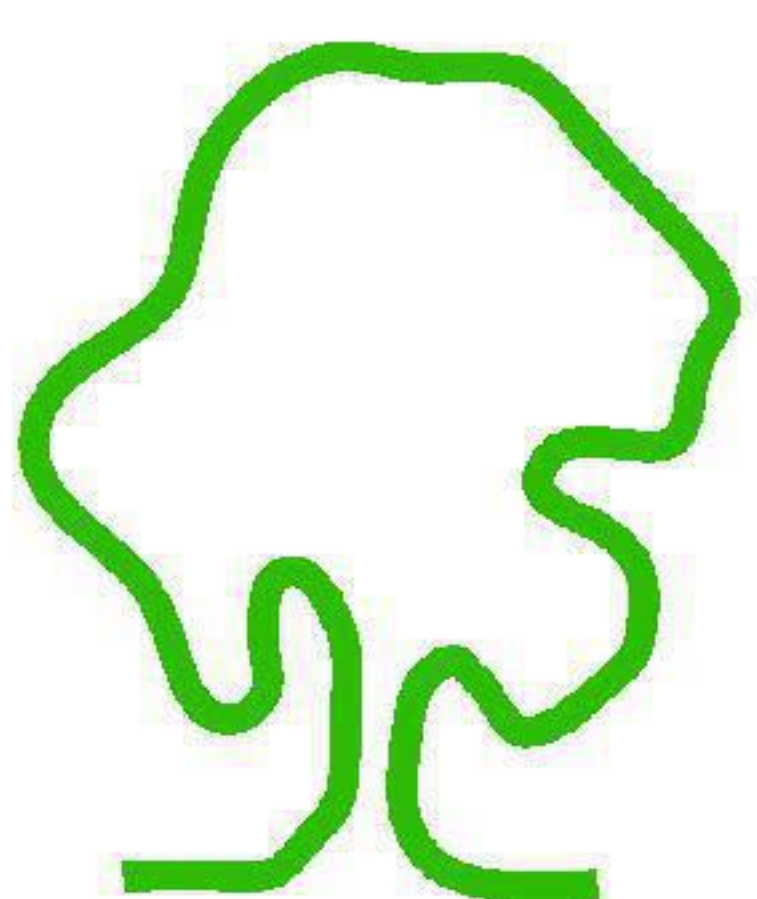


## **WILBURY PLANNING**

LAND TO REAR OF POOKLANDS, POOKBOURNE LANE,  
SAYERS COMMON, HASOCKS BN6 9HD

### **Drainage Design Strategy**

May 2026

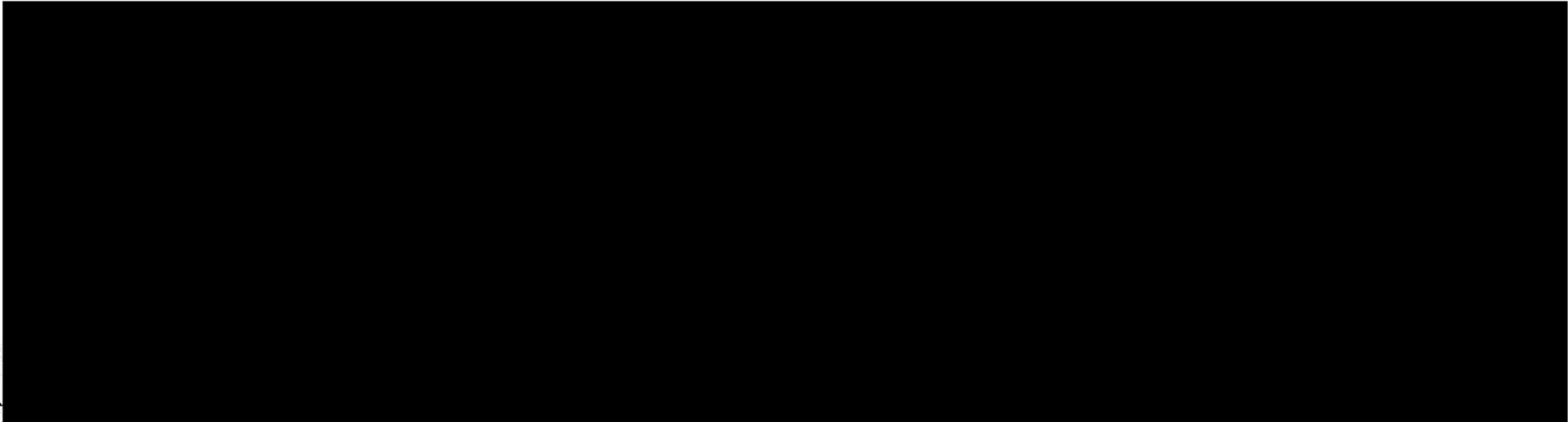
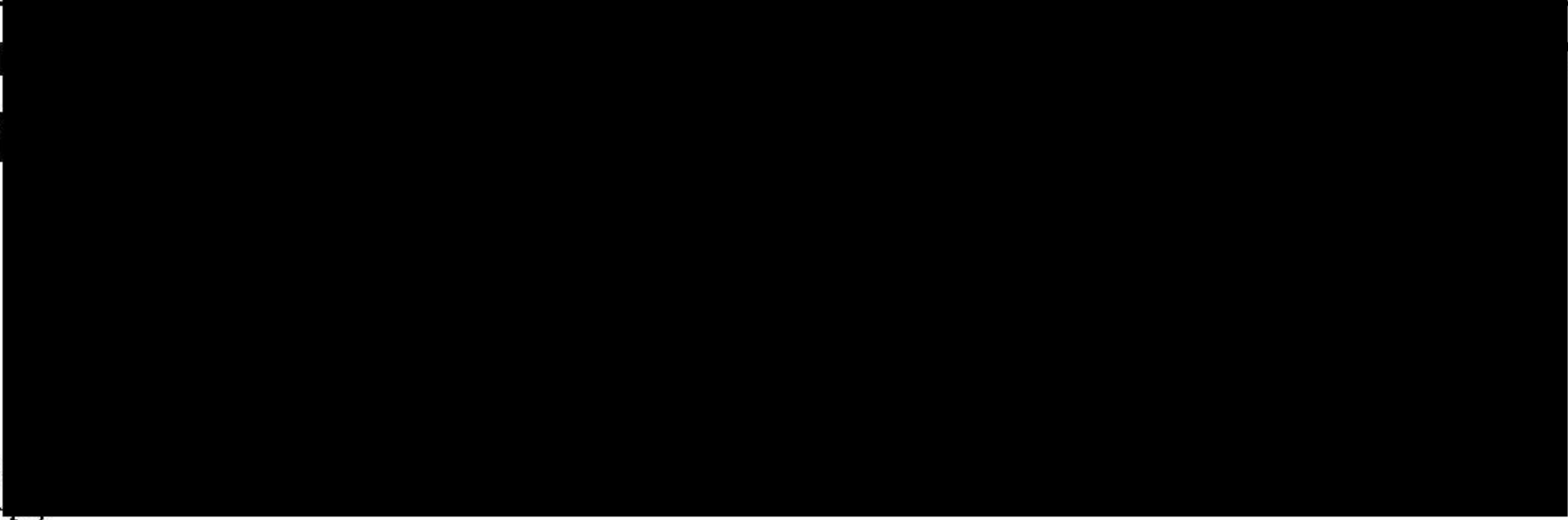


eas ltd

Environmental Assessment Services Ltd



REPORT DATA SHEET

| Requirement      | Data                                                                                                             |
|------------------|------------------------------------------------------------------------------------------------------------------|
| Report Reference | 902/WilburyPlanning/Pooklands/DDS                                                                                |
| Date             | May 2026                                                                                                         |
| Client           | Wilbury Planning                                                                                                 |
| Report type      | Drainage Design Strategy                                                                                         |
| Purpose          | Planning                                                                                                         |
| Revisions        | -                                                                                                                |
| Prepared by      | Daniel Milford BSc (Hons)<br> |
| Approved by      | Ed<br>M<br><br>Sig           |



WILBURY PLANNING

LAND TO REAR OF POOKLANDS, POOKBOURNE LANE,  
SAYERS COMMON, HAS SOCKS BN6 9HD

Drainage Design Strategy

May 2026

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- 1. EXISTING SITE AND PROPOSED DEVELOPMENT
- 2. FLOOD RISK ASSESSMENT
- 3. EXISTING DRAINAGE
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- 8. CONCLUSIONS
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- APPENDIX A: FIGURES
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- APPENDIX C: UK SUSTAINABLE DRAINAGE CALCULATIONS  
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- APPENDIX D: OUTPUT FROM DRAINAGE DESIGN SOFTWARE AND  
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FOR SEWAGE TREATMENT PLANT DISCHARGE



## **WILBURY PLANNING**

### **LAND TO REAR OF POOKLANDS, POOKBOURNE LANE, SAYERS COMMON, HASSOCKS BN6 9HD**

#### **Drainage Design Strategy**

May 2026

#### **1. EXISTING SITE & PROPOSED DEVELOPMENT**

- 1.1 The site comprises of five barns west of Pookbourne Lane (stabling and equipment storage) with grass lawn area and hardstanding parking area. The site area is approximately 0.25 ha. The Ordnance Survey (OS) map reference for the site is TQ 27209 19949. The site elevation is approximately +22 m OD. See Appendix A, Site Location Plan.
- 1.2 According to the British Geological Survey (available online), the site lies on Weald Clay Formation – Mudstone and Sandstone. Online Environment Agency (EA) groundwater mapping identifies the site to lie on a secondary A aquifer (sandstone) and unproductive strata (mudstone). The site does not lie within a groundwater source protection zone.
- 1.3 The proposed development comprises the installation of a three-bedroom mobile home to the southwest of the site with associated crushed aggregate driveway.
- 1.4 The site lies adjacent to a riding school and pastoral fields utilised for horse grazing. Pook Bourne, a tributary of the River Adur, flows westward approximately 135 m south of the site. A drainage ditch was identified east of Pookbourne Lane flows southward and discharges into the tributary.

#### **2. FLOOD RISK ASSESSMENT**

- 2.1 According to the EA online Flood Map for Planning, the site lies within Flood Zone 1. The nearest area within Flood Zones 2 and 3 are located approximately 60 m southeast of the site, associated with tributary of the River Adur.
- 2.2 The EA online Risk of Flooding from Surface Water map shows that the site is not at risk of surface water flooding.
- 2.3 As the site is less than 1 ha in area and lies within Flood Zone 1, there is no requirement for a flood risk assessment under the National Planning Policy Framework (NPPF) and associated guidance documents.



3. EXISTING DRAINAGE

- 3.1 The site was visited on 28 April 2026 in order to examine the existing drainage and take site levels. Ground levels at site have been estimated based on levels taken and data from Ordnance Survey mapping. See Appendix B: Site Photographs.
- 3.2 Formal surface water drainage on the site as existing comprises surface water being drained offsite and discharged into the drainage ditch east of Pookbourne Lane.
- 3.3 As required by Mid Sussex District Council, the flow permitted to leave the developed site should not exceed the QBar Greenfield flow rate. The Greenfield runoff rate for the site has therefore been estimated using the UK Sustainable Drainage (UKSuDS) Greenfield Runoff Estimation Tool. The runoff rates are given for scenarios up to (and including) the 1 in 100-year storm event, as summarised in Table 3.1 below and provided in Appendix D.

TABLE 3.1  
GREENFIELD RUNOFF RATES

| Return period | Flow rates (l/s) |
|---------------|------------------|
| QBar          | 1.8              |
| 1 in 1 year   | 1.6              |
| 1 in 10 year  | 3.0              |
| 1 in 30 year  | 4.2              |
| 1 in 100 year | 5.9              |

- 3.4 According to the DEFRA non-statutory technical standards for sustainable drainage systems, the maximum discharge permitted to leave the whole site post development should not exceed 1.8 l/s.
- 3.5 The foul sewage should also be allowed for in the permitted discharge flow rate. The peak foul sewage design flow has been calculated for the proposed site as 0.05 l/s (see Section 6 below), therefore the surface water discharge should not exceed 1.75 l/s. However, the minimum flow practicably achievable with commercially available flow control devices is 2.0 l/s.

4. PROPOSED DRAINAGE

- 4.1 The proposed residential development will increase the impermeable area of the site compared to its former use, which could increase the peak flow following a rainfall event. It has been estimated that following development 0.17 ha of the site will comprise hardstanding and the rest (0.08 ha) will comprise permeable surfacing including crushed aggregate and soft landscaping. Permeable surfacing will still discharge informally as Greenfield (as existing) and only the controlled drainage from the impermeable areas will be subject to SuDS measures.



- 4.2 The drainage design of the developed site should retain onsite flows up to the 1 in 100-year return period event, including an allowance for climate change and an increase in impermeable area as 10 % urban creep. The ways in which this can be achieved are discussed in 4.3 and 4.4 below.

#### 4.3 **Drainage to Soakaway**

- 4.3.1 Drainage to soakaway (infiltration) is the preferred Sustainable Urban Drainage System (SUDS) solution. The underlying Weald clay is not considered a suitable medium for soakaway as it is known to have an exceptionally low or no infiltration value.

#### 4.4 **Attenuation Storage**

- 4.4.1 The alternative to soakaway drainage would be attenuation storage onsite, with discharge limited to the Greenfield flow for the impermeable areas (in this case 1.75 l/s). This would require a discharge point.
- 4.4.2 Using the UKSuDS Surface Water Storage Requirements model, the total storage volume required for the site, for the 1 in 100 year plus climate change scenario, has been calculated as 6.5 m<sup>3</sup>. See Appendix D.
- 4.4.3 Attenuation storage could be provided in the form of ponds, swales, a detention basin or an underground geocellular/modular system wrapped in a geomembrane. Due to the volume which is required, and the slope of the site, ponds, swales or a detention basin are not thought to be practicable. An underground geocellular/modular system is considered to be the most appropriate for the site.
- 4.4.4 A suitable location for the geocellular/modular system would be the ditch north of the riding school. The direction of flow for the ditch heads towards Pookbourne Lane and then follows the road south to discharge into Pook Bourne.
- 4.4.5 Due to the slope of the site, it is considered most practicable that the underground geocellular/modular system is no more than 1 m in depth, allowing for 0.25 m of topsoil to lay above in order to provide suitable planting depth. In order to provide the required storage volume for the site, and with a depth of 0.4 m, the dimensions of the geocellular/modular system would need to be 4.5 m x 4.0 m. It would be beneficial to locate the geocellular system outlet upstream of the foul discharge outlet (see section 6. below) in the drainage ditch. See Appendix A, Suggested Drainage Design.
- 4.4.6 Where drainage to the drainage ditch is required, it will be necessary to obtain an ordinary watercourse land discharge consent from MSDC.

#### 4.5 **Other Sustainable Urban Drainage System (SUDS) Options**

- 4.5.1 Additional SUDS options could include rainwater harvesting. Rainwater could be used for irrigation purposes within the garden, via water butts connected to roof downpipes.



- 4.5.2 It may be possible to incorporate a green roof into the proposed design. Green roofs reduce the volume and rate of runoff and can be low maintenance, generally requiring bi-annual maintenance visits.

#### 4.6 **Extreme event**

- 4.6.1 If an extreme storm event overwhelmed the surface water drainage system at the site, and/or if the drainage system were to fail, ground levels would indicate that surface water would discharge across the southern field and into the Pook Bourne, as per the present situation.

### 5. **SURFACE WATER DRAINAGE DESIGN**

#### 5.1 **Design Philosophy**

- 5.1.1 The drainage strategy is for surface water to be drained into attenuation storage, comprising a geocellular/modular system, before being discharged into the existing drainage ditch north of the site. Discharge would be limited to the QBar/1 in 1 year flow rate for the site, excluding proposed foul flow (1.75 l/s), however the lowest commercially available vortex valve has a flow rate of 2.0 l/s. See Appendix A for the suggested drainage arrangement.

#### 5.2 **Design Storm**

- 5.2.1 The surface water drainage system has been designed for the 30-year return period event with 10% urban creep, plus a 35% allowance for climate change and tested for surcharge for the 1 in 100-year return period event (1% Annual Exceedance Probability) plus a 45% allowance for climate change. See Appendix D for pipe and chamber layout and sizing of the attenuation storage from the MasterDrain model.

#### 5.3 **Drainage Design Model**

- 5.3.1 The attenuation storage has been designed to accommodate the 1 in 100-year return period storm event plus a 45% allowance for climate change using the MasterDrain network model.
- 5.3.2 An appropriate attenuation storage size has been calculated as 4.5 m length, 4.0 m width and 0.4 m depth.

#### 5.4 **Hydrogeological Data**

- 5.4.1 Hydrological data based on FEH22 rainfall data for the site and applied to the MasterDrain model is given in Appendix C. The chamber details, pipe sizes and levels are shown in Appendix D and summarised in Table 5.1 below:



**TABLE 5.1**  
**SURFACE WATER DRAINAGE**

| Ref.    | Dia (mm) | Cover level (mAOD) | Invert level (mAOD) | Pipe dia in (mm) | Pipe dia out (mm) |
|---------|----------|--------------------|---------------------|------------------|-------------------|
| SW1     | 450      | 21.00              | 20.50               | -                | 150               |
| Storage | -        | 21.00              | 20.43               | 150              | 100               |
| SW2     | 450      | 22.00              | 20.04               | 100              | 100               |

## 5.5 Extreme event

- 5.5.1 If an extreme storm event overwhelmed the surface water drainage system at the site and/or if the drainage system were to fail, ground levels would indicate that surface water would discharge along the southern site boundary as existing and into the south adjacent field as per the present situation.

## 6. FOUL SEWERAGE

- 6.1 Foul sewerage for the proposed development comprises installation of a package sewage treatment plant. The sewage treatment plant is to be located to the south of the tractor barn, with an outlet pipe into the drainage ditch running along the northern site boundary.
- 6.2 No permit from the Environment Agency (EA) would be required for a sewage treatment plant, provided that it adheres to the EA's General Binding Rules for a discharge to a watercourse. The General Binding Rules relevant to this type of site and discharge to a watercourse are provided in Appendix E.
- 6.3 New discharges are not allowed to a ditch or a surface water that does not contain flowing water throughout the whole year. That is unless there is a drought or an unusually long period of dry weather. New discharges to watercourses that seasonally dry up are not allowed under the general binding rules, nor are discharges to enclosed lakes or ponds.
- 6.4 It is uncertain whether the ditch into which the treatment plant presently outfalls does have flowing water throughout the year. If this is not the case, it may be advisable to extend the outfall to the Pook Bourne watercourse to the south of site where year round flow is confirmed.
- 6.5 The proposed development will comprise one dwelling. According to the WRc publication "Sewers for Adoption" (8<sup>th</sup> Edition), the design (peak) flow from a proposed residential development should be based on water use of 5000 l/dwelling/day. This gives the overall (peak) foul sewage design flow for the site as 0.05 l/s.
- 6.6 It is advised that the peak foul sewage design flow (0.05 l/s) should be deducted from the maximum permitted discharge from the surface water attenuation storage.



- 6.7 The results of the sewerage design from the MasterDrain Foul analysis given in Appendix D are summarised in Table 6.1 below, and illustrated in Appendix A:

TABLE 6.1  
FOUL SEWERAGE

| Ref. | Dia (mm) | Cover level (mAOD) | Invert level (mAOD) | Pipe dia in (mm) | Pipe dia out (mm) |
|------|----------|--------------------|---------------------|------------------|-------------------|
| FW1  | 450      | 21.00              | 20.50               | -                | 150               |
| STP  | -        | 21.00              | 20.32               | 150              | 100               |
| FW2  | 450      | 22.00              | 19.93               | 100              | 100               |

## 7. OPERATION AND MAINTENANCE

- 7.1 The drainage system will generally require minimal operational input once construction has been completed. However, it will require some regular maintenance. The maintenance of the drainage systems will be the responsibility of the owners of the residence.

- 7.2 Required maintenance will include:

- The chambers, gullies, gutters and channels will require regular removal of any silt or other debris. Maintenance should be carried out at the time of year after most leaf fall has occurred.
- The sewage treatment plant will require regular maintenance including monthly visual inspections for damage, wear and corrosion as well as overall security; cleaning every 6 – 12 months, based on usage; removal of debris as and when necessary; and inspection of pumps and control systems every three months.

- 7.3 In accordance with the CIRIA SuDS Manual (C753) the pollution hazard level for the development is considered to be very low for the residential roof. It is advised to remove gross solids and sediments as and when necessary to satisfy requirements.

## 8. CONCLUSIONS

- 8.1 The site comprises of five barns west of Pookbourne Lane (stabling and equipment storage) with grass lawn area and hardstanding parking area. It is proposed to construct a three bedroom mobile home on the western grass lawn area. It is required that all runoff for the 1 in 100 year flood event, plus allowance for climate change and urban growth, will be managed on site, and that the discharge from the proposed development will be restricted to Greenfield run-off rate.



- 8.2 The site lies within Flood Zone 1, at low risk of tidal and fluvial flooding, and is also shown to not be at risk of surface water flooding.
- 8.3 No formal surface water drainage was identified on site during the assessment. Surface water from the site either soaks into the ground or flows south across the adjacent fields and drains into the watercourse Pook Bourne located south of site.
- 8.4 It is considered that the proposed development will result in an increase in the impermeable area of the site compared to its current use. This will increase the peak flow following a rainfall event and may increase the flood risk elsewhere. It is estimated that following development 0.17 ha of the site will comprise impermeable surface, and the rest (0.08 ha) will comprise soft landscaping and permeable surfacing.
- 8.5 The underlying Weald Clay is not considered a suitable medium for soakaway as it is known to have an exceptionally low or no infiltration value. As such drainage to soakaway would not be a practicable option for the site.
- 8.6 The alternative SuDS method for surface water drainage would be attenuation storage. This would require a discharge point, of which the most practical option would be to the drainage ditch located along the site's northern boundary.
- 8.7 The total storage volume required to retain the 1 in 100 year plus climate change flood event on site has been calculated as 6.5 m<sup>3</sup>, based on the HR Wallingford UK SuDS Model. The Greenfield run-off rate for the whole site has been calculated as 1.75 l/s.
- 8.8 The most feasible attenuation storage option for the proposed site layout would be a geocellular/modular system, wrapped in a geomembrane.
- 8.9 It is considered that a geocellular storage system providing the required storage volume of 6.5 m<sup>3</sup>, 4.5 m x 4.0 m and 0.4 m in depth, could be located to the immediate east of the proposed dwelling. It is recommended that the outlet for the surface water system is above the outlet for the foul sewerage. The discharge into the drainage ditch lying along the site's northern boundary should be limited to <1.75 l/s. However, the lowest practicable controlled flow is 2.0 l/s with a vortex valve or 5.0 l/s with an orifice plate. It is recommended that the maximum flow should be limited to 2.0 l/s using a vortex valve.
- 8.10 Where drainage to the ditch is required, it will be necessary to obtain an ordinary watercourse land discharge consent from MSDC.
- 8.11 Additional SUDS options which could be incorporated into the development include rainwater harvesting for garden irrigation purposes, via the provision of water butts, and potentially a green roof on the dwelling.



- 8.12 No existing foul sewerage was identified on site. The foul sewerage drainage scheme for the dwelling suggests a sewage treatment plant, with discharge into the drainage ditch along the site's northern boundary. No permit should be required from the EA so long as the installation complies with the General Binding Rules. It has not been confirmed whether the ditch into which the proposed sewage treatment plant would discharge to has flow throughout the year. If this is not the case, it may be necessary that the outfall from the sewage treatment plant is extended to discharge into the Pook Bourne watercourse south of site.

## **9. RECOMMENDATIONS**

- 9.1 It is recommended that it should be confirmed whether there is a year-round flow in the drainage ditch on the northern site boundary. If there is not, then it is recommended that the outfall from the sewage treatment plant is extended into the Pook Bourne watercourse south of site.
- 9.2 The drainage system will generally require minimal operational input once construction has been completed. However, it will require some regular maintenance.
- 9.3 The geocellular/modular system and all chambers, gutters and gullies are to be kept clear of debris and build ups of silt to ensure working order and prevent loss of maximum capacity.
- 9.4 The sewage treatment plant will require regular maintenance including monthly visual inspections for damage, wear and corrosion as well as overall security; cleaning every 6 – 12 months, based on usage; removal of debris as and when necessary; and inspection of pumps and control systems every three months.
- 9.5 It is advised to remove gross solids and sediments from the roof as and when necessary.

☆☆☆☆☆☆

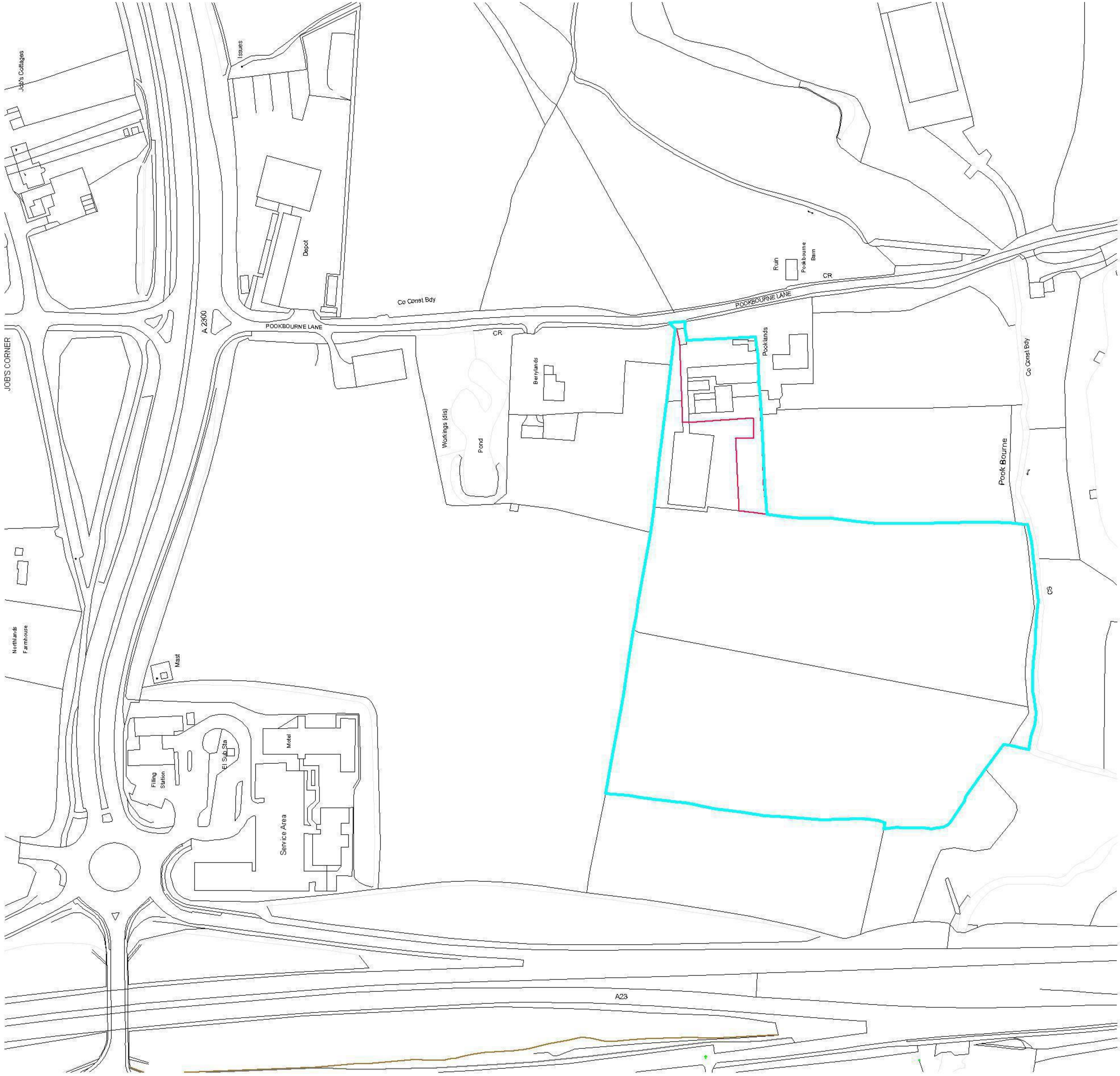
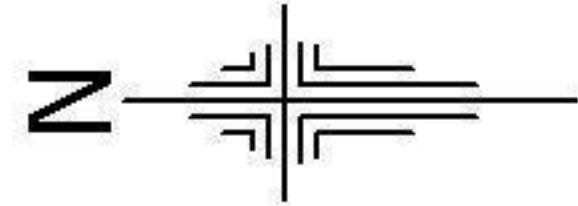


## APPENDIX A

### **Figures**

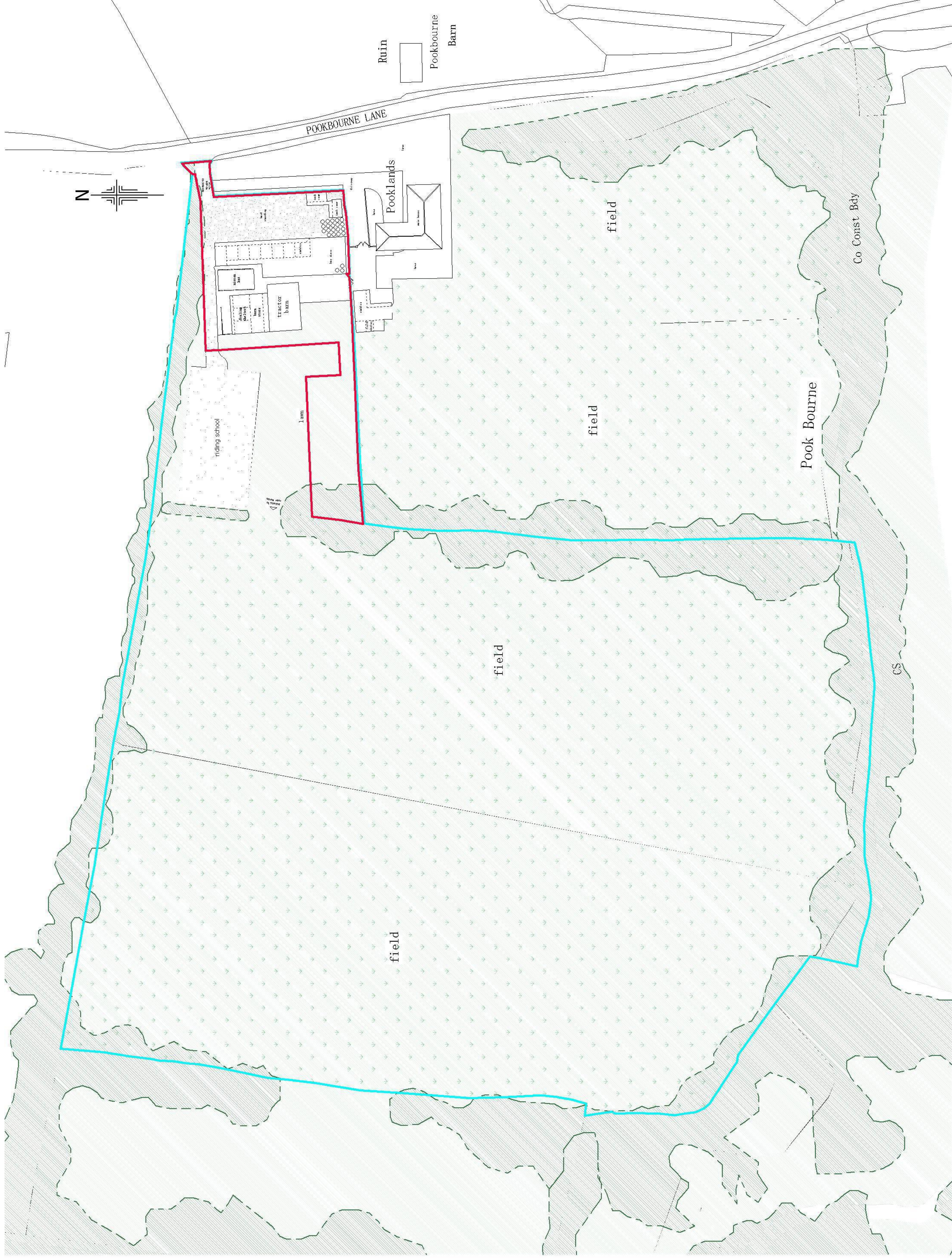
Site Location Plan  
Existing Block Plan  
Proposed Block Plan  
Suggested Drainage Design



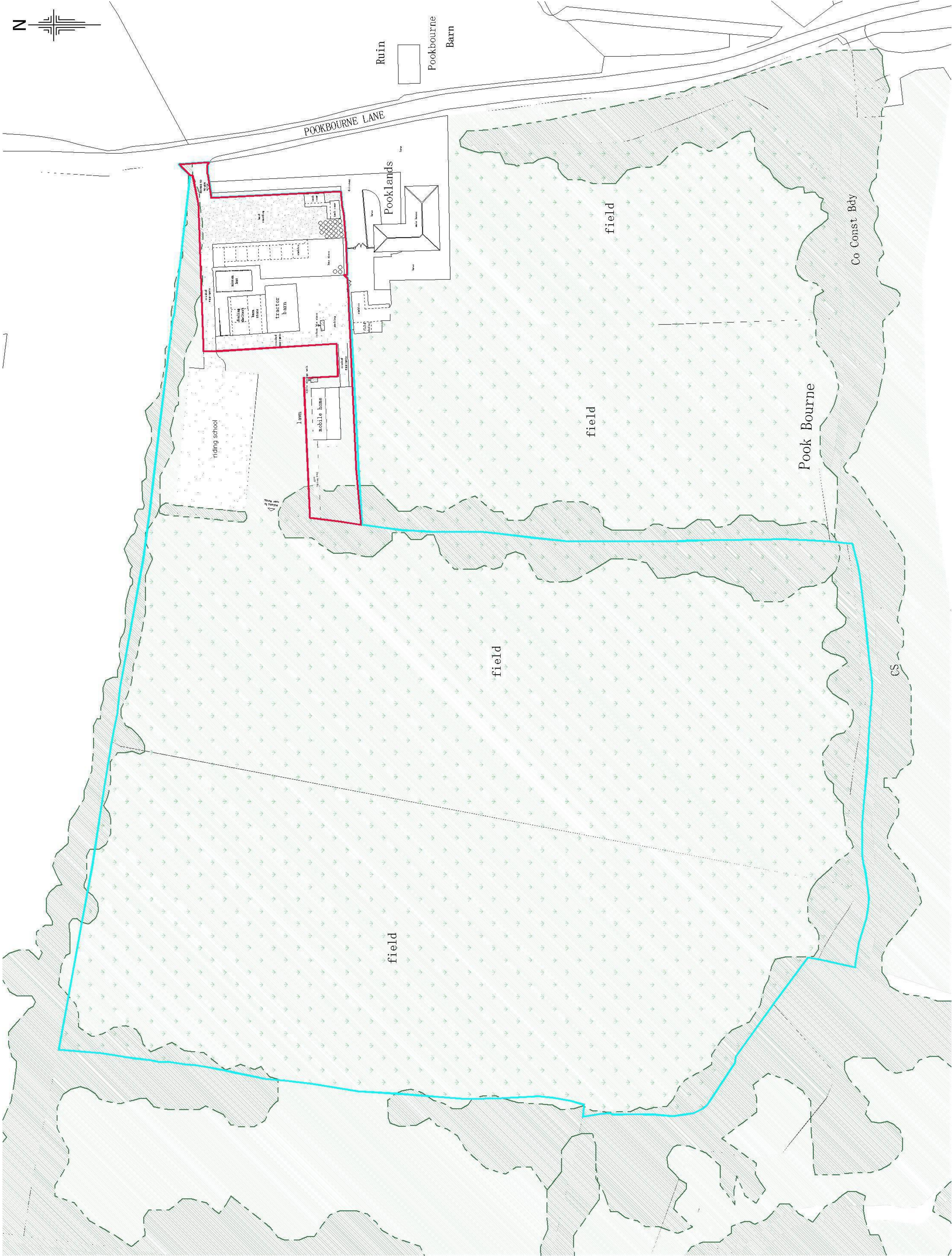


|                         |                                                                                    |
|-------------------------|------------------------------------------------------------------------------------|
| Stage                   | Existing                                                                           |
| Client                  | Sarah Pullen                                                                       |
| Site address            | Land to rear of Pooklands<br>Pookbourne Lane<br>Sayers Common<br>Hassocks, BN6 9HD |
| Drawing title           |                                                                                    |
| Existing: Location Plan |                                                                                    |
| Scale:                  | Paper size: Drawn: Checked:                                                        |
| In drawing              | A1 B Garrish Director                                                              |
| Project No:             | Drawing No: Revision: Date:                                                        |
| 111                     | E.01 08/05/2026                                                                    |









|                                   |                                                                                    |
|-----------------------------------|------------------------------------------------------------------------------------|
| Stage                             | Proposed                                                                           |
| Client                            | Sarah Pullen                                                                       |
| Site address                      | Land to rear of Pooklands<br>Pookbourne Lane<br>Sayers Common<br>Hassocks, BN6 9HD |
| Drawing title                     |                                                                                    |
| Proposed: Block Plan              |                                                                                    |
| Scale:                            | Paper size: Drawn: Checked:                                                        |
| In drawing A1                     | B Garrish Director                                                                 |
| Project No: Drawing No: Revision: | Date:                                                                              |
| 111                               | P. 02                                                                              |
|                                   | 08/05/2026                                                                         |



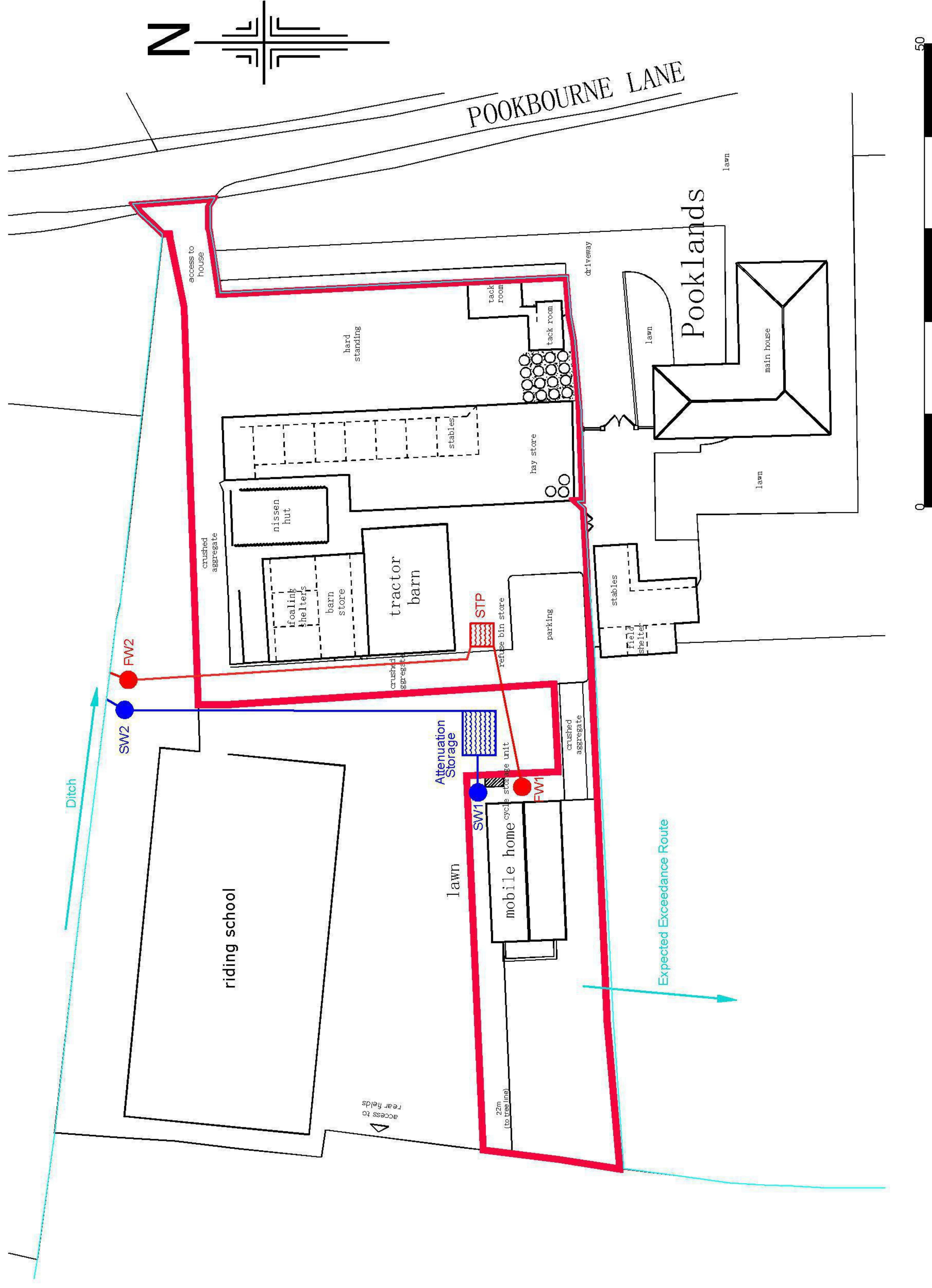
## WILBURY PLANNING

LAND TO REAR OF POOKLANDS, POOKBOURNE LANE,  
SAYERS COMMON, HAS SOCKS BN6 9HD

Scale as shown

Suggested Drainage Design

May 2025





## APPENDIX B

### **Site Photographs**



Proposed mobile home location



Fields south of development site





Pook Bourne



Ditch at northern site boundary





## APPENDIX C

### **UK SUSTAINABLE DRAINAGE CALCULATIONS (GREENFIELD RUNOFF RATE)**



## Project details

## Location

## Site details

na



# Greenfield runoff

## Method

Method

FEH statistical (2025)

## FEH statistical (2025)

|                                   | <u>My value</u>               | <u>Map value</u> |
|-----------------------------------|-------------------------------|------------------|
| SAAR9120 (mm)                     | <div>909</div> <div>mm</div>  |                  |
| BFIHOST19scaled                   | <div>0.402</div>              |                  |
| QMed-QBar conversion              | <div>1.136</div>              | <div>1.136</div> |
| QMed (l/s)                        | <div>1.6</div> <div>l/s</div> |                  |
| QBar (FEH statistical 2025) (l/s) | <div>1.8</div> <div>l/s</div> |                  |

## Growth curve factors

|                        | <u>My value</u> | <u>Map value</u> |
|------------------------|-----------------|------------------|
| Hydrological region    | <div>7</div>    | <div>7</div>     |
| 1 year growth factor   | <div>0.85</div> |                  |
| 2 year growth factor   | <div>0.88</div> |                  |
| 10 year growth factor  | <div>1.62</div> |                  |
| 30 year growth factor  | <div>2.3</div>  |                  |
| 100 year growth factor | <div>3.19</div> |                  |
| 200 year growth factor | <div>3.74</div> |                  |

## Results

|                           |                               |
|---------------------------|-------------------------------|
| Method                    | FEH statistical (2025)        |
| Flow rate 1 year (l/s)    | <div>1.6</div> <div>l/s</div> |
| Flow rate 2 year (l/s)    | <div>1.6</div> <div>l/s</div> |
| Flow rate 10 years (l/s)  | <div>3.0</div> <div>l/s</div> |
| Flow rate 30 years (l/s)  | <div>4.2</div> <div>l/s</div> |
| Flow rate 100 years (l/s) | <div>5.9</div> <div>l/s</div> |
| Flow rate 200 years (l/s) | <div>6.9</div> <div>l/s</div> |

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

### Disclaimer

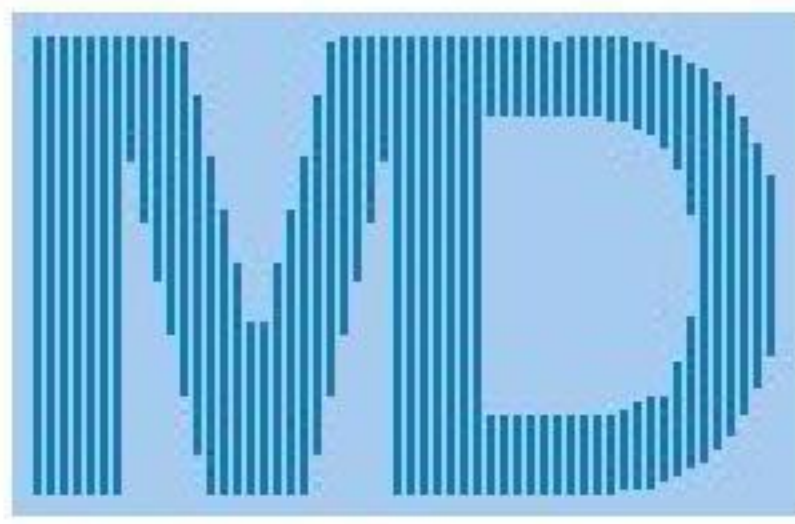
This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.



## APPENDIX D

### **OUTPUT FROM DRAINAGE DESIGN SOFTWARE AND ATTENUATION STORAGE CALCULATIONS**





MasterDrain  
HY 11.0

|                                                                                         |  |                                                                                                                                  |         |                  |  |
|-----------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------|---------|------------------|--|
| <div>Environmental Assessment<br/>Services Ltd</div> <div>http://www.easltd.co.uk</div> |  | <div>London Rd, Hickstead<br/>Haywards Heath,<br/>West Sussex, RH17 5LZ<br/>Tel: 01444 882552<br/>email: info@easltd.co.uk</div> |         | Job No.<br>902   |  |
|                                                                                         |  |                                                                                                                                  |         | Sheet no.<br>1   |  |
|                                                                                         |  |                                                                                                                                  |         | Date<br>28/05/26 |  |
| Project<br>Pooklands                                                                    |  | By<br>EAS                                                                                                                        | Checked | Reviewed         |  |
| Title<br>Hydrological data for Pooklands                                                |  |                                                                                                                                  |         |                  |  |

Data:-

**FSR values**

|                   |             |                   |                     |
|-------------------|-------------|-------------------|---------------------|
| Location          | = Pooklands | Grid reference    | = TQ3015            |
| M5-60 (mm)        | = 20.4      | SAAR (mm/yr)      | = 910               |
| r                 | = 0.35      | Soil              | = 0.45              |
| Long reference    | = 530115    | Area              | = England and Wales |
| Hydrological area | = 7         | Hydrological zone | = 7                 |

Soil classification for WRAP type 4  
Clayey, or loamy over clayey soils with an impermeable layer at shallow depth.

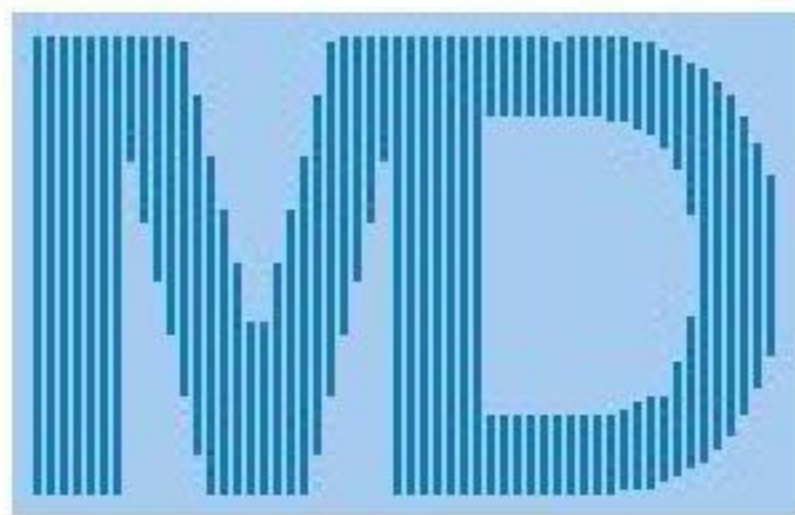
**FEH values**

|    |          |    |         |    |         |
|----|----------|----|---------|----|---------|
| c  | = -0.027 | d1 | = 0.379 | d2 | = 0.305 |
| d3 | = 0.427  | e  | = 0.315 | f  | = 2.480 |



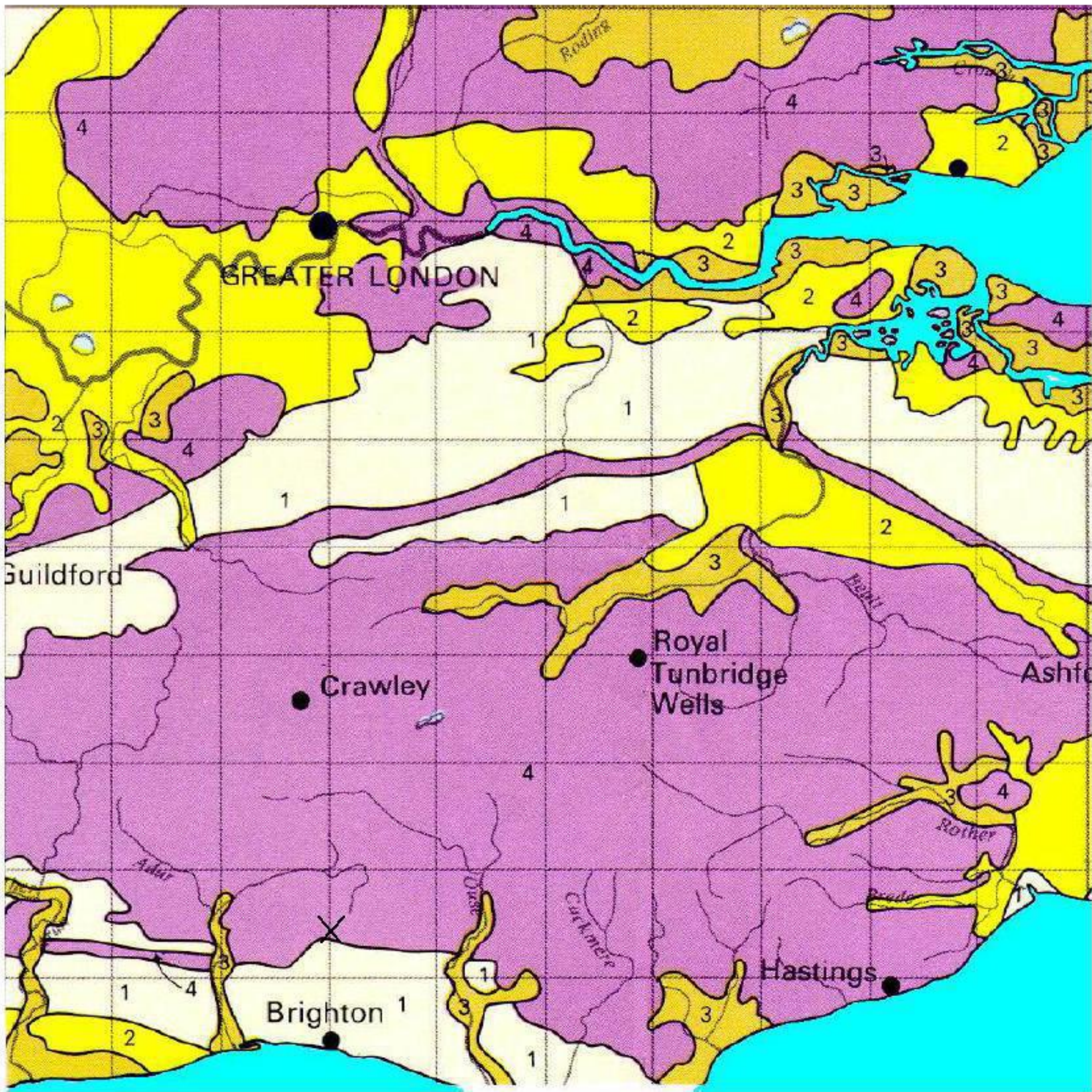
Environmental Assessment Services



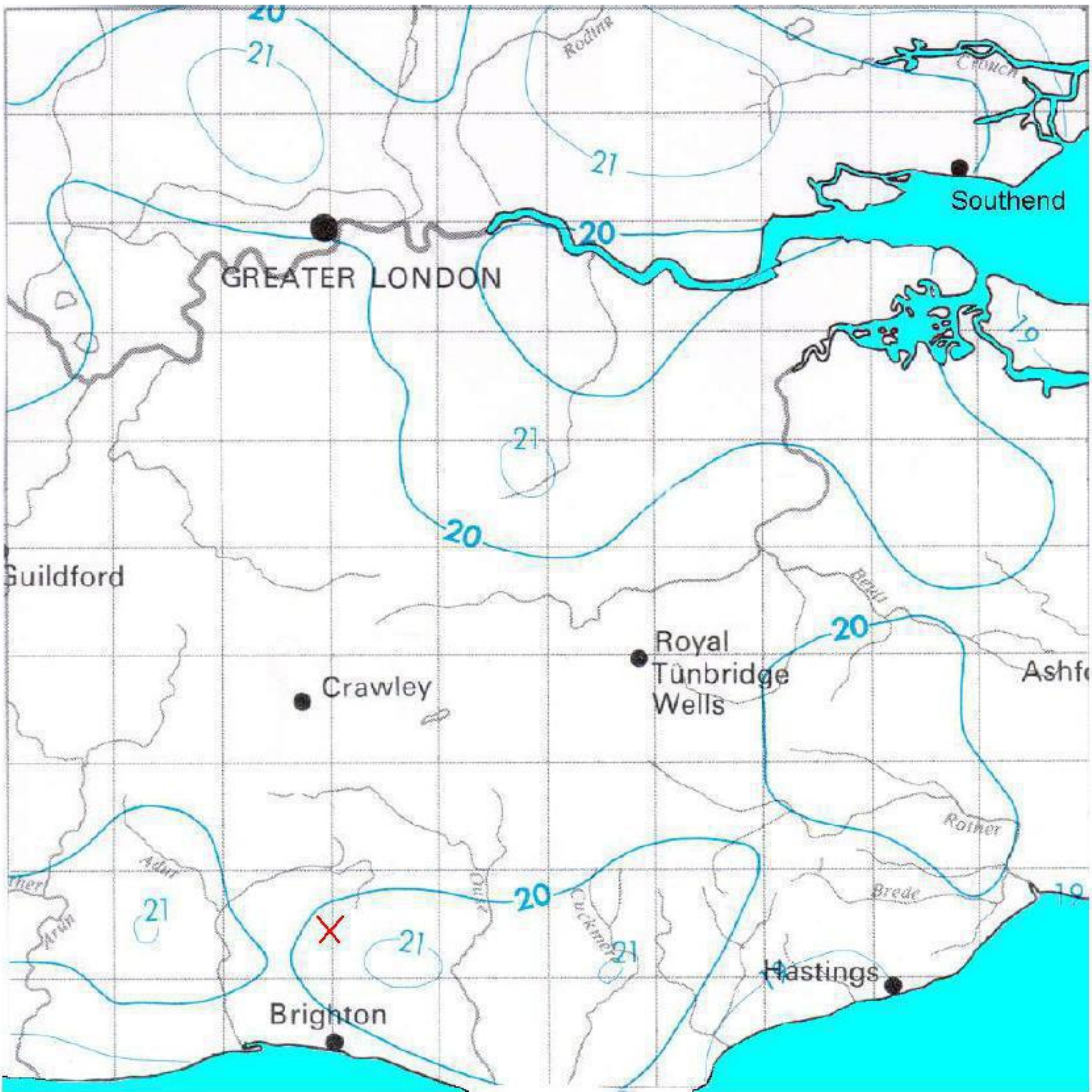


MasterDrain  
HY 11.0

|                                                                                         |                                                                                                                   |  |                         |         |          |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|--|-------------------------|---------|----------|
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|                                                                                         |                                                                                                                   |  | Sheet no.<br><b>2</b>   |         |          |
|                                                                                         |                                                                                                                   |  | Date<br><b>28/05/26</b> |         |          |
| Project<br><b>Pooklands</b>                                                             |                                                                                                                   |  | By<br><b>EAS</b>        | Checked | Reviewed |
| Title<br><b>Hydrological data for Pooklands</b>                                         |                                                                                                                   |  |                         |         |          |



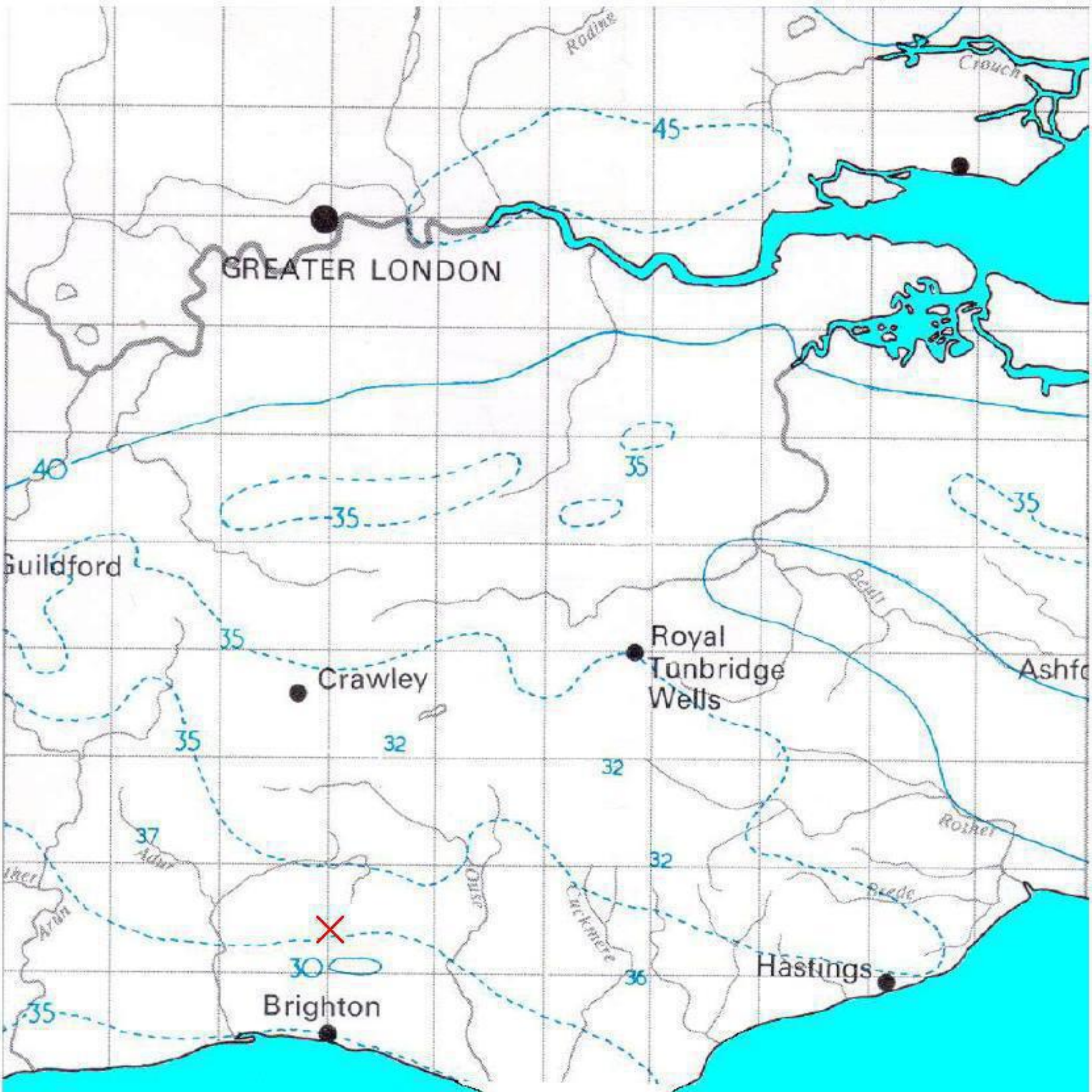
<- Soil



M5-60 ->



<- SAAR



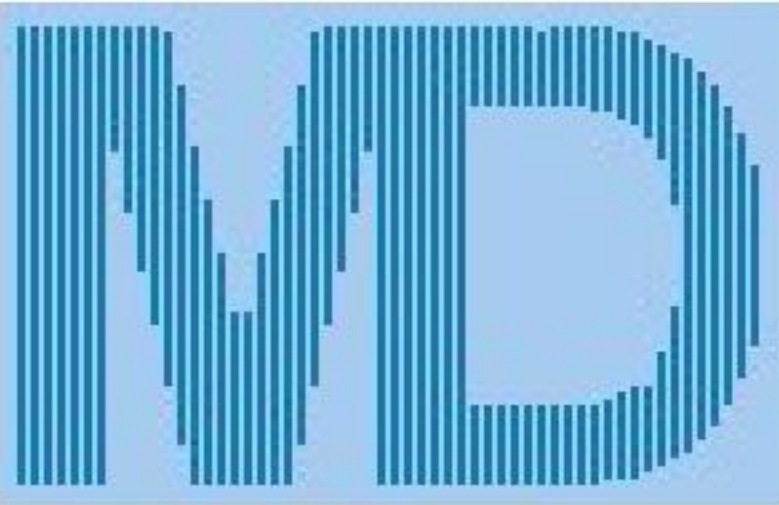
r x 100 ->

Map extracts reproduced by permission of H R Wallingford.



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|                                                                                         |  |                                                                                                                                  |         |                  |  |
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|                                                                                         |  |                                                                                                                                  |         | Sheet no.<br>1   |  |
|                                                                                         |  |                                                                                                                                  |         | Date<br>28/05/26 |  |
| Project<br>Pooklands                                                                    |  | By<br>EAS                                                                                                                        | Checked | Reviewed         |  |
| Title<br>Hydrograph storage analysis (Winter profile) for Pooklands                     |  |                                                                                                                                  |         |                  |  |

Data:-

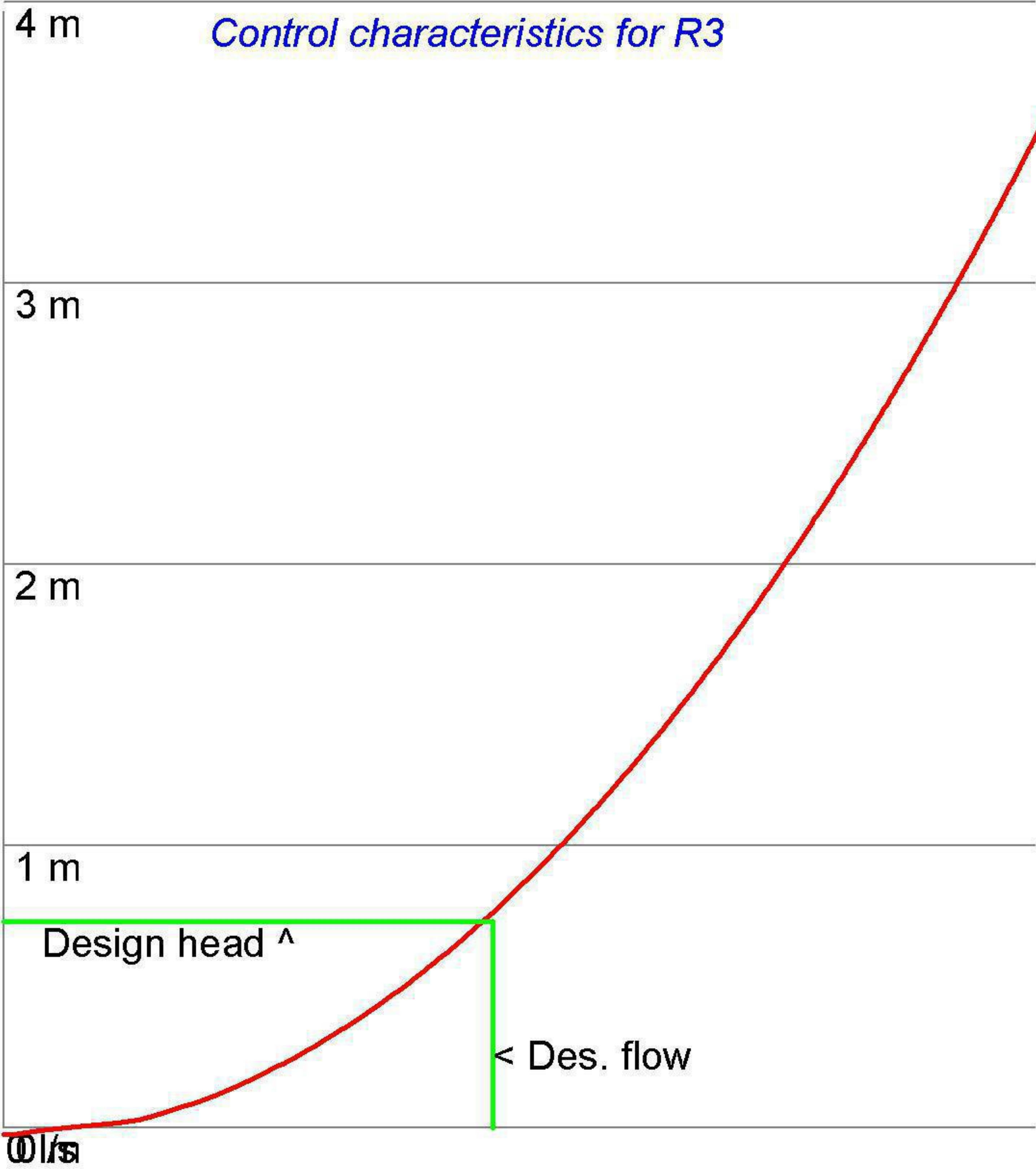
FEH Hydrology:-

Location = Pooklands                      Grid reference = TQ3015  
c = -0.0266                      d1 = 0.3788                      d2 = 0.3047  
d3 = 0.4270                      e = 0.3150                      f = 2.4803  
Return period = 100                      Climate change = 45%

Percentage runoff = 100.0% (manual setting)

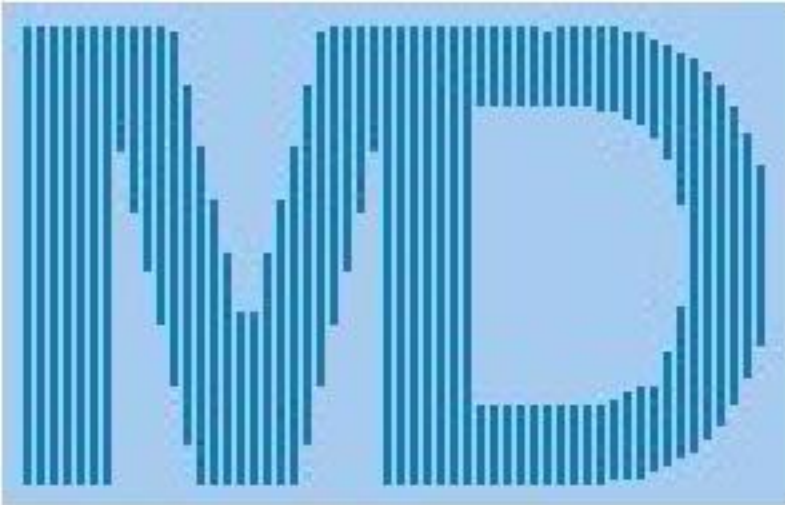
|                  |                      |                 |                                              |
|------------------|----------------------|-----------------|----------------------------------------------|
| Imperv. area     | = 130 m <sup>2</sup> | Pervious area   | = 0 m <sup>2</sup>                           |
| Total area       | = 130 m <sup>2</sup> | Equiv area      | = 130 m <sup>2</sup> (Tot. area x % runoff). |
| Total runoff     | = 9.6 m <sup>3</sup> | Discharge rate  | = 1.760 l/s                                  |
| Design Head      | = 0.8m               | Peak flow       | = 1.76 l/s                                   |
| Control device   | = R3                 | Orifice diam    | = 39.2 mm                                    |
| Max. calc. depth | = 0.8 m              | Available depth | = 0.0 m <sup>3</sup>                         |
| Mean discharge   | = 1.47 l/s           |                 |                                              |

Available system storage = 0.00 m<sup>3</sup> under a system plane at the design head level.  
Offline storage = 0.0 m<sup>3</sup>  
Total storage = 6.5 m<sup>3</sup>                      Peak input flow =6.66 l/s



| Head (m) | Flow (l/s) | Head (m) | Flow (l/s) |
|----------|------------|----------|------------|
| 0.01     | 0.04       | 2.01     | 2.79       |
| 0.05     | 0.41       | 2.05     | 2.82       |
| 0.10     | 0.62       | 2.10     | 2.85       |
| 0.15     | 0.76       | 2.15     | 2.89       |
| 0.20     | 0.88       | 2.20     | 2.92       |
| 0.25     | 0.98       | 2.25     | 2.95       |
| 0.30     | 1.08       | 2.30     | 2.98       |
| 0.35     | 1.16       | 2.35     | 3.02       |
| 0.40     | 1.24       | 2.40     | 3.05       |
| 0.45     | 1.32       | 2.45     | 3.08       |
| 0.50     | 1.39       | 2.50     | 3.11       |
| 0.55     | 1.46       | 2.55     | 3.14       |
| 0.60     | 1.52       | 2.60     | 3.17       |
| 0.65     | 1.59       | 2.65     | 3.20       |
| 0.70     | 1.65       | 2.70     | 3.23       |
| 0.75     | 1.70       | 2.75     | 3.26       |
| 0.80     | 1.76       | 2.80     | 3.29       |
| 0.85     | 1.81       | 2.85     | 3.32       |
| 0.90     | 1.87       | 2.90     | 3.35       |
| 0.95     | 1.92       | 2.95     | 3.38       |
| 1.00     | 1.97       | 3.00     | 3.41       |
| 1.05     | 2.02       | 3.05     | 3.44       |
| 1.10     | 2.06       | 3.10     | 3.46       |
| 1.15     | 2.11       | 3.15     | 3.49       |
| 1.20     | 2.16       | 3.20     | 3.52       |
| 1.25     | 2.20       | 3.25     | 3.55       |
| 1.30     | 2.24       | 3.30     | 3.57       |
| 1.35     | 2.29       | 3.35     | 3.60       |
| 1.40     | 2.33       | 3.40     | 3.63       |
| 1.45     | 2.37       | 3.45     | 3.65       |
| 1.50     | 2.41       | 3.50     | 3.68       |
| 1.55     | 2.45       | 3.55     | 3.71       |
| 1.60     | 2.49       | 3.60     | 3.73       |
| 1.65     | 2.53       | 3.65     | 3.76       |
| 1.70     | 2.57       | 3.70     | 3.79       |
| 1.75     | 2.60       | 3.75     | 3.81       |
| 1.80     | 2.64       | 3.80     | 3.84       |
| 1.85     | 2.68       | 3.85     | 3.86       |
| 1.90     | 2.71       | 3.90     | 3.89       |
| 1.95     | 2.75       | 3.95     | 3.91       |
| 2.00     | 2.78       | 4.00     | 3.94       |





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|                                                                                         |  |                  |          |
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|                                                                                         |  | Date<br>28/05/26 |          |
| Project<br>Pooklands                                                                    |  | By<br>EAS        | Checked  |
| Title<br>Hydrograph storage analysis (Winter profile) for Pooklands                     |  |                  | Reviewed |

Storage curves for a 1 hours storm.

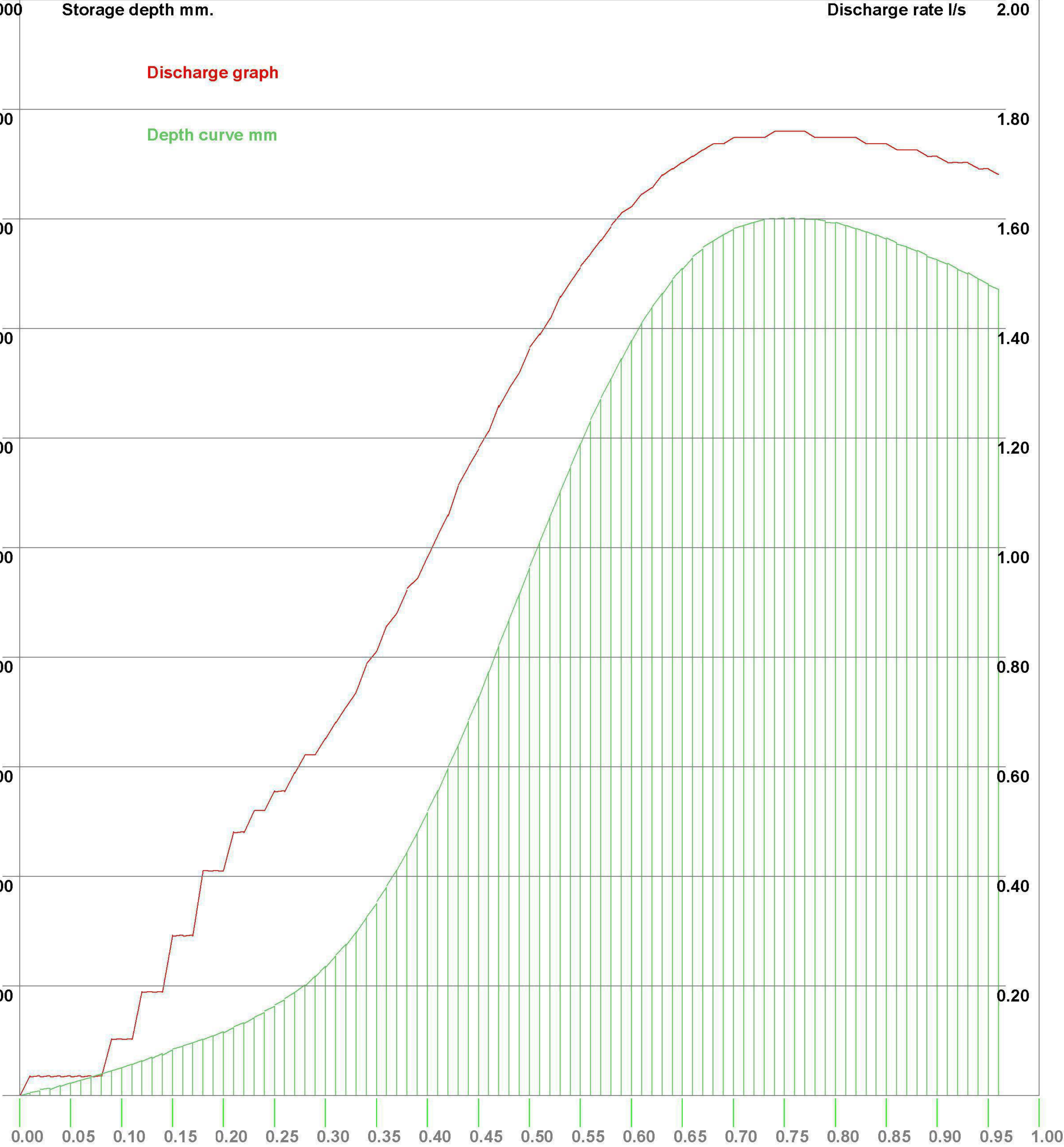
Storage depth mm.

Discharge rate l/s

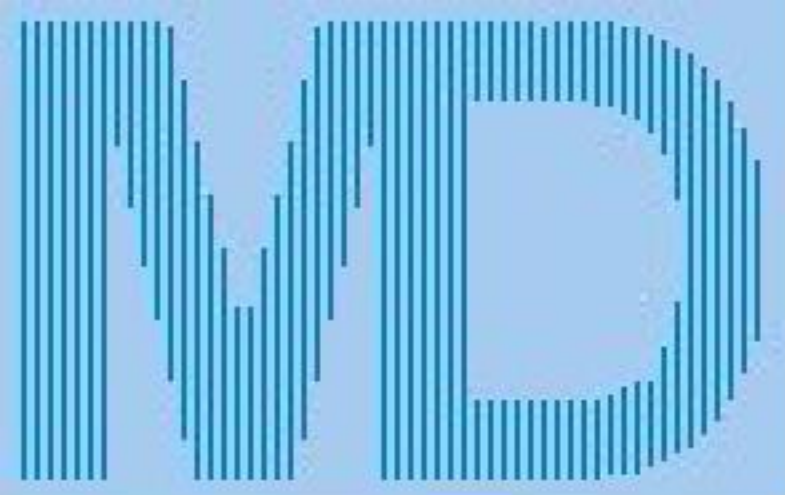
2.00

Discharge graph

Depth curve mm







|                                                                                     |                                                            |                          |     |           |          |
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|                                                                                     |                                                            |                          |     | 28/05/26  |          |
| Project                                                                             | Pooklands                                                  | By                       | EAS | Checked   | Reviewed |
| Title                                                                               | Hydrograph storage analysis (Winter profile) for Pooklands |                          |     |           |          |

Incremental rainfall figures.

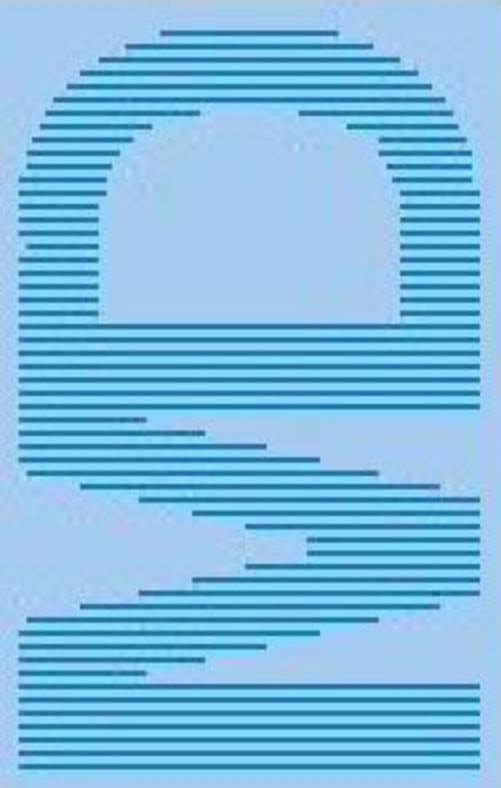
| Storm Mins | Storage Depth mm | Control Flow l/s | Storm Mins | Storage Depth mm | Control Flow l/s |
|------------|------------------|------------------|------------|------------------|------------------|
| 0.6        | 2.4              | 0.04             | 30.6       | 505.0            | 1.39             |
| 1.2        | 4.6              | 0.04             | 31.2       | 528.2            | 1.42             |
| 1.8        | 6.9              | 0.04             | 31.8       | 551.2            | 1.46             |
| 2.4        | 9.2              | 0.04             | 32.4       | 573.5            | 1.49             |
| 3.0        | 11.6             | 0.04             | 33.0       | 595.2            | 1.51             |
| 3.6        | 14.2             | 0.04             | 33.6       | 616.0            | 1.54             |
| 4.2        | 16.8             | 0.04             | 34.2       | 635.8            | 1.56             |
| 4.8        | 19.7             | 0.04             | 34.8       | 654.7            | 1.59             |
| 5.4        | 22.8             | 0.10             | 35.4       | 672.7            | 1.61             |
| 6.0        | 25.7             | 0.10             | 36.0       | 689.7            | 1.62             |
| 6.6        | 28.9             | 0.10             | 36.6       | 705.4            | 1.65             |
| 7.2        | 32.3             | 0.19             | 37.2       | 719.7            | 1.66             |
| 7.8        | 35.3             | 0.19             | 37.8       | 732.7            | 1.68             |
| 8.4        | 38.5             | 0.19             | 38.4       | 744.6            | 1.69             |
| 9.0        | 41.9             | 0.29             | 39.0       | 755.3            | 1.70             |
| 9.6        | 45.1             | 0.29             | 39.6       | 764.6            | 1.72             |
| 10.2       | 48.4             | 0.29             | 40.2       | 773.0            | 1.73             |
| 10.8       | 51.8             | 0.41             | 40.8       | 780.1            | 1.74             |
| 11.4       | 54.9             | 0.41             | 41.4       | 785.8            | 1.74             |
| 12.0       | 58.4             | 0.41             | 42.0       | 790.5            | 1.75             |
| 12.6       | 62.4             | 0.48             | 42.6       | 794.3            | 1.75             |
| 13.2       | 66.5             | 0.48             | 43.2       | 797.3            | 1.75             |
| 13.8       | 71.1             | 0.52             | 43.8       | 799.5            | 1.75             |
| 14.4       | 76.1             | 0.52             | 44.4       | 800.8            | 1.76             |
| 15.0       | 81.6             | 0.56             | 45.0       | 801.4            | 1.76             |
| 15.6       | 87.5             | 0.56             | 45.6       | 801.4            | 1.76             |
| 16.2       | 94.1             | 0.59             | 46.2       | 800.9            | 1.76             |
| 16.8       | 101.4            | 0.62             | 46.8       | 799.8            | 1.75             |
| 17.4       | 109.4            | 0.62             | 47.4       | 798.3            | 1.75             |
| 18.0       | 118.2            | 0.65             | 48.0       | 796.4            | 1.75             |
| 18.6       | 127.7            | 0.68             | 48.6       | 793.9            | 1.75             |
| 19.2       | 138.1            | 0.71             | 49.2       | 791.1            | 1.75             |
| 19.8       | 149.7            | 0.74             | 49.8       | 788.1            | 1.74             |
| 20.4       | 162.4            | 0.79             | 50.4       | 785.0            | 1.74             |
| 21.0       | 175.8            | 0.81             | 51.0       | 781.8            | 1.74             |
| 21.6       | 190.4            | 0.86             | 51.6       | 778.4            | 1.73             |
| 22.2       | 205.9            | 0.88             | 52.2       | 774.7            | 1.73             |
| 22.8       | 222.4            | 0.92             | 52.8       | 771.0            | 1.73             |
| 23.4       | 239.9            | 0.94             | 53.4       | 767.1            | 1.72             |
| 24.0       | 258.7            | 0.98             | 54.0       | 763.1            | 1.72             |
| 24.6       | 278.4            | 1.02             | 54.6       | 759.0            | 1.70             |
| 25.2       | 298.9            | 1.06             | 55.2       | 754.6            | 1.70             |
| 25.8       | 320.0            | 1.11             | 55.8       | 750.1            | 1.70             |
| 26.4       | 341.7            | 1.15             | 56.4       | 745.4            | 1.69             |
| 27.0       | 364.2            | 1.18             | 57.0       | 740.6            | 1.69             |
| 27.6       | 387.1            | 1.21             | 57.6       | 735.7            | 1.68             |
| 28.2       | 410.6            | 1.26             | 58.2       | 730.7            | 1.68             |
| 28.8       | 434.2            | 1.29             | 58.8       | 725.8            | 1.67             |
| 29.4       | 457.9            | 1.32             | 59.4       | 720.7            | 1.67             |
| 30.0       | 481.6            | 1.36             | 60.0       | 715.7            | 1.66             |

Using the Get Max button causes the program to step through a series of storm durations until a maximum volume is obtained.  
Each duration is sampled 600 times and the results recorded. The storm durations (hrs) are:-

0.25, 0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 18, 20, 24, 30, 36, 42, 48, 54, 60, 66, 72, 84, 96, 120, 150, 175, 200, 250, 300, 375, 500, 750, 1000, 1250, 1500, 1570, 2000, 2500, 3000, 3500, 4000

It should be noted that the six hour storm frequently requested rarely demonstrates the worst case for storage.



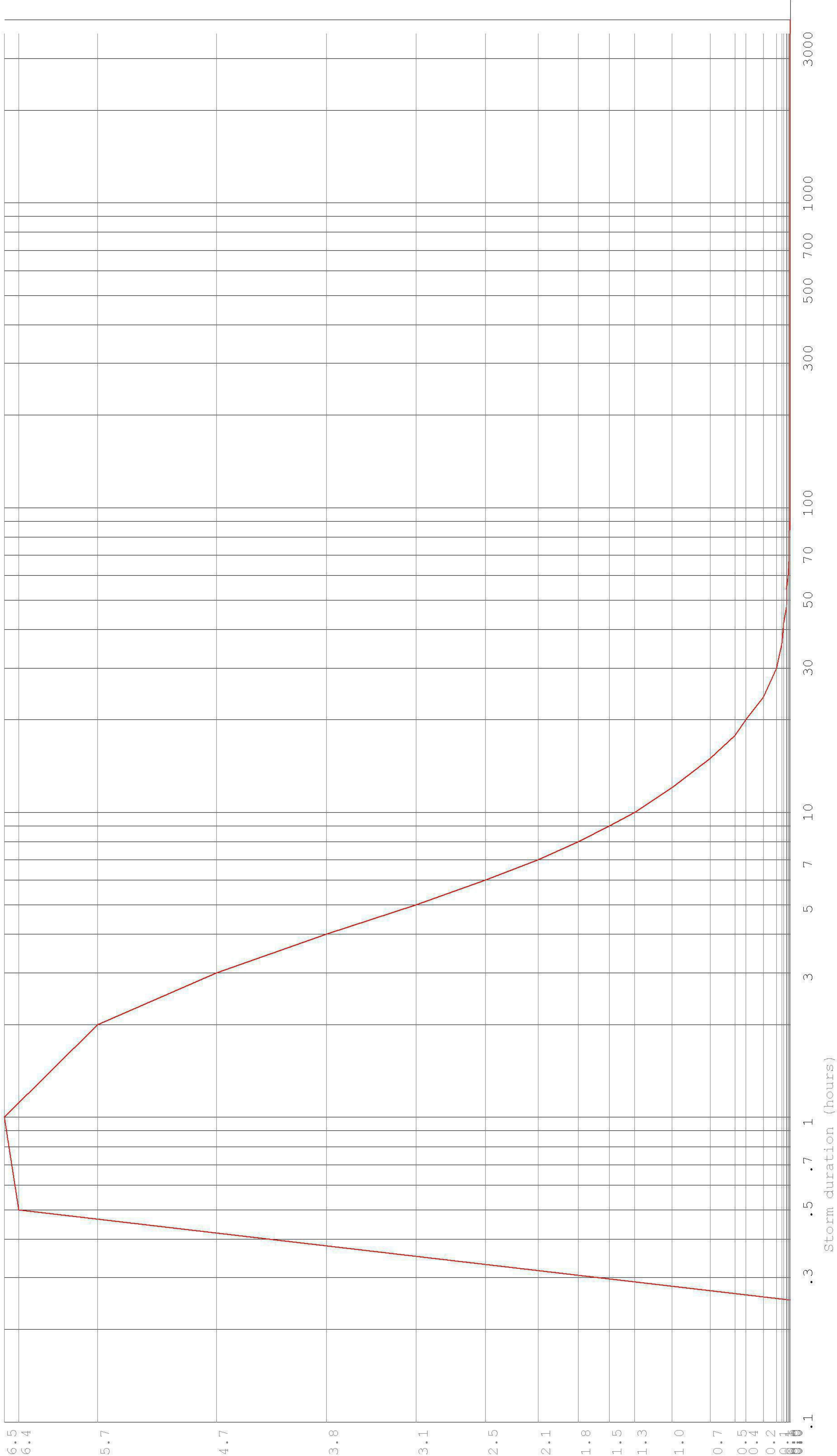


|                                                                                                                                                                                                          |  |                         |                 |
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|                                                                                                                                                                                                          |  | Date<br><b>28/05/26</b> |                 |
| Project<br><b>Pooklands</b>                                                                                                                                                                              |  | By<br><b>EAS</b>        | Checked<br><br> |
| Title<br><b>Hydrograph storage analysis (Winter profile) for Pooklands</b>                                                                                                                               |  | Reviewed<br><br>        |                 |

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Sequential storage volume at specific storm durations.

m<sup>3</sup>





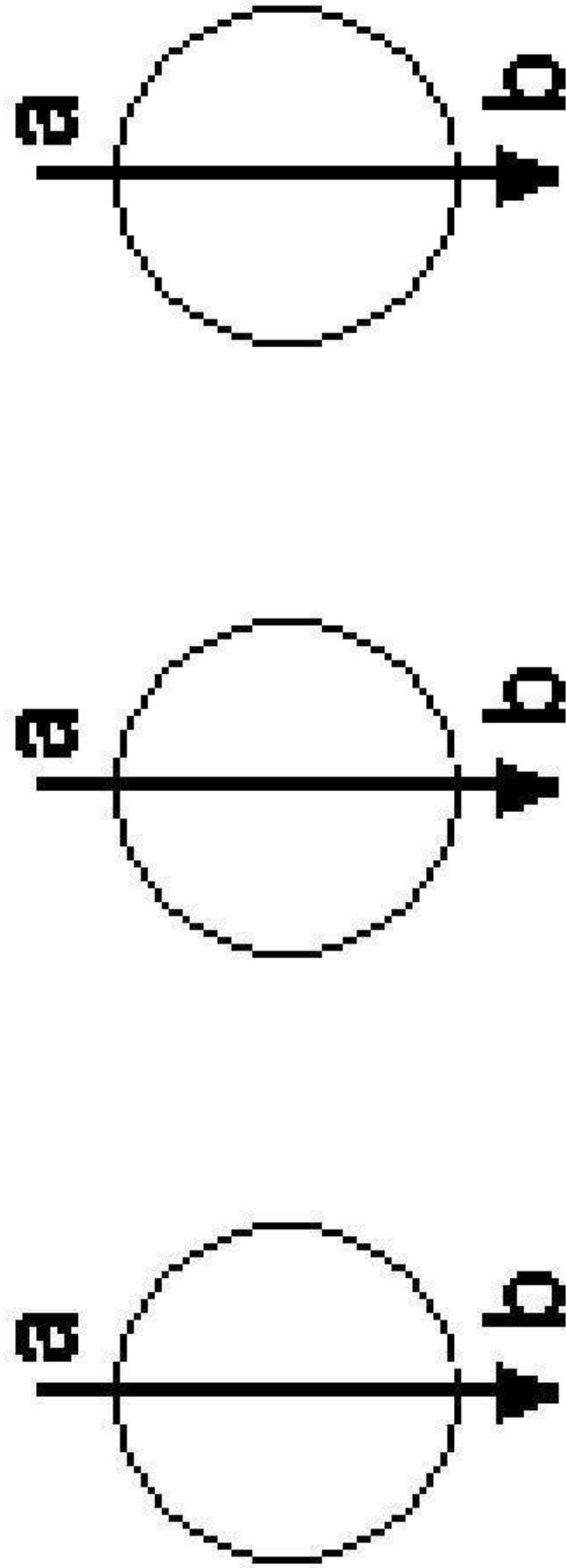
|                                                                                     |                                   |                                                                                                                   |  |                       |         |          |
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|                                                                                     |                                   | Sheet no.<br><b>1</b>                                                                                             |  |                       |         |          |
|                                                                                     |                                   | Date<br><b>04/06/26 14:58</b>                                                                                     |  |                       |         |          |
| Project                                                                             | Pooklands                         |                                                                                                                   |  | By                    | Checked | Reviewed |
| Title                                                                               | Manhole printout for POOKLANDS.SW |                                                                                                                   |  |                       |         |          |

| Manhole<br>ref. | X<br>ref | Y<br>ref | Form | Cham<br>diam.<br>or length | Rect.<br>width | Chamb.<br>height | Shaft<br>height | MH<br>Volume | Exit<br>Diam | Exit<br>Crown | Exit<br>Invert | Chamb<br>const | slab<br>level | Cover<br>level | Dwnstr<br>MH |
|-----------------|----------|----------|------|----------------------------|----------------|------------------|-----------------|--------------|--------------|---------------|----------------|----------------|---------------|----------------|--------------|
| SW1             | 15.8     | 9.4      | circ | 450                        | N/A            | 0.50             |                 | 0.08         | 150          | 20.675        | 20.500         | N/A            | 20.450        | 21.000         | STORAGE      |
| STORAGE         | 22       | 9.4      | circ | 1905                       | N/A            | 0.57             |                 | 1.62         | 100          | 20.555        | 20.430         | N/A            | 20.380        | 21.000         | SW2          |
| SW2             | 24.6     | 47.6     | circ | 450                        | N/A            | 1.96             |                 | 0.31         | 100          | 20.165        | 20.040         | N/A            | 19.990        | 22.000         | DITCH        |

All manholes to be as per 'Sewers for Adoption'



|                                                                                                                        |  |                                                                                                                                                          |  |                               |          |
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|                                                                                                                        |  |                                                                                                                                                          |  | Sheet no.<br><b>2</b>         |          |
|                                                                                                                        |  |                                                                                                                                                          |  | Date<br><b>04/06/26 14:58</b> |          |
| Project<br><b>Pooklands</b>                                                                                            |  | By                                                                                                                                                       |  | Checked                       | Reviewed |
| Title<br><b>Manhole printout for POOKLANDS.SW</b>                                                                      |  |                                                                                                                                                          |  |                               |          |



|          |              |          |
|----------|--------------|----------|
| MH = SW1 | MH = STORAGE | MH = SW2 |
| a= head  | a= 100       | a= 100   |
| b = 150  | b = 100      | b = 100  |



|                                                                                                |                                   |                          |         |           |       |
|------------------------------------------------------------------------------------------------|-----------------------------------|--------------------------|---------|-----------|-------|
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|                                                                                                |                                   | Haywards Heath,          |         | 902       |       |
|                                                                                                |                                   | West Sussex, RH17 5LZ    |         | Sheet no. |       |
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|                                                                                                |                                   | email: info@easltd.co.uk |         | Date      |       |
|                                                                                                |                                   |                          |         | 04/06/26  | 14:58 |
| Project                                                                                        | Pooklands                         | By                       | Checked | Reviewed  |       |
| Title                                                                                          | Manhole printout for POOKLANDS.SW |                          |         |           |       |

These explanatory notes should be read in conjunction with the Manhole printout

- 1) Manhole ref - the reference for the manhole in question
- 2) Form - either circular or rectangular
- 3) Chamber diam or length - diameter of chamber if circular, or length if rectangular - in metres
- 4) Rectangular width - if form is rectangular, this gives the width of the chamber
- 5) Chamber height - height of chamber from invert
- 6) Shaft height - height of access shaft if applicable, from top of chamber to ground level
- 7) Manhole volume - cubic capacity of manhole chamber
- 8) Exit diameter - diameter of pipe leaving this manhole
- 9) Exit crown - crown level of pipe leaving this manhole
- 10) Exit invert - invert level of pipe leaving this manhole
- 11) Chamb const - manhole construction :-

N/A - not specified

Conc - concrete rings

Poly - polypropylene rings surrounded by selected fill

Poly/conc - polypropylene rings surrounded by concrete

Brick - brick built with waterproof render

In situ - concrete cast in situ
- 12) Slab level - surface level of base slab (if no sump, this is placed at 50mm below exit invert to allow levels manipulation) .
- 13) Manhole diameters of 9999 have exceeded the sizes available in SFA
- 14) Manhole diameters may have to be modified due to the number of branches





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| Job No.<br><b>902</b>                                                       |  | 1        |          |
| Sheet no.                                                                   |  | 04/06/26 |          |
| Date                                                                        |  | By       | Reviewed |
| Project<br>Pooklands                                                        |  | Checked  |          |
| Title<br>Surcharge calcs (Sized at 30 yrs storm) for POOKLANDS.SW CCF = 45% |  |          |          |

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Using in-line restrictors  
Return period = 100 yrs  
Climate change factor = 45

**PEAK hydrograph values printed**  
Storm duration = 15 mins  
No offline storage

Mean rain intens. 300.00 mm/hr  
Storm profile = Summer  
Using FEH data

Peak rain intens. 1176.00 mm/hr  
Sample period = 7.5 secs.

| Entry No. | SECT. No. | MANHOLE REF | PIPE CAPACITY l/s | PIPE SIZE mm | RATE FLOW l/s | CHAMBER DIAM/LxW mm | INVERT LEVEL m | WATER LEVEL m | GRND LEVEL m | SURCHARGE fract. | DEPTH m | EXCESS FLOW l/s | FLOODED VOL m³ | DRAINED AREA (m²) | STATUS |
|-----------|-----------|-------------|-------------------|--------------|---------------|---------------------|----------------|---------------|--------------|------------------|---------|-----------------|----------------|-------------------|--------|
| 1         | I         | 1.01        | SW1               | 18.8         | 19.1          | 150                 | 450            | 20.50         | 20.66        | 21.00            | 1.01    | 0.27            | 0.000          | 133               | Surch. |
| 2         | I         | 1.02        | STORAGE#          | 6.1          | 2.0           | 100                 | 1905           | 20.43         | 20.47        | 21.00            | 0.33    | 0.00            | 0.000          | 133               | OK     |
| 3         | I         | 1.03        | SW2               | 6.3          | 2.0           | 100                 | 450            | 20.04         | 20.08        | 22.00            | 0.32    | 0.00            | 0.000          | 133               | OK     |





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| Sheet no.<br><b>2</b>   |         |          |
| Date<br><b>04/06/26</b> |         |          |
| By                      | Checked | Reviewed |

|                                                                                    |  |  |
|------------------------------------------------------------------------------------|--|--|
| Project<br><b>Pooklands</b>                                                        |  |  |
| Title<br><b>Surcharge calcs (Sized at 30 yrs storm) for POOKLANDS.SW CCF = 45%</b> |  |  |

## Notes

### Printout headings

|                                               |                                                                   |                                                                |
|-----------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------|
| 1) Entry no - position in file                | 2) Section no - pipe identifier                                   | 3) Manhole ref - Manhole identifier                            |
| 4) Pipe cap - full bore capacity of that pipe | 5) Rate of flow - calculated flow rate (l/s) ± = flow restrictor. | 6) Pipe diam - outlet pipe diameter (mm)                       |
| 7) Chamber diam - chamber diam. at base of MH | 8) Invert level - invert level of manhole                         | 9) Water level - calculated peak water level.                  |
| 10) Grnd level - ground / cover level         | 11) Surch. fract - calc.flow/pipe capacity                        | 12) Surch. depth - surcharge level above soffit                |
| 13) Overflow - surcharged flow rate (l/s)     | 14) Flooded vol - volume of water above cover                     | 15) Upstrm Vol - upstream pipe vol to previous manhole(s)      |
| 16) Status - OK - outlet not surcharged       | 17) Status - Surcharged - outlet surcharged                       | 18) Status - Warning - water level within 299mm of cover level |
| 19) Status - Flooded - cover over-topped      | 20) § against diameter indicates throttle pipe used.              |                                                                |

### Title box

Hydrograph data

|                                                 |                                      |                                                  |
|-------------------------------------------------|--------------------------------------|--------------------------------------------------|
| 1) Ret. period - that used to calculate profile | 2) Duration - length of storm (mins) | 3) Profile - either Winter (75%) or Summer (50%) |
|-------------------------------------------------|--------------------------------------|--------------------------------------------------|

### Flow restrictors

|                             |                             |
|-----------------------------|-----------------------------|
| Manhole reference - STORAGE | Restrictor flowrate - 2 l/s |
|-----------------------------|-----------------------------|

### Flood volumes

Check that the upstream storage of the manhole is adequate to take the flood volume - see Upstrm Vol above.





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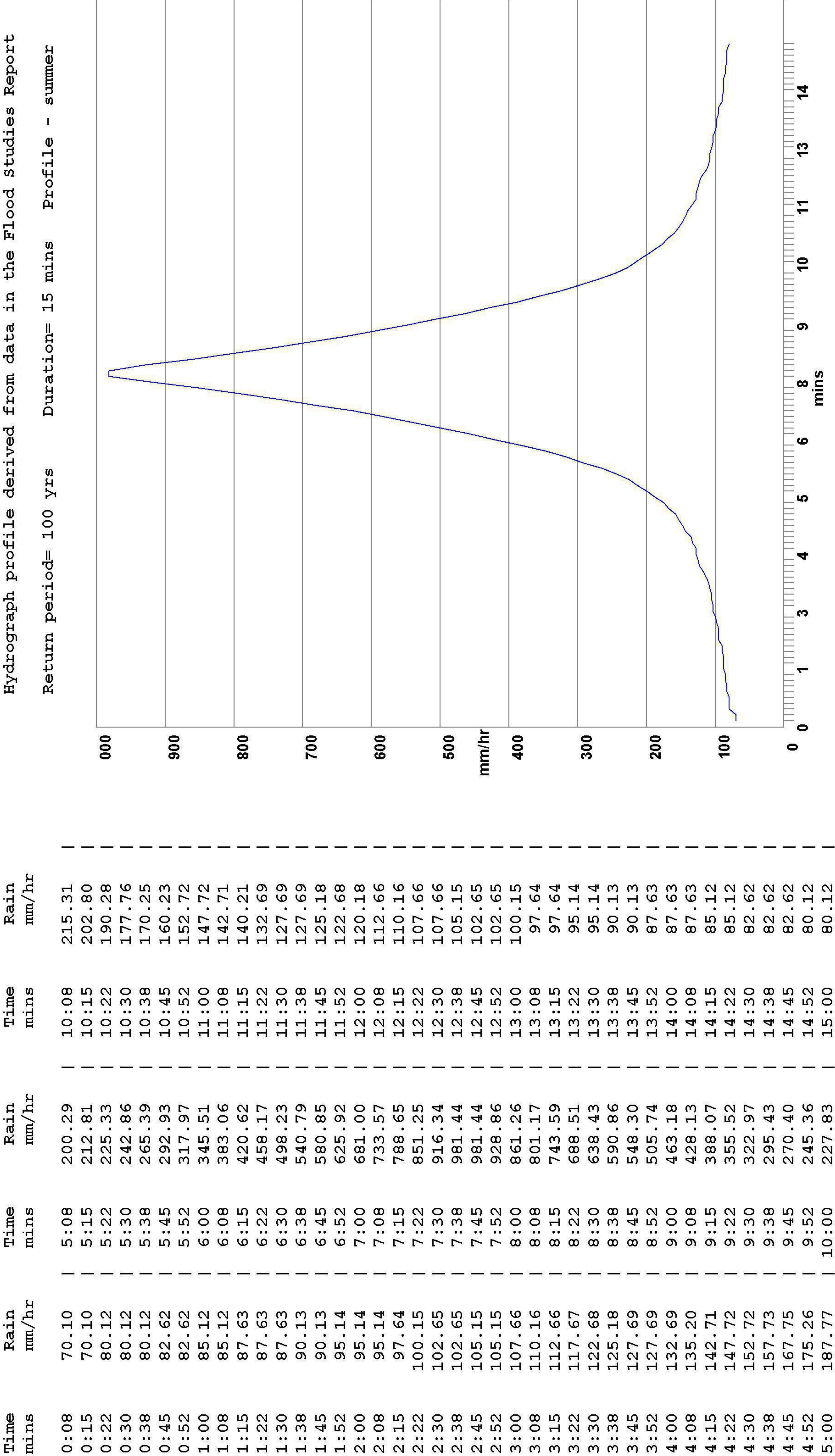
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Haywards Heath,  
West Sussex, RH17 5LZ  
Tel: 01444 882552  
email: [info@easltd.co.uk](mailto:info@easltd.co.uk)

|                                                                                    |  |                         |         |          |
|------------------------------------------------------------------------------------|--|-------------------------|---------|----------|
| Project<br><b>Pooklands</b>                                                        |  | Job No.<br><b>902</b>   |         |          |
|                                                                                    |  | Sheet no.<br><b>3</b>   |         |          |
|                                                                                    |  | Date<br><b>04/06/26</b> |         |          |
| Title<br><b>Surcharge calcs (Sized at 30 yrs storm) for POOKLANDS.SW CCF = 45%</b> |  | By                      | Checked | Reviewed |

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SW

Hydrograph profile derived from data in the Flood Studies Report

Return period= 100 yrs      Duration= 15 mins      Profile - summer







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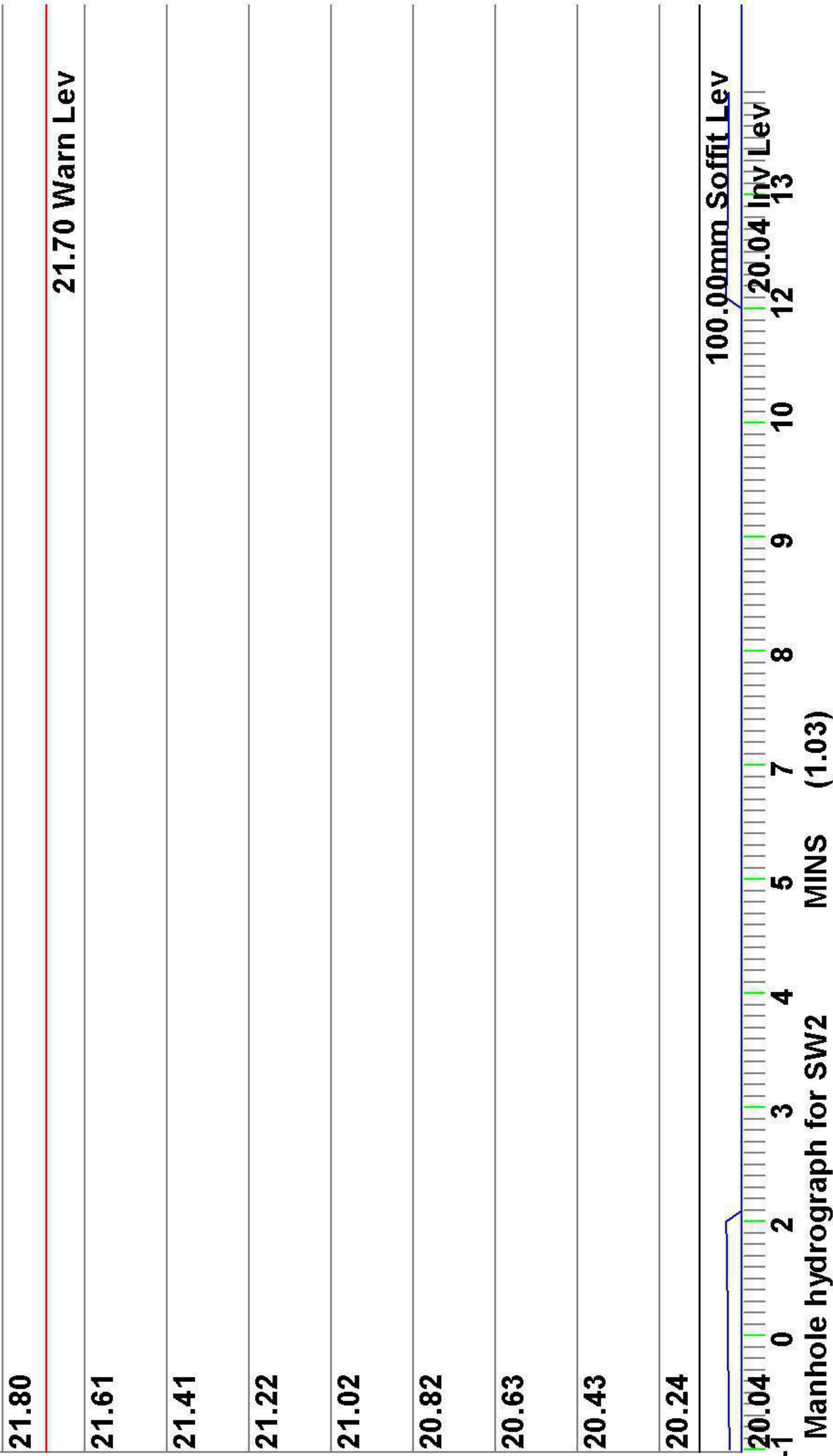
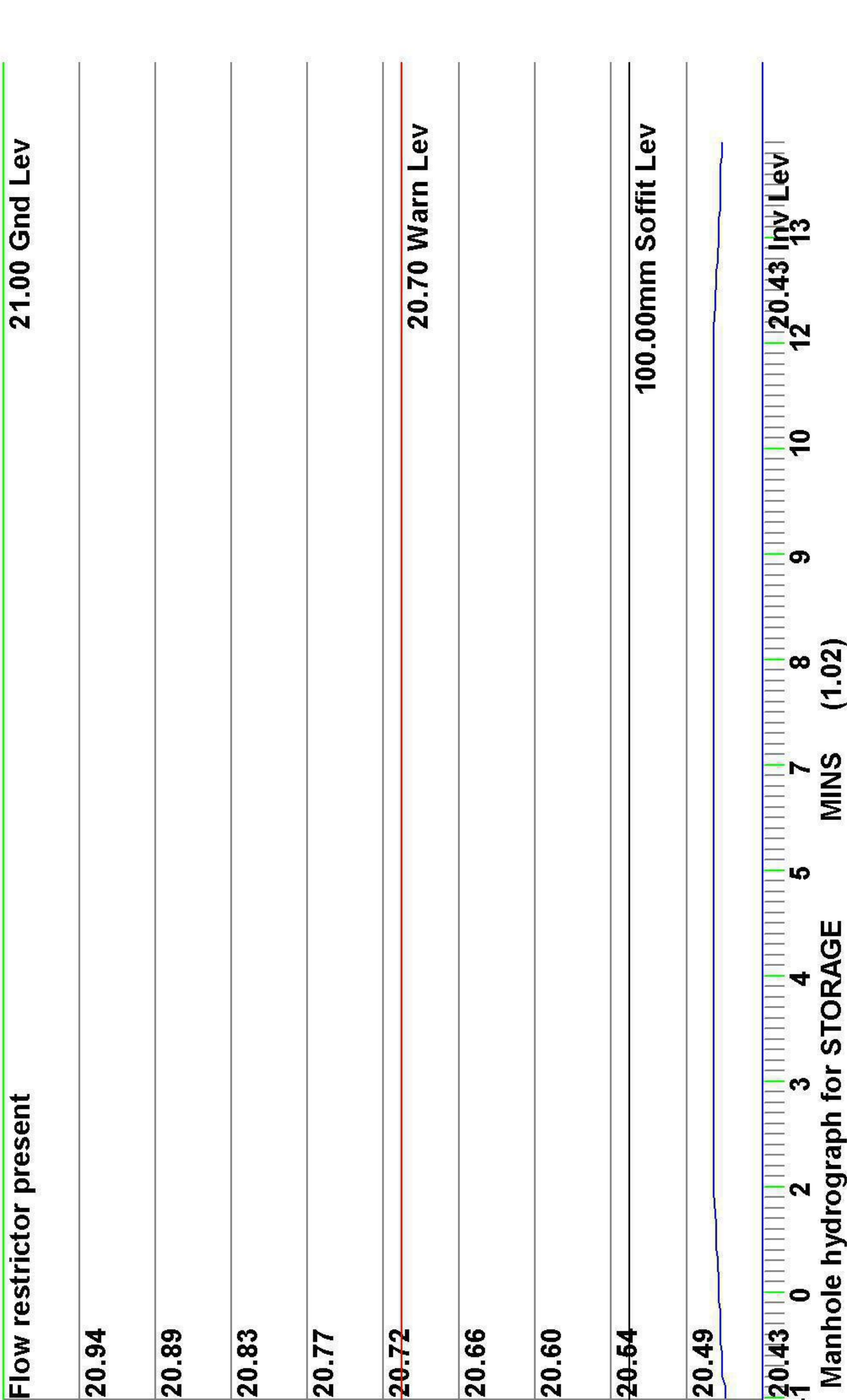
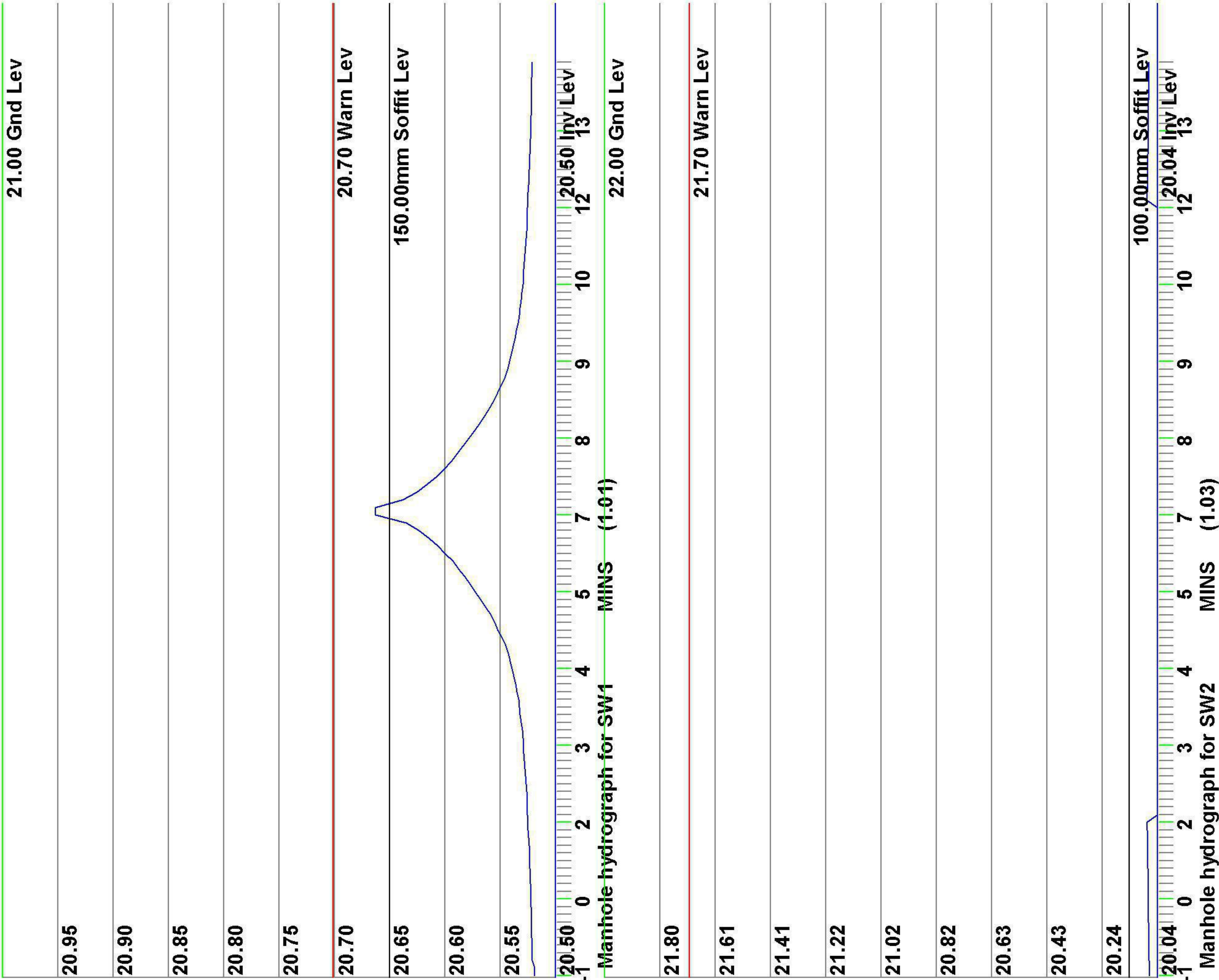
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|         |                         |  |          |
|---------|-------------------------|--|----------|
| Project | Job No.<br><b>902</b>   |  |          |
|         | Sheet no.<br><b>4</b>   |  |          |
|         | Date<br><b>04/06/26</b> |  |          |
| Title   | By                      |  | Reviewed |
|         | Checked                 |  |          |

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Surcharge calcs (Sized at 30 yrs storm) for POOKLANDS.SW CCF = 45%







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|                                                                                                                                                                                                                                                                                                |                                                                    |                         |         |
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|                                                                                                                                                                                                                                                                                                |                                                                    | Sheet no.<br><b>5</b>   |         |
|                                                                                                                                                                                                                                                                                                |                                                                    | Date<br><b>04/06/26</b> |         |
| Project                                                                                                                                                                                                                                                                                        | Pooklands                                                          | By                      | Checked |
| Title                                                                                                                                                                                                                                                                                          | Surcharge calcs (Sized at 30 yrs storm) for POOKLANDS.SW CCF = 45% |                         |         |
|                                                                                                                                                                                                                                                                                                |                                                                    | Reviewed                |         |



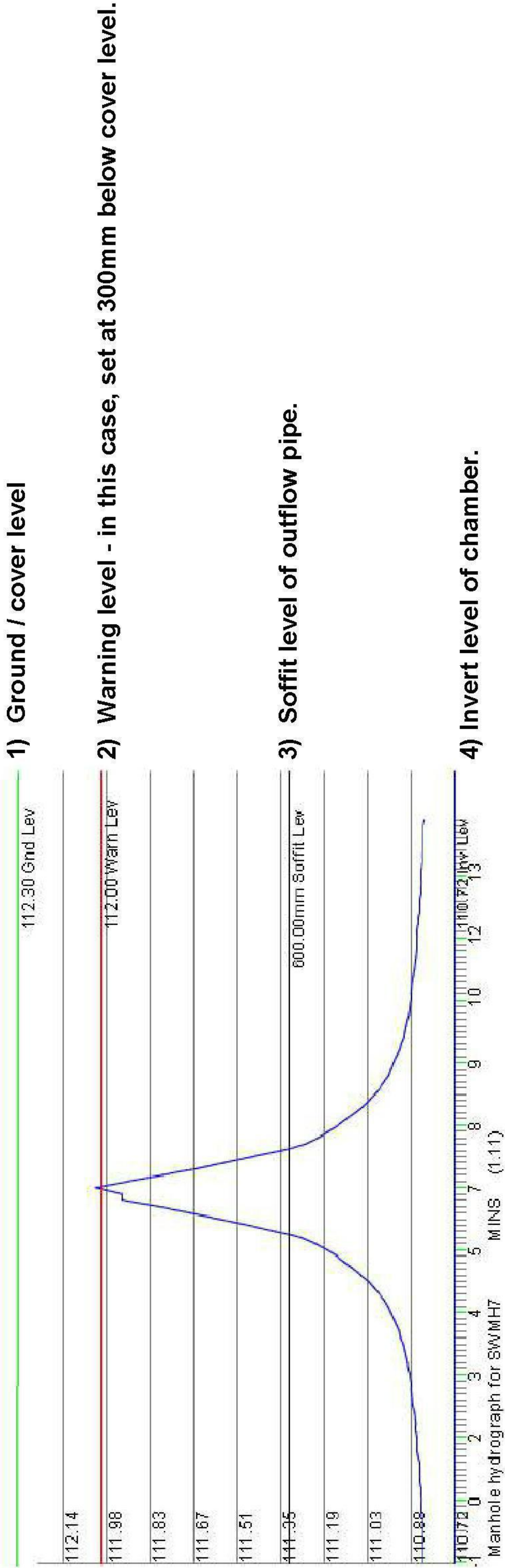


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|                                                                             |                         |         |          |
|-----------------------------------------------------------------------------|-------------------------|---------|----------|
| Project<br>Pooklands                                                        | Job No.<br><b>902</b>   |         |          |
|                                                                             | Sheet no.<br><b>6</b>   |         |          |
|                                                                             | Date<br><b>04/06/26</b> |         |          |
|                                                                             | By                      | Checked | Reviewed |
| Title<br>Surcharge calcs (Sized at 30 yrs storm) for POOKLANDS.SW CCF = 45% |                         |         |          |



Notes

- a) Lower section of the graph shows the water depth filling the channel. Channel is assumed to be a full pipe diameter in depth.
- b) Upper section of the graph shows the water depth filling the chamber. Chamber has a greater width/diameter than the channel, so increases in depth are proportionally less.
- c) The top of the graph clips the warning level and would be marked thus on the printout.
- d) In many cases the invert of the offline storage is required to enter at the channel soffit level, meaning that the pipe will still surcharge but flooding risk reduced.
- e) The diagram above is a general one and is not part of the current calculation.





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|                                                                                                                               |                                                   |                                                                                                                                                          |         | Sheet no.<br><b>0</b>   |
|                                                                                                                               |                                                   |                                                                                                                                                          |         | Date<br><b>04/06/26</b> |
| Project<br><b>Pooklands</b>                                                                                                   | By                                                |                                                                                                                                                          | Checked | Reviewed                |
|                                                                                                                               | Title<br><b>Manhole printout for POOKLANDS.FL</b> |                                                                                                                                                          |         |                         |

Pooklands

Manhole printout for POOKLANDS.FL

| Manhole ref. | Form | Cham<br>or length | diam.<br>width | Rect.<br>height | Chamb.<br>height | Shaft<br>height | MH<br>Volume | Ent.<br>Diam | Ent.<br>Crown | Exit<br>Diam | Exit<br>Crown | Exit<br>Invert | Chamb<br>const | Cover<br>Level | Dwnstr<br>MH |
|--------------|------|-------------------|----------------|-----------------|------------------|-----------------|--------------|--------------|---------------|--------------|---------------|----------------|----------------|----------------|--------------|
| FW1          | circ | 450               | N/A            |                 | 0.50             |                 | 0.08         | Head         | ----          | 100          | 20.625        | 20.500         | N/A            | 21.000         | STP          |
| STP          | circ | 450               | N/A            |                 | 0.68             |                 | 0.11         | 100          | 0.000         | 100          | 20.445        | 20.320         | N/A            | 21.000         | FW2          |
| FW2          | circ | 450               | N/A            |                 | 2.07             |                 | 0.33         | 100          | 0.000         | 100          | 20.055        | 19.930         | N/A            | 22.000         | DITCH        |

All manholes to be as per 'Sewers for Adoption'

Levels calculated for level inverts





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|                                                                                     |  |                                                                                                                   |          |
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| Job No.<br>902                                                                      |  | Sheet no.<br>0                                                                                                    |          |
| Date<br>04/06/26                                                                    |  |                                                                                                                   |          |
| By                                                                                  |  | Checked                                                                                                           | Reviewed |
| Project<br>Pooklands                                                                |  |                                                                                                                   |          |
| Title<br>Manhole printout for POOKLANDS.FL                                          |  |                                                                                                                   |          |

These explanatory notes should be read in conjunction with the Manhole printout

- 1) Manhole ref - the reference for the manhole in question
- 2) Form - either circular or rectangular
- 3) Chamber diam or length - diameter of chamber if circular, or length if rectangular - in metres
- 4) Rectangular width - if form is rectangular, this gives the width of the chamber
- 5) Chamber height - height of chamber from invert
- 6) Shaft height - height of access shaft if applicable, from top of chamber to ground level
- 7) Manhole volume - cubic capacity of manhole chamber
- 8) Exit diameter - diameter of pipe leaving this manhole
- 9) Exit crown - crown level of pipe leaving this manhole
- 10) Exit invert - invert level of pipe leaving this manhole
- 11) Manhole diameters of 9999 have exceeded the sizes available in SFA
- 12) Manhole diameters may have to be modified due to the number of branches



## APPENDIX E

### **ENVIRONMENT AGENCY GENERAL BINDING RULES FOR SEWAGE TREATMENT PLANT DISCHARGE**



## **EA GENERAL BINDING RULES**

**Available online at [www.gov.uk](http://www.gov.uk)**

The sewage must:

- be domestic in nature eg from a toilet, bathroom, shower or kitchen of a house, flat or business (eg a pub, hotel or office).
- not cause pollution.

For a discharge to a surface water, eg a river or stream, you must:

- use a small sewage treatment plant. No permit is required as long as you are not discharging more than 5 cubic metres (5,000 litres) per day.

Required maintenance:

- you must get the sludge which builds up in your sewage treatment plant removed (desludged) before it exceeds the maximum capacity. As a minimum, you should have your treatment system desludged once a year or in line with the manufacturer's instructions.
- the company you use to dispose of your waste sludge must be a registered waste carrier. Ask the company to confirm this when you arrange to have your tank emptied or ask the tanker driver for a copy of the company's waste carrier's certificate.
- you should have your treatment system regularly maintained in line with the manufacturer's instructions.
- Anyone who carries out maintenance on your system must be competent.

You must have your treatment system repaired or replaced if it isn't in good working order, for example if it has:

- leaks
- cracks in tank walls or pipes
- blocked pipes
- signs that the effluent isn't draining properly (pools of water around the drainage point)
- sewage smells
- a failed motor
- a failed pump
- a failed electrical supply

Additional rules for new treatment systems installed and in use on or after 1 January 2015 apply if you:

- started a new discharge from a small sewage treatment plant on or after 1 January 2015.
- had a discharge to ground before 1 January 2015 which you now want to change to discharge to a surface water (or the other way round).



- had a discharge to a surface water before 1 January 2015 and you want to install a new drainage pipe which discharges more than 10 metres away from the existing one or which goes to a different surface water.
- If any part of the building your treatment plant serves is within 30 metres of a public sewer, the Environment Agency will not allow you to start a new discharge from a sewage treatment plant under the general binding rules.

You must have [planning permission](#) and [Building Regulations approval](#) if you have or are planning to install a new sewage treatment plant.

New discharges are not allowed to a ditch or a surface water that does not contain flowing water throughout the whole year. That is unless there is a drought or an unusually long period of dry weather.

New discharges to watercourses that seasonally dry up are not allowed under the general binding rules, nor are discharges to enclosed lakes or ponds.

Contact the Environment Agency if you are unsure whether the surface water you want to discharge to is suitable.

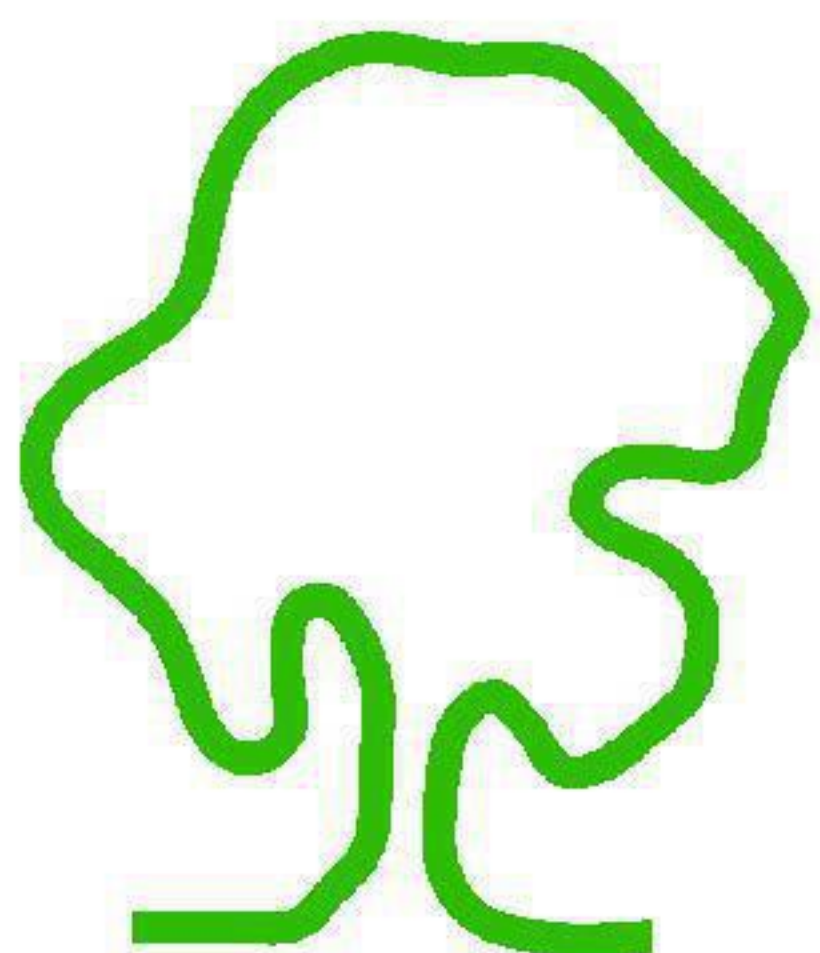
If you have or are planning to start a new discharge to a surface water in or near to a designated sensitive area, you must apply for a permit. You will need a permit if the new discharge will be in or within 500 metres of any:

- special areas of conservation
- special protection areas
- Ramsar sites
- biological sites of special scientific interest
- freshwater pearl mussel population
- designated bathing water
- protected shellfish water

You will also need a permit if the new discharge will be in or within:

- 200 metres of an aquatic local nature reserve
- 50 metres of a chalk river or aquatic local wildlife site





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