condition B6-2 and end on the second 30 June following commencement of ground disturbing activities; 5) state that clearing calculations for each subsequent biennial reporting period will commence on 1 July of the required reporting period, unless otherwise agreed by the CEO; and 6) be prepared in accordance with Instructions on how to prepare <i>Environmental Protection Act 1986</i> Part IV Impact Reconciliation

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	Procedures and Impact Reconciliation Reports (or any subsequent revisions).
B6-6	The proponent must submit an Impact Reconciliation Report in accordance with the confirmed Impact Reconciliation Procedure in condition B6-5.
B6-7	The Impact Reconciliation Report required pursuant to condition B6-6 must provide the location and spatial extent of the clearing undertaken as a result of the proposal during each year of each biennial reporting period.
B6-8	The proponent may apply in writing and seek the written approval of the CEO to reduce all or part of the contribution payable under condition B6-2 where: <ul style="list-style-type: none"> 1) a payment has been made to satisfy a condition of an approval under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> in relation to the proposal; and 2) the payment is made for the purpose of counterbalancing impacts of the proposal on matters of national environmental significance.
B6-9	The CEO may grant approval to discount the amount payable under condition B6-1(4), condition B6-1(5) and condition B6-1(6) if the CEO is satisfied that the payment will offset the significant residual impacts of the proposal.
B6-10	Condition C2 applies to the confirmed Impact Reconciliation Procedure required by condition B6-5 as if it were an environmental management plan.
B6-11	Failure to implement a confirmed Impact Reconciliation Procedure or submit an Impact Reconciliation Report as required by condition B6-6 represents a non-compliance with these conditions.

2.2.2 EPBC Act Approval Decision Conditions Relating to Offsets

The conditions within EPBC Act approval decision notice 2020/8725 that relate to offset requirements are presented in Table 2-3.

Table 2-3 EPBC Act approval decision notice 2020/8725 relating to offsets

CONDITION NUMBER	CONDITION
14	To compensate for the residual significant impacts of clearing and/or impacts of critical habitat and supporting habitat for the Northern Quoll, Ghost Bat, Pilbara Leaf-nosed Bat and Pilbara Olive Python, the approval holder must make financial contributions to the Pilbara Environmental Offsets Fund (PEOF).
15	In contributing to the PEOF the approval holder must: <ul style="list-style-type: none"> a. Contribute funds toward an offset activity or activities that: <ul style="list-style-type: none"> i. reduces the rate of decline of the Northern Quoll, Ghost Bat, Pilbara Leaf-nosed Bat and Pilbara Olive Python; ii. ensures a viable population of Northern Quoll, Ghost Bat, Pilbara Leaf-nosed Bat and Pilbara Olive Python remain in the Pilbara region; iii. has specified outcomes and performance indicators; timeframes and milestones for their achievement; iv. includes sufficient monitoring to detect achievement of performance indicators, milestone and the outcomes; and v. requires regular reporting to the approval holder of the outcomes of the offset activity or activities their funding has contributed towards.

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	b. Implement the approved Karratha-Tom Price Stage 4 Impact Reconciliation Procedure. The Karratha-Tom Price Stage 4 Impact Reconciliation Procedure may be revised and approved by DWER at any time, but the approval holder must seek endorsement from the Minister prior to the approval of any revised Karratha-Tom Price Stage 4 Impact Reconciliation Procedure by DWER if the revisions relate to offset requirements for the protected matters outlined in Condition 15 of this approval.
	c. The Karratha-Tom Price Stage 4 Impact Reconciliation Procedure must be revised in accordance with the Impact Reconciliation Report Guidelines and include the financial contribution values described in Condition 16(e) of this approval for each protected matter per hectare of critical habitat and supporting habitat cleared and/or impacted over the life of the approval.
	d. Following receipt of approval of the Karratha-Tom Price Stage 4 Impact Reconciliation Procedure by the Minister and prior to the commencement of the action, the approval holder must make a payment of 10 per cent of the total contribution that maybe paid into the PEOF, which will contribute towards achieving the requirements of Condition 16(a) of this approval.
	e. Make biennial payments to the PEOF based on evidence of the actual clearing footprint. The first biennial reporting period shall commence from the commencement of the action. Biennial payments must be equivalent to or greater than the value of the following amounts, by adjustment in accordance with the CPI from the date of this approval decision and then adjusted each year during which clearing was undertaken, of: <ul style="list-style-type: none"> i. A minimum of \$3,306 AUD (excluding GST) per hectare of critical habitat. ii. A minimum of \$1,653 AUD (excluding GST) per hectare of supporting habitat.
	f. Submit evidence of each payment made to the Department within 10 business days of the date of making the payment.
	g. Include details of progress towards, or achievement of, the outcomes specified under condition 16(a) of this approval for the Northern Quoll, Ghost Bat, Pilbara Leaf-nosed Bat and Pilbara Olive Python in each compliance report submitted to the Department.
16	Write to the Minister, within 10 business days of being aware or having concerns, that the offset outcomes specified for the PEOF project(s) may not be achieved for the Northern Quoll, Ghost Bat, Pilbara Leaf-nosed Bat and Pilbara Olive Python.
17	Should the Minister determine that the PEOF is likely to fail for one or more protected matter(s), the Minister may write to the approval holder asking to provide evidence that failure has not occurred or is unlikely to occur and nominating a deadline by which this must be provided. If, after considering any information provided by the approval holder: <ul style="list-style-type: none"> a. The Minister determines that the PEOF has failed for one or all species named in Condition 15 of this approval, the approval holder must submit for the Minister's approval, within 4 months of being notified by the Minister, an Offset Strategy consistent with the principles of the Environmental Offsets Policy to the satisfaction of the Minister.

	<p>b. If the Offset Strategy has not been approved by the Minister in writing within 6 months of the notification by the Minister under condition 18(a) of this approval, and the Minister notifies the approval holder that the provided Offset Strategy is not suitable for approval, the Minister may, at least 2 months after so notifying the approval holder, approve a version of the Offset Strategy revised by the Department. The approval holder must commence implementation of the approved Offset Strategy within 2 months of the approval of the Offset Strategy by the Minister in writing, or another time as agreed in writing by the Minister. The approval holder must implement the approved Offset Strategy for the life of the approval.</p> <p>c. The Offset Strategy to be provided for the Minister's approval, if required by condition 18(a) of this approval, must provide a framework for how the residual significant impacts from the approved action on the Northern Quoll, Ghost Bat, Pilbara Leaf-nosed Bat and Pilbara Olive Python will be offset and must detail:</p> <ul style="list-style-type: none"> i. how the strategy will achieve the outcomes required under Condition 16(a) of this approval; ii. how it accounts for relevant approved conservation advices, recovery plans and threat abatement plans; iii. the party to be responsible for implementing the proposed offset(s); iv. the location and nature of the proposed offset(s); v. objectives, outcomes, and timeframes for their achievement; vi. budget; vii. performance and completion criteria for evaluating conservation outcomes; viii. project monitoring (with indicators and measures) capable of detecting progress towards and achievement of the required outcomes; ix. reporting of specified outputs/offset activities, progress towards and achievement of the required outcomes, and evaluation of appropriateness of measures implemented; x. a description of the potential risks to the successful implementation of each proposed offset (including but not limited to environmental, administrative, financial, and governance risks); xi. a description of the measures that will be implemented to mitigate risk associated with each proposed offset and a description of the contingency actions that will be implemented if performance or completion criteria are not met; xii. processes to adaptively manage the proposed offset; xiii. how the proposed offset is consistent with the Environmental Offsets Policy; and xiv. how the approval holder will ensure that the measures to be implemented as part of the Offsets Strategy have no detrimental impact on any protected matters under the EPBC Act.
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3 Impact Reconciliation Procedure

3.1 Identification of the Environmental Values Requiring Offsets

3.1.1 Environmental values required to be offset under MS 1205

MS 1205 requires the following impacts to environmental values to be offset through a monetary contribution to the PEOF:

- direct disturbance (permanent clearing) of up to 519 ha of vegetation in 'Good to Excellent' condition that is not a threatened or priority ecological community within the Development Envelope (Figure 2);
- direct disturbance (temporary clearing) of up to 100 ha of 'Good to Excellent' condition vegetation;
- direct disturbance (permanent clearing) of up to 15 ha of the 'Themeda grasslands on cracking clays (Hamersley Station, Pilbara)' threatened ecological community, represented by vegetation types C4, C5 and P6 (Figure 3);
- direct disturbance (permanent clearing) of up to 12 ha of the 'Brockman Iron cracking clay communities of the Hamersley Range' priority ecological community, represented by vegetation type C3 (Figure 3);
- direct disturbance (permanent clearing) of up to 46.3 ha of critical habitat for the Northern Quoll, being HS and RG habitat types; and rocky hills and slopes with low open spinifex and scattered trees (RHS), Eucalyptus fringed major drainage lines and associated tributaries (MDE) and Melaleuca forest/major drainage lines (MDM) habitat types occurring within 1 km of the HS and RG habitat types (Figure 4);
- direct disturbance (permanent clearing) of up to 134.85 ha of supporting habitat for the Northern Quoll, being habitat types RHS, MDE and MDM that occur outside of 1 km of the HS and RG habitat types (Figure 4);
- direct disturbance (permanent clearing) of up to 154.4 ha of critical habitat for the Ghost Bat, being floodplain (CP), HS, RHS, MDE, MDM, RG and man-made water bodies (MMW) habitat types occurring within a 12 km radius around the ghost bat caves recorded in the Biota (2021) survey (Figure 5);
- direct disturbance (temporary clearing) of up to 4.4 ha of critical habitat for the Ghost Bat, being floodplain (CP), HS, RHS, MDE, MDM, RG and man-made water bodies (MMW) habitat types occurring within a 12 km radius around the ghost bat caves recorded in the Biota (2021) survey (Figure 5);
- direct disturbance (permanent clearing) of up to 161.95 ha of supporting habitat for the Ghost Bat, being CP, HS, RHS, MDE, MDM, RG and MMW habitat types occurring outside of a 12 km radius around the ghost bat caves recorded in the Biota (2021) survey (Figure 5);
- direct disturbance (temporary clearing) of up to 43.9 ha of supporting habitat for the Ghost Bat, being CP, HS, RHS, MDE, MDM, RG and MMW habitat types occurring outside of a 12 km radius around the ghost bat caves recorded in the Biota (2021) survey;
- direct disturbance (permanent clearing) of up to 181.15 ha of supporting habitat for the Pilbara Leaf-nosed Bat, being HS, RHS, MDE, MDM and RG habitat types (Figure 6);
- direct disturbance (permanent clearing) of up to 316.15 ha of supporting habitat for the Pilbara Olive Python, being CP, HS, RHS, MDE, MDM and RG habitat types (Figure 7); and

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- direct disturbance (temporary clearing) of up to 48.3 ha of supporting habitat for the Pilbara Olive Python, being CP, HS, RHS, MDE, MDM and RG habitat types

The contribution rates required by MS 1205 are presented in Table 3-1.

Table 3-1 Pilbara Environmental Offsets Fund contribution rates for offsets required by MS 1205

IBRA Subregion	Category	Offset rate (2021/22) ¹
Fortescue	Base rate (native vegetation), supporting habitat)	\$1,780/ha
Hamersley	Base rate (native vegetation, supporting habitat))	\$890/ha
	Higher rate (TECs, PECs, critical habitat, important habitat)	\$1,780/ha
Chichester	Base rate (native vegetation, supporting habitat))	\$841/ha

3.1.2 Environmental values required to be offset under EPBC Act approval decision notice 2020/8725

Condition 14 of approval decision notice EPBC 2020/8725 requires the approval holder to make a financial contribution to the PEOF to compensate for the residual significant impacts of clearing and/or impacts of critical habitat and supporting habitat for the Northern Quoll, Ghost Bat, Pilbara Leaf-nosed Bat and Pilbara Olive Python.

To offset these impacts the approval holder must make financial contributions to the PEOF. The Commonwealth rates for offsetting residual significant impacts to critical and supporting habitats are presented in Table 3-2.

¹ The rate per hectare of clearing that is expected to have a residual significant impact will be annually adjusted in accordance with the Perth Consumer Price Index (CPI) fluctuations from 1 July 2023. The Australian Bureau of Statistics (ABS) publish the annual CPI for Australian cities in September of each year and will be referenced when calculating the annual adjustments.

Table 3-2 Pilbara Environmental Offsets Fund contribution rates for offsets required by EPBC approval decision 2020/8725

Category	Description	Offset rate ²
Critical habitat	Critical habitat means habitat that is considered to be habitat critical to the survival of the species, and has been identified in the statutory documentation or scientific research for each of the matters protected under the EPBC Act. This habitat type is often considered breeding habitat (e.g., denning, roosting, nesting) and/or the closely surrounding foraging habitat within the home range that supports these breeding activities.	\$3,306/ha
Supporting habitat	Supporting habitat means habitat that facilitates the survival of protected matters protected under the EPBC Act, which is not necessarily linked to or supporting of breeding habitat (e.g., denning, roosting, nesting) and/or within the home range that supports these breeding activities but is habitat that is considered to support the survival of the species for foraging, dispersal, or water sources.	\$1,653/ha

Fauna habitat that may be cleared (based on the base case Indicative Disturbance Footprint) includes:

- 69.7 ha of Grove Mulga (MG) habitat;
- 16.1 ha of Mulga woodland plain (MWP) habitat;
- 10.4 ha of *Acacia xiphophylla* shrublands over cracking clay (ASCC) habitat;
- 157.5 ha of Mixed Acacia shrublands (ASM) habitat;
- 29.3 ha of Grassland plains with cracking clay (GPCC) habitat;
- 135.0 ha of CP habitat;
- 0.2 ha of HS habitat;
- 88.7 ha of RHS habitat;
- 85.7 ha of MDE habitat;
- 0.03 ha of MDM habitat;
- 3.8 ha of RG habitat; and
- 0.2 ha of MMW habitat.

It is noted that clearing of the MG, GPCC, ASCC, ASM and MWP habitat types do not require offsetting by the proposed EPBC Act approval decision 2020/8725. However, these habitats comprise primarily vegetation in Good to Excellent condition and are required to be offset by MS 1205 (Condition B6-1(1)).

² A payment of 10 per cent of the total offsets that may be paid into the Pilbara Environmental Offsets Fund must be paid prior to commencement of the action. The rate per hectare of clearing that is expected to have a residual significant impact will be annually adjusted in accordance with the Perth Consumer Price Index (CPI) fluctuations from 1 July 2023. The Australian Bureau of Statistics (ABS) publish the annual CPI for Australian cities in September of each year and will be referenced when calculating the annual adjustments.

Residual significant impacts that require offsetting by the proposed EPBC Act approval decision 2020/8725 are:

- Northern Quoll Critical Habitat: Clearing of up to 4.0 ha of likely Northern Quoll denning and dispersal habitat (Figure 8). This includes the 0.2 ha of HS and 3.8 ha of RG habitat types.
- Northern Quoll Supporting Habitat: Clearing of up to 174.5 ha of foraging habitat (outside of critical habitat) (Figure 8). This includes the 88.7 ha of RHS, 85.7 ha MDE and 0.03 ha of MDM habitat types.
- Ghost Bat Critical Habitat: Clearing of up to 156.5 ha of Ghost Bat habitat within a 12 km radius of diurnal roosts (Priority 1 and caves) (Figure 9). This includes 42.7 ha of CP, 0.2 ha of HS, 88.7 ha of RHS, 21.1 ha of MDE, 0.03 ha of MDM and 3.7 of RG habitat types (within 12 km of a diurnal roost).
- Ghost Bat Supporting Habitat: Clearing of up to 157.1 ha of Ghost Bat supporting habitat (outside of 12 km radius from diurnal roosts) (Figure 9). This includes 92.3 ha of CP, 64.6 ha of MDE and 0.2 ha of MMW habitat types (outside of a 12 km radius of a diurnal roost).
- Pilbara Leaf-nosed Bat Critical Habitat: Clearing of up to 23.2 ha of Pilbara Leaf-nosed Bat habitat within a 10 km radius of diurnal roosts (Priority 1, 2 and 3 caves) (Figure 10). This includes 23.2 ha of MDE habitat type (within 10 km of a diurnal roost).
- Pilbara Leaf-nosed Bat Supporting Habitat: Clearing of up to 155.3 ha of Pilbara Leaf-nosed Bat supporting habitat (outside of 10 km radius from diurnal roosts) (Priority 1, 2 and 3 caves) (Figure 10). This includes 0.2 ha of HS, 88.7 ha of RHS, 62.5 ha of MDE, 0.03 ha of MDM and 3.8 ha of RG habitat types (outside of a 12 km radius of a diurnal roost).
- Pilbara Olive Python Supporting Habitat: Clearing of up to 313.5 ha of Pilbara Olive Python habitat (Figure 11). This includes 135.0 ha of CP, 0.2 ha of HS, 88.7 ha of RHS, 85.7 ha of MDE, 0.03 ha of MDM and 3.8 ha of RG habitat types.

It is noted that clearing of the MG, GPCC, ASCC, ASM and MWP habitat types do not require offsetting by the EPBC Act approval decision 2020/8725. However, these habitats comprise primarily vegetation in Good to Excellent condition and are required to be offset by MS 1205 (Condition B6-1(1)).

3.1.3 Contributions to Pilbara Environmental Offsets Fund

Table 3-3 provides a summary of the contributions to the PEOF that may be required to offset impacts to environmental values, as required by MS 1205. Table 3-4 provides a summary of the contributions to the PEOF that may be required to offset impacts to protected matters, as required by the EPBC Act approval decision notice 2020/8725. As explained in the explanatory notes in Table 3-3, where an environmental value is offset via EPBC Act approval decision notice 2020/8725, it is not required to be offset again under MS 1205, and the contribution proposed in Table 3-3 has been reduced as a result.

Table 3-3 Environmental values from Manuwarra Red Dog Highway Stage 4 that may be offset (as required by MS 1205)

Environmental value to be offset	Amount of area to be offset (hectares)	Environmental value rating, category	Environmental value justification	IBRA subregion	Offset rate documented in MS 1205	Offset total	Explanatory note
<i>Themeda</i> grasslands TEC	15 ha	Higher rate	Direct impacts to <i>Themeda</i> grasslands TEC	Hamersley	\$1,780/ha	\$26,700	<ul style="list-style-type: none"> No offset required by EPBC Act approval decision notice 2020/8725.
Brockman Iron PEC	12 ha	Higher rate	Direct impacts to Brockman Iron PEC	Hamersley	\$1,780/ha	\$21,360	<ul style="list-style-type: none"> No offset required under EPBC Act approval decision notice 2020/8725.
Critical habitat for Northern Quoll	46.3 ha	Higher rate	Direct disturbance to critical habitat for Northern Quoll	Hamersley	\$1,780/ha	\$75,294	<ul style="list-style-type: none"> 4.0 ha offset at the higher rate under EPBC Act approval decision notice 2020/8725. Remaining 42.3 ha to be offset under MS 1205
Supporting habitat for Northern Quoll	9.7 ha	Base rate	Direct disturbance to supporting habitat for Northern Quoll	Fortescue	\$1,780/ha	\$1,232	<ul style="list-style-type: none"> 174.5 ha offset at the lower rate under EPBC Act approval decision notice 2020/8725. Further offset at \$127/ha³ for Fortescue sub-region as required by MS 1205
	72.55 ha			Hamersley	\$890/ha	\$0	
	52.6 ha			Chichester	\$841/ha	\$0	
Critical habitat for Ghost Bat	158.8 ha (including 4.4	Higher rate	Direct disturbance to critical habitat for Ghost Bat	Hamersley	\$1,780	\$4,094	<ul style="list-style-type: none"> 156.5 ha offset at the higher rate under EPBC Act approval decision notice 2020/8725.

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	ha temporary clearing)						Remainder (2.3 ha) to be offset at full rate.
Supporting habitat for Ghost Bat	94.2 ha (Including 32.9 ha of temporary clearing)	Base rate	Direct disturbance to supporting habitat for Ghost Bat	Fortescue	\$1,780/ha	\$66,348	<ul style="list-style-type: none"> 157.1 ha offset at the lower rate (ghost bat supporting habitat) under under EPBC Act approval decision notice 2020/8725. Further offset (4.85 ha) in Chichester for remaining area not offset as ghost bat supporting habitat under EPBC Act approval decision notice 2020/8725 Further offset (61.3 ha at \$127/ha³) for Fortescue sub-region as required by MS 1205 Further offset in Fortescue (32.9 ha) at full rate for temporary clearing areas. Further offset in Hammersley (11 ha) at full rate for temporary clearing areas. Further offset (61.3 ha at \$127/ha³) for Fortescue sub-region as required by MS 1205
	59.05 ha (Including 11 ha of temporary clearing)			Hamersley	\$890/ha	\$9,790	
	52.6 ha			Chichester	\$841/ha	\$4,079	
Supporting habitat for Pilbara Leaf-nosed Bat	9.7 ha	Base rate	Supporting habitat for Pilbara Leaf-nosed Bay	Fortescue	\$1,780/ha	\$1,232	<ul style="list-style-type: none"> 23.2 ha offset at the higher rate as Critical habitat (supporting habitat within 12 km radius of Priority 1 and 2 caves) under EPBC Act approval decision notice 2020/8725. All of this habitat is located in the Hamersley.
	118.85 ha			Hamersley	\$890/ha	\$0	
	52.6 ha			Chichester	\$841/ha	\$2,229	

Impact Reconciliation Procedure

							<ul style="list-style-type: none"> 155.3 ha offset at the lower rate as supporting habitat under EPBC Act approval decision notice 2020/8725. Further offset at \$127/ha³ for Fortescue sub-region as required by MS 1205. Further offset (2.65 ha) in Chichester for remaining area not offset as Pilbara Leaf-nosed Bat supporting habitat under EPBC Act approval decision notice 2020/8725
Supporting habitat for Pilbara Olive Python	94.2 ha (Including 32.9 ha of temporary clearing)	Base rate	Supporting habitat for Pilbara Olive Python	Fortescue	\$1,780/ha	\$66,348	<ul style="list-style-type: none"> 313.5 ha offset at lower rate under EPBC Act approval decision notice 2020/8725. Further offset in Chichester at full rate for 2.65 ha not offset as Pilbara Olive Python supporting habitat under EPBC Act approval decision notice 2020/8725. Further offset in Fortescue (32.9 ha) at full rate for temporary clearing areas. Further offset in Hamersley (15.4 ha) at full rate for temporary clearing areas. Further offset of 61.3 ha at \$127/ha³ for Fortescue sub-region as required by MS 1205.
	217.5 ha (Including 15.4 ha of temporary clearing)			Hamersley	\$890/ha	\$13,706	
	52.75 ha			Chichester	\$841/ha	\$2,229	

Impact Reconciliation Procedure

Native vegetation in Good to Excellent condition	100.1 ha	Lower rate	Direct impacts to native vegetation in Good to Excellent condition not already accounted for in the offsetting of other environmental values	Fortescue	\$1,780/ha	\$82,483	<ul style="list-style-type: none">3.8 ha offset at the higher rate under by EPBC Act approval decision notice 2020/8725.53.8 ha offset at the lower rate under by EPBC Act approval decision notice 2020/8725. This area further offset at \$127/ha³ as required by MS 1205.41.5 ha offset as required by MS 1205 at higher rate (\$1,780/ha).
	362.2 ha			Hamersley	\$890/ha	\$133,483	<ul style="list-style-type: none">212.2 ha offset at the higher rate under by EPBC Act approval decision notice 2020/8725.150.0 ha offset as required by MS 1205 at higher rate (\$890/ha).
	156.7 ha			Chichester	\$841/ha	\$92,443	<ul style="list-style-type: none">46.8 ha offset at the higher rate under by EPBC Act approval decision notice 2020/8725.109.9 ha offset as required by MS 1205 at higher rate (\$841/ha).
Total						\$603,050	

³ Further offset amount under MS 1205 calculated based on MS 1205 offset amount for higher rate (\$1,780) minus EPBC Act approval decision notice 2020/8725 rate at lower amount (\$1,653/ha) which equates to \$127/ha.

Impact Reconciliation Procedure

Table 3-4 Protected Matters that may be offset (as required by EPBC Act approval decision notice 2020/8725)

EPBC Act protected matter to be offset	Amount of area to be offset (hectares) ⁴	Protected matter rating category	Environmental value justification	Offset rate document in EPBC Act approval decision notice (\$/ha)	Total to be Offset
Northern Quoll	4.0	Critical habitat (0.2 ha HS and 3.8 ha RG habitat types)	Direct impacts to Northern Quoll denning and dispersal habitat.	\$3,306/ha	\$13,224
Northern Quoll	174.5	Supporting habitat (88.7 ha RHS, 85.7 ha MDE and 0.03 ha MDM habitat types)	Direct impacts to native vegetation that supports dispersal and foraging of the species within its distribution range (excluding the above-mentioned critical habitat for the species).	\$1,653/ha	\$288,449
Ghost Bat	156.5	Critical habitat (42.7 ha CP, 0.2 ha HS, 88.7 ha RHS, 21.1 ha MDE, 0.03 ha MDM and 3.7 ha RG habitat types within 12 km radius of Priority 1 and 2 caves)	Direct impacts from clearing of native vegetation that supports known roosting and surrounding foraging habitat for Ghost Bat.	\$3,306/ha	\$517,389
Ghost Bat	157.1	Supporting habitat (92.3 ha CP, 64.6 ha MDE, and 0.2 ha MMW)	Direct impacts to supporting habitat within distribution range of Ghost Bat (excluding the above-mentioned critical habitat for the species).	\$1,653/ha	\$259,687
Pilbara Leaf-nosed Bat	23.2	Critical habitat (23.2 ha of MDE habitat type within 10 km radius of Priority 1, 2 and 3 caves)	Direct impacts from clearing of native vegetation that supports known roosting and surrounding foraging habitat for Pilbara Leaf-nosed Bat.	\$3,306/ha	\$76,700
Pilbara Leaf-nosed Bat	155.3	Supporting habitat (0.2 ha HS, 88.7 ha RHS, 62.5 ha MDE, 0.03 ha MDM and 3.8 ha RG habitat types)	Direct impacts to supporting habitat within distribution range of Pilbara Leaf-nosed Bats (excluding the above-mentioned critical habitat for the species).	\$1,653/ha	\$256,711

⁴ Extent based on current base case disturbance footprint plus an allowance of approximately 10% more than the habitat area mapped within the disturbance footprint. This allowance provides flexibility in the location of the road and construction areas for access and laydown.

Impact Reconciliation Procedure

Pilbara Olive Python	313.5	Supporting habitat (135.0 ha CP, 0.2 ha HS, 88.7 ha RHS, 85.7 ha MDE, 0.03 ha MDM and 3.8 ha RG habitat types)	Direct impacts from clearing of supporting habitat for Pilbara Olive Python within its distribution range.	\$1,653/ha	\$518,216
Total Potential Amount to be Offset ⁵					\$2,526,119
Total Potential Amount (Commonwealth requirement)					\$1,930,376
Initial Contribution ⁶					\$193,038

⁵ Total offset equates to State requirement (Table 3-1) plus Commonwealth requirement (Table 3-2).

⁶ A payment of 10 per cent of the total offsets (Commonwealth Requirement) that may be paid into the Pilbara Environmental Offsets Fund must be paid prior to commencement of the action.

3.2 Managing Impacts - Ground Disturbance Permits

A ground disturbance permit process will be developed by the contractor and signed off by the Main Roads Superintendent. The process will include a review of the disturbance area against the approval boundary. All clearing areas will be demarcated and approved by the Main Roads Superintendent prior to clearing commencing and all clearing areas will be checked and confirmed post-clearing (as per Main Roads Specification 301 – Vegetation Clearing and Demolition).

3.3 Establishment of Baseline

To support the environmental impact assessment for Stage 4 of MRDH, Main Roads commissioned Biota (2021) to conduct vegetation mapping and fauna surveys. The outcomes of these surveys provide the baseline against which clearing extents will be calculated.

3.4 Determining the Extent of Clearing

On an annual basis a spatial assessment will be undertaken to confirm the extent of vegetation (and associated fauna habitat type) that was cleared over the previous 12-month period. This spatial assessment will be undertaken within three months of the completion of each financial year.

The spatial assessment will be used to compare the extent of the vegetation and habitat at the end of each financial year with the 'baseline' extent of vegetation and habitat which existed prior to the Proposal's clearing activities occurring.

The spatial assessment will be ground truthed by the digital ground survey data that will be collected after completion of vegetation clearing via a digital ground survey in accordance with Main Roads Digital Ground Survey Standard 67-08-43 to capture the As Constructed Vegetation Clearing Area data.

3.5 Content of the IRR

Each IRR will be structured in the manner prescribed in the EPA's 'Instructions on How to Prepare EP Act Part IV IRPs and IRRs, 2022'.

Each IRR will include the following information:

- identification of the relevant Ministerial Statement and the relevant EPBC Act approval decision notice, applicable conditions, and the reporting period;
- quantification of clearing undertaken during the reporting period, broken down into the environmental values identified in Table 3-3 and protection matters identified in Table 3-4 of this IRP; and
- information from surveys supporting the quantification of clearing undertaken, including spatial data representing areas of ground disturbance (if deemed relevant) and supporting reports;
- a quantitative estimate of clearing expected for the next biennial period.

4 Reporting

The Proponent will prepare one or more Impact Reconciliation Reports (IRRs) to document the clearing undertaken. The IRR will provide the location and spatial extent of the clearing undertaken during each financial year of each biennial reporting period. The IRRs will be provided to the Department of Water and Environmental Regulation (DWER) and DCCEEW to enable determination of the contributions payable.

4.1 Frequency and Timing

IRRs will be submitted biennially. A single IRR covering the requirements of both MS 1205 and EPBC Act approval decision notice 2020/8725 will be prepared.

Successive reporting periods run from 1 July of the same year to 30 June two years later unless agreed with the CEO of DWER (State) or DCCEEW (Commonwealth). The IRR will advise DWER on the amount of clearing that has been undertaken within each financial year of the biennial reporting period. This clearing is then used to calculate the financial contribution to be paid into the PEOF.

Table 4-1. Timeframes and frequency of impact reconciliation activities under this IRP

Reporting Year	Action	Timing
Post approval stage	State Ministerial Statement issued	03 July 2023
	EPBC Act Approval issued	24 January 2023
	Commencement of action	TBC
Upfront payment	Initial payment (as part of the Commonwealth requirement for 10% of the overall clearing allowable)	Prior to commencement of action
	Approval holder to submit evidence of payment into PEOF account to the Commonwealth department of Environment	Upon payment
Period 1*	First reporting period*	The day prior to the commencement of ground disturbance activities / commencement of the proposed action to 30 June two years later ⁷
	Aerial survey/ground-truthing	TBC
	Impact Reconciliation Report submitted to DWER and DCCEEW	30 October of the year of the end of reporting period
	Approval holder to submit evidence of payment into the PEOF account to DWER and DCCEEW	Upon payment

⁷ For MS 1205, the clearing calculation for the first biennial reporting period will commence from the day prior to ground disturbing activities and end on the second 30 June following commencement. For EPBC Act approval decision notice 2020/8725 the clearing calculation for the first biennial reporting period will commence from the commencement of the end on the second 30 June following commencement. As such the commencement of the first biennial reporting period may differ slightly between the IRR for MS 1205 and EPBC Act approval decision notice 2020/8725.

Impact Reconciliation Procedure

Period 2^	Second biennial reporting period	1 July to 30 June of the subsequent biennial period
	Aerial survey/ground-truthing	TBC
	Impact Reconciliation Report submitted to DWER and DCCEEW	30 October of the year of the end of reporting period
	Approval holder to submit evidence of payment into PEOF account to DWER and DCCEEW	Upon payment
Post clearing stage	"Final" IRR submitted to DWER and DCCEEW	Within 6 months of the completion of clearing.

* *Period 1 is less than two years to align with a financial year reporting period.*

^ *Repeat Period 1 actions should impacts occur in the following 2-year periods.*

No clearing will occur after the end of the last reporting period. The Proponent will notify DWER and DCCEEW in writing of the actual clearing footprint and the total contributions made into the PEOF.

5 References

Biota, 2021. Manuwarra Red Dog Highway Stage 4 Biological Survey. Biota Environmental Sciences Pty Ltd. Report prepared for Main Roads Western Australia

Department of Water and Environmental Regulation (DWER), 2022. Program: Pilbara Environmental Offsets Fund. DWER, Joondalup, WA.

Environmental Protection Authority (EPA), 2016. Environmental Factor Guideline. Flora and Vegetation. Environmental Protection Authority, Joondalup, WA.

EPA, 2021. Instructions on how to prepare *Environmental Protection Act 1986* Part IV Impact Reconciliation Procedures and Impact Reconciliation Reports. Environmental Protection Authority, Joondalup, WA.

Main Roads Western Australia, 2013. Document Number 6707/022 – Vegetation Placement within the Road Reserve. Main Roads, East Perth, WA.

Main Roads Western Australia, 2019. Specification 301 – Vegetation Clearing and Demolition. Main Roads, East Perth, WA.

6 Figures

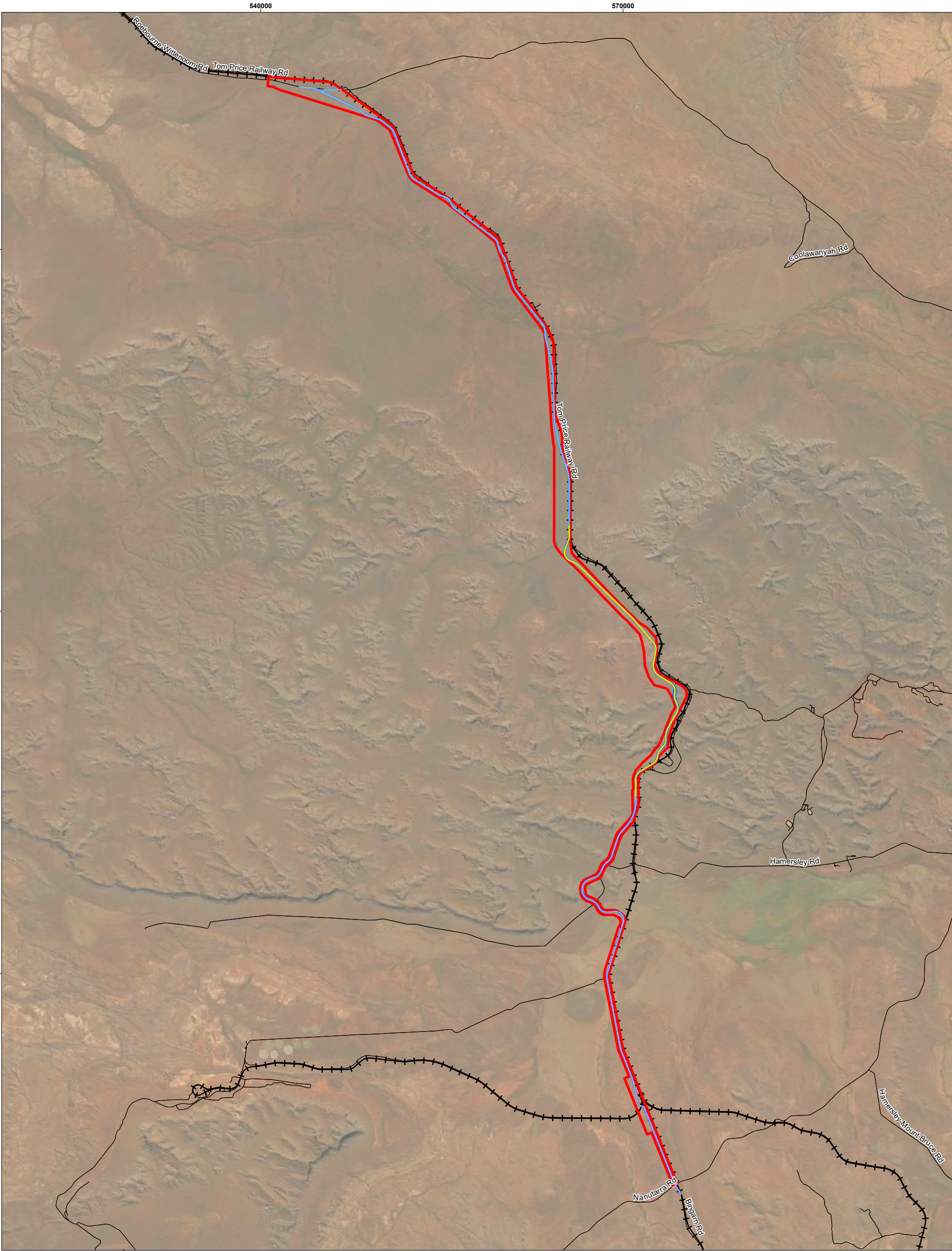


Figure 1 - Manuwarra Red Dog Highway Project Overview

- Legend
- Coolawanyah Section

Hamersley Section

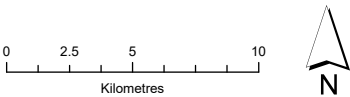
Tom Price Section

Roads

Railways

Disturbance Footprint

Development Envelope



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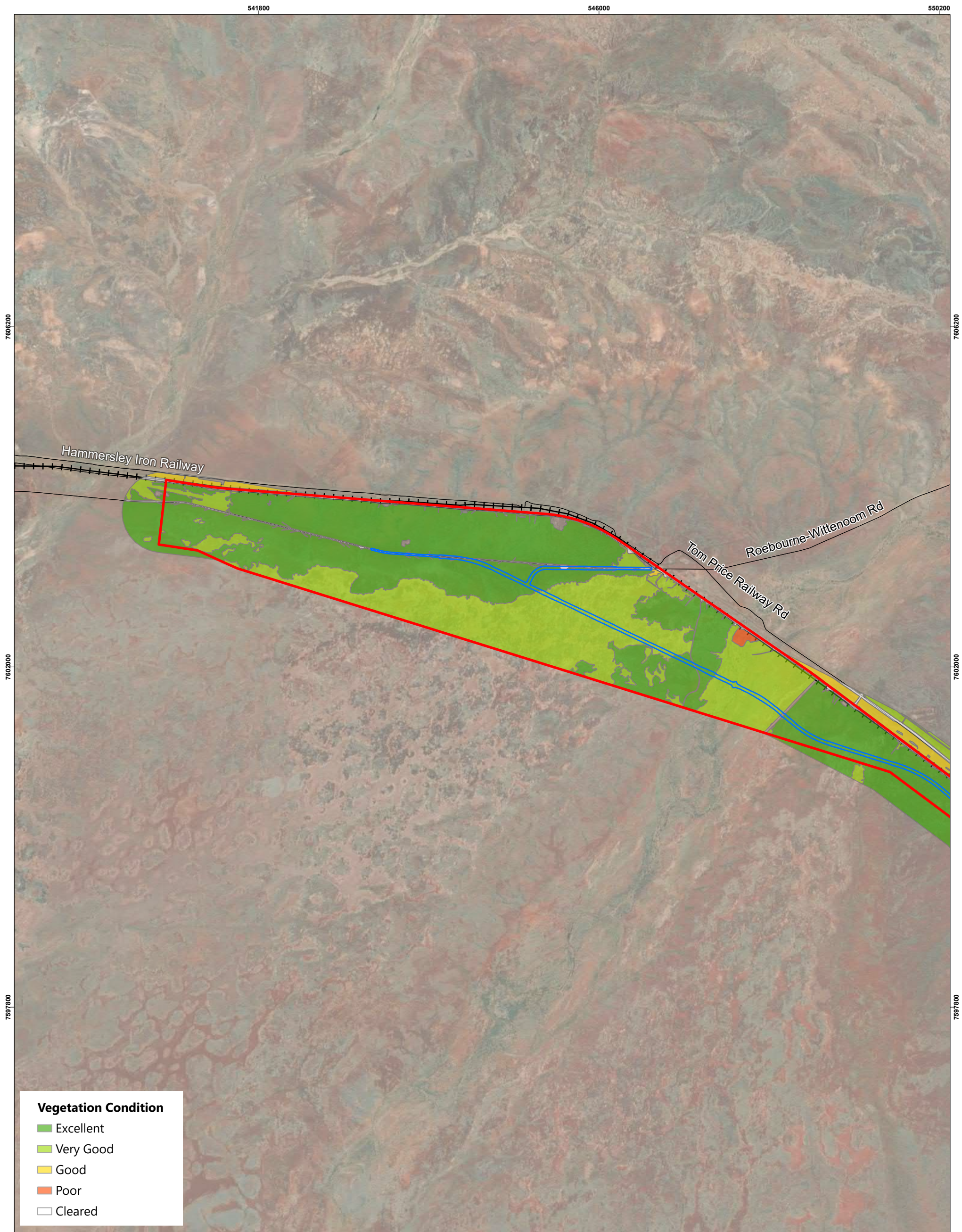
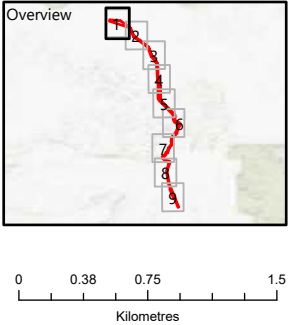


Figure 2.1 - Native Vegetation Condition

- Legend**
- Roads
 - + Railways
 - Disturbance Footprint
 - ▭ Development Envelope
 - Rivers and Creeks



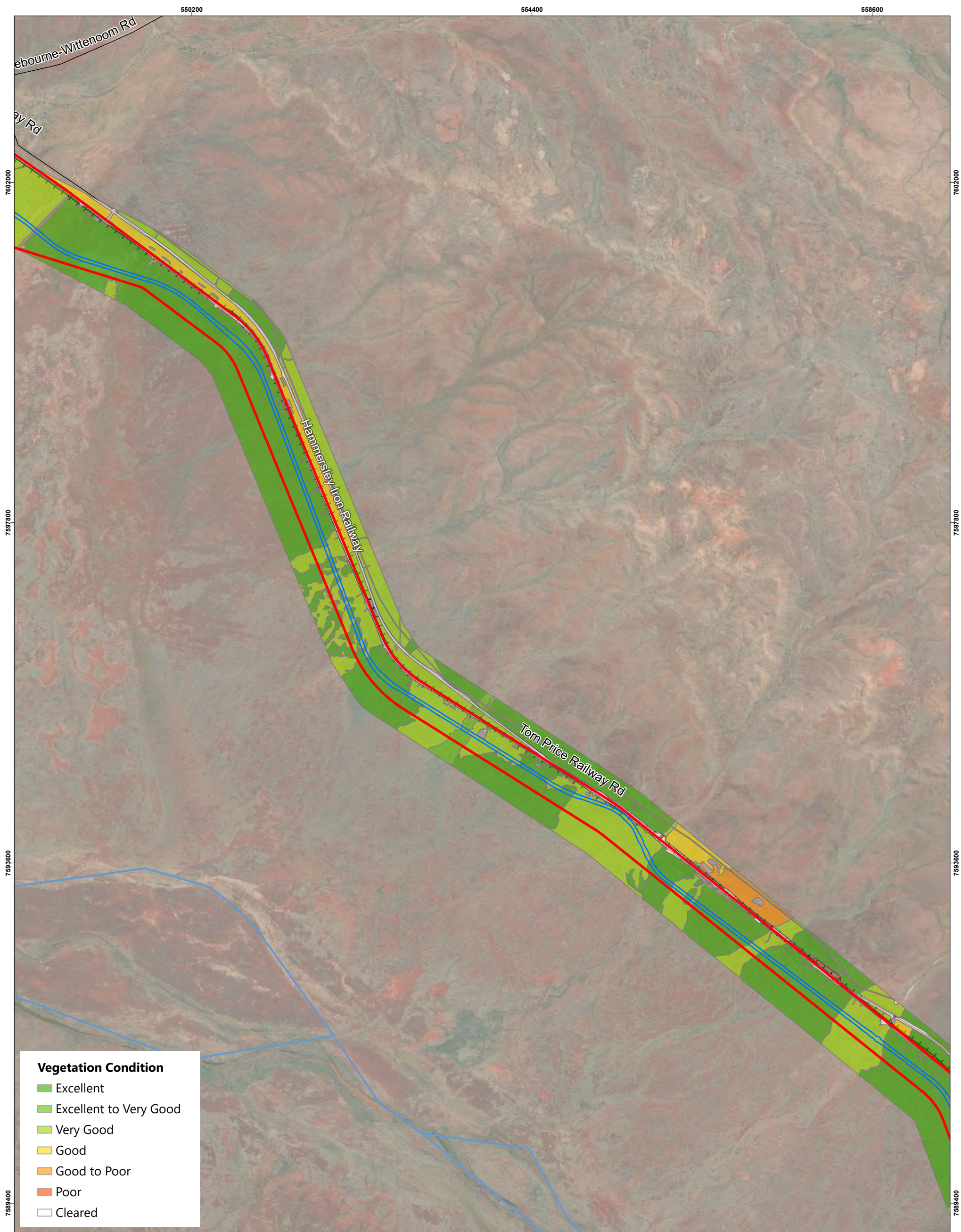
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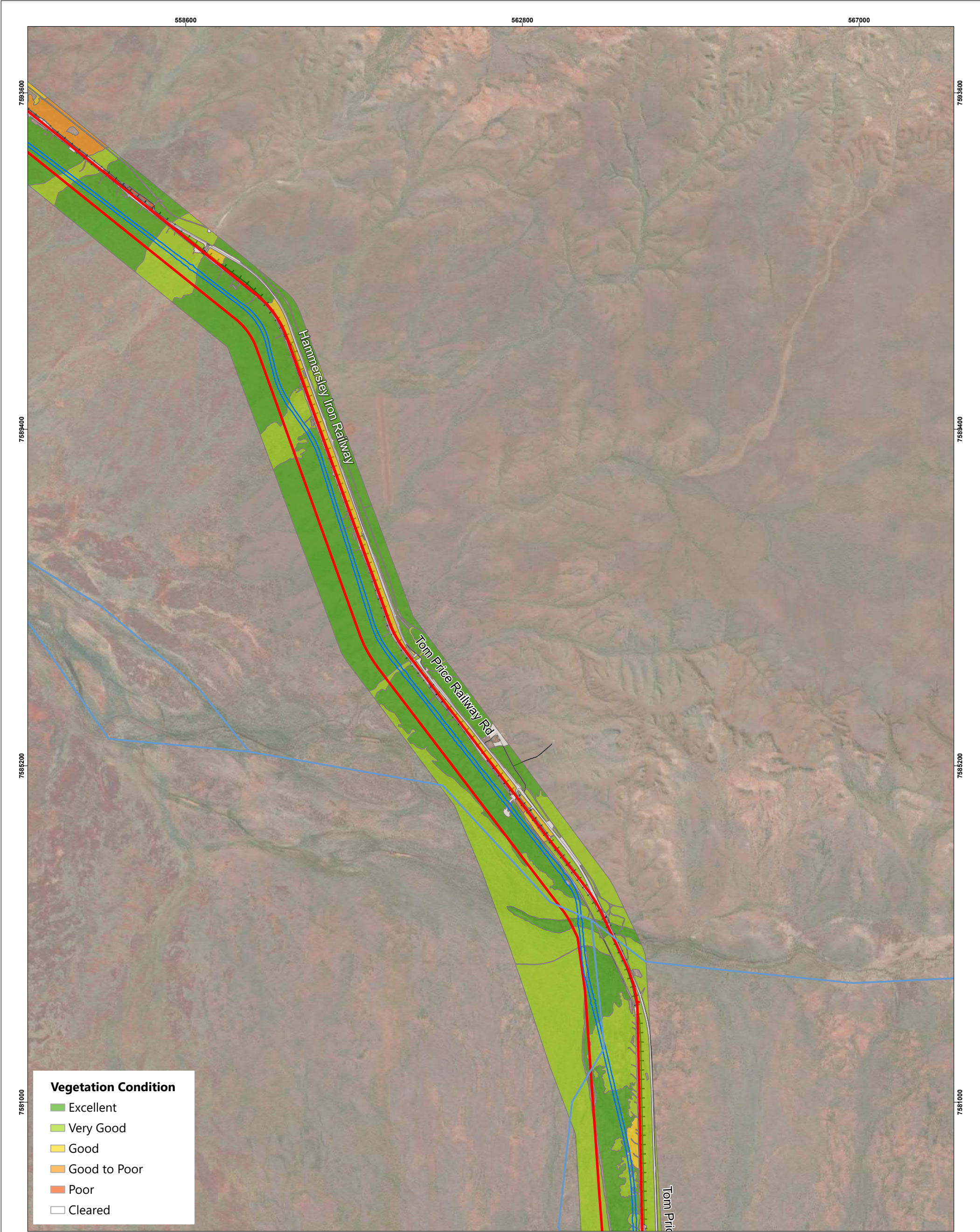
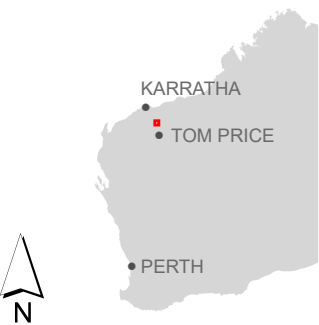
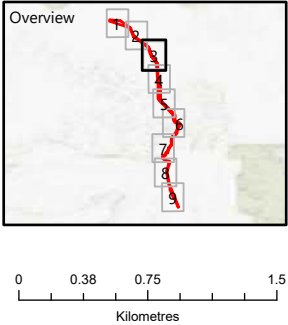


Figure 2.3 - Native Vegetation Condition



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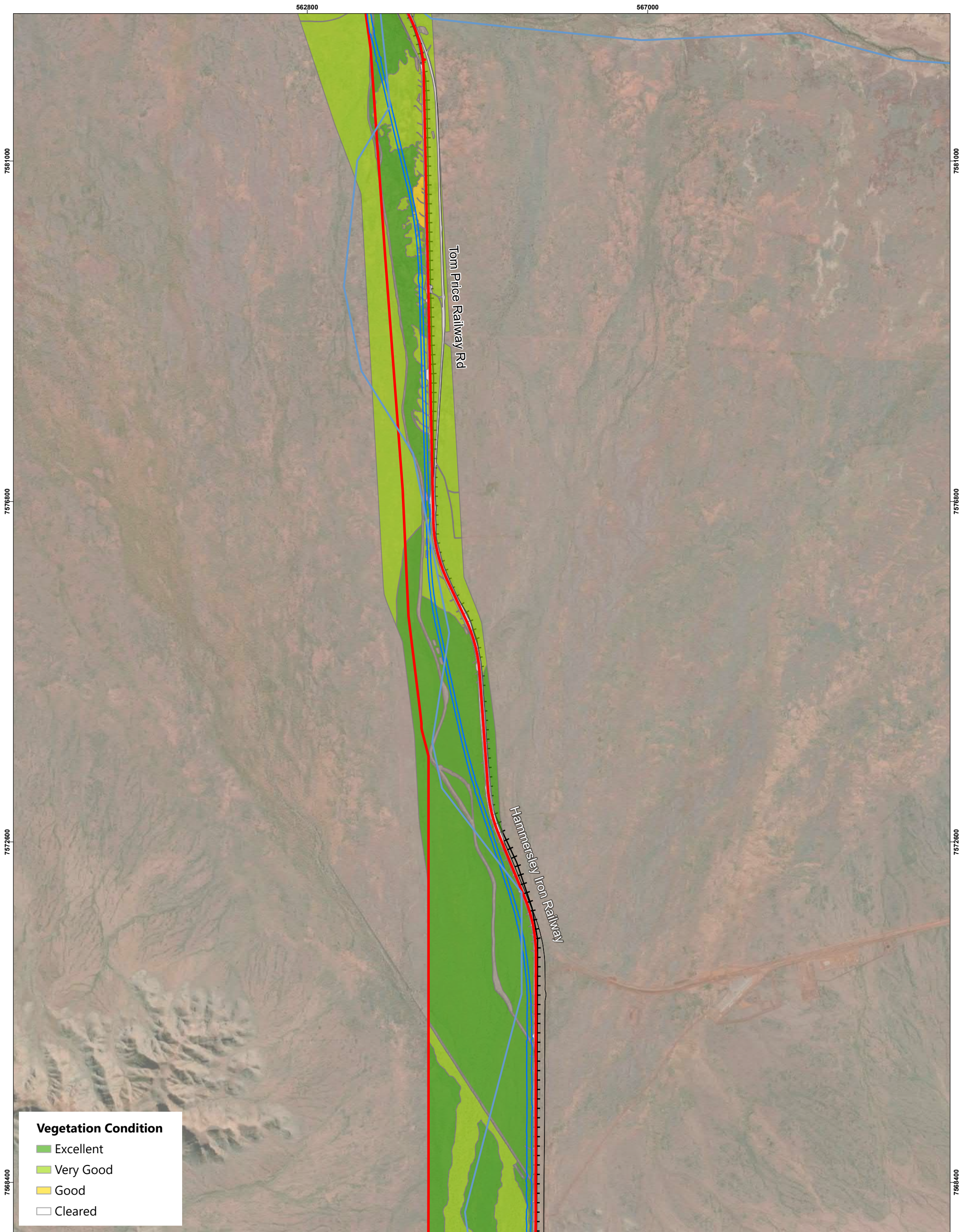
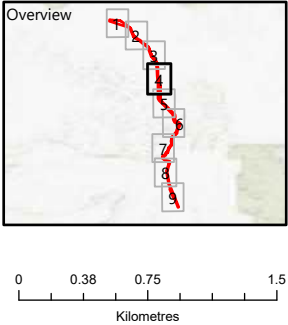


Figure 2.4 - Native Vegetation Condition

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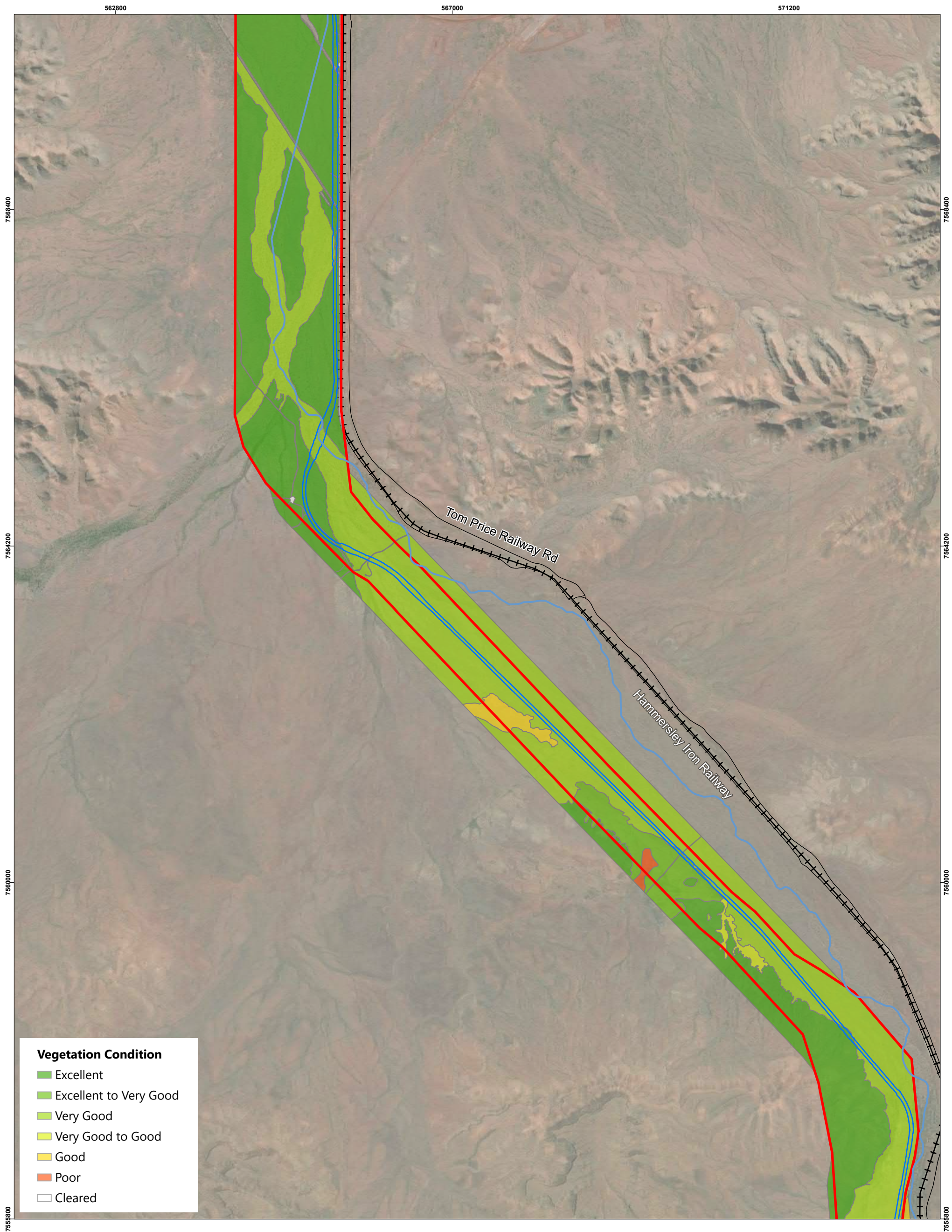
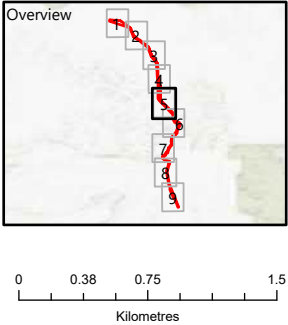


Figure 2.5 - Native Vegetation Condition

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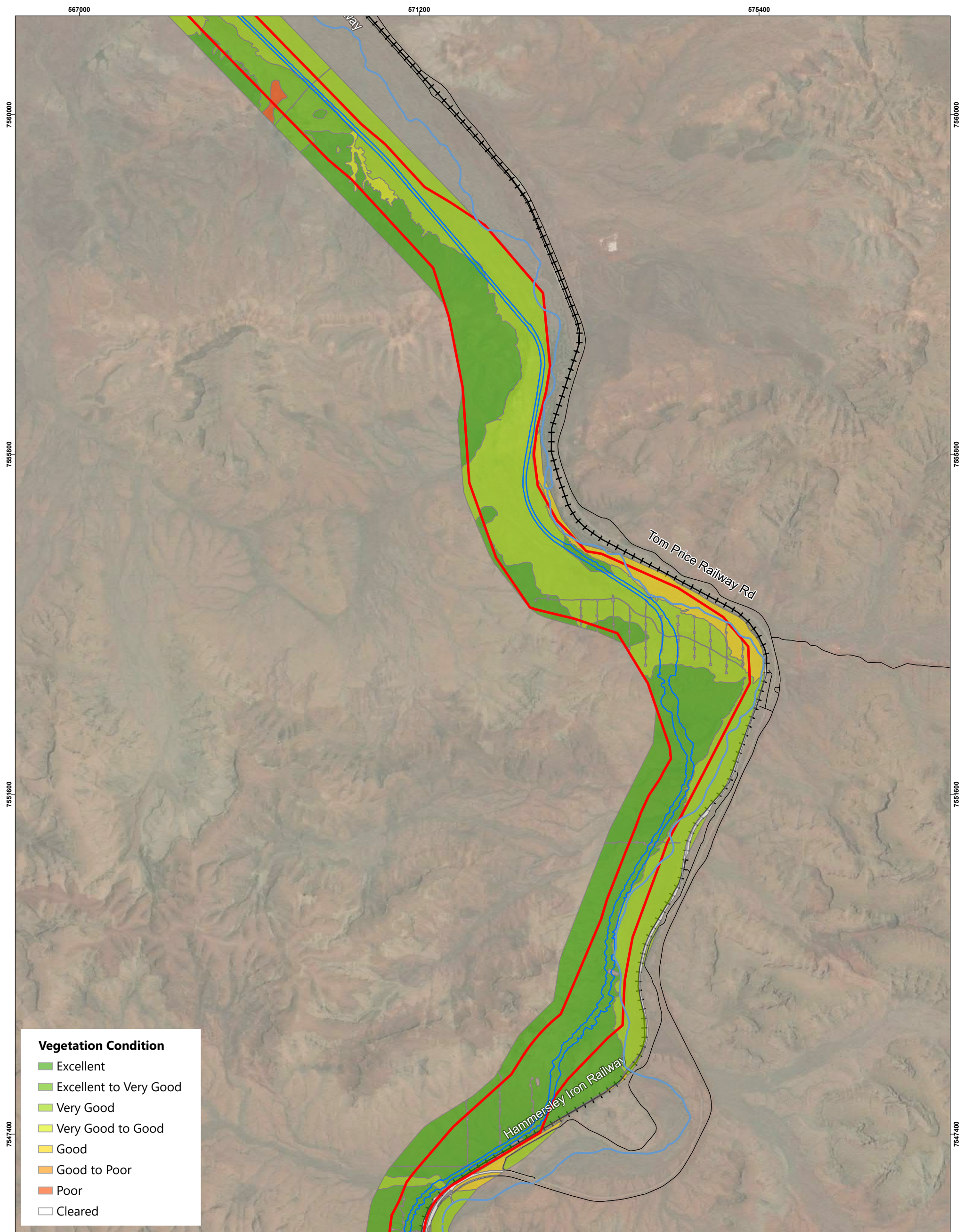
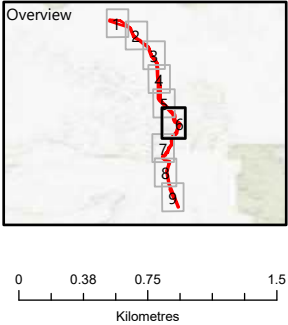


Figure 2.6 - Native Vegetation Condition

- Legend**
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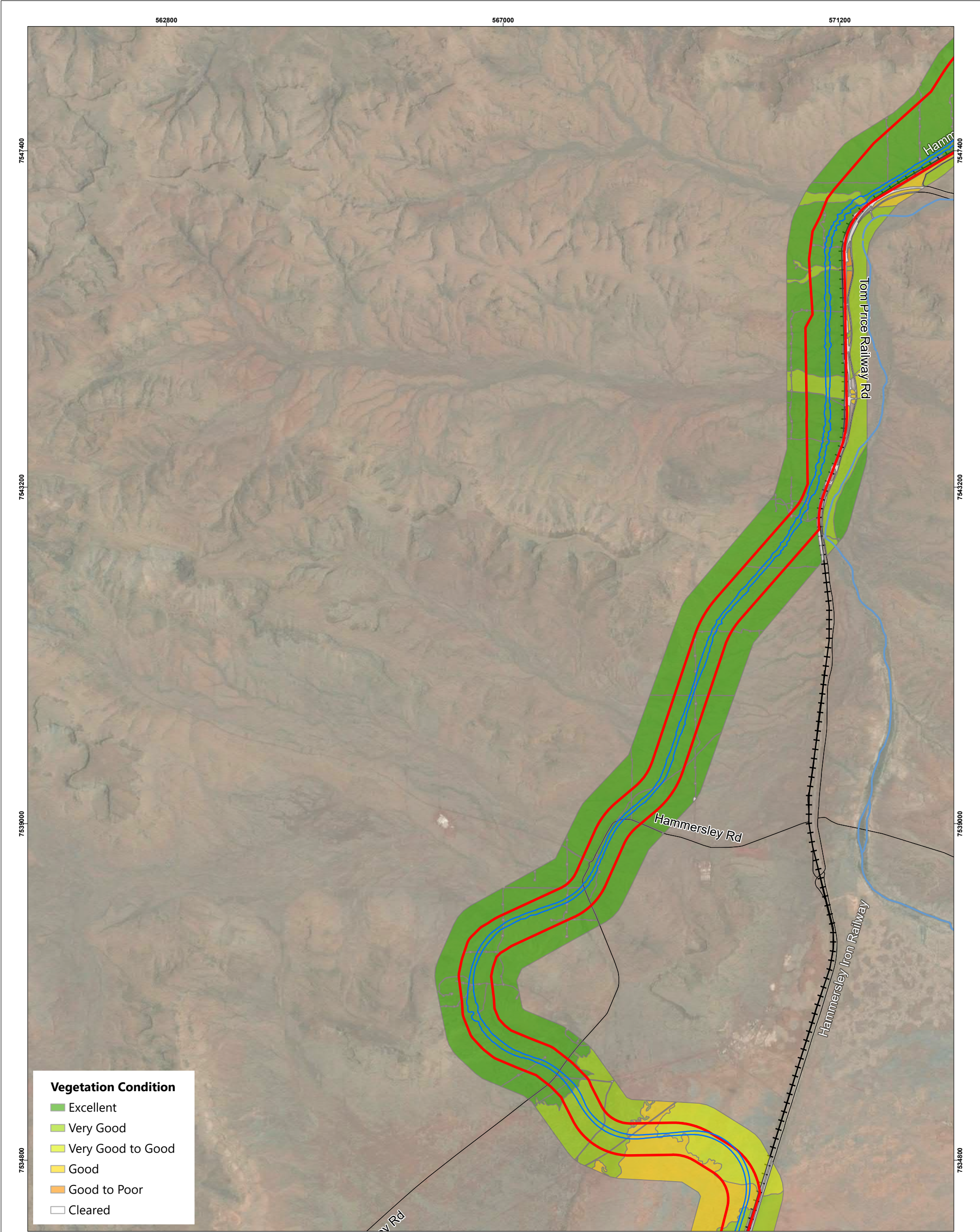
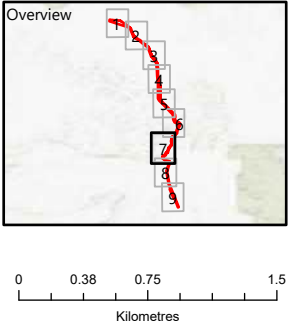


Figure 2.7 - Native Vegetation Condition

- Legend**
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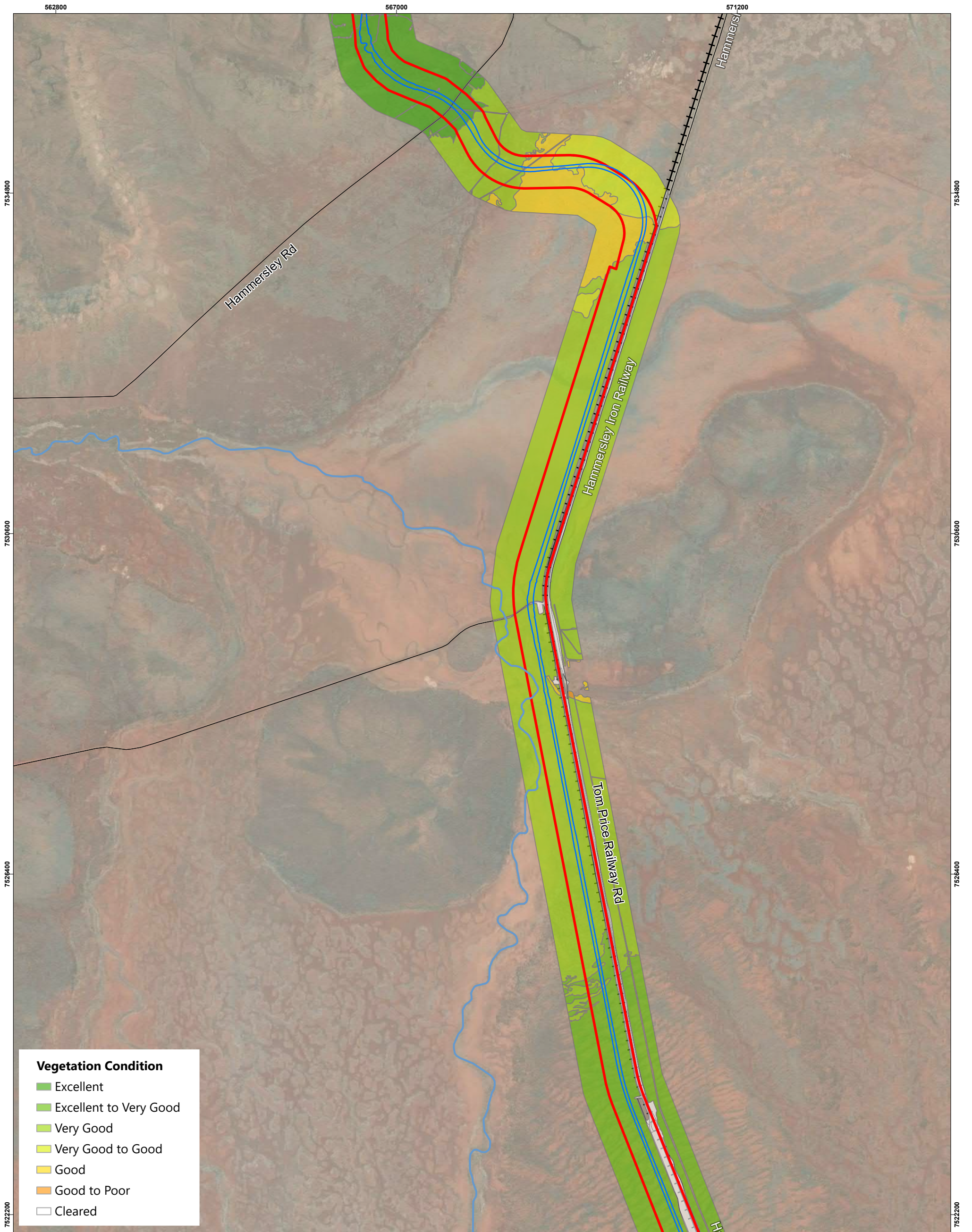
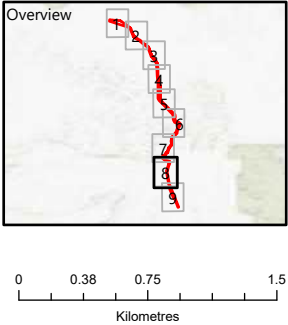


Figure 2.8 - Native Vegetation Condition



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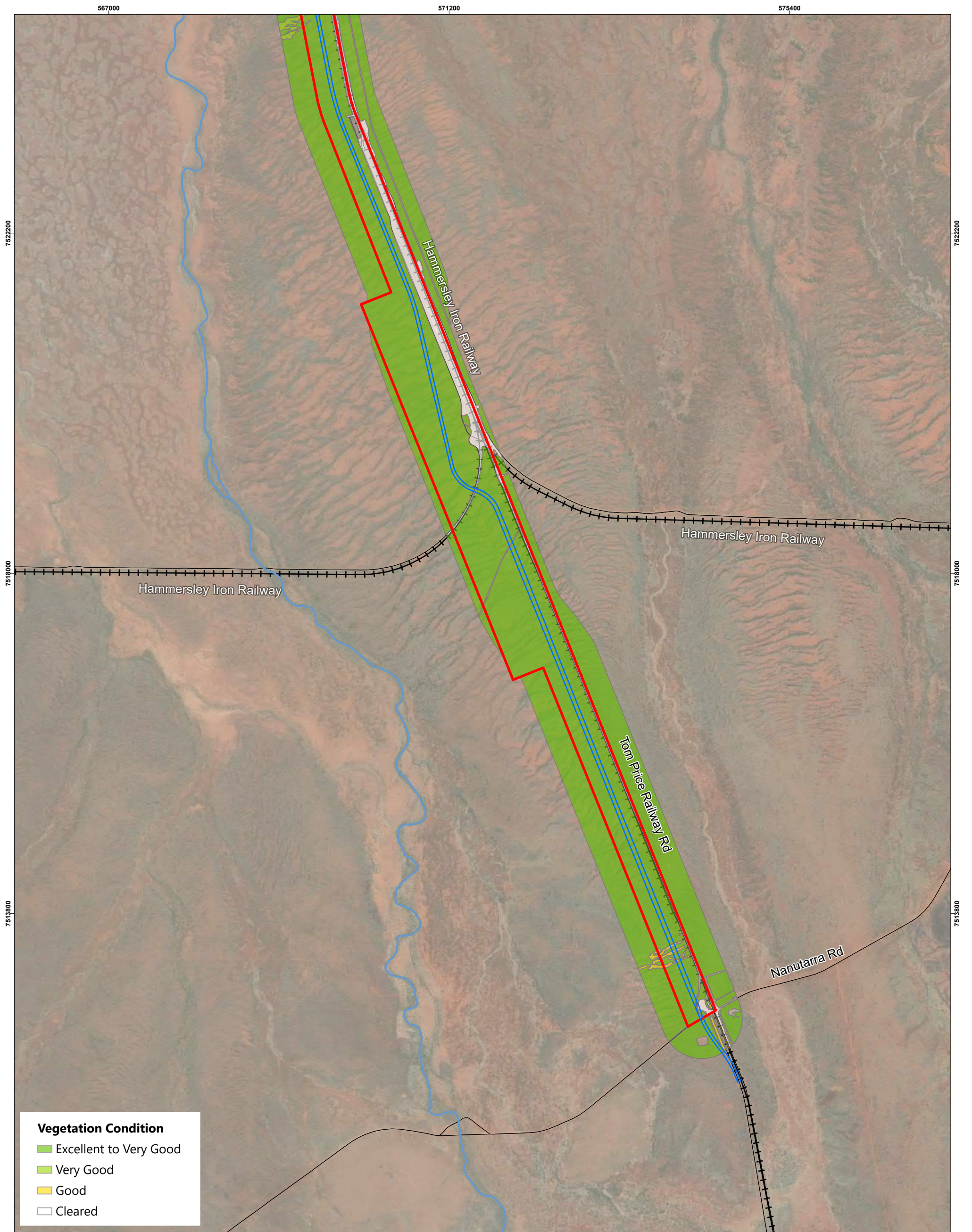
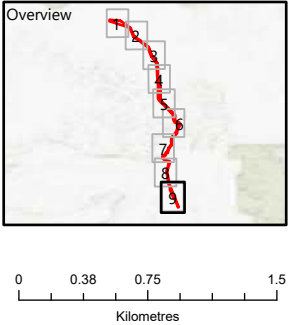


Figure 2.9 - Native Vegetation Condition

- Legend**
- Roads
 - + Railways
 - ▭ Disturbance Footprint
 - ▭ Development Envelope
 - Rivers and Creeks



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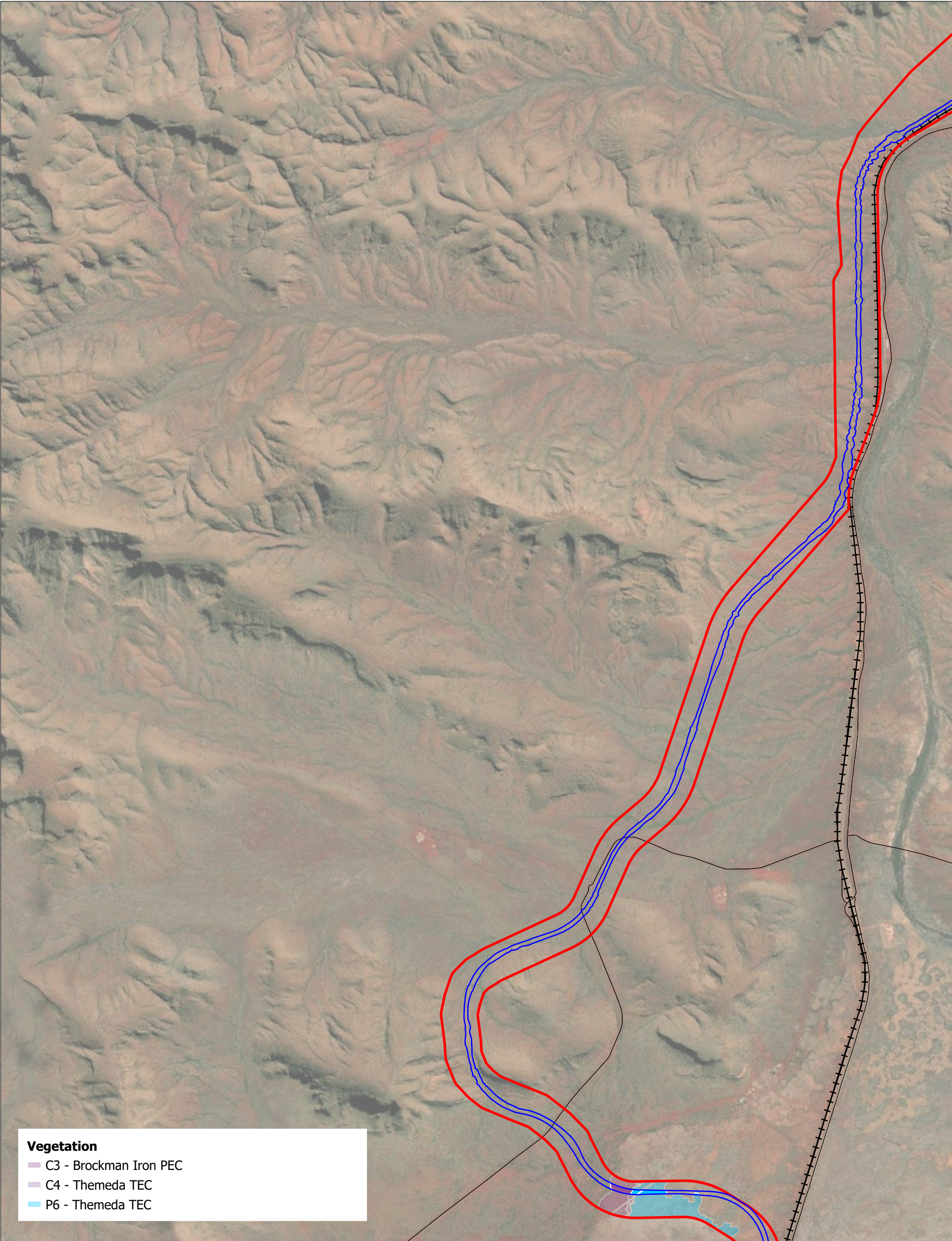
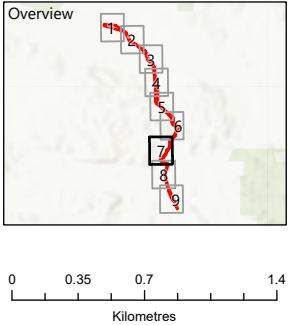


Figure 3.1 - TECs and PECs

- Legend**
- Roads
 - + Railways
 - Development Envelope
 - Indicative Disturbance Footprint



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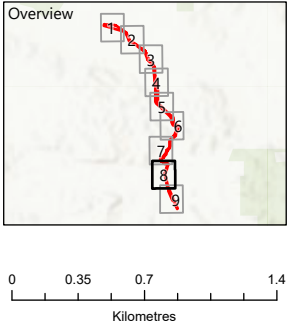
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Figure 3.2 - TECs and PECs

- Legend**
- Roads
 - + Railways
 - Development Envelope
 - Indicative Disturbance Footprint



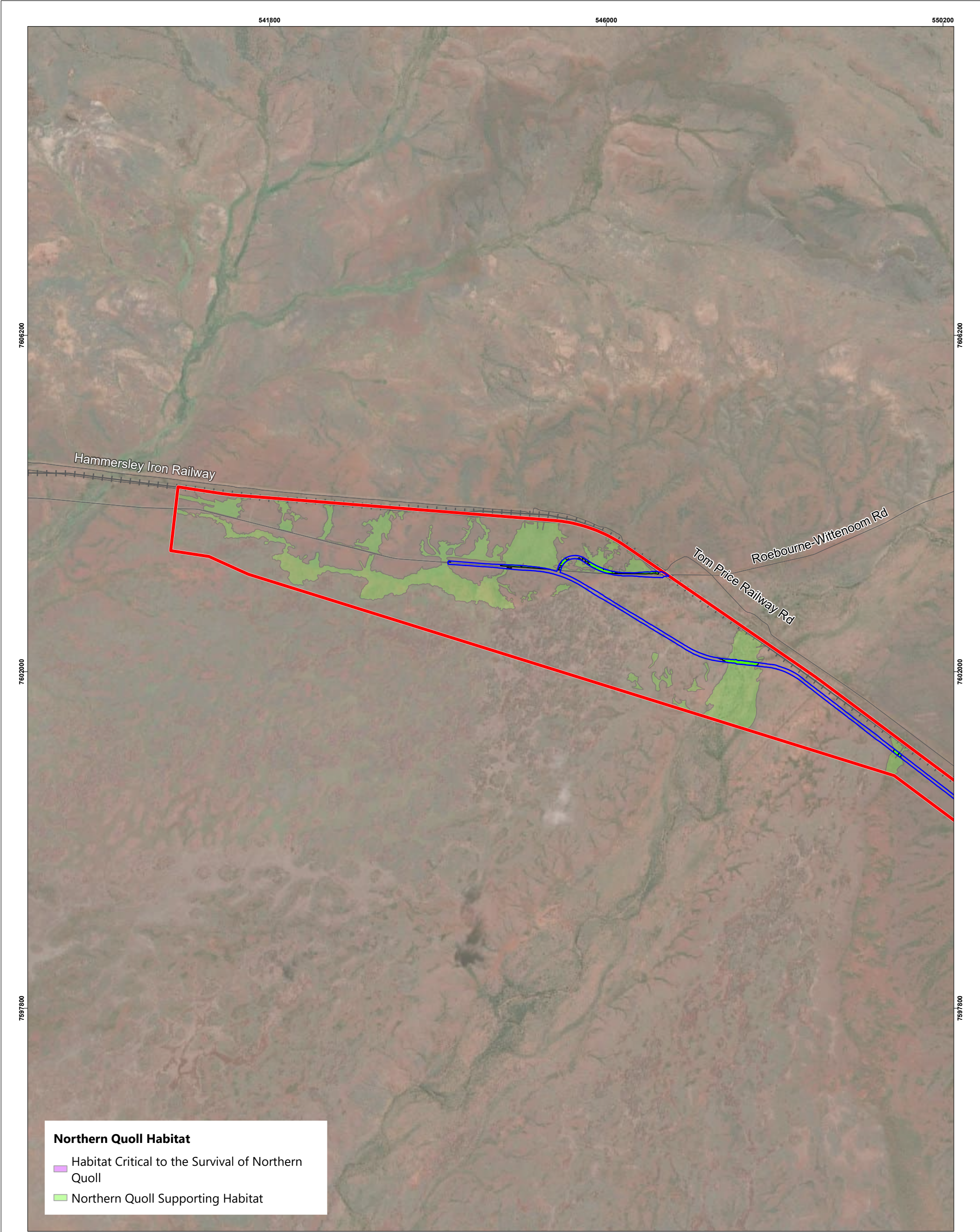
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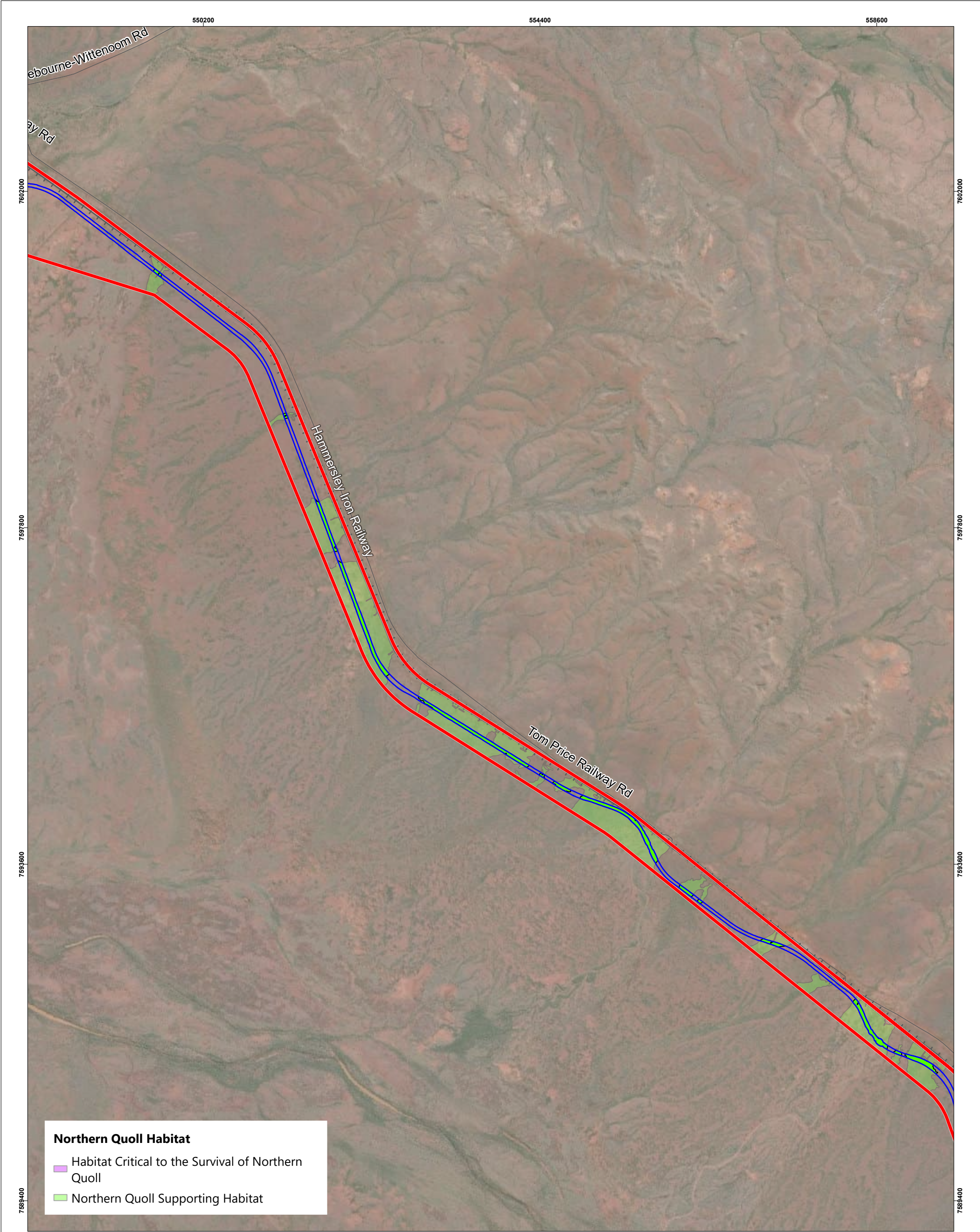
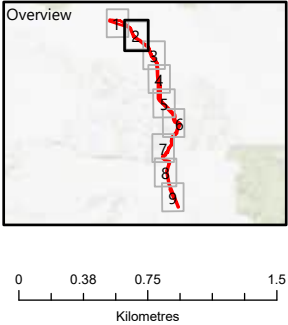


Figure 4.2 - Northern Quoll Habitat (MS 1205)

- Legend**
- Roads
 - + Railways
 - Development Envelope
 - Indicative Disturbance Footprint



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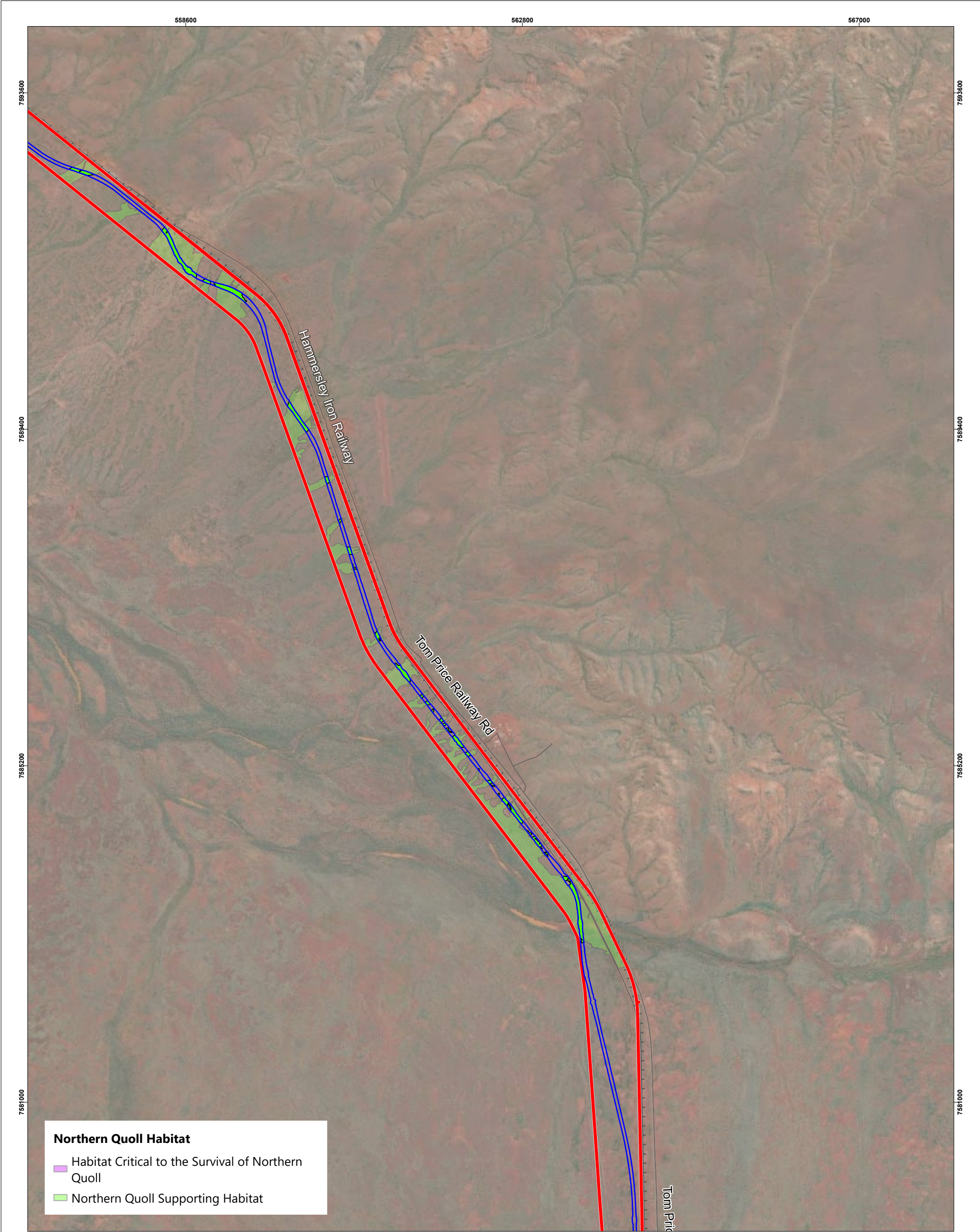
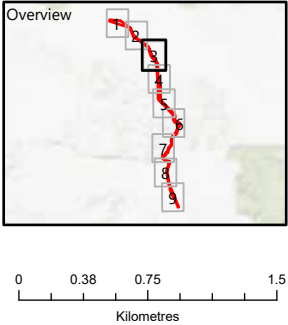


Figure 4.3 - Northern Quoll Habitat (MS 1205)

- Legend**
- Roads
 - + Railways
 - Development Envelope
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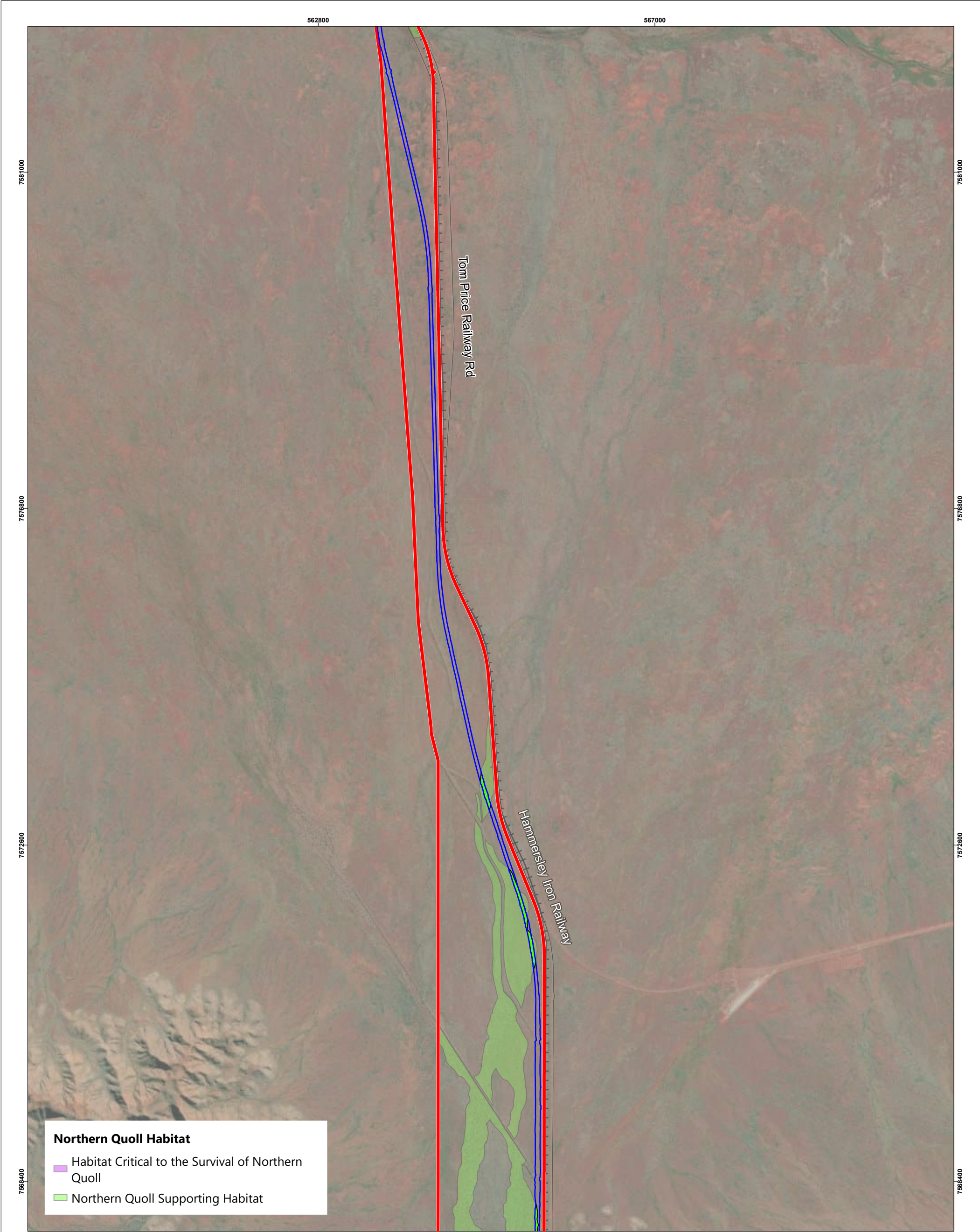
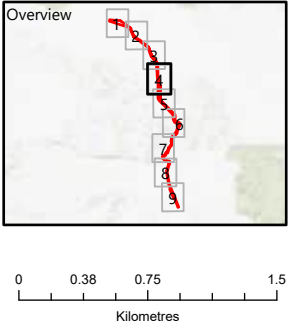


Figure 4.4 - Northern Quoll Habitat (MS 1205)

- Legend**
- Roads
 - + Railways
 - Development Envelope
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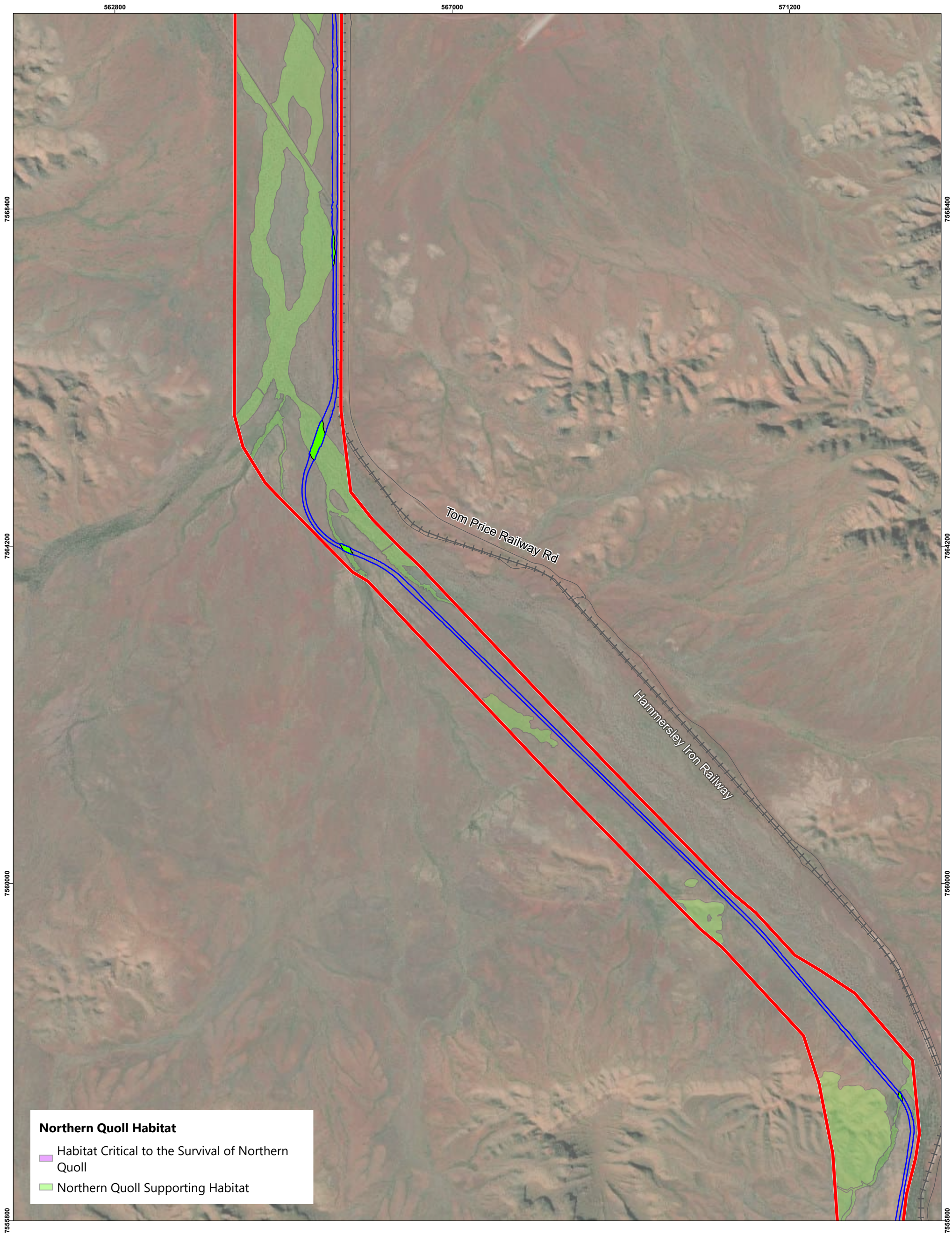
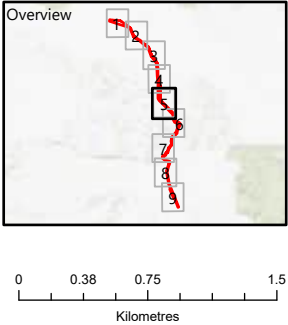


Figure 4.5 - Northern Quoll Habitat (MS 1205)

- Legend**
- Roads
 - + Railways
 - Development Envelope
 - Indicative Disturbance Footprint



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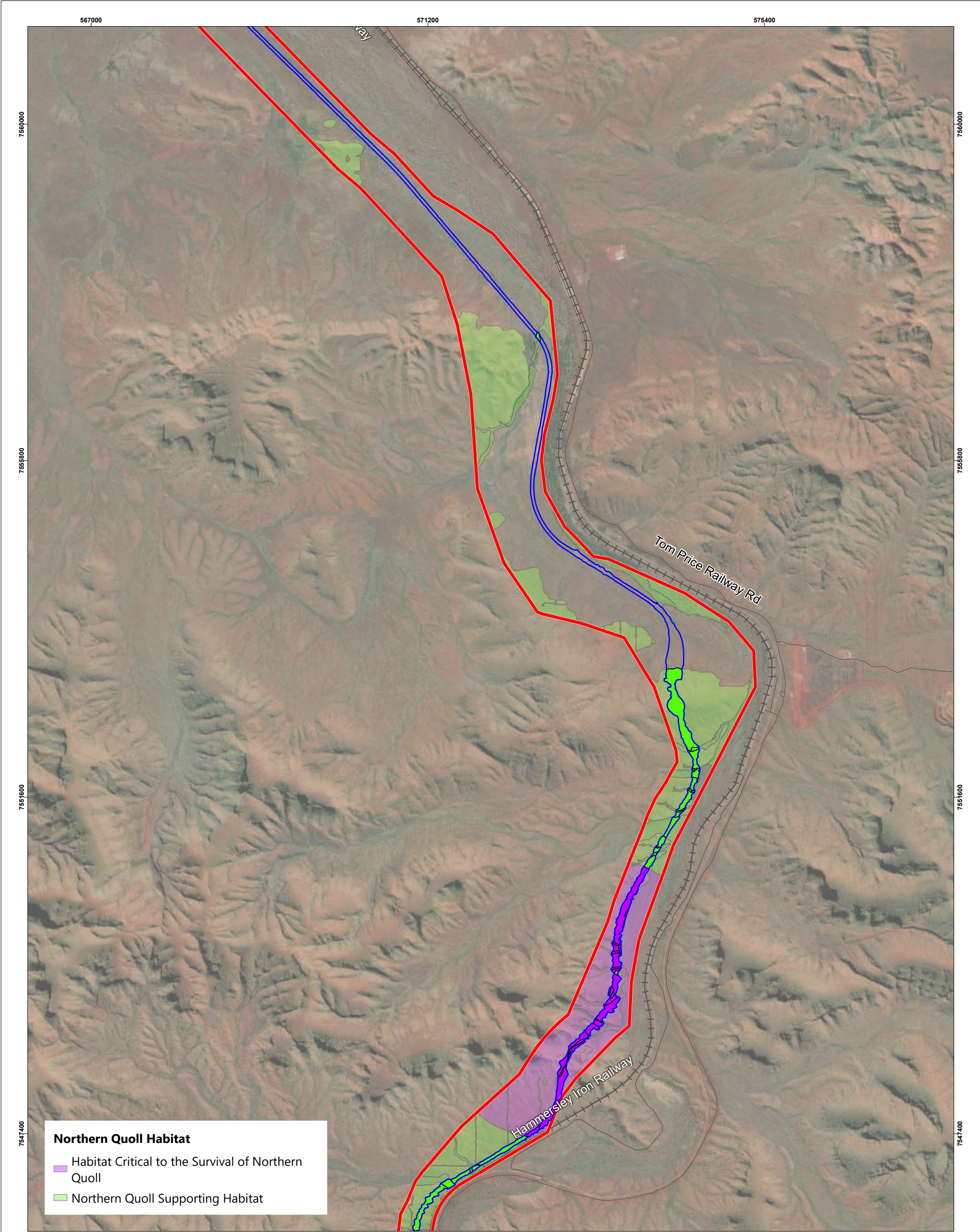
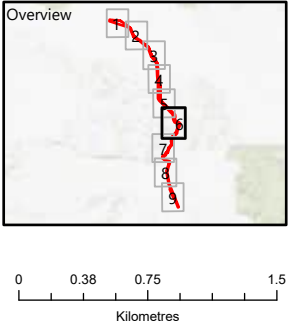


Figure 4.6 - Northern Quoll Habitat (MS 1205)

- Legend**
- Roads
 - + Railways
 - Development Envelope
 - Indicative Disturbance Footprint



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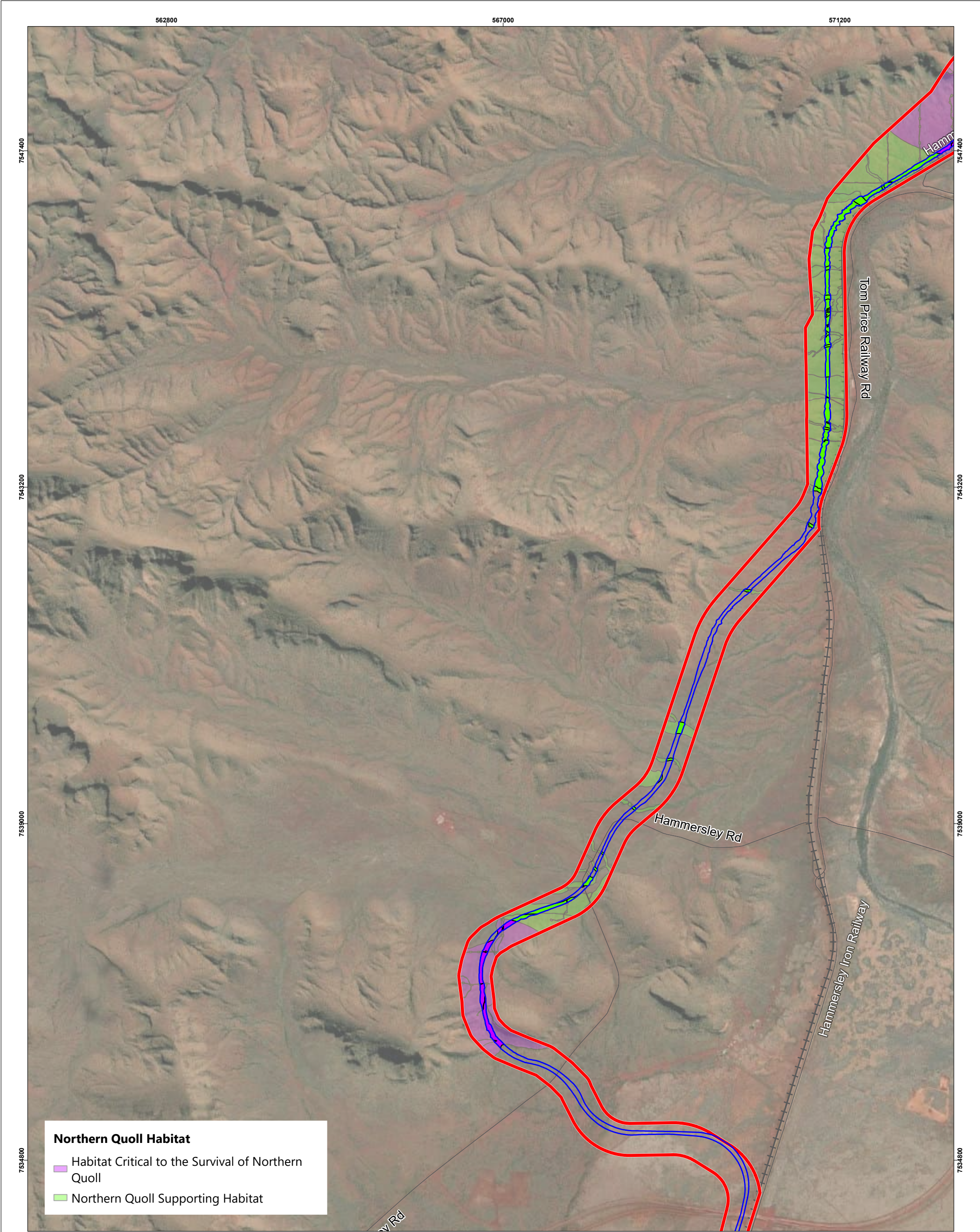


Figure 4.7 - Northern Quoll Habitat (MS 1205)



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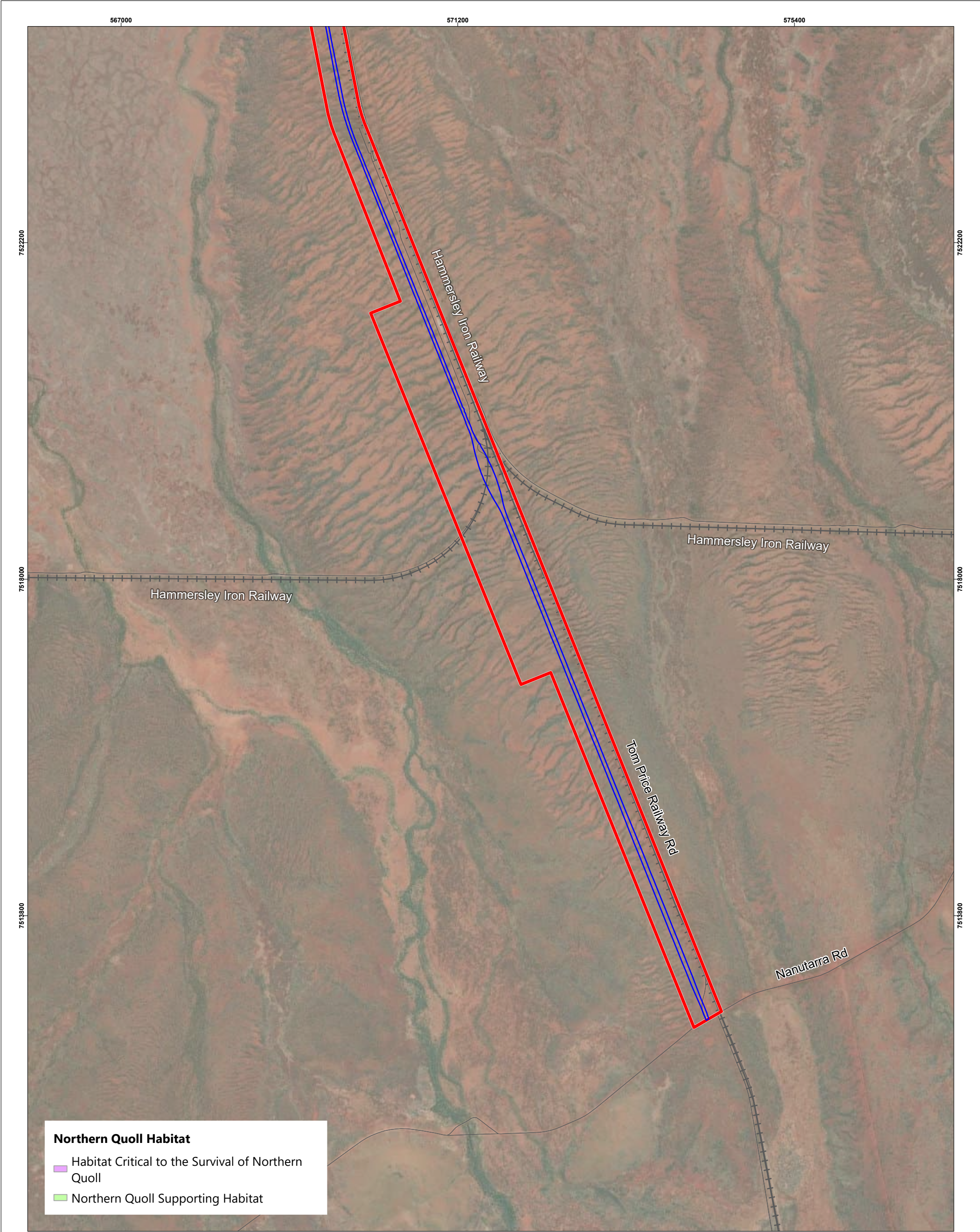
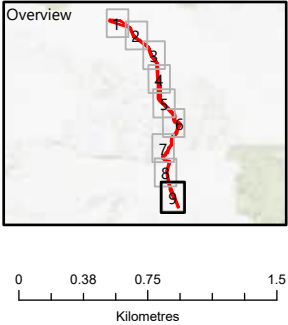


Figure 4.9 - Northern Quoll Habitat (MS 1205)

- Legend**
- Roads
 - + Railways
 - Development Envelope
 - Indicative Disturbance Footprint



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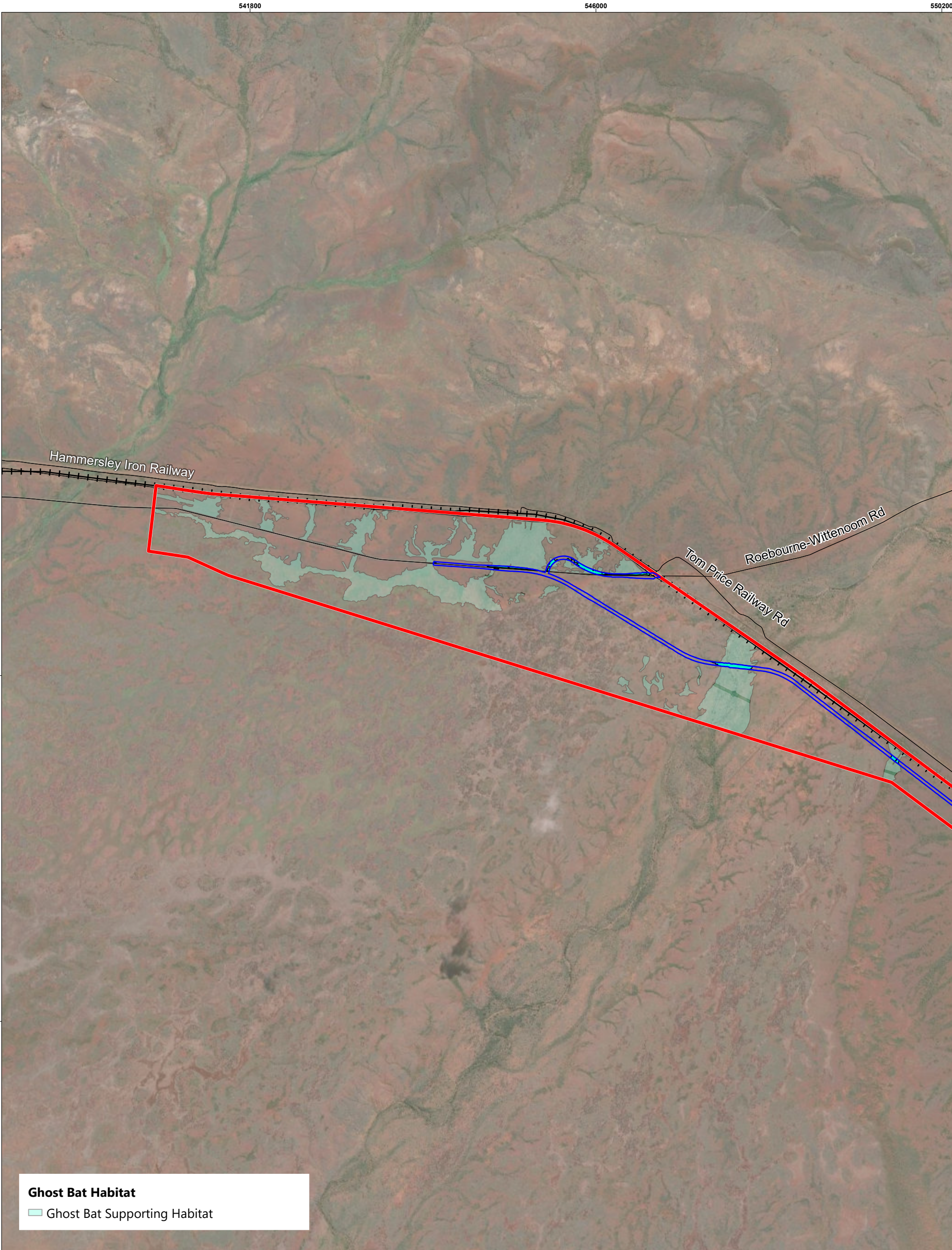
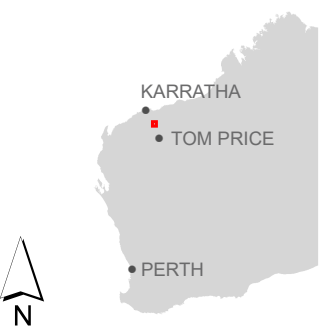
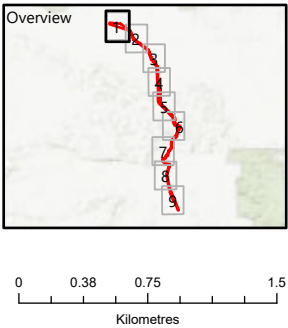


Figure 5.1 - Ghost Bat Habitat (MS 1205)

- Legend**
- Roads
 - + Railways
 - Development Envelope
 - Indicative Disturbance Footprint



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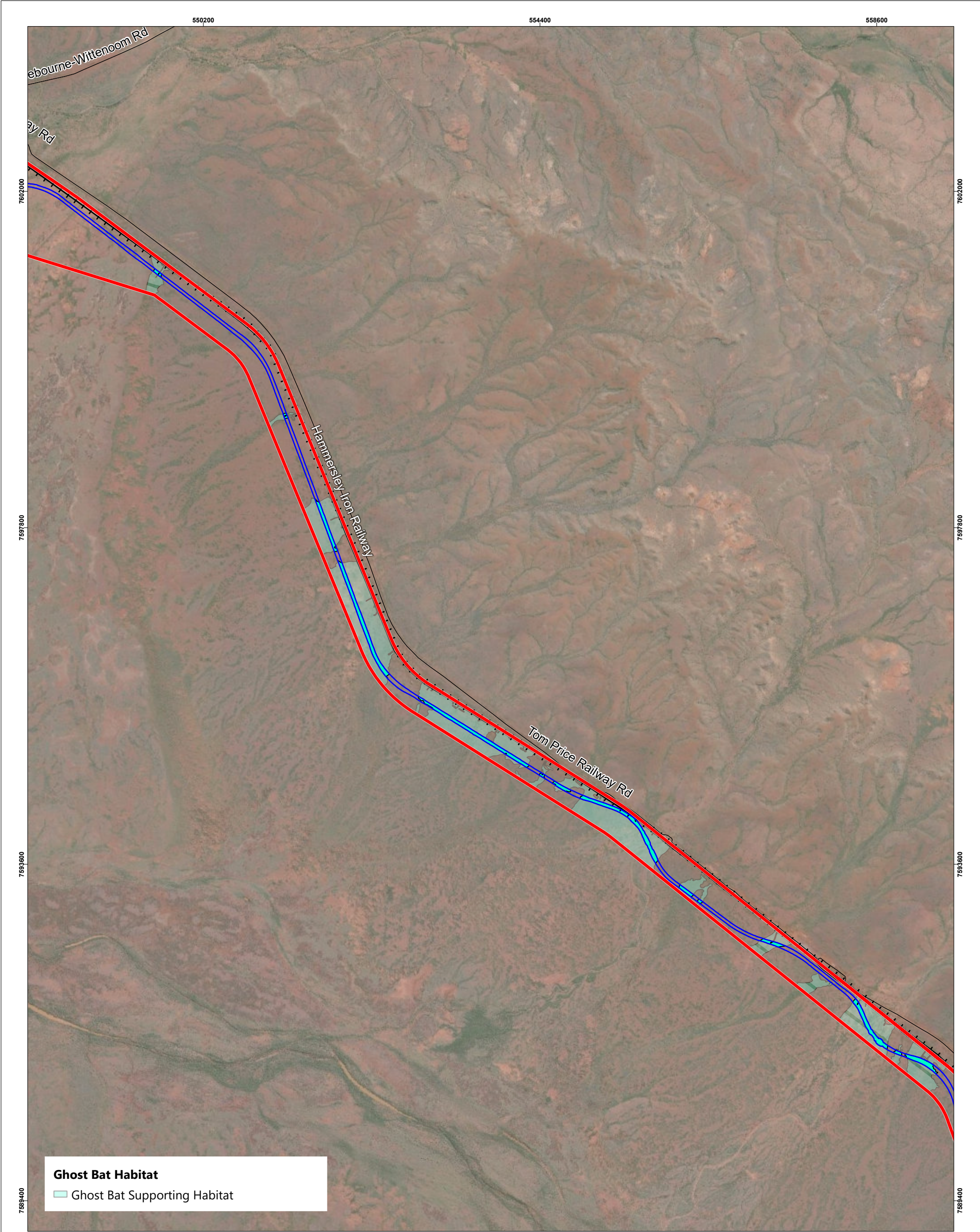
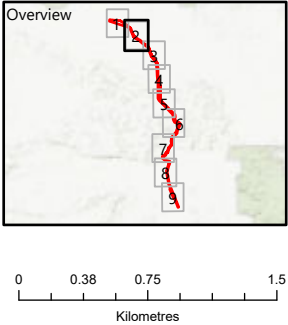


Figure 5.2 - Ghost Bat Habitat (MS 1205)

- Legend**
- Roads
 - Railways
 - Development Envelope
 - Indicative Disturbance Footprint



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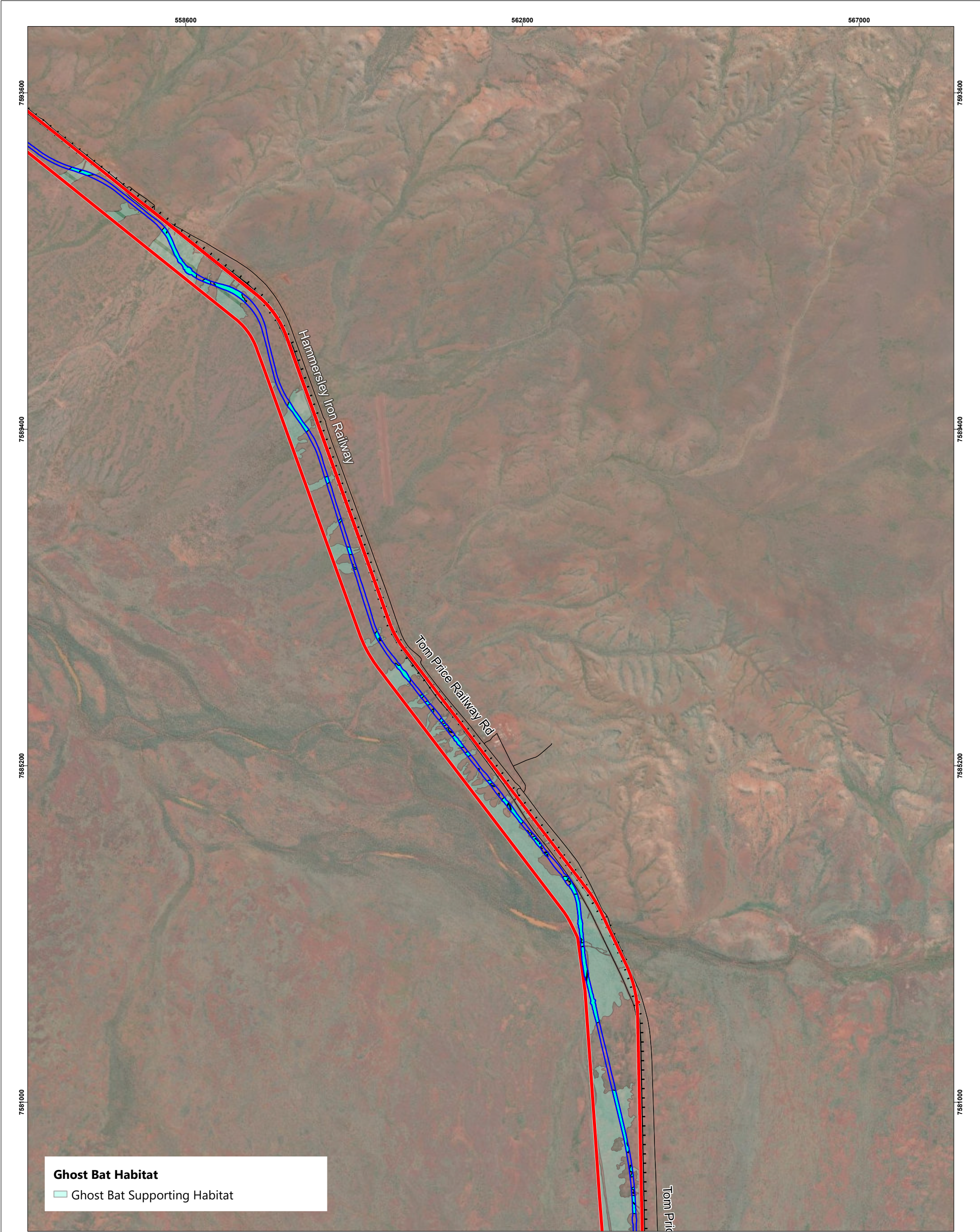
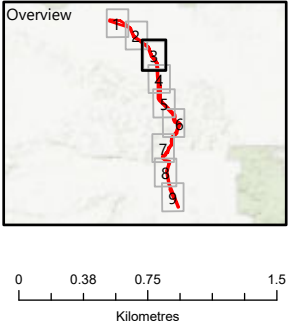


Figure 5.3 - Ghost Bat Habitat (MS 1205)

- Legend**
- Roads
 - + Railways
 - Development Envelope
 - Indicative Disturbance Footprint



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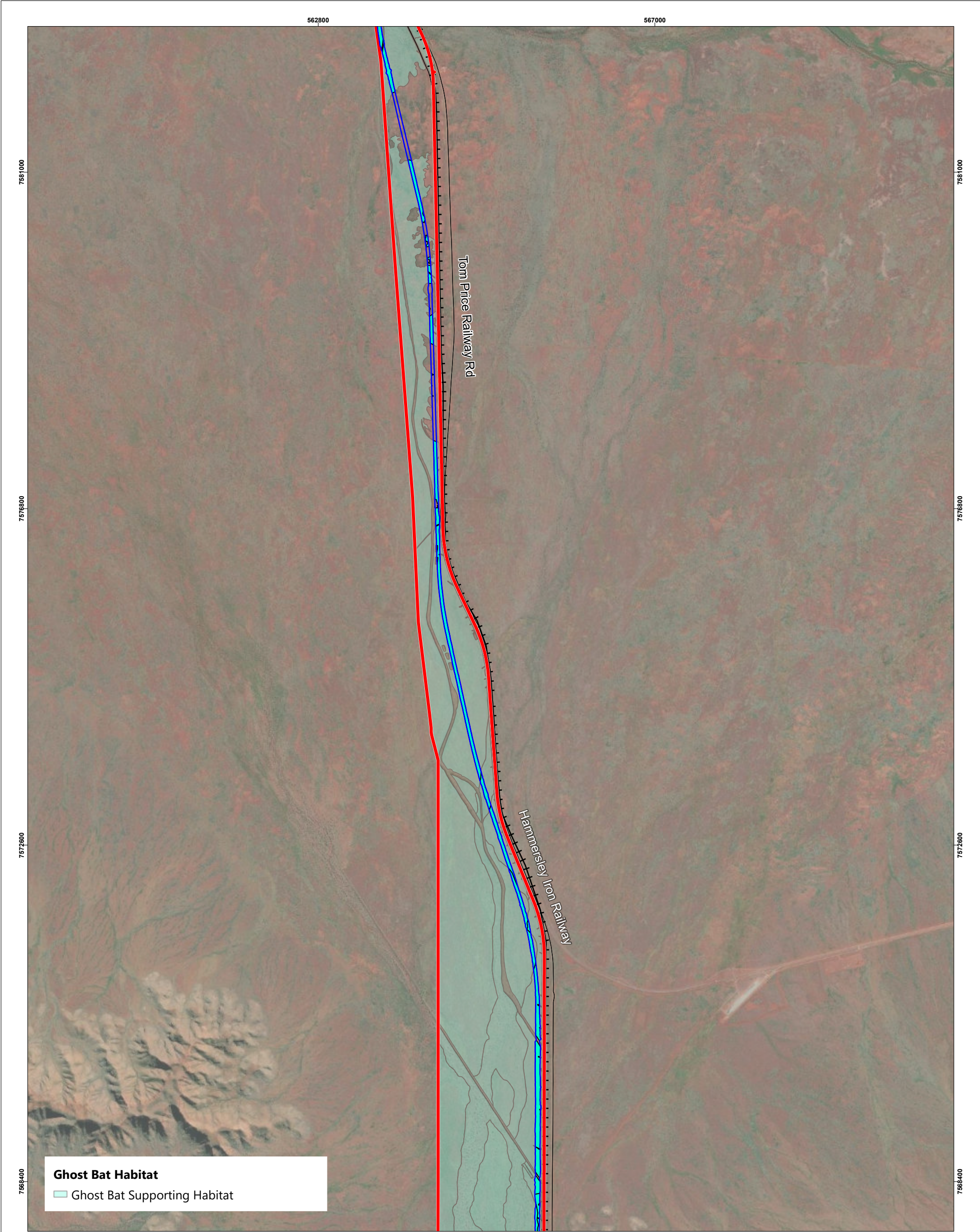
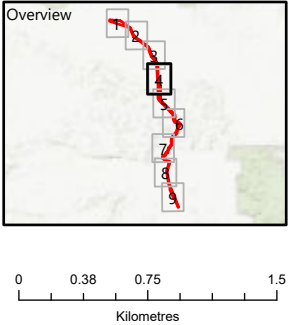


Figure 5.4 - Ghost Bat Habitat (MS 1205)

- Legend**
- Roads
 - + Railways
 - ▬ Development Envelope
 - ▭ Indicative Disturbance Footprint



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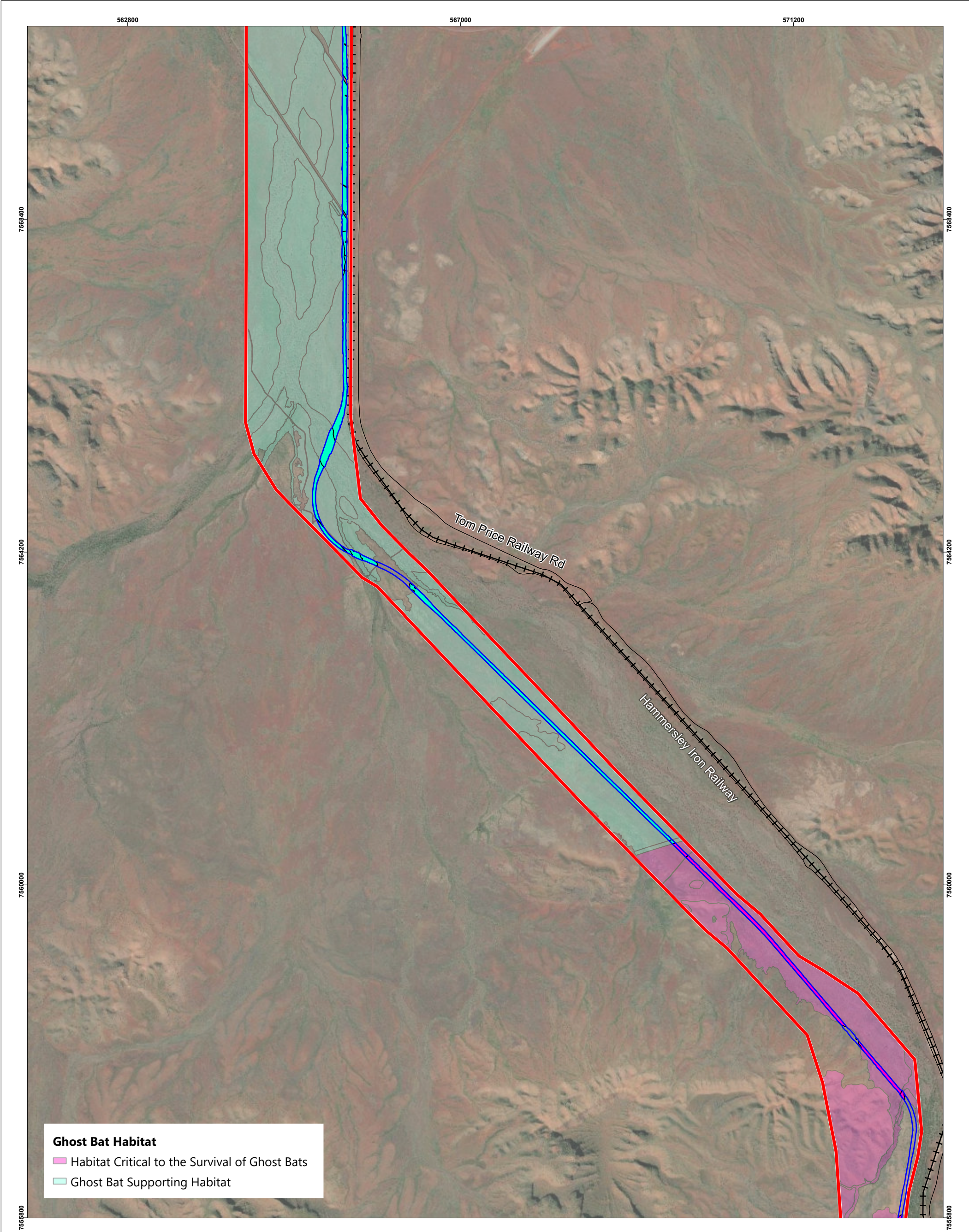
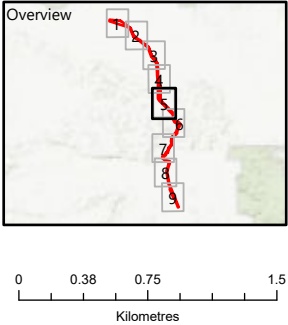


Figure 5.5 - Ghost Bat Habitat (MS 1205)

- Legend**
- Roads
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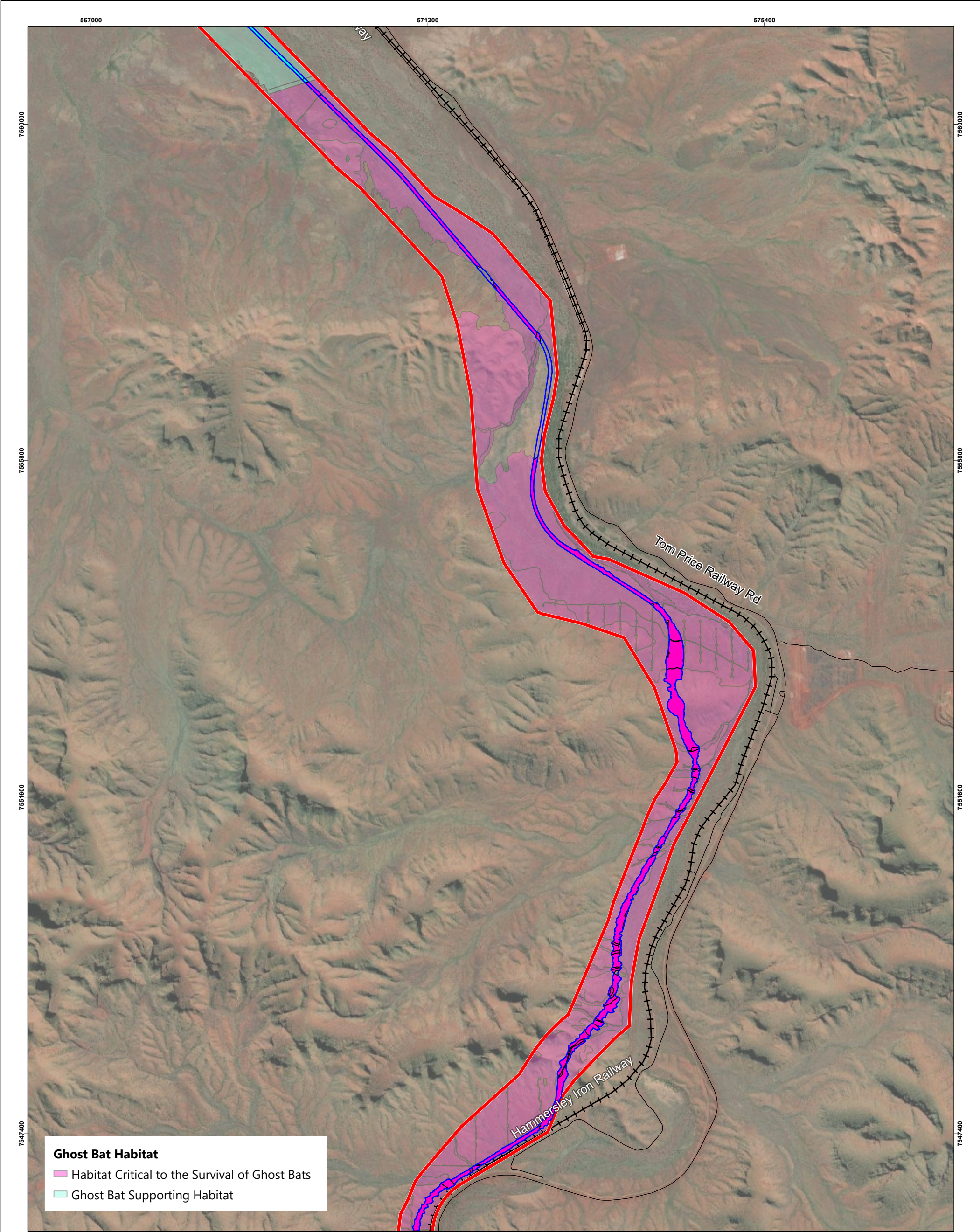
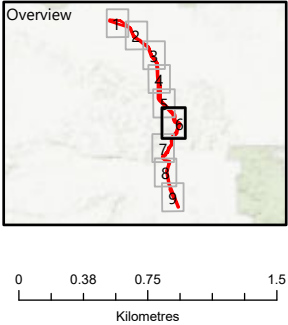


Figure 5.6 - Ghost Bat Habitat (MS 1205)

- Legend**
- Roads
 - Railways
 - Development Envelope
 - Indicative Disturbance Footprint



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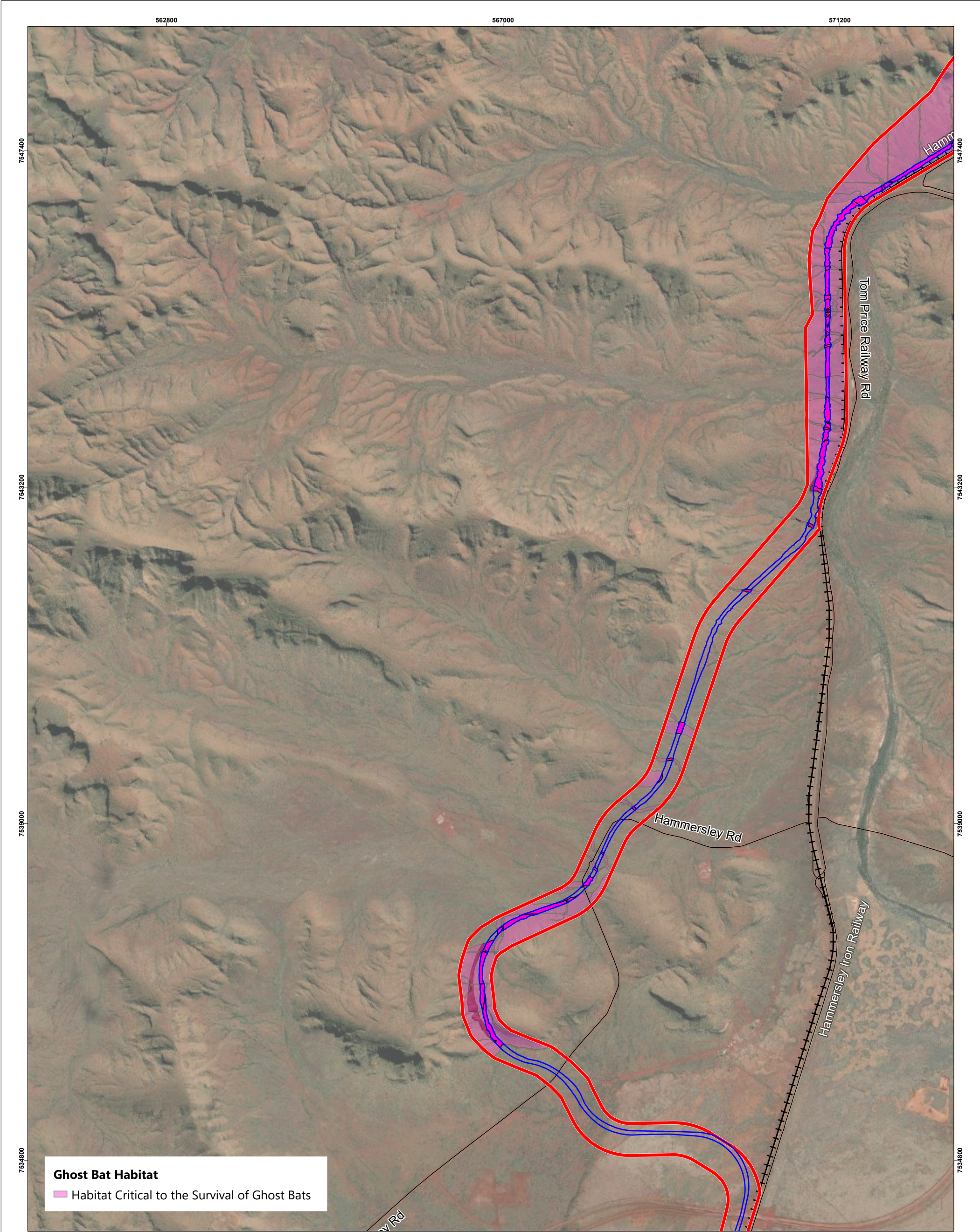
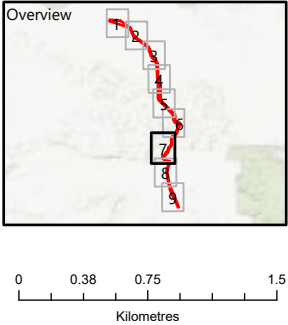


Figure 5.7 - Ghost Bat Habitat (MS 1205)

- Legend**
- Roads
 - Railways
 - Development Envelope
 - Indicative Disturbance Footprint



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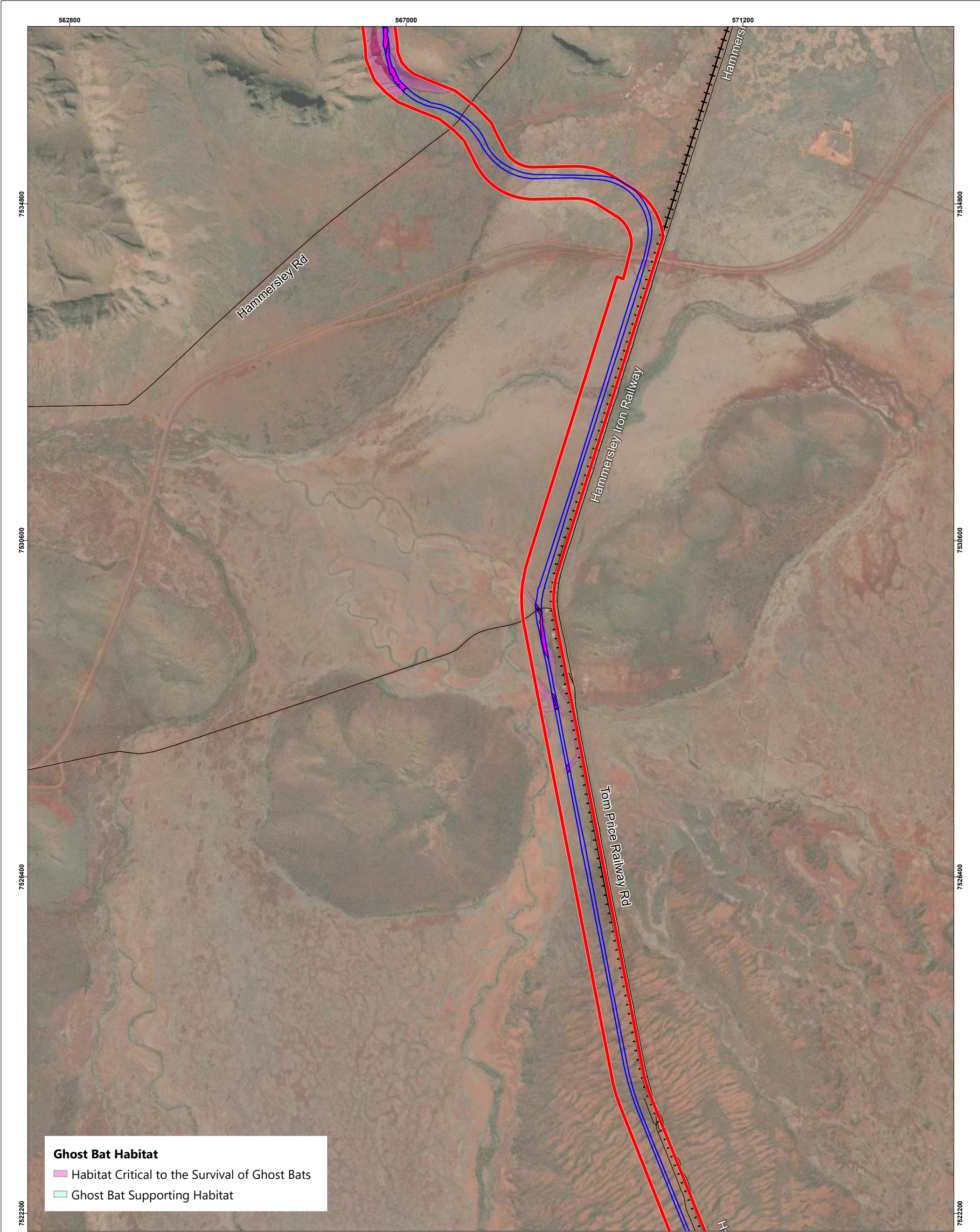
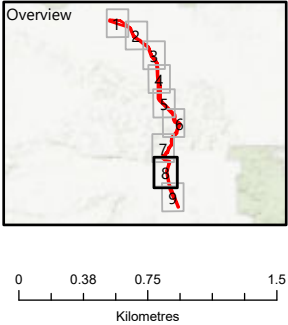


Figure 5.8 - Ghost Bat Habitat (MS 1205)

- Legend**
- Roads
 - Railways
 - Development Envelope
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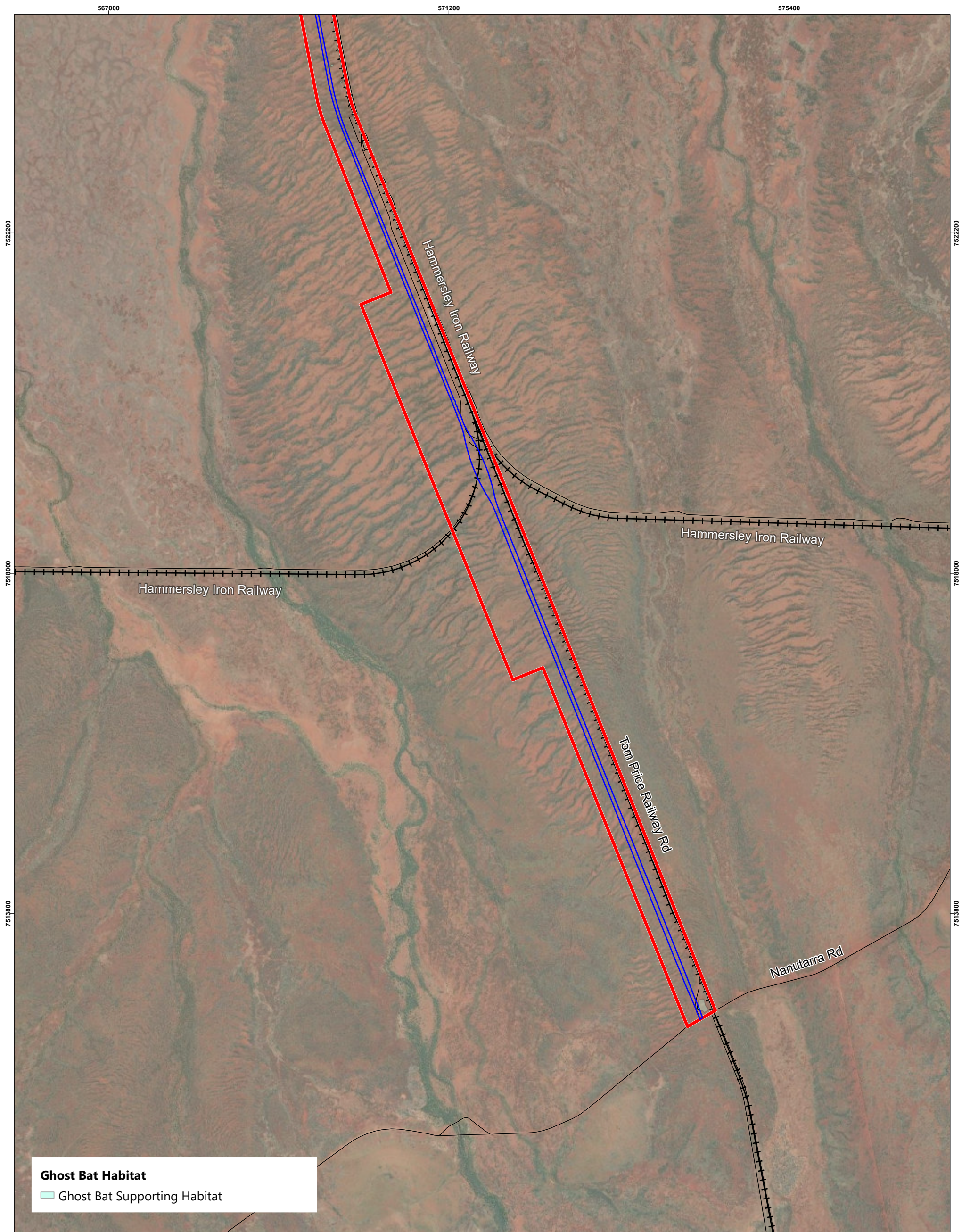
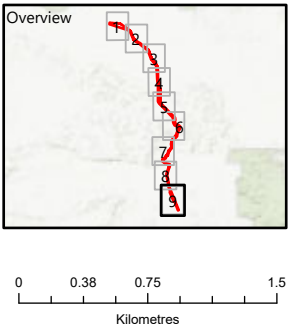


Figure 5.9 - Ghost Bat Habitat (MS 1205)

- Legend**
- Roads
 - + Railways
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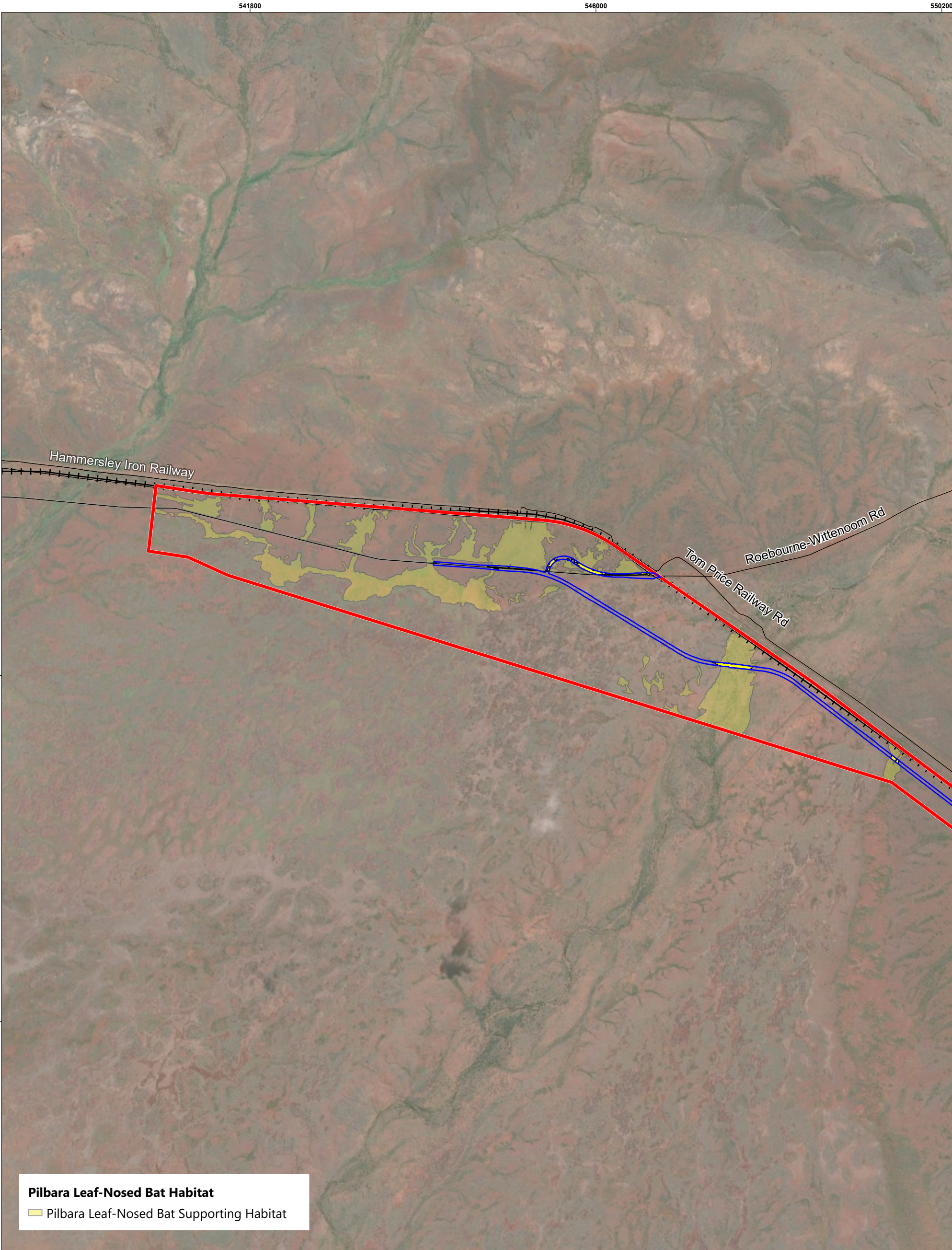
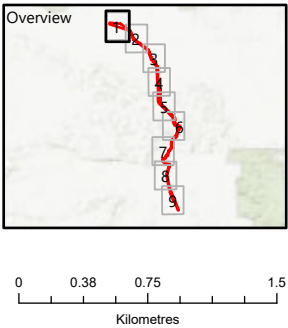


Figure 6.1 - Pilbara Leaf-Nosed Bat Habitat (MS 1205)

- Legend**
- Roads
 - Railways
 - Development Envelope
 - Indicative Disturbance Footprint



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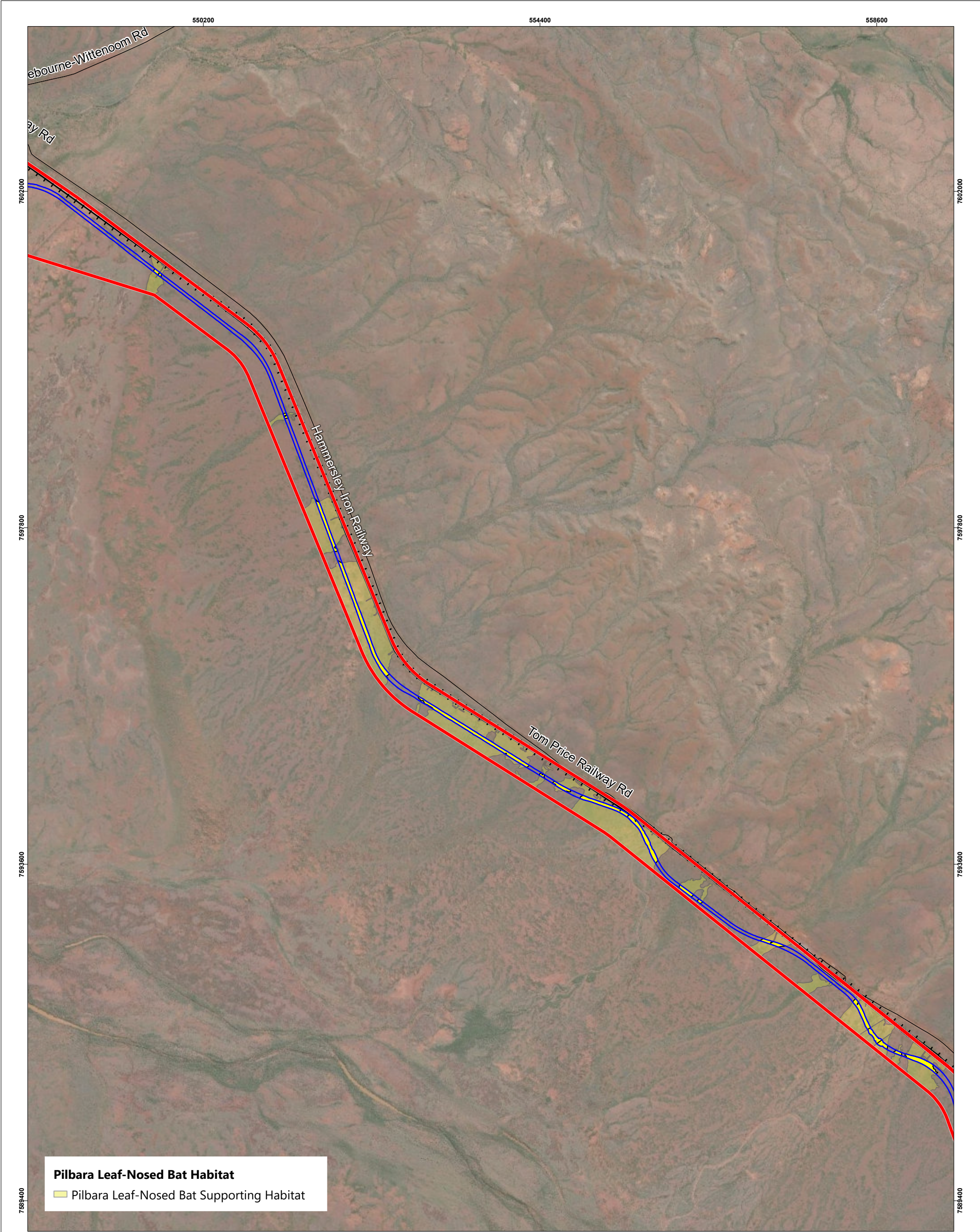
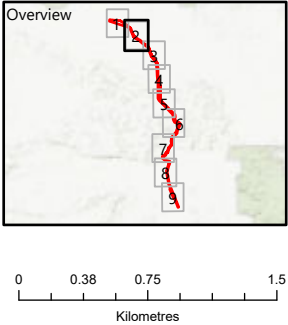


Figure 6.2 - Pilbara Leaf-Nosed Bat Habitat (MS 1205)

- Legend**
- Roads
 - Railways
 - Development Envelope
 - Indicative Disturbance Footprint



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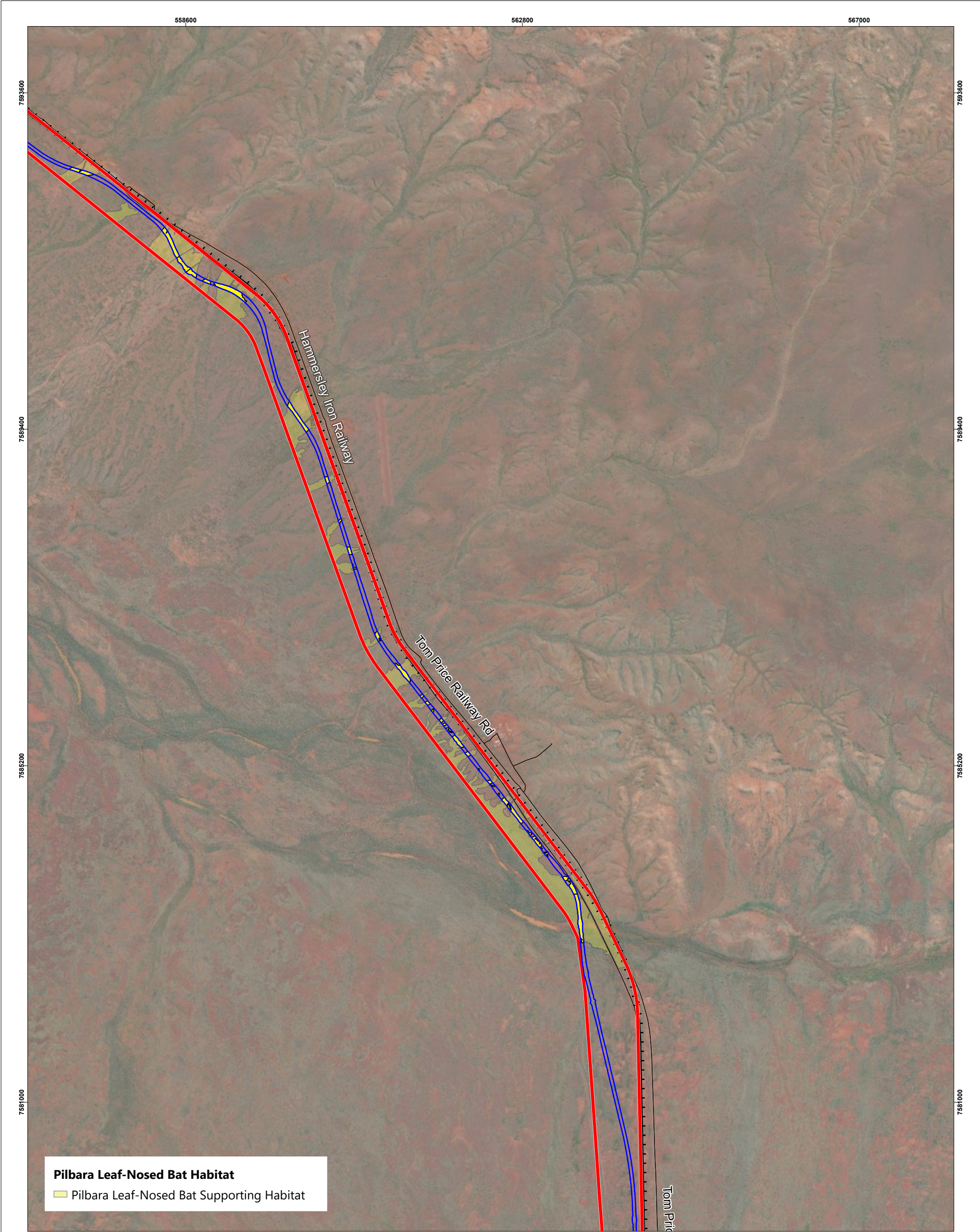
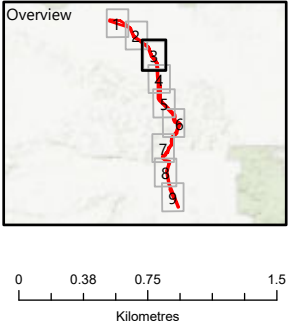


Figure 6.3 - Pilbara Leaf-Nosed Bat Habitat (MS 1205)

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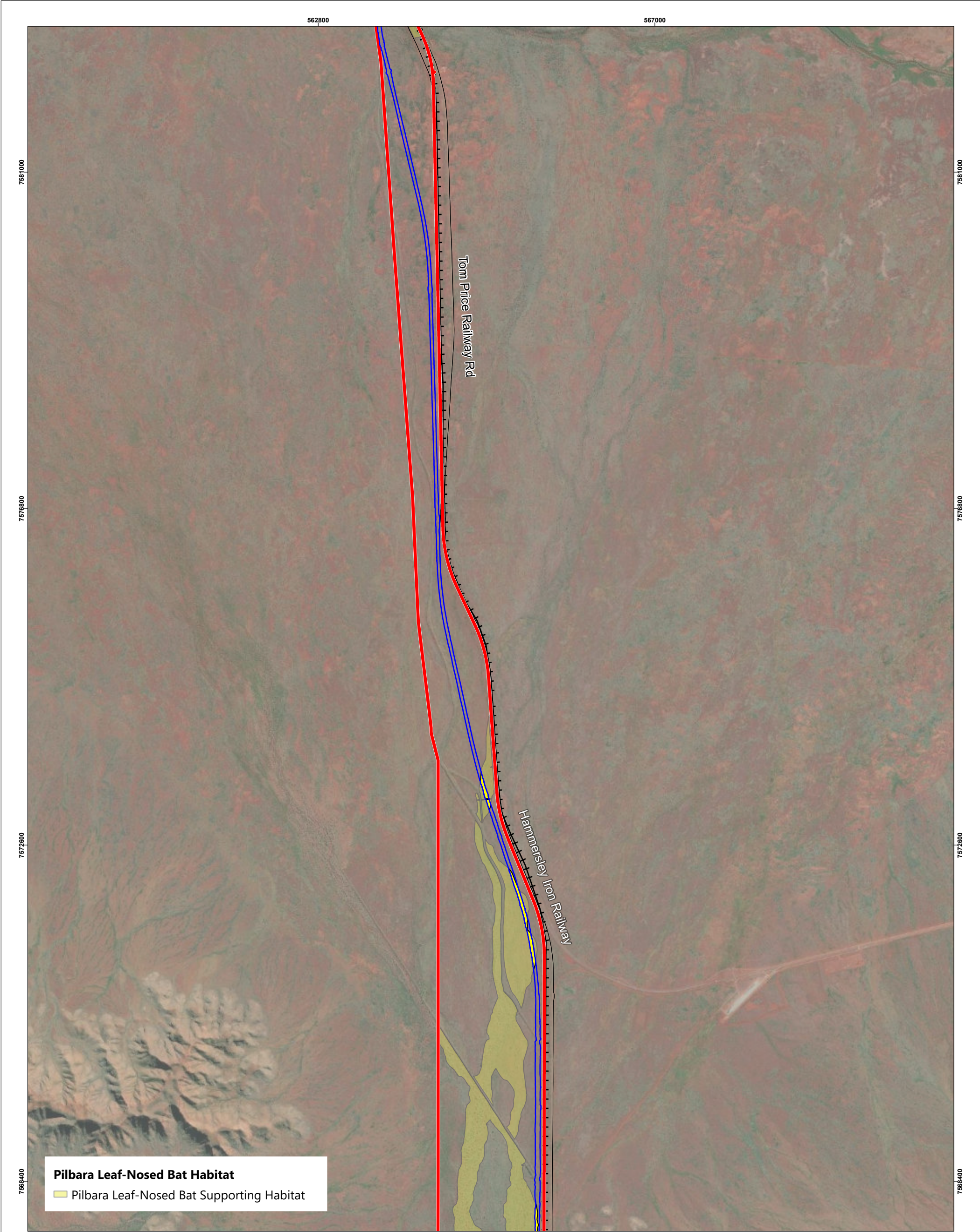
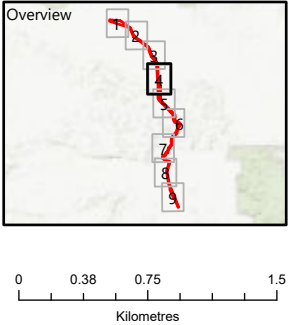


Figure 6.4 - Pilbara Leaf-Nosed Bat Habitat (MS 1205)

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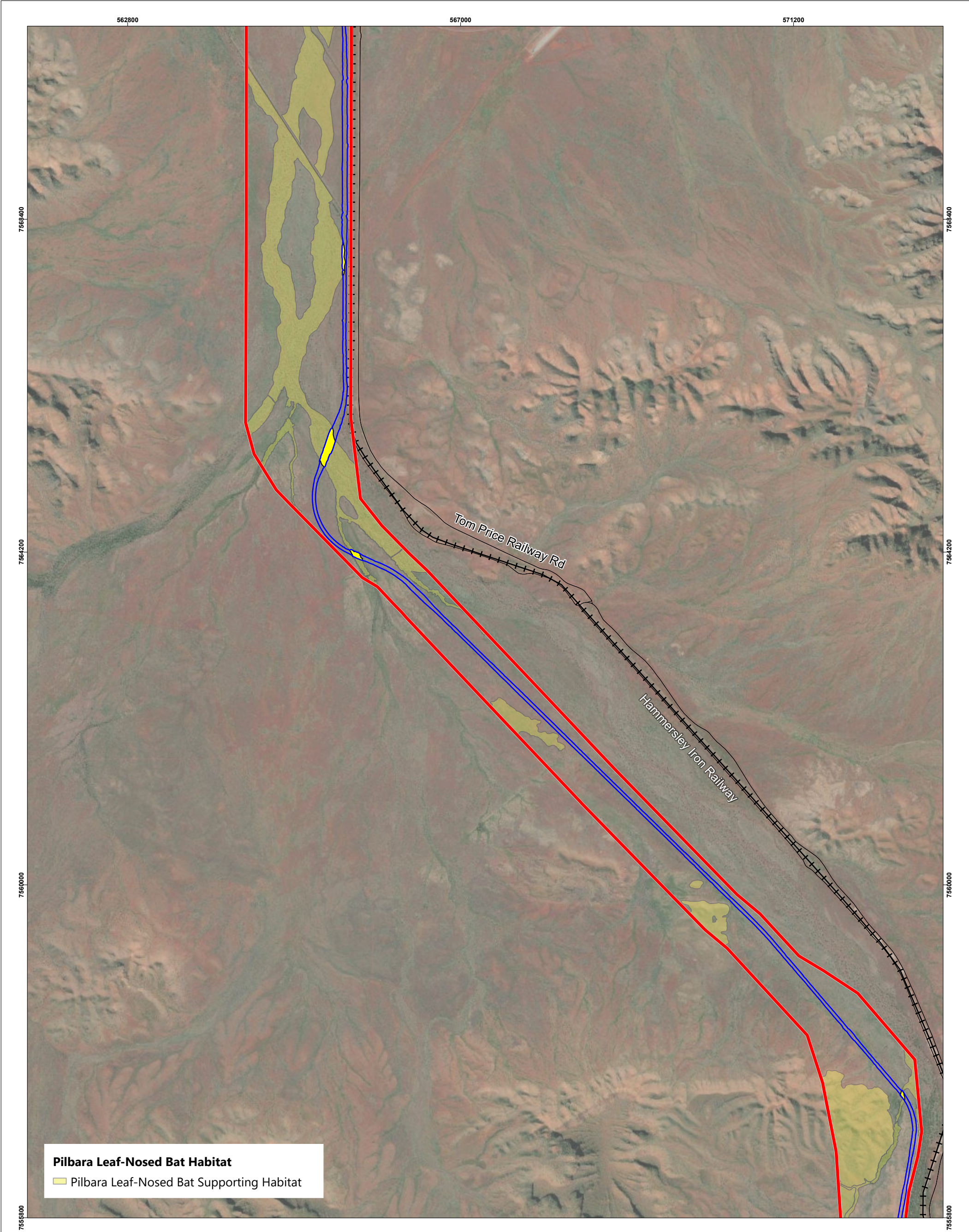
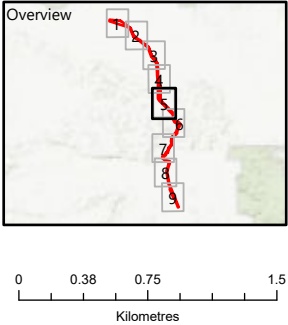


Figure 6.5 - Pilbara Leaf-Nosed Bat Habitat (MS 1205)

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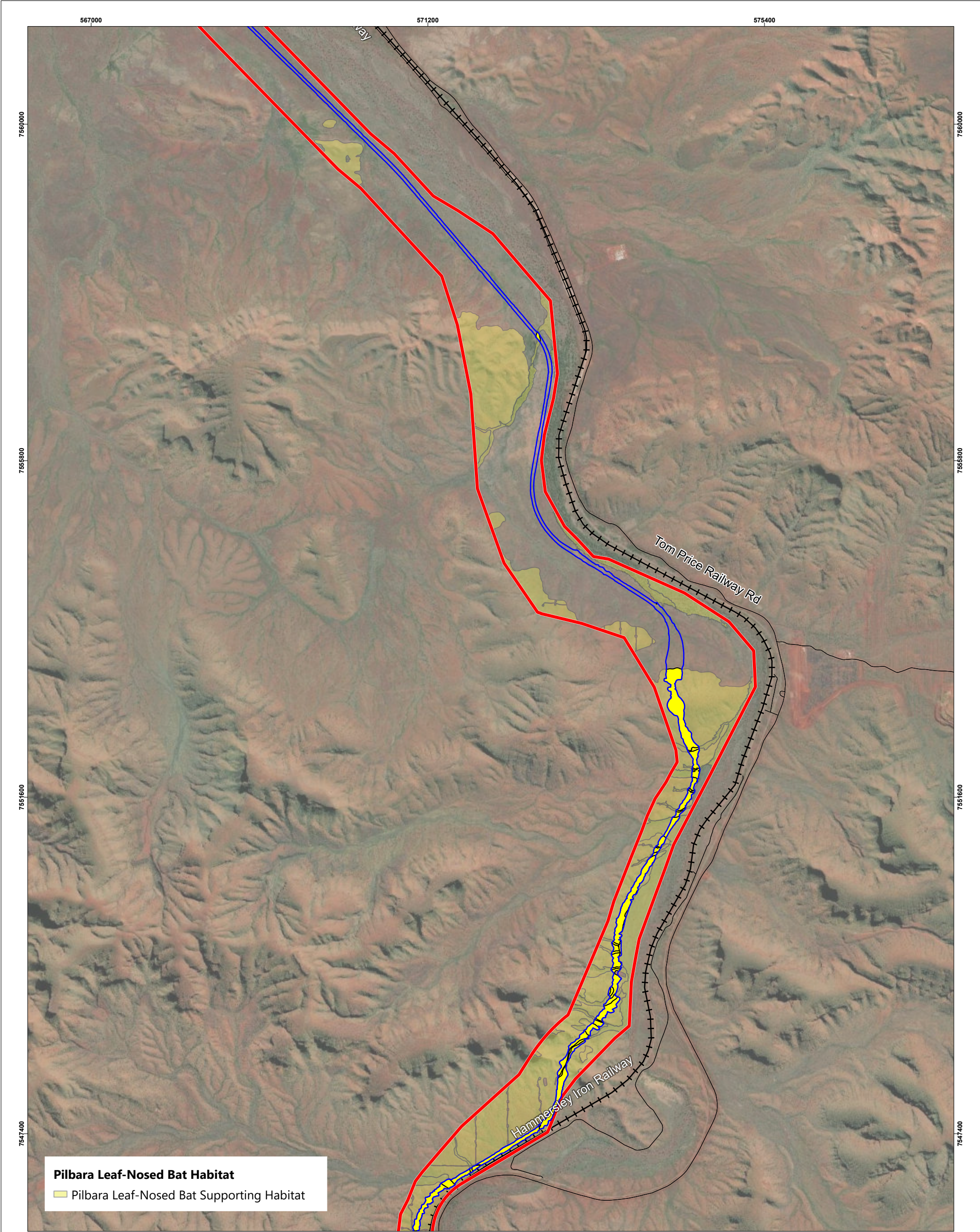
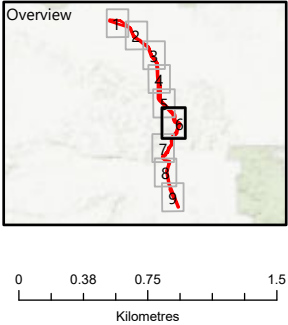


Figure 6.6 - Pilbara Leaf-Nosed Bat Habitat (MS 1205)

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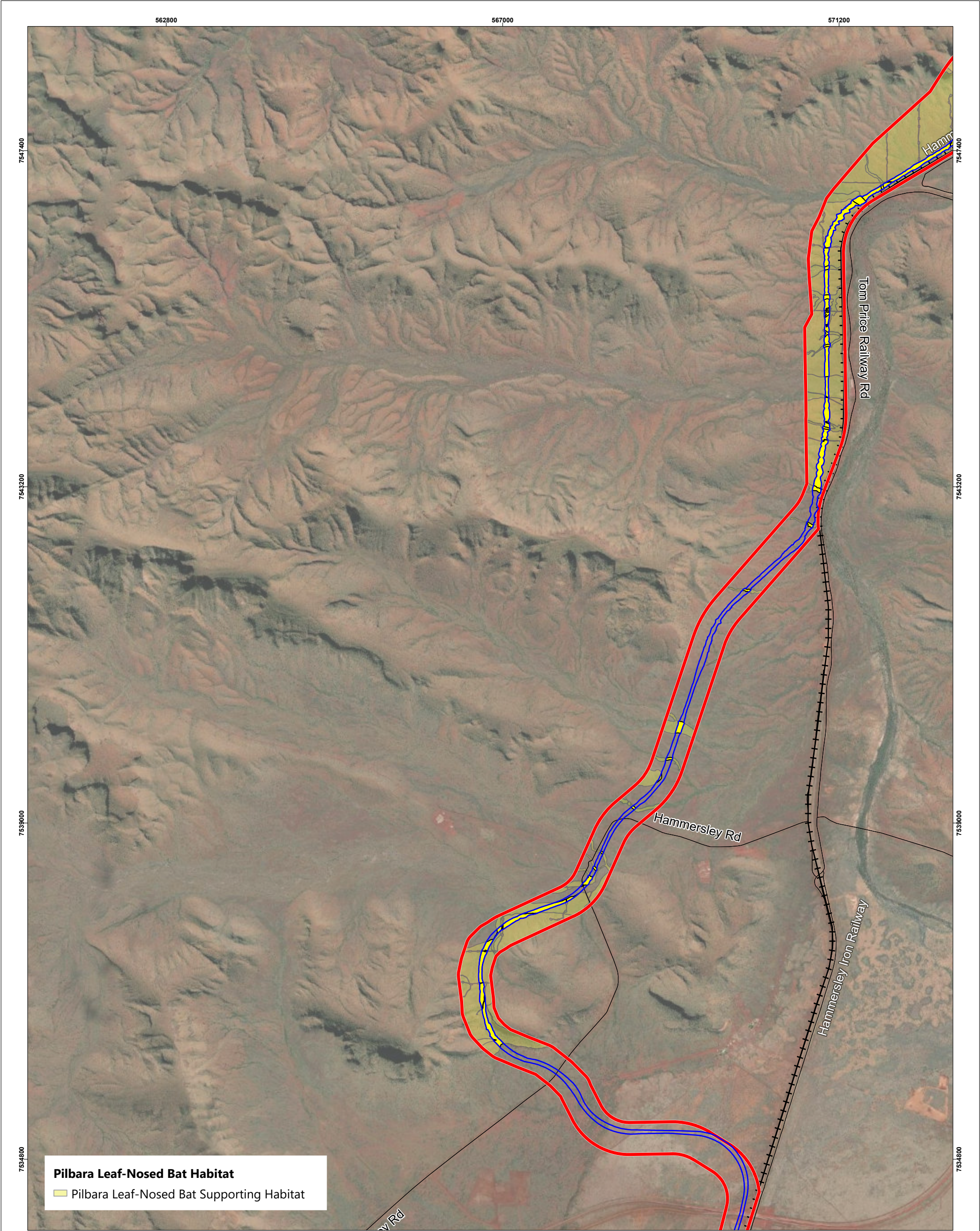
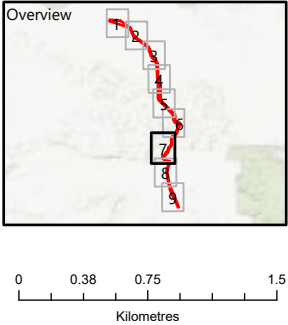


Figure 6.7 - Pilbara Leaf-Nosed Bat Habitat (MS 1205)

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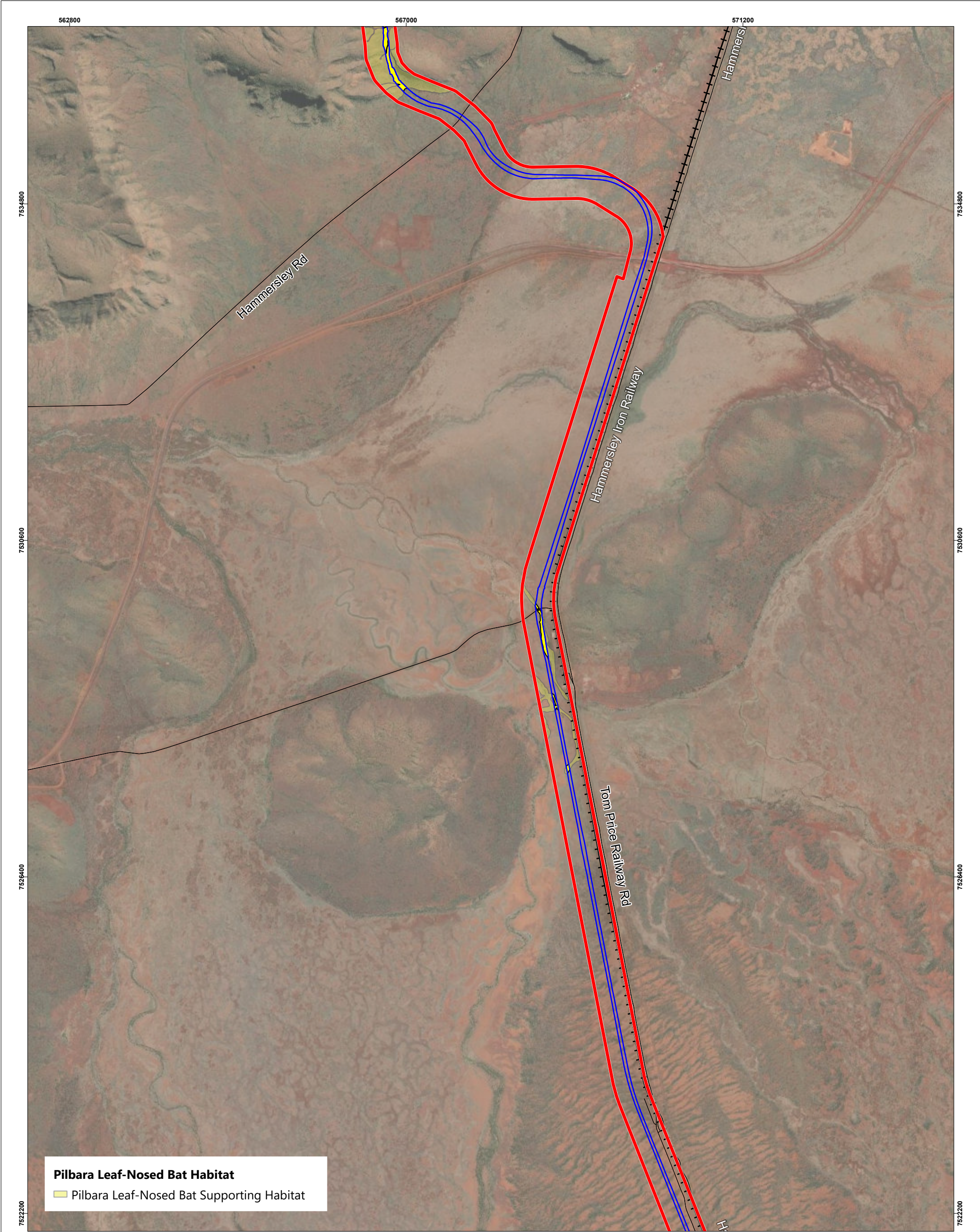
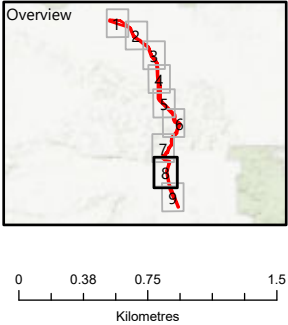


Figure 6.8 - Pilbara Leaf-Nosed Bat Habitat (MS 1205)

- Legend**
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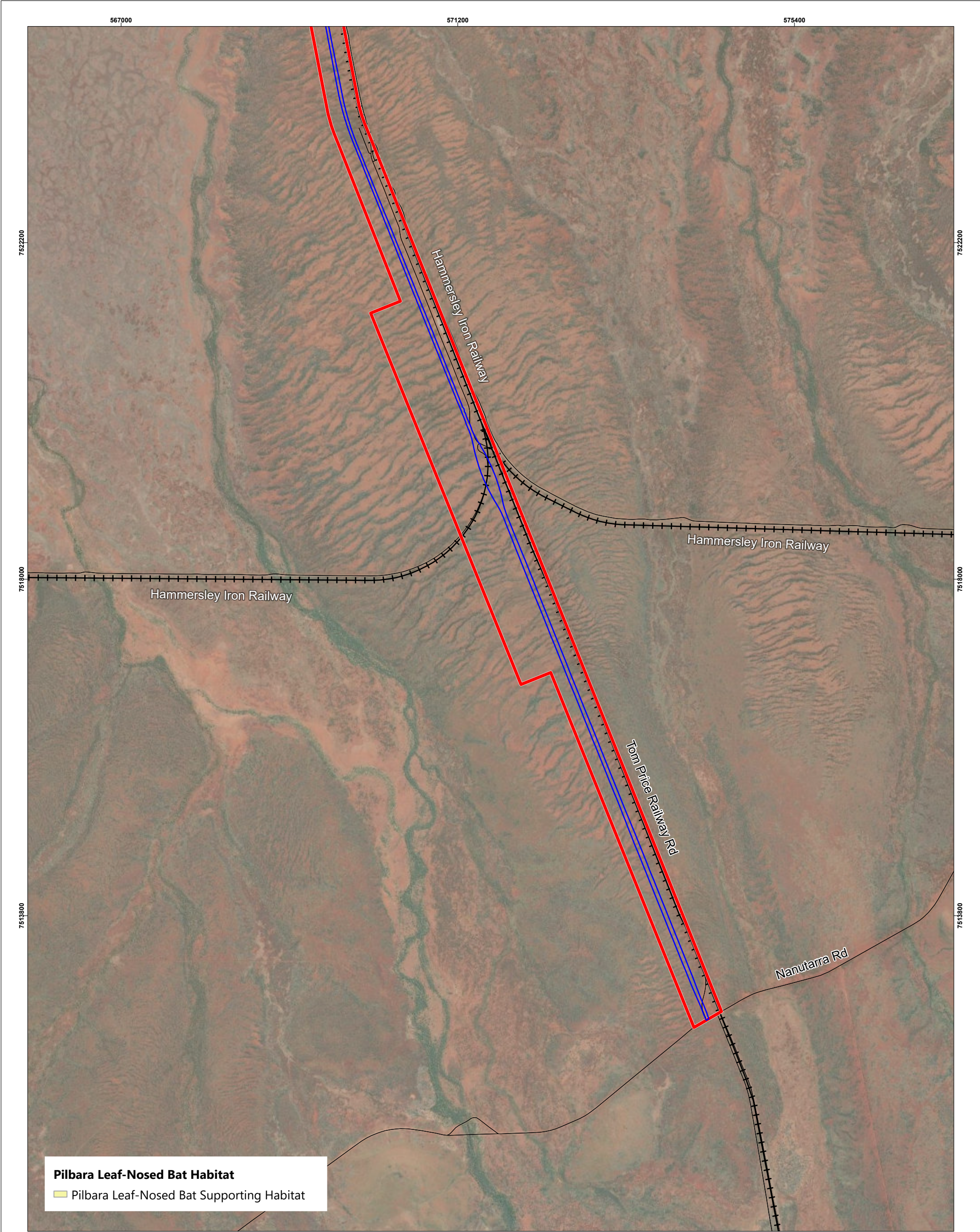
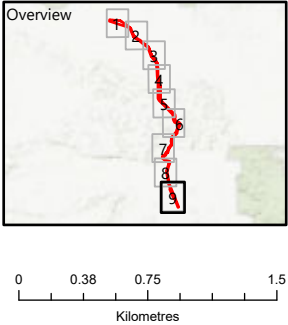


Figure 6.9 - Pilbara Leaf-Nosed Bat Habitat (MS 1205)

- Legend**
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 - Railways
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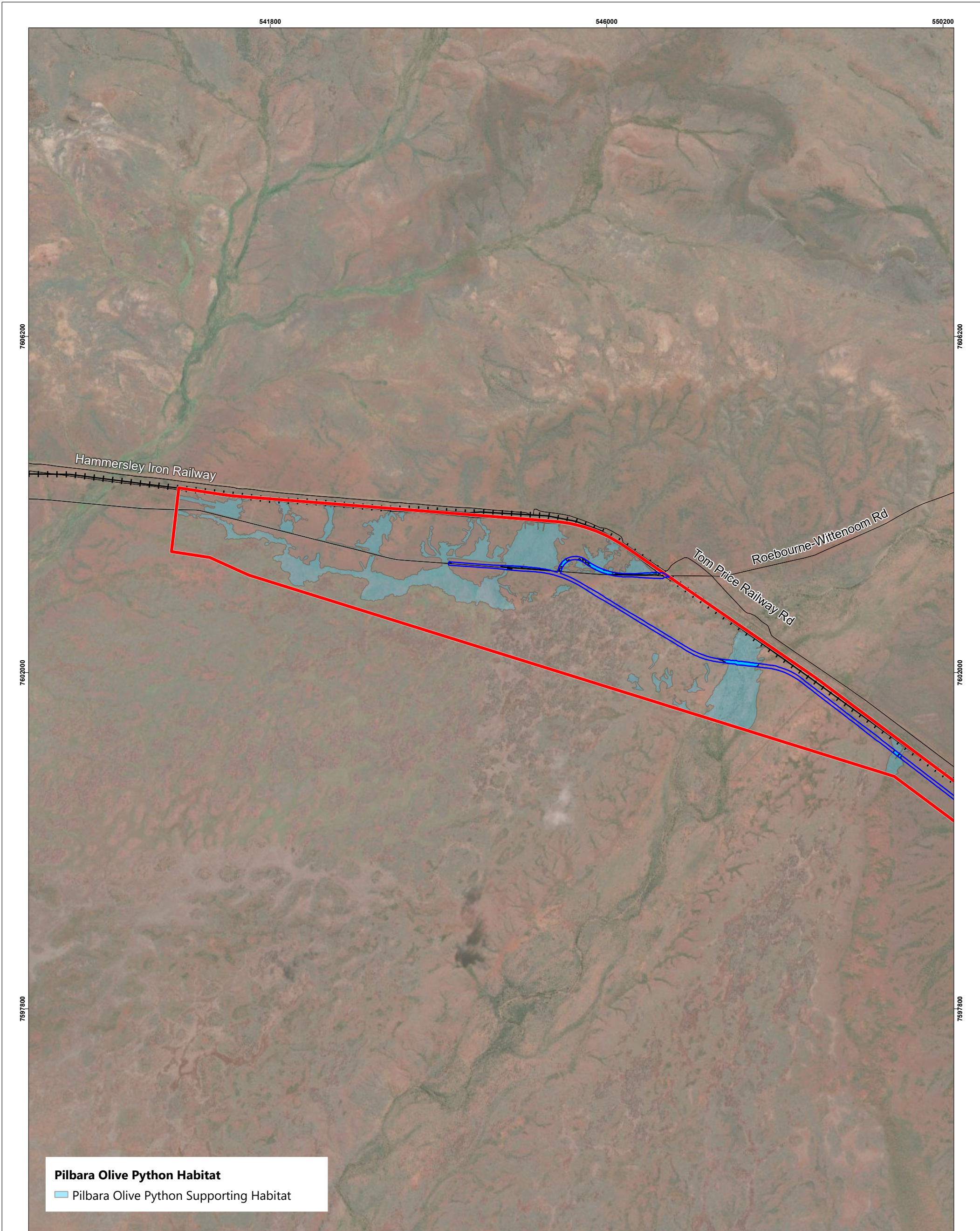
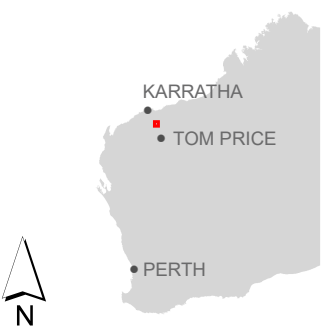
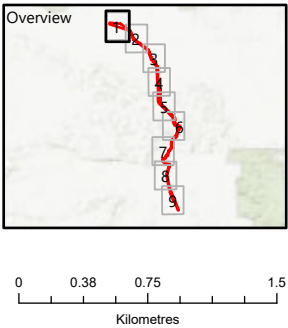


Figure 7.1 Pilbara Olive Python Habitat (MS 1205)

- Legend**
- Roads
 - Railways
 - Development Envelope
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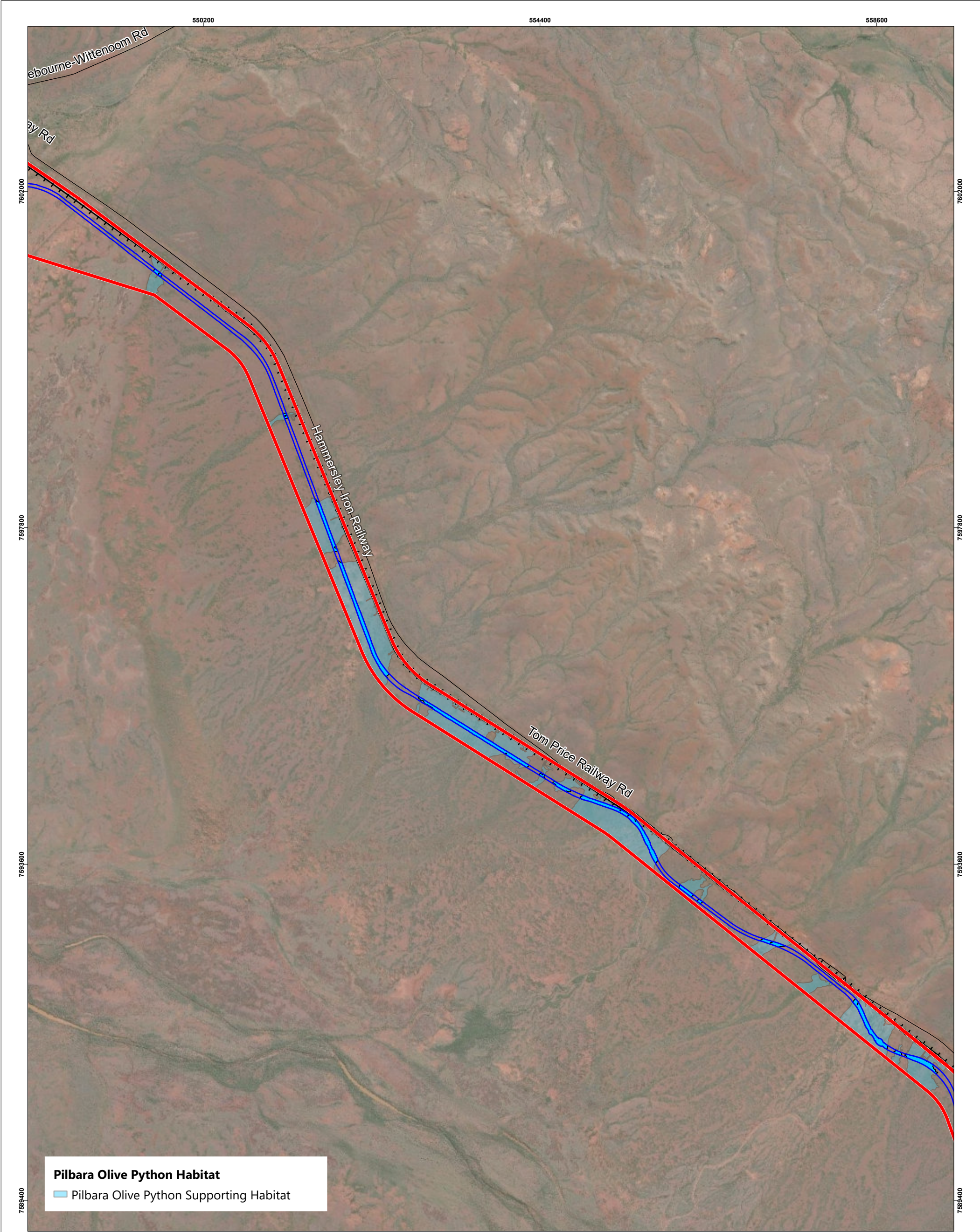
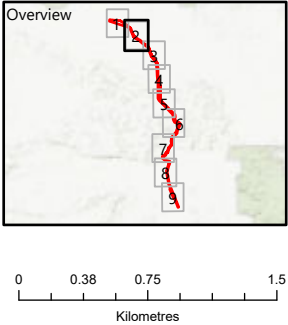


Figure 7.2 Pilbara Olive Python Habitat (MS 1205)

- Legend**
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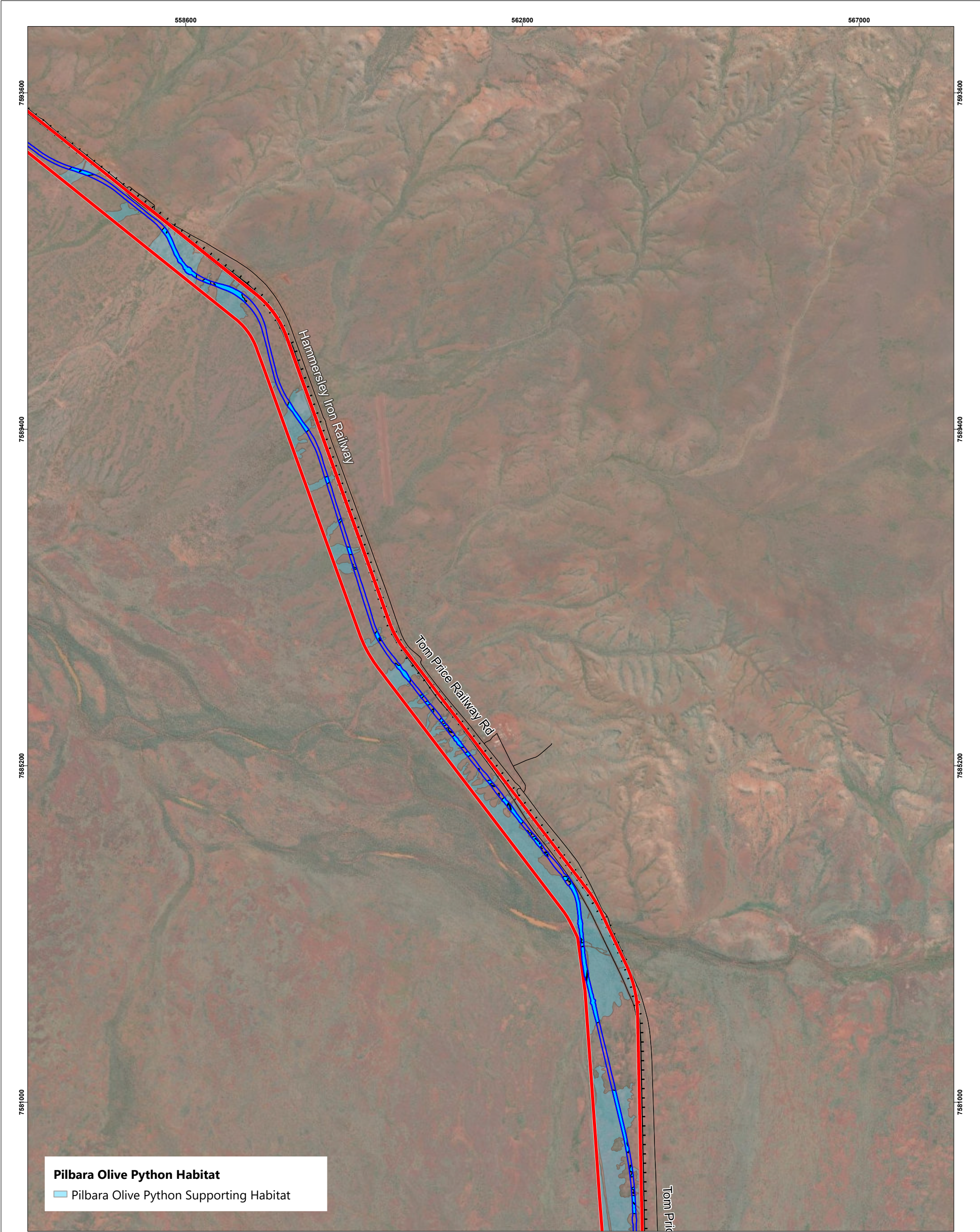
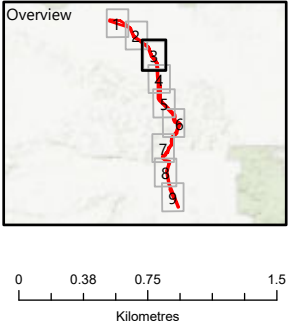


Figure 7.3 Pilbara Olive Python Habitat (MS 1205)

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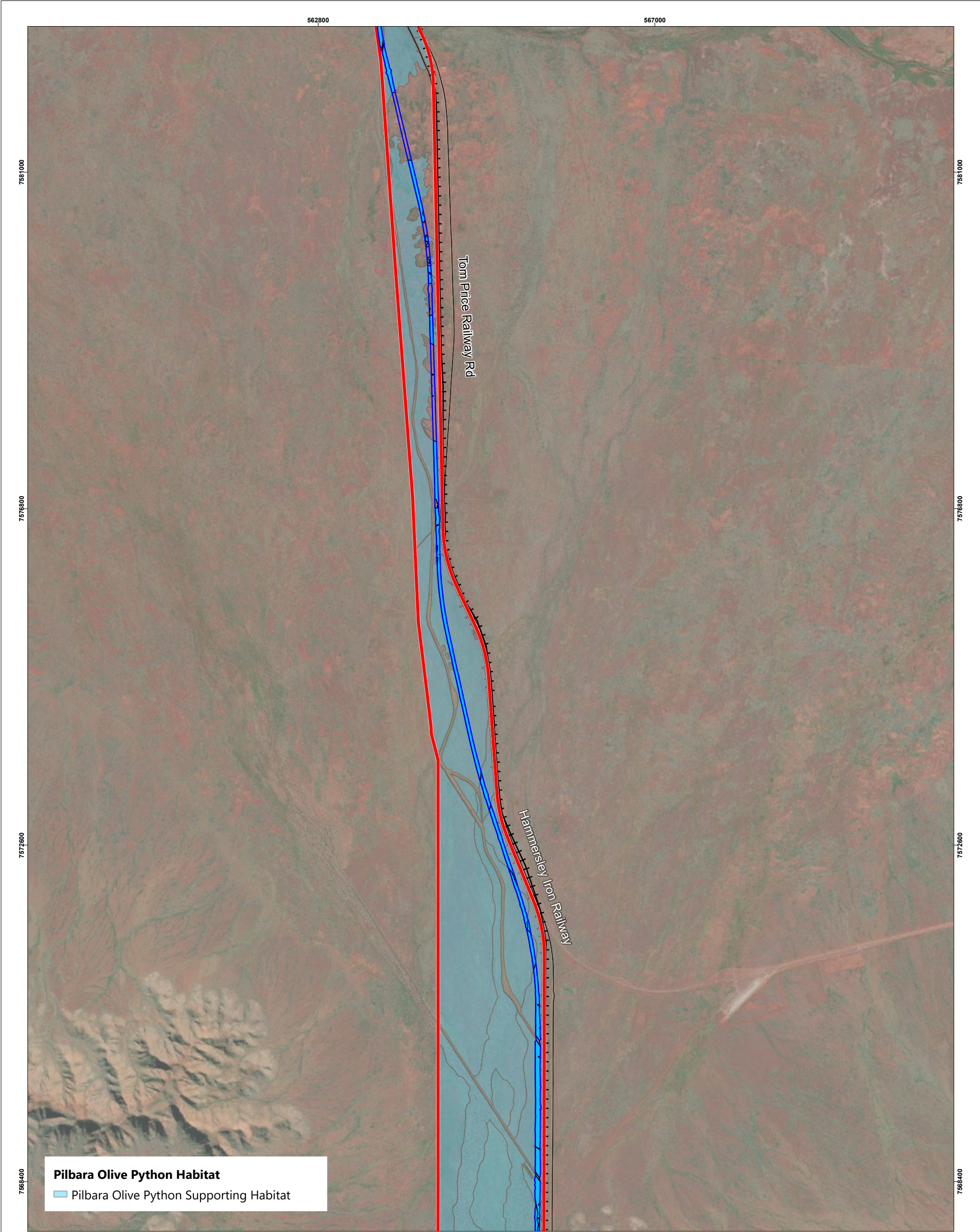
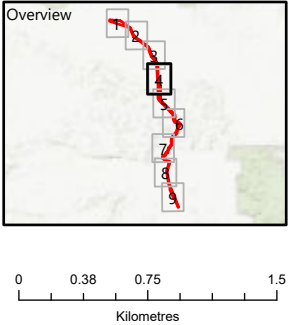


Figure 7.4 Pilbara Olive Python Habitat (MS 1205)

- Legend**
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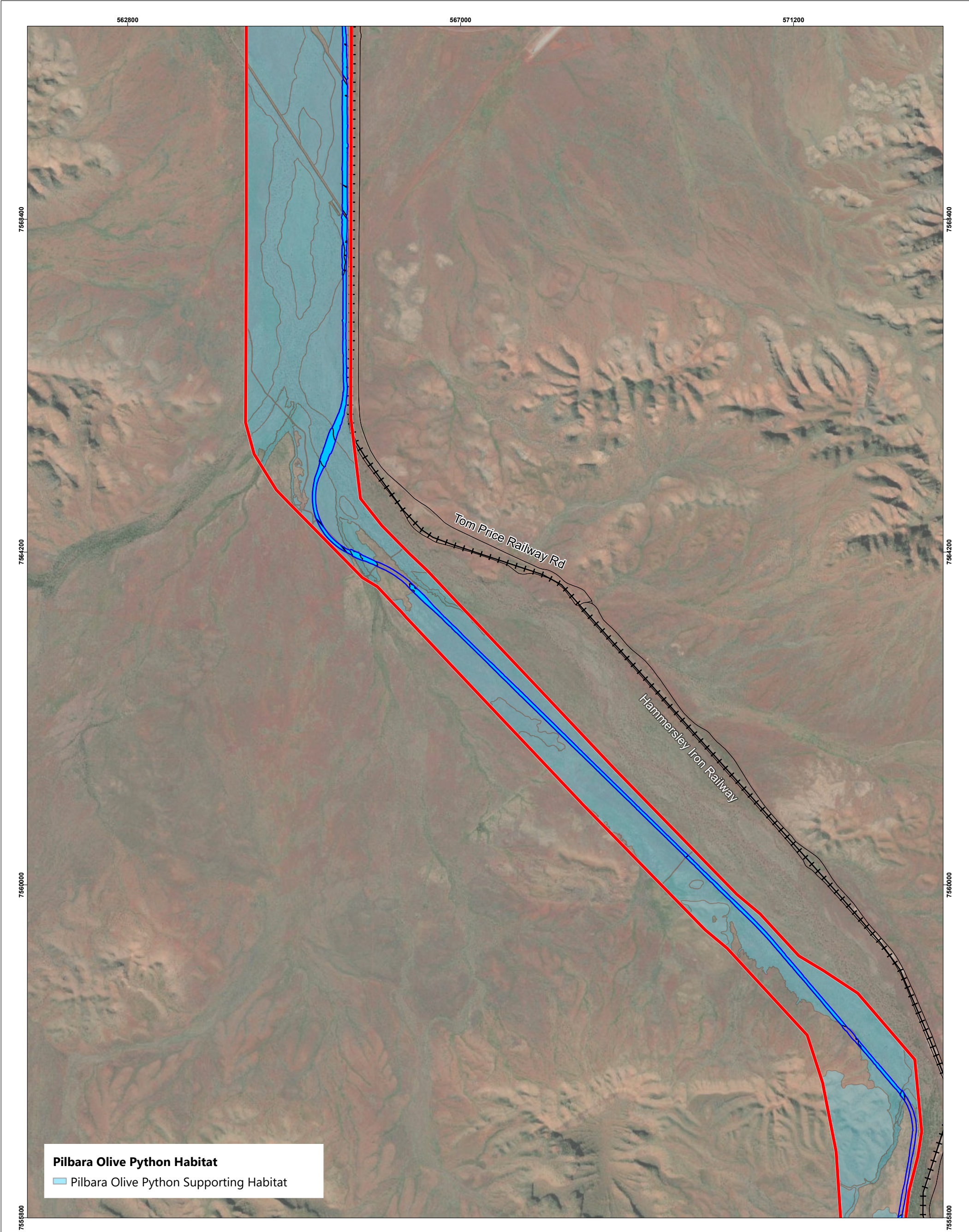
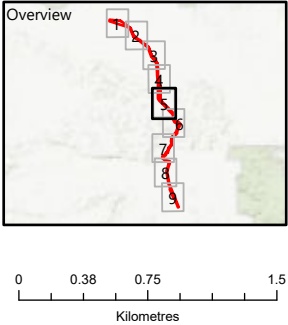


Figure 7.5 Pilbara Olive Python Habitat (MS 1205)

- Legend**
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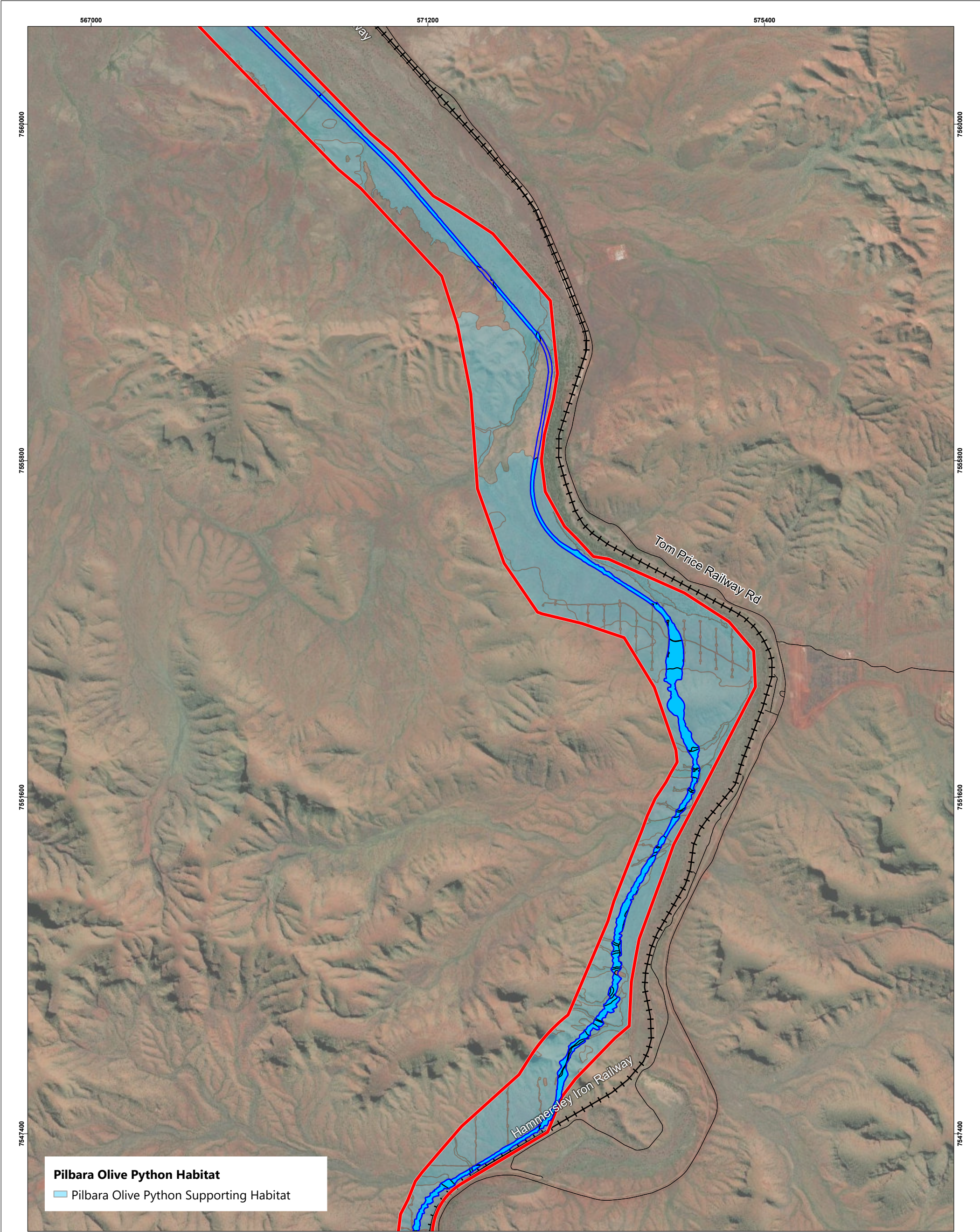
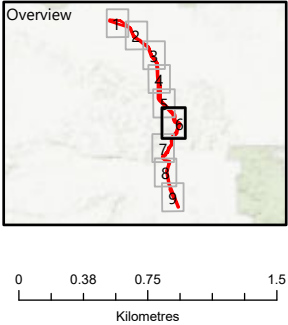


Figure 7.6 Pilbara Olive Python Habitat (MS 1205)

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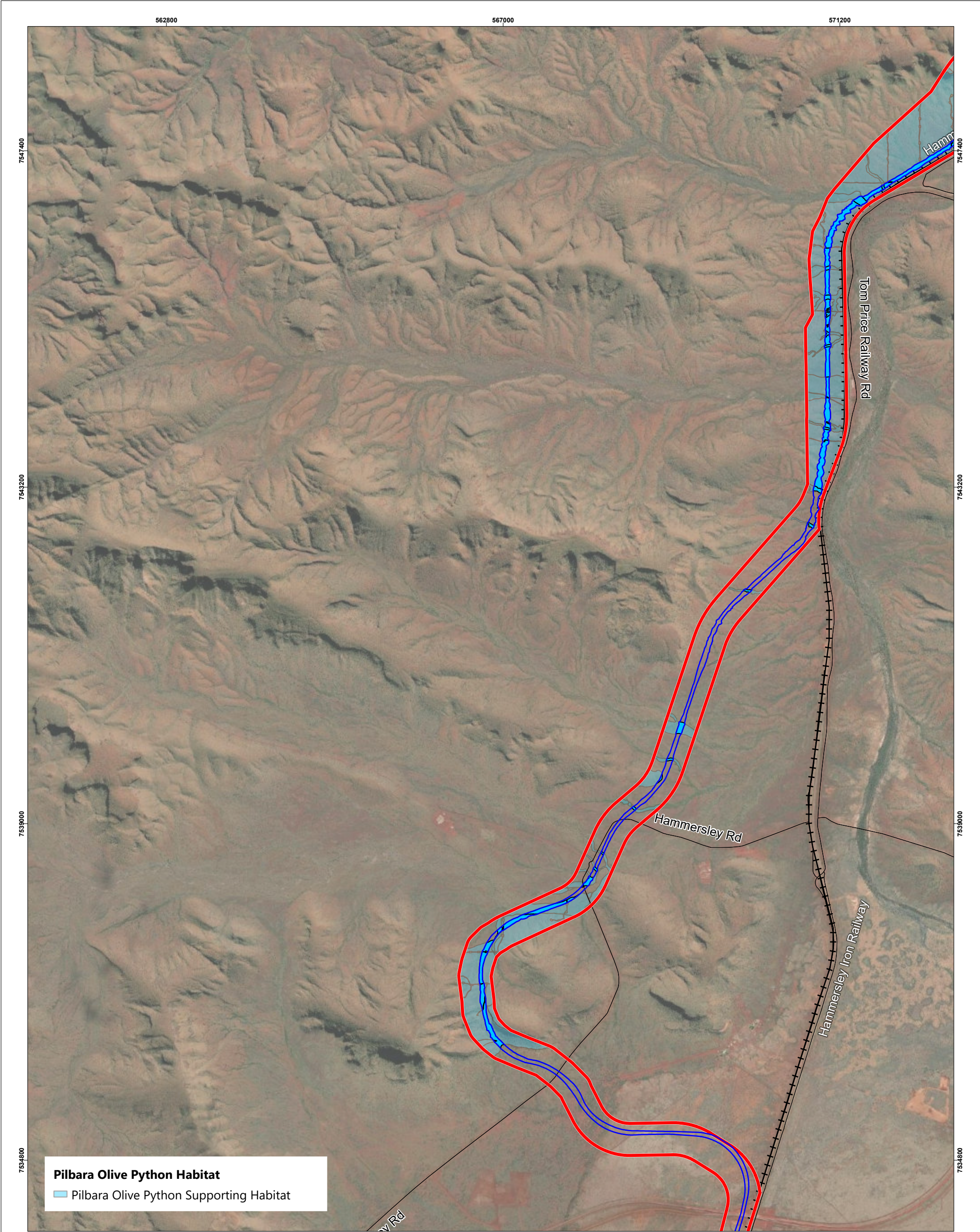
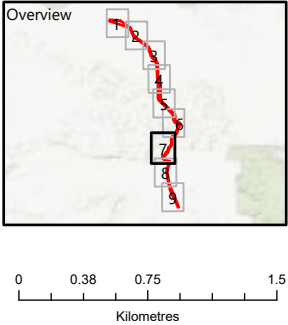


Figure 7.7 Pilbara Olive Python Habitat (MS 1205)

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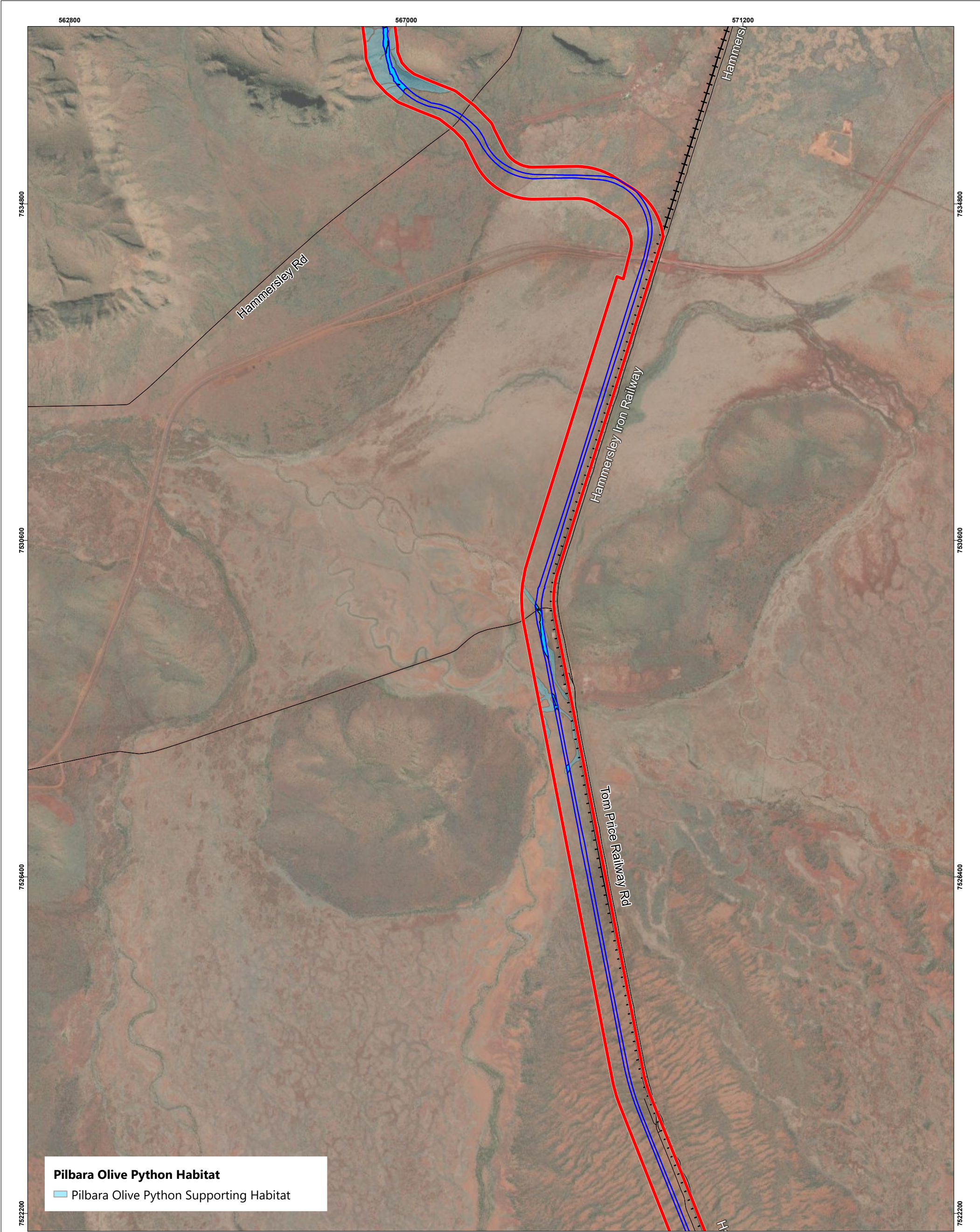
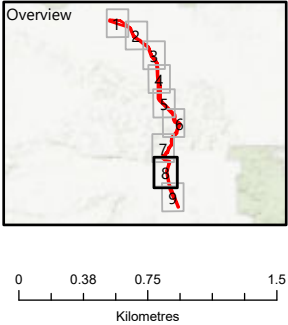


Figure 7.8 Pilbara Olive Python Habitat (MS 1205)

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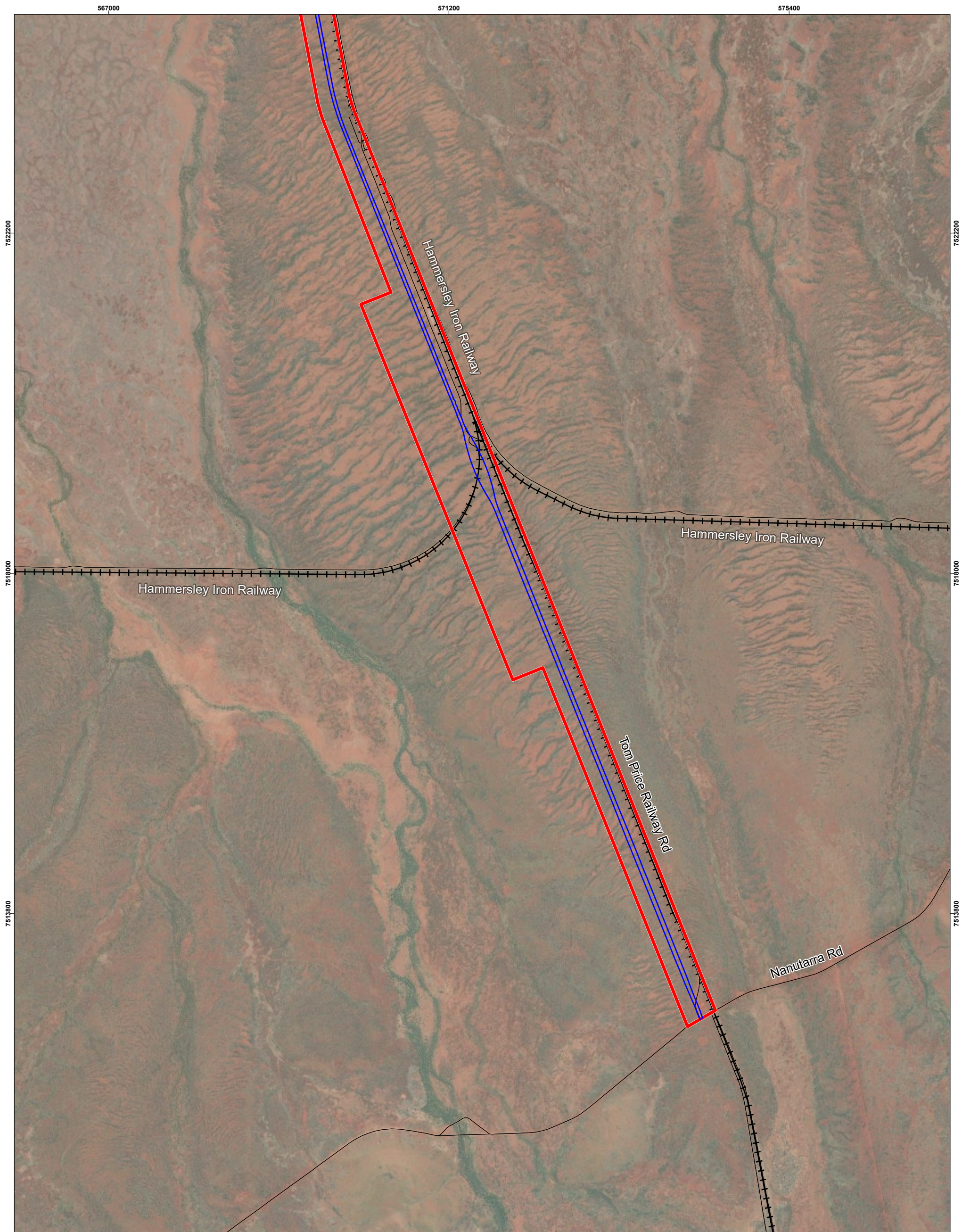
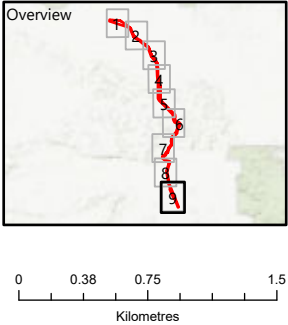


Figure 7.9 Pilbara Olive Python Habitat (MS 1205)

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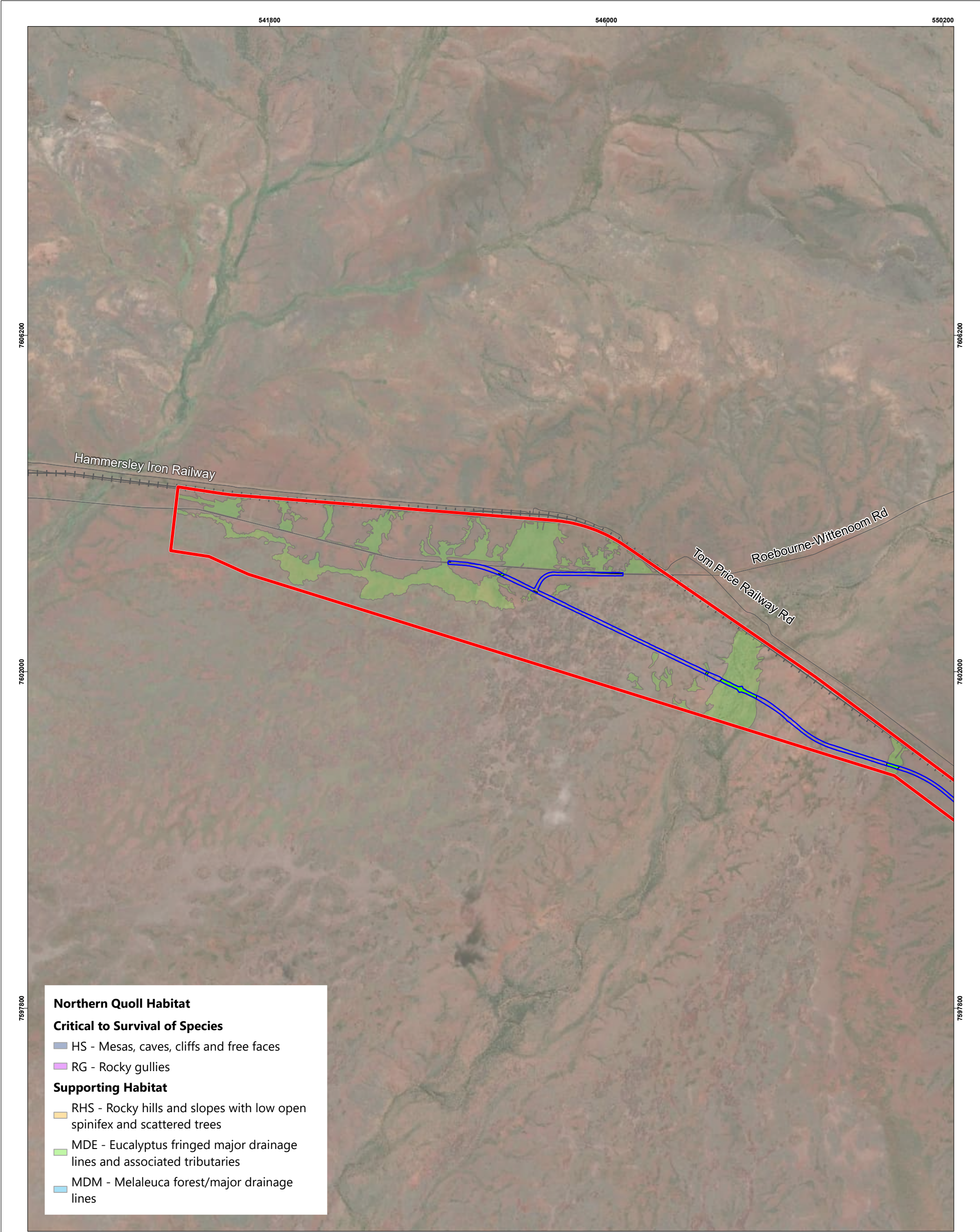
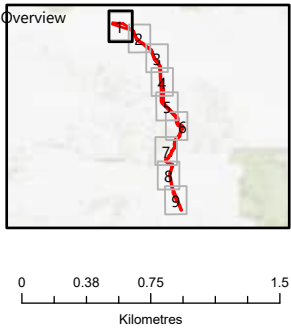


Figure 8.1 Northern Quoll Habitat (EPBC 2020/8725)

- Legend**
- Roads
 - + Railways
 - ▭ Disturbance Footprint
 - ▭ Development Envelope



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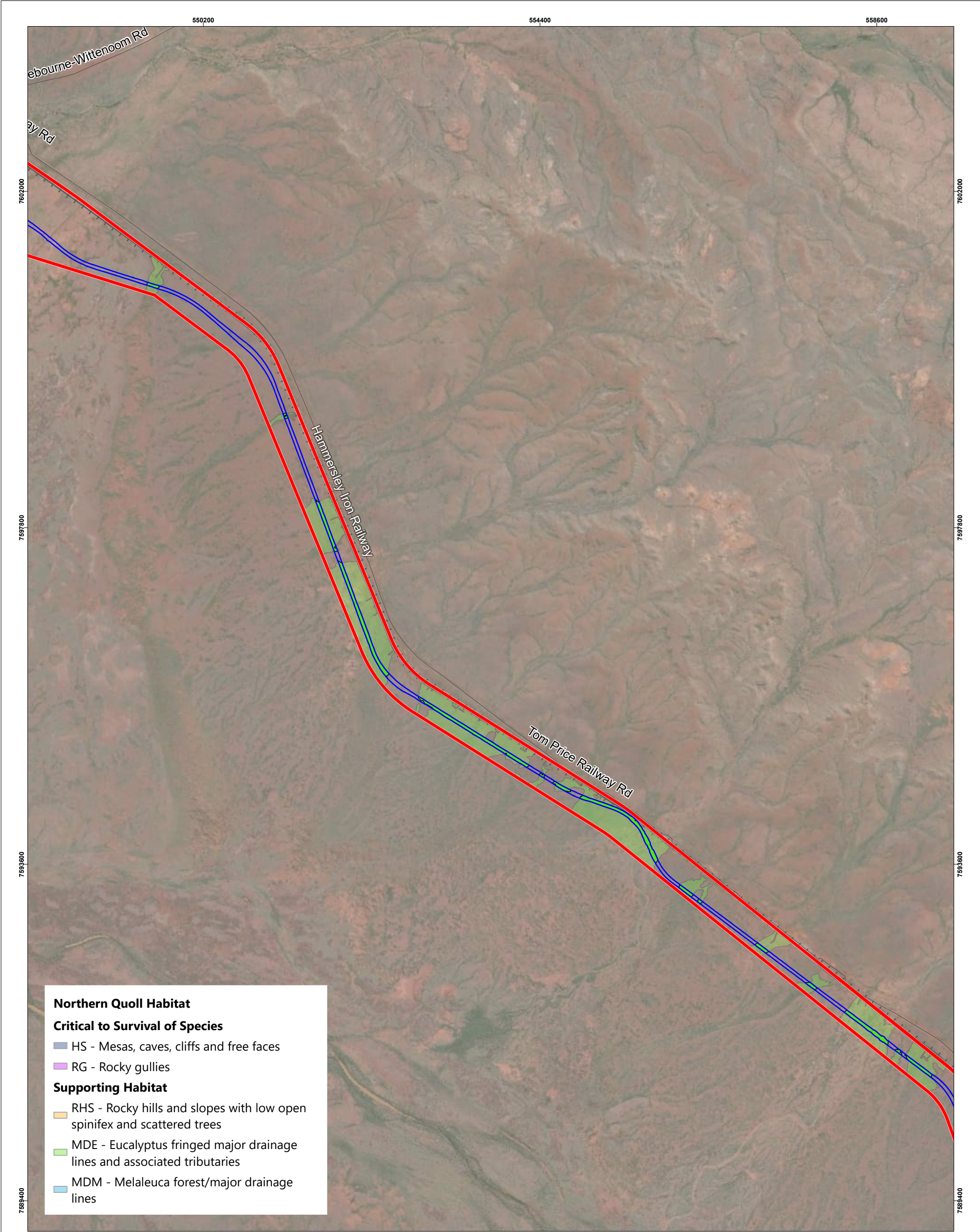
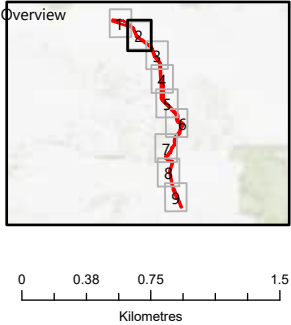


Figure 8.2 Northern Quoll Habitat (EPBC 2020/8725)

- Legend**
- Roads
 - + Railways
 - Disturbance Footprint
 - ▬ Development Envelope



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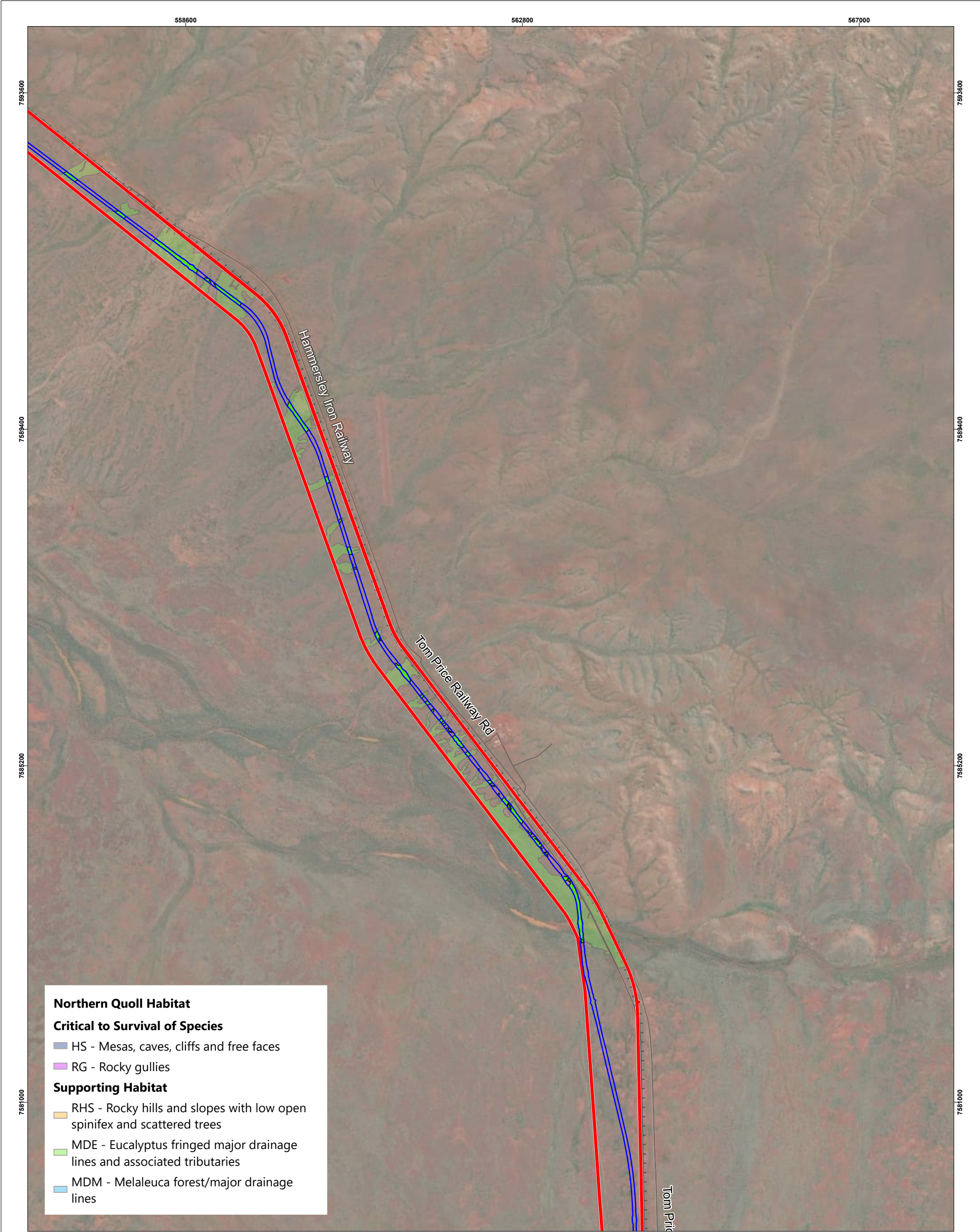
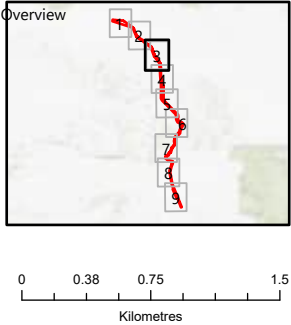


Figure 8.3 Northern Quoll Habitat (EPBC 2020/8725)

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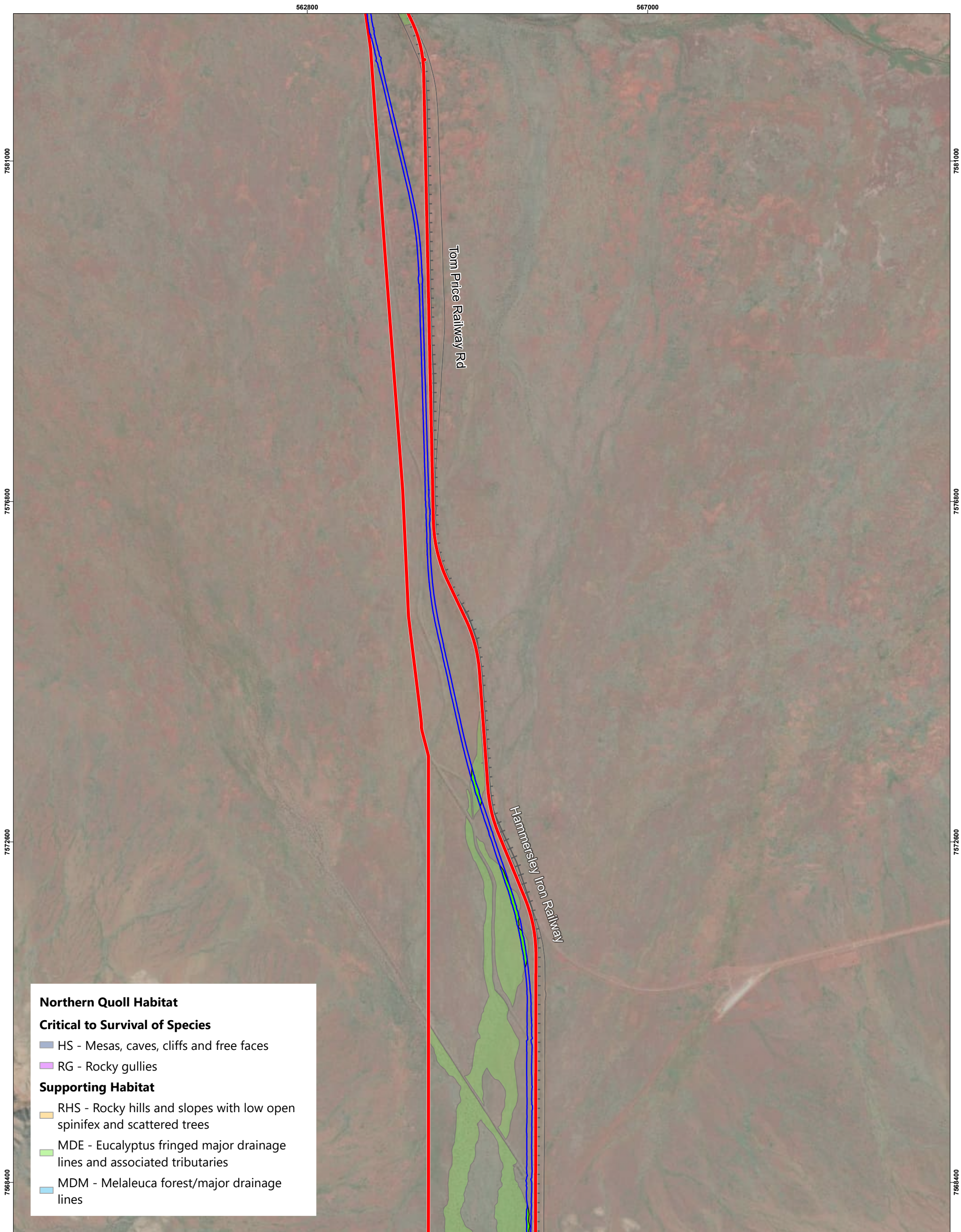
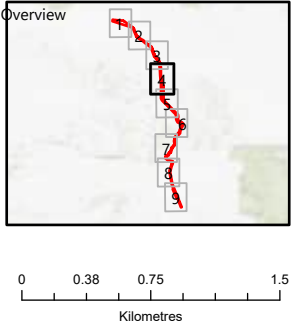


Figure 8.4 Northern Quoll Habitat (EPBC 2020/8725)

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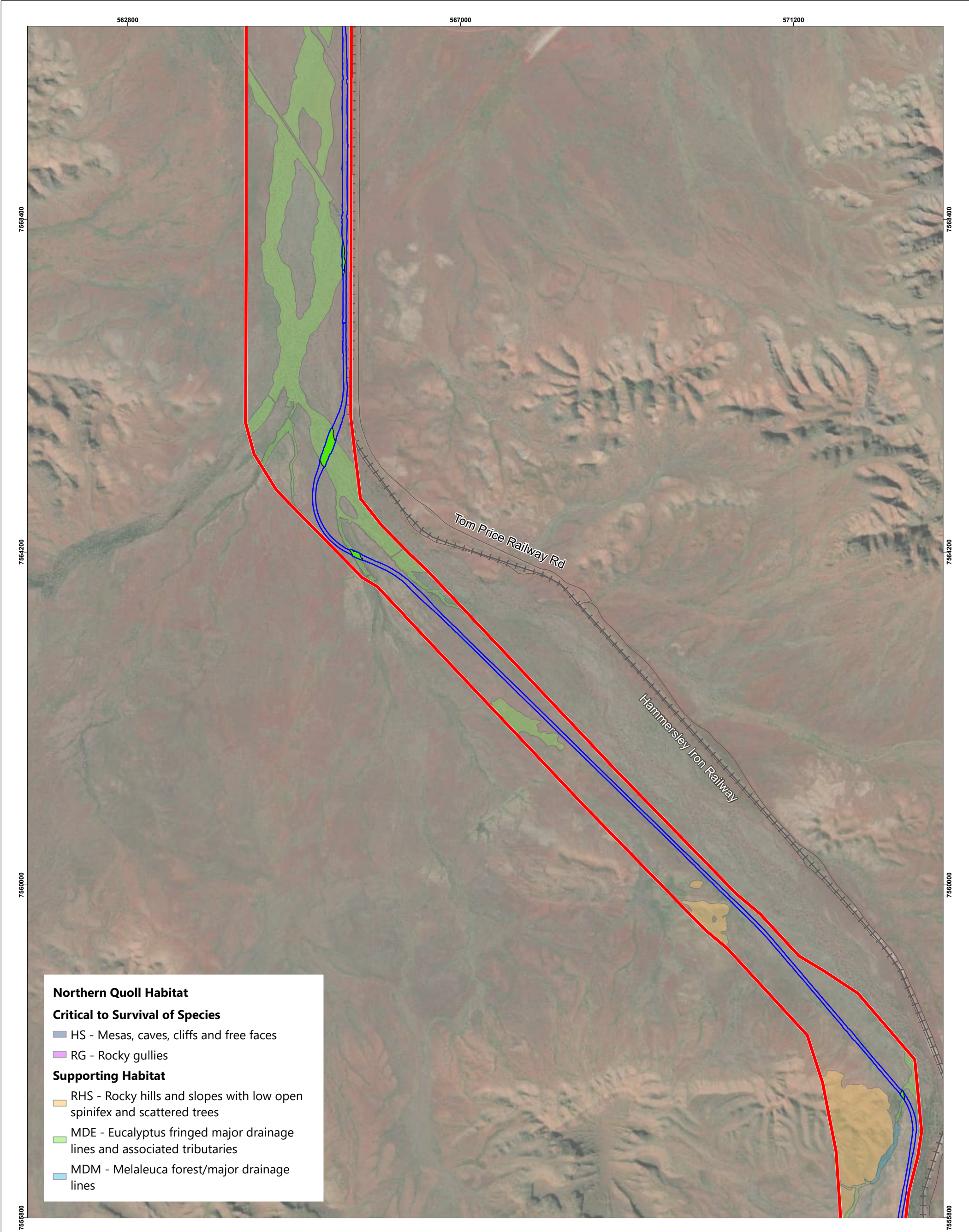
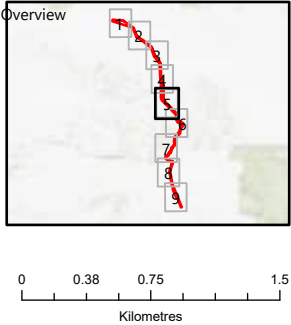


Figure 8.5 Northern Quoll Habitat (EPBC 2020/8725)

- Legend**
- Roads
 - + Railways
 - ▭ Disturbance Footprint
 - ▭ Development Envelope



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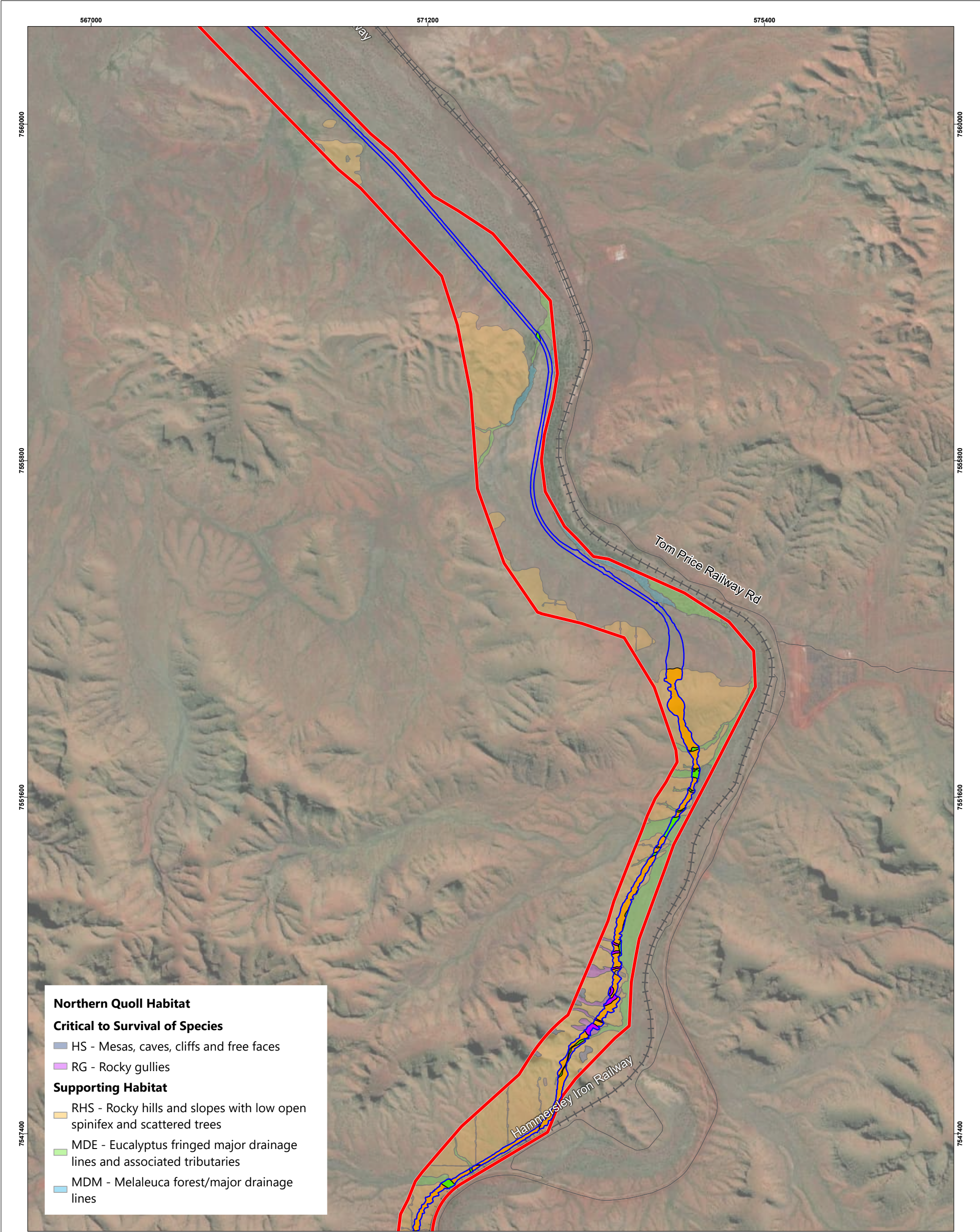
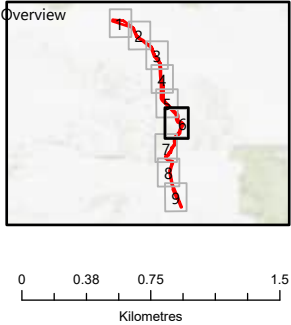


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- Legend**
- Roads
 - + Railways
 - ▭ Disturbance Footprint
 - ▭ Development Envelope



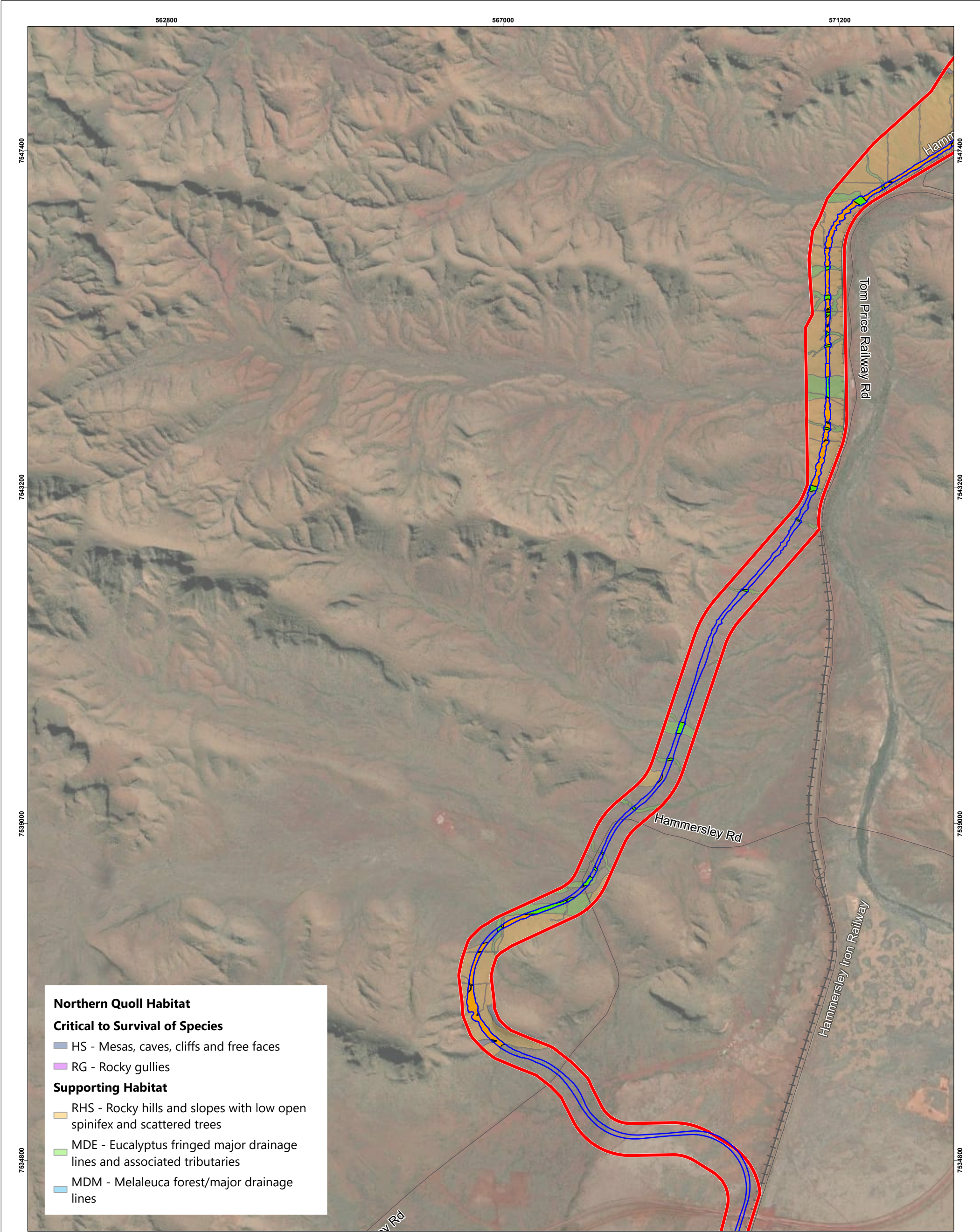
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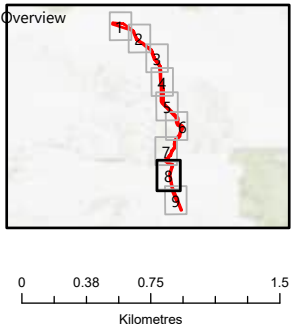
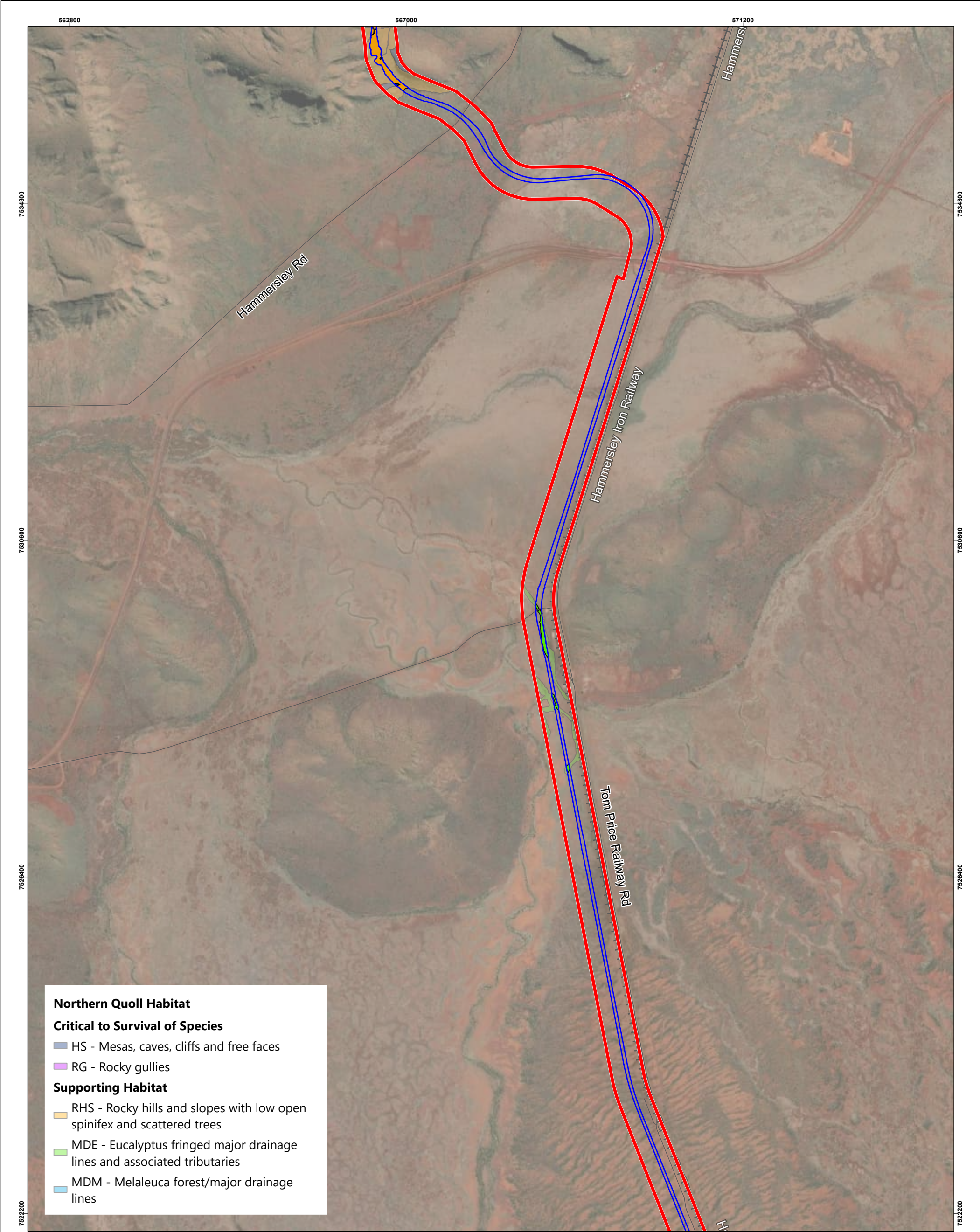
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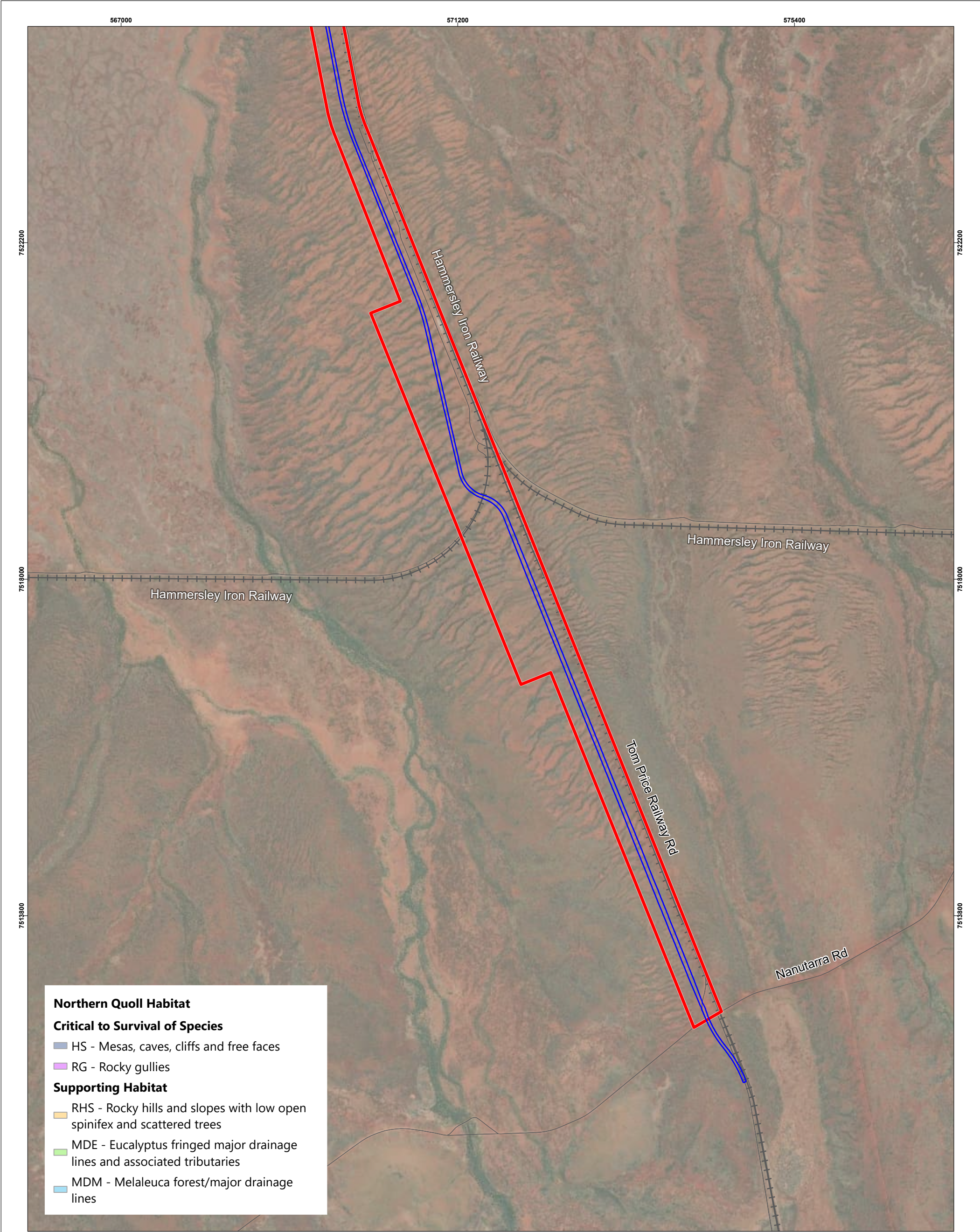
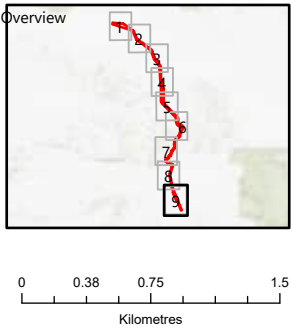


Figure 8.9 Northern Quoll Habitat (EPBC 2020/8725)

- Legend**
- Roads
 - + Railways
 - ▭ Disturbance Footprint
 - ▭ Development Envelope



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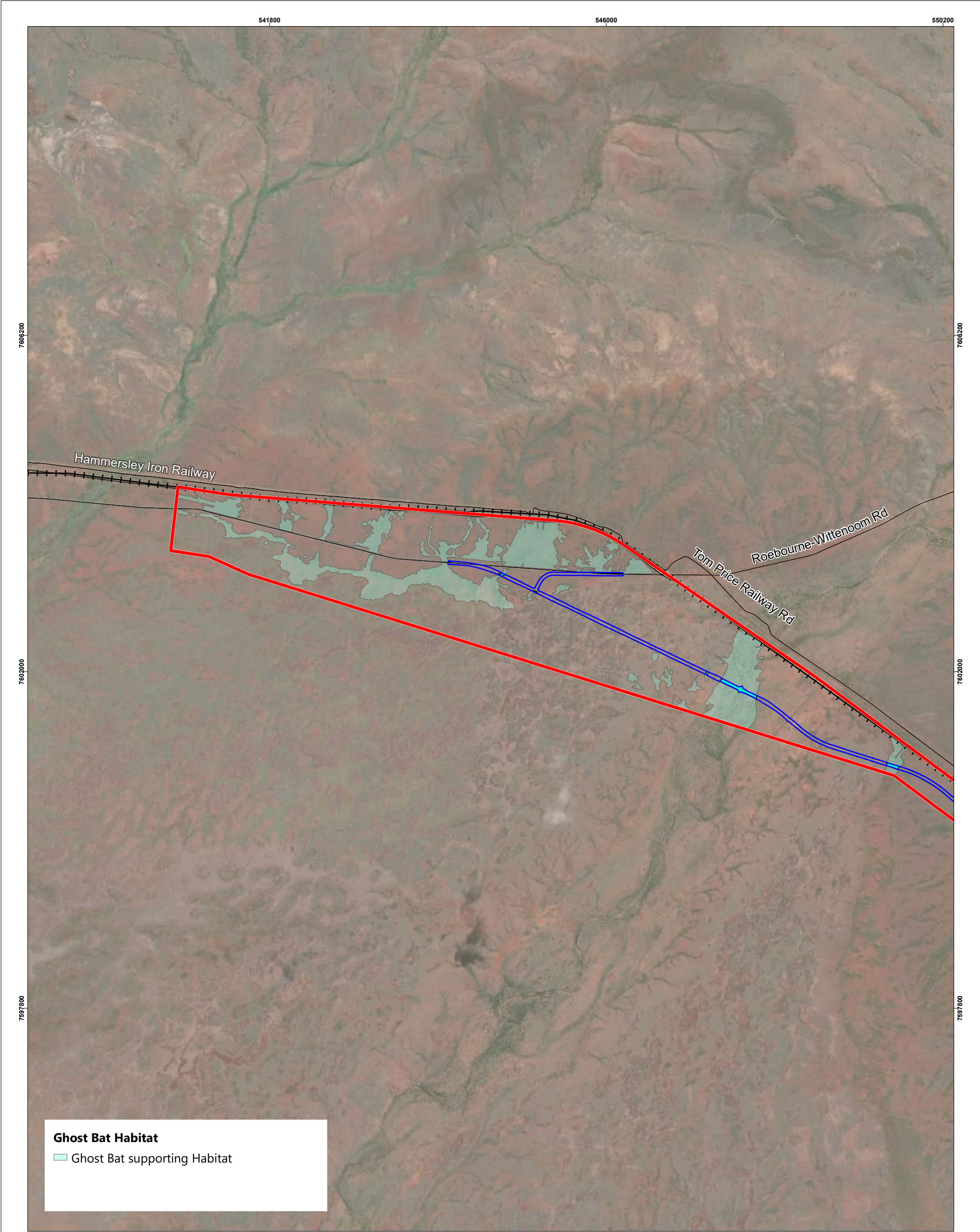
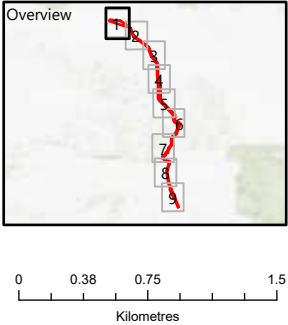


Figure 9.1 Ghost Bat Habitat (EPBC 2020/8725)

Legend

- Roads
- Railways
- ▭ Disturbance Footprint
- ▬ Development Envelope



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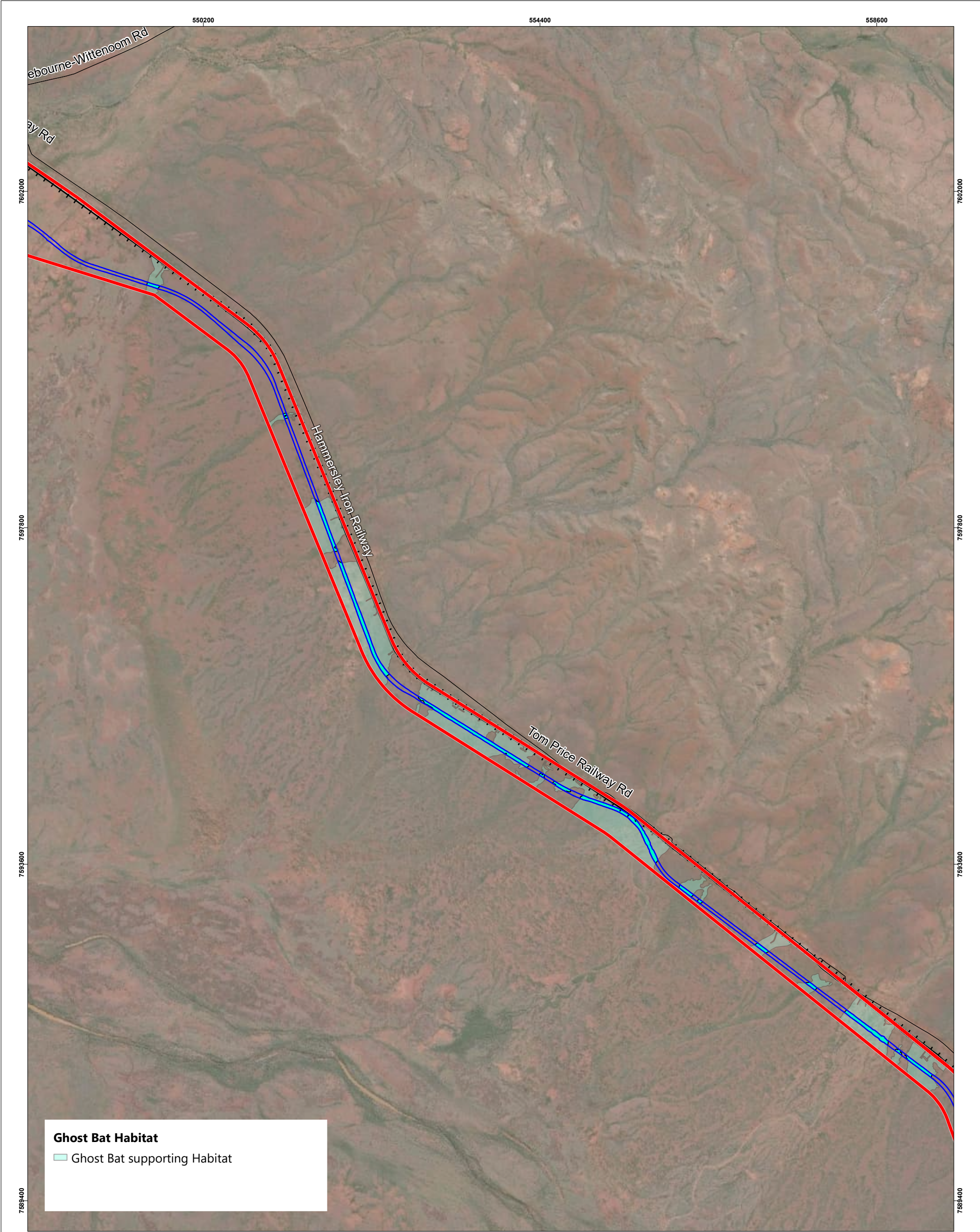


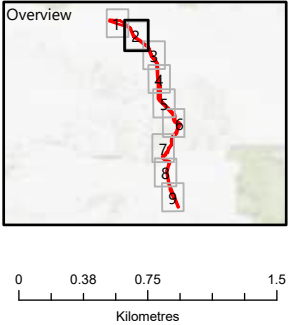
Figure 9.2 Ghost Bat Habitat (EPBC 2020/8725)

- Legend
- Roads

→ Railways

▭ Disturbance Footprint

▭ Development Envelope



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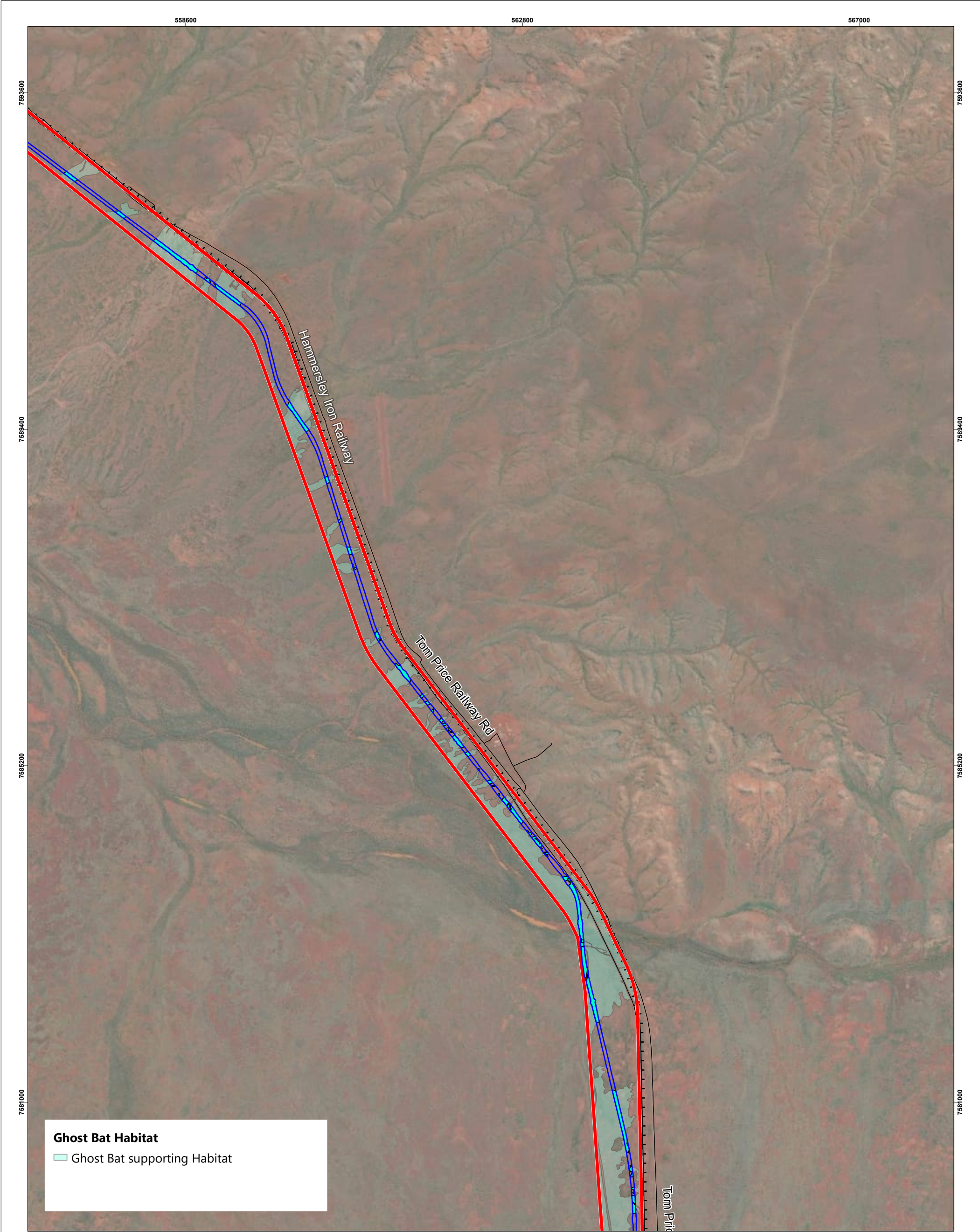
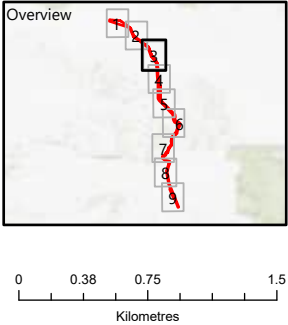


Figure 9.3 Ghost Bat Habitat (EPBC 2020/8725)

- Legend**
- Roads
 - Railways
 - Disturbance Footprint
 - ▬ Development Envelope



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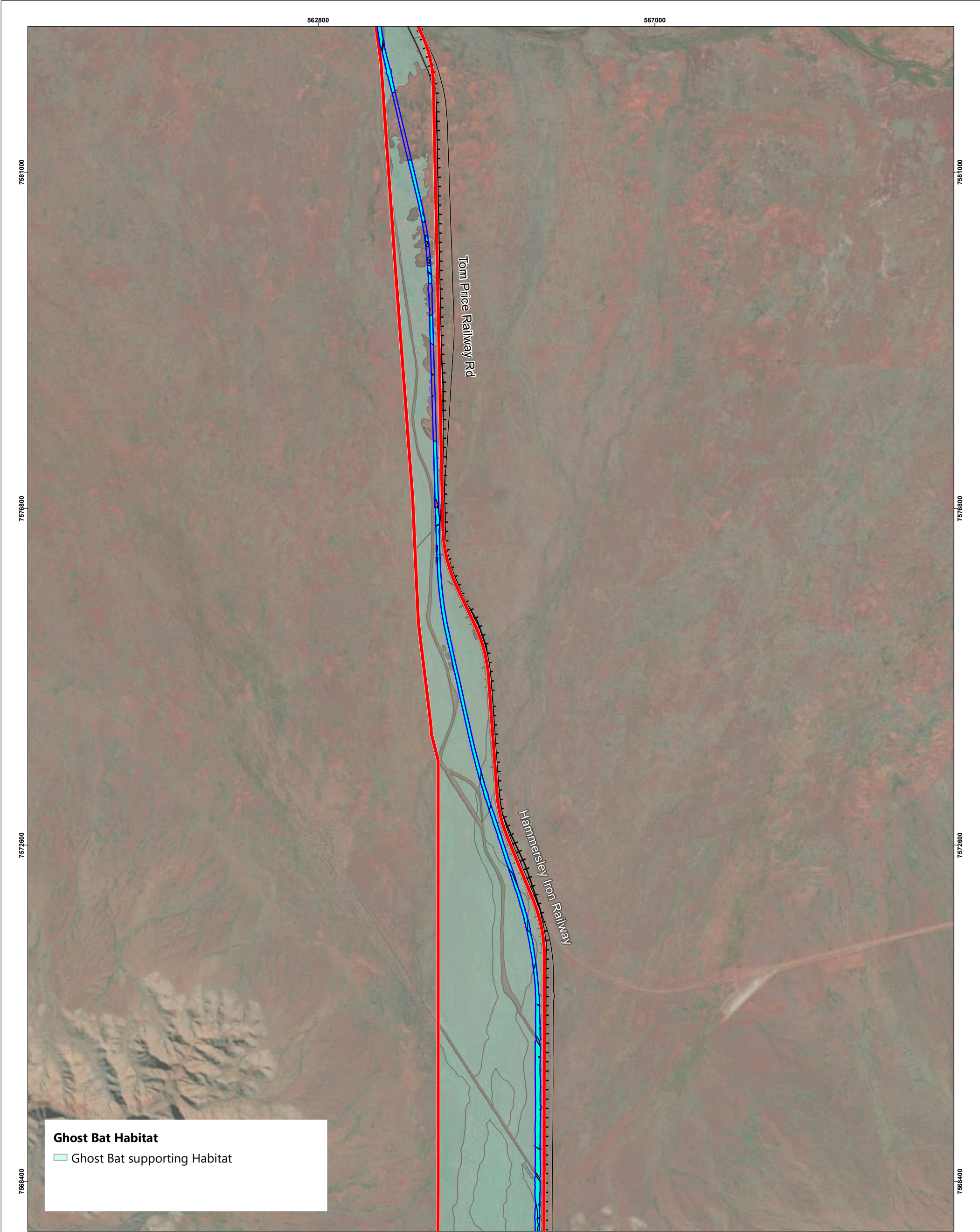
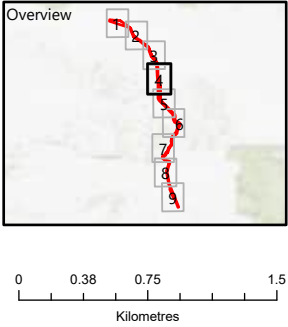


Figure 9.4 Ghost Bat Habitat (EPBC 2020/8725)

Legend

- Roads
- Railways
- ▭ Disturbance Footprint
- ▭ Development Envelope



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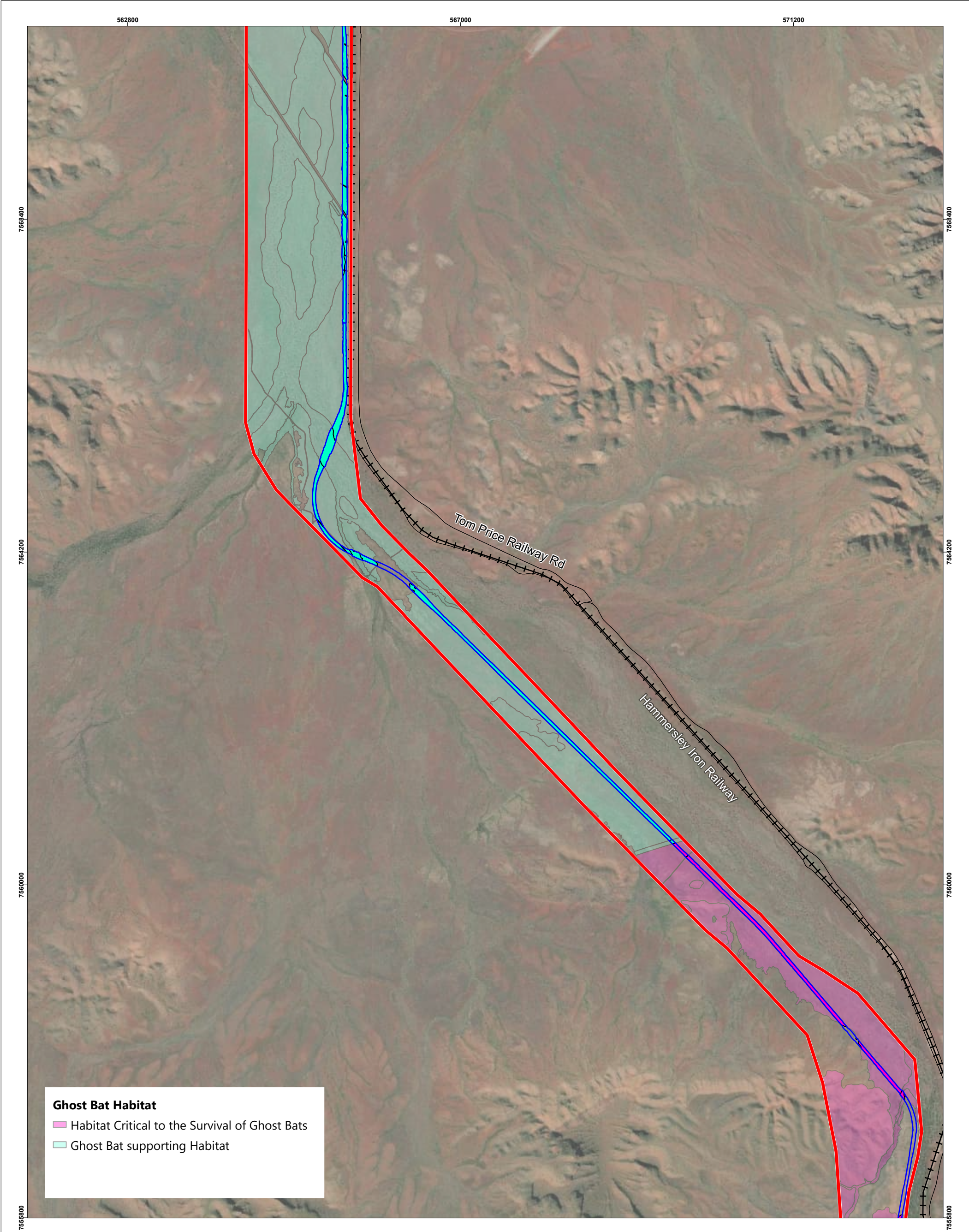
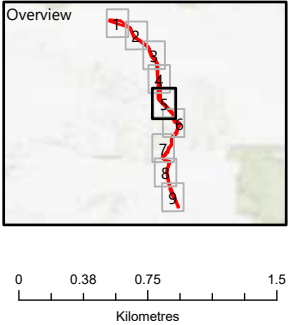


Figure 9.5 Ghost Bat Habitat (EPBC 2020/8725)

- Legend**

 - Roads
 - Railways
- ▭ Disturbance Footprint
 - ▭ Development Envelope



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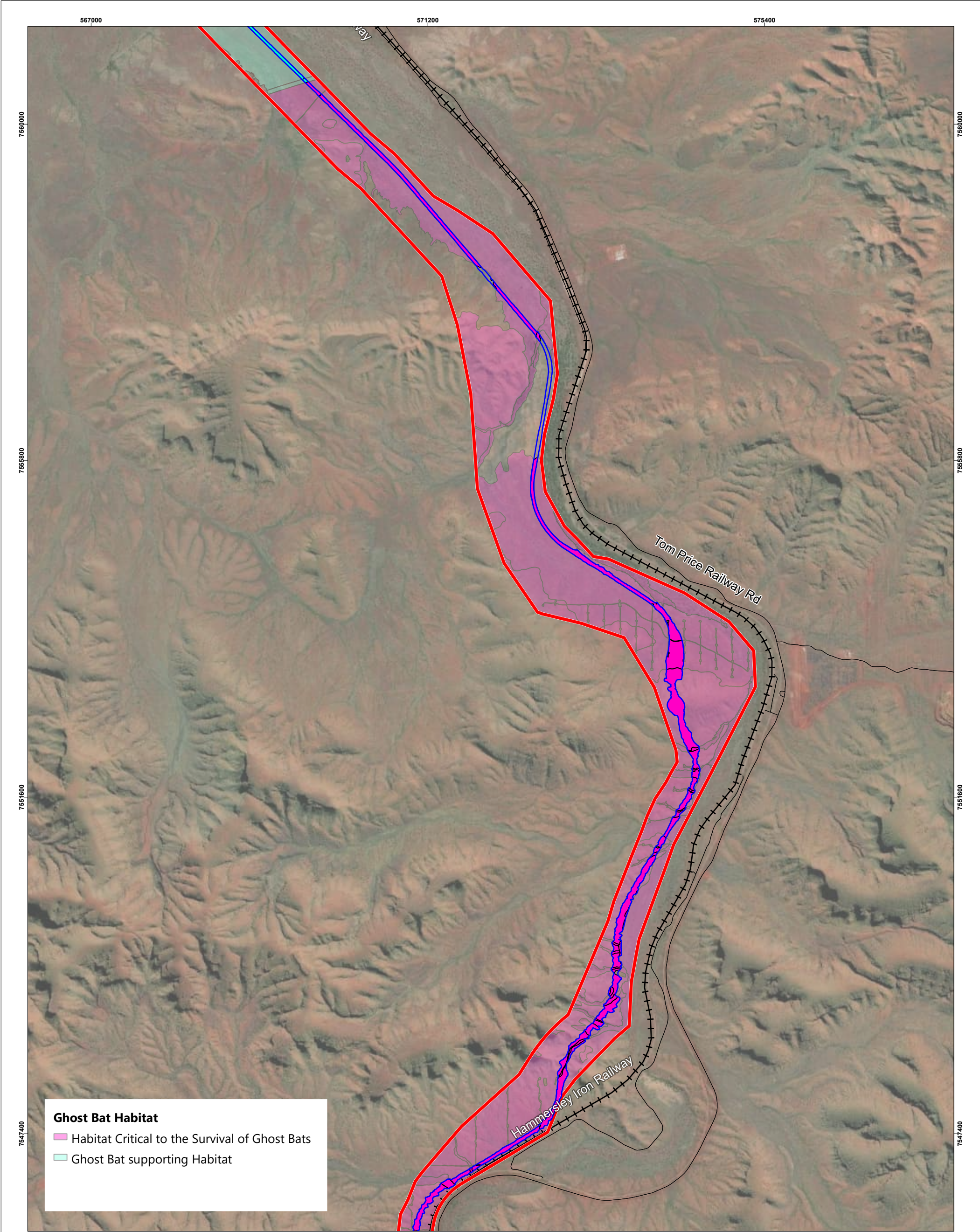
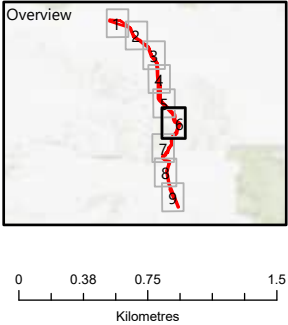


Figure 9.6 Ghost Bat Habitat (EPBC 2020/8725)

Legend

- Roads
- Railways
- ▭ Disturbance Footprint
- ▭ Development Envelope



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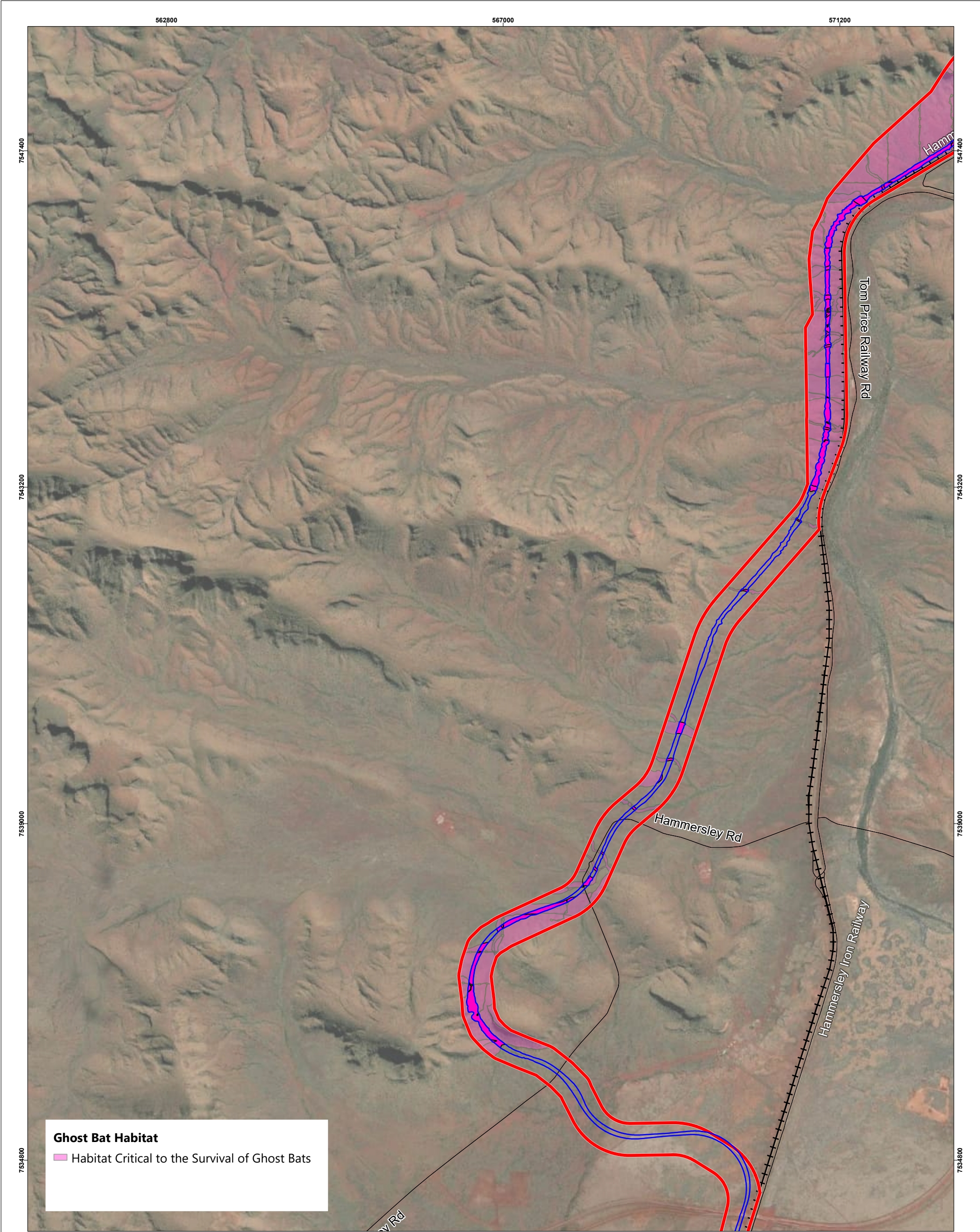


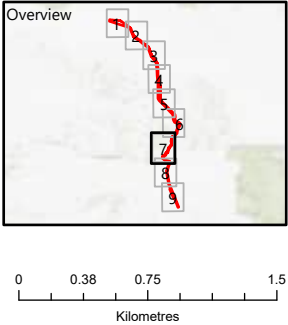
Figure 9.7 Ghost Bat Habitat (EPBC 2020/8725)

- Legend
- Roads

→ Railways

▭ Disturbance Footprint

▭ Development Envelope



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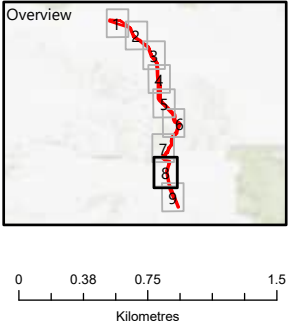
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Figure 9.8 Ghost Bat Habitat (EPBC 2020/8725)

- Legend**

 - Roads
 - Railways
- ▭ Disturbance Footprint
 - ▭ Development Envelope



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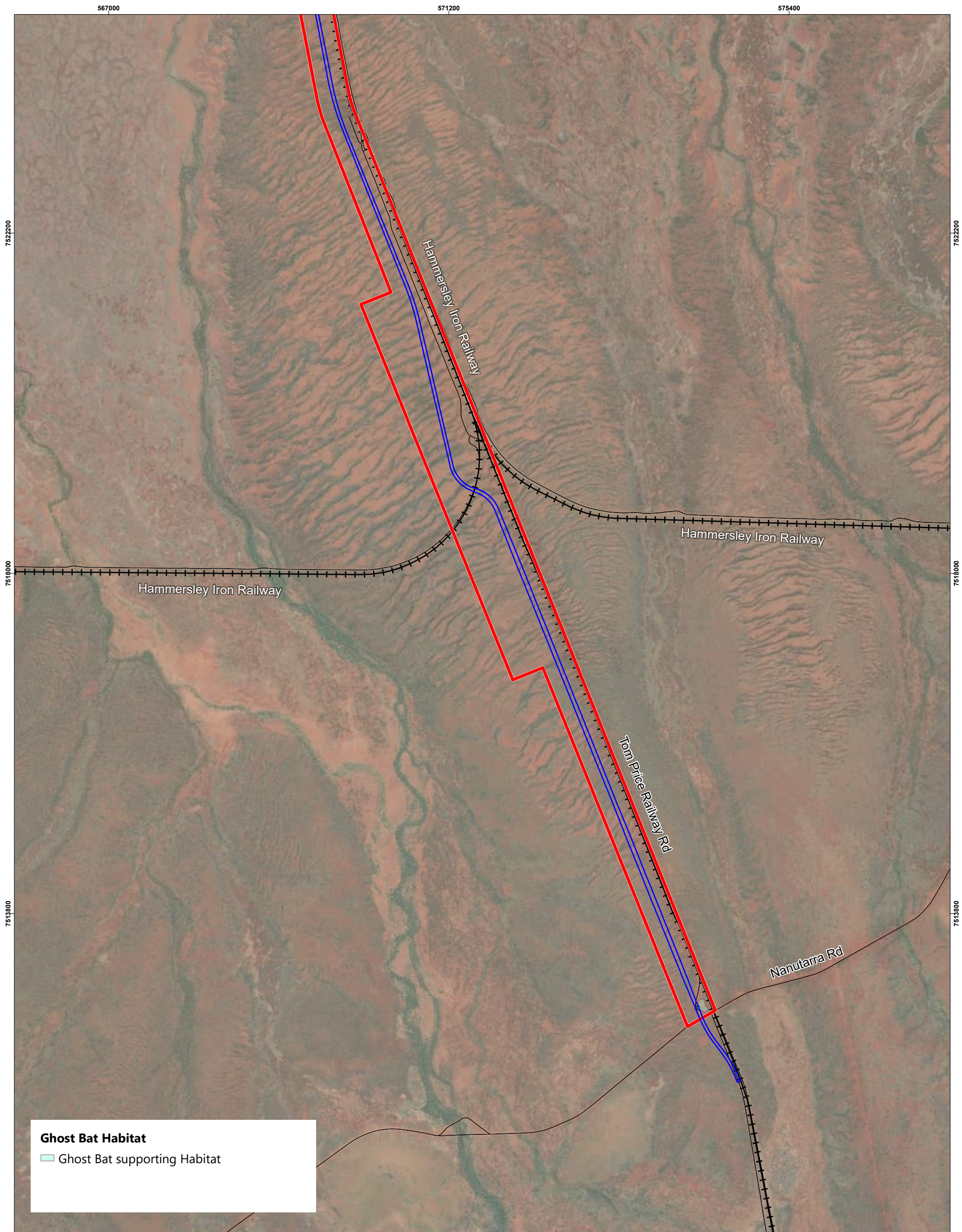
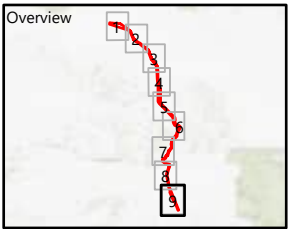


Figure 9.9 Ghost Bat Habitat (EPBC 2020/8725)

Legend

- Roads
- Railways
- ▭ Disturbance Footprint
- ▭ Development Envelope



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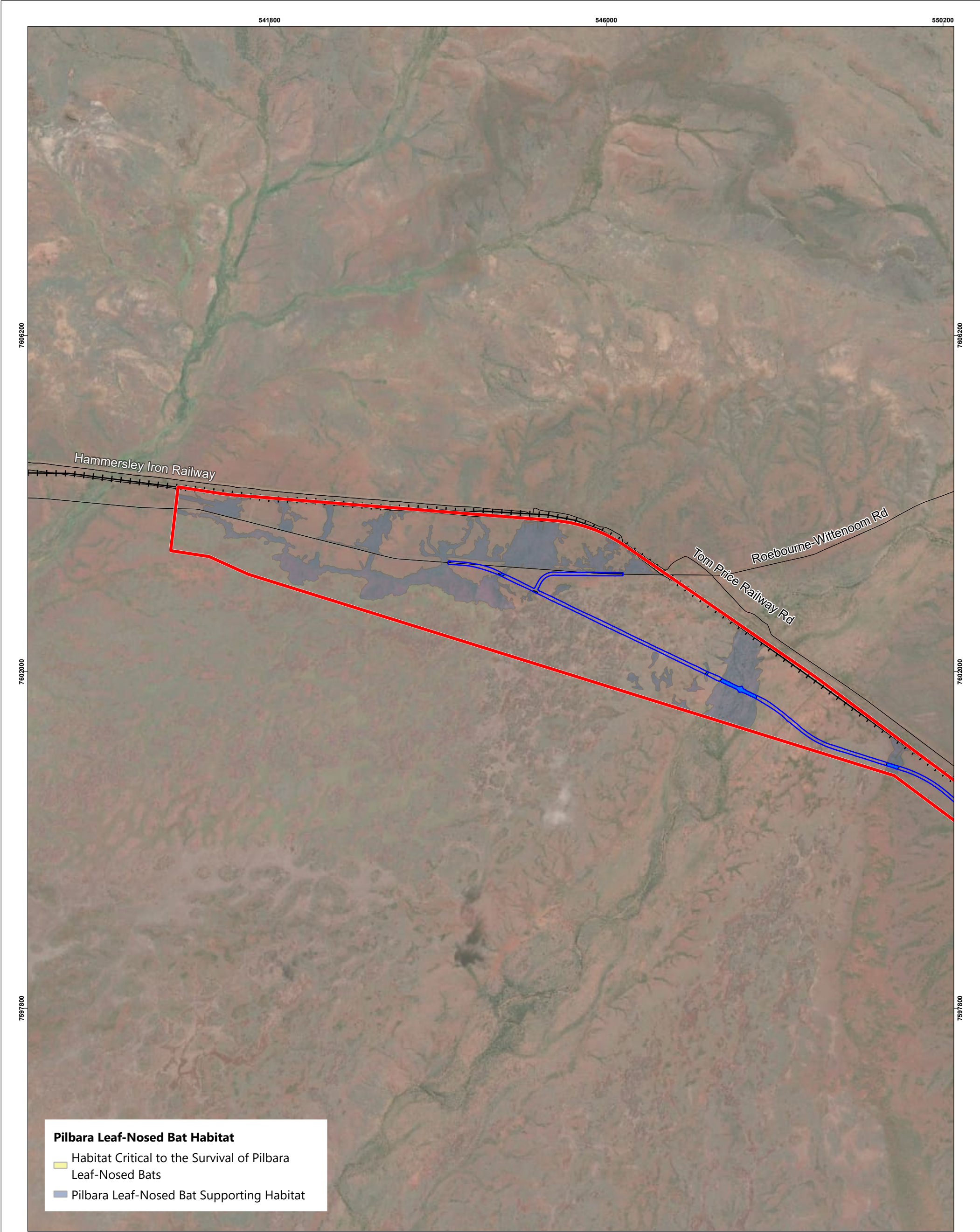
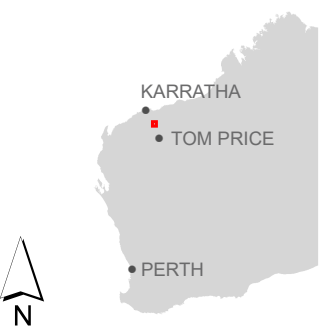
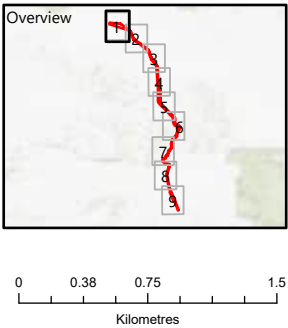


Figure 10.1 Pilbara Leaf-Nosed Bat Habitat (EPBC 2020/8725)

- Legend**
- Roads
 - + Railways
 - Disturbance Footprint
 - ▬ Development Envelope



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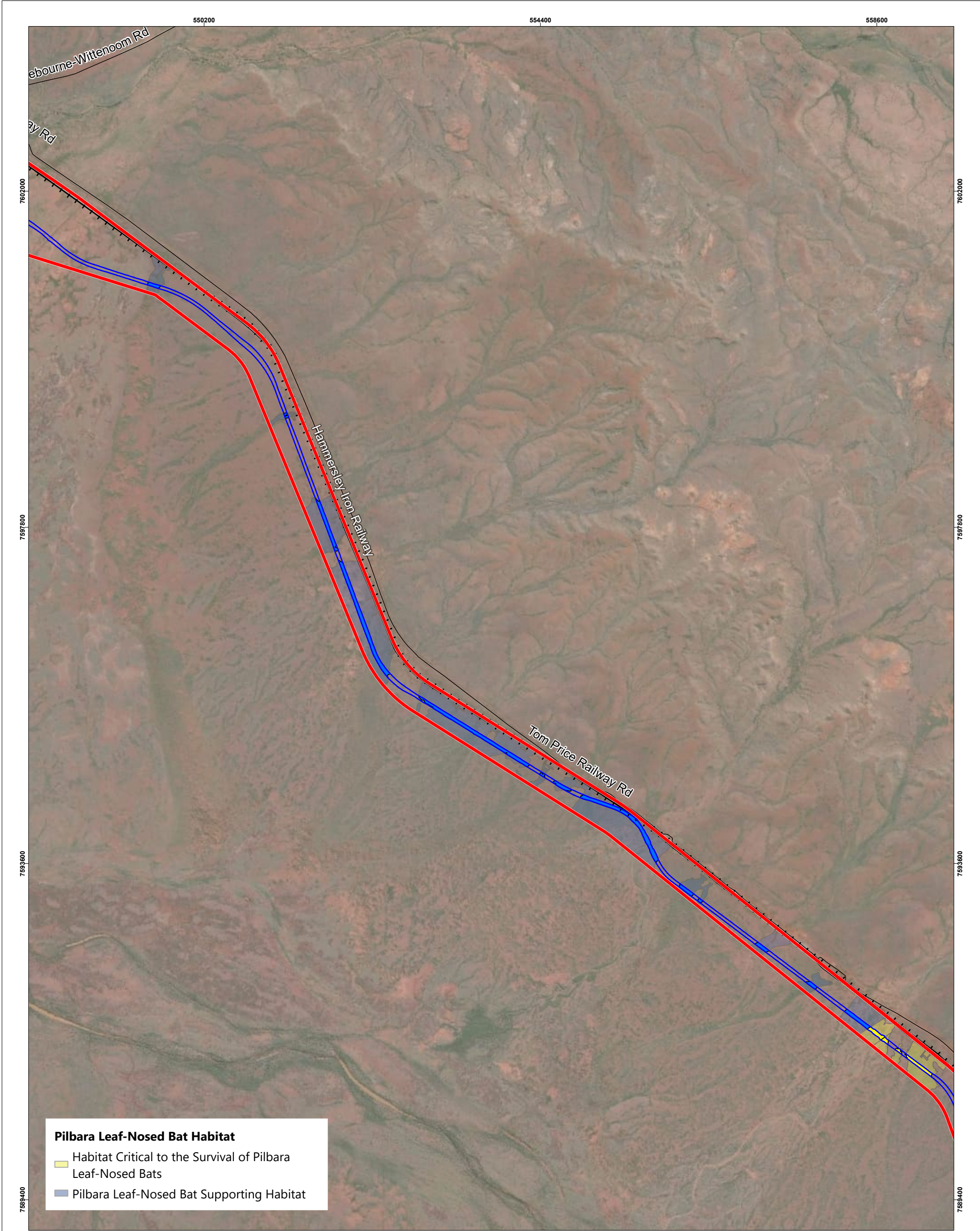
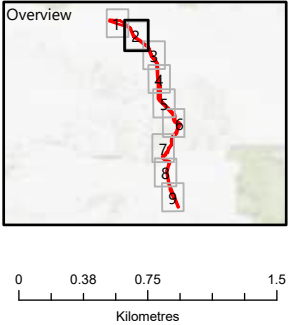


Figure 10.2 Pilbara Leaf-Nosed Bat Habitat
(EPBC 2020/8725)

- Legend**
- Roads
 - Railways
 - ▭ Disturbance Footprint
 - ▭ Development Envelope



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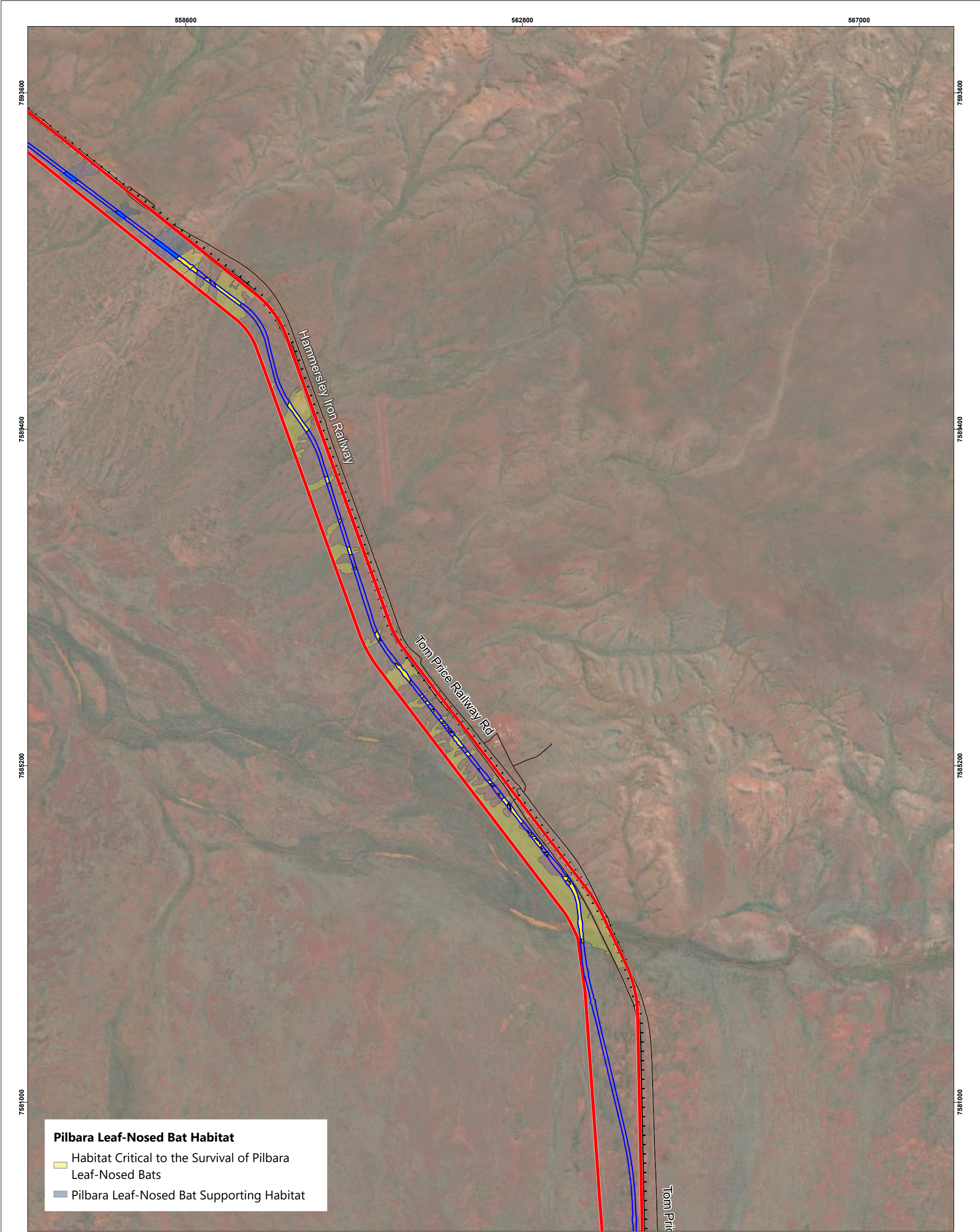
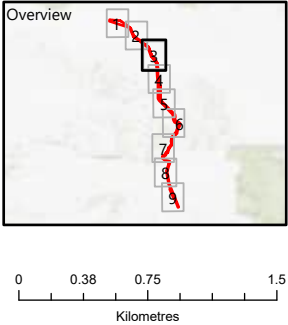


Figure 10.3 Pilbara Leaf-Nosed Bat Habitat
(EPBC 2020/8725)

- Legend**
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 - Railways
 - Disturbance Footprint
 - ▬ Development Envelope



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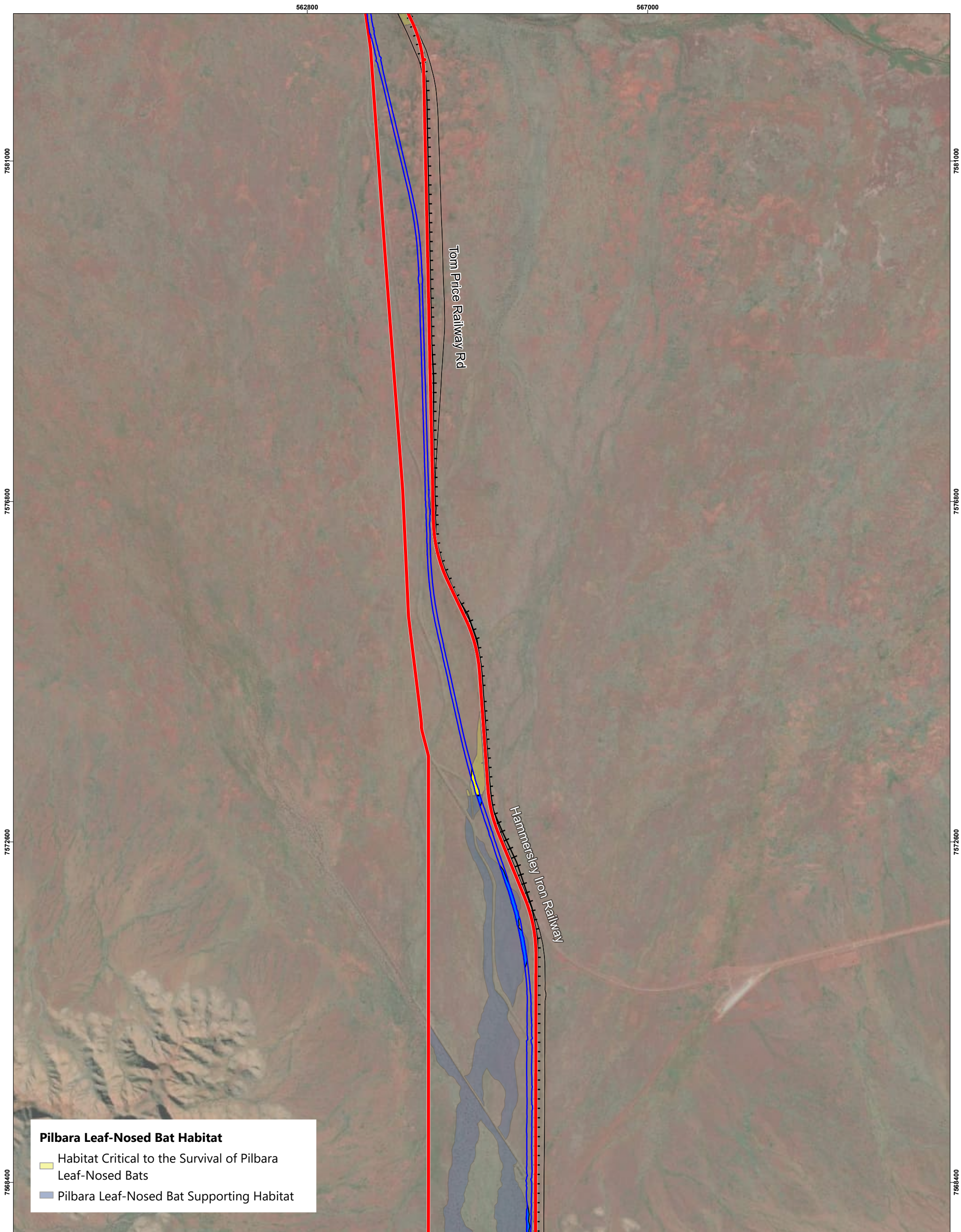
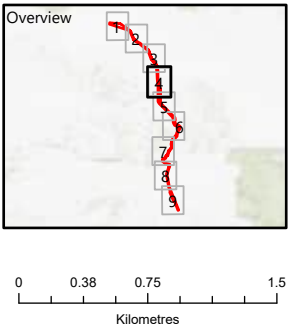


Figure 10.4 Pilbara Leaf-Nosed Bat Habitat
(EPBC 2020/8725)

- Legend**
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 - + Railways
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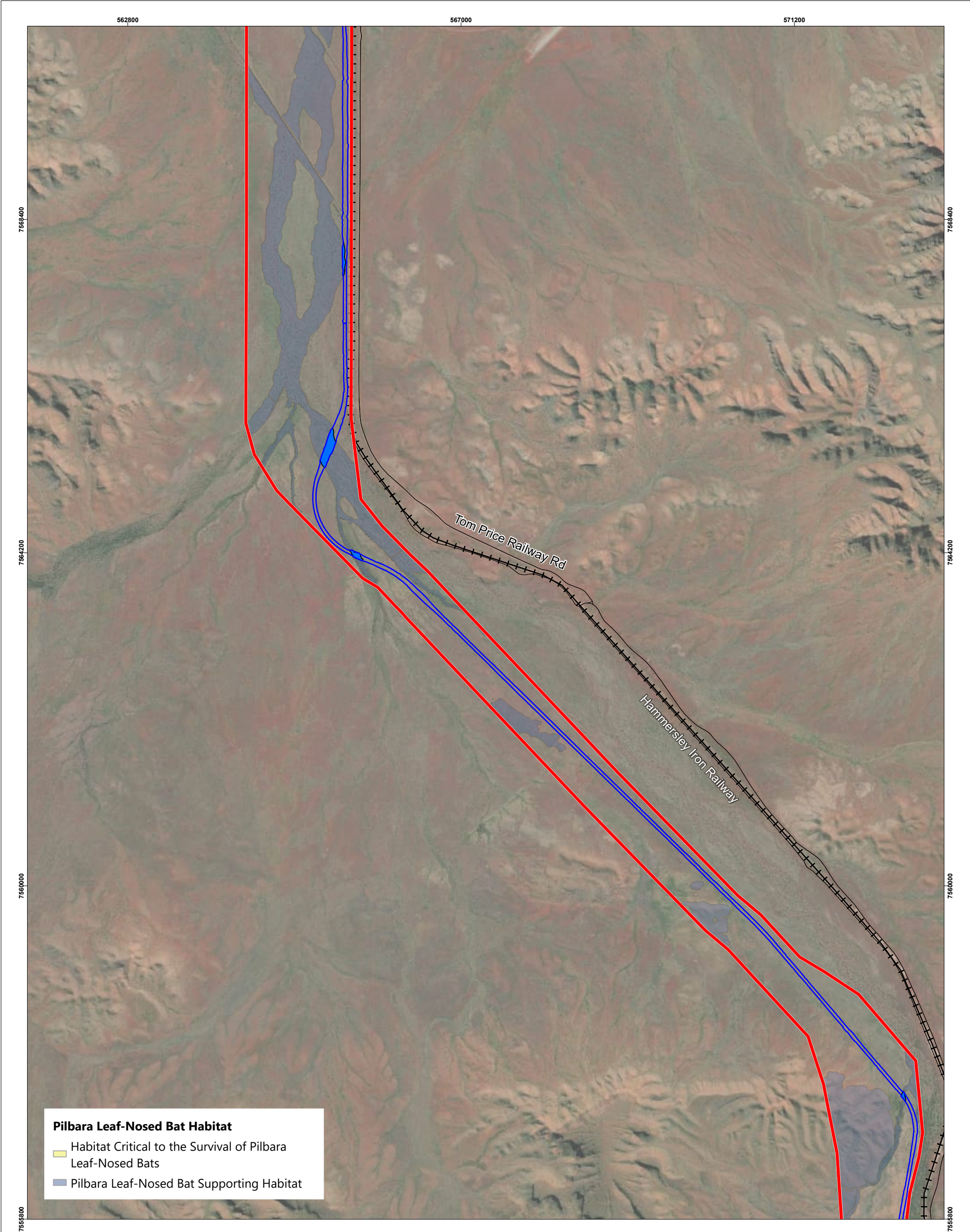


Figure 10.5 Pilbara Leaf-Nosed Bat Habitat
(EPBC 2020/8725)

- Legend**
- Roads
 - Railways
 - Disturbance Footprint
 - ▭ Development Envelope

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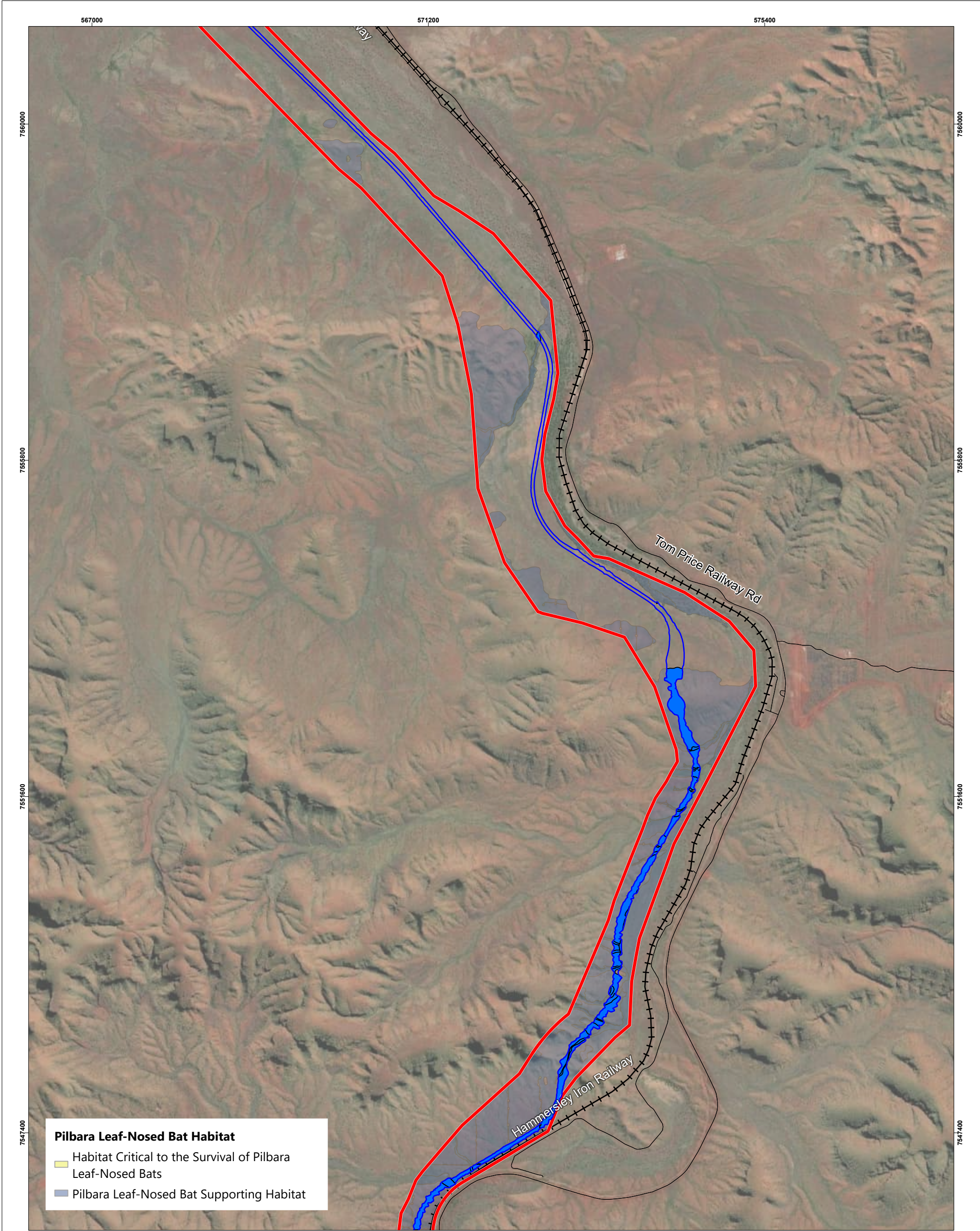
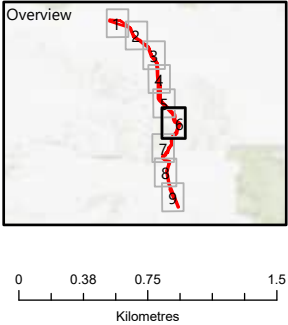


Figure 10.6 Pilbara Leaf-Nosed Bat Habitat
(EPBC 2020/8725)

- Legend**
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 - Railways
 - ▭ Disturbance Footprint
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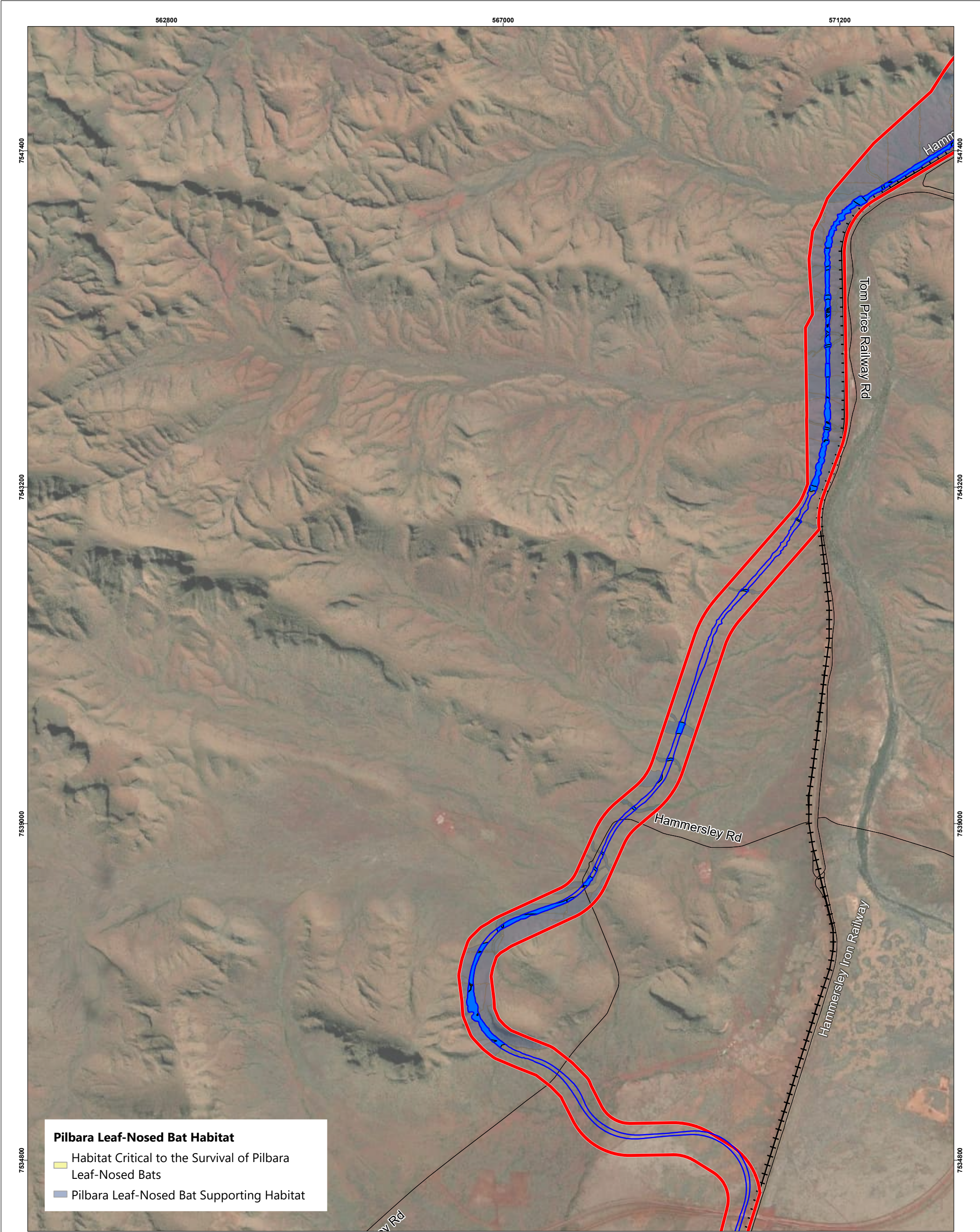
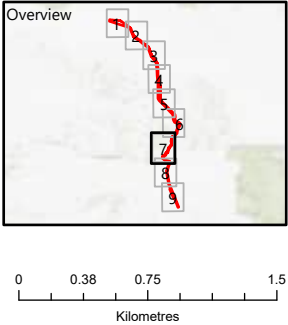


Figure 10.7 Pilbara Leaf-Nosed Bat Habitat
(EPBC 2020/8725)

- Legend**
- Roads
 - Railways
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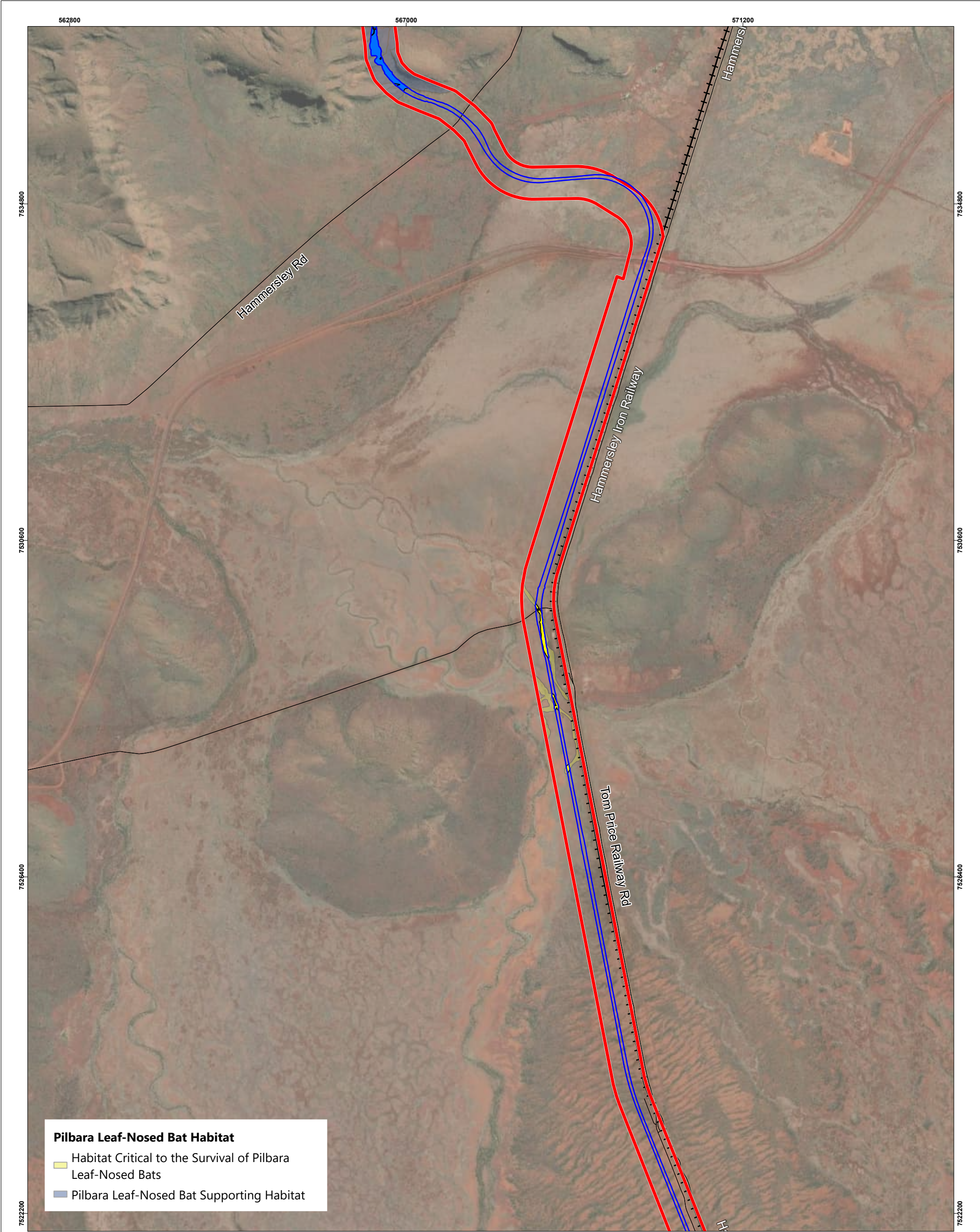
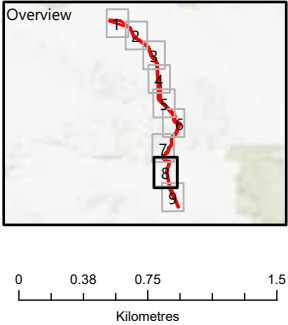


Figure 10.8 Pilbara Leaf-Nosed Bat Habitat
(EPBC 2020/8725)

- Legend**
- Roads
 - + Railways
 - ▭ Disturbance Footprint
 - ▭ Development Envelope



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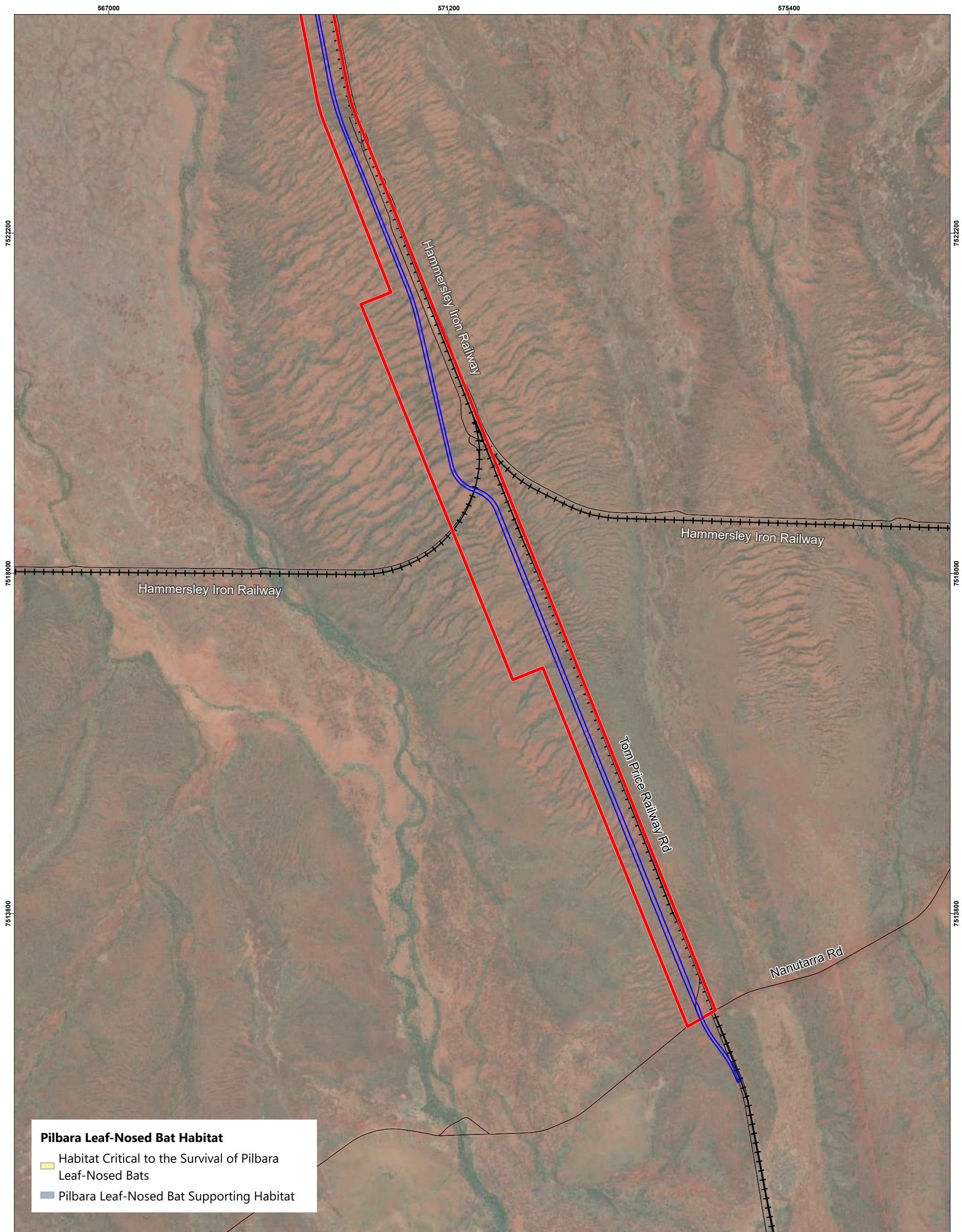
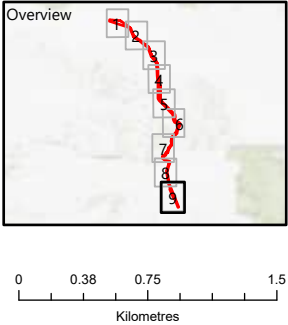


Figure 10.9 Pilbara Leaf-Nosed Bat Habitat
(EPBC 2020/8725)

- Legend**
- Roads
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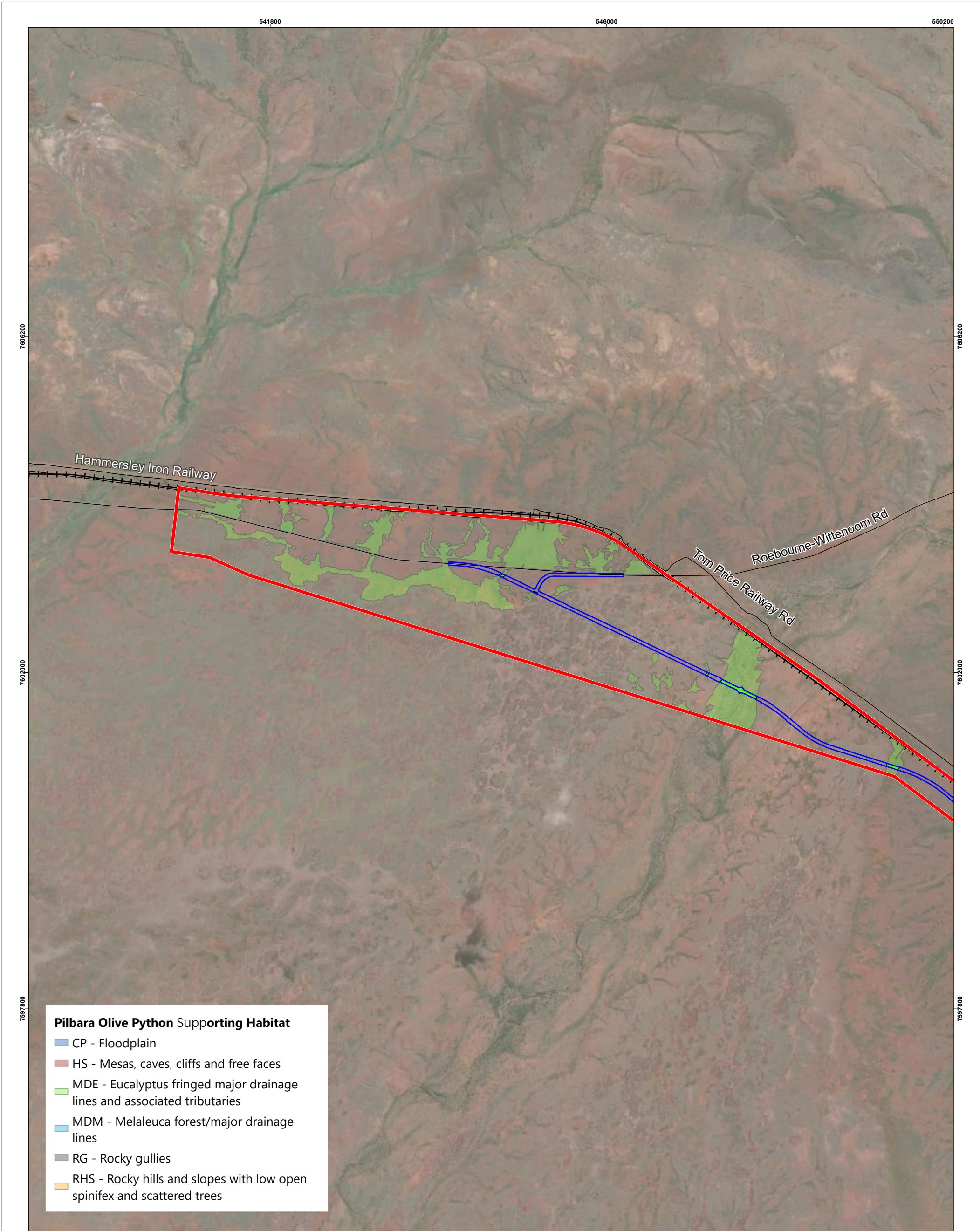
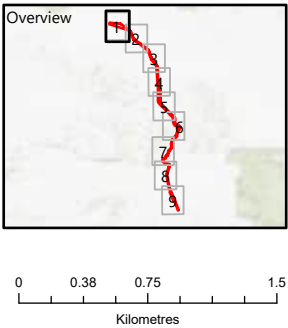


Figure 11.1 Pilbara Olive Python Habitat (EPBC 2020/8725)

- Legend**
- Roads
 - Railways
 - Disturbance Footprint
 - ▬ Development Envelope



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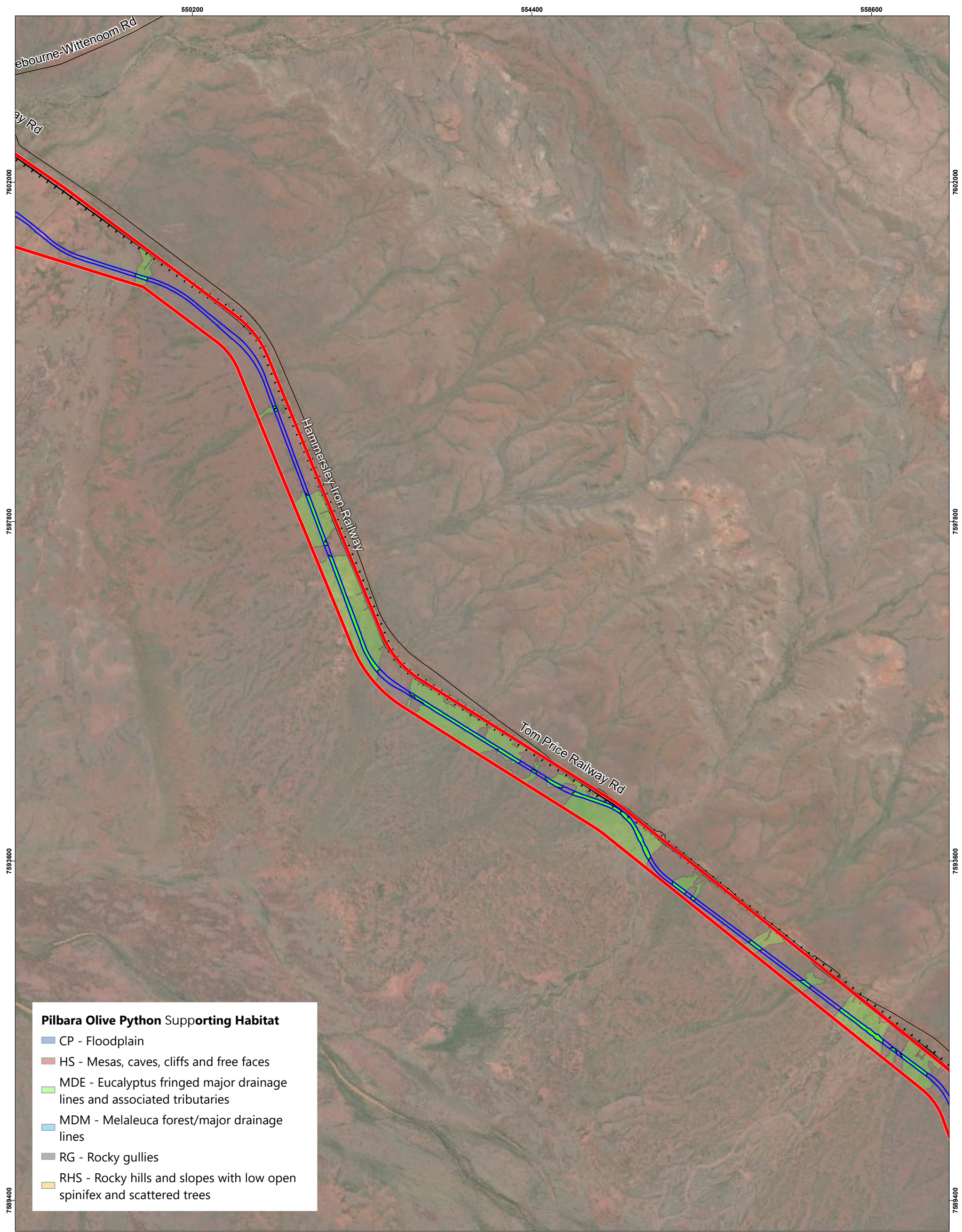
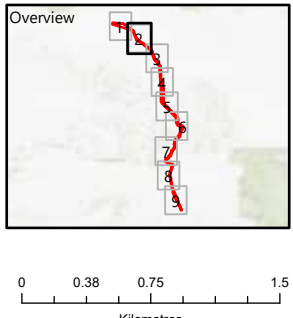


Figure 11.2 Pilbara Olive Python Habitat (EPBC 2020/8725)

- Legend**
- Roads
 - Railways
 - Disturbance Footprint
 - ▬ Development Envelope



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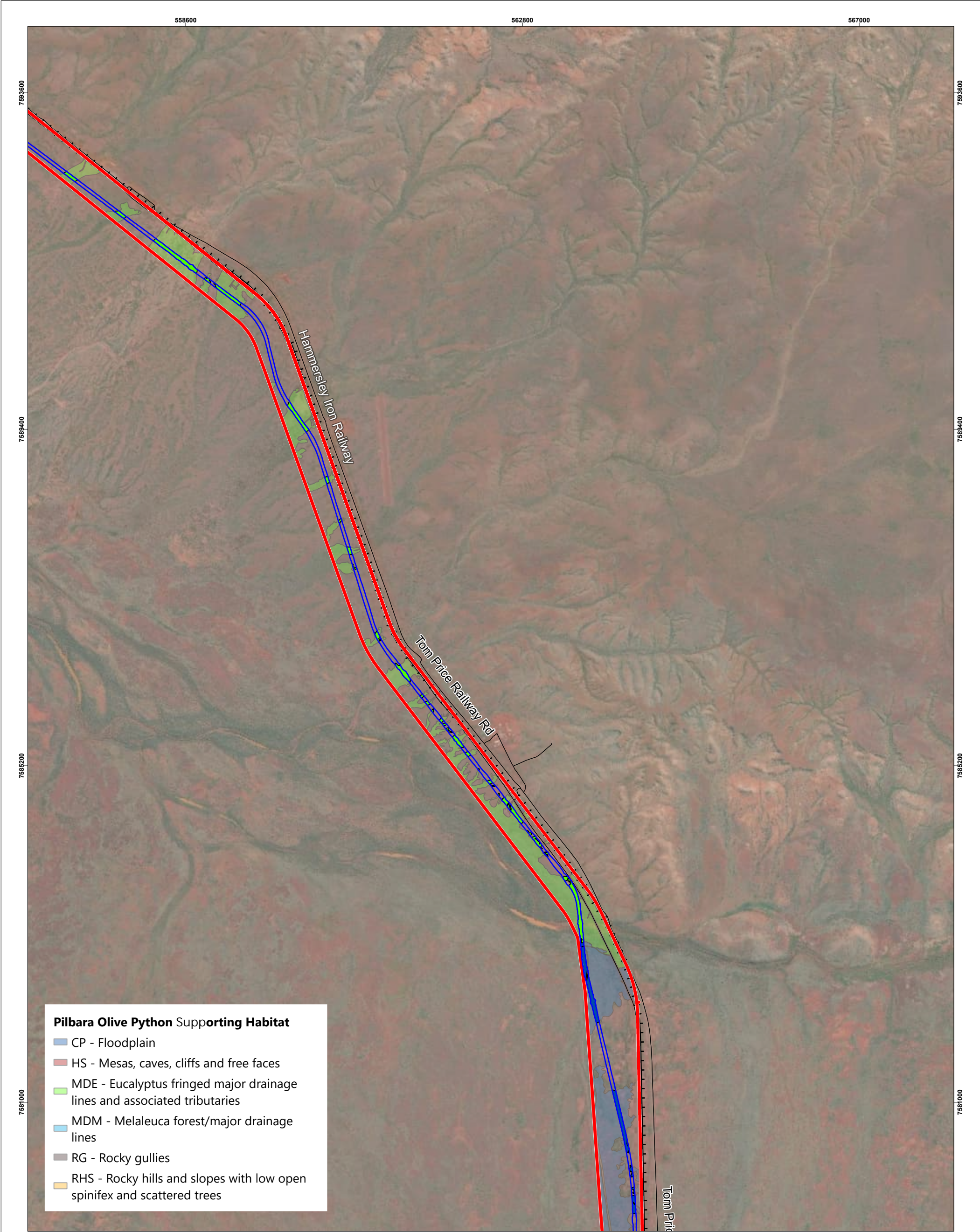
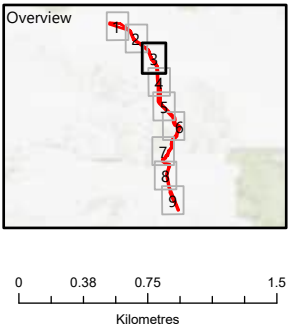


Figure 11.3 Pilbara Olive Python Habitat (EPBC 2020/8725)

- Legend**
- Roads
 - + Railways
 - Disturbance Footprint
 - ▬ Development Envelope



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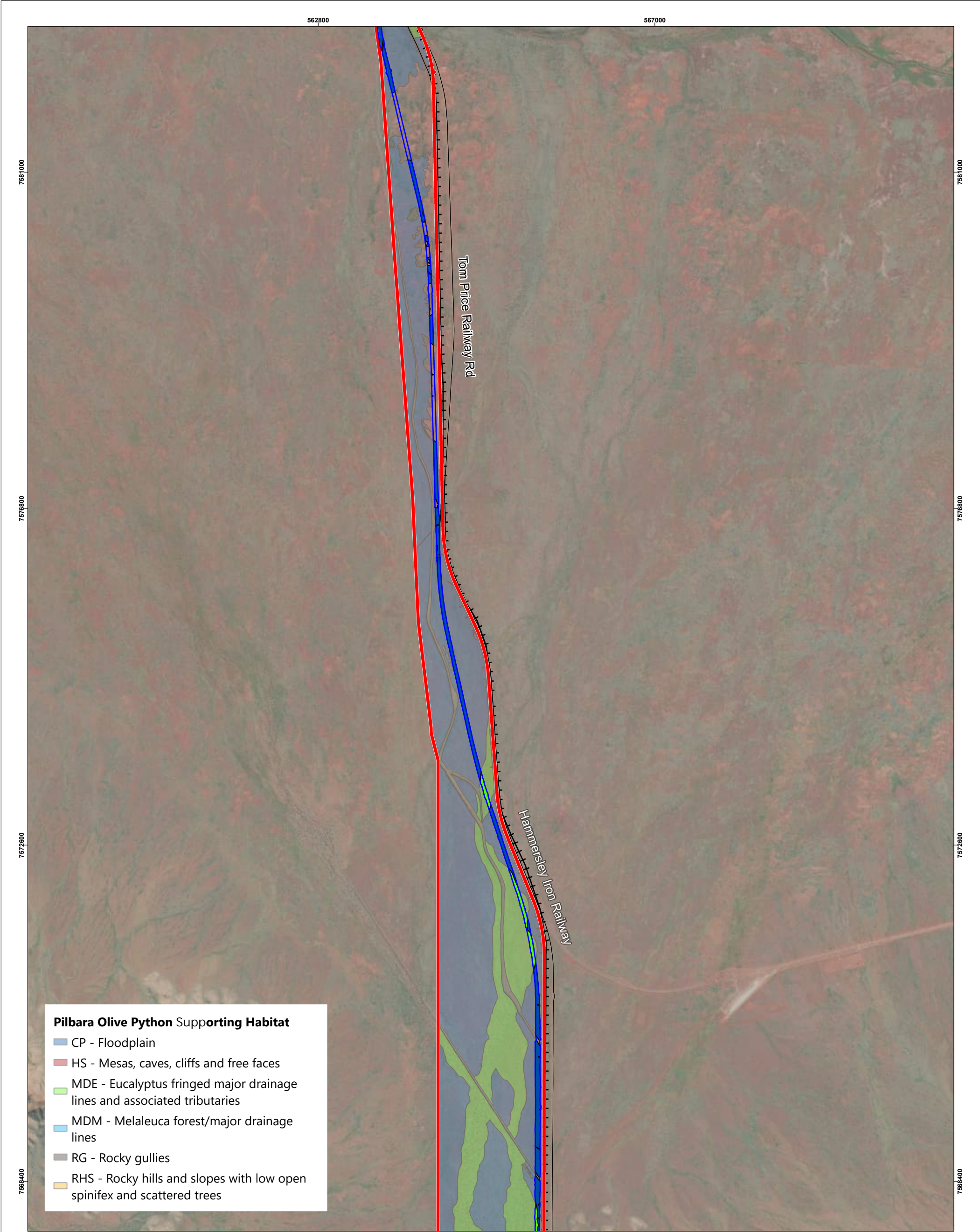
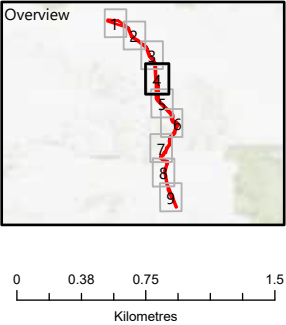


Figure 11.4 Pilbara Olive Python Habitat (EPBC 2020/8725)

- Legend**
- Roads
 - + Railways
 - Disturbance Footprint
 - ▬ Development Envelope



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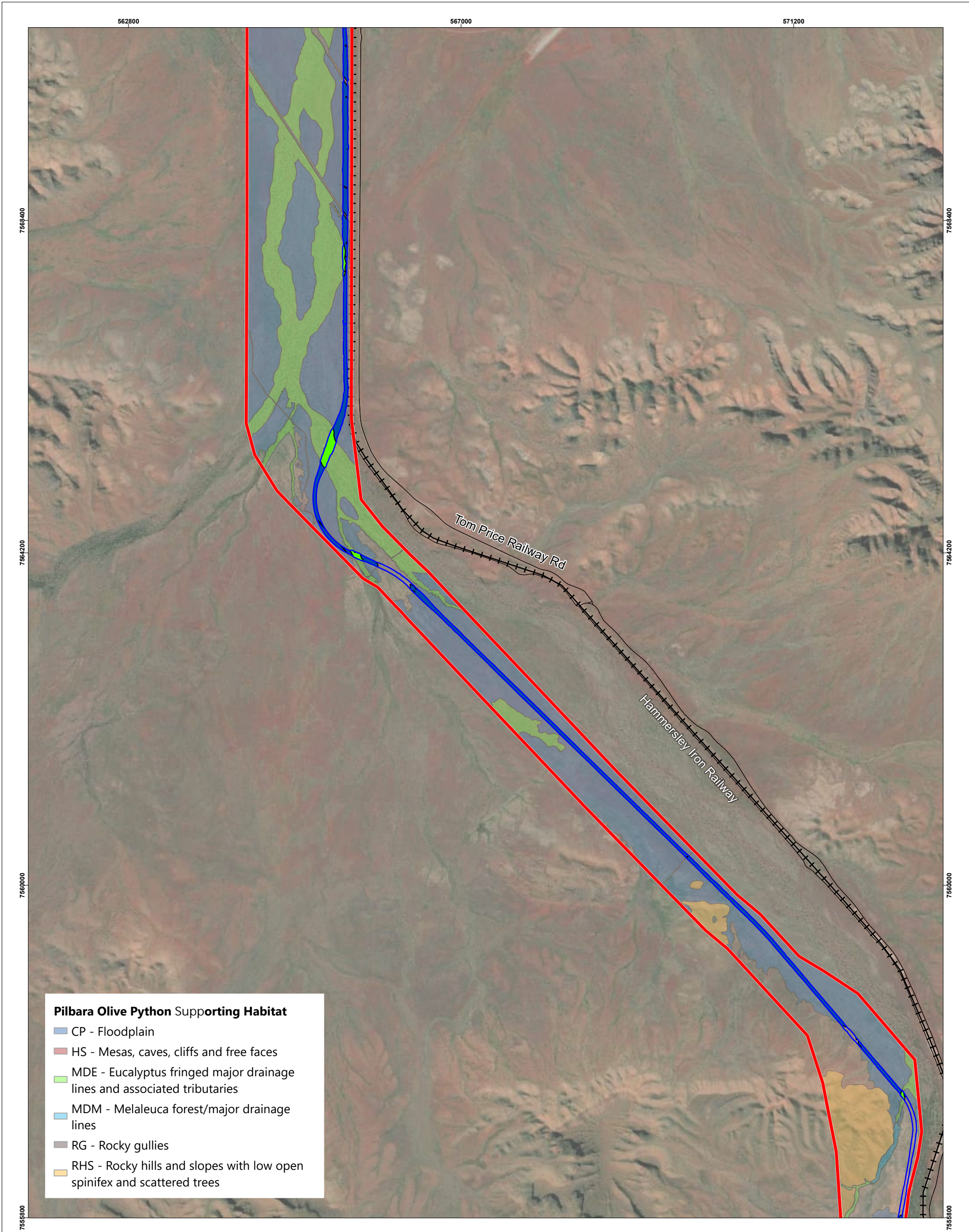
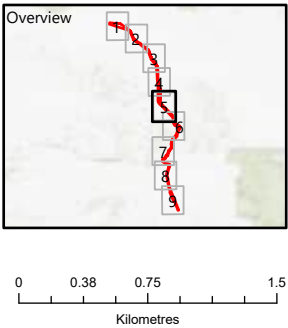


Figure 11.5 Pilbara Olive Python Habitat (EPBC 2020/8725)

- Legend**
- Roads
 - Railways
 - Disturbance Footprint
 - ▬ Development Envelope



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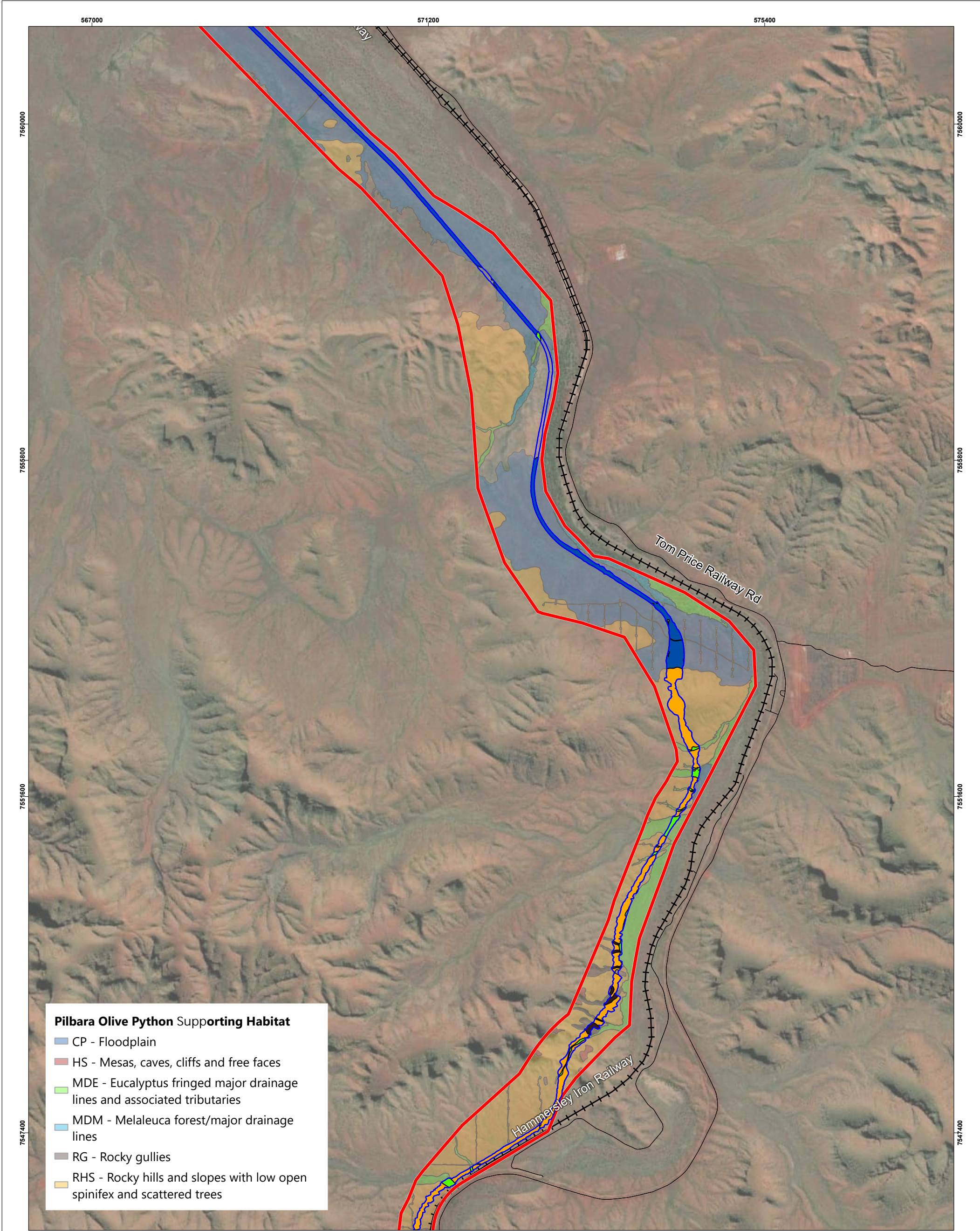
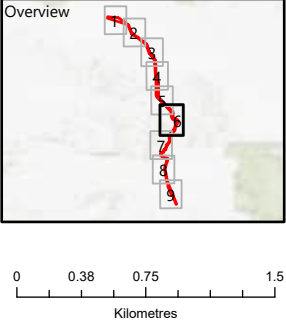


Figure 11.6 Pilbara Olive Python Habitat (EPBC 2020/8725)

- Legend**
- Roads
 - Railways
 - Disturbance Footprint
 - ▬ Development Envelope



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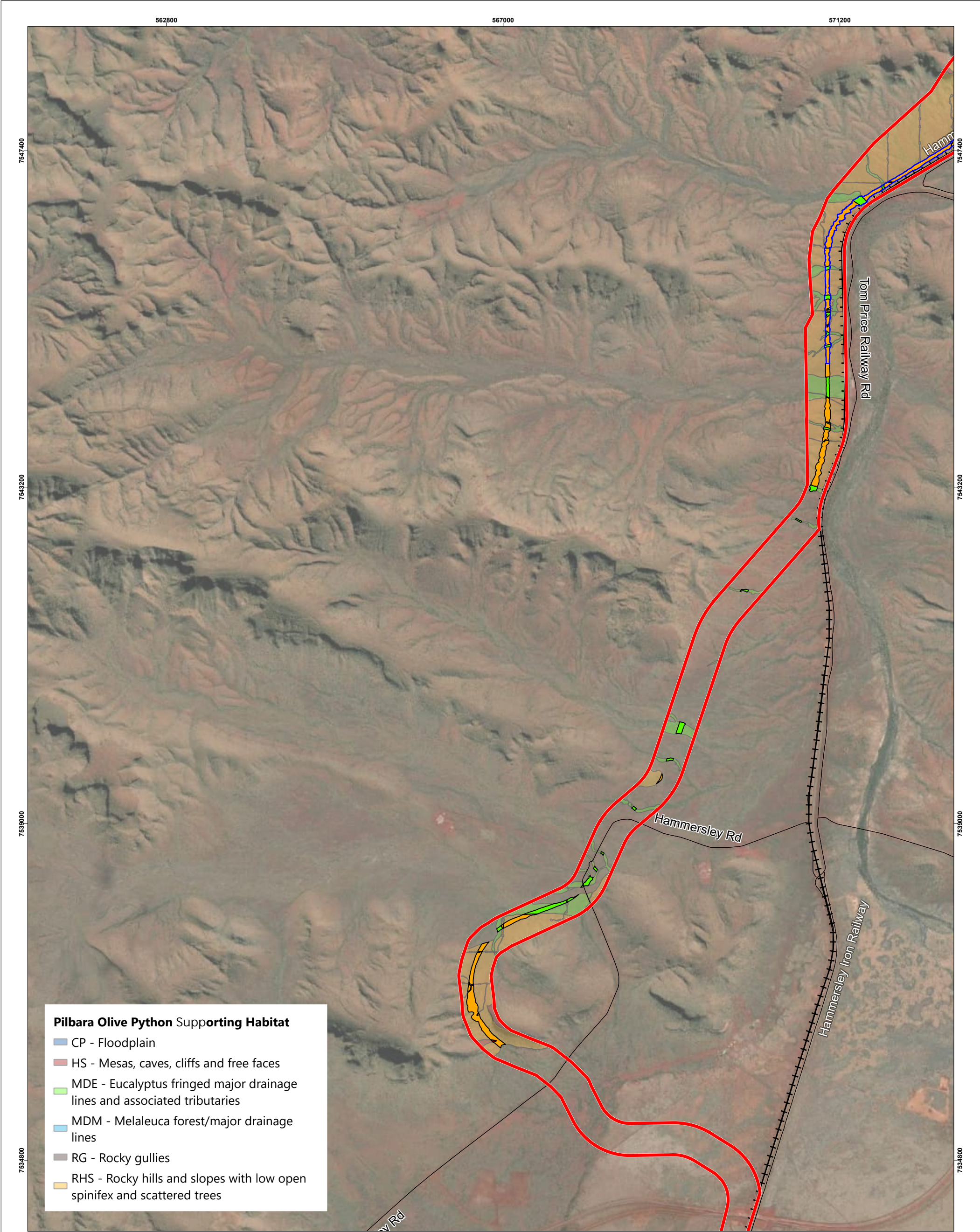
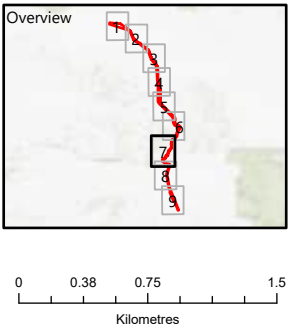


Figure 11.7 Pilbara Olive Python Habitat (EPBC 2020/8725)

- Legend**
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 - Railways
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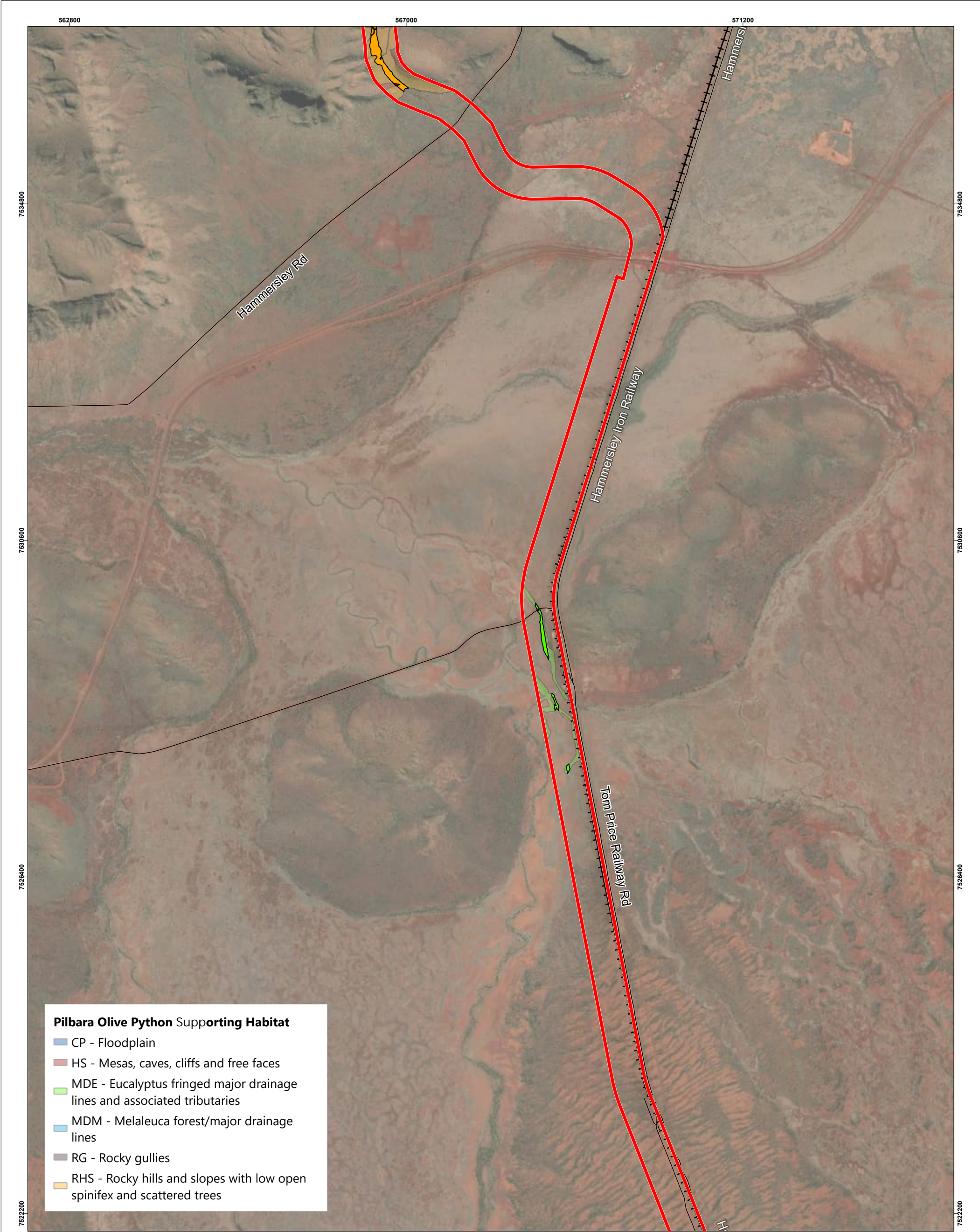
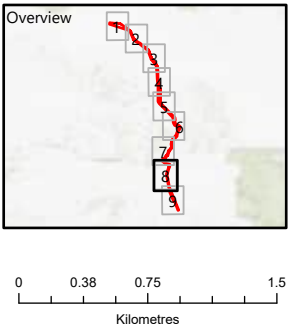


Figure 11.8 Pilbara Olive Python Habitat (EPBC 2020/8725)

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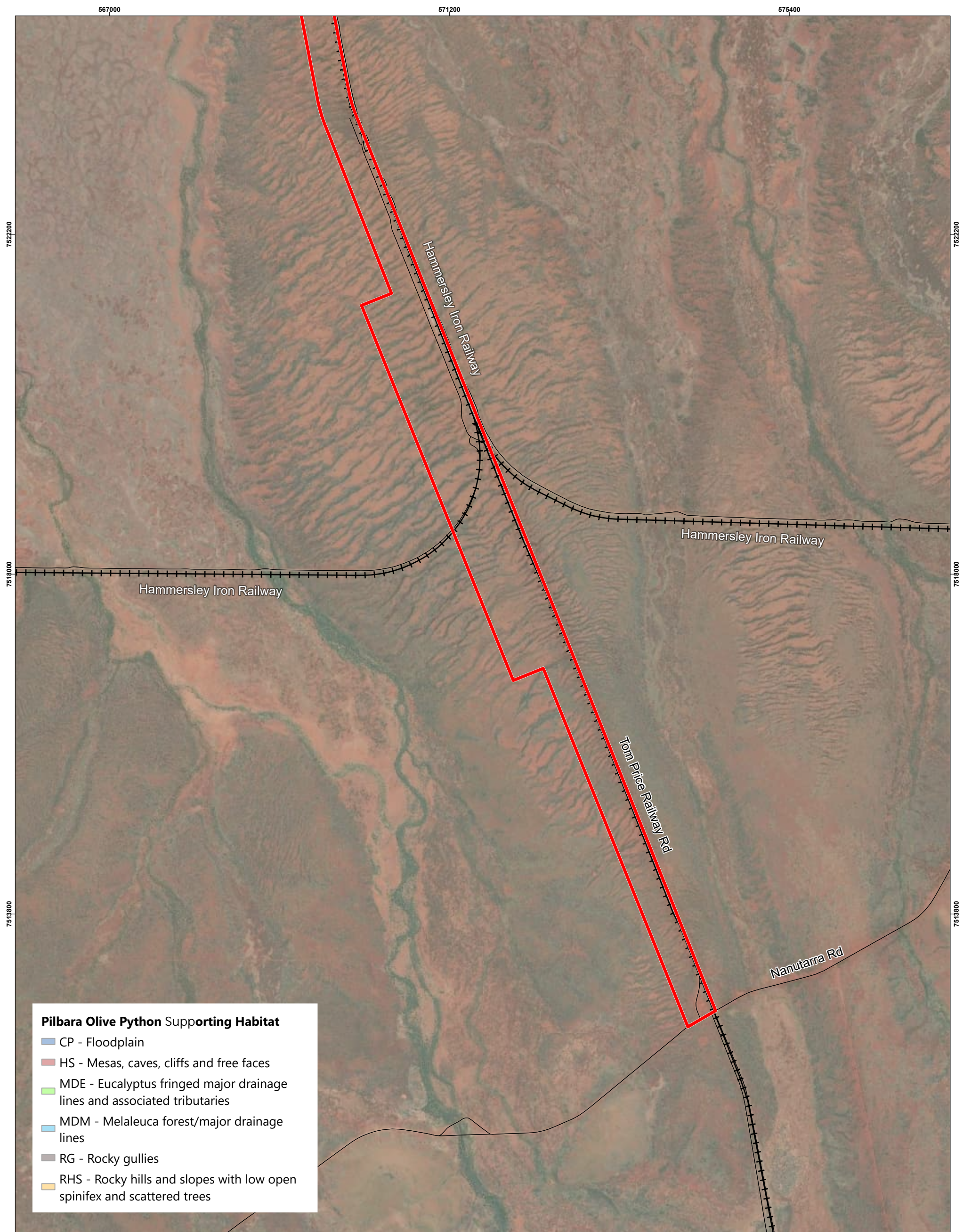
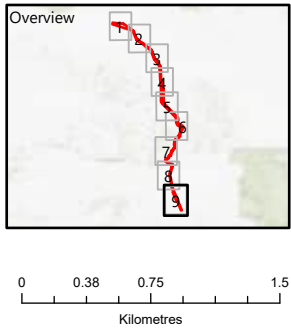


Figure 11.9 Pilbara Olive Python Habitat (EPBC 2020/8725)

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