

FRENCH ENGINEERING



Drainage Statement

**Land East of Old Brighton Road South
Pease Pottage, West Sussex**

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Document Revision History

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Executive Summary

French Engineering has been engaged by Shellwin Limited to produce a Drainage Statement for the commercial development at Land East of Old Brighton Road South, Pease Pottage, West Sussex.

The development has planning consent under Mid Sussex Local Planning Authority reference DM/22/3432. The description of development is: - *'Erection of Two Commercial Buildings for Class E(G) Light Industrial or B8 Storage and Distribution Use. Provision of 12 Car Parking Space with Secure and Covered Cycle Parking. Associated Hard and Soft Landscaping, Planting and Boundary Treatments.'*

The site is currently largely undeveloped but occupied by a mobile phone antenna mast.

The site is classified as Flood Zone 1 at low risk of flooding from rivers and seas. The site is not affected by surface water flooding as indicated on the national risk of flooding from surface water mapping including the with climate change scenario. There is no significant risk of groundwater flooding or other flood mechanism which influences the drainage strategy.

The proposals are non-major development and no drainage design was submitted with the planning application. Condition 3 of the Planning Consent states:

'No development shall take place unless and until details of the proposed foul and surface water drainage and means of disposal have been submitted to and approved in writing by the local planning authority. No building shall be occupied until all the approved drainage works have been carried out in accordance with the approved details. The details shall include a timetable for its implementation and a management and maintenance plan for the lifetime of the development which shall include arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime. Maintenance and management during the lifetime of the development should be in accordance with the approved details.'

The Mid Sussex District Council drainage comments at planning stage states that attenuation for large return period storms is required and that the viability of discharge to ground by infiltration should be explored by infiltration testing.

There is currently no positive drainage from the site, which is comparable to greenfield land in terms of existing runoff.

Infiltration testing has been carried out and confirms that the site cannot rely on infiltration as a means of disposal of surface water. There are surface water sewers in the vicinity, which serve the adjacent residential area.

Surface Water will be discharge to the surface water sewer beneath Old Brighton Road South adjacent to the site via a new lateral connection. Peak flow restriction will be applied to reduce the overall rate of

runoff from the site to close to greenfield runoff rates utilising a flow control device. Attenuation storage will be provided in the car park area formed of cellular storage.

Water quality treatment of surface water runoff meets the criteria within the SuDS Manual Simple Index Approach.

A Management and Maintenance Plan is provided with this report which sets out the ownership and responsibilities for inspection and maintenance of the drainage system. This is a stand-alone document which will be passed to the facility management provider.

New foul water drainage from the development will discharge to the existing foul water sewer to the west of the site.

The development is relatively small and simple being a single structure and small car parking area at the frontage. No phasing is required. The timetable for implementation of the sustainable drainage system is that it will be constructed as part of the car park works after the building is erected. The commencement on site date and construction programme is not currently known but a contractor is appointed and the intention is to construct once prestart conditions are cleared.

The development meets National and Local Planning Policies on flood risk and drainage.

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1. Introduction

1.1 Reason for Report and Planning Context

This report is a Drainage Statement to support the Planning Application for redevelopment of the site and set out the drainage strategy for both foul water and surface water drainage.

The Planning Application is for construction of two Commercial Buildings for Class E(G) Light Industrial or B8 Storage and Distribution Use together with provision of 12 Car parking spaces, served from Old Brighton Road South.

The development has planning consent under Mid Sussex Local Planning Authority reference DM/22/3432. The development is not classified as 'major development' for the purposes of Planning Consent. Condition 3 of the Planning Consent requires details of the proposed foul and surface water drainage.

The site has been developed for the use of a mobile phone antenna mast but the majority of the site remains undeveloped in terms of buildings, paving and use.

1.2 Scope of Report

This Statement presents the design of the foul water and surface water drainage systems and means of disposal, together with the Management and Maintenance Plan.

This report is not a Site-Specific Flood Risk Assessment, which was not required at planning stage.

2. The Site

2.1 Site Location

The site is located on the east side of Old Brighton Road South, Pease Pottage, West Sussex. The site is bounded by the A23 Brighton Road trunk road to the east.

The site is centred at National Grid Reference TQ2596832835, OS Eastings 525968 Northings 132835. The site is undeveloped but the adjacent commercial development to the north has a post code of RH11 9AH.

The site comprises vegetated rough ground. There are currently no buildings or other drained area. There is a mobile phone antenna mast which will be removed as part of the works.

A map highlighting the site location and indicating the boundary in red is shown in Figure 1 below:



Figure 1: Site Location

2.2 Local Hydrology and Hydrogeology

There are no main rivers or ordinary watercourses in the vicinity of the site.

The site is located in a local geology area of Tunbridge Wells Sands and Mudstones. The Tunbridge Wells Sands are a Secondary Aquafer and the site does not lie within a Source Protection Zone.

The Superficial and Bedrock Geology of the local area as shown on the British Geological Society mapping is replicated below in Figure 2:

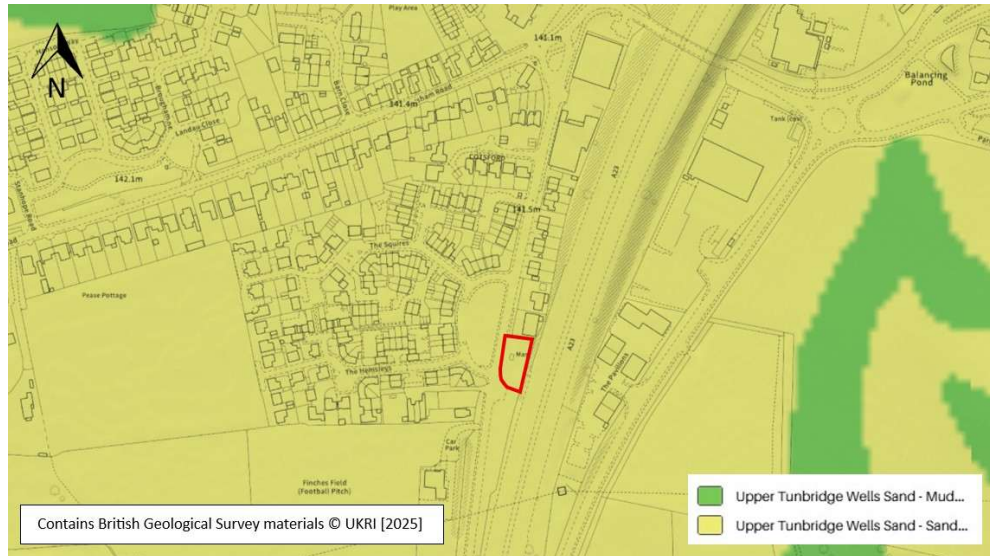


Figure 2: BGS Superficial Geology

2.3 Site Description

The site is approximately 873m² (0.087ha) in area and is currently undeveloped other than a mobile phone mast.

The site is on the edge of an urban area and adjacent to a trunk road. There are residential dwellings to the west along The Hemsleys and existing commercial development to the north along Old Brighton Road South.

The existing site is shown in the aerial photograph in Figure 3 below:

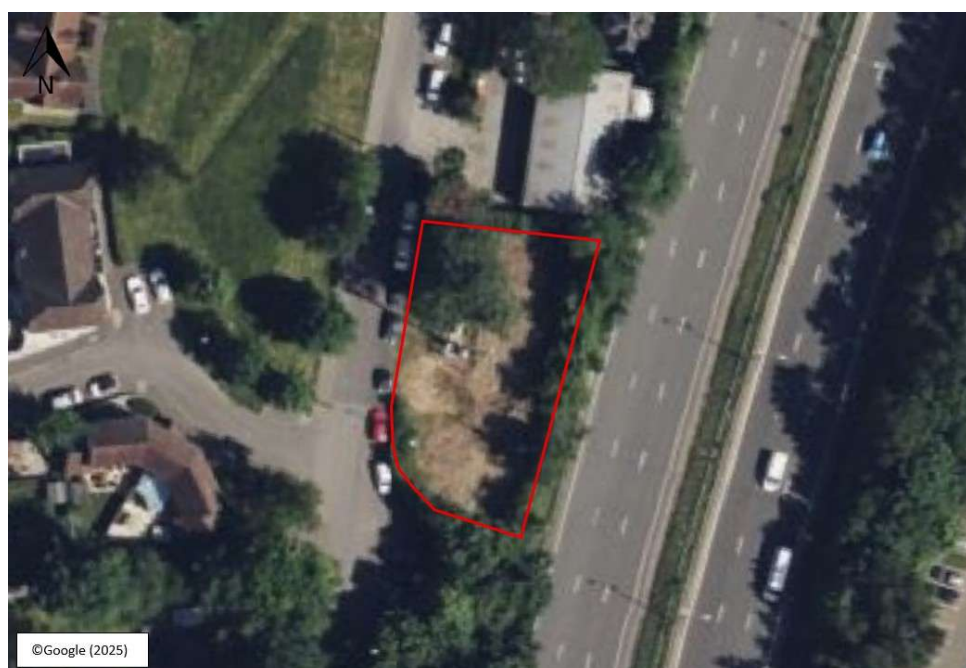


Figure 3: Existing Site

The site slopes gently from north to south at a gradient of approximately 1:80. Ground levels range from 140.25m to 139.29m AOD.

Topographic survey of the site has been undertaken and is attached in Appendix A at the rear of this report.

2.4 Existing Drainage

There is currently no positive foul or surface water drainage from the site, which is comparable to greenfield land in terms of existing runoff.

The existing impermeable area is the phone mast base and enclosure which is approximately 14 square metres. This area drains to the surrounding vegetated ground.

Sewer records have been obtained and show the nearest foul and surface water public sewer infrastructure is adjacent to the site beneath Old Brighton Road South.

A copy of the Thames Water sewer records is attached in Appendix A at the rear of this report.

2.5 Ground Conditions and Infiltration Potential

Nearby borehole records obtained from the British Geological Society (BGS) indicate a mixture of sands, clays, sandstone and gravel at shallow depths with siltstone, and mudstone at deeper levels.

Groundwater was encountered in a nearby borehole (site of the adjacent trunk road) at 14.4 metres below ground level. This depth is sufficient to indicate with confidence that groundwater would come within several metres of ground level.

Borehole records are attached in Appendix B at the rear of this report.

A ground investigation was carried out on 1 October 2025. The subsoil stratum is confirmed to be Upper Tunbridge Wells Sand (bedrock).

Infiltration testing was carried out at shallow depth of 500mm below ground level to test for use of permeable pavements and at a depth of 2.0m to test for the use of conventional soakaways.

The testing was carried out in accordance with the test methodology given by BRE365 guidance. The ground investigation is attached in Appendix B at the rear of this report.

The results indicate that in saturated conditions neither the deeper test at 2m bgl nor the shallow tests at 500mm bgl returned suitable infiltration rates. This was evident from the tests not reaching the lower 25%ile of the pit depth within a reasonable timeframe.

The test results are summarised in the table below, copied from the report:

Exploratory Hole	Top of Response Zone (m bgl)	Average Pit depth (m bgl)	Stratum	Infiltration Rate (i) (m/sec)
TP01 - Test 1	0.99	2.08	Upper Tunbridge Wells Sand	*9.29 x 10 ⁻⁷
TP02 - Test 1	0.33	0.56	Made Ground	3.57 x 10 ⁻⁵
TP02 - Test 2	0.33	0.56	Made Ground	2.20 x 10 ⁻⁵
TP02 - Test 3	0.33	0.56	Made Ground	*1.39 x 10 ⁻⁵
TP03 - Test 1	0.39	0.57	Upper Tunbridge Wells Sand	*5.80 x 10 ⁻⁶

Notes: * Could not be calculated in accordance with BRE365 guidance.

It is concluded from these results that reliance upon shallow infiltration is not available for large return period storms but some infiltration will be achievable. This points to a piped outlet system with potential permeable membranes for shallow storage to allow some infiltration where available as part of a sustainable drainage system.

3. Consideration of External Flood Risk

3.1 Flood Zone

The Environment Agency Flood Map for Planning shows the site is within Flood Zone 1.

3.2 Groundwater

The local geology of Tunbridge Wells Sand as part of a Secondary Aquifer.

The site location and local topography do not indicate any significant risk of groundwater flooding from an artesian mechanism and local borehole records do not indicate a shallow water table.

3.3 Surface Water

From the Environment Agency RoFSW mapping there is no significant risk to the site from surface water. There is no influence on the drainage strategy from external surface water flood risk.

The extent of surface water flooding by risk classification in the vicinity of the site for the 2050 Epoch with climate change modelling is shown in Figure 4 below.



Figure 4 - Risk of Flooding from Surface Water 2050 Epoch

3.4 Flood Risk Appraisal Conclusion

From initial desktop appraisal there is no external flood risk which would prevent a surface water drainage system for the proposed development from operating effectively.

4. Development Proposals

4.1 Development Description

The development has planning consent under Mid Sussex Local Planning Authority reference DM/22/3432. The description of development is: - *'Erection of Two Commercial Buildings for Class E(G) Light Industrial or B8 Storage and Distribution Use. Provision of 12 Car Parking Space with Secure and Covered Cycle Parking. Associated Hard and Soft Landscaping, Planting and Boundary Treatments.'*

The existing mobile phone mast will be relocated to the south end of the site.

The new building will be positioned away from the frontage along the majority of the eastern boundary. The two car parking areas are positioned on the Old Brighton Road South frontage with separate entrances.

The Architect's Site Layout Plans are attached in Appendix C at the rear of this Statement.

4.2 Paved and Drained Areas

The development will introduce new impermeable areas to the site in the form of new car parking areas and extensions to the existing buildings.

A summary of the proposed impermeable area is show below.

Element	Impermeable Area (sqm)
Building	370
Car Park	253
Phone Mast	14
Total	637

Table 1: Proposed Impermeable Areas

The total drained impermeable area is 637 sqm or 0.064 hectares.

The increase in impermeable area at the site is 623 sqm or 0.062 hectares.

5. Drainage Strategy

5.1 Sustainable Drainage Policy

The development has planning consent without an approved drainage strategy. This was prior to the publication of the National standards for sustainable drainage systems (SuDS) 2025.

Guidance from the Lead Local Flood Authority (West Sussex County Council) states that non-major development should ensure no increase in flood risk due to development.

Comments made at planning stage by Mid Sussex District Council state that attenuation of large return period storms is required.

The proposed development will increase drained area and will therefore restrict peak runoff to greenfield runoff in accordance with the Local Drainage Officer comments at planning stage.

5.2 Outline Drainage Strategy

In accordance with the sustainable drainage hierarchy, proposed developments should replicate the natural drainage method where possible and discharge surface water to ground where feasible, then a watercourse where available, then via surface water sewer where available, finally by other available infrastructure or method.

Local ground conditions do not allow viable discharge to ground as a primary method. There are no watercourses available. The local area has positive drainage connections to surface water sewers.

The development will discharge to the adjacent public surface water sewer as the method of disposal but discharged at a reduced rate to meet sustainable drainage requirements.

The design storm plus climate change allowance will be stored below ground without flooding to the site or downstream.

5.3 Opportunities for Sustainable Drainage Methods

The existing pitched roofs preclude green and blue roof solutions.

There is no opportunity within in the approved layout for significant open water features such as ponds, wetlands or swales.

The paved car park area was identified as a potential permeable surface. Permeable paving which drains to the subsoil is not supported by the local geology and a piped outlet would be required. However, the location of an existing public foul water rising main reduces the area available as the layers of membrane in the permeable construction could not be within the Easement and the remaining area is small. Therefore, this solution has been rejected.

There are very limited opportunities for amenity and biodiversity enhancements to be delivered through the drainage system and the plan layout has been determined.

The cramped available space below ground necessitates a cellular attenuation storage solution. The increased depth could potentially be susceptible to groundwater and will be protected from ingress by an impermeable membrane with welded joints.

5.4 Surface Water Drainage

The car park, access road and roof areas are drained via gutters, gullies and channel drains and piped to the below ground cellular storage and flow control prior to discharge to the public sewer.

The drained area subject to restriction is 637 sqm. The restriction will be as close as reasonably practicable to greenfield runoff rates using a modern flow control chamber and vortex flow control device solution with high-level overflow.

A 'Downstream Defender' is incorporated upstream of the attenuation storage and flow control and provides blockage protection by removing sediments and litter in addition to the water quality treatment function.

The relatively deep groundwater levels indicated by nearby BGS boreholes indicate a low risk of high groundwater reaching the base of the cellular storage but the impermeable membrane ensures no ingress.

The risk of floatation forces occurring on the empty cellular installation has been considered. The installation has minimum 800mm cover formed of compacted stone and asphalt paving which has a typically density 2.2 tonnes per cubic metre compared with water at 1 tonne per cubic metre. The surcharge weight would resist an uplift buoyancy force equivalent to the submerged depth of the empty installation meaning groundwater could reach within a metre of the surface without creating any risk of uplift force on the installation. There is no indication groundwater levels in the local area are capable of reaching that height and it would be prevented from doing so in close vicinity of the site by the adjacent land of the trunk road being at a lower level to the site. The risk of floatation is therefore very low.

The surface water outflow will connect to the existing Thames Water surface water sewer beneath Old Brighton Road South, which is 225mm diameter and flows southwards.

The peak outflow rate is very low in the context of the surface water sewer network and no capacity issues could be reasonably cited by the statutory undertaker as reason to not allow connection and no capacity issues were raised at planning stage. The Applicant therefore has not undertaken capacity checks. A connection application under Section 106 of the Water Industries Act will be made as part of implementation of the scheme.

The proposed drainage strategy is shown on the Drainage Layout Plans attached in Appendix D at the rear of this Statement.

5.5 Design Criteria and Calculations

The greenfield runoff rate for this location can be approximated to be 5.3 litres per second per hectare for an average storm and 19.4 litres per second for the design (100 year) storm.

The site is too small to reliably calculate greenfield runoff but estimates using IH124 are 0.5 litres per second per hectare for an average storm and 1.7 litres per second for the design (100 year) storm.

Greenfield runoff calculations are attached in Appendix E at the rear of this report.

Due to the constraints of the site and existing planning consent, together with the existing rising main which leads to a deeper storage and flow control than source control methods, 0.5 litres per second is as low as is reasonably practicable.

A fixed flow control set to maximum discharge of 0.5 litres per second for the design storm and lower for all smaller storms has been incorporated.

The current UK Climate Change Allowance for the Mole Management Catchment is 35% for the 3.3% AEP and 40% for the 1% AEP events based upon the Upper End Allowance for the 2050s and 2070s Epoch.

There is very limited risk of Urban Creep and therefore no allowance has been made.

Attenuation storage sizing has been derived by modelling the drainage system for storm events using Causeway Flow Software based upon FEH22 rainfall data for the worst case 50% AEP storm, 3.3% AEP storm (plus 35%) and 1% AEP storm (plus 40% increase in intensity due to climate change), over a range of storm durations and intensities.

Due to the varying head pressure as a function of the volume of attenuation storage retained, a 26mm diameter vortex flow restriction will produce 0.3l/s for the 2 year storm, 0.4l/s for the 30 year storm with climate change, and 0.5l/s for the 100 year storm with climate change allowance.

Drainage design calculations are attached in Appendix E at the rear of this Statement.

5.6 Exceedance Paths

Exceedance paths have been considered for the following scenarios;

- Exceedance of the inlet capacity due to intensity of rainfall.
- Blockage or other failure of attenuation storage, flow control or other critical element of drainage system

Exceedance flows from the site would overtop the car park area and flow west and south along the existing highway in a similar manor to the existing situation following the existing natural runoff as indicated on the Drainage Layout Plan.

The risk of surface level exceedance flows is reduced by the incorporation of a high-level overflow in the flow control chamber above the top water level of the design storm attenuation.

5.7 Water Quality Assessment

With reference to the Simple Index Approach set out with the CIRIA SuDS Manual the development represents a Low Pollution Hazard Level (in terms of Total Suspended Solids, Metals and Hydrocarbons), which can be mitigated.

The use of the paved car park will be infrequent / intermittent non-residential use. Table 26.2 below shows that the worst-case pollution load applied to the development is 'Low Risk'. TSS, Metals and Hydrocarbon indices are 0.5, 0.4 and 0.4 respectively.

TABLE 26.2 Pollution hazard indices for different land use classifications

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/ industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, homezones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways ¹	Medium	0.7	0.6	0.7

©2015 Ciria: CIRIA SUDS manual table 26.2

The hazard is mitigated by a Downstream Defender (Hydro International) Vortex Plus. The product testing confirms Mitigation Indices for TSS, Metals and Hydrocarbons are 0.5, 0.4 and 0.5 respectively, which is sufficient for the worst-case pollution hazard indices identified for the development including drainage from the car park area.

Model	Downstream Defender® Select Mitigation Indices (a)(b)		
	Total Suspended Solids (TSS)	Metals	Hydrocarbons (Oils)
Vortex	0.3	0.2	0.2
Vortex Plus	0.5	0.4	0.5
Advanced Vortex	0.5	0.4	0.5

Notes:

(a) All mitigation indices supplied by Hydro International Ltd are calculated using the methods laid out in the British Water How To Guide: Applying the CIRIA SuDS Manual Simple Index Approach to Proprietary / Manufactured Stormwater Treatment Devices. The Advanced Vortex and Vortex Plus models have also been independently verified by the WRc, with the WRc Performance Declaration available on request.

(b) Mitigation Indices quoted for the Downstream Defender® Select are valid when the unit is designed according to the Treatment Flow Rate (see Table 3).

SuDS Mitigation Indices for Downstream Defender® Select

The development proposals meet the mitigation requirements following the Simple Index Approach within the Ciria SuDS Manual (C573).

5.8 Foul Water Drainage

The site is accessible to mains sewered drainage, and the existing surrounding developments connect to the public foul sewer.

There is an existing foul water rising main along the site frontage which will be located within the car park area of the development. An easement will be maintained to enable access to the pipe.

There is no existing drainage load from the site.

The proposed commercial use will have toilets and will be intermittent use by staff. New foul water drainage connection will be made to the existing public foul sewer to the west of the site.

The foul pipework is sized to accommodate maximum stack loading by discharge units. This gives a total of 1.3 litres per second and therefore easily accommodated in 100mm diameter pipes at self-cleansing velocity. This flow rate would be a gross overestimate of load in the public sewer network as cumulative peak flows disburse and therefore a peak factor is applied to typical dry weather flow rates for that purpose.

Typical daily flow loading from commercial premises is 300 litres per day per 100 square metres of floor space. The building footprint is approximately 370 sqm, therefore 1,110 litres per day dry weather flow (DWF). As a peak flow using a conservative peaking factor of 6 x DWF the peak loading on the foul network is 0.08 litres per second.

Thames Water have already confirmed in comments on the Planning Application that there is no capacity concern with connection from the development. Application to connect to the public sewer network will be made under Section 106 of the Water Industries Act 1991 prior to construction.

5.9 Timetable for Implementation

The development is relatively small and simple being a single structure and small car parking area at the frontage. No phasing is required.

The timetable for implementation of the sustainable drainage system is that it will be constructed as part of the car park works after the building is erected.

The commencement on site date and construction programme is not currently known but a design and build contractor is appointed and the intention is to construct once prestart conditions are cleared.

6. Ownership Management and Maintenance

6.1 Ownership

The onsite shared drainage infrastructure will remain in the private ownership of the Freeholder of the site.

It is anticipated that regular maintenance responsibilities will be passed via Lease Agreement to the Tennant or Operator of the Units. The Freeholder is ultimately responsible for the development.

6.2 Management and Maintenance

The site manager and facility management team will be responsible for maintenance upkeep of the development on behalf of the Freeholder for the lifespan of the development.

The key items of below ground drainage infrastructure for ongoing maintenance are:

- Chambers and pipes
- Cellular Attenuation Storage
- Flow Control chamber and device
- Downstream Defender

A Management and Maintenance Plan including a schedule of maintenance requirements is attached in Appendix F at the rear of this report.

7. Conclusions

The site is within National Flood Zone 1 at Low risk of flooding from tidal or fluvial sources. No Flood Risk Assessment is required. There is no significant risk to the site from surface water which would influence the design of the site layout or drainage system.

Planning consent is granted and the plan layout is determined. The development is non-major development.

There is no existing foul water drainage load from the site. A new connection will be made to the existing public foul sewer to the west and there is no capacity concern from Thames Water.

There is an increase in drained area due to development and sustainable drainage techniques have been applied to ensure there is no increase in peak runoff rate from the site. This includes attenuation and storage of peak flow within cellular storage beneath the car parking area.

A new connection will be made to the existing public surface water sewer to the west and there is no capacity concern from Thames Water.

Water quality mitigation is incorporated into the surface water drainage design and meets the criteria with the SuDS Manual (Simple Index Approach).

A Management and Maintenance Plan is attached to this Statement and sets out the maintenance responsibilities and schedule. The MMP will be implemented by the Leaseholders on behalf of the Freeholder.

The development does not require phasing, the intention is to construct once prestart conditions are cleared.

The development meets National and Local Planning Policies on flood risk and drainage.

8. List of Appendices

Appendix A: Topographic Survey and Sewer Records

Appendix B: Borehole Records and Ground Investigation

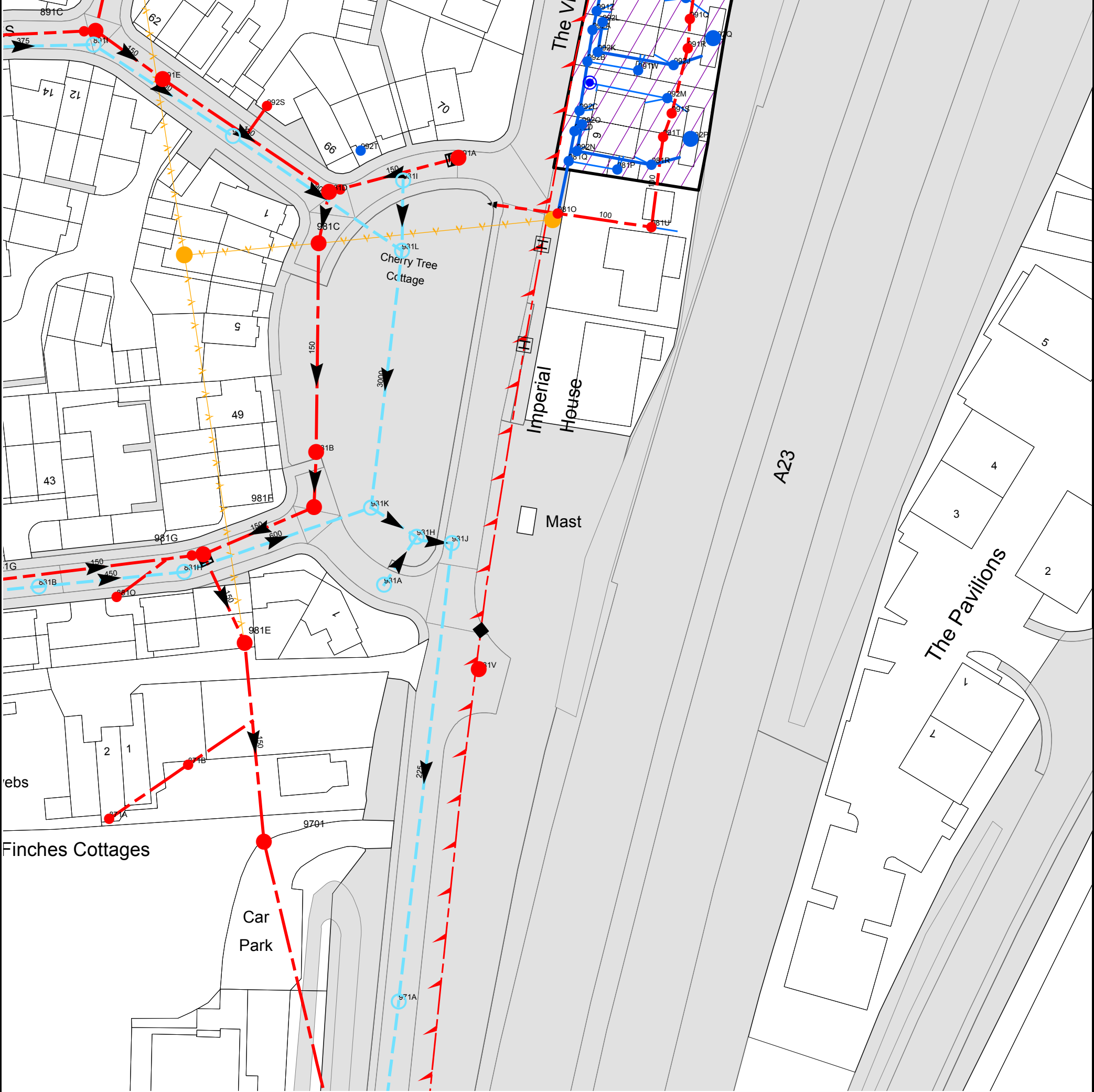
Appendix C: Architectural Site Layout

Appendix D: Drainage Design Drawings

Appendix E: Drainage Calculations

Appendix F: Management and Maintenance Plan

Appendix A – Topographic Survey and Sewer Records



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 525964,132830
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map (2020) with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
991W	n/a	n/a
992M	n/a	n/a
991S	49.36	48.69
992J	n/a	n/a
992I	n/a	n/a
991R	49.49	48.82
991Q	49.47	48.92
992Q	n/a	n/a
992S	n/a	n/a
992D	n/a	n/a
992C	n/a	n/a
992O	n/a	n/a
992B	n/a	n/a
992A	n/a	n/a
991Z	n/a	n/a
992K	n/a	n/a
992L	n/a	n/a
891I	140.6	138.28
891C	140.68	134.88
891E	140.52	134.8
991B	140.38	137.61
981F	139.24	134.23
981B	139.58	134.3
981C	140.1	134.56
981D	140.26	136.91
992T	n/a	n/a
981K	139.028	134.788
981L	140.05	134.85
981I	140.22	138.26
981H	138.948	134.77
991A	140.4	138.83
981O	n/a	n/a
981Q	n/a	n/a
992N	n/a	n/a
981P	n/a	n/a
981U	n/a	n/a
981R	n/a	n/a
991T	49.45	48.6
992P	n/a	n/a
881B	140.02	137.87
871A	n/a	n/a
881O	n/a	n/a
881H	139.27	137.45
871B	n/a	n/a
981G	139.16	134.08
981E	139.32	133.95
9701	138.81	133.38
981A	n/a	n/a
971A	138.733	134.081
981J	139.394	134.481
981V	n/a	n/a
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.		



Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

	Foul Sewer: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
	Surface Water Sewer: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
	Combined Sewer: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
	Storm Sewer
	Sludge Sewer
	Foul Trunk Sewer
	Surface Trunk Sewer
	Combined Trunk Sewer
	Foul Rising Main
	Surface Water Rising Main
	Combined Rising Main
	Vacuum
	Thames Water Proposed
	Vent Pipe
	Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

	Sewer		Culverted Watercourse
	Proposed		Decommissioned Sewer
	Content of this drainage network is currently unknown		Ownership of this drainage network is currently unknown

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plan are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	Air Valve		Meter
	Dam Chase		Vent
	Fitting		

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	Ancillary		Drop Pipe
	Control Valve		Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	Inlet		Outfall
	Undefined End		

Other Symbols

Symbols used on maps which do not fall under other general categories.

	Change of Characteristic Indicator		Public / Private Pumping Station
	Invert Level		Summit

Areas

Lines denoting areas of underground surveys, etc.

	Agreement
	Chamber
	Operational Site

Ducts or Crossings

	Casement	Ducts may contain high voltage cables. Please check with Thames Water.
	Conduit Bridge	
	Subway	
	Tunnel	

5) 'na' or '0' on a manhole indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

Appendix B – Borehole Records and Ground Investigation Report



CONTRACT London to Brighton Trunk Road		BOREHOLE No: P6	
LOCATION M23 Pease Pottage Interchange		DATE OF BORING: 29.07.1991	
CLIENT The Department of Transport		Sheet 1 of 5	
CONSULTANT Acer Consultants Limited			
Scale 1:50	Strata Change		Samples
Description of Strata	Legend	Depth -m	O.D. Level -m
TOPSOIL		0.20	140.13
Loose becoming medium dense brown slightly silty fine SAND with some moderately weak to very weak sandstone gravel. Burnt/decayed wood at 0.90m.		0.50	B
		0.90	B
		1.00	J S 7
(Upper Tunbridge Wells Sand (UTWS))		1.40	138.93
Medium dense light orange brown slightly clayey fine sandy SILT with abundant fine sandstone/ siltstone gravel.		1.50	B
		2.00	J S 25
(UTWS)		2.35	137.98
Very dense orange brown fine SAND and weak to moderately strong SANDSTONE gravel.		2.50	B
		3.00	S 105/225
(UTWS)		3.38	136.95
Borehole continued by rotary drilling from 3.38m.		4.00	
		5.00	
		6.00	
		7.00	
		8.00	
		9.00	
		10.00	
No blows/mm penetration.			
BOREHOLE DIAMETER: 150mm		GROUND LEVEL: 140.33m	
LINING TUBES : 150mm to 1.50m		COORDINATES : 25982.0E	
CHISELLING : Nil		EQUIPMENT : 32855.0N	
WATER ADDED : Nil		Light Cable	
PIEZOMETER : Nil		Percussion	
S/E.O.S. : Start/End of shift		Boring Rig	
		NR : No Recovery	
		G.L. - 1.00m dug by hand	
DATE July 1991		BOREHOLE LOG	
		REPORT No. S.2124	



CONTRACT London to Brighton Trunk Road		Borehole No. P6				
LOCATION M23 Pease Pottage Interchange		Date of Boring: 05-06.08.1991				
CLIENT The Department of Transport		Sheet 2 of 5				
CONSULTANT Acer Consultants Limited						
Scale 1:25	STRATA CHANGE	LEVEL	TCR	SCR	RQD	Water Levels/Remarks
Description of Strata	LEGEND	DEPTH m A.O.D	%	%	%	
Open Borehole		1.00				05.08.91 S.O.S.
		2.00				
		3.00				
Continuation of shell and auger hole.		3.38	136.95			
Grey brown completely weathered SILTSTONE, very weak.	x x x x x x x x x x x x x x x x x x x x	4.00	63	22	16	
- highly weathered 4.10 to 4.30m.	x x x x					
- orange and grey brown SILTSTONE blocks, moderately weak.	x x x x x x x x x x x x	4.46	135.87			4.42m
(UTWS)	x x x x					
Stiff light grey silty CLAY occasionally mottled orange brown with black specks.	x x x x	5.00				
(UTWS)	x					
COORDINATES : 25982.OE		DRILLING METHOD : Rotary coring with foam flush		TYRONE (SOIL ENGINEERING) LIMITED		
GROUND LEVEL : 32855.ON		CORE DIAMETER : 105mm				
WATER LEVEL : 140.33m		ORIENTATION : Vertical				
DEPTH OF CASING : 3.00m		BOREHOLE DIAMETER : 150mm to 3.38m				
S/E.O.S. : Start/End of shift		131mm to base				
DATE July 1991	BOREHOLE LOG				REPORT NO. S.2124	

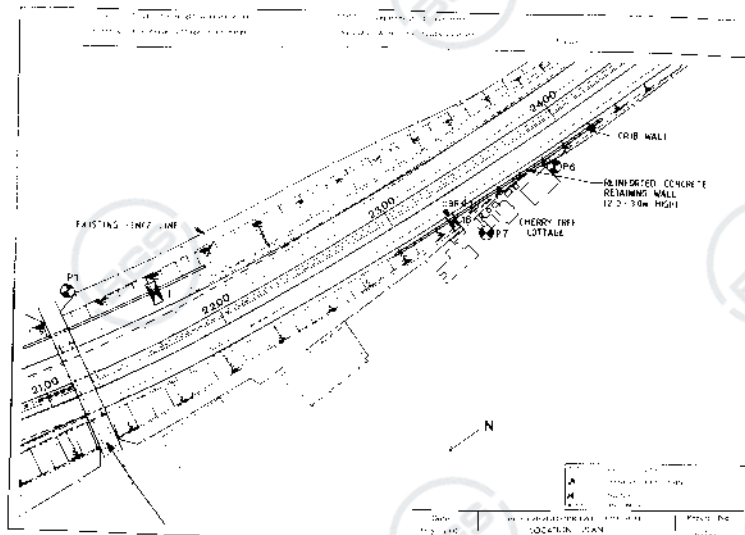
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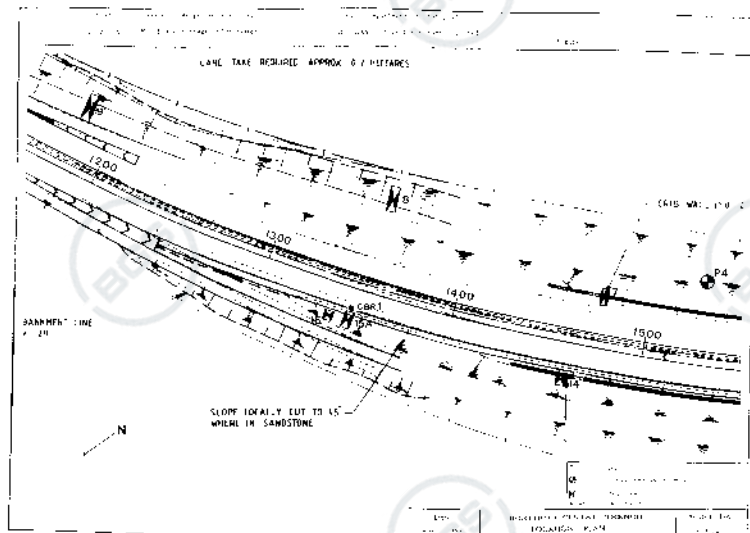


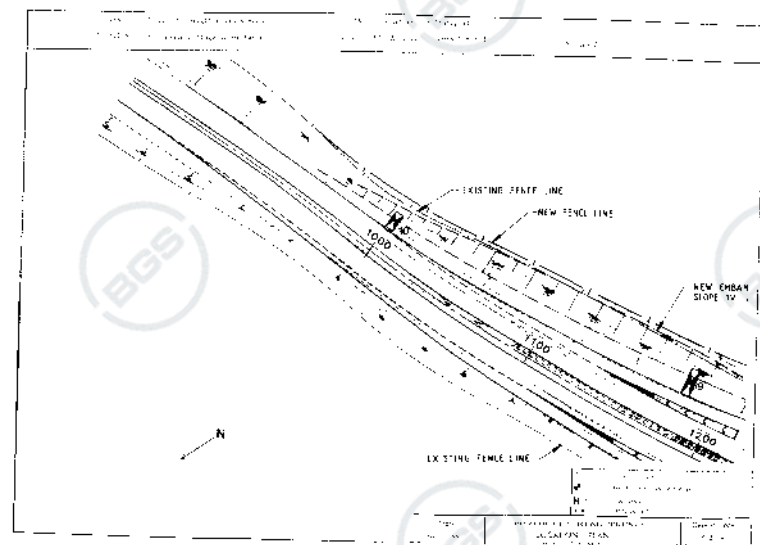
CONTRACT London to Brighton Trunk Road		Borehole No. P6	
LOCATION M23 Pease Pottage Interchange		Date of Boring: 05-06.08.1991	
CLIENT The Department of Transport		Sheet 4 of 5	
CONSULTANT Acer Consultants Limited			
Scale 1:25	STRATA CHANGE	LEVEL	TCR
Description of Strata	LEGEND	DEPTH	SCR
		m	RQD
		A.O.D	%
			%
			%
(UTWS)			
Stiff mid grey silty CLAY with irregular closely spaced thickly laminated silty fine SANDSTONE, weak.		10.10	130.23
(UTWS)			
Mid to light grey silty fine SANDSTONE, moderately weak to moderately strong with some black flecks.		10.60	129.73
(UTWS)			
Mid grey silty MUDSTONE, moderately weak.		10.97	129.36
		11.00	
(UTWS)			
Brown grey fine sandy SILTSTONE, moderately strong.		11.73	128.60
(UTWS)			
Stiff mid grey very silty CLAY with closely spaced thinly bedded silty fine sandstone, weak to moderately weak.		11.78	128.55
		12.00	
(UTWS)			
Mid grey slightly silty MUDSTONE, moderately weak to moderately strong.		12.53	127.80
(UTWS)			
Irregularly interbedded light and mid grey silty MUDSTONE, weak with closely spaced bands of light grey fine grained thinly laminated sandstone, weak.		13.00	
- becoming weak to moderately weak.			
		14.00	
(UTWS)			
		15.00	
COORDINATES : 25982.0E 32855.0N		DRILLING METHOD : Rotary coring with foam flush	
GROUND LEVEL : 140.33m		CORE DIAMETER : 105mm	
WATER LEVEL : 14.41m		ORIENTATION : Vertical	
DEPTH OF CASING : 3.00m		BOREHOLE DIAMETER : 150mm to 3.38m	
S/E.O.S. : Start/End of Shift		131mm to base	
DATE	BOREHOLE LOG		REPORT NO.
July 1991			S.2124

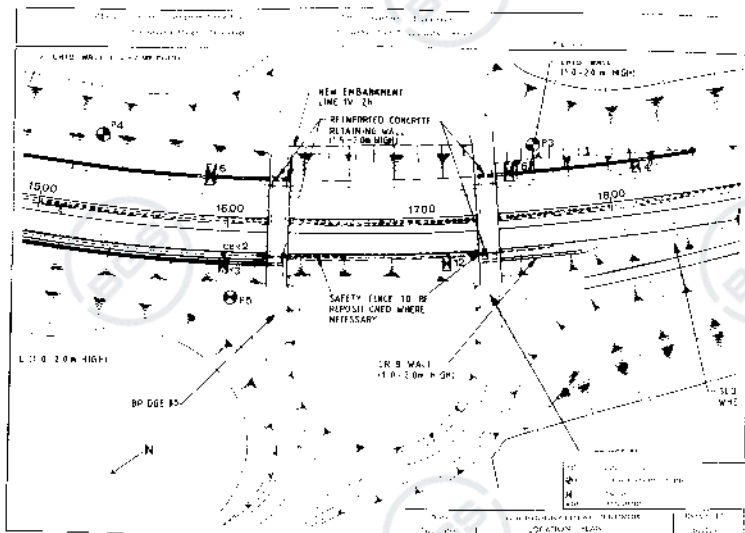


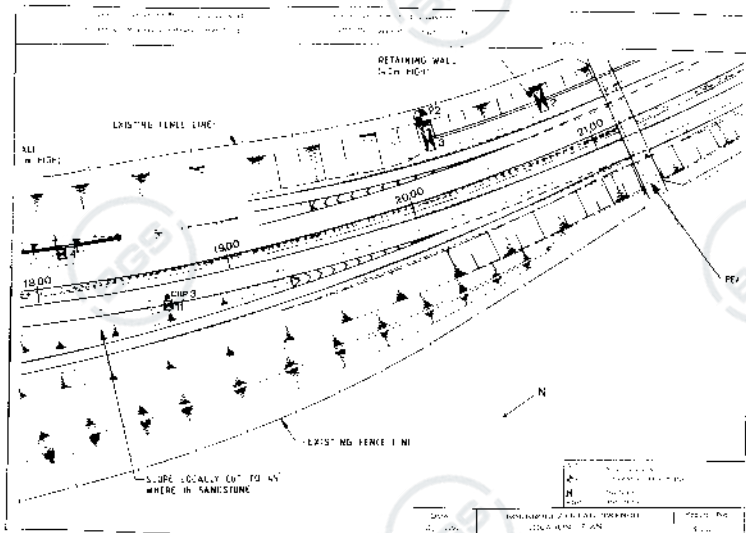
CONTRACT London to Brighton Trunk Road		Borehole No. P6				
LOCATION M23 Pease Pottage Interchange		Date of Boring: 05-06.08.1991				
CLIENT The Department of Transport		Sheet 5 of 5				
CONSULTANT Acer Consultants Limited						
Scale 1:25	STRATA CHANGE	LEVEL	TCR	SCR	RQD	Water Levels/Remarks
Description of Strata	LEGEND	DEPTH m A.O.D	%	%	%	
(UTWS)	X	15.10	125.23			
Borehole terminated at 15.10m.						06.08.91 E.O.S.
		16.00				
		17.00				
		18.00				
		19.00				
		20.00				
COORDINATES : 25982.0E 32855.0N		DRILLING METHOD : Rotary coring with foam flush		TYRONE (SOIL ENGINEERING) LIMITED		
GROUND LEVEL : 140.33m		CORE DIAMETER : 105mm				
WATER LEVEL : 14.41m		ORIENTATION : Vertical				
DEPTH OF CASING : 3.00m		BOREHOLE DIAMETER : 150mm to 3.38m				
S/E.O.S. : Start/End of Shift		131mm to base				
DATE July 1991	BOREHOLE LOG				REPORT NO. S.2124	













IN SITU INFILTRATION TEST REPORT

**OLD BRIGHTON ROAD
PEASE POTTAGE
WEST SUSSEX**

PROJECT REFERENCE: P17419

REPORT REFERENCE: R16896

Report Beneficiary: Shellwin Limited

Document Control			
Issue No.	Status	Issue Date	Notes
1	Final	13 th October 2025	
Report Section		Prepared By	Approved By
In Situ Infiltration Test Report		Adam Cormack HNC FGS	Rebecca Webb BSc FGS

Limitations

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FIGURES AND APPENDICES

Figure 1 Site Location Plan
Figure 2 Site Plan
Explanatory Notes
Exploratory Hole Records
Trial Pit In Situ Infiltration Test Results

1. INTRODUCTION

Ashdown Site Investigation Ltd was requested to undertake in situ infiltration testing at a site located on Old Brighton Road, Pease Pottage, West Sussex.

The specific objectives of the works were to:

- a) Establish the expected geology and hydrogeology at the site;
 - b) Investigate the shallow ground and groundwater conditions prevailing at the site; and
- Undertake in situ infiltration testing to provide calculated infiltration rates.

The scope of the works covered by this report, and the terms and conditions under which they were undertaken, were set out within the offer letter Q15673, dated 8th September 2025. The instruction to proceed was received from the client, Shellwin Limited.

2. SITE CONTEXT

2.1 Site Location

The site is located at Old Brighton Road, Pease Pottage, West Sussex, and is centred on the approximate Ordnance Survey national grid reference 525967, 132832. A site location plan and site plan are presented as Figure 1 and Figure 2, respectively.

2.2 Geological Setting

2.2.1 *Expected Geology and Aquifer Designation*

The stratigraphic unit that may be expected to underlie the site has been established by reference to British Geological Survey (BGS) mapping and the BGS Lexicon of Named Rock Units. The expected stratigraphy is presented in the following table.

Table 1. *Expected Strata and Aquifer Designation*

Type	Stratum	Aquifer Designation
Bedrock	Upper Tunbridge Wells Sand	Secondary A Aquifer

The Tunbridge Wells Sand Formation forms part of the Wealden Group. The formation is of Valanginian age (133.9 to 139.4 million years old; Early Cretaceous). The Tunbridge Wells Sand Formation predominantly comprises repeating sequences of fine to medium grained sandstone, siltstone and silty sand with finely-bedded mudstones and thin limestones. In the western High Weald (between Haywards Heath and Tunbridge Wells) the formation can be divided into three, the informally named Lower and Upper Tunbridge Wells Sand and the intervening Grinstead Clay Member. The succession commences with rhythmically bedded sandstones, siltstones and mudstones of the lower part of the Lower Tunbridge Wells Sand which pass up into the massive sandstones of the Ardingly Sandstone Member. These are overlain by the finely bedded mudstones, mudstones and silty mudstones with subordinate clay ironstones and shelly limestones of the Grinstead Clay Member. This clay member is itself locally divided into upper and lower parts by the cross-bedded fine sandstone of the Cuckfield Stone Bed. Above the Grinstead Clay Member, the Upper Tunbridge Wells Sand comprises a generally more argillaceous rhythmic succession, including mudstones, siltstones and silty sandstones. Outside the western High Weald the Grinstead Clay Member is not recognisable and the succession is mapped as undivided Tunbridge Wells Sand Formation. The formation is recorded by the BGS to range in thickness up to 122m.

2.2.2 *Groundwater Source Protection Zones (SPZ)*

The Environment Agency defines SPZs as those areas where groundwater supplies are at risk from potentially polluting activities and accidental releases of pollutants. SPZs are primarily a policy tool used to control activities close to water supplies intended for human consumption.

The site does not lie within a Source Protection Zone.

3. SITE WORKS

The intrusive site works comprised three machine dug trial pits, denoted TP01 to TP03, excavated to average depths of between 0.56m and 2.08m below ground level. The intrusive work was carried out on the 1st October 2025. The exploratory hole locations are shown on Figure 2.

In situ infiltration testing was undertaken in each of the trial pits in general accordance with the test methodology given by BRE guidance¹.

Descriptions of the strata encountered and comments on groundwater conditions are shown in the exploratory hole records which are appended, together with explanatory notes to assist in their interpretation. The results of the in situ infiltration testing along with the infiltration rate calculations are also included in the appendices to this report.

It is noted that the original scope of works comprised the excavation of one pit to a depth of around 2.00m and a second pit to a depth of around 0.50m below ground level. However, during the infiltration testing the drainage rate of the water was noted to be quicker within the shallow pit than the deeper pit and therefore, to test the shallow soils in the vicinity of the deeper trial pit, a further, shallow trial pit was excavated for in situ testing purposes.

¹ Section 3.2.3 of Building Research Establishment (BRE) Digest 365, 2016.

4. GROUND CONDITIONS

4.1 Stratigraphy

4.1.1 *Surface Covering*

Each of the trial pits were excavated through a surface covering of topsoil, some 320mm to 380mm in thickness.

4.1.2 *Made Ground*

Made ground, generally comprising slightly gravelly clay, was recorded within trial pit TP02 only to its full depth of 0.56m below ground level. The coarse grained fraction comprised a variable quantity of chert and brick, with fragments of plastic and wood.

4.1.3 *Upper Tunbridge Wells Sand*

Underlying the topsoil in TP01 and TP03, the investigation progressed into undisturbed orange brown slightly gravelly sandy clay deposits which continued to the dull depth of each pit.

These deposits are considered to represent the Upper Tunbridge Wells Sand indicated to underlie the site on BGS geological maps.

4.2 Stability

Each of the exploratory holes was recorded to remain stable during the course of excavation.

4.3 Groundwater Conditions

Groundwater was not encountered within the exploratory holes during the short period of the intrusive works.

It should be noted that water levels within the exploratory holes may not have equilibrated with the groundwater table at the time the readings were recorded and that groundwater levels should be expected to fluctuate seasonally.

5. STORMWATER INFILTRATION SYSTEMS

In-situ infiltration testing² was carried out in trial pits TP01 to TP03. From the test results calculations were made to determine the infiltration rate that could be expected for infiltration systems constructed into the underlying soils.

For the first two tests carried out within trial pit TP02 the soil infiltration rate (f) was calculated by dividing the volume of water lost between 75% and 25% of the initial test depth by the sum of the average surface area of the sides of the trial pit in contact with the water during the test monitoring period, and its base area. This figure was then divided by the test duration (time taken for the water level to fall between 75% and 25% of the initial test depth) to give the soil infiltration rate in metres per second.

During the tests performed within trial pits TP01 and TP03, and the third test conducted within trial pit TP02, the water level within the test pits did not fall below 25% of the initial test depths due to either the slow drainage rate of the soils encountered and/or time constraints with the testing being limited to a single day. For these tests calculation of the soil infiltration rate in accordance with the BRE digest was not possible and therefore the soil infiltration rate has been calculated by dividing the volume of water lost during the test by the product of the average surface area of the trial pit in contact with water during the test period and the test duration in seconds.

The infiltration rates derived from the tests are summarised in the following table.

Table 2. Calculated Infiltration Rates

Exploratory Hole	Top of Response Zone (m bgl)	Average Pit depth (m bgl)	Stratum	Infiltration Rate (f) (m/sec)
TP01 - Test 1	0.99	2.08	Upper Tunbridge Wells Sand	*9.29 x 10 ⁻⁷
TP02 - Test 1	0.33	0.56	Made Ground	3.57 x 10 ⁻⁵
TP02 - Test 2	0.33	0.56	Made Ground	2.20 x 10 ⁻⁵
TP02 - Test 3	0.33	0.56	Made Ground	*1.39 x 10 ⁻⁵
TP03 - Test 1	0.39	0.57	Upper Tunbridge Wells Sand	*5.80 x 10 ⁻⁶

Notes: * Could not be calculated in accordance with BRE365 guidance.

The value 'f' is equivalent to the soil infiltration coefficient 'q' quoted in the Construction Industry Research and Information Association (CIRIA) Report 156.

The results from the infiltration tests should be provided to engineers responsible for the design of the drainage system. It is noted that whilst the soil infiltration rates calculated for TP02 appear to be higher, these are likely due to the presence of made ground soils which were not encountered within the other trial pits. The Upper Tunbridge Wells Sand deposits, indicated to be present below the entire site on BGS mapping data, have recorded relatively low soil infiltration rates.

The infiltration testing conducted in the trial pits is intended to provide calculated soil infiltration rates to assist in the preliminary design of infiltration systems at the site. However, it should be noted that Regulators/Local Authorities may require further testing to be undertaken at a later stage in accordance

² Conducted in general accordance with the requirements of BRE 365, Soakaway Design.

with the BRE365 guidance. This guidance states the testing should be carried out at the locations and depths of the proposed soakaways, which will not be known until preliminary drainage design has been undertaken. The guidance also states that “designers should note that the results of tests may be affected by seasonal factors. In the winter and spring, the soil moisture and groundwater level will be higher than in the summer. Testing under a worst-case basis should be undertaken”; often local authorities may insist that soakage testing to support detailed design of the drainage system is undertaken within defined periods of the year which can vary from authority to authority.

Monitoring of groundwater levels during the worst annual case (winter period) is often a requirement of Local Authorities and the BRE365 guidance suggests this should be undertaken prior to finalising design of infiltration systems.

FIGURES & APPENDICES

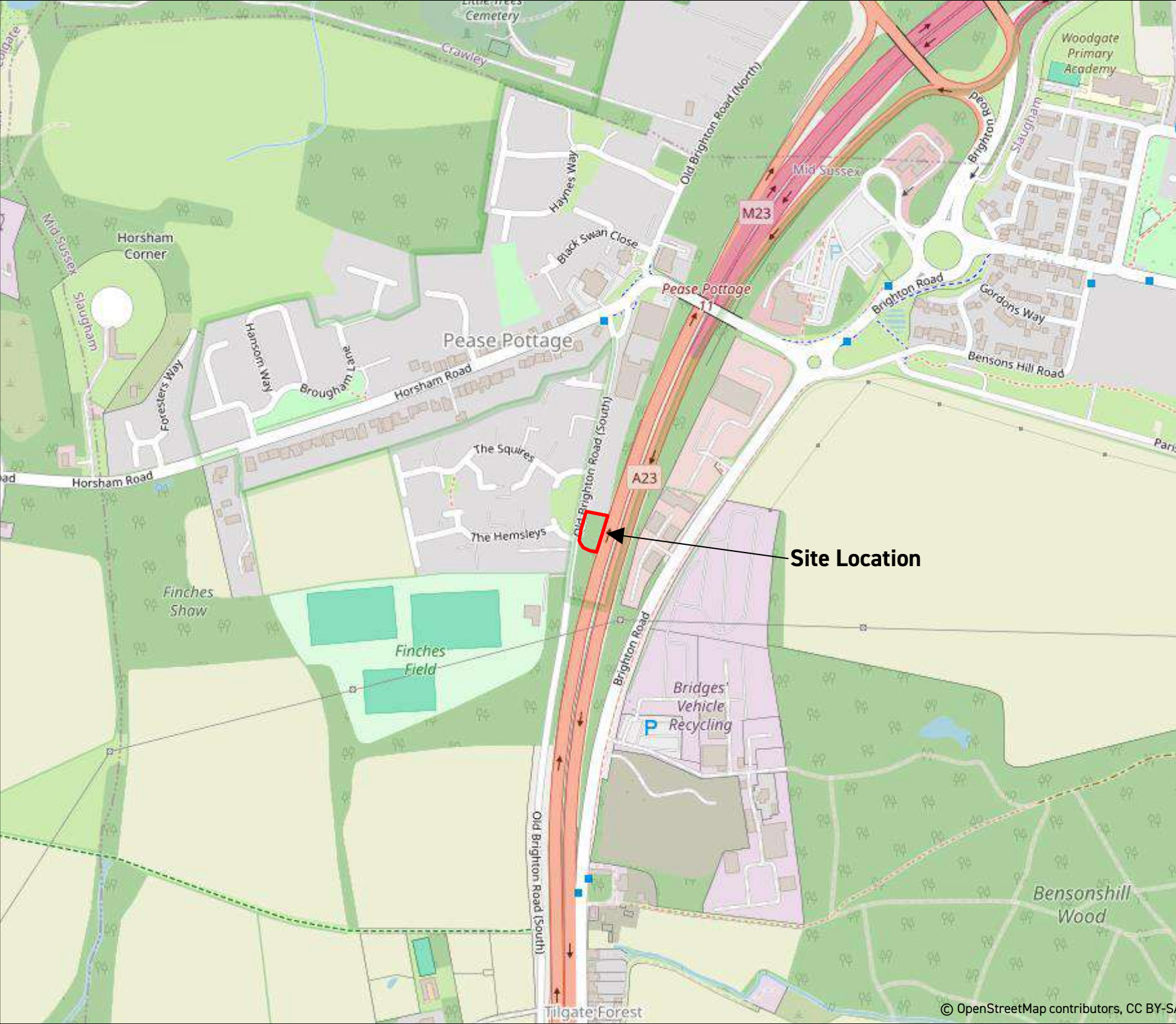
Figure 1 Site Location Plan

Figure 2 Site Plan

Explanatory Notes

Exploratory Hole Records

Trial Pit In Situ Infiltration Test Results



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Site

Old Brighton Road
Pease Pottage
West Sussex

Project Ref

P17419

Figure No

1

Drawing Title

Site Location Plan

Scale

Not To Scale

**Head Office**

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Figure No

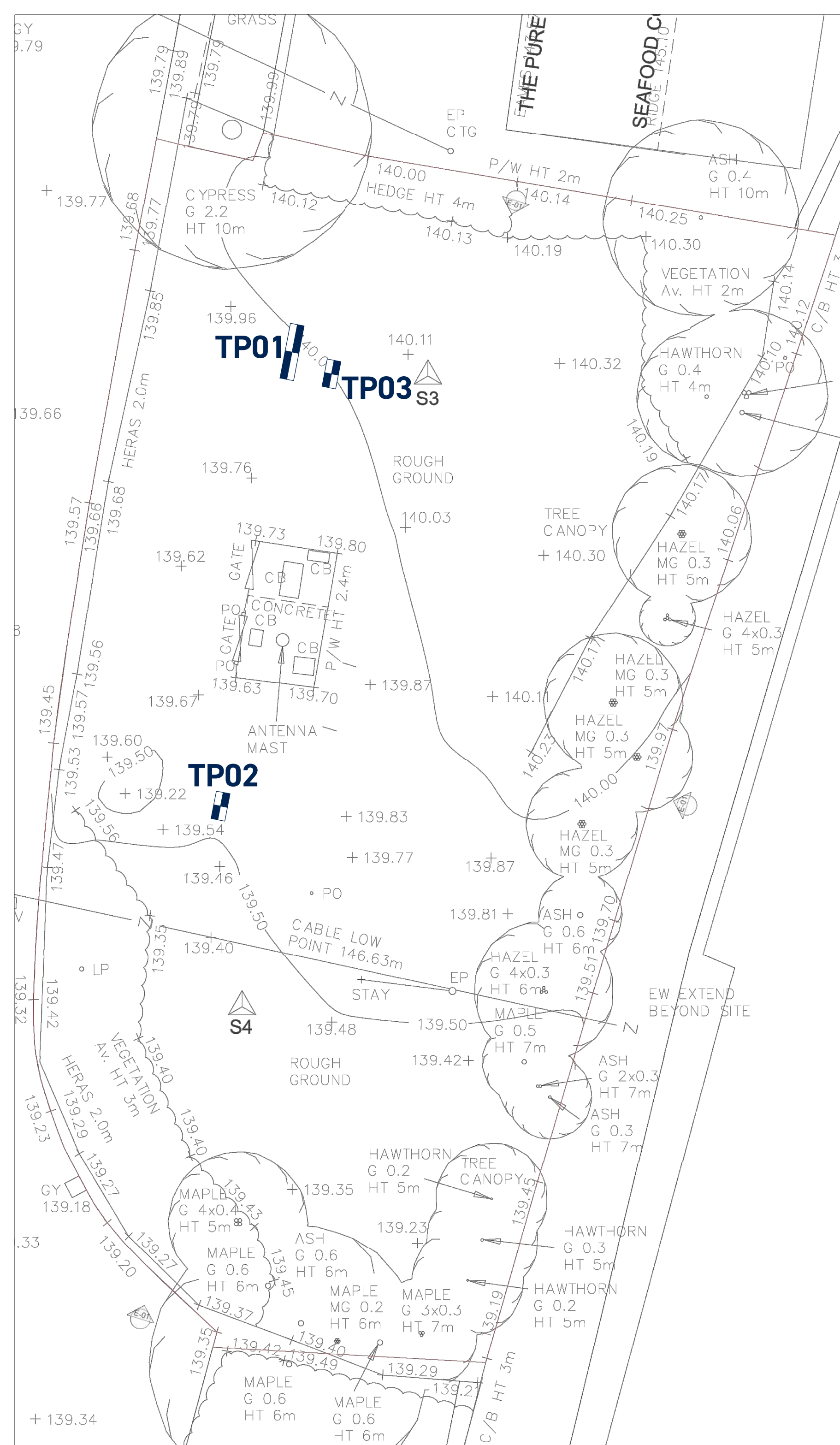
2

Drawing Title

Site Plan

Scale

Not To Scale



EXPLANATORY NOTES

Symbols and abbreviations on Exploratory Hole Records

Samples

U	'Undisturbed' Sample: - 100mm diameter by 450mm long. The number of blows to drive in the sampling tube is shown after the test index letter in the SPT column.
L	Liner sample cut to length indicated.
D	Disturbed Sample
B	Bulk Disturbed Sample
W	Water Sample
ES	Environmental Suite (on older records may be referenced J T)

In Situ Testing

SPT	Standard penetration test (SPT): Using the split spoon sampler.
SPT(C)	Standard Penetration Test (SPT): Using a solid cone instead of the sampler – conducted usually in coarse grained soils or weak rocks.
HV	Shear Vane Test: Undrained shear strength (cohesion).
PP	Hand penetrometer Test: Undrained shear strength (cohesion).
P	Perth Penetrometer Test: Number of blows for 300mm penetration shown under remarks section.

Excavation Method

CP	Cable Percussion Borehole
RC/RO	Rotary Cored Borehole/Rotary Open Hole Borehole
WLS	Dynamic Sampler Borehole using windowless sampler tubes
WS	Dynamic Sampler Borehole using window sampler tubes
TP	Trial Pit excavated using mechanic excavator
HP	Trial Pit excavated using hand tools
HA	Hand Auger borehole

Soil Description

Description and classification of soils has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of soil, Part 1 Identification and description (BS EN ISO 14688-1) and Part 2 Principles of classification (BS EN 14688-2) as well as the BS5930 code of Practice for Ground Investigations.

Rock Description

Description and classification of rocks has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of rock, Part 1 Identification and classification (BS EN ISO 14689-1) as well as the BS5930 code of Practice for Ground Investigations. TCR – Total Core Recovery, SCR – Solid Core Recovery, RQD – Rock Quality Designation, NI – Non Intact, If – indicative fracture spacing (min/ave/max), FI – Fracture Index.

Chalk Description

Chalk description is based on BS EN ISO 14688, BS EN ISO 14689 and BS5930. The classification of chalk generally follows the guidance offered by the Construction Industry Research and Information Association (CIRIA) C574, 'Engineering in Chalk'. This is based on assessment of chalk density, discontinuity and aperture spacing, and the proportion of intact chalk to silt of chalk.

In Situ Strength Testing (where undertaken)

Standard penetration testing (SPT) carried out in accordance with BS EN ISO 22476-3:2005.

Continuous dynamic probe testing conducted using a super heavy DPSH-B (As defined by BS EN ISO 22476-2:2005) probing geometry. The DPSH-B configuration is similar to that of the standard penetration test (SPT); the main differences being that the tip comprises a 90° cone, the driving rods are lighter than those used for SPT testing and the blow counts are recorded over 100mm increments rather than 300mm, as is the case for the SPT.

Perth penetrometer tests carried out in accordance with Australian Standard AS 1289:6.3.3-1997, Method of Testing Soils for Engineering Purposes; no equivalent European or British Standard having been published to date.

Undrained shear strength determinations made in-situ using a Geonor hand shear vane or a hand penetrometer.

Testing to determine the in-situ California Bearing Ratio (CBR) of soils conducted at shallow depths using a hand-held Transport Research Laboratory (TRL) cone penetrometer.



Trial Pit

TP01
Sheet 1 of 1

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name Old Brighton Road, Pease Pottage, West Sussex	Project No. P17419	Start Date 2025-10-01	End Date 2025-10-01	

Client	Consultant	Contractor
--------	------------	------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.50	D			0.32		Topsoil with many roots and rootlets.	
		1.20	D			1.76		Orange brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium sandstone and rare fine chert. [Upper Tunbridge Wells Sand]	0.5 1.0 1.5
		2.00	D			2.08			2.0 2.5 3.0 3.5 4.0 4.5 5.0
								End of Trial Pit at 2.08m	

Remarks Trial pit dry on completion.	Method, Plant, Stability, Dimensions 0.00 - 2.08m TP Trial pit stable on completion. L = 1.93m W = 0.45m	Logger JW
---	---	--------------



Trial Pit

TP02
Sheet 1 of 1

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name Old Brighton Road, Pease Pottage, West Sussex	Project No. P17419	Start Date 2025-10-01	End Date 2025-10-01	

Client	Consultant	Contractor
--------	------------	------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.40	D			(0.32)		Topsoil.	
						0.32 (0.24)		MADE GROUND: Light brown mottled orange brown slightly gravelly clay. Gravel is subangular to subrounded fine to medium chert and brick with fragments of plastic and wood.	0.5
						0.56		End of Trial Pit at 0.56m	
									1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks Trial pit dry on completion.	Method, Plant, Stability, Dimensions 0.00 - 0.56m TP Trial pit stable on completion. L = 1.01m W = 0.47m	Logger JW
---	--	--------------



Trial Pit

TP03
Sheet 1 of 1

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name Old Brighton Road, Pease Pottage, West Sussex	Project No. P17419	Start Date 2025-10-01	End Date 2025-10-01	

Client	Consultant	Contractor
--------	------------	------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
						(0.38)		Topsoil with many roots and rootlets.	
						0.38 (0.19) 0.57	 	Orange brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium sandstone and rare fine chert. [Upper Tunbridge Wells Sand]	0.5
								End of Trial Pit at 0.57m	
									1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks Trial pit dry on completion.	Method, Plant, Stability, Dimensions 0.00 - 0.57m TP Trial pit stable on completion. L = 1.06m W = 0.53m	Logger JW
---	---	--------------

Site: Old Brighton Road, Pease Pottage, West Sussex

Project Ref: P17419

Test Location Reference	TP01
Test Number	1

Width of Pit	0.45 m	W
Length of Pit	1.93 m	L
Depth of Pit	2.08 m	D
Pit type	Open	

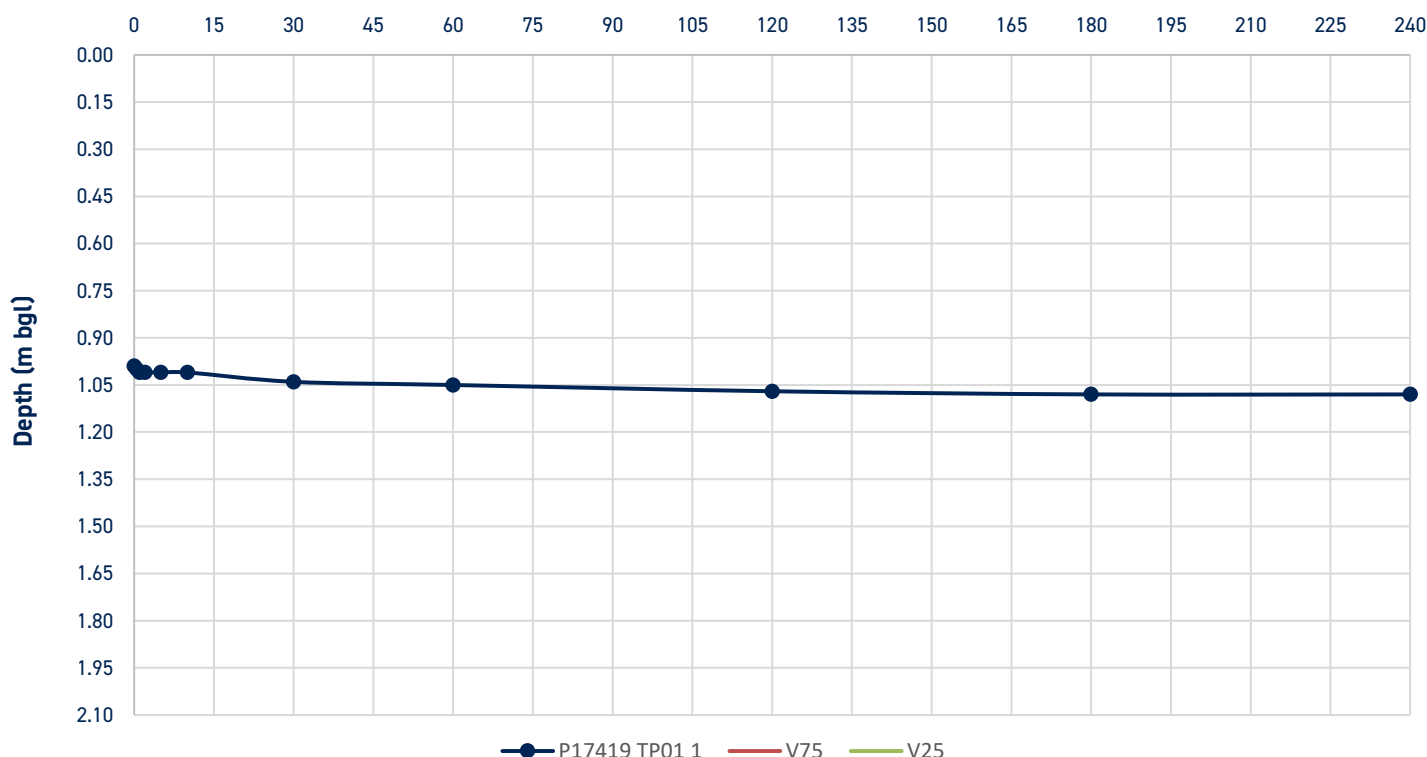
Volume of water introduced into pit	0.947 m ³	
Initial head of water	1.09 m	h_o
Water level at start of test	0.99 m	
Water level at end of test	1.08 m	
Volume of water discharged from pit	0.078 m ³	
Duration of test	240 min	
Average soaked surface area	5.84 m ²	
Time for water level to fall to 75% of initial head	Not reached min	t_{p75}
Time for water level to fall to 25% of initial head	Not reached min	t_{p25}
Depth to water at 75% of initial head	Not reached m	d_{75}
Depth to water at 25% of initial head	Not reached m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	Not reached min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	Not reached m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	3.46 m ²	a_{s50}

Infiltration rate

9.29E-07 m/sec f

Calculation method: The water level did not fall below 25% of the effective storage depth. 'f' has been calculated by dividing the volume of water lost during the test by the product of the average surface area in contact with water during the test and the test duration.

Elapsed Time (min)



Site: Old Brighton Road, Pease Pottage, West Sussex

Project Ref: P17419

Test Location Reference	TP02
Test Number	1

Width of Pit	0.47 m	W
Length of Pit	1.01 m	L
Depth of Pit	0.56 m	D
Pit type	Open	

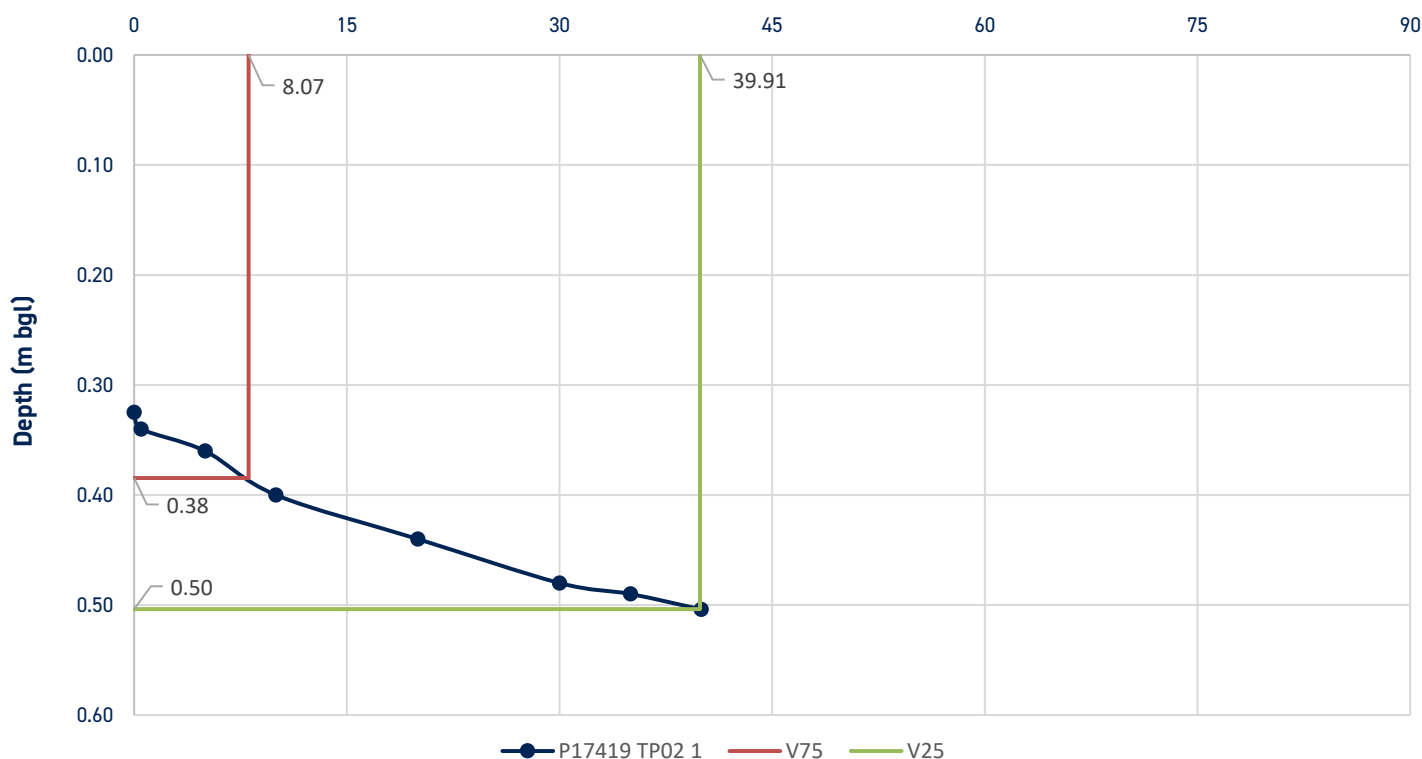
Volume of water introduced into pit	0.112 m ³	
Initial head of water	0.24 m	h_o
Water level at start of test	0.33 m	
Water level at end of test	0.50 m	
Volume of water discharged from pit	0.084 m ³	
Duration of test	40 min	
Average soaked surface area	0.91 m ²	
Time for water level to fall to 75% of initial head	8.07 min	t_{p75}
Time for water level to fall to 25% of initial head	39.91 min	t_{p25}
Depth to water at 75% of initial head	0.38 m	d_{75}
Depth to water at 25% of initial head	0.50 m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	31.84 min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	0.056 m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	0.82 m ²	a_{s50}

Infiltration rate

3.57E-05 m/sec f

Calculation method: BRE 365

Elapsed Time (min)



Site: Old Brighton Road, Pease Pottage, West Sussex

Project Ref: P17419

Test Location Reference	TP02
Test Number	2

Width of Pit	0.47 m	W
Length of Pit	1.01 m	L
Depth of Pit	0.56 m	D
Pit type	Open	

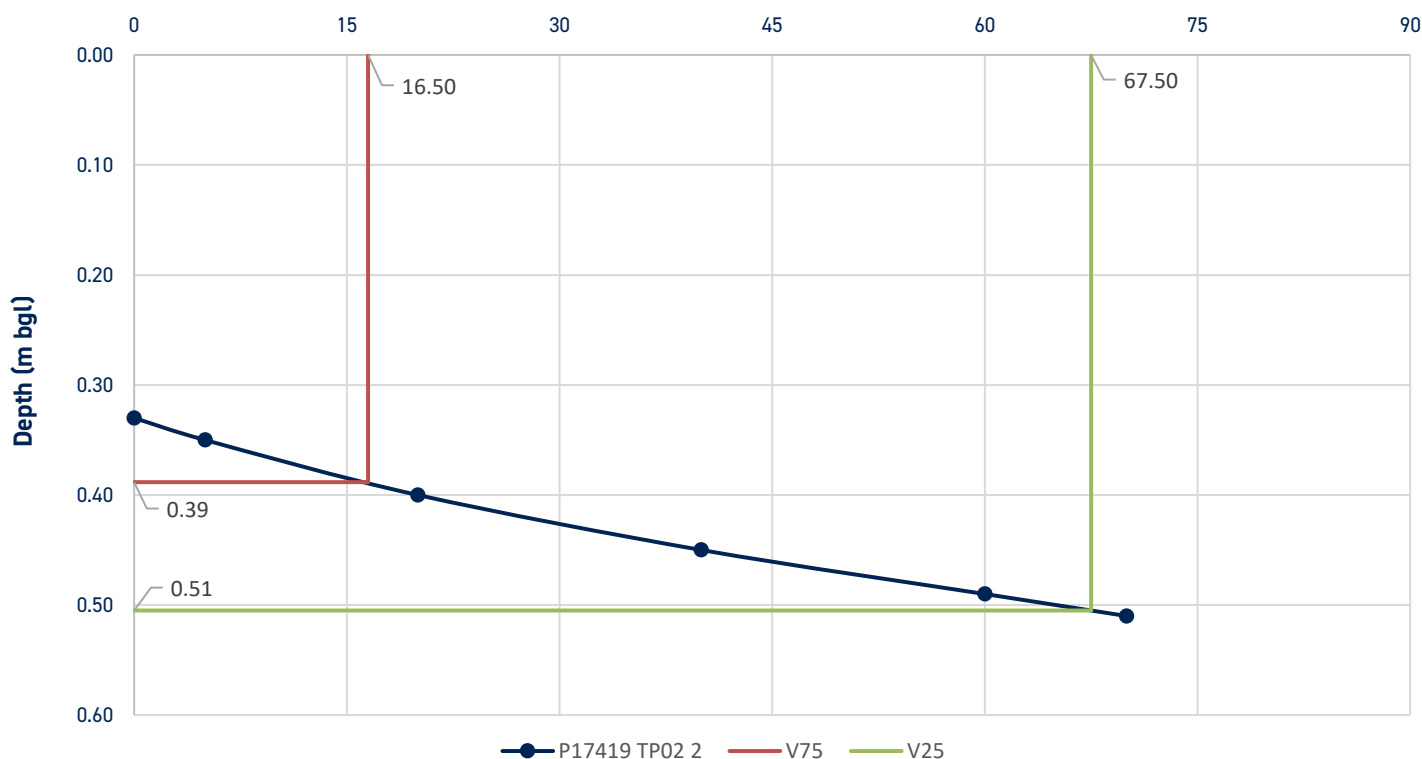
Volume of water introduced into pit	0.110 m ³	
Initial head of water	0.23 m	h_o
Water level at start of test	0.33 m	
Water level at end of test	0.51 m	
Volume of water discharged from pit	0.085 m ³	
Duration of test	70 min	
Average soaked surface area	0.89 m ²	
Time for water level to fall to 75% of initial head	16.50 min	t_{p75}
Time for water level to fall to 25% of initial head	67.50 min	t_{p25}
Depth to water at 75% of initial head	0.39 m	d_{75}
Depth to water at 25% of initial head	0.51 m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	51.00 min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	0.055 m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	0.81 m ²	a_{s50}

Infiltration rate

2.20E-05 m/sec f

Calculation method: BRE 365

Elapsed Time (min)



Site: Old Brighton Road, Pease Pottage, West Sussex

Project Ref: P17419

Test Location Reference	TP02
Test Number	3

Width of Pit	0.47 m	W
Length of Pit	1.01 m	L
Depth of Pit	0.56 m	D
Pit type	Open	

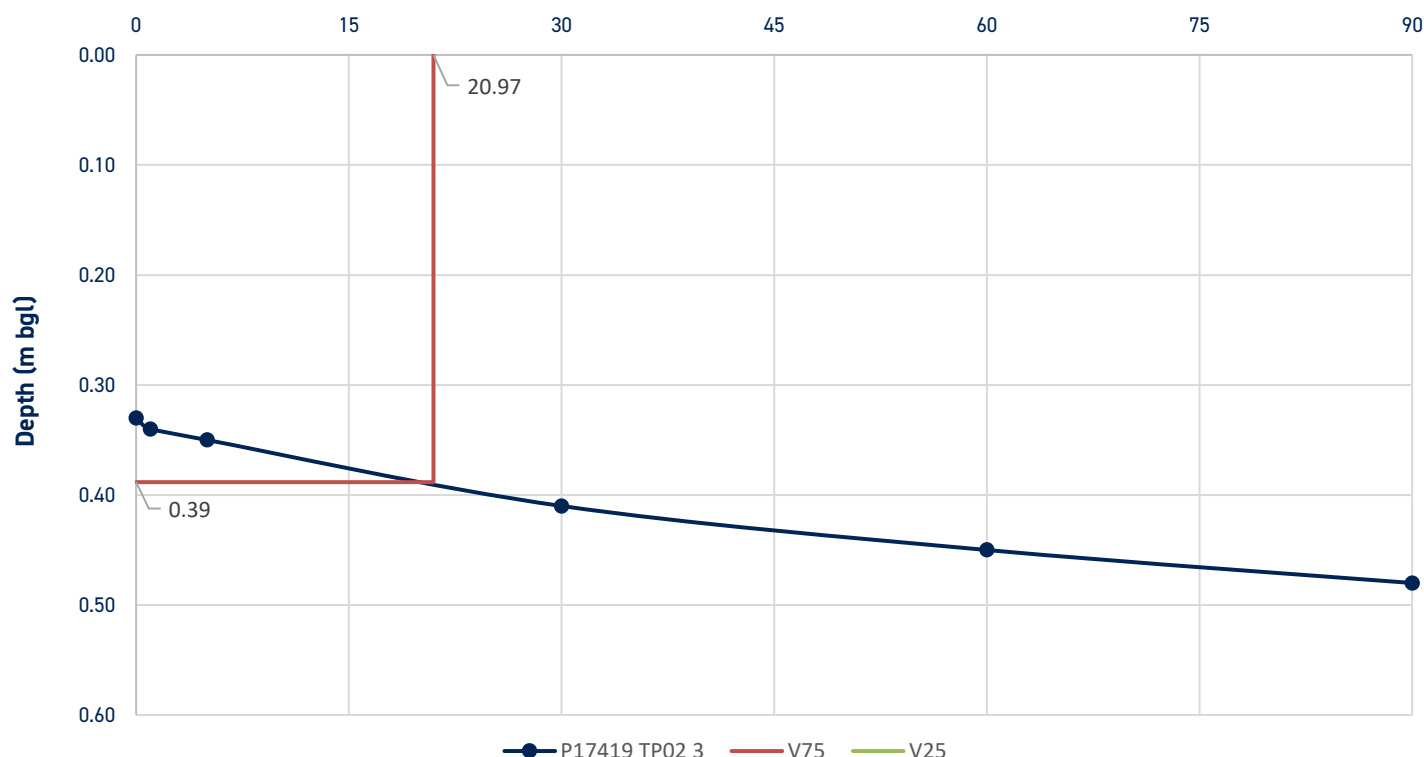
Volume of water introduced into pit	0.110 m ³	
Initial head of water	0.23 m	h_o
Water level at start of test	0.33 m	
Water level at end of test	0.48 m	
Volume of water discharged from pit	0.070 m ³	
Duration of test	90 min	
Average soaked surface area	0.94 m ²	
Time for water level to fall to 75% of initial head	20.97 min	t_{p75}
Time for water level to fall to 25% of initial head	Not reached min	t_{p25}
Depth to water at 75% of initial head	0.39 m	d_{75}
Depth to water at 25% of initial head	Not reached m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	Not reached min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	Not reached m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	0.81 m ²	a_{s50}

Infiltration rate

1.39E-05 m/sec f

Calculation method: The water level did not fall below 25% of the effective storage depth. 'f' has been calculated by dividing the volume of water lost during the test by the product of the average surface area in contact with water during the test and the test duration.

Elapsed Time (min)



Site: Old Brighton Road, Pease Pottage, West Sussex

Project Ref: P17419

Test Location Reference	TP03
Test Number	1

Width of Pit	0.53 m	W
Length of Pit	1.06 m	L
Depth of Pit	0.57 m	D
Pit type	Open	

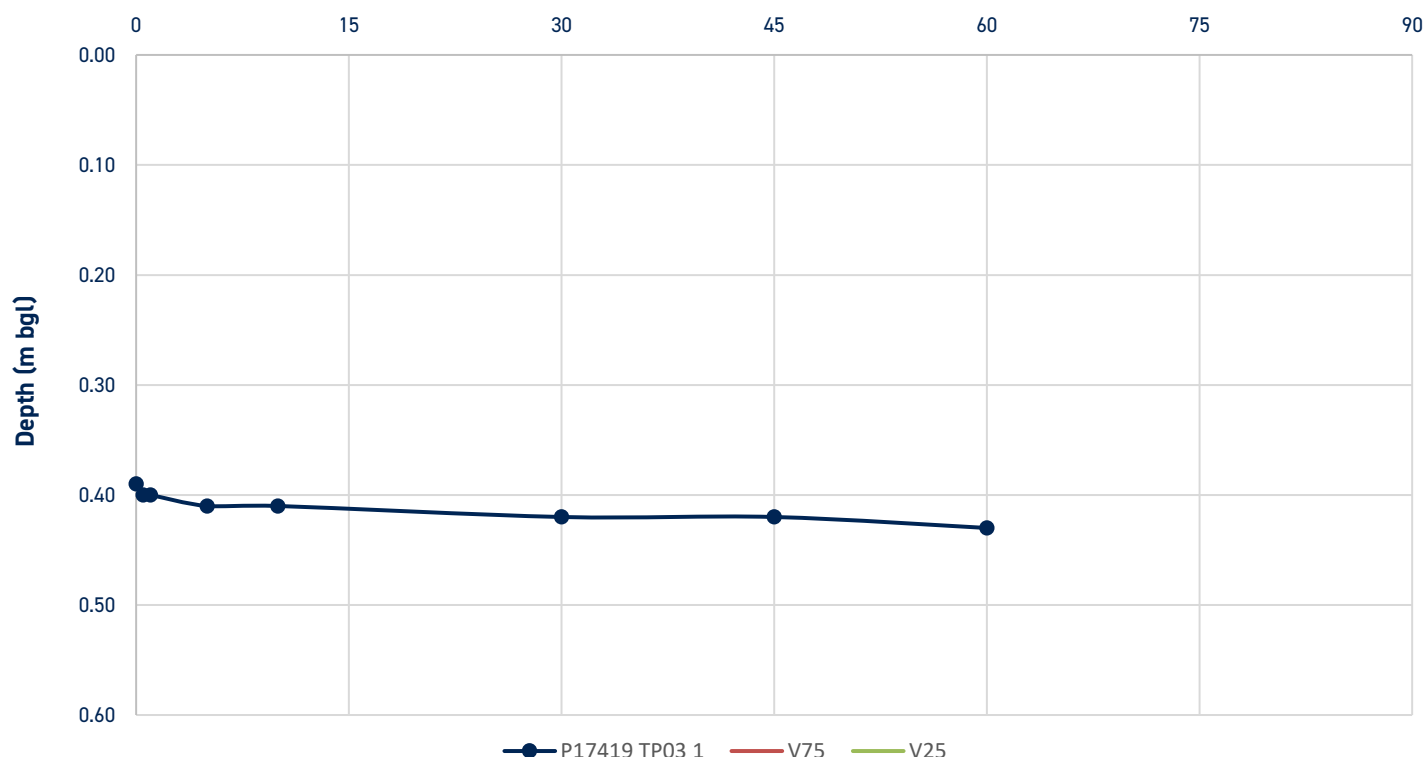
Volume of water introduced into pit	0.102 m ³	
Initial head of water	0.18 m	h_o
Water level at start of test	0.39 m	
Water level at end of test	0.43 m	
Volume of water discharged from pit	0.022 m ³	
Duration of test	60 min	
Average soaked surface area	1.08 m ²	
Time for water level to fall to 75% of initial head	Not reached min	t_{p75}
Time for water level to fall to 25% of initial head	Not reached min	t_{p25}
Depth to water at 75% of initial head	Not reached m	d_{75}
Depth to water at 25% of initial head	Not reached m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	Not reached min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	Not reached m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	0.85 m ²	a_{s50}

Infiltration rate

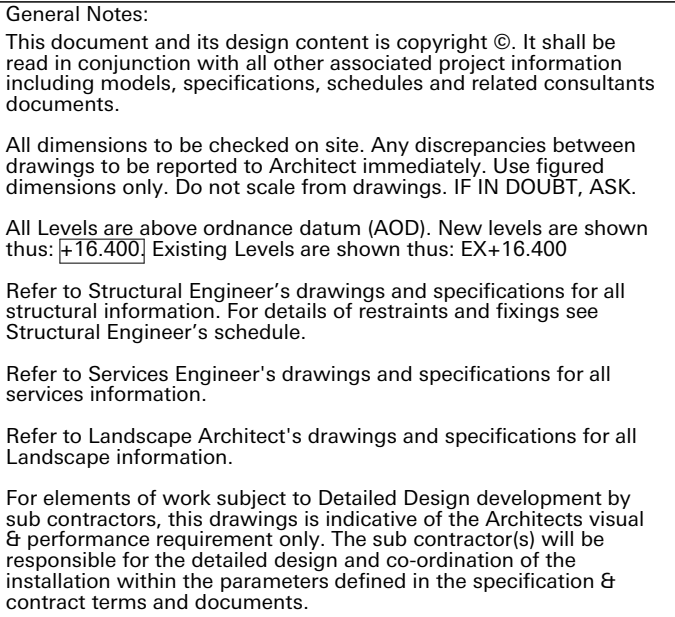
5.80E-06 m/sec f

Calculation method: The water level did not fall below 25% of the effective storage depth. 'f' has been calculated by dividing the volume of water lost during the test by the product of the average surface area in contact with water during the test and the test duration.

Elapsed Time (min)



Appendix C – Architectural Site Layout



General Notes:

This document and its design content is copyright ©. It shall be read in conjunction with all other associated project information including models, specifications, schedules and relevant consultants documents.

All dimensions to be checked on site. Any discrepancies between drawings to be reported to Architect immediately. Use figured dimensions only. Do not scale from drawings. IF IN DOUBT, ASK.

All Levels are above Ordnance datum (AOD). New levels are shown thus: [16.400] Existing Levels are shown thus: Ex+16.400

Refer to Structural Engineer's drawings and specifications for all structural information. For details of restraints and fixings see Structural Engineer's drawings and schedule.

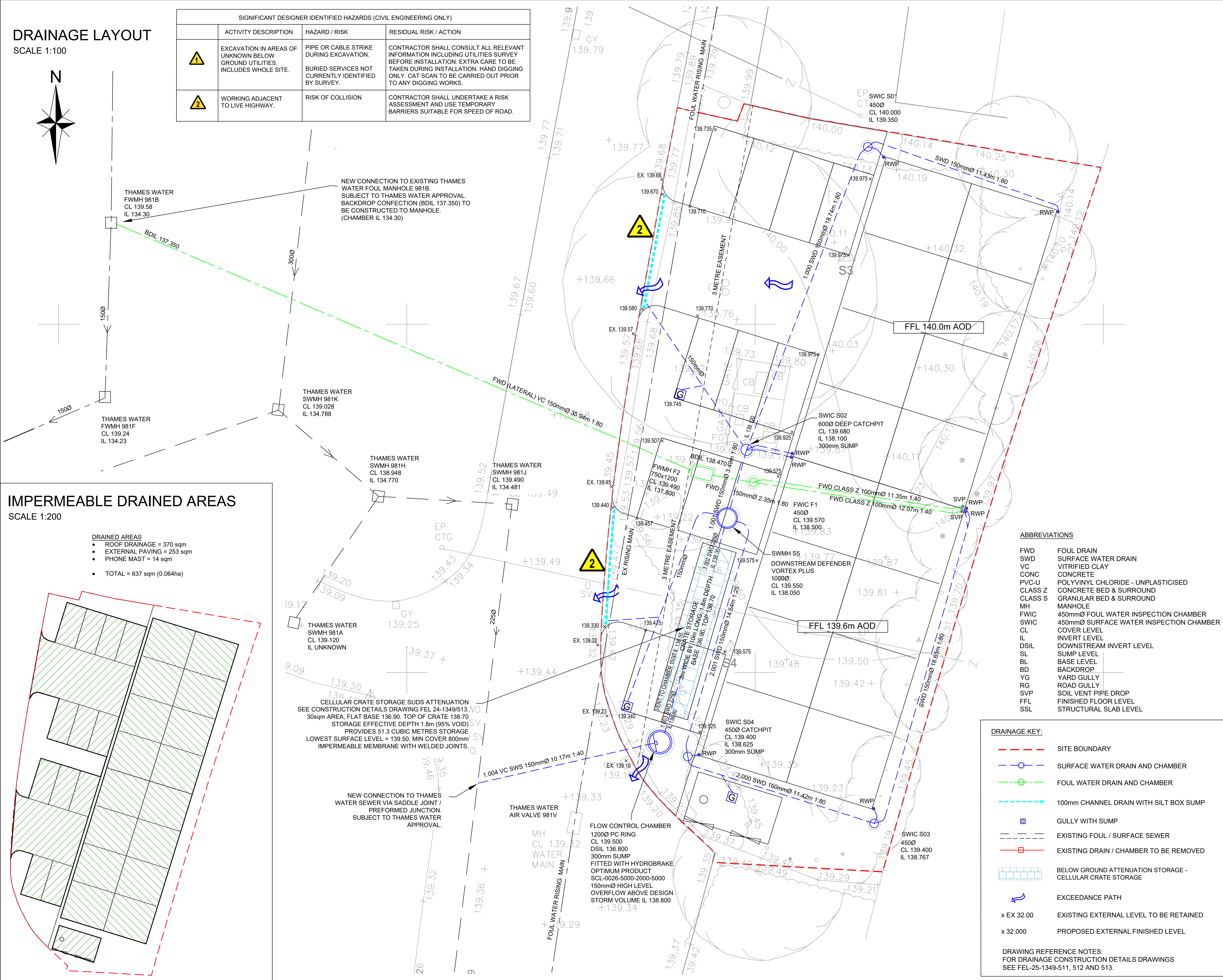
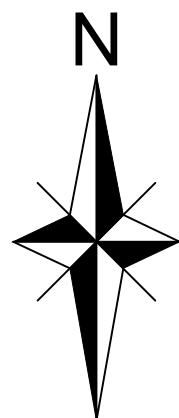
Refer to Services Engineer's drawings and specifications for all services information.

Refer to Landscape Architect's drawings and specifications for all Landscape information.

For elements of work subject to Detailed Design development by sub contractors, this drawings is indicative of the Architects visual interpretation of the design. The sub contractor is responsible for the detailed design and co-ordination of the installation of the elements defined in the specification & contract terms and documents.

Appendix D – Drainage Design Drawings

SCALE 1:100



DO NOT SCALE FROM THIS DRAWING		A1
Based on:		
Architects Draw:	NCA SITE LAYOUT PLAN PP_01_1101	Rev P1
Structural Draw:		Rev -
Survey Draw:	TBC	Rev -
Notes		
1. ALL DIMENSIONS TO BE CHECKED ON SITE.		
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL AND ENGINEERING SERVICES DRAWINGS, SPECIFICATIONS, SCHEDULES AND PROJECT SPECIFIC DOCUMENTS.		
3. THE LOCATION, SIZE, DEPTH AND IDENTIFICATION OF EXISTING SERVICES THAT MAY BE SHOWN OR REFERRED TO ON THIS DRAWING HAVE BEEN ASSESSED FROM NON INTRUSIVE OBSERVATIONS, RECORD DRAWINGS, THE CONTRACTOR SHALL SAFELY CARRY OUT INTRUSIVE INVESTIGATIONS, TRIAL HOLES OR SOUNDINGS PRIOR TO COMMENCING WORK TO SATISFY HIMSELF THAT IT IS SAFE TO PROCEED AND THAT THE ASSESSMENTS ARE ACCURATE. ANY DISCREPANCIES SHALL BE NOTIFIED TO THE ENGINEER PRIOR TO WORKS COMMENCING.		
4. ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.		
5. DO NOT SCALE FROM THIS DRAWING.		
<u>DRAINAGE WORKMANSHIP AND TESTING NOTES:</u>		
ALL DRAINAGE WORKS SHALL BE INSTALLED IN ACCORDANCE WITH BS8000 WORKMANSHIP ON BUILDING SITES PART 14; CODE OF PRACTICE FOR BELOW GROUND DRAINAGE TOGETHER WITH BS EN 295 & BS EN752. DRAINAGE REGULATIONS DOC. H AND ANY PARTICULAR REQUIREMENTS OF THE BUILDING CONTROL OFFICER.		
WATER TIGHTNESS - AFTER LAYING INCLUDING ANY HAUNCHING OR SURROUND AND BACKFILL, ALL GRAVITY DRAINS AND PRIVATE SEWERS ARE TO BE TESTED EITHER USING AIR PRESSURE TEST OR WATER TEST FOLLOWING THE METHOD PROVIDED IN APPROVED DOCUMENT H PARA 2.60 AND 2.61 OR TO THE BUILDING INSPECTOR'S APPROVAL.		

P1	29/10/2025	ISSUED FOR DISCHARGE OF CONDITION	AMF	AMF	AMF
Issue	Date	Description	By	Chkd	Verfd
Client					
SHELLWIN REAL ESTATE					
Architect					
NAPIER CLARKE ARCHITECTS					
Project					
OLD BRIGHTON ROAD PEASE POTTAGE					

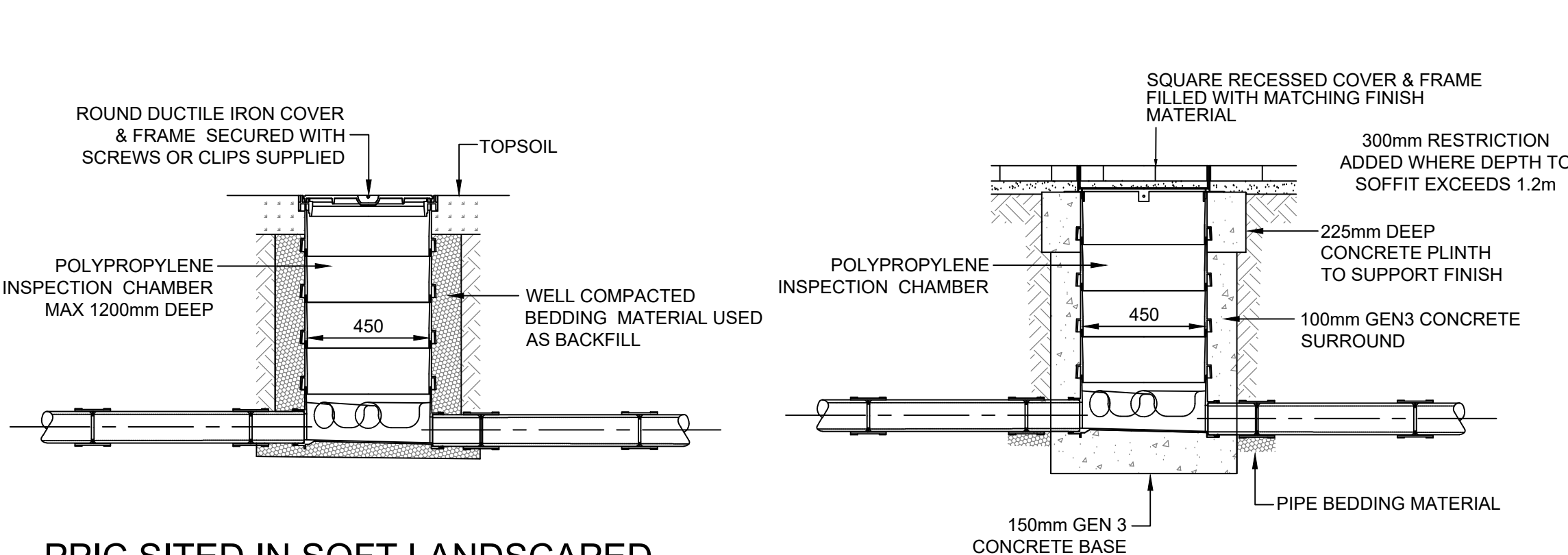
**FRENCH
ENGINEERING**

Consulting Civil Engineers

Alexandra House
Station Road
Henfield
West Sussex
BN9 9UP

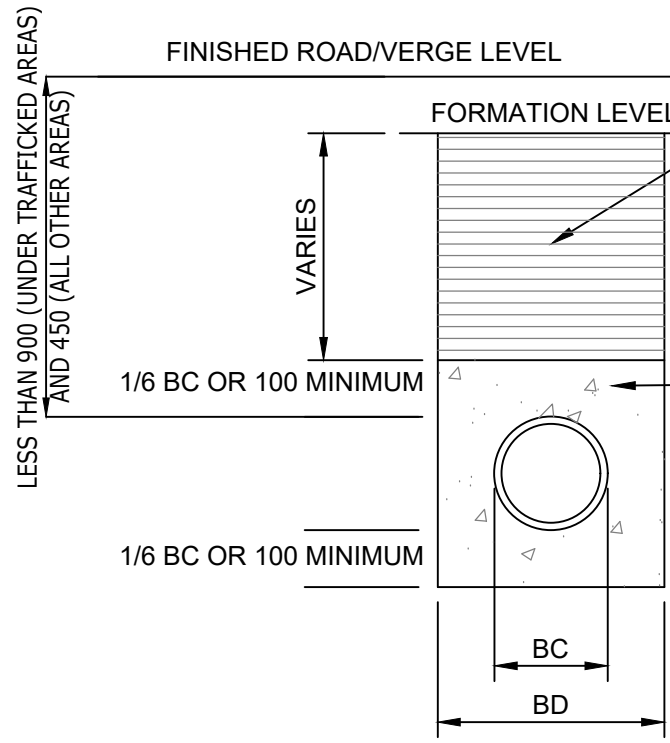
Tel: 01273 448488
Web: www.frenchengineering.co.uk
Email: enquiries@frenchengineering.co.uk

Title EXTERNAL DRAINAGE LAYOUT PLAN				
Drawing No. FEL-25-1349-111		Drawing Status STAGE 3+		
Job No. 25-1349		Scale 1:100		
Originator AMF	Checked AMF	Verified AMF	Issue. P1	

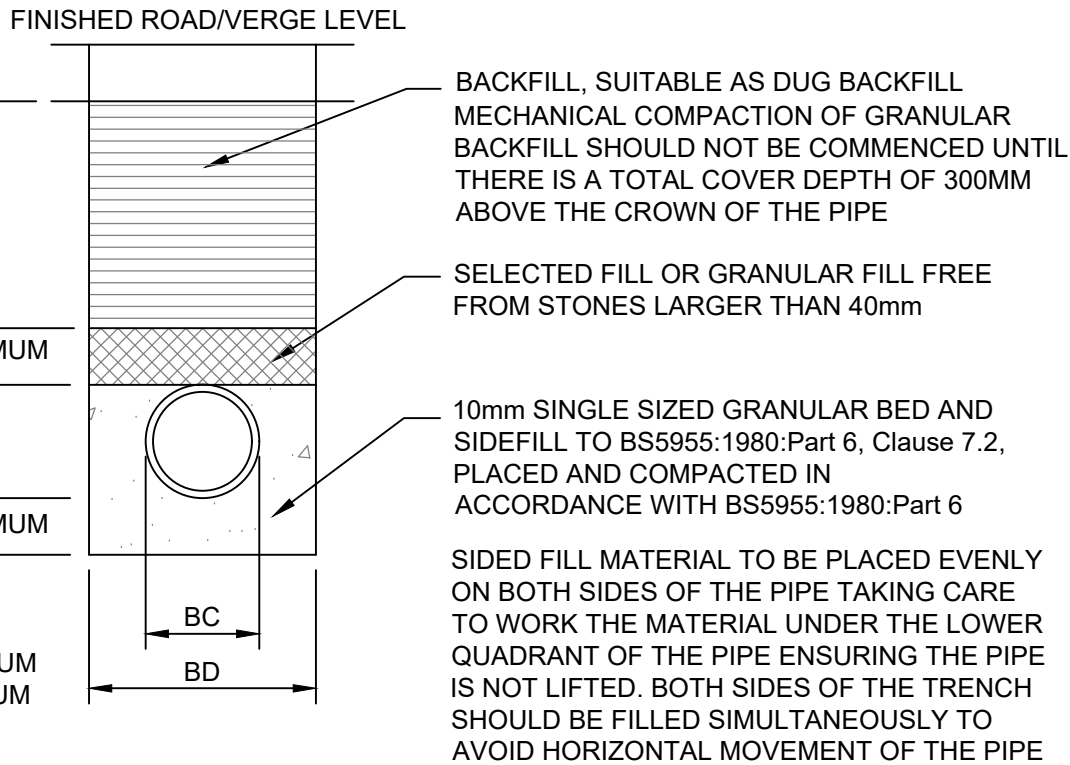
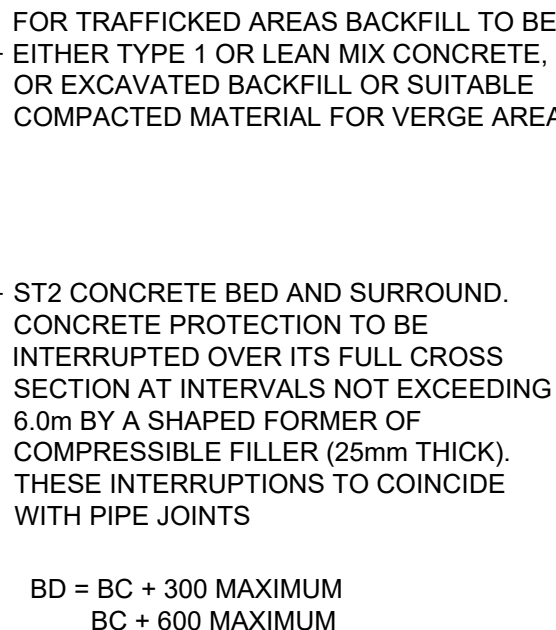


PPIC SITED IN SOFT LANDSCAPED AREAS WITH STANDARD ROUND COVER
SCALE 1:20

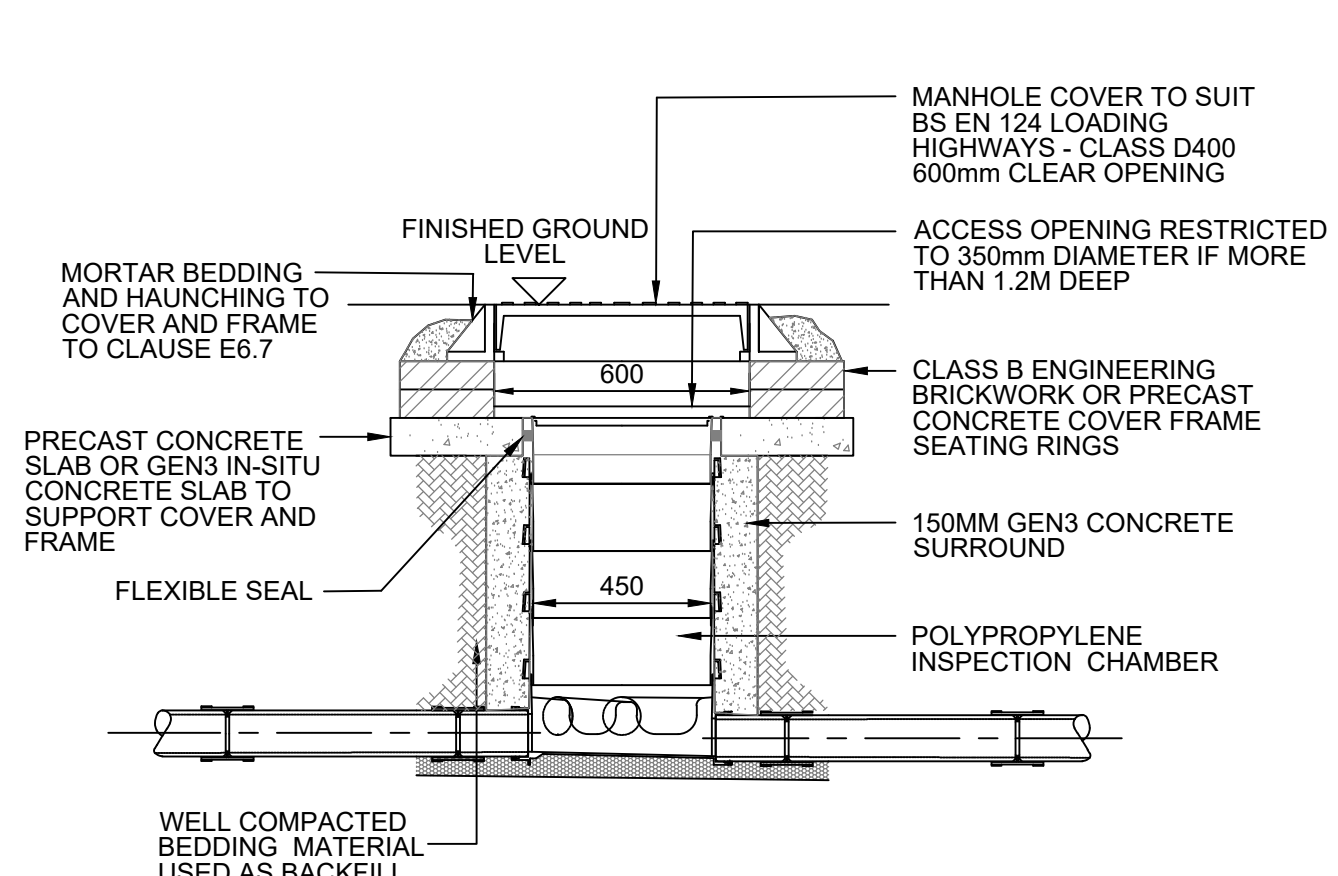
PPIC SITED IN HARD LANDSCAPED AREAS WITH RECESSED COVER
SCALE 1:20



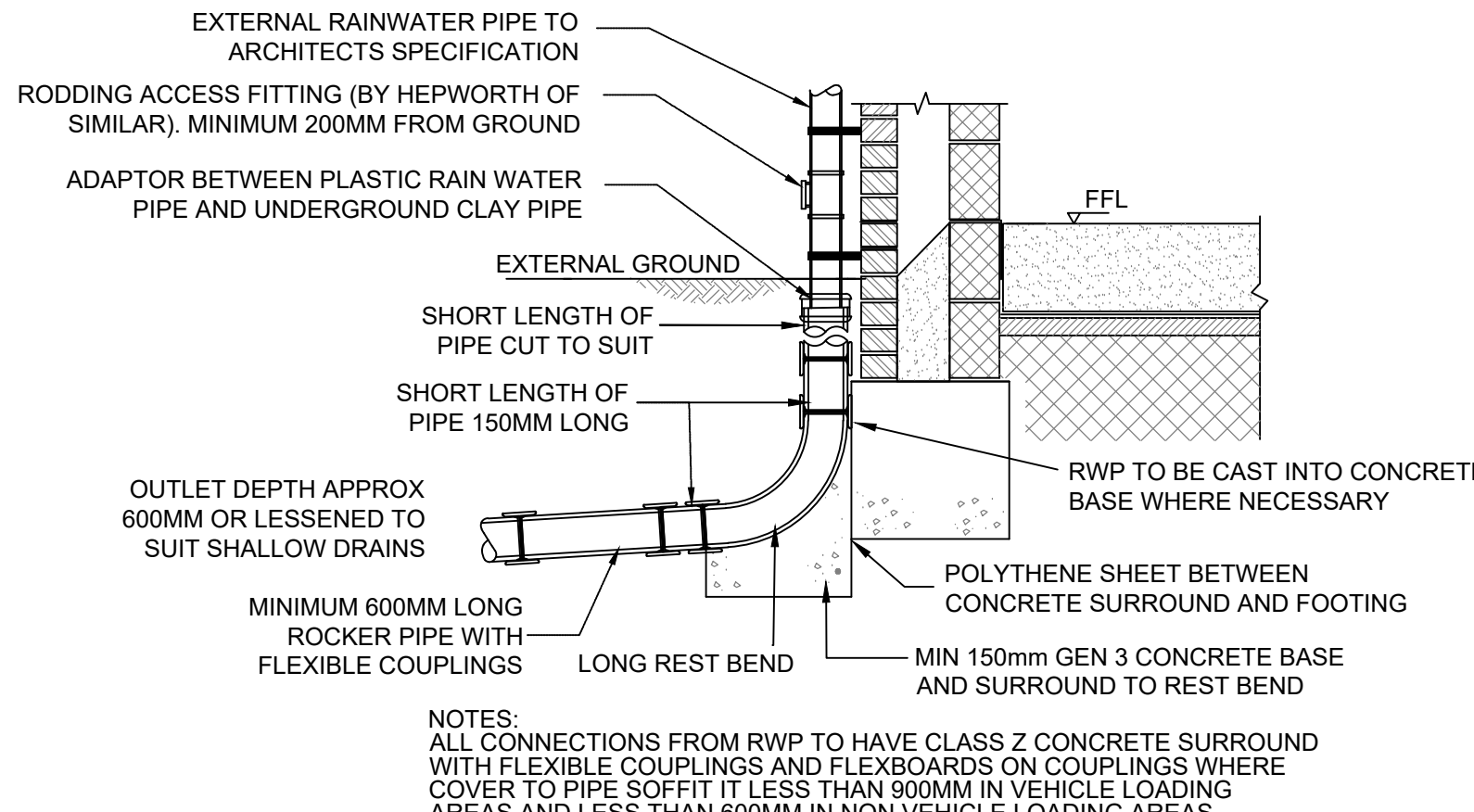
SHALLOW TRENCH DETAIL (CLASS Z)
SCALE 1:20



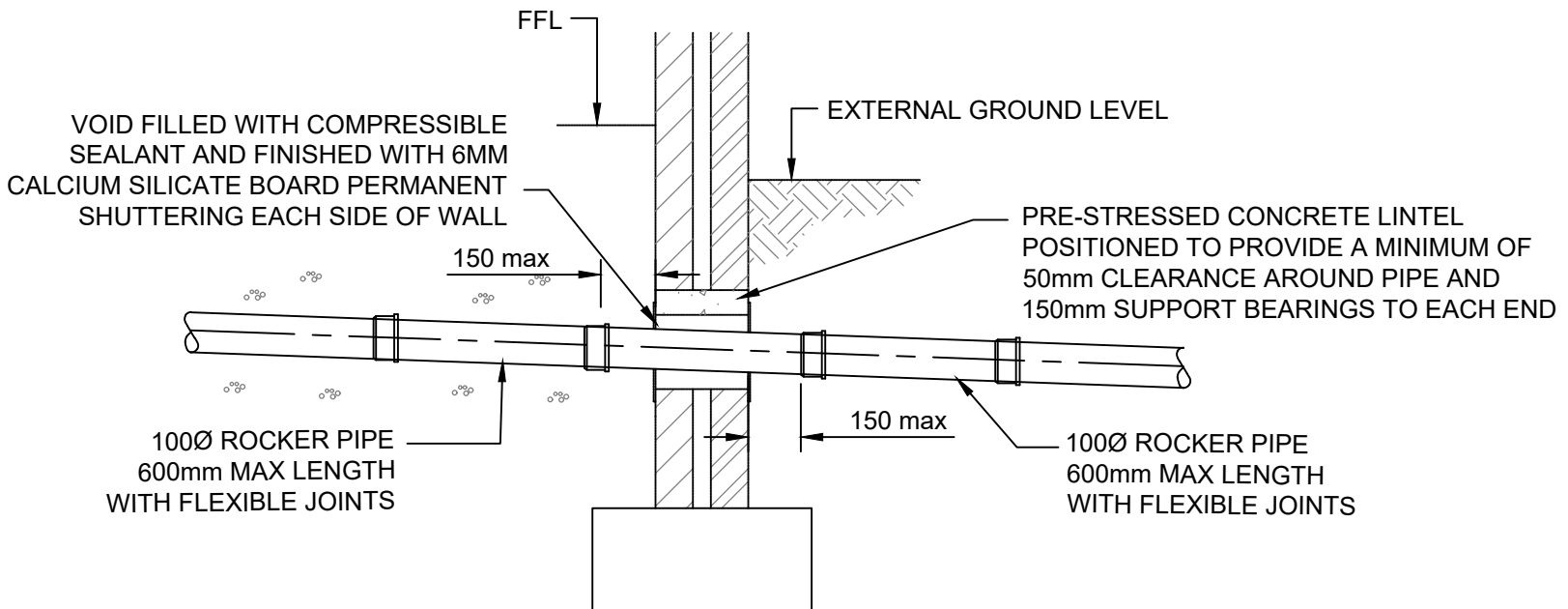
TYPICAL TRENCH DETAIL (CLASS S)
SCALE 1:20



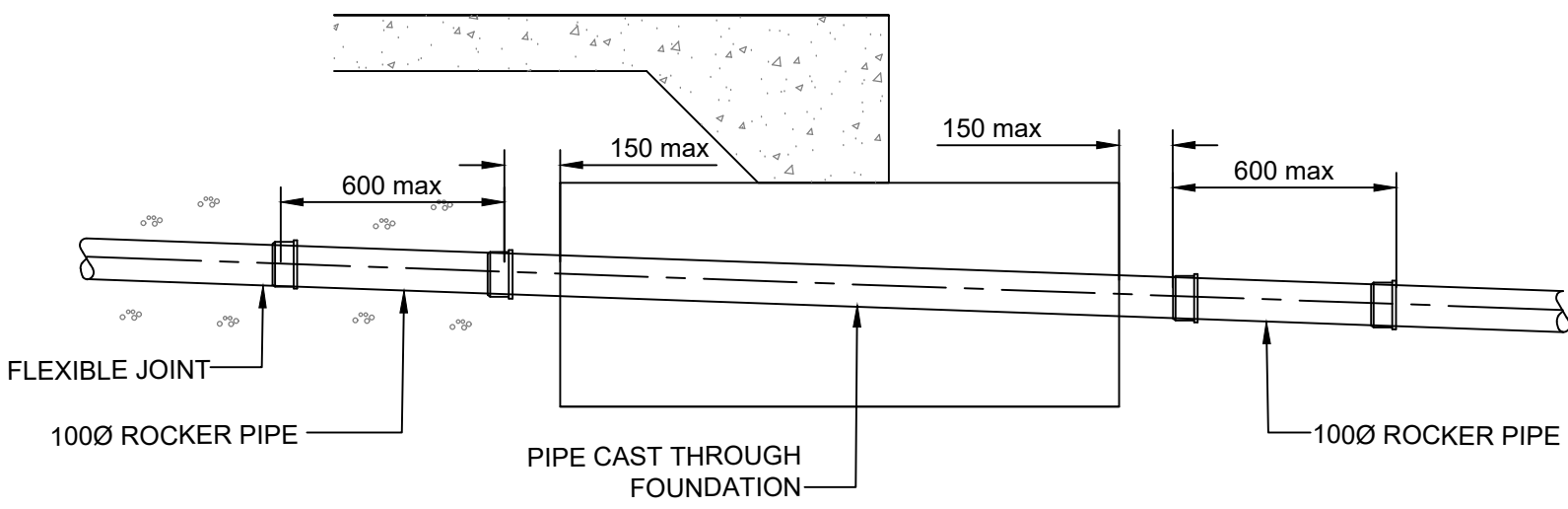
PPIC SITED IN TARMAC AREAS WITH HEAVY DUTY COVER
SCALE 1:20



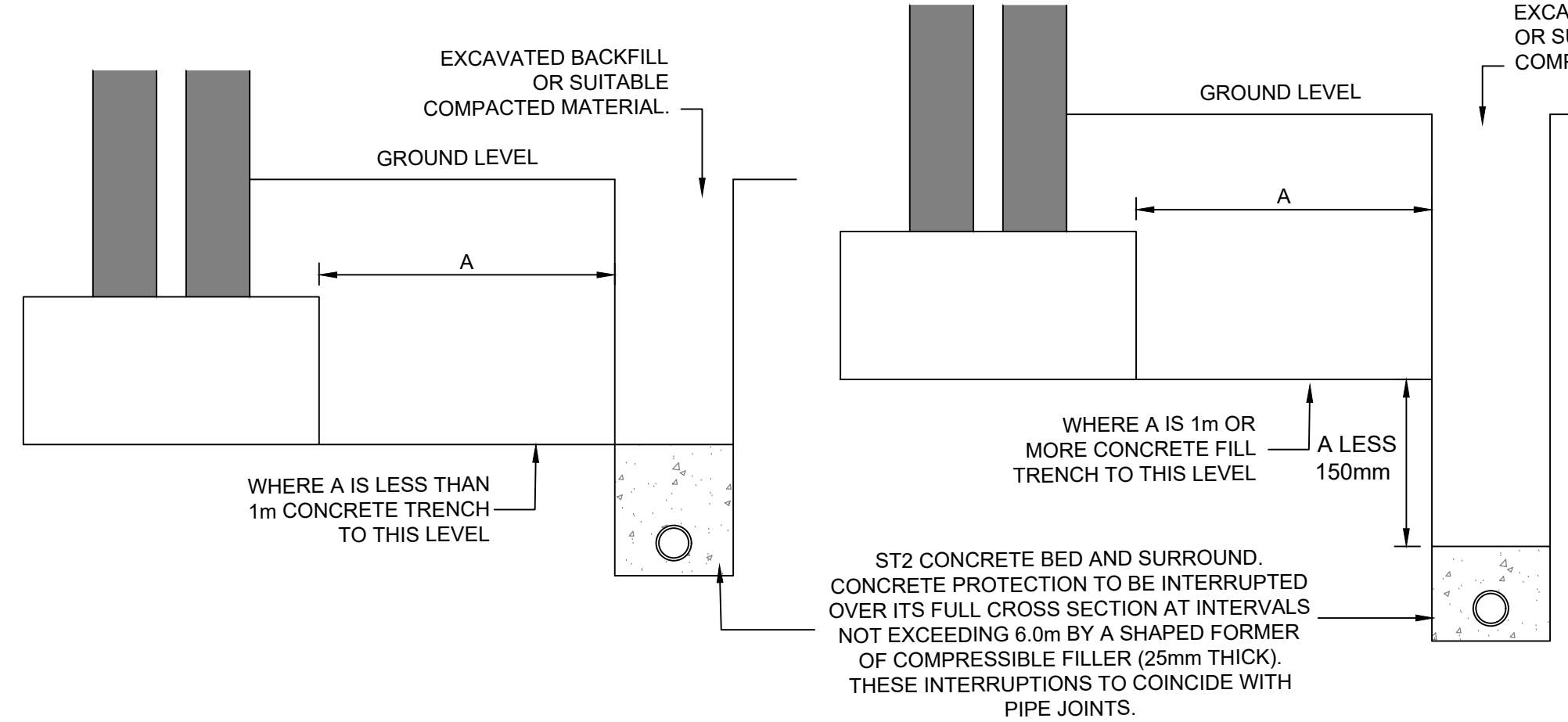
TYPICAL RODDABLE EXTERNAL RAIN WATER PIPE DETAIL
SCALE 1:20



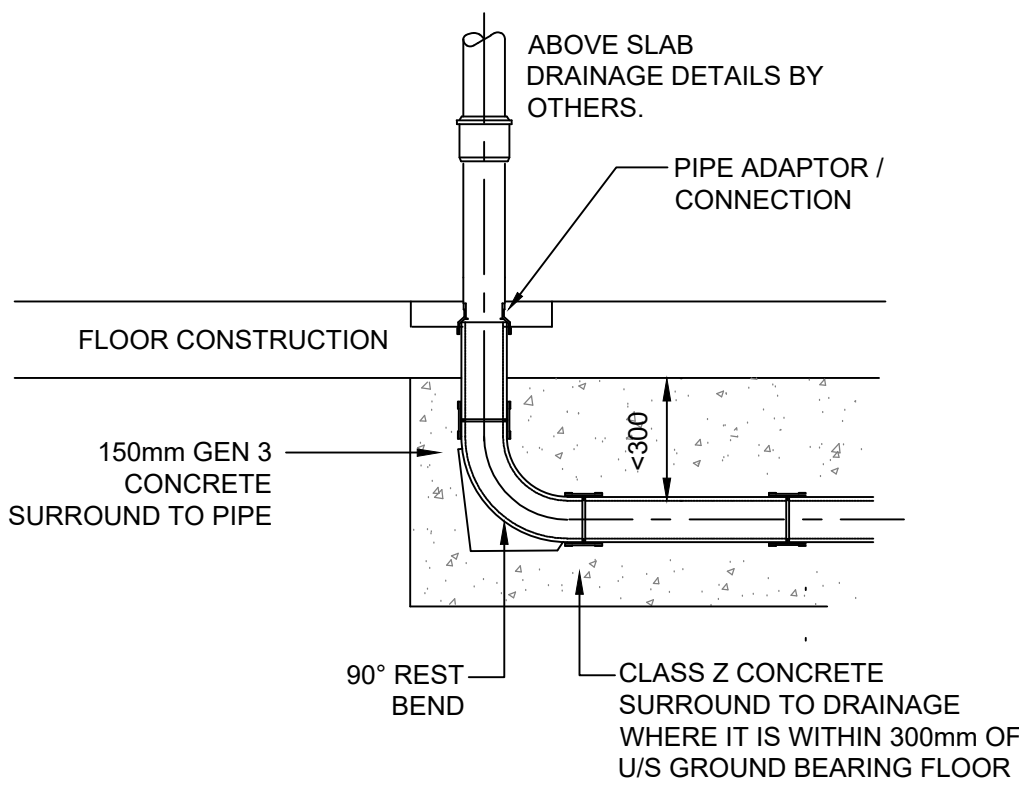
TYPICAL PIPE PASSING THROUGH WALL DETAIL
SCALE 1:20



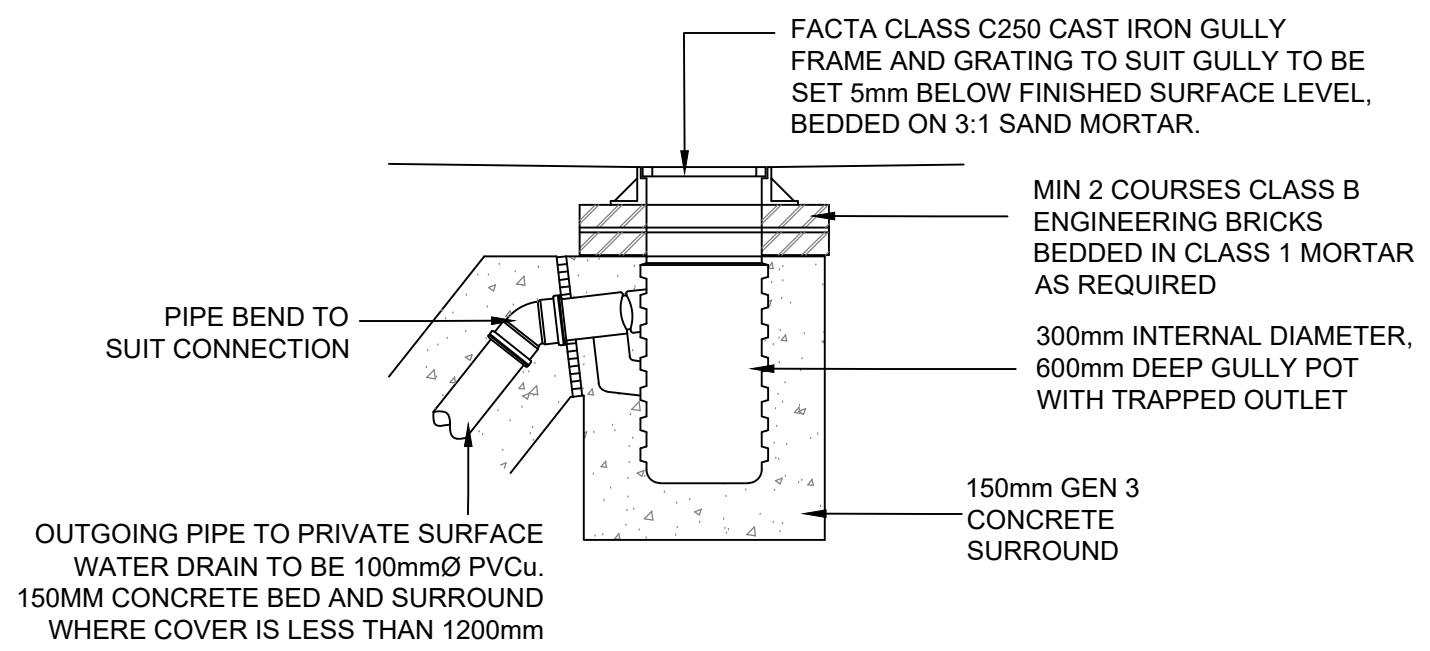
TYPICAL PIPE PASSING THROUGH FOUNDATION DETAIL
SCALE 1:20



TYPICAL SECTION THROUGH PIPE PROTECTION REQUIREMENTS NEAR TO FOUNDATIONS
SCALE 1:20



TYPICAL BASE OF INTERNAL SOIL STACK DETAIL
SCALE 1:20



TYPICAL YARD GULLY DETAIL
SCALE 1:20

DO NOT SCALE FROM THIS DRAWING

A1

Based on: Architects Dwg: Structural Dwg: Survey Dwg:	Rev Rev Rev
--	-------------------

- Notes**
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL AND ENGINEERING SERVICES DRAWINGS, SPECIFICATIONS, SCHEDULES AND PROJECT SPECIFIC DOCUMENTS.
 - ALL PLANT AND EQUIPMENT IS TO BE INSTALLED TO MANUFACTURER'S RECOMMENDATIONS, ALLOWING FULL ACCESS FOR COMMISSIONING, MAINTENANCE AND REMOVAL/REPLACEMENT.
 - ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
 - DO NOT SCALE FROM THIS DRAWING.

P1	29/10/2025	ISSUED FOR DISCHARGE OF CONDITION	AMF	AMF	AMF
Issue	Date	Description	By	Chkd	Verfd

Client	SHELLWIN REAL ESTATE
Architect	NAPIER CLARKE ARCHITECTS
Project	OLD BRIGHTON ROAD PEASE POTTAGE

FRENCH ENGINEERING

Consulting Civil Engineers

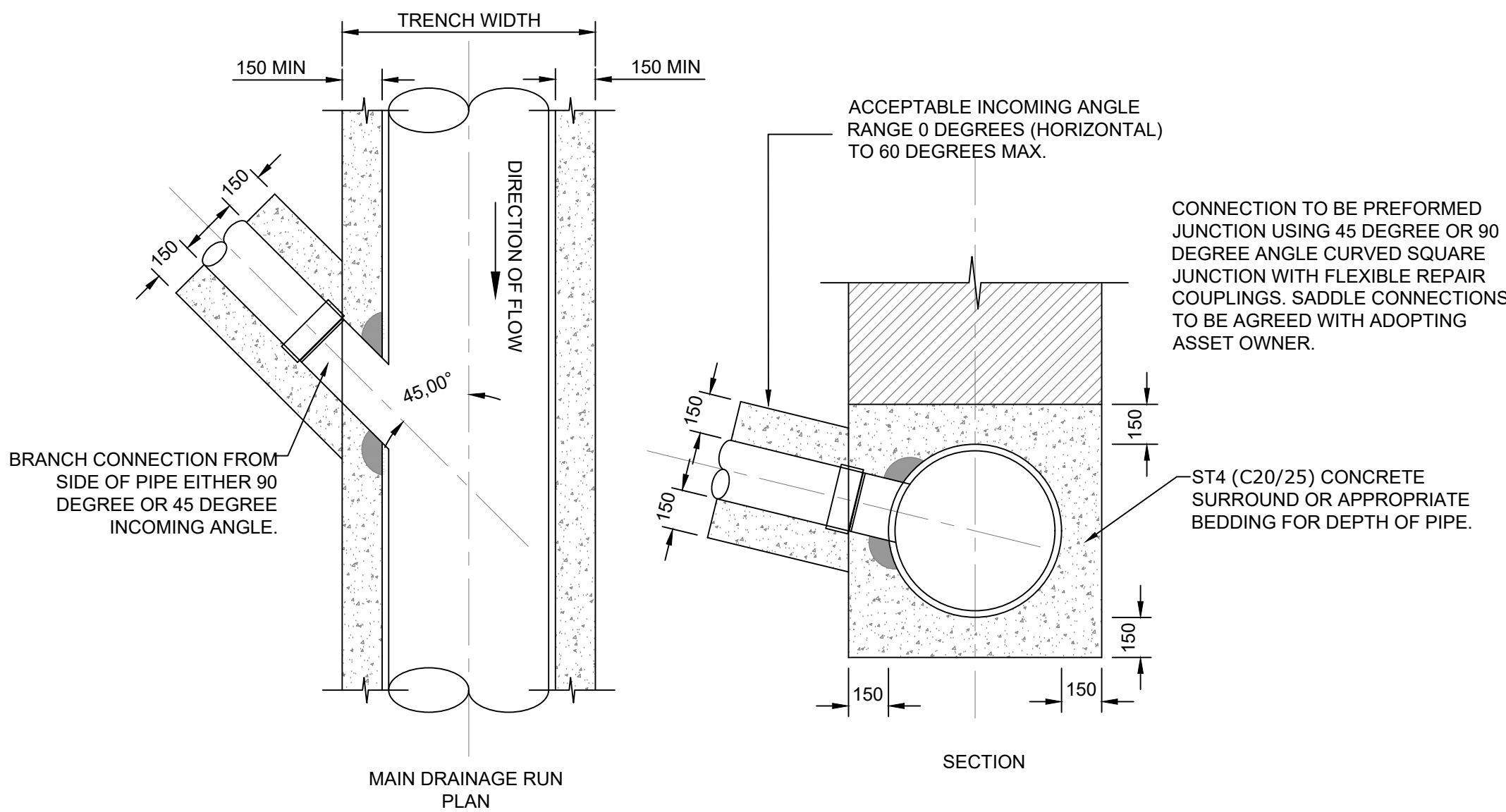
Alexandra House
Station Road
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BN5 9UP

Tel: 01273 448488
Web: www.frenchengineering.co.uk
Email: enquiries@frenchengineering.co.uk

Title CONSTRUCTION DETAILS EXTERNAL DRAINAGE SHEET 1			
Drawing No. FEL-25-1349-511		Drawing Status STAGE 3+	
Job No. 25-1349		Scale AS SHOWN	
Originator AMF	Checked AMF	Verified AMF	Issue P1

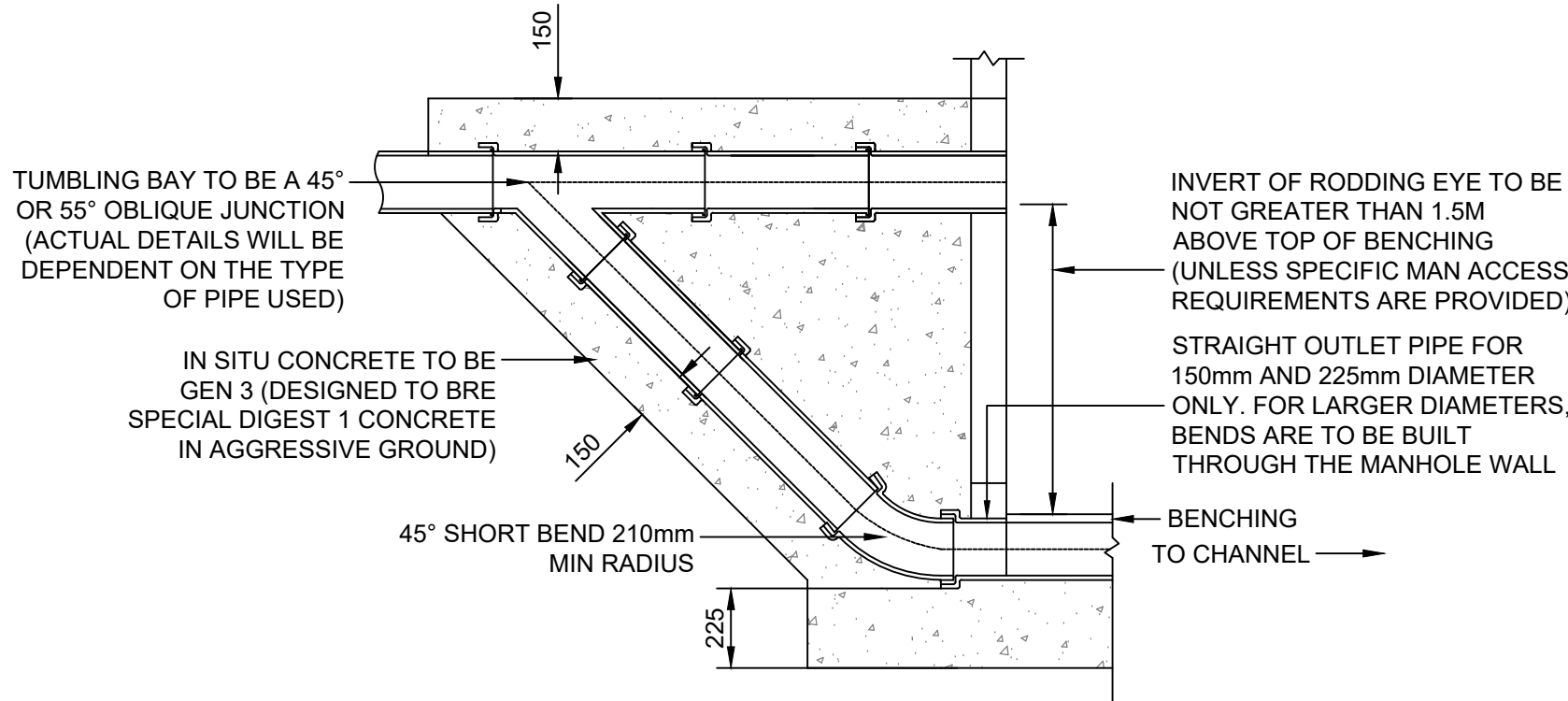
Based on:	Architects Dwg:	Rev
	Structural Dwg:	Rev
	Survey Dwg:	Rev

- Notes
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL AND ENGINEERING SERVICES DRAWINGS, SPECIFICATIONS, SCHEDULES AND PROJECT SPECIFIC DOCUMENTS.
 - ALL PLANT AND EQUIPMENT IS TO BE INSTALLED TO MANUFACTURER'S RECOMMENDATIONS, ALLOWING FULL ACCESS FOR COMMISSIONING, MAINTENANCE AND REMOVAL/REPLACEMENT.
 - ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
 - DO NOT SCALE FROM THIS DRAWING.



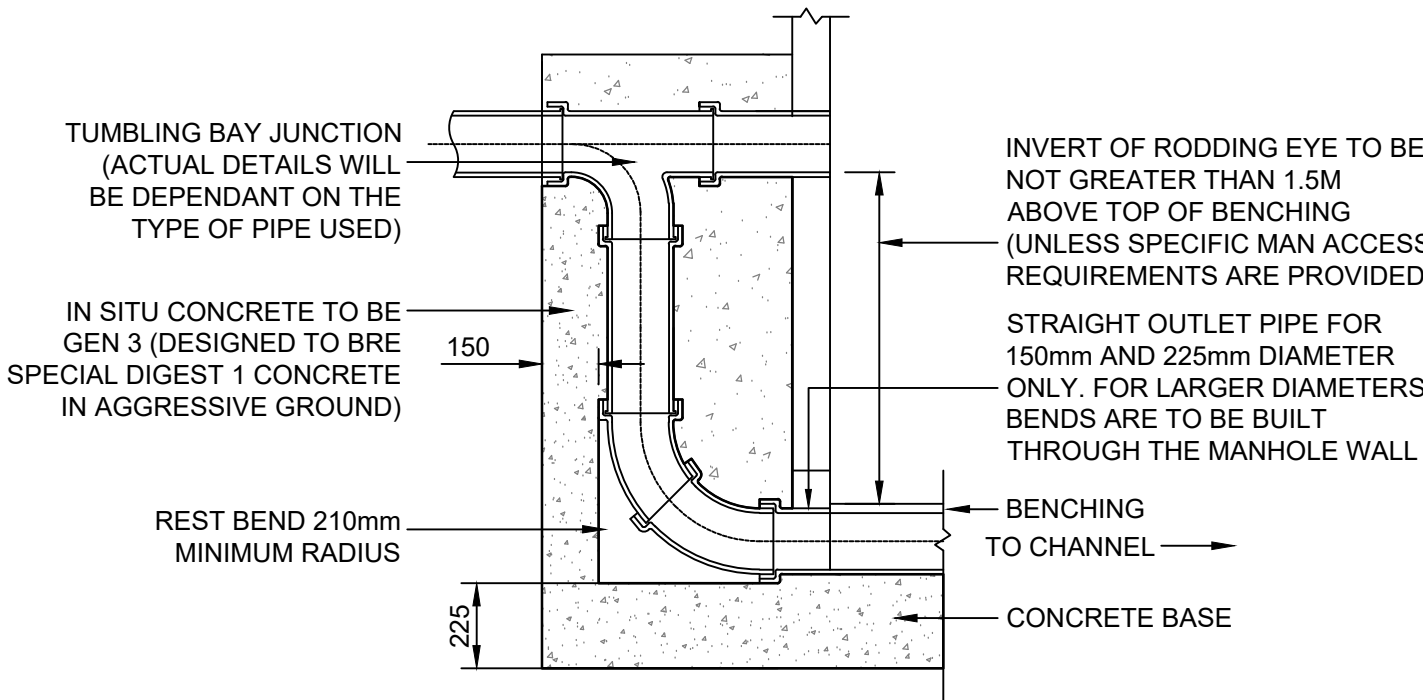
TYPICAL MAIN SEWER CONNECTION DETAIL
(300mmØ SEWER OR LESS)

SCALE 1:20



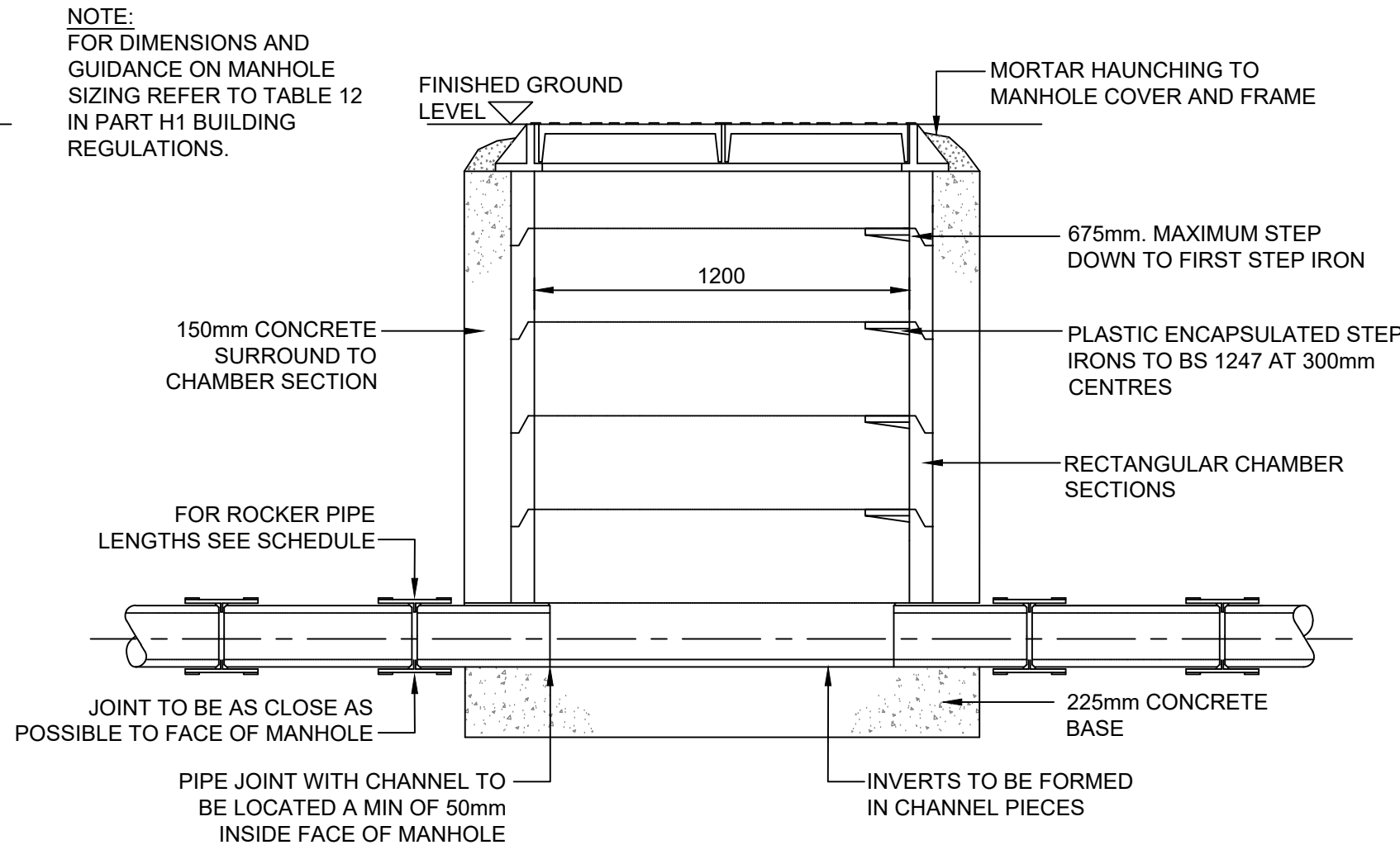
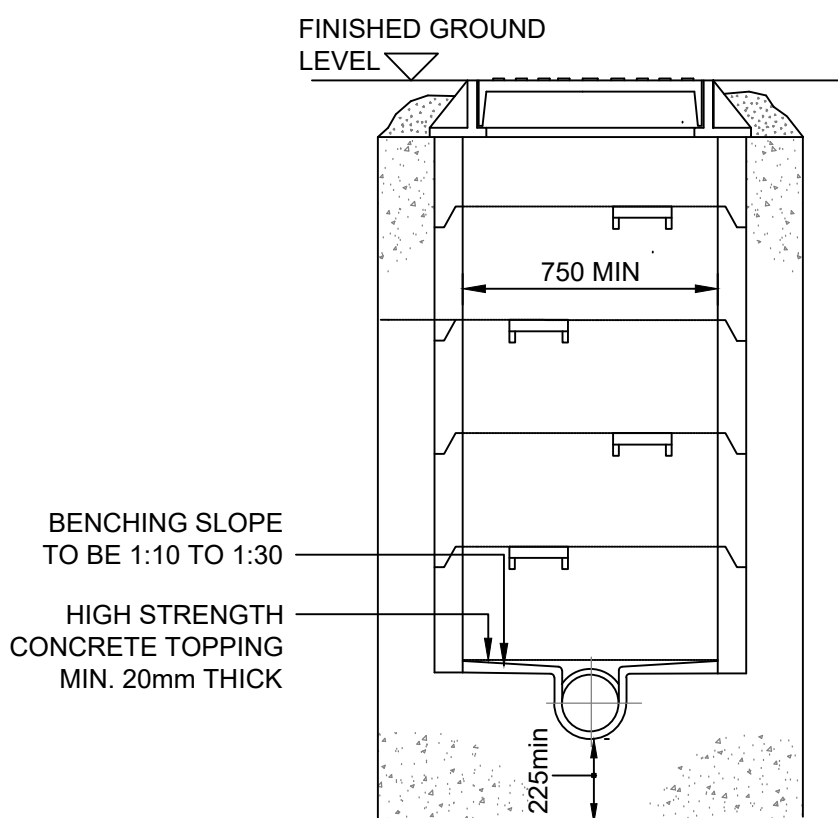
TYPICAL EXTERNAL RAMPED BACKDROP DETAIL

SCALE 1:20



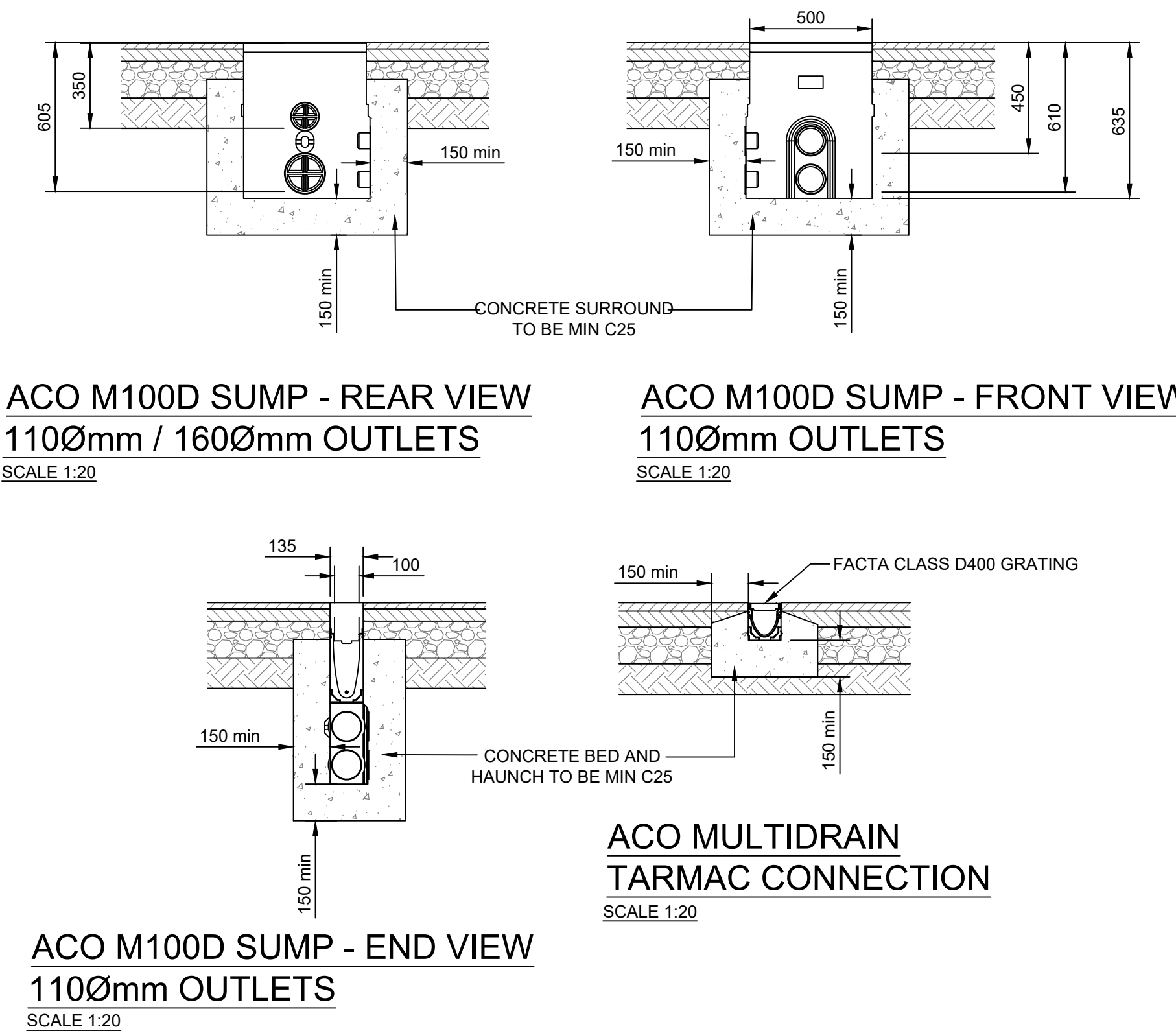
TYPICAL EXTERNAL VERTICAL BACKDROP DETAIL

SCALE 1:20



TYPICAL RECTANGULAR PRECAST MANHOLE

SCALE 1:20



ACO M100D SUMP - REAR VIEW

1100mm / 1600mm OUTLETS

SCALE 1:20

ACO M100D SUMP - FRONT VIEW

1100mm OUTLETS

SCALE 1:20

ACO MULTIDRAIN TARMAC CONNECTION

SCALE 1:20

P1	29/10/2025	ISSUED FOR DISCHARGE OF CONDITION	AMF	AMF	AMF
Issue	Date	Description	By	Chkd	Verfd

Client

SHELLWIN REAL ESTATE

Architect

NAPIER CLARKE ARCHITECTS

Project

OLD BRIGHTON ROAD
PEASE POTTAGE

FRENCH ENGINEERING

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Tel: 01273 448488
Web: www.frenchengineering.co.uk
Email: enquiries@frenchengineering.co.uk

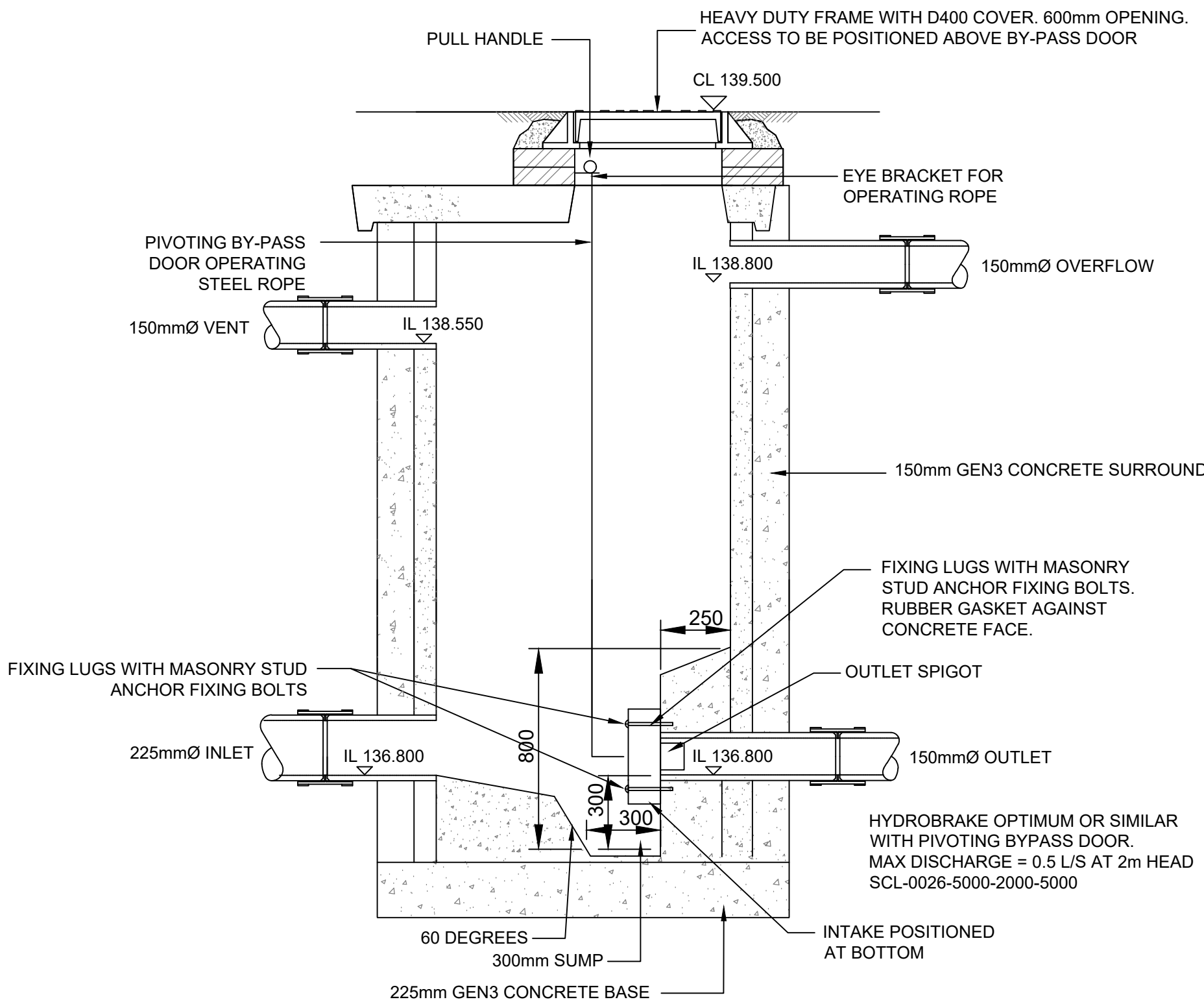
Title

**CONSTRUCTION DETAILS
EXTERNAL DRAINAGE
SHEET 2**

Drawing No.	FEL-24-1349-512	Drawing Status	STAGE 3+
Job No.	25-1349	Scale	AS SHOWN
Originator	AMF	Checked	AMF
Verified	AMF	Issue	P1

Based on:	Rev
Architects Dwg:	Rev
Structural Dwg:	Rev
Survey Dwg:	Rev

- Notes**
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL AND ENGINEERING SERVICES DRAWINGS, SPECIFICATIONS, SCHEDULES AND PROJECT SPECIFIC DOCUMENTS.
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 - ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
 - DO NOT SCALE FROM THIS DRAWING.



FLOW CONTROL DETAIL

SCALE 1:20

IMPERMEABLE CRATE LINING TO BE WATERTIGHT
INNER LAYER - IMPERMEABLE GEOMEMBRANE
POLYPROPYLENE 1mm MINIMUM THICKNESS
WELDED JOINTS TO BE WATERTIGHT.
PIPE CONNECTIONS TO BE FORMED WITH TOP HAT
CONNECTORS AND BE WATERTIGHT.

- NOTES :**
- ABSOLUTE MIN 600mm COVER OVER ATTENUATION. 800mm PROVIDED.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS.

STORMBRIXX SIDE PANELS TO
ENTIRE PERIMETER OF TANK;
PART NUMBER 314021

PIPE
CONNECTOR

HIGH LEVEL OVERFLOW
ABOVE CRATE SOFFIT

OUTLET / FLOW
CONTROL CHAMBER

VENT PIPE

PIPE CONNECTOR

GEOMEMBRANE LAYER (INNER) &
ACOTEX PLUS FLEECE (OUTER) TO
ENTIRE PERIMETER OF TANK.

100mm TYPE 1 WELL COMPACTED
TO SMOOTH AND EVEN BASE
UNDISTURBED EARTH BASE OF EXCAVATION.
EXCAVATED AREA TO BE SMOOTH, FIRM AND
LEVEL, FREE FROM LUMPS AND DEBRIS.

LOCALISED DEEPENING OF SUBBASE OR CAPPING
TO SUIT DEPTH TO TOP OF COARSE SAND.

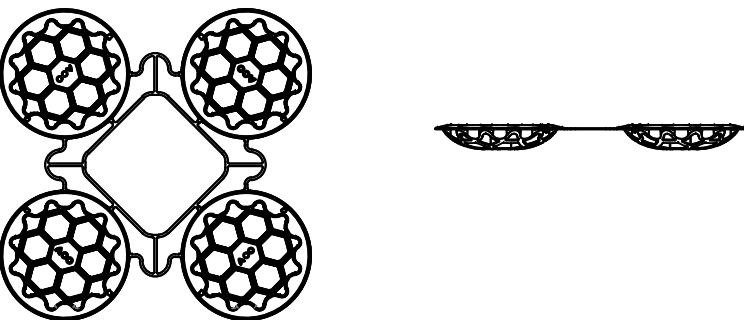
100mm COURSE SAND
GEOMEMBRANE LAYER (INNER) & ACOTEX PLUS
FLEECE (OUTER) TO ENTIRE PERIMETER OF TANK.

ACO STORMBRIXX SD TANK PIECE 1200X600X914MM
(H), TO BE BRICK OR CROSS BONDED
TOP COVERS INSTALLED.

300mm WIDE BACKFILL AROUND SIDE PERIMETER.
TYPE 1 OR 2 OR SELECTED GRANULAR
MATERIAL, COMPACTED IN ACCORDANCE WITH
MANUFACTURER'S INSTRUCTIONS AND TO SUIT
COMPACTION PLANT EMPLOYED. (BACKFILL TO BE
COMPLETE TO TOP OF UNITS PRIOR TO ANY FILL
BEING PLACED TO THE TOP OF THE TANK)

TYPICAL CRATE STORAGE DETAILS

TOP COVERS PART NUMBER 314022 SHOWN BELOW
TO BE INSTALLED ON TOP LAYER OF STORMBRIXX
MODULES ONLY



THE CONTRACTOR SHALL PROHIBIT THE
MOVEMENT OF CONSTRUCTION PLANT
DIRECTLY ACROSS THE STORAGE TANK
AND WHERE NECESSARY PROVIDE
ADDITIONAL SUPPORT AND PROTECTION
TO THE STRUCTURE, PARTICULARLY POST
CONSTRUCTION. TEMPORARY FENCING
CAN BE USED TO PROHIBIT TRADE STOCKS,
PILLING MATERIALS, HEAVY PLANTS ETC.

P1	29/10/2025	ISSUED FOR DISCHARGE OF CONDITION	AMF	AMF	AMF
Issue	Date	Description	By	Chkd	Verfd

Client
SHELLWIN REAL ESTATE

Architect
NAPIER CLARKE ARCHITECTS

Project
**OLD BRIGHTON ROAD
PEASE POTTAGE**

**FRENCH
ENGINEERING**

Consulting Civil Engineers
Alexandra House
Station Road
Henfield
West Sussex
BN5 9UP
Tel: 01273 448488
Web: www.frenchengineering.co.uk
Email: enquiries@frenchengineering.co.uk

Title
**CONSTRUCTION DETAILS
EXTERNAL DRAINAGE
SHEET 3**

Drawing No. FEL-24-1349-513		Drawing Status STAGE 3+	
Job No. 25-1349		Scale AS SHOWN	
Originator AMF	Checked AMF	Verified AMF	Issue. P1

Appendix E – Drainage Calculations

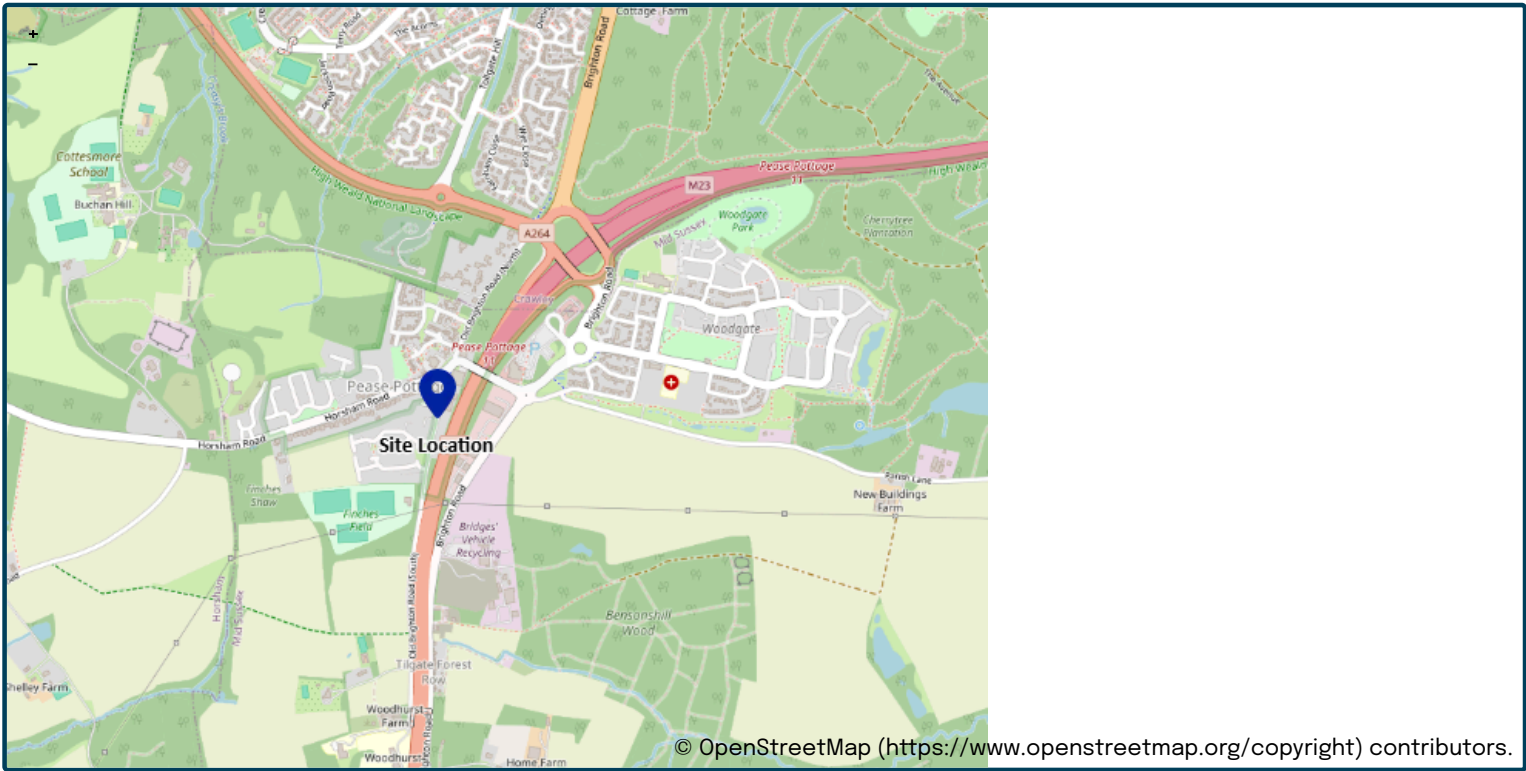
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	28/10/2025
Calculated by	AMF
Reference	25-1349
Model version	2.2.1

Location

Site name	Old Brighthon Road South
Site location	Pease Pottage



Site easting (British National Grid)	525974
Site northing (British National Grid)	132903

Site details

Total site area (ha)	1	ha
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Greenfield runoff

Method

Method	IH124		
IH124			
	<u>My value</u>	☐	<u>Map value</u>
SAAR (mm)	851mm		851
How should SPR be derived?	WRAP soil type		
WRAP soil type	4	☐	4
SPR	0.47		
QBar (IH124) (l/s)	6.1l/s		

Growth curve factors

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

Results

Method	IH124
Flow rate 1 year (l/s)	5.2l/s
Flow rate 2 year (l/s)	5.3l/s
Flow rate 10 years (l/s)	9.8l/s
Flow rate 30 years (l/s)	14.0l/s
Flow rate 100 years (l/s)	19.4l/s
Flow rate 200 years (l/s)	22.7l/s

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

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.1) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions) (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

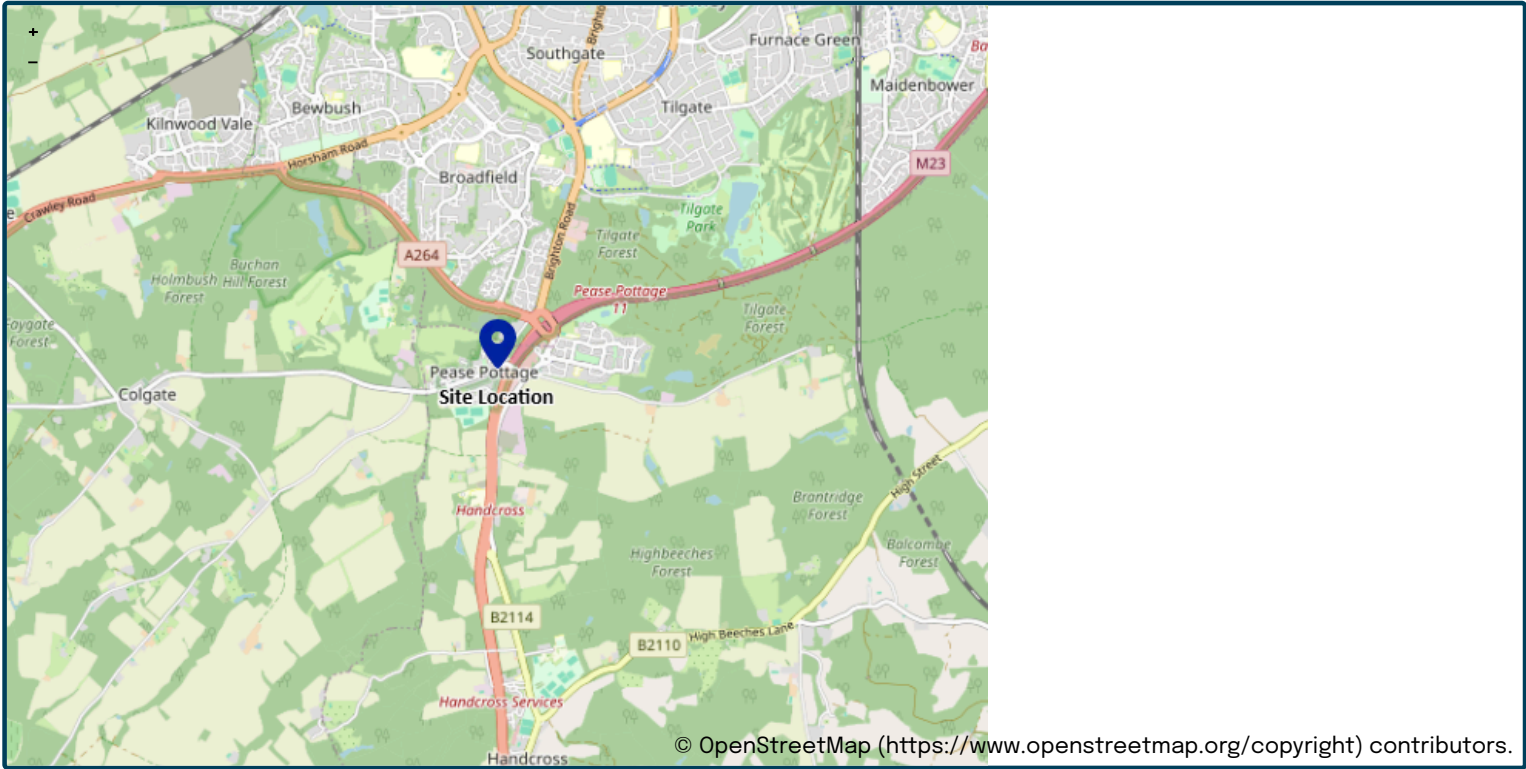
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	28/10/2025
Calculated by	AMF
Reference	25-1349
Model version	2.2.1

Location

Site name	Old Brighthon Road South
Site location	Pease Pottage



Site easting (British National Grid)	525974
Site northing (British National Grid)	132903

Site details

Total site area (ha)	0.087	ha
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Greenfield runoff

Method

Method	IH124	
IH124		
	<u>My value</u>	<u>Map value</u>
SAAR (mm)	851mm	851
How should SPR be derived?	WRAP soil type	
WRAP soil type	4	4
SPR	0.47	
QBar (IH124) (l/s)	0.5l/s	

Growth curve factors

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

Results

Method	IH124
Flow rate 1 year (l/s)	0.4l/s
Flow rate 2 year (l/s)	0.5l/s
Flow rate 10 years (l/s)	0.9l/s
Flow rate 30 years (l/s)	1.2l/s
Flow rate 100 years (l/s)	1.7l/s
Flow rate 200 years (l/s)	2.0l/s

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

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Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	0.600
Return Period (years)	100	Maximum Rainfall (mm/hr)	100.0	Include Intermediate Ground	x
Additional Flow (%)	40	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	x
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S01	0.010	5.00	140.000	450	525966.471	132850.188	0.650
S02	0.024	5.00	139.680	600	525959.511	132832.789	1.880
S03	0.014	5.00	139.400	450	525966.840	132811.334	0.633
S04	0.006	5.00	139.400	450	525955.948	132814.771	0.775
S05	0.010	5.00	139.550	1000	525958.389	132828.869	2.300
FLOW CONTROL CHAMBER			139.500	1200	525954.528	132816.007	3.000
OUTFALL			139.300		525944.094	132813.647	5.951
CRATE			139.500		525956.495	132822.264	2.600

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	S01	S02	18.739	0.600	139.350	139.120	0.230	81.5	150	5.28	100.0
1.001	S02	S05	4.077	0.600	138.100	138.050	0.050	81.5	150	5.34	100.0
1.002	S05	CRATE	6.871	0.600	138.050	138.000	0.050	137.4	225	5.44	100.0
1.003	CRATE	FLOW CONTROL CHAMBER	6.559	0.600	136.900	136.800	0.100	65.6	225	5.51	100.0
1.004	FLOW CONTROL CHAMBER	OUTFALL	10.698	0.600	136.800	133.349	3.451	3.1	150	5.24	100.0
2.000	S03	S04	11.421	0.600	138.767	138.625	0.142	80.4	150	5.17	100.0
2.001	S04	S05	14.308	0.600	138.625	138.050	0.575	24.9	150	5.29	100.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
1.000	1.114	19.7	5.1	0.500	0.410	0.010	0.0
1.001	1.114	19.7	17.2	1.430	1.350	0.034	0.0
1.002	1.113	44.3	32.4	1.275	1.275	0.064	0.0
1.003	1.617	64.3	32.4	2.375	2.475	0.064	0.0
1.004	5.766	101.9	32.4	2.550	5.801	0.064	0.0
2.000	1.122	19.8	7.1	0.483	0.625	0.014	0.0
2.001	2.027	35.8	10.1	0.625	1.350	0.020	0.0

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	18.739	81.5	150	Circular	140.000	139.350	0.500	139.680	139.120	0.410
1.001	4.077	81.5	150	Circular	139.680	138.100	1.430	139.550	138.050	1.350
1.002	6.871	137.4	225	Circular	139.550	138.050	1.275	139.500	138.000	1.275
1.003	6.559	65.6	225	Circular	139.500	136.900	2.375	139.500	136.800	2.475
1.004	10.698	3.1	150	Circular	139.500	136.800	2.550	139.300	133.349	5.801
2.000	11.421	80.4	150	Circular	139.400	138.767	0.483	139.400	138.625	0.625
2.001	14.308	24.9	150	Circular	139.400	138.625	0.625	139.550	138.050	1.350

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S01	450	Manhole	Adoptable	S02	600	Manhole	Adoptable
1.001	S02	600	Manhole	Adoptable	S05	1000	Manhole	Adoptable
1.002	S05	1000	Manhole	Adoptable	CRATE		Junction	
1.003	CRATE		Junction		FLOW CONTROL CHAMBER	1200	Manhole	Adoptable
1.004	FLOW CONTROL CHAMBER	1200	Manhole	Adoptable	OUTFALL		Junction	
2.000	S03	450	Manhole	Adoptable	S04	450	Manhole	Adoptable
2.001	S04	450	Manhole	Adoptable	S05	1000	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S01	525966.471	132850.188	140.000	0.650	450				
S02	525959.511	132832.789	139.680	1.880	600		0	1.000	139.350
							1	1.000	139.120
							0	1.001	138.100
									150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S03	525966.840	132811.334	139.400	0.633	450		0	2.000	138.767	150
S04	525955.948	132814.771	139.400	0.775	450		1	2.000	138.625	150
S05	525958.389	132828.869	139.550	2.300	1000		0	2.001	138.625	150
						1	2.001	138.050	150	
						2	1.001	138.050	150	
FLOW CONTROL CHAMBER	525954.528	132816.007	139.500	3.000	1200		0	1.002	138.050	225
						1	1.003	136.800	225	
						0	1.004	136.800	150	
OUTFALL	525944.094	132813.647	139.300	5.951			1	1.004	133.349	150
CRATE	525956.495	132822.264	139.500	2.600			1	1.002	138.000	225
						0	1.003	136.900	225	

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	100	0	0	0
30	0	0	0	100	40	0	0
30	35	0	0				

Node FLOW CONTROL CHAMBER Online Hydro-Brake® Control

Flap Valve	x	Design Depth (m)	2.000	Product Number	CTL-SCL-0026-5000-2000-5000
Downstream Link	1.004	Design Flow (l/s)	0.5	Min Outlet Diameter (m)	0.075
Replaces Downstream Link	✓	Objective	(CL) Minimise blockage risk	Min Node Diameter (mm)	1200
Invert Level (m)	136.800	Sump Available	✓		

Node CRATE Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	136.900
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.96	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	30.0	30.0	1.800	30.0	64.9	1.801	0.0	64.9

Results for 2 year 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	S01	10	139.381	0.031	1.8	0.0049	0.0000	OK
15 minute summer	S02	10	138.167	0.067	6.2	0.0191	0.0000	OK
15 minute summer	S03	10	138.805	0.038	2.5	0.0060	0.0000	OK
15 minute summer	S04	10	138.657	0.032	3.6	0.0051	0.0000	OK
15 minute summer	S05	10	138.131	0.081	11.5	0.0634	0.0000	OK
360 minute winter	FLOW CONTROL CHAMBER	344	137.302	0.502	1.8	0.5675	0.0000	SURCHARGED
15 minute summer	OUTFALL	1	133.349	0.000	0.2	0.0000	0.0000	OK
360 minute winter	CRATE	344	137.302	0.402	2.4	11.5723	0.0000	SURCHARGED

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	S01	1.000	S02	1.8	0.686	0.089	0.0481	
15 minute summer	S02	1.001	S05	6.1	0.706	0.311	0.0353	
15 minute summer	S03	2.000	S04	2.5	0.806	0.125	0.0353	
15 minute summer	S04	2.001	S05	3.6	0.588	0.099	0.0887	
15 minute summer	S05	1.002	CRATE	11.3	0.915	0.256	0.0852	
360 minute winter	FLOW CONTROL CHAMBER	Hydro-Brake®	OUTFALL	0.3				8.6
360 minute winter	CRATE	1.003	FLOW CONTROL CHAMBER	1.8	0.216	0.028	0.2609	

Results for 30 year 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	S01	10	139.401	0.051	4.8	0.0082	0.0000	OK
15 minute summer	S02	10	138.243	0.143	16.1	0.0405	0.0000	OK
15 minute summer	S03	10	138.831	0.064	6.7	0.0101	0.0000	OK
15 minute summer	S04	10	138.678	0.053	9.6	0.0084	0.0000	OK
15 minute summer	S05	10	138.194	0.143	30.2	0.1126	0.0000	OK
360 minute winter	FLOW CONTROL CHAMBER	352	137.845	1.045	2.1	1.1822	0.0000	SURCHARGED
15 minute summer	OUTFALL	1	133.349	0.000	0.3	0.0000	0.0000	OK
360 minute winter	CRATE	352	137.845	0.945	4.0	27.2230	0.0000	SURCHARGED

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	S01	1.000	S02	4.7	0.902	0.239	0.0979	
15 minute summer	S02	1.001	S05	15.9	0.918	0.809	0.0707	
15 minute summer	S03	2.000	S04	6.7	1.054	0.336	0.0724	
15 minute summer	S04	2.001	S05	9.5	0.779	0.266	0.1637	
15 minute summer	S05	1.002	CRATE	30.0	1.167	0.677	0.1766	
360 minute winter	FLOW CONTROL CHAMBER	Hydro-Brake®	OUTFALL	0.4				11.4
360 minute winter	CRATE	1.003	FLOW CONTROL CHAMBER	2.1	0.177	0.032	0.2609	

Results for 30 year +35% CC 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 S01		10	139.410	0.060	6.4	0.0096	0.0000	OK
15 minute summer S02		10	138.332	0.232	21.8	0.0657	0.0000	SURCHARGED
15 minute summer S03		10	138.843	0.076	9.0	0.0121	0.0000	OK
15 minute summer S04		10	138.687	0.062	12.8	0.0099	0.0000	OK
15 minute summer S05		10	138.230	0.180	40.6	0.1410	0.0000	OK
720 minute winter FLOW CONTROL CHAMBER		690	138.220	1.420	1.8	1.6055	0.0000	SURCHARGED
15 minute summer OUTFALL		1	133.349	0.000	0.3	0.0000	0.0000	OK
720 minute winter CRATE		690	138.220	1.320	3.2	38.0018	0.0000	SURCHARGED

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 S01		1.000	S02	6.3	0.975	0.321	0.1213	
15 minute summer S02		1.001	S05	21.5	1.219	1.090	0.0718	
15 minute summer S03		2.000	S04	9.0	1.135	0.452	0.0902	
15 minute summer S04		2.001	S05	12.8	0.895	0.357	0.1751	
15 minute summer S05		1.002	CRATE	40.3	1.233	0.910	0.2246	
720 minute winter FLOW CONTROL CHAMBER		Hydro-Brake®	OUTFALL	0.4				19.7
720 minute winter CRATE		1.003	FLOW CONTROL CHAMBER	1.8	0.148	0.027	0.2609	

Results for 100 year 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	S01	10	139.408	0.058	6.0	0.0093	0.0000	OK
15 minute summer	S02	10	138.308	0.208	20.3	0.0590	0.0000	SURCHARGED
15 minute summer	S03	10	138.840	0.073	8.4	0.0116	0.0000	OK
15 minute summer	S04	10	138.685	0.060	11.9	0.0095	0.0000	OK
15 minute summer	S05	10	138.219	0.169	37.9	0.1327	0.0000	OK
480 minute winter	FLOW CONTROL CHAMBER	472	138.111	1.311	1.6	1.4831	0.0000	SURCHARGED
15 minute summer	OUTFALL	1	133.349	0.000	0.3	0.0000	0.0000	OK
480 minute winter	CRATE	472	138.111	1.211	4.0	34.8864	0.0000	SURCHARGED

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	S01	1.000	S02	5.9	0.959	0.300	0.1156	
15 minute summer	S02	1.001	S05	20.0	1.139	1.018	0.0718	
15 minute summer	S03	2.000	S04	8.4	1.116	0.421	0.0855	
15 minute summer	S04	2.001	S05	11.9	0.841	0.332	0.1725	
15 minute summer	S05	1.002	CRATE	37.6	1.222	0.850	0.2118	
480 minute winter	FLOW CONTROL CHAMBER	Hydro-Brake®	OUTFALL	0.4				14.7
480 minute winter	CRATE	1.003	FLOW CONTROL CHAMBER	1.6	0.215	0.024	0.2609	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.49%

Node Event		US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S01		10	139.421	0.071	8.4	0.0112	0.0000	OK
720 minute winter	S02		705	138.663	0.563	2.1	0.1593	0.0000	SURCHARGED
15 minute summer	S03		10	138.857	0.090	11.8	0.0143	0.0000	OK
15 minute summer	S04		10	138.697	0.072	16.7	0.0114	0.0000	OK
720 minute winter	S05		705	138.663	0.613	4.0	0.4811	0.0000	SURCHARGED
720 minute winter	FLOW CONTROL CHAMBER		705	138.663	1.863	2.0	2.1069	0.0000	SURCHARGED
15 minute summer	OUTFALL		1	133.349	0.000	0.3	0.0000	0.0000	OK
720 minute winter	CRATE		705	138.663	1.763	4.0	50.7709	0.0000	SURCHARGED

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	S01		1.000	S02	8.3	1.045	0.421	0.1487	
720 minute winter	S02		1.001	S05	2.1	0.535	0.107	0.0718	
15 minute summer	S03		2.000	S04	11.7	1.212	0.592	0.1105	
15 minute summer	S04		2.001	S05	16.7	1.117	0.465	0.1857	
720 minute winter	S05		1.002	CRATE	4.0	0.687	0.090	0.2733	
720 minute winter	FLOW CONTROL CHAMBER		Hydro-Brake®	OUTFALL	0.5				21.9
720 minute winter	CRATE		1.003	FLOW CONTROL CHAMBER	2.0	0.256	0.032	0.2609	

DISCHARGE STACK SIZING FOR SYSTEMS DESIGNED TO BE BS EN 12056-2 SYSTEM III

DATE OF CALCULATION	27/10/2025
NAME OF DESIGN ENGINEER	Andy French
PROJECT & STACK REFERENCE	Old Brighton Road South Peak Flow

APPLIANCE	DU, L/S	NUMBER	TOTAL
WC, 6L Cistern (1.2 - 1.7 L/s)	1.7	4	6.8
Wash Basin	0.3		0
Bath	1.3		0
Shower Tray (no plug)	0.4		0
Kitchen Sink	1.3		0
Urinal (cistern flush) per person	0.4		0
Bidet	0.3		0
Dishwaster, Domestic	0.2		0
Washing Machine, up to 6kg	0.6		0
Washing Machine, up to 12kg	1.2		0
TOTAL DU, L/S LOAD FOR STACK			6.8

FREQUENCY OF USE FACTORS	
Intermittent use, e.g. house, flat, offices	0.5
Frequency use, e.g. hotel, school, hospital	0.7
Congested use e.g. public use	1
Special use, e.g. laboratory	1.2

Designers Notes :
Commercial therefore Intermittent Use.

ENTER FREQUENCY 0.5; 0.7.; 1.0 OR 1.2 0.5

THE TOTAL WASTE WATER FLOWRATE BASED ON EQUATION 6.3.1 (LITRES/SEC) $Q_{ww} = K\sqrt{DU}$ 1.30384
 ENTER ANY PUMPED WASTE WATER DISCHARGE IN LITRES/SEC
 ENTER ANY CONTINUOUS WATER DISCHARGE (E.G. AIR CONDITIONING UNIT) IN LITRES/SEC
TOTAL DESIGN FLOWRATE FOR DISCHARGE STACK (LITRES/SEC) **1.30384**

PRIMARY VENTILATED STACK OPTION	
82mm DISCHARGE STACK (NO WC's)	2.6
110mm DISCHARGE STACK	5.2
180mm DISCHARGE STACK	12.4

SECONDARY VENTILATED STACK OPTION	
82mm STACK & 50mm SEC VENT (NO WC's)	3.4
110mm STACK & 50mm SEC VENT	7.3
160mm STACK & 82mm SEC VENT	18.3

THE ABOVE BOXES SHOW WHAT IS THE MAX LOADING, COMPARE THESE WITH THE TOTAL DESIGN FLOWRATE & RECORD YOUR CHOICE IN THE BOX BELOW. BASE YOUR CHOICE ON COST & EASE OF INSTALLATION.

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Appendix F – Management and Maintenance Plan

Old Brighton Road South, Pease Pottage

External Drainage System

Management and Maintenance Plan

Introduction

This Plan sets out the management of the proposed sustainable drainage system (SuDS) and foul drainage network.

The Drainage Layout and below ground drainage construction details are shown on the engineering drawings attached to this plan.

Product literature for the key elements of the drainage system are contained within the Operation and Maintenance Manual provided by the Contractor at completion of the construction works.

Ownership and Maintenance Responsibilities

The onsite drainage infrastructure will remain in the private ownership of the freeholder of the site.

The Operator [The Facility Manager] will be responsible for maintenance upkeep of the development on behalf of the Freeholder.

Key elements of the drainage system which require maintenance are:

- Pipes and Chambers
- Cellular Crate Attenuation Storage
- Flow Control Chamber and Device
- Downstream Defender Water Quality Treatment Manhole

The following sections show schedules detailing the maintenance requirements for each of the main drainage items used within the scheme. The Facility Manager will undertake the inspections and maintenance activities in accordance with these schedules or engage with specialist maintenance contractors to undertake maintenance tasks on their behalf.

Additional reference has been made to currently established best practice and guidance documents such as The SuDS Manual (CIRIA C753, 2015) and other resources available at the susdrain website (www.susdrain.org).

The Management and Maintenance Plan is to be a live document. The frequency of maintenance intervals may need to be increased or decreased based on the observed performance of the drainage systems over time as part of the wider Facilities Management system for the development.

Health and Safety

All those responsible for and involved in the maintenance of the site drainage systems should be safety-conscious and comply with the relevant health and safety legislation. This includes:

- The Health and Safety at Work etc Act 1974
- The Management of Health and Safety at Work Regulations 1999
- The Workplace (Health, Safety and Welfare) Regulations 1992

The Employer of maintenance operatives is responsible for suitable risk assessment and management to ensure safe working conditions and practices. Measures to protect potential visitors must also be drawn up.

Specialist contractors used should work to industry guidelines and be able to demonstrate safe working practices.

Employers have a duty to employees to inform them about the risks of their work environment and to decrease the risk as far as reasonably practicable. Appropriate personal protective equipment (PPE) should be provided and practices/policies implemented based on risk assessments.

Operatives should be trained for working near water. Risks of contaminated water should be considered. Checking for open cuts and using nitrile gloves, waterproof plasters etc is advised.

Entry of pipes, chambers and culverts should be avoided. Work should be carried out from the surface using appropriate equipment. In the event that entry cannot be avoided to perform a critical task, the required safety training, protection measures and precautions must be implemented prior to entry. Lone working should never be attempted.

Sewers, Manholes, Gullies, Channel Drains

Regular inspection and maintenance are required to ensure the effective long-term operation of private drains, manholes, gullies & channel drains.

Post Completion: a CCTV survey to be carried out on all new and retained existing drainage systems and any downstream receiving systems, prior to connection with adopted sewers.

The survey report will be used to prove the integrity of the as-built drainage system prior to issue of practical completion certificate and will be handed over to the Freeholder and Operator for future reference.

All gullies, channels and below ground drainage are private and to be maintained by the Facility Manager on behalf of the Freeholder.

Any public sewers and 'Lateral Drains' (up to the site boundary / demarcation chamber) are the responsibility of the Statutory Sewage Undertaker which is Southern Water.

Inspection Frequency and Maintenance Requirements:

Schedule	Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action. Common yard & car park & other hard standing areas to be swept clear of debris, to prevent possibility of blockages to the receiving drainage systems. Debris removal from gullies & channel drains (where may cause risks to performance) Lift and inspect receiving manholes to check for any blockages	6 Monthly intervals. Monthly. Monthly intervals, after autumn leaf fall, or as required based on specific observations. Monthly
Remedial Actions	Repair any damaged gully or channel drain gratings. Replace / fix any loose channel drain covers	As required As require
Monitoring	Carry out full CCTV survey to confirm ongoing integrity of all drains. Inspect all gullies and silt pits & drainage channels during the survey.	10-yearly intervals

Where appropriate refer also to specialist drainage manufacturer's information and maintenance requirements within the O&M Manual.

In all instances, inspection and cleaning should be carried out only by a specialist contractor and in accordance with the guidelines given in 'Safe Working in Sewers and at Sewage Works' published by National Joint Health and Safety Committee for the Water Services.

Cellular Attenuation Storage

Storm water attenuation storage is contained below ground within plastic cellular crates wrapped in a membrane.

The design is a low maintenance solution, the main risk is siltation and there is a water quality treatment chamber upstream of the installation which should prevent or minimise siltation of the structure.

The cellular storage structure cannot be accessed directly. The pipes and catchpits upstream of these structures should be checked for silt annually to ensure no build-up of debris. All particulate material shall be cleared from catchpit sumps.

The installation can be jetted to clear sedimentation accessed from the chambers at either end.

Product maintenance information is contained within the O&M Manual.

Flow Control Chamber and Device

The flow control chamber and device contain no mechanical or moving parts.

The chamber will be inspected and maintained in accordance with the schedule for chambers above with the sump cleaned out as a catchpit chamber.

Additionally, the flow control device will be inspected following any large rainfall event the check for any blockages or signs of malfunction.

Inspection Frequency and Maintenance Requirements:

Schedule	Action	Frequency
Regular Maintenance	Inspect inlets for blockages, and clear if required. If faults persist jetting and CCTV survey may be required.	Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).
	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Six-monthly
	Remove sediment and debris from flow control chambers.	Annually (or as required after heavy rainfall events).

Where appropriate refer also to specialist drainage manufacturer's information and maintenance requirements within the O&M Manual.

Downstream Defender

The installation shall be installed and maintained in accordance with the manufacturer's documentation and instructions as detailed in the Operation and Maintenance Manual provided as part of the construction phase.

Inspection Frequency and Maintenance Requirements:

Schedule	Action	Frequency
Regular Maintenance	Inspection	Regularly in first year of Installation, Six monthly, or as required after first year.
	Sediment Removal	Once per year or as needed- Following a spill in the drainage area.
	Oil and Floatables Removal	Once per year, with sediment removal and following a spill in the drainage area.

Contamination or Dilution of Spillage

In the event of a pollution spillage (e.g. fuel, oil or chemicals), it is the responsibility of the landowner to clear up any spillage before it enters the drainage system. The primary method of dealing with any spillage of hydrocarbons should be using sand to soak up the leak and prevent any hydrocarbons entering the drainage system. Once sand has been contaminated it should not be washed into the drainage system but disposed of by a Licensed Contractor.

Environment Agency – Emergency Contact Number

In the event of a pollution spillage the Environment Agency should be contacted to notify the event and seek advice. The Environment Agency Incident Hotline is **0800 80 70 60** (Freephone 24hrs).

FRENCH ENGINEERING