Moravian Union

Development at Greenside Road and Wellhouse Lane, Mirfield

Site 2 – Wellhouse Lane

FRA & Drainage Strategy

D4917-FRA-02

July 2026

PSA Design Ltd
Consulting Engineers
The Old Bank House
6 Berry Lane
Longridge
Preston PR3 3JA

Tel. 01772 786066
Fax. 01772 786265

www.psadesign.co.uk
mail@psadesign.co.uk

Document Control Sheet

Development at Greenside Road and Wellhouse Lane, Mirfield

Site 2 – Wellhouse Lane

FRA & Drainage Strategy

Job	Date	Issue	Copy
D4917	July 2026	Original	

Originator…… G Sanderson ……..

Checker…….. D Wallbank ……..……...

Approver…… G Sanderson ……..……...

© PSA Design Ltd. All rights reserved.

No part of this report may be copied or reproduced by any means without prior written permission from PSA Design. If you have received this report in error, please destroy all copies in your possession or control and notify PSA Design.
This report has been prepared for the exclusive use of the commissioning party and unless otherwise agreed in writing by PSA Design, no other party may use, make use of or rely on contents of the report. No liability is accepted by PSA Design for any use of this report, other than for the purposes for which it was originally prepared and provided.

Opinions and information provided in the report are on the basis of PSA Design using due skill, care and diligence in the preparation of the same and no explicit warranty is provided as to their accuracy. It should be noted that and it is expressly stated that no independent verification of any of the documents or information supplied to PSA Design has been made.

Contents

1.0 Introduction

1.1 Background
1.2 Planning History
1.3 Site Description
1.4 Site Proposals

2.0 Flood Risk Assessment

2.1 Flood Map for Planning (Fluvial & Coastal Flood Risk)
2.2 Vulnerability
2.3 Surface Water Flood Risk
2.4 Groundwater Flood Risk
2.5 Reservoir Flood Risk
2.6 Sewer Flood Risk
2.7 Summary of Flood Risk

3.0 Drainage Strategy

3.1 Existing Drainage Situation
3.2 Run-off Rates
3.3 Proposed Surface Water Management Strategy
3.4 Maintenance of Proposed SuDS Systems

4.0 Foul Drainage

5.0 Summary

6.0 Conclusions

Appendices

A Architects Proposed Plans and Site Layout
B EA Flood Mapping
C Yorkshire Water Sewer Records
D Outline Drainage Strategy Drawing
E Kirklees LLFA Consultation
F Surface Water System Hydraulic Calculations
G Pump Specifications
H Typical SuDS Maintenance Regime

1. Introduction

1.1. Background

1.1.1. PSA Design Ltd have been commissioned by Moravian Union to provide a Flood Risk Assessment (FRA) and Drainage Strategy to support a Full planning application submitted for a development at Greenside Road and Wellhouse Lane, Mirfield.

1.1.2. The planning application concerns two site areas divided by a small burial yard. Site 1 fronts onto Greenside Lane and Site 2 fronts onto Wellhouse Lane.

1.1.3. In terms of drainage, the sites are effectively two sperate sites as they are separated by an existing burial yard. This makes amalgamating drainage between the two sites impossible.

1.1.4. This document deals with SITE 2. A separate report addresses the issues relating to Site 1.

1.2. Planning History

1.2.1. This application follows pre-application enquiries, undertaken in 2020 (2020/20116 & 2020/20117) and 2025 (2025/20522).

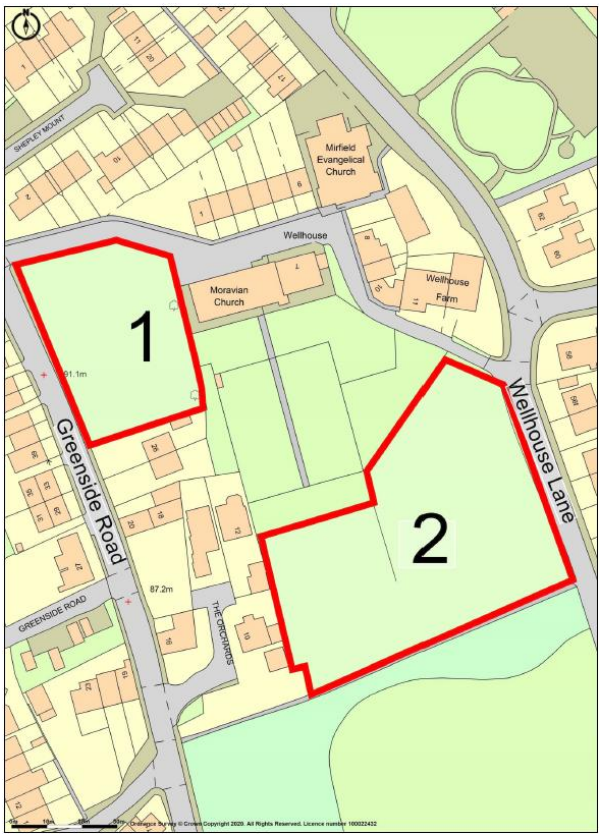
1.2.2. Results of the pre-app concluded “officers would conclude that based on the information available, and taking into account identified constraints, both of the sites may have the potential to support residential development.”

1.3. Site Description

1.3.1. Site 2 is located off Wellhouse Lane, Mirfield, WF14 0AX.

1.3.2. A site location plan is included at **Appendix A** with extract below.

1.3.3. The grid reference for the site is 420730E, 421070N.



1.3.4. The above plan shows “Site 1” to the northwest and “Site 2” to the southeast. The boundaries are transferred and illustrated on the aerial extract below showing the sites in more context.



1.3.5. Site 2 is bound to the north by an existing church and associated burial yard, to the west by existing residential dwellings, to the south by Gilder Hall playing fields and to the east by Wellhouse Lane.

1.3.6. The site occupies an area of land of approximately 0.45ha, essentially comprising of grassland forming part of an active horse paddock with a small storage shed in the centre.

1.4. **Site Proposals (Site 2)**

1.4.1. The Proposed Site Layout Plan reproduced at **Appendix A**.

1.4.2. The proposed development is entirely residential made up of the following housing mix.

3No. 4-bed detached
1No. 2-bed detached
4No. 3-bed semi-detached

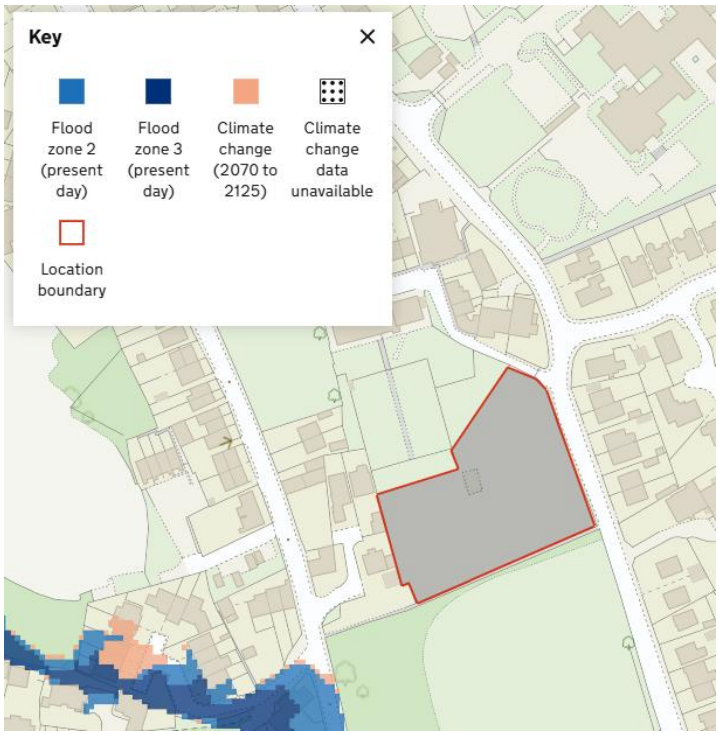
1.4.3. A new vehicular access will be provided directly off Welhouse Lane.

2. Flood Risk Assessment

The Environment Agencies' flood map for planning has been acquired and is included as **Appendix B**. Site specific flood risk is assessed in detail below.

2.1. **Flood Map for Planning (Fluvial and Coastal Flood Risk)**

As can be seen from the flood mapping (extract below), the site is shown to be located within Flood Zones 1. Flood Zone 1 comprises land that has a low annual probability of flooding (less than 1 in 1000 (<0.1%) from rivers in any year.



2.1.1. Levels vary significantly within the site boundary from circa 90.10mAOD in the southeast to 94.0mAOD to the north. To put that in context to the flood risk zone on the map above, levels in this area are circa 85mAOD.

Planning Policy Guidance (PPG) has been reviewed and assessed as below.

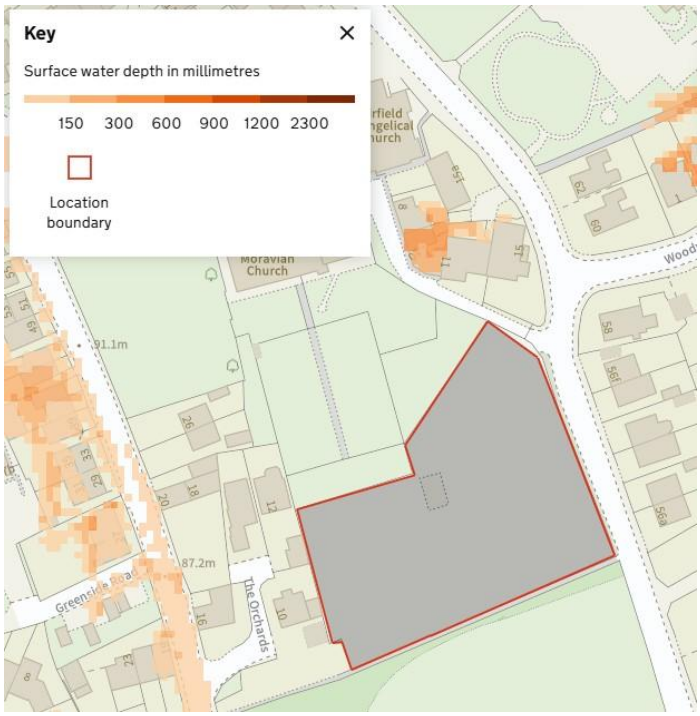
2.2. **Vulnerability**

With reference to NPPF, residential use would fall within the "More Vulnerable" category. With reference to Table 2 from PPG, if the site lies within Flood Zones 1 it would be deemed "appropriate".

2.2.1. **There will therefore be no requirement for the Sequential or Exception Test to be carried out for this development**.

2.3. **Surface Water Flood Risk**

2.3.1. Reference to online surface water flood risk mapping (extract below) shows the lies outside an area at risk of surface water flooding from the 1 in 100yr AEP climate change design flood event.



2.4. **Groundwater Flood Risk**

Reference to online groundwater flood risk mapping indicates flooding from groundwater is unlikely in this area. In support of this conclusion the Strategic Flood Risk Assessment does not identify north-east Mirfield as an area at risk of groundwater emergence.

2.5. **Reservoir Flood Risk**

Flooding from reservoirs is not expected in this area.

2.6. **Sewer Flood Risk**

Given the topography of the site and the location of the existing drainage network, flood risk associated with potential sewer flooding is considered to be negligible. The risk of flooding directly related to the increase in surface water run-off resulting from the new development is discussed in detail below in Section 3

2.7. **Summary of Flood Risk**

Source	Interpreted Risk Classification	Justification
Fluvial	Very Low	The developable area of the site is some 5m above the nearest area shown to be at risk of flooding.
Surface Water	Very Low	Surface water flood maps shows the site not at risk during the 1 in 1000yr cc AEP event.
Groundwater	Very Low	Groundwater flooding is very unlikely on the site
Reservoirs	Very Low	Flood from reservoirs is generally considered very unlikely
Tidal	N/A	Area Unaffected
Sewer	Very Low	Flood risk from existing sewers surrounding the site is considered negligible.

3. Drainage Strategy

3.1. **Existing Drainage Situation**

3.1.1. As noted above, the existing site currently comprises a predominantly greenfield site.

3.1.2. Yorkshire Water (YW) records have been acquired, and these are included in **Appendix C**

3.1.3. The mapping shows that there is an adopted 300mm dia. surface water sewer running down Wellhouse Lane which turns 90 degrees to pass through Guilder Hall playing fields prior to outfalling into a culverted watercourse (discussed in further detail below).

3.1.4. An adopted combined sewer also runs under Wellhouse Lane. This is shown as 225mm dia., increasing to 300mm dia on the YW records.

3.1.5. To gain further understanding of the existing sewer network (location, depths and diameters) a survey was undertaken by Site Surveying Services. The results of the survey identified that YW sewer records (pertinent to our site) are generally in the same location to those illustrated. The survey did however pick up that the combined sewer is actually 375mm dia. under Wellhouse Lane.

3.1.6. The surveyed drains are illustrated on Drawing D4917-OD-03, included at **Appendix D**

3.1.7. There are no sewers running through the application site or associated ownership boundary.

3.1.8. Consultation was sought from Kirklees LLFA, the results of which are included at **Appendix E**. The information provided included a culverted watercourse map. The map shows a culverted watercourse running down Greenside Road. The correspondence also suggested that the aforementioned YW surface water sewer "almost certainly provides an indirect connection into the watercourse". Cross referencing the YW mapping, sewer survey and watercourse records would support this assumption.

3.2. **Run-off Rates**

3.2.1. With respect to dealing with surface water from new developments, National Planning Policy Framework (NPPF, 2025), requires that, for the range of annual flow rate probabilities, up to and including the 1% annual probability (1 in 100-year event) the developed rate of run-off from a proposed site should be no greater than the undeveloped rate of run-off for the same event. Even when the site is brownfield, the site should be treated as greenfield

3.2.2. HR Wallingford's Greenfield Estimation tool has been used to estimate the existing greenfield run-off rate from the developable area of the site (3150m^2). It estimates a QBAR rate of 1.6l/s.

3.2.3. Restricting surface water run-off rates to such parameters would inherently increase flood risk on site due to the size of the orifice that would be required to deliver a compliant solution, thus outweighing its benefits. Typically, water authorities and councils request an minimum orifice diameter of 100mm is recommended, with an absolute minimum of 75mm, equating to a minimum discharge rate of 3l/s.

3.2.4. This is reflected in advice from Kirklees LLFA (**Appendix E**) which sets out similar.

3.2.5. Therefore, for the purpose of the surface water discharge rate, flows from the proposed development will be restricted to a maximum of **3l/s** with an orifice no smaller than **75mm**. This will be up to and including the 1 in 100yr AEP event.

3.3. **Proposed Surface Water Management Strategy**

3.3.1. It is important to account for climate change (CC) when making assessment of surface water run-off. As the development site is located within the Calder Management Catchment area, reference to the peak rainfall allowance map sets out the allowances below:

Scenario	Event	Central Allowance	Upper End Allowance
3.3% annual exceedance rainfall event	2050s	20%	35%
	2070s	25%	40%
1% annual exceedance rainfall event	2050s	25%	40%
	2070s	30%	45%

Catchment Peak Rainfall Allowances - Use '2050s' for development with a lifetime up 2060 and use the 2070s epoch for development with a lifetime between 2061 and 2125.

3.3.2. Therefore CC should be taken into account by increasing the proposed rainfall intensity by 40% when assessing against the 3.3% (1 in 30) storm event and 45% when assessing against the 1% (1 in 100) storm event.

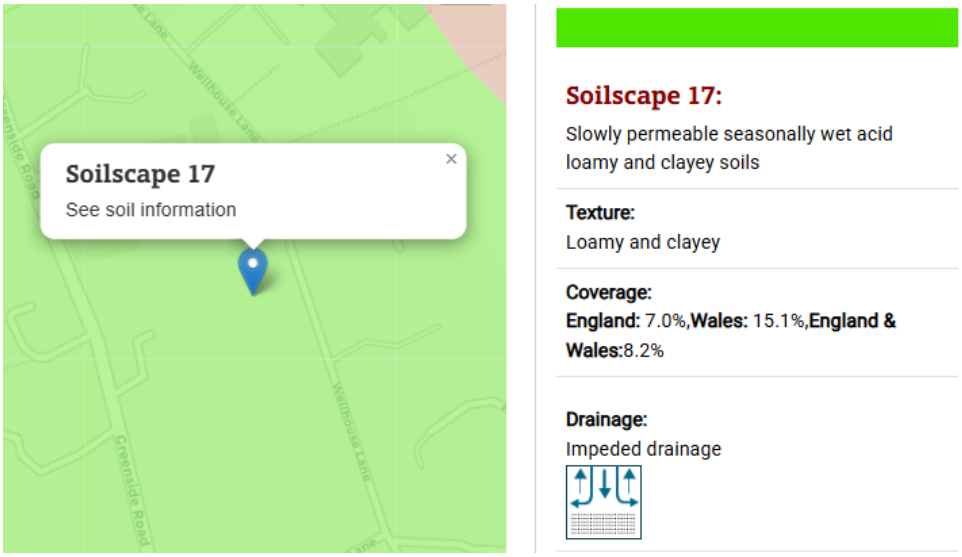
3.3.3. Urban Creep (UC) should also be catered for by adding an additional 10%. This accounts for future extensions / patio areas that may fall under permitted development and thus not require specific planning permission.

Hierarchical Approach – Soakaways

3.3.4. The first option to be considered for surface water disposal for all proposed development must be infiltration into the ground. Even when there are alternative sewer connections or watercourses available, infiltration must still be utilised unless it is proved unfeasible. Normally to identify the suitability of the ground for infiltration, percolation testing is carried out to calculate the infiltration rate. Where the underlying soil conditions are relatively impermeable,

for example clay, the infiltration rate may be too low for soakaways to be designed to adequately cope with large storm events from the entire site

3.3.5. "Soilscapes Mapping" indicates the soil is "slowly permeable seasonally wet, loamy and clayey soils with impeded drainage". An extract of the map is included below.



3.3.6. The lack of drainage infiltration potential is supporting by pre-app advice from Kirklees Council which states "The site is located in British Geological Survey area 3 which means that infiltration is not likely to work".

3.3.7. **It is therefore be concluded that soakaways are not a feasible solution for dealing with surface water at this site, there may however be bespoke opportunities such as permeable driveways (discussed later in this report). Following detailed ground investigation, should soakaways prove a viable solution (contrary to expectation) then the delivery of a compliant solution will no doubt be covered by planning condition.**

Hierarchical Approach – Watercourse

3.3.8. The next preferred hierarchical solution for dealing with surface water run-off from a development is discharge to a watercourse. As noted in Section 3, there is an existing culverted watercourse running down Greenside Road. It was also noted that the existing YW adopted surface water sewer running down Wellhouse Lane provides an indirect connection.

3.3.9. There are three potential routes for connection to the watercourse (either directly or indirectly). This are set out below, together with their merits / constraints.

- Connection direct to watercourse – would provide a gravity fed solution, however, the route is via third party land ownership and via densely planted tree and hedgerow areas with associated root protection zones.
- Connect indirectly to watercourse via the YW sewer to the south (via Gilder Hall playing fields) – has potential to provide a gravity fed system but would likely be very tight. This pipe also runs under third party land ownership and again would involve crossing established tree / hedgerow areas with associated root protection zones.
- Connect indirectly to watercourse via the YW sewer to the east (via Wellhouse Lane) - regardless of connection point pumping would be required. The southern area of the site protected by root protection zones and so a connection following the proposed access to the northeast would be sensible and deliver a maintainable solution.

3.3.10. It is therefore concluded, given the applicant has no rights of access to anywhere other than the YW surface water sewer under Wellhouse Lane, and the sewer provides an indirect connection to the culverted watercourse, it would be appropriate to utilise this as the surface water outfall for the proposed development.

Surface Water SuDS Approach and Storage requirements

3.3.11. To restrict surface water run-off from the proposed development it will be necessary to provide some form of attenuation storage on site. There are numerous ways of providing this, however, in this instance the intention would be to utilise cellular storage crates. As already established, the design of the system should ensure that run-off is limited to 3.0l/s and that there is no flooding of the site up to and including the 1 in 100yr storm + 50% CC + 10% UC AEP Event.

3.3.12. Flow rates are to be controlled by a Hydro-Brake Flow Control Manhole, prior to subsequent outfall into a pump which itself offers secondary restriction to a peak discharge of 3l/s.

3.3.13. An outline design based on the above criteria has been modelled and illustrated on Drawing No. D4917-OD-03 reproduced at **Appendix D**.

3.3.14. The proposed contributing areas are shown on Drawing No. D4917-OD-04, totalling at 1840m^2

3.3.15. The SW drainage system has been modelled in Causeway's drainage design software "Flow". The supporting calculations are included as **Appendix F**. The following design parameters have been used:

- Summer and Winter Volumetric Run-off Coefficient (Cv) = 1
- Storm scenarios run for 1 in 1yr + 40%CC, 1 in 30yr + 40%CC, 1 in 100yr + 45%CC, all including an additional uplift of 10% UC allowance.

3.3.16. The calculations demonstrate that during all the above storm scenarios, based on a 3.0l/s (75mm orifice) restriction are adequately contained and maintained within the sub-surface drainage system.

Other Design Considerations

3.3.17. All driveways will be permeable and if at all possible drained by high level infiltration. At this stage, in order to provide a robust assessment (and prior to detailed ground investigation) we have assumed all driveways contribute to the drainage network. Regardless of infiltration potential, the driveways will be permeable, but if necessary utilise sub-surface collection chambers in the form of permavoid diffuser units or similar.

3.3.18. Each property will include the installation of a rainwater butt to assist with grey water recycling and reduce volume of run-off.

3.3.19. TT Pumps have provided a provisional package pumping station solution to deliver a compliant system based on the outline design principles. The system offered incorporates a dual pump system and is BBA accredited. The pump specifications are included at **Appendix G** for reference. The pumps are self-contained and generally below ground level. The requirement for small external kiosks, including any requirement for alarms etc will be firmed up at detailed design stage.

3.3.20. The rising main will outfall into a break chamber within the proposed site entrance prior to being gravity fed into the existing YW surface water sewer. Given the proposed outfall pipe will be 100mm dia, connecting into the existing 300mm dia pipe, a saddle connection is proposed.

Water Quality

3.3.21. The SuDS design should seek to provide an appropriate management train of SuDS components to effectively mitigate the pollution risks associated with the different site uses.

3.3.22. The first step of the simple index approach is to identify the pollution hazard indices for the proposed land use. Table 26.2 of The SuDS Manual states the following

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydro-carbons
Residential Roofs	Very Low	0.20	0.20	0.05
Individual property driveways, residential car parks, low traffic roads and non-residential car parking with infrequent change (i.e. <300 movements/day)	Low	0.50	0.40	0.40
Total		**0.70**	**0.60**	**0.45**

Total Pollution Hazard Indices

Table 26.3 of The SuDS Manual sets out the indices for proposed SuDS features. Those features included on the proposed design presented are listed in the table below. Where treatment components are used together in series a factor of 0.5 is used to account for the reduced performance of the secondary components.

Type of SuDS Component	Total suspended solids (TSS)	Metals	Hydro-carbons
Permeable Pavement	0.7	0.6	0.7
Total	**0.7**	**0.6**	**0.7**

Total Pollution Hazard Indices – Proposed SuDS Features

It can be seen that the total mitigation index for the proposed SuDS features is greater or equal to the required pollution hazard index for the proposed land use. Therefore, the proposed system meets the water quality requirements.

Exceedance Flow Routes

3.3.23. As set out above, the system is well designed to accommodate the requisite storm events. In the unlikely event of a system failure or storm in excess of the design criteria, all buildings are to be built 150mm above surrounding ground levels allowing suitable flow routes around the

detached properties. This follows the existing natural overland flow routes prior to the development. Lower laying areas of the site to the south of the development comprise of large expanses of open grassland in the form of Gilder Hall playing fields.

3.3.24. The natural topography and thus overland flow routes will remain from north to south both prior to and following the proposed development.

3.3.25. **It has therefore been demonstrated that a SuDS solution that meets with the requirements of current legislation is deliverable within the constraints of the site. Detail of the final solution will be developed in finite detail post planning and no doubt secured by condition.**

3.4. **Maintenance of Proposed SuDS Systems**

3.4.1. It is important during any development process to consider the long-term maintenance of the proposed drainage system. The way this is processed will largely depend on how the system is taken forward at detailed design, however, at this stage the applicant intends to keep the drainage system private.

3.4.2. The SuDS will be reviewed and approved by the Local Planning Authority (LPA) in consultation with the Lead Local Flood Authority (LLFA) and Yorkshire Water, to ensure it meets the relevant standards. Under the assumption the SuDS would remain private, they will ultimately be maintained and managed by the landowner or designated management company in accordance with an approved SuDS management plan. This plan could also be secured through planning condition or legal agreement if necessary.

3.4.3. A typical SuDS maintenance regime for the various drainage elements is included in **Appendix H** for reference.

4. Foul Drainage

4.1. Section 3 above noted that there is an adopted combined sewer running along the east of the development within Wellhouse Lane. Similar to the surface water drainage, given the topography of the site, regardless of the proposed connection point the system will require pumping. Again, like the surface water, the most logical route will therefore be via the new access into Wellhouse Lane.

4.2. The proposed outline solution is presented on Drawing D4917-OD-03, contained within **Appendix D**.

4.2.1. The rising main will outfall into a break chamber within the proposed site entrance prior to being gravity fed into the existing YW combined sewer. Given the proposed outfall pipe will be 100mm dia, connecting into the existing 375mm dia pipe, a saddle connection is proposed.

4.3. TT Pumps have provided a provisional package pumping station solution to deliver a compliant system based on the outline design principles. The system offered incorporates a dual pump system with the requisite 24hr wet well storage and is also BBA accredited. The pump specifications are included at **Appendix G** for reference. The pumps are self-contained and generally below ground level. The requirement for small external kiosks, including any requirement for alarms etc will be firmed up at detailed design stage.

4.4. **Subject to YW formal approval, it is clear that there is a means of dealing with foul sewage from the proposed development.**

5. Summary

5.1. The planning application concerns two site areas divided by a small burial yard. Site 1 fronts onto Greenside Lane and Site 2 fronts onto Wellhouse Lane. This report deals with flood risk and drainage relating to **Site 2**.

5.2. The site lies outwith an area at risk of flooding from all sources.

5.3. The site is greenfield with no established drainage. Run-off rates will therefore be restricted to a maximum of 3l/s with the orifice size being a minimum of 75mm.

5.4. Climatic change will be accounted for by applying a 50% allowance.

5.5. Urban Creep will be accounted for by applying a further 10% increase.

5.6. The system has been designed not to flood during the 1 in 100yr AEP event including the above allowances.

5.7. Summer and Winter Volumetric Run-off Coefficient (Cv) have been set at 1.

5.8. The system has been design following the hierarchical approach, utilising the most effective means of disposal that is deliverable on the site.

5.9. Internally, the outfall for both foul and surface water will be via a new pumped solution with an ultimate gravity connection into the adopted sewers within Wellhouse Lane. The latter provides an indirect connection to local watercourse.

5.10. The foul and surface water pumps specified contain a dual pump solution, have been specified by TT Pumps and are BBA accredited. The foul pump includes a 24-hr wet well arrangement in the event of a total pump failure.

5.11. Permeable driveways and water butts will be provided for each property which in turn meets with the water quality criteria for a residential development.

5.12. Exceedance flood flow pathways will be assessed in more detail following detailed design of the drainage system. Properties will however be set a minimum of 150mm above surrounding ground levels, and therefore, existing overland flow routes will be unaffected by the proposed development.

5.13. Future maintenance of the system can be secured in perpetuity, through the use of a planning condition to establish a maintenance and management plan.

5.14. The delivery of a SuDS surface water system can also be secured through planning condition.

5.15. The connections into YW sewers will be secured via s106 agreement during the detailed design process.

6. Conclusion

6.1. **It has been demonstrated, that the proposed development would be deemed appropriate development in terms of flood risk and a SuDS solution that meets with the requirements of current legislation is deliverable within the constraints of the site and will ensure that flood risk both on and off site will not be exacerbated.**

6.2. **Accordingly, there should be no flood risk or drainage related reasons why the proposals should not be granted planning consent.**

Appendix A

Architects Proposed Plans and Site Layout

© matt wood: architect ltd 2021

NOTES:



Site Location Plan
[Scale = 1:1250]

0 10 20 30 40 50 75 100 125

project:
Development @ Greenside Road + Wellhouse Lane, Mirfield. The Moravian Union

client:

drawing title:
Existing
Site Location Plan

scale @ A3: 1:1250
date: March2026
drawn by: MW
checked by: MW

drawing number: 344SAA08-01
revisions: .

purpose of issue: PLANNING

rev	date	by	description

matt wood architect
mail@mattwood-architect.co.uk
www.mattwood-architect.co.uk

Use figured dimensions only. Scale drawing only when a scale bar is present. All dimensions to be checked by user and any discrepancies, error or omissions to be reported to the architect before work commences. Read this drawing with all relevant materials.

© matt wood: architect ltd 2021

NOTES:

Legend;

-Applicant ownership boundary

-Car parking space

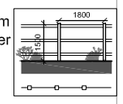
-Refuse / recycling bins store

-Pumping stations prior to discharge to mains sewers

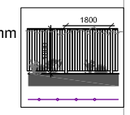
-Tree root protection areas

Boundary notes :

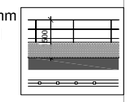
-As indicated, being 1500mm high vertical post + rail timber fence.



-As indicated, being 1800mm closed board timber fence.



-As indicated, being 1500mm high [overall] low brick wall with galvanized steel powder-coated railings.



Highways:

- Visibility splays in accordance with Kirklees Council highways requirements.

- All highways + parking arrangements designed in accordance with Manual for Streets, Joint Lancashire Structure Plan and Lancs County Council Residential Road Design Guide.

-Refer to Stantec UK Ltd drawings for visibility splays and vehicle tracking details.

-min. parking space numbers met to each dwelling, in line with LA guidance.

-Refuse / recycling bin stores provided.

Drainage:

-Refer to PSA Design Ltd drawings for drainage strategy + site layout.

-Access road and driveways to have porous material surface, such as Marshalls Drivesett Tegula Priora.

Landscaping:

-Existing trees retained. Negligible impact - pruning and tree care works only, where required. Refer to RJones Arboriculture

-Proposed new fence as indicated to create new plot boundary between dwellings / gardens / perimeter boundary.

-Indigenous planting, native shrubs and trees, to encourage foraging and visual screening to boundary.

Proposed

0 5 10 15 20 25m Scale = 1:500

project: Development @ Greenside Road + Wellhouse Lane, Mirfield.
client: The Moravian Union
drawing title: Proposed Site Layout Plan
scale @ A3: 1:500
date: March2026
drawn by: MW
checked by: MW
drawing number: 344SAA08-05
revision: .
purpose of issue: PLANNING

rev date by description

matt wood architect
mail@mattwood-architect.co.uk
www.mattwood-architect.co.uk

Use figured dimensions only. Scale drawing only when a scale bar is present. All dimensions to be checked by user and any discrepancies, error or omissions to be reported to the architect before work commences. Read this drawing with all relevant materials.

Appendix B

EA Flood Mapping

Flood map for planning

Your reference	Location (easting/northing)	Created
Unspecified	**420717/421055**	**2 July 2026 11:24**

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2026 AC0000807064. https://flood-map-for-planning.service.gov.uk/os-terms



Environment Agency

Flood map for planning

Your reference
Unspecified

Location (easting/northing)
420717/421055

Scale
1:2,500

Created
2 Jul 2026 11:24

- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60 m

© Environment Agency copyright and/or database rights 2026. All rights reserved. © Crown copyright and database rights 2026 Ordnance Survey licence number AC0000807064.

Appendix C

Yorkshire Water Sewer Records

Registered Office: Yorkshire Water Services Limited
Western House, Halifax Road, Bradford BD6 2SZ. Registered in England and Wales No. 2366682

CONFIDENTIAL

safe-move
A part of YorkshireWater

Green Side Estate

NORTHORPE

Football Ground

Cricket Ground

Crossley Fields Junior & Infants School

Mirfield Evangelical Church

Moravian Church

Wellhouse Farm

Northorpe Hall

Croft House Farm

Primrose Farm

Primrose Barn

Balderstone Hall

Ryedale Court

Shilbank House

Gordon Court

Deankirk

Sewer Network features are not shown above a scale of 1:25,000

	420467 : 420760	Map Name : SE2020NW	Title
	Yorkshire Water, PO Box 500, Halifax Road, Bradford BD6 2LZ Contact Name : Ms H Webster Contact Tel :	Notes	Partial Key Foul Sewer = F Combined Sewer = C Surface Water Sewer = SW Trade Sewer = TD Partially Separate = PS

(Odv) COPYRIGHT STATEMENTS: Reproduced by permission of Ordnance Survey on behalf of HMSO © Crown copyright and database 2004. All rights reserved Ordnance Survey Licence number 100019559

This plan is furnished as a general guide only and no warranty as to its correctness is given or implied. This plan must not be relied upon in the event of excavations or other works made in the vicinity of public sewers. No house or property connection

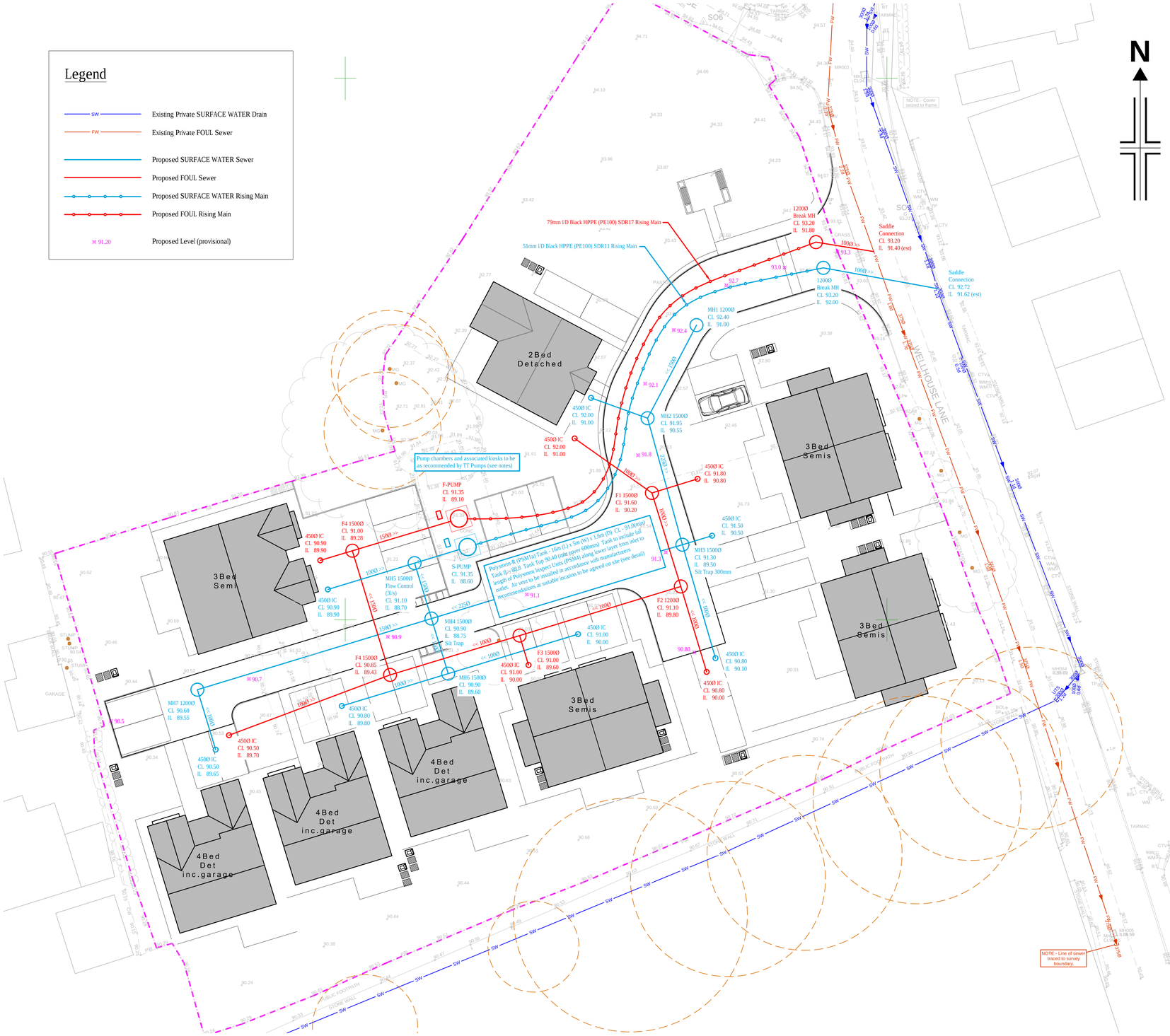
Date Req :	16/08/2012, 09:16:59
Date Gen :	16/08/2012, 09:17:03
Source :	Sewer Network Enquiry

UPN: Undefined

Originator: H Webster, Safe Move,

Appendix D

Outline Drainage Strategy Drawing



Notes

1. Do not scale from this drawing, work to levels and dimensions shown, if not available refer to notes, if in doubt, refer to Engineer.
2. The Engineer shall be notified immediately, in writing, should any errors or discrepancies be found prior to to be commencement or continuation of any works.
3. Drawing to be read in conjunction with all other scheme drawings and relevant specifications.
4. Contractor to be responsible for the location and protection of all existing services.
5. Work to be undertaken in accordance in accordance with Design and Construction Guidance for foul and surface water sewers (App Ver 2.3) and Building Regulations - Document H.
6. All existing land drains encountered on site during construction are to be re-connected/diverted as necessary (not connected into the new system without prior approval)
7. All drains to be laid soffit to soffit unless otherwise indicated.
8. Steeper gradients may be used instead of backdrops.
9. Cover levels shown are approximate only and should be altered to suit finished surface levels.
10. Minimum depth of cover to crown of pipe without protection should be as follows:
    0.35m - Gardens and Pathways with no vehicular loading
    0.50m - Driveways, Parking Areas and Narrow Accesses with height restrictions to prevent entry by vehicles with a gross weight in excess of 7.5 tonnes
    0.9m - Driveways, Parking Areas and Narrow Accesses with limited access to vehicles with a gross weight in excess of 7.5 tonnes. Agricultural land and public open space.
    1.2m - Other Highways and Parking Areas with unrestricted access to vehicles with a gross weight in excess of 7.5 tonnes
11. All rainwater pipes (RWP) to be terminated at roddable gullies connected to a minimum 100mm dia. drain.
12. Unless stipulated otherwise or invert levels are provided, all surface water pipes to be minimum 100mm dia. laid at 1 in 100. Foul sewers to be minimum 100mm dia laid at 1 in 80 (1 in 40 if no WC connected).
13. Proposed PCC Manholes & Inspection Chambers and access points are to be as those defined in Design and Construction Guidance for foul and surface water sewers (App Ver 2.3). MH & IC diameters specified are minimum diameters and if necessary should be increased to accommodate minimum benching widths.
14. <600Ø diameter IC's > 1.0m deep to include reducing ring to reduce opening to max 350mm Ø
15. Drainage subject to vehicle loading - Pipes up to 300mmØ to be structured walled PVCu (comply with the relevant provisions of BS EN 13476-1 and WIS 4-35-01 and BS EN 13476-2 or BS EN 13476-3) or Clay (complying with the relevant requirements of BS EN 295-1 and BS 65). Pipes greater than 300Ø to be Concrete (complying with BS 5911-1 and BS EN 1916). All pipes to be in accordance with Design and Construction Guidance for foul and surface water sewers (App Ver 2.3).
15. All MH and IC chamber covers to be suitable for intended vehicle loading (i.e. D400 in areas subject to heavy vehicle loading, C250 standard vehicle loading, B125 light vehicle loading and A15 pedestrian only loading).
16. All plot drainage to be in accordance with Building Regulations - Document H.
17. Road gullies shall be trapped 450Ø x 900mm deep with Class D 400 frame and grating to BS EN 124 (unless otherwise approved. Outlets to be minimum 150mm diameter.
18. All drains in the vicinity of existing or proposed trees to be constructed in accordance with the requirements of NHBC.
19. All outfall levels and existing pipe levels should be checked prior to construction to ensure the design is deliverable and no clashes occur. Contractor to report any discrepancies to Engineer immediately.

Attenuation and Flow Control

1. Attenuation tank(s) to be a Polystorm-R (PSM1a) system (or similar approved) suitable for installation at depths indicated (check with manufacturer prior to ordering). Tank to be encapsulated in an impermeable geosynthetic and include a single width Polystorm Inspect Unit (PSM4) laid along entire length of lower layer, from inlet to outlet. Minimum cover should be checked with manufacturer when ordering to ensure unit is capable of withstanding proposed loading requirements at depths shown. Formation level to achieve CBR of 3-5%. System to be fitted with all necessary vents and constructed strictly in accordance with manufacturers guidelines.
2. MH's upstream and downstream of tank to include minimum 300mm silt trap
3. Flow Control Manhole immediately downstream of storage tank to be fitted with Hydro-Brake Optimum® Flow Control Unit "SHE-0075-3000-1570-3000" based on maximum flow of 3l/s at 1.57m head. Manhole to be pre-cast or constructed in accordance with manufacturers guidelines.

Pumping Chamber & Rising Main

1. Pumps to be as per those specified by TT Pumps (Quote reference QK32501 SW & FW). Refer to manufacturers specification and construction guidelines. Any doubts, refer to Engineer.
2. Pump designed to levels and head shown. Any variation to be referred back to pump manufacturer to check suitability.
3. Rising main (diameter shown) laid to continuously rise from pump to outfall. Minimum gradient 1 in 500 rising. Any bends should be preformed and of long radius. Design and Construction Guidance for foul and surface water sewers (App Ver 2.3).

Scheme specific notes

1. All driveways to be permeably paved with sub-surface outlets (subject to infiltration testing).
2. Water butts to be provided to all households
3. Drainage scheme shown is for planning purposes only and subject to detailed design.

REV	DATE	AMENDMENT DETAILS	DRAWN	CHECKED	APPROVED
P1	30/06/26	For Planning	GS	DLW	GS

Moravian Union

Development at Greenside Road and Wellhouse Lane, Mirfield

Outline Foul & Surface Water Drainage Strategy - SITE 2

Drwg No. **D4917-OD-03** Rev. **P1**

Scale **1:500** Sheet Size **A1**

Date **30th June 2026**

Drawn **GS** Checked **DW** Approved **GS**

PSA DESIGN
PSA Design Ltd
The Old Bank House, 6 Berry Lane, Longridge, Preston, PR3 3JA
Tel. 01772 786066
www.psadesign.co.uk
mail@psadesign.co.uk

P:\Jobs\Development\D4917 - Mirfield, Kirkers - FRA\CAD\Drawings\D4917-D-03 - Outline Foul and Surface Water Design.dwg

Legend

- Existing Private SURFACE WATER Drain
- Existing Private FOUL Sewer
- Proposed SURFACE WATER Sewer
- Proposed FOUL Sewer
- Proposed SURFACE WATER Rising Main
- Proposed FOUL Rising Main
- ⌘ 91.20 Proposed Level (provisional)

N

51mm I/D Black HPPE (PE100) SDR11 Rising Main

MH1 1200Ø
CL 92.40
IL 91.00

1200Ø Break MH
CL 93.20
IL 92.00

Saddle Connection
CL 92.72
IL 91.62 (est)

MH2 1500Ø
CL 91.95
IL 90.55

4500Ø IC
CL 92.00
IL 91.00

Pump chambers and associated kiosks to be as recommended by TT Pumps (see notes)

MH3 1500Ø
CL 91.30
IL 89.50
Slt Trap 300mm

4500Ø IC
CL 91.50
IL 90.50

MH4 1500Ø
CL 90.90
IL 88.75

4500Ø IC
CL 91.00
IL 90.00

4500Ø IC
CL 90.80
IL 90.10

MH5 1500Ø
Flow Control
(3l/s)
CL 91.10
IL 88.70

4500Ø IC
CL 90.90
IL 89.90

S-PUMP
CL 91.35
IL 88.60

MH6 1500Ø
CL 90.90
IL 89.60

4500Ø IC
CL 90.80
IL 89.80

MH7 1200Ø
CL 90.60
IL 89.55

4500Ø IC
CL 90.50
IL 89.65

2Bed Detached

3Bed Semis

4Bed Det inc.garage

WELLHOUSE LANE

NOTE - Cover seized to frame

NOTE - Line of sewer traced to survey boundary.

Node	Contributing Area (m^2)
MH1	90
MH2	220
MH3	310
MH4	350
MH5	260
MH6	350
MH7	260
Total	1840m^2

REV	DATE	AMENDMENT DETAILS	DRAWN	CHECKED	APPROVED
P1	30/06/26	For Planning	GS	DLW	GS

Moravian Union

Development at Greenside Road and Wellhouse Lane, Mirfield

Contributing Areas - SITE 2

Drwg No. **D4917-OD-04** Rev. **P1**

Scale **1:500** Sheet Size **A1**

PSA DESIGN
PSA Design Ltd
The Old Bank House, 6 Berry Lane, Longridge, Preston, PR3 3JA
Tel. 01772 786066
www.psadesign.co.uk
mail@psadesign.co.uk

Date **30th June 2026**

Drawn **GS** Checked **DW** Approved **GS**

P:\Jobs\Development\D4917 - Mirfield, Kirklees - FRA\CAD\Drawings\D4917-D-04 - Outline Foul and Surface Water Design.dwg

Appendix E

Kirklees LLFA Consultation

From: Paul Farndale <Paul.Farndale@kirklees.gov.uk>
Sent: 18 May 2026 23:27
To: Graham Sanderson <graham.sanderson@psadesign.co.uk>
Subject: RE: 26-04-24 - GS to Kirklees LLFA - New Site(s) at Mirfield, off Greenside Road and Wellhouse Lane

Hellon Graham,

Please see the attached plan showing a culverted watercourse available in Greenside Road. In addition, there is a public surface water sewer adjacent to the southern boundary of the plots that almost certainly provides an indirect connection to watercourse. I would look to amalgamate the 2 site's drainage and attenuate to the critical 1 in 100 + 45% climate change event.

We are happier if the orifice of a flow control is nearer 100mm but an absolute minimum of 75mm will be imposed. To this effect 3l/s is also our minimum discharge rate.

Kind regards,

Paul Farndale

Strategic Partnership Lead

Flood Management & Drainage (LLFA)

Kirklees Council

Tel. 01484 221000

From: Floodmanagement <Floodmanagement@kirklees.gov.uk>
Sent: 24 April 2026 11:19
To: Paul Farndale <Paul.Farndale@kirklees.gov.uk>
Subject: FW: 26-04-24 - GS to Kirklees LLFA - New Site(s) at Mirfield, off Greenside Road and Wellhouse Lane

From: Graham Sanderson <graham.sanderson@psadesign.co.uk>
Sent: 24 April 2026 11:03
To: Floodmanagement <Floodmanagement@kirklees.gov.uk>
Subject: 26-04-24 - GS to Kirklees LLFA - New Site(s) at Mirfield, off Greenside Road and Wellhouse Lane

CAUTION: External email. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello,

We have been instructed to prepare a flood risk and SuDS drainage strategy for a scheme in Mirfield. The site(s) can be seen on the attached pre-app document (Page 3), located off Greenside Road and Wellhouse Lane.

I am just touching base as early as possible in the process to enable us to prepare a fully compliant submission.

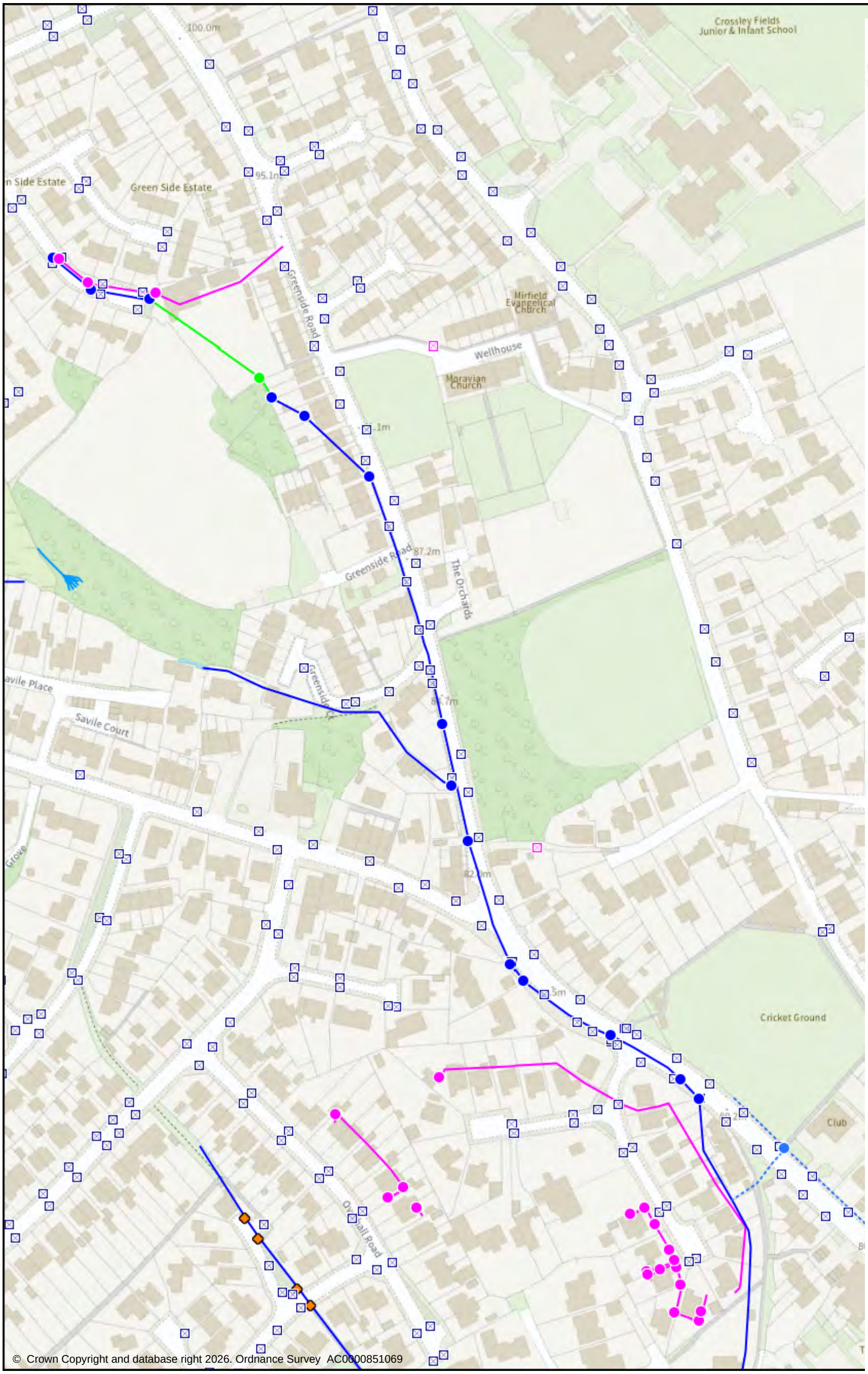
In the first instance, could you please advise on the presence of any watercourses in the area which may be suitable to drain surface water from either of the proposed plots?

Could you also please advise on council SW run-off policy for greenfield developments (such as minimum flow rates or orifice diameters.)

Many thanks in advance.

Graham Sanderson

PSA DESIGN



© Crown Copyright and database right 2026. Ordnance Survey AC0000851069

Kirklees Council

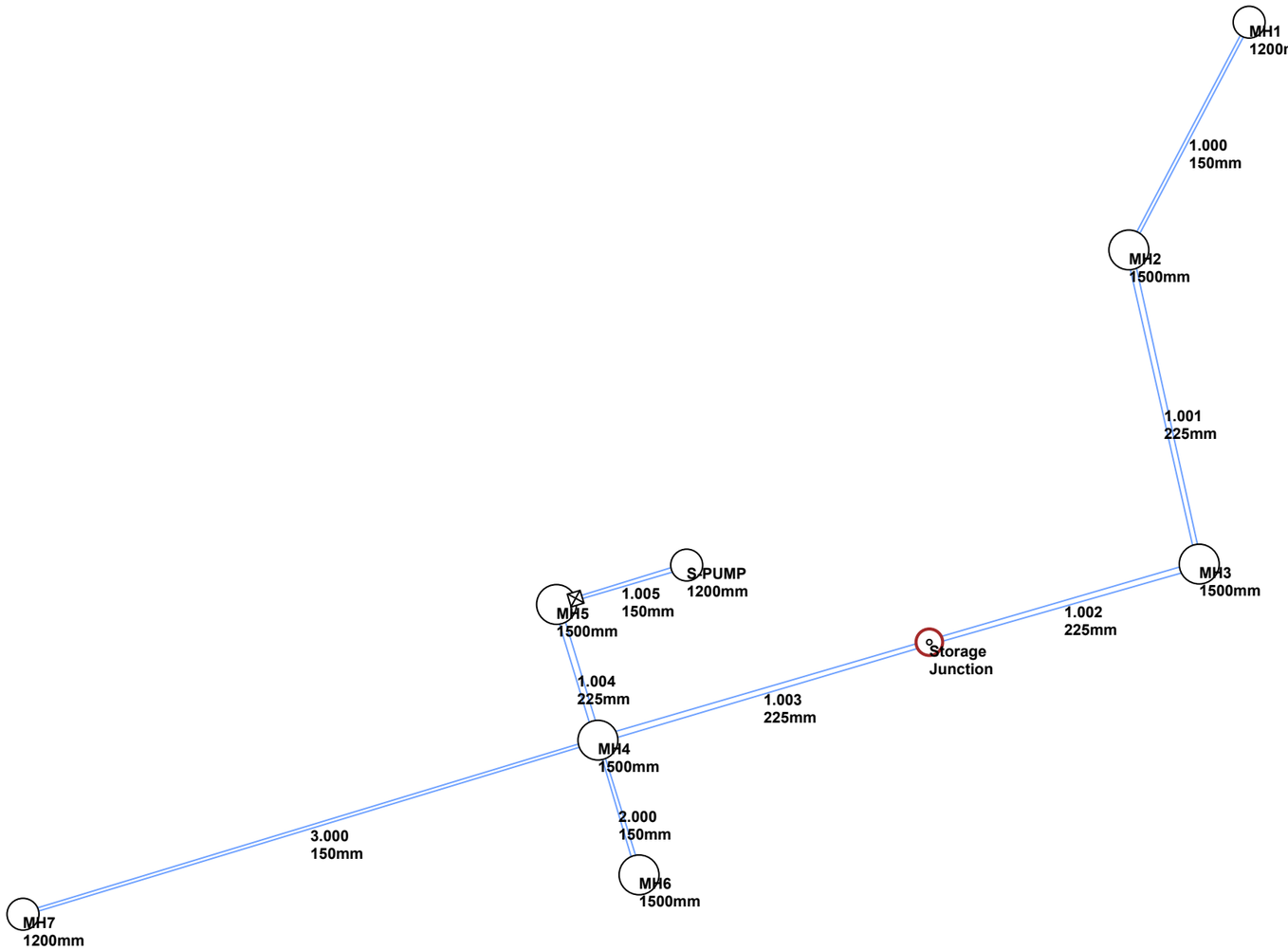
Kompass
Kirklees Mapping Service

Greenside Road
Scale = 1:1905.120
maps@kirklees.gov.uk

© Crown Copyright and database right 2026. Ordnance Survey AC0000851069

Appendix F

Surface Water System Hydraulic Calculations



Flow v15.0 Copyright © 1988-2026 Causeway Technologies Ltd

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	1	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	4.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
MH1	0.009	4.00	92.400	1200	420732.427	421077.210	1.400
MH2	0.022	4.00	91.950	1500	420727.906	421068.617	1.400
MH3	0.031	4.00	91.300	1500	420730.550	421056.765	1.700
Storage			91.100		420720.409	421053.818	2.300
MH6	0.035	4.00	90.900	1500	420709.502	421045.040	1.300
MH7	0.026	4.00	90.600	1200	420686.353	421043.556	1.050
MH4	0.035	4.00	90.900	1500	420707.957	421050.122	2.450
MH5	0.026	4.00	91.100	1500	420706.401	421055.242	2.400
S-PUMP			91.350	1200	420711.292	421056.728	2.750

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	MH1	MH2	9.710	0.600	91.000	90.550	0.450	21.6	150	4.07	32.4
1.001	MH2	MH3	12.143	0.600	90.550	89.900	0.650	18.7	225	4.14	32.4
1.002	MH3	Storage	10.561	0.600	89.900	88.800	1.100	9.6	225	4.18	32.4
1.003	Storage	MH4	12.989	0.600	88.800	88.750	0.050	259.8	225	4.45	32.4
2.000	MH6	MH4	5.312	0.600	89.600	89.400	0.200	26.6	150	4.05	32.4
3.000	MH7	MH4	22.580	0.600	89.550	89.400	0.150	150.5	150	4.46	32.4
1.004	MH4	MH5	5.351	0.600	88.750	88.700	0.050	107.0	225	4.53	32.4
1.005	MH5	S-PUMP	5.112	0.600	88.700	88.600	0.100	51.1	150	4.59	32.4

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	2.177	38.5	1.1	1.250	1.250	0.009	0.0	17	0.954
1.001	3.041	120.9	3.6	1.175	1.175	0.031	0.0	27	1.381
1.002	4.247	168.9	7.3	1.175	2.075	0.062	0.0	31	2.123
1.003	0.806	32.1	7.3	2.075	1.925	0.062	0.0	73	0.654
2.000	1.961	34.7	4.1	1.150	1.350	0.035	0.0	35	1.324
3.000	0.817	14.4	3.0	0.900	1.350	0.026	0.0	47	0.647
1.004	1.263	50.2	18.5	1.925	2.175	0.158	0.0	94	1.170
1.005	1.410	24.9	21.5	2.250	2.600	0.184	0.0	108	1.583

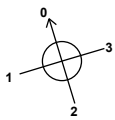
Flow v15.0 Copyright © 1988-2026 Causeway Technologies Ltd

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	9.710	21.6	150	Circular	92.400	91.000	1.250	91.950	90.550	1.250
1.001	12.143	18.7	225	Circular	91.950	90.550	1.175	91.300	89.900	1.175
1.002	10.561	9.6	225	Circular	91.300	89.900	1.175	91.100	88.800	2.075
1.003	12.989	259.8	225	Circular	91.100	88.800	2.075	90.900	88.750	1.925
2.000	5.312	26.6	150	Circular	90.900	89.600	1.150	90.900	89.400	1.350
3.000	22.580	150.5	150	Circular	90.600	89.550	0.900	90.900	89.400	1.350
1.004	5.351	107.0	225	Circular	90.900	88.750	1.925	91.100	88.700	2.175
1.005	5.112	51.1	150	Circular	91.100	88.700	2.250	91.350	88.600	2.600

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	MH1	1200	Manhole	PCC	MH2	1500	Manhole	PCC
1.001	MH2	1500	Manhole	PCC	MH3	1500	Manhole	PCC
1.002	MH3	1500	Manhole	PCC	Storage		Junction	
1.003	Storage		Junction		MH4	1500	Manhole	PCC
2.000	MH6	1500	Manhole	PCC	MH4	1500	Manhole	PCC
3.000	MH7	1200	Manhole	PCC	MH4	1500	Manhole	PCC
1.004	MH4	1500	Manhole	PCC	MH5	1500	Manhole	PCC
1.005	MH5	1500	Manhole	PCC	S-PUMP	1200	Manhole	PCC

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
MH1	420732.427	421077.210	92.400	1.400	1200	 0	1.000	91.000	150
MH2	420727.906	421068.617	91.950	1.400	1500	 1	1.000	90.550	150
						0	1.001	90.550	225
MH3	420730.550	421056.765	91.300	1.700	1500	 1	1.001	89.900	225
						0	1.002	89.900	225
Storage	420720.409	421053.818	91.100	2.300		 1	1.002	88.800	225
						0	1.003	88.800	225
MH6	420709.502	421045.040	90.900	1.300	1500	 0	2.000	89.600	150
MH7	420686.353	421043.556	90.600	1.050	1200	 0	3.000	89.550	150
MH4	420707.957	421050.122	90.900	2.450	1500	 1	3.000	89.400	150
						2	2.000	89.400	150
						3	1.003	88.750	225
						0	1.004	88.750	225

Flow v15.0 Copyright © 1988-2026 Causeway Technologies Ltd

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
MH5	420706.401	421055.242	91.100	2.400	1500		1	1.004	88.700	225
							0	1.005	88.700	150
S-PUMP	420711.292	421056.728	91.350	2.750	1200		1	1.005	88.600	150
										

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	20.0		

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	40	10	0
30	40	10	0
100	45	10	0

Node MH5 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	88.700	Product Number	CTL-SHE-0075-3000-1570-3000
Design Depth (m)	1.570	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	3.0	Min Node Diameter (mm)	1200

Node Storage Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	88.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	80.0	80.0	1.600	80.0	130.7	1.601	0.0	130.7

Flow v15.0 Copyright © 1988-2026 Causeway Technologies Ltd

Results for 1 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	MH1	10	91.021	0.021	1.6	0.0266	0.0000	OK
15 minute summer	MH2	10	90.583	0.033	5.6	0.0695	0.0000	OK
15 minute summer	MH3	9	89.940	0.040	11.2	0.0897	0.0000	OK
360 minute summer	Storage	232	89.073	0.273	7.0	20.7740	0.0000	SURCHARGED
15 minute summer	MH6	10	89.647	0.047	6.4	0.1117	0.0000	OK
15 minute summer	MH7	10	89.610	0.060	4.7	0.1002	0.0000	OK
360 minute summer	MH4	232	89.073	0.323	5.2	0.6870	0.0000	SURCHARGED
360 minute summer	MH5	232	89.073	0.373	3.5	0.7481	0.0000	SURCHARGED
240 minute summer	S-PUMP	148	88.632	0.032	2.5	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	MH1	1.000	MH2	1.6	0.748	0.042	0.0211	
15 minute summer	MH2	1.001	MH3	5.6	1.369	0.046	0.0499	
15 minute summer	MH3	1.002	Storage	11.2	2.869	0.066	0.1236	
360 minute summer	Storage	1.003	MH4	-3.6	0.353	-0.113	0.5166	
15 minute summer	MH6	2.000	MH4	6.4	1.419	0.185	0.0240	
15 minute summer	MH7	3.000	MH4	4.6	0.720	0.320	0.1450	
360 minute summer	MH4	1.004	MH5	3.2	0.265	0.063	0.2128	
360 minute summer	MH5	1.005	S-PUMP	2.5	0.874	0.101	0.0148	54.0

Flow v15.0 Copyright © 1988-2026 Causeway Technologies Ltd

Results for 30 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.70%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	MH1	10	91.042	0.042	6.5	0.0531	0.0000	OK
15 minute summer	MH2	10	90.617	0.067	22.5	0.1423	0.0000	OK
15 minute summer	MH3	10	89.979	0.079	45.0	0.1779	0.0000	OK
240 minute winter	Storage	232	89.932	1.132	18.9	86.0532	0.0000	SURCHARGED
240 minute winter	MH6	232	89.932	0.332	4.2	0.7838	0.0000	SURCHARGED
240 minute winter	MH7	232	89.932	0.382	3.1	0.6408	0.0000	SURCHARGED
240 minute winter	MH4	232	89.932	1.182	12.0	2.5122	0.0000	SURCHARGED
240 minute winter	MH5	232	89.932	1.232	3.1	2.4702	0.0000	SURCHARGED
240 minute winter	S-PUMP	232	88.633	0.033	2.7	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	MH1	1.000	MH2	6.5	1.124	0.169	0.0566	
15 minute summer	MH2	1.001	MH3	22.5	2.015	0.186	0.1358	
15 minute summer	MH3	1.002	Storage	45.0	3.323	0.266	0.2755	
240 minute winter	Storage	1.003	MH4	-11.5	-0.290	-0.359	0.5166	
240 minute winter	MH6	2.000	MH4	4.2	1.272	0.121	0.0935	
240 minute winter	MH7	3.000	MH4	3.1	0.647	0.215	0.3975	
240 minute winter	MH4	1.004	MH5	2.6	0.238	0.051	0.2128	
240 minute winter	MH5	1.005	S-PUMP	2.7	0.886	0.106	0.0153	67.5

Flow v15.0 Copyright © 1988-2026 Causeway Technologies Ltd

Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.51%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	MH1	10	91.048	0.048	8.6	0.0614	0.0000	OK
15 minute summer	MH2	10	90.629	0.079	29.7	0.1662	0.0000	OK
360 minute winter	MH3	344	90.350	0.450	7.3	1.0147	0.0000	SURCHARGED
360 minute winter	Storage	344	90.350	1.550	17.4	117.8105	0.0000	SURCHARGED
360 minute winter	MH6	344	90.350	0.750	4.1	1.7696	0.0000	SURCHARGED
360 minute winter	MH7	344	90.350	0.800	3.0	1.3411	0.0000	FLOOD RISK
360 minute winter	MH4	344	90.350	1.600	11.4	3.4001	0.0000	SURCHARGED
360 minute winter	MH5	344	90.350	1.650	3.1	3.3078	0.0000	SURCHARGED
360 minute winter	S-PUMP	344	88.635	0.035	3.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	MH1	1.000	MH2	8.6	1.214	0.224	0.0691	
15 minute summer	MH2	1.001	MH3	29.7	2.159	0.246	0.1672	
360 minute winter	MH3	1.002	Storage	7.3	1.824	0.043	0.4200	
360 minute winter	Storage	1.003	MH4	-10.4	-0.262	-0.325	0.5166	
360 minute winter	MH6	2.000	MH4	4.0	1.238	0.115	0.0935	
360 minute winter	MH7	3.000	MH4	3.0	0.628	0.207	0.3975	
360 minute winter	MH4	1.004	MH5	2.9	0.197	0.059	0.2128	
360 minute winter	MH5	1.005	S-PUMP	3.0	0.919	0.122	0.0169	93.7

Flow v15.0 Copyright © 1988-2026 Causeway Technologies Ltd

Appendix G

Pump Details

PSA Design
Old Bank House
6 Berry Lane
Longridge
Lancashire
PR3 3JA

Tel No : 01772 786066
E-Mail : graham.sanderson@psadesign.co.uk

Attention of : Graham Sanderson

Dear Graham ,

Re : Mirfield

We thank you for your valued enquiry, and now have the pleasure of submitting our best offer for the most suitable equipment for the above scheme on a supply-only basis as detailed in the following.

1 No Saturn 4m Package Pumping Station Supply Only Basis,

Levels used
PPS CL = 91.35, PPS IL = 89.15, run length = 50m, outfall chamber IL = 92
Please Note : If these levels are incorrect please advise and we can requote accordingly .

Please Note : Due to what this station is serving we have offered a vortex type impeller to help minimise blockages from occuring if a macerator is required please advise .

Packaged Pumping Station, incorporating 80 mm pipework and valves all assembled and housed in a strong polyethylene chamber, with a FACTA B (Up to 25 tonne GLVW) access cover. A fully automatic control panel, activated by level switches complete with pump trip / high-level alarm with audio/visual warning are incorporated as standard.

Full details of our offer are included on pages 2 and 3 of our quotation, which is further supported by our Package Pumping Station literature.

All of our Planet range of Pumping Stations are of Superior Design and Quality Build for which T-T PUMPS has gained accreditation from the British Board of Agrément (BBA) Certificate No 06/4303.

The Package Pumping Station is supplied fully assembled and ready for installation on site. A detailed Installation Manual is supplied, allowing for easy installation by a competent builder or ground worker. The pumping station can be fully operable within a couple of days from delivery.

For the future we strongly recommend that you take advantage of our Service Agreement Scheme, to ensure that the pumping station has a long, trouble-free life. We are pleased to offer this at a fixed rate for the first 2 years, if the Service Agreement is taken out when the pumping station is ordered. For details see the separate Service quote, if you have not received this this can be requested separately.

We trust that our offer and enclosed information meet with your approval, and hope your interest will progress into a future order with T-T PUMPS , in the meantime if you have any queries or require any additional information, please contact the undersigned.

Yours faithfully,
T-T Pumps Limited

Karl Taylor
Tendering Engineer
Tel - 01630 647200

Quotation

T-T PUMPS PACKAGE PUMPING STATION

Serving : Foul Water serving 3 x 4 bed 8 x 3 bed 1 x 2 bed dwellings

Pump Duty:
Flow 6.16 l/s
Total Duty Head 6.29 metres

Pump:
Qty 2
Model DGO 200/2/80 A1CT5 Motor Submersible
80mm Solids Handling
kW Rating 1.70 kW FLC Amps: 3.9 **Voltage: 400 Phase: 3**

Cable Length 10 m
Operation Mode Auto (duty/standby)

Controls: **IP54 Steel enclosure c/w run/trip indicators, pump trip / high-level warning alarm & volt free contacts.**
(Not suitable for outdoor use unless installed within a kiosk - please see optional extras)
Where the control panel and associated equipment offered is on a supply-only basis, it is the requirement of the purchaser to ensure the completed electrical installation meets the requirements of BS7671 latest edition
Level Control 3 No Float Switches Cable Length: 10 m

Chamber :
Model **Saturn** Product Reference :- PP/SATURN80B
Diameter 1.500 metres
Depth 4.000 metres
Inlet Size 150 mm I/D **160 mm Outside Diameter**

Chamber Pipework: 80 mm

Valves:
Gate Valve 80 mm
Reflux Valve 80 mm

Access Cover:
Size mm 1200 x 900 mm opening
Loading FACTA B (Up to 25 tonne GLVW)
Suitable for: Pedestrian precincts, forecourts, light commercial delivery and parking areas

Outlet Pipework (not included, for provision by others)

Recommended Rising Main : 79 mm Inside Diameter Black HPPE (PE100) SDR 17
Size of HPPE adaptor : 90 mm Outside Diameter

Pumping Station Pipework Termination Point : **90 mm HPPE Adapter (included)**

Unit Price for Supply Only : £10,602.70 Net + VAT at prevailing rates where applicable.
Delivery Period 1 to 2 Weeks from order acceptance (subject to credit/payment terms)
Carriage: Included As one drop with off Loading by Client.

Extra for M & E Commissioning: **£850.00** Net + VAT (Based upon a Single Specific Visit)
Commissioning includes NICEIC Certification to BS7671 where aplicable
(please refer to the exclusions section, page 3 of this quotation).

Extras:
Weatherproof Control Kiosk £931.00 Net + VAT at prevailing rates where applicable.
1250 H x 750 W x 400 D for a Single Door GRP Kiosk. (Green)
Weatherproof Control Kiosk £1,611.00 Net + VAT at prevailing rates where applicable.
1290 H x 1260 W x 550 D for a Double Door GRP Kiosk. (Green)
(Please see following page regarding metered supplies)
160 mm Inlet Assembly £220.00 Net + VAT at prevailing rates where applicable.

Maintenance and Monitoring: -

Service and Maintenance Agreement = £340.00
(This price is per service based upon one annual service for domestic clients, or two visits for larger schemes)

Seer Junior Telemetry Rental = ***£75.00 Net Per Month*** *(Billed annually, unless quarterly invoicing requested - minimum 2-year contract applies).*

Seer is TT's market-leading telemetry system to complement your Service and Maintenance agreement. (service agreement must be in place)

- *Cloud-based monitoring.*
- *Remote system access and fault diagnosis.*
- *Remote system reset, correct faults quickly and avoid unnecessary call-out charges.*
- *Real time data log, often highlighting issues before they happen.*
- *Circa 75% of faults reset remotely, avoiding unnecessary labour and tankering costs.*
- **For more information, please see our YouTube video:** https://youtu.be/vno9aTFxjio

(The rental price includes a cloud subscription, a sim card and monitoring of the pumping station in a single monthly price.
A 2-year minimum contract applies. Purchase options are available on request. Remote reset functionality needs to be via a compatible control system).

T-T Pumps Ltd, Onneley Works, Newcastle Road, Woore, Cheshire, CW3 9RU, United Kingdom
Tel: +44 (0) 1630 647200 Fax: +44 (0) 1630 642199 www.ttpumps.com Email: response@ttpumps.com
T-T Controls & Automation, T-T Flow, T-T Pumping Stations, T-T Agricultural & Environmental and T-T Service are divisions of T-T PUMPS Ltd. T-T PUMPS Ltd. Registered in England & Wales Reg. No 2320012

BBA APPROVAL INSPECTION TESTING CERTIFICATION CERTIFICATE 06/4303

Quotation

T-T PUMPS PACKAGE PUMPING STATION

Exclusions :

a) Civil works relating to the installation of the package pumping station.
b) Excavation / Backfilling.
c) Pipework connection outside of package pumping station.
d) Installation / Commissioning (please see below important notes for more information).
e) Our current offer is based on the supply only basis of equipment, with installation & commissioning by others.
f) TT Pumps can undertake the commissioning, if required, please see optional extras. Installation must be by others.

Important Information (Commissioning by TT Pumps engineers)

The following requirements prior to commissioning by TT Pumps Engineers are as follows:
A suitably sized power supply to be installed/ tested to the latest edition of BS7671 wiring regulations, Electrical installation certificate to be provided prior to our visit. TT Pumps accept no responsibility for the incoming power supply to the control panel.
The Power supply to be from one of the following:
1. DNO metered supply (Steel control panel only).
Please check with Electricity Supplier for accurate kiosk requirements. In the optional extras we have offered a double door kiosk for metered supplies.
2. Independent circuit from a distribution board.

For domestic dwellings falling under Part P regulations.

Final certification is to be provided by a skilled electrical person with Part P registration using test results from the commissioning report.
For clarity of Part P scope see document below.
https://www.gov.uk/government/publications/electrical-safety-approved-document-p

For Installations falling outside the scope of part P

An EIC Electrical installation report will be provided by TT pumps Engineers post commissioning.
Otherwise the necessary test results for final certification can be obtained from the commissioning report.

Notes :

1) Conditions of Contract must be specifically agreed upon with T-T PUMPS, and confirmed in writing.

2) The cable lengths offered for the pumps and level control will allow the control panel to be sited a maximum distance of 2.75 metres from the pump chamber, with the control panel positioned not more than 1.5 metres above the cover level, having the cable ducting running in the most direct route.
If you have doubts about the cabling requirements please contact us and we will be happy to assist.

3) The pump offered are designed to transfer bodily waste, toilet paper and household wash waters only. Sanitary towels, condoms, cotton wool and other such such items should not enter the pumping station.

Validity:

Our offer is open for acceptance for an initial period of 30 days from the date of quotation. However, we reserve the right to review our quotation price post order considering both time elapsed between order placement, scheduled works / call-off period and also taking into account any key material market price changes.

Terms:

Terms and Conditions of Sale are available on our Website (www.ttpumps.com) or by request For any onsite works a notice of cancellation must be provided at least 48 hours in advance; otherwise, all expenses and fees will remain applicable.

Storage and Retention:

We can confirm that our offer complies with the storage requirements of current building regs assuming that the cover level is the first point of overflow.

If you have a specific retention requirement other than that which we have confirmed as above, please confirm the details of your requirements and we shall revise our offer where possible to suit.

Design Statement:

Please note that as part of this quotation, we endeavour to include all design features as per your request. If however we have failed to include a specific requirement within our quotation that you do require, please confirm so by return so that the quotation can be quickly revised. Any items not included for within this quotation will be fully chargeable should they be required at a later date.

Discharge Consent:

Prior to order, please ensure that you have raised the appropriate sewer connection application with your local water authority to confirm that the flow rate proposed from this pumping station design is acceptable should the system be discharging into an existing sewer network.

We endeavour to offer the correct pumping station design for the application, however, your local water authority may apply flow rate restrictions which in turn will affect the pumping station design.

TT will not accept or reimburse any costs should you choose to install a pumping station at your own risk, without the necessary consent in place.

Septicity:

Steps have been taken within this design to keep the risk of septicity occurring to a minimum. Our calculations are based upon the information provided at enquiry stage, additional septicity control methods are available should this be of interest to you.

Warranty

All T-T package pumping stations come complete with a manufacturers comprehensive 12 month warranty which will run from the date that the system is delivered to site, or from the date of commissioning should T-T complete this element of the installation.

Insurance and Collateral Warranty

TT holds insurance to cover Employers Liability (£10m), Public and Products Liability (£10m), Contract Works (subject to the claim) and Professional Indemnity (£5m). A copy of our insurance certificate is available on request.

Please note our insurance levels are fixed and valid for the certificate duration, yet any further requirements over and above our insurance, including collateral warranties, associated documentation / wording of that required must be submitted and agreed / approved with TT prior to order placement.

T-T Pumps Ltd, Onneley Works, Newcastle Road, Woore, Cheshire, CW3 9RU, United Kingdom
Tel: +44 (0) 1630 647200 Fax: +44 (0) 1630 642199 www.ttpumps.com Email: response@ttpumps.com

T-T Controls & Automation, T-T Flow, T-T Pumping Stations, T-T Agricultural & Environmental and T-T Service are divisions of T-T PUMPS Ltd. T-T PUMPS Ltd. Registered in England & Wales Reg. No 2320012

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 06/4303

Reference QK32501 Rev A FW

A BBA accreditation is a recognised standard for government bodies, architects, specifiers and many other roles within the construction industry. Our Planet range of package pumping stations are BBA accredited, demonstrating that they have passed a stringent testing process to ensure continual quality.

WHY CHOOSE BBA?

- Proven and guaranteed fit for purpose
- Rigorously tested and verified
- Factory built quality providing simplified installation
- Select with confidence
- Fully recyclable, reducing environmental impact

Seer is our most advanced telemetry monitoring system that allows either T-T or the client to monitor systems and assets in real-time 24/7, offering live status and alarm activation, combined with observational data logging that allows potential issues to be identified early.

WHY CHOOSE SEER?

- Peace of mind 24/7 monitoring
- Early intervention to prevent detrimental failures
- Pictural view of equipment & clear easy to read status information
- Remote reset functionality with engineer on-site safety feature (compatible control panels only)
- Pro-active maintenance and remote diagnosis of faults
- Historical data analysis & performance trends
- Easy to navigate the home screen
- Capable of producing reports
- Reducing unnecessary call out costs

As an owner or operator of a sewage, drainage pumping station and clean water Booster set you will want peace of mind that your pumping system operates efficiently by using our pumping maintenance plan. With our pump maintenance packages, we can help to meet these aims and avoid unexpected and costly breakdowns allowing efficient pumping, whilst also being environmentally friendly.

WHAT ARE THE BENEFITS?

- Reduced running costs including energy and maintenance
- Greater life expectancy for pumping equipment
- Reduced risk of breakdown with its resultant problems and inconvenience
- Better plant utilisation and return on capital
- Improved environmental conditions

T-T Pumps · T-T Controls & Automation · T-T Flow Valves · T-T Pumping Stations · T-T Agricultural & Environmental · T-T Service

T-T Pumps Ltd, Onneley Works, Newcastle Road, Woore, Cheshire, CW3 9RU, United Kingdom
Tel: +44 (0) 1630 647200 Fax: +44 (0) 1630 642100 www.ttpumps.com Email: response@ttpumps.com

PSA Design
Old Bank House
6 Berry Lane
Longridge
Lancashire
PR3 3JA

Tel No : 01772 786066
E-Mail : graham.sanderson@psadesign.co.uk

Attention of : Graham Sanderson

Dear Graham ,

Re : Mirfield

We thank you for your valued enquiry, and now have the pleasure of submitting our best offer for the most suitable equipment for the above scheme on a supply-only basis as detailed in the following.

1 No Saturn 4m Package Pumping Station Supply Only Basis,

Levels used
PPS CL = 91.35, PPS IL = 88.6, run length = 50m, outfall chamber IL = 92
Please Note : If these levels are incorrect please advise and we can requote accordingly .

Packaged Pumping Station, incorporating 50 mm pipework and valves all assembled and housed in a strong polyethylene chamber, with a FACTA B (Up to 25 tonne GLVW) access cover. A fully automatic control panel, activated by level switches complete with pump trip / high-level alarm with audio/visual warning are incorporated as standard.

Full details of our offer are included on pages 2 and 3 of our quotation, which is further supported by our Package Pumping Station literature.

All of our Planet range of Pumping Stations are of Superior Design and Quality Build for which T-T PUMPS has gained accreditation from the British Board of Agrément (BBA) Certificate No 06/4303.

The Package Pumping Station is supplied fully assembled and ready for installation on site. A detailed Installation Manual is supplied, allowing for easy installation by a competent builder or ground worker. The pumping station can be fully operable within a couple of days from delivery.

For the future we strongly recommend that you take advantage of our Service Agreement Scheme, to ensure that the pumping station has a long, trouble-free life. We are pleased to offer this at a fixed rate for the first 2 years, if the Service Agreement is taken out when the pumping station is ordered. For details see the separate Service quote, if you have not received this this can be requested separately.

We trust that our offer and enclosed information meet with your approval, and hope your interest will progress into a future order with T-T PUMPS , in the meantime if you have any queries or require any additional information, please contact the undersigned.

Yours faithfully,
T-T Pumps Limited

Karl Taylor
Tendering Engineer
Tel - 01630 647200

Reference QK32501 Rev A SW
Date 01/07/2026

Quotation

T-T PUMPS PACKAGE PUMPING STATION

Serving : Surface Water peak inflow of 3.0 l/s .

Pump Duty:
Flow 3.64 l/s
Total Duty Head 8.61 metres

Pump:
Qty 2
Model DGO 100/2/G50H A0CT5 Motor Submersible
50mm Solids Handling
kW Rating 0.88 kW FLC Amps: 2.3 **Voltage:** **400** **Phase:** **3**

Cable Length 10 m
Operation Mode Auto (duty/standby)

Controls: **IP54 Steel enclosure c/w run/trip indicators, pump trip / high-level warning alarm & volt free contacts.**
(Not suitable for outdoor use unless installed within a kiosk - please see optional extras)
Where the control panel and associated equipment offered is on a supply-only basis, it is the requirement of the purchaser to ensure the completed electrical installation meets the requirements of BS7671 latest edition
Level Control 3 No Float Switches Cable Length: 10 m

Chamber :
Model **Saturn** Product Reference :- PP/SATURN50B
Diameter 1.500 metres
Depth **4.000 metres**
Inlet Size 150 mm I/D **160 mm Outside Diameter**

Chamber Pipework: 50 mm

Valves:
Gate Valve 50 mm
Reflux Valve 50 mm

Access Cover:
Size mm 1200 x 900 mm opening
Loading **FACTA B (Up to 25 tonne GLVW)**
Suitable for: **Pedestrian precincts, forecourts, light commercial delivery and parking areas**

Outlet Pipework (not included, for provision by others)

Recommended Rising Main : **51 mm Inside Diameter** **Black HPPE (PE100) SDR 11**
Size of HPPE adaptor : **63 mm Outside Diameter**

Pumping Station Pipework Termination Point : **63 mm HPPE Adapter (included)**

Unit Price for Supply Only :	**£8,896.45**	Net + VAT at prevailing rates where applicable.
Delivery Period	**1 to 2**	Weeks from order acceptance (subject to credit/payment terms)
Carriage:	**Included**	As one drop with off Loading by Client.

Extra for M & E Commissioning: **£850.00** Net + VAT (Based upon a Single Specific Visit)
Commissioning includes NICEIC Certification to BS7671 where aplicable
(please refer to the exclusions section, page 3 of this quotation).

Extras:
Weatherproof Control Kiosk £931.00 Net + VAT at prevailing rates where applicable.
1250 H x 750 W x 400 D for a Single Door GRP Kiosk. (Green)
Weatherproof Control Kiosk £1,611.00 Net + VAT at prevailing rates where applicable.
1290 H x 1260 W x 550 D for a Double Door GRP Kiosk. (Green)
(Please see following page regarding metered supplies)
160 mm Inlet Assembly £220.00 Net + VAT at prevailing rates where applicable.

Maintenance and Monitoring: -

Service and Maintenance Agreement = £340.00
(This price is per service based upon one annual service for domestic clients, or two visits for larger schemes)

Seer Junior Telemetry Rental = ***£75.00 Net Per Month*** *(Billed annually, unless quarterly invoicing requested - minimum 2-year contract applies).*

Seer is TT's market-leading telemetry system to complement your Service and Maintenance agreement. (service agreement must be in place)

- *Cloud-based monitoring.*
- *Remote system access and fault diagnosis.*
- *Remote system reset, correct faults quickly and avoid unnecessary call-out charges.*
- *Real time data log, often highlighting issues before they happen.*
- *Circa 75% of faults reset remotely, avoiding unnecessary labour and tankering costs.*
- **For more information, please see our YouTube video:** https://youtu.be/vno9aTFxjio

(The rental price includes a cloud subscription, a sim card and monitoring of the pumping station in a single monthly price.
A 2-year minimum contract applies. Purchase options are available on request. Remote reset functionality needs to be via a compatible control system).

T-T Pumps Ltd, Onneley Works, Newcastle Road, Woore, Cheshire, CW3 9RU, United Kingdom
Tel: +44 (0) 1630 647200 Fax: +44 (0) 1630 642199 www.ttpumps.com Email: response@ttpumps.com
T-T Controls & Automation, T-T Flow, T-T Pumping Stations, T-T Agricultural & Environmental and T-T Service are divisions of T-T PUMPS Ltd. T-T PUMPS Ltd. Registered in England & Wales Reg. No 2320012

BBA APPROVAL INSPECTION TESTING CERTIFICATION CERTIFICATE 06/4303

Quotation

T-T PUMPS PACKAGE PUMPING STATION

Exclusions :

a) Civil works relating to the installation of the package pumping station.
b) Excavation / Backfilling.
c) Pipework connection outside of package pumping station.
d) Installation / Commissioning (please see below important notes for more information).
e) Our current offer is based on the supply only basis of equipment, with installation & commissioning by others.
f) TT Pumps can undertake the commissioning, if required, please see optional extras. Installation must be by others.

Important Information (Commissioning by TT Pumps engineers)

The following requirements prior to commissioning by TT Pumps Engineers are as follows:
A suitably sized power supply to be installed/ tested to the latest edition of BS7671 wiring regulations, Electrical installation certificate to be provided prior to our visit. TT Pumps accept no responsibility for the incoming power supply to the control panel.
The Power supply to be from one of the following:
1. DNO metered supply (Steel control panel only).
Please check with Electricity Supplier for accurate kiosk requirements. In the optional extras we have offered a double door kiosk for metered supplies.
2. Independent circuit from a distribution board.

For domestic dwellings falling under Part P regulations.

Final certification is to be provided by a skilled electrical person with Part P registration using test results from the commissioning report.
For clarity of Part P scope see document below.
https://www.gov.uk/government/publications/electrical-safety-approved-document-p

For Installations falling outside the scope of part P

An EIC Electrical installation report will be provided by TT pumps Engineers post commissioning.
Otherwise the necessary test results for final certification can be obtained from the commissioning report.

Notes :

1) Conditions of Contract must be specifically agreed upon with T-T PUMPS, and confirmed in writing.

2) The cable lengths offered for the pumps and level control will allow the control panel to be sited a maximum distance of 2.75 metres from the pump chamber, with the control panel positioned not more than 1.5 metres above the cover level, having the cable ducting running in the most direct route.
If you have doubts about the cabling requirements please contact us and we will be happy to assist.

3) The pump offered are designed to transfer bodily waste, toilet paper and household wash waters only. Sanitary towels, condoms, cotton wool and other such such items should not enter the pumping station.

Validity:

Our offer is open for acceptance for an initial period of 30 days from the date of quotation. However, we reserve the right to review our quotation price post order considering both time elapsed between order placement, scheduled works / call-off period and also taking into account any key material market price changes.

Terms:

Terms and Conditions of Sale are available on our Website (www.ttpumps.com) or by request For any onsite works a notice of cancellation must be provided at least 48 hours in advance; otherwise, all expenses and fees will remain applicable.

Storage and Retention:

We cannot comment on storage without a specified inflow and assume all storage requirements are elsewhere by others.

If you have a specific retention requirement other than that which we have confirmed as above, please confirm the details of your requirements and we shall revise our offer where possible to suit.

Design Statement:

Please note that as part of this quotation, we endeavour to include all design features as per your request. If however we have failed to include a specific requirement within our quotation that you do require, please confirm so by return so that the quotation can be quickly revised. Any items not included for within this quotation will be fully chargeable should they be required at a later date.

Discharge Consent:

Prior to order, please ensure that you have raised the appropriate sewer connection application with your local water authority to confirm that the flow rate proposed from this pumping station design is acceptable should the system be discharging into an existing sewer network.

We endeavour to offer the correct pumping station design for the application, however, your local water authority may apply flow rate restrictions which in turn will affect the pumping station design.

TT will not accept or reimburse any costs should you choose to install a pumping station at your own risk, without the necessary consent in place.

Septicity:

Steps have been taken within this design to keep the risk of septicity occurring to a minimum. Our calculations are based upon the information provided at enquiry stage, additional septicity control methods are available should this be of interest to you.

Warranty

All T-T package pumping stations come complete with a manufacturers comprehensive 12 month warranty which will run from the date that the system is delivered to site, or from the date of commissioning should T-T complete this element of the installation.

Insurance and Collateral Warranty

TT holds insurance to cover Employers Liability (£10m), Public and Products Liability (£10m), Contract Works (subject to the claim) and Professional Indemnity (£5m).
A copy of our insurance certificate is available on request.

Please note our insurance levels are fixed and valid for the certificate duration, yet any further requirements over and above our insurance, including collateral warranties, associated documentation / wording of that required must be submitted and agreed / approved with TT prior to order placement.

T-T Pumps Ltd, Onneley Works, Newcastle Road, Woore, Cheshire, CW3 9RU, United Kingdom
Tel: +44 (0) 1630 647200 Fax: +44 (0) 1630 642199 www.ttpumps.com Email: response@ttpumps.com

T-T Controls & Automation, T-T Flow, T-T Pumping Stations, T-T Agricultural & Environmental and T-T Service are divisions of T-T PUMPS Ltd. T-T PUMPS Ltd. Registered in England & Wales Reg. No 2320017

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 06/4303

Reference QK32501 Rev A SW

A BBA accreditation is a recognised standard for government bodies, architects, specifiers and many other roles within the construction industry. Our Planet range of package pumping stations are BBA accredited, demonstrating that they have passed a stringent testing process to ensure continual quality.

WHY CHOOSE BBA?

- Proven and guaranteed fit for purpose
- Rigorously tested and verified
- Factory built quality providing simplified installation
- Select with confidence
- Fully recyclable, reducing environmental impact

Seer is our most advanced telemetry monitoring system that allows either T-T or the client to monitor systems and assets in real-time 24/7, offering live status and alarm activation, combined with observational data logging that allows potential issues to be identified early.

WHY CHOOSE SEER?

- Peace of mind 24/7 monitoring
- Early intervention to prevent detrimental failures
- Pictural view of equipment & clear easy to read status information
- Remote reset functionality with engineer on-site safety feature (compatible control panels only)
- Pro-active maintenance and remote diagnosis of faults
- Historical data analysis & performance trends
- Easy to navigate the home screen
- Capable of producing reports
- Reducing unnecessary call out costs

As an owner or operator of a sewage, drainage pumping station and clean water Booster set you will want peace of mind that your pumping system operates efficiently by using our pumping maintenance plan. With our pump maintenance packages, we can help to meet these aims and avoid unexpected and costly breakdowns allowing efficient pumping, whilst also being environmentally friendly.

WHAT ARE THE BENEFITS?

- Reduced running costs including energy and maintenance
- Greater life expectancy for pumping equipment
- Reduced risk of breakdown with its resultant problems and inconvenience
- Better plant utilisation and return on capital
- Improved environmental conditions

T-T Pumps · T-T Controls & Automation · T-T Flow Valves · T-T Pumping Stations · T-T Agricultural & Environmental · T-T Service

T-T Pumps Ltd, Onneley Works, Newcastle Road, Woore, Cheshire, CW3 9RU, United Kingdom
Tel: +44 (0) 1630 647200 Fax: +44 (0) 1630 642100 www.ttpumps.com Email: response@ttpumps.com

Appendix H

Typical SuDS Maintenance Regime

SuDS Maintenance

This section is intended to give an overview of the operation and maintenance for the drainage features included with the drainage strategy. Where proprietary products are specified, the manufacturer's instructions and recommendations should be followed in priority to this document unless specifically noted otherwise due to project constraints.

The recommended operations and frequencies are typical and should be more frequent initially to ensure that there are no unforeseen issues with the operation. They should then adjusted to suit the site requirements.

The surface water network has been designed to accommodate the 1 in 100-year storm rainfall event plus an allowance for climate change particular to the requirements of the site. It may be that the exceedance flows above the 1 in 30-year storm rainfall event are stored within the site partially above ground, on non-habitable external landscaping, parking or other space. As the flows are generally being attenuated on site and within SuDS features, there will be a period after storm events where the network is still partially or fully surcharged and is draining down. Where this surcharging is still present after 48hrs, appropriate action should be taken as noted in this section.

Components

The typical SuDS components are highlighted below. This is not an exhaustive list and reference should be made to the SuDS Manual (Ciria C753) for any items not listed.

- Pipes
- Drainage Channels and Gullies
- Permeable Pavements
- Soakaways & Infiltration Trenches
- Attenuation / Infiltration Basins
- Attenuation Storage Tanks
- Oil Separators

A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented.

It is assumed that the maintenance of the drainage network will be the responsibility of an on-site facilities management team.

A copy of the final construction drainage layout should be provided in the final Operations and Maintenance Manual.

It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event.

Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects.

Long-term management practices include monthly sweeping of external paved areas. The sweeping program will remove sand and contaminants directly from paved surfaces before they become mobilised during storm events and transported to the drainage system.

During the winter months, drainage features such as gullies and channels should be cleared of ice, snow, debris or litter

Sediment/material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the filter drains and the upstream/downstream chambers.

Pipes

Pipes are proprietary products and the materials can vary across the site and as such where used the manufacture's recommendations should be followed.

Pipes are intended to be the main conveyance across the development and where oversized they form the attenuation volume required by the limitation of the discharge rate. They are intended to be dry except for during rainfall events. These have been designed to be self-cleaning where possible for smaller diameter pipes, and for larger diameters the risk is reduced due to the overall pipe size.

Access for maintenance is provided through access chambers and manholes.

Regular inspection and maintenance is important to identify areas which may have been obstructed/clogged and may not be drainage correctly thus exposing the development to a greater level of flood risk.

Maintenance Schedule	**Required Action**	**Frequency**
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection should be provided as post construction CCTV survey.	N/A
Regular maintenance\ inspection	Inspect for evidence of poor operation via water level in chambers. If required, take remedial action.	3-monthly, 48 hours after large storms.
	Check and remove large vegetation growth near pipe runs.	Monthly or as required
Remedial Action	Rod through poorly performing runs as initial remediation.	As required.
	If continued poor performance jet and CCTV survey poorly performing runs.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue and location.	As required If above does not improve performance.

Drainage Channels and Gullies

Channels and gullies should be inspected and cleaned in accordance with the manufacturer's details. Channel units can be cleaned through the use of a high-pressure hose; this can be fed into the channel system through access units strategically placed along the channel run. The throat section of channel units should be kept clear at all times to ensure uninterrupted flow of surface water into the drainage channel and any debris within the throat should be removed.

Locking bolts should be replaced and sufficiently tightened, taking care that the bolt heads do not stand above the top surface of the cover or grate. If covers are allowed to move within their frame, this may cause damage to the frame or seating.

Sediment\material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the car park channels.

Maintenance Schedule	**Required Action**	**Frequency**
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection including channel outlet boxes.	Half yearly and after large storms.
Regular maintenance\ inspection	Litter and debris removal	Monthly or as required.
	Check and remove large vegetation growth near channel runs.	Monthly or as required
	Inspect for evidence of poor operation and/or weed growth. If required take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies. Silt can also be caused by adjacent landscaping areas which should be reprofiled to provide a flat area or berm adjacent to the paving.	3-monthly, 48 hours after large storms.
Remedial Action	Inspect access/outlet boxes and rod through poorly performing channels and outlets as initial remediation.	As required.

Permeable Pavements

Permeable pavements contain proprietary products and as such where used the manufacturer's recommendations should be followed.

The permeable pavements are intended to be water quality and attenuation storage features. These features are intended to be dry except during rainfall events.

The surface has been designed to contain gaps where rain can flow through the upper construction layers in to the voided stone which makes up the subbase. Where these features are intended to be used as infiltration devices or soakaways any capping also needs to be permeable to permit the flows to the formation.

Access for maintenance is provided by inspection/access pipes, although access will be limited as this is a surface feature only.

Regular inspection and maintenance is important for the effective operation of the pervious pavement.

Maintenance Schedule	**Required Action**	**Frequency**
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth. If required, take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies. Silt can also be caused by adjacent landscaping areas which should be reprofiled to provide a flat area or berm adjacent to the paving.	3-monthly, 48 hours after large storms.
Regular maintenance\ inspection	Brushing and Vacuuming	Three times/year at end of winter, mid-summer, after autumn leaf fall, or as required based on site specific observations of clogging or manufacturers' recommendations.
Occasional maintenance	Stabilise and mow contributing and adjacent areas.	As required and as per landscape architect's specification.
	Removal of weeds	As required.
Remedial Action	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving.	As required.
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users.	As required.
	Rehabilitation of surface and upper sub-structure. This could include replacement of the jointing and bedding material. The upper geotextiles layer may also need replacing if clogged and Terram 1000 has a life span of 25 years.	As required (if infiltration performance is reduced as a result of significant clogging).

Attenuation Tanks

Regular inspection and maintenance is important for the effective operation of infiltration and attenuation basins. Attenuation tanks contain proprietary products and as such where used the manufacturer's recommendations should be followed

Access points should be established to allow for visual inspection and jetting as appropriate.

Silt traps must be installed prior to all inlets.

Maintenance Schedule	**Required Action**	**Frequency**
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Inspect inlets, outlets and overflows for blockages and clear if required. If faults persist rodding may be required.	Monthly for three months after installation then annually
	Survey inside of tank for sediment build up and remove if necessary	After 1 year and then every 5 years or as required
Remedial Actions	Repair/rehabilitation of inlets/outlets.	As required.
Regular Maintenance	Inspect and identify any areas that are not operation correctly and if necessary take remedial action	Monthly for three months after installation then annually
	Remove debris from catchment surface (where it may cause risk to performance)	As required
	Remove sediment from pre-treatment structures & silt traps	Annually or as required