Annual Environmental Report

2023



Raphoe

D0209-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0209-01, Raphoe, in Donegal in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports where relevant are included as an appendix to the AER.

1.1 ANNUAL STATEMENT OF MEASURES

A summary of any improvements undertaken is provided where applicable.

1.2 TREATMENT SUMMARY

The agglomeration is served by a wastewater treatment plant(s)

• Raphoe WWTP with a Plant Capacity PE of 800, the treatment type is 2 - Secondary treatment .

1.3 ELV OVERVIEW

The overall compliance of the final effluent with the Emission Limit Values (ELVs) is shown below. More detailed information on the below ELV's can be found in Section 2.

Discharge Point Reference	Treatment Plant	Discharge Type	Compliance Status	Parameters failing if relevant
TPEFF0600D0209SW001	Raphoe WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l BOD, 5 days with Inhibition (Carbonaceo mg/l ortho-Phosphate (as P) - unspecified mg/l Suspended Solids mg/l

1.4 LICENCE SPECIFIC REPORTING

Assessment / Report

There are no Licence Specific Reports included in this AER.

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 RAPHOE WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - RAPHOE WWTP

A summary of influent monitoring for the treatment plant is presented below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

Parameters	Number of Samples	Annual Max	Annual Mean
pH pH units	12	8.20	7.90
Suspended Solids mg/l	12	324	122
Total Phosphorus (as P) mg/l	12	7.58	3.32
Total Nitrogen mg/l	12	66	27
Ammonia-Total (as N) mg/l	12	62	21
COD-Cr mg/I	12	680	231
BOD, 5 days with Inhibition (Carbonaceo mg/l	12	254	88
ortho-Phosphate (as P) - unspecified mg/l	12	6.20	2.36
Hydraulic Capacity	N/A	2054	791

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 2.1.5 if applicable.

Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is greater than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional 'Operational Performance Summary'.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF0600D0209SW001

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	125	250	N/A	12	2	N/A	61	Pass
Suspended Solids mg/l	35	87.5	N/A	12	3	1	27	Fail
pH pH units	9	9	N/A	12	N/A	N/A	7.54	Pass
BOD, 5 days with Inhibition (Carbonaceo mg/l	5	10	N/A	12	10	7	13	Fail
Ammonia-Total (as N) mg/l	0.25	0.5	N/A	12	12	11	4.36	Fail
ortho- Phosphate (as P) - unspecified mg/l	0.15	0.3	N/A	12	12	12	1.77	Fail

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	2.06	
Conductivity @20°C µS/cm	N/A	N/A	N/A	12	N/A	N/A	546	
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	14	

Notes:

2 - For pH the WWDA specifies a range of pH 6 - 9

Cause of Exceedance(s):

Refer to the Incident Section of the Report.

Significance of Results:

The WWTP did not meet the ELVs set in the WWDL.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0600D0209SW001

A summary of monitoring from ambient monitoring points associated with the wastewater discharge is provided in the sections below. For discharges to rivers upstream (U/S) and downstream (D/S) location data is provided. For other ambient points in lakes, coastal or transitional waters, monitoring data from the most appropriate monitoring station is selected.

^{1 –} This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

The table below provides details of ambient monitoring locations and details of any designations as sensitive areas.

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	River Station Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Ecological Status
Upstream	225791, 401979	RS01S030150	No	No	No	No	Poor
Downstream	226417, 401895	RS01S030200	No	No	No	No	Poor

The table below provides a summary of monitoring results for designated ambient monitoring points. The upstream and downstream annual mean values are shown (mg/l), and the difference between both monitoring stations is given as a percentage of the Environmental Quality Standard (EQS) where relevant.

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
BOD - 5 days (Total) mg/l	RS01S030150	1.08	RS01S030200	1.69	1.50	40.7
Ammonia-Total (as N) mg/l	RS01S030150	0.073	RS01S030200	0.146	0.065	113.4
ortho-Phosphate (as P) - unspecified mg/l	RS01S030150	0.035	RS01S030200	0.110	0.035	214.4
Dissolved Oxygen % Saturation	RS01S030150	92	RS01S030200	94	N/A	
Suspended Solids mg/l	RS01S030150	4.87	RS01S030200	4.95	N/A	
Conductivity @20°C µS/cm	RS01S030150	384	RS01S030200	409	N/A	
Temperature °C	RS01S030150	10	RS01S030200	11	N/A	

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
pH pH units	RS01S030150	7.78	RS01S030200	7.73	N/A	

Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results do not meet the required EQS at the upstream and the downstream monitoring locations. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

Based on ambient monitoring results a deterioration in BOD mg/l, Ammonia (as N) mg/l, ortho-Phosphate (as P)- unspecified mg/l, concentrations downstream of the effluent discharge is noted.

A deterioration in water quality has been identified, however it is not known if it or is not caused by the WWTP.

Other causes of deterioration in water quality in the area are unknown.

The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - RAPHOE WWTP

2.1.4.1 Treatment Efficiency Report - Raphoe WWTP

Treatment efficiency is based on the removal of key pollutants from the influent wastewater by the treatment plant. In essence the calculation is based on the balance of load coming into the plant versus the load leaving the plant. The efficiency is presented as a percentage removal rate.

A summary presentation of the efficiency of the treatment process including information for all the parameters specified in the licence is included below:

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	
cBOD	25337	2610	90	

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	
TN	7822	2794	64	
ТР	959	411	57	
COD	66691	12092	82	
ss	35297	5326	85	

Note: The above data is based on sample results for the number of dates reported

2.1.4.2 Treatment Capacity Report Summary - Raphoe WWTP

Treatment capacity is an assessment of the hydraulic (flow) and organic (the amount of pollutants) load a treatment plant is designed to treat versus the current loading of that plant.

Raphoe WWTP					
Peak Hydraulic Capacity (m³/day) - As Constructed					
DWF to the Treatment Plant (m³/day)	335				
Current Hydraulic Loading - annual max (m³/day)	2054				
Average Hydraulic loading to the Treatment Plant (m³/day)					
Organic Capacity (PE) - As Constructed					
Organic Capacity (PE) - Collected Load (peak week)Note1					
Organic Capacity (PE) - Remaining					
Will the capacity be exceeded in the next three years? (Yes/No)	Yes				

Nominal design capacities can be based on conservative design principles. In some cases assessment of existing plants has shown organic capacities significantly higher than the nominal design capacity. Accordingly plants that appear to be overloaded when comparing a collected peak load with the nominal design capacity can be fully compliant due to the safety factors in the original design.

2.1.5 SLUDGE / OTHER INPUTS - RAPHOE WWTP

'Other inputs' to the waste water treatment plant are summarised in table below

Input type	Quantity	Unit	P.E.	% of load to WWTP	Included in Influent Monitoring (Y/N)?	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)		
There is	There is no Sludge and Other Input data for the Treatment Plant included in the AER.								

3 COMPLAINTS AND INCIDENTS

3.1 COMPLAINTS SUMMARY

A summary of complaints of an environmental nature related to the discharge(s) to water from the WWTP and network is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints					
There were no relevant environm	There were no relevant environmental complaints in 2023.							

3.2 REPORTED INCIDENTS SUMMARY

Environmental incidents that arise in an agglomeration are reported on an on-going basis in accordance with our waste water discharge licences. Where an incident occurs and it is reportable under the licence, it is reported to the Environmental Protection Agency through their Environmental Data Exchange Network, or in some instances by telephone. Some incidents which arise in the agglomeration are recorded by Uisce Éireann but may not be reportable under our licence for example where the incident does not have an impact on environmental performance.

A summary of reported incidents is included below.

3.2.1 SUMMARY OF INCIDENTS

Incident Type	Cause	Recurring (Y/N)	Closed (Y/N)
Breach of ELV	WWTP operating above capacity	Yes	No
Uncontrolled release	Adverse Weather	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2023	2
Number of Incidents reported to the EPA via EDEN in 2023	2
Explanation of any discrepancies between the two numbers above	N/A

4 INFRASTRUCTURAL ASSESSMENTS AND PROGRAMME OF IMPROVEMENTS

4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT

A summary of the operation of the storm water overflows and their significance where known is included below:

4.1.1 SWO IDENTIFICATION

WWDL Name / Code for Storm Water Overflow (chamber) where applicable	Irish Grid Ref. (outfall)	Included in Schedule of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2023 (No. of events)	Total volume discharged in 2023 (m3)	Monitoring Status
SW002	225898,401984	Yes	Low Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
твс	226742,403277	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	TBC

Any TBC SWO(s) were identified as part of the on-going National SWO programme and will be updated in subsequent AER(s) once the information is confirmed.

SWO Summary	
How much wastewater discharge by metered SWOs during the year (m3)?	Unknown
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	Yes
The SWO Assessment included the requirements of relevant of WWDL schedules?	Yes
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	N/A

4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS.

4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides a list of the various reports required for this agglomeration and a brief summary of their recommendations.

Specified Improvement Programmes (under Schedule A and C of WWDL)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
D0209-SIP:01	Increase the treatment capacity of the WWTP	С	31/12/2015	Yes	At Planning Stage		
D0209-SIP:02	Installation of storm water storage tank	С	31/12/2015	Yes	At Planning Stage		
D0209-SIP:03	Provide nutrient removal	С	31/12/2015	Yes	At Planning Stage		
D0209-SIP:04	Provide tertiary treatment	С	31/12/2015	Yes	At Planning Stage		

Specified Improvement Programmes (under Schedule A and C of WWDL)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
D0209-SIP:05	Upgrading of Storm Water Overflows to comply with the criteria outlined in the DoECLG "Procedures and Criteria in relation to Storm Water Overflows, 1995"	С	31/12/2015	Yes	At Planning Stage		

A summary of the status of any other improvements identified by under Condition 5 assessments- is included below.

4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments	
No additional improver	nents planned at this time.				

4.2.3 SEWER INTEGRITY RISK ASSESSMENT

The utilisation of multiple capital maintenance programmes and the outputs of the workshops with the Local Authority Operations Staff held under the programme can be used to satisfy the requirements of Condition 5 regarding network integrity. Improvement works identified by way of these programmes and workshops will be included in the Improvements Summary Tables 4.2.1 and 4.2.2.

5 LICENCE SPECIFIC REPORTS

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides a list of the various reports required for this agglomeration and a brief summary of their recommendations.

Licence Specific Report	Required by licence	Included in this AER
D0209-01-Priority Substances Assessment	Yes	No
D0209-01-Small Stream Risk Score Assessment	Yes	No

6 CERTIFICATION AND SIGN OFF

6.1 SUMMARY OF AER CONTENTS

Parameter	Answer
Does the AER include an Executive Summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e. have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Is there a need to advise the EPA for Consideration of a Technical Amendment/Review of the Licence?	N/A
List reason e.g. additional SWO identified	N/A
Is there a need to request/advise the EPA of any modification to the existing WWDL with respect to condition 4 changes to monitoring location, frequency etc	Yes
List reason e.g. changes to monitoring requirements	Ambient Monitoring Location Changes
Have these processes commenced?	N/A
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	No

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Signed: Date: 02/10/2024

This AER has been produced by Uisce Éireann's Environmental Information System (EIMS) and has been electronically signed off in that system for and on behalf of ,

Eleanor Roche

Head of Environmental Regulation.

7 APPENDIX

Appendix

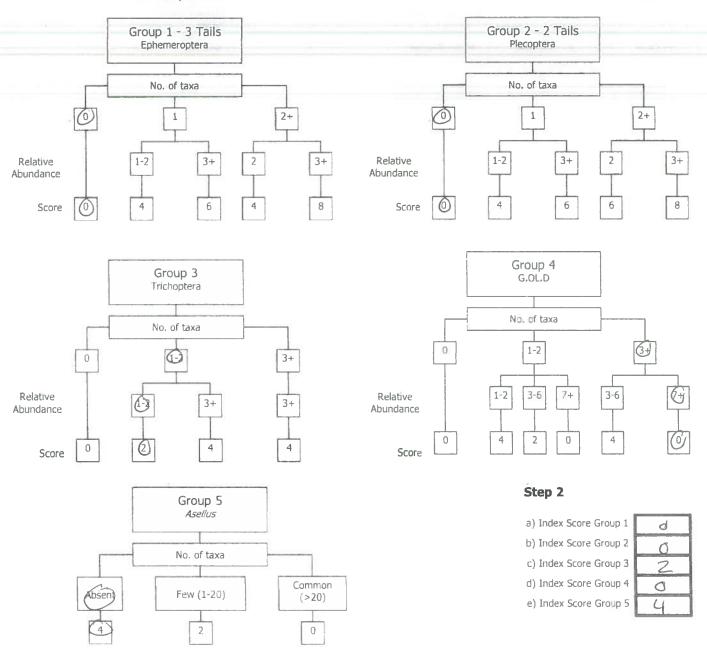
Appendix 7.1 - Small Stream Risk Score Assessment

RAPHOE

Group 1 = Ephemeroptera (3-tails) - note that tails may be damaged during sampling Group 2 = Plecoptera (2-tails) - note that tails may be damaged during sampling Group 3 = Trichoptera Group 3 = Trichoptera Group 4 = G.OL.D (Gastropoda, Oligochaeta and Diptera) Group 5 = Asellus Calculate the total number of taxa and relative abundance of each macroinvertebrate group below: (Abundance - Ab) Ephemeroptera: Ecdyonurus Ab Rhithrogena Ab Reptagenia Ab Footonemura Ab Ephemerella Ab Caenis Ab Peria Ab Peria Ab Peria Ab Dinocras Ab Other Plecop Ab Total no. of taxa Total Relative Abundance Trichoptera: Hydropsychidae Ab Polycentropodidae Ab Polycentropodidae Ab Polycentropodidae Ab Phasorbis (G) Ab Cilmonomus (D) Ab Amphimenura (D) Ab Aselluss Peria Ab Peria Ab Chironomus (D) Ab Aselluss Rhyacophila Ab Phasorbis (G) Ab Ceratopogonidae (D) Ab Common/ Lumephilidae Ab Cilossosomatidae Ab Lepidostomatidae Ab Lepidostomatidae Ab Lepidostomatidae Ab Lepidostomatidae Ab Lepidostomatidae Ab Tubificidae (OI) Ab 2.	River: SWILL Station no.		Location:			Grid (6 figure):	
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Do mg/I Dominant Types: Bedrock Bedroc				Zirialisea Wide	anco bank crosion		
Serical Comments: Serical Comments Serical Co	O mg/l					3.000	
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Sample Substratum Substra			Silt (<0.25mm)				
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Substratum Condition: Calcareous-Compacted- Fast Slight Loose - Normal Substratum Substratum: Since Moderate Migh Substratum: Stoney bottom-Muddy bottom-Mudd over stones		Calana	Geology: Calcareous-	-Siliceous-Mixe	ed	Snading: High - Modera	te - Low - None
Lose - Normal Sight Moderate Moderat		The second secon	Substratum Conditi	on: Calcareou	is-Compacted-	Cattle access Y: upstrea	m – downstream or
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Clear Normal Litter: None - Present - Moderate - Abundant			Degree of siltation:	Clean-Slight-	Moderate-Heavy		
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Filamentous Algae: None — Present — Moderate - Abundant Filghly turbid Very Low Dry Recent Flood Dry Recent Flood Bag Forestry Marroinvertebrate Composition The macroinvertebrates are divided into the following 5 specific groups: Group 1 = Ephemeroptera (3-tails) - note that tails may be damaged during sampling Group 2 = Plecoptera (2-tails) - note that tails may be damaged during sampling Group 3 = Trichoptera Group 4 = G.O.L.D (Gastropoda, Oligochaeta and Diptera) Group 5 = Aselfus Calculate the total number of taxa and relative abundance of each macroinvertebrate group below: (Abundance – Ab) Ephemeroptera: Ecdyonurus Ab Heptagenia Ab Heptagenia Ab Fortonemura Ab Ephemere danica Ab Other Ephem Ab Total no. of taxa Polycentropodidae Ab Polycentropodidae Ab Polycentropodidae Ab Phipsof (3) Ab Carnops (4) Ab Phipoptamidae Ab Phipsof (3) Ab Circunous (0)							
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Recent Flood Bog Tillage Y / N Stone wash x Weed sweep x	Highly turbid	1		Urhan			
Forestry Other Stone Wash X Weed sweep x Macroinvertebrate Composition Relative Abundance Group 1 = Ephemeroptera (2-tails) - note that tails may be damaged during sampling G-20 Group 2 = Plecoptera (2-tails) - note that tails may be damaged during sampling G-20 Group 3 = Trichoptera Group 4 = G.OL.D (Gastropoda, Oligochaeta and Diptera) Group 5 = Aseilus Group 6 Group 6 Group 7 Group 7 Group 7 Group 8 Group 8 Group 8 Group 8 Group 8 Group 8 Group 9 Group 9		·					
Macroinvertebrate Composition The macroinvertebrates are divided into the following 5 specific groups: Group 1 = Ephemeroptera (3-tails) - note that tails may be damaged during sampling Group 2 = Plecoptera (2-tails) - note that tails may be damaged during sampling Group 3 = Trichoptera Group 3 = Trichoptera Group 4 = G.O.L.D. (Gastropoda, Oligochaeta and Diptera) Group 5 = Asellus Calculate the total number of taxa and relative abundance of each macroinvertebrate group below: (Abundance - Ab) Ephemeroptera: Ecdyonurus Ab Rilithrogena Ab Heptagenia Ab Replagenia Ab Perla Ab Paraleptophilebia Ab Ephemera danica Ab Other Ephem Ab Other Ephem Ab Total no. of taxa Total no. of taxa Polycentropodidae Ab Polycentropodidae Ab Philopotamidae Ab Limnephilidae Ab Sericostomatidae Ab Limnephilidae Ab Glossosomatidae Ab Legidostomatidae Ab Legi		TRECEITE FIGURE	1 -		312.411	Stone wash x	
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NOTE Baetis is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that Baetis is not counted in SSRS. See Appendix B for more details on how to identify Baetis.

Step 1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from **each macroinvertebrate group** calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.



Step 3. Calculate the Total Index Score, the Average Index Score and the SSR Score using the boxes below

Total Index Score (TIS) SSR Score (AIS) Sum (a+b+c+d+e) Average Index Score (AIS) 1-2 (AIS x 2)

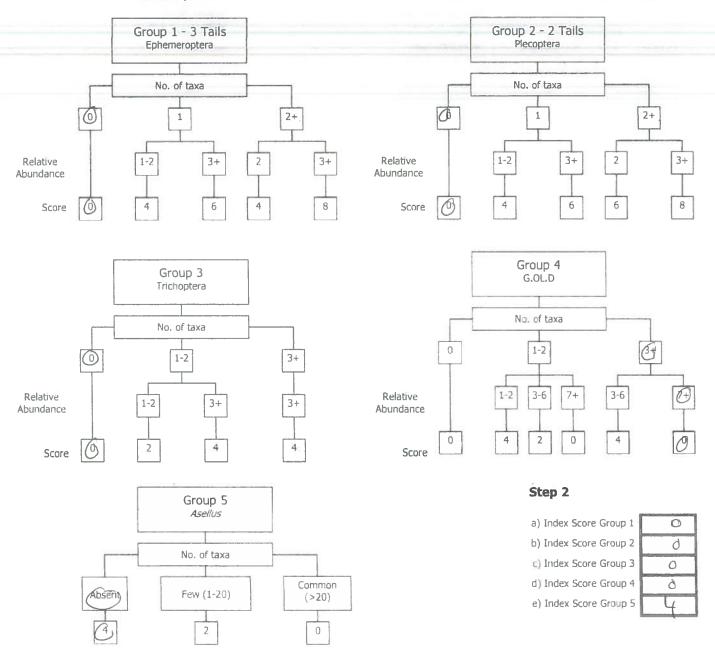
Step 4. Assess the stream by comparing the final SSR score with the categories below and tick the appropriate box

> 7.25 Probably not at risk	> 6.5 – 7.25 Indeterminate Stream may be at risk	< 6.5 Stream at risk	
Surveyor (signed): Don	Smuth Name (print):	DON SMITH	 /

River: RAPF Station no.	1	Location:			Grid (6 figure):	
SHILL F	BURN d/s	Stream Order:	11		Stream flow:	
	Charles and the second second	Modifications: Y/N Ca	national suida	and book evering	Riffle	
Field Che	963	arterial drainage	naliseu-wide	eneu-bank erosion-	Riffle/Glide Slow flow	
O mg/l	40)	Dominant Types:			210M HOM	
		Bedrock				
emp (°C)	4.1	Boulder (>128mm)				
onductivity		Cobbie (32-128mm)				
Н	_	Gravel (8-32mm) Fine Gravel (2-8mm)				
ank width (cm)		Sand (0.25-2mm)				
/et width (cm)		Silt (<0.25mm)				
vg Depth (cm)		Slope: Low - Medium -	- High - Ver	y High		
taff gauge		Geology: Calcareous-S	ilicaous-Mive	ed .	Shading: High – Moderat	e – Low - None
Velocity	Colour	-			0-111	
Torrential	None	Substratum Conditio Loose - Normal	n: Calcareot	is-Compacted-	Cattle access Y: upstream	n — downstream o
Fast Moderate	Slight Moderate	Substratum:				
Slow	High	Stoney bottom-Muddy b	ottom-Mud	over stones	Photo: Y / N	
Very slow	raga	Degree of siltation: (loan-Clinht-l	Moderate-Heavy	Piloto. 1 / IV	
Clarity	Discharge		_	•		
Very dear	Flood	Depth of mud: None:	<1cm: 1-5c	m: 5-10cm; >10cm		
Clear	Normal	Litter: None - Present	- Moderate	- Abundant		
at an incident		Filamentous Algae:			Sewage Fungus:	
Slightly turbid	Low	None - Present - Mode	rate - Abunc	lant	None - Present - Moderate	e - Abundant
Highly turbid	Very Low	Main land use u/s:		Sample	Sampled in Minutes:	
	Dry	Pasture	Urban	retained:	Pond net x	
	Recent Flood	Bog Forestry	Tillage Other	Y/N	Stone wash x	
		Torestry	Odici		Mood swaan v	
General Commen	ts:	Manainvartahunt	o Compa	cition	Weed sweep x	Polotivo
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NOTE Baetis is an Ephemeropteran and is the most commonly occurring invertebrate genus in streams in Ireland. It is vital that Baetis is not counted in SSRS. See Appendix B for more details on how to identify Baetis.

Step 1. Calculate the Index Score by circling the appropriate box representing the total number of taxa and the total abundance calculated from each macroinvertebrate group calculated from page 1 of the recording sheet and enter in to the boxes in Step 2.



Step 3. Calculate the Total Index Score, the Average Index Score and the SSR Score using the boxes below

Average Index Score (AIS)

TIS/5 (5 for 5 groups)

SSR Score

(AIS x 2)

1.6

Total Index Score (TIS)

sum (a+b+c+d+e)

Step 4. Assess the stream by comparing the final SSR score with the categories below and tick the appropriate box			
> 7.25 Probably not at risk	> 6.5 – 7.25 Indeterminate Stream may be at risk	<6.5 Stream at risk	
Surveyor (signed): Do	Name (print):	DON SMITH	Date://