

Artificial swale/drainage Permanent Designation ditch

OW

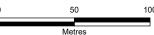




Route Option Designation

Habitat mapping EW

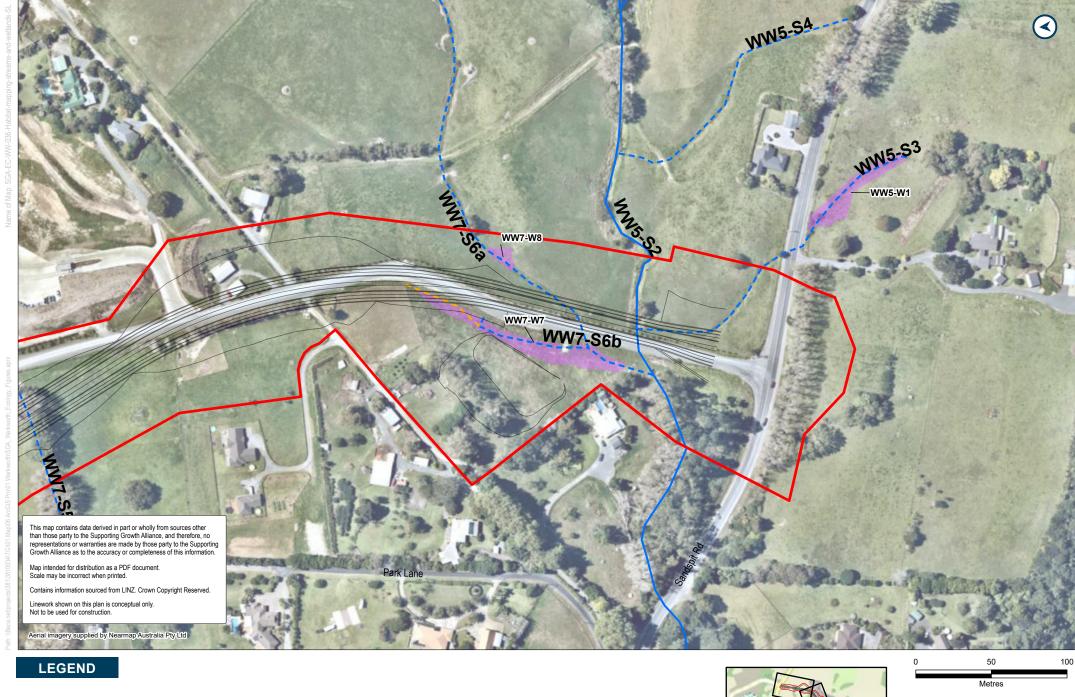




- 5.7 NOR 7: Sandspit Link
- **5.7.1 Terrestrial Vegetation**

5.7.2 Freshwater Streams and Wetland Hab	5.7.2	Fres	hwater	Streams	and	Wetla	nd	Habita	at
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Stream classification
--- Ephemeral

Habitat mapping EW



- 5.8 NOR 8: Wider Western Link (North)
- **5.8.1 Terrestrial Vegetation**





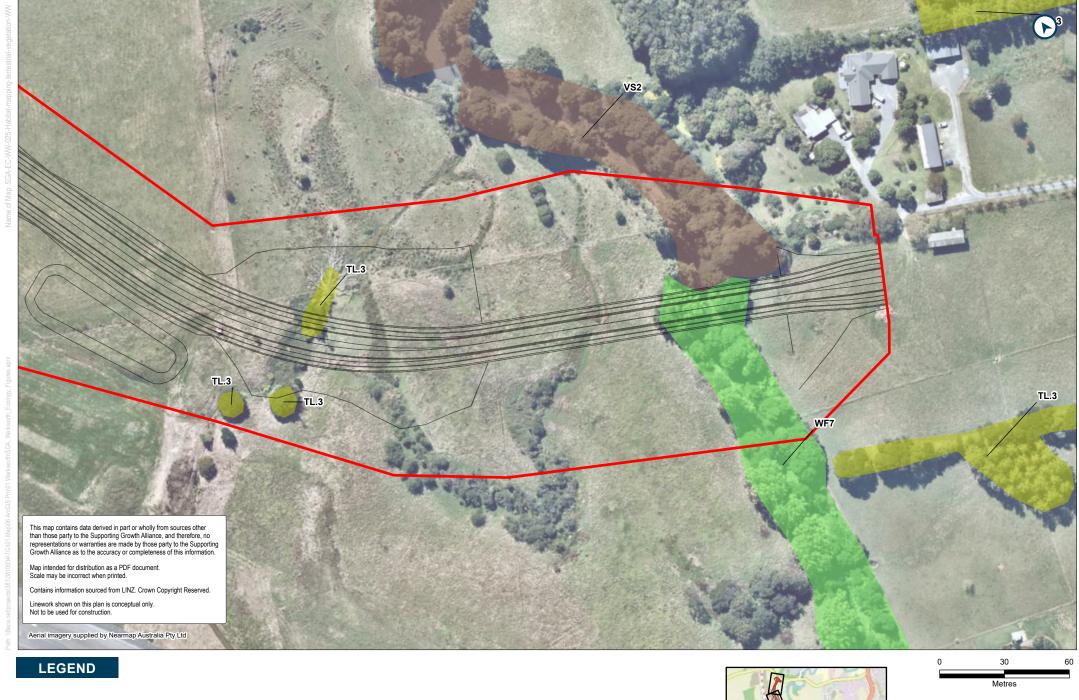
Route Option

Designation

Habitat mapping BF

TL.3





Route Option Hal

Habitat mapping TL.3

VS2 WF7





Route Option

Designation

Habitat mapping

PL.1

PL.3 TL.3



5.8.2 Freshwater Streams and Wetland Habitat



Designation

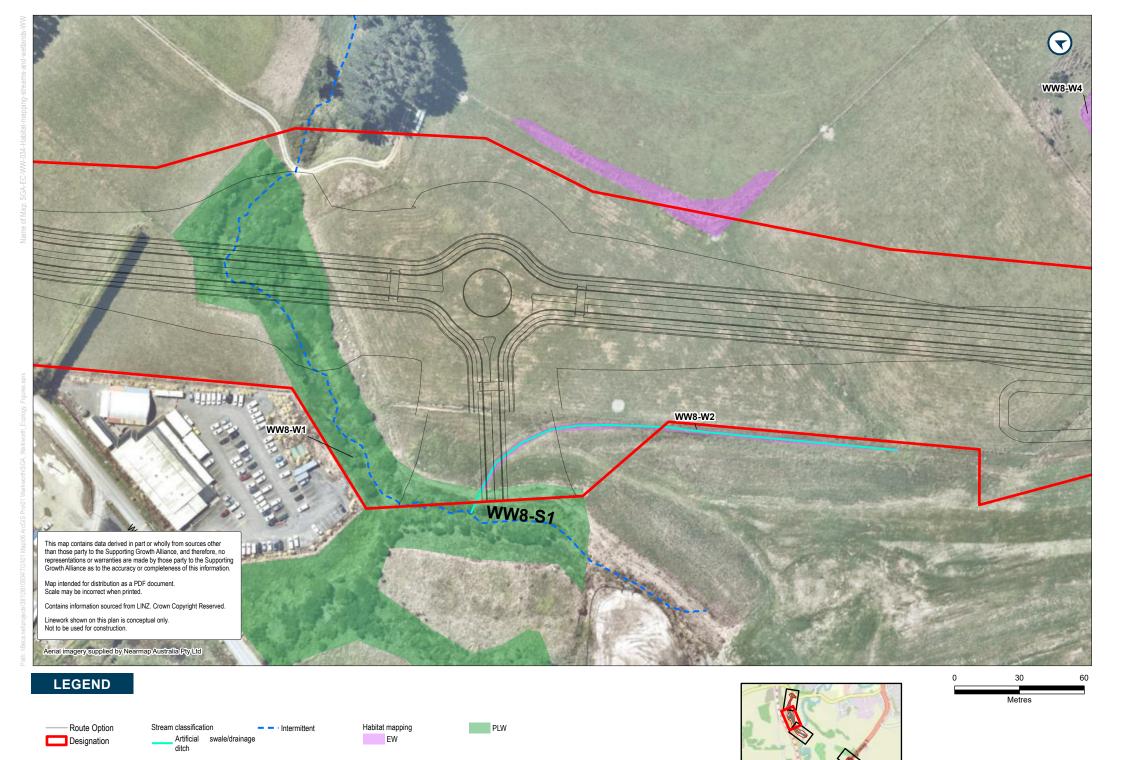
Route Option

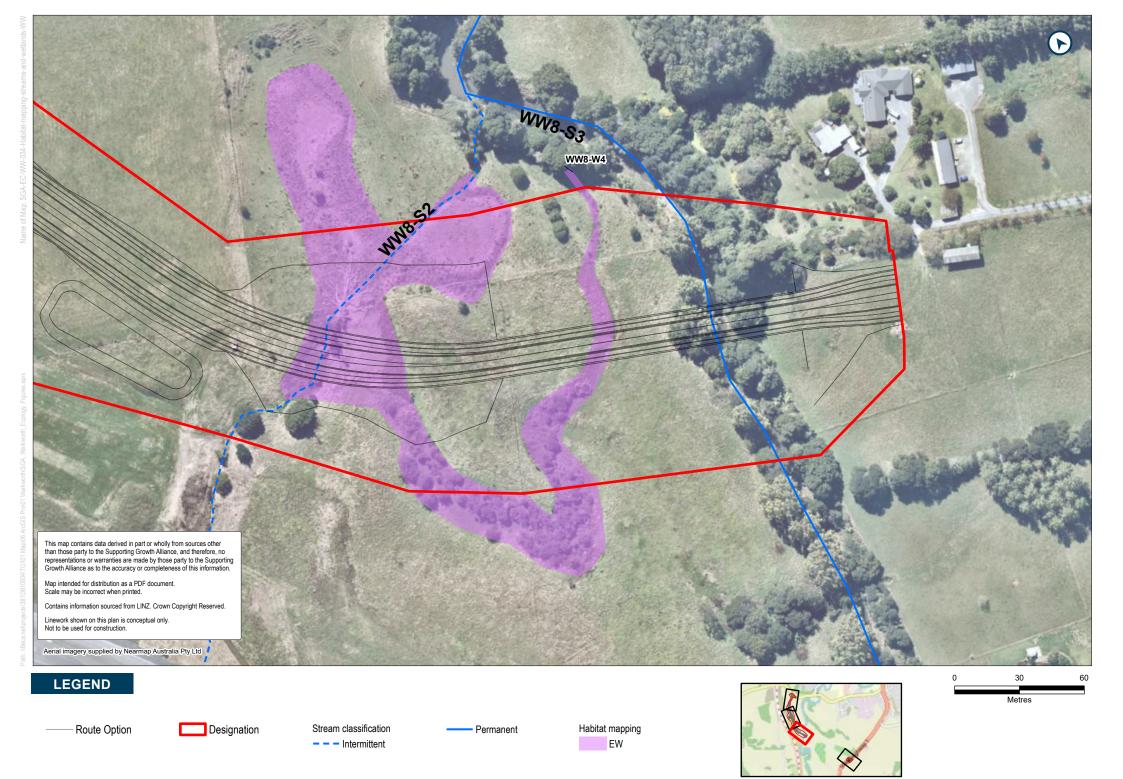
Stream classification
Permanent

Habitat mapping EW

OW













Stream classification
—— Artificial/Piped/Culvert

- Permanent



6 Appendix 6 – Terrestrial Value Assessment

6.1 NOR 1: Northern Public Transport Interchange and Park & Ride, and Western Link - North (Northern Section)

Table 18-10 Assessment of ecological value for terrestrial ecology features for NOR 1

Attributes to be considered	1 - BF	1 - EG	1 - ES	Justification
Representativeness	1	1	2	
Typical structure and composition	1	1	1	BF, EG, ES: Habitats have been significantly altered by human activities (exotic dominated).
Indigenous representation	1	1	2	BF, EG: <10% of the species are indigenous. ES: 10-50% of the species are indigenous.
Rarity/distinctiveness	0	3	3	
Species of conservation significance	-	3	3	Copper skink (At Risk - Declining, value score 3) likely to utilise suitable habitat within the Project Area (EG, ES). New Zealand pipit (At Risk - Declining) likely to utilise EG for foraging and nesting. Non-TAR native birds (value score of 2) likely to utilise all suitable habitat (EG, ES).
Distinctive ecological values	-	-	-	Habitats not playing an important role in provisional or regulatory ecosystem services at any scale.
Diversity and pattern	1	1	1	
Habitat diversity	1	1	1	Low diversity of vegetation and geomorphological structure and low patchiness/interspersion (uniformity).
Species diversity	1	1	1	Species diversity not significant at any scale.

Attributes to be considered	1 - BF	1 - EG	1 - ES	Justification
Patterns in habitat use	1	1	1	All habitats are not important for lifecycle completion or periodic habitat utilisation on any scale.
Ecological context	0	0	1	
Size, shape and buffering	-	-	1	ES provides some buffering function to permanent stream WW1-S2.
Sensitivity to change	-	-	-	All habitats are generally modified with no residual sensitive receptors.
Ecological networks (linkages, pathways, migration)	-	-	-	All habitats are not important in terms of connectivity for the survival of any species at any scale.
Combined value	N	L	L	

Notes: N = Negligible, L = Low, M = Moderate, H = High, VH = Very High

6.2 NOR 2: Woodcocks Road Upgrade (Western Section)

Table 18-11 Assessment of ecological value for terrestrial ecology features for NOR 2

Attributes to be considered	2 - BF	2 - EG	2 - ES	2 - PL.1	2 - PL.2	2 - PL.3	2 - TL.2	2 - TL.3	2 - WF11	Justification
Representativeness	1	1	2	4	4	2	3	2	4	
Typical structure and composition	1	1	1	2	2	1	3	1	4	BF, EG, ES, PL.3, TL.3: Habitats have been significantly altered by human activities (exotic dominated). PL.1, PL.2; Habitat and species have been affected by human activities. TL.2, WF11: Habitat has been insignificantly affected by human activities (WF11 scored higher as it is native forest cover).
Indigenous representation	1	1	2	4	4	2	3	2	4	BF, EG: <10% of the species are indigenous. ES, PL.3, TL.3: 10-50% of the species are indigenous. TL.2: 50-90% of the species are indigenous. PL.1, PL.2, WF11: >90% of the species are indigenous.
Rarity/distinctiveness	0	3	2	3	3	2	4	4	4	
Species of conservation significance	-	3	2	3	3	2	4	4	4	Long-tailed bat (Threatened – Nationally Critical, value score of 4) present and potentially using suitable habitat (TL.2, TL.3, WF11). TAR bird species including New Zealand pipit (At Risk - Declining, value score of 3), North Island kākā (At Risk - Recovering, value score of 3), long-tailed cuckoo (Threatened - Nationally Vulnerable, value score of 4) expected to utilise suitable habitat (EG for pipit, and TL.2, WF11 for kākā and long-tailed cuckoo). Copper skink and omate skink (At Risk - Declining, value score 3) likely to utilise suitable habitat (all habitat types excluding BF). Elegant gecko (At Risk - Declining, value score of 3), forest gecko (At Risk - Declining, value score of 3), and pacific gecko (Not Threatened

Attributes to be considered	2 - BF	2 - EG	2 - ES	2 - PL.1	2 - PL.2	2 - PL.3	2 - TL.2	2 - TL.3	2 - WF11	Justification
										nationally, however considered Regionally Declining (Melzer et al., 2022) in the Auckland region, therefore given a Moderate ecological value), likely to utilise suitable habitat (TL.2, WF11).
										ES and PL.3 scored lower due to small habitat extent and location on the roadside.
Distinctive ecological values	_	_	-	-	_	-	-	-	3	WF11: Habitat playing an important role in provisional or regulatory ecosystem services typically on Regional scale (native forest cover).
										All other habitats not playing an important role in provisional or regulatory ecosystem services at any scale.
Diversity and pattern	1	1	1	1	1	1	3	2	4	
Habitat diversity	1	1	1	1	1	1	3	1	3	TL.2, WF11: Very High diversity of vegetation and geomorphological structure and Moderate patchiness interspersion.
										All other habitats have a Low diversity of vegetation and geomorphological structure and low patchiness/interspersion (uniformity).
Species diversity	1	1	1	1	1	1	3	1	4	Increased species diversity in areas with indigenous species present and late succession: TL.2, WF11. WF11 rated higher due to higher % indigenous species.
Patterns in habitat use	1	1	1	1	1	1	3	2	3	TL.2, TL.3, WF11 rated high due to potential seasonal utilisation by long-tailed bat, North Island kākā, and long-tailed cuckoo. TL.3 scored lower as it mostly provides stepping stone habitat for these species.
										All other habitats are not important for lifecycle completion or periodic habitat utilisation on any scale.
Ecological context	0	0	0	1	0	0	3	2	3	

Attributes to be considered	2 - BF	2 - EG	2 - ES	2 - PL.1	2 - PL.2	2 - PL.3	2 - TL.2	2 - TL.3	2 - WF11	Justification
Size, shape and buffering	-	-	-	1	-	-	2	-	3	Large extent of WF11 provides buffering to permanent stream WW2-S1 and part of WW2-S2. Limited extent of TL.2 provides some buffering to permanent stream WW2-S3. Small extent of PL.1 provides some buffering to permanent stream WW2-S2. All other habitat is represented by small and isolated patches of habitat.
Sensitivity to change	-	-	-	-	-	-	2	-	3	TL.2, WF11: Intact habitat and late succession. WF11: Regional IUCN threat status is Endangered. All other habitats are generally modified with no residual sensitive receptors.
Ecological networks (linkages, pathways, migration)	-	-	-	-	-	-	3	2	3	Aged woody structure (TL.2, WF11) increase stepping stone value (connecting other areas of ecological value) for long-tailed bats and other terrestrial TAR native bird species. TL.3 scored lower as the habitat is mostly restricted to shelterbelt planting. All other habitat is not important in terms of connectivity for the survival of any species at any scale.
Combined value	N	L	L	М	L	L	Н	M	н	

Notes: N = Negligible, L = Low, M = Moderate, H = High, VH = Very High

6.3 NOR 3: State Highway 1 Upgrade (Southern Section)

Table 18-12 Assessment of ecological value for terrestrial ecology features for NOR 3

Attributes to be considered	3 - BF	3 - EG	3 - ES	3 - PL.1	3 - PL.2	3 - PL.3	3 - TL.1	3 - TL.2	3 - TL.3	3 - VS2	Justification
Representativeness	1	1	2	4	4	2	4	3	2	4	
Typical structure and composition	1	1	1	2	2	1	2	3	2	3	BF, EG, ES, PL.3: Habitats have been significantly altered by human activities (exotic dominated). PL.1, PL.2, TL.1, TL.3: Habitat and species have been affected by human activities. TL.1 has been included as it is limited to a handful of native trees along the SH1 that have likely been planted. TL.2, VS2: Habitat has been insignificantly affected by human activities.
Indigenous representation	1	1	2	4	4	2	4	3	2	4	BF, EG: <10% of the species are indigenous. ES, PL.3, TL.3: 10-50% of the species are indigenous. TL.2: 50-90% of the species are indigenous. PL.1, PL.2, TL.1, VS2: >90% of the species are indigenous.
Rarity/distinctiveness	0	3	2	3	2	2	2	3	3	3	
Species of conservation significance	-	3	2	3	2	2	2	3	3	3	Long-tailed bat (Threatened – Nationally Critical, value score of 4) present and potentially using suitable habitat (TL.1, TL.2, TL.3). As this habitat is restricted to patches of treeland along the existing State Highway 1, a score of 3 has been assigned. TAR bird species including New Zealand pipit (At Risk - Declining, value score of 3) expected to be utilise suitable habitat (EG). Copper skink (At Risk - Declining, value score 3) likely to utilise suitable habitat (all habitat types excluding BF).

Attributes to be considered	3 - BF	3 - EG	3 - ES	3 - PL.1	3 - PL.2	3 - PL.3	3 - TL.1	3 - TL.2	3 - TL.3	3 - VS2	Justification
											ES, PL.2, PL.3, TL.1 scored lower due to small habitat extent and location on the roadside.
Distinctive ecological values	-	-	-	-	-	-	-	-	-	1	VS2: Native forest cover, however the habitat is small in extent and isolated.
											All other habitats not playing an important role in provisional or regulatory ecosystem services at any scale.
Diversity and pattern	1	1	1	1	1	1	3	3	3	1	
Habitat diversity	1	1	1	1	1	1	1	1	1	1	Increased habitat diversity in areas with indigenous species present and late succession: TL.1, TL.2, TL.3., however these are limited in extent in NOR 3 and mostly restricted to shelterbelt planting, therefore have scored low.
											All other habitats have a Low diversity of vegetation and geomorphological structure and low patchiness/interspersion (uniformity).
Species diversity	1	1	1	1	1	1	1	1	1	1	Species diversity not significant at any scale.
Patterns in habitat use	1	1	1	1	1	1	3	3	3	1	TL.1, TL.2, and TL.3 rated high due to potential seasonal utilisation by long-tailed bat.
											All other habitats are not important for lifecycle completion or periodic habitat utilisation on any scale.
Ecological context	0	1	1	1	1	1	3	3	3	1	
Size, shape and buffering	-	-	-	1	-	-	-	-	1	-	Permanent streams in the NOR buffered by limited extent of TL.3.
											An intermittent stream (no ID), south of BP station, is buffered by approx. 3,362 m ² area of PL.1. All other areas of PL.1 are small in extent and located on the roadside.

Attributes to be considered	3 - BF	3 - EG	3 - ES	3 - PL.1	3 - PL.2	3 - PL.3	3 - TL.1	3 - TL.2	3 - TL.3	3 - VS2	Justification
											All other habitat is represented by small and isolated patches of habitat.
Sensitivity to change	-	-	-	-	-	-	-	-	-	-	All habitat is either exotic-dominated with no sensitive receptors or is represented by small and isolated patches of habitat.
Ecological networks (linkages, pathways, migration)	-	1	1	1	1	1	3	3	3	1	All habitats (excluding BF) are locally an important breeding and feeding link in terms of connectivity for the survival of species (e.g. native birds). Aged woody structure (TL.1, TL.2, and TL.3) increase stepping stone value (connecting other areas of ecological value) for long-tailed bats.
Combined value	N	L	L	M	L	L	M	M	M	M	

Notes: N = Negligible, L = Low, M = Moderate, H = High, VH = Very High

6.4 NOR 4: Matakana Road Upgrade

Table 18-13 Assessment of ecological value for terrestrial ecology features for NOR 4

Attributes to be considered	4 - BF	4 - EG	4 - MF4	4 - PL.1	4 - PL.2	4 - PL.3	4 - TL.1	4 - TL.2	4 - TL.3	4 - VS2	4 – WF 13	Justification
Representativeness	1	1	4	4	4	2	4	3	2	4	4	
Typical structure and composition	1	1	4	2	2	1	2	2	2	4	4	BF, EG, PL.3: Habitats have been significantly altered by human activities (exotic dominated). PL.1, PL.2, TL.1, TL.2, TL.3: Habitat and species have been affected by human activities. TL.2 included due to its restricted extent and development either side. TL.1 included as it is restricted to a few isolated trees. MF4, VS2, WF13: Habitat has been insignificantly affected by human activities.
Indigenous representation	1	1	4	4	4	2	4	3	2	4	4	BF, EG: <10% of the species are indigenous. PL.3, TL.3: 10-50% of the species are indigenous. TL.2: 50-90% of the species are indigenous. MF4, PL.1, PL.2 TL.1, VS2, WF13: >90% of the species are indigenous.
Rarity/distinctiveness	0	3	4	2	3	3	2	4	4	3	4	
Species of conservation significance	-	3	4	2	3	3	2	4	4	3	4	Long-tailed bat (Threatened – Nationally Critical, value score of 4) present and potentially using suitable habitat (MF4, TL.1, TL.2, TL.3, WF13). TL.1 not scored as high as it is restricted to isolated native trees in NOR 4. TAR bird species including New Zealand pipit (At Risk - Declining, value score of 3), North Island kākā (At Risk - Recovering, value score of 3), long-tailed cuckoo (Threatened - Nationally Vulnerable, value score of 4) expected to utilise suitable habitat (EG for pipit, and MF4,

Attributes to be considered	4 - BF	4 - EG	4 - MF4	4 - PL.1	4 - PL.2	4 - PL.3	4 - TL.1	4 - TL.2	4 - TL.3	4 - VS2	4 – WF 13	Justification
												TL.1, TL.2, TL.3, WF13 for kākā and long-tailed cuckoo). Copper skink and omate skink (At Risk - Declining, value score 3) likely to utilise suitable habitat (all habitat types excluding BF). Elegant gecko (At Risk - Declining, value score of 3), forest gecko (At Risk - Declining, value score of 3), and pacific gecko (Not Threatened nationally, however considered Regionally Declining (Melzer et al., 2022) in the Auckland region, therefore given a Moderate ecological value), likely to utilise suitable habitat (MF4, TL.1, TL.2, WF13). PL.1 scored lower due to small habitat extent and location along roadside. TL.1 scored lower as it is restricted to a few isolated trees.
Distinctive ecological values	-	-	3	-	-	-	-	-	-	2	3	MF4, VS2, WF13: Habitat playing an important role in provisional or regulatory ecosystem services typically on Regional scale (native forest cover). VS2 scored lower due to smaller extent and existing fragmentation. All other habitats not playing an important role in provisional or regulatory ecosystem services at any scale.
Diversity and pattern	1	1	4	1	1	1	1	2	2	3	4	
Habitat diversity	1	1	4	1	1	1	1	1	1	2	4	MF4, VS2, WF13: Very High diversity of vegetation and geomorphological structure and Moderate patchiness interspersion. VS2 scored lower due to small extent and existing fragmentation. All other habitats have a Low diversity of vegetation and

Attributes to be considered	4 - BF	4 - EG	4 - MF4	4 - PL.1	4 - PL.2	4 - PL.3	4 - TL.1	4 - TL.2	4 - TL.3	4 - VS2	4 – WF 13	Justification
												geomorphological structure and low patchiness/interspersion (uniformity).
Species diversity	1	1	4	1	1	1	1	2	1	3	4	Increased species diversity in areas with indigenous species present and late succession: TL.2, MF4, VS2, WF13
												Species diversity not significant at any scale for all other habitats.
Patterns in habitat use	1	1	3	1	1	1	1	2	2	2	3	MF4, TL.1, TL.2, TL.3, VS2, WF13 rated high due to potential seasonal utilisation by long-tailed bat, North Island kākā, and long-tailed cuckoo. TL.1 rated lower as it is restricted to a few isolated trees.
												All other habitats are not important for lifecycle completion or periodic habitat utilisation on any scale.
Ecological context	0	0	3	0	0	0	1	2	2	2	4	
Size, shape and buffering	-	-	2	-	-	-	-	-	-	-	3	Large extent of MF4, and WF13 provides buffering to permanent stream WW5-S1.
												All other habitat is represented by small and isolated patches of habitat.
Sensitivity to change	-	-	3	-	-	-	-	-	-	2	3	MF4, VS2, WF13: Intact habitat and late succession. MF4: Regional IUCN threat status is Critically Endangered. All other habitats are generally modified with no residual sensitive receptors.
Ecological networks (linkages, pathways, migration)	-	-	3	-	-	-	1	2	2	1	4	Aged woody structure (MF4, TL.1, TL.2, TL.3, VS2 and WF13) increase stepping stone value (connecting other areas of ecological value) for long-tailed bats and other