

Guidance for environmental permit applications: Part C6 – Variation to a bespoke water discharge activity and groundwater activity (point source discharge)

Please read these guidance notes carefully before you fill in the forms. All relevant guidance documents can be found on our website. This guidance will help you complete part C6 of the application form pack.

Where you see the term 'document reference' on the form, give the document references and send the documents with the application form when you've completed it. If you submit documents that are not required, please note that they are not assessed.

You only need to give us details in this application for the parts of the permit that will be affected (for example, if you are adding a new facility or making changes to existing ones). You do not need to resend any information from your original permit application if it is not affected by your proposed changes.

How to contact us: If you need help filling in this form, please contact the person who sent it to you or contact us by:
General phone enquiries: 0300 065 3000 (Monday to Friday, 8am to 6pm).
Email: enquiries@naturalresourceswales.gov.uk / ymholiadau@cyfoethnaturiolcymru.gov.uk
Website: www.naturalresources.wales / www.cyfoethnaturiol.cymru

Where to send your application: You can send your application by email or in the post. We can process applications more quickly, if we receive them by email (electronically). Send your completed application form to:
Email: permitreceiptcentre@naturalresourceswales.gov.uk / canolfanderbyntrwyddedau@cyfoethnaturiolcymru.gov.uk
Post: Permit Receipt Centre, Natural Resources Wales, Cambria House, 29 Newport Road, Cardiff, CF24 0TP
Canolfan Derbyn Trwyddedau, Cyfoeth Naturiol Cymru, Ty Cambria, 29 Heol Casnewydd, Caerdydd, CF24 0TP

Contents

- 1 About the effluent – details and type
 - 2 How long will you need to discharge the effluent for?
 - 3 Discharge options
 - 4 How much do you want to discharge?
 - 5 Intermittent sewage discharges
 - 6 How will the effluent be treated?
 - 7 What will be in the effluent?
 - 8 Monitoring arrangements
 - 9 Emissions of substances not controlled by emission limits management plan
 - 10 Design criteria
 - 11 Where will the effluent discharge to?
 - 12 More information from you
- Appendix 1 – Discharges to non-tidal river
Appendix 2 – Discharges to tidal river, tidal stream, estuary or coastal waters
Appendix 3 – Discharges to a lake or pond
Appendix 4 – Discharges into land
Appendix 5 – Discharges onto land
Appendix 6 – Discharges to a borehole or well

What am I applying for?

This application is to vary (change) a bespoke water discharge activity or groundwater point source discharge activity environmental permit.

Which forms do I have to complete?

You should have already completed part A and part C2. Now you need to fill in part C6, including any relevant appendices, once for each effluent you are applying for.

If you are applying for more than one activity from your site these will all form part of your single environmental permit.

1 About the effluent – details and type

1a Tell us the source of the effluent you will be treating and discharging. For example, the nature of the trade carried on at the premises, or which premises are connected to the sewage treatment plant.

Where the discharge is from a sewage treatment plant operated by a water company and serving an 'agglomeration' you must tell us the name of the agglomeration and the population equivalent served by the treatment plant. (An agglomeration is where a population is sufficiently concentrated for urban waste water to be collected and treated in an urban waste water treatment plant).

1b Effluent name: This name will be used throughout the application and may be used in the permit to identify this effluent. If you have more than one effluent you must ensure that each name you use is distinct. For example, package sewage treatment plant effluent, septic tank effluent, cooling water, site drainage and so on.

1c Tick the box if this is a release from a dam, weir or sluice ('reservoir release') under Schedule 21 of the EPR meaning of water discharge activity.

1d What effluent or effluents are you applying for?

For each individual discharge choose your effluent type from Table 1 and complete the questions indicated in the table.

What do the effluent types cover?

- Trade effluent (known volume): including process effluents, washwaters, close circuit cooling waters, boiler blowdown, filter backwash, pumped minewater | Trade effluent (rainfall dependent): site drainage
- Trade effluent (returned abstracted water): including fish farms, watercress farms, abstracted cooling water – also follow this category for any discharge of recirculation water arising from ground source heating and cooling schemes
- Intermittent settled storm: settled sewage from a sewage treatment works receiving combined sewage effluent
- Intermittent combined sewer overflow: storm sewage from a sewerage network or discharged at the head of a sewage treatment works
- Intermittent emergency overflow: emergency discharge from a sewage pumping station
- Treated sewage (water company): treated sewage effluent discharge from a sewage treatment works operated by a sewerage undertaker
- Domestic treated sewage (private ownership): treated domestic sewage effluent discharge from a sewage treatment works operated by a private owner or owners (see definition of 'domestic sewage' below)
- Mixed effluent (all volumes known): a mix of more than one trade effluent (known volume) or trade effluent and domestic treated sewage which share a treatment facility and common monitoring point
- Mixed effluent (with rainfall dependent element): a mix of trade effluents (known volume) or domestic treated sewage (private ownership) with trade effluent (rainfall dependent) which share a treatment facility and common monitoring point

Definition of domestic sewage

Sewage shall be solely domestic in origin and contain no trade effluent (as defined in Section 221 of the Water Resources Act 1991).

For the purpose of this guidance 'domestic sewage' means sewage from residential settlements and services that originates predominantly from the human metabolism and from household activities. This includes waste water from cooking, washing up and clothes washing at guest houses, hotels, pubs and restaurants where these relate solely to activities on those premises. For instance, sewage from a guest house preparing meals for its guests and washing its own bedding qualifies as 'domestic sewage'.

Waste water from a site preparing food for consumption elsewhere or washing bedding on behalf of another person does not qualify as 'domestic sewage'.

2 About the effluent – how long will you need to discharge the effluent for?

2a Give a date when you want the permit for this effluent to start.

You cannot discharge your effluent prior to this start date on your permit unless you contact us and ask to change (bring forward) your start date. Charges will start on this date even if you have not started to discharge unless you contact us to change (delay) the start date. Please use the Administrative Variation application form (C0.5) for this, for which there is no fee.

2b If you are only planning to discharge for a short period you should indicate the last date on which a discharge will be made but please note that your permit will not cease on that date and you will still need to notify us to surrender the permit.

2c For seasonal discharges which will only occur for part of the year, indicate the period when the discharge will take place. Where a discharge will continue at a significantly lower rate over a period you should complete this question and also send in details of the seasonal variation. For example, campsites which are closed in winter but have a residual throughput from residential properties on site all year.

2d If you answer 'no' to this question you must be able to comply with the requirement to discharge on six days or fewer in any year as this will be a permit condition. It would apply only to batch processes such as the emptying of fish rearing ponds or planned shutdowns of plant or equipment.

3 Discharge options

We will not grant a water discharge or groundwater activity permit for a discharge from a private sewage treatment system where it is reasonable to connect to the public foul sewer provided by your sewerage undertaker (water company) or a private sewer connected to a foul sewer. You will need to check sewer records with your sewerage undertaker (usually your local water company) and also check to see if a connection to any private sewers is feasible if a foul sewer is not readily available.

We also expect discharges of trade effluent to connect to the public foul sewer, where it is reasonable to do so, and subject to the sewerage undertaker granting a trade effluent consent or agreement.

Where you are proposing a discharge from a private sewage treatment system in an area where it appears reasonable to discharge your effluent into a sewer, you must, as a minimum, send us evidence that you have approached the sewerage undertaker, and send us their formal response regarding connection under s98 or s106 of the Water Industry Act 1991. You must send us this evidence with your application.

Lack of capacity, or the existence of any plans to improve capacity, in the sewer are not valid reasons for a sewerage undertaker to refuse connection under section 106 WIA 1991. Where a sewerage undertaker refuses to allow connection under s106 on the grounds of lack of capacity the operator may appeal to Ofwat. We may refuse to issue a water discharge activity or groundwater activity permit in such circumstances.

For new discharges you need to show the difference in cost between connection to the foul sewer and cost of purchase and installation of your proposed treatment facility. This should include, but not be limited to, details of:

Foul sewer connection costs

- Sewer pipe;
- Pumping equipment, pump and sump pump, if necessary;
- Digging up of roadside verges, roads or land on the route to the sewer;
- Road closure costs, if necessary;
- Legal easements to cross land, if necessary;
- Initial connection and annual charges from the sewerage undertaker.

Proposed treatment facility costs

- Purchase;
- Installation;
- Maintenance;
- Annual Environment Agency subsistence fees (subsistence fees do not apply to discharges of treated domestic sewage effluent of five cubic metres (5m³) or less a day).

Your justification must also include details of any physical obstacles: for example, roads, railways, rivers or canals impeding your connection to a sewer.

If you are applying for an existing discharge you may give this as a reason for not connecting to a nearby sewer, but you must provide the date the treatment facility was installed as accurately as you can.

You can find additional guidance on connection to sewers in 'Technical Guidance Note 7.01 How to comply with your environmental permit and additional technical guidance for water discharge and groundwater (point source discharge) activities'.

You can get this by calling 0300 065 3000 or by downloading it from our guidance webpages.

4 How much do you want to discharge?

4a Dry weather flow (DWF) only applies to discharges of sewage effluent that may contain rainwater – usually the sewage treatment works operated by a water undertaker. Rainwater should be excluded from privately operated sewage treatment systems. 'Technical Guidance Note 7.01' describes how DWF is calculated and how compliance will be assessed.

4b This is the maximum volume that will be discharged in any day. You must ensure that you choose a volume you can always comply with. For some sewage effluent discharges and also some trade effluent discharges you must use the industry 'Code of Practice: Flows and Loads 3' to calculate your maximum daily flow.

'Flows and Loads 4 – Sizing Criteria, Treatment Capacity for Small Wastewater Treatment Systems (Package Plants)' is published by British Water (ISBN: 978-1-903481-10-3).

4c This is the maximum instantaneous rate at which the effluent is discharged at. It may be the maximum pumped rate, for example, in pumped discharges of quarry water, or the theoretical maximum flow from a gravity fed pipe from lagoons used to balance rainfall dependent discharges. For rainfall dependent discharges this should typically be based on the 1 in 30 year storm event.

4d In a mixed effluent this will be the maximum total daily volume of all the non-rainfall dependent elements of the mixed effluent.

4e In a mixed effluent this will typically be based on the 1 in 30 year storm event.

4f If you are applying for more than one effluent discharge you can reference the same document here for more than one part B6 form.

5 Intermittent sewage discharges

Further guidance can be found on the Environment Agency's website in the documents 'How to comply with your environmental permit' and 'Additional technical guidance 7.01 for water discharge and groundwater (point source discharge) activities'.

5f and h If your effluent is screened give the minimum screen capacity flows receiving screening. For split screens give details of the maximum flows receiving the mesh screening as well as the maximum flow receiving bar screening.

5e and g If your effluent is screened give details of the screen size in millimetres and type (bar, mesh or split screen.) If your effluent is from a combined sewer overflow and not screened enter 'N/A' in the answer line to this question and answer question 5j.

6 How will the effluent be treated?

6b You must choose each element of your treatment process in the order that they are carried out and enter them in Table 2.

You must write down the treatment type code number and also its standard description. The most common descriptions are listed below. If you are using one of these, you can insert the number and name of the type from the list below into Table 2. If you choose 'other', you must ensure that your short description adequately explains the treatment process.

Code	Treatment
99	None
32	No treatment required – good engineering design
14	Land irrigation
06	Septic tank
11	Screening
12	Maceration
10	Lagoon settlement

16	Oil interceptor
19	pH correction
09	Primary settlement
BS	Package treatment plant which meets BS 12566
29	Package treatment plant
01	Biological filtration
02	High rate biological
24	Oxidation ditch
04	Chemical
28	Flotation
31	Activated sludge
30	Reedbed
33	Membrane filtration
03	Tertiary biological
08	Chemical – phosphate stripping
17	Chlorination
18	Dechlorination
20	Activated carbon
21	Sand filtration
22	UV disinfection

Other

6c You must provide details of the final effluent discharge quality that the overall treatment system is designed to achieve. This should be after all the stages of treatment that you have listed in Table 2.

For discharges of treated domestic sewage effluent this must include biochemical oxygen demand, suspended solids and ammonia. For trade effluent discharges, the substances should reflect the substances that are likely to be present in the final effluent discharge

7 What will be in the effluent?

If you have answered 'yes' to any of 7a to 7d, you must give details, using the headings in the table in 7d, on a separate sheet. You must also send us any information on samples that you may have.

For discharges to surface water: you will need to decide whether or not your discharge is liable to contain any of the substances listed in the 'Horizontal Guidance H1 Environmental Risk Assessment Annex D, Appendix A' or any other harmful substance. You can get this by calling 0300 065 3000 or by downloading it from our guidance webpages.

For discharges onto or into ground: the two categories of substance you need to consider are hazardous substances and non-hazardous pollutants as described below.

Hazardous substances are the most harmful and must be prevented from getting into groundwater. This includes in particular the following substances or groups when they are toxic, persistent and liable to bioaccumulate:

- organohalogen compounds and substances that may form such compounds in the aquatic environment;
- organophosphorus compounds;
- organotin compounds;
- substances and preparations (or the breakdown products of these) that have been proved to have carcinogenic or mutagenic properties or properties that may affect steroidogenic, thyroid, reproduction or other endocrine related functions in or via the aquatic environment;
- metals and their compounds (particularly mercury and cadmium);

- persistent hydrocarbons and persistent and bioaccumulable organic toxic substances;
- cyanides;
- arsenic and its compounds; and
- biocides and plant protection products.

Non-hazardous pollutants are less harmful but can cause pollution if their input or discharge into groundwater occurs in an uncontrolled way. A non-hazardous pollutant is any pollutant other than a hazardous substance.

We need to know in all cases whether or not a discharge into or onto ground is liable to contain hazardous substances.

We only need information on specific non-hazardous pollutants to ground where this is not readily apparent from the generic description of the effluent. For example, we would not need a breakdown of the non-hazardous pollutant content of sewage unless it is expected to have unusually high concentrations of a particular pollutant. However if you propose to discharge a trade or other effluent you will need to specify the principal non-hazardous pollutant components.

Appendix A to Horizontal Guidance H1 Annex D is a useful reference for discharges into or onto ground even though this document is intended for discharges into surface water and shows surface water environmental quality standards. This list includes hazardous substances and non-hazardous pollutants that are also commonly of concern to groundwater, so if your discharge contains these substances you should tell us. However, you will need to consider whether there are any other hazardous substances or non-hazardous pollutants in your effluent that you need to declare.

More detail on what constitutes a hazardous substance can be found at <http://www.wfduk.org/jagdag/>

Substances may be present in the discharge because:

7a For water companies only, a substance may be authorised to be discharged into the sewerage network upstream of the sewage treatment works.

7b You may add chemicals to the effluent during the treatment process; for example, iron salts to remove phosphate. Or you may have substances present in your effluent as a result of activities on your site; for example, chromium can be present in effluents from concrete batching plants.

Your discharge may be liable to contain substances which are not shown in in Appendix A.

7c You have analysed your effluent and found substances present in the discharge.

7d The list in the Horizontal Guidance H1 Environmental Risk Assessment, Annex D, Appendix A is not exhaustive and if you accept, add or detect any other harmful substance (including hazardous substances or relevant non-hazardous pollutants as described above) you will need to tell us.

8 Monitoring arrangements

8a This is the sample point that will be used for discharges which are made up of returned abstracted water; for example, fish farms and cooling water. In these cases we will set a comparative limit to assess compliance against. It is also required for larger sewage treatment sites that meet the requirements of the Urban Waste Water Treatment Directive (UWWTD). It allows a composite sample of the influent to the sewage treatment works to be obtained. Further guidance on the UWWTD can be found on our guidance webpages. You must provide a permanent means of access to monitoring points.

8b This is the sample point used to assess compliance with any water quality emission limits on your permit. You must ensure that it allows a representative sample of the discharge to be obtained. You must also ensure that all constituents of the discharge pass through the sampling point at all times. The sample point can be where the effluent meets the receiving environment only in cases where no other effluent is added before this point. You must provide a permanent means of access to monitoring points.

Note for small existing discharges to ground only

If you are applying for a permit for an existing discharge of treated sewage effluent of not more than 5 cubic metres a day to ground (for example, using a drainage field) which does not already have a sample point we will not expect you to provide one.

8c This is a requirement for larger sewage treatment sites that meet the requirements of the UWWTD. It allows a composite sample of the final effluent from the sewage treatment works to be obtained. Further guidance on the UWWTD can be found on our website. You must provide a permanent means of access to monitoring points.

8d If your effluent has a maximum volume of not more than 50 cubic metres a day or less you do not need to complete questions d, e or f.

If you fall into this category you should enter 'N/A' in the answer line to this question.

This will be the location of your flow monitoring equipment where compliance with the volume limits on your permit will be assessed.

8e Further guidance can be found in 'How to comply with your environmental permit and additional technical guidance 7.01 for water discharge and groundwater (point source discharge) activities'. You can get this by calling 0300 065 3000 or by downloading it from our guidance webpages.

8f This type of monitoring point is only required for discharges that undergo some form of disinfection. For example, ozone or ultraviolet disinfection, membrane filtration and so on.

8g You must send us a map or plan that:

- is A4 or larger;
- is at a scale of 1:10,000 (approximately 6 inches to 1 mile); and
- shows clearly which direction North is.
- The plan should show:
 - the premises discharging effluent;
 - the site in relation to the local area; and
 - any watercourses, wells, springs or boreholes on the site (or within 50 metres of it).

Please also mark the map to show the points where:

- effluent is discharged into the controlled waters;
- samples of effluent and influent can be taken automatically or manually (if required); and
- flow or quality will be measured (if required).

You may submit more than one plan if necessary.

9 Emissions of substances not controlled by emission limits management plan

Note: If you operate a sewage treatment facility that only receives domestic sewage and discharges not more than 20 cubic metres a day you do not need to fill in this section.

9a Your permit will have a condition which requires that your permitted activity shall not cause pollution by the emission of substances not controlled by emission limits in your permit. You may choose to produce an emissions management plan to reduce the risk of pollution and if you have you can provide it with your application.

Guidance on what this condition and others which may be included in your environmental permit require of you can be found in 'How to comply with your environmental permit'. You can get this document by calling 0300 065 3000 or by downloading it from our guidance webpages.

9b Examples of circumstances where an emissions management plan may be produced to minimise the risk of pollution by the emission of substances without emission limits are:

- where you are using polymer dosing to enhance a treatment process and no emission limits for the polymer will be specified in the permit;
- where you are using short term one off chemical dosing in circumstances where we do not require an emission limit for the dosing substance to be included in the permit; and
- fish farm management plans covering the occasional use of prophylactic chemicals in accordance with manufacturer's instructions or veterinary prescription.

10 Design criteria

Further guidance can be found in 'H1 Risk Assessment Horizontal Guidance Note H1 Annex E – Surface Water Discharges (complex)' and 'H1 Risk Assessment Horizontal Guidance Note H1 Annex J – Groundwater'. You can get these by calling 0300 065 3000 or by downloading them from our guidance webpages.

We strongly recommend that you contact us for pre-application advice before submitting an application which requires you to carry out an assessment.

10a For discharges of final effluent from a water company WwTW, or intermittent sewage discharges, you must submit a sewer modelling report. We are unable to undertake this work on your behalf, but we can offer advice as to what assessment work needs to be done.

10b For discharges to lakes, estuaries, coastal waters or bathing waters you must submit a modelling report. We cannot undertake assessments on your behalf, but we can offer advice as to what needs to be done. If you do not have the skills to do this yourself, then you will need to engage a consultant to advise you and to undertake the assessment.

10c For discharges to a non-tidal river, in general, if you prefer, you can provide us with the details of the discharge you wish to make, and we will do a basic level of risk assessment for you. Most of the information we will need to do this can be provided on the application form, but you may need to add other relevant details. If our assessment concludes that we are not able to accept the proposed activity, we may ask you to provide further evidence by carrying out a higher level of risk assessment yourself using H1 Annex E guidance, or we may advise you that the proposed discharge is unacceptable. Where you plan to do the assessment yourself you may need to contact us for information or advice first.

10d For discharges to groundwater you must submit a groundwater quantitative risk assessment. We cannot undertake assessments on your behalf, but we can offer advice as to what needs to be done. If you do not have the skills to do this yourself, then you will need to engage a consultant to advise you and to undertake the assessment.

For groundwater remediation schemes you must send us a site-specific remediation strategy which has been agreed with the local Natural Resources Wales Geoscience Team. This should include:

- Conceptual model;
- Quantitative site-specific risk assessment;
- Site-specific remedial targets;
- Details of the contaminant concentrations contained within the proposed discharge.

11 Where will the effluent discharge to?

Effluents are usually discharged to one location in one receiving environment.

However, if your effluent can be discharged to more than one location within a single receiving environment, for example, two different discharge points on a non-tidal river, you should complete the appropriate appendix and ensure you give all relevant details of every discharge point that the effluent can be discharged through. To do this you will need to complete a relevant appendix for each separate discharge point for an effluent and explain any different circumstances under which each is used.

If your effluent discharges to more than one location in a different receiving environment, for example, to a borehole or to a non-tidal river (under different circumstances), you will need to complete all relevant appendices for each discharge point and explain the different circumstances under which each is used.

Note: You need to make sure that you have all the necessary permissions to discharge from landowners, for example The Canal and Rivers Trust, if you want to discharge into a canal that they manage.

Fill in the relevant appendix for each effluent discharged.

12 More information from you

Please provide any further information that you feel is necessary to your application. For example, is there any relevant information about the site or type of effluent that we have not asked for anywhere on the form?

Appendix 1 – Discharges to non-tidal river, stream or canal

2 This is the location where the effluent exits the effluent carrier pipe into the river channel, watercourse or stream. On occasion discharges are made via surface water sewers. In this case the outlet will be the point where the surface water sewer meets the river channel, watercourse or stream.

3 Usually the name will be shown on an Ordnance Survey map. If the receiving water is unnamed, please indicate the named watercourse into which it flows; for example, 'a tributary of the River Thames'.

5 Most effluents pass along a dedicated pipe and are discharged via an outlet to a receiving water. In some cases effluents may be discharged into a surface water sewer owned by someone else before they discharge into a receiving water. If this is the case you must give the grid reference where your discharge enters the surface water sewer.

6 We prefer effluent to discharge to watercourses which flow all year. Discharging to a dry watercourse may cause the effluent to pond.

Appendix 2 – Discharges to tidal river, tidal stream, estuary or coastal waters

2 This is the location where the effluent exits the effluent carrier pipe into the river channel, estuary or coastal waters. On occasion discharges are made via surface water sewers. In this case the outlet will be the point where the surface water sewer meets the river channel, estuary or coastal water.

3 Usually the name will be shown on an Ordnance Survey map. If the receiving water is unnamed, please indicate the named watercourse into which it flows; for example, 'a tributary of the River Thames'.

5 Most effluents pass along a dedicated pipe and are discharged via an outlet to a receiving water. In some cases effluents may be discharged into a surface water sewer owned by someone else before they discharge into a receiving water. If this is the case you must give the grid reference where your discharge enters the surface water sewer.

6 The mean low water spring tide mark can usually be found on Ordnance Survey maps. Where reasonably possible, we prefer that discharges are made below this point to prevent effluent flowing across beaches, exposed river beds or mud flats and so on.

7 Choose 'open pipe' if the effluent enters the tidal river, estuary or coastal water from a pipe. We will have told you if a diffuser is needed during pre-application discussions.

8 We need to know the type, number, their position and the volume they will handle. Your design should have been established through the coastal modelling you have undertaken.

Appendix 3 – Discharges to a lake or pond

Use this appendix when you will be discharging your effluent into an existing lake or pond.

A discharge to a lake or pond which does not discharge into a river or watercourse or another pond which discharges into a river or watercourse does not require a permit unless a Notice has been served under paragraph 5 of Schedule 21 of the Environmental Permitting (England and Wales) Regulations 2010. If you are unsure whether or not you will require a permit for a discharge to a pond or lake you should contact us on 0300 065 3000.

2 This is the location where the effluent pipe reaches the lake or pond.

3 Usually the name will be shown on an Ordnance Survey map.

5 to 7 If you do not know the answer to this question, put 'Unknown'.

Appendix 4 – Discharges into land

Note: For sewage discharge permit applications up to 15 cubic metres per day to ground, we will carry out an initial assessment for you. If your discharge fails this assessment and we are unable to resolve the matter using our own data we will request more information and may ask you carry out your own investigation and risk assessment based on our guidance 'EPR H1 Environmental Risk Assessment Annex (j)' and associated module on Groundwater Risk Assessment for Treated Effluent Discharges to Infiltration Systems.

We will expect applicants to carry out their own assessments in accordance with this guidance for sewage discharges over 15 cubic metres per day and for all trade and other effluent discharges.

2 This is the location where the effluent from the treatment system enters the infiltration system.

3 An infiltration system is a restricted and well defined area of ground designed to allow liquid to drain into the surrounding soil. It typically includes a system of sub surface perforated pipe. We would expect any new infiltration system to be built to BS 6297:2007 + A1:2008.

5 We would expect new infiltration system to be built to BS 6297:2007 + A1:2008. If yours is not constructed to this standard, you must submit the following details:

- location of the infiltration system;
- surface area;
- depth;
- construction materials used; and
- the bottom invert level in relation to the water table.

6 Use the following information to help you carry out a percolation test (applies to new infiltration systems only). Avoid carrying out this test in extreme weather conditions such as drought, frost and heavy rain.

- a Excavate at least two (three in Northern Ireland) holes 300 mm square to a depth 300 mm below the proposed invert level (bottom of pipe) of the infiltration pipe and space them evenly along the proposed line of the subsurface irrigation system.
- b Fill each hole with water to a depth of at least 300 mm and allow to seep away overnight.
- c Next day, refill each hole with water to a depth of at least 300 mm and observe the time in seconds for the water to seep away from 75% full to 25% full (i.e. a depth of 150 mm).
- d Divide this time by 150. This answer gives the average time in seconds (V_p) required for the water to drop 1 mm.
- e The test should be carried out at least three times with at least two trial holes. The average figure from the tests should be taken. This is the percolation value V_p (in seconds).
- f The average figure for the percolation value (V_p) is obtained by summing all the values and dividing by the number of values used.
- g Drainage field disposals should only be used when percolation tests indicate average values of V_p between 15 and 100 and the preliminary assessment of the trial hole tests has been favourable.
- h The minimum value of 15 ensures that untreated effluent cannot percolate too rapidly into groundwater.
- i Where V_p is above the limit of 100 effective treatment is unlikely to take place in a drainage field as there will be inefficient soakage in this location which may lead to sewage ponding on the surface.
- j For domestic premises, the floor area of the drainage field (A in square metres) required may be calculated from:
 $A = p \times V_p \times 0.25$ for septic tanks
 $A = p \times V_p \times 0.20$ for package sewage treatment plants

Where:

p is the number of people served by the tank (this should be the maximum number of people that could live in the house).

V_p is the percolation value described above.

If in doubt, consult your professional advisor or local authority building control officer for advice.

7 It is important that we know what your percolation value (V_p) is (see question 6 above). BS 6297:2007 +A1:2008 states that 'a drainage field for disposal should only be used when percolation tests indicate average values of V_p between 15 and 100.' The minimum value of 15 ensures that effluent cannot percolate too rapidly into the ground, potentially resulting in the pollution of groundwater. If your V_p is below this figure you may be required to add an additional 700 mm deep layer of medium or coarse, washed sand, laid on a permeable geotextile membrane, below the standard granular fill distribution layer. You will have to agree to design your drainage field on the basis of this recommendation.

8 Use the following calculations:

For sewage treatment plant: $V_p(\text{percolation value}) \times P(\text{number of inhabitants}) \times 0.2 = \text{surface area}$

For septic tank: $V_p(\text{percolation value}) \times P(\text{number of inhabitants}) \times 0.25 = \text{surface area}$

Appendix 5 – Discharges onto land

Use this appendix where you are using a constructed disposal area to discharge your effluent onto land.

2 This is the location where effluent from the treatment system enters the disposal area.

3 This is the total area covered by the reed bed/grass plot/pond/wetland.

Appendix 6 – Discharges to a borehole or well or other deep structure

Note: reference here to 'other deep structure' is intended to encompass any other conduit deep into the ground such as a former mineshaft or natural features such as swallow holes. Along with boreholes and wells they would typically concentrate the discharge in one place rather than being spread evenly at a shallow level in the manner of an engineered drainage system. They pose a higher risk of groundwater pollution and so we may ask you to provide additional justification for using such means of disposal.

Please provide as much information as possible to help us assess your application.

2 This is the location where the effluent pipe enters the well or borehole or other structure.

4 This is the distance from ground level (or other reference level you specify) to the maximum extent of the borehole or well or other structure. If you are intending to discharge into a natural feature such as swallow hole, you may not have precise depths but please give as much information as you can.

5 If you are discharging to a natural feature answer 'yes' to this question.

6 This is the distance from ground level (or other reference level) down to the maximum depth in your well or borehole or other structure that is sealed out by linings or casings. This information would normally be included in drilling records. If there is no seal enter a zero. If you enter 'unknown' we will assume that the discharge is being made throughout the whole of the depth which may affect your application.

9 It is very important that you tell us if the well, borehole or other structure extends permanently or intermittently into the water table. If you cannot answer this question we may need to assume it does, which may affect your application.

10 This is the distance from ground or other reference level to the highest level that the surface of the water reaches in the well or borehole.

11 Choose the category that you feel is most relevant to your activity.