

PROOF OF EVIDENCE: OTTERS

Geoff Liles

ON BEHALF OF

GWENT WILDLIFE TRUST

In the matter of:

Public Local Inquiry into the M4 relief road around Newport: the effects of the proposed M4 extension across the Gwent Levels

BIOGRAPHY

- 1.1 My name is Geoff Liles. I graduated with a BSc (Hons) in Ecology in 1979 and have been a leading otter ecologist, working on otter conservation & research for over 35 years. In 1979 I was appointed Regional Coordinator of the Otter Haven Project for the Vincent Wildlife Trust to establish and develop otter conservation in Wales. In 1989 the project became part of the Welsh Wildlife Trusts, the name changed to 'Otters in Wales', and I continued to work in the project as its Director until 1998.
- 1.2 During the 20 years that I led on otter conservation in Wales my work included: identifying & establishing priorities for otter conservation; otter & habitat surveys; practical habitat management for otters; setting up, training & managing otter conservation volunteer groups; research on otters & otter conservation techniques; liaising with a range of organisations & individuals (e.g. Countryside Council for Wales [CCW], Environment Agency Wales [EAW], farmers, anglers) to provide conservation policy advice. I pioneered river catchment surveys & management plans for otters on the Conwy (1995a), and later on Meithryn Mynydd (1998a) and Ogwr (1998b). In 1995 I produced the 'Conservation Strategy for Otters in Wales' as a guidance document for Environment Agency & CCW (Liles 1995b).
- 1.3 During this period I carried out the first national otter survey of (the then) Yugoslavia (Liles & Jenkins 1984); trained French & German ecologists in otter survey methods & conservation techniques; instigated otter post mortem research in Wales (now the Cardiff University Otter Project); was the conservation representative on the National Rivers Authority Regional Flood Defence Committee; representative for the UK Otters & Rivers Project (& Development Officer for the Wildlife Trusts' National Otter Plan); conservation representative for the Prince of Wales Committee; and vice chair of the (then) Dyfed Wildlife Trust.

- 1.4 In 1998 I set up The Otter Consultancy to concentrate on specific otter conservation issues (in the UK & Europe), and to develop wildlife consultancy work.
- 1.5 For the last 19 years my otter work has focussed on 8 priority issues for otter conservation, funded by the (then) CCW & EAW, European Life project, & Special Areas of Conservation (SAC) Relevant Authority Groups.
- 1.6 Of particular relevance to this enquiry is my work on three issues: otter road deaths; otter exclusion fencing; and otter breeding. Our investigations on otter road deaths in Wales identified the scale, trends & factors involved in otter road mortalities, the range of effective mitigation measures to reduce otter deaths, priorities for tackling the issue, and a strategy for implementing mitigation (Liles & Colley 2000, Liles & Colley 2001). The work highlighted the importance of the otter's use of 'short-cuts' as a significant factor in otter road deaths. As a result of our work the Roads & Otters Steering Group was set up in 2001 to coordinate action by Local Authorities (LAs), Highways Agencies, NRW, Wildlife Trusts & Welsh Government (WG). As part of the on-going work on otter road mortalities I carried out trials with captive otters to determine fence mesh size as a barrier to otters (Liles, 2008b). My work on otter breeding (funded by & part of the Life project 'Conserving Natura 2000 Rivers') established the habitat requirements for successful breeding, and a procedure for the identification & protection of Potential Otter Breeding sites (Liles 2003a). As a result the (then) CCW commissioned investigations on SAC catchments to identify potential breeding sites. I undertook surveys on the Teifi (Liles 2003b), Mawddach (Liles 2006a), Wye (Liles 2006b) & Afon Gwyrfai and the Dyfi Estuary (Liles 2006c) catchments, as well as follow-up surveys for NRW on the Teifi and Cleddau catchments to monitor site condition.

1.7 Other priority issues that have some relevance to the enquiry are: otter predation at still water fisheries (Liles 1999 and Trout & Liles 2004); and otter use of coastal environments in Pembrokeshire (Liles 2003c & 2008a) and Carmarthenshire (Liles 2010). A follow-up project is in progress to investigate otter travel between marine environments & fresh water systems, and male / female use of the coast, using DNA analyses of spraints.

1.8 I was a Mammal Society Council member from 1998 to 2002 and am a past member of CIEEM. I regularly advise and provide training to NRW and LAs (planning & highways) on otter ecology, conservation issues, and mitigation.

SCOPE OF EVIDENCE

2.1 The evidence that I provide at this stage will concentrate on an evaluation of the otter surveys undertaken by Arup in 2014 and RPS in 2015 "...to provide baseline ecological surveys to inform proposals for the M4 Corridor around Newport". (Arup 2014); information used to inform the choice of preferred route by WG; and the conclusions regarding impacts on otters for the Usk SAC and Gwent Levels.

2.2 At the time of writing detailed mitigation proposals for the M4 CaN scheme relating to otters are not available.

SUMMARY OF EVALUATION

3.1 My overall conclusion is that the likely impact of the proposed scheme on otters (as set out in the Environmental Statement) has been greatly underestimated because of serious failings in the otter surveys carried out in 2014 and 2015.

3.2 Both the Arup and RPS survey reports fail to provide even the most elementary baseline ecological information on otters. Serious short-comings are found in the

work carried out for the desk studies; survey methodology; and report contents. There is also an apparently poor level of knowledge about otter ecology and conservation, and survey techniques demonstrated by the surveyors / authors.

- 3.3 The proposed route cuts through, and affects, many water habitats. Otter activity across the length of the route is likely to be complex, with otters travelling between, and using, all types of water habitat at different times of the year. Potential impacts on otters and their habitats are likely to be significant, and can only be fully understood with reference to specialist knowledge of otter ecology and detailed field surveys (as described in DMRB HA81/99).

DETAILED EVALUATION

- 4.1 My detailed evaluation is focused initially on the two otter surveys and their failure to provide even the most basic ecological data on otters, on which all other deliberations (i.e. impact of the scheme on otters, and effective protection and mitigation measures) must be based. In addition, I consider the information collected during the desk study; the methodology for field surveys; results of surveys; and conclusions drawn. The Arup 2014 survey established the methodology for investigations and is considered first. Numbers at the start of each section and text in italics refer to paragraphs in the Arup 2014 survey. I then consider the choice of preferred route, and the WG assessment of the likely impacts on otters of the road with reference to the Usk SAC and Gwent Levels.

Review of M4 CaN Otter Survey 2014 (Arup)

Desk Study

- 4.2 2.1. *“Previous data for the 2007/8 survey for the ‘New M4 Project’ were reviewed & data from SEWBRcC.”*

At the time of writing I have not seen previous data for the 2007/8 survey by Arup (in spite of requests to Arup for the information). From their 2014 report it appears that the only information that Arup found in their desk study was their 2007/8 survey data and the data from SEWBRcC.

For the purposes of this review I carried out my own desk study. My desk study revealed 7 reports of otter surveys /investigations with data relevant to the proposed scheme, including locations & descriptions for a potential breeding site, resting and feeding sites, and otter mortalities. Locations of key sites found during my desk study are shown in Figs 1a & 1b. None of these survey reports were considered by Arup, even though one of the reports was produced by Arup themselves, and includes descriptions of resting sites that are on and adjacent to the preferred route (Arup 2011). Important otter information, including the locations of potential breeding sites & resting sites, is also found in ecological surveys for: the Docksway Disposal Site (Hughes 2004); Reconstruction of entrance jetties, Newport Docks (Liles 2001); Newport Urban Otter Habitat (Just Mammals 2006); Llanwern Steelworks Redevelopment (Halcrow 2006); and Newport UDP Growth Options Ecological Assessment (Capita Symonds 2004). Details of otter deaths in the area are found in the Otter Road Mortality Database (Cardiff University 2016); and Tesco Distribution Centre otter mitigation options (Liles 2007). The SEWBRcC data include large numbers of otter records (mainly spraints & prints), sightings, records of a female with young cubs, otter mortalities, and possible resting sites. Included in the SEWBRcC data are the otter records provided by GWT that were collected during their Magor water vole raft project. Distribution of these records is shown in Fig 4. No follow-up investigation was carried out on these data, and they do not appear in the results section of the report.

Figs 1a & 1b.

Locations of Potential Breeding sites (PBS) & resting sites (RS) found during other ecological surveys, but not discovered by Arup during their desk study. Numbers in parenthesis refer to the numbered surveys listed below:

- 1 Hughes, 2004
- 2 Liles, 2001
- 3 Just Mammals, 2006A
- 4 Arup, 2011
- 5 Halcrow, 2006
- 6 Capita Symonds, 2004

Fig 1a. Numbered areas (1 to 3) covered by survey reports; Breeding & Resting sites.

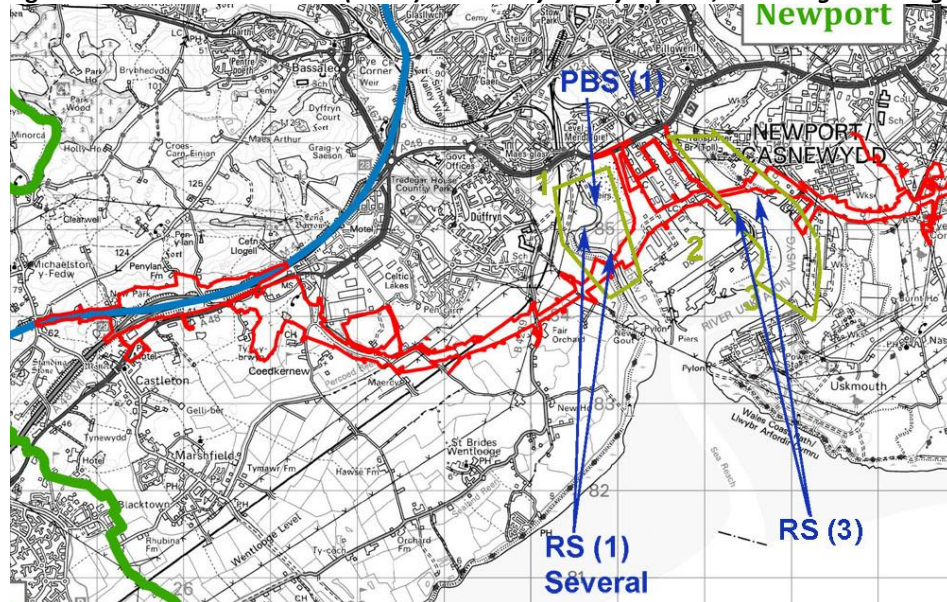
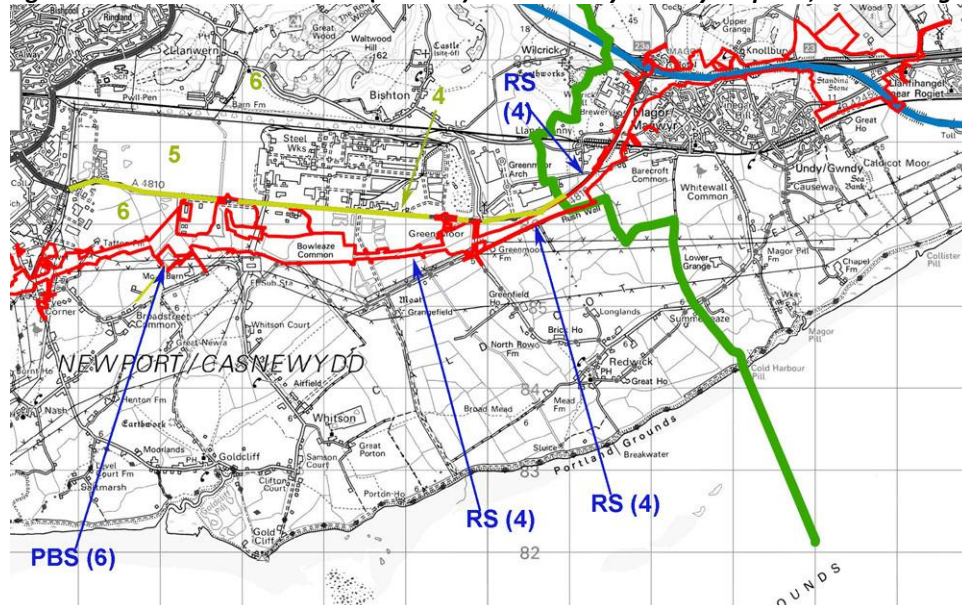


Fig 1b. Numbered areas (4 to 6) covered by survey reports; Breeding & Resting sites.



otters were travelling. And more important, because otters often use established travel routes, they can help to indicate present otter travel routes.

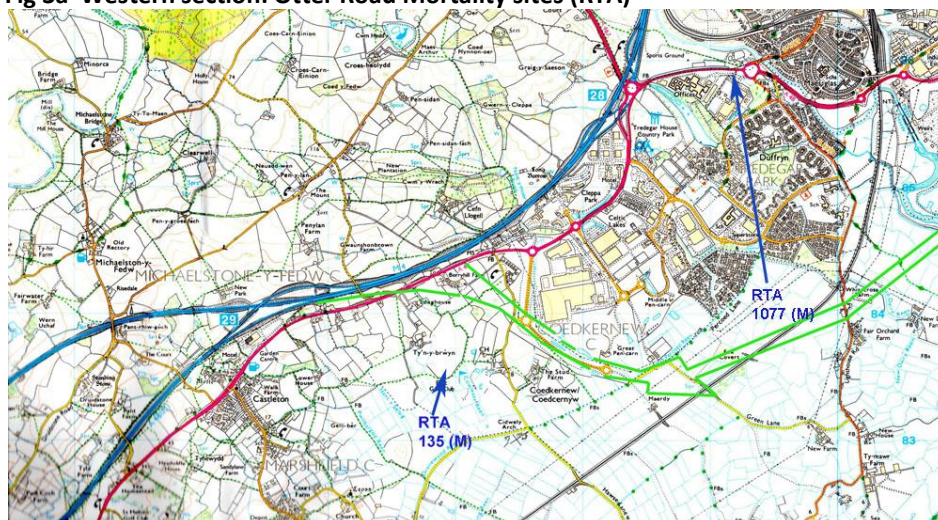
4.5 Otter RTA960 is a lactating female found in 2006. If Arup had been aware of this record their survey effort in this area could have focussed on searching for a potential breeding site.

4.6 Otter RTA2426 demonstrates the need for surveys to be undertaken by otter specialists (DMRB AH 81/99). This male was killed on the Steelworks Access Road on 26/3/2014. An otter survey was carried out on this road by Arup in 2011 as part of an environmental statement for the upgrading of the road (Arup, 2011). No otter signs were found by Arup, and so mitigation measures (e.g. an otter tunnel and otter fencing) were not included in the scheme. Otters actively seek out ponds and lakes as feeding sites, and it is predictable that otters will attempt to cross the A4810 at this location.

Figs 3a & 3b.

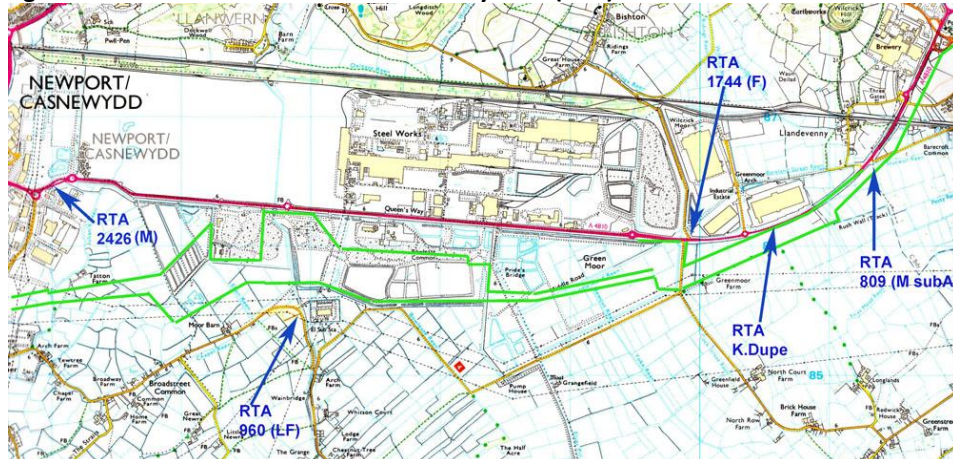
Locations of otter road mortality sites (RTA) with Cardiff University reference numbers.

Fig 3a Western section: Otter Road Mortality sites (RTA)



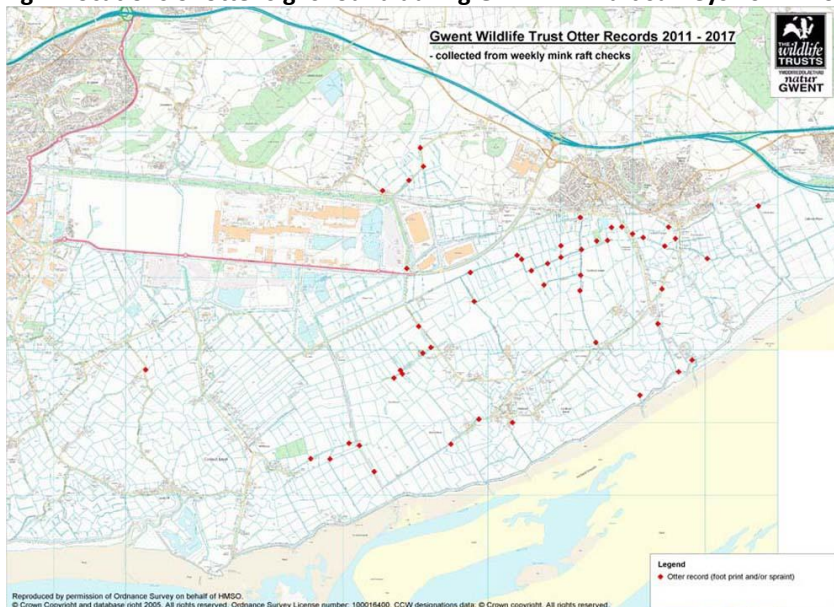
Key. RTA: otter road mortality site. In brackets – M = Male; F = Female; LF = lactating female

Fig 3b Eastern section: Otter road Mortality sites (RTA)



4.7 Records of otter signs found during the GWT water vole project raft monitoring on the Levels (Fig. 4) provide useful background information. Whilst it is not a systematic 4-season survey the data suggest that otters utilise and travel through many watercourses within the Levels. Of particular interest are the otter signs on the ditch alongside the minor road at the eastern end of the steelworks at approx. ST398860 (also close to the location of an otter road casualty 1744) and those on connecting ditches just north of the steelworks. If otters are using this ditch system as a travel route, it could be one of the travel routes (together with Monks Ditch) that otters use to travel between the lower reaches of the River Usk and the Levels.

Fig 4 Locations of otter signs found during GWT mink raft surveys 2012 - 2016



Survey Methods (2014 survey)

4.8 1.3 *Study area was 500m around physical extent of scheme.* In view of the scale of the development, and the likely disturbance levels (during and post construction) the study area of 500m is correct.

4.9 2.2. *1442 water bodies were surveyed between April & October 2014.* The scope of the survey seems to cover all water bodies likely to be affected. However, only 1 survey per water body was carried out, and not surveys in each season. DMRB survey guidance states that “Surveys of the area for signs of otters & important habitat features, e.g resting sites & breeding areas, should begin at an early stage in the design process and these **surveys should be repeated every 3 months over the course of one year during the consultation & construction process**”. Otters are nomadic and occupy very large home ranges. ‘One-off’ surveys provide very limited information and should not be used to draw conclusions about: presence / absence of otters; how otters use water habitats within the area; likely impacts on otters; and mitigation measures that are required to protect otters & their habitats.

4.10 2.2 *Surveyors combined otter surveys with water vole surveys.* Detailed otter & water vole surveys should not be undertaken together. Methodologies for water vole & otter surveys require very different skills and approaches. Whilst it is possible to find otter signs (e.g. spraints & prints) on an *ad hoc* basis during water vole surveys, locating otter breeding & resting sites; feeding sites & travel routes (including short-cuts) requires a single-minded, focussed & detailed search method. DMRB HA 81/99 states that “Competent assessment work is critical to the success of any mitigation efforts. All surveys should be conducted by experts in otter ecology & survey techniques”.

4.11 2.2.1 *Methodology based on Chanin, 2003 & Crawford, 2003.* The Chanin 2003 & Crawford 2003 documents do not provide guidance on otter survey methodology. (Chanin 2003 describes otter ecology, whilst Crawford 2003 outlines findings of the fourth Otter Survey of England). As a minimum, Arup should have used DMRB Volume 10 Section 1 Part 9 HA 81/99 as their primary source of guidance, with “*Otters: Guidelines for developers*” (Countryside Council for Wales 2009), *Nature Conservation and Roads: Advice in relation to otters* (Grogan *et al* 2001) and guidance on locating and identifying otter breeding sites (Liles 2003a).

4.12 Arup’s methodology for otter surveys is totally inadequate in many respects including: the failure to carry out a thorough desk study; combining otter surveys with water vole surveys; the use of a ‘one-off’ survey instead of 4 seasonal surveys; a lack of rigour in the identification and recording of breeding, resting & feeding sites; the failure to include a search for otter travel routes, in particular, overland ‘short-cuts’; and a failure to consider and record potential mitigation measures during surveys.

4.13 2.2.1.1 *Authors describe ‘Resting areas as ..’usually referred to as either a holt (usually a hole in the ground covered by vegetation or under the roots of a bankside tree) or a couch (an uncovered laying up or nest like structure” *.* The authors’ descriptions of protected sites demonstrate a lack of understanding & knowledge of otter ecology and survey experience. Protected sites are Resting Sites (not Resting areas) & Breeding Sites. Whilst the word ‘holt’ is often used for roots of a bankside tree, “..a hole in the ground covered by vegetation..” does not describe the typical underground resting site. Also, there are several other features used by otters as enclosed (or holt-type) resting sites, including timber & rock piles; hollow trees; cavities in walls; & under slabs of concrete. None of these important

sites were mentioned.

* The descriptions given by the Arup authors are taken from Chanin 2003.

However, Chanin uses these descriptions to describe how these sites have been referred to in the past, rather than scientific descriptions of otter resting sites.

They also say that *“Natal dens are usually found away from the coast..”*.

Natal dens are not *“...usually found away from the coast..”* Many natal dens are situated on the coast (Kruuk 1995, Moorhouse 1988).

4.14 2.2.1.2 *Habitat Suitability Assessment – otters. Surveyors recorded otter signs (for presence / absence), and “Habitat Suitability”. Habitat Suitability was used to “...indicate how likely otters are to use a site given the present habitat condition.” Suitability was measured as ‘High’, ‘Moderate’, ‘Low’ & ‘Negligible’. Water courses judged as ‘High Habitat Suitability’ were those with “...fast to moderate flow velocity and more than 1m deep” because “...it is considered here that larger, deeper watercourses with moderate to fast flow will provide a more plentiful food source”.*

A major problem with the Arup Methodology is that no attempt is made to describe how surveyors should search for, identify and record sites protected under the Habitats Directive (breeding & resting sites), feeding sites and travel routes (including short-cuts). Key otter sites (protected & feeding sites & travel routes) should have been described in detail, identified by 10 figure grid references, photographed, and locations marked clearly on maps. The importance of finding and protecting these sites is highlighted in the DMRB survey guidance: “Otters use different types of features for shelter. These could be natural or man-made and are an important component of good habitat. Any such features should not be removed without consultation with...the relevant statutory body”.

The use of 'Habitat Suitability' (especially as outlined by Arup) to indicate how likely it is for otters to use a site is fallacious. There are very many watercourses flowing through towns & cities that are shallow, slow flowing, disturbed, littered with supermarket trolleys that would be 'Negligible suitability' according to Arup, and that are actually vital and frequently used otter travel links (e.g. between main rivers and tributaries). In the Arup report, dry watercourses are considered to have 'Negligible Habitat Suitability'. Chanin 2003 (whose survey guidance the authors apparently followed) rightly points out that "otters use dry watercourses as regular routes". The Arup authors state that "Habitat suitability is a subjective measure" (2.4 Limitations and Assumptions). Yes, quite correct. The Arup surveyors should have been searching for specific features / sites that are, or could be, used as breeding or resting sites. Again, the guidance in DMRB HA 88/91 is relevant: "It is important to recognise any water course, water body or wetland as a habitat and wildlife corridor and that all these areas have potential as otter habitat. It is also important not to create barriers to the re-colonisation of habitat by otter populations."

Results (2014 survey)

4.15 3.1 *Desk study results show records of field signs (for presence of otters), and that eleven dead otters are within the study area.*

As shown from my desk study (in 4.2 to 4.5 above) the locations of several potential breeding sites & resting sites, & feeding sites are already known, located and described in past survey reports. It is a major failing that the Arup desk study failed to find (and act on) these sites. As potentially important sites they should have been investigated during the 2014 Survey and mapped if extant.

4.16 3.2.2 *Otter Field Signs. Found on 18 of the 998 water bodies surveyed. Table 3 shows types of otter signs found. At 3 water bodies (numbers 944, 650 & 747) 'Laying up' is recorded.*

Surveys were based on a 'one-off' survey (rather than 4 seasonal surveys) and results are of little use as nothing can be concluded about otter use of the water habitats along the proposed route. Although Table 3 refers to 'Laying up' there is no reference to them in the text and so no detail of what this means. Are they resting sites? Or some evidence that an otter has curled up to sleep? If they are resting sites they should have been fully described, photographed, located using a hand-held GPS, and mapped.

4.17 3.2.3 *Habitat suitability for Otters. The majority of water bodies (a total of 780) were assigned low or negligible suitability.*

As stated above (in 4.11) the assessment of habitat suitability for otters is fallacious. Of particular concern is the absence of any reference to finding Potential Breeding Sites. One of the Potential Breeding Sites that I found during my desk study (in 4.2 above) and described during surveys by Capita Symonds for the Newport UDP Growth Options Baseline Ecological Assessment (2004) is Water body 1290 in the Arup report. 1290, as recorded in the Capita report, is a pond with dense scrub & reedbeds. In the Arup report, ditches adjacent to it are numbered 1339, 534, 1175 & 516. Inexplicably, there is no mention of the 1290 pond in the Arup text, nor mention of the ditches surrounding it.

Some water bodies were not assessed due to dense vegetation making the water body inaccessible.

In fact, dense vegetation is exactly the habitat that should have been surveyed particularly carefully because many resting sites are in dense scrub thickets. In addition, if water bodies are inaccessible for surveys it is likely that they are

undisturbed areas and therefore of even more potential value to otters.

Places that might be resting sites are mentioned in the text, but with vague descriptions such as: “*good refuges*” (e.g. water habitats 332, 333); or “*..vegetation in the vicinity which otter could use for cover*” (e.g. 317, 320, 321, 686); or “*suitable habitat*” (e.g. 451, 469, 465). Watercourse 419 is described as a “*..damp ditch amongst dense woodland could provide habitat for laying up and a holt*”. If these are resting sites they are legally protected from damage & destruction, and from disturbance for the otters using them, and should be shown on a map, with detailed grid references, and highlighted so that they can be protected.

Conclusions (2014 survey)

4.18 4.1 “*Otter signs were recorded across the majority of the study area. In the study area otters are finding a niche amongst the industry, housing and farming, utilising suitable habitat which has good water quality, prey availability and provides cover*”. Utterly bland statements that could have been written without the Arup survey being carried out. And worse still, important information from past surveys, on locations of potential breeding sites and resting sites, and information from road mortality data and otter sightings, is either not mentioned, or not used.

One of the conclusions that could have been drawn from the Arup survey is that, because otter populations appear to be at a low density in the study area (as recorded in the Statement to inform appropriate assessment 5.2.83), the creation of a new road is likely to pose a significant risk to otters. DMRB HA 88/91 states that: “Otter populations with low densities will be most at risk through road casualties.” DMRB guidance also states that “It is also important not to create barriers to the re-colonisation of habitat by otter populations”. This is particularly important because otter populations are known to be expanding in this part of Wales (Strachan, 2010).

The conclusions section of the Arup report should have addressed the potential impacts on protected sites, otter travel routes, otter breeding activity, and direct threats to otters, so that the impacts of the proposed scheme can be properly assessed and precise, detailed recommendations produced for their protection. The conclusions provided by Arup do not address any of these vital issues.

Recommendations (2014 survey)

4.19 4.2 *“..where otters..are likely to be affected, mitigation and/or compensation, should be incorporated into the design of any scheme”.*

The presence of otters (and water voles) was an established fact well before Arup carried out their surveys. Unfortunately the Arup otter surveys have added nothing to an understanding of the otter issues in relation to the proposed scheme. In the introduction to the 2014 survey report the authors state that Arup has been commissioned “..to undertake baseline ecological surveys to inform proposals for the M4 Corridor around Newport”. The Arup investigation fails to provide any of the ecological information on otters needed to inform proposals for the scheme.

4.20 4.2 *“...an additional survey during the spring/summer...would allow for a more thorough understanding of how water voles and otters use the water bodies throughout the year”.*

There are two points to make: first, one more survey will not provide a more thorough understanding of how otters use water bodies throughout the year – to do that requires surveys in each season through the year. Second, given the fact that they were supposed to carry out baseline ecological surveys to inform proposals, the methodology for this Arup survey should have been based on 4 seasonal surveys from the outset.

Review of M4 CaN Otter Survey 2015 (RPS)

Desk Study

4.21 2. Authors outline the 2014 survey.

Other than reference to the 2014 survey no mention is made of any desk study.

Requirements for Further Survey (RPS 2015 survey)

4.22 2.4 The authors state that the focus of the 2015 survey should be on those areas where survey had not previously been possible for access reasons (based on a decision by NRW at a 30th Jan 2015 meeting).

The 2014 report recommendation for an additional seasonal survey was ignored.

Instead the 2015 survey looked at the 58 water bodies not surveyed in 2014.

4.23 2.4.2 NRW commented (in the 30/1/2015 meeting) that "...a very comprehensive survey effort had been expended in those areas where access had been possible in 2014, and that this had covered the entire width of the survey corridor".

In fact, the 2014 survey was "comprehensive" only in respect of the number of water bodies covered. The investigation itself – the desk study, survey methodology & data collected – was far from "comprehensive", and was totally inadequate.

4.24 2.4.3 It was concluded (presumably by NRW) that the 2015 survey would only be required 100m either side of the alignment footprint on suitable watercourses.

This seems a strange decision because the impact of the scheme on the 58 watercourses would be, I assume, similar to the impacts suffered at the other 998 water bodies searched in 2014, in which 500m was searched.

4.25 2.4.3 NRW noted that there was a known otter holt within the Docks Way Landfill.

In fact a few holts, as well as a breeding site are known at the Docks Way Landfill (Hughes 2004a&b) and all are adjacent to the preferred route (Fig 4). There is no reference to these holts in the RPS report.

The 2016 Supplement of the ES, Section 4.6.38 states that an otter survey was carried out at the landfill site during 2016 and that, because areas of potential value to otters have been infilled “*..it is unlikely to have potential for a maternal or nursery holt due to the level of disturbance and limited vegetation cover*”.

This may be the case. However, based on the poor quality of the previous surveys (2014/2015), it is not possible to have any confidence in this conclusion.

Moreover, the 2016 survey looked only at the possibility of there being a breeding site and did not consider the resting sites (because they had not been identified by Arup during the inadequate desk study). Although changes have taken place within the landfill site, the aerial view from 2014 (Fig 5) shows that cover still exists along the river edge *where the resting sites were found by Hughes*.

Fig 5 Docksway Landfill site – aerial view 2014



Survey Methods (RPS 2015 survey)

4.26 3.2.3 The survey method is the same as that used for the 2014 survey.

Results (RPS 2015 survey)

4.27 4.2.1 No field signs were found during the survey. However, as stated above, a 'one-off' survey for otters is of little value.

Discussion (RPS 2015 survey)

4.28 5.2.1 The authors have used the same wordy & imprecise language for describing findings as that used in the 2014 report.

4.29 5.2.3 *In the Coedkernew area "...development of a new cycle path was underway...and this may have increased disturbance in this area, possibly accounting for the lack of otter signs found in the area".*

This suggests a limited understanding otters & disturbance. The development of a new cycle way would be unlikely to disturb otters sufficiently to stop them travelling through the area, especially bearing in mind that development work was carried out during daylight hours (Katie Godfrey, pers comm.) and otters will travel through at night.

4.30 *Annex A: Habitat Suitability for otters. Under the column 'Waterbody characteristics' 10 of the numbered waterbodies are described variously as having: "suitable holts & lying up areas", "shelter & lying up areas", ideal environments for holts & lying up", "optimal lying up areas", suitable shelter for otters", "ideal area for holts & lying up".*

If these are otter resting sites (whether described as 'holts' or 'lying up sites') they are protected sites and should be described, identified by 10 figure grid -references, photographed and locations marked on maps.

CHOICE OF PREFERRED ROUTE

- 5.1 The Welsh Government published their preferred route in July 2014. As far as I am aware no detailed otter investigations of the area were undertaken before the choice was made. The Arup 2014 survey was intended “...to provide *baseline ecological surveys to inform proposals for the M4 Corridor around Newport*”. But the report of otter survey findings was published in January 2015, after the preferred route was chosen. (In fact, because of the failure of the 2014 and 2015 otter surveys to produce any of the required baseline ecological data on otters, neither of these studies would have been helpful in the choice of route).

The DMRB Volume 11 covers the procedure for an Environmental Impact Assessment (EIA) as it relates to highway developments. A comprehensive description of the EIA in relation to otters is given in Grogan *et al* (2001), Chapter 5 Mitigation techniques, includes details of the three stages that must be followed in an ecological assessment. In Stage 1 a desk study is used to examine route corridors and to identify constraints. Potential otter habitats should be identified so that the impacts on otters of each potential route can be assessed & compared. In Stage 2 an otter specialist should be involved to undertake surveys, provide details of otter activity along the proposed routes, the likely impacts on otters, and recommendations for route alignment. Stage 3 requires a more detailed study to assess the extent of the potential impacts of the preferred route. It appears that the normal procedure for the EIA has not been followed.

- 5.2 The proposed M4 around Newport is a major development with far-reaching and substantial potential impacts on otters. The choice of preferred route, and indeed the decision whether a road should be built at all, must be based on a detailed investigation into the likely impacts on otters.

ENVIRONMENTAL STATEMENT: IMPACTS ON OTTERS

- 6.1 In the ES Supplement Vol 3. Appendix S10.8, Table R10.19 provides a “Summary of Likely Environmental Effects on Ecology and Nature Conservation” (Revised). September 2016. The authors focus on “*Reens, ditches, reedbeds and ponds*” in relation to otters. Likely impacts are given for: ‘*Land Take – Habitat Loss*’; ‘*Construction Phase – Habitat Loss/Fatality/Pollution/Disturbance*’; and ‘*Operational Phase – Severance/Pollution*’. The significance of effect with mitigation is, for each in turn: “*Slight*”, “*Slight/moderate & Neutral for disturbance*”, and “*Slight/moderate*”. In EIA terms the conclusions are that, for both the construction & operational phases, impacts are “*Significant*”.

It is not possible to assess the likely impact on otters of the proposed road scheme because both the Arup 2014 and RPS 2015 otter surveys fail to provide even the most elementary baseline ecological information on otters. For example, an assessment of the impact that ‘*Habitat Loss*’ might have on otters requires detailed information on the locations and descriptions of breeding, resting and feeding sites. This information does not exist. For an assessment of ‘*Fatality*’ a detailed understanding of where and how otters travel through the area is needed, including the important overland ‘short-cuts’ that otters use. Details of otter travel routes were not recorded during the 2014 and 2015 surveys. It is noticeable that impacts for otters are considered only in relation to “*Reens, ditches, reedbeds and ponds*” with no mention of open land. I suspect that, when assessing the impact of fatalities, the authors have wrongly assumed that otters always travel along watercourses and that the provision of culverts at watercourse crossings will reduce the occurrence of fatalities. Whilst it is possible to use otter fencing with a crank along the entire length

of the road, unless fencing directs otters to underpasses installed on existing otter 'short-cut' paths, mitigation cannot be considered to be effective.

- 6.2 In “*Operational Phase*” only ‘*Severance*’ and ‘*Pollution*’ are considered as impacts to otters. What is omitted here is the likely impact of disturbance. Any changes to land use that introduces or increases disturbance to a previously undisturbed area, or at otter breeding and resting sites, is likely to have a significant, long-term impact on otter use of the site. Please refer to the Gwent Wildlife Trust M4 Public Inquiry written statements on river pollution and water treatment and reed pollution for further consideration of the pollution issues.

Statement to Inform Appropriate Assessment

- 6.3 Page 59 of the “Statement to Inform an Appropriate Assessment under the Conservation of Habitats and Species Regulations 2010” (WG 2016) states that “*It is considered that otters from the River Usk SAC could also utilise habitat within the adjacent Gwent Levels and, therefore, loss of habitat from the Gwent Levels could impact upon individual otters from the SAC or individual otters that otters from the SAC could interact with*” (5.2.89). Shortly afterwards, in 5.2.92 it is stated that “*This assessment has taken the precautionary approach of considering that otters from the River Usk SAC could utilise the adjacent Gwent Levels; however, it should be noted that this is very much a worst case scenario, as the River Usk population is unlikely to use all of the area of the Levels that would be affected by the Scheme.*”

There is no evidence to support the claim that “*..the River Usk population is unlikely to use all the area of the Levels that would be affected by the scheme.*” In fact, it is highly likely that otters within the lower Usk and throughout the Levels travel between the two since otters occupy large home ranges, and many young animals disperse over very long distances. It is also possible that the lower Usk / Levels otters are part of the

same population. Cardiff University otter project holds tissues of otter road casualties from the lower River Usk and the Levels. As part of the otter investigations carried out by Arup it would have been possible for them to request genotyping studies on these tissues to determine whether relatedness exists between individuals.

6.4 If, as I suspect, otters from the lower Usk travel extensively throughout the Levels there are serious implications for the assessment of the potential effects on the SAC Conservation Objectives. Two of the favourable conservation status components described in 5.2.85 (WG 2016) are relevant here: *“No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success”* and *“The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat and underpasses, ledges, fencing etc. at road bridges and other artificial barriers”*. It is not possible to ensure that these two components / conservation objectives can be achieved, because of the absence of any information on the location of breeding sites and otter travel routes.

6.5 Section 5.2.90 refers to post-construction habitat replacement and states that it will be an *“...increase in habitats of potential value to otters including reens, field ditches, woodland, scrub and reed beds..”*. There are two important points here. First, because of the absence of information on the locations and types of habitat / features of existing otter breeding & resting sites, it is not possible to assess what habitats / features need to be replaced, or where they should be located. Second, *“potential value to otters”* is very vague. For habitat to be of potential value to otters it must have the right characteristics and be in the right place. Reed beds are mentioned as a habitat to be increased (9.9 ha). If as it appears, the created reed beds are in water treatment areas which will inevitably become heavily polluted, they are likely to present a safety and health hazard to otters.

- 6.6 Barriers to the movement of otters are considered in 5.2.94 (WG 2016). To overcome the barrier effect, “*..reens crossed by the M4CaN route would be retained and culverted using box culverts.*” In addition “*..dry mammal crossings/underpasses would be constructed at other locations..*” Otter underpasses can be effective only if they are installed at existing travel routes i.e. at otter ‘short-cuts’ and other overland travel routes. Unfortunately, as no information exists on overland travel routes from the Arup & RPS surveys, effective siting of underpasses for otters is not possible.
- 6.7 A discrepancy seems to exist in this part of the WG 2016 document. Whilst 5.2.94 suggests that all reens crossed by the M4CaN route “*..would be retained and culverted using box culverts*”, 5.2.95 refers to the retention and culverting of “*watercourses known to be used by otters*” to “*...enable otters to continue to use the same watercourses that they were recorded to be using in 2014..*”. If 5.2.95 is correct (and the focus for mitigation is on watercourses known to be used by otters) it must be pointed out that the surveys carried out in 2014 (& 2015) were inadequate (partly because they relied on a ‘one-off’ survey) and the true picture of the watercourses used by otters is not known. In fact, because otters are nomadic it is highly likely that many more watercourses are being used by otters than the small number recorded in 2014. Another important factor is that, because otter populations continue to expand, mitigation measures for otters would need to be designed for the entire length of the road (as a form of ‘future-proofing’) to prevent the road becoming a barrier to otter movement as they re-colonise new areas and population density increases.
- 6.8 5.2.111 outlines the protection zone of 70m for the potential holt (mentioned by NRW) on the Docks Way Landfill site. In fact, Michael Hughes, the ecologist who surveyed the Docks Way Landfill Site, recorded a potential Breeding site and a number of resting sites (Hughes 2004a&b). The Landfill site was not surveyed by Arup in 2014

(access to the site was not provided) so the status of the potential breeding site & resting sites is unknown. In view of the fact that an otter breeding site could be present on the Landfill site, a distance of 70m may be inadequate. In addition, the resting sites found by Hughes (one of which is very close to the proposed river crossing) is not mentioned. An additional survey of the Landfill site was carried out in 2016 (2016 Supplement to the ES, Section 4.6.38). As stated in paragraph 4.25 above, we can have little confidence in the results of this survey in view of the inadequate surveys out by Arup & RPS previously. In addition, this 2016 survey looked for only the breeding site, and overlooked the resting sites recorded by Hughes. The aerial photograph from 2014 (Fig 5 above) shows that cover along the river bank, where the resting sites were found by Hughes, appears to remain intact.

6.9 The mitigation section (starting with 5.2.124) outlines various measures, but does not include mitigation for overland 'short-cuts', or breeding sites.

6.10 5.2.125 states that: *"Additional dry mammal crossings/underpasses within other parts of the Gwent Levels (i.e. away from the River Usk but potentially within the territories of otters associated with the SAC) would be constructed at locations shown in EMP"*.

Please refer to my point 6.6 above. Mitigation measures for otters must be designed for the entire length of the road.

6.11 5.2.126 deals with the risk of injury to otters and an emergency procedure *"in the event of encountering an otter or potential rest/holt"* during construction works.

Because of the poor standard of surveys by Arup and RPS we cannot have confidence that all otter resting sites likely to be affected by the scheme have been identified and mapped. Once construction is underway it is highly unlikely that otter resting sites will be located in an *ad hoc* manner.

6.12 5.2.128 (Noise and vibration) during construction & operation, states that:

“Should a (potential) holt or young be located during construction, works in the vicinity (i.e. within at least 100 m of the holt, or as otherwise advised by the ECoW) would be halted until the ECoW is able to confirm recommencement of works would not create a significant disturbance to otters or cubs are mobile enough to relocate with the mother”. If a breeding female with cubs is disturbed as a result of construction works, and the cubs separated from mother, the damage will have already been done and the situation may be irretrievable. The correct way to ensure that holts, and more important, breeding otters, are not disturbed is by carrying out otter surveys along the route immediately before work starts. This is standard practice and avoids disturbance to otters happening in the first place.

6.13 5.2.128 also states that: *“Once construction has been completed, should an otter choose to breed in the vicinity of the new road it would be considered that the noise and vibration of the new road does not present a significant adverse deterrent and no further mitigation measures would be set in place.”* If habitat suitable for breeding is created (or survives) then the mitigation to ensure that otters can travel to/from the breeding site (& that might be a dry underpass with otter fencing), and protection for the site (e.g. appropriate fencing to keep out people & dogs) should have been put in place as part of the scheme design.

MITIGATION STRATEGY / CONSERVATION PLAN FOR OTTERS

7.1 At the time of writing, and days before the public inquiry is due to start, no detailed mitigation strategy or conservation plan for otters has been produced. If / when the otter mitigation / conservation plan is submitted, we reserve the right to add to or amend this submission.

**NRW RESPONSE LETTER (DATED 4TH MAY 2016) TO DRAFT ORDERS &
ASSOCIATED DOCUMENTS.**

8.1 We wish to draw attention to a number of issues raised by NRW in their response letter dated 4th May 2016, in response to the draft orders and associated documents for the M4 CaN scheme.

8.2 Under the heading of 'Protected Species' on page 4 of their submission they state:

'Regulation 3(4) of the Conservation (Natural Habitats, &c.) Regulations 1994 requires all competent authorities, in the exercise of their functions, to have regard to the requirements of the Habitats Directive, so far as they may be affected by the exercise of those functions.'

All species of bats, otters, dormice and great crested newt (GCN) are EPS, protected under the Conservation of Habitats and Species Regulations 2010 (as amended).

Where EPS are present and a development proposal is likely to contravene the legal protection they are afforded, a development may only proceed under licence issued by Natural Resources Wales, having satisfied the three requirements set out in the legislation. A licence may only be authorised if:

- ☐ *the development works to be authorised are for the purpose of preserving public health or safety, or for other imperative reasons of overriding public interest (IROPI), including those of a social or economic nature and beneficial consequences of primary importance for the environment;*
- ☐ *there is no satisfactory alternative; and*
- ☐ *the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range.*

It is essential therefore that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development is established, before a decision on the proposal is made by the Welsh Ministers in order that a full assessment of the likely impact of the proposals has been completed.'

It is quite clear that the information on otters and their habitats that is required to determine whether the scheme '*will not be detrimental to the maintenance of the population of the species concerned [otters] at a favourable conservation status in its natural range*', was not produced during the two major otter surveys carried out by Arup & RPS. In the absence of detailed information on otter activity & key habitat features it is not possible to assess the impact of the proposals on the otter and whether the scheme will affect the favourable conservation status.

8.3 On page 53 of NRW's letter dated 4th May, they state under the heading 'Otter':

'Evidence of Otter has been confirmed along the scheme, utilising the water courses within the Gwent Levels and the Rivers Usk and Ebbw.

We note that, to date, no breeding site or resting places have been confirmed to be present within the route corridor. However, we note that as outlined in Table 10.19, habitat severance, possible pollution incidents and disturbance are judged to be likely to have a significant impact upon otters. Therefore, we advise that more robust and species specific mitigation measures are put forward to reduce these impacts upon this species.'

NRW are basing this comment on the assumption that any breeding & resting sites that were present would have been found during the otter surveys carried out by Arup & RPS. In fact, the methodology for these surveys relied not on specific searches for these important sites, but on a broad (and vague) assessment of 'Habitat Quality'. As I have demonstrated, breeding and resting sites **have** been found along the proposed

route, during previous surveys for other developments (and including by Arup themselves), but these were not found during the Arup & RPS desk studies for the otter surveys.

We also wish to highlight with reference to this statement that robust species specific mitigation measures for the otter have **not** been put forward to reduce the impact of the scheme.

8.4 NRW also state on page 53:

'We welcome the intention to carry out preconstruction surveys for otter. Please note that the assessment of impact and corresponding mitigatory measures would need to be revised if at any point an otter holt is confirmed along the scheme.'

The proper role of preconstruction surveys for otters in any development scheme is to monitor otter activity at the breeding sites & resting sites **that have already been identified during the main otter surveys** (in this case, during the 2014 & 2015 surveys). Preconstruction surveys must not (and cannot) be used to carry out a check for sites that have been missed during the initial main surveys.

8.5 Finally, on page 53 NRW state:

'19.8.36-18.8.52 Likely effects on these species are not consistently summarised here. However we advise that we cannot rule out significant effects at this stage – due to land take, construction or operational phase impacts. We may be able to revise this view if the requested additional information (detailed conservation strategies) is able to adequately address our concerns.'

Yes, a detailed conservation strategy for otters is desperately needed. However, a meaningful conservation strategy can be drawn up only with a comprehensive understanding of how & when otters use all the water habitats that will be affected by the scheme, and key information such as location of breeding & resting sites, and

travel routes. As this information is not available, a meaningful conservation strategy for otters cannot be produced.

NRW response regarding the Appropriate Assessment

8.6 NRW state on page 16 (Annex 2) of their letter dated 4th May:

'Please note that the appropriate assessment regarding otter would need to be reconsidered should at any point, an otter holt, particularly natal holt, be identified along the scheme. Otter home ranges can be large and it is considered that individuals which utilize the Gwent Levels may be material to the Usk SAC. Therefore any evidence of a breeding site along the scheme should trigger an assessment of the impacts upon the otter feature of the River Usk SAC.'

NRW accept here that '*..individuals which utilize the Gwent Levels may be material to the Usk SAC.*' This completely contradicts statements in the Statement to Inform an Appropriate Assessment, and in particular the assertion in Section 5.2.92 that: '*...the River Usk population is unlikely to use all the area of the Levels that would be affected by the scheme*'. It is in my view, **highly likely** that otters in the lower Usk and throughout the Levels, travel between the two.

In the light of the inadequate information provided for the otter in the Environmental Statement, it is our view that the Statement to Inform the Appropriate Assessment is invalid.

CONCLUSION

9.1 There has been a failure properly to recognise the potential impact on otters of this proposed scheme at every stage in its development. Choice of the preferred route appears to have been taken without reference to otters; otter surveys by Arup & RPS that were supposed to provide information to assess the likely impacts on otters, and mitigation measures, were not adequate; and a mitigation strategy / conservation plan for otters is absent. A further implication of the inadequate otter investigations

carried out by Arup & RPS is that a credible Appropriate Assessment for the River Usk SAC (which includes the otter as a feature) cannot be undertaken because detailed information on otters & their habitats is absent. The failure to assess the otter impacts with any degree of adequacy also impact on the ability of the scheme to meet legislative commitments and requirements including the Conservation of Species and Habitats Regulations 2010 (as amended), the Wildlife and Countryside Act 1981 (as amended) and the Welsh Government commitments in the Environment (Wales) Act 2016.

REFERENCES

- Arup (2011). *Corridor Enhancement Measures. Steelworks Access Road Phase 2. Environmental Statement Volume 1*. Welsh Government.
- Capita Symonds (2004). *Newport UDP Growth Options. Baseline Ecological Assessment*. Newport City Council.
- Chanin, P. (2003). *Ecology of the European Otter*. Conserving Nature 2000 Rivers, Ecology Series No 10. EN, CCW, EA, SEPA, SNH & SNIFFER.
- Countryside Council for Wales (2009). *Otters: Guidelines for developers*. Countryside Council for Wales, Bangor.
- Crawford. (2003). *Forth Otter Survey of England 2000 - 2002*. Environment Agency.
- Grogan, A., Philcox, C., & Macdonald, D. (2001) *Nature Conservation and Roads: Advice in relation to otters*. Wildlife Conservation Research Unit, Oxford.
- Halcrow Group Limited (2006). *Llanwern Regeneration Site. Environmental Statement*. St. Modwen Developments Limited.
- Hughes, M. (2004a). *Docksway Disposal Site Phase 1. Ecological Risk Assessment of Designated Features*. Newport City Council.
- Hughes, M. (2004b). *Docksway Waste Disposal Site, Newport. (Otter) Licence Application to The National Assembly for Wales. Method Statement*.
- Just Mammals (2006). *Newport Urban Otter Habitat. A survey for Otter habitat along the River Usk in the City of Newport*. Newport City Council.
- Kruuk, H. (1995). *Wild Otters: predation and populations*. Oxford University Press, Oxford, UK
- Liles, G. (1995a). *River Conwy: A Catchment Management Plan for Otters (Lutra lutra)*. Environment Agency Wales.
- Liles, G. (1995b). *A Conservation Strategy for Otters in Wales*. Environment Agency Wales and the Countryside Council for Wales.
- Liles, G. (1998a). *The Meithrin Mynydd Project: Report on Surveys for Otter (Lutra lutra), mink (Mustela vison) and water vole (Arvicola terrestris)*. Brecon Beacons National Park.
- Liles, G. (1998b). *River Ogwr: A Catchment Management Plan for Otters (Lutra lutra)*. Environment Agency Wales.
- Liles, G. (1999a). *Otter (Lutra lutra) Predation at Still Water Fisheries: Guidance Notes for Advisors*. The Wildlife Trusts. Lincoln.

- Liles, G. (1999b). *Marches Woodland Initiative Otters (Lutra lutra) and otter habitats*. Forestry Commission.
- Liles, G. (2000a). *An audit of the otter (Lutra lutra) on the Gower Peninsula*. Environment Agency Wales.
- Liles, G. (2001). *Reconstruction of entrance jetties, Newport Docks: Otter (Lutra lutra) Impact Assessment*. Associated British Ports, Newport.
- Liles, G. (2003a). *Enhancing the status of the otter. Conserving Natura 2000 Rivers Conservation Techniques Series 5*. English Nature, Peterborough.
- Liles G, (2003b). *Current and Potential Distribution, Condition and Breeding Success of the Otter in the Afon Teifi catchment area*. Countryside Council for Wales (Bangor).
- Liles, G. (2003c). *Otter (Lutra lutra) activity and habitat availability on the Pembrokeshire coast and Daugleddau estuary, within the Pembrokeshire Marine SAC*. Countryside Council for Wales, Pembrokeshire Region.
- Liles G, (2006a). *Current and Potential Distribution, Condition and Breeding Success of the Otter in the Afon Mawddach catchment area*. Countryside Council for Wales (Bangor).
- Liles G, (2006b). *Current and Potential Distribution, Condition and Breeding Success of the Otter (Lutra lutra) in the River Wye SAC and catchment (within Wales)*. Countryside Council for Wales (Bangor).
- Liles G, (2006c). *Current and Potential Distribution, Condition and Breeding Success of the Otter (Lutra lutra) in the Afon Gwyrfa and the Dyfi Estuary*. Countryside Council for Wales (Bangor).
- Liles, G. (2006d) *Rhododendron clearance: Recommendations for reducing the impact on the otter (Lutra lutra)*. CCW Regional Report CCW/NW/06/3
- Liles, G. (2008a). *Otter (Lutra lutra) activity on the open coast & islands within the Pembrokeshire Marine SAC*. Pembrokeshire Marine SAC Relevant Authorities Group. Milford Haven.
- Liles, G. (2008b). *An investigation into fence mesh sizes and their ability to act as a barrier to otters (Lutra lutra)*. Transport Wales, Welsh Assembly Government (unpublished).
- Liles, G. (2010). *Otter (Lutra lutra) activity within the Carmarthen Bay and Estuaries Special Area of Conservation*. Carmarthen Bay & Estuaries EMS Relevant Authorities Group, Swansea.
- Liles G. & Colley R, (2000b). *Otter (Lutra lutra) road deaths in Wales: Identification of accident blackspots and establishment of mitigation measures*. Environment Agency Wales.
- Liles, G. & Colley, R. (2001). *Otter (Lutra lutra) Road Mortalities: A Procedure for the Implementation of Mitigation Schemes*. Environment Agency Wales.
- Liles, G. & Jenkins, L. (1984). *A field survey for otters (Lutra lutra) in Yugoslavia*. J. Zool., Lond., 203, 282-284
- Moorhouse, A. (1988). *Distribution of holts and their utilisation by the European otter (Lutra lutra L.) in a marine environment*. MSc thesis, University of Aberdeen.
- Strachan, R. (2010). *Otter Survey of Wales 2009-10. Technical Summary*. Environment Agency.
- Trout, R. & Liles, G. (2004). *The use of fencing to prevent access by otters to fisheries*. The Environment Agency, Bristol.
- Welsh Government (WG). (2016). *M4 Corridor around Newport. Statement to Inform an Appropriate Assessment under the Conservation of Habitats and Species Regulations 2010*. Welsh Government. Cardiff.