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**TOWN AND COUNTRY PLANNING (SCOTLAND) ACT 1997
THE TOWN AND COUNTRY PLANNING (NOTIFICATION OF APPLICATIONS) (SCOTLAND)
DIRECTION 2007**

**OUTLINE PLANNING PERMISSION FOR GOLF COURSE AND RESORT DEVELOPMENT AT LAND AT
MENIE HOUSE, BALMEDIE, ABERDEEN**

PUBLIC LOCAL INQUIRY

DIRECTORATE FOR PLANNING AND ENVIRONMENTAL APPEALS REF: CIN/ABS/001

WRITTEN STATEMENT

SCOTTISH ENVIRONMENT PROTECTION AGENCY

1. Summary

1.1 There is a groundwater body and important groundwater dependent wetlands present on the planning application site. The groundwater body, and consequently the wetlands, could be seriously impacted by measures such as abstraction for irrigation or drainage. SEPA concludes that, unless further information is provided by the applicant on the impacts of the proposals on groundwater and wetlands, permission must be refused because the development conflicts with:

- the adopted Development Plan;
- national planning policy and guidance;
- the Water Framework Directive and the Water Environment and Water Services (Scotland) Act 2003.

1.2 Insufficient information has been provided of the potential threat to the status of groundwater and wetlands on the development site.

1.3 The information still required includes:

- a revised layout to reduce impact on wetlands and groundwater to an acceptable level (drawn up having regard to the following);
- detailed information on impact on species and habitats associated with or dependent on groundwater;
- an assessment of the impacts on groundwater including details of proposed abstractions, taking into account climate change and maximisation of water efficiency;
- a quantitative assessment of the potential impacts on groundwater quality associated with fertiliser and pesticide usage;

- the principles on which the Environmental Management Plan will be based, derived after the above impacts have been assessed;
 - mitigation measures for impact on groundwater and wetlands, derived after the above impacts have been assessed.
- 1.4 SEPA considers that it would not be appropriate to deal with these matters by planning condition as they go to the principle of development and are required prior to determination in accordance with Environmental Impact Assessment legislation.

2. Background

- 2.1 The Scottish Environment Protection Agency (SEPA) initially objected to the above application by means of its letter to the planning authority dated 17 May 2007. Subsequent to that date, and following SEPA's Interim Position Statement "SEPA and Biodiversity" (SEPA6) which recognised the need for Scottish Natural Heritage (SNH) to lead in the area of biodiversity and nature conservation but which also identified SEPA's strategic role in this area, SEPA reassessed its planning position in relation to this planning application. It also took into account the additional information contained in the 'Response to Aberdeenshire Council and Statutory Consultations' prepared by Ironside Farrar dated July 2007. SEPA's revised position was contained in its planning consultation response dated 29 August 2007.
- 2.2 As a result of the lack of information in areas set out later in its letter of 29 August 2007, SEPA objected to the planning application on the basis of the potential threat to the status of groundwater and wetlands on the development site.
- 2.3 In its letter to the Reporters dated 20 March 2008, SEPA stated that its intention was not to attend the Inquiry but instead to provide a Written Statement. It further stated that if information addressing SEPA's concerns is submitted to SEPA in time for it to review it in detail, then SEPA would wish to consider its position further and advise the Inquiry accordingly. SEPA received further information from Mr Alastair Scott-Kiddie of Fairhurst, acting for the applicant, including an updated Drainage Assessment (received 29 April 2008) (SEPA10), the text of a Site Investigations Report (received 29 April 2008) (SEPA9) and the full Site Investigations Report (received 30 April 2008; referred to as Document T68 in the applicant's Statement of Case).
- 2.4 SEPA subsequently wrote to the Reporters on 2 May 2008 to confirm that a number of the issues raised by SEPA in its consultation response dated 29 August 2007 (identified in SEPA's consultation response of 29 August 2007 as ii), iv), v), vi), xi) and xii)) had been resolved to SEPA's satisfaction and SEPA would not wish to pursue these any further. SEPA stated that it would be pleased for this partial resolution to form part of an Agreed Statement to be provided to the Inquiry. SEPA was subsequently requested by the Reporters by letter of 7 May 2008 for a Written Statement in relation to these issues to be produced detailing SEPA's response and their reasons.
- 2.5 Issues viii), ix) and x) (as identified in SEPA's consultation response of 29 August 2007) are also resolved to SEPA's satisfaction, providing appropriate conditions, as detailed within this Written Statement, are imposed.
- 2.6 Issues i), iii), vii), xiii), xiv), xv) and xvi) (as identified in SEPA's consultation response of 29 August 2007) remain unresolved.

2.7 This Written Statement is structured to deal with these three sets of issues separately, concentrating on those matters which remain unresolved.

3. Legal Position

3.1 The purpose of Part 1 of the Water Environment and Water Services (Scotland) Act 2003 ("the 2003 Act"; SEPA2) is to provide for protection of the water environment, implementing the Water Framework Directive ("the Directive"; SEPA1) (section 1(1)).

3.2 "Protection of the water environment" includes (section 1(2)):

"(a) preventing further deterioration of, and protecting and enhancing, the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on those aquatic ecosystems,

"(b) promoting sustainable water use based on the long-term protection of available water resources,

"(c) aiming at enhancing protection and improvement of the aquatic environment through, amongst other things, specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing out of discharges, emissions and losses of the priority hazardous substances,

"(d) ensuring the progressive reduction of pollution of groundwater and preventing further pollution of it, and

"(e) contributing to mitigating the effects of floods and droughts,"

with a view to contributing to the achievement of the following aims.

3.3 The aims are (section 1(3)):

"(a) the provision of a sufficient supply of good quality surface water and groundwater as needed for sustainable, balanced and equitable water use,

"(b) a significant reduction in pollution of groundwater,

"(c) the protection of territorial and other marine waters, and

"(d) achieving the objectives of international agreements [...]"

3.4 The 2003 Act specifies general duties, including:

- The Scottish Ministers and SEPA must exercise their functions under the relevant enactments so as to secure compliance with the requirements of the Directive (section 2(1))

- local authorities must exercise their planning and other designated functions to secure compliance with the Directive (section 2(2)) and the Water Environment and Water Services (Scotland) Act 2003 (Designation of Responsible Authorities and Functions) Order 2006 (SEPA3)

- all the above authorities must have regard to the social and economic impact of the exercise of those functions (section 2(4)(a))
 - so far as consistent with the purposes of the relevant enactment or designated function, the above authorities must
 - promote sustainable flood management (section 2(4)(b)(i)) and
 - act in the way best calculated to contribute to the achievement of sustainable development (section 2(4)(b)(ii))
 - the Scottish Ministers and every public body and office holder must in exercising any functions have regard to the desirability of protecting the water environment (section 2(4)(5))
- 3.5 “The water environment” means all surface water, groundwater and wetlands (section 3(2)), and
- “surface water” means inland water (other than groundwater), transitional water and coastal water (section 3(3))
 - “groundwater” means water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil (section 3(4))
 - “wetland” means an area of ground the ecological, chemical and hydrological characteristics of which are attributable to frequent inundation or saturation by water and which is directly dependent, with regard to its water needs, on a body of groundwater or a body of surface water (section 3(5)).
- 3.6 The 2003 Act therefore requires the Ministers to determine this application:
- to secure compliance with the requirements of the Directive
 - having regard to the social and economic impact (but the duty to secure compliance with the requirements of the Directive is absolute, irrespective of the social and economic impact)
 - promoting sustainable flood management so far as consistent with the purposes of the relevant enactment or designated function
 - acting in the way best calculated to contribute to the achievement of sustainable development
 - having regard to the desirability of protecting the water environment.
- 3.7 SEPA considers that these statutory duties required Aberdeenshire Council to refuse this planning application.
- 3.8 The Directive requires member states to prevent deterioration in the status of water bodies including bodies of groundwater (or achieving best environmental practice where a development would result in deterioration in water body status but it is concluded that a proposal meets the Directive’s criteria for derogation).

- 3.9 The status of a groundwater body is considered to deteriorate where, *inter alia*, groundwater levels are altered or pollutant concentrations increase such as to result in significant damage to wetlands that depend for their water needs on that groundwater body. This means that activities that affect groundwater in a way that significantly damages wetlands need to be prevented or justified in terms of the Directive's criteria for derogation.
- 3.10 The regulatory regime for giving effect to these requirements in Scotland is found in the Water Environment (Controlled Activities) (Scotland) Regulations 2005 ("the Controlled Activities Regulations" or "CAR"; SEPA4), made under section 20 of the 2003 Act. Authorisation under CAR is required to carry on any controlled activity, which can include: activities liable to cause pollution of the water environment; abstractions of water from the water environment; the construction, alteration or operation of impounding works in surface water or wetlands; carrying out building or engineering or other works in or near inland water or wetlands; artificial recharge or augmentation of groundwater; any activity connected with the aforementioned activities; the direct or indirect discharge of hazardous substances into groundwater, or any activity likely to cause such a discharge; and any other activity which has or is likely to have a significant adverse impact on the water environment.
- 3.11 Some elements of the applicants' proposals (such as abstractions, impoundments, watercourse engineering and discharges) will constitute controlled activities, to the extent that they affect the water environment (or relevant parts of the water environment). Authorisation from SEPA will therefore be required under CAR. No CAR applications have been made or discussed in detail with SEPA to date.
- 3.12 The courts have held that a decision maker considering a development likely to involve a significant adverse effect on the environment has to ensure that prior to granting planning permission there are sufficient details of the proposed development, its potential impact on the environment and any mitigation measures. SEPA considers that there are not sufficient details available for appropriate mitigation measures to be identified.

4. Planning Position

4.1 The Development Plan

4.1.1 The Development Plan gives protection to both ground water and wetlands.

4.1.2 The North East Structure Plan (2001) Policy 22 "Water Management" states (*inter alia*; SEPA emboldenment) specifically states:

"Development shall also be sited and designed to protect the natural heritage value and water quality of lochs, ponds, watercourses, **aquifers and wetland** within the context of water course management."

4.1.3 The Aberdeenshire Local Plan (2006) Policy Env 15 "Aquatic Engineering Works" states (SEPA emboldenment):

"Engineering works that would result in the deterioration of the ecological status or potential of a river, **wetland**, standing, tidal or coastal water or prejudice the ability to restore such water bodies to good ecological status, through impacts on water quality, quantity or flow rate, riparian habitat or protected species, will be refused."

- 4.1.4 The Aberdeenshire Local Plan (2006) Policy ENV 16 "Water Catchment Areas" states (SEPA emboldenment):

"Development that would generate discharges or other impacts, which would have an adverse effect on the water quality, quantity, flow rate, ecological status, riparian habitat, protected species or flood plains of **water bodies** including their catchment areas, will be refused, unless the development meets the criteria set out in Policies Env\1, Env\2, Env\3 and Env\4 (International, National and Other Recognised Nature Conservation Sites and Biodiversity)."

- 4.1.5 SEPA considers that insufficient information has been provided to demonstrate that the development has been sited and designed in order to protect groundwater and wetlands and hence the development is not in accordance with the Development Plan.

4.2 National Planning Policy and Guidance, and EIA legislation

- 4.2.1 It is noted that Draft National Planning Framework 2 recognises the key role of planning in contributing to the improvement of water quality and sustainable management of environmental resources. It states that:

"Planning has an important role to play in managing the environment, for example by protecting sites designated for their natural heritage value, safeguarding and enhancing urban and rural biodiversity, contributing to the improvement of water, air and soil quality, and ensuring that new development does not result in the loss of landscape quality or the erosion of cultural heritage and identity. Economic development must be closely integrated with the promotion of environmental quality and the sustainable management of environmental resources."

- 4.2.2 Scottish Planning Policy 1 (SPP1, 2002, Paragraph 22) states that European Union policy, particularly policy relating to the environment, has both direct and indirect effects on the planning system. It identifies several directives, including the Water Framework Directive, as being of particular relevance to planning. It states [SEPA's emboldenment]:

"The obligations specified in these Directives have a number of implications for the use of land **which should be recognised and reflected in development plans and development control decisions.**"

- 4.2.3 Whilst impacts on the water environment will be directly controlled through CAR, and planning conditions should not be imposed seeking to duplicate such controls, such impacts remain material planning considerations. SPP1 states:

"Other Legislation

57. Planning decisions should always be made on planning grounds and in the public interest. The planning system should not be used to secure objectives that are more properly achieved under other legislation. The grant of planning permission does not remove the need to seek other statutory consents nor does it imply that these consents will be forthcoming. Even where legal or administrative measures outwith the planning system may exist for controlling a particular activity, this can still be a consideration to which weight is given in reaching a planning decision. If a consideration is material in planning terms, it must be taken into account in reaching a decision. For example, the planning authority should have regard to the impact of a proposal on air or water quality although the regulation of emissions or discharges will fall to be dealt with other under other legislation."

- 4.2.4 The importance of groundwater and wetlands is well established in a planning and EIA context.
- 4.2.5 Groundwater forms part of the water environment, impacts on which should be considered by planning authorities in considering development proposals, even where they are directly controlled by other legislation. The example previously quoted at length from SPP1 specifically states:

"For example, the planning authority should have regard to the impact of a proposal on air or water quality although the regulation of emissions or discharges will fall to be dealt with other under other legislation."

- 4.2.6 It should be noted that, in the planning application currently under consideration, not all impacts on the water environment (e.g. through pesticide application) will be directly controlled by other legislation. Even where controlled by legislation, such as CAR, the guidance in Planning Advice Note 51 "Planning Environmental Protection and Regulation" (PAN 51), Paragraph 49, states that any impact on water quality may be a material consideration as can the question of whether or not a proposal is "capable of being licensed" under that other legislation.
- 4.2.7 The need for groundwater protection specifically, as opposed to protection of the water environment more generally, is identified in several SPPs and PANs such as those addressing mineral workings, contaminated land, drainage and flood risk.
- 4.2.8 It should be noted that groundwater needs to be protected as a resource (aquifer supplying water, where both quality and quantity are important) and in the context of its interconnectivity with valued habitats such as groundwater-dependent wetlands.

4.2.9 PAN 51 states under "Groundwater Protection" (Paragraph 3.10):

"3.10 Groundwater is an important resource which is susceptible to the effects of contamination that could result from the failure to prevent or control the release of leachate from landfill sites, other point sources or contaminated land, etc. Activities liable to cause pollution of groundwater will be mainly regulated via the Controlled Activities Regulations 2005. SEPA have produced a Groundwater Protection Policy which aims to provide a sustainable future for Scotland's groundwater resources by protecting legitimate uses of groundwater and providing a common SEPA framework to:

- protect groundwater quality by minimising the risks posed by point and diffuse sources of pollution; and
- maintain the groundwater resource by influencing the design of abstractions and developments, which could affect groundwater quality."

4.2.10 SEPA's Groundwater Protection Policy (SEPA5) states:

"B2.9 Where appropriate, SEPA will request measures which mitigate any identified adverse effects on groundwater to be either incorporated into a planning application or into a planning condition. Where this is not possible and SEPA considers that unacceptable adverse effects cannot be mitigated, SEPA will object to the planning application.

B2.10 SEPA will seek to ensure that risks to groundwater are addressed within Environmental Impact Assessments, where these are required by planning legislation."

4.2.11 With regards to wetlands, National Planning Policy and Guidance 14 "Natural Heritage" (NPPG14) states (Paragraph 49):

"49. Features which may be of value in the development of habitat networks include areas of woodland, rivers and burns, lochs, ponds and wetlands, traditional field boundaries such as dykes or hedgerows, unimproved grasslands and herb-rich meadows, heaths and peatlands and coastal habitats. The following paragraphs provide further guidance in relation to trees and woodlands and lochs, ponds, watercourses and wetlands, where there is particular scope for the planning system to play a role in conservation and enhancement."

4.2.12 It further states (Paragraphs 55 and 56):

"55. Lochs, ponds, watercourses and wetlands are often both valuable landscape features and important wildlife habitats, and planning authorities should seek to safeguard their natural heritage value within the context of a wider framework of water catchment management. The Government is currently giving consideration to the legislation and institutional arrangements necessary to implement the EC Water Framework Directive which will require member states to establish formal water catchment management regimes.

"56. Developers should be encouraged to incorporate existing ponds, watercourses or wetlands as positive environmental features in development schemes, and to identify suitable opportunities for creating new water or wetland features. [...]"

4.2.13 Wetlands are one of the environmental sensitivity measures utilised by The Environmental Impact Assessment (Scotland) Regulations 1999 when assessing if Environmental Impact Assessment is required.

4.2.14 Indeed, Planning Advice Note 43 "Golf Courses and Associated Developments" (PAN 43) states (Paragraph 39):

"39. EA [Environmental Assessment] may be valuable in demonstrating how golf related developments could be environmentally sustainable. This may include consideration of the impact on landscape character, tree cover, water courses and wetlands and habitats such as sensitive grassland and scrub vegetation. Patterns of informal recreational use, historic, cultural and topographical landscape features and archaeological remains are also vulnerable to disturbance. The most pressing cases for EA may be where proposals overlap with, or lie adjacent to, sensitive locations, in particular, SPAs, SSSIs and NNRs."

4.2.15 SEPA is unable to conclude that the proposals accord with national planning policy and guidance, or that they are capable of being authorised under CAR in terms of PAN 51, because insufficient information has been submitted to demonstrate they will not damage groundwater and wetlands.

5. Groundwater and Wetlands on the Application Site

5.1 There is a groundwater body and important groundwater dependent wetlands present on the planning application site. The groundwater body, and consequently the wetlands, could be seriously impacted by measures such as abstraction for irrigation or drainage.

5.2 The bedrock underlying the application site comprises metamorphic strata of the Aberdeen Formation. The bedrock is classified as a fractured aquifer of low productivity. The superficial deposits comprise Blown Sand deposits along the coast and glaciofluvial sands and gravels of the Logie Buchan Drift Group further inland. The superficial deposits comprise an intergranular aquifer, with the blown sands classified as being of moderate productivity and the glaciofluvial sands and gravels classified as being of high productivity. Till deposits may be present at depth, between the superficial and bedrock aquifers. The site is predominantly classified as being groundwater Vulnerability Class 4, based on a scale where 1 indicates the lowest vulnerability and 5 the highest. Groundwater is anticipated to flow towards the coast.

5.3 It is likely that groundwater in the superficial aquifer is in at least partial hydraulic connection with the surface water features at the site. Private water supplies for potable use are known in the area.

5.4 Groundwater at the site would be at potential risk from:

- Adverse impacts on groundwater quality from non-mains foul drainage;
- Adverse impacts on groundwater quality due to saline intrusion induced by groundwater abstraction;
- Adverse impacts on groundwater quality due to point source and/or diffuse pollution from chemicals used and stored on site, both during construction and operation. Such chemicals would include fertilisers, pesticides, fuels etc.

- Adverse impacts on groundwater quality due to Sustainable Urban Drainage Systems (SUDS) features permitting infiltration if not appropriately designed.
- 5.5 Any impacts on groundwater may also indirectly affect nearby private water supplies and surface water features.
- 5.6 A number of wet dune slack habitats (wetlands) occur across the site. The wetlands are identified on figure 7.3 – *Distribution of National Vegetation Classification Types* in the Environmental Statement (March 2007).
- 5.7 The NVC (National Vegetation Classification) communities present indicate that the dune slack habitats are groundwater dependent. NVC communities M15, M23, SD16, SD13, MG10, and MG11 are included on the revised list of groundwater dependent NVC communities that is submitted to the UK Technical Advisory Group on Implementation of the Water Framework Directive for approval in June 2008 (SEPA12).
- 5.8 In particular, NVC communities SD16 and SD13 are noted to be highly dependent on groundwater. These wetlands are therefore considered to be "terrestrial ecosystems which depend directly on a groundwater body" in terms of Annex V of the Water Framework Directive and "wetlands" as defined by section 3(5) of the Water Environment and Water Services (Scotland) Act 2003.
- 5.9 The wetland interests are a component of the SSSI sand dune feature for which the site is designated: details of these aspects will be addressed by SNH. Also, the wetland areas are located across the development site, both within and outside the SSSI area. However, in accordance with the principles of SEPA's Interim Position Statement on Biodiversity (SEPA6), SEPA stresses that its principal interest in protecting the wetland areas is in delivery of the objectives of the Water Framework Directive and fulfilment of its obligations under the Water Environment and Water Services (Scotland) Act 2003 and CAR.
- 5.10 Wetlands are important because of their biodiversity value and because they deliver a range of ecosystem functions, including a) reduce the risk of flooding by attenuating runoff, b) retain pollutants such as nutrients and therefore protect surface and ground waters from the effects of diffuse pollution, c) support the quality of surface and groundwater bodies, for example via increased recharge to the groundwater, increased river base-flow and reduced shore-line erosion, and d) contribute to reducing climate change by storing carbon in organic soils.
- 5.11 The potential impacts on the wetlands include:
 - i) The risk of significant damage and deterioration to status of groundwater dependent wetlands from groundwater abstraction;
 - ii) The risk of significant damage and deterioration to status of wetlands due to changes to groundwater (and surface water) quality due to (a) point source and/or diffuse pollution from chemicals used and stored on site, both during construction and operation, (b) saline intrusion induced by groundwater abstraction and (c) from non-mains foul drainage
- 5.12 Authorisation under CAR will be required for any controlled activities affecting groundwater or wetlands, but the applicant has provided insufficient information for SEPA to be able to conclude whether or not the proposals are capable of being authorised, in terms of PAN51.

6. Issues Raised by SEPA now Resolved

- 6.1 SEPA identified several specific issues in its letter of 29 August 2007 which have been resolved. The background to SEPA's position on these is set out in Annex 1.

7. Issues Raised by SEPA now Resolved Provided Appropriate Planning Conditions are Imposed

7.1 "viii) Details of any proposed watercourse modification and crossings;"

- 7.1.1 SEPA stated in its consultation response dated 29 August 2007 that:

"SEPA notes that no proposed modifications to the watercourses on site are proposed (at this stage).

"SEPA notes that no details of any watercourse crossing are provided and therefore SEPA is unable to comment further on the potential environmental impacts of any proposals."

- 7.1.2 There is considerable planning support within Scottish Planning Policy 7 "Planning and Flooding" (SPP7) and NPPG14 for avoidance of watercourse culverting.

- 7.1.3 The applicant has further responded to state (e-mail Fairhursts to SEPA 28 April 2008; SEPA 8):

"We have added a Statement into our Drainage Assessment that watercourses will be bridged where required and not culverted."

- 7.1.4 This is satisfactory to SEPA and it withdraws its objection in relation to this aspect of the application provided a condition is imposed expressly requiring that where watercourse crossings are required, watercourses will be bridged, with no part of the structure within the banks or bed of the watercourse, and not culverted.

- 7.1.5 It should be noted that CAR authorisations may be required for these works.

7.2 "ix) Details of any foul drainage not on mains drainage;"

- 7.2.1 SEPA stated in its consultation response dated 29 August 2007 that:

"SEPA notes that all foul drainage is proposed to discharge to the public sewerage system although no confirmation has been provided by Scottish Water that this can be achieved within the existing network."

- 7.2.2 The applicant has responded to this (Ironsides Farrar spreadsheet attached to Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7):

"This will be addressed as part of Planning Condition 3 Reserved Matters (c) Submission and approval of full details of the proposed means of disposal of foul and surface water from the development.

"Also covered by Condition 6 which requires the submission of a Foul Drainage & Water Supply Report for approval by planning authority in consultation with Scottish Water."

- 7.2.3 The applicant has further responded to state (e-mail Fairhurst to SEPA 28 April 2008; SEPA8):

"As discussed at our meeting our Drainage Assessment addresses foul drainage proposals and notes that investigation will be made into incorporating existing properties, currently served by septic tank / soakaway into the sewer network, thus improving groundwater conditions. We have also copied to you and noted in our Drainage Assessment Scottish Water's consultation confirming that resources will be made available to accommodate this Development."

- 7.2.4 This is satisfactory to SEPA provided a condition is imposed, not as initially suggested by the applicant, but expressly requiring a) all foul drainage from the development to connect to public sewer, b) all pumping stations to be designed to avoid the need for emergency overflows and c) submission of a scheme whereby existing properties on the application site, currently not served by public sewer, are incorporated into the public sewer.

7.3 "x) Details of surface water drainage and potential impacts on groundwater, species and habitats;"

- 7.3.1 SEPA stated in its consultation response dated 29 August 2007 that:

"SEPA notes that no further details on surface water drainage proposals have been provided. SEPA is therefore unable to comment on the potential environmental impacts on the water environment including groundwater and wetland species and habitats."

- 7.3.2 The applicant has responded to this (Ironsides Farrar spreadsheet attached to Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7):

"FAIRHURST to confirm details of surface water drainage.

"Detailed information on surface water drainage and SUDS proposals will be available on confirmation of the final detailed design for the development through Planning Condition 3: Reserved Matters Application Criteria. Mitigation for the areas of dune slack will be detailed within Planning Condition 24: Plant Habitat Mitigation and Management Plan. The Water Management Plan under Planning Condition 8 will ensure all drainage proposals are agreed with SEPA and SNH in advance of the development."

- 7.3.3 The applicant has further responded to state (e-mail Fairhurst to SEPA 28 April 2008; SEPA8):

"Again, as discussed at our meeting our Drainage Assessment addresses surface water drainage proposals and we have included details of likely measures to be adopted to incorporate suitable SUDS into the development."

- 7.3.4 A revised Drainage Assessment was provided to SEPA by e-mail of 28 April 2008 (Fairhurst Reference Drainage Assessment, 71236, Date 29.04.08, Revision 1). Detailed plans of possible SUDS devices that could be deployed were e-mailed to SEPA by e-mail of 23 April 2008 from Fairhurst.

7.3.5 Planning Advice Note (PAN) 61 "Planning and Sustainable Urban Drainage Systems" states in relation to information on SUDS to be submitted at outline planning application stage (Paragraph 23):

"The developer should proceed to draw up a drainage strategy which should be submitted as an integral part of the outline planning application.

The drainage strategy should include:

- an indication of the types of measures to be used;
- which measures will be considered in the detailed design;
- evidence of sub-soil porosity and suitability for use of infiltration SUDS;
- pre- and post-development run-off calculations to determine the scale of SUDS required;
- assessment of flood risk where this is deemed appropriate;
- proposals for integrating the drainage system into the landscape or required public open space;
- demonstration of good ecological practice including habitat enhancement;
- estimates of land take for different drainage options based on initial calculations carried out to size any significant drainage structures."

7.3.6 SEPA considers that, given the scale of the built development, and the area available to accommodate SUDS measures, sufficient information is now available to advise that surface water drainage from the proposed new built development can be managed in order to protect ground and surface water quality. It withdraws its objection in relation to this element provided a condition is imposed requiring submission of a detailed surface water drainage scheme to the satisfaction of the planning authority in consultation with SEPA (and other agencies as appropriate).

7.3.7 Please note that removal of the objection to this element relates simply to water quality from surface water drainage from the proposed new built development. Potential changes to the hydrological regime of groundwater dependent wet dune features by all impacts caused by the development need to be fully assessed as set out in SEPA's issue (vii below).

8. Unresolved Issues

8.1 SEPA's specific remaining concerns regarding the proposed development relate to the risk of deterioration in the status of water bodies at the Balmedie site. These are as set out in its letter of 29 August 2007. The unresolved issues are discussed below. In summary, SEPA's principal concerns about the risk of deterioration in the status of water bodies stem from lack of information on, or assessment in the following areas.

- a revised layout to reduce impact on wetlands and groundwater to an acceptable level (drawn up having regard to the following);
- detailed information on impact on species and habitats associated with or dependent on groundwater;
- an assessment of the impacts on groundwater including details of proposed abstractions, taking into account climate change and maximisation of water efficiency;
- a quantitative assessment of the potential impacts on groundwater quality associated with fertiliser and pesticide usage;

- the principles on which the Environmental Management Plan will be based, derived after the above impacts have been assessed;
- mitigation measures for impact on groundwater and wetlands, derived after the above impacts have been assessed.

8.2 "i) A lack of consideration and assessment of alternative site layouts including alternative locations for the club house and golf course;"

8.2.1 SEPA stated in its consultation response dated 29 August 2007:

"SEPA notes that the applicant does not intend to consider alternative site layouts."

8.2.2 The applicant has more recently stated (Ironsides Farrar spreadsheet in Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7):

"The TIGLS team considered a number of routing plans for the Championship Course as stated in Para 4.4 of TIGLS Response to Aberdeenshire Council and Statutory Consultees, July 2007. This process is ongoing with the TIGLS environmental team working with Hawtree Golf Course Architects and Consultants on the Championship Golf Course hole locations to minimise environmental impact and integrate mitigation where required. The detailed course design will be required as part of Planning Condition 3- Reserved Matters. The Second Golf Course will require EIA under Planning Condition 10."

8.2.3 It thus appears that this issue is in the process of being addressed but whether or not the finalised layout successfully reduces impact on wetlands and groundwater to an acceptable level is not known. Given that information on all significant environmental impacts should be provided prior to determination of a planning application subject to formal Environmental Impact Assessment, SEPA considers that it would be inappropriate to address this matter through a planning condition. Further, it is understood that the applicant has confirmed that the planning application being addressed by this Inquiry comprises both golf courses and hence it would be inappropriate to address EIA by means of a planning condition.

8.2.4 It should be noted that Scottish Planning Series Planning Circular 8-2007 "The Environmental Impact Assessment (Scotland) Regulations 1999" states (Paragraph 122):

"Scottish Ministers may use regulation 19 to request further information for the purposes of a local inquiry under the 1997 Act. By virtue of regulation 19(2), if the request specifically states that the further information is to be provided for such purposes, the publicity and consultation procedures in regulations 13, 14 and 16 to 18 do not apply. Rather, such information, together with any other information provided voluntarily by the applicant for the purposes of a local inquiry, will be regulated by the Rules relating to the submission of evidence to public local planning inquiries. These Rules already require material provided by the applicant to be publicised appropriately. Further details of procedures relating to public inquiries are contained in The Scottish Office Development Department Circular 17/1998."

8.2.5 However, it is clear that simply because an application is made for outline planning permission does not obviate the applicant from compliance with the Regulations. The Circular states (Paragraph 136):

"Where EIA is required for a planning application made in outline, the requirements of the Regulations must be met in full at the outline stage."

8.2.6 If SEPA is supplied with plans for an amended layout which reduces potential impact on groundwater or wetlands then it would be pleased to comment further.

8.2.7 In this regard, SEPA received on 14 May 2008 the revised layout described in the applicant's Statement of Case as Document T2. This was supplemented by e-mail on 16 May 2008 from Ironside Farrar acting on behalf of the applicant with copies of "Production 55 Status, Extents, Development Impacts and mitigation for Key Vegetation Types and Rare Species at Menie" by Dr Tom Dargie and "Hole-by-Hole Analysis" dated May 2008 by Ironside Farrar. It has not been possible to appraise this material in detail for this Written Statement. SEPA will prepare a supplementary Statement. Initial indications are that the revised design may in fact increase impact on wetlands.

8.3 "iii) A detailed analysis of the consequences of the impacts of development with regards certain species and habitats and an assessment of the loss of a significant part of the Scottish resource;"

8.3.1 SEPA stated in its consultation response dated 29 August 2007 that:

"SEPA notes that no further details on the consequences of the proposed loss of wetland habitats and species has been provided."

8.3.2 The applicant has responded to this (Ironside Farrar spreadsheet attached to Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7):

"The analysis of the potential loss of wetland habitat will be assessed at the detailed stage as part of the Detailed Championship Golf Course Design. Mitigation for any impact on the resource will be detailed as part of Planning Condition 24 – Plant Habitat and Management Plan."

8.3.3 The applicant has further responded to this (e-mail Fairhurst to SEPA 28 April 2008; SEPA8):

"We understand that Assessment has been carried out to address the loss of particular habitats as a result of the resort development. Please refer to Section 6 of the July 2007 response for a hole by hole analysis of potential habitats loss. The latest Hawtree design, resulting habitat loss and mitigation will be submitted as a Written Submission. This Hawtree design has been produced following an iterative process with the Project Ecologist / Geomorphologist to 'fine tune' the design to mitigate impacts. Mitigation is one of the main topics to be examined at the Inquiry."

8.3.4 As regards the initial response from the applicant, SEPA considers that the impacts of the development with regards to species and habitats associated with or dependent on groundwater should be considered prior to determination of the current planning application. It considers such impacts to be significant environmental impacts that go to the principle of development and need to be considered, in accordance with the EIA Regulations, prior to determination of the application.

- 8.3.5 SEPA is therefore pleased that further work has been done on this aspect, although it is regrettable this was not carried out at a much earlier stage.
- 8.3.6 If SEPA is supplied with further information on revised design, impacts of the proposal or proposed mitigation measures then it would be pleased to comment further.
- 8.3.7 In this regard, attention is drawn to SEPA's comment on recent additional material in 8.2.7 above.

8.4 "vii) An assessment of the impacts on groundwater including details of any proposed abstractions, nutrients, pesticides, fuels and salinity;"

- 8.4.1 SEPA stated in its consultation response dated 29 August 2007 that:

"The statement indicates (in section 6.3 page 27) that detailed mitigation can be explored once further information is available on groundwater and abstraction proposals..."including site groundwater characteristics in areas of slack". No confirmation has been provided as to whether it is proposed to abstract groundwater as a water supply for the golf course.

"SEPA considers that confirmation of the proposed method of irrigation of the golf course and an assessment of any proposed abstraction is a key matter which requires clarification prior to any grant of planning consent.

"If it is proposed to abstract from groundwater then it is likely that this could lower water tables and have a negative impact on the wet dune slack areas. An assessment of the links between groundwater and the wet dune slack areas is therefore required as it is likely that these habitats are dependent on the groundwater as a water source. "

- 8.4.2 The applicant has responded to this (Ironside Farrar spreadsheet attached to Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7), whilst intimating that further information may be forthcoming prior to the Inquiry:

"Detailed information on groundwater impacts will be available on confirmation of the final detailed design for the development through Planning Condition 3: Reserved Matters Application Criteria.

"Mitigation for the areas of dune slack will be detailed within Planning Condition 24: Plant Habitat Mitigation and Management Plan."

- 8.4.3 In contrast with this, the applicant has further responded to state (e-mail Fairhurst to SEPA 28 April 2008; SEPA8):

"We have issued our Site Investigation Report to SEPA and have included a statement on the irrigation design and possibility of using groundwater. We note that quantity and quality of groundwater is unlikely to be a problem, however, a definitive irrigation system design will be developed at the Detailed Planning stage, requiring some further site investigation. Commentary on other aspects of the golf course management have been made in the July 2007 response."

- 8.4.4 The Site Investigation Report ("Interpretative Report" dated 17 January 2008, and referred to as Document T68 in the applicant's Statement of Case) referred to by the applicant had as one of its purposes (3.0) "Preliminarily assess the potential for groundwater resource to facilitate the irrigation of the golf course." It concludes there is a good potential for the groundwater to be utilised as a resource for golf-course irrigation.
- 8.4.5 Although the investigation does provide an initial indication of the local ground conditions of part of the site, from a hydrogeological perspective it does not provide sufficient information to satisfy SEPA's requirements for additional information/assessment with respect to groundwater abstraction impacts as set out below. An appraisal of this investigation is included as Annex 2.
- 8.4.6 With regards to irrigation and impact on groundwater, SEPA considers that groundwater impacts and mitigation measures in golf course developments are key to consideration of the acceptability of the proposal and information is required prior to determination of the application. It should be noted that SEPA contacted Jenkins and Marr, acting for the applicant, in July 2007 to try to progress discussions on the water resource implications of the proposal. After an initial discussion, it was agreed that a further meeting with a colleague of the agent who was more aware of these issues would be appropriate, but SEPA was not contacted further in this regard.
- 8.4.7 SEPA is concerned that if the abstraction that is finally decided upon is so large that it has unacceptable environmental impact, planning permission cannot be implemented.
- 8.4.8 SEPA is thus concerned that if it is decided to abstract from groundwater then it is likely that this could have a negative impact on the groundwater dependent habitats (wet dune slack areas). Abstraction from groundwater could also result in saline intrusion and could result in risks to surface water features and any private water supplies.
- 8.4.9 SEPA advises that a full impact assessment should be undertaken prior to the determination of the application.
- 8.4.10 The hydrogeological investigation and interpretation work undertaken to date is insufficient to confirm whether groundwater abstraction is environmentally acceptable or capable of being licensed under CAR. ("Consentability" is a material planning consideration - PAN 51, Paragraph 49). The potential long-term sustainable yield from an abstraction at the site has not been fully assessed. Nor has any detailed impact assessment been undertaken to demonstrate what rate of abstraction could occur without significant damage to groundwater-dependent wetland features, surface waters or existing abstractions or without inducing saline intrusion.
- 8.4.11 A detailed hydrogeological conceptual model, supported by appropriate site-specific investigation and monitoring data, is required as the basis of the required impact assessments. In particular, the hydrogeological conceptual model should consider the potential interactions between the groundwater, surface waters and wetlands, whilst taking into consideration the heterogeneous nature of the superficial deposits.

- 8.4.12 The development and implementation of an appropriate water monitoring plan is recommended to aid development of the hydrogeological conceptual model. Monitoring of any private water supplies where water is currently abstracted for potable use is recommended. Ongoing monitoring of the wells installed during the 2007 preliminary hydrogeological investigation is recommended. Other monitoring points may also be appropriate, taking into account the potential abstraction locations and sensitive wetland receptors; this may require the installation of additional groundwater monitoring boreholes and/or the establishment of appropriate surface water monitoring sites. The monitoring regime should include monitoring of water levels and flows as well as groundwater quality. The water quality monitoring should focus on the principal contaminants of concern, which may include nutrients, pesticides, fuels and salinity. The monitoring plan should aim to identify and characterise all temporal and spatial trends and patterns.
- 8.4.13 SEPA recommends that the impact assessment is based on accurate site-specific assessment of likely abstraction rates and volumes. The Agronomy report indicates a possible maximum abstraction rate of 500 m³/d. An abstraction at this rate would require a CAR licence. It should be noted that the likely abstraction rates under average conditions and under drought conditions need to be considered. Consideration of potential future changes to the climate will be of relevance when the applicant is estimating likely irrigation patterns, and thus predicting the likely abstraction rates/volumes that will be required.
- 8.4.14 SEPA recommends that the impact assessment is based upon the likely location of the abstraction point(s) and the hydrogeological unit(s) from which abstraction would be undertaken; it is assumed that any abstraction would be from the superficial aquifer rather than the bedrock aquifer but this should be confirmed.
- 8.4.15 SEPA recommends that the environmental impact assessment should quantify the potential changes to the hydrological regime of each groundwater dependent wet dune feature, both in terms of water levels/flows and water quality. The ecological implications of any changes to the hydrological regime at each wet dune feature should be fully assessed. This assessment needs to be undertaken on the basis of predicted abstraction rates during a dry late spring/summer and normal late spring/summer.
- 8.4.16 Additional quantitative assessment of the other potential environmental impacts of groundwater abstraction is also required:

a. Potential Saline Intrusion

The potential for saline ingress into the groundwater body due to the likely abstraction, taking into account the likely seasonal variation of the abstraction, should be quantitatively assessed.

b. Potential Impacts on Surface Waters

The potential impact of the likely abstraction on nearby surface water features should be quantitatively assessed. This may require intrusive investigation and monitoring into the degree of hydraulic connection between the groundwater and specific surface water features.

c. Potential Impacts on Private Abstractions

An updated and expanded water features survey is required. The nearby properties that currently use private water supplies should be identified. Details on the actual location, nature (e.g. well, spring, borehole, etc) and condition of each currently used private water supply source should be obtained. The potential impacts of the likely abstraction to each individual source that is currently in use should be quantitatively assessed.

8.4.17 SEPA will be pleased to comment further should this information be provided.

8.5 "xiii) A lack of a detailed Sustainable Turf Management Plan including details of measures to reduce the use of chemicals – fertilisers, pesticides (insecticides, fungicides, herbicides);"

8.5.1 SEPA stated in its consultation response dated 29 August 2007 that:

"SEPA notes that an Agronomy Report has been produced (at appendix 4) which addresses these issues."

8.5.2 Whilst the Agronomy Report addressed these issues in a general manner, it did not go into sufficient detail on likely impacts, and in particular contained no quantitative assessment of the potential impacts on groundwater quality.

8.5.3 The applicant responded to this (Ironsides Farrar spreadsheet attached to Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7):

"No additional information required. The Sustainable Turf Management Plan will be a requirement of Planning Condition 54 and details of the proposed management were provided by the STRI as an Agronomy Report."

8.5.4 The applicant has further responded to state (e-mail Fairhursts to SEPA 28 April 2008; SEPA8):

"Agronomy Report is with SEPA and we understand you will review to confirm compliance with your requirements."

8.5.5 SEPA has reviewed the Agronomy Report further. The likelihood of fertilisers and pesticides entering groundwater is likely to be highest during the course establishment period whilst the vegetation is becoming established. The depth to groundwater and the nature of the soils beneath the zones of highest chemical usage, e.g. greens, will also be important factors.

8.5.6 Although the Agronomy Report provides information on likely practices regarding fertiliser and pesticide application on the golf course, no quantitative assessment of the potential impacts on groundwater quality has been presented. Such a report is required in order to provide information on a potentially significant environmental impact prior to determination of the planning application. These requirements are set out in detail in 8.4 above.

8.5.7 It should be noted that any local change in water quality may have implications for wetland ecology.

8.5.8 In addition to further work prior to determination, should the application receive consent, SEPA would advise a condition to be applied requiring monitoring and remedial feedback measures. This condition would incorporate a) ongoing water quality monitoring with respect to chemicals stored and used at the site, in particular nutrients and pesticides, b) a scheme to review the monitoring data regularly to identify adverse trends in water quality, and c) remedial measures and contingency plans to implement appropriate control and mitigation measures should any adverse trends be identified.

8.6 **"xiv) Details of the proposed Course Environmental Management Plan;"**

8.6.1 SEPA stated in its consultation response dated 29 August 2007 that:

"No further information has been provided."

8.6.2 The applicant has responded to this (Ironsides Farrar spreadsheet attached to Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7):

"This will be covered by planning condition (G) The Submission of an environmental management plan for the resort and the housing areas. An EMP will be produced and submitted for the approval of the planning authority."

8.6.3 The applicant has further responded to state (e-mail Fairhurst to SEPA 28 April 2008; SEPA8):

"We understand that an EMP will be produced and submitted to Statutory Consultees for review at Detailed Design Stage. The production of an EMP will be subject to a Planning Condition."

8.6.4 SEPA considers that it would be appropriate to require the detailed Environmental Management Plan as a planning condition. However, the basic principles of what will be included in such a plan is needed prior to determination as it is impossible to state what residual environmental impact will be unless this is done.

8.6.5 It should be noted that the basic principles of the Environmental Management Plan will depend upon the outcome of the wetland impact assessment. For example small risks might be mitigated for with appropriate water storage to supply water needs during very environmentally sensitive periods. The impact assessment is therefore required first.

8.7 **"xv) A consideration of climate change including the maximisation of water efficiency;"**

8.7.1 SEPA stated in its consultation response dated 29 August 2007 that:

"No further information has been provided."

8.7.2 The applicant has responded to this (Ironsides Farrar spreadsheet attached to Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7):

"Water efficiency will be taken into account as part of Planning Condition 8 Water Management Plan. Climate change and recognition that Sustainability is an important consideration for the development will be addressed through Planning Condition 38 Index 21 Assessment, Planning Condition 49 Waste Management Plan and Planning Condition 50 Details of Micro Wind Turbines."

8.7.3 The applicant has further responded to state (e-mail Fairhursts to SEPA 28 April 2008; SEPA8):

"As noted in our revised Drainage Assessment and Site Investigation some groundwater investigations have been undertaken, however, detailed Pump Tests are still required to be undertaken in conjunction with the detailed proposals, irrigation design and Statutory Consultees."

8.7.4 SEPA considers that the abstraction requirements (set out in 8.4 above), and impact of such abstraction, need to take into account climate change and maximisation of water efficiency. In this regard, it is pleased to note some proposals for reuse of captured rainwater. However, this does not obviate the need for detailed information on the requirement for abstraction and impact of abstraction.

8.8 "xvi) Further details of mitigation proposals as SEPA queries the achievability and potential success of some of those outlined in the ES;"

8.8.1 SEPA stated in its consultation response dated 29 August 2007 that:

"SEPA notes that some additional information has been provided. However, SEPA continues to query the achievability and potential success of some of those outlined."

8.8.2 The applicant has responded to this (Ironsides Farrar spreadsheet attached to Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7):

"Details of mitigation will be forthcoming as part of Planning Condition 24 Plant Habitat Mitigation & Management Plan. Discussions are ongoing between TIGLS ecological experts and Hawtree golf course design specialists to establish the requirements for mitigation and likely mitigation proposals."

8.8.3 The applicant has further responded to state (e-mail Fairhursts to SEPA 28 April 2008; SEPA8):

"The latest Hawtree design has been produced following an iterative process with the Project Ecologist / Geomorphologist to 'fine tune' the design to mitigate impacts. Habitat loss has been avoided where possible in the first instance through identification of most sensitive habitat constraints and designing the course around these features. Proposals for Mitigation are discussed in Section 6.3 of the July 2007 response. Mitigation is one of the main topics to be examined at the Inquiry."

8.8.4 SEPA will not be in attendance at the Inquiry but it stresses that mitigation measures should not be considered solely by means of planning condition. They are an integral part of the Environmental Impact Assessment process and need to be considered prior to determination. However, they can only be based upon a detailed assessment of the actual conditions on the site and the impact of the proposals upon them, again both integral parts of the Environmental Impact Assessment process. The scale and nature of abstraction and impacts on groundwater and wetlands first need to be adequately assessed and then appropriate mitigation measures set out.

8.8.5 SEPA will be pleased to comment further should this information be provided.

8.8.6 However, SEPA is in principle concerned about the technical reality of mitigation propositions that entail the re-construction of entire wet dune slacks. Wet dune slack habitats require a combination of ecological processes and appropriate geo-chemical processes in the dune soil which take a minimum of several decades to become established (Davy, A.J., Grootjans, A.P., Hiscock, K. & Petersen, J., 2006, Development of eco-hydrological guidelines for dune habitats - Phase 1, English Nature Research Reports, 696) (SEPA11). Mitigation that includes re-construction of wet dune habitats is therefore not advisable.

9. Conclusions

9.1 SEPA concludes that insufficient information has been provided in order to address SEPA's objection to the planning application on the basis of the potential threat to the status of groundwater and wetlands on the development site.

9.2 The information still required includes:

- a revised layout to reduce impact on wetlands and groundwater to an acceptable level (drawn up having regard to the following);
- detailed information on impact on species and habitats associated with or dependent on groundwater;
- an assessment of the impacts on groundwater including details of proposed abstractions, taking into account climate change and maximisation of water efficiency;
- a quantitative assessment of the potential impacts on groundwater quality associated with fertiliser and pesticide usage;
- the principles on which the Environmental Management Plan will be based, derived after the above impacts have been assessed;
- mitigation measures for impact on groundwater and wetlands, derived after the above impacts have been assessed.

9.3 SEPA concludes that approval of this application without the information and assessment of impacts identified in this Written Statement would be in conflict with the adopted Development Plan, national planning policy and guidance.

9.4 SEPA considers that approval of this application with the current level of information by the Scottish Ministers would conflict with the Water Framework Directive and the duties imposed by the Water Environment and Water Services (Scotland) Act 2003.

References

1. Core Documents

Development Plan Documents

NEST (2001) – Structure Plan

Aberdeenshire Local Plan (2006)

Scottish Executive Guidance

Draft National Planning Framework 2007

Planning Policy

Scottish Planning Policy 1 "The Planning System" (SPP 1)

Scottish Planning Policy 7 "Planning and Flooding" (SPP 7)

National Planning Policy and Guidance 14 "Natural Heritage" (NPPG 14)

Planning Guidance

Planning Advice Note 43 "Golf Courses and Associated Developments" (PAN 43)

Planning Advice Note 51 "Planning Environmental Protection and Regulation" (PAN 51)

Planning Advice Note 61 "Planning and Sustainable Urban Drainage Systems" (PAN 61)

Circulars

Scottish Planning Series Planning Circular 8-2007 "The Environmental Impact Assessment (Scotland) Regulations 1999"

Documents in relation to Application

1. All consultations
2. Application and all drawings/plans
3. EIA

2. Other Documents

Electronic or paper copies of the following documents have been provided to all relevant persons.

Legislation

SEPA1

Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy [The Water Framework Directive]

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2000L0060:20011216:EN:PDF>

SEPA2

Water Environment and Water Services (Scotland) Act 2003

http://www.opsi.gov.uk/legislation/scotland/acts2003/asp_20030003_en_1

SEPA3

Water Environment and Water Services (Scotland) Act 2003 (Designation of Responsible Authorities and Functions) Order 2006

http://www.opsi.gov.uk/legislation/scotland/ssi2006/ssi_20060126_en.pdf

SEPA4

Scottish Statutory Instrument 2005 No. 348 The Water Environment (Controlled Activities) (Scotland) Regulations 2005

<http://www.opsi.gov.uk/legislation/scotland/ssi2005/20050348.htm>

SEPA Policy and Guidance Documents

SEPA5

SEPA's Groundwater Protection Policy

<http://www.sepa.org.uk/pdf/policies/19.pdf>

SEPA6

SEPA's Biodiversity Position Statement

[no electronic link]

Correspondence and Further Information

SEPA7

e-mail dated 23 April 2008 from Mr Alastair Scott-Kiddie of Fairhurst, acting for the applicant, to SEPA, with, *inter alia*, attached Ironside Farrar document "SEPA Planning Consultation Response 28.03.08" with responses to SEPA consultation issues

SEPA8

e-mail dated 28 April 2008 from Mr Alastair Scott-Kiddie of Fairhurst, acting for the applicant, to SEPA, with further responses to SEPA consultation issues

SEPA9

e-mail dated 29 April 2008 from Mr Alastair Scott-Kiddie of Fairhurst, acting for the applicant, to SEPA, with attachment of text of Site Investigations Report. Note that the Site Investigation Report ("Interpretative Report" dated 17 January 2008) is identified as Document T68 in the Applicant's Statement of Case.

SEPA10

e-mail dated 29 April 2008 from Mr Alastair Scott-Kiddie of Fairhurst, acting for the applicant, to SEPA, with further responses to SEPA consultation issues and attachment of revised Drainage Assessment (Fairhurst Reference: Drainage Assessment, 71236, Date 29.04.08, Revision 1)

Technical Documents

SEPA11

Davy, A.J., Grootjans, A.P., Hiscock, K. and Petersen, J. (2006) Development of eco-hydrological guidelines for dune habitats - Phase 1. English Nature Research Report Number 696.

www.english-nature.org.uk/pubs/publication/PDF/RIN696.pdf

SEPA12

UK Technical Advisory Group on the Water Framework Directive (2003) Guidance on the identification of groundwater dependent terrestrial ecosystems. UK-TAG paper 5a-b. With accompanying updated annex (to be approved by UK-TAG 25 June 2008).

http://www.wfduk.org/tag_guidance/Article_05/Folder.2004-02-16.5312/TAG2003%20WP%205a-b%20%2801%29

Annex 1

1. Issues Raised by SEPA now Resolved

1.1 SEPA identified several specific issues in its letter of 29 August 2007 which have been resolved.

1.2 "ii) Incomplete baseline data (including flora and fauna) and inconsistency of methodology and expertise in some of the baseline surveys;"

1.2.1 The applicant has more recently stated (Ironsides Farrar spreadsheet in Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7):

"Ecological baseline information is now complete. Bryophyte surveys will be conducted as per Planning Condition 55 as a pre-start condition. No further action required - TIGLS notes SEPA reference to Para 6.9 and 6.1.3 of their Response to Aberdeenshire Council and Statutory Consultees, July 2007".

1.2.2 The applicant has further responded to this (e-mail Fairhurst to SEPA 29 April 2008; SEPA10):

"Baseline information and Response to Aberdeenshire Council has been forwarded to SEPA by Ironsides Farrar".

1.2.3 SEPA has reviewed all the submitted ecological baseline information and can confirm that, insofar as its interests are concerned, no further ecological information is required.

1.3 "iv) An assessment of the impacts on the intertidal and subtidal environments including the strandline and outer foredune face and any changes in sediment transport;"

1.3.1 The applicant has more recently stated (Ironsides Farrar spreadsheet in Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7):

"No physical changes to the intertidal and subtidal environments are proposed therefore no action required. This could be dealt with by Planning Condition if a SEPA requirement."

1.3.2 SEPA can confirm, insofar as its interests are concerned, that it requires no further information on intertidal and subtidal environments. SEPA does not seek a planning condition in relation to this aspect but defers to Scottish Natural Heritage to advise further in this regard.

1.4 "v) An assessment of the wider implications of stabilising mobile sand dunes including the sediment transport processes taking place at the wider scale within the Girdle Ness to Cairnbulg sediment cell as a whole (Cell 2D, SNH Coastal Cells);"

1.4.1 The applicant has more recently stated (Ironsides Farrar spreadsheet in Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7):

"No physical modifications are proposed to the coastal dune ridge and upper beach, therefore no change to the on-going human activity in this area."

1.4.2 SEPA can confirm, insofar as its interests are concerned, that it requires no further assessment of the wider implications of stabilising mobile sand dunes.

1.5 **"vi) An assessment of potential impacts on coastal waters (including sediment contamination)".**

1.5.1 The applicant has more recently stated (Ironsides Farrar spreadsheet in Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7):

"FAIRHURST to confirm via groundwater investigation and works to date that no impacts on coastal waters will result. Protection of groundwater and coastal waters will be afforded by Planning Condition 8 Requirement for submission and approval of Water Management Plan."

1.5.2 The applicant has further responded to this (e-mail Fairhurst to SEPA 29 April 2008; SEPA10):

"We have updated and referred to this specific item in our Drainage Assessment noting that given the appropriate use of SUDS potential impacts will be mitigated. We also note that the Council's Flood and Coastal Protection Engineer has approved our Drainage Assessment. A copy of this Approval was issued to you prior to our meeting."

1.5.3 SEPA can confirm, insofar as its interests are concerned, that it requires no further assessment of potential impacts on coastal waters.

1.6 **"xi) An assessment of flood risk, particularly to the club house, in light of proposed changes to the dune system;"**

1.6.1 SEPA noted in its consultation response dated 29 August 2007 that:

"SEPA notes that an initial assessment of flood risk has been provided which indicates that this area is not currently at risk of flooding and this risk is not likely to increase as a result of the proposals".

1.6.2 SEPA can confirm, insofar as its interests are concerned, that it requires no further information relating to flood risk.

1.7 **"xii) Details of predicted visitor numbers from all sources (golfers, walkers etc) and their management and an assessment of the resulting impacts on the dune system."**

1.7.1 The applicant has more recently stated (Ironsides Farrar spreadsheet in Fairhurst e-mail of 23 April 2008 to SEPA; SEPA7):

"Visitor numbers and access provision to the site will be detailed as part of the Access Strategy for the development under Planning Condition 33. This Strategy will ensure that impacts to the dune system are managed and minimised through access provision and visitor education.

"A response to the hosting of Championship events was provided in Section 5.8 and 6.8 of the TIGLS Response to Aberdeenshire Council and Statutory Consultees, July 2007. The R&A have conducted numerous assessments of the impacts of visitors to links courses as part of the Open Championship including those with designations. These assessments conclude that these events do not have negative impacts on sensitive habitats or species if managed according to best practice."

- 1.7.2 SEPA can confirm, insofar as its interests are concerned, that it requires no further information relating to impact on the dune system from visitor numbers. SEPA does not seek a planning condition in relation to this aspect but defers to Scottish Natural Heritage to advise further in this regard.

Annex 2

Hydrogeological Review of "WA Fairhurst & Partners. Proposed Trump International Golf Links, Scotland – Interpretative Report. January 2008. Ref: 71236."

1. Introduction

1.1 An intrusive ground investigation was undertaken in Autumn 2007 to assist the design and construction of the proposed golf links course. The investigation was undertaken to:

- Provide information on the ground conditions
- Assess the potential groundwater resource for irrigation.

1.2 SEPA has reviewed this report in an hydrogeological context.

2. Site Description

2.1 The intrusive ground investigation has been undertaken in a sub-area of the development site. The sub-area is located along the coast and includes part of the golf course, the driving range and club house and a potential pond location. The sub-area lies outwith the Foveran Links SSSI.

2.2 Additional ground investigation works in other parts of the site need also to be undertaken and reported.

2.3 The investigation site comprises dune, inter-dune areas and part of the back dune area.

2.4 The blown sand deposits of the links area are classed as an intergranular aquifer of moderate productivity. The Glaciofluvial sand and gravel deposits of the Logie Buchan Drift Group are an intergranular aquifer of high productivity. The bedrock is classified as a fractured aquifer of low productivity.

2.5 Scope of Investigation

2.5.1 The intrusive ground investigation comprised:

- 3 no. rotary boreholes, 2 with monitoring installations (BH07 grouted up as flowing artesian)
- 6 no. cable-percussion boreholes, all with monitoring installations
- 11 no. Competitor boreholes plus 1 no. hand pit (CH1), 3 with monitoring installations (CH02, CH04, CH10)
- 27 no. trial pits
- Geotechnical testing
- Groundwater level and quality monitoring (1 round).

2.5.2 The exploratory hole locations are shown superimposed on an aerial photograph of the site. The exploratory holes are subdivided into three categories: on dune, back dune and interdune.

2.5.3 It is noted that TP15 is shown twice; the southern location appears to be the correct one. TP28 is not shown.

2.6 Comments on Scope of Investigation

- 2.6.1 It would be desirable to have a detailed site plan, although it is noted that the exploratory holes have been surveyed and levelled and the relevant location data provided.
- 2.6.2 None of the exploratory holes extended to rockhead, although it is acknowledged that there was an issue with flowing artesian conditions which may have constrained deeper investigation.
- 2.6.3 The majority of the monitoring wells (BH01 to BH06, BH08 & BH09) have response zones below peat or clay layers and thus may not be suitable for monitoring any near-surface perched groundwater bodies that may be of significance to the wetland features.
- 2.6.4 Only one round of groundwater level monitoring appears to have been undertaken. The date and time at which the measurements were taken is unreported. Regular monitoring of groundwater levels over a longer period would aid characterisation of any seasonal or other temporal trends.
- 2.6.5 It is reported that dataloggers were used in BH04, BH06 and BH09 to assess any potential tidal response in the groundwater level. It is reported that no tidal response was observed but the datalogger data is not presented. This data should be provided. It should also be noted that these boreholes are set slightly back from the coast; tidal response in the groundwater may occur nearer to the coast.
- 2.6.6 Only one round of groundwater quality monitoring was undertaken. The date and time at which the samples were taken is unreported. Regular monitoring of groundwater quality over a longer period would aid characterisation of any seasonal or other temporal trends. It is noted that the monitoring suite does not include many nutrients or any agrochemicals; it would be desirable to widen the analytical suite to allow a baseline dataset of potential contaminants of concern to be developed. Field testing for basic hydrochemical parameters would also be desirable. It is noted also that the quality monitoring undertaken did not investigate any potential vertical trends in salinity.
- 2.6.7 It is noted that there are exploratory holes in the immediate vicinity of some of the wetland features identified on Figure 7.3 of the ES, but the available plans are insufficiently detailed to permit accurate correlation between the vegetation types and the ground conditions. A combined and more detailed site plan showing the locations of the exploratory holes relative to the wetland features would be very useful.

2.7 Investigation Findings

- 2.7.1 The report summarises the ground conditions encountered in the exploratory holes. It is noted that the descriptions provided are geotechnical.
- 2.7.2 The exploratory holes encountered lateral and vertical variations in the superficial deposits. The near-surface superficial deposits are predominantly granular. The Particle Size Distribution (PSD) testing indicated that these deposits are predominantly uniformly graded sands. Locally gravels and cobbles are present and locally the sands are described as silty. There are peat and cohesive deposit horizons present locally, predominantly at depth. The peat and cohesive horizons do not appear to be laterally consistent across the site as a whole but are locally consistent between adjacent exploratory holes. Only TP27 had peat deposits within 0.5m of ground level (immediately below topsoil). Only a further two exploratory holes (TP08 and TP11) have peat deposits within 1m of ground level.

- 2.7.3 It is noted that the uniformly graded and granular nature of the sediments suggest they may be potentially susceptible to piping. This should be taken into consideration during the detailed design of any drainage features or abstraction points.
- 2.7.4 The organic content of the granular soils ranges from <0.1 to 4.4%. The organic content of the cohesive soils ranges from 2.6 to 29.3%. The organic content of the peat ranges from 12.6 to 48.9%.
- 2.7.5 The measured moisture content of the granular soils ranges from 2.3 to 56%, but approximately two-thirds of the samples from above the water table had moisture contents less than 10%. This suggests that the material may be relatively freely draining. The moisture content of the cohesive soils ranges from 25 to 206%. The moisture content of the peat ranges from 22 to 559%.
- 2.7.6 The exploratory holes indicate the presence of multiple groundwater tables. The degree of hydraulic connection between the differing groundwater units is unclear.
- 2.7.7 There is a groundwater body above the peat/cohesive horizons, which is potentially perched. This appears to be laterally discontinuous.
- 2.7.8 There is another groundwater unit below the peat/cohesive horizons. This is the unit which the majority of the monitoring wells have response zones in. The groundwater level monitoring of the wells presented in Section 7.4 suggests that groundwater in this unit is flowing towards the coast. Groundwater levels range from 0 to 2.56mbgl, which is equivalent to 5.88 to 10.78mOD. The results suggest that this groundwater unit may be confined. Flowing artesian conditions were encountered in BH07 and BH09.
- 2.7.9 Infiltration tests were undertaken in 17 no. trial pits. The infiltration test results ranged from 1.1×10^{-4} m/s to 8.5×10^{-5} m/s for the granular deposits. The majority of the infiltration tests where peat was present failed owing to extremely slow water outflow.
- 2.7.10 Slug tests were undertaken in seven of the boreholes. The results ranged from 3.6×10^{-6} m/s to 5.12×10^{-5} m/s plus in BH08 the test failed owing to too rapid recovery indicating a high permeability. The two lowest results were interpreted by Fairhursts as being potential underestimates owing to initial recovery data not being collected. This may be possible but it would have been preferable to have repeated the tests to confirm this hypothesis. The quoted range of permeabilities is considered reasonably consistent with that which would be expected for a sand aquifer.
- 2.7.11 The hydraulic testing indicated that the granular deposits are relatively permeable. The peat and cohesive deposits are interpreted to be lower in permeability and to behave as aquitards.
- 2.7.12 It should be noted that the permeability of peat may vary temporally. This may be of significance for the proposed irrigation pond, which the report indicates would be founded in peat, and should be taken into account during detailed design.
- 2.7.13 The report identifies the main recharge area as being the hills to the west of Balmedie. Whilst this area may act as a recharge point, there is also potential for recharge within the Menie site, depending on the degree of hydraulic connection between the different groundwater units.
- 2.7.14 The water quality testing indicated that the groundwater is fresh. Only one exceedance of a standard environmental assessment level (EAL) was noted which was for potassium in BH06.

2.7.15 The water quality monitoring for BH09 included analysis for TPH, using a splits and carbon banding approach. This was undertaken owing to anecdotal evidence of hydrocarbon contamination in this area having occurred historically. No TPH was detected.

Determinand	Unit	Range
pH	-	6.5 – 7.9
Total Dissolved Solids	mg/l	180 – 330
Alkalinity as CaCO ₃	mg/l	39 – 140
Sulphate	mg/l	<10
Chloride	mg/l	37 – 96
Potassium	mg/l	2.4 – 18
Sodium	mg/l	23 – 38
Calcium	mg/l	<10 – 38
Magnesium	mg/l	5.1 – 27

2.8 Implications of Ground Conditions on Proposed Scheme

2.8.1 The report indicates that earthworks will be required to create the golf course topography. Additional earthworks will be locally necessary to take into account the variations in ground conditions.

2.8.2 The presence and nature of the peat and cohesive deposits suggest that settlement may potentially occur. It should be noted that settlement may be caused by groundwater abstraction as well as by construction activities. Settlement may locally affect surface run-off and drainage patterns.

2.8.3 The existing boggy areas and associated peat and cohesive deposits will have to be taken into account during detailed design of the drainage systems.

2.8.4 Dewatering of excavations may be required during construction. It should be noted that, depending on the scale and duration of such dewatering works, CAR permits may be required.

2.8.5 The report concludes that there is good potential for the groundwater to be utilised as a resource for golf course irrigation.

2.8.6 The likely requirement for a CAR permit for groundwater abstraction is noted as is the possible requirement for a CAR permit for pumping tests. It should be noted that this CAR permit is also likely to cover the construction phase of the production wells.

2.8.7 The report makes reference to step-drawdown pumping tests but it should be noted that the CAR permit is likely to require a constant-rate pumping test to be undertaken also. The likely scope and duration of the pumping tests that will be required under CAR cannot be determined until further details regarding the proposed abstraction, particularly with respect to abstraction rates and volumes, are available.

2.8.8 The potential for groundwater abstraction to cause saline ingress is identified within the report. No detailed quantitative assessment regarding this is presented but it is identified as being required.

2.8.9 No discussion of the potential impacts of abstraction on ecological features is presented. Quantitative assessment of these impacts will be required.