15 Water

15.1 Introduction

This chapter describes and assesses the potential effects of the proposed development on hydrology (incorporating water quality, drainage and flooding). Hydrogeology is addressed separately in **Chapter 14** ***Land and Soils***. The assessment methodology is detailed in **Section 15.2** and the receiving environment is also described (**Section 15.3**). The characteristics of the proposed development (with respect to hydrology) are detailed in **Section 15.4**. The proposed development is defined in detail in **Chapter 4** ***Description of the Proposed Development*** and in **Chapter 5** ***Construction Activities*** of this EIAR.

Mitigation and monitoring measures are proposed (**Section 15.6**), cumulative effects (**Section 15.7**) and the predicted residual effects (**Section 15.8**) are also described.

15.2 Assessment Methodology

15.2.1 Guidance

This appraisal is based on a desk study, in which a review was undertaken of published information, existing studies and site investigations (including a site walkover) which have been carried out at the existing Indaver site in Carranstown.

This chapter has been prepared having regard to the following guidelines:

- CIRIA (2001) Good practice guidelines on the control of water pollution from construction sites (Construction Industry Research and Information Association (CIRIA) 2001);
- Guidelines for Planning Authorities on ‘The Planning System and Flood Risk Management’ published in November 2009, jointly by the Office of Public Works (OPW) and the then Department of Environment, Heritage and Local Government (DEHLG);
- TII (2008) Environmental Impact Assessment of National Road Schemes – A Practical Guide ((NRA) 2008a);
- TII (2008) Guideline on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (NRA 2008c); and
- TII (2008) Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (NRA 2008b).

15.2.2 Desk Study

Sources of information utilised for this assessment include the following:

- Site Investigations and previous studies:
  - Site walkover carried out by Arup in October 2019; and
  - Site Specific Flood Risk Assessment completed by McElroy Associates in January 2020, refer to **Appendix 15.1**.
- Flood Risk Assessment
  - Department of the Environment, Heritage and Local Government/Office of Public works guidelines (2009), "*The Planning System and Flood Risk Management Guidelines for Planning Authorities*", including Appendix A Identification and Assessment of Flood Risk
- Chapters 4 and 5 of this EIAR;
- Drawing **29043-CD-001** "Existing Drainage Layout" (see **Appendix 5.2** of **Volume 3**);
- Drawings **29043-CD-014** to **29043-CD-018** "Proposed Drainage Layout" (in **Appendix 5.2**);
- Drawing **29043-CD-019** "Natural Drainage GA" (in **Appendix 5.2**);
- Inspector's Report[1] (2018) for a SID Alteration Request to An Bord Pleanála, Case Ref. PL17.302447.

The public sources of information used in this chapter are as follows:

- Historical Maps, Ordnance Survey of Ireland;
- Published geological, soil, groundwater, surface water, aquifer, recharge and aggregate potential maps obtained from the Geological survey of Ireland (GSI);
- Waste and IPPC licensed facility maps (EPA Geoportal);
- EPA online Envision Map Viewer (www.epa.ie);
- Eastern River Basin District (ERBD) Management Plan;
- Potential flooding information from the OPW Catchment Flood Risk Assessment and Management (CFRAM) (www.myplan.ie);
- Predicted extreme water levels and flood extent maps from the Irish Coastal Protection Strategy Study (ICPSS), May 2011;
- Flood history of the site from the OPW National Flood Hazard Mapping website (www.floodmaps.ie);

[1] Inspector's Report (2018), available from ABP at: http://www.pleanala.ie/casenum/302447.htm.

- Preliminary Flood Risk Assessment (PFRA) Mapping produced by the OPW, March 2012 (www.cfram.ie/pfra);
- Aerial photography and mapping from Google Maps (2018);
- National Waste Collection Permit Office (http://www.nwcpo.ie/);
- 'Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors' (CIRIA 532, 2001).

15.2.3 Site Description

The site of the proposed development is located at an existing waste to energy plant at Carranstown, Duleek, Co Meath and is approximately 4.5km to the south-west of Drogheda town.

The R152 forms the southern boundary of the site. The rest of site borders greenfield lands and a number of residential properties.

The ground levels of the site vary considerably sloping down in the south - north direction. In the south of the site the levels vary from circa 34mOD to circa 44mOD. In the north of the site the ground levels vary from circa 30mOD to circa 37mOD. There are embankments and elevated grounds along the south and west boundaries, keeping a minimum level of 37mOD.

A detailed description of the proposed development is provided in **Chapter 4** ***Description of the Proposed Development*** of this EIAR.

15.3 Receiving Environment

The existing environment is discussed in terms of hydrology. The assessment draws on desk study information, related reports and site history.

15.3.1 Hydrology

15.3.1.1 Existing Hydrological Environment

The site is located within the Nanny-Delvin river basin catchment (EPA Catchment Code 08) which includes the area drained by the Rivers Nanny and Delvin. The main hydrological feature in the vicinity of the site is the River Nanny, which is located about 2km to the south of the site.

The nearest rivers and streams are the Cruicerath Stream that flows approximately 200m to the west of the site, and the Platin Stream that flows approximately 500m to the east of the site. These surface water features are indicated on **Figure 15.1**. It is noted that there is no water quality data available for either of these two streams.

Figure 15.1 Surface water features. Source Bing Maps and EPA.

The EPA mapping database[2] on rivers (consulted 20 April 2020) indicates the overall river water quality status of the River Nanny for the 2013-2018 monitoring is "Poor" to "Moderate". The river water quality status is based on the least status for the six water quality elements monitored (fish, general physic-chemical, hydromorphology, macroinvertebrates-margaratifera and plants).

The River Nanny waterbody has been assigned an 'At Risk' status as a river at risk of not achieving Good water quality status in the future, under the Water Framework Directive monitoring programme.

In terms of Natura 2000 sites, the River Nanny discharges to the River Nanny Estuary and Shore SPA circa 11.3 km downstream the site location. This SPA includes the Laytown Dunes/Nanny Estuary pNHA, located circa 10 km downstream.

15.3.1.2 Flood Risk

Flood risk to the site of the proposed development was assessed by McElroy Associates (Refer to **Appendix 15.1** ***Flood Risk Assessment***). Potential sources of flooding considered included:

- Fluvial Flooding;
- Tidal/Coastal Flooding;
- Groundwater Flooding;
- Pluvial/Urban Drainage Flooding.

[2] EPA Catchments Maps, www.catchments.ie/maps/

A summary of the findings of the flood risk assessment is as follows:

Pluvial/Urban Drainage Flooding

There is no record of pluvial flooding on the site and the existing stormwater attenuation system is designed for a 1% AEP event including an addition of 20% to allow a climate change scenario. Therefore, it was concluded that pluvial flooding risk is minimal.

Fluvial Flooding

The FEM FRAMS show the site outside the fluvial flooding risk boundary of the River Nanny. Flood risk from the Cruicerath stream is unlikely too, following the PFRA outcome and the difference in ground levels between the stream and the site (1.5 – 2.0m as noted in the FRA).

Therefore. it is concluded that the flood risk at the site is unlikely and the site meets the criteria for Flood Zone C as set out in Clause 2.23 of the Planning System and Flood Risk Management Guidelines.

Tidal/Coastal Flooding

The site is located 10km away from the coastline and meets the criteria for Flood Zone C as set out in the Clause 2.23 of the Guidelines. Therefore, it was concluded there is no tidal flooding risk.

Groundwater Flooding

There is no record of groundwater flooding. Groundwater levels at the site have been observed in excess of 30m below existing ground levels from the monitoring boreholes installed in the site. Therefore. it is considered that groundwater flooding risk is minimal.

15.3.1.3 Water Framework Directive

The Water Framework Directive (WFD) (2000/60/EC) established a framework for the protection of all waters including rivers, lakes, estuaries, coastal waters, groundwater, and their dependent wildlife/habitats.

One of the key aims of the WFD is achieving “good status” for all waters by a set deadline. The EPA database provides information on the current status of all waterbodies in Ireland including lake, river, transitional and coastal waterbodies.

As noted above, the streams in the vicinity of the Indaver site flow south into the River Nanny which is monitored as part of the WFD. The River Nanny has a River Waterbody Score that indicates it is:

“At risk of not achieving good status” (EPA database, 2018).

Table 15.1 presents water quality data on the River Nanny from two stations closest to the site:

- Bridge north east of Bellewstown Station (RS08N010500), located approximately 1.76km towards the south east, has records from 1974;

- Nanny (Meath)- bridge station, south of Beaumont (RS08N010600), has records from 2014.

Table 15.1: Q value records. Source: EPA Database

Station	1974	1978	1980	1982	1986	1988	1991	1996	1998	2001	2005	2008	2010	2014	2017	2018
Br NE of Bellewstown Ho	1-2	3	3	3-4	3-4	3	3-4	3	3-4	3	3-4	3	3-4	3-4	3-4	3-4
NANNY (MEATH) - Br u/s Beaumont Br	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	

The different Q values stand for the following status:

- 1-2: Bad
- 3: Poor
- 3-4: Moderate

It can be seen from the data presented in the table that the existing water quality in the River Nanny around the discharge point of the site is poor to moderate.

15.3.2 Onsite Drainage

15.3.2.1 Introduction

The existing storm water (i.e. surface water) drainage collection system is described below. The terms storm water and surface water are used interchangeably in this document.

15.3.2.2 Surface Water Management

A detailed description of the existing storm water control and management at the Indaver site is presented in **Section 4.3.2** of **Chapter 4** ***Description of the Proposed Development***.

Storm water runoff from the site passes through a Class 1 petrol interceptor before being collected in an attenuation pond which has a total volume of 2,887m^3. In the existing scenario only 1,649m^3 is required to provide attenuation for the 1 in 100-year storm event. The pond discharges via pump to an external drainage ditch which in turn leads to the Cruicerath River c.130m to the west of the site, and River Nanny c.2 km downstream.

Two continuous monitoring points in the system measure TOC, pH and conductivity, prior to the attenuation pond and at the outfall of the attenuation pond. Stormwater must be below set trigger levels before it can enter either the

pond or before it can be discharged at the outfall. Monitoring of storm water emissions is carried out under the EPA IE Licence (W0167-03).

If the concentrations of TOC, pH and conductivity exceed the limits agreed with the EPA (under the IE Licence) at the first monitoring point, storm water is diverted to an underground storage (firewater) tank and collected for disposal at an authorised facility. Should this tank be full, the surface water overflow is diverted to the attenuation pond. If the concentrations of TOC, pH and conductivity exceed the limits at the second monitoring point the discharge pumps shutdown and water that cannot be discharged is disposed of to a licensed contractor.

Undeveloped site areas drain naturally through field boundary ditches and eventually reach the River Nanny.

Existing stormwater discharges are therefore in full compliance with EPA licence requirements.

Refer to drawing **29043-CD-001** for the existing drainage network in **Appendix 5.2** of **Volume 3**.

15.3.2.3 Foul Water

A description of the existing foul water and management at the Indaver site is presented in **Section 4.3.4** of **Chapter 4** ***Description of the Proposed Development***.

Domestic sewage is collected in an onsite effluent treatment system which passes through a septic tank and secondary treatment before being discharged to an engineered percolation area to ground, located adjacent to the 38kV sub-station. A second smaller effluent collection and discharge system is provided at the site security building. The percolation area was designed and constructed in accordance with EPA's *Wastewater Treatment Manual - Treatment Systems for Small Communities, Business, Leisure Centres and Hotels*, (1999).

Two effluent holding tanks are also utilised on site, one for the modular offices in the contractors compound and one for the temporary portacabins which are used during the annual maintenance shutdown. The contents of these holding tanks are transported off site for treatment regularly.

15.4 Characteristics of the Proposed Development

With regard to hydrology, **Section 4.6** of **Chapter 4** ***Description of the Proposed Development*** describes in detail the storm and foul water management proposed on site during operation.

Section 5.6 of **Chapter 5** ***Construction Activities*** describes in detail the storm and foul water management proposed on site during construction.

15.5 Likely Significant Effects

15.5.1 "Do-Nothing" Scenario

The do-nothing scenario refers to what would happen if the proposed development was not implemented.

In this scenario, the effects described in this chapter would not arise and for this reason the 'do-nothing' scenario is considered to have a neutral effect with regards to water.

15.5.2 Operational Phase

A detailed description of the surface water runoff and foul water management and foul proposed during the operation of the site are described in **Sections 4.6.1** and **4.6.3** of **Chapter 4** ***Description of the Proposed Development*** respectively.

The proposed development includes the construction of new buildings (warehouse, workshop & ERT/office building, rebuilt office, hydrogen generation unit and bottom ash storage building), a new concrete yard area and parking area for trucks, an upgrade to the existing staff car park and provision of additional hard standing areas on-site.

As discussed in **Section 4.6.1** of **Chapter 4** ***Description of the Proposed Development***, the storm water runoff from the new areas will discharge into the existing storm water system on site. Where required, new drainage infrastructure will be provided in order to collect runoff from new hard standing areas.

As discussed in **Section 4.6.1.2** of **Chapter 4**, the existing attenuation tank on the site has sufficient capacity to deal with the increase in surface water runoff from the proposed development. However due to specific constraints (regarding site levels and discharge rates that prohibit the expansion of the existing stormwater drainage network) it was not possible to extend the stormwater network to the concrete yard. The design solution is to attenuate the surface run-off to a tank with a pumping chamber located under the slab area from where it will be pumped to the nearest existing manhole chamber. **Tables 4.5** and **4.6** of **Chapter 4** gives the breakdown of the existing and proposed attenuation capacity for the site. This proposed attenuation tank has a volume of 146m^3 and is designed for a 30-year return period. This will increase the attenuation capacity on site from 2,887m^3, which is required for a 100-year event and includes a design allowance for climate change, to 3,033m^3, refer to **Tables 4.5** and **4.6** of **Chapter 4**.

The proposed stormwater drainage system is outlined in **Figure 4.14** of **Chapter 4** ***Description of the Proposed Development***. Full details of the proposed drainage network are included in drawing **29043-CD-015** in **Appendix 5.2** of **Volume 3**.

The proposed development will not increase flood risk off site during operation. The proposed development will therefore not have any impact on flood risk during operation.

In the event of a fire on site as is currently the case, fire water will be retained in the existing 300m^3 fire water retention tank and stored for removal from site for

disposal or for transfer to the tank farm for treatment in the furnace, as described in **Section 4.6.2** of **Chapter 4**.

15.5.3 Construction Phase

Section 5.6.3 of **Chapter 5** ***Construction Activities*** describes the storm water and foul water management on site during construction.

Surface water can potentially become polluted by spillages such as hydrocarbon leaks (fuel/oil/lubricants) from construction machinery or by siltation as a result of runoff, during construction.

The main works that could potentially affect the site are:

- Construction of gabions for the proposed truck layby in the west of the site, located along an existing ditch;
- Proposed concrete footpath and stairs in the centre of the site will cross over an existing ditch; and
- Proposed laydown area and access road to proposed hydrogen electrolyser, will be built over an existing underground filter drain.

The construction activities outlined above have the potential to temporarily alter the water quality in the study area. This would be considered a short-term effect and the significance of this effect is moderate/slight.

As outlined in **Section 5.6.3** of **Chapter 5** of this EIAR, surface water in the construction areas during the construction period will be infiltrated to ground via silt traps and managed soakaways. The laydown areas will be suitably drained and any areas which will involve the storage of fuel and refuelling will be paved and bunded and hydrocarbon interceptors will be installed to ensure that no spillages will get into the surface water or groundwater. These measures are sufficient to limit the discharge of any contaminants to groundwater during the construction phase.

Foul effluent impact during construction will be minimal as the contractors compound will be provided with self-contained toilet blocks and the effluent generated will be disposed of off-site by a specialist contractor. Refer to **Section 5.6.3** of **Chapter 5**.

The contractor will utilise the existing water supply connection in the contractors compound for onsite personnel during construction. This would be considered a short-term effect and the significance of this effect is imperceptible.

The proposed development will have no impact on floodplain storage and conveyance. The proposed development will also not increase flood risk off site during construction.

Earthworks on the site can however block overland drainage flow paths which result in a marginal increase in the risk of pluvial flooding. This is considered a short-term effect and can be appropriately managed by ensuring that during construction ground levels in the vicinity of any embankment, prevent water from collecting at any one point on the site.

15.6 Mitigation Measures and Monitoring

15.6.1 Construction Phase

A Construction Environmental Management Plan (CEMP) is contained in **Appendix 5.1** in **Volume 3** of this EIAR. It will be maintained by the Contractor for the duration of the construction phase. The CEMP will cover all potentially polluting activities and include an emergency response procedure. All personnel working on the site will be trained in the implementation of the procedures.

The contractor will maintain an incident and emergency response action plan which will cover all foreseeable risks, i.e. fire, flood, collapse etc. An Incident Response Plan (IRP) is located in **Section 8** of the **CEMP** in **Appendix 5.1 of Volume 3.**

The employment of good construction management practices will minimise the risk of pollution of storm water run-off, and any deterioration in the quality or quantity of surface water.

Section 14.7.1 of **Chapter 14** ***Land and Soils*** sets out a number of mitigation measures and monitoring measures to minimise the risk of effects on land and soils (including groundwater) during construction. These mitigation measures address excavation works; storm water and foul water management; material storage (including fuel, oil and other potentially contaminating materials); site hygiene; and waste management. These measures also apply to the protection of surface water and are therefore relevant for this chapter. Refer to **Section 14.7.1** of **Chapter 14** ***Land and Soils*** for further details.

In addition, the following measures shall also be implemented when working adjacent to or in the vicinity of ditches or streams to prevent uncontrolled runoff from the site into the watercourses:

- The perimeter of the construction area adjacent to the watercourse will be bermed to create a physical barrier between the site and the watercourse. Where there is insufficient space for a berm, a barrier will be created using trench sheeting along the boundary with the watercourse.
- Where cast-in-place concrete is required, all work must be carried out in the dry and effectively isolated from any flowing water (or water that may enter streams and rivers) for a period sufficient to ensure no leachate from the concrete.
- Waterproofing and other chemical treatment to structures in close proximity to watercourses shall be applied by hand.

Monitoring

The same monitoring measures will apply in relation to water protection as those detailed in **Section 14.7.1** of **Chapter 14** ***Land and Soils*** to protect soils and groundwater. In additional, the following monitoring measures for the protection of (surface) water quality are required:

- Where surface water run-off from the site construction works areas will be discharged to surface waters, monitoring will be carried out to ensure the concentration of suspended solids (SS) does not exceed 30 mg/litre.
- The contractor will be required to ensure that the sanitary facilities for the site personnel are maintained and effluent storage is regularly emptied and disposed of.
- The contractor will be required to ensure that the water supply to the site is maintained and free of contaminants.

15.6.2 Operation Phase

No mitigation measures are required to protect water quality or minimise any flood risk.

No additional water monitoring is proposed. The current monitoring carried out on site is sufficient. As described in **Section 4.9** of **Chapter 4** ***Description of the Proposed Development***, there are a number of existing monitoring measures on site to prevent any accidental emissions or spills and ensure fire water retention to minimise the risk to water quality.

Under the current EPA IE licence (W0167-03) surface water monitoring is carried out, as outlined in **Section 15.3.2.2**, and this monitoring will continue with the proposed development.

15.7 Cumulative Effects

Chapter 18 ***Cumulative Effects, Other Effects and Interactions***, lists a number of planned projects (i.e. has obtained planning permission) that may potentially have a cumulative impact on the environment if both the proposed development and the planned development (listed below) are constructed. Each planned project has been reviewed in turn below for the potential cumulative impacts on water and hydrology with the effects identified in **Section 15.5** of this chapter.

15.7.1 Irish Cement Ltd (Planning Ref. LB150375) - Cement silo

Irish Cement operate under and EPA IE Licence P0030-05. According to Section 7.3.2.1 of the EIAR[3] (2017), the average volume of water discharged to the River Nanny in 2016 from the Irish Cement site was 14,720m^3/day.

The Planner's Report[4] (2015), prepared by Meath County Council, states that '*the proposed development will not result in any additional water discharges'*.

[3] Available for inspection under EPA IE Licence application P0030-06, https://www.epa.ie/licensing/
[4] Available for inspection from Meath County Council Planning database, http://www.eplanning.ie/MeathCC/AppFileRefDetails/LB150375/0

Given the likely effects of the proposed development on hydrology and that there will be no change in surface water emissions as a result of this planned development at Irish Cement (Planning Ref. LB150375), it is concluded that there is no potential for significant negative direct or indirect cumulative effects on hydrology and water quality as a result of the proposed development and the planned development (Ref. LB150375).

15.7.2 Irish Cement Ltd (PL17.PA0050) - Alternative fuels and raw materials

The nature of proposed works at Irish Cement under PL17.PA0050 are regarding the increase in volume of alternative fuels accepted by the facility and as stated in Section 7.4.4 of the EIA Report[3] (2017), there will be no significant change in the nature or quantity of runoff to surface waters as a result of the planned development (ABP Ref. PL17.PA0050) at Irish Cement.

Given the likely effects of the proposed development on water and that there will be no change in surface water emissions as a result of this planned development at Irish Cement (ABP Ref. PL17.PA0050), it is concluded that there is no potential for significant negative direct or indirect cumulative effects on hydrology and water quality as a result of the proposed development and the planned development (ABP Ref PL17.PA0050).

15.7.3 SSE Generation Ireland Ltd (PL17.303678) - 110kV transmission substation

Chapter 9 (Water and Wastewater), of the Substation Environmental Report (ER)[5] (2019) prepared for the planning application (Ref. PL17.303678) states that surface water runoff will be discharged to the River Nanny via drainage ditches east of the site. The report states that '*There will be no change to the water volume discharged to the drainage ditch, with the volume of rainwater currently falling on site and being received by the existing drainage system, remaining the same*.' A number of mitigation measures were proposed in the ER to '*prevent any accidental contamination of surface water (rainfall) runoff from the site and prevent/contain any accidental discharges of hazardous substances'*.

Given the nature of the planned works (transmission station), it is concluded that there is no potential for significant negative direct or indirect cumulative effects on hydrology and water quality as a result of the proposed development and the planned development (ABP Ref. PL17.303678).

15.7.4 Highfield Solar Ltd. (PL17.248146) - Solar Farm

Given the nature and scale of the planned works (solar farm), surface water emissions will not be significant. The Inspector's Report[6] (2017), in Section 7.8.10 the Inspector stated, '*I am satisfied that the proposed development would not negatively impact on current drainage patterns or be at significant risk of*

[5] Substation Environmental Report (2019) available form: http://caulstown-platin-substation.com/downloads/environmental/substation-environmental-report.pdf
[6] Available from An Bord Pleanála, http://www.pleanala.ie/documents/reports/248/R248146.pdf

fluvial flooding'. Therefore, it is concluded that there is no potential for significant negative direct or indirect cumulative effects on hydrology and water quality as a result of the proposed development and the planned development (ABP Ref. PL17.248146).

15.7.5 Highfield Solar Ltd. (PL17.303568) - Electrical substation (110kV)

In Section 8.5.5 of the Inspector's Report[7] (2019) prepared by An Bord Pleanála, the Inspector stated that '*I consider that the attenuation and disposal of surface water associated with the proposed development is generally acceptable'*. Therefore, it is concluded that there is no potential for significant negative direct or indirect cumulative effects on hydrology and water quality as a result of the proposed development and the planned development (ABP Ref. PL17.303568).

Finally, from a water perspective, taking the Indaver Site Sustainability Project in combination with all of the five projects listed above, it is considered that there is no potential for any significant negative direct or indirect cumulative impact to arise given the location of the proposed development, the difference in construction programmes and the implementation of mitigation measures.

15.8 Residual Effects

15.8.1 Operational Phase

As the proposed development is predicted to have an overall neutral long-term impact on water quality and hydrology with the study area, there are no mitigation measures required and as such there will be no significant residual effect on hydrology, drainage characteristics of the site or water quality during operation.

There is no impact expected to the public sewer as a result of the proposed development.

The development will result in additional small demands on the public water network which are not considered to be significant, refer to **Chapter 4** ***Description of the Proposed Development*** and **Chapter 16** ***Material Assets***.

There will be no significant residual effect on flood risk caused by the operation of the proposed development.

15.8.2 Construction Phase

With the implementation of mitigation measures described in **Section 15.6.1** as well as those described in **Section 14.7.1** of **Chapter 14** ***Land and Soils***, there will be no significant residual effects on water (including water quality, water supply and flood risk/hydrology. during construction.

There are also no significant residual effects expected in relation to wastewater arising from the construction phase of the proposed development.

[7] Available from An Bord Pleanála, http://www.pleanala.ie/documents/reports/303/R303568.pdf

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