

**NS 2 FRESHWATER PEARL MUSSEL SUB-BASIN
MANAGEMENT PLANS**

**REPORT ON MORPHOLOGICAL MONITORING AND
CATCHMENT WALKOVER RISK ASSESSMENTS IN THE
MUNSTER BLACKWATER CATCHMENT**

September 2009

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INTRODUCTION

In order to assess the hydromorphological alterations within the Munster Blackwater catchment the EPA WFD classification tool called the River Hydromorphology Assessment Technique (RHAT) was utilised by RPS. This tool was developed through the North South Share project, to classify rivers in terms of their morphology. It is a field technique which assigns a channel typology. This influences the rivers physical attributes assessed in the field. The technique assigns a morphological classification directly related to that of the WFD – high, good, moderate, poor and bad.

RHAT surveys were carried out at high risk areas located within pearl mussel populations. The methodology classifies river hydromorphology based on a departure from naturalness, and assigns a morphological classification, based on semi-quantitative criteria. It is designed to be a rapid visual assessment based on information from desktop studies, using GIS data, aerial photography, historical data and data obtained from previous field surveys as well as observations in the field.

A catchment walkover risk assessment survey sheet was also designed by the project team in conjunction with NPWS in order to focus the collation of the pressure data in the field with respect to the Freshwater Pearl Mussel. The risk sheet was divided into eight categories designed to highlight the main pressures within the catchment. The eight categories are as follows:

- Source of erosion
- Diffuse Nutrient
- Diffuse Silt
- Current Riparian Zone
- Field Drainage
- Outfalls
- Abstractions
- Barriers to Migration

Each sub-pressure within the eight categories is analysed and an overall risk assessment of High, Medium or Low is assigned to that category. The “one out all out principle” is then used to assign the river stretch or point an overall risk category. A detailed description, together with a series of photographs outlining the pressures is also taken. The risk assessment sheets will assist the project team in focussing the specific freshwater pearl mussel measures within the catchment.

Location of survey stretches and points are shown in Figure 1

2.0 METHODOLOGY

Sampling was carried out between the 6th and the 10th of July 2009.

2.1 RIVER HYDROMORPHOLOGY ASSESSMENT TECHNIQUE (RHAT)

Classification of hydromorphology can be used to contribute to the status classification of water bodies at high ecological status only. However, RHAT plays a vital role in identifying why a water body might be failing to achieve Good Ecological Status as it is based on the observed impact in the field. It can assist in deciding what indirect and direct efforts are needed to improve status and in helping to prevent further deterioration.

The eight criteria that are scored are:

1. Channel morphology and flow types
2. Channel vegetation
3. Substrate diversity and embeddedness
4. Channel flow status
5. Bank and bank top stability
6. Bank and bank top vegetation
7. Riparian land use
8. Floodplain connectivity

Sheet 1 of the RHAT form contains the Field Health and Safety sheet which is filled on arrival at the site. Before the field survey, a desk study is required this element of the survey was completed as part of the development of the draft sub-basin management plans. The reach identification and physical characterization sections for each field site are recorded on Sheet 2 (see Appendix 1) with all information available from GIS and aerial photographs, including:

- a. expected stream type and the description of various stream types
- b. catchment and reach-scale pressures (these may help to identify, confirm or explain field observations);
- c. expected riparian vegetation types (for high quality status);
- d. the weather conditions on the day of the survey, and those immediately preceding the day of the survey. This information is important to interpret the effects of storm events on the survey results;
- e. the estimated stream width and the reach length to be assessed (~ 40 x width).
- f. any other notable issues (e.g. from previous surveys).

A score is allocated to each relevant attribute (the number of attributes to be assessed will depend on the stream type). Where the condition departs from the reference condition, note should be made if this condition results from a particular identifiable pressure. Where possible and where relevant, all attributes should be included in the assessment, using the assessment sheet (Sheet 3, see Appendix 1). If an attribute is not assessed, the score-summary table should be amended (cells shaded) and a note made as to why the assessment was not carried out. The WFD status can still be calculated on the basis of other attributes, but with a note that a particular attribute was omitted.

Transfer scores for individual attributes to the summary table on the survey Sheet 2. Finally the overall WFD category can be calculated using the following values:

> 0.8	= high
0.6 – 0.8	= good
0.4 – 0.6	= moderate
0.2 – 0.4	= poor
< 0.2	= bad

For the purposes of the assessment as part of the NS2 project, a high status for morphology is desirable for pearl mussel habitats. Through work carried out by the Shannon IRBD project on the Freshwater Morphology Programme of Measures Study, it was found that an observed relationship exists between biological data and a RHAT score. The study confirmed that morphological pressure can impact biology and therefore ecological status. In general, sites with RHAT scores less than 0.6 also have less than good Q scores. Similarly high levels of siltation affecting macrophyte populations are reflected by less than good RHAT scores.

Grid references were recorded at all sites using a GPS together with site photographs which were taken using a digital camera.

2.2 CATCHMENT WALKOVER RISK ASSESSMENT

During the development of the draft sub-basin management plans throughout 2008 a complete desk study was conducted of all relevant biological, water quality and pressure source data within the Munster Blackwater catchment. Best use was made of all available datasets such as the pressure source data collated by the River Basin District Projects for the Article V Characterisation and Programme of Measures Studies. This work Munster Blackwater the NS 2 project team to assess the catchment through the combined availability of aerial imagery and digitised pressure information. Where gaps in this data existed together with areas that required ground truthing such as physical barriers to migration, catchment walkover risk assessments were focussed throughout the 2009 field survey season.

The catchment walkover risk assessment sheet (See Appendix 3) covers eight main categories or pressures which are subsequently sub-divided into the various sources. Each source is ticked if present and an overall risk assessment for each pressure assigned from High to Medium to Low over the survey length or point. All eight pressures are combined to give an overall risk assessment to the catchment based on the “one out all out principle”.

3.0 RESULTS

Figure 1 indicates where the Munster Blackwater morphology RHAT assessments were carried out throughout the catchment.

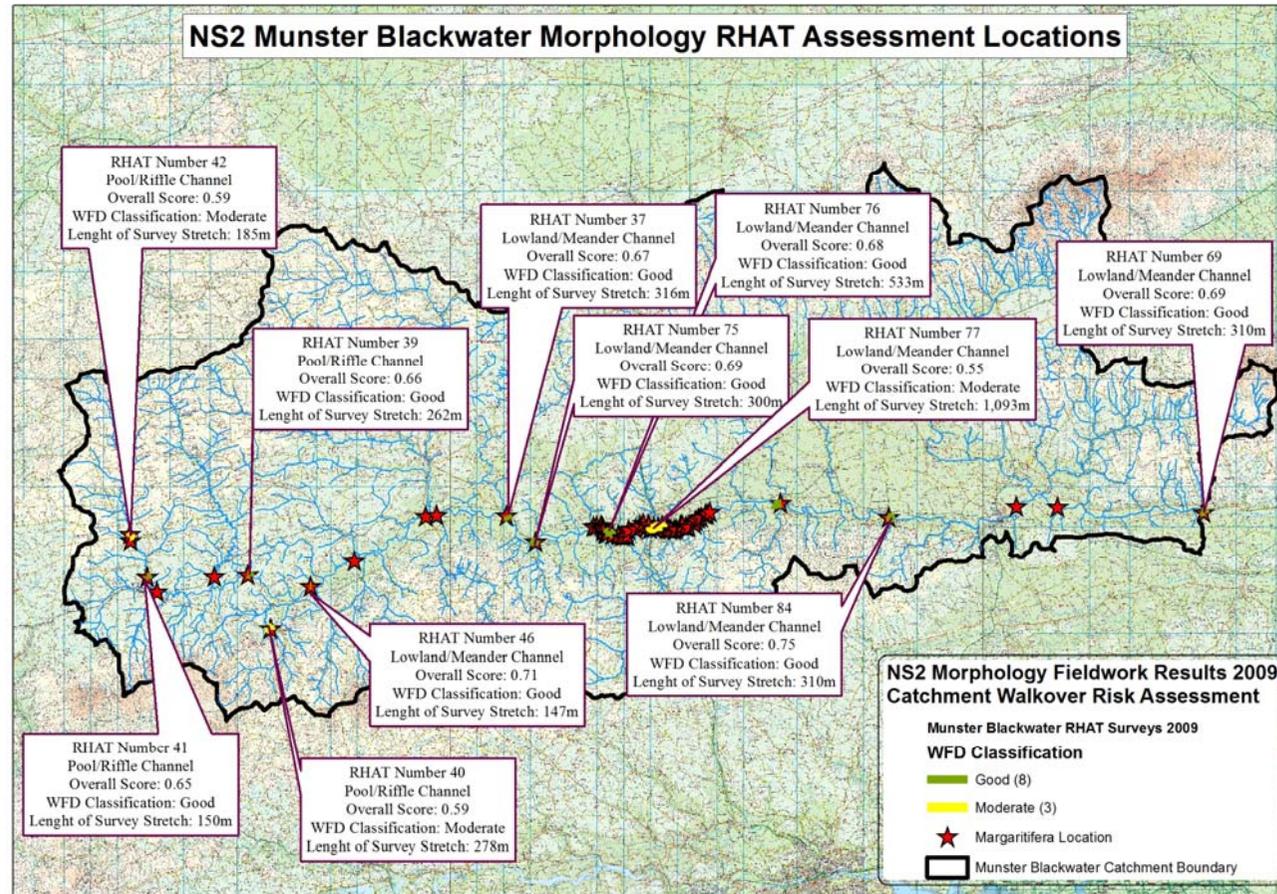


Figure 1 Morphology RHAT Assessment Locations

(The RHAT numbering system corresponds to the site code which may mean they are not sequential where a RHAT was not carried out at a particular site)

3.1 RHAT Survey Results

Eleven RHAT surveys were carried out throughout the Munster Blackwater catchment. The results of these surveys can be found in the electronic appendix and are also shown in Figure 1 above. Eight were deemed to be at good status. The RHAT surveys were carried out in the vicinity of the pearl mussel populations. The “Good” status sites were found throughout the catchment from Ballyduff to Ballydesmond. The three moderate sites were located in Mallow, Millstreet and Knocknagree to the west of the catchment. Going from West to east across the catchment RHAT number 42 which was surveyed at Farankeal bridge scored 0.59 and was classified as being at moderate status. This stretch contained high banks on both sides downstream of the bridge. Erosion and bare banks with a lack of buffer zone was present. On meeting the landowner he indicated that he is in REPS and has undertaken works in line with the REPS guidelines. New fencing has been erected as a result the conditions downstream may improve in the future as an adequate buffer zone has also been left. High levels of silt were recorded in the channel with the underneath of one bridge arch containing a mound of silt.

RHAT number 41 at Novona bridge scored 0.65 and was classified as “Good” status. The river was in high flow on the day of surveying and was very silty and peat stained. A lot of cattle poaching has and is occurring along this river stretch which has led to slumping of the river banks and subsequently an increase in silt.

Moving upstream RHAT number 39 at Charles Bridge on the main river Blackwater was also classified as being at “Good” status. The channel vegetation attribute scored low over this stretch as the macrophyte growth was more than would be expected for a river of this typology. The substrate condition was not visible due to the high flows but the excessive *Ranunculus* growth along the survey stretch would indicate a nutrient and/or siltation issue. A v-notch weir and a hydrometric gauging station were also recorded along this stretch. The high banks which were recorded appear to have undergone some disturbance and therefore the bank vegetation was downgraded together with the floodplain connectivity.

RHAT number 40 scored 0.59 and was classified as moderate. This survey was carried out on the Finnow River just outside Millstreet over a 278m stretch. Cattle access and poaching were significant pressures along this stretch. Peat staining, urbanisation associated with Millstreet and vegetated islands were all noted along this stretch and

impacting on the channel. Extensive lengths of the channel contained excessive macrophyte and in particular *Ranunculus* growth. As a result the channel vegetation attribute was downgraded and only scored one out of four. The substrate condition, bank structure, bank vegetation, riparian landcover and floodplain connectivity all scored quite low also due to the impact from the pressures listed above.

Representative photographs from reach:

<p>RHAT 42 Photo 4</p> 	<p>RHAT 42 Photo 9</p> 
<p>RHAT 41 Photo 5</p> 	<p>RHAT 41 Photo 10</p> 

RHAT 39 Photo 5



RHAT 39 Photo 9



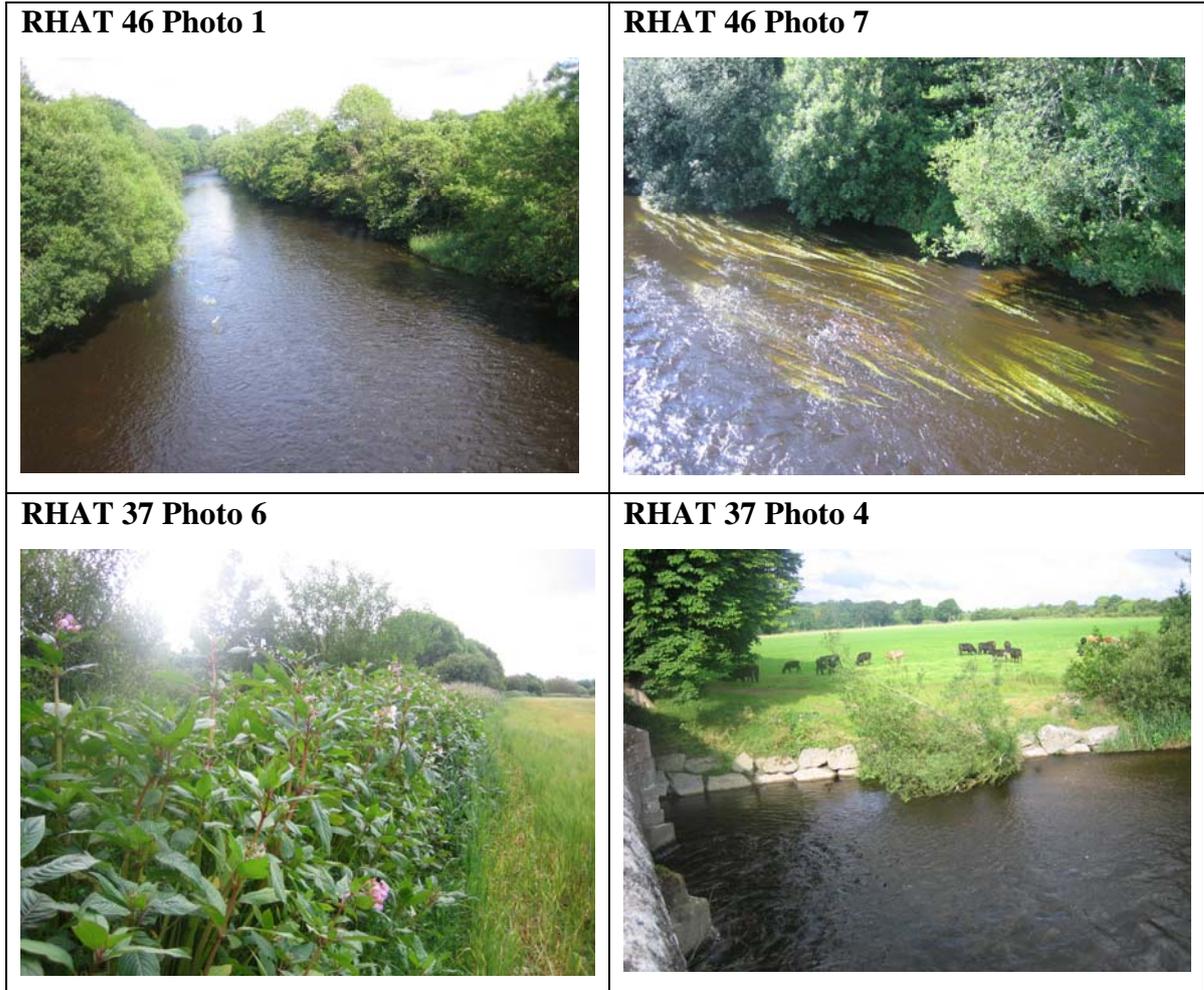
RHAT 40 Photo 6



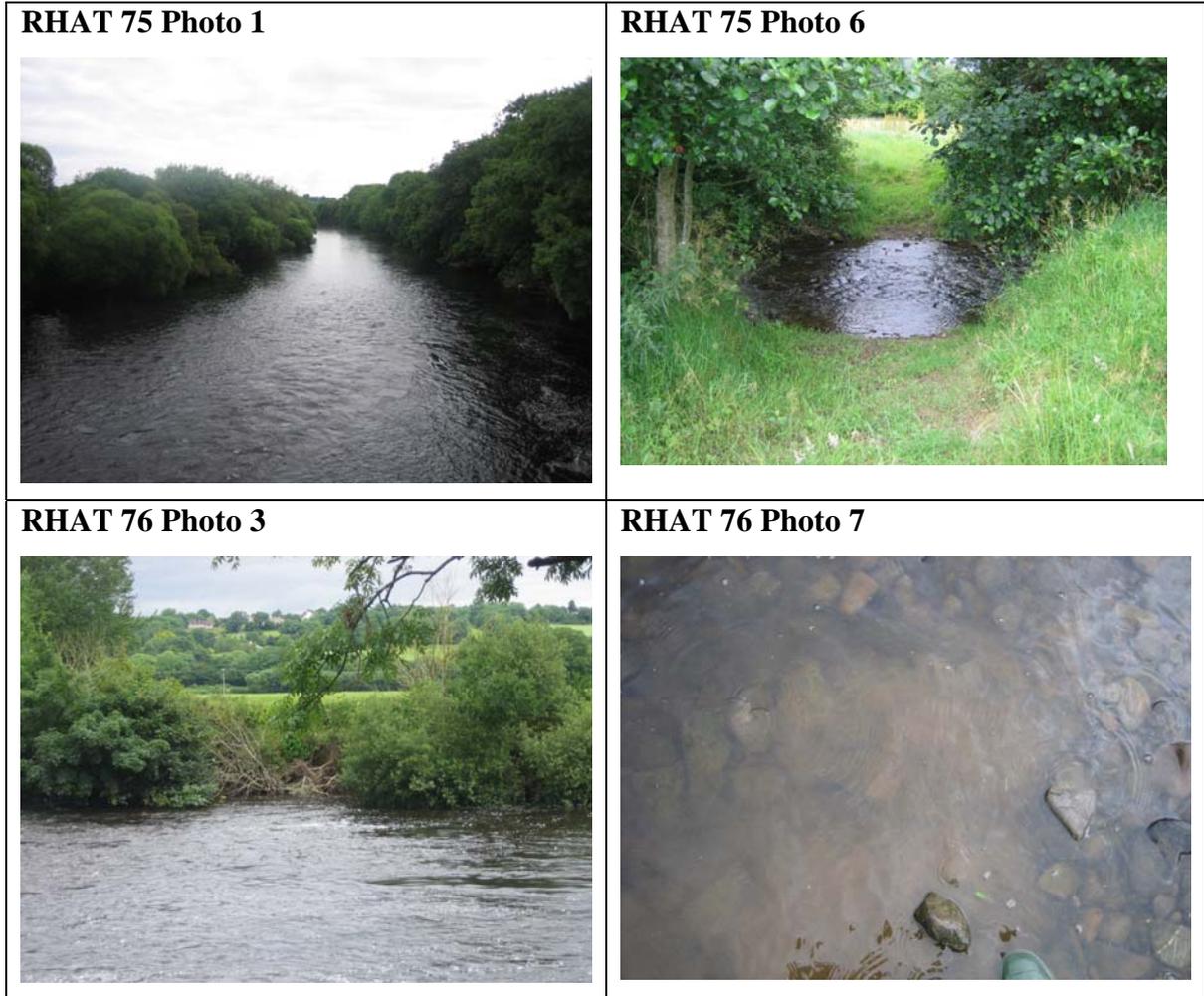
RHAT 40 Photo 10



RHAT Number 46 was carried out at Keale bridge and scored 0.71 and was classified as being at “Good” Status. The channel was very heavily stained and carrying suspended solids downstream which were also seen farther upstream in Owentaraglin. It is a lowland meandering channel with all attributes scoring three out of four except the substrate condition which scored two out of four. Although the substrate was not visible at the time of survey, the level of suspended solids and macrophyte growth would indicate its poor condition. A ford or entrance point was noted just upstream of the road bridge. RHAT Number 37 was carried at Roskeen bridge, this is a lowland meandering channel which has been altered in the past. (See RHAT 37 Photo 6) The presence of *Himalayan Balsam* along most of the survey stretch is a clear indication of disturbance and alteration. The landuse along this stretch is quite intensive, with large arable fields downstream of the bridge and improved grassland with cattle grazing upstream of the bridge. The river was in spate on the day in which the survey took place overall this stretch was classified as being at “good” status.

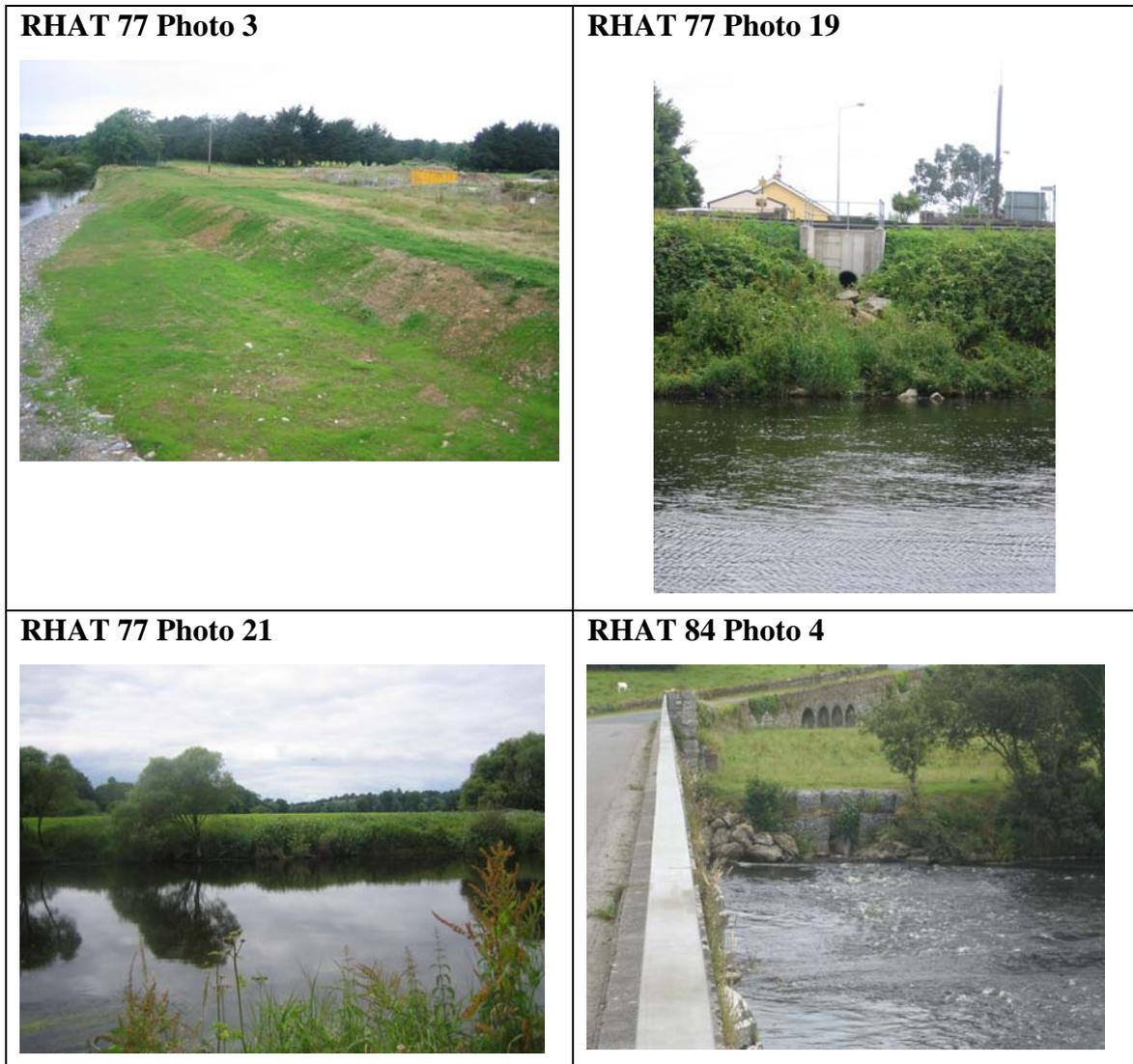


RHAT numbers 75, 76 and 77 were all carried out in Lombardstown, Clyda and Mallow respectively. At Lombardstown again *Himalayan Balsam* and *Japanese Knotweed* were recorded indicating disturbance in the past. The survey commenced on the Blackwater main channel and then continued on the Duvglasha tributary. The substrate was not visible along most of the Munster Blackwater stretch however it was heavily peat stained. One small ford was recorded on the Duvglasha tributary. This stretch scored 0.69 and was classified as being at “Good” status. The second RHAT survey along this stretch was carried out at Longfields Bridge again along the Blackwater Main channel. This stretch is a lowland meandering channel and where the substrate was visible silt and filamentous green algae was excessive. Both the bank structure and the bank vegetation scored 2.5 with the right bank scoring lower than the left bank for both attributes. This was due to the presence of some erosion and exposed tree roots recorded along the survey stretch.



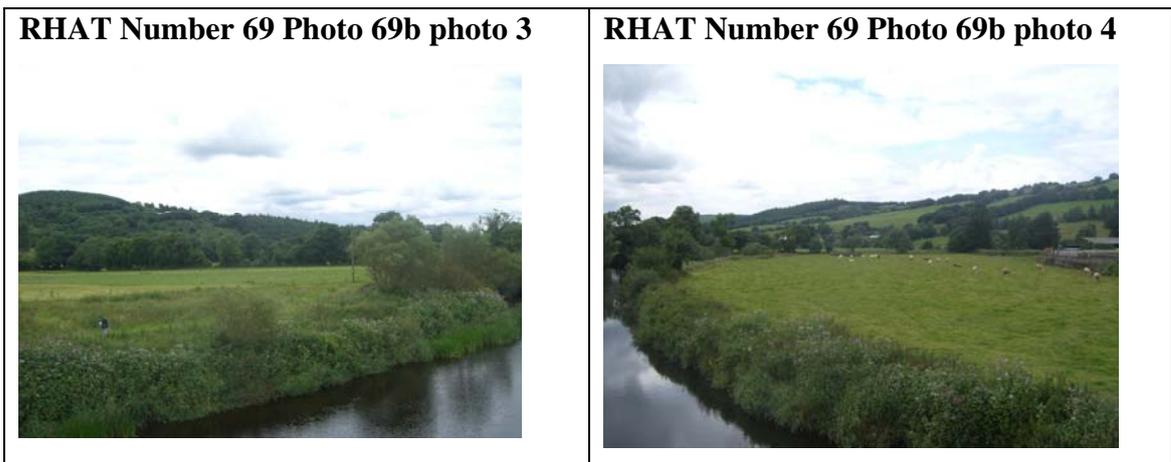
The third RHAT survey within this region was in Mallow itself. The survey commenced in Mallow Town at Mallow Bridge and continued upstream for over a kilometre. This stretch has been subject to OPW Drainage works which were been under taken at the time the survey took place. The stretch within the vicinity of Mallow Town has been newly sectioned and widened and an embankment put in place. The channel form and flow types only scored 1 out of four as a result. The tributary entering from the town appears to have very poor water quality. The substrate condition, bank structure & stability, bank vegetation and riparian landcover all scored 2 out of four as along the entire stretch outfalls, slumping, removal of bankside vegetation and reinforced toe line were recorded. A uniform bank vegetation of *Himalayan Balsam* was recorded at the lower end of the survey stretch past the motorway and railway line. This was associated with an intensely farmed arable field indicating disturbance and removal of the bank side vegetation. The floodplain connectivity attribute scored the lowest of all the

attributes – 1.5. This is largely due to the confinement of the channel and 4m high banks in the vicinity of Mallow.



RHAT number 84 commenced on a tributary of the Main Blackwater at Ballyhooly Bridge, this survey continued to the confluence and along the Main Blackwater River. Slurry spreading on improved grassland together with cattle grazing was noted along the banks of the river nearest to Ballyhooley bridge. Overall this stretch of river was classified as being at “Good” status scoring 0.75. All attributes scored three out of four. The final RHAT survey carried out within the Munster Blackwater was RHAT number 69 which was carried out at the most easterly point at Ballyduff. It is a lowland meandering channel with a pearl mussel habitat and records within the vicinity of the survey stretch. The survey stretch covered approximately 310m and overall the stretch

scored 0.69 and was classified as being at “Good Status”. The substrate condition was not visible along this stretch as the channel was too deep. There was evidence of channel alteration from the extensive growth of *Himalayan Balsam* along the banks. Within these areas a very small buffer zone now exists with intensive grassland and cattle grazing behind. The bank vegetation only scored 2.5 as a result of this. All other attributes except for barrier to migration scored 3 out of a possible 4. This is a very wide channel with little evidence of macrophyte growth.



Details in relation to photographs are tabulated in Appendix 2.

3.1 Catchment Walkover Risk Assessment Results

A total of 89 sites were surveyed throughout the Munster Blackwater Sub-basin catchment; with a risk assessment carried out at 73 of these sites (16 stopping points). **Figure 2** outlines the stopping point locations together with the High to Low Risk Assessment from the Catchment Walkover Risk Assessments. Thirty one out of the eighty nine risk assessment sites were considered to be high risk, forty one at medium risk and only 6 at low risk. **Figure 4** outlines the percentage at high and medium risk together with the number of stopping points throughout the catchment. Nineteen quarries were either surveyed or have been recorded through the desk based assessment for the draft sub-basin management plans throughout the Munster Blackwater (See Figure 3.). All have been registered with the details provided below in **Table 1**. Only one of these large quarries is located directly beside a pearl mussel location. This is the J.A. Wood at Lacknamona in Mallow. This is an extremely large quarry which extracts rock. The remaining 18 quarries are spread throughout the catchment and are depicted in **Figure 2** below.

<p>J.A.Woods Quarry – Munster Blackwater Lacknamona Mallow</p> 	
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REG_NO	DATEDIGIT	OPERATOR	LOCATION	DATE_	A_DECISION	EXTRACTED
QR03	05/09/2006	J.A. Wood	Lackanamona, Mallow	06/12/2006	Modify & Add Conditions	Rock
QR15	19/10/2006	D. O'Mahony	Farrancotter, Buttevant	23/03/2007	Impose Conditions	Rock
QR16	20/03/2006	Whelan/Es	Copsetown, Mallow	29/03/2006	Planning & EIS	Rock
QR35	25/10/2006	Teddy Herlihy	Caherbarnagh, Rathmore		Invalid Application	Sand & Gravel
QR42	26/10/2006	Liam Fogarty	Kilphelan, Mitchelstown		Invalid Application	Rock
QR46	02/11/2006	S. T. & E. Kelly	Kingwilliamstown, Ballydesmond	24/04/2006	Planning & EIS	Rock
QR47	02/11/2006	S. T. & E. Kelly	Foilogohig, Kiskeam	24/04/2007	Impose Conditions	Rock
QR49	02/11/2006	J. Shine	Commons South, Newmarket	24/04/2007	Impose Conditions	Rock
QR57	06/11/2006	Con Kelly	Knockaunavarrig, Meelin	25/04/2007	Impose Conditions	Rock
QR58	06/11/2006	T. O'Flynn	Scart, Ballyclogh, Mallow	25/04/2007	Impose Conditions	Rock
QR66	08/11/2006	Roadstone Provinces Ltd	Ballybeg West, Buttevant	26/04/2006	Planning & EIS	Rock
QR66	08/11/2006	Roadstone Provinces Ltd	Ballybeg West, Buttevant	26/04/2006	Planning & EIS	Rock
QR67	08/11/2006	Donal Moynihan	Lackdotia, Millstreet		Invalid Application	Sand & Gravel
QR72	08/11/2006	Eurostone Ltd	Subulter, Kanturk	26/04/2007	Modify & Add Conditions	Rock
QR73	08/11/2006	Eurostone Ltd	Carrigcleena, Bweeng	26/04/2007	Modify & Add Conditions	Rock
QR80	09/11/2006	James O'Connor	Knockeragh, Tullylease		Invalid Application	Sand & Gravel
QR80	09/11/2006	James O'Connor	Knockeragh, Tullylease		Invalid Application	Sand & Gravel
QR80	09/11/2006	James O'Connor	Knockeragh, Tullylease		Invalid Application	Sand & Gravel
QR86	09/11/2006	Tony O'Brien	Ballynadrideen, Ballyhea		Invalid Application	Sand & Gravel

Table 1 Details in relation to registered quarries within the Munster Blackwater Sub-Basin

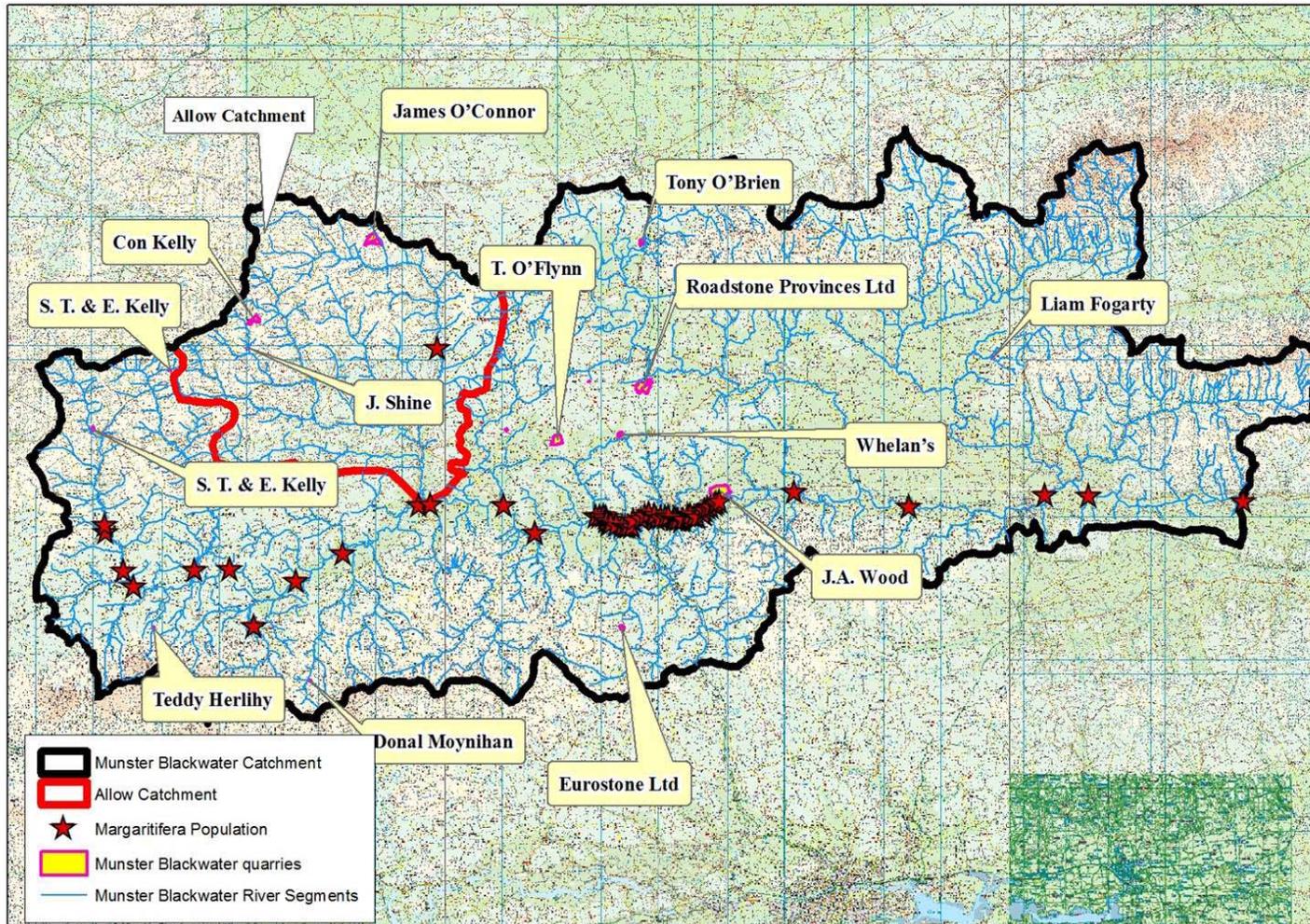
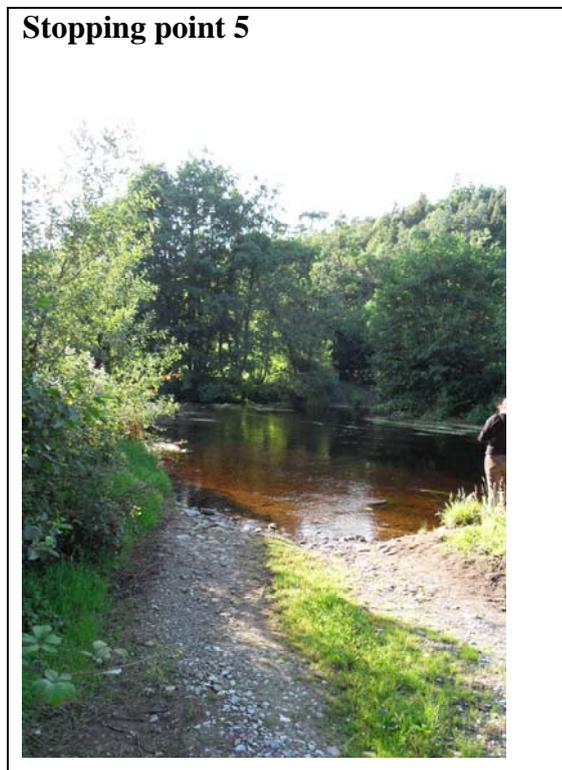


Figure 2 Location of 19 quarries throughout the Munster Blackwater

Within the Munster Blackwater and excluding the Allow Sub-Basin six significant Fords were recorded at the following sites:

- Stopping Point 5
- Site 42 Farnankeel Bridge
- Site 45 Owentaraglin
- Site 58 Funshion River
- Site 68 Araglin
- Site 75 Munster Blackwater
- Site 84 Ballyhooley



Site 42 Farnankeel bridge



Site 45 Owentaraglin



Site 58 Funshion River



Site 68 Araglin



Site 75 Munster Blackwater



Site 84 Ballyhooley



The Current Riparian Zone category of the Catchment Walkover Risk Assessment slightly varies from the seven other categories or pressures. The Current Riparian Zone is not a pressure in itself; however the aspects listed in this category are the interceptors to the pressure and convey the extent or lack of buffer provided by the riparian zone. A high risk riparian zone indicates that the pressures acting on the river are more likely to have significant impact. For example the lack of fencing along a river stretch can lead to excessive trampling and/or poaching which in turn may lead to siltation within a pearl mussel habitat. The various categories and pressures listed in the Catchment Walkover Risk Assessment sheet were designed to assist the project in focussing the measures which will be needed to combat the pressure along its pathway, rather than removing a source which may not always be possible such as intensive agriculture. Recording the Riparian Zone in terms of its current performance as a buffer is important in this regard.

Current Riparian Zone has ten aspects as follows:

- Fencing
- Buffer
- Tree line at bank
- Tree line buffer
- Plantation with no buffer
- Urbanisation
- Flood Protection
- Marshy Land
- Landuse at bank
- Other Sources

Where one or any of these aspects is found to be the cause of significant impact to the riparian zone, or the channel along the stretch then this category may be assigned a high risk score. **Figure 4** outlines the percentage number of sites at High, Medium or Low risk. Locations where pressures were evident in the field which were not highlighted through the desk based assessment were also noted as stopping points. These points

were not selected prior to fieldwork, they were opportunistic as the catchment drive through was taking place.

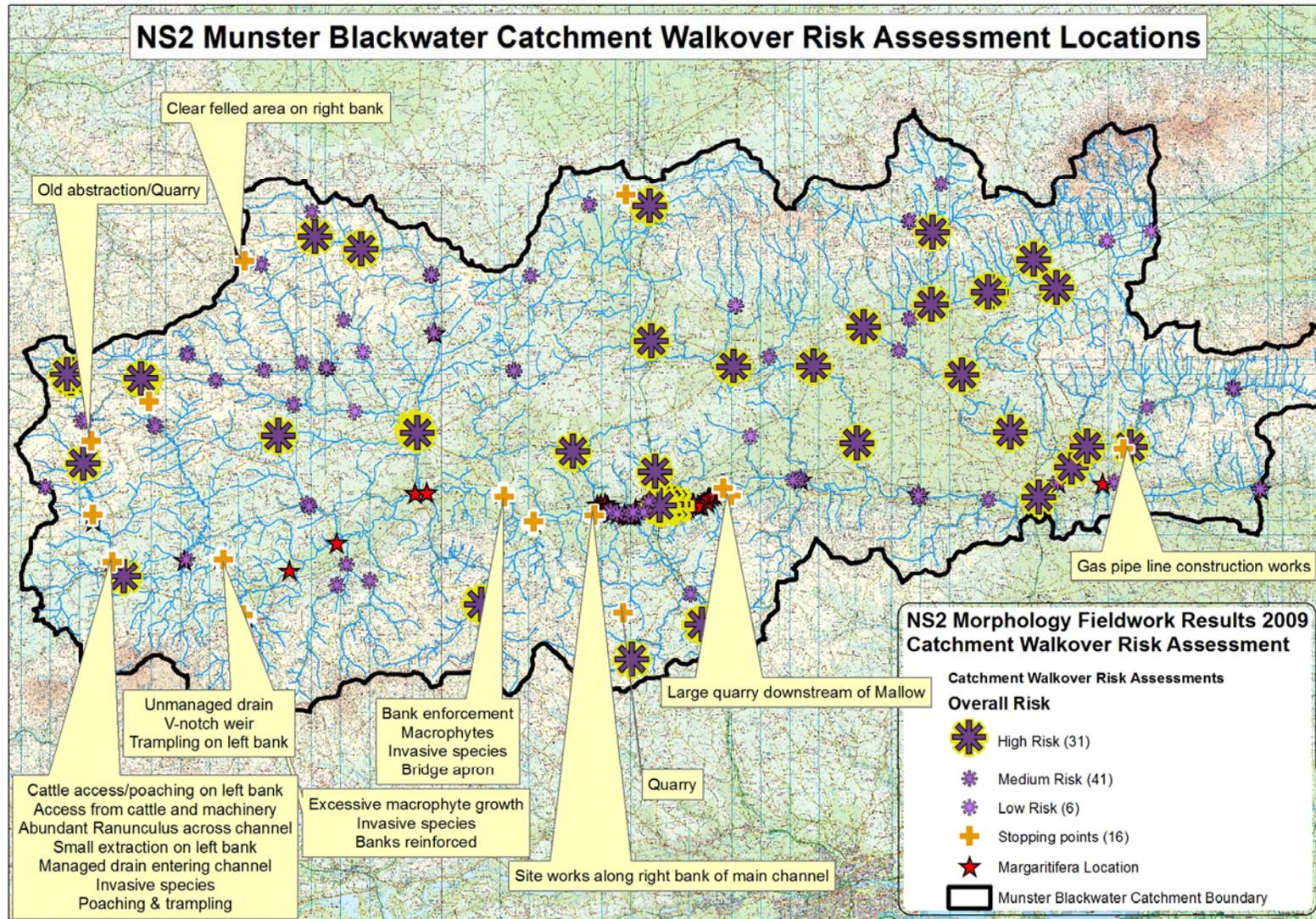
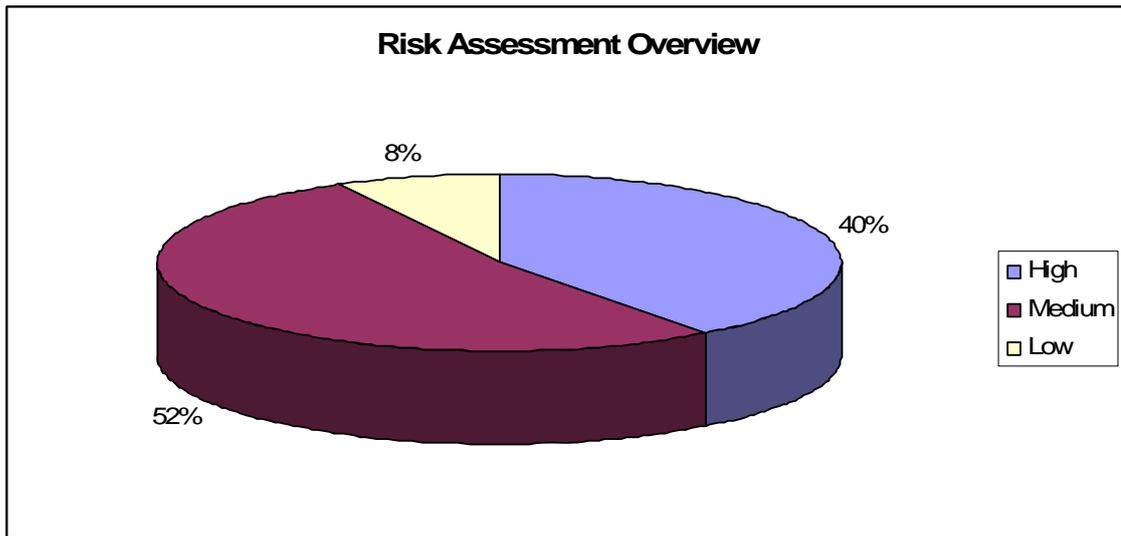


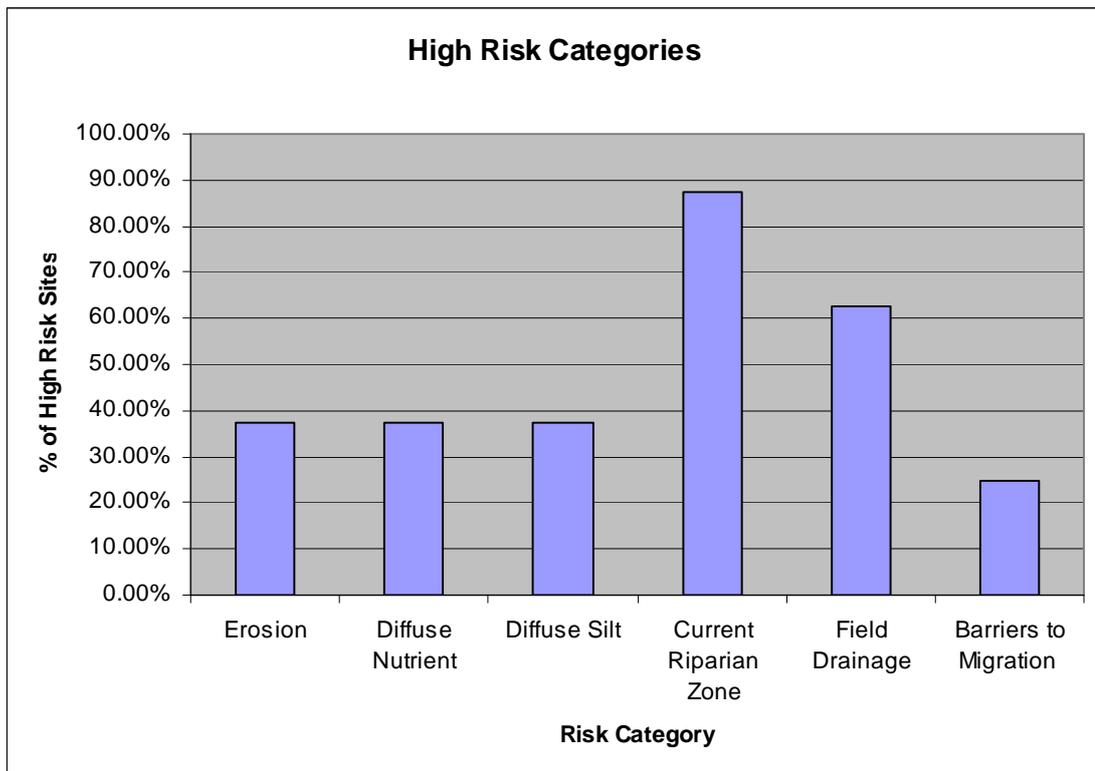
Figure 3 Location of Stopping points and Catchment Walkover Risk Assessment

Figure 4 Risk Assessment Overview



The break-down of pressure categories identified as high risk are outlined in Figure 5

Figure 5 Breakdown of High Risk Categories

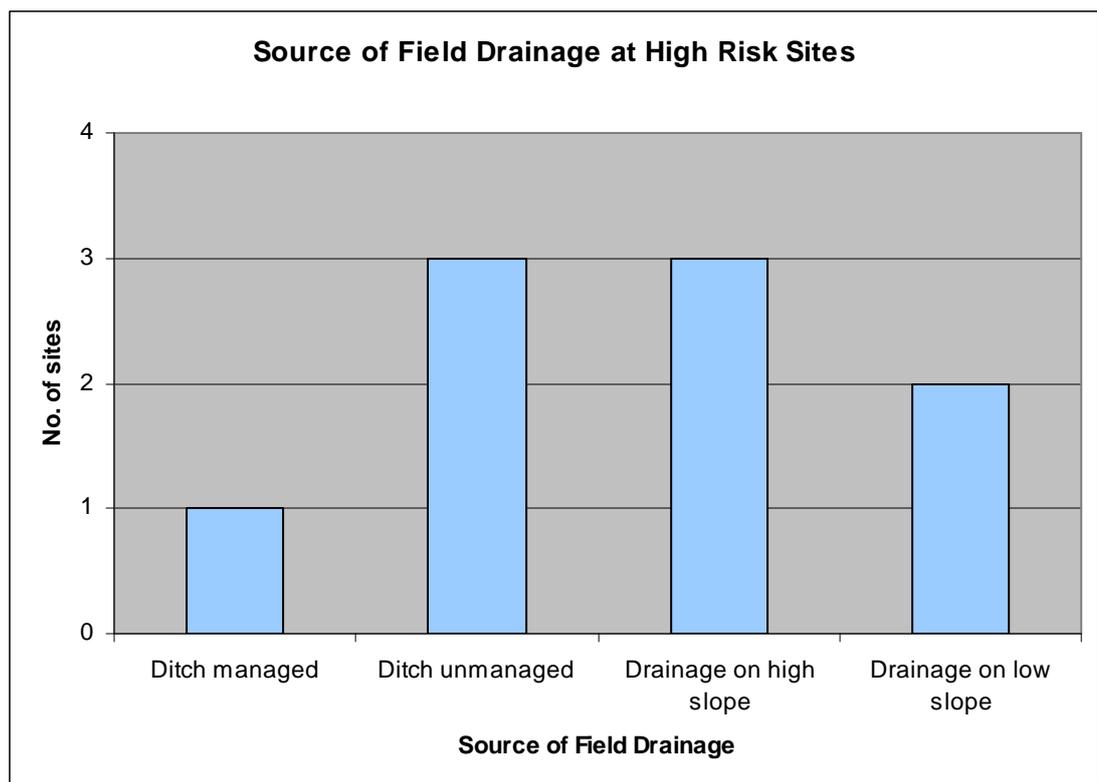


The current riparian zone category is a considerable pressure within this catchment, however this pressure generally relates to how a poor riparian zone can intensify other pressures e.g. animal trampling caused by a lack of fencing or increased diffuse nutrient as a result of an ineffective or poor buffer zone.

As a result quantitative statistics do not adequately convey the pressures that arise through a high risk riparian zone, the main issues identified were:

- A complete lack of fencing or insufficient fencing on agricultural land – within this catchment this has resulted in increased erosion from extensive animal trampling and fords, increased nutrient enrichment from animals being within and near channel, increased silt within channel as trampling causes patches of bare sediment which is washed into the river channel;
- A lack of adequate buffer or tree line in areas where the channel is within close proximity to forestry or intensive agriculture, this results in an increase in diffuse nutrient as nutrients are washed directly into the channel from agricultural land or forestry, increased levels of silt entering river as there is no buffer during forestry felling or crop harvesting.
- The most common sources of field drainage were unmanaged ditches and drainage on a high slop each creating a high risk pressure at three sites.

Figure 6 source of field drainage pressure at high risk sites



4.0 CONCLUSIONS

The Munster Blackwater sub-basin catchment appears to be in an over all poor condition from a morphological point of view largely due to the nature of the current riparian zone with high risk sites identified throughout the catchment including the upper reaches of the rivers.

The pressures are many and varied with intensive agriculture or intensively managed lands posing the most significant impacts to the freshwater pearl mussel habitat. Cattle were recorded both within the channel and impacting on the banks where bank side erosion was recorded. Large amounts of matter containing faeces and soil were found in the channel as a result. Intensive arable land was also found to be causing a significant impact where unstable banks have resulted where little to no riparian vegetation was remaining between the arable crop and the river bank.

The significant number of fords, quarries and crossing points are also cause for concern and a major source of silt to the channel and the freshwater pearl mussel habitat.

APPENDIX A

RHAT Field Sheet

Field Health and Safety sheet

River Name _____ Site Code _____ Date _____

1 = Low risk 5 = High risk

Please circle applicable number

PARKING	1	2	3	4	5
FENCES/BARRIERS	1	2	3	4	5
GROUND STABILITY	1	2	3	4	5
DENSE VEGETATION	1	2	3	4	5
BANK STEEPNESS OR STABILITY	1	2	3	4	5
RISK FROM ANIMALS	1	2	3	4	5
PHONE COVERAGE	1	2	3	4	5

Previous RHS/RAT/RHAT surveys - year and code _____

Details of access _____

RHAT (VERSION 2)

TRIBUTARY / MAIN CHANNEL*

Site Identification

River Name _____ Site Code _____

Nearest WFD site FF10 _____

Water Body ID _____ Start U / S or D / S*

First IGR _____ Last IGR _____

Bank surveyed from L / R / Both / in-Channel*

Desk-study notes	Field Notes						
<p>ACTION TO TAKE PRIOR TO FIELDWORK</p> <p>General overall shape of river Check weirs, impoundments etc. on catchment</p>	<p>River type</p> <p>Date</p>						
<p>Floodplain connectivity and land use</p> <p>Expected river type</p> <p>Rain last week</p> <p>Estimated river width</p> <p>Estimated survey length</p> <p>Riparian land cover(s)</p> <p>River Agency designated?</p> <p>Other comments including geology - limestone / siliceous / peat*</p>	<p>Time</p> <p>Surveyors</p> <p>Weather conditions now</p> <p>Estimated river width (m) (average 3 readings)</p> <p>Estimated survey length (m) (40 X wetted width)</p> <p>Estimated river depth (m)</p> <p>Channel characteristics (e.g. different stream types on the reach)</p>						
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">RESULTS</td> <td></td> </tr> <tr> <td>Hydromorph score</td> <td></td> </tr> <tr> <td>WFD class</td> <td></td> </tr> </table>	RESULTS		Hydromorph score		WFD class		<p>Pressures</p>
RESULTS							
Hydromorph score							
WFD class							
*Circle as appropriate							

Photograph details include IGR or approximate location

N.B. The survey length should be 40x the wetted width with a minimal stretch of 160m but not exceeding 1km.

NS RHAT

Anthropogenic Impacts

River Name _____ Site Code _____ Date _____

Feature	Tick if present, record as E if > 30%
Resectioning	None <input type="checkbox"/> Left bank <input type="checkbox"/> Right bank <input type="checkbox"/>
Reinforcement	None <input type="checkbox"/> Left bank <input type="checkbox"/> Right bank <input type="checkbox"/>
Embankments NO*	LB <input type="checkbox"/> RB <input type="checkbox"/> Set back LB <input type="checkbox"/> SB RB <input type="checkbox"/>
Culverts**	Y / N / Unknown*
Over deepening	Y / N / Unknown*
Wver widened	Y / N / Unknown*
Narrowing	Y / N / Unknown*
Fords**	Y / N*
	Major / Intermediate / Minor
Bridges** NO*	
Weirs** NO*	
Fish Pass** NO*	

Physical features or resource use if applicable. *

Deflectors / Jetties / Arterial drainage / Side channels / Mid channel bar / Field Drains / Mill Race

Navigation / Fishing / Recreation / Forestry/ Urban / Industry / HEP

Trashline present (height __ m) above water / Buffer zone (LBm / RBm back from water edge)

Other observations - Invasives - Trees - Birds - Pollution indicators - Invertebrates*

Rhododendron / Himalayan Balsam / Japanese Knotweed / Giant hogweed / Snowberry / Cherry-Laurel/ Gunnera

Sycamore / Beech / Conifers / Oak / Ash / Alder / Willow / Birch / Hazel / Hawthorn / Blackthorn / Holly

Heron / Sand martin / Grey wagtail / Dippers / Kingfishers /

Sewage fungus / Diatomaceous algae / Oil / Cladophora / Vaucheria / Dumping / Silt on Substrate

Other comments:

* Circle as appropriate E - extensive. ** Tally as appropriate. LB - left bank / RB - right bank

RHAT RIVER HYDROMORPHOLOGY ASSESSMENT TECHNIQUE

Field Assessment of Morphological Condition

River Name _____ Site Code _____ Date _____

If river in spate ignore 3 and 4 but deduct individual scores from overall if either feature not visible. Greyed boxes may be scored but note why in Comments/Notes.

	Bedrock	Cascade / Step-pool	Pool-riffle-glide	Lowland Meandering
1. Channel form and flow types	4	4	4	4
2. Channel vegetation	4	4	4	4
3. Substrate condition	4	4	4	4
4. Barriers to continuity	4	4	4	4
5. Bank structure & stability L+R	4	4	4	4
6. Bank vegetation L+R	4	4	4	4
7. Riparian land cover L+R	4	4	4	4
8. Floodplain connectivity L+R	4	4	4	4
TOTAL	32	32	32	32
Hydromorph Score *				
WFD class **				

* Hydromorph score - Assessment score = Maximum Possible score

** WFD Class

> 0.8 = high

>0.6 - 0.8 = good

>0.4 - 0.6 = moderate

>0.2 - 0.4 = poor

< 0.2 = bad.

SHEET 5

NOTES

APPENDIX 2

PHOTOGRAPHS

Photographs of site locations and catchment pressures on the Munster Blackwater River and tributaries 2009. All field work photographs can be found in the accompanying electronic appendix.

Overall Risk * uses the “one out all out” principle

Site No.	Catchment Name	Location	X	Y	Photo No.	Bank Erosion	Diffuse Nutrient	Diffuse Silt	Field Drainage	Outfalls	Abstraction	Barriers to Migration	Current Riparian Zone	Overall Risk	Pressure
1	Munster Blackwater_ Allow	Kingwillianstown Bridge	115172	103771	1	Low	Low	Low	Medium	Low	Low	Medium	Medium	Medium	Looking upstream from bridge, H.Balsam on left bank
1	Munster Blackwater_ Allow	Kingwillianstown Bridge	115172	103771	2	Low	Low	Low	Medium	Low	Low	Medium	Medium	Medium	Looking downstream from bridge
1	Munster Blackwater_ Allow	Kingwillianstown Bridge	115172	103771	3	Low	Low	Low	Medium	Low	Low	Medium	Medium	Medium	Looking downstream on left bank, removal of large tree
1	Munster Blackwater_ Allow	Kingwillianstown Bridge	115172	103771	4	Low	Low	Low	Medium	Low	Low	Medium	Medium	Medium	Left bank looking upstream from bridge housing development
1	Munster Blackwater_ Allow	Kingwillianstown Bridge	115172	103771	5	Low	Low	Low	Medium	Low	Low	Medium	Medium	Medium	Left bank fencing from outside development area
1	Munster Blackwater_ Allow	Kingwillianstown Bridge	115172	103771	6	Low	Low	Low	Medium	Low	Low	Medium	Medium	Medium	Stone weir possible placed by fisheries approx. 20m downstream of bridge
1	Munster Blackwater_ Allow	Kingwillianstown Bridge	115456	103793	7	Low	Low	Low	Medium	Low	Low	Medium	Medium	Medium	WWTP in village possible on main channel
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114484	106680	1	High	High	High	High	Low	Low	Medium	Medium	High	Looking upstream from road bridge
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114484	106680	2	High	High	High	High	Low	Low	Medium	Medium	High	Looking downstream from road bridge
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114496	106682	3	High	High	High	High	Low	Low	Medium	Medium	High	Ford on left bank upstream of bridge
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114484	106680	4	High	High	High	High	Low	Low	Medium	Medium	High	Weir/Apron under bridge photo looking downstream of bridge

2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114484	106680	5	High	High	High	High	Low	Low	Medium	Medium	High	Weir/Bridge Apron
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114484	106680	6	High	High	High	High	Low	Low	Medium	Medium	High	Downstream from bridge on right bank unmanaged drain feeding into main channel
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114484	106680	7	High	High	High	High	Low	Low	Medium	Medium	High	Fencing on right bank downs
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114484	106680	8	High	High	High	High	Low	Low	Medium	Medium	High	Peat stained colour of river water near ford
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114490	106685	9	High	High	High	High	Low	Low	Medium	Medium	High	Bridge structure
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114484	106680	10	High	High	High	High	Low	Low	Medium	Medium	High	Ford exist and entry point
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114484	106680	11	High	High	High	High	Low	Low	Medium	Medium	High	Forestry coupe upstream
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114477	106672	12	High	High	High	High	Low	Low	Medium	Medium	High	Poaching on trib flowing into river on right bank downstream of bridge
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114500	106982	13	High	High	High	High	Low	Low	Medium	Medium	High	Works underway to improve grey road which must be for felling which is due to take place
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114194	106967	14	High	High	High	High	Low	Low	Medium	Medium	High	Active peat cutting, spread using hopper.
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114194	106967	15	High	High	High	High	Low	Low	Medium	Medium	High	Active peat cutting, spread using hopper.
2	Munster Blackwater_ Allow	Headwaters of Munster Blackwater	114194	106967	16	High	High	High	High	Low	Low	Medium	Medium	High	Active peat cutting, spread using hopper.

3	Munster Blackwater_ Allow	Newquarter Bridge - L	115319	100892	1	Low	High	High	Medium	Medium	Medium	Medium	High	High	Looking upstream with Munster Joinery in the background
3	Munster Blackwater_ Allow	Newquarter Bridge - L	115319	100892	2	Low	High	High	Medium	Medium	Medium	Medium	High	High	Main channel flowing towards crossroads
3	Munster Blackwater_ Allow	Newquarter Bridge - L	115319	100892	3	Low	High	High	Medium	Medium	Medium	Medium	High	High	Looking upstream from road bridge
3	Munster Blackwater_ Allow	Newquarter Bridge - L	115319	100892	4	Low	High	High	Medium	Medium	Medium	Medium	High	High	Looking downstream from road bridge
3	Munster Blackwater_ Allow	Newquarter Bridge - L	115319	100892	5	Low	High	High	Medium	Medium	Medium	Medium	High	High	Bridge apron downstream end of bridge
3	Munster Blackwater_ Allow	Newquarter Bridge - L	115319	100892	6	Low	High	High	Medium	Medium	Medium	Medium	High	High	Scouring on left bank downstream
3	Munster Blackwater_ Allow	Newquarter Bridge - L	115319	100892	7	Low	High	High	Medium	Medium	Medium	Medium	High	High	Scouring on right bank downstream
3	Munster Blackwater_ Allow	Newquarter Bridge - L	115319	100892	8	Low	High	High	Medium	Medium	Medium	Medium	High	High	Munster Joinery in background to river
3	Munster Blackwater_ Allow	Newquarter Bridge - L	115319	100892	9	Low	High	High	Medium	Medium	Medium	Medium	High	High	Track made down to river bank
3	Munster Blackwater_ Allow	Newquarter Bridge - L	115319	100892	10	Low	High	High	Medium	Medium	Medium	Medium	High	High	Laid track on left bank downstream from bridge
3	Munster Blackwater_ Allow	Newquarter Bridge - L	115319	100892	11	Low	High	High	Medium	Medium	Medium	Medium	High	High	Possible abstraction point, water in pipe, road runs to right bank of river
4	Munster Blackwater_ Allow	Owentaraglin River- K	120258	103414	1	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Altered channel looking upstream from bridge

4	Munster Blackwater_ Allow	Owentaraglin River- K	120258	103414	2	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Looking downstream from bridge - some deposition
4	Munster Blackwater_ Allow	Owentaraglin River- K	120258	103414	3	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Deposition on right bank downstream from bridge
4	Munster Blackwater_ Allow	Owentaraglin River- K	120258	103414	4	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Deposition on left bank upstream from bridge
4	Munster Blackwater_ Allow	Owentaraglin River- K	120256	103438	5	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Storm drain on left bank upstream from bridge
4	Munster Blackwater_ Allow	Owentaraglin River- K	120258	103414	6	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Bridge Structure
4	Munster Blackwater_ Allow	Owentaraglin River- K	120234	103456	7	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Bank reinforcement on right bank upstream of bridge
4	Munster Blackwater_ Allow	Owentaraglin River- K	120197	103471	8	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Small gravel extraction on right bank upstream of bridge
4	Munster Blackwater_ Allow	Owentaraglin River- K	120197	103471	9	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Road on right bank upstream of bridge leading to excavation
4	Munster Blackwater_ Allow	Owentaraglin River- K	120334	103369	10	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Excessive use of Ford for vehicular access
5	Munster Blackwater_ Allow	Owentaraglin River- C	119308	106681	1	Medium	Medium	Medium	High	Medium	Low	Medium	Medium	High	Perforated drain pipes
5	Munster Blackwater_ Allow	Owentaraglin River- C	119308	106681	2	Medium	Medium	Medium	High	Medium	Low	Medium	Medium	High	Perforated land drain with silt entering channel
5	Munster Blackwater_ Allow	Owentaraglin River- C	119431	106606	3	Medium	Medium	Medium	High	Medium	Low	Medium	Medium	High	Looking upstream from bridge, land drain entering channel

5	Munster Blackwater_ Allow	Owentaraglin River- C	119431	106606	4	Medium	Medium	Medium	High	Medium	Low	Medium	Medium	High	Looking downstream from bridge
5	Munster Blackwater_ Allow	Owentaraglin River- C	119431	106606	5	Medium	Medium	Medium	High	Medium	Low	Medium	Medium	High	Perforated land drain entering on left bank upstream of bridge
5	Munster Blackwater_ Allow	Owentaraglin River- C	119308	106681	6	Medium	Medium	Medium	High	Medium	Low	Medium	Medium	High	Reinforced left bank upstream of bridge
5	Munster Blackwater_ Allow	Owentaraglin River- C	119308	106681	7	Medium	Medium	Medium	High	Medium	Low	Medium	Medium	High	Ford access upstream of bridge - vehicular
6	Munster Blackwater_ Allow	Owenkeal River	122500	108340	1	Low	Low	Low	Medium	Low	Low	Low	Medium	Medium	Looking upstream from bridge
6	Munster Blackwater_ Allow	Owenkeal River	122505	108341	2	Low	Low	Low	Medium	Low	Low	Low	Medium	Medium	Looking downstream from bridge
6	Munster Blackwater_ Allow	Owenkeal River	122505	108341	3	Low	Low	Low	Medium	Low	Low	Low	Medium	Medium	Pipe crossing river channel at bridge
6	Munster Blackwater_ Allow	Owenkeal River	122499	108391	4	Low	Low	Low	Medium	Low	Low	Low	Medium	Medium	Eroding bank
6	Munster Blackwater_ Allow	Owenkeal River	122505	108342	5	Low	Low	Low	Medium	Low	Low	Low	Medium	Medium	New deciduous forest on edge of conifer plantation
7	Munster Blackwater_ Allow	Owenkeal River - Clas	124447	106567	1	Low	Medium	Low	Medium	Low	Low	Low	Medium	Medium	Looking upstream of bridge, silty/sandy substrate
7	Munster Blackwater_ Allow	Owenkeal River - Clas	124447	106567	2	Low	Medium	Low	Medium	Low	Low	Low	Medium	Medium	Looking downstream of bridge
7	Munster Blackwater_ Allow	Owenkeal River - Clas	124447	106567	3	Low	Medium	Low	Medium	Low	Low	Low	Medium	Medium	Left bank, downstream, back yard of house facing out onto channel

7	Munster Blackwater_ Allow	Owenkeal River - Clas	124447	106567	4	Low	Medium	Low	Medium	Low	Low	Low	Medium	Medium	Small quarry/gravel extraction point 10m from bridge across road on left bank upstream
7	Munster Blackwater_ Allow	Owenkeal River - Clas	124447	106567	5	Low	Medium	Low	Medium	Low	Low	Low	Medium	Medium	Possible pumping house on left bank upstream
7	Munster Blackwater_ Allow	Owenkeal River - Clas	124447	106567	6	Low	Medium	Low	Medium	Low	Low	Low	Medium	Medium	Farm shop/co-operative on right bank upstream
8	Munster Blackwater_ Allow	Rampart Stream	132142	107339	1	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Culverted area upstream of road, 3 round culverts
8	Munster Blackwater_ Allow	Rampart Stream	132142	107339	2	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Culverted drain entering on right bank
8	Munster Blackwater_ Allow	Rampart Stream	132142	107339	3	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking upstream from left bank
8	Munster Blackwater_ Allow	Rampart Stream	132142	107339	4	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Drain feeding in from back of main channel
8	Munster Blackwater_ Allow	Rampart Stream	132142	107339	5	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Excessive Callitriche growth in main channel
8	Munster Blackwater_ Allow	Rampart Stream	132187	107382	6	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Artificial stone weir
8	Munster Blackwater_ Allow	Rampart Stream	132183	107376	7	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	2nd Artificial Stone weir
8	Munster Blackwater_ Allow	Rampart Stream	132186	107400	8	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	3rd Artificial stone weir
8	Munster Blackwater_ Allow	Rampart Stream	132108	107425	9	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Culvert & outfall at back of factory- foul smell

8	Munster Blackwater_ Allow	Rampart Stream	132099	107442	10	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Aeration tanks from fertiliser plant
9	Munster Blackwater_ Allow	Dalua River, Aldworth	130403	107778	1	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking downstream from bridge, excessive ranunculus growth
9	Munster Blackwater_ Allow	Dalua River, Aldworth	130403	107778	2	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking upstream from bridge excessive macrophyte growth
9	Munster Blackwater_ Allow	Dalua River, Aldworth	130403	107778	3	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Reinforced toe
9	Munster Blackwater_ Allow	Dalua River, Aldworth	130403	107778	4	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Trampling on bank
10	Munster Blackwater_ Allow	Glenlara River	127789	107244	1	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking upstream from bridge, some macrophyte growth
10	Munster Blackwater_ Allow	Glenlara River	127789	107244	2	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Forestry approx. 1 km upstream
10	Munster Blackwater_ Allow	Glenlara River	127789	107244	3	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	View looking downstream from bridge
10	Munster Blackwater_ Allow	Glenlara River	127789	107244	4	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	View looking downstream from bridge
10	Munster Blackwater_ Allow	Glenlara River	127765	107248	5	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Possible pumping station on right bank
10	Munster Blackwater_ Allow	Glenlara River	127789	107244	6	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Land clearance approx 150m from left bank for house
11	Munster Blackwater_ Allow	Tributary of Dalua -	127612	114488	1	High	Low	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking upstream with some bankside trampling

11	Munster Blackwater_ Allow	Tributary of Dalua -	127612	114488	2	High	Low	Medium	Medium	Low	Low	Medium	Medium	Medium	Tracks leading into channel
11	Munster Blackwater_ Allow	Tributary of Dalua -	127612	114488	3	High	Low	Medium	Medium	Low	Low	Medium	Medium	Medium	Tracks right up to and into channel
11	Munster Blackwater_ Allow	Tributary of Dalua -	127612	114488	4	High	Low	Medium	Medium	Low	Low	Medium	Medium	Medium	View downstream
11	Munster Blackwater_ Allow	Tributary of Dalua -	127612	114488	5	High	Low	Medium	Medium	Low	Low	Medium	Medium	Medium	Build up of silt on left bank
11	Munster Blackwater_ Allow	Tributary of Dalua -	127612	114488	6	High	Low	Medium	Medium	Low	Low	Medium	Medium	Medium	Overview of felled area at stopping point 3
12	Munster Blackwater_ Allow	Allow Headwaters	131305	116423	1	Low	High	Medium	Medium	Low	Low	Medium	Medium	High	View downstream from bridge
12	Munster Blackwater_ Allow	Allow Headwaters	131305	116423	2	Low	High	Medium	Medium	Low	Low	Medium	Medium	High	View upstream from bridge
12	Munster Blackwater_ Allow	Allow Headwaters	131305	116423	3	Low	High	Medium	Medium	Low	Low	Medium	Medium	High	Slurry spreading upstream
12	Munster Blackwater_ Allow	Allow Headwaters	131305	116423	4	Low	High	Medium	Medium	Low	Low	Medium	Medium	High	Slurry spreading upstream
12	Munster Blackwater_ Allow	Allow Headwaters	131305	116423	5	Low	High	Medium	Medium	Low	Low	Medium	Medium	High	Joining trib upstream
13	Munster Blackwater_ Allow	Glashwee Bridge	131088	118098	1	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	View downstream from bridge
13	Munster Blackwater_ Allow	Glashwee Bridge	131088	118098	2	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Drain on left bank downstream with FGA growth

13	Munster Blackwater_ Allow	Glashwee Bridge	131088	118098	3	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	View upstream
13	Munster Blackwater_ Allow	Glashwee Bridge	131088	118098	4	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Trampling on left bank upstream
14	Munster Blackwater_ Allow	Kanturk	138101	103237	1	High	Medium	Medium	High	Low	High	High	Medium	High	View upstream from survey point
14	Munster Blackwater_ Allow	Kanturk	138101	103237	2	High	Medium	Medium	High	Low	High	High	Medium	High	Downstream from point
14	Munster Blackwater_ Allow	Kanturk	138101	103237	3	High	Medium	Medium	High	Low	High	High	Medium	High	H.Balsam on right bank
14	Munster Blackwater_ Allow	Kanturk	138101	103237	4	High	Medium	Medium	High	Low	High	High	Medium	High	Bridge structure
14	Munster Blackwater_ Allow	Kanturk	138152	103174	5	High	Medium	Medium	High	Low	High	High	Medium	High	Significant bridge apron
14	Munster Blackwater_ Allow	Kanturk	138152	103174	6	High	Medium	Medium	High	Low	High	High	Medium	High	Significant bridge apron
14	Munster Blackwater_ Allow	Kanturk	138152	103174	7	High	Medium	Medium	High	Low	High	High	Medium	High	View downstream from bridge, concrete wall on right bank
14	Munster Blackwater_ Allow	Kanturk	138225	103182	8	High	Medium	Medium	High	Low	High	High	Medium	High	Creamery on right bank downstream
14	Munster Blackwater_ Allow	Kanturk	138225	103182	9	High	Medium	Medium	High	Low	High	High	Medium	High	View upstream from second bridge
14	Munster Blackwater_ Allow	Kanturk	138225	103182	10	High	Medium	Medium	High	Low	High	High	Medium	High	View upstream from second bridge on right bank

14	Munster Blackwater_ Allow	Kanturk	138225	103182	11	High	Medium	Medium	High	Low	High	High	Medium	High	View upstream from econd bridge on left bank
14	Munster Blackwater_ Allow	Kanturk	138225	103182	12	High	Medium	Medium	High	Low	High	High	Medium	High	View downstream from bridge, macrophyte growth across channel
14	Munster Blackwater_ Allow	Kanturk	138241	103169	13	High	Medium	Medium	High	Low	High	High	Medium	High	Raw sewage outfall on left bank, FGA growth on wall and substrate
14	Munster Blackwater_ Allow	Kanturk	138241	103169	14	High	Medium	Medium	High	Low	High	High	Medium	High	Raw sewage outfall on left bank, FGA growth on wall and substrate
14	Munster Blackwater_ Allow	Kanturk	138302	103029	15	High	Medium	Medium	High	Low	High	High	Medium	High	Placed stone weir in line with creamery
14	Munster Blackwater_ Allow	Kanturk	138302	103029	16	High	Medium	Medium	High	Low	High	High	Medium	High	Leaking tank and outfalls from creamery
14	Munster Blackwater_ Allow	Kanturk	138302	103029	17	High	Medium	Medium	High	Low	High	High	Medium	High	Overview of creamery
14	Munster Blackwater_ Allow	Kanturk	138340	102944	18	High	Medium	Medium	High	Low	High	High	Medium	High	Second placed stone weir
15	Munster Blackwater_ Allow	Allow Bridge	139307	113770	1	Medium	Medium	Medium	Low	High	Low	Low	Medium	Medium	Looking downstream from Bridge
15	Munster Blackwater_ Allow	Allow Bridge	139307	113770	2	Medium	Medium	Medium	Low	High	Low	Low	Medium	Medium	Freemont WWTP
15	Munster Blackwater_ Allow	Allow Bridge	139307	113770	3	Medium	Medium	Medium	Low	High	Low	Low	Medium	Medium	Looking upstream from bridge
15	Munster Blackwater_ Allow	Allow Bridge	139307	113770	4	Medium	Medium	Medium	Low	High	Low	Low	Medium	Medium	Forestry upstream on right bank

15	Munster Blackwater_ Allow	Allow Bridge	139294	113772	5	Medium	Medium	Medium	Low	High	Low	Low	Medium	Medium	Possible abstraction pipe
15	Munster Blackwater_ Allow	Allow Bridge	139362	113820	6	Medium	Medium	Medium	Low	High	Low	Low	Medium	Medium	Possible WWTP
15	Munster Blackwater_ Allow	Allow Bridge	139307	113770	7	Medium	Medium	Medium	Low	High	Low	Low	Medium	Medium	Local School adjacent to channel
15	Munster Blackwater_ Allow	Allow Bridge	139310	113814	8	Medium	Medium	Medium	Low	High	Low	Low	Medium	Medium	Septic tank inspection chamber
15	Munster Blackwater_ Allow	Allow Bridge	139347	113825	9	Medium	Medium	Medium	Low	High	Low	Low	Medium	Medium	School pipes
15	Munster Blackwater_ Allow	Allow Bridge	139350	113816	10	Medium	Medium	Medium	Low	High	Low	Low	Medium	Medium	Freemount WWTP signage
16	Munster Blackwater_ Allow	Ballynaguilla Bridge	134428	115536	1	High	High	High	High	Low	Low	Low	High	High	Slumping on the left bank
16	Munster Blackwater_ Allow	Ballynaguilla Bridge	134428	115536	2	High	High	High	High	Low	Low	Low	High	High	Upstream right bank trampling, cattle accessing the river
16	Munster Blackwater_ Allow	Ballynaguilla Bridge	134428	115536	3	High	High	High	High	Low	Low	Low	High	High	Left bank cattle trampling
16	Munster Blackwater_ Allow	Ballynaguilla Bridge	134428	115536	4	High	High	High	High	Low	Low	Low	High	High	Looking downstream from bridge, deposition
16	Munster Blackwater_ Allow	Ballynaguilla Bridge	134428	115536	5	High	High	High	High	Low	Low	Low	High	High	Forestry downstream on the left bank
16	Munster Blackwater_ Allow	Ballynaguilla Bridge	134455	115561	6	High	High	High	High	Low	Low	Low	High	High	Drainage ditch

16	Munster Blackwater_ Allow	Ballynaguilla Bridge	134480	115577	7	High	High	High	High	Low	Low	Low	High	High	Drainage ditch
16	Munster Blackwater_ Allow	Ballynaguilla Bridge	134480	115577	8	High	High	High	High	Low	Low	Low	High	High	Drainage ditch
16	Munster Blackwater_ Allow	Ballynaguilla Bridge	134488	115583	9	High	High	High	High	Low	Low	Low	High	High	House - See Allow photo observation 4 from November surveys.Drain dug to allow run-off from site development to
17	Munster Blackwater_ Allow	Barleyhill Bridge	133294	110721	1	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Macrophyte growth in channel
17	Munster Blackwater_ Allow	Barleyhill Bridge	133294	110721	2	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Looking upstream from bridge
17	Munster Blackwater_ Allow	Barleyhill Bridge	133294	110721	3	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Trampling on left bank
18	Munster Blackwater_ Allow	Priory Bridge	134608	108520	1	Low	Low	Low	Low	Low	Low	Low	Low	Low	Looking upstream from bridge
18	Munster Blackwater_ Allow	Priory Bridge	134608	108520	2	Low	Low	Low	Low	Low	Low	Low	Low	Low	Dumping in channel
18	Munster Blackwater_ Allow	Priory Bridge	134608	108520	3	Low	Low	Low	Low	Low	Low	Low	Low	Low	Unmanged drain entering on right bank
18	Munster Blackwater_ Allow	Priory Bridge	134608	108520	4	Low	Low	Low	Low	Low	Low	Low	Low	Low	Just downstream from bridge
19	Munster Blackwater_ Allow	Long Bridge	129819	104871	1	Low	Medium	High	Low	Low	Low	Low	Medium	Medium	Stained channel
19	Munster Blackwater_ Allow	Long Bridge	129819	104871	2	Low	Medium	High	Low	Low	Low	Low	Medium	Medium	Overhanging vegetation

19	Munster Blackwater_ Allow	Long Bridge	129819	104871	3	Low	Medium	High	Low	Low	Low	Low	Medium	Medium	Forestry downstream on left bank
19	Munster Blackwater_ Allow	Long Bridge	129819	104871	4	Low	Medium	High	Low	Low	Low	Low	Medium	Medium	Forestry downstream on left bank
20	Munster Blackwater_ Allow	Brogeen Bridge	128767	102754	1	Medium	High	High	High	Low	Low	Low	High	High	Cattle drinking access in channel
20	Munster Blackwater_ Allow	Brogeen Bridge	128767	102754	2	Medium	High	High	High	Low	Low	Low	High	High	Tree line plantation
20	Munster Blackwater_ Allow	Brogeen Bridge	128767	102754	3	Medium	High	High	High	Low	Low	Low	High	High	Poaching on left bank
20	Munster Blackwater_ Allow	Brogeen Bridge	128767	102754	4	Medium	High	High	High	Low	Low	Low	High	High	Unmanaged ditch entering on right bank
20	Munster Blackwater_ Allow	Brogeen Bridge	128767	102754	5	Medium	High	High	High	Low	Low	Low	High	High	Eroding banks
20	Munster Blackwater_ Allow	Brogeen Bridge	128767	102754	6	Medium	High	High	High	Low	Low	Low	High	High	New conifer tree line downstream from bridge on left bank
20	Munster Blackwater_ Allow	Brogeen Bridge	128767	102754	7	Medium	High	High	High	Low	Low	Low	High	High	Unmanaged drainage ditch flowing along field into left bank
20	Munster Blackwater_ Allow	Brogeen Bridge	128767	102754	8	Medium	High	High	High	Low	Low	Low	High	High	Unmanaged drain flowing along field entering on left bank
20	Munster Blackwater_ Allow	Brogeen Bridge	128767	102754	9	Medium	High	High	High	Low	Low	Low	High	High	Green Belt Ltd Signage
0	Munster Blackwater_ Allow	Allen's Bridge	134039	104432	1	Low	Low	Low	Low	Low	Low	Low	Low	Low	View looking upstream from bridge

0	Munster Blackwater_ Allow	Allen's Bridge	134039	104432	2	Low	Low	Low	Low	Low	Low	Low	Low	Low	View looking downstream from bridge
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	1	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Looking downstream from bridge
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	2	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Looking upstream from bridge, excessive macrophyte growth
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	3	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Excessive Ranunculus growth upstream of bridge
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	4	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Bridge structure
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	5	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Dead mussel in channel
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	6	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Dead mussel in channel
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	7	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Dead mussel in channel
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	8	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Approx. 10 live mussels and a recent dead mussel at this point
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	9	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Approx. 10 live mussels and a recent dead mussel at this point
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	10	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Approx. 10 live mussels and a recent dead mussel at this point
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	11	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Approx. 10 live mussels and a recent dead mussel at this point

87	Munster Blackwater_ Allow	John's Bridge	139478	109804	12	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Algae on right bank
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	13	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Algae on right bank
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	14	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Storm drain on right bank. Ranunculus growth in channel at this point.
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	15	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Significant cattle poaching on left bank
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	16	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	End point of survey looking upstream
87	Munster Blackwater_ Allow	John's Bridge	139478	109804	17	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	End point of survey looking downstream
21	Munster Blackwater	Ballyclough	149088	101688	1	High	Medium	Low	High	High	Low	Low	Medium	High	Downstream from left bank at bridge
21	Munster Blackwater	Ballyclough	149088	101688	2	High	Medium	Low	High	High	Low	Low	Medium	High	Bridge structure
21	Munster Blackwater	Ballyclough	149088	101688	3	High	Medium	Low	High	High	Low	Low	Medium	High	Dry concrete small culvert
21	Munster Blackwater	Ballyclough	149088	101688	4	High	Medium	Low	High	High	Low	Low	Medium	High	Small rocks placed in channel as barrier
21	Munster Blackwater	Ballyclough	149088	101688	5	High	Medium	Low	High	High	Low	Low	Medium	High	Upstream from bridge
21	Munster Blackwater	Ballyclough	149088	101688	6	High	Medium	Low	High	High	Low	Low	Medium	High	wet drain from right bank at road
21	Munster Blackwater	Ballyclough	149088	101688	7	High	Medium	Low	High	High	Low	Low	Medium	High	Dry drain from left bank
21	Munster Blackwater	Ballyclough	149075	101674	8	High	Medium	Low	High	High	Low	Low	Medium	High	Culvert
21	Munster Blackwater	Ballyclough	149088	101688	9	High	Medium	Low	High	High	Low	Low	Medium	High	Small site excavation works

22	Munster Blackwater	An Abba Bheag	145007	107252	1	Low	Medium	Medium	Medium	High	Low	Medium	Medium	Medium	EPS Pumping & treatment systems
22	Munster Blackwater	An Abba Bheag	145017	107256	2	Low	Medium	Medium	Medium	High	Low	Medium	Medium	Medium	EPS Pumping & treatment systems
22	Munster Blackwater	An Abba Bheag	145017	107256	3	Low	Medium	Medium	Medium	High	Low	Medium	Medium	Medium	Upstream from bridge, pipe discharging
22	Munster Blackwater	An Abba Bheag	145017	107256	4	Low	Medium	Medium	Medium	High	Low	Medium	Medium	Medium	Drainage pipe, just upstream of bridge on right bank
22	Munster Blackwater	An Abba Bheag	145017	107256	5	Low	Medium	Medium	Medium	High	Low	Medium	Medium	Medium	Looking downstream from bridge
22	Munster Blackwater	An Abba Bheag	145020	107243	6	Low	Medium	Medium	Medium	High	Low	Medium	Medium	Medium	Twin culvert drain
22	Munster Blackwater	An Abba Bheag	145031	107249	7	Low	Medium	Medium	Medium	High	Low	Medium	Medium	Medium	Other side of culvery
22	Munster Blackwater	An Abba Bheag	145032	107172	8	Low	Medium	Medium	Medium	High	Low	Medium	Medium	Medium	Bank side vegetation removed to build perimeter wall
22	Munster Blackwater	An Abba Bheag	145032	107172	9	Low	Medium	Medium	Medium	High	Low	Medium	Medium	Medium	Bank side vegetation removed to build perimeter wall
22	Munster Blackwater	An Abba Bheag	145017	107256	10	Low	Medium	Medium	Medium	High	Low	Medium	Medium	Medium	Bridge structure and fencing
23	Munster Blackwater	Awbeg River	146158	113715	1	Medium	Low	Medium	Medium	Low	Low	Low	Low	Medium	Bridge structure
23	Munster Blackwater	Awbeg River	146158	113715	2	Medium	Low	Medium	Medium	Low	Low	Low	Low	Medium	Downstream from road bridge
23	Munster Blackwater	Awbeg River	146158	113715	3	Medium	Low	Medium	Medium	Low	Low	Low	Low	Medium	Upstream from road bridge
24	Munster Blackwater	Cooliney Bridge	150220	118608	1	Medium	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Downstream from bridge cattle allowed access for drinking water
24	Munster Blackwater	Cooliney Bridge	150220	118608	2	Medium	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Cattle trampling caused by drinking water access
24	Munster Blackwater	Cooliney Bridge	150220	118608	3	Medium	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Unmanaged inflowing land drain together with trampled bankside
24	Munster Blackwater	Cooliney Bridge	150220	118608	4	Medium	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Flow upstream from bridge

24	Munster Blackwater	Cooliney Bridge	150220	118608	5	Medium	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Trampling upstream on right bank
0	Munster Blackwater		152754	119247	1										Gate to large silo associated with Charleville Foods
0	Munster Blackwater		152754	119247	2										Gate to large silo associated with Charleville Foods
0	Munster Blackwater		152754	119247	3										SW1 & SW2
0	Munster Blackwater		152754	119247	4										SW 3
0	Munster Blackwater		152754	119247	5										SW 4
0	Munster Blackwater		152754	119247	6										Pipe from silo culverted under road and entering stream
25	Munster Blackwater	Farran Bridge	154321	118444	1	High	High	Medium	High	High	Medium	Low	Medium	High	Downstream from bridge one excessive Ranunculus growth
25	Munster Blackwater	Farran Bridge	154321	118444	2	High	High	Medium	High	High	Medium	Low	Medium	High	Upstream from bridge one excessive macrophyte growth
25	Munster Blackwater	Farran Bridge	154321	118444	3	High	High	Medium	High	High	Medium	Low	Medium	High	Downstream from bridge two excessive macrophyte growth
25	Munster Blackwater	Farran Bridge	154351	118492	4	High	High	Medium	High	High	Medium	Low	Medium	High	Upstream from bridge two excessive macrophyte growth
25	Munster Blackwater	Farran Bridge	154351	118492	5	High	High	Medium	High	High	Medium	Low	Medium	High	Abstraction pipe upstream on bridge two
25	Munster Blackwater	Farran Bridge	154351	118492	6	High	High	Medium	High	High	Medium	Low	Medium	High	Abstraction pipe upstream on bridge two
25	Munster Blackwater	Farran Bridge	154351	118492	7	High	High	Medium	High	High	Medium	Low	Medium	High	Abstraction pipe upstream on bridge two
25	Munster Blackwater	Farran Bridge	154355	118516	8	High	High	Medium	High	High	Medium	Low	Medium	High	Outfall with FGA growth surrounding discharge point
25	Munster Blackwater	Farran Bridge	154355	118516	9	High	High	Medium	High	High	Medium	Low	Medium	High	Small conifer plantation upstream on right bank
26	Munster Blackwater	Buttevant Bridge	154415	109302	1	Medium	High	High	Medium	High	Low	Low	Medium	High	Looking upstream from bridge, excessive macrophyte growth

31	Munster Blackwater	Farahy River	169126	110249	5	High	High	Medium	Medium	High	Low	Low	Medium	High	Encroachment of garden plants and reinforced bank
31	Munster Blackwater	Farahy River	169126	110249	6	High	High	Medium	Medium	High	Low	Low	Medium	High	Drainage ditch
32	Munster Blackwater	Keale River	172296	117495	1	Low	Medium	Low	High	Low	Low	Low	Medium	Medium	View upstream,overhanging trees,macrophyte growth
32	Munster Blackwater	Keale River	172296	117495	2	Low	Medium	Low	High	Low	Low	Low	Medium	Medium	View upstream,overhanging trees,macrophyte growth
32	Munster Blackwater	Keale River	172273	117474	3	Low	Medium	Low	High	Low	Low	Low	Medium	Medium	Trib from footbridge
32	Munster Blackwater	Keale River	172273	117474	4	Low	Medium	Low	High	Low	Low	Low	Medium	Medium	Drain from footbridge
32	Munster Blackwater	Keale River	172245	117461	5	Low	Medium	Low	High	Low	Low	Low	Medium	Medium	Field drainage upstream on right bank
32	Munster Blackwater	Keale River	172245	117461	6	Low	Medium	Low	High	Low	Low	Low	Medium	Medium	Macrophyte growth and poor riparian cover
32	Munster Blackwater	Keale River	172287	117498	7	Low	Medium	Low	High	Low	Low	Low	Medium	Medium	Road drain
33	Munster Blackwater	Glenavucdig Bridge	172316	110789	1	Low	Medium	Medium	Low	Low	Medium	Medium	Medium	Medium	Macrophyte growth and coloured channel
33	Munster Blackwater	Glenavucdig Bridge	172316	110789	2	Low	Medium	Medium	Low	Low	Medium	Medium	Medium	Medium	Excessive macrophyte growth and poor riparian zone
33	Munster Blackwater	Glenavucdig Bridge	172330	110776	3	Low	Medium	Medium	Low	Low	Medium	Medium	Medium	Medium	Flow measurement station
33	Munster Blackwater	Glenavucdig Bridge	172330	110776	4	Low	Medium	Medium	Low	Low	Medium	Medium	Medium	Medium	Solar panel associated with flow station
33	Munster Blackwater	Glenavucdig Bridge	172330	110776	5	Low	Medium	Medium	Low	Low	Medium	Medium	Medium	Medium	Staff gauge
34	Munster Blackwater	Meanstown Bridge	171564	108649	1	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Looking upstream from bridge
34	Munster Blackwater	Meanstown Bridge	171564	108649	2	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Right bank under bridge
34	Munster Blackwater	Meanstown Bridge	171564	108649	3	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Heavily shaded downstream on right bank

35	Munster Blackwater	Awbeg Castletownroche	168649	102272	1	High	Medium	Medium	Low	Medium	Low	High	Medium	High	Culvert downstream on left bank
35	Munster Blackwater	Awbeg Castletownroche	168649	102272	2	High	Medium	Medium	Low	Medium	Low	High	Medium	High	Upstream from culvert heavy macrophyte growth
35	Munster Blackwater	Awbeg Castletownroche	168649	102272	3	High	Medium	Medium	Low	Medium	Low	High	Medium	High	View upstream of footbridge
35	Munster Blackwater	Awbeg Castletownroche	168649	102272	4	High	Medium	Medium	Low	Medium	Low	High	Medium	High	View downstream from footbridge
35	Munster Blackwater	Awbeg Castletownroche	168649	102272	5	High	Medium	Medium	Low	Medium	Low	High	Medium	High	Culverted channel
35	Munster Blackwater	Awbeg Castletownroche	168649	102272	6	High	Medium	Medium	Low	Medium	Low	High	Medium	High	Bridge structure
35	Munster Blackwater	Awbeg Castletownroche	168649	102272	7	High	Medium	Medium	Low	Medium	Low	High	Medium	High	Upstream of bridge
35	Munster Blackwater	Awbeg Castletownroche	168649	102272	8	High	Medium	Medium	Low	Medium	Low	High	Medium	High	Downstream from bridge
35	Munster Blackwater	Awbeg Castletownroche	168649	102272	9	High	Medium	Medium	Low	Medium	Low	High	Medium	High	Weir and macrophyte growth
36	Munster Blackwater	Annakisha	161330	102742	1	Low	Low	Low	Low	Low	Low	Low	Low	Low	Some macrophyte growth at bridge
36	Munster Blackwater	Annakisha	161330	102742	2	Low	Low	Low	Low	Low	Low	Low	Low	Low	Poor bank side vegetation
36	Munster Blackwater	Annakisha	161330	102742	3	Low	Low	Low	Low	Low	Low	Low	Low	Low	Overhanging vegetation
37	Munster Blackwater		144263	98865	1										Looking upstream from bridge

37	Munster Blackwater		144263	98865	2										Looking downstream from bridge
37	Munster Blackwater		144263	98865	3										Bridge apron underneath bridge
37	Munster Blackwater		144263	98865	4										Right bank reinforced with cattle grazing in background
37	Munster Blackwater		144263	98865	5										Arable/tillage on right bank just downstream of bridge
37	Munster Blackwater		144247	98835	6										H.Balsam continues along right bank
37	Munster Blackwater		144263	98865	7										Bridge Structure
37	Munster Blackwater		144288	98773	8										Side beam with very small pockets of ranunculus
37	Munster Blackwater		144317	98705	9										Left bank looks slightly embanked & raised in comparison to right bank
37	Munster Blackwater		144353	98639	10										Possible fisheries weir at this point
37	Munster Blackwater		144353	98639	11										Very high banks on right & left, deflectors on right bank to emphasise pools for fisheries
37	Munster Blackwater		144353	98639	12										Close up of deflectors
37	Munster Blackwater		144348	98589	13										Field on right bank has flooding at same level as river channel.H.Balsam surrounds the whole field
38	Munster Blackwater	Scarradarragh River	130767	98126	1	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Looking downstream from road bridge
38	Munster Blackwater	Scarradarragh River	130767	98126	2	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Looking upstream from road bridge
38	Munster Blackwater	Scarradarragh River	130764	98115	3	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Infilling/disturbance on right bank
38	Munster Blackwater	Scarradarragh River	130888	97963	4	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Heavy shading looking upstream
38	Munster Blackwater	Scarradarragh River	130888	97963	5	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Calitriche growth upstream

38	Munster Blackwater	Scarradarragh River	130888	97956	6	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Dredged channel, historical possible by landowner, now fenced off with regrowth of nettles and poorer plant spec
38	Munster Blackwater	Scarradarragh River	130888	97956	7	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Substrate condition with some ranunculus growth
38	Munster Blackwater	Scarradarragh River	130888	97956	8	Medium	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Closer view of excavated channel with poor bank side vegetation
39	Munster Blackwater		124812	94401	1										Looking upstream from road bridge, ranunculus growth across the channel
39	Munster Blackwater		124812	94401	2										Looking downstream from road bridge, very small amounts of ranunculus
39	Munster Blackwater		124812	94401	3										Scouring on left bank at bridge, macrophyte growth at this point loss of pearl mussel habitat
39	Munster Blackwater		124831	94374	4										Bridge Structure with in channel piers
39	Munster Blackwater		124857	94384	5										Excessive ranunculus growth at riffle most likely due to deposition of silt
39	Munster Blackwater		124938	94369	6										Possible OPW station
39	Munster Blackwater		124938	94369	7										Possible OPW station
39	Munster Blackwater		124950	94368	8										Trampling on left bank
39	Munster Blackwater		125001	94321	9										V-notch weir
39	Munster Blackwater		125013	94290	10										Unmanaged drain entering on RB
40	Munster Blackwater		126505	90301	1										Looking downstream from bridge
40	Munster Blackwater		126505	90301	2										Gunnera on left bank at bridge

42	Munster Blackwater	Farnankeel bridge	116016	97453	5										Looking downstream from bridge, scouring on left & right bank at bridge, some ranunculus growth also
42	Munster Blackwater	Farnankeel bridge	115980	97454	6										Drainage ditch dug out in field on adjacent right bank
42	Munster Blackwater	Farnankeel bridge	116020	97400	7										Land cleared in the past to give rise to embankment on right bank, recently cleared & fenced using digger
42	Munster Blackwater	Farnankeel bridge	115984	97353	8										Side channel
42	Munster Blackwater	Farnankeel bridge	115984	97348	9										Eroding banks both left & right looking downstream
42	Munster Blackwater	Farnankeel bridge	115984	97348	10										Eroding banks both left & right looking downstream - large riffle area
42	Munster Blackwater	Farnankeel bridge	115987	97357	11										Very erodable high banks which may be a source of silt. Marshy land on LB, forestry downstream
43	Munster Blackwater	Duncannon Bridge	118096	93155	1	High	Medium	Low	Medium	Medium	Low	Low	High	High	Cattle in channel
43	Munster Blackwater	Duncannon Bridge	118096	93155	2	High	Medium	Low	Medium	Medium	Low	Low	High	High	Cattle exiting channel
43	Munster Blackwater	Duncannon Bridge	118096	93155	3	High	Medium	Low	Medium	Medium	Low	Low	High	High	Cattle drinking mid channel
43	Munster Blackwater	Duncannon Bridge	118096	93155	4	High	Medium	Low	Medium	Medium	Low	Low	High	High	Cattle crossing under bridge
43	Munster Blackwater	Duncannon Bridge	118096	93155	5	High	Medium	Low	Medium	Medium	Low	Low	High	High	Cattle exiting channel
43	Munster Blackwater	Duncannon Bridge	118096	93155	6	High	Medium	Low	Medium	Medium	Low	Low	High	High	Silt plume created and going downstream from cattle disturbance
43	Munster Blackwater	Duncannon Bridge	118096	93155	7	High	Medium	Low	Medium	Medium	Low	Low	High	High	Cattle accessing from left bank downstream of bridge
43	Munster Blackwater	Duncannon Bridge	118096	93155	8	High	Medium	Low	Medium	Medium	Low	Low	High	High	Reinforced left bank downstream of bridge, together with silt plume

43	Munster Blackwater	Duncannon Bridge	118096	93155	9	High	Medium	Low	Medium	Medium	Low	Low	High	High	Cattle access point with silt plume
43	Munster Blackwater	Duncannon Bridge	118096	93155	10	High	Medium	Low	Medium	Medium	Low	Low	High	High	Looking downstream from bridge
43	Munster Blackwater	Duncannon Bridge	118096	93155	11	High	Medium	Low	Medium	Medium	Low	Low	High	High	Looking upstream from bridge
43	Munster Blackwater	Duncannon Bridge	118096	93155	12	High	Medium	Low	Medium	Medium	Low	Low	High	High	Cadbury's plant downstream on right bank
43	Munster Blackwater	Duncannon Bridge	118096	93155	13	High	Medium	Low	Medium	Medium	Low	Low	High	High	Landowner has fenced sections of improved grassland off from cattle
43	Munster Blackwater	Duncannon Bridge	118096	93155	14	High	Medium	Low	Medium	Medium	Low	Low	High	High	Landowner has fenced sections of improved grassland off from cattle
44	Munster Blackwater	Owentarraghlin	122417	94341	1	Medium	Low	Low	Medium	Low	Low	Low	Medium	Medium	Looking downstream from left bank, Ranunculus in channel not excessive
44	Munster Blackwater	Owentarraghlin	122417	94341	2	Medium	Low	Low	Medium	Low	Low	Low	Medium	Medium	Looking upstream from road bridge
44	Munster Blackwater	Owentarraghlin	122417	94341	3	Medium	Low	Low	Medium	Low	Low	Low	Medium	Medium	Cattle access poaching upstream on right bank fenced also up & down stream
45	Munster Blackwater	Owentarraghlin	112690	99298	1	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	View downstream, stained channel
45	Munster Blackwater	Owentarraghlin	112690	99298	2	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Reinforced on left bank at bridge
45	Munster Blackwater	Owentarraghlin	112690	99298	3	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	View upstream on main channel
45	Munster Blackwater	Owentarraghlin	112690	99298	4	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Trib entering channel on right bank just upstream of bridge
45	Munster Blackwater	Owentarraghlin	112690	99298	5	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Trib entering channel
45	Munster Blackwater	Owentarraghlin	112690	99298	6	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Field ditch entering trib. View upstream going under bridge
45	Munster Blackwater	Owentarraghlin	112690	99298	7	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Ford - at bridge on main channel

45	Munster Blackwater	Owentarraghlin	112690	99298	8	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Diesel oil in Ford
45	Munster Blackwater	Owentarraghlin	112690	99298	9	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Bridge structure
47	Munster Blackwater	Owenbaun river	132814	92541	1	Low	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Storm outfall
47	Munster Blackwater	Owenbaun river	132814	92541	2	Low	Medium	Medium	Low	Low	Low	Low	Medium	Medium	
47	Munster Blackwater	Owenbaun river	132814	92541	3	Low	Medium	Medium	Low	Low	Low	Low	Medium	Medium	
47	Munster Blackwater	Owenbaun river	132814	92541	4	Low	Medium	Medium	Low	Low	Low	Low	Medium	Medium	
47	Munster Blackwater	Owenbaun river	132814	92541	5	Low	Medium	Medium	Low	Low	Low	Low	Medium	Medium	
47	Munster Blackwater	Owenbaun river	132814	92541	6	Low	Medium	Medium	Low	Low	Low	Low	Medium	Medium	
47	Munster Blackwater	Owenbaun river	132814	92541	7	Low	Medium	Medium	Low	Low	Low	Low	Medium	Medium	
47	Munster Blackwater	Owenbaun river	132814	92541	8	Low	Medium	Medium	Low	Low	Low	Low	Medium	Medium	
48	Munster Blackwater	Curraraigue River	135084	92829	1	Medium	Low	Low	Medium	Low	Low	Medium	Low	Medium	
48	Munster Blackwater	Curraraigue River	135084	92829	2	Medium	Low	Low	Medium	Low	Low	Medium	Low	Medium	
48	Munster Blackwater	Curraraigue River	135084	92829	3	Medium	Low	Low	Medium	Low	Low	Medium	Low	Medium	
48	Munster Blackwater	Curraraigue River	135084	92829	4	Medium	Low	Low	Medium	Low	Low	Medium	Low	Medium	
49	Munster Blackwater	Confluence of Rathcoo	133468	93980	1	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	
49	Munster Blackwater	Confluence of Rathcoo	133468	93980	2	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	
49	Munster Blackwater	Confluence of Rathcoo	133468	93980	3	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	
49	Munster Blackwater	Confluence of Rathcoo	133468	93980	4	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	

49	Munster Blackwater	Confluence of Rathcoo	133468	93980	5	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	
49	Munster Blackwater	Confluence of Rathcoo	133468	93980	6	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	
49	Munster Blackwater	Confluence of Rathcoo	133468	93980	7	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	
51	Munster Blackwater	Confluence of Funshio	173789	111763	1	High	High	Medium	Low	Low	Low	Low	High	High	
51	Munster Blackwater	Confluence of Funshio	173789	111763	2	High	High	Medium	Low	Low	Low	Low	High	High	
51	Munster Blackwater	Confluence of Funshio	173789	111763	3	High	High	Medium	Low	Low	Low	Low	High	High	
51	Munster Blackwater	Confluence of Funshio	173789	111763	4	High	High	Medium	Low	Low	Low	Low	High	High	
51	Munster Blackwater	Confluence of Funshio	173789	111763	5	High	High	Medium	Low	Low	Low	Low	High	High	
51	Munster Blackwater	Confluence of Funshio	173789	111763	6	High	High	Medium	Low	Low	Low	Low	High	High	
51	Munster Blackwater	Confluence of Funshio	173789	111763	7	High	High	Medium	Low	Low	Low	Low	High	High	
52	Munster Blackwater	Ahaphuca Bridge	173881	116701	1	Medium	High	High	Low	Low	Low	Low	High	High	
52	Munster Blackwater	Ahaphuca Bridge	173881	116701	2	Medium	High	High	Low	Low	Low	Low	High	High	
52	Munster Blackwater	Ahaphuca Bridge	173881	116701	3	Medium	High	High	Low	Low	Low	Low	High	High	
52	Munster Blackwater	Ahaphuca Bridge	173881	116701	4	Medium	High	High	Low	Low	Low	Low	High	High	
52	Munster Blackwater	Ahaphuca Bridge	173881	116701	5	Medium	High	High	Low	Low	Low	Low	High	High	
52	Munster Blackwater	Ahaphuca Bridge	173881	116701	6	Medium	High	High	Low	Low	Low	Low	High	High	
53	Munster Blackwater	Ahaphuca River	174476	120069	1	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	
53	Munster Blackwater	Ahaphuca River	174476	120069	2	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	

53	Munster Blackwater	Ahaphuca River	174476	120069	3	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	
53	Munster Blackwater	Ahaphuca River	174476	120069	4	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	
54	Munster Blackwater	Funshion River	180862	114858	1	High	High	High	Low	Low	Low	Low	High	High	
54	Munster Blackwater	Funshion River	180862	114858	2	High	High	High	Low	Low	Low	Low	High	High	
54	Munster Blackwater	Funshion River	180862	114858	3	High	High	High	Low	Low	Low	Low	High	High	
54	Munster Blackwater	Funshion River	180862	114858	4	High	High	High	Low	Low	Low	Low	High	High	
54	Munster Blackwater	Funshion River	180862	114858	5	High	High	High	Low	Low	Low	Low	High	High	
54	Munster Blackwater	Funshion River	180862	114858	6	High	High	High	Low	Low	Low	Low	High	High	
55	Munster Blackwater	Funshion River	185895	116124	1	Low	Low	Low	Low	Low	Low	Low	Low	Low	
55	Munster Blackwater	Funshion River	185895	116124	2	Low	Low	Low	Low	Low	Low	Low	Low	Low	
55	Munster Blackwater	Funshion River	185895	116124	3	Low	Low	Low	Low	Low	Low	Low	Low	Low	
55	Munster Blackwater	Funshion River	185895	116124	4	Low	Low	Low	Low	Low	Low	Low	Low	Low	
55	Munster Blackwater	Funshion River	185895	116124	5	Low	Low	Low	Low	Low	Low	Low	Low	Low	
55	Munster Blackwater	Funshion River	185895	116124	6	Low	Low	Low	Low	Low	Low	Low	Low	Low	
55	Munster Blackwater	Funshion River	185895	116124	7	Low	Low	Low	Low	Low	Low	Low	Low	Low	
56	Munster Blackwater	Funshion River	188975	116801	1	Low	Medium	Medium	Low	Low	Low	Low	Medium	Low	
56	Munster Blackwater	Funshion River	188975	116801	2	Low	Medium	Medium	Low	Low	Low	Low	Medium	Low	
56	Munster Blackwater	Funshion River	188975	116801	3	Low	Medium	Medium	Low	Low	Low	Low	Medium	Low	

56	Munster Blackwater	Funshion River	188975	116801	4	Low	Medium	Medium	Low	Low	Low	Low	Medium	Low	
57	Munster Blackwater	Funshion River	182430	112939	1	Low	Medium	Medium	Low	Low	Low	Low	Medium	Low	
57	Munster Blackwater	Funshion River	182430	112939	2	High	High	High	Low	Low	Low	Low	High	High	
57	Munster Blackwater	Funshion River	182430	112939	3	High	High	High	Low	Low	Low	Low	High	High	
57	Munster Blackwater	Funshion River	182430	112939	4	High	High	High	Low	Low	Low	Low	High	High	
57	Munster Blackwater	Funshion River	182430	112939	5	High	High	High	Low	Low	Low	Low	High	High	
57	Munster Blackwater	Funshion River	182430	112939	6	High	High	High	Low	Low	Low	Low	High	High	
57	Munster Blackwater	Funshion River	182430	112939	7	High	High	High	Low	Low	Low	Low	High	High	
58	Munster Blackwater	Funshion River	177913	112604	1	High	High	High	Low	Low	Low	Low	High	High	
58	Munster Blackwater	Funshion River	177913	112604	2	High	High	High	Low	Low	Low	Low	High	High	
58	Munster Blackwater	Funshion River	177913	112604	3	High	High	High	Low	Low	Low	Low	High	High	
58	Munster Blackwater	Funshion River	177913	112604	4	High	High	High	Low	Low	Low	Low	High	High	
58	Munster Blackwater	Funshion River	177913	112604	5	High	High	High	Low	Low	Low	Low	High	High	
58	Munster Blackwater	Funshion River	177913	112604	6	High	High	High	Low	Low	Low	Low	High	High	
58	Munster Blackwater	Funshion River	177913	112604	7	High	High	High	Low	Low	Low	Low	High	High	
58	Munster Blackwater	Funshion River	177913	112604	8	High	High	High	Low	Low	Low	Low	High	High	
59	Munster Blackwater	Trib of the Funshion	177699	112630	1	High	High	High	Low	Low	Low	Low	High	High	
59	Munster Blackwater	Trib of the Funshion	177699	112630	2	High	High	High	Low	Low	Low	Low	High	High	

64	Munster Blackwater	Funshion River	183462	100608	1	Medium	High	High	Low	Low	Low	Low	Medium	High	
64	Munster Blackwater	Funshion River	183462	100608	2	Medium	High	High	Low	Low	Low	Low	Medium	High	
64	Munster Blackwater	Funshion River	183462	100608	3	Medium	High	High	Low	Low	Low	Low	Medium	High	
64	Munster Blackwater	Funshion River	183462	100608	4	Medium	High	High	Low	Low	Low	Low	Medium	High	
65	Munster Blackwater	Doughlas Bridge	184746	102139	1	Low	Medium	Low	Low	Low	Low	Low	Low	Medium	
65	Munster Blackwater	Doughlas Bridge	184746	102139	2	Low	Medium	Low	Low	Low	Low	Low	Low	Medium	
65	Munster Blackwater	Doughlas Bridge	184746	102139	3	Low	Medium	Low	Low	Low	Low	Low	Low	Medium	
66	Munster Blackwater	Coolmoohan Bridge	188676	104674	1	Medium	Medium	Low	Low	Low	Low	Low	Low	Medium	
67	Munster Blackwater	Araglin River	194618	105977	1	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Looking upstream from bridge - slightly peaty stained
67	Munster Blackwater	Araglin River	194618	105977	2	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Looking downstream from bridge
67	Munster Blackwater	Araglin River	194618	105977	3	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Trampling of right bank, downstream
67	Munster Blackwater	Araglin River	194662	105976	6	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Road drain
67	Munster Blackwater	Araglin River	194633	105966	5	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Conifer plantation
67	Munster Blackwater	Araglin River	194633	105966	6	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Conifer plantation
68	Munster Blackwater	Araglin River	184525	102045	1	High	High	High	Low	Low	Low	Low	High	High	Ford crossing under bridge looking upstream
68	Munster Blackwater	Araglin River	184525	102045	2	High	High	High	Low	Low	Low	Low	High	High	Ford crossing under bridge looking downstream
68	Munster Blackwater	Araglin River	184525	102045	3	High	High	High	Low	Low	Low	Low	High	High	Upstream under bridge
68	Munster Blackwater	Araglin River	184525	102045	4	High	High	High	Low	Low	Low	Low	High	High	Downstream under bridge

68	Munster Blackwater	Araglin River	184525	102045	5	High	High	High	Low	Low	Low	Low	High	High	Vehicular tracks into main channel on left bank
68	Munster Blackwater	Araglin River	184525	102045	6	High	High	High	Low	Low	Low	Low	High	High	Vehicular tracks into main channel on right bank
68	Munster Blackwater	Araglin River	187512	102012	7	High	High	High	Low	Low	Low	Low	High	High	Construction upstream on right bank of trib
68	Munster Blackwater	Araglin River	184525	102045	8	High	High	High	Low	Low	Low	Low	High	High	Forestry on right bank of main channel
0	Munster Blackwater		187060	101849	1										Gas Pipeline construction works
0	Munster Blackwater		187060	101849	2										Gas Pipeline construction works
0	Munster Blackwater		187060	101849	3										Gas Pipeline construction works
69	Munster Blackwater	Blackwater - Ballyduf	196484	99126	1	Medium	Low	Medium	Low	Low	Low	Low	Medium	Medium	View upstream from bridge
69	Munster Blackwater	Blackwater - Ballyduf	196484	99126	2	Medium	Low	Medium	Low	Low	Low	Low	Medium	Medium	View downstream from bridge
69	Munster Blackwater	Blackwater - Ballyduf	196485	99106	3	Medium	Low	Medium	Low	Low	Low	Low	Medium	Medium	Gauging station downstream on right bank
69	Munster Blackwater	Blackwater - Ballyduf	196469	99113	4	Medium	Low	Medium	Low	Low	Low	Low	Medium	Medium	Bridge structure
74	Munster Blackwater	Nad River	142683	91270	1	Medium	High	Medium	Medium	Low	Low	Low	Medium	High	Looking upstream from bridge
74	Munster Blackwater	Nad River	142683	91270	2	Medium	High	Medium	Medium	Low	Low	Low	Medium	High	Looking downstream from bridge
74	Munster Blackwater	Nad River	142683	91270	3	Medium	High	Medium	Medium	Low	Low	Low	Medium	High	Unmanaged land drain on left bank just downstream of bridge
74	Munster Blackwater	Nad River	142683	91270	4	Medium	High	Medium	Medium	Low	Low	Low	Medium	High	Car park on right bank at bridge just downstream
74	Munster Blackwater	Nad River	142683	91270	5	Medium	High	Medium	Medium	Low	Low	Low	Medium	High	Looking downstream from 2nd bridge
74	Munster Blackwater	Nad River	142774	91221	6	Medium	High	Medium	Medium	Low	Low	Low	Medium	High	Looking upstream from 2nd bridge

74	Munster Blackwater	Nad River	142733	91300	7	Medium	High	Medium	Medium	Low	Low	Low	Medium	High	Back of river confluence
74	Munster Blackwater	Nad River	142733	91300	8	Medium	High	Medium	Medium	Low	Low	Low	Medium	High	Looking downstream from confluence
74	Munster Blackwater	Nad River	142733	91300	9	Medium	High	Medium	Medium	Low	Low	Low	Medium	High	Black perforated pipe discharging
74	Munster Blackwater	Nad River	142749	91324	10	Medium	High	Medium	Medium	Low	Low	Low	Medium	High	Mid Western Treatment Plant on right bank of Nad River
74	Munster Blackwater	Nad River	142749	91324	11	Medium	High	Medium	Medium	Low	Low	Low	Medium	High	Mid Western Treatment Plant on right bank of Nad River
74	Munster Blackwater	Nad River	142749	91324	12	Medium	High	Medium	Medium	Low	Low	Low	Medium	High	Mid Western Treatment Plant on right bank of Nad River
74	Munster Blackwater	Nad River	142732	91215	13	Medium	High	Medium	Medium	Low	Low	Low	Medium	High	Storage yard for farm machinery & old cars piled up on left bank
75	Munster Blackwater		146407	96960	1										Looking upstream from road bridge
75	Munster Blackwater		146407	96960	2										Significant bridge apron underneath bridge
75	Munster Blackwater		146407	96960	3										Looking downstream from road bridge
75	Munster Blackwater		146407	96960	4										H.Balsam & J.Knotweed on right bank just upstream of bridge
75	Munster Blackwater		146407	96960	5										Scouring on both left & right bank due to bridge structure leading to loss of habitat
75	Munster Blackwater		146369	96713	6										Ford/cattle access
75	Munster Blackwater		146324	96868	7										Point where trib and main channel meet. H.Balsam on right bank
75	Munster Blackwater		146406	96921	8										Bridge Structure
0	Munster Blackwater	Irish Sugar Lands	150558	97340	1										Significant site works along by right bank of main channel
0	Munster Blackwater	Irish Sugar Lands	150558	97340	2										Significant site works along by right bank of main channel

0	Munster Blackwater	Irish Sugar Lands	150558	97340	3										Significant site works along by right bank of main channel
0	Munster Blackwater	Irish Sugar Lands	150558	97340	4										Lagoons being filled in, turning land back to greenfield site for farmland. Sugar factory also being dismantled.
76	Munster Blackwater	Lombardstown bridge	151685	97593	1	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Flood level at 1980 on bridge
76	Munster Blackwater	Lombardstown bridge	151685	97593	2	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Bridge structure showing significant apron underneath
76	Munster Blackwater	Lombardstown bridge	151692	97598	3	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Bank erosion on both left & right bank just downstream of bridge, exposed tree roots
76	Munster Blackwater	Lombardstown bridge	151692	97598	4	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Bank erosion on both left & right bank just downstream of bridge, exposed tree roots
76	Munster Blackwater	Lombardstown bridge	151685	97593	5	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Fencing on right bank where behind it appears to be where flood rises to
76	Munster Blackwater	Lombardstown bridge	151763	97609	6	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Mid channel bar - Salix sp. & H.Balsam on top
76	Munster Blackwater	Lombardstown bridge	151685	97593	7	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Silt plume - a lot of suspended solids
76	Munster Blackwater	Lombardstown bridge	152152	97480	8	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Incoming tributary at end point joining on right bank
76	Munster Blackwater	Lombardstown bridge	151685	97593	9	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Heavy siltation and depositing of load at confluence of main channel & trib
76	Munster Blackwater	Lombardstown bridge	152148	97480	10	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Ranunculus growth on right bank not excessive
77	Munster Blackwater	Mallow - centre of to	156140	98009	1	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Munster Blackwater Mallow North Drainage Scheme
77	Munster Blackwater	Mallow - centre of to	156140	98009	2	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	OPW Drainage Scheme, widened channel
77	Munster Blackwater	Mallow - centre of to	156140	98009	3	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Embanked on left bank at bridge upstream & downstream

77	Munster Blackwater	Mallow - centre of to	156140	98009	4	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Ranunculus growth on left bank upstream of bridge
77	Munster Blackwater	Mallow - centre of to	156140	98009	5	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Mid Channel Island view from bridge indicates deposition
77	Munster Blackwater	Mallow - centre of to	156140	98009	6	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	OPW bank works on left bank upstream of bridge
77	Munster Blackwater	Mallow - centre of to	156138	98067	7	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Geotextile used to stabilise new embankment
77	Munster Blackwater	Mallow - centre of to	155961	98088	8	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Newly sectioned left bank with fencing
77	Munster Blackwater	Mallow - centre of to	155961	98088	9	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Newly sectioned left bank with fencing
77	Munster Blackwater	Mallow - centre of to	155961	98088	10	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Newly sectioned left bank with fencing
77	Munster Blackwater	Mallow - centre of to	155665	98091	11	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	End of fencing & resectioning
77	Munster Blackwater	Mallow - centre of to	155605	98133	12	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Looking upstream from left bank, high banks
77	Munster Blackwater	Mallow - centre of to	155605	98133	13	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Looking upstream on trib which enters main channel on left bank
77	Munster Blackwater	Mallow - centre of to	155568	98074	14	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Looking downstream on trib which enters main channel on left bank
77	Munster Blackwater	Mallow - centre of to	155568	98074	15	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Significant discharge on left bank
77	Munster Blackwater	Mallow - centre of to	155566	98074	16	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Storm drain on right bank
77	Munster Blackwater	Mallow - centre of to	155566	98074	17	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Slumping & erosion on right bank
77	Munster Blackwater	Mallow - centre of to	155216	97934	18	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Rinforced tow on right bank
77	Munster Blackwater	Mallow - centre of to	155162	97912	19	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Discharge on right bank just at bridge
77	Munster Blackwater	Mallow - centre of to	155089	97908	20	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Railway piers reinforced due to erodability of river

77	Munster Blackwater	Mallow - centre of to	155035	98001	21	High	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	View from left bank. H.Baslsam on right bank - arable land behind
78	Munster Blackwater	Around Mallow racecou	154305	98268	1	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	View across river from crop field
78	Munster Blackwater	Around Mallow racecou	154305	98268	2	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Arable crop on left bank
78	Munster Blackwater	Around Mallow racecou	154305	98268	3	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	View upstream
78	Munster Blackwater	Around Mallow racecou	152946	97373	4	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Along back of racecourse grass clippings dumped on left bank. No buffer with race course, possible source of nut
78	Munster Blackwater	Around Mallow racecou	153190	97396	5	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Small scale abstraction for watering racecourse prior to meetings maintained by EPS
78	Munster Blackwater	Around Mallow racecou	153266	97556	6	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Left bank has been infilled along stretch of Clyda area
78	Munster Blackwater	Around Mallow racecou	153980	97589	7	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Clyda bridge looking upstream from road bridge
78	Munster Blackwater	Around Mallow racecou	153266	97556	8	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Improved grassland on right bank upstream of bridge
78	Munster Blackwater	Around Mallow racecou	153266	97556	9	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Looking downstream from Clyda bridge
78	Munster Blackwater	Around Mallow racecou	153266	97556	10	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	View of bridge from road on right bank
78	Munster Blackwater	Around Mallow racecou	153974	97543	11	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	High left bank, high wall on right bank
79	Munster Blackwater	Kilavullen Bridge	164776	99756	1	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking upstream from road bridge
79	Munster Blackwater	Kilavullen Bridge	164776	99756	2	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Reinforced right bank downstream of bridge
79	Munster Blackwater	Kilavullen Bridge	164776	99756	3	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking downstream of bridge
79	Munster Blackwater	Kilavullen Bridge	164776	99756	4	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Flood level at 1980 on bridge

79	Munster Blackwater	Kilavullen Bridge	164746	99776	5	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Staff gauges x 2 on left bank at bridge
79	Munster Blackwater	Kilavullen Bridge	164746	99776	6	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Reinforced piers
79	Munster Blackwater	Kilavullen Bridge	164746	99776	7	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Large rock outcrop on right bank
0			164715	99748	8	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking upstream from left bank
0			164715	99748	9	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Rock outcrop on right bank
79	Munster Blackwater	Kilavullen Bridge	164715	99748	10	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Bridge structure
79	Munster Blackwater	Kilavullen Bridge	164545	99739	11	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Reinforced on left bank
79	Munster Blackwater	Kilavullen Bridge	164545	99739	12	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Mid Channel Island
79	Munster Blackwater	Kilavullen Bridge	164545	99756	13	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Fallen trees on right bank
79	Munster Blackwater	Kilavullen Bridge	164249	99729	14	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking downstream at end point of survey
0	Munster Blackwater		159988	98669	1										Major Quarry downstream of Mallow
0	Munster Blackwater		159988	98669	2										Major Quarry downstream of Mallow
0	Munster Blackwater		159988	98669	3										Major Quarry downstream of Mallow
0	Munster Blackwater		159988	98669	4										Major Quarry downstream of Mallow
0	Munster Blackwater		159473	99149	1										Very steep banks along stretch
0	Munster Blackwater		159473	99149	2										Clear evidence of disturbance on both banks.
0	Munster Blackwater		159473	99149	3										H.Balsam on both banks, with trampling from fishermen possible
80	Munster Blackwater	Ashgrove	154754	100330	1	High	High	High	Low	High	Low	Low	High	High	Downstream from bridge

80	Munster Blackwater	Ashgrove	154754	100330	2	High	High	High	Low	High	Low	Low	High	High	Upstream from bridge, large stands of Gunnera & reinforced bank
80	Munster Blackwater	Ashgrove	154754	100330	3	High	High	High	Low	High	Low	Low	High	High	Pipe culvert upstream on right bank
80	Munster Blackwater	Ashgrove	154754	100330	4	High	High	High	Low	High	Low	Low	High	High	Trampling across channel
80	Munster Blackwater	Ashgrove	154754	100330	5	High	High	High	Low	High	Low	Low	High	High	Bridge structure
80	Munster Blackwater	Ashgrove	154754	100330	6	High	High	High	Low	High	Low	Low	High	High	Inflowing perforated pipe
81	Munster Blackwater	Clyda River, Jordan's	157196	91910	1	Low	Medium	Medium	Low	Medium	Low	Low	Medium	Medium	Dry road drain, upstream on right bank
81	Munster Blackwater	Clyda River, Jordan's	157196	91910	2	Low	Medium	Medium	Low	Medium	Low	Low	Medium	Medium	Looking upstream from bridge
81	Munster Blackwater	Clyda River, Jordan's	157196	91910	3	Low	Medium	Medium	Low	Medium	Low	Low	Medium	Medium	Looking downstream from bridge
81	Munster Blackwater	Clyda River, Jordan's	157196	91910	4	Low	Medium	Medium	Low	Medium	Low	Low	Medium	Medium	Gauging Station
81	Munster Blackwater	Clyda River, Jordan's	157196	91910	5	Low	Medium	Medium	Low	Medium	Low	Low	Medium	Medium	Forestry on the opposite side of the road on right bank
82	Munster Blackwater	Ballyknockanel Bridge	158005	89875	1	Low	High	Medium	Medium	Low	Low	Low	Medium	High	View upstream from bridge
82	Munster Blackwater	Ballyknockanel Bridge	158005	89875	2	Low	High	Medium	Medium	Low	Low	Low	Medium	High	Farm upstream on left bank, silo tank & topped conifer trees in background
82	Munster Blackwater	Ballyknockanel Bridge	158005	89875	3	Low	High	Medium	Medium	Low	Low	Low	Medium	High	Downstream from ridge, overhanging vegetation
82	Munster Blackwater	Ballyknockanel Bridge	157879	89869	4	Low	High	Medium	Medium	Low	Low	Low	Medium	High	Appears to be a slurry tank abstraction pipe in tributary on left bank
82	Munster Blackwater	Ballyknockanel Bridge	157979	89869	5	Low	High	Medium	Medium	Low	Low	Low	Medium	High	Appears to be a slurry tank abstraction pipe in tributary on left bank
83	Munster Blackwater	Machanna Bridge	153126	87462	1	High	High	Medium	Low	Medium	Low	Low	Medium	High	Upstream from bridge showing gate on right bank
83	Munster Blackwater	Machanna Bridge	153126	87462	2	High	High	Medium	Low	Medium	Low	Low	Medium	High	Downstream from bridge

83	Munster Blackwater	Machanna Bridge	153126	87462	3	High	High	Medium	Low	Medium	Low	Low	Medium	High	Storm drain on right bank
83	Munster Blackwater	Machanna Bridge	153126	87462	4	High	High	Medium	Low	Medium	Low	Low	Medium	High	Storm drain on left bank
0	Munster Blackwater		152552	90605	1										Quarry photographs
0			152552	90605	2										Quarry photographs
0			152552	90605	3										Quarry photographs
0			152552	90605	4										Quarry photographs
0			152552	90605	5										Quarry photographs
0	Munster Blackwater		159655	1190	1										Entrance to John Woods Quarry in Mallow
84	Munster Blackwater	Ballyhooley - Blackwa	172898	98721	1	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Looking downstream from road bridge
84	Munster Blackwater	Ballyhooley - Blackwa	172898	98721	2	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Significant bridge apron underneath bridge
84	Munster Blackwater	Ballyhooley - Blackwa	172898	98721	3	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Reinforcement for bridge on right bank just downstream of bridge
84	Munster Blackwater	Ballyhooley - Blackwa	172898	98721	4	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Gabion baskets on left bank at bridge
84	Munster Blackwater	Ballyhooley - Blackwa	172898	98721	5	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Looking upstream from bridge
84	Munster Blackwater	Ballyhooley - Blackwa	172898	98721	6	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Scouring at left bank at bridge just downstream
84	Munster Blackwater	Ballyhooley - Blackwa	172898	98721	7	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Improved Grassland landuse
84	Munster Blackwater	Ballyhooley - Blackwa	172898	98721	8	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Reinforced right bank approx. 20m downstream from bridge
84	Munster Blackwater	Ballyhooley - Blackwa	172928	98766	9	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Tide flex valve on left bank at bridge
84	Munster Blackwater	Ballyhooley - Blackwa	172998	98532	10	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Ford crossing
84	Munster Blackwater	Ballyhooley - Blackwa	172998	98532	11	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Ford crossing
84	Munster Blackwater	Ballyhooley - Blackwa	172998	98532	12	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Downstream from Ford

84	Munster Blackwater	Ballyhooley - Blackwa	172998	98532	13	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Upstream from Ford
84	Munster Blackwater	Ballyhooley - Blackwa	172898	98721	14	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Slurry spreading on right bank in field set back approx. 20m from bank
85	Munster Blackwater		177743	98416	1	Medium	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	View upstream from start point
85	Munster Blackwater		177743	98416	2	Medium	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Vew downstream
85	Munster Blackwater		177743	98416	3	Medium	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	View across river to opposite bank
85	Munster Blackwater		177743	98416	4	Medium	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Small are of cattle poaching
86	Munster Blackwater		186417	99572	1	Low	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Significant poaching, trampling on drainage channel which runs parallel to main channel of Munster Blackwater
86	Munster Blackwater		186417	99572	2	Low	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Gas Pipeline construction works
86	Munster Blackwater		186417	99572	3	Low	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Concrete settlement ponds
86	Munster Blackwater		186417	99572	4	Low	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Pipeline construction on other side of river
86	Munster Blackwater		186417	99572	5	Low	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Signage for building site
86	Munster Blackwater		186417	99572	6	Low	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	View downstream from pipeline access point
86	Munster Blackwater		186417	99572	7	Low	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	View upstream from pipeline access point
86	Munster Blackwater		186417	99572	8	Low	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Concrete settlement pond overflow
86	Munster Blackwater		186417	99572	9	Low	Medium	Medium	Medium	Low	Low	Low	Medium	Medium	Bord Gaid Signage R666
0	Munster Blackwater		115881	102385	1										Old abstraction pressure/Quarry
0	Munster Blackwater		119875	105077	1										Looking upstream from road bridge, very erodable, lowland

Appendix 3 – Catchment Walkover Risk Assessment Survey Sheet

	Present?		Grid Reference of specific pressure	No. of Photographs	Comments
	Yes	No			
Source of Erosion					
Bank erosion					
Land clearance					
In river clearance					
Arable ploughing					
Animal trampling					
Fords					
Channel manipulation					
Hard bank protection measures					
Other sources					
Overall Risk	High	Medium	Low		
Diffuse Nutrient					
Arable					
Grazing					
Improved grassland					
Slilage					
Forestry					
Housing					
Industry and associated works					
Other sources					
Overall Risk	High	Medium	Low		
Diffuse Silt					
Arable					
Grazing					
Over-grazing					
Improved grassland (Re-seeding)					
Forest					
Slilage					
Industry					
Construction stages					
Housing					
Infilling					
Peat cutting					
Quarries					
Other sources					
Overall Risk	High	Medium	Low		

	Present?		Grid Reference of specific pressure	No. of Photographs	Comments
	Yes	No			
Current Riparian Zone					
Fencing					
Buffer					
Tree line at bank					
Tree line buffer					
Plantation with no buffer					
Urbanisation					
Flood protection					
Marshy land					
Landuse at bank					
Other sources					
Overall Risk	High	Medium	Low		
Field Drainage					
Ditch managed					
Ditch unmanaged					
Drainage on high slope					
Drainage on low slope					
Land drainage (perforated pipes)					
Other sources					
Overall Risk	High	Medium	Low		
Outfalls					
Industrial discharges					
Storm drains					
Culvert outfalls					
Other sources					
Overall Risk	High	Medium	Low		
Abstractions					
Small					
Large					
Overall Risk	High	Medium	Low		
Barriers to migration					
Culverts					
Bridge aprons					
Weirs					
Stone weirs					
Other sources					
Overall Risk	High	Medium	Low		