Appendix C9B.05

Aquatic Ecology Operation Phase Impact Assessment (Culverts)

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Rialtas na hÉireann
Government of Ireland

Tionscadal Éireann
Project Ireland 2040

Co-financed by the Connecting Europe Facility of the European Union

Appendix C9B.05

Aquatic Ecology Operation Phase Impact Assessment (Culverts)

TEN-T Priority Route Improvement Project, Donegal

TT_MGT0337-RPS-P3-ZZ-RP-E-EN0001

EIAR

March 2026

Donegal
Oifig Boichna Naisiunta
Dhun na nGall

rps

BARRY TRANSPORTATION

Table 9B.05.1 Section 1 Operation Phase Impact Assessment (Culverts)

S1 Culvert Ref.	Chainage	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or Ø (m)	Culvert Embed (m)	Slope (%)	Fish Bearing?	NRA (2009) Quality	Potential Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S1-CUL.01	1+300	Trib of Burn Daurnett (W1-02)	Box	51.8	3.2 x 2	0.5	0.61%	Yes (trout)	D	Long culvert close to Burn Daurnett confluence: potential significant negative	Gradient not excessive, but must ensure low flow channel for fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S1-CUL.02	0+600	Minor drain (Cappry area)	Pipe	34.1	1.2Ø	0.3	0.20%	No	E	Permanent, not significant	~
S1-CUL.03	0+455	Minor drain (Cappry area)	Pipe	30.5	1.2Ø	0.3	3.75%	No	E	Permanent, not significant	~
S1-CUL.04	0+550	Minor drain (Cappry area)	Pipe	9	1.2Ø	0.3	0.49%	No	E	Permanent, not significant	~
S1-CUL.05	0+530	Minor drain (Cappry area)	Pipe	9	1.2Ø	0.3	0.20%	No	E	Permanent, not significant	~
S1-CUL.06	0+105	Minor drain (Cappry area)	Pipe	21.8	1.5Ø	0.3	0.38%	No	E	Permanent, not significant	~
S1-CUL.07	0+270	Minor drain (Cappry area)	Pipe	15.2	1.5Ø	0.3	0.20%	No	E	Permanent, not significant	~
S1-CUL.08	0+355	Cappry (W1-03)	Box	27.9	2.5 x 2.2	0.5	5.00%	No	E	Permanent, not significant	~
S1-CUL.09	0+220	Cappry (W1-04)	Pipe	37.4	1.8Ø	0.3	4.35%	No	E	Permanent, not significant	~
S1-CUL.10	0+208	Cappry (W1-05)	Box	34.8	2.5 x 2.5	0.5	0.31%	No	E	Permanent, not significant	~
S1-CUL.11	0+200	Cappry (W1-05)	Box	6.9	2.75 x 2.25	0.5	0.35%	No	E	Permanent, not significant	~

S1 Culvert Ref.	Chainage	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or Ø (m)	Culvert Embed (m)	Slope (%)	Fish Bearing?	NRA (2009) Quality	Potential Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S1-CUL.12	0+060	Dromboe Lower (W1-07)	Box	18.3	1.8 x 1.8	0.5	1.95%	Yes (salmonid)	D	Slope approaching 2%: Potential significant negative close to SAC	Ensure low flow channel, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S1-CUL.13	0+155	Dromboe Lower (W1-07)	Box	26.7	2.5 x 1.8	0.5	0.56%	Yes (salmonid)	D	Permanent positive impact, owing to removal of existing covered channel, potentially opening up new salmonid nursery habitat	Reinstate new open channel to mimic natural channel morphology as present at W1-07
S1-CUL.14	0+335	Backlees (u/s W1-08)	Box	8.5	6.0 x 2.5	0.5	4.69%	Yes (trout)	D	Slope >3%. Potential permanent significant negative as could create a fish migration barrier	**Requires baffles**, likely a notched weir type at this % slope, to ensure low flow channel and to allow fish passage.
S1-CUL.15	4+800	Greenhills (W1-10)	Pipe	110.5	1.2 Ø	0.3	1.17%	No	E	Permanent, not significant	~
S1-CUL.16	4+830	Greenhills (W1-10)	Pipe	81.9	1.2Ø	0.3	6.49%	No	E	Permanent, not significant	~
S1-CUL.17	0+895	Greenhills (d/s W1-10)	Pipe	13.9	1.2Ø	0.3	2.04%	No	E	Permanent, not significant	~
S1-CUL.18	0+680	Minor drain (upper Tircallan)	Pipe	33.1	1.5Ø	0.3	0.21%	No	E	Permanent, not significant	~
S1-CUL.19	0+680	Tircallan (u/s W1-16)	Box	25.1	2.8 x 2.1	0.5	1.61%	Yes (trout)	D	Slope approaching 2%. Potential significant negative + cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel, e.g., through use of side baffles at this % slope and length to facilitate fish passage

S1 Culvert Ref.	Chainage	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or Ø (m)	Culvert Embed (m)	Slope (%)	Fish Bearing?	NRA (2009) Quality	Potential Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S1-CUL.20	0+470	Tircallan (u/s W1-16)	Box	12.3	2.8 x 2.1	0.5	1.23%	Yes (trout)	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S1-CUL.21	1+610	Tircallan (W1-16)	Box	56.7	3.5 x 2.1	0.5	1.01%	Yes (trout)	D	Length close to 60m: Potential cumulative significant negative locally.	Ensure low flow channel, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S1-CUL.22	1+765	Tircallan (W1-16)	Box	56.5	4.5 x 2.2	0.5	3.37%	Yes (trout)	D	Slope >1%,length close to 60m: Potential significant negative + cumulative significant negative locally.	**Requires baffles**, side or notched weir type and mammal ledge (as 2-stage channel) to ensure low flow channel and fish passage at this location
S1-CUL.23	2+195	Minor drain (Trib of Mullaghagarry)	Pipe	84.4	1.2Ø	0.3	6.54%	No	E	Permanent, not significant	~
S1-CUL.23A	1+650	Minor drain (Trib of Mullaghagarry)	Pipe	78.9	1.2Ø	0.3	2.40%	No	E	Permanent, not significant	~
S1-CUL.24	2+445	Minor drain	Pipe	86.9	1.2Ø	0.3	3.55%	No	E	Permanent, not significant	~

S1 Culvert Ref.	Chainage	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or Ø (m)	Culvert Embed (m)	Slope (%)	Fish Bearing?	NRA (2009) Quality	Potential Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S1-CUL.25	0+375	Mullaghagarry (W1-17)	Box	76.6	5.0 x 4.5	0.5	0.08%	Yes (trout, potentially salmon)	D	Long culvert, but height has been increased to allow light penetration. Permanent significant positive effect as it will replace an existing undermined culvert (i.e., total fish migration barrier).	Remove existing dysfunctional culvert and replace with proposed overheight, low gradient, embedded culvert - thereby restoring fish passage.
S1-CUL.26	0+250	Minor drain (just west of Mullaghagarry)	Pipe	7.8	1.5Ø	0.3	0.20%	No	E	Permanent, not significant	~
S1-CUL.27	3+175	Treanamullin (W1-19)	Pipe	32	1.5Ø	0.3	1.87%	No	E	Permanent, not significant	~
S1-CUL.28	0+155	Mullaghagarry (W1-20)	Twin box	34	2.3 x 2.7 each	0.5	0.01%	Yes (trout, potentially salmon)	D	Permanent, not significant	~
S1-CUL.29	7+920	Minor drain (near Lisnaree)	Pipe	73.5	1.5Ø	0.3	1.14%	No	E	Permanent, not significant	~
S1-CUL.30	0+505	Minor drain (+ Lisnaree diversion)	Box	87.2	2.4 X 2.1	0.5	1.31%	No	E	Permanent, not significant	~
S1-CUL.31	0+025	Lisnaree + Maghercorran diversion	Box	45.4	4.5 x 2.2	0.5	0.22%	Yes (trout)	D	Culvert not individually significantly negative for fish passage, but contributes to potential significant cumulative negative: habitat degradation/loss on Magheracorran	Ensure open channel sections between culverts 34, 35, 36 and 31 are reinstated to provide open fisheries habitat and migration route. Plant riparian areas to provide dappled shade to soften

S1 Culvert Ref.	Chainage	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or Ø (m)	Culvert Embed (m)	Slope (%)	Fish Bearing?	NRA (2009) Quality	Potential Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
											culvert transition areas
S1-CUL.32	0+410	Lisnaree	Pipe	22.5	1.8Ø	0.3	0.20%	No	E	Permanent, not significant	~
S1-CUL.33	0+615	Lisnaree (diversion)	Box	46.2	2.0 x 2.0	0.5	0.20%	No	E	Permanent, not significant	~
S1-CUL.34	0+310	Maghercorran (W1-11 to W1-13)	Box	42.2	3.5 x 2	0.5	0.20%	Yes (some trout, brook lamprey habitats)	D	Culvert not individually significantly negative for fish passage, but contributes to potential significant cumulative negative: habitat degradation/loss on Magheracorran	Ensure open channel sections between culverts 34, 35, 36 and 31 are reinstated to provide open fisheries habitat and migration route. Plant riparian areas to provide dappled shade to soften culvert transition areas
S1-CUL.35	n/a	Maghercorran (W1-11 to W1-13)	Box	26.9	3.5 x 2	0.5	0.20%	Yes (some trout, brook lamprey habitats)	D	Culvert not individually significantly negative for fish passage, but contributes to potential significant cumulative negative: habitat degradation/loss on Magheracorran	Ensure open channel sections between culverts 34, 35, 36 and 31 are reinstated to provide open fisheries habitat and migration route. Plant riparian areas to provide dappled shade to soften culvert transition areas

S1 Culvert Ref.	Chainage	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or Ø (m)	Culvert Embed (m)	Slope (%)	Fish Bearing?	NRA (2009) Quality	Potential Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S1-CUL.36	8+500	Maghercorran (W1-11 to W1-13)	Box	30.7	3.5 x 2	0.5	0.21%	Yes (some trout, brook lamprey habitats)	D	Culvert not individually significantly negative for fish passage, but contributes to potential significant cumulative negative: habitat degradation/loss on Magheracorran	Ensure open channel sections between culverts 34, 35, 36 and 31 are reinstated to provide open fisheries habitat and migration route. Plant riparian areas to provide dappled shade to soften culvert transition areas
S1-CUL.37	0+040	Minor drain (tenuous connectivity to Maghercorran)	Pipe	6.9	1.5Ø	0.3	3.00%	No	E	Permanent, not significant	~
S1-CUL.38	0+095	Minor drain (tenuous connectivity to Maghercorran)	Pipe	20	1.5Ø	0.3	3.00%	No	E	Permanent, not significant	~

Table 9B.05.2 - Section 2 Operation Phase Impact Assessment (Culverts)

S2 Culvert Ref.	Chainage (m)	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or ø (m)	Culvert Embedment (m)	Slope (%)	Fish Bearing ?	NRA (2009) Quality Cat.	Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S2-CUL.01	0+166	Listellian drains (W2-26)	Pipe	26.300	1.20	0.3	3.5%	No	E	Permanent, Not Significant	~
S2-CUL.02	0+515	Listellian drains (W2-26)	Pipe	8.047	1.20	0.3	16.1%	No	E	Permanent, Not Significant	~
S2-CUL.03	0+540	Listellian drains (W2-26)	Pipe	40.840	1.20	0.3	0.78%	No	E	Permanent, Not Significant	~
S2-CUL.04	0+558	Listellian drains (W2-26)	Pipe	8.324	1.20	0.3	0.9%	No	E	Permanent, Not Significant	~
S2-CUL.05	0+677	Listellian drains (W2-26)	Pipe	20.086	1.20	0.3	0.20%	No	E	Permanent, Not Significant	~
S2-CUL.06	0+904	Listellian drains (W2-26)	Pipe	55.443	1.20	0.3	2.66%	No	E	Permanent, Not Significant	~
S2-CUL.07	0+235	Corranagh drains (W2-25)	Pipe	20.371	1.20	0.3	1.2%	No	E	Permanent, Not Significant	~
S2-CUL.08	0+129	Corranagh drains (W2-25)	Pipe	20.191	1.20	0.3	3.7%	No	E	Permanent, Not Significant	~
S2-CUL.09	0+024	Corranagh drains (W2-25)	Pipe	32.717	1.20	0.3	1.3%	No	E	Permanent, Not Significant	~
S2-CUL.10	0+190	Coaghmill (W2-19)	Pipe	10.144	1.20	0.3	9.86%	No	E	Permanent, Not Significant	~
S2-CUL.11	0+160	Coaghmill (W2-19)	Pipe	21.152	1.20	0.3	1.42%	No	E	Permanent, Not Significant	~
S2-CUL.12	0+400	Drumany drains (W2-01 / W2-02)	Pipe	28.139	1.20	0.3	0.36%	No	E	Permanent, Not Significant	~
S2-CUL.13	1+411	Drumany drains (W2-01 / W2-02)	Pipe	45.669	1.50	0.3	0.27%	No	E	Permanent, Not Significant	~
S2-CUL.14	1+680	Drumany drains (W2-01 / W2-02)	Pipe	45.915	1.20	0.3	0.20%	No	E	Permanent, Not Significant	~
S2-CUL.15	1+687	Drumany drains (W2-01 / W2-02)	Pipe	10.000	1.20	0.3	0.20%	No	E	Permanent, Not Significant	~
S2-CUL.16	0+130	Dromore (W2-04)	Box	52.600	1.25 x 1.75	0.5	5.6%	No	E	Permanent, Not Significant	~

S2 Culvert Ref.	Chainage (m)	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or ø (m)	Culvert Embedment (m)	Slope (%)	Fish Bearing ?	NRA (2009) Quality Cat.	Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S2-CUL.16A	0+625	Dromore (W2-04)	Box	59.100	1.75 x 1.75	0.5	1.8%	No	E	Permanent, Not Significant	~
S2-CUL.17	n/a	Bunnagee Drain	Box	8.960	2.5 x 2.0	0.5	1.1%	No	E	Permanent, Not Significant	~
S2-CUL.18	1+630	Bunnagee Drain	Box	83.070	2.9 x 2.10	0.5	0.36%	Eel	E	Permanent, Not Significant	~
S2-CUL.19	0+550	Bunnagee Drain	Box	34.500	2.9 x 2.5	0.5	1.52%	No	E	Permanent, Not Significant	~
S2-CUL.20	0+150	Bunnagee Drain	Box	65.032	2.9 x 3.3	0.5	0.59%	Eel	E	Permanent, Not Significant	~
S2-CUL.21	0+200	Bunnagee Drain (W2-21, W2-22)	Box	48.406	2 x 3.2	0.5	0.23%	No	E	Permanent, Not Significant	~
S2-CUL.22	0+238	Bunnagee Drain	Box	25.419	2.5 x 3.4	0.5	0.3%	No	E	Permanent, Not Significant	~
S2-CUL.23	1+218	Bunnagee Drain (W2-21, W2-22)	Box	71.011	3.3 x 3.5	0.5	0.23%	No	E	Permanent, Not Significant	~
S2-CUL.24	0+942	Milk Isle Drain (W2-16)	Box	67.670	1.25 x 1.35	0.5	0.36%	Eel	E	Permanent, Not Significant	~
S2-CUL.25	0+750	Milk Isle Drain (W2-17)	Box	95.214	2.0 x 2.5	0.5	0.12%	Eel	E	Permanent, Not Significant	~
S2-CUL.26	0+056	Bunnagee Drain (W2-07)	Box	41.017	1.5 x 2.6	0.5	0.63%	No	E	Permanent, Not Significant	~
S2-CUL.27	0+325	Dromore Drain (W2-23)	Pipe	31.335	1.20	0.3	0.21%	No	E	Permanent, Not Significant	~
S2-CUL.27A	0+458	Dromore Drain (W2-23)	Pipe	13.490	1.20	0.3	0.4%	No	E	Permanent, Not Significant	~
S2-CUL.27B	0+390	Dromore Drain (W2-23)	Pipe	20.400	1.20	0.3	0.2%	No	E	Permanent, Not Significant	~
S2-CUL.28	0+695	Dromore Lower drain (W2-08)	Pipe	35.500	1.50	0.3	4.3%	No	E	Permanent, Not Significant	~
S2-CUL.29	0+151	Farsetmore (W2-10)	Box	26.553	3.5 x 2.0	0.5	1.9%	No	E	Permanent, Not significant	~

S2 Culvert Ref.	Chainage (m)	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or ø (m)	Culvert Embedment (m)	Slope (%)	Fish Bearing ?	NRA (2009) Quality Cat.	Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S2-CUL.30	0+120	Farsetmore (W2-11)	Box	37.919	3.5 x 2.0	0.5	0.3%	Trout possible	D	Permanent, Not Significant	~
S2--CUL.31	0+048	Farsetmore (W2-11)	Box	66.879	3.5 x 2.0	0.5	3.7%	Trout possible	D	Slope >3%,>60m: Permanent, significant negative	Requires baffles, e.g., notched weir type or side bar to create low flow channel
S2-CUL.32	0+128	Farsetmore (W2-12)	Box	79.190	3.5 x 4.0	0.5	1.07%	Trout & brook lamprey possible	D	Slope >1%; >60m: Permanent, significant negative. Height has been increased to allow light penetration	Requires baffles or 2-stage channel using concrete mammal ledges internally to create 2-stage channel
S2-CUL.33	2+635	Trimragh (W2-13)	Pipe	89.350	1.20	0.3	0.03	No	E	Permanent, Not Significant	~
S2-CUL.34	2+928	Magheramore (W2-14)	Pipe	75.700	1.80	0.3	0.4%	No	E	Permanent, Not Significant	~

Table 9B.05.3 - Section 3 Operation Phase Impact Assessment (Culverts)

S3 Culvert Ref.	Chainage	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or Ø (m)	Culvert Embed (m)	Slope (%)	Fish Bearing?	NRA (2009) Quality	Potential Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S3-CUL.01	0+272 Access Road 3.03	Tributary of Leslie Hill Stream (W3-01)	Box	25.8	4.0 x 3.0	0.5	0.50%	No	E	Permanent, Not Significant	None required
S3-CUL.02	0+535 Mainline	Tributary of Leslie Hill Stream (W3-01)	Box	52.7	4.0 x 3.2	0.5	0.21%	No	E	Permanent, Not Significant	None required
S3-CUL.03	0+500 LX 3014 Link South	Tributary of Leslie Hill Stream (W3-01)	Box	66.8	4.0 x 4.0	0.5	0.24%	No	E	Permanent, Not Significant	None required
S3-CUL.04	0+722 Mainline	Leslie Hill Stream (W3-02)	Box	60.0	8.0 x 3.8	0.5	0.20%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.05	0+670 Existing N14	Leslie Hill Stream (W3-02)	Box	58.0	8.0 x 3.6	0.5	0.20%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel

S3 Culvert Ref.	Chainage	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or Ø (m)	Culvert Embed (m)	Slope (%)	Fish Bearing?	NRA (2009) Quality	Potential Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S3-CUL.06	1+100 Mainline	Leslie Hill Stream (W3-03)	Box	60.0	12.0 x 3.2	0.5	0.50%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.07	2+035 Mainline	W3-04	Box	69.5	4.2 x 3.5	0.5	0.50%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.08	0+401 LX3014 Drumoghill	W3-05	Box	24.5	1.8 x 1.4	0.5	0.41%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.09	2+663 Mainline	W3-05	Box	60.0	1.8 x 1.4	0.5	0.41%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.10	0+100 LX3014 Drumoghill	W3-05	Box	53.5	2.0 x 1.8	0.5	0.50%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel

S3 Culvert Ref.	Chainage	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or Ø (m)	Culvert Embed (m)	Slope (%)	Fish Bearing?	NRA (2009) Quality	Potential Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S3-CUL.11	0+021 Access Road 3.12	W3-05	Box	19.0	2.0 x 1.7	0.5	0.50%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.12	4+100 Mainline	W3-07	Pipe	62.0	1.2	0.3	0.53%	No	E	Permanent, Not Significant	None required
S3-CUL.13	0+288 LX3014 Doorable	W3-07	Pipe	31.8	1.2	0.3	1.00%	No	E	Permanent, Not Significant	None required
S3-CUL.14	0+500 LX3014 Doorable	W3-08	Box	23.2	4.2 x 1.9	0.5	1.00%	Yes	D	Slope >1%; Permanent, significant negative. cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.15	4+477 Mainline	W3-08	Box	60.0	3.7 x 2.2	0.5	0.90%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel

S3 Culvert Ref.	Chainage	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or Ø (m)	Culvert Embed (m)	Slope (%)	Fish Bearing?	NRA (2009) Quality	Potential Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S3-CUL.16	0+097 Access Road 3.22	W3-08	Box	22.7	3.7 x 2.3	0.5	0.33%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.17	5+715 Mainline	W3-09	Pipe	49.8	1.2	0.3	0.66%	No	E	Permanent, Not Significant	None required
S3-CUL.18	6+550 Mainline	W3-10	Box	48.4	2.0 x 1.8	0.5	0.60%	Yes (potential)	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.19	0+683 LX3014 Sheskinop oll	W3-10	Box	36.0	2.0 x 1.8	0.5	0.50%	Yes (potential)	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.20	7+418 Mainline	W3-11	Box	60.0	3.2 x 1.9	0.5	0.50%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel

S3 Culvert Ref.	Chainage	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or Ø (m)	Culvert Embed (m)	Slope (%)	Fish Bearing?	NRA (2009) Quality	Potential Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S3-CUL.20A	0+080 Ballinaleck y Junction Link North	W3-11	Box	25.0	3.2 x 1.9	0.5	0.50%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.21	0+271 Access Road 3.32	W3-12A	Box	16.5	2.8 x 1.4	0.5	0.38%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.22	8+185 Mainline	W3-12A	Box	34.6	2.8 x 1.5	0.5	0.85%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.23	0+457 R236 LX3014 Link South	W3-12A	Box	23.6	2.2 x 1.5	0.5	0.43%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.24	0+032 L2374 Whitescros s	W3-12	Box	23.0	6.0 x 2.5	0.5	0.51%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel

S3 Culvert Ref.	Chainage	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or Ø (m)	Culvert Embed (m)	Slope (%)	Fish Bearing?	NRA (2009) Quality	Potential Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S3-CUL.25	0+911 LX3014 Tullyrap	W3-13	Box	50.2	2.0 x 1.9	0.5	0.65%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.26	10+055 Mainline	W3-13	Box	47.2	2.2 x 1.9	0.5	0.40%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.27	10+395 Mainline	W3-13	Bottomless Box	36.2	9.5 x 2.85	0.5	0.42%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.28	11+930 Mainline	W3-16	Box	60	2.0X1.8	0.5	0.50%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.29	11+641 Mainline	W3-15	Box	58.0	2.8 x 2.2	0.5	0.50%	Yes	D	Permanent, not significant individually, but cumulative significant negative in-combination with other culverts on this channel	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel

S3 Culvert Ref.	Chainage	Location Note (Relevant Aquatic Site Code)	Type	Length (m)	H x W or Ø (m)	Culvert Embed (m)	Slope (%)	Fish Bearing?	NRA (2009) Quality	Potential Impact Significance (without mitigation)	Operational Phase - Culvert Mitigation
S3-CUL.30	1+500 L2444 Ballindrait	W3-17A	Box	66.0	2.0 x 1.8	0.5	0.34%	Yes	D	Permanent, not significant individually.	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.31	14+935 Mainline	W3-18	Box	60.0	1.8 x 1.8	0.5	1.52%	Yes	D	Slope >1%, length 60m; Permanent, potential significant negative effect on fish passage owing to combined slope/length.	Ensure low flow channel to facilitate fish passage, e.g., using side baffles or internal mammal ledge to create 2-stage channel
S3-CUL.32	15+140 Mainline	W3-19	Pipe	44.5	1.2	0.3	0.50%	No	E	Permanent, Not Significant	None required
S3-CUL.33	15+556 Mainline	W3-20	Pipe	50.7	1.2	0.3	3.60%	No	D/E	Permanent, not significant individually.	None required