Coffee break – Meet the Teams
Non-mains foul drainage

Marcus Salmon
Sustainable Places Planning Specialist
10 April 2019
Getting advice on non-mains foul drainage

- Major development – Send to the EA
- Non-major development – Refer to EA ‘Advice for Local Authorities on non-mains drainage from non-major development’
- Links to General Binding Rules and Foul Drainage Assessment form;
- Planning policy;
- Justification for not connecting to mains;
- Different non-mains options;
- Flowchart to help LPAs review foul drainage assessments.
Environmental Permitting and the General Binding Rules

The following general binding rules apply to all small sewage discharges:

<table>
<thead>
<tr>
<th>#</th>
<th>Discharges to surface water</th>
<th>Discharges to ground</th>
<th>General binding rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>X</td>
<td>The discharge must be 2 cubic metres or less per day in volume.</td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td></td>
<td>The discharge must be 5 cubic metres or less per day in volume.</td>
</tr>
<tr>
<td>3</td>
<td>X</td>
<td>X</td>
<td>The sewage must only be domestic.</td>
</tr>
<tr>
<td>4</td>
<td>X</td>
<td>X</td>
<td>The discharge must not cause pollution of surface water or groundwater.</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>X</td>
<td>The sewage must receive treatment from a septic tank and infiltration system (drainage field) or a sewage treatment plant and infiltration system.</td>
</tr>
<tr>
<td>6</td>
<td>X</td>
<td></td>
<td>The sewage must receive treatment from a sewage treatment plant.</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>X</td>
<td>The discharge must not be within a groundwater Source Protection Zone 1 or within 50 metres from any well, spring or borehole that is used to supply water for domestic or food production purposes.</td>
</tr>
<tr>
<td>8</td>
<td>X</td>
<td></td>
<td>For discharges in tidal waters, the discharge outlet must be below the mean spring low water mark.</td>
</tr>
</tbody>
</table>

- General Binding Rules for small sewage discharges.
- Environmental Permit required for discharges that do not meet the GBR.
- No bespoke EA involvement in most small non-mains sewage proposals.
National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG)

**NPPF**
- Para. 180: Ensure new development is appropriate for its location taking into account likely effects of pollution.
- Para. 183: Focus on whether development is appropriate use of land, rather than on control of processes and discharges.

**PPG**
- First presumption to provide a system of foul drainage discharging into a public sewer.
- Proposals relying on non-mains systems should be supported by sufficient information to understand the potential implications for the water environment.
Justifying non-connection to mains

- **Distance**
  - 30m per dwelling

- **Cost**
  - Additional cost for connecting to mains reasonable.
  - £ Mains > (No. dwellings x £9,000) + £ non-mains = non-mains likely to be acceptable
  - £ Mains < (No. dwellings x £5,000) + £ non-mains = non-mains likely to be unacceptable

- **Practicability**
  - Physical and technical barriers.

- **Environmental reasons**
  - Is the proposal preferable on environmental grounds?

- **Problems with the public sewer (e.g. capacity)** are not acceptable reasons for non-connection
Non-mains sewerage options

- **Package Treatment Plant**
  - At least secondary treatment of effluent
  - Can be discharged to both ground (soakaway) and watercourse

- **Septic Tank**
  - Only primary treatment of effluent
  - Can only be discharged to ground

- **Cesspools**
  - No treatment of effluent
  - No discharge
<table>
<thead>
<tr>
<th><strong>Feasibility of mains foul sewer connection</strong></th>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you provided a written explanation of why it is not feasible to connect to the public foul sewer with this form?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>This must include a scaled map showing the nearest public foul sewer connection point - check with your local sewerage undertaking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the distance from your site to the closest connection point to the public foul sewer less than the number of properties to be built on the site multiplied by 30m? (see Guidance Note 2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your proposal form part of a phased development or planned development of a wider area?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If YES, please provide further details including references of any planning permissions already enacted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Non-mains connection</strong></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Please provide a plan with dimensions that clearly shows the location of the whole system in relation to the proposed development and the position of the key elements e.g. septic tank, drainage fields and points of discharge</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**1. Existing system**

<table>
<thead>
<tr>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you intend to use an existing non-mains foul drainage system?</td>
<td></td>
</tr>
<tr>
<td>If YES, does the system already have an Environmental Permit issued by the Environment Agency? (in the case of a cesspool write N/A)</td>
<td></td>
</tr>
<tr>
<td>If YES, please provide Environmental Permit reference number</td>
<td></td>
</tr>
</tbody>
</table>

**2. Discharge**

<table>
<thead>
<tr>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you propose to use a package treatment plant?</td>
<td></td>
</tr>
<tr>
<td>Do you propose to use a septic tank?</td>
<td></td>
</tr>
<tr>
<td>Have you considered having your system adopted by the sewersage undertaking? (see Guidance Note 2)</td>
<td></td>
</tr>
<tr>
<td>Will all, or any part, of the discharge go to a drainage field or soakaway? (see Guidance Note 3) - this includes systems that combine a drainage field with a high level overflow to watercourse, if YES go to Q4</td>
<td></td>
</tr>
<tr>
<td>Do you intend to use a system that discharges solely to watercourse? (see Guidance Note 3) if YES go to Q3</td>
<td></td>
</tr>
</tbody>
</table>

**3. Water abstraction**

<table>
<thead>
<tr>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you receive your water from the public mains supply?</td>
<td></td>
</tr>
<tr>
<td>If not, where do you get your water supply from?</td>
<td></td>
</tr>
</tbody>
</table>

**4. Cesspools** (For methods other than cesspools write N/A)

<table>
<thead>
<tr>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you provided written justification for the use of a cesspool in preference to more sustainable methods of foul drainage disposal? (see Guidance Note 4)</td>
<td></td>
</tr>
</tbody>
</table>

**5. Drainage field design** (For cesspools write N/A)

<table>
<thead>
<tr>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Will the system discharge to a drainage field designed and constructed in accordance with British Standard SS6257 2007?</td>
<td></td>
</tr>
<tr>
<td>if not, why not?</td>
<td></td>
</tr>
<tr>
<td>Will the discharge from the system be located in a Source Protection Zone 1 (SPZ1)?</td>
<td></td>
</tr>
</tbody>
</table>

**6. Ground Conditions** (For cesspools write N/A)

<table>
<thead>
<tr>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you submitted a copy of the percolation test results with this form (see Guidance Note 6)?</td>
<td></td>
</tr>
<tr>
<td>If NO, please explain the justification for not undertaking or submitting these tests</td>
<td></td>
</tr>
<tr>
<td>Is any part of the system in land which is marshy, water logged or subject to flooding?</td>
<td></td>
</tr>
<tr>
<td>Will the soakaway be located on artificially raised, made-up ground or ground likely to be contaminated? If YES please provide details of additional information</td>
<td></td>
</tr>
<tr>
<td>Have you submitted the results of a trial bore at the site to establish that the proposed drainage field will be above any standing groundwater? (see Guidance Note 6)</td>
<td></td>
</tr>
</tbody>
</table>

**7. Available Land**

<table>
<thead>
<tr>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the application site plus any available area for a soakaway less than 0.025 hectares (0.025ha)?</td>
<td></td>
</tr>
</tbody>
</table>

**8. Sitting of drainage field/sinkhole discharge from a septic tank or package treatment plant or other secondary treatments.**

You may need to make local enquiries to get a full answer to these questions.

<table>
<thead>
<tr>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Will it be at least 10m from a watercourse, permeable drain or land drain?</td>
<td></td>
</tr>
<tr>
<td>Will it be at least 50m from any point of abstraction from the ground for a drinking water supply (to a well, borehole or spring)? This includes your own or a neighbour’s supply</td>
<td></td>
</tr>
<tr>
<td>Will the discharge be within a groundwater Source Protection Zone 1? If yes, will you need to apply for an environmental permit?</td>
<td></td>
</tr>
<tr>
<td>Are there any drainage fields/sinkholes within 50m? This includes any foul drainage discharge system (other than the subject of this application) or surface water soakaway on either your own or a neighbour’s property</td>
<td></td>
</tr>
<tr>
<td>Will it be at least 15m from any building?</td>
<td></td>
</tr>
<tr>
<td>Will there be any water supply pipes or underground services within the disposal system, other than those required by the system? (For cesspools write N/A)</td>
<td></td>
</tr>
<tr>
<td>Will there be any access roads, driveways or paved areas within the disposal area? (For cesspools write N/A)</td>
<td></td>
</tr>
</tbody>
</table>

**9. Sitting of treatment plant, septic tank or cesspool**

<table>
<thead>
<tr>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Is it at least 7m from the outskirts part of a building?</td>
<td></td>
</tr>
<tr>
<td>Will there be vehicular access for emptying within 30m?</td>
<td></td>
</tr>
<tr>
<td>Can the plant, tank or cesspool be maintained or emptied without the contents being taken through a dwelling or place of work?</td>
<td></td>
</tr>
</tbody>
</table>

**10. Expected flow**

Please estimate the total flow in litres per day (see Guidance Note 5)

**11. General Binding Rules for Small Sewage Discharges**

<table>
<thead>
<tr>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the system meet the requirements of the General Binding Rules for small sewage discharges?</td>
<td></td>
</tr>
</tbody>
</table>

**12. Maintenance**

<table>
<thead>
<tr>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>How do you propose to maintain the system?</td>
<td></td>
</tr>
</tbody>
</table>

**Foul Drainage Assessment form**
Part 1 - overview of suggested process:

START: APPLICATION RECEIVED BY LPA

Has the applicant submitted a completed Foul Drainage Assessment (FDA)?

CONSULT ENVIRONMENT AGENCY WITH THE FDA

Does the proposed development constitute major development?

Assess without consulting the Environment Agency.

Does the applicant provided adequate justification for non-connection to mains foul sewer?

NON-MAINS PROPOSAL MAY BE UNSUITABLE – consider whether to:
- Require the applicant to provide satisfactory justification to the LPA to demonstrate that connection to sewer is either practically infeasible, or not reasonable due to disproportionate cost, or
- Refuse the application in line with national planning policy.

What type of non-mains system is proposed?

Package treatment plant or septic tank

Cesspool

ENVIRONMENTAL PERMIT REQUIRED

Recommend twin tracking of permit and planning applications. The LPA will lead on planning issues and the Environment Agency permitting team (03708 506506 or enquiries@environment-agency.gov.uk) will lead on permitting issues. See "Planning and Permits Guidance".

See part 2

See part 3

Part 2 - Package treatment plant or septic tank

Is the site within an area where the Environment Agency locally has indicated to the planning authority that specific safeguards are necessary for discharge to ground or surface water?

YES

NO

Assess appropriateness of foul drainage discharging to ground as proposed using flowchart part 2A below.

Does the non-mains system involve a discharge solely to a watercourse? (FDA1, Q2)

YES

NO

N.B. the Environment Agency is highly unlikely to grant a permit to discharge effluent from a septic tank to a watercourse.

Is the proposal consistent with the relevant safeguards and does it provide for any necessary mitigation?

YES

NO

Does flowchart part 2A indicate that non-mains foul drainage as proposed may not be appropriate or that permit and planning applications should be twin-tracked?

YES

NO

NON-MAINS PROPOSAL MAY BE UNSUITABLE – consider whether to:
- require the applicant to provide a fuller assessment to the LPA to demonstrate how the requirements of Building Regulations Approved Document H will be met; recommend twin-tracking of permit and planning applications. The LPA will lead on planning issues and the Environment Agency permitting team (03708 506506 or enquiries@environment-agency.gov.uk) will lead on permitting issues. See "Planning and Permits Guidance"; or
- refuse the application in line with national planning policy.

Do the results from the FDA indicate any of the following? (FDA1, Q9)

1. System is less than 7m away from any habitable part of a building.
2. No vehicular access for emptying within 30m.
3. System cannot be emptied or maintained without the contents being taken through a dwelling or place of work.

YES

NO

Has the applicant provided details of how they propose to maintain the system? (FDA1, Q12)

YES

NO

Ask for further information OR secure maintenance through condition and legal agreement.

Does the non-mains system as proposed meet the requirements of the General Binding Rules for small sewage discharges? (FDA1, Q11)

YES

NO

ENVIRONMENTAL PERMIT REQUIRED

Recommend twin tracking of permit and planning applications. The LPA will lead on planning issues and the Environment Agency permitting team (03708 506506 or enquiries@environment-agency.gov.uk) will lead on permitting issues. See "Planning and Permits Guidance".

Include any necessary conditions in any permission and ensure that any necessary legal agreement is in place to cover issues of siting, design and maintenance.

www.gov.uk/environment-agency
Part 2A - Discharges to ground

Is the discharge in a Source Protection Zone (SSER2007) (FDA1, Q5)?
- Yes
- No

Will the discharge be made to a drainage field designed and constructed in line with SSER2007 + A1 (FDA1, Q5)?
- Yes
- No

Do the results of the FDA or equivalent information indicate that any of the following apply? (FDA1, Q5, 6, 7 & 8)
- Q6a. The soil characteristics of the ground fall outside of the range of 15-100 sec/mm as recommended by the SSER2007 + A1; 008 for percolation tests (Not applicable to existing discharges unless undergoing significant modification).
- Q6b. The proposed non-mains system is on marshy ground or ground prone to waterlogging or flooding.
- Q6c. The drainage field is located on artificially raised or made ground, or ground that is likely or suspected to be contaminated (Not applicable to existing discharges unless undergoing significant modification).
- Q6d. The drainage field will involve a direct discharge to the water table.
- Q7. The application site plus land available for any drainage field is less than 250m².
- Q8. The drainage field is located within
  - 10m of a watercourse, permeable drain or land drain;
  - 50m from a groundwater abstraction point for drinking water (Well, borehole or spring);
  - 50m of another drainage system/drainage field; or
  - 15m of any building.

Return to part 2A flowchart

Part 3 - Cesspool

Has the applicant provided a satisfactory justification for foul discharge to cesspool over other preferred methods in the non-mains hierarchy as set out in the NPPS and Building Regulations Approved Document H7 (FDA1, Q14)?
- Yes
- No

Do the results from the FDA indicate any of the following? (FDA1, Q15)
1. Cesspool is less than 7m away from any habitable part of a building.
2. No vehicular access for emptying within 30m.
3. Non-mains system cannot be emptied or maintained without the contents being taken through a dwelling or place of work.
- Yes
- No

Has the applicant provided details of how they propose to maintain the system? (FDA1, Q12)
- Yes
- No

LPA should seek applicant to provide details of how they propose to maintain the system and/or secure maintenance through imposition of conditions and legal agreement.
- Include appropriate conditions requiring verifiable records and checks on construction and subsequent operation of the cesspool in any permission and ensure any necessary legal agreement in place to cover issues of sifting, design and maintenance.
Drainage & Development

Jackie Smith
Sustainable Drainage Lead Officer

www.cornwall.gov.uk

April 2019
Sustainable Drainage Systems (SuDS)

- Sustainable Drainage Systems (SuDS) reduce flood risk from new development;
- Mimic nature and typically manage rainfall close to where it falls;
- SuDS can be designed to transport (convey) surface water, slow runoff down (attenuate) before it enters watercourses;
- Provide areas to store water in natural contours and can be used to allow water to soak (infiltrate) into the ground;
- Evaporated from surface water and lost or transpired from vegetation (known as evapotranspiration).

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SuDS Design Aims

- Control the quantity of runoff to support the management of flood risk and maintain and protect the natural water cycle.
- Manage the quality of the runoff to prevent pollution.
- Create and sustain better places for people.
- Create and sustain better places for nature.

SuDS Design

Water Quantity

Amenity

Water Quality

Biodiversity
## Drainage Hierarchy in Cornwall

<table>
<thead>
<tr>
<th>Rank</th>
<th>Drainage Method</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Infiltration (separate)</td>
<td>Soakaway serving individual premises.</td>
</tr>
<tr>
<td>2</td>
<td>Communal surface infiltration systems positioned in open space.</td>
<td>Infiltration basin, infiltration trench.</td>
</tr>
<tr>
<td>3</td>
<td>Below ground communal infiltration systems positioned in open space.</td>
<td>Soakaway serving several properties, highway etc.</td>
</tr>
<tr>
<td>4</td>
<td>Separate flow controlled attenuation systems. Discharge to a watercourse.</td>
<td>Serving individual properties.</td>
</tr>
<tr>
<td>5</td>
<td>Communal flow controlled surface attenuation systems positioned in open space. Discharge to a watercourse.</td>
<td>Serving several properties, highway etc.</td>
</tr>
<tr>
<td>6</td>
<td>Attenuated flow controlled discharge to a surface water sewer.</td>
<td>Subject to agreement with SWW Ltd.</td>
</tr>
<tr>
<td>7</td>
<td>Attenuated flow controlled discharge to a combined sewer.</td>
<td>Subject to agreement with SWW Ltd.</td>
</tr>
<tr>
<td>8</td>
<td>Discharge to the sea.</td>
<td>Must be supported with evidence that coastal erosion will not occur.</td>
</tr>
</tbody>
</table>
SuDS and Planning
Legislation, Policy & Guidance

Department for Environment, Food and Rural Affairs

Sustainable Drainage Systems
Non-statutory technical standards for sustainable drainage systems
March 2015

www.cornwall.gov.uk
National Planning Policy Framework

Paragraph 165 states that:

“Major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate.

The systems used should:

a) Take account of advice from the lead local flood authority;

b) Have appropriate proposed minimum operational standards;

c) Have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development;

d) Where possible, provide multifunctional benefits.“
Lead Local Flood Authority’s (LLFA) Role

The LLFA is the statutory consultee to the LPA for:

- Major developments;
- Minor developments with complex surface water implications;
- Developments in Critical Drainage Areas.

LLFA can provide comments in cases where the proposed development:

- Has constraints e.g. mining, slope stability, coastal erosion or other issues;
- Drains into a Critical Drainage Area or in area of known flood risk.
SuDS Standards in Cornwall

A Critical Drainage Area’s (CDA’s) is an area that has critical drainage problems, notified to the local planning authority by the Environment Agency.

In CDA’s we apply stricter design standards and expect new development reduce flood risks, rather than having a neutral impact.

There are currently 29 CDA’s identified in Cornwall.

We can apply stricter drainage standards in areas not designated as a CDA, but where there are known flooding and surface water issues.

Drainage systems must cater for the 1 in 100 year peak rainfall event plus 40% climate change allowance.

Discharge flow rates must be controlled.

Factors of safety and urban creep allowances must be applied.
Critical Drainage Areas in Cornwall
Key Design Documents for the LLFA

Flood Risk Assessment

Developments with an area > 1ha in Flood Zone 1, sites in Flood Zones 2 or 3, sites with known drainage or flooding issues, sites in CDA.

Drainage Strategy

Description of the drainage proposals, proposed drainage layout drawing and standards details, topographical survey, percolation test results, ground investigations calculations and confirmation of the point of discharge if this is off site.

Overland Flood Flow Route Plan

A plan showing flow exceedance routes. Routes should be marked on the development layout with blue directional arrows.
Key Design Documents for the LLFA

Management and Maintenance Plan
Details of the proposed surface water drainage management and maintenance regime along with a schedule and plan indicating the extent of the drainage assets managed and those to be conveyed to private owners.

Construction Phase Surface Water Management Plan
A plan for the management of surface water runoff, silt and debris during the construction phases to protect land, existing property, watercourses and the highway.

Construction Quality Control Plan
Procedures proposed to monitor the quality of contractors and subcontractors work, storage and use of materials to ensure that these are compliant with the approved design.
SuDs – Good Examples
Infiltration Basin
Attenuation Pond
Attenuation Pond
Permeable Paving
SuDS – Poor Examples
Infiltration Basin
Swale
Attenuation Pond
Attenuation Pond
Construction Phase Surface Water Management Practices
Silt Fencing
Bunds
Straw Bales

[Images of straw bales in a field and around a grassy area]

www.cornwall.gov.uk
Storage of Materials
Thank you / Meur ras

Any Questions?