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**DEVON AREA
INTERNAL REPORT**



**ENVIRONMENT
AGENCY**

**INVESTIGATION TO DETERMINE
THE CAUSE OF THE LONG-TERM
BOD FAILURE AT HIGHER
WEAVER ROUTINE MONITORING
SITE 70532960) FOR 1995 AND
1997**

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INVESTIGATION TO DETERMINE THE CAUSE OF THE LONG-TERM BOD FAILURE AT HIGHER WEAVER ROUTINE MONITORING SITE (70532960) FOR 1995 AND 1997.

1. BACKGROUND

The River Weaver rises in the North Hill area, north-north-east of Kerswell at NGR ST 0930 0650. The river flows in a general south-west direction for approximately 10 km through predominantly agricultural land prior to the confluence with the river Culm at NGR SS 9992 0276.

The routine monitoring site Higher Weaver (70532960) at NGR ST 0505 0471 (see Figure 1) has a current River Quality Objective (RQO) of RE class 3 (using the River Ecosystem Use Classification (RE)). The site is not EC designated.

However, a long term target of RE class 2 has been set for this site (Ref. 1). This target is what the Environment Agency would like to reach in 10 years time but currently has no resources to make improvements which may be required. This site failed the long-term RQO BOD standard for 1995 (significantly) and for 1997 (marginally).

Upstream of the routine monitoring site are two sewage treatment works (STW's) at Dulford (70532972 at NGR ST 0690 0590) and Kerswell (70532983 at NGR ST 0780 0630) and a fish farm at Kerswell Priory (70532974 and 70532977 at NGR ST 0718 0615 see Figure 1).

2. TERMS OF REFERENCE

2.1 OBJECTIVES

The routine monitoring river water quality data for Higher Weaver show the site to have failed to reach the long-term RQO of RE 2 for 1995 and 1997 by failing the BOD standard significantly and marginally respectively. This investigation will determine the probable cause of these long-term RE BOD failures.

2.2 PROJECT TEAM

T. Cronin (Project Leader)
P. Rose (Project Manager, author)

2.3 METHOD

1. Analysis of historic routine water quality data taken at and upstream of Higher Weaver.
2. Establish any trends and / or relationships between water quality and other factors such as rainfall and drought.

3. Interrogate the pollution logging system to identify any possible links with incidents and BOD exceeded values.
4. Carry out an appraisal of the River Weaver upstream of Higher Weaver visually, chemically and via biological collections to assess the impact of possible inputs to the River Weaver.
5. Carry out a chemical survey during wet weather to determine impact during heavy rainfall.
6. Report back to the Environment Protection Officer for the area.

3. RESULTS

3.3 HISTORIC DATA

3.3.1 Higher Weaver 7053260

The historic RE classification for this site is given in Table 1. Where the RE class based on 'Face Value' (FV) assessment (ie in this case the 95 %ile statistic for BOD) exceeds the RQO and the class based on the 'Optimistic' (Opt) assessment (the 'Optimistic' estimate of a percentile can be regarded as an upper confidence limit on the face value estimate of a percentile) reaches the RQO, then the failure is said to be marginal. Or put another way, we are 50 % confident that the stretch failed to comply (see APPENDIX I).

Where the class based on both 'Face Value' and 'Optimistic' estimates both fail the RQO, the failure is said to be significant. Or put another way, we are 90 % confident that it has failed to comply (see APPENDIX I).

Table 1. Historic RE Classification

RQO	1995		1996		1997	
	Opt	FV	Opt	FV	Opt	FV
Present RE3	3	3	2	2	2	3
Long-term RE2	3	3	2	2	2	3

- Significant Failure
- Marginal Failure

From the compliance shown in Table 1, it appears that the water quality was poor, increased then decreased slightly over the 5 year period. This can be shown graphically and statistically tested by the statistical package AARDVARK.

APPENDIX II contains the routine BOD data as manipulated by AARDVARK. Although the BOD data is of log Normal distribution, when a CUSUM analysis of the untransformed data is carried out, a change is detected in the data set (at the 4% significance level, ie we are fairly confident that the change was not due to chance) that indicates the improvement in water quality occurred sometime around summer 1995. A possible reason for this improvement is noted in the discussion.

The routine water quality data for both classifications (1993-95 data for 1995 and 1995 -97 data for the 1997 compliance assessment) can be tabulated to show when the samples contained levels of BOD that exceeded the long-term standard of 4.0 mg/l (note that for the purpose of this investigation the standard adopted is an absolute value and not a 90 %ile as in the RE classification see APPENDIX III). These figures can also be compared with BOD levels in samples taken on the same date from upstream sites and whether or not the sample was associated with rainfall; see Table 2.

From Table 2 it can be seen that most of the samples with the high BOD levels were associated with rainfall (7 out of 10 samples) and that high levels of BOD were experienced throughout the catchment.

3.3.2 Dulford STW (70532972)

Dulford STW has a descriptive consent (consent no.SWWA-513) with treated effluent being discharged at NGR ST 0685 0595. There were no reported failures of the consent or works on the same dates as the high BOD's recorded at Higher Weaver. Chemical samples taken from the final effluent , up and downstream of the STW show that on the dates of the Higher Weaver exceeded BOD values (when sampled on the same date; routine data see APPENDIX III) there was generally a high BOD level upstream of the STW (5 out of 6 samples, see Table 2).

3.3.3 Kerswell Priory Fisheries (70532977 & 70532974)

Kerswell Priory Fisheries was consented for two discharge points on 17 May 1996 (consent no. NRA-SW-7976, see APPENDIX IV). The consent is a combination of a differential where concentrations of ammonical nitrogen, suspended solids and BOD levels are not permitted to rise above certain concentrations / levels in relation to the influent and a numeric where absolute concentrations are set for dissolved oxygen, pH, Malachite Green, copper, monohydric phenol and formaldehyde (for specifics and flow conditions see APPENDIX IV).

Tables 3 and 4 show the consent compliance of the fish farm between 14-June -96 and 20-May 1998. During this period the effluent B1 failed 4 times for BOD, 8 times for suspended solids and twice for total ammonia out of the 22 samples taken. Of the failures for BOD for effluent B1, one occurred on the same date as a high BOD level recorded at Higher Weaver (24-April 1997).

Previous to the consent's issue, samples of effluent B1 also contained elevated levels of BOD (see Table 2). However, the upstream site A1 also contained high BOD levels on 2 of the 4 occasions sampled (see Table 2). Due to the unsuitability of the site, samples were no longer taken from intake A2 (as of mid October 1997), the comparative site for effluent B2 (see discussion).

The effluent B2 passed for all 5 samples taken. The consent conditions for all the other chemical determinands were not breached for this period.

Concern over the Kerswell Priory data set

On interrogating the data sets relating to the Kerswell Priory Fish Farm, areas of concern have arisen. Please see discussion.

3.3.4 Kerswell STW (70532983)

Kerswell STW has a descriptive consent (consent no. SWWA-408) with treated effluent being discharged at NGR ST 07820 06330 to a small tributary of the R. Weaver. There were no reported failures of the consent or works on the same dates as the high BOD's recorded at Higher Weaver. One of the 7 samples collected downstream of the discharge contained a high level of BOD (9.9 mg/l) on the same date as the high BOD levels recorded at Higher Weaver (routine data see APPENDIX II). However, this high BOD was localised to the STW area as downstream of the Kerswell Priory Fish Farm, the BOD had reduced to 3.4 mg/l.

3.4 HISTORIC POLLUTION INCIDENTS

Of the 11 pollution incidents logged for the period 1993 to April 1998 inclusive (data extracted from WIMS for post 1996 events and from the old PILS system for pre 1996 events), none are deemed to be the cause of the BOD exceeded values recorded at Higher Weaver Farm (see APPENDIX V).

4. INVESTIGATIVE RESULTS

The investigation was divided into two sections. Firstly, starting from the routine monitoring site at Higher Weaver, a series of biological collections were made using a 1 minute kick sample followed by bank side identification to family level. The second and follow-up section was a wet weather survey to concentrate on factors such as land / farm run-off.

4.1 Biological survey

The biological aspect of the investigation was carried out during April 1997 (see Figure 1 for collection sites and APPENDIX VI for raw field data sheets).

The collection made at Higher Weaver although generally poor was not dominated by any particularly pollution tolerant family. Sewage fungus was present on the substrate at approximately 8.5% cover. Generally this was reflected upstream but the quality represented by the collections started to deteriorate immediately downstream of Kerswell Priory Fisheries. Here the collection was limited to 11 taxa with pollution tolerant chironomids becoming the dominant population. Sewage fungus cover had increased to approximately 14.5 % cover.

Upstream of Kerswell Priory Fisheries, the biological community improved with even representatives of the stone flies, a group sensitive to pollution and until presently, not represented downstream on the main river during this survey. Sewage fungus cover on the substrate had generally reduced to just above trace levels.

4.2 Wet weather survey

The wet weather survey was carried out on 9-April 1998 during heavy rainfall (8.6mm rain on the day, 10.4 mm rain on previous 2 days, Plymtree rainfall station at ST 050 031). For sites sampled and results see Figure 1 and Table 5. The river stretches between sites have been colour coded to represent the appropriate RE class the reach would attain should the face value of the standards be applied on a 'one sample only' basis (based on standards given in APPENDIX III).

Lower St Andrews Wood Farm

Site 6 (see Figure 1 & Table 5) was on a very small tributary from Lower St. Andrews Wood Farm (tributary NGR ST0596 0548). A small amount of farm run-off (mainly from silage bales) was entering the watercourse. No impact from the tributary was detected in the main watercourse.

Kerswell Priory Fish Farm

The sample taken of the final effluent (site 16, see Table 5) was relatively good quality in comparison to the receiving water.

Upstream of Kerswell

The samples taken in the Kerswell village area and upstream in the headwaters of the catchment generally had high levels of BOD and high concentrations of suspended solids (highest 9.0 mg/l and 1910 mg/l respectively, see Table 5).

5. DISCUSSION

The routine data collected at 70532960 (Higher Weaver) suggests an improvement in the BOD levels in mid 1995. During 1994, the then Water Quality Officer for the area had located unconsented septic tank discharges immediately upstream of the site at Higher Weaver Farm. This problem was rectified in mid 1995 when the existing septic tank was replaced by a EKORA Bio-bubble 6 package plant with treated effluent (domestic sewage only) discharged to the R. Weaver at NGR ST 0510 0480 (consent NRA-SW-7447 issued 24 July 1995, see APPENDIX IV). It is quite probable that the slight improvement in water quality as identified by AARDVARK was a direct consequence of this.

However, BOD levels in excess of the long-term standard have continued since the improvements, most coinciding with rainfall that was either on the date of the high BOD level or up to 2 days previously (see Table 5, 7 out of 10 samples). This indicates that some of the exceeded values may be due to land or farm run-off.

Following the data sets upstream, it can be seen that high BOD levels were present throughout the catchment in general. The biological surveys indicated generally poor water quality up the river to Kerswell Priory Fisheries. While this may indicate the possibility that the fisheries are the cause of the high BOD's, there are certain factors that need to be taken into account.

Firstly, on examination of the data sets for the Kerswell Priory Fisheries, there are several areas of concern, some of which may have implications on interpretation of historic data, others which could possibly question the validity of the consent compliance testing.

1. Site 70532976 is listed as River Weaver U/S priory Fisheries NGR ST 07200 06110 on the main database WIMS. This is not correct. 70532976 is listed correctly under the laboratory system MENSAR as D/S Priory Fisheries; implications on trusting this data set on face value when determining impact assessment could be potentially misleading.
2. The consent specifies two effluent monitoring sites and two corresponding upstream sites used for differential compliance testing. During the period covered by the consent, the effluent B1 has failed the standard for BOD 4 times out of 22 and suspended solids 8 time out of 22. Concern was raised by the fish farmer that the samples taken of the effluent were not representative and that due to sampler error / poor sample site, quantities of detritus which were present on the sides of the ditch / pipe in the locality of sample site were said to be getting into the bottle.

Indeed on occasions when the consent had apparently been breached, the Environment Protection Officer (EPO) visited the fish farm and has not been able to locate a problem with the effluent. As a result and under instruction from the EPO, the effluent sample site was moved just downstream of the fish farm where it is believed a more representative sample would be collected. Also due to site unsuitability, samples are no longer taken from the intake A2 (as of mid October 1997). Technically this makes testing the compliance of effluent B2 no longer feasible.

However there appears to be confusion as to if the effluent samples for B1 & B2 are or should now be collected as a single sample, where they are taken, to which site number they should be logged under and which upstream site or sites the effluent (s) should be compared with to test for compliance with the differential consent standards. Whilst these points illustrate the need for clear and concise instruction / communication between relevant sections, it also highlights the inherent problems in the use of differential consents.

3. The NGR's for effluent site B1 and upstream site A1 are given in the consent. The NGR for B1 and A1 given by WIMS is different to that stated in the consent and that for A1 given by the MENSAR system is different again (see below).

Site	Consent NGR	WIMS NGR	MENSAR NGR
70532977 B1	ST 07210 06100	ST 07700 06300	ST 07210 06100
70532979 A1	ST 07220 06800	ST 07720 06290	ST 07220 06080

Whilst some of these points are worthy of note for accuracy sake alone (and our responsibility to be fair to the owner of the fish farm), some of the points make historical evaluation of environmental impact of the area quite difficult.

Secondly, during the time of the biological surveys, there were particularly low flows in the river. This was such that there was no river flowing at the upstream site A1 and effectively all the river water was running through the fish farm (bar a small leat, site 10 Figure 1). The river from this point down was effectively fish farm effluent.

On talking to the routine monitoring section this is quite regularly the case during long periods of dry weather and subsequent low flows. This probably contributes to the poor biology from this point downstream. It may be that on occasions where flow to the upstream site A1 is reducing, it could be augmented by management of the sluice boards where the mill leat take-off is (see Figure 1).

The wet weather survey proved to be a little more enlightening. Generally the BOD levels increased going up the catchment, past the Kerswell Priory Fisheries and to the head waters. The exception being the small tributary leading from Lower St. Andrews Wood Farm (site 6, Figure 1) which had farm run-off (liquor from silage bales) entering the ditch. However, the input was small and due to the large dilution effect on the main river, no chemical impact was detected. The EPO has been informed and is aware of the potential risk the area may pose during wet weather.

The effluent sample taken from the fish farm was actually of a better basic sanitary quality than the receiving water (see Table 1). The cause for the high levels of BOD and concentrations of suspended solids upstream (maximum 9.0 mg/l and 1910 mg/l respectively) was identified as field run-off.

Due to the nature of the soils in the area (clay / silt) and the fact that cattle were also churning up the land, vast quantities of top soil (possibly enriched with manure where the land was for grazing) were entering the watercourse as field run-off during the rain events. (Photographs taken of the run-off are presented in APPENDIX VII). Not only would the BOD levels be elevated by any manure present but also by the BOD component of the top soil itself.

Erosion is noted locally as a problem in the catchment. Some areas of the stream where the velocity is reduced, areas of silt and clay have been deposited; the mill leat just downstream of the sluice boards being a prime example. Bearing this in mind it may be advisable to encourage local farmers to leave fenced buffer zones along land adjacent to the watercourse.

6. CONCLUSIONS

1. Some of the high BOD levels recorded at Higher Weaver up to mid 1995 may have been the result of illegal discharges from two septic tanks immediately upstream at Higher Weaver Farm / Mill
2. The replacement of an old septic tank at Higher Weaver Farm / Mill with a package plant mid 1995 may have contributed to the apparent increase in water quality at Higher Weaver around the same time.
3. Routine data suggest a catchment wide problem linked with rainfall, probably land / farm run-off in nature.
4. Kerswell Priory Fisheries have apparently failed their consent for BOD 4 times during the period 14-June 1996 and 20-May 1998 but there could be mitigating circumstances present.
5. There is some confusion over the suitability of the Kerswell Priory Fisheries sample sites, which sample sites are currently being sampled as what in relation to the consent conditions; there are also site description / NGR errors on the WIMS / MENSAR systems relating to site locations.
6. During periods of low river flow, there has been no river flow immediately U/S of Kerswell Priory Fisheries and consequently the D/S flow in the main river was fish farm effluent; this was having a detrimental effect on the biological community D/S of the discharge.
7. During wet weather a small tributary from Lower St. Andrews Wood farm was identified as containing small quantities of silage liquor; no impact was detected immediately downstream.
8. Filed investigations identified that most of the high BOD levels responsible for the RE failures at Higher Weaver were probably due to land run-off during wet weather, especially from the headwaters of the catchment.

7. RECOMMENDATIONS

1. The location of the sample sites specified in the consent for the Kerswell Priory Fisheries should be examined and clarified. If sites are not to be used or indeed moved due to unsuitability, it should be clarified as to which sites will be compared with which in order to determine compliance with consent standards.

Action: EPO to discuss with Discharge Consenting

2. The EPO to clarify with Routine Monitoring any changes to sample sites and site numbers which may result from 1 above.

Action: EPO

3. The WIMS and MENSAR systems to be corrected to take site description / NGR anomalies identified in this report in to account.

Action: Data & Performance

4. If possible during periods of low flow, flow in the main river should be augmented from the mill leat so as to provide dilution of the Kerswell Priory Fisheries discharged effluent and enable an upstream sample to be taken. EPO to look into any abstraction constraints in relation to Kerswell Priory Fisheries.

Action: EPO to investigate

5. Farmers in the area to be reminded of good agricultural practise with regard muck spreading near watercourses especially in wet weather and possible use of buffer zones in cattle grazing areas / arable crop fields.

Action: EPO & Rural Land Use Scientist

8. REFERENCES

1. Catchment Management Plan River Exe. August 1996. Environment Agency.

Figure 1. Map showing the upper River Weaver, the biological collection sites and wet weather chemical sample sites.

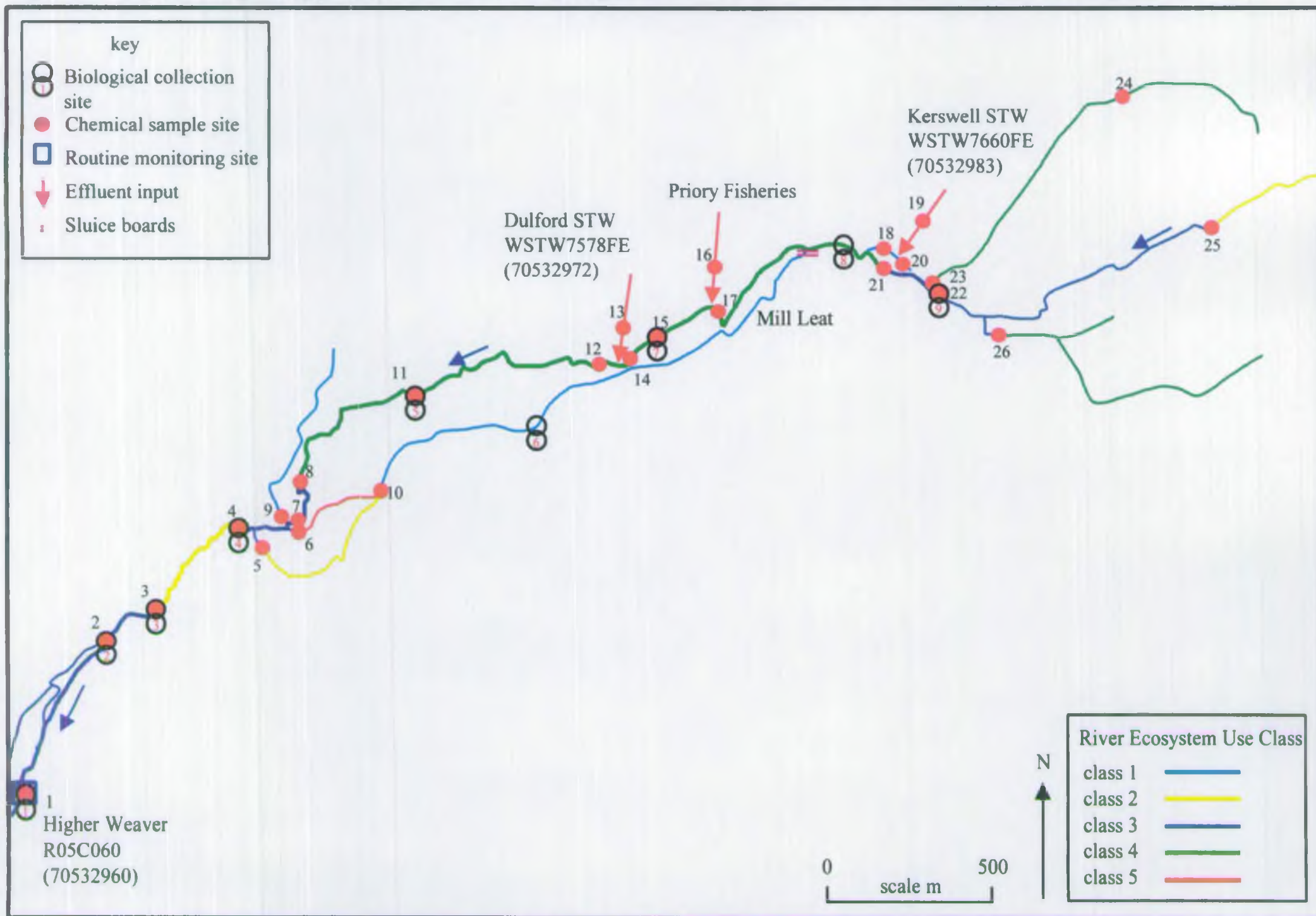


Table 2.

Routine water quality samples from Higher Weaver (70532960) that contained BOD levels above 4.0 mg/l compared with levels present in upstream sites.

Date	BOD mg/l	* Rainfall	U/S Dulford STW (70532973)	D/S Kerswell Priory (70532976)	effluent B1 (70532977)	A1 (U/S) (70532979)	effluent B2 (70532974)	A2 (U/S) (70532975)
02-Apr-93	4.7	y	5.9	n/s	6.5	n/s	n/s	n/s
05-Apr-93	5.3	y	6.1	n/s	n/s	n/s	n/s	n/s
25-May-93	5.8	y	3.5	3.4	4.2	6.3	n/s	n/s
27-Jul-93	6.4	y	6.8	6.4	n/s	2.7	n/s	n/s
02-Dec-93	4.6	n	n/s	n/s	n/s	n/s	n/s	n/s
04-May-94	4.8	n	4.1	4.9	4.8	n/s	n/s	n/s
07-Apr-95	5.1	y	5.1	5.4	5.7	1.8	n/s	n/s
12-May-95	5.7	y	n/s	6.6	7.4	6.4	n/s	n/s
30-Jun-95	4.1	n	n/s	n/s	n/s	n/s	n/s	n/s
24-Apr-97	5.1	y	n/s	n/s	8.9	1.5	7	4.6

* Rainfall data from Plymtree station at ST 050 031.

n/s: Not sampled on the same date as 70532960.

Table 3 Compliance testing for Kerswell Priory Fisheries Cullompton.

Consent No NRA-SW-7979 Date of Issue: 17 May 1996

Date	BOD mg/l			Suspended solids mg/l			Total Ammonia mg/l		
	Influent A1	Effluent B1	Compliance	Influent A1	Effluent B	Compliance	Influent A1	Effluent B1	Compliance
14-JUN-96		5.2	NA		21.0	NA		0.200	NA
23-JUL-96	1.5	> 8.3	Fail	7.2	26.0	Pass	< 0.030	0.300	Pass
02-SEP-96	< 1.0	> 7.6	Fail	4.3	61.0	Fail	< 0.030	0.400	Pass
16-OCT-96	1.0	7.1	Fail	< 3.0	10.0	Pass	< 0.030	< 0.030	Pass
24-OCT-96	1.5	4.1	Pass	43.0	7.0	Pass	0.270	0.240	Pass
11-NOV-96	1.3	1.9	Pass	8.4	8.4	Pass	< 0.030	0.360	Pass
19-NOV-96	3.3	4.3	Pass	203.0	232.0	Fail	0.090	0.990	Fail
02-DEC-96	1.3	1.7	Pass	4.8	11.0	Pass	0.030	0.110	Pass
21-JAN-97		1.9	NA		11.0	NA		0.120	NA
24-FEB-97	1.1	3.4	Pass	13.0	205.0	Fail	0.050	0.050	Pass
07-MAR-97	< 1.0	3.8	Pass	3.3	57.0	Fail	0.050	< 0.030	Pass
24-APR-97	1.5	8.9	Fail	5.4	17.0	Pass	< 0.030	0.180	Pass
29-JUL-97	< 1.0	6.2	Pass	8.4	16.0	Pass	< 0.030	0.270	Pass
06-OCT-97	< 1.0	3.9	Pass	4.1	6.4	Pass	< 0.030	0.236	Pass
17-OCT-97	1.4	3.9	Pass	71.9	36.7	Fail	0.037	0.327	Pass
29-OCT-97		4.0	NA		9.9	NA		0.051	NA
13-NOV-97	1.2	4.4	Pass	4.1	49.9	Fail	0.034	0.556	Fail
27-NOV-97	2.1	2.2	Pass	21.3	20.3	Pass	0.198	0.144	Pass
04-DEC-97	1.6	3.2	Pass	8.3	40.6	Fail	0.075	0.195	Pass
12-DEC-97	1.3	1.7	Pass	5.4	13.8	Pass	0.033	0.232	Pass
22-DEC-97	1.0		NA	15.7		NA	0.059		NA
09-FEB-98	1.4	2.7	Pass	3.5	23.3	Pass	0.033	0.097	Pass
19-FEB-98	1.3	3.0	Pass	< 3.0	24.4	Pass	< 0.030	0.073	Pass
13-MAR-98	1.2	5.7	Pass	6.0	19.6	Pass	< 0.030	0.040	Pass
31-MAR-98	9.8	6.7	Pass	25.8	78.1	Fail	0.171	< 0.030	Pass
28-APR-98	1.8	6.7	Pass	20.3	21.9	Pass	0.116	0.149	Pass
20-MAY-98	< 1.0		NA	5.1		NA	0.033		NA
Date	BOD mg/l			Suspended solids mg/l			Total Ammonia mg/l		
	Influent A2	Effluent B2	Compliance	Influent A2	Effluent B	Compliance	Influent A2	Effluent B2	Compliance
24-FEB-97	2.7	2.7	Pass	11.0	19.0	Pass	< 0.030	0.040	Pass
07-MAR-97	3.6	5.6	Pass	11.0	31.0	Pass	< 0.030	< 0.030	Pass
24-APR-97	4.6	7.0	Pass	18.0	20.0	Pass	0.070	< 0.030	Pass
29-JUL-97	2.6	3.2	Pass	11.0	8.7	Pass	0.040	0.030	Pass
06-OCT-97	1.9	1.1	Pass	11.1	< 3.0	Pass	0.031	0.090	Pass
17-OCT-97		1.2	NA		6.9	NA		0.076	NA
29-OCT-97		1.7	NA		4.8	NA		0.065	NA
13-NOV-97		1.3	NA		3.2	NA		0.071	NA
27-NOV-97		1.9	NA		17.5	NA		0.188	NA
04-DEC-97		1.9	NA		5.5	NA		0.142	NA
12-DEC-97		1.4	NA		6.0	NA		0.123	NA
09-FEB-98		1.7	NA		13.5	NA		0.066	NA
19-FEB-98		1.4	NA		14.7	NA		0.075	NA
13-MAR-98		4.2	NA		20.9	NA	<	0.030	NA
31-MAR-98		3.0	NA		6.6	NA	<	0.030	NA
28-APR-98		3.7	NA		12.4	NA	<	0.030	NA

Chemical Consent Details:

BOD shall not be increased in relation to the influent by more than 6.0 mg/l

Suspended Solids (105°C) shall not be increased in relation to the influent by more than 30 mg/l

Ammonical nitrogen (as N) shall not be increased in relation to the influent by more than 0.5 mg/l

NA: Not assessable

Table 4 Compliance testing for Kerswell Priory Fisheries Cullompton (Cont.)

Consent No NRA-SW-7979

Date of Issue: 17 May 1996

Effluent B1	DO % Sat not < 70 %		pH not<6 or> 9		Copper mg/l (Not > 0.04 mg/l)		Malachite mg/l (Not > 0.01 mg/l)		Formaldehyde mg/l (Not > 0.1 mg/l)	
14-JUN-96	99	Pass	7.95	Pass						
23-JUL-96	106	Pass	7.85	Pass	< 0.0025	Pass	< 0.01	Pass	0.013	Pass
02-SEP-96	91	Pass	7.8	Pass	< 0.004	Pass	< 0.01	Pass	< 0.004	Pass
16-OCT-96	93	Pass	7.8	Pass	< 0.0025	Pass	< 0.01	Pass	< 0.004	Pass
24-OCT-96	92	Pass	7.7	Pass	< 0.0025	Pass	< 0.01	Pass	< 0.004	Pass
11-NOV-96	90	Pass	7.75	Pass	< 0.0025	Pass	< 0.01	Pass	< 0.004	Pass
19-NOV-96	75	Pass	7.4	Pass	0.017	Pass	< 0.01	Pass	0.006	Pass
02-DEC-96	98	Pass	7.8	Pass	< 0.0025	Pass	0.01	Pass	< 0.004	Pass
21-JAN-97	96	Pass	8	Pass	< 0.0025	Pass	< 0.01	Pass	< 0.004	Pass
24-FEB-97	96	Pass	8	Pass	0.006	Pass	< 0.01	Pass	< 0.004	Pass
07-MAR-97	100	Pass	8.05	Pass	0.004	Pass	< 0.01	Pass	0.005	Pass
24-APR-97	131	Pass	8.55	Pass	< 0.0025	Pass	< 0.01	Pass	< 0.004	Pass
29-JUL-97	108	Pass	7.8	Pass	0.003	Pass	< 0.01	Pass	< 0.004	Pass
06-OCT-97	79	Pass	7.7	Pass	< 0.0025	Pass	< 0.01	Pass	< 0.004	Pass
17-OCT-97	92	Pass	7.8	Pass	< 0.0025	Pass	< 0.01	Pass	< 0.004	Pass
29-OCT-97	96	Pass	7.9	Pass	0.003	Pass	< 0.01	Pass	< 0.004	Pass
13-NOV-97	84	Pass	7.7	Pass	< 0.0025	Pass	< 0.01	Pass	< 0.004	Pass
27-NOV-97	90.1	Pass	7.75	Pass	0.004	Pass	< 0.01	Pass	< 0.004	Pass
04-DEC-97	93	Pass	7.75	Pass	< 0.0025	Pass	< 0.01	Pass	< 0.004	Pass
12-DEC-97	91	Pass	7.85	Pass	< 0.0025	Pass	< 0.01	Pass	0.027	Pass
09-FEB-98	98	Pass	7.85	Pass	0.008	Pass	< 0.01	Pass	< 0.004	Pass
19-FEB-98	97	Pass	7.9	Pass	0.004	Pass	< 0.01	Pass	< 0.004	Pass
13-MAR-98	111	Pass	7.95	Pass	0.005	Pass	< 0.01	Pass	< 0.004	Pass
31-MAR-98	111	Pass	8	Pass	0.003	Pass	< 0.01	Pass	< 0.004	Pass
28-APR-98	101	Pass	7.55	Pass	0.003	Pass	< 0.01	Pass	< 0.004	Pass
Effluent B2	DO % Sat not < 70 %		pH not<6 or> 9		COPPER mg/l (Not > 0.04 mg/l)		MALACHITE mg/l (Not > 0.01 mg/l)		FORMALDEHYDE mg/l (Not > 0.1 mg/l)	
24-FEB-97	106	Pass	8	Pass	< 0.025	Pass	< 0.01	Pass	< 0.004	Pass
07-MAR-97	103	Pass	8.2	Pass	< 0.025	Pass	< 0.01	Pass	0.004	Pass
24-APR-97	115	Pass	8.4	Pass	< 0.025	Pass	< 0.01	Pass	0.013	Pass
29-JUL-97	105	Pass	8.05	Pass	< 0.025	Pass	< 0.01	Pass	< 0.004	Pass
06-OCT-97	84	Pass	7.85	Pass	< 0.025	Pass	< 0.01	Pass	< 0.004	Pass
17-OCT-97	90	Pass	7.8	Pass	< 0.025	Pass	< 0.01	Pass	< 0.004	Pass
29-OCT-97	95.4	Pass	7.85	Pass	< 0.025	Pass	< 0.01	Pass	< 0.004	Pass
13-NOV-97	93	Pass	7.85	Pass	< 0.0025	Pass	< 0.01	Pass	< 0.004	Pass
27-NOV-97	88.8	Pass	7.85	Pass	< 0.025	Pass	< 0.01	Pass	< 0.004	Pass
04-DEC-97	91	Pass	7.9	Pass	< 0.025	Pass	< 0.01	Pass	< 0.004	Pass
12-DEC-97	94	Pass	7.9	Pass	< 0.025	Pass	< 0.01	Pass	< 0.004	Pass
09-FEB-98	94	Pass	7.9	Pass	< 0.025	Pass	< 0.01	Pass	< 0.004	Pass
19-FEB-98	95	Pass	7.95	Pass	< 0.025	Pass	< 0.01	Pass	< 0.004	Pass
13-MAR-98	103	Pass	8	Pass	< 0.025	Pass	< 0.01	Pass	< 0.004	Pass
31-MAR-98	106	Pass	8	Pass	< 0.0025	Pass	< 0.01	Pass	< 0.004	Pass
28-APR-98	101	Pass	7.9	Pass	< 0.025	Pass	< 0.01	Pass	< 0.004	Pass

Table 5. Higher Weaver Wet Weather Survey 09 April 1998

Site	Time	Temp °C	DO % sat.	BOD mg/l O	NH3 Total mg/l	NH3 union mg/l	pH	SS 105°C mg/l	SS 500° mg/l	App RE class	
1	13:57	9.4	97.8	4.7	0.141	0.0012	7.70	119	100	3	
2	14:11	9.4	98.0	4.4	0.111	0.0011	7.75	143	124	3	
3	14:15	9.4	98.0	3.7	0.101	0.0010	7.75	126	108	2	
4	14:56	9.0	94.4	4.5	0.142	0.0010	7.60	282	251	3	
5	15:00	8.6	92.0	3.3	0.097	0.0004	7.35	109	90	2	
6	15:07	8.5	64.5	38.1	2.100	0.0109	7.50	289	200	5	
7	15:08	9.0	94.7	5.7	0.173	0.0012	7.60	254	221	3	
8	15:12	9.0	94.0	6.6	0.224	0.0014	7.55	247	214	4	
9	15:04	8.5	93.5	2.4	< 0.030	0.0002	7.55	39	35	1	
10	15:25	9.3	103.3	1.5	0.035	0.0001	7.35	22	< 20	1	
11	15:32	9.2	95.0	6.3	0.152	0.0009	7.55	180	159	4	
12	15:48	9.1	97.5	6.3	0.169	0.0016	7.75	370	335	4	
13	15:51	9.6	68.0	6.3	1.250	0.0071	7.50	10.4	nr		Dulford STW
14	15:53	9.1	97.6	6.8	0.152	0.0013	7.70	383	341	4	
15	16:02	9.0	99.3	6.2	0.216	0.0021	7.75	662	577	4	
16	16:07	10.0	104.5	4.0	< 0.030	0.0004	7.90	8	nr		Priory Fish Farm
17	16:09	8.9	99.6	6.8	0.305	0.0029	7.75	582	521	4	
18	16:27	10.6	88.0	2.3	0.149	0.0014	7.70	12.4	nr	1	
19	16:30	9.6	nr	5.1	0.105	0.0012	7.80	12.4	nr		Kerswell STW
20	16:32	10.6	90.7	1.4	0.198	0.0019	7.70	7.2	nr	1	
21	16:40	8.5	96.0	5.3	0.183	0.0015	7.70	123	104	3	
22	16:50	8.3	95.6	4.4	0.122	0.0010	7.70	125	101	3	
23	16:51	8.5	96.0	9.0	0.300	0.0022	7.65	191	153	4	
24	16:59	7.8	96.5	7.8	0.593	0.0016	7.25	1910	1670	4	
25	17:06	7.8	96.8	< 3.0	0.054	0.0003	7.50	127	110	2	
26	17:13	8.1	98.0	6.4	0.113	0.0010	7.75	330	283	4	

App RE Class: River Ecosystem Use Class if standard applied to result on a 'One off' face value basis (for duration of this survey only)

DO%sat: Dissolved Oxygen % saturation.

NH3 non: Non-ionised ammonia

NH3 Total: Total ammonia mg/l

SS 105: Suspended solids at 105 °C

NH3 union: Unionised Ammonia mg/l

SS 500: Suspended solids at 500 °C

BOD: Biochemical Oxygen Demand mg/lO

nr: no result

APPENDIX I

Our refsci_adv/re_stat2.wpd
Your ref

Date: 30 January 1998

Dr M Ackerley
Phillip-Desmond Partnership
40 Lemon Street
Truro
Cornwall TR1 2NS

Dear Dr Ackerley

GQA/ RIVER ECOSYSTEM CLASSIFICATION/ RQOs

Please find enclosed a copy of "River Quality Schemes" which explains the River Ecosystem (RE) classification and General Quality Assessment (GQA). I realise that it is the RE classification and River Quality Objectives that you are primarily interested in, however I thought it might also be helpful if I explained the General Quality Assessment as well.

General Quality Assessment

The Environment Agency uses GQA for a standard assessment of water quality. The parameters used for GQA are dissolved oxygen (10 %ile), BOD (90 %ile) and total ammonia (90 %ile). These 3 parameters are always used for classifying every GQA monitoring site. This enables us to compare water quality between years and between sites. The statistics used for the calculation of GQA are the same as those used to calculate the Rivers Ecosystem Face Values for dissolved oxygen (DO), BOD and total ammonia (see below).

River Ecosystem Classification

This classification is used as a planning tool for maintaining or improving water quality. We set river quality objectives (RQOs) which comprise a set of standards for DO, BOD, total ammonia, unionised ammonia, pH, copper and zinc. Face value and optimistic statistics are used when calculating compliance with the Rivers Ecosystem (RE) RQOs. The RE face value for DO (10 %ile), BOD (90 %ile) and total ammonia (90 %ile) are the same as the calculated GQA values for DO (10 %ile), BOD (90 %ile) and total ammonia (90 %ile).

The enclosed booklet, "Water Quality Objectives: Procedures used by the NRA for the purpose of the Surface Waters (River Ecosystem) (Classification) Regulations 1994", explains how the optimistic estimates of DO (10 %ile), BOD (90 %ile), total ammonia (90 %ile), unionised ammonia (95 %ile), pH lower limit (95 %ile), pH upper limit (95 %ile), dissolved copper (95 %ile) and total zinc (95 %ile) are calculated. (The optimistic estimate of a percentile can be regarded as an upper confidence limit on the face value estimate of a percentile).

e.g. the Face Value estimate of the 10 %ile for dissolved oxygen is q in:

$$q = m - 1.2816s$$

where: m =mean and s =standard deviation

To calculate the Optimistic Confidence limit on the 10 %ile for dissolved oxygen we replace the factor of 1.2816 with a smaller value which depends on the number of samples (see Appendix 1 Weighting factors in " Water Quality Objectives" for the calculation of confidence limits).

Assessing compliance against a RQO

e.g. a stretch of river may have been assigned a RQO (river quality objective, i.e. a water quality objective based on the River Ecosystem Classification) of RE2. Monitoring data may show that the actual water quality achieves RE2 Optimistic and RE3 Face Value.

This means that the stretch has marginally failed to comply with its RQO, or put another way, we are 50 % confident that the stretch failed to comply.

If on the other hand monitoring data had shown that the actual water quality achieved RE3 Optimistic and RE3 Face Value then we could say that the stretch has significantly failed to comply with its RQO. Or put another way, we are 95 % confident that it has failed to comply. I hope that the above together with the enclosed booklets will help to explain the RE Classification and GQA. If you require any further clarification please do not hesitate to contact me.

Yours sincerely

DR MARGARET WAITE
Scientific Officer, Water Quality Planning

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APPENDIX II

Higher Weaver (70532960)

BOD mg/l



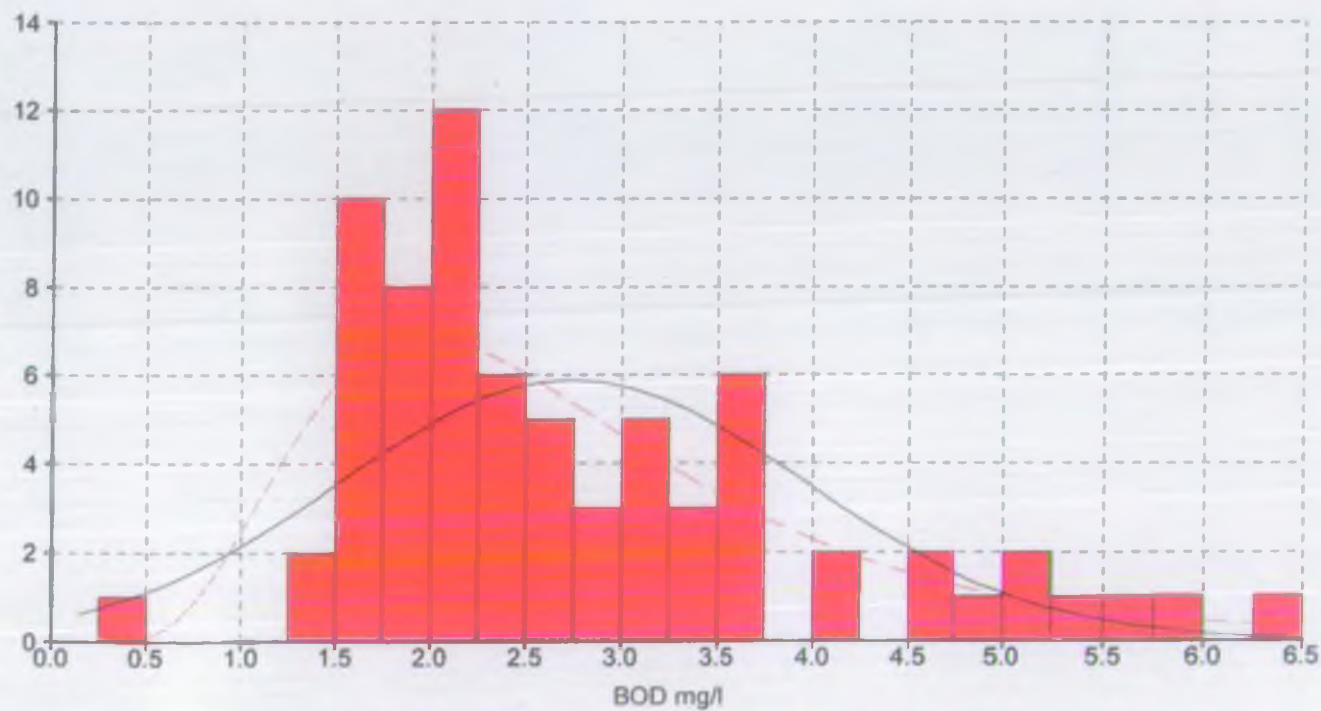
Histogram - BOD mg/l

29-01-93 to 28-04-98

Higher Weaver

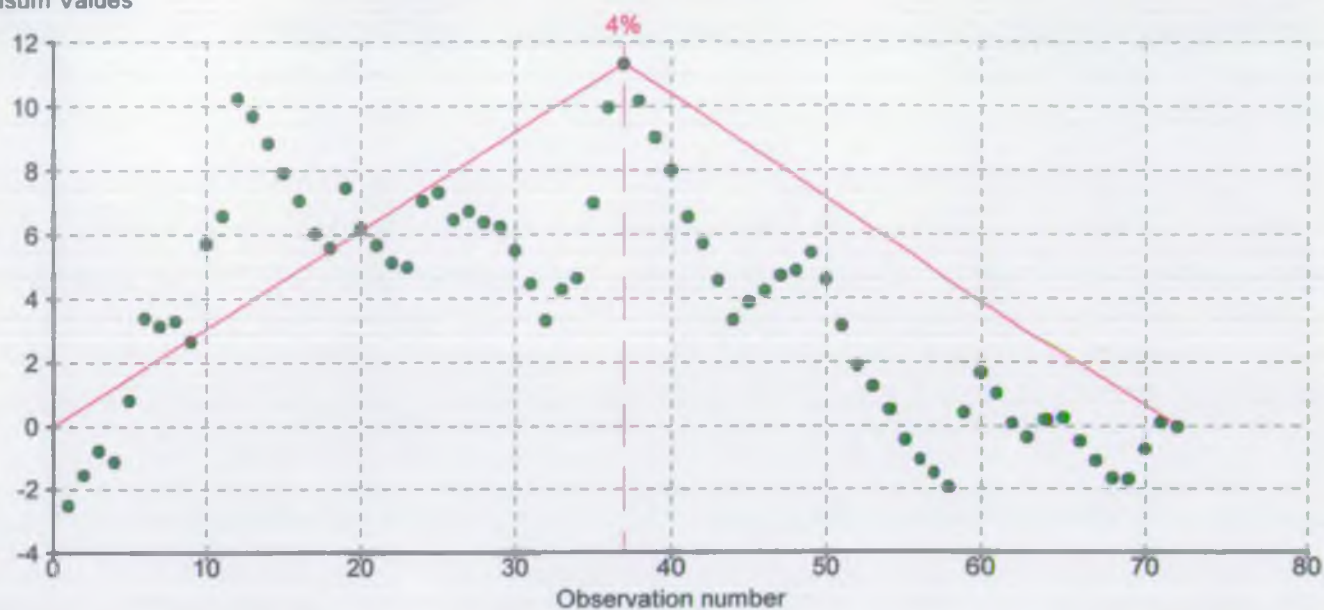
Model	Fit	m	s
Normal	Poor (0.0%)	2.741	1.223
Log-N (ML)	Not poor (5.1%)	0.91	0.477

Frequency



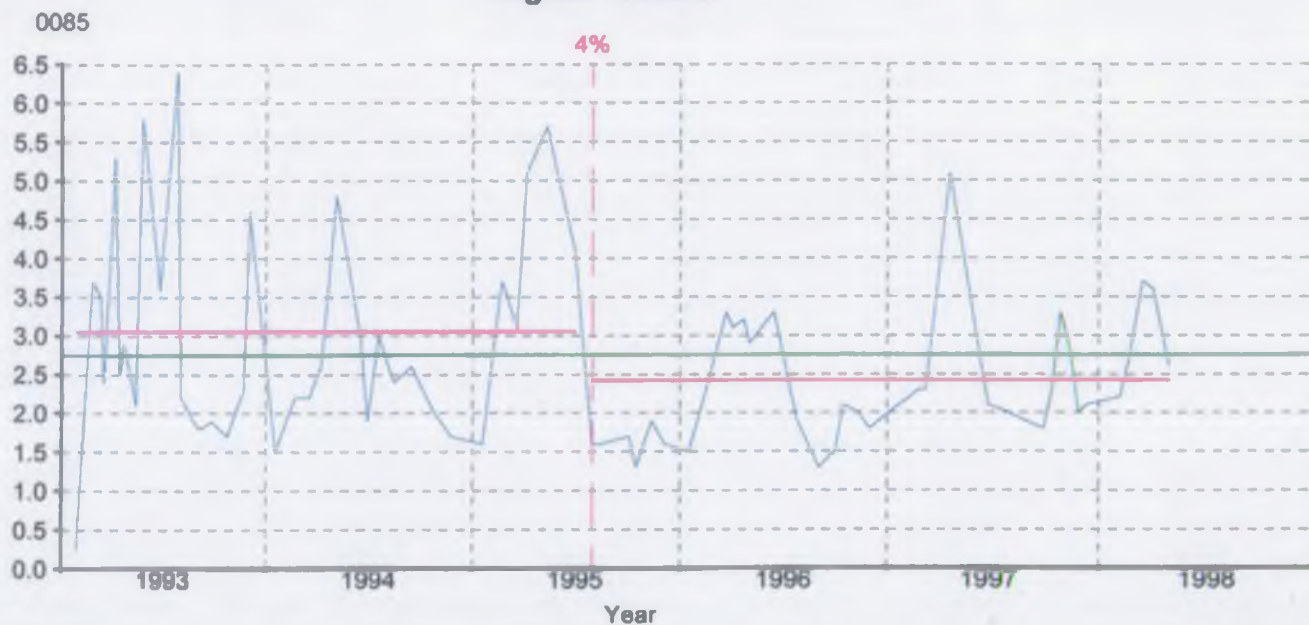
Higher Weaver (70532960)

Cusum Values



Cusum Manhattan Plot - BOD mg/l

Higher Weaver



Cusum Stats - BOD mg/l

Higher Weaver

	Start Date	End Date	N	Mean	Std Dev	SDD	Significance
1	29-01-93	30-06-95	37	3.05	1.429	1.239	4%
2	31-07-95	28-04-98	35	2.42	0.866	0.597	

APPENDIX III

Standards for the Five River Ecosystem Use Classes

Use Class	DO % sat 10%ile	BOD (ATU) mg/l 90%ile	Total Ammonia mgN/l 90%ile	Un-ionised Ammonia mgN/l 95%ile	pH 5%ile & 95%ile	Hardness mg/l CaCO ₃	Dissolved Copper µg/l 95%ile	Total Zinc µg/l 95%ile	Class Description
1	80	2.5	0.25	0.021	6.0 - 9.0	≤10 >10 and ≤50 >50 and ≤100 >100	5 22 40 112	30 200 300 500	Water of very good quality suitable for all fish species.
2	70	4.0	0.6	0.021	6.0 - 9.0	≤10 >10 and ≤50 >50 and ≤100 >100	5 22 40 112	30 200 300 500	Water of good quality suitable for all fish species.
3	60	6.0	1.3	0.021	6.0 - 9.0	≤10 >10 and ≤50 >50 and ≤100 >100	5 22 40 112	300 700 1,000 2,000	Water of fair quality suitable for high class coarse fish populations.
4	50	8.0	2.5		6.0 - 9.0	≤10 >10 and ≤50 >50 and ≤100 >100	5 22 40 112	300 700 1,000 2,000	Water of fair quality suitable for coarse fish populations.
5	20	15.0	9.0						Water of poor quality which is likely to limit coarse fish populations.

When Sampled	Pu M	0061 pH pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C
Sampling Point 70532960 RIVER WEAVER AT HIGHER WEAVER				
29-JAN-93	0820 RM S	8	385	8.1
24-FEB-93	1420 RM S	8.3	385	8.2
11-MAR-93	1440 RM S	8.7	376	11.6
16-MAR-93	0745 RM S	8.1	392	9.5
02-APR-93	1235 RM S	8.6	384	8.3
05-APR-93	1045 RM S	7.9	345	8.9
14-APR-93	1050 RM S	8.1	345	9.5
22-APR-93	1650 RM S	8.3	397	12
14-MAY-93	1050 RM S	8.1	380	11.7
25-MAY-93	0910 RM S	8.1	391	13.7
26-JUN-93	0855 RM S	7.7	366	15.1
27-JUL-93	0830 RM S	7.9	342	15.4
04-AUG-93	1050 RM S	7.9	370	15.3
26-AUG-93	1445 RM S	7.9	360	15.5
06-SEP-93	0935 RM S	7.9	463	12.1
27-SEP-93	1505 RM S	8	382	12.4
23-OCT-93	1355 RM S	8.1	404	10.1
22-NOV-93	1335 RM S	8	395	3.1
02-DEC-93	1120 RM S	7.6	232	6.6
18-JAN-94	0920 RM S	7.8	333	3.3
21-FEB-94	0920 RM S	7.8	298	2.3
17-MAR-94	0910 RM S	8.5	354	5.5
07-APR-94	1250 RM S	8.2	317	9.4
04-MAY-94	1345 RM S	8.3	374	14.2
16-JUN-94	0820 RM S	8.2	373	13.3
29-JUN-94	0930 RM S	8.3	373	16
19-JUL-94	1100 RM S	8.4	355	19.2
15-AUG-94	0855 RM S	8.2	344	12.6
15-SEP-94	1110 RM S	8.2	370	12.4
26-OCT-94	1505 RM S	8.1	392	9.8
24-NOV-94	0830 RM S	7.9	373	11.5
20-JAN-95	0930 RM S	7.6		5.6

0081	0085	0111	0135
D.O.%	BOD ATU	AMMONIA	SS 105 C
%	mg/l	mg/l	mg/l

Type F3 Grid Reference ST0505004710

97	<	1	0.16	5.7
103		3.7	0.03	13
119		3.5	0.03	28
85		2.4	0.1	5.1
118		4.7	0.1	12
100		5.3	0.25	47
106		2.5	0.09	11
114		2.9	0.08	5.3
101		2.1	0.08	10
96		5.8	0.02	14
89		3.6	0.11	16
82		6.4	0.14	19
85		2.2	0.04	4.3
80		1.9	0.06	5.3
87		1.8	0.03	4
92		1.9	0.03	9.7
91		1.7	0.07	80
98		2.3	0.08	29
97		4.6	0.2	338
101		1.5	0.08	15
98		2.2	0.09	25
115		2.2	0.02	5
109		2.6	0.04	14
103		4.8	0.06	19
92		3	0.03	15
96		1.9	0.03	14
98		3	0.02	8.6
106		2.4	0.02	4.8
94		2.6	0.02	5.5
98		2	0.05	11
95		1.7	0.06	12
95		1.6	0.15	

When Sampled	Pu M	0061 pH pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C
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Sampling Point 70532960 RIVER WEAVER AT HIGHER WEAVER

21-FEB-95	1455 RM S	7.8		8
20-MAR-95	0925 RM S	8.2		5.3
07-APR-95	1405 RM S	8.9		15.8
12-MAY-95	1220 RM S	8.4		11.7
30-JUN-95	1235 RM S	8.1		21.6
31-JUL-95	1445 RM S	8.1		22.3
16-AUG-95	1445 RM S	7.95		21.7
05-OCT-95	1000 RM S	7.95		11.4
17-OCT-95	1335 RM S	7.9		14.7
14-NOV-95	1030 RM S	7.6		9.9
06-DEC-95	1325 RM S	7.9		3.6
16-JAN-96	1230 RM S	7.75		8.8
22-MAR-96	1020 RM S	7.55		8.9
03-APR-96	1335 RM S	9		10.9
22-APR-96	1200 RM S	8.65		12.2
02-MAY-96	1250 RM S	8.1		11.6
14-JUN-96	1125 RM S	8.1		16.9
23-JUL-96	1430 RM S	8.15		19.2
02-SEP-96	1045 RM S	7.95		15
01-OCT-96	1035 RM S	7.95		11.2
16-OCT-96	1430 RM S	7.95		11.1
11-NOV-96	1430 RM S	7.85		7.4
02-DEC-96	1355 RM S	7.75		7.6
21-JAN-97	1130 RM S	8		4.2
24-FEB-97	0955 RM S	7.85		7
07-MAR-97	1355 RM S	8		9.6
24-APR-97	0915 RM S	8.45		9.4
20-MAY-97	1540 RM S	7.95		14.8
30-JUN-97	1310 RM S	7.9		15.2
06-OCT-97	1225 RM S	8.15		14.9
17-OCT-97	1410 RM S	7.9		15
29-OCT-97	1230 RM S	7.95		7.3
13-NOV-97	1250 RM S	7.8		7.6
27-NOV-97	1225 RM S	7.7		10.2
12-DEC-97	1410 RM S	7.85		8.4
06-FEB-98	1105 RM S	8.25		6.8
20-FEB-98	1050 RM S	8.65		9.8
13-MAR-98	1240 RM S	8.7		10.2
31-MAR-98	1235 RM S	8.5		10.6
28-APR-98	1020 RM S	7.9		10.1

Sampling Point 70532971 RIVER WEAVER D/S DULFORD STW

21-AUG-91	0945 RM S	7.4		15
29-JAN-93	0835 RM S	7.9	376	8.4
03-FEB-93	1035 RM S	7.8	337	7.5
24-FEB-93	0845 RM S	8	380	6.2
16-MAR-93	0800 RM S	8.1	387	9.7
02-APR-93	1120 RM S	8	378	8.7
05-APR-93	1130 RM S	7.8	363	10.7
22-APR-93	1430 RM S	8.1	379	12

0081 D.O. %	0085 BOD ATU mg/l	0111 AMMONIA mg/l	0135 SS 105 C mg/l
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Type F3 Grid Reference ST0505004710

94	3.7	<	0.03
103	3.1	<	0.03
127	5.1	<	0.03
107	5.7		0.04
81	4.1		0.06
87	1.6	<	0.03
94	1.6		0.06
89	1.7	<	0.03
87	1.3	<	0.03
95	1.9		0.1
94	1.6		0.11
98	1.5		0.18
101	3.3		0.11
130	3.1	<	0.03
120	3.2	<	0.03
105	2.9		0.07
92	3.3		0.08
90	1.9		0.049
77	1.3		0.04
86	1.5	<	0.03
82	2.1		0.04
92	2		0.09
96	1.8		0.12
95	2.1		0.1
98	2.3		0.12
100	2.3		0.06
109	5.1	<	0.03
90	4		0.21
92.3	2.1		0.12
96	1.8		0.048
94	2.3		0.15
95.7	3.3		0.285
98	2.8		0.229
92.4	2		0.125
98	2.1		0.472
96	2.2		0.057
120	2.7	<	0.03
120	3.7		0.031
120	3.6	<	0.03
104	2.6		0.092

Type F6 Grid Reference ST0686005940

	1.4	<	0.5	<	3
96	1.4		0.08		13
90	3.1		0.38		63
98	2.8		0.04		14
104	2.6		0.13		16
89	6		0.31		424
95	5.5		0.18		65
99	4.3		0.15		50

When Sampled	Pu M	0061 pH pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C
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Sampling Point 70532971 RIVER WEAVER D/S DULFORD STW

14-MAY-93	1125 RM S	7.9	386	12.7
25-MAY-93	0945 RM S	8	376	14.1
26-JUN-93	0925 RM S	7.8	360	16.4
27-JUL-93	0930 RM S	7.7	340	15.8
04-AUG-93	1030 RM S	7.7	374	15.9
26-AUG-93	1500 RM S	7.8	369	16.5
09-SEP-93	1505 RM S	7.7	326	15.3
27-SEP-93	1225 RM S	7.8	387	12.3
25-OCT-93	0900 RM S	7.9	402	8
17-NOV-93	1530 RM S	7.9	358	7.8
22-NOV-93	1205 RM S	7.9	392	4.3
08-DEC-93	0900 RM S	7.7	295	8
22-DEC-93	1630 RM S	7.7	222	5.6
18-JAN-94	0945 RM S	7.7	342	4.2
21-FEB-94	1015 RM S	7.8	320	3.7
17-MAR-94	0930 RM S	8	373	7.4
07-APR-94	1435 RM S	8.1	344	11.3
04-MAY-94	1205 RM S	8.1	356	13.1
16-JUN-94	0830 RM S	7.9	379	13.3
29-JUN-94	0945 RM S	8	374	17
19-JUL-94	1110 RM S	8	368	19
15-AUG-94	0915 RM S	8.1	363	13.9
15-SEP-94	1155 RM S	7.9	366	13.8
26-OCT-94	1605 RM S	7.9	370	9.9
24-NOV-94	0920 RM S	7.8	354	11.3
20-JAN-95	1020 RM S	7.7	292	6.3
21-FEB-95	1510 RM S	8	303	7.9
20-MAR-95	0940 RM S	8	379	7.2
07-APR-95	1425 RM S	8.2	337	14.8

Sampling Point 70532972 DULFORD STW FE

29-JAN-93	0855 RA S	7.3		9
24-FEB-93	0855 RA S	7.7		7.9
16-MAR-93	0810 RA S	7.6		10
22-APR-93	1435 RA S	7.7		12
25-MAY-93	1000 RA S	7.4		14.9
26-JUN-93	0930 RA S	7.6		17
27-JUL-93	0950 RA S	7.5		15.7
26-AUG-93	1505 RA S	7.5		16
27-SEP-93	1235 RA S	7.7		14
25-OCT-93	0905 RA S	7.7		9
22-NOV-93	1200 RA S	7.7		6
22-DEC-93	1625 RA S	7.7		7
18-JAN-94	0955 RA S	7.7		6
21-FEB-94	1020 RA S	7.6		4.2
17-MAR-94	0935 RA S	7.7		8
07-APR-94	1445 RA S	7.7		10
04-MAY-94	1210 RA S	7.6		13.5
16-JUN-94	0845 RA S	7.7		14.4
29-JUN-94	0950 RA S	7.7		17.5

between 01-JAN-90 and 30-APR-98

04-JUN-98

0081 D.O.% %	0085 BOD ATU mg/l	0111 AMMONIA mg/l	0135 SS 105 C mg/l
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Type F6 Grid Reference ST0686005940

91	5	0.22	65
91	3.2	0.15	33
98	3.1	0.09	16
70	6.7	0.1	19
63	5.7	0.16	16
82	2.7	0.06	8.5
69	4.1	0.33	21
88	2	0.18	22
92	3.4	0.07	207
93	1.5	0.06	7.9
95	2.3	0.09	6.1
86	2.6	0.15	44
96	5.8	0.29	771
101	1.6	0.09	14
94	2.3	0.11	15
101	2.4	0.06	17
105	7	0.02	104
100	4.1	0.03	21
91	1.9	0.06	28
88	1.7	0.07	15
85	2.5	0.11	8.7
89	8.2	0.02	31
86	3.3	0.23	30
101	2.4	0.1	13
83	2.2	0.09	31
96	1.7	0.13	44
98	5.2	0.03	67
108	3.6	0.1	24
107	5.2	0.03	33

Type SA Grid Reference ST0690005900

3.9	<	0.5	7.8
4.2	<	0.5	6.4
5.1	<	0.5	6.3
5.8	<	0.5	8.6
5.2	<	0.6	30
3.7	<	0.5	11
7.4	<	0.5	14
9.4	<	0.8	11
4.9	<	0.5	8.1
6	<	0.5	10
7.7	<	1	11
2.7	<	0.5	24
3.9	<	0.5	6.9
5.1	<	0.8	5.5
4.5	<	0.5	9.5
3.9	<	0.5	11
5.3	<	0.5	12
1.7	<	0.5	7.2
3.4	<	0.5	8.1

When Sampled	Pu M	0061 pH pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C
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Sampling Point 70532972 DULFORD STW FE

19-JUL-94	1115 RA S	7.5		18.4
15-AUG-94	0925 RA S	7.8		12.3
15-SEP-94	1200 RA S	7.4		14.3
26-OCT-94	1600 RA S	7.7		10
24-NOV-94	0935 RA S	7.5		11.1
20-JAN-95	1025 RA S	7.8		7
21-FEB-95	1520 RA S	7.7		9
20-MAR-95	0950 RA S	7.7		7
07-APR-95	1435 RA S	7.6		13
12-MAY-95	1240 RA S	7.6		12
30-JUN-95	1305 RA S	7.5		20.7
31-JUL-95	1355 RA S	7.75		23
16-AUG-95	1505 RA S	7.55		24.6
05-OCT-95	0940 RA S	7.55		14.6
14-NOV-95	1115 RA S	7.3		12
06-DEC-95	1350 RA S	7.55		7
16-JAN-96	1250 RA S			
03-APR-96	1405 RA S			
16-OCT-96	1455 RA S			
24-FEB-97	1110 RA S			
20-MAY-97	1515 RA S			
17-OCT-97	1300 RA S			
13-NOV-97	1355 RA S			
09-FEB-98	1250 RA S			
28-APR-98	0920 RA S			

Sampling Point 70532973 RIVER WEAVER U/S DULFORD STW

21-AUG-91	0935 RM S	7.4		14.5
29-JAN-93	0845 RM S	7.9	375	8.4
03-FEB-93	1040 RM S	7.8	332	7.5
24-FEB-93	0850 RM S	8	380	6.2
16-MAR-93	0805 RM S	8.1	386	9.7
02-APR-93	1130 RM S	7.9	385	8.7
05-APR-93	1140 RM S	7.8	365	10.5
22-APR-93	1440 RM S	8.1	379	12
14-MAY-93	1130 RM S	7.9	386	12.6
25-MAY-93	0950 RM S	8	378	14.1
26-JUN-93	0935 RM S	7.8	360	16.4
27-JUL-93	0940 RM S	7.7	341	15.8
04-AUG-93	1035 RM S	7.7	372	15.8
26-AUG-93	1510 RM S	7.8	368	16.5
09-SEP-93	1510 RM S	7.6	331	15.3
27-SEP-93	1230 RM S	7.8	383	12.4
25-OCT-93	0910 RM S	7.9	404	8
17-NOV-93	1535 RM S	7.9	357	7.8
22-NOV-93	1210 RM S	7.9	394	4.2
08-DEC-93	0915 RM S	7.7	295	7.9
22-DEC-93	1635 RM S	7.6	219	5.6
18-JAN-94	0950 RM S	7.7	344	4.1
21-FEB-94	1025 RM S	7.8	321	3.5

0081 D.O.% %	0085 BOD ATU mg/l	0111 AMMONIA mg/l	0135 SS 105 C mg/l
Type SA	Grid Reference	ST0690005900	
	4.5	0.5	7
	4.3	< 0.5	14
	6.9	8.2	21
	6.9	< 0.5	6.1
		< 0.5	6.3
		< 0.5	5.9
		< 0.5	13
		1.7	11
		0.5	14
		0.6	10
		< 0.5	9.1
		< 0.5	4.7
		< 0.5	5.5
		< 0.5	3.5
		4.4	15
		1.5	8.4
	33.3	6.7	59
	10.2	2.2	10
	3.6	< 0.5	3
	15.3	7.9	13
	8.4	1.4	27
	5.8	0.87	6.8
	9.8	3.2	8.6
	5.3	1.54	6
	5.9	< 0.5	11.7

Type F6 Grid Reference ST0688005940

	0.9	< 0.5	< 3
95	1.2	0.07	13
90	4.1	0.38	59
98	2.7	0.04	14
94	2.5	0.13	16
89	5.9	0.34	771
95	6.1	0.2	73
101	4	0.15	26
92	4.2	0.21	65
91	3.5	0.16	40
99	3.3	0.07	26
70	6.8	0.1	24
64	5.6	0.14	15
81	2.5	0.05	6.4
69	6.8	0.38	83
86	2	0.18	22
92	3.9	0.06	159
93	1.6	0.06	8.1
97	1.7	0.09	8.9
88	2.8	0.16	48
96	5.3	0.29	833
100	1.6	0.08	15
101	2.5	0.12	17

When Sampled	Pu M	0061 pH pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C
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Sampling Point 70532973 RIVER WEAVER U/S DULFORD STW

17-MAR-94 0940 RM S	8.1	368	7.4
07-APR-94 1440 RM S	8.1	343	11.1
04-MAY-94 1215 RM S	8.2	355	13.3
16-JUN-94 0835 RM S	7.9	381	13.3
29-JUN-94 0955 RM S	8	377	17
19-JUL-94 1125 RM S	8	367	18.9
15-AUG-94 0920 RM S	8.2	361	13.2
15-SEP-94 1205 RM S	7.9	365	13.7
26-OCT-94 1610 RM S	7.9	371	9.9
24-NOV-94 0925 RM S	7.8	356	11.2
20-JAN-95 1030 RM S	7.7	290	6.3
21-FEB-95 1515 RM S	8	303	7.6
20-MAR-95 0945 RM S	8	377	7.2
07-APR-95 1430 RM S	8.2	335	14.8

Sampling Point 70532974 PRIORY FISHERIES (OUTLET B2)

24-FEB-97 1100 RA S	8		
07-MAR-97 1505 RA S	8.2		
24-APR-97 1020 RA S	8.4		
29-JUL-97 1005 RA S	8.05		
06-OCT-97 1300 RA S	7.85		
17-OCT-97 1340 RA S	7.8		
29-OCT-97 1305 RA S	7.85		
13-NOV-97 1325 RA S	7.85		
27-NOV-97 1245 RA S	7.85		
04-DEC-97 1310 RA S	7.9		
12-DEC-97 1340 RA S	7.9		
09-FEB-98 1230 RA S	7.9		
19-FEB-98 1125 RA S	7.95		
13-MAR-98 1255 RA S	8		
31-MAR-98 1310 RA S	8		
28-APR-98 0950 RA S	7.9		

Sampling Point 70532975 PRIORY FISHERIES (INLET A2)

24-FEB-97 1050 RM S	7.85		
07-MAR-97 1515 RM S	8.15		
24-APR-97 1040 RM S	7.9		
29-JUL-97 1025 RM S	7.85		

Sampling Point 70532976 RIVER WEAVER U/S PRIORY FISHERIES

06-FEB-90 0935 RM S	7.6	384	8.8
01-MAY-90 1200 RM S	7.9	375	17
04-JUN-90 1055 RM S			14
04-JUN-90 1056 RM S	8.1	392	14
05-JUL-90 1200 RM S	7.9	380	14
07-AUG-90 0855 RM S	7.8	381	
04-SEP-90 1050 RM S			15.5
04-SEP-90 1051 RM S	7.9	408	15.5
09-OCT-90 1150 RM S	7.8	409	11.7
01-NOV-90 1045 RM S			10

between 01-JAN-90 and 30-APR-98

04-JUN-98

0081

D.O. %

%

0085

BOD ATU

mg/l

0111

AMMONIA

mg/l

0135

SS 105 C

mg/l

Type F6 Grid Reference ST0688005940

102	2.5		0.06	17
105	7.2	<	0.02	105
101	4.1		0.03	21
91	1.9		0.08	36
89	1.5		0.07	15
86	2.7		0.09	11
88	8.7	<	0.02	127
86	3.1		0.05	14
102	2.2		0.12	8.2
83	2.5		0.08	32
98	1.9		0.13	50
99	5.4	<	0.03	61
108	3.6		0.09	23
108	5.1	<	0.03	33

Type AC Grid Reference ST0718006150

106	2.7		0.04	19
103	5.6	<	0.03	31
115	7	<	0.03	20
105	3.2		0.03	8.7
84	1.1		0.09	3
90	1.2		0.076	6.9
95.4	1.7		0.065	4.8
93	1.3		0.071	3.2
88.8	1.9		0.188	17.5
91	1.9		0.142	5.5
94	1.4		0.123	6
94	1.7		0.066	13.5
95	1.4		0.075	14.7
103	4.2	<	0.03	20.9
106	3	<	0.03	6.6
101	3.7	<	0.03	12.4

Type F6 Grid Reference ST0735006330

89	2.7		0.03	11
104	3.6	<	0.03	11
94	4.6		0.07	18
103	2.6		0.04	11

Type F6 Grid Reference ST0720006110

	1.1		0.02	55
	1.9	<	0.2	25
70				
	3.8		0.02	36
	2.5		0.04	14
	4.9		0.01	100
79				
	3		0.06	26
81	2.7		0.2	38
79				

When Sampled	Pu M	0061 pH pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C
Sampling Point 70532976 RIVER WEAVER U/S PRIORY FISHERIES				
01-NOV-90	1046 RM S	7.6	343	10
05-DEC-90	1245 RM S	7.9	388	6.8
14-JAN-91	1215 RM S	7.87	392	4
16-APR-91	0935 RM S	8	368	
30-APR-91	0840 RM S	7.9	314	
20-MAY-91	1140 RM S	8	381	18
06-JUN-91	0845 RM S	7.9	358	12.4
11-JUN-91	1420 RM S	8.1	337	12.4
18-JUL-91	1525 RM S	7.8	394	16.5
07-AUG-91	1500 RM S	7.9	375	17.6
16-SEP-91	1105 RM S	7.7	366	17
24-SEP-91	1255 RM S	7.9	390	15
07-OCT-91	0800 RM S	7.7	382	11.6
23-OCT-91	0920 RM S	7.6	386	8.4
03-NOV-91	1120 RM S	7.6	315	9.3
27-NOV-91	1450 RM S	7.8	390	9.9
11-DEC-91	1340 RM S	7.9	398	4
10-JAN-92	1120 RM S	7.8	347	5
03-FEB-92	1345 RM S	8	386	7
21-FEB-92	1115 RM S	7.9	365	5
09-MAR-92	1230 RM S	7.8	364	8.9
25-MAR-92	1130 RM S	7.9	384	9.3
07-APR-92	1100 RM S	7.8	334	9.6
06-MAY-92	1340 RM S	8.4	346	15.7
22-MAY-92	0930 RM S	7.9	393	16.7
04-JUL-92	1610 RM S	7.7	327	18.8
22-JUL-92	1150 RM S	7.8	386	18.5
01-SEP-92	1410 RM S	7.8	378	13.9
25-SEP-92	0935 RM S	7.8	350	12
05-OCT-92	1415 RM S	7.9		12.8
09-OCT-92	1335 RM S	7.9	395	11.2
06-NOV-92	0810 RM S	7.8	374	11.6
17-NOV-92	1110 RM S	7.8	352	6.5
27-NOV-92	1405 RM S	7.8	311	8.2
02-DEC-92	1430 RM S	7.6	268	9.7
11-DEC-92	1115 RM S	7.7	367	7.6
29-JAN-93	0925 RM S	7.9	383	8.5
24-FEB-93	0800 RM S	8	378	6.5
16-MAR-93	0840 RM S	8.1	385	9.6
22-APR-93	1515 RM S	8.1	382	11.9
25-MAY-93	1010 RM S	7.9	370	14
26-JUN-93	1045 RM S	7.7	350	16.4
27-JUL-93	0845 RM S	7.8	344	15.8
26-AUG-93	1525 RM S	7.9	369	16.3
27-SEP-93	1400 RM S	7.8	378	12.8
25-OCT-93	0930 RM S	7.9	386	8
22-NOV-93	1245 RM S	7.9	395	4.7
18-JAN-94	1055 RM S	7.8	340	4.5
21-FEB-94	1000 RM S	7.8	306	3.7
17-MAR-94	1005 RM S	8	379	7.4

0081 D.O. % %	0085 BOD ATU mg/l	0111 AMMONIA mg/l	0135 SS 105 C mg/l
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Type F6 Grid Reference ST0720006110

	2.1	0.08	9
70	2.2	0.06	13
91	1.5	0.05	17
97	3.5	0.09	15
97	2.4	0.01	36
104	3.6	0.2	24
88	4.9	0.14	23
91	3.4	0.13	19
90	8.6	0.01	39
86	2.4	0.02	5
68	3.5	0.09	28
77	5.1	0.15	18
75	2.8	0.11	5
	3.1	0.07	12
80	5.4	0.38	248
86	1.5	0.05	2
90	1.9	0.05	26
85	1.9	0.07	30
95	2	0.04	22
92	3.1	0.02	20
98	5.2	0.03	22
91	4.4	0.14	65
116	3.4	0.17	52
99	4.6	0.02	19
94	3.6	0.09	23
80	2.4	0.15	19
90	5.3	0.02	37
89	5.9	0.03	16
97	3.3	0.13	14
92	4.8	0.09	77
84	2.8	0.4	16
97	1.9	0.07	15
90	2.1	0.08	15
96	2.4	0.16	65
96	3.8	0.19	146
89	1.1	0.15	13
95	1.7	0.05	28
98	3.2	0.04	31
100	3.1	0.11	23
100	5	0.03	25
90	3.4	0.13	31
97	4.1	0.11	33
75	6.4	0.14	16
82	3.8	0.06	9.4
84	2.2	0.19	13
94	2.1	0.03	35
95	2	0.04	9.1
99	1.7	0.1	21
97	2.5	0.09	16
99	2.3	0.06	15

When Sampled	Pu M	0061 pH pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C
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Sampling Point 70532976 RIVER WEAVER U/S PRIORY FISHERIES

07-APR-94	1405 RM S	8.1	348	11.2
04-MAY-94	1230 RM S	8.2	370	13.5
16-JUN-94	0915 RM S	8.2	371	11.9
29-JUN-94	1010 RM S	7.9	367	16.8
19-JUL-94	1145 RM S	7.9	368	18.6
15-AUG-94	0715 RM S	8.1	365	13.2
15-SEP-94	1225 RM S	7.9	363	13.7
26-OCT-94	1705 RM S	7.9	375	9.6
24-NOV-94	0855 RM S	7.8	355	11.4
20-JAN-95	1045 RM S	7.8	287	6.4
21-FEB-95	1535 RM S	8.2	306	7.6
20-MAR-95	1000 RM S	8	380	7.4
07-APR-95	1440 RM S	8.2	341	14.8
12-MAY-95	1250 RM S	8.2	372	12.6
10-JUL-95	1525 RM S	8.1		19.4
31-JUL-95	1405 RM S	7.8		22.8
05-OCT-95	0915 RM S	7.9		12.3
17-OCT-95	1450 RM S	7.8		14.2
14-NOV-95	1130 RM S	7.75		10.4
06-DEC-95	1400 RM S	7.85		5
16-JAN-96	1315 RM S	7.8		9.3
22-MAR-96	0950 RM S	7.8		9.2
03-APR-96	1415 RM S	8.1		10
02-MAY-96	1320 RM S	8.1		11.8
14-JUN-96	1100 RM S	7.95		16.6
17-OCT-97	1320 RM S	7.85		
29-OCT-97	1320 RM S	7.85		
13-NOV-97	1320 RM S	7.8		
27-NOV-97	1305 RM S	7.8		
04-DEC-97	1300 RM S	7.85		
16-DEC-97	1135 RM S	7.85		
22-DEC-97	1040 RM S	7.85		
09-FEB-98	1215 RM S	7.9		
19-FEB-98	1115 RM S	8		
13-MAR-98	1245 RM S	8.05		
31-MAR-98	1320 RM S	8		
28-APR-98	0930 RM S	7.9		

Sampling Point 70532977 PRIORY FISHERIES KERSWELL CULLOMPTON

06-FEB-90	0930 RA S	7.1	384	9
04-JUN-90	1045 RA S			14
04-JUN-90	1046 RA S			14
04-JUN-90	1047 RA S	8	381	14
05-JUL-90	1145 RA S	7.8	370	14.5
07-AUG-90	0845 RA S	7.7	356	
04-SEP-90	1035 RA S			16
04-SEP-90	1036 RA S	7.9	409	16
09-OCT-90	1104 RA S	7.7	405	11.7
01-NOV-90	1035 RA S			10
01-NOV-90	1036 RA S	7.6	409	10

0081	0085	0111	0135
D.O.%	BOD ATU	AMMONIA	SS 105 C
%	mg/l	mg/l	mg/l

Type R6 Grid Reference ST0720006110

102	6.6	<	0.02	128
104	4.9	<	0.02	35
90	1	<	0.02	2.8
86	1.7		0.09	10
85	2.9		0.11	7.6
88	7.8	<	0.02	38
86	3		0.05	11
92	2.7		0.11	9.7
83	2		0.09	18
96	1.8		0.11	47
97	5.2	<	0.03	72
100	3.2		0.05	21
102	5.4	<	0.03	28
115	6.6	<	0.03	18
56	20.1	<	0.03	42
82	2.4		0.09	22
86	3.4		0.08	21
85	2.2		0.11	16
93	2.8		0.13	66
94	1.8		0.12	31
97	1.9		0.11	44
98	3.9		0.1	117
105	2.6		0.05	13
99	3.4	<	0.03	19
88	3.9		0.07	13
91	2		0.094	45.5
92.1	2.5		0.054	8.4
91	2.2		0.176	11.1
92.4	1.7		0.093	17.7
95	1.7		0.111	11.1
95	1.7		0.091	3
106	2.6		0.214	53.6
98	3.4		0.083	10.6
101	2		0.061	13.1
102	3.1		0.031	25.4
105	6.2		0.067	27.9
100	2.9		0.074	18.9

Type AC Grid Reference SS0770006300

	1.9		0.13	30
97				
64				
	3.8		0.08	48
	2.5		0.06	9
	6.9	<	0.01	14
78				
	4.1		0.08	16
82	2.7		0.23	14
80				
	1.8		0.09	8

When Sampled	Pu M	0061 pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C	0081 D.O.%	0085 BOD ATU mg/l	0111 AMMONIA mg/l	0135 SS 105 C mg/l
Sampling Point 70532977 PRIORY FISHERIES KERSWELL CULLOMPTON								
Type AC					Grid Reference SS0770006300			
05-DEC-90	1235 RA S	7.7	386	7	70	2.4	0.06	19
14-JAN-91	1230 RA S	7.24	388	4	93	2.4	0.03	5
16-APR-91	0940 RA S	8	361		95	3.4	0.04	15
30-APR-91	0845 RA S	8.1	329		96	4.2	0.01	32
20-MAY-91	1150 RA S	8	364	18	105	3.7	0.16	28
06-JUN-91	0840 RA S	8	431	12.9	86	5.1	0.27	43
11-JUN-91	1425 RA S	8.1	365	12.6	89	4.6	0.16	21
18-JUL-91	1510 RA S	7.8	361	18	95	6.9	0.01	32
07-AUG-91	1450 RA S	7.9	367	17.9	83	1.8	0.02	6
16-SEP-91	1100 RA S	7.6	354	17	74	6	0.14	19
24-SEP-91	1250 RA S	7.9	392	15	80	6.4	0.18	22
07-OCT-91	0810 RA S	7.9	370	11.4	88	2.1	0.04	5
23-OCT-91	0930 RA S	7.8	368	8.6	3		0.02	6
03-NOV-91	1130 RA S	7.6	373	9.8	83	1.9	0.22	38
27-NOV-91	1455 RA S	7.8	381	8.9	87	2.7	0.09	11
11-DEC-91	1405 RA S	7.8	377	3.5	95	1.6	0.07	12
10-JAN-92	1130 RA S	7.8	381	5.4	83	2.7	0.06	15
03-FEB-92	1410 RA S	8	370	6.4	108	2.5	0.03	8.2
21-FEB-92	1125 RA S	7.9	363	5	101	4.5	0.07	15
09-MAR-92	1240 RA S	8.1	358	9.2	101	6.9	0.02	4
25-MAR-92	1200 RA S	7.9	368	9.5	95	4.9	0.16	42
07-APR-92	1115 RA S	7.8	346	10	118	4.6	0.12	21
06-MAY-92	1405 RA S	8.6	355	16.6	118	6.5	0.02	25
22-MAY-92	0940 RA S	8	352	17.4	103	6	0.12	28
04-JUL-92	1615 RA S	7.7	293	18.8	80	1.6	0.14	16
22-JUL-92	1200 RA S	7.9	358	19	110	7.1	0.03	23
01-SEP-92	1415 RA S	7.8	357	14.6	95	7.7	0.03	21
25-SEP-92	0930 RA S	7.9	360	13.6	111	9.5	0.2	34
05-OCT-92	1420 RA S	7.9		12.8	92	5	0.5	116
09-OCT-92	1340 RA S	7.8	414	11.4	87	2.6	0.54	18
06-NOV-92	0820 RA S	7.9	395	11.2	96	2.3	0.1	27
17-NOV-92	1100 RA S	7.7	391	6.6	90	3.8	0.07	17
27-NOV-92	1410 RA S	7.7	354	8	91	5.5	0.56	194
02-DEC-92	1435 RA S	7.5	334	9.6	90	5.4	0.28	351
11-DEC-92	1120 RA S	7.8	375	7.4	90	1.2	0.2	22
29-JAN-93	0945 RA S	7.9	380	8.5	95	4	0.06	20
15-FEB-93	1400 RA S	7.9	370	10.7	92	1	0.06	50
24-FEB-93	0805 RA S	7.9	375	6.5	98	2.8	0.02	21
16-MAR-93	0850 RA S	8.1	383	9.6	100	2.8	0.11	23
02-APR-93	1155 RA S	8	379	8.8	95	6.5	0.18	156
22-APR-93	1520 RA S	8	384	12.1	103	4.8	0.03	30
25-MAY-93	1020 RA S	8	360	14.4	95	4.2	0.14	35
26-JUN-93	1050 RA S	7.7	352	16.7	96	4.4	0.12	40
26-AUG-93	1530 RA S	7.9	373	16.2	90	3.8	0.05	12
27-SEP-93	1405 RA S	7.8	372	13	82	2.5	0.19	11
25-OCT-93	0935 RA S	8	368	7.6	94	2.4	0.03	41
22-NOV-93	1250 RA S	7.9	392	4.7	96	2.1	0.08	12
18-JAN-94	1100 RA S	7.8	367	4.5	98	2	0.06	30
21-FEB-94	1005 RA S	7.9	358	4	97	2.6	0.03	22
17-MAR-94	1010 RA S	8	372	7.4	98	3.2	0.06	18

When Sampled	Pu M	0061 pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C	0081 D.O.% %	
Sampling Point	70532977	PRIORY FISHERIES	KERSWELL	CULLOMPTON	Type AC	Grid
07-APR-94 1410 RA S		8.1	345	11.6	104	
04-MAY-94 1235 RA S		8.1	365	13.5	106	
16-JUN-94 0925 RA S		7.9	361	12.4	91	
29-JUN-94 1015 RA S		7.8	382	17.4	81	
19-JUL-94 1140 RA S		7.9	365	18.5	84	
15-AUG-94 0745 RA S		8.1	365	12.2	91	
15-SEP-94 1230 RA S		7.9	361	13.8	93	
26-OCT-94 1710 RA S		8	363	10.1	105	
24-NOV-94 0915 RA S		7.8	374	12	77	
20-JAN-95 1055 RA S		7.8	374	6.4	95	
21-FEB-95 1540 RA S		8.4	333	8.1	99	
20-MAR-95 1005 RA S		8	389	7.7	100	
07-APR-95 1450 RA S		8.2	338	14.6	104	
12-MAY-95 1300 RA S		8.4	355	13.9	120	
10-JUL-95 1550 RA S		8.25	384	19.9	0	
31-JUL-95 1410 RA S		7.8	395	21.3	85	
16-AUG-95 1525 RA S		8.15	386	22.9	154	
05-OCT-95 0930 RA S		7.85	399	12.5	92	
17-OCT-95 1400 RA S		7.8	402	15.1		
14-NOV-95 1140 RA S		7.7	407	10.5	90	
06-DEC-95 1410 RA S		7.85	417	5.4	96	
16-JAN-96 1325 RA S		7.75			96	
22-MAR-96 0955 RA S		7.8			97	
03-APR-96 1425 RA S		7.7			97	
02-MAY-96 1330 RA S		7.95			99	
14-JUN-96 1110 RA S		7.95			99	
23-JUL-96 1505 RA S		7.85			106	
02-SEP-96 1105 RA S		7.8			91	
16-OCT-96 1510 RA S		7.8			93	
24-OCT-96 1325 RA S		7.7			92	
11-NOV-96 1450 RA S		7.75			90	
19-NOV-96 1015 RA S		7.4			75	
02-DEC-96 1410 RA S		7.8			98	
21-JAN-97 1155 RA S		8			96	
24-FEB-97 1030 RA S		8			96	
07-MAR-97 1455 RA S		8.05			100	
24-APR-97 1030 RA S		8.55			131	
29-JUL-97 1010 RA S		7.8			108	
06-OCT-97 1250 RA S		7.7			79	
17-OCT-97 1330 RA S		7.8			92	
29-OCT-97 1310 RA S		7.9			96	
13-NOV-97 1330 RA S		7.7			84	
27-NOV-97 1250 RA S		7.75			90.1	
04-DEC-97 1320 RA S		7.75			93	
12-DEC-97 1330 RA S		7.85			91	
09-FEB-98 1220 RA S		7.85			98	
19-FEB-98 1120 RA S		7.9			97	
13-MAR-98 1300 RA S		7.95			111	
31-MAR-98 1300 RA S		8			111	
28-APR-98 0945 RA S		7.55			101	

in 01-JAN-90 and 30-APR-98

04-JUN-98

0085
BOD ATU
mg/l

0111
AMMONIA
mg/l

0135
SS 105 C
mg/l

Reference SS0770006300

6.9	<	0.02	169
4.8	<	0.02	28
1.9		0.09	22
1.6		0.14	17
3.3		0.14	7.8
8.1		0.02	42
4.2		0.08	14
5		0.21	14
2.2		0.11	19
2.3		0.1	59
7	<	0.03	75
3.5		0.06	23
5.7	<	0.03	21
7.4	<	0.03	15
7.7	<	0.03	39
2.5		0.09	8.4
10.1	<	0.03	24
5.1		0.18	27
3.3		0.2	20
2.5		0.15	61
2.1		0.12	30
1.8		0.11	39
4.7		0.08	154
4		0.53	39
4.1		0.08	28
5.2		0.2	21
8.3		0.3	26
7.6		0.4	61
7.1	<	0.03	10
4.1		0.24	7
1.9		0.36	8.4
4.3		0.99	232
1.7		0.11	11
1.9		0.12	11
3.4		0.05	205
3.8	<	0.03	57
8.9		0.18	17
6.2		0.27	16
3.9		0.236	6.4
3.9		0.327	36.7
4		0.051	9.9
4.4		0.556	49.9
2.2		0.144	20.3
3.2		0.195	40.6
1.7		0.232	13.8
2.7		0.097	23.3
3		0.073	24.4
5.7		0.04	19.6
6.7	<	0.03	78.1
6.7		0.149	21.9

When Sampled	Pu M	0061 pH pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C
Sampling Point 70532979 RIVER WEAVER U/S PRIORY FISHERIES				
06-FEB-90 0920 RM S		7	330	8.5
01-MAY-90 1220 RM S		7.8	382	15.
04-JUN-90 0001 RM S				13
04-JUN-90 1050 RM S		8	392	13
05-JUL-90 1130 RM S		7.4	364	12
07-AUG-90 0850 RM S		8	391	12.3
04-SEP-90 1010 RM S				14
04-SEP-90 1011 RM S		7.5	402	14
09-OCT-90 1145 RM S		7.8	395	11.8
01-NOV-90 1025 RM S				10
01-NOV-90 1026 RM S		7.3	433	10
05-DEC-90 1240 RM S		7.7	370	6.9
14-JAN-91 1245 RM S		7.54	347	5
16-APR-91 0950 RM S		7.9	331	
30-APR-91 0900 RM S		7.5	259	
20-MAY-91 1125 RM S		7.7	379	18
06-JUN-91 0905 RM S		7.9	352	12.1
11-JUN-91 1435 RM S		8.1	353	12.1
18-JUL-91 1530 RM S		7.7	397	15
07-AUG-91 1430 RM S		7.9	368	16.4
16-SEP-91 1115 RM S		7.4	372	14.5
24-SEP-91 1305 RM S		8	386	13.5
07-OCT-91 0820 RM S		7.5	387	11.6
23-OCT-91 0945 RM S		7.3	391	9.3
03-NOV-91 1125 RM S		7.6	287	9.1
27-NOV-91 1510 RM S		7.6	378	10.2
11-DEC-91 1345 RM S		7.9	379	4.7
10-JAN-92 1140 RM S		7.7	328	5.2
03-FEB-92 1355 RM S		8	370	7.6
21-FEB-92 1150 RM S		7.6	344	5.6
09-MAR-92 1250 RM S		7.6	362	8.6
25-MAR-92 1145 RM S		7.9	351	8.8
07-APR-92 1130 RM S		7.8	287	9.2
06-MAY-92 1345 RM S		7.2	355	11.6
22-MAY-92 1015 RM S		7.7	402	11.8
04-JUL-92 1625 RM S		7.5	330	15.5
22-JUL-92 1210 RM S		8	376	15.8
01-SEP-92 1430 RM S		7.4	386	12.8
25-SEP-92 0945 RM S		7.2	375	11.3
05-OCT-92 1400 RM S		7.4		12.1
09-OCT-92 1350 RM S		7.4	391	11.4
06-NOV-92 0835 RM S		7.3	379	11.2
17-NOV-92 1125 RM S		7.3	382	9.7
27-NOV-92 1420 RM S		7.7	284	8.5
02-DEC-92 1445 RM S		7.6	248	9.6
11-DEC-92 1140 RM S		7.6	308	7.8
29-JAN-93 0935 RM S		7.8	303	8.7
24-FEB-93 0815 RM S		7.5	366	8.3

0081 D.O.% %	0085 BOD ATU mg/l	0111 AMMONIA mg/l	0135 SS 105 C mg/l
Type F6	Grid Reference	ST0772006290	
	1.5	< 0.01	26
	0.3	< 0.02	5
101	0.6	0.04	9
	2.1	0.06	< 5
	0.6	0.01	< 5
60	1	0.26	6
79	0.9	0.03	5
94	1.3	0.09	< 5
72	1.6	0.71	7
87	0.6	< 0.01	< 5
98	1.6	0.05	3
98	4.8	< 0.01	53
96	1.9	0.18	4
91	2.6	0.05	3
95	1.8	0.04	6
87	> 8.4	< 0.01	40
92	1.4	< 0.02	4
61	1.8	0.13	6
104	1.8	0.06	4
67	3.6	0.07	4
	1.5	0.07	3
92	5.3	0.56	340
72	< 1	0.07	12
97	1.1	0.05	5.5
85	1.4	0.09	18
96	1.9	0.14	12
92	1.6	0.06	9
91	1.5	0.14	4
95	1.7	0.04	3.7
109	1.9	0.29	19
75	< 1	< 0.02	< 2
90	< 1	0.02	2.1
70	1.2	0.08	2.1
92	1.8	< 0.02	7.3
66	1.6	0.12	< 2
90	< 1	< 0.02	4
62	1.3	0.09	4.5
57	1.3	0.05	< 2
89	1.1	0.05	5.9
76	2.1	0.38	39
92	2.3	0.7	22
95	5.2	0.63	88
90	< 1	0.07	3.6
97	< 1	0.09	25
84	3.2	0.13	49

When Sampled	Pu M	0061 pH pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C
Sampling Point 70532979 RIVER WEAVER U/S PRIORY FISHERIES				
16-MAR-93 0900 RM S		8	374	9.1
22-APR-93 1540 RM S		7.7	335	10.5
25-MAY-93 1030 RM S		7.7	356	13.8
26-JUN-93 1100 RM S		7.5	378	13
27-JUL-93 0850 RM S		7.5	369	14.7
26-AUG-93 1535 RM S		8.2	400	14.8
27-SEP-93 1410 RM S		8	377	10.9
25-OCT-93 0940 RM S		8	373	8.7
22-NOV-93 1255 RM S		8	356	4.9
18-JAN-94 1105 RM S		7.7	296	4.5
21-FEB-94 1010 RM S		7.8	264	3.5
17-MAR-94 1015 RM S		8	319	5.8
07-APR-94 1415 RM S		8.2	280	8.9
16-JUN-94 0935 RM S		7.8	388	11.7
29-JUN-94 1020 RM S		8.2	354	13.5
19-JUL-94 1155 RM S		7.5	367	18.6
15-AUG-94 0730 RM S		8.2	364	11.6
15-SEP-94 1235 RM S		8	347	12.2
26-OCT-94 1715 RM S		7.9	369	9.9
24-NOV-94 0905 RM S		7.9	316	11.5
20-JAN-95 1105 RM S		7.7	256	6.3
21-FEB-95 1545 RM S		7.9	270	7.5
20-MAR-95 1010 RM S		8	311	5.6
07-APR-95 1445 RM S		8.4	322	13.2
12-MAY-95 1255 RM S		8.2	374	12.5
10-JUL-95 1535 RM S		7.75		15.7
31-JUL-95 1415 RM S		8.3	382	21.8
16-AUG-95 1530 RM S		8.1	383	16.8
05-OCT-95 0920 RM S		8.05	380	11.4
17-OCT-95 1455 RM S		8.05	385	14.2
14-NOV-95 1150 RM S		7.65	354	9.5
06-DEC-95 1405 RM S		7.7	352	3.7
16-JAN-96 1320 RM S		7.9		
22-MAR-96 1000 RM S		7.85		
03-APR-96 1420 RM S		8.25		
02-MAY-96 1325 RM S		8.2		
23-JUL-96 1500 RM S		8.2		
02-SEP-96 1110 RM S		8.15		
16-OCT-96 1520 RM S		8.1		
24-OCT-96 1335 RM S		7.4		
11-NOV-96 1455 RM S		8.1		
19-NOV-96 1025 RM S		7.5		
02-DEC-96 1415 RM S		7.85		
24-FEB-97 1040 RM S		7.9		
07-MAR-97 1445 RM S		8.05		
24-APR-97 1050 RM S		8.25		
29-JUL-97 1015 RM S		7.95		
17-OCT-97 1350 RM S		7.9		
13-NOV-97 1340 RM S		7.95		
27-NOV-97 1300 RM S		7.55		

0081	0085	0111	0135
D.O. %	BOD ATU	AMMONIA	SS 105 C
%	mg/l	mg/l	mg/l

Type F6 Grid Reference ST0772006290

97	1	<	0.02	<	2
89	1.9		0.11		3.4
82	6.3		0.08		12
85	1	<	0.05		5.8
71	2.7		0.33		7.5
91	1	<	0.02		8.3
97	2		0.24		2
95	1.1		0.02		5.6
99	1.5		0.04		3.3
99	2		0.17		14
95	2.9		0.2		11
98	3.6	<	0.02		7.5
108	1.8		0.04		3.8
88	1.4		0.03		4.5
96	1.1	<	0.02		4.6
54	2.9		0.12		4.8
88	7.5	<	0.02		37
92	1.5		0.04		5.5
98	1.9		0.15		13
84	1.5		0.04		3.6
98	1.6		0.11		40
96	1.4		0.09		23
98	1.4		0.06		4.2
107	1.8	<	0.03		4.1
117	6.4	<	0.03		19
37	31.5	<	0.03		20
95	1.1	<	0.03		4.1
107	1.1	<	0.03	<	3
97	1.1	<	0.03	<	3
104	1	<	0.03	<	3
88	1.5		0.04		12
88	1.6	<	0.03	<	3
98	1	<	0.03		3.8
99	2.3		0.1		9.8
108	3	<	0.03		9.8
97	2	<	0.03		7.9
92	1.5	<	0.03		7.2
102	1	<	0.03		4.3
97	1	<	0.03	<	3
75	1.5		0.27		43
93	1.3	<	0.03		8.4
97	3.3		0.09		203
92	1.3	<	0.03		4.8
94	1.1		0.05		13
93	1	<	0.05		3.3
102	1.5	<	0.03		5.4
109	1	<	0.03		8.4
98	1.4		0.037		71.9
102	1.2		0.034		4.1
89.9	2.1		0.198		21.3

When Sampled	Pu M	0061 pH pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C
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Sampling Point 70532979 RIVER WEAVER U/S PRIORY FISHERIES

04-DEC-97	1330 RM S	7.85		
16-DEC-97	1140 RM S	8		
22-DEC-97	1045 RM S	8		
09-FEB-98	1240 RM S	8		
19-FEB-98	1130 RM S	8.4		
13-MAR-98	1305 RM S	8		
31-MAR-98	1255 RM S	8.05		
28-APR-98	0940 RM S	7.95		

Sampling Point 70532982 RIVER WEAVER D/S KERSWELL STW

16-APR-91	0840 RM S	7.1		8
20-MAY-91	1120 RM S	7.6		18
11-JUN-91	1450 RM S	7.9		12.5
18-JUL-91	1430 RM S	7.3		14
07-AUG-91	0005 RM S	7.2		15
16-SEP-91	1120 RM S	7.2		14.5
07-OCT-91	0730 RM S	7.2		11
03-NOV-91	1045 RM S	7.3		
11-DEC-91	1300 RM S	7.3		9
10-JAN-92	1205 RM S	7.6	325	5.8
03-FEB-92	1310 RM S	7.5	404	8.7
09-MAR-92	1305 RM S	7.4	421	8.7
07-APR-92	1150 RM S	7.7	296	8.9
04-JUL-92	1530 RM S	7.4	326	17.7
22-JUL-92	1220 RM S	7.4	403	14.5
01-SEP-92	1350 RM S	7.4	408	13.9
25-SEP-92	0910 RM S	7.2	375	11.3
05-OCT-92	1345 RM S	7.4		12
06-NOV-92	0740 RM S	7.6	384	11.2
27-NOV-92	1330 RM S	7.7	281	8.5
02-DEC-92	1450 RM S	7.6	248	9.6
29-JAN-93	0900 RM S	7.7	380	9.6
24-FEB-93	0820 RM S	7.6	383	7.2
16-MAR-93	0815 RM S	7.8	382	9.7
22-APR-93	1545 RM S	7.7	340	10.5
25-MAY-93	0920 RM S	7.8	363	13.8
26-JUN-93	0950 RM S	7.4	408	14.2
27-JUL-93	0900 RM S	7.3	384	14.6
26-AUG-93	1550 RM S	7.8	390	14.5
27-SEP-93	1250 RM S	7.5	388	11.4
25-OCT-93	1000 RM S	7.8	373	8.9
22-NOV-93	1225 RM S	7.4	360	7.1
22-DEC-93	1650 RM S	7.6	188	5.87
18-JAN-94	1020 RM S	7.2	382	6.9
21-FEB-94	0950 RM S	7.6	344	7.2
17-MAR-94	1040 RM S	7.7	379	9.3
07-APR-94	1340 RM S	7.6	384	11.2
04-MAY-94	1255 RM S	8	326	14.5
16-JUN-94	0850 RM S	7.6	324	11.8
29-JUN-94	1030 RM S	7.6	328	16.5

0081 D.O. %	0085 BOD ATU mg/l	0111 AMMONIA mg/l	0135 SS 105 C mg/l
Type F6	Grid Reference	ST0772006290	
99	1.6	0.075	8.3
100	1.3	0.033	5.4
114	1	0.059	15.7
99	1.4	0.033	3.5
113	1.3	0.03	3
102	1.2	0.03	6
103	9.8	0.171	25.8
101	1.8	0.116	20.3

Type F6	Grid Reference	ST0772006290	
	1.2	0.5	3
	0.7	0.5	4
	2.3	0.5	7
	2.1	0.5	8
	4.1	0.5	13
	7.6	0.5	17
	3.8	0.5	14
	3.5	0.09	63
	2	0.36	3
86	1.3	0.11	27
82	3.5	0.66	3.8
91	2.8	0.48	4.9
103	3.7	1.4	30
67	4.6	0.24	26
71	1.4	0.16	7.7
68	6.5	0.26	11
90	1	0.02	4.6
61	1.3	0.09	5
89	2.5	0.13	5.7
92	2.3	0.72	21
95	5.4	0.63	88
91	1.4	0.27	27
87	2.3	0.2	5.2
90	1.9	0.21	15
89	1.6	0.11	3.6
82	9.9	0.06	12
78	3.3	0.1	7.7
66	3.7	0.34	5.2
82	1	0.02	2.3
75	4.1	0.87	15
91	1	0.02	2.6
81	1.5	0.11	4.6
98	5.9	0.18	831
88	1	0.02	3.7
87	3.5	0.03	10
87	2.9	0.43	16
90	1.8	0.21	14
98	2	0.04	20
88	2.6	0.08	39
57	2.5	0.02	18

When Sampled	Pu M	0061 pH pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C
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Sampling Point 70532982 RIVER WEAVER D/S KERSWELL STW

19-JUL-94	1215 RM S	7.5	368	18.4
15-AUG-94	0900 RM S	7.2	365	11.6
15-SEP-94	1130 RM S	7.4	352	13.5
26-OCT-94	1640 RM S	7.4	371	10.7
24-NOV-94	0835 RM S	7.4	370	11.4
20-JAN-95	1115 RM S	7.6	359	7.4
21-FEB-95	1605 RM S	7.3	388	9.2
20-MAR-95	1030 RM S	7.4	391	9
07-APR-95	1510 RM S	7.8	339	13.7

Sampling Point 70532983 KERSWELL STW FE

16-JAN-90	1315 RA S	7.4		10
06-FEB-90	0855 RA S	7.5		9.5
07-MAR-90	1330 RA S			9.5
03-APR-90	1400 RA S	7.4		10
01-MAY-90	1145 RA S	7		17
04-JUN-90	1120 RA S	7.3		14
05-JUL-90	1210 RA S	7		15
07-AUG-90	0815 RA S	7.6		15
04-SEP-90	1110 RA S	7.2		16.5
09-OCT-90	1130 RA S	7.3		13.5
01-NOV-90	1010 RA S	7.5		10
05-DEC-90	1220 RA S	7.4		7.5
26-FEB-91	0835 RA S	7.5		8
16-APR-91	0830 RA S	7.4		8.5
20-MAY-91	1100 RA S	7.1		16
11-JUN-91	1445 RA S	7.2		14
18-JUL-91	1410 RA S	7.5		16.5
07-AUG-91	2350 RA S	6.9		16
16-SEP-91	1130 RA S	7.2		17
07-OCT-91	0745 RA S	7.3		14
03-NOV-91	1055 RA S	6.6		
11-DEC-91	1320 RA S	7.6		6.5
10-JAN-92	1155 RA S	7.9		7
03-FEB-92	1335 RA S	7.6		7.9
09-MAR-92	1325 RA S	7.5		9.5
07-APR-92	1155 RA S	7.6		9.5
06-MAY-92	1330 RA S	7.4		12.2
04-JUL-92	1540 RA S	7.3		17
22-JUL-92	1230 RA S	7.3		17
01-SEP-92	1345 RA S	7.5		15
25-SEP-92	0850 RA S	7.7		14
05-OCT-92	1350 RA S	7.6		11.9
06-NOV-92	0730 RA S	7.5		12
27-NOV-92	1320 RA S	7.6		9.2
02-DEC-92	1510 RA S	7.7		10
29-JAN-93	0910 RA S	7.4		9
24-FEB-93	0830 RA S	7.6		7.7
16-MAR-93	0825 RA S	7.5		10.2
25-MAY-93	0930 RA S	7.3		14

between 01-JAN-90 and 30-APR-98

04-JUN-98

0081	0085	0111	0135
D.O. %	BOD ATU	AMMONIA	SS 105 C
%	mg/l	mg/l	mg/l

Type F6 Grid Reference ST0772006290

54	3.1	0.12	6.5
86	1.6	0.02	5.7
62	7.6	0.1	11
62	2.5	0.12	11
68	3.4	0.28	69
83	1.8	0.09	13
80	2.1	0.42	37
89	1.8	0.22	16
91	1.8	0.1	6.5

Type SA Grid Reference ST0780006300

1.8	<	0.5	7
3	<	0.5	10
		1	
5		1	20
1.7	<	0.5	14
2.4	<	0.5	12
3.9		0.8	8
1.9	<	0.5	10
5.3		1	8
8.8		1.3	16
5.8	<	0.5	8
4.1		3.6	6
3.8	<	0.5	6
6.2	<	0.5	23
2.6		1.5	26
5.2		0.6	11
0.8	<	0.5	8
8.9	<	0.5	15
6		2.3	6
5.9	<	0.5	14
2.8	<	0.5	6.7
4.7		1.2	25
4.6		1.3	8.8
8.8		2.7	7
4.8		1	7.6
2.6	<	0.5	7.5
7.5		1.2	16
4.7		1.1	8.1
3.7		0.7	6.1
4.7	<	0.5	6.5
4.3	<	0.5	9.1
8.2		1.2	10
5.1		0.5	12
6.1	<	0.5	12
4.3	<	0.5	14
5	<	0.5	13
6.4	<	0.5	12
7	<	0.5	21
14.6	<	0.5	23

When Sampled	Pu M	0061 pH pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C
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Sampling Point 70532983 KERSWELL STW FE

26-JUN-93	1000 RA S	7.5		17
27-JUL-93	0910 RA S	7.3		15.7
26-AUG-93	1555 RA S	7.7		16
27-SEP-93	1245 RA S	7.5		13
25-OCT-93	1005 RA S	7.5		9.5
22-NOV-93	1220 RA S	7.7		6
22-DEC-93	1700 RA S	7.7		7
18-JAN-94	1035 RA S	7.8		5
21-FEB-94	0935 RA S	7.7		4.7
17-MAR-94	1045 RA S	7.7		10
07-APR-94	1335 RA S	7.8		10
04-MAY-94	1300 RA S	7.4		15
16-JUN-94	0905 RA S	7.5		12.8
29-JUN-94	1035 RA S	7.4		16.5
19-JUL-94	1225 RA S	7.5		18
15-AUG-94	0910 RA S	7.7		12.1
15-SEP-94	1140 RA S	7.6		13.6
26-OCT-94	1635 RA S	7.5		10
24-NOV-94	0850 RA S	7.4		11.8
20-JAN-95	1120 RA S	7.8		8
21-FEB-95	1610 RA S	7.8		9.2
20-MAR-95	1035 RA S	7.8		7
07-APR-95	1505 RA S	7.6		14.5
12-MAY-95	1325 RA S	7.5		12
10-JUL-95	1505 RA S	7.45		18.7
31-JUL-95	1430 RA S	7.25		18
16-AUG-95	1550 RA S	7.3		22.8
05-OCT-95	0855 RA S	7.5		14.5
17-OCT-95	1425 RA S	7.35		15.4
14-NOV-95	1200 RA S	7.6		12
06-DEC-95	1340 RA S	7.65		8
03-APR-96	1345 RA S			
23-JUL-96	1445 RA S			
16-OCT-96	1440 RA S			
07-MAR-97	1530 RA S			
06-OCT-97	1230 RA S			
29-OCT-97	1245 RA S			
27-NOV-97	1230 RA S			
09-FEB-98	1305 RA S			

Sampling Point 70532985 RIVER WEAVER U/S KERSWELL STW

16-APR-91	0845 RM S	7.5		8
20-MAY-91	1110 RM S	7.4		18
11-JUN-91	1455 RM S	7.9		12.5
18-JUL-91	1420 RM S	7.3		14
07-AUG-91	2355 RM S	7.1		15
16-SEP-91	1140 RM S	7.1		15
07-OCT-91	0735 RM S	7.2		11.5
03-NOV-91	1050 RM S	7.1		
11-DEC-91	1310 RM S	7.3		9

0081 D.O.% %	0085 BOD ATU mg/l	0111 AMMONIA mg/l	0135 SS 105 C mg/l
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Type SA Grid Reference ST0780006300

5.9	<	0.5	13
7.5	<	0.5	11
5.9		0.7	8.9
5.8		0.6	9.8
11.3		2.5	17
7.9	<	0.5	10
10.7	<	0.5	38
4.2	<	0.5	4.3
3.8	<	0.5	4.9
7.1	<	0.5	8.9
4.5	<	0.5	9.4
12.7	<	0.5	26
3.6	<	0.5	20
7.4	<	0.5	12
7	<	0.5	8.5
7.4	<	0.5	11
6.4	<	0.5	11
8.6		0.6	12
	<	0.5	13
	<	0.5	5.3
	<	0.5	11
	<	0.5	6.7
		1.5	8.7
		0.9	11
	<	0.5	6.8
		0.7	12
	<	0.5	6.3
	<	0.5	9.1
		1.3	16
		1.1	8.3
		2.1	9.1
6.4		3.4	3
4.7		0.7	7.2
8.6	<	0.5	12
3.9	<	0.5	7.8
4.9	<	0.5	6.3
8.5		0.67	13.6
4.4	<	0.5	8.2
5.5		0.58	8.6

Type F6 Grid Reference ST0776006290

5	<	0.5	59
1.8	<	0.5	8
2.2	<	0.5	5
2.1	<	0.5	13
9.6		0.6	32
6.5		0.7	18
3.3		0.6	8
1.7		0.16	164
< 1		0.03	< 2

When Sampled	Pu M	0061 pH pH	0062 CONDUCTIV useiv/cm	0076 TEMP deg C
Sampling Point 70532985 RIVER WEAVER U/S KERSWELL STW				
10-JAN-92	1210 RM S	7.7	326	5.8
03-FEB-92	1320 RM S	7.2	369	10.4
09-MAR-92	1315 RM S	7.5	402	8.4
07-APR-92	1200 RM S	7.8	280	8.3
06-MAY-92	1320 RM S	7.2	356	11.6
04-JUL-92	1535 RM S	7.3	347	17.5
22-JUL-92	1240 RM S	7.8	401	15.5
01-SEP-92	1355 RM S	7.4	373	13.9
25-SEP-92	0920 RM S	7.5	367	13.1
05-OCT-92	1355 RM S	7.4		12.5
06-NOV-92	0750 RM S	7.5	392	11.8
27-NOV-92	1335 RM S	7.7	277	8.5
02-DEC-92	1500 RM S	7.6	249	10.8
29-JAN-93	0905 RM S	7.7	369	9.6
24-FEB-93	0825 RM S	7.7	369	7.1
16-MAR-93	0820 RM S	7.8	375	9.7
22-APR-93	1555 RM S	7.9	349	10.4
25-MAY-93	0935 RM S	8	317	14.1
26-JUN-93	0955 RM S	7.3	398	13.3
27-JUL-93	0905 RM S	7.4	375	14.2
26-AUG-93	1600 RM S	7.9	392	14.7
27-SEP-93	1255 RM S	7.8	371	11.4
25-OCT-93	1010 RM S	7.8	370	9
22-NOV-93	1230 RM S	7.6	340	7.2
22-DEC-93	1655 RM S	7.6	187	5.7
18-JAN-94	1025 RM S	7.5	358	6
21-FEB-94	0940 RM S	7.4	358	5.1
17-MAR-94	1050 RM S	7.6	380	9
07-APR-94	1345 RM S	7.8	387	12
04-MAY-94	1305 RM S	7.6	390	13.2
16-JUN-94	0855 RM S	7.5	383	11.6
29-JUN-94	1040 RM S	7.6	373	15.2
19-JUL-94	1220 RM S	7.5	368	18
15-AUG-94	0905 RM S	7.2	364	11.2
15-SEP-94	1135 RM S	7.4	343	13.2
26-OCT-94	1645 RM S	7.4	358	10.7
24-NOV-94	0845 RM S	7.3	361	11.2
20-JAN-95	1125 RM S	7.4	367	7.4
21-FEB-95	1615 RM S	7.5	396	9.2
20-MAR-95	1040 RM S	7.6	383	9.4
07-APR-95	1515 RM S	7.9	337	13.6

Spec Det and between 01-JAN-90 and 30-APR-98

04-JUN-98

0081
D.O.%
%

0085
BOD ATU
mg/l

0111
AMMONIA
mg/l

0135
SS 105 C
mg/l

Type F6 Grid Reference ST0776006290

86		1.2		0.11		24
83	<	1	<	0.02	<	2
93		1.2		0.19		3.7
118		2.3		0.63		24
75	<	1	<	0.02	<	2
69		2		0.17		6.4
86	<	1		0.03		2.6
70		7.4		0.31		13
71		6.1		0.3		11
78		3.9		0.25		9.6
81		3.1		0.19		24
94		3.3		0.76		27
94		2.3		0.27		106
91	<	1		0.38		43
93		1.3		0.28		10
90	<	1		0.25		13
95		3.7		1.4		5.3
84		6.1		0.06		10
80	<	1		0.13		2.2
67		1.8		0.57		3.3
89	<	1	<	0.02	<	2
84		1.7		0.62		6.2
95	<	1	<	0.02		2.2
88		2.2		0.17	<	2
98		5.5		0.18		789
86		3.9		0.09		7.5
92		2.3	<	0.02		7.4
93		1.3		0.5		22
95		1.9		0.3		25
98		2.7		0.06		8.6
85		3.8		0.08		10
73		1.1		0.07		3.1
58		2.6		0.12		5.5
85		1.9	<	0.02		8.4
58		10.8		0.07		6.7
61		2		0.06		8.8
69		1.8		0.42		5.2
85		1.8		0.07		12
80		7.2		1.1		116
95		1.3		0.38		6.7
91		1.5	<	0.03		3.7

Kerswell Priors Fisheries Phenol data

Effluent B1	2-methyl phenol ng/l	3-methyl phenol ng/l	2,5-dichloro phenol ng/l	2,5-dimethyl phenol ng/l	2,4,6-trichloro phenol ng/l	Phenol by HPLC µg/l	Phenols total µg/l
x23-JUL-96	1505 RA	<100	<100	<100	<100	0.292	
x02-SEP-96	1105 RA	<100	129	<100	<100	0.349	
x16-OCT-96	1510 RA	<100	<100	<100	<100	0.289	
x24-OCT-96	1325 RA	<100	<100	<100	<100	0.205	
x11-NOV-96	1450 RA	<100	<100	<100	<100	<.1	
x19-NOV-96	1015 RA	<100	<100	<100	<100	0.139	
x02-DEC-96	1410 RA	<100	<100	<100	<100	<.1	
x21-JAN-97	1155 RA	<100	<100	<100	<100	<.1	
x24-FEB-97	1030 RA	<100	<100	<100	<100	0.108	
x07-MAR-97	1455 RA	<100	<100	<100	<100	0.188	
x24-APR-97	1030 RA	<100	<100	<100	<100	0.16	
x29-JUL-97	1010 RA	116	<100	<100	<100	0.183	0.599
x06-OCT-97	1250 RA	<100	<100	<100	<100	0.562	0.862
x17-OCT-97	1330 RA	<100	<100	<100	<100	0.201	0.501
x29-OCT-97	1310 RA	<100	<100	<100	<100	<.1	0.35
x13-NOV-97	1330 RA	<100	<100	<100	<100	0.1	0.4
x27-NOV-97	1250 RA	<100	<100	<100	<100	<.1	0.35
x04-DEC-97	1320 RA	<100	<100	<100	<100	0.493	0.793
x12-DEC-97	1330 RA	<100	<100	<100	<100	0.355	0.905
x09-FEB-98	1220 RA	<100	<100	<100	<100	0.214	0.514
x19-FEB-98	1120 RA	<100	<100	<100	114	<.1	0.414
x13-MAR-98	1300 RA	<100	<100	<100	<100	<.1	0.35
x31-MAR-98	1300 RA	<100	<100	<100	<100	0.158	0.458
x28-APR-98	945 RA	<100	<100	<100	<100	0.154	0.454

[illegible]

APPENDIX IV

POLLUTION - for info.

CONSENT NO	NRA-SW-7976
FILE REFERENCE	045/05C/PRI

WATER RESOURCES ACT 1991 SECTION 88 - SCHEDULE 10
(as amended by the Environment Act 1995)

CONSENT TO DISCHARGE

TO: Mr S Gratwicke
Priory Fisheries
Kerswell
Cullompton
Devon EX15 2EA

The **ENVIRONMENT AGENCY** ("The Agency") in pursuance of its powers under the Water Resources Act 1991 (as amended by the Environment Act 1995) **HEREBY CONSENTS** to the making of the following Discharge(s):-

Treated Fish Farm Effluent

FROM: Priory Fisheries

AT: Kerswell
Cullompton
Devon
EX15 2EA

TO: River Weaver

SUBJECT TO the conditions set out in the attached:

Subject to the provisions of Paragraphs 6 and 7 of Schedule 10 of the Water Resources Act 1991 (as amended by the Environment Act 1995), no notice shall be served by the Agency, altering this consent without the agreement in writing of the Discharger, during a period of 2 years from the date this consent takes effect or such later date as may be specified in an endorsement to this document.

This consent is issued and takes effect on the 17th day of May 1996

Signed G.R. Bateman

Consent No.	NRA-SW-7976
Date Issued	17 MAY 1996

CONDITIONS OF CONSENT TO DISCHARGE

TREATED FISH FARM EFFLUENT ("the Discharge")

FROM: Priory Fisheries, Kerswell, Cullompton

Conditions

1. General

- (a) The discharge shall not contain any poisonous, noxious, or polluting matter or solid waste matter.
- (b) Provided that the discharge hereby consented is made in accordance with the following conditions of this consent, such discharge shall not be taken to be in breach of condition (a) above by reason of containing substances or having properties identified in and controlled by those conditions.
- (c) For the purpose of applying the conditions identified in section 3 below, the discharger shall provide and maintain facilities to the Agency's satisfaction which will enable the Agency's representatives to take flow measurements of the treated fish farm effluent which is discharged at the outfall.
The discharger shall identify the facility with a clearly visible sign distinguishing it from any other and provide a clearly visible notch, mark, or device indicating the level equivalent to the maximum instantaneous consented flow.
Records of daily discharge flow shall be maintained and provided to the Agency on an annual basis.
 - (i) A flow measurement and monitoring point shall be located at point D1 at NGR ST 0721 0610 and at point D2 at NGR ST 0718 0615 on the attached plan and both shall be provided within one year of the date of issue of this consent..
- (d) For the purpose of applying the conditions identified in section 4 below, the discharger shall provide and maintain facilities to the Agency's satisfaction which will enable the Agency's representatives to take discrete samples. The discharger shall identify the facility with a clearly visible sign distinguishing it from any other.
 - (i) The sample points for representative samples of influent water will be at the points marked A1 at NGR ST 0722 0680 and A2 at NGR ST 0735 0633 on the attached location plan.

- (ii) The sample points for representative samples of treated fish farm effluent will be at the outlets marked B1 at NGR ST 0721 0610 and at B2 at NGR ST 0718 0615 on the attached location plan.
- (e) Facilities shall be provided for safe and convenient access to enable Agency's representatives at any time to take samples, carry out flow measurements and inspection to ensure that the conditions of this consent are complied with.

2. As to the Outfall

- (a) Two outfalls shall be used sited at points C1 at NGR ST 0721 0610 and point C2 at NGR ST 0718 0615 on the attached location plan and shall be so constructed that they are used for the discharge of treated fish farm effluent derived only from Priory Fisheries, Kerswell, Cullompton.
- (b) The outlets shall be suitably screened to prevent the ingress of fish.

3. As to Discharge

- (a) The maximum instantaneous rate of discharge shall not exceed 13.16 litres per second.
- (b) The volume discharged shall not exceed 1137 cubic metres in any period of twenty four hours.
- (c) The discharges shall be suitably screened to prevent the escape of fish from the fish farm.

4. As to Discharge Composition

The composition of the effluent discharged from the fish farm (as sampled at point B1) shall not be changed relative to the influent water (as sampled at point A1) and with respect to the corresponding determinand by amounts greater than specified below;

And the composition of the effluent discharged from the fish farm (as sampled at point B2) shall not be changed relative to the influent water (as sampled at point A2) and with respect to the corresponding determinand by amounts greater than specified below;

- (a) **Up to and including 30 April 1998:**
 - (i) Biochemical Oxygen Demand (nitrification suppressed, over five days at 20°C) shall not be increased by more than 6.0 milligrams per litre;
 - (ii) The Suspended Solids (dried for one hour at 105°C) shall not be increased by more than 30.0 milligrams per litre;
 - (iii) Ammoniacal Nitrogen (as N) shall not be increased by more than 0.5 milligrams per litre;

(b) From the 1 May 1998:

- (i) Biochemical Oxygen Demand (nitrification suppressed, over five days at 20°C) shall not be increased by more than 2.0 milligrams per litre;
- (ii) The Suspended Solids (dried for one hour at 105°C) shall not be increased by more than 5.0 milligrams per litre;
- (iii) Ammoniacal Nitrogen (as N) shall not be increased by more than 0.5 milligrams per litre;

(c) The effluent shall at no time contain:

- (i) A Dissolved Oxygen concentration less than 70% of the air saturation value;
- (ii) A pH value less than 6 or greater than 9;
- (iii) Oils in sufficient quantity to produce a visible film on the surface of the receiving watercourse;
- (iv) Materials in sufficient quantity to cause visible growth of 'sewage fungus in the receiving watercourse;

(d) The effluent may contain the following prophylactic and therapeutic chemicals at concentrations not exceeding:

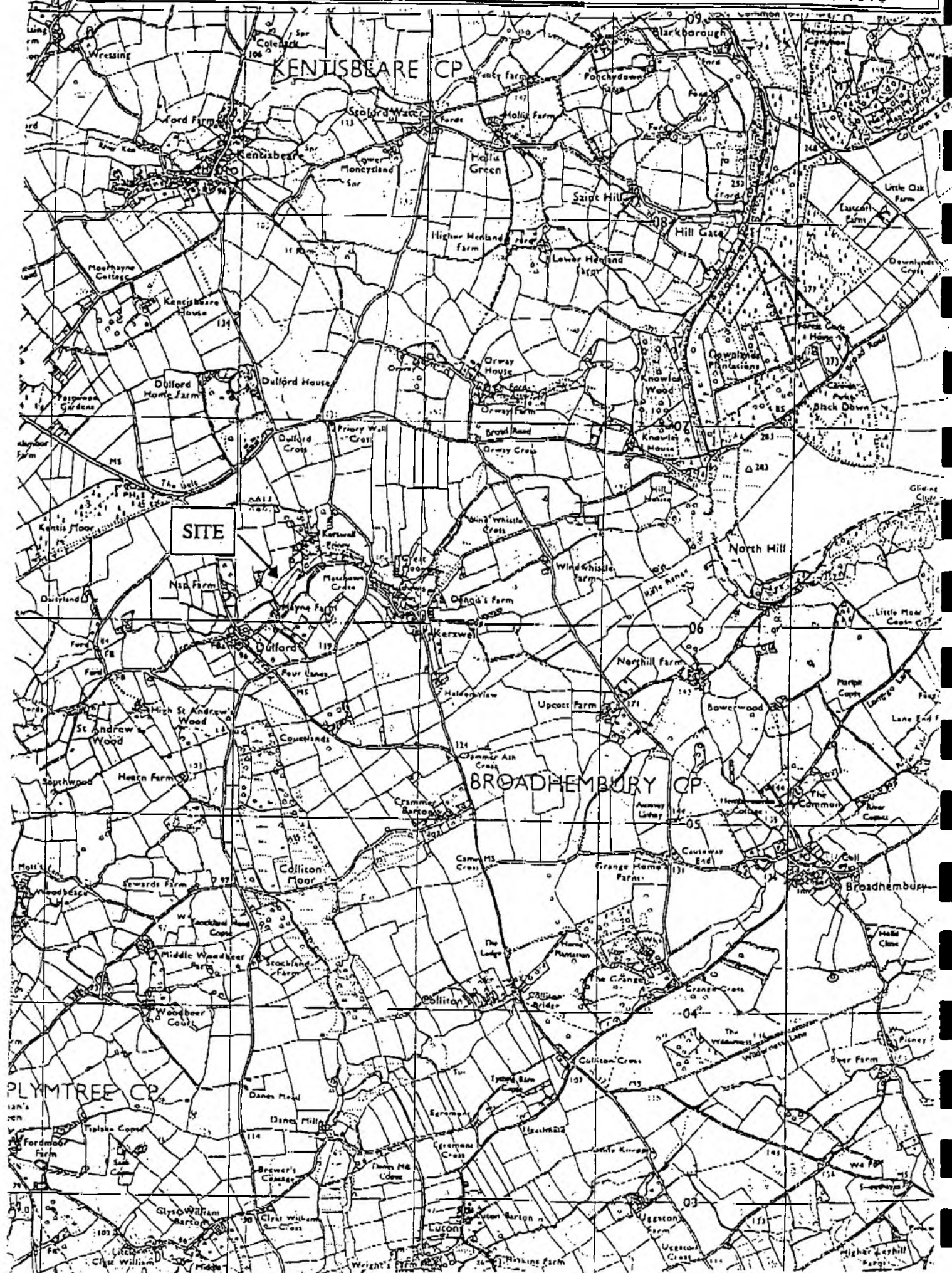
- (i) 0.01 milligrams per litre Malachite Green;
- (ii) 0.04 milligrams per litre Copper as Cu;
- (iii) 0.005 milligrams per litre monohydric phenol as C.H.OH.;
- (iv) 0.1 milligrams per litre Formaldehyde.

Intention to use other prophylactic and therapeutic chemicals must be advised to the Agency in advance. A record shall be kept of date and time of use, total amount used and period of dosing for all prophylactic and therapeutic chemicals. This record must be available for inspection by Agency staff at all reasonable times. The records shall be provided to the Agency on request.

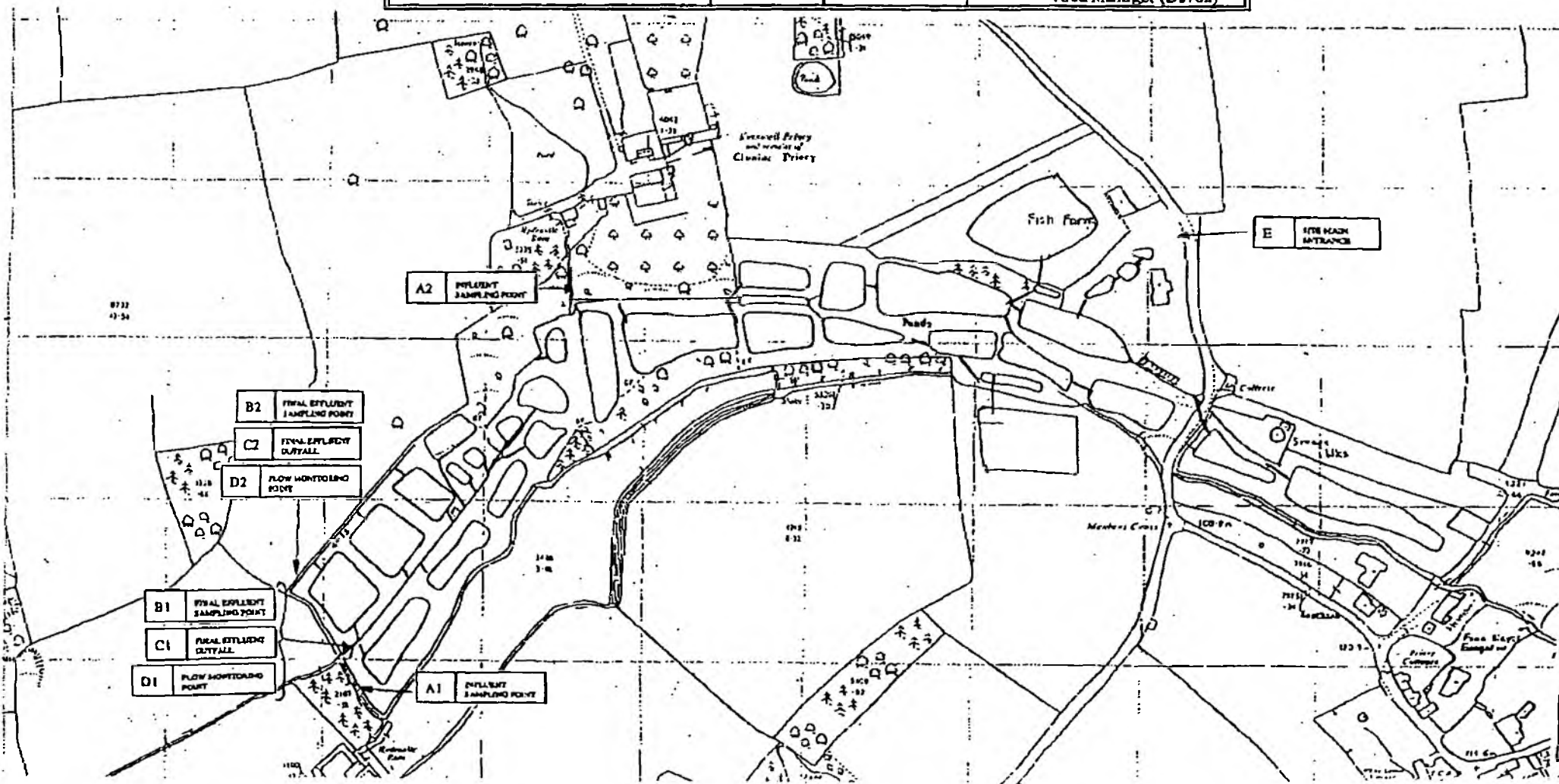
- (e) As far as is reasonably practicable, the treatment system shall be operated so as to prevent any matter being present in the effluent which will cause the receiving waters, or any waters of which the receiving waters are a tributary, to be poisonous or injurious to fish in those waters, or to the spawning grounds, spawn or food of fish in those waters, or otherwise cause damage to the ecology of those waters.

SITE NAME: Priory Fisheries

CONSENT NO: NRA-SW-7976



Details	Map/Plan Ref Code	National Grid Reference	Date: April 1996 17/5/96 <i>C R Bateman</i> G R Bateman Area Manager (Devon)
INFLUENT WATER SAMPLING POINTS	A1	ST 0722 0680	
	A2	ST 0735 0633	
FINAL EFFLUENT SAMPLING POINTS	B1	ST 0721 0610	
	B2	ST 0718 0615	
FINAL EFFLUENT OUTFALLS	C1	ST 0721 0610	
	C2	ST 0718 0615	
FLOW MEASURING AND MONITORING POINTS	D1	ST 0721 0610	
	D2	ST 0718 0615	
SITE MAIN ENTRANCE	E	ST 0771 0637	



SITE NAME: Priory Fisheries

ENVIRONMENT AGENCY
SOUTH WEST REGION

CONSENT NO: NRA-SW-1976

CONSENT NOTES

The consent notes below are provided for explanation and clarification, they do not form conditions of the consent.

- A If you are not satisfied with the terms of this consent you may appeal to the Secretary of State for the Environment; any such appeal has to be made within three months of the issue of the consent.
- B This consent includes a copy of a map showing the location of the site to which this consent relates and a plan of the site to assist in interpretation of the consent. The outlets / outfalls and sampling points are referred to in the text.
- C The conditions attached to this consent remain in force unless varied as a result of appeal or review. They are binding not only on the person, company or body named in the consent but on any person making the Discharge. The consent is automatically transferred when responsibility for the Discharge is transferred. Anyone who takes responsibility for the Discharge is requested to inform the Agency of the change.
- D The site and plant shall be accessible at all times to the Agency's representatives for the purpose of enabling them to determine whether any provision made by or under any of the water pollution provisions of the Water Resources Act 1991 (as amended by the Environment Act 1995) is being or has been contravened. The Agency's representatives may take samples or measurements of flows or install equipment to take measurements and flows and facilities will be provided as required for these purposes.

NATIONAL RIVERS AUTHORITY

Folio No: NRA-SW-7447

WATER RESOURCES ACT 1991 - CONSENT TO DISCHARGE

Ref No: 045/05C/4057

The National Rivers Authority, in pursuance of its powers under the above mentioned Act, HEREBY GIVES CONSENT to the discharge described hereunder subject to the terms and conditions set out below.

Name & Address of Applicant: Devon Surveyors Practice
George Street
Exeter
Devon EX1 1DA

Date of Application: 23 May 1995

Description of Discharge:

Type: Treated Domestic Sewage Effluent
From: Higher Weaver Farm, Kentisbeare
To: River Weaver

Conditions

1. General

- (a) The discharge shall not contain any poisonous, noxious or polluting matter or solid waste matter.
- (b) Provided that the discharge hereby consented is made in accordance with the following conditions of this consent, such discharge shall not be taken to be in breach of condition (a) above by reason of containing substances or having properties identified in and controlled by those conditions.
- (c) Except with the agreement of the person making the discharge under this consent, no notice shall be served revoking the consent or modifying the conditions before the expiration of the period ending two years after the date on which this consent takes effect.
- (d) For the purpose of applying the conditions identified in section 4 below, the discharger shall provide and maintain facilities to the Authority's satisfaction which will enable the Authority's representatives to take discrete samples of the treated domestic sewage effluent which is discharged at the outfall. The discharger shall identify the facility with a clearly visible sign distinguishing it from any other.

- (e) The facilities identified in (d) above, shall be installed in accordance with the plan accompanying this consent to discharge.
- (f) Facilities shall be provided for safe and convenient access to enable Authority's representatives at any time to take samples, carry out flow measurements and inspection to ensure that the conditions of this consent are complied with.
- (g) A full maintenance agreement to the Authority's satisfaction for the treatment plant shall be established.
- (h) Maintenance records shall be provided to Authority staff on request.

2. As to the Outfall

An outfall shall be sited at NGR ST 0510 0480 and shall be so constructed that it is used for the discharge of treated domestic sewage effluent derived only from Higher Weaver Farm, Kentisbeare.

3. As to Discharge

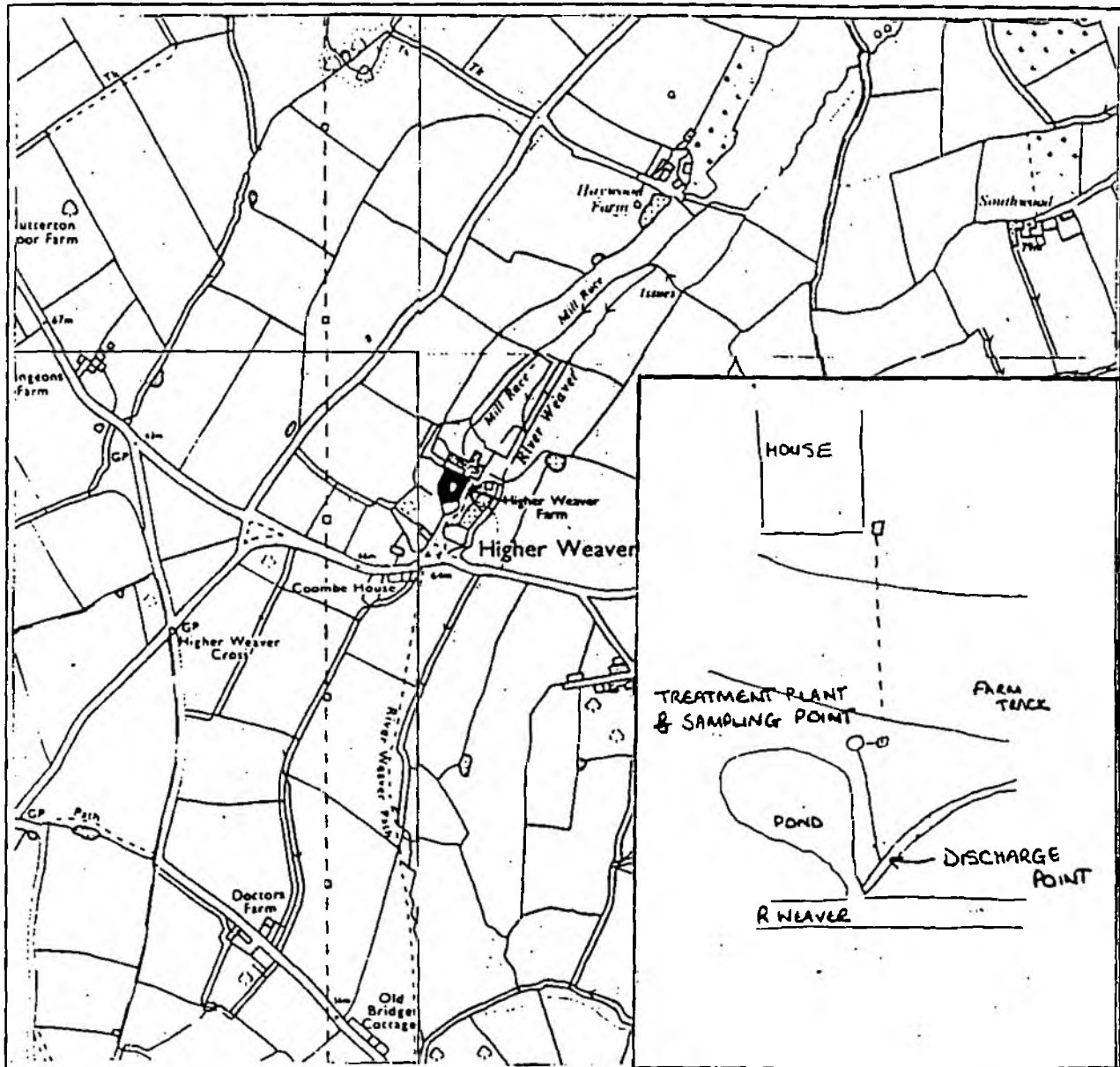
- (a) The volume of effluent discharged shall be limited to that arising from Higher Weaver Farm, Kentisbeare and in any case shall not exceed 1 cubic metre in any period of twenty four hours.

4. As to Discharge Composition

- (a) The discharge shall contain no visible signs of oil or grease.
- (b) As far as is reasonably practicable, the treatment system shall be operated so as to prevent any matter being present in the effluent which will cause the receiving waters, or any waters of which the receiving waters are a tributary, to be poisonous or injurious to fish in those waters, or to the spawning grounds, spawn or food of fish in those waters, or otherwise cause damage to the ecology of those waters.
- (c) No single sample of the effluent discharged shall have:
 - (i) in excess of 20 milligrams per litre of biochemical oxygen demand (nitrification suppressed) for five days at 20°C;
 - (ii) in excess of 40 milligrams per litre of suspended solids (measured after drying for one hour at 105°C);

NATIONAL RIVERS AUTHORITY
SOUTH WESTERN REGION

CONSENT NUMBER
NRA-SW-7447



DATE: May 1995

SITE: HIGHER WEAVER FARM
KENTISBEARE

OUTLET: ST 0510 0480

Geoff. Barton
24th July 1995.

[4. As to Discharge Composition, continued]

NRA-SW-7447

- (iii) in excess of 20 milligrams per litre of ammoniacal nitrogen expressed as nitrogen;
- (iv) a pH value less than 6 or greater than 9;

...*Geoff Bateman*.....
Geoff Bateman
Area Manager (Devon)
National Rivers Authority
South Western Region

Manley House
Kestrel Way
Sowton Industrial Estate
Exeter
Devon EX2 7LQ

...*24th July 1995*.....
Date of Consent

APPENDIX V

FRESHWATER

Type:	☐ F	Ref:	62012630	Date:	04/02/1995	Time:	1210
How Received:	☐ T	Received By:	CONR	Investigating Officer:	AFS	SWEETAPPLE WARDEN (AXE)	
Reported By:	MISS ELIOT	Tel:		Reporter's Address:	WEAVERS EDGE KERSWELL CULLOMPTON		
Incident Reported:	SEWAGE IN STREAM(R.WEAVER) AT KERSWELL.						
Source Name:	STORM OVERFLOW SWW		Source Address:	KERSWELL			
Catchment:	05C	Severity:	003	Grid Reference:	ST 0780 0630		
Primary Incident Code:	5B6X2A	Origin:	5B	Storm Overflow Pic	Reason:	X	Unknown
		Cause:	6	Effluent Discharge	Pollutant:	2A	Crude Sewage
Estimated Volume:	0	Estimated Flow Rate (m-3):	0/				
Potable supply affected:	U	Number of Salmonids killed:	0				
Industrial supply affected:	U	Number of Cyprinids killed:	0				
Agricultural supply affected:	U	Number of Eels killed:	0				
Groundwater affected:	U	Other Fish Species killed:	U				
Tidal Water affected:	U	Fishereis affected:	U				
Amenity/Conservation affected:	U	Aquatic Life affected:	U				
River Quality Seriously affected:	U	River length affected:	0				
<u>CLOSURE DETAILS:</u>	Closure Date and Time:	04/02/1995	1600	Action:	V	Verbal warning and remedy to problem	
Samples Taken:	N	Closing Officer:	AFS	SWEETAPPLE WARDEN (AXE)			

FRESHWATER

Type: ☐ F Ref: ☐ 62017415 Date: ☐ 15/04/1994 Time: ☐ 0900
How Received: ☐ T Received By: ☐ PAA Investigating Officer: ☐ TJHJ ☐ JAMES, T POLLUTION INSPECTOR (EXETER)
Reported By: ☐ MRS WHITFIELD Tel: ☐ 0884 266510 Reporter's Address: ☐ OAKLEA DULFORD

Incident Reported: ☐ R WEAVER AT DULFORD DIRTY AGAIN

Source Name: ☐ MR GRATWICKE Source Address: ☐ PRIORY FISHERY KERSWELL

Catchment: ☐ 05C Severity: ☐ 002 Grid Reference: ☐ ST 0700 0600

Primary Incident Code: ☐ 3U6C4N Origin: ☐ 3U ☐ Fish Farms Reason: ☐ C ☐ Inadequate Design / Capacity
Cause: ☐ 6 ☐ Effluent Discharge Pollutant: ☐ 4N ☐ Process Water

Estimated Volume:	☐ 0	Estimated Flow Rate (m-3):	☐ 0/
Potable supply affected:	☐ U	Number of Salmonids killed:	☐ 0
Industrial supply affected:	☐ U	Number of Cyprinids killed:	☐ 0
Agricultural supply affected:	☐ U	Number of Eels killed:	☐ 0
Groundwater affected:	☐ U	Other Fish Species killed:	☐ U
Tidal Water affected:	☐ U	Fishereis affected:	☐ U
Amenity/Conservation affected:	☐ U	Aquatic Life affected:	☐ U
River Quality Seriously affected:	☐ U	River length affected:	☐ 0

CLOSURE DETAILS: Closure Date and Time: ☐ 15/04/1994 ☐ 1700 Action: ☐ V ☐ Verbal warning and remedy to problem

Samples Taken: ☐ N Closing Officer: ☐ TJHJ ☐ T POLLUTION INSPECTOR (E

FRESHWATER

Type:	☐ F	Ref:	62013943	Date:	17/01/1996	Time:	1516
How Received:	☐ T	Received By:	PAA	Investigating Officer:	JCM	MAYE JC WATER QUALITY OFFICER	
Reported By:	MRS WICKFIELD		Tel:	01884 266510		Reporter's Address: OAKLEIGH DULFORD	
Incident Reported:	JELLY LIKE SUBSTANCE AT THE POULTRY HOUSES AT FOUR HORSESHOES DULFORD						
Source Name:	UNKNOWN POSSIBLY POULTRY HOUSE		Source Address:				
Catchment:	05C	Severity:	003	Grid Reference:	ST 0650 0600		
Primary Incident Code:	3W9X2K	Origin:	3W	Farm Drainage	Reason:	☒ X	Unknown
		Cause:	9	Runoff	Pollutant:	2K	Animal Waste / Slurry
Estimated Volume:	0	Estimated Flow Rate (m-3):	0/				
Potable supply affected:	☐ U	Number of Salmonids killed:	0				
Industrial supply affected:	☐ U	Number of Cyprinids killed:	0				
Agricultural supply affected:	☐ U	Number of Eels killed:	0				
Groundwater affected:	☐ U	Other Fish Species killed:	☐ U				
Tidal Water affected:	☐ U	Fishereis affected:	☐ U				
Amenity/Conservation affected:	☐ U	Aquatic Life affected:	☐ U				
River Quality Seriously affected:	☐ U	River length affected:	0				
CLOSURE DETAILS:	Closure Date and Time:	17/01/1996	2010	Action:	☐ W	Written warning and remedy to problem	
Samples Taken:	☐ Y	Closing Officer:	JCM	MAYE JC WATER QUALITY OFFICER			

FRESHWATER

Type:	☐ F	Ref:	62013948	Date:	30/01/1996	Time:	1138
How Received:	☐ T	Received By:	PAA	Investigating Officer:	JCM	MAYE JC WATER QUALITY OFFICER	
Reported By:	WHITFIELD	Tel:	01884 266510	Reporter's Address:	OAKLEIGH DULFORD CULLOMPTON		
Incident Reported:	SEPTIC TANK EFFLUENT ON FOOTPATH						
Source Name:	DALE HOUSE DULFORD	Source Address:					
Catchment:	05C	Severity:	004	Grid Reference:	ST 0730 0580		
Primary Incident Code:	4C6C2A	Origin:	4C	Septic Tank	Reason:	C	Inadequate Design / Capacity
		Cause:	6	Effluent Discharge	Pollutant:	2A	Crude Sewage
Estimated Volume:	0	Estimated Flow Rate (m-3):	0/				
Potable supply affected:	U	Number of Salmonids killed:	0				
Industrial supply affected:	U	Number of Cyprinids killed:	0				
Agricultural supply affected:	U	Number of Eels killed:	0				
Groundwater affected:	U	Other Fish Species killed:	U				
Tidal Water affected:	U	Fishereis affected:	U				
Amenity/Conservation affected:	U	Aquatic Life affected:	U				
River Quality Seriously affected:	U	River length affected:	0				
CLOSURE DETAILS:	Closure Date and Time:	30/01/1996	1545	Action:	N	No action taken	
Samples Taken:	N	Closing Officer:	JCM	MAYE JC WATER QUALITY OFFICER			

FRESHWATER

Type:	☐ F	Ref:	62017410	Date:	07/04/1994	Time:	1600
How Received:	☐ T	Received By:	RGH	Investigating Officer:	TJHJ	JAMES, T POLLUTION INSPECTOR (EXETER)	
Reported By:	ROBIN PEARSON		Tel:			Reporter's Address: NRA	
Incident Reported:	R WEAVER MUDDY AT DULFORD						
Source Name:	PRIORY FISH FARM		Source Address:	KERSWELL NEAR DULFORD			
Catchment:	05C	Severity:	002	Grid Reference:	ST 0700 0600		
Primary Incident Code:	3U6C4N	Origin:	3U	Fish Farms	Reason:	C	Inadequate Design / Capacity
		Cause:	6	Effluent Discharge	Pollutant:	4N	Process Water
Estimated Volume:	0	Estimated Flow Rate (m-3):	0/				
Potable supply affected:	U	Number of Salmonids killed:	0				
Industrial supply affected:	U	Number of Cyprinids killed:	0				
Agricultural supply affected:	U	Number of Eels killed:	0				
Groundwater affected:	U	Other Fish Species killed:	U				
Tidal Water affected:	U	Fishereis affected:	U				
Amenity/Conservation affected:	Y	Aquatic Life affected:	U				
River Quality Seriously affected:	U	River length affected:	0.5				
CLOSURE DETAILS:	Closure Date and Time:		20/04/1994	1700	Action:	V	Verbal warning and remedy to problem
Samples Taken:	N	Closing Officer:	TJHJ	. T POLLUTION INSPECTOR (E			

FRESHWATER

Type:	☐ F	Ref:	62017151	Date:	26/07/1994	Time:	1022
How Received:	☐ T	Received By:	PAA	Investigating Officer:	DGC	CARTER DG POLLUTION INSPECTOR	
Reported By:	MRS PICKETT		Tel:		Reporter's Address:	WEAVER BROOK HOUSE KERSWEL CULLOMPTON	
Incident Reported:	R. WEAVER RUNNING BROWN/BLACK AND SMELLS.						
Source Name:	MR E P COTTRELL		Source Address:	KERSWELL FARM KERSWELL			
Catchment:	05C	Severity:	002	Grid Reference:	ST 0800 0600		
Primary Incident Code:	3W662K	Origin:	3W	Farm Drainage	Reason:	6	Poor Management Control
		Cause:	6	Effluent Discharge	Pollutant:	2K	Animal Waste / Slurry
Estimated Volume:	0	Estimated Flow Rate (m-3):	0/				
Potable supply affected:	U	Number of Salmonids killed:	0				
Industrial supply affected:	U	Number of Cyprinids killed:	0				
Agricultural supply affected:	Y	Number of Eels killed:	0				
Groundwater affected:	U	Other Fish Species killed:	U				
Tidal Water affected:	U	Fishereis affected:	U				
Amenity/Conservation affected:	Y	Aquatic Life affected:	Y				
River Quality Seriously affected:	Y	River length affected:	1				
CLOSURE DETAILS:	Closure Date and Time:		26/07/1994	1830	Action:	F	Formal sample taken - possible prosecution
Samples Taken:	Y	Closing Officer:	DGC	RTER DG POLLUTION INSPECT			

Incident Number.... 21544 Priority.... Immediate (2 Hours)
Problem..... POLLUTION-ENVIRONMENT PROTECTION - WATER QUALITY (PQ)

Reported by..... MRS WHITFIELD (by T 0800) Phone 01884 266510
Reporters Address.. OAKLEA DULFORD
Incident Location.. DULFORD ST 069 059
Place (Gazetteer).. DULFORD (CULLOMPTON) 05C ST070060
Water Stretch ID... 45/05C/004/02 Area..... Devon
Catchment..... CULM
Watercourse..... RIVER WEAVER (CULM TRIB)
Stretch..... SOURCE - HIGHER WEAVER
Fish Dead..... 0 Fish Distressed.... 0

Pollution Confirmed None (0)
Pollution Source... CATTLE BEEF FARMING STOCK WATERING / FEEDING (GC)
Pollutant..... MISCELLANEOUS SUSPENDED SOLID (MS)

DETAILS

THE STREAM AT THE ABOVE ADDRESS IS VERY MURKY, RUNNING WITH SILT ALSO MRS WHITFIELD SAYS ITS FULL OF GOLDFISH.

RCC LOG NO.435/1115

JO MAYE ATTENDED. BULLOCKS IN THE STREAM. JO DIDN'T GET MESSAGE ON VODAPHONE AS SHE HAD BOOKED IN AT HOME AT 15:00 AND HER VODIE WAS TURNED OFF. SHE DIDN'T RECEIVE THE FAX OF THE INCIDENT DETAILS UNTIL 18:00, SO THE RESPONSE TIME WASN'T MET.

Occurred at 1523 on 28-APR-97
Received at 1523 on 28-APR-97 by Regional Comms Centre
Referred at 1527 on 28-APR-97 to Environment Protectn Devon(FISHERR)
RESPONDED at 1800 on 28-APR-97 by Environment Protectn Devon(MAYEJ)
Target Date 1723 on 28-APR-97
Completed at 1158 on 09-MAY-97

SAMPLES

No Samples are recorded as being specifically relevant to this incident.

Incident Number.... 21866

Priority.... Immediate (2 Hours)

Problem..... POLLUTION-ENVIRONMENT PROTECTION - WATER QUALITY (PQ)

Reported by..... MRS WHITFIELD (by T 0800) Phone 01884 266510

Reporters Address.. OAKLEIGH, DULFORD, NR CULLOMPTON

Incident Location.. R. WEAVER ST 070 060

Place (Gazetteer).. DULFORD (CULLOMPTON) 05C ST070060

Water Stretch ID... 45/05C/004/02

Area..... Devon

Catchment..... CULM

Watercourse..... RIVER WEAVER (CULM TRIB)

Stretch..... SOURCE - HIGHER WEAVER

Fish Dead..... 0

Fish Distressed.... 0

Pollution Confirmed None (0)

Pollution Source... MISC PREMISES UNKNOWN (MU)

Pollutant..... MISCELLANEOUS UNKNOWN (MU)

DETAILS

G/459/494. RIVER WEAVER BY BRIDGE IN DULFORD IS FOAMY AGAIN.

ACTLY THE SAME AS INCIDENT ON 12/05/1997. SAMPLES TAKEN.

Occurred at 1000 on 13-MAY-97

Received at 1001 on 13-MAY-97 by Regional Comms Centre

Referred at 1002 on 13-MAY-97 to Environment Protectn Devon(FISHERR)

RESPONDED at 1010 on 13-MAY-97 by Environment Protectn Devon(MAYEJ)

Target Date 1201 on 13-MAY-97

Completed at 1648 on 14-MAY-97

SAMPLES

No Samples are recorded as being specifically relevant to this incident.

Incident Number.... 19589 Priority.... Urgent (1 Day)
Problem..... POLLUTION-ENVIRONMENT PROTECTION - WATER QUALITY (PQ)

Reported by..... MR DAVID BARKER (by Telephone) Phone 01404 841225
Reporters Address..
Incident Location.. KERSWELL, NR CULLOMPTON ST 0780 0610
Place (Gazetteer).. KERSWELL (CULLOMPTON) 05B/05C ST958834
Water Stretch ID... 45/05C/004/02 Area..... Devon
Catchment..... CULM
Watercourse..... RIVER WEAVER (CULM TRIB)
Stretch..... SOURCE - HIGHER WEAVER
Fish Dead..... 0 Fish Distressed.... 0

Pollution Confirmed None (0)
Pollution Source... TRANSPORT ROAD (LOST LOAD) (TR)
Pollutant..... OILS DIESEL (OD)

DETAILS
CALLER REPORTED A DIESEL LEAK FROM HIS TRACTOR. HE SAYS THAT MOST OF IT HAS BEEN MOPPED UP, AND IT HAS NOT GOT INTO STREAM. HE DID EXPRESS A SLIGHT CONCERN THAT SOME IT MAY BE WASHED OFF AND HAVE AN ADVERSE EFFECT ON THE FISHERY (PRIORY FISHERIES). RF CONTACTED PRIORY FISHERIES AND ADVISED THEM TO CHECK THEIR PONDS AND INLET-THEY SEEMED TO KNOW ABOUT IT.
JO MAYE TO ATTEND LATER THIS AFTERNOON.
NO EFFECT ON FF. NO DIESEL EVIDENT IN STREAM, ONLY VERY SMALL AMOUNT DETECTED ON ROAD.

Occurred at 1145 on 14-JAN-97
Received at 1147 on 14-JAN-97 by Environment Protectn Devon
Referred at 1150 on 14-JAN-97 to Environment Protectn Devon(MAYEJ)
RESPONDED at 1155 on 14-JAN-97 by Environment Protectn Devon(MAYEJ)
Target Date 1147 on 15-JAN-97
Completed at 1436 on 20-JAN-97

SAMPLES

No Samples are recorded as being specifically relevant to this incident.

Incident Number.... 21850

Priority.... Immediate (2 Hours)

Problem..... POLLUTION-ENVIRONMENT PROTECTION - WATER QUALITY (PQ)

Reported by..... MRS EDWORTHY (by Telephone) Phone 01884 266521

Reporters Address.. DULFORD, NEAR CULLOMPTON

Incident Location.. DULFORD, NEAR CULLOMPTON ST 070 060

Place (Gazetteer).. DULFORD (CULLOMPTON) 05C ST070060

Water Stretch ID... 45/05C/004/02

Area..... Devon

Catchment..... CULM

Watercourse..... RIVER WEAVER (CULM TRIB)

Stretch..... SOURCE - HIGHER WEAVER

Fish Dead..... 0

Fish Distressed.... 0

Pollution Confirmed None (0)

Pollution Source... MISC PREMISES UNKNOWN (MU)

Pollutant..... MISCELLANEOUS UNKNOWN (MU)

DETAILS

CALLER REPORTING A LOT OF WHITE/BROWN FOAM WHICH HAS BEEN BUILDING UP OVER THE
LAST COUPLE OF DAYS. THERE ARE FISH PONDS UPSTREAM WHICH THE CALLER IS IN NO
WAY IMPLICATING! JO MAYE TO INVESTIGATE BUT INITIAL REACTION IS THAT FOAMING IS
DUE TO RAINFALL OVER THE WEEKEND.

NOTHING UNUSUAL FOUND. MET MR. GRATWICK ON SITE. SAMPLES TAKEN.

Occurred at 0857 on 12-MAY-97

Received at 0906 on 12-MAY-97 by Environment Protectn Devon

RESPONDED at 0907 on 12-MAY-97 by Environment Protectn Devon(MAYEJ)

Target Date 1106 on 12-MAY-97

Completed at 1229 on 29-MAY-97

SAMPLES

Samples are recorded as being specifically relevant to this incident.

Incident Number.... 13913 Priority.... Immediate (2 Hours)
Problem..... POLLUTION RISK - MINOR REPORTED (P3)

Reported by..... JACK BOARD (Y) (by Telephone) Phone 0374 193066
Reporters Address.. SWW
Incident Location.. KERSWELL STW
Place (Gazetteer).. KENTISBEARE ST068082
Water Stretch ID... 45/05C/002/02/B Area..... Devon
Catchment..... CULM
Watercourse..... WEAVER
Stretch..... SOURCE-HIGHER WEAVER
Fish Dead..... 0 Fish Distressed.... 0

Pollution Confirmed Significant (2)
Pollution Source... SOUTH WEST WATER PLC PUMPING STATIONS/SEWAGE (SP)
Pollutant..... OILS DIESEL (OD)

DETAILS

A LOT OF DIESEL HAS GONE TO KERSWELL STW AND COMPLETELY KNOCKED OUT THE WORKS
THEY ARE TANKERING THE DIESEL AWAY AT PRESENT. WATERCOURSE SHOULD NOT BE
AFFECTED. ALSO DIESEL AT ASHILL STW BUT NOT AS SERIOUS.
APPROX 800L HEATING OIL LOST TO PUMPING STATION AND DISUSED SEPTIC TANK.
STREAM UNAFFECTED DUE TO 24 HOUR TANKERING AT STWANDSEPTIC TANK. THIS IS TO
CONTINUED UNTIL FE IS SATISFACTORY. RESIDUE OIL FLUSHED OUT USING CLEAN WATER
RESPONSIBLE PARTY WAS MR ROBIN COLE OF ROSEBANK KERSE=WELL. ADMITTED NEGLIGENCE
WHEN SYPHONING OIL FROM TANK.

Occurred at 1615 on 27-FEB-96
Received at 1630 on 27-FEB-96 by Area Environmental (Devon)
Referred at 1633 on 27-FEB-96 to Area Environmental (Devon)(MAYEJ)
RESPONDED at 1640 on 27-FEB-96 by Area Environmental (Devon)(MAYEJ)
Target Date 1830 on 27-FEB-96
Completed at 1332 on 04-MAR-96

SAMPLES

No Samples are recorded as being specifically relevant to this incident.

APPENDIX VI

NATIONAL RIVERS AUTHORITY - SOUTH WESTERN REGION
BIOLOGICAL SURVEY SHEET - INVESTGATIONS

RIVER	SITE			DATE	
SITE REF NUMBER	NGR	SAMPLING OFFICER			
SAMPLING METHOD		AVE WIDTH M	AVE DEPTH M		
SHADE %	FLOW M/SEC	TURBIDITY		COLOUR	
MACROPHYTES PRESENT(% COVER)		ALGAE (% COVER) GREEN FILAMENTOUS GREEN NON-FILAMENTOUS DIATOMS OTHER			
BRYOPHTES (% COVER)		SEWAGE FUNGUS (TOTAL % COVER)			
OCHRE (% COVER)					
SUBSTRATE (% COVER)		ROCK PAVEMENT	BOULDERS (>25GMM)		
COBBLES (64 - 256MM)		PEBBLES (16-64MM)	GRAVEL (2-16MM)		
SAND (0.0625 - 2MM)		SILT	CLAY		
COMMENTS					

		BMWP SCORE			BMWP SCORE			BMWP SCORE
Ephemeroptera			Limnephilidae	7		Chelicerata		
Baetidae	4		Molannidae	10		Acari		
Caenidae	7		Odontoceridae	10		Mollusca		
Ephemerellidae	10		Philopotamidae	8		Acroloxidae	6	
Ephemeridae	10		Phryganeidae	10		Ancylidae	6	
Heptageniidae	10		Polycentropodidae	7		Bithniidae	3	
Leptophlebiidae	10		Psychomyidae	8		Dreissenidae		
Potamanthidae	10		Rhyacophilidae	7		Hydrobiidae	3	
Siphonuridae	10		Sericostomatidae	10		Lymnaeidae	3	
Odonata			Lepidoptera			Neuridea	6	
Aeshnidae	8		Pyralidae			Physidae	3	
Calopterygidae	8		Diptera			Planorbidae	3	
Coenagruidae	6		Athericidae			Sphaeriidae	3	
Cordulegasteridae	8		Ceratopegonidae			Unionidae	6	
Corduliidae	8		Chaoboridae			Valvatidae	3	
Gomphidae	8		Chironomidae	2		Viviparidae	6	
Lestidae	8		Culicidae			Bryozoa		
Libellulidae	8		Dixidae			Oligochaeta	1	
Platycnemididae	6		Empididae			Hirudinea		
Plecoptera			Muscididae			Erpobuellidae	3	
Capniidae	10		Psychodidae			Glossiphoniidae	3	
Chloroperlidae	10		Ptychopteridae			Hirudidae	3	
Leuctridae	10		Rhagionidae			Pisicollidae	4	
Nemouridae	7		Simuliidae	5		Nematomorpha		
Perlidae	10		Stratiomyidae			Nematoda		
Perlodidae	10		Syrphidae			Platyhelminthes		
Taeniopterygidae	10		Tabanidae			Dendrocoelidae	5	
Hemiptera			Thaumaleidae			Dugesidae	5	
Aphelecheiridae	10		Tipulidae	5		Planariidae	5	
Corixidae	5		Coleoptera			Porifera		
Gerridae	5		Chrysomelidae	5				
Hydrometridae	5		Curculionidae	5				
Mesovelidae	5		Dryopidae	5				
Naucoridae	5		Dytiscidae	5				
Nepidae	5		Elmidae	5				
Notonectidae	5		Gyrinidae	5				
Pleidae	5		Halipidae	5				
Velidae	5		Hydraenidae	5				
Megaloptera			Hydrophilidae	5				
Sialidae	4		Hygrobiidae	5				
Neuroptera			Noteridae	5				
Osmylidae			Sciuridae	5				
Sisyridae			Crustacea					
Trichoptera			AseIIDae	3				
Beraeidae	10		Astacidae	8				
Brachycentridae	10		Branchiura					
Ednomidae	8		Cladocera					
Glossosomatidae	7		Copepoda					
Goeridae	10		Corophidae	6				
Hydropsychidae	5		Crangonyctidae	6				
Hydroptilidae	6		Gammaridae	6				
Lepidostomatidae	10		Ostracoda					
Leptoceridae	10							

BMWP SCORE 41
ASPT SCORE 21
NO. OF SCORING TAXA 12
NO. OF NON-SCORING TAXA 3
TOTAL TAXA 15

BIOLOGICAL SURVEY SHEET - INVESTIGATIONS

NUMBER	SITE	DATE	
5	UKS (2) Ham Woods Farm	12/2/17	
METHOD	NGR	SAMPLING OFFICER	PIC
1m x 1m			
AVE WIDTH M	2	AVE DEPTH M	0.10
FLOW M/SEC		TURBIDITY	
		COLOUR	
PLANKTON PRESENT (% COVER)	ALGAE (% COVER)		
100%	GREEN FILAMENTOUS		
	GREEN NON-FILAMENTOUS		
	DIATOMS		
	OTHER		
SEWAGE FUNGUS (% COVER)	SEWAGE FUNGUS (TOTAL % COVER)		
	20 20 10 5 20 1 0 10 50 10		
ROCK PAVEMENT	BOULDERS (>256MM)		
PEBBLES (16-64MM)	GRAVEL (2-16MM)		
CLAY			

ephemera thing again

	BMWP SCORE		BMWP SCORE		BMWP SCORE
ROTERA		LIMNEPHILIDAE	7	CHELICERATA	
AE	4	MOLANNIDAE	10	ACARI	B
AE	7	ODONTOCERIDAE	10	MOLLUSCA	
RELLIDAE	10	PHILOPOTAMIDAE	8	ACROLOXIDAE	6
RIDAE	10	PHRYGANEIDAE	10	ANCYLIDAE	6
ENIIDAE	10	POLYCENTROPODIDAE	7	BITHNIIDAE	3
HEBIIDAE	10	PSYCHOMYIDAE	8	DREISSENIDAE	
NTHIDAE	10	RHYACOPHILIDAE	7	HYDROBIIDAE	3
JURIDAE	10	SERICOSTOMATIDAE	10	LYMNAEIDAE	3
		LEPIDOPTERA		NERITIDAE	6
DAE	8	PYRALIDAE		PHYSIDAE	3
ERYGIIDAE	8	DIPTERA		PLANORBIDAE	3
RIIDAE	6	ATHERICIDAE		SPHAERIIDAE	3
EGASTERIDAE	8	CERATOPOGONIDAE		UNIONIDAE	6
IDAE	8	CHAOBORIDAE		VALVATIDAE	3
DAE	8	CHIRONOMIDAE	2	VIVIPARIDAE	6
E	8	CULICIDAE		BRYOZOA	
IDAE	8	DIXIDAE		OLIOCHEATA	1
EMIDIDAE	6	EMPIDIDAE		HIRUDINEA	
ERA		MUSICIDAE		ERPOBDELLIDAE	3
AE	10	PSYCHODIDAE		GLOSSIPHONIIDAE	3
PERLIDAE	10	PTYCHOPTERIDAE		HIRUDIDAE	3
DAE	10	RHAGIONIDAE		PISCOLIDAE	4
IDAE	7	SIMULIIDAE	5	NEMATOMORPHA	
E	10	STRATIOMYIDAE		NEMATODA	
IDAE	10	SYRPHIDAE		PLATYHELMINTHES	
TERYGIDAE	10	TABANIDAE		DENDROCOELIDAE	5
RA		THAUMALEIDAE		DUGESIIDAE	5
CHEIRIDAE	10	TIPULIDAE	5	PLANARIIDAE	5
AE	5	COLEOPTERA		PORIFERA	
AE	5	CHRYSOMELIDAE	5		
ETRIDAE	5	CURCLIONIDAE	5		
LIDAE	5	DRYOPIDAE	5		
IDAE	5	DYTISCIDAE	5		
	5	ELMIDAE	5		
CTIDAE	5	GYRINIDAE	5		
	5	HALIPLIDAE	5		
	5	HYDRAENIDAE	5		
PTERA		HYDROPHILIDAE	5		
	4	HYGROBIIDAE	5		
TERA		NOTERIDAE	5		
AE		SCIRTIDAE	5		
AE		CRUSTACEA			
TERA		ASELLIDAE	3		
AE	10	ASTACIDAE	8		
CENTRIDAE	10	BRANCHIURA			
DAE	8	CLADOCERA			
SOMATIDAE	7	COPEPODA			
AE	10	COROPHIDAE	6		
SYCHIDAE	5	CRANGONYCTIDAE	6		
ILIDAE	6	GAMMARIDAE	8		
TOMATIDAE	10	OSTRACODA			
RIDAE	10				

BMWP SCORE 62
ASPT SCORE 21
NO. OF SCORING TAXA 15
NO. OF NON-SCORING TAXA 2
TOTAL TAXA 17

Crapsy...

NATIONAL RIVERS AUTHORITY - SOUTH WESTERN REGION
BIOLOGICAL SURVEY SHEET - INVESTGATIONS

RIVER <u>Weaver</u>	SITE <u>9/5 St Andrews Farm</u>	SAMPLING OFFICER <u>YR</u>		DATE <u>11/5/97</u>
SITE REF NUMBER <u>(K)</u>	NGR	AVE WIDTH M <u>1</u>		AVE DEPTH M <u>1.5</u>
SAMPLING METHOD <u>IMR</u>	FLOW M/SEC	TURBIDITY		COLOUR
SHADE % <u>0</u>	MACROPHYTES PRESENT (% COVER): <u>5% CALITRACHAE</u> <u>10% CLADOPHORA</u> <u>5% DIATOMS</u>		ALGAE (% COVER) GREEN FILAMENTOUS GREEN NON-FILAMENTOUS DIATOMS OTHER	
BRYOPHTES (% COVER) <u>0</u>	SEWAGE FUNGUS (TOTAL % COVER)			
OCHRE (% COVER)	30	20	50	trace
SUBSTRATE (% COVER)	ROCK PAVEMENT		BOULDERS (>256MM)	
COBBLES (64 - 256MM) <u>20</u>	PEBBLES (16-64MM) <u>30</u>		GRAVEL (2-16MM) <u>30</u>	
SAND (0.0625 - 2MM) <u>10</u>	SILT <u>10</u>		CLAY	

COMMENTS

			BMWP SCORE			BMWP SCORE			BMWP SCORE
EPHEMEROPTERA				LIMNephilidae	7	A	CHELICERATA		
BAETIDAE	4	✓	C	MOLANNIDAE	10		ACARI		✓ B
CAENIDAE	7			ODONTOCERIDAE	10		MOLLUSCA		
EPHEMERELLIDAE	10			PHILOPOTAMIDAE	8		ACROLOXIDAE	6	
EPHEMERIDAE	10			PHRYGANEIDAE	10		ANCYLIDAE	6	
HEPTAGENIIDAE	10	✓	A	POLYCENTROPODIDAE	7		BITHNIDAE	3	
LEPTOPHLEBIIDAE	10			PSYCHOMYIDAE	8		DREISSENIDAE		
POTAMANTHIDAE	10			RHYACOPHILIDAE	7		HYDROBIIDAE	3	
SIPHONURIDAE	10			SERICOSTOMATIDAE	10		LYMNAEIDAE	3	
ODONATA				LEPIDOPTERA			NERITIDAE	6	
AESHNIDAE	8			PYRALIDAE			PHYSIDAE	3	
CALOPTERYGIDAE	8			DIPTERA			PLANORBIDAE	3	✓ B
COENAGRIIDAE	6			ATHERICIDAE			SPHAERIIDAE	3	✓ B
CORDULEGASTERIDAE	8			CERATOPOGONIDAE			UNIONIDAE	6	
CORDULIDAE	8			CHAOBORIDAE			VALVATIDAE	3	
GOMPHIDAE	8			CHIRONOMIDAE	2	✓ B	VIVIPARIDAE	6	
LESTIDAE	8	✓	A	CULICIDAE			BRYOZOA		
LIBELLULIDAE	8			DIXIDAE			OLIOCHEATA	1	✓ B
PLATYCNEMIDAE	6			EMPIDIDAE			HIRUDINEA		
PLECOPTERA				MUSICIDAE			ERPOBDELLIDAE	3	✓ B
CAPNIIDAE	10			PSYCHODIDAE			GLOSSIPHONIIDAE	3	✓ A
CHLOROPERLIDAE	10			PTYCHOPTERIDAE			HIRUDIDAE	3	
LEUCTRIDAE	10			RHAGIONIDAE			PISCULIDAE	4	
NEMOURIDAE	7			SIMULIIDAE	5	✓ C	NEMATOMORPHA		
PERLIDAE	10			STRATIOMYIDAE			NEMATODA		
PERLODIDAE	10			SYRPHIDAE			PLATYHELMINTHES		
TAENIOPTERYGIDAE	10			TABANIDAE		✓ B	DENDROCOELIDAE	5	
HEMIPTERA				THAUMALEIDAE			DUGESIIDAE	5	
APHELOCHEIRIDAE	10			TIPULIDAE	5		PLANARIIDAE	5	✓ B
CORIXIDAE	5			COLEOPTERA			PORIFERA		
GERRIDAE	5			CHRYSOMELIDAE	5				
HYDROMETRIDAE	5			CURCLIONIDAE	5				
MESOVELIDAE	5			DRYOPIDAE	5				
NAUCORIDAE	5			DYTISCIDAE	5				
NEPIDAE	5			ELMIDAE	5	✓ B	BMWP SCORE	25	
NOTONECTIDAE	5			GYRINIDAE	5		ASPT SCORE	4.6	
PLEIDAE	5			HALIPLIDAE	5		NO. OF SCORING TAXA	15	
VELIDAE	5			HYDRAENIDAE	5		NO. OF NON-SCORING TAXA	2	
MEGALOPTERA				HYDROPHILIDAE	5		TOTAL TAXA	17	
SIALIDAE	4			HYGROBIIDAE	5				
NEUROPTERA				NOTERIDAE	5				
OSMYLIDAE				SCIPTIDAE	5				
SISYRIDAE				CRUSTACEA					
TRICHOPTERA				ASELLIDAE	3	✓ B			
BERAEIDAE	10			ASTACIDAE	8				
BRACHYCENTRIDAE	10			BRANCHIURA					
EDNOMIDAE	8			CLADOCERA					
GLOSSOSOMATIDAE	7			COPEPODA					
GOERIDAE	10			COROPHIDAE	6				
HYDROPSYCHIDAE	5	✓	C	CRANGONYCTIDAE	6				
HYDROPTILIDAE	6			GAMMARIDAE	6	✓ C			
LEPIDOSTOMATIDAE	10			OSTRACODA					
LEPTOCERIDAE	10								

RIVER	SITE		
SITE REF NUMBER	NGR	SAMPLING OFFICER	DATE
SAMPLING METHOD	AVE WIDTH M	AVE DEPTH M	
SHADE %	FLOW M/SEC	TURBIDITY	COLOUR
MACROPHYTES PRESENT(% COVER)	ALGAE (% COVER) GREEN FILAMENTOUS GREEN NON-FILAMENTOUS DIATOMS OTHER		
BRYOPHTES (% COVER)	SEWAGE FUNGUS (TOTAL % COVER)		
OCHRE (% COVER)			
SUBSTRATE (% COVER)	ROCK PAVEMENT	BOULDERS (>256MM)	
COBBLES (64 - 256MM)	PEBBLES (16-64MM)	GRAVEL (2-16MM)	
SAND (0.0625 - 2MM)	SILT	CLAY	
COMMENTS			

		BMWP SCORE			BMWP SCORE			BMWP SCORE
Ephemeroptera			Limnephilidae	7		Chelicerata		
Baetidae	4		Molannidae	10		Acari		
Caenidae	7		Odontoceridae	10		Mollusca		
Ephemerebellidae	10		Philopotamidae	8		Acroloxidae	6	
Ephemeridae	10		Phryganeidae	10		Ancylidae	6	
Heptageniidae	10		Polycentropodidae	7		Bithniidae	3	
Leptophlebiidae	10		Psychomyidae	8		Dreissenidae		
Potamanthidae	10		Rhyacophilidae	7		Hydrobiidae	3	
Siphonuridae	10		Sericostomatidae	10		Lymnaeidae	3	
Odontata			Lepidoptera			Neritidae	6	
Aeshnidae	8		Pyralidae			Physidae	3	
Calopterygidae	8		Diptera			Planorbidae	3	
Coenagrionidae	6		Athericidae			Sphaeriidae	3	
Cordulegasteridae	8		Ceratopogonidae			Unionidae	6	
Corduliidae	8		Chaoboridae			Valvatidae	3	
Gomphidae	8		Chironomidae	2		Viviparidae	6	
Lestidae	8		Culicidae			Bryozoa		
Libellulidae	8		Dixidae			Oligochaeta	1	
Platycnemididae	6		Empididae			Hirudinea		
Plecoptera			Muscididae			Erpobdellidae	3	
Capniidae	10		Psychodidae			Glossiphoniidae	3	
Chloroperlidae	10		Ptychopteridae			Hirudidae	3	
Leuctridae	10		Rhagionidae			Pisicilidae	4	
Nemouridae	7		Simuliidae	5		Nematomorpha		
Perlidae	10		Stratiomyidae			Nematoda		
Perlodidae	10		Syrphidae			Platyhelminthes		
Taeniopterygidae	10		Tabanidae			Dendrocoelidae	5	
Hemiptera			Thaumaleidae			Dugesidae	5	
Aphelecheiridae	10		Tipulidae	5		Planariidae	5	
Corixidae	5		Coleoptera			Porifera		
Gerridae	5		Chrysomelidae	5				
Hydrometridae	5		Curculionidae	5				
Mesovelidae	5		Dryopidae	5				
Naucoridae	5		Dytiscidae	5		BMWP SCORE		
Nepidae	5		Elmidae	5		ASPT SCORE		
Notonectidae	5		Gyrinidae	5		NO. OF SCORING TAXA		
Pleidae	5		Halplidae	5		NO. OF NON-SCORING TAXA		
Velidae	5		Hydraenidae	5		TOTAL TAXA		
Megaloptera			Hydrophilidae	5				
Sialidae	4		Hygrobiidae	5				
Neuroptera			Noteridae	5				
Osmylidae			Scirtidae	5				
Sisyridae			Crustacea					
Trichoptera			AseIIDae	3				
Beraeidae	10		Astacidae	8				
Brachycentridae	10		Branchiura					
Ednomidae	8		Cladocera					
Glossosomatidae	7		Copepoda					
Goeridae	10		Corophidae	6				
Hydropsychidae	5		Crangonyctidae	6				
Hydroptilidae	6		Gammaridae	6				
Lepidostomatidae	10		Ostracoda					
Leptoceridae	10							

NATIONAL RIVERS AUTHORITY - SOUTH WESTERN REGION
BIOLOGICAL SURVEY SHEET - INVESTGATIONS

RIVER <u>10/10/01</u>		SITE <u>(6)</u>	
SITE REF NUMBER <u>6</u>		NGR	SAMPLING OFFICER
SAMPLING METHOD <u>10/10/01</u>		AVE WIDTH M <u>1</u>	AVE DEPTH M <u>1.5</u>
SHADE % <u>10</u>	FLOW MSEC	TURBIDITY	COLOUR
MACROPHYTES PRESENT(% COVER)		ALGAE (% COVER) GREEN FILAMENTOUS GREEN NON-FILAMENTOUS DIATOMS OTHER	
BRYOPHTES (% COVER)		SEWAGE FUNGUS (TOTAL % COVER)	
OCHRE (% COVER)			
SUBSTRATE (% COVER)		ROCK PAVEMENT	BOULDERS (>256MM)
COBBLES (64 - 256MM) <u>10</u>		PEBBLES (16-64MM) <u>10</u>	GRAVEL (2-16MM) <u>10</u>
SAND (0.0625 - 2MM) <u>10</u>		SILT	CLAY

COMMENTS

		BMWP SCORE			BMWP SCORE			BMWP SCORE
EPHEMEROPTERA			LIMNephilidae	7		CHELICERATA		
BAETIDAE	4	✓	MOLANNIDAE	10		ACARI		✓
CAENIDAE	7		ODONTOCERIDAE	10		MOLLUSCA		
EPHEMERELLIDAE	10		PHILOPOTAMIDAE	8		ACROLOXIDAE	6	
EPHEMERIDAE	10	✓	PHRYGANEIDAE	10		ANCYLIDAE	6	✓
HEPTAGENIIDAE	10		POLYCENTROPODIDAE	7		BITHNIIDAE	3	
LEPTOPHLEBIIDAE	10		PSYCHOMYIDAE	8		DREISSENIDAE		
POTAMANTHIDAE	10		RHYACOPHILIDAE	7		HYDROBIIDAE	3	✓
SIPHONURIDAE	10		SERICOSTOMATIDAE	10	✓	LYMNAEIDAE	3	✓
ODONATA			LEPIDOPTERA			NERITIDAE	6	
AESHNIDAE	8		PYRALIDAE			PHYSIDAE	3	
CALOPTERYGIIDAE	8		DIPTERA			PLANORBIDAE	3	
COENAGRIIDAE	6		ATHERICIDAE			SPHAERIIDAE	3	✓
CORDULEGASTERIDAE	8		CERATOPOGONIDAE			UNIONIDAE	6	
CORDULIDAE	8		CHAOBORIDAE			VALVATIDAE	3	
GOMPHIDAE	8		CHIRONOMIDAE	2	✓	VIVIPARIDAE	6	
LESTIDAE	8		CULICIDAE			BRYOZOA		
LIBELLULIDAE	8		DIXIDAE			OLIOCHEATA	1	✓
PLATYCNEMIDAE	6		EMPIDIDAE			HIRUDINEA		
PLECOPTERA			MUSICIDAE			ERPODELLIDAE	3	
CAPNIIDAE	10		PSYCHODIDAE			GLOSSIPHONIIDAE	3	✓
CHLOROPERLIDAE	10		PTYCHOPTERIDAE			HIRUDIDAE	3	
LEUCTRIDAE	10		RHAGIONIDAE			PISCIDIIDAE	4	
NEMOURIDAE	7	✓	SIMULIIDAE	5		NEMATOMORPHA		
PERLIDAE	10		STRATIOMYIDAE			NEMATODA		
PERLODIDAE	10		SYRPHIDAE			PLATYHELMINTHES		
TAenioPTERYGIDAE	10	✓	TABANIDAE			DENDROCOELIDAE	5	
HEMIPTERA			THAUMALEIDAE			DUGESIIDAE	5	
APHELOCHEIRIDAE	10		TIPULIDAE	5	✓	PLANARIIDAE	5	✓
CORIXIDAE	5		COLEOPTERA			PORIFERA		
GERRIDAE	5		CHRYSOMELIDAE	5				
HYDROMETRIDAE	5		CURCLIONIDAE	5				
MESOVELIDAE	5		DRYOPIDAE	5				
NAUCORIDAE	5		DYTISCIDAE	5		BMWP SCORE		9
NEPIDAE	5		ELMIDAE	5	✓	ASPT SCORE		51
NOTONECTIDAE	5		GYRINIDAE	5		NO. OF SCORING TAXA		10
PLEIDAE	5		HALIPLIDAE	5		NO. OF NON-SCORING TAXA		
VELIIDAE	5		HYDRAENIDAE	5		TOTAL TAXA		10
MEGALOPTERA			HYDROPHILIDAE	5				
SIALIDAE	4		HYGROBIIDAE	5				
NEUROPTERA			NOTERIDAE	5				
OSMYLIDAE			SCIRTIDAE	5				
SISYRIDAE			CRUSTACEA					
TRICHOPTERA			ASELLIDAE	3	✓			
BERAEIDAE	10		ASTACIDAE	8				
BRACHYCENTRIDAE	10		BRANCHIURA					
EDNOMIDAE	8		CLADOCERA					
GLOSSOSOMATIDAE	7		COPEPODA					
GOERIDAE	10		COROPHIDAE	6				
HYDROPSYCHIDAE	5	✓	CRANGONYCTIDAE	6				
HYDROPTILIDAE	6		GAMMARIDAE	6	✓			
LEPIDOSTOMATIDAE	10		OSTRACODA					
LEPTOCERIDAE	10							

BIOLOGICAL SURVEY SHEET - INVESTGATIONS

RIVER		SITE 7		SAMPLING OFFICER		DATE	
SITE REF NUMBER		NGR					
SAMPLING METHOD				AVE WIDTH M		AVE DEPTH M	
SHADE %		FLOW M/SEC		TURBIDITY		COLOUR	
MACROPHYTES PRESENT(% COVER)				ALGAE (% COVER)			
				GREEN FILAMENTOUS			
				GREEN NON-FILAMENTOUS			
				DIATOMS			
OTHER							
BRYOPHTES (% COVER)				SEWAGE FUNGUS (TOTAL % COVER)			
OCHRE (% COVER)							
SUBSTRATE (% COVER)				ROCK PAVEMENT		BOULDERS (>256MM)	
COBBLES (64 - 256MM)				PEBBLES (16-64MM)		GRAVEL (2-16MM)	
SAND (0.0625 - 2MM)				SILT		CLAY	

COMMENTS

			BMWP SCORE			BMWP SCORE			BMWP SCORE
Ephemeroptera				Limnephilidae	7		Chelicerata		
Baetidae	4			Molannidae	10		Acari		
Caenidae	7			Odontoceridae	10		Mollusca		
Ephemereallidae	10			Philopotamidae	8		Acroloxidae	6	
Ephemeridae	10			Phryganeidae	10		Ancylidae	6	
Heptageniidae	10			Polycentropodidae	7		Bithniidae	3	
Leptophlebiidae	10			Psychomyidae	8		Dreissenidae		
Potamanthidae	10			Rhyacophilidae	7		Hydrobiidae	3	
Siphonuridae	10			Sericostomatidae	10		Lymnaeidae	3	
Odonata				Lepidoptera			Neritidae	6	
Aeshnidae	8			Pyralidae			Physidae	3	
Calopterygidae	8			Diptera			Planorbidae	3	
Coenagrionidae	6			Athericidae			Sphaeriidae	3	
Cordulegasteridae	8			Ceratopogonidae			Unionidae	6	
Cordulidae	8			Chaoboridae			Valvatidae	3	
Gomphidae	8			Chironomidae	2	D	Viviparidae	6	
Lestidae	8			Culicidae			Bryozoa		
Libellulidae	8			Dixidae			Oliocheata	1	
Platycnemididae	6			Empididae			Hirudinea		
Plecoptera				Muscididae			Erpobdellidae	3	
Capniidae	10			Psychodidae			Glossiphoniidae	3	
Chloroperlidae	10			Ptychopteridae			Hirudidae	3	
Leuctridae	10			Rhagionidae			Pisicidae	4	
Nemouridae	7			Simuliidae	5		Nematomorpha		
Perlidae	10			Stratiomyidae			Nematoda		
Perlodidae	10			Syrphidae			Platyhelminthes		
Taeniopterygidae	10			Tabanidae			Dendrocoelidae	5	
Hemiptera				Thaumaleidae			Dugesidae	5	
Aphelecheiridae	10			Tipulidae	5		Planariidae	5	
Corixidae	5			Coleoptera			Porifera		
Gerridae	5			Chrysomelidae	5				
Hydrometridae	5			Curculionidae	5				
Mesovelidae	5			Dryopidae	5				
Naucoridae	5			Dytiscidae	5				
Nepidae	5			Elmidae	5				
Notonectidae	5			Gyrinidae	5				
Pleidae	5			Halplidae	5				
Veliidae	5			Hydraenidae	5				
Megaloptera				Hydrophilidae	5				
Sialidae	4			Hygrobiidae	5				
Neuroptera				Noteridae	5				
Osmylidae				Scirtidae	5				
Sisyridae				Crustacea					
Trichoptera				AseIIDae	3				
Beraeidae	10			Astacidae	8				
Brachycentridae	10			Branchiura					
Ednomidae	8			Cladocera					
Glossosomatidae	7			Copepoda					
Goeridae	10			Corophidae	6				
Hydropsychidae	5			Crangonyctidae	6				
Hydroptilidae	6			Gammaridae	6				
Lepidostomatidae	10			Ostracoda					
Leptoceridae	10								

BMWP SCORE

ASPT SCORE

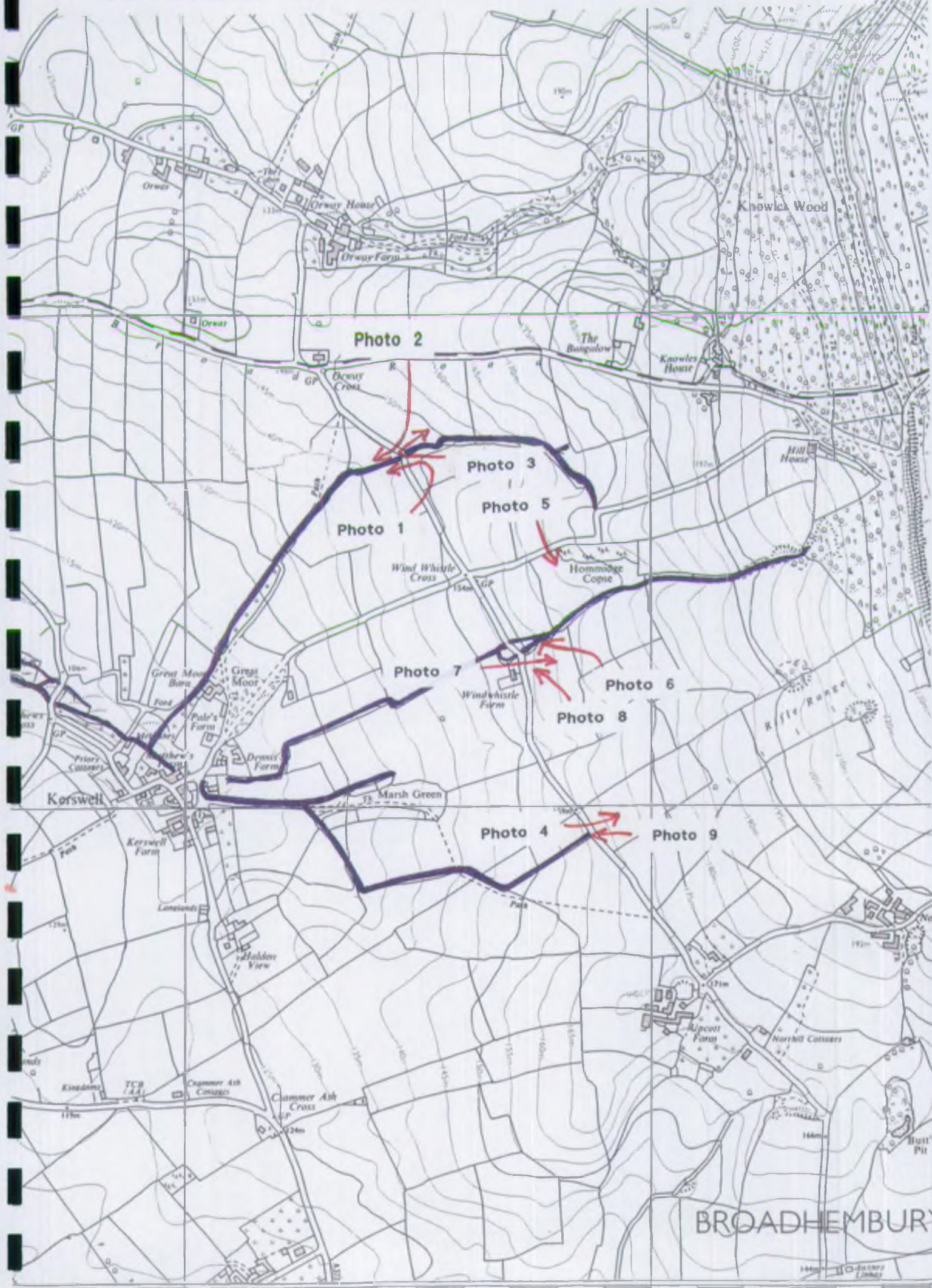
NO. OF SCORING TAXA

NO. OF NON-SCORING TAXA

TOTAL TAXA

APPENDIX VII

APPENDIX VII Wet Weather Photographs.



Photograph 1



Photograph 2



Photograph 4



Photograph 3



Photograph 5



Photograph 6



Photograph 7



Photograph 8



Photograph 9

