

Proposed Foul Water Drainage Strategy Report  
GTX001 | Site Infrastructure  
Gartree 2

661277-0000-PEV-GTX001 | ZZ-RP-C-0553

Issue Number P04

S3 – Suitable for Review and Comment

16/08/2021



Ministry of  
**JUSTICE**

Security Classification:

OFFICIAL

## Document History

Issue	Date	Comment	Author	Chk'd
P01	27/04/2021	First issue.	PCA	MHA
P02	01/06/2021	Minor revisions following comments.	PCA	MHA
P03	13/08/2021	Minor revisions following comments.	PCA	MHA
P04	16/08/2021	Minor revisions following comments.	PCA	MHA

## Contents

1.0	Introduction.....	4
2.0	Site Description .....	4
2.1	Existing Site .....	4
2.2	Proposed Site.....	5
3.0	Foul Water Drainage Strategy .....	5
3.1	Existing Foul Water Drainage .....	5
3.2	Proposed Foul Water Drainage.....	5
4.0	Conclusions .....	7
	Appendix A.....	8

## 1.0 Introduction

This Foul Water Drainage Strategy Report has been produced to support an Outline Planning Application with all matters reserved except for access and scale for the construction of a new Category B prison of up to 82,555sqm GEA within a secure perimeter fence together with access parking, landscaping and associated engineering works on land adjacent to HMP Gartree, Gallow Field Rd, Market Harborough, Leicestershire LE16 7RP

The indicative site layout proposes a range of buildings and facilities typical of a Category B resettlement prison, including:

- Seven new houseblocks each accommodating up to 245 prisoners (1,715 prisoners in total), totalling c.53,122 sqm GEA
- Supporting development including kitchen, workshops, kennels, Entrance Resource Hub, Central Services Hub and support buildings, totalling c. 29,433 sqm GEA
- Ancillary development including car parking (c. 523 spaces), internal road layout and perimeter fencing totalling 1463 linear meters enclosing a secure perimeter area of 11.69 ha.

The house blocks will be four storeys in height, whilst the other buildings will range from one to three storeys.

Other development proposed includes kennels, polytunnels, car parking (c. 523 spaces), internal road layout and perimeter fencing. A bicycle shelter is also proposed.

The new prison will be designed and built to be highly sustainable and to exceed local and national planning policy requirements in terms of sustainability. MoJ's aspirations include targeting near zero carbon operations, 10% biodiversity net gain, and at least BREEAM 'Excellent' certification, with endeavours to achieving BREEAM 'Outstanding'.

The drainage proposals have been produced in accordance with the requirements of the National Planning Policy Framework (NPPF), and policy In1 from the Harborough Local Plan which seeks to ensure that the development is supported by the appropriate infrastructure and that this is phased appropriately.

## 2.0 Site Description

### 2.1 Existing Site

The proposed site is located adjacent to the existing HMP Gartree facility, and is around 50% longer in the east to west dimension as in the north to south dimension. The site is currently mostly grassland / farmland, with an asphalt track running through the eastern side of the site.

The site is bounded to the north by the existing HMP Gartree site, and to the west by Welland Avenue and the village of Gartree. To the south and east of the site lie open fields. An open surface water ditch runs north east to south west, roughly dividing the site in half.

A review of the topographical survey indicates the site generally falls from the western and eastern boundaries towards the central surface water ditch. The western side falls around 8m from the boundary to the top of the ditch bank, and the eastern side around 5m. This ditch itself is around 2.5m deep from the top of bank level. In addition, the ditch falls by around 7m from north to south across the site.

## 2.2 Proposed Site

The site is to be developed to provide a new prison, to provide facilities for up to 1715 residents. Accommodation will be provided in 7 houseblocks, with a number of additional support buildings providing all necessary facilities. While there will be a requirement for site roads, and areas of hardstanding, there will also be areas allocated to planting and green spaces. The proposed site layout plan has been used to develop the proposed foul water drainage strategy, and is shown on the drawing in the Appendix.

## 3.0 Foul Water Drainage Strategy

### 3.1 Existing Foul Water Drainage

As the proposed site currently comprises open fields laid to grass, there is no existing foul water drainage serving the proposed development site.

Analysis of the existing Anglian Water records indicates the presence of an Anglian Water owned foul water pumping station off Welland Avenue, to the west of the proposed development site. The rising main leading from the pumping station is shown to run in a northerly direction, avoiding the proposed development area. Analysis of the CCTV survey report shows that the existing gravity sewers, which discharge to this pumping station, do not pass through the proposed development site. Instead the sewers pass through land to the north of the existing pumping station. One sewer runs from the existing HMP Gartree site, with two connections evident, from the direction of residential properties on Welland Avenue, immediately upstream of the point of discharge to the pumping station.

### 3.2 Proposed Foul Water Drainage

The proposed foul water flows from the development will be collected via a series of private inspection chambers, manholes and drains. The approach to foul water drainage on the site is dependent on two key factors;

- Levels - The levels of the site are such that the land falls away from the existing Anglian Water foul pumping station. While outline initial Finished Floor Levels have been defined for each building, these are yet to be finalised (this will be undertaken in subsequent project stages). Therefore, the viability of achieving a gravity connection for the foul water drainage from each building, to the existing pumping station, is considered highly unlikely. Please refer to the following section for further comment on this point.
- Capacity – a pre-development enquiry was submitted to Anglian Water, to determine the acceptable point of connection for the new site drainage to the existing public foul sewer network. Following extensive communication with Anglian Water, and a number of meetings to discuss the foul drainage proposals, Anglian Water have confirmed the following;

- The primary point of connection offered by Anglian Water is to the public sewer network serving Market Harborough, approximately 5km to the east of the proposed development site. Anglian Water confirmed that due to capacity issues within this network, the point of connection would have to be directly into the Waste Water Treatment Works, which itself would also require upgrade works to provide sufficient capacity. While the costs of the upgrade works would remain Anglian Water's responsibility, the cost of making the connection between the proposed development site and the Waste Water Treatment works would remain with the project. This would require an on-site private pumping station, with rising main. The route of the rising main would cross numerous privately owned fields, a major A-Road, a canal, and rail line – it is anticipated that the rising main would be laid under the requisition process if this option were to be progressed, and would be a high cost item.
- Anglian Water confirmed a second potential connection point – into the existing gravity sewer serving the existing HMP Gartree site, which discharges into the Welland Avenue pumping station. Anglian Water also confirmed that this pumping station does not have sufficient capacity for the flows from the new development. In addition, there is insufficient capacity at the waste water treatment works serving this network, Foxton Waste Water Treatment Works located to the north of the neighbouring villages of Gartree and Foxton. However, provided the flow could be discharged via the existing gravity connection, any improvement works required to the pumping station and waste water treatment works would remain the responsibility of Anglian Water to undertake and fund. Also, connection to the existing gravity sewer could be made ahead of any necessary improvement works, with Anglian Water retaining responsibility to manage the lack of capacity in the interim period.
- A final option includes for the construction of a new waste water treatment works to serve the development. This would be located immediately south of the development site. Discussions with Anglian Water confirmed that this asset could be adopted by Anglian Water, provided the design and construction were undertaken to the required standards. This approach would result in Anglian Water taking responsibility for the future ongoing operation and maintenance of the treatment works, however the cost of construction would remain with the project. The key issue associated with this option is the lack of a suitable discharge point for the treated effluent from the new waste water treatment works, which would typically be a watercourse. There are no such suitable watercourses in the vicinity of the proposed site, and therefore if this option were to be progressed, possible re-location of the proposed treatment works, or pumping of the effluent to a suitable watercourse would need to be considered.

In light of the above, the preferred option for the discharge of foul water flows from the site is via the existing gravity sewer serving the existing HMP Gartree site. Due to the relative levels of the proposed site and the existing sewer, this option would require the construction of an on-site private pumping station, with a degree of attenuation provided to minimise the potential impact on the existing Welland Avenue pumping station. This approach has been presented for Anglian Water for comment, along with a plan showing the proposed connection point – a response from Anglian Water is awaited.

However, it should be noted that this option may result in capacity issues at the existing Welland Avenue pumping station, and at Foxton Waste Water Treatment Works. These issue may result in flooding, either directly from the pumping station or from upstream in the sewer network (which also serves neighbouring residential properties on Welland Avenue), or both. Due to the topography any flooding may also directly

affect the proposed development at Gartree 2, due to overland flow possibly reaching the car park areas and beyond.

Furthermore the additional flow at Foxton waste water treatment works may result in the works failing its Environment Agency discharge consent (which places controls on the minimum acceptable quality of treated water discharged to the watercourse). The impact of this is that the works would be considered to be polluting the watercourse, until measures are taken to increase the capacity of the works and/or amend the discharge consent.

It is recommended that a further review of the viability of this option is undertaken in conjunction with all parties, to agree the preferred approach to foul water drainage for this site, with a view to the implications of any option.

Please refer to the appendix for a drawing showing the proposals.

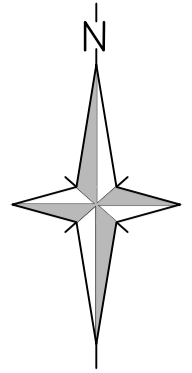
## 4.0 Conclusions

An outline foul water drainage strategy drawing has been prepared for this site, however this does present a number of potential issues. Further discussions are recommended to progress this element of the design, both within the project, and also with Anglian Water.

## Appendix A

661277-0000-PEV-GTX0011-ZZ-DR-C-0561\_Proposed Foul Water Drainage Strategy



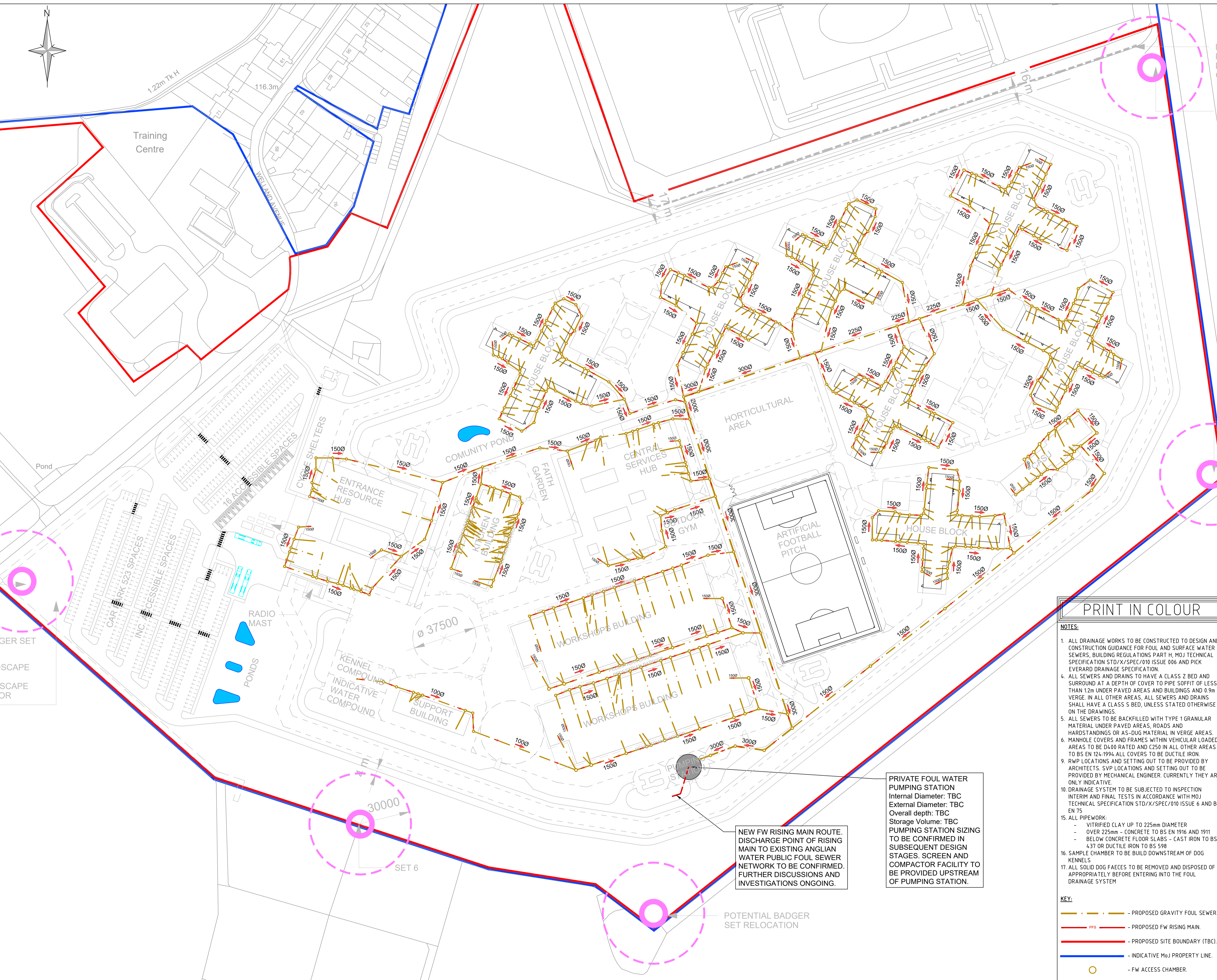


© Crown copyright 2018  
 Do not scale from drawings. Verify all dimensions on site prior to construction. This drawing is to be read in conjunction with all relevant documents and drawings. Report all discrepancies to MoJ immediately.  
 No unauthorised use, disclosure, storage or copying.

This symbol identifies a Residual Risk that is recorded on the Design Risk Register and is relevant to this drawing.  
 This drawing must be read in conjunction with the following project CDM documents:  
 661277-0000-PEV-GTX0011-XX-HS-C-002\_Design Risk Assessment

This symbol identifies a Derogation that is recorded on the Derogation Schedule and is relevant to this drawing.  
 This drawing must be read in conjunction with the following project Derogation documents:  
 N/A

The above symbols can only be read when this drawing is in colour print



Rev	Date	Description
P04	2021.05.24	RED BOUNDARY UPDATED, CSH GYM EXTENDED.
P03	2021.04.26	SITE LAYOUT UPDATED, ISSUED FOR OPA.
P02	2021.02.18	SUITABILITY STATUS REVISION.
P01	2021.02.12	FIRST ISSUE.

This document references the following linked files

File Reference	Status	Revision
N/A	N/A	N/A

**PRINT IN COLOUR**

- NOTES:**
- ALL DRAINAGE WORKS TO BE CONSTRUCTED TO DESIGN AND CONSTRUCTION GUIDANCE FOR FOUL AND SURFACE WATER SEWERS, BUILDING REGULATIONS PART H, MOJ TECHNICAL SPECIFICATION STD/XX/SPEC/010 ISSUE 006 AND PICK EVERARD DRAINAGE SPECIFICATION.
  - ALL SEWERS AND DRAINS TO HAVE A CLASS 7 BED AND SURROUND AT A DEPTH OF COVER TO PIPE SOFFIT OF LESS THAN 12m UNDER PAVED AREAS AND BUILDINGS AND 0.9m IN VERGE. IN ALL OTHER AREAS, ALL SEWERS AND DRAINS SHALL HAVE A CLASS 5 BED, UNLESS STATED OTHERWISE ON THE DRAWINGS.
  - ALL SEWERS TO BE BACKFILLED WITH TYPE 1 GRANULAR MATERIAL UNDER PAVED AREAS, ROADS AND HARDSTANDINGS OR AS-DUG MATERIAL IN VERGE AREAS.
  - MANHOLE COVERS AND FRAMES WITHIN VEHICULAR LOADED AREAS TO BE D400 RATED AND C250 IN ALL OTHER AREAS TO BS EN 124-1994. ALL COVERS TO BE DUCTILE IRON.
  - RWP LOCATIONS AND SETTING OUT TO BE PROVIDED BY ARCHITECTS. SVP LOCATIONS AND SETTING OUT TO BE PROVIDED BY MECHANICAL ENGINEER. CURRENTLY THEY ARE ONLY INDICATIVE.
  - DRAINAGE SYSTEM TO BE SUBJECTED TO INSPECTION INTERIM AND FINAL TESTS IN ACCORDANCE WITH MOJ TECHNICAL SPECIFICATION STD/XX/SPEC/010 ISSUE 6 AND BS EN 75.
  - ALL PIPEWORK:
    - VITRIFIED CLAY UP TO 225mm DIAMETER
    - OVER 225mm - CONCRETE TO BS EN 1916 AND 1911
    - BELOW CONCRETE FLOOR SLABS - CAST IRON TO BS 437 OR DUCTILE IRON TO BS 598
  - SAMPLE CHAMBER TO BE BUILT DOWNSTREAM OF DOG KENNELS
  - ALL SOLID DOG FAECES TO BE REMOVED AND DISPOSED OF APPROPRIATELY BEFORE ENTERING INTO THE FOUL DRAINAGE SYSTEM

**KEY:**

- PROPOSED GRAVITY FOUL SEWER.
- PROPOSED FW RISING MAIN.
- PROPOSED SITE BOUNDARY (TBC).
- INDICATIVE MoJ PROPERTY LINE.
- FW ACCESS CHAMBER.

PRIVATE FOUL WATER PUMPING STATION  
 Internal Diameter: TBC  
 External Diameter: TBC  
 Overall depth: TBC  
 Storage Volume: TBC  
 PUMPING STATION SIZING TO BE CONFIRMED IN SUBSEQUENT DESIGN STAGES. SCREEN AND COMPACTOR FACILITY TO BE PROVIDED UPSTREAM OF PUMPING STATION.

NEW FW RISING MAIN ROUTE. DISCHARGE POINT OF RISING MAIN TO EXISTING ANGLIAN WATER PUBLIC FOUL SEWER NETWORK TO BE CONFIRMED. FURTHER DISCUSSIONS AND INVESTIGATIONS ONGOING.

POTENTIAL BADGER SET RELOCATION

Project Status  
 RIBA Stage 2

Client  
  
**Ministry of Justice**  
 Ministry of Justice, 102 Petty France, London, SW1H 9AJ

Project  
**New Prisons Programme**

Project Description / Site  
 New Prisons Programme  
 Gartree 2

Project Address  
 Site Adjacent to HMP Gartree

Building Type  
 Site Infrastructure

Drawing Title  
 Proposed Foul Water Drainage Strategy

Originator Logo	Drawn By	JAS	Date	12.02.21
	Checked By	PCA	Date	12.02.21
	Approved By	PCA	Date	12.02.21

Drawing Number  
 661277-0000-PEV-GTX0011-ZZ-DR-C-0561  
 Delref  
 D0100

Sheet No. 01 of 01  
 Scale 1:1000  
 Orig. Sheet Size @ A1  
 Rev. P04

Data Security Classification  
 OFFICIAL  
 Suitability  
 S3