

APPENDIX 6-3 BIOLOGICAL WATER QUALITY RESULTS

Table 2 , Table 3 and Table 4 details the results of the biological kick sampling of watercourses within the study area of the proposed project.

Table 2: Macroinvertebrates Recorded During Biological Sampling on Watercourses Within the Study Area of the Proposed Project

	Aquatic Site													
Group/Organism	1	2	3	4	7	8	9	10	11	13	15	17	18	EPA Class Pollution sensitivity group
Mayfly (Ephemeroptera)														
Baetidae														C
Baetis rhodani		7	15	20		7	3	10	5	3	21		13	
Ephemerelliidae														
Serratella ignita		2	3					1			1			
Heptageniidae														A
Ecdyonurus spp.				4				1	4					
Stonefly (Plecoptera)														
Leuctridae														B
Leuctra hippopus		7						5						
Leuctra sp				3		1	3		2	1	2	3		
Nemouridae											1			
Cased Caddisflies (Trichoptera)														
Limnephilidae														B
Potamophylax latipennis				6					6		6			
Limnephilidae										4			23	
Goeridae														
Goera pilosa		1	1		6		1		1					
Sericostomatidae														

	Aquatic Site													
Group/Organism	1	2	3	4	7	8	9	10	11	13	15	17	18	EPA Class Pollution sensitivity group
<i>Sericostoma personatum</i>								4				7		
Odontoceridae											14	2		
Rhyacophila sp.														C
<i>Rhyacophila dorsalis</i>				1								1		
Polycentropodidae														
<i>Polycentropus flavomaculata</i>							3	1						
Glossosomatidae										100+		50+	100+	
Hydrospychidae													1	
Philopotamidae												1		
Polycentropodidae										2				
Beetle (Coleoptera)														
Elmidae														C
<i>Elmis</i>		1		1					1		1			
Dytiscidae														
<i>Agabus nebulosus</i>	2							15						
Swimming aquatic beetle (no species)											3			
Beetle larvae (no species)											1			
Two Winged Flies (Diptera)														
Chironomidae														C

	Aquatic Site													
Group/Organism	1	2	3	4	7	8	9	10	11	13	15	17	18	EPA Class Pollution sensitivity group
<i>Chironomus sp.</i>	1	1	3				1	2		2	8	1		
Simuliidae														
<i>Simulium spp.</i>				70			1							
Culicidae										4	1	1	1	
Dixidae												1		
Ptychopteridae											1	5		
Simuliidae												1		
Tipulidae											1			
Diptera												3		
Crustaceans														
Gammaridae														C
<i>Gammerus duebeni</i>	20	2	1	5	4	3	4	10	2	20	9	15	100+	
Snails and Limpets (Gastropoda)														
Lymnaeidae														C
<i>Ampullaceana balthica</i>								1						
Ancylidae														
<i>Fluviatilis</i>										2	1		1	
Tateidae														D
<i>Antipodarum</i>												1		
Freshwater leeches (Rhynchobdellae)														
Hirudinea (Leeches)													1	D

Table 3: The Representation of Each Invertebrate Group as Separated by Q-value System in Each Sampling Site

Q-Value Grouping	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 15	Site 17	Site 18
Total Abundance																
Group A	0	7	0	7	N/A	N/A	0	1	3	6	6	N/A	0	0	0	0
Group B	0	1	1	6			6	0	1	4	7		5	23	12	23
Group C	23	13	22	97			4	10	12	40	8		133	48	79	216
Group D	0	0	0	0			0	0	0	0	0		0	0	1	1
Group E	0	0	0	0			0	0	0	0	0		0	0	0	0
Percentage																
Group A	0	33.3	0	6.36	N/A	N/A	0	9	18.75	12	28.5	N/A	0	0	0	0
Group B	0	4.8	4.34	5.45			60	0	6.25	8	33.3		3.62	32.4	13.04	9.58
Group C	100	61.9	95.6	88.1			40	91	75	80	38		96.38	67.61	85.87	90
Group D	0	0	0	0			0	0	0	0	0		0	0	1.09	0.42
Group E	0	0	0	0			0	0	0	0	0		0	0	0	0
Number of Taxa																
Group A	0	1	0	2	N/A	N/A	0	1	1	2	2	N/A	0	0	0	0
Group B	0	1	1	1			1	0	1	1	2		2	4	3	1
Group C	3	5	4	5			1	2	5	7	3		7	11	10	6
Group D	0	0	0	0			0	0	0	0	0		0	0	1	1
Group E	0	0	0	0			0	0	0	0	0		0	0	0	0

Table 4: Biological Water Quality and Interpretations at Study Sites on Watercourses Draining the Proposed Project

Site	Q-value	WFD Ecological Status	BMWP Score	BMWP Category	BMWP Interpretation	ASPT	EPT taxa (%)	Taxon Richness
1	3	Poor status (Moderately Polluted)	13	Poor	Polluted or impacted	4.30	0	3
2	3-4	Moderate status (Slightly Polluted)	47	Moderate	Moderately impacted	6.71	81	7
3	3	Poor status (Moderately Polluted)	32	Poor	Polluted or impacted	6.40	82	5
4	3-4	Moderate status (Slightly Polluted)	54	Moderate	Moderately impacted	6.75	31	8
5	N/A							
6	N/A							
7	3	Poor status (Moderately Polluted)	16	Poor	Polluted or impacted	6.33	60	2
8	3-4	Moderate status (Slightly Polluted)	20	Poor	Polluted or impacted	6.33	72	3
9	3-4	Moderate status (Slightly Polluted)	44	Moderate	Moderately impacted	6.28	62	7
10	3-4	Moderate status (Slightly Polluted)	57	Moderate	Moderately impacted	6.70	44	10
11	4	Good status (Unpolluted)	52	Good	Moderately impacted	7.42	58	7
12	N/A							
13	N/A							
14	N/A							

Site	Q-value	WFD Ecological Status	BMWP Score	BMWP Category	BMWP Interpretation	ASPT	EPT taxa (%)	Taxon Richness
15					N/A			
16					N/A			
17					N/A			
18					N/A			
