

## **SECTION 8**

### **HYDROLOGY AND WATER QUALITY**

#### **8.1 Introduction**

- 8.1.1** There has been a proposal to develop a sustainable community at Cambusmore, to the east of Aviemore in the Rothiemurchus estate. This phased scheme will result in the development of approximately 1,500 homes by 2029. Located alongside the River Spey the main site area (centred at Grid Reference NH 910 125) covers approximately 103 hectares and will include associated infrastructure.
- 8.1.2** The development site lies within the Cairngorm National Park boundary near the foothills of the Cairngorms. The River Spey bounds the site to the north and west whilst the River Druie runs to the south-west of the site before it joins the Spey. The Spey is a designated Special Area of Conservation (SAC) as well as a Site of Special Scientific Interest (SSSI).
- 8.1.3** The Hydrology and Water Quality Chapter will assess the impact of the proposed housing development at Cambusmore on surface water, groundwater and water quality. The assessment of the proposed development on flood risk will be considered separately as a reference document in the appendix of the Environmental Impact Assessment (EIA) and the impact on the ecology will be considered in a different chapter.

#### **8.2 Legislation/Planning Framework and Guidenec of Water Resources**

- 8.2.1** The assessment of the hydrology and water quality will be undertaken in accordance with the following legislation:

#### **8.3 International Legislation**

- 8.3.1** WFD - The Water Framework Directive 2000/60/EC (WFD) is a new piece of European Legislation which sets out to safe guard aquatic ecosystems and to enhance water quality. At the same time the WFD aims to promote sustainable use of water resources and ensure progressive reduction of groundwater pollution. All water bodies must reach 'good' ecological and chemical status for all inland and coastal waters by 2015. Hevily Modified Water Bodies must reach good ecological potential by 2015.

## 8.4 Local Policy

**8.4.1** CNPA - The Cairngorm National Park Local Plan Deposit includes a proposal for a new community at Cambusmore. The Local Plan identifies an indicative settlement boundary for the site, within which an expected 1,500 homes are to be developed. The Local Plan Deposit states that: “the development of An Camas Mòr will comply with the policies of the Local Plan” and “permission for development will only be permitted if the planning authority is satisfied that proposals have been designed to avoid and minimise effects on the environment, mitigate any significant effects, and that the development would not adversely affect the integrity of the River Spey SAC”.

## 8.5 Data Sources

**8.5.1** The following data sources are being collated to establish the baseline conditions at the site:

- Catchment characteristics for the two main watercourses; The River Spey and the River Druie (FEH);
- Topographic survey data for the site;
- Information regarding sewers, sewer outfalls, pressurised mains and assets owned by Scottish Water (SW);
- Baseline water quality information for the River Spey and the River Druie;
- Data from SEPA (Scottish Environment Protection Agency) and the Highland Council regarding licensed abstractions and known water users in the vicinity of the site;
- Data from SEPA and the Highland Council regarding licensed discharges in the vicinity of this site;
- Information regarding protected water zones;
- Information from SW regarding the ability of the water and wastewater treatment works to treat the extra capacity from the proposed development;
- British Geological Survey, Sheet 94, Solid and Drift Geology, 1:63360;
- Hydrogeology Map of Scotland, 1:625000, and;
- Groundwater Vulnerability Map for Scotland.

## 8.6 Baseline Conditions

## Surface Water Hydrology

- 8.6.1** The proposed site is bounded by the River Spey to the north and west and the River Druie to the south-west. The confluence of the two rivers lies at the south-west corner of the development. The catchment area of the River Spey, upstream of the confluence is 1069 km<sup>2</sup>. The River Druie, which then joins the River Spey, has a much smaller catchment area of 119 km<sup>2</sup>. Downstream of the confluence at Boat of Garten (NH 946 191), the mean flow is 29.03 m<sup>3</sup>/s.
- 8.6.2** The overall site for Cambusmore is 100 hectares of which 90 have been designated for the housing development. The land use of this area is currently commercial forestry and rough moorland which allows infiltration to occur and slow the velocity of surface runoff. The remaining 30 hectares which lies to the south of the site (adjacent to the River Spey and River Druie) and is mainly comprised of mature woodland.
- 8.6.3** SEPA has identified two known water abstractions within the area held by the Rothiemurhus Estate.
- 8.6.4** The current risk of flooding from surface water will be assessed in the Flood Risk Assessment.

## Groundwater Hydrology

- 8.6.5** The site of the proposed housing development is underlain by fluvio-glacial sands and gravels. Areas adjacent to the main watercourses, where the distributor roads have been planned, are underlain by freshwater alluvium (current river terrace). It has been reported that winter groundwater levels in these areas can rise to 1 m below ground level when river levels are high.
- 8.6.6** The hydrogeological map identifies the lithology of the area as impermeable, generally without groundwater except at shallow depth.
- 8.6.7** The site does not lie in a nitrate vulnerable zone however the shallow nature of the groundwater does put it at risk from diffuse and point-source pollutants.
- 8.6.8** The current risk of flooding from groundwater will be assessed in the Flood Risk Assessment.

## Water Quality

- 8.6.9** Water Quality data is available from SEPA for the River Spey and the River Druie. The classification network is divided into river stretches at confluences and pollution pressures. A monitoring point is assigned to each stretch where the biology, chemistry, aesthetics and toxicity are assessed. The overall 'class' of the stretch of river is then calculated from the monitoring point results.
- 8.6.10** The overall water quality of the River Spey has been classified by SEPA as "Good" (A2) and the overall water quality of the River Druie as "Excellent" (A1).

**8.6.11** The Spey is a designated Special Area of Conservation (SAC) as well as a Site of Special Scientific Interest (SSSI).

## **Sewers and Drainage**

**8.6.12** SW has provided information regarding the existing infrastructure at the proposed site. All existing drainage paths are at the periphery of the proposed development.

**8.6.13** SW has also commented on the current capacity of their water and wastewater treatment systems. It is thought that once the proposed Aviemore Water Treatment Works is in use this should be sufficient for water treatment, however Aviemore Waste Water Treatment Works is nearing capacity.

## **8.7 Assessing the Impact**

**8.7.1** The potential impacts of the construction and operational activities are thought to be:

### **Construction Impacts**

- Pollution risk from excavated/stockpiled material entering watercourses;
- Material causing blockages to any existing drainage systems; and
- Disruption to groundwater flow paths.

### **Operational Impacts**

- An increase in impermeable surface area leading to an increase in the volume and rate of surface water runoff;
- Access tracks creating impermeable surface water flow paths; and
- Increased traffic increasing the potential pollution risk.

**8.7.2** The chapter will assess the impact of the construction and operational activities on the following surface and groundwater resources / receptors:

### **Surface Water**

- The main watercourses in the vicinity of the site; the River Spey and the River Drue;
- Minor surface water features: ditches/ponds;
- Licenced abstraction and discharges to watercourses in the vicinity; and
- Surface water sewer outfalls to watercourses in the vicinity.

## Groundwater

- Any abstraction licences or protected rights for third parties drawing from the aquifer.

**8.7.3** The significance of the impact will be determined by establishing the sensitivity of the receptor and the magnitude of the impact. The process will be undertaken in accordance with the EIA Handbook (SNH).

## 8.8 Mitigation

**8.8.1** Mitigation measures will be proposed to limit the impacts of construction and operational activities on surface and groundwater resources. Potential mitigation measures include:

### Construction

- Runoff from hard standing to be passed through oil/petrol/grit interceptor before discharged;
- Adhere to regulations for the storage of fuels or contaminated materials; and
- Adhere to regulations for responding to pollution incidents to minimise the impact as far as possible.

### Operation

- Consideration of SuDS to mitigate against increases in surface water runoff;
- Runoff from hard standing to be passed through oil/petrol/grit interceptor before discharged;
- Adhere to regulations for the storage of fuels or contaminated materials; and
- Adhere to regulations for responding to pollution incidents to minimise the impact as far as possible.

**8.8.2** The potential impacts identified during the construction and operational stages may be present at the decommissioning stage and appropriate mitigation measures will still be required.

## 8.9 Consultation

- 8.9.1** The consultees for the assessment of water resources are SEPA as Scotland's environmental regulator and advisor, and the Highland Council.

### **Flood Risk Assessment - Planning Framework:**

- 8.9.1** Scottish Planning Policy (SPP) 9: 'Planning & Flooding' identifies flood risk as a material planning and environmental consideration and states that: "new development should not take place if it would be at significant risk of flooding from any source or would materially increase the probability of flooding elsewhere". SPP9 furthermore advises that: "pre-application discussions will help identify whether flooding is an issue. If it is, developers should commission a Flood Risk Assessment and/or a Drainage Assessment. This will clarify the situation and may prevent abortive expenditure. If the assessment shows that development is compatible with flooding policy it should also advise on prevention and alleviation measures if they are required".
- 8.9.2** Cairngorm National Parks Authority (CNPA), as the responsible planning authority will, in consultation with the Scottish Environment Protection Agency (SEPA), determine whether the development proposal should be supported by a SPP9 compliant Flood Risk Assessment (FRA).
- 8.9.3** The site of the proposed sustainable housing development at Cambusmore lies outwith the indicative limits of flooding as shown on the Indicative River & Coastal Flood Map (Scotland) for floods with a 0.5% annual probability (or 1 in 200 year return period). It is therefore expected that the housing development itself would not require a site specific FRA. However, as a new access road is proposed which will be cutting across the indicative flood plain of the River Druie. It is expected that this aspect of the development proposal will be subject to the FRA process for the following reasons:
- to assess the potential impact of the new access arrangement on existing land and property elsewhere as a result of the backwater effect and/or displacement of floodwater etc.; and
  - to assess access and egress to and from the development during spate conditions.
- 8.9.4** SEPA is likely to object to any planning application not accompanied by a FRA on grounds of lack of information and would probably advise CNPA to deal with flood risk prior to determining the planning application i.e. SEPA would not agree to a suspensive condition relating to flood risk being imposed.

### **Regulatory Framework:**

- 8.9.5** SEPA and Local Planning Authorities have a duty to promote Sustainable Flood Management (SFM) under the Water Environment and Water Services (Scotland) Act 2003 (WEWS) as a requirement of the European Water Framework Directive. An important element of the WEWS Act is the introduction of the Controlled Activities Regulations (CAR). SEPA is the competent Authority on implementing the new regulatory regime. All engineering schemes, such as

river crossings, that need to be licenced under CAR will be subject to a technical assessment which includes a 'Flood Risk Test'. SEPA would usually require a FRA to demonstrate that the proposed engineering scheme would not exacerbate flood risk elsewhere. **It is recommended that the Planning Application and CAR licence application be lodged in tandem.**

### **CNPA Local Plan:**

- 8.9.6** The Cairngorm National Park Local Plan Deposit includes a proposal for a new community at Cambusmore. The Local Plan identifies an indicative settlement boundary for the site, within which it is expected that development of a community of up to 1500 homes could be developed over time. The Local Plan Deposit states that: *"the development of An Camas Mòr will comply with the policies of the Local Plan"* and *"permission for development will only be permitted if the planning authority is satisfied that proposals have been designed to avoid and minimise effects on the environment, mitigate any significant effects, and that the development would not adversely affect the integrity of the river Spey SAC"*.

### **Proposed FRA:**

- 8.9.7** A Flood Risk Assessment will be undertaken by Mott MacDonald Ltd to:

- demonstrate compliance with SPP9 for planning purposes;
- demonstrate compliance with Local Plan policies;
- satisfy SEPA that the proposals comply with WEWS requirements in order to obtain a CAR licence for the proposed bridging works; and to
- provide input to the Hydrology & Water Quality chapter of the Environmental Impact Assessment.

- 8.9.8** The objectives of the FRA will be to establish whether:

- the proposed development is likely to be affected by current or future flooding;
- the proposed development will exacerbate flood risk elsewhere; and
- the mitigation measures proposed to deal with these effects and risks are appropriate in the context of SPP9.

- 8.9.9** The Flood Risk Assessment will be undertaken in accordance with relevant guidance, including:

- CIRIA guidance document C624 – 'Development and Flood Risk';
- Scottish Planning Policy 9 (SPP9) – 'Planning and Flooding';
- Planning Advice Note 69 – 'Advice on Flooding';

- SEPA Policy No. 41 – ‘Development at Risk of Flooding: Advice and Consultation’; and
- SEPA Guidance Document – ‘Technical Flood Risk Guidance for Stakeholders, V2’.

## Scope of FRA:

**8.9.10** In order to progress the Flood Risk Assessment the following scope of works is proposed:

### a) Preparation:

- liaise with the Mott’s Roads/Bridge Engineers to acquire the latest designs for proposed engineering works e.g. approach embankments, road bridges etc.
- identify existing properties in the study area together with information on their finished floor levels and ground levels of surrounding land. The survey needs to pick this up.
- identify existing flood alleviation schemes (formal and informal) in the study area or likely to affect local hydraulics and flood flow paths;
- visit the site and inspect the watercourses to be assessed and to take photographs of existing structures etc;
- review the available topographical survey information, determine the extent of additional work and instruct survey. **It is already clear that additional survey work would be required** (e.g. additional cross sections, survey of the existing footbridge which leads to the Fisheries, spot levels to identify likely flood flow routes).
- consider current Flood Warning protocols for the area in question;
- review existing flood studies;
- review the hydrological assessment previously carried out by Mott MacDonald Ltd;
- arrange meeting with SEPA to discuss FRA requirements; and
- obtain most recent hydrometric data from SEPA’s Hydrology functions in Dingwall and Aberdeen to assist the hydrological modelling;

**b) Modelling:**

- hydrological analysis will be carried out for the River Druie and River Spey catchments;
- the hydrological analysis will be undertaken in accordance with industry accepted methodologies as outlined in the Flood Estimation Handbook (FEH);
- flood flows will be estimated for a range of return periods, i.e. 1 in 2, 5, 10, 50, 100 and 200;
- specific regard will be given to the 1 in 200 year return period event, as SPP9 states that: *“for planning purposes the functional flood plain will generally have a greater than 0.5% (1:200) probability of flooding in any year”*;
- in addition the potential impacts of long term climate change will be investigated and an additional allowance for increased peak flows as a result of climate change will be added to design flows. The latest release of UKCIP will be consulted;
- the potential impacts of snow melt will also be explored;
- an appropriate hydraulic modelling software package will be utilised to simulate the existing and future (i.e. post-development) flood risk scenario's;
- the hydraulic model will be calibrated and validated against historic flood levels if available;
- a sensitivity analysis will be undertaken;
- potential blockages at the proposed bridges and culverts (if applicable) will be assessed;
- it is anticipated to run three model scenario's, namely
  - (i) existing condition (or pre-development scenario);
  - (i) flood risk scenario with the proposed crossings intact including raised approach embankments with flood relief culverts;
  - (i) flood risk scenario with the proposed crossings intact including approach embankments 'flush' with existing ground levels.
- estimated flood levels for the different return periods and various scenarios will be derived for comparison;

**c) Reporting**

- a standalone Flood Risk Assessment report will be produced to detail the modelling work undertaken and provide details on the anticipated effects of the development;
- the acceptability of the development proposals will be assessed in the context of SPP9 principles and the Risk Framework contained therein;
- the potential impact of the development on estimated flood levels (and hence to property elsewhere) will be assessed for various return periods;
- appropriate mitigation measures will be identified if necessary; and
- in line with SPP9 requirements access and egress to and from the development site will be considered, including indicative flood depths.

**8.9.11** Initial letter and additional material relevant to consultation (e.g methodology)

**8.9.12** Notes and Responses to Scoping Consultations

**8.9.13** Conclusion (e.g. adjusted methodology, study area, additional baseline)

## 8.10 Initial letter and Additional Material to Consultation

### 8.10.1 Consultation with CPNA



1 Atlantic Quay  
Broomielaw  
Glasgow G2 8JB

T +44 (0)141 222 4500  
F +44 (0)141 221 8083  
W [www.mottmac.com](http://www.mottmac.com)

Contact email: [rachael.carrie@mottmac.com](mailto:rachael.carrie@mottmac.com)

[searches@scottishwater.co.uk](mailto:searches@scottishwater.co.uk)

Our ref: /AW/RC/244958  
Your ref:

05/08/08

Dear Sir/Madam,

#### **An Camas Mòr Environmental Impact Assessment**

An Camas Mòr LLP are proposing to develop a sustainable community near Aviemore in the Highlands. This phased scheme will result in the development of approximately 1,500 homes by 2027. Mott MacDonald is beginning the Environmental Impact Assessment process for this scheme.

Located alongside the River Spey the main site area (centred at Grid Reference NH 910 125) covers approximately 103 hectares and will include associated infrastructure. I am currently collating the baseline information for the water chapter of the ES. I attach a map detailing the area in which I am interested.

I would be most grateful if you could provide me with a map detailing connections, trunk mains, sewers, sewer outfalls or any pressurised mains or other assets owned and operated by Scottish Water which we need to take into account in the EIA.

I understand there will be a £47.00 charge for this information and would appreciate you invoicing me at the e-mail address. If you have any queries or further requirements, feel free to contact myself or Gabrielle Roy on 0141 222 3731. I look forward to hearing from you.

Yours faithfully,  
for Mott MacDonald Limited

Rachael Carrie  
Encl.



Mott MacDonald Limited  
Registered office:  
St Anne House, Wellesley Road  
Croydon CR9 2UL, United Kingdom  
Registered in England no. 1243967

## **8.10.2 Consultation with SEPA**



1 Atlantic Quay  
Broomielaw  
Glasgow G2 8JB

T +44 (0)141 222 4500  
F +44 (0)141 221 8083  
W www.mottmac.com

Contact email: rachael.carrie@mottmac.com

foi@sepa.org.uk

Our ref : /AW/RC/244958

Your ref:

05/08/08

Dear Sir/Madam,

### **An Camas Mòr Environmental Impact Assessment**

An Camas Mòr LLP are proposing to develop a sustainable community near Aviemore in the Highlands. This phased scheme will result in the development of approximately 1,500 homes by 2027. Mott MacDonald is beginning the Environmental Impact Assessment process for this scheme.

Located alongside the River Spey the main site area (centred at Grid Reference NH 910 125) covers approximately 103 hectares and will include associated infrastructure. I am currently collating the baseline information for the water chapter of the ES. I attach a map detailing the area in which I am interested.

I would be most grateful if you could provide me with the following information for the River Spey, the River Druie/Luineag and any other water bodies which fall within the area demarked:

- water quality data (biological and chemical)
- water flow data
- flow duration curves
- flood level maps and curves
- licensed abstractions and discharges
- known water users
- any other information relating to the water environment we need to account for in the EIA.

Please let me know if there will be a charge for this request prior to proceeding. If you have any queries or further requirements, feel free to contact myself or Gabrielle Roy on 0141 222 3731. I look forward to hearing from you.

Yours faithfully,  
for Mott MacDonald Limited

Rachael Carrie  
Encl.



Mott MacDonald Limited  
Registered office:  
St Anne House, Wellesley Road  
Croydon CR9 2UL, United Kingdom  
Registered in England no. 1243967

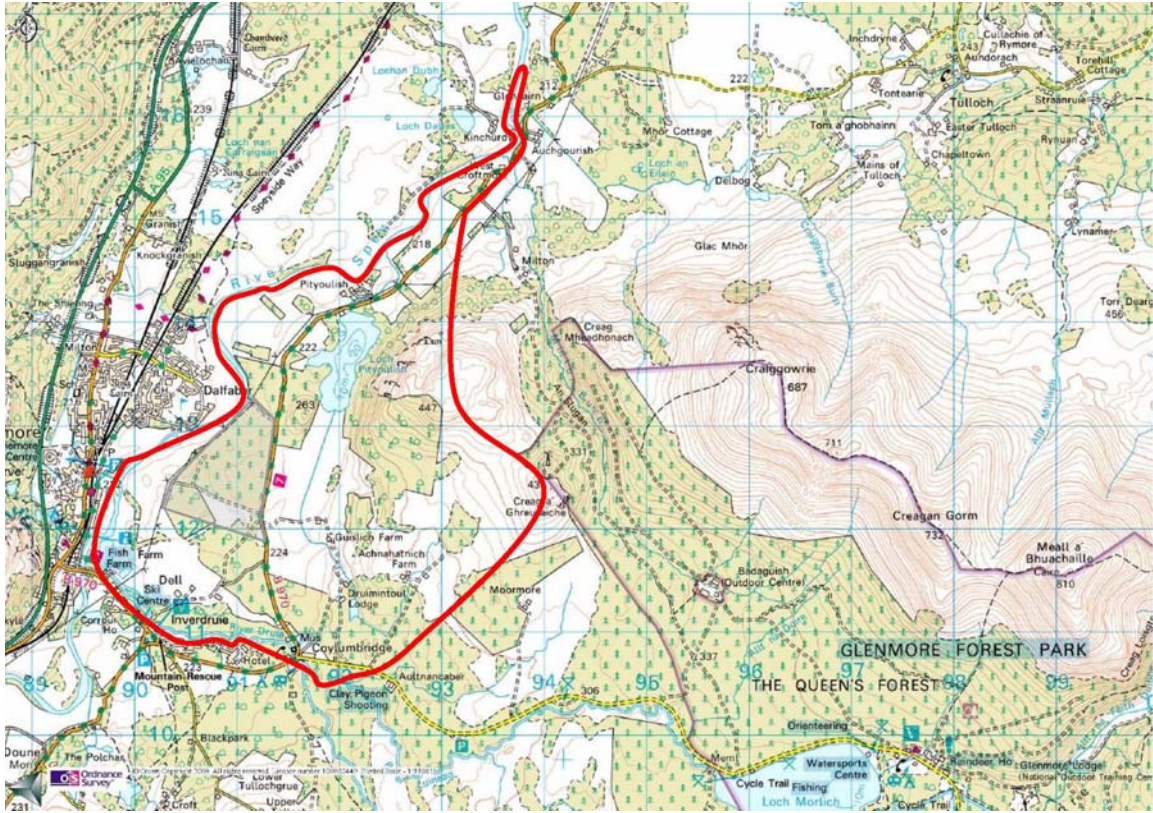


Figure 8.1 Survey area

### 8.10.3 Consultation with CPNA



1 Atlantic Quay  
Broomielaw  
Glasgow G2 8JB

T +44 (0)141 222 4500  
F +44 (0)141 221 8083  
W [www.mottmac.com](http://www.mottmac.com)

Contact email: [rachael.carrie@mottmac.com](mailto:rachael.carrie@mottmac.com)

The Highland Council  
Planning and Development Service  
Badenoch & Strathspey Office  
100 High Street,  
Kingussie. PH21 1 HY

Our ref : /AW/RC/244958

Your ref:

05/08/08

**Dear Sir/Madam,**

#### **An Camas Mòr Environmental Impact Assessment**

An Camas Mòr LLP are proposing to develop a sustainable community near Aviemore in the Highlands. This phased scheme will result in the development of approximately 1,500 homes by 2027. Mott MacDonald is beginning the Environmental Impact Assessment process for this scheme.

Located alongside the River Spey the main site area (centred at Grid Reference NH 910 125) covers approximately 103 hectares and will include associated infrastructure. I am currently collating the baseline information for the water chapter of the ES. I attach a map detailing the area in which I am interested.

I would be most grateful if you could provide me with information relating to private water supplies in the area demarked and any water features which are of specific interest to you and which we need to account for in the EIA.

Please let me know if there will be a charge for this request prior to proceeding. If you have any queries or further requirements, feel free to contact myself or Gabrielle Roy on 0141 222 3731. I look forward to hearing from you.

Yours faithfully,  
for Mott MacDonald Limited

Rachael Carrie  
Encl.

## 8.12 Notes and Responses to Scoping Consultation

### 8.12.1 Response from SEPA

Martin/Laurence

SEPA has confirmed what we know already & provided anecdotal information on flooding. I will leave it with you to agree model limits etc with Margaret.

---

From: Miller, Margaret [<mailto:Margaret.Miller@sepa.org.uk>]  
Sent: 15 September 2008 14:02  
To: Carrie, Rachael H; Hardyal, Gervais K  
Subject: AnCamas Mor

Dear Rachael and Gervais,

You have both asked for flood risk information on this site. Apologies for the delay in getting this out to you. Unfortunately, we are rather understaffed at the moment. I hope you have not been too inconvenienced by the long wait.

I have looked at your area of interest on our GIS. Much of the area falls within the indicative limits of flooding shown on the Indicative Fluvial and Coastal Floodmap (Scotland) for floods with a 1 in 200 year return period. I attach an extract for your reference.

I have also found historical records of flooding in and around the area, which I think would be of interest to you. Please find a summary attached.

The information contained in this email is supplied to you by SEPA under the Environmental Information Regulations 1992 in response to your request for information under these Regulations. This information is the

information relating to your request held by SEPA as at the date hereof under Section 25(1) of the Environment Act 1995.

With Best Wishes

Margaret Miller

Hydrologist - Flood Risk Assessment,

SEPA - Dingwall Business Park, Dingwall, IV15 9XB  
Direct Dial: 01349 860441 Fax: 01349 863987

## 8.12.2 Flood Risk Assessment

### 8.12.1 Consultation with SEPA

-----Original Message-----

From: Rose, Kelly [<mailto:Kelly.Rose@mottmac.com>]

Sent: 09 October 2008 11:07

To: Low, Andy; Miller, Margaret

Cc: Cload, Laurence D; Nekula, Marek

Subject: Cambusmore: Request for information

Dear Andy and Margaret,

As you may know Mott MacDonald has been instructed to undertake a flood risk assessment in support of a planning application for a new sustainable housing community at Cambusmore, near Aviemore. The approximate grid reference for the development is 291000E 812500N.

Mott MacDonald has previously requested hydrometric data for SEPA's Kinrara and Boat-of-Garten gauges from your colleague Derek Fraser in Aberdeen to assist with the hydrological modeling of the River Spey.

However, the ungauged River Druie, which flows to the south of the proposed Cambusmore development, will also be included in the hydraulic model. As such, in order to derive high flow estimates for the River Druie, and bearing in mind that the catchment size of the River Druie is in the order of 120km<sup>2</sup> at this location, we're proposing to make use of the FEH statistical methodology via identifying and drawing on a suitable analogue site.

After much consideration, and aided by CEH guidance, the Mill-of-Tore gauge on the River Enrick was identified as an apposite analogue site to adjust Qmed for the River Druie at Cambusmore. It has been noted that the station had been subject to bypassing during high flows in the past however the Hi-Flows website states that: 'the high flow rating was revised in 2003 (by

SEPA) and a new single rating for high flows only was judged to be suitable for whole period of record'.

In light of the above we would be obliged if SEPA could provide:

- (1) an up to date hydrometric data series for Mill-of-Tore (annual maxima flow and stage for the complete record); and
- (2) a view on the suitability of Mill-of-Tore as analogue site for the River Druie at Cambusmore.

In addition, if SEPA have any comments to make at this stage of the flood risk assessment process, or on the choice of FEH methodology for flood estimation then please let us know.

Many thanks,

Kelly Rose

Environmental Scientist  
Mott MacDonald Limited  
Moray House  
16-18 Bank Street  
Inverness  
IV1 1QY  
Tel: 01463 251577  
Fax: 01463 251599

## 8.12.2 Response from SEPA

-----Original Message-----

From: Low, Andy [<mailto:andy.low@Sepa.org.uk>]  
Sent: 09 October 2008 12:37  
To: Rose, Kelly; Miller, Margaret  
Cc: Cload, Laurence D; Nekula, Marek  
Subject: RE: Cambusmore: Request for information

Kelly,

By all means I can supply you with the records for Mill of Tore. However I would be interested to know the reasons behind using the Enrick as an analogue for the Druie? If you asked me I would have suggested one of the other Spey tributaries running north from the Cairngorms such as the Tromie or the Feshie where we also have gauging stations. The only similarities I see is the approx. 1 km.sq. loch in the catchment. The Enrick would be unlikely to have the snowmelt component in a flood that the Druie would have.

Regards  
Andy

### 8.12.3 Response from Mott MacDonald

-----Original Message-----

From: Rose, Kelly [<mailto:Kelly.Rose@mottmac.com>]  
Sent: 09 October 2008 12:38  
To: Low, Andy; Miller, Margaret  
Cc: Cload, Laurence D; Nekula, Marek  
Subject: RE: Cambusmore: Request for information

Dear Andy,

The gauges you suggest were considered however Feshie was discounted because of its relatively short record and the fact that the station had not been included in the Hi-Flows dataset. Also, as you mentioned, the degree of attenuation in the Feshie catchment does not quite match that of the Druie. Another point of concern is the difference in catchment size although this is not considered to be critical.

Your suggestion to use Tromie is valuable and we agree that this gauge could perhaps be better suited, mainly when the potential impacts of snowmelt are considered. There remain some concerns however, as to what impact the major out of catchment diversions for hydro power generation have had on the recorded data. We've also noted the concerns expressed by SEPA with regard to the high flow rating development which is likely to affect post-1990 data.

What we therefore suggest is to use Tromie as a principal analogue site but in tandem with Mill-of-Tore to verify final estimates.

I presume we will have to contact Derek Fraser for the Tromie data? As offered, could you please supply the Mill-of-Tore data in the meantime?

Many thanks for your useful comments,

Kelly

### 8.12.3 Further request from Mott MacDonald

Stuart,

After visiting the site, the flood risk team has identified additional information that will be required during the survey. The attached sketch shows:

- 1) the locations of the proposed cross-sections (in yellow);
- 2) additional areas (in green) for which spot levels are required (in xyz format) to allow us to build a model of the ground; and

3) buildings for which ground floor levels are required (orange).

You may notice that we have requested a section along the River Spey, in the area of the sand bank. This section may be deep, but we are not sure of the depth.

I appreciate that we have requested additional information and would be grateful if you could provide a revised price for undertaking the work.

Regards,

Gervais Hardyal

Mott MacDonald  
Moray House  
16-18 Bank Street  
Inverness, IV1 1QY  
Tel: +44(0)1463 239 323  
Fax: +44(0)1463 251 599

#### **8.12.4 Response from SEPA**

-----Original Message-----

From: Fraser, Derek [<mailto:derek.fraser@sepa.org.uk>]

Sent: 09 October 2008 14:51

To: Rose, Kelly

Subject: RE: Cambusmore: Request for information

I attach Tromie (008008) files in case you don't have them already

I wonder if Balnaan ( 008009 ) would be a better option - natural flow but snowmelt also and a long record and a good rating

In case it is I enclose files for that also

#### **8.12.5 Response from SEPA**

-----Original Message-----

From: Low, Andy [<mailto:andy.low@sepa.org.uk>]

Sent: 09 October 2008 14:14

To: Rose, Kelly

Cc: Fraser, Derek

Subject: RE: Cambusmore: Request for information

Kelly,

Here are the Mill of Tore files. I've copied this to Derek. I'm sure he will send the Tromie figures to you. He may also have an opinion on your best analogue.

Regards

Andy