



Trade Park
on
Solent Road
Havant, Hampshire

Proposed Commercial Development

Flood Risk Assessment
and
Drainage Strategy



On behalf of

Hargreaves Properties Ltd

TRADE PARK
on
SOLENT ROAD
HAVANT, HAMPSHIRE

PROPOSED COMMERCIAL DEVELOPMENT

Flood Risk Assessment and Drainage Strategy

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TRADE PARK
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PROPOSED COMMERCIAL DEVELOPMENT

Flood Risk Assessment and Drainage Strategy

1. Background

- 1.1 This report has been produced on behalf of Hargreaves Properties Ltd in support of a planning application for commercial development on land at Solent Road, Havant.
- 1.2 The report comprises an assessment of the drainage and flood risk issues associated with the proposed development. The flood risk assessment has been prepared generally in accordance with the Technical Guidance to the National Planning Policy Framework (NPPF), March 2012.
- 1.3 The drawings supporting this report are as follows:
- Drawing No. 1451/L1.1 – Location Plan
 - Drawing No. 1451/E1.1 – Existing Drainage, Sheet 1
 - Drawing No. 1451/E1.2 – Existing Drainage, Sheet 2
 - Drawing No. 1451/D1.1A – Proposed Drainage, Sheet 1
 - Drawing No. 1451/E1.2A – Proposed Drainage, Sheet 2

2. The Site

- 2.1 The site is located on the south side of Solent Road, some 0.5km to the south-west of Havant Town Centre. It is broadly rectangular in shape and has an area of approximately 1.34 hectares. See Drawing No. 1451/L1.1 in Appendix 1 for a Location Plan. The OS Grid Reference at the centre of the site is SU 7109 0603.

- 2.2 The site currently comprises a range of industrial and commercial units of one to three storeys that are in a dilapidated condition and largely vacant. It is wholly developed and does not include any significant areas of soft landscaping. A telecommunications mast is sited near to the southern boundary and there are electricity substations in the south western corner and adjoining the northern boundary.
- 2.3 The site is bounded by Solent Road to the north, the Havant Bypass (A27) to the south and Brockhampton Lane to the east. The west of the site adjoins a Jewson retail unit. There are a number of access/ egress points onto both Solent Road and Brockhampton Lane.

3. Topography

- 3.1 Ground levels on the site are indicated on the existing and proposed drainage plans in Appendices 2 and 3 respectively and vary from around 5.9 metres Above Ordnance Datum (m AOD) in the southeast corner to around 5.2m AOD in the northwest corner.
- 3.2 There is a watercourse along the northern boundary which falls in a westerly direction, then turns south alongside Jewson's, before entering the surface water sewerage system that discharges to Buddswall Lake a kilometre to the south and thence to Langstone Harbour.

4. Ground Conditions

- 4.1 A Phase 1 Environmental Audit carried out by WSP Environmental Ltd in 2002, recorded ground conditions at the site as being Brickearth overlying Middle Chalk. The Brickearth is classified as a non-aquifer being a formation with negligible permeability. The Middle Chalk, on the other hand, is a major aquifer, supporting large abstractions for public water supply, the nearest being some 750 metres to the west.
- 4.2 In contrast to the above WSP report, we have also seen a Phase 2 Environmental Site Investigation Report carried out by RPS in July 2010 on land at the former ITCS site, which lies only some 50m to the east along Solent Road. This was a more in-depth study that recorded ground conditions as being Alluvium over Upper Chalk. The alluvium comprised a combination of grey organic to very organic gravelly clay with some peat. They also encountered some Superficial Head Deposits which comprised yellow brown/ grey-brown sandy gravelly clay. These were underlain by structureless Chalk encountered at depths of between 1.0m and 3.0m below ground level (bgl), comprising yellow-brown/ cream, gravelly sandy clay. Groundwater strikes were identified in the superficial and Chalk deposits at depths ranging from 2.0m – 3.0m bgl during drilling but rising to depths ranging from 1.29m -1.59m bgl during the site work.

- 4.3 Whilst there is some variation in the findings of the above two investigations, it is clear that percolation rates into the head deposits and weathered upper chalk will be minimal. This, combined with high groundwater levels encountered close by in July 2010, leads us to conclude that a Sustainable Urban Drainage System (SuDS) based on soil infiltration is unlikely to be appropriate for surface water drainage from the new development.

5 Proposed Development

- 5.1 The proposals are in two phases and are indicated in outline on the Proposed Drainage Plans in Appendix 3, Drawing Nos. 1451/D1.1A and D1.2A.

5.2 Phase 1

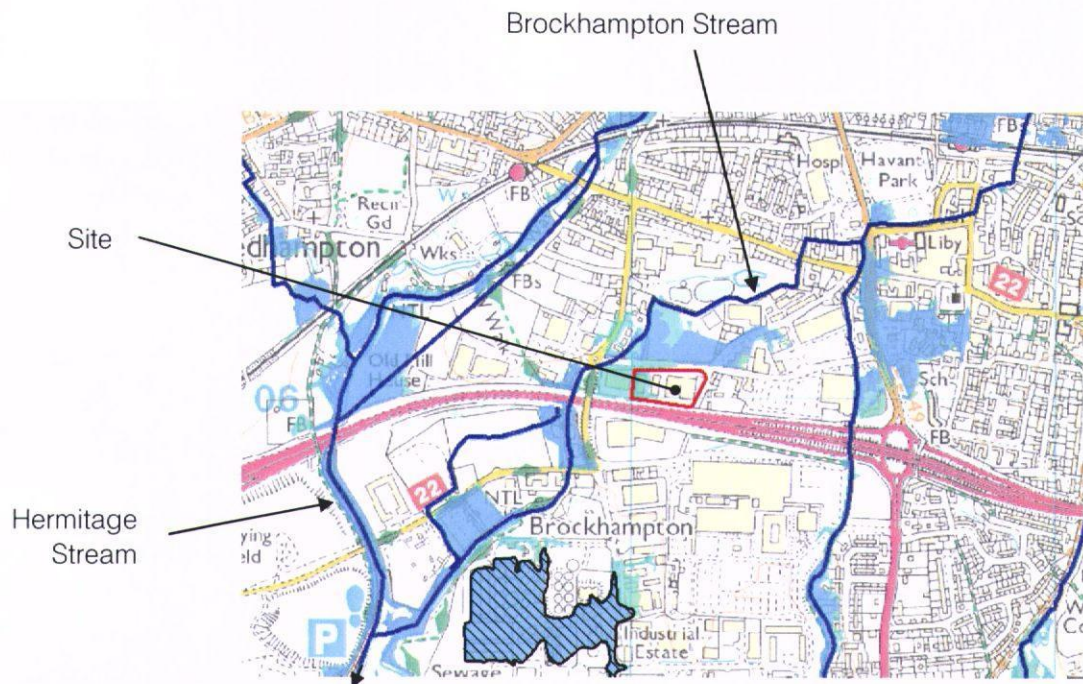
This relates to the western portion of the site for which a detailed planning application is submitted. The proposal is to demolish existing structures and erect two free-standing employment units. They will comprise 639 sq.m (Unit 1) and 604 sq.m (Unit 2) respectively, with two storeys in Unit 1, for Class B1c, Class B2 and/or Class B8 (with ancillary trade counter and office Class B1a). A floor level of 5.60m AOD is proposed for both units, which is 0.20m above the floor level of the existing building here at the western end of the site, 0.05m above the adjacent Jewson building and will provide the new buildings with a low risk of flooding.

5.3 Phase 2

The proposals for the outline part of the site comprise the provision of two buildings for Class B1c, Class B2 and/or Class B8 (with ancillary trade counter and office Class B1a). Of these, Unit 3 will comprise 2,272 sq.m and front onto Solent Road, with associated car parking provided to the front and sides of the unit and servicing to the rear. Unit 4, comprising 1,116 sq.m is located to the rear of the site, behind Unit 3, with associated car parking and servicing from the front of the unit. Floor levels have not been set but will be in excess of those of Units 1 and 2.

6. Flood Mapping

- 6.1 The site is shown to lie mainly within Flood Zone 1 on the Environment Agency's Flood Map (unshaded areas) but with a small area of Flood Zone 2 at the western edge, indicating a small risk of fluvial flooding here. Flood Zone 2 is defined as comprising land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1%-0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding in any year. It is shaded light blue on the flood map with the higher risk Flood Zone 3 shaded dark blue. The flood risk at this site is fluvial and is from the Brockhampton Stream that passes within 40 metres of the northwest corner. It flows in a south-westerly direction to Brockhampton Mill Lake where it joins the Hermitage Stream and empties into Langstone Harbour.



- 6.2 Whilst part of the site is shown to have a medium risk of flooding, it is on the very edge of Flood Zone 2 and significant flood depths would not be expected. Commercial development is classed as 'Less Vulnerable' in the Technical Guide to the NPPF (Table 2) and considered appropriate in Flood Zone 2 (Table 3). Climate change, however, is likely to increase river flows and flood depths, the extent of which is largely uncertain and this should be given appropriate consideration when designing and operating the proposed new buildings.
- 6.3 There is a low risk of flooding at the site from other sources (but see paragraphs 7.6 and 7.7 below) and the primary concern here is seen as ensuring that the development does not result in flooding at the site itself, nor increase the risk of flooding elsewhere.
- 6.4 Setting floor levels for all units at a minimum of 5.60m AOD will provide them with a low risk of flooding. This will be an improvement on the current situation and the sequential approach outlined within the NPPF will be satisfied.

7. Surface Water Drainage Strategy

- 7.1 As indicated in paragraph 4 above, ground conditions are unlikely to be suitable for a SuDS system due to low soil permeability and high groundwater levels. However, it is recommended that full-scale testing to BRE 365 is undertaken in due course to ascertain whether any useful soakage exists that would allow the incorporation of some permeable surfaces into the scheme.

- 7.2 The existing site incorporates no surface water soakage structures and drains positively to the adjacent watercourse. Prior to the Jewson development to the west, the site drained through this land and outfallen to the watercourse that runs alongside the western boundary of Jewson's, as indicated on the Existing Drainage plans in Appendix 2, Drawing Nos. 1451/E1.1 and E1.2. The Jewson development, however, severed the two connections from the site and all that remains is a high-level overflow at the northern boundary that connects to the watercourse here. Surface water from the site will currently lie in abandoned pipework and low spots, overflow the boundaries and make use of open foul manholes and cable pits.
- 7.3 The proposed new surface water drainage system is indicated on the attached Proposed Drainage plans, Drawing Nos. 1451/D1.1A and D1.2A in Appendix 3. It can be seen that the design conveys all surface water to the lowest point of the site in the northwest corner and to outfall to the watercourse here via two control manholes. These manholes will limit the final discharge from the site to a rate based on the historical discharge from the site, which will need to be agreed with the relevant authority/ owner of the watercourse. There is scope for providing storage on site in oversized pipework or geocells, as deemed necessary and as appropriate.
- 7.4 A separate surface water drain is shown serving the main parking areas of the site. This will be taken to a dedicated bypass separator that will retain light oils and prevent their discharge to the watercourse.
- 7.5 The watercourse is culverted at two points downstream of the proposed point of discharge. One of these is unused but the other is the access to Jewson. It is suggested the culvert at the access to Jewson should be replaced with a larger pipe in order to be consistent with upstream pipework and likely peak flows. The other culvert could also be replaced if the access is still required, or removed if not, to restore an open watercourse here.
- 7.6 The watercourse that runs just outside the northern boundary of the site is culverted at several points where access/ egress was formally required to commercial units here. These culverts are generally poorly constructed, not fitted with debris screens and are partly blocked/ silted. Some general photographs are included in Appendix 4.
- 7.7 The condition of the watercourse that abuts the site could present a risk of flooding and since it does not appear to perform any useful land drainage or ecological function, it could usefully be piped all along its length here in conjunction with the provision of the two new accesses that are proposed. If this is approved, we would recommend the use of perforated pipes in a granular surround.

8. Foul Water Drainage

- 8.1 There is an existing 225mm diameter foul water sewer running through the site and connecting to the public foul water sewer as indicated on the drawings. It currently drains the Jewson site and other occupied buildings. It is unclear why the sewer was installed as 225mm diameter as it does not appear to be draining any surface water. It may have drained some surface water from previous buildings on the Jewson site or process water from past industrial use.
- 8.2 It is proposed to divert the sewer around new Unit 4 in 150mm diameter and to make a new connection to the public sewer at the southern end of Brockhampton Lane as shown. This will remove poor gradients and backfalls that exist at present.

9. Conclusions

- 9.1 This Drainage and Flood Risk Assessment has been produced in support of a planning application for commercial development on land at Solent Road, Havant.
- 9.2 The site is shown to lie predominantly in Flood Zone 1 with a low risk of flooding but the northwest corner is just within Flood Zone 2. There is therefore a medium risk of flooding here from the nearby Brockhampton Stream but flood depths would not be significant and the proposed commercial re-development of the site is considered appropriate within Technical Guidance to the NPPF. Setting floor levels for the buildings here at 5.60m AOD will ensure that the buildings themselves will have a low risk of flooding and satisfy the sequential approach outlined in the NPPF.
- 9.3 There is a small risk of flooding from a watercourse that abuts the northern boundary of the site and it is suggested that this could be piped in conjunction with the provision of the proposed two new accesses onto Solent Road. There is no indication of flood risk from other sources.
- 9.4 Ground investigations on the site and nearby, indicate a high water table and low percolation rates that are very unlikely to support SUDS features for the disposal of surface water. However, it is recommended that percolation testing to BRE 365 is undertaken in due course to ascertain whether permeable surfaces in some locations are likely to be successful. The existing site has no soakaways but drains to the watercourse and the same strategy is presented here for the re-development of the site. The outfall will need to incorporate a flow control device to limit the discharge to the historical rate of flow from the site. A petrol/ oil separator has been included for drainage of the main parking areas.

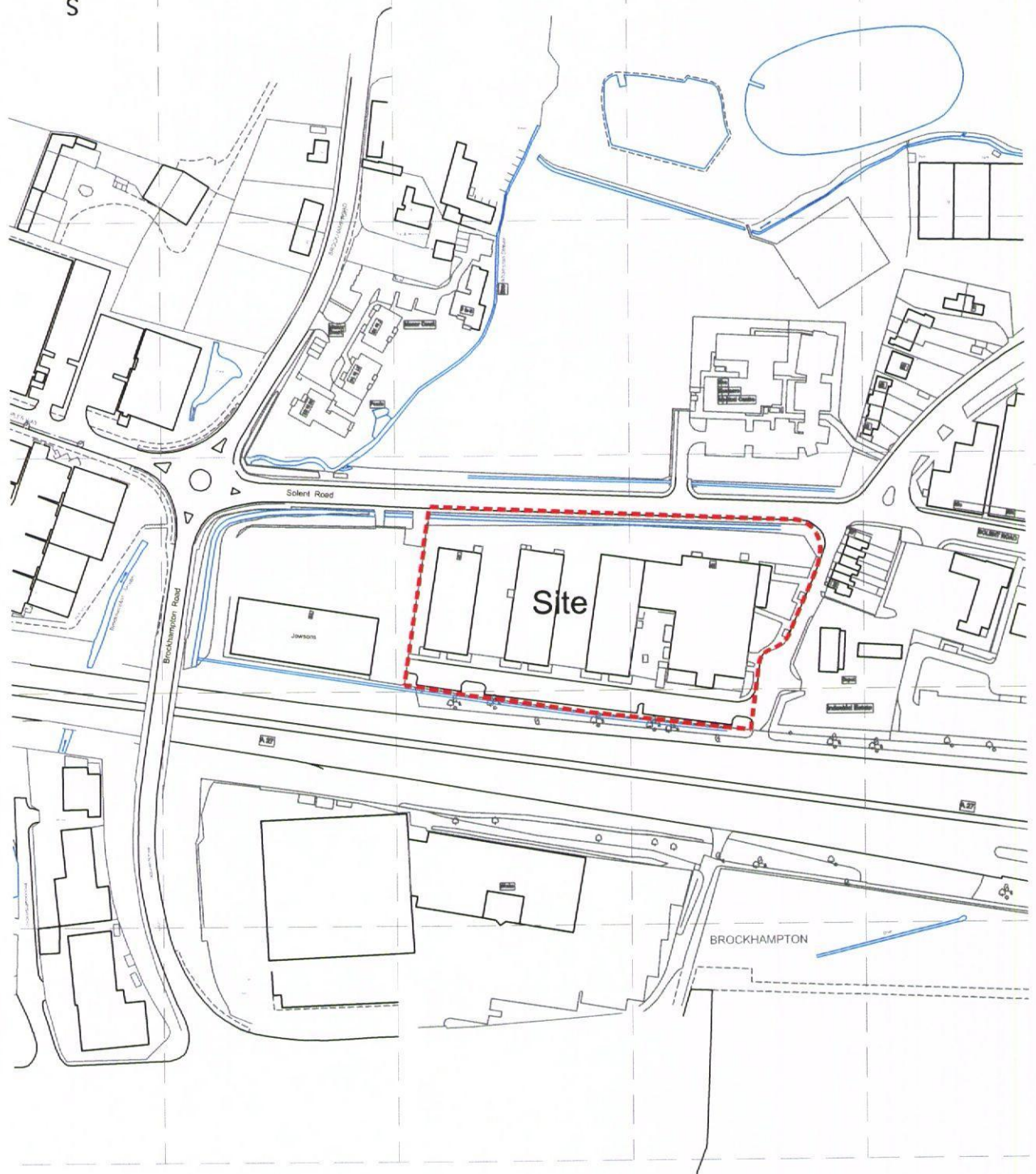
- 9.5 Foul water can be drained to the existing public foul water sewer in Brockhampton Lane in consultation with Southern Water Services Ltd.
- 9.6 We conclude that generally, the site has a low risk of flooding from both internal and external sources and that suitable foul and surface water drainage strategies have been presented here that would enable development to proceed without increasing the risk of flooding elsewhere.

1451-R3/RTFC

Appendix 1

Location Plan, Drawing No. 1451/L1.1

1 page



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Client Hargreaves Properties Ltd					
Project Solent Road Trade Park					
-	Original	PC	RTFC	28.6.12	
Rev.	Description	App.	Chk.	Dm.	Date

Title Location Plan		
Scale 1:2500	At original A4	© Robert Clark Associates Ltd
Drawing Number	1451/L1.1	
Revision		-

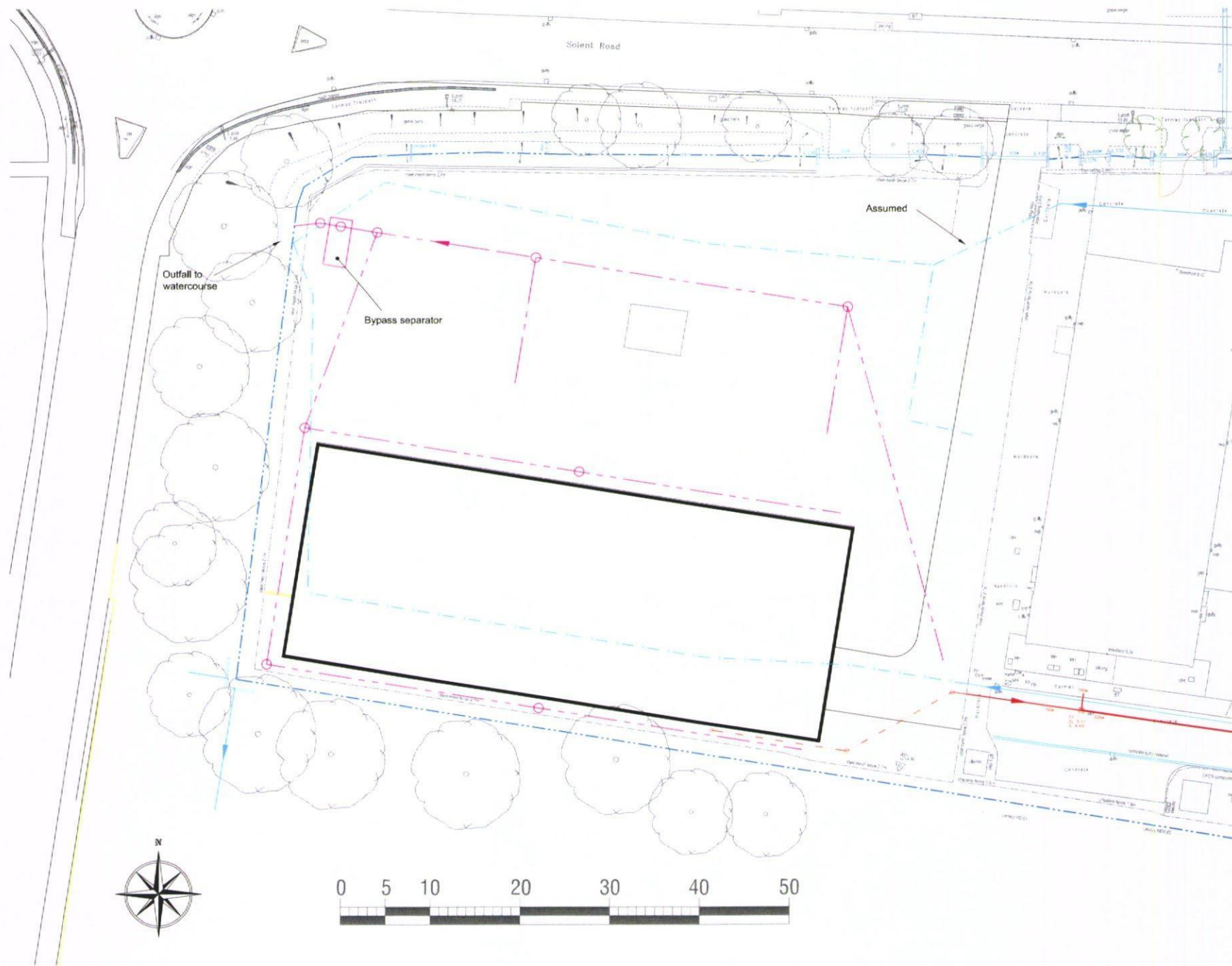
Appendix 2

Existing Drainage, Sheets 1 and 2

Drawing No. 1451/E1.1

Drawing No. 1451/E1.2

2 pages



Notes

KEY

- Surface water drainage serving Jewson
- Foul water drainage serving Jewson
- Existing surface water drainage
- Existing foul water drainage
- Abandoned surface water drainage
- Open ditches
- Public foul water sewer

Original	PG	RTFC	3.7.12
Rev.	Description	App.	CHK.

Client
Hargreaves Properties Ltd

Project
**Solent Road Trade Park
Havant**

Drawing Title
**Existing Drainage
Sheet 1**

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Scale	1:200	At original	A1
Drawing Number	1451/E1.1	Revision	-

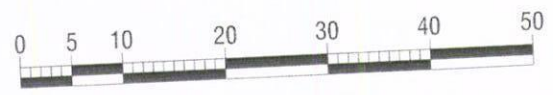


Assumed

7



- KEY**
- Surface water drainage serving Jewson
 - Foul water drainage serving Jewson
 - Existing surface water drainage
 - Existing foul water drainage
 - Abandoned surface water drainage
 - Open ditches
 - Public foul water sewer



Notes

Original	PC	RTFC	37.12		
Rev.	Description	App.	Chk.	Dts.	Date

Client
Hargreaves Properties Ltd

Project
**Solent Road Trade Park
Havant**

Drawing Title
**Existing Drainage
Sheet 2**

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Drawing Number	1451/E1.2		Revision
			-

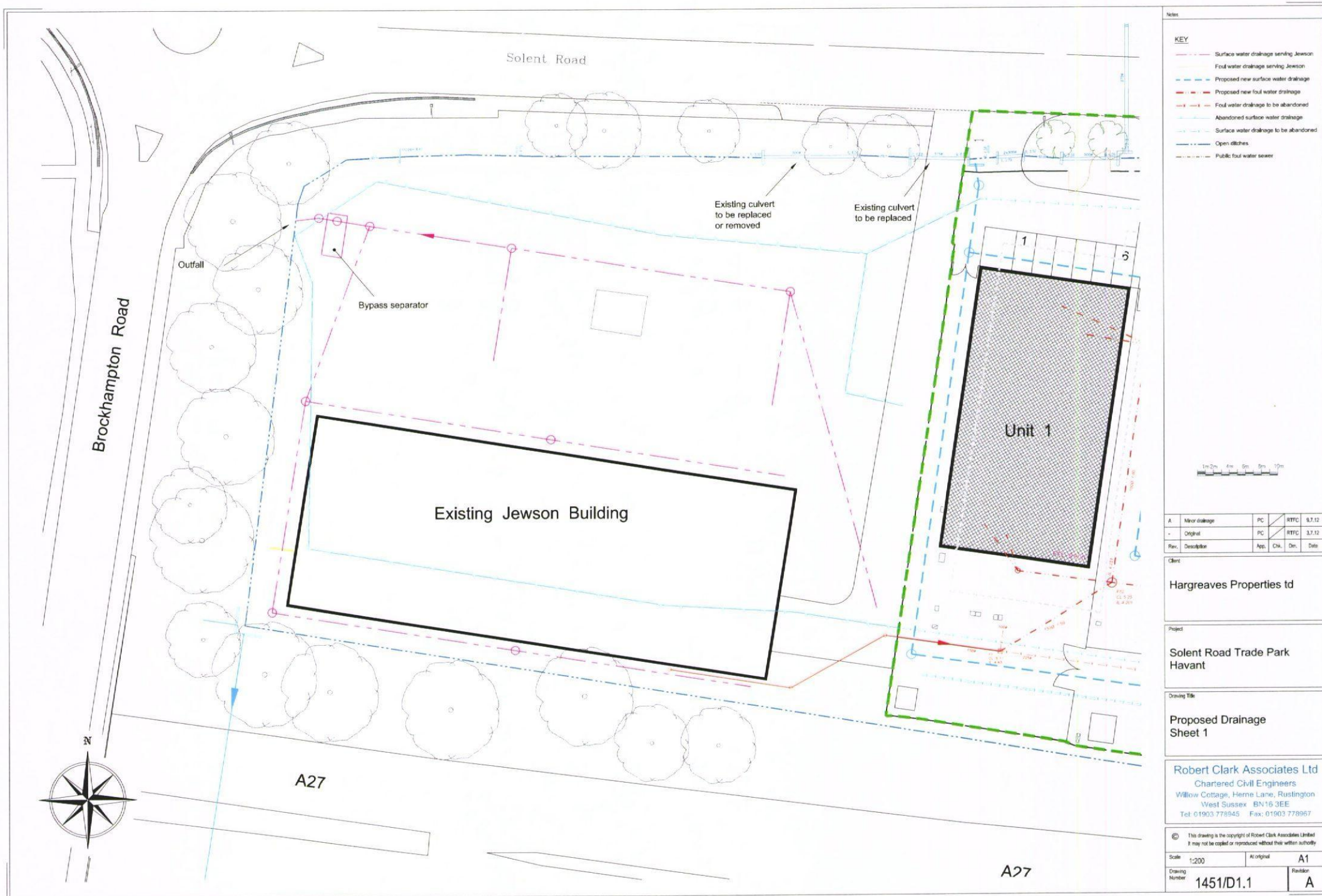
Appendix 3

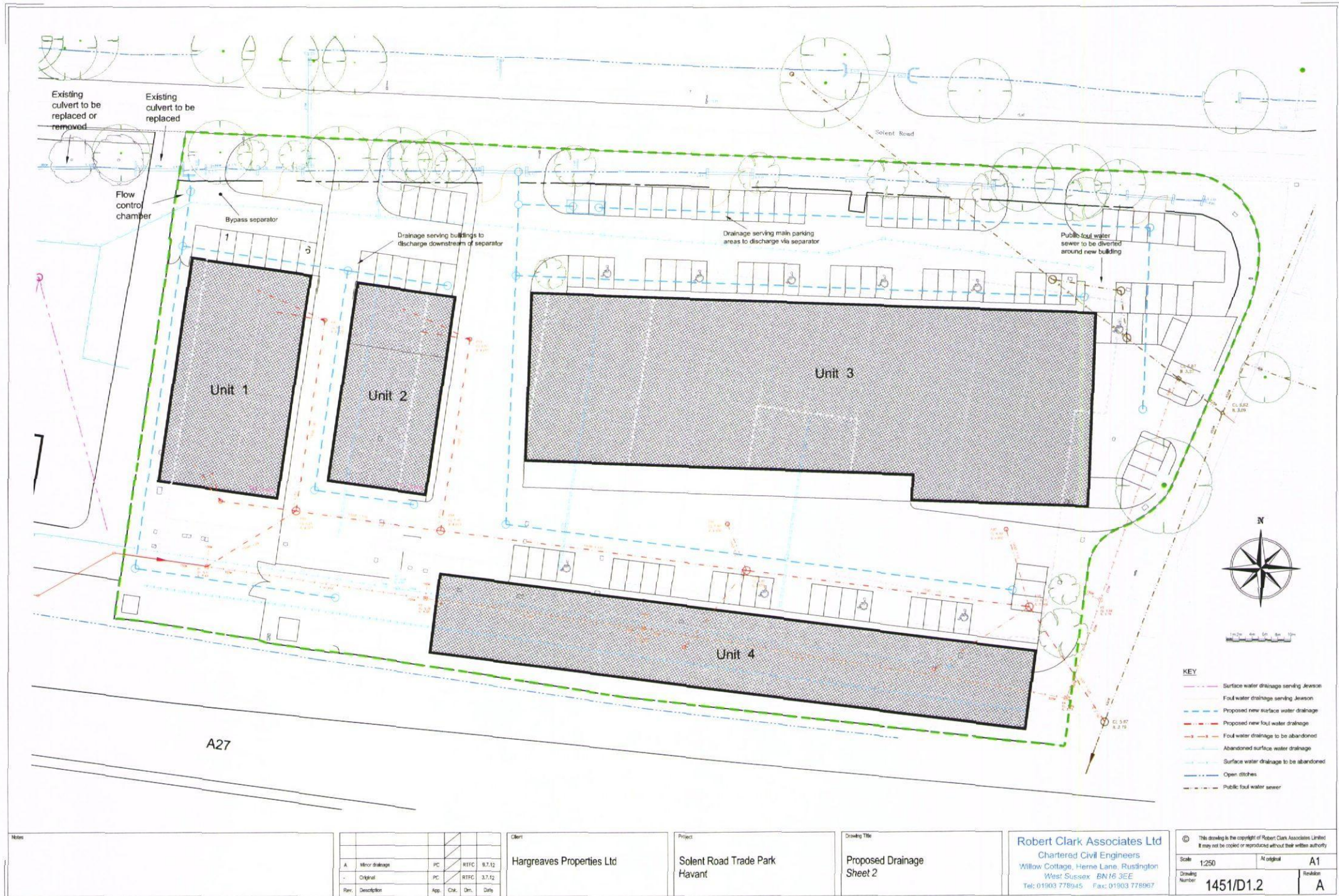
Proposed Drainage, Sheets 1 and 2

Drawing No. 1451/D1.1A

Drawing No. 1451/D1.2A

1 page





Notes

Rev.	Description	App.	Chk.	Dim.	Date
A	Minor drainage	PC	RTFC	9.7.12	
-	Original	PC	RTFC	3.7.12	

Client
Hargreaves Properties Ltd

Project
Solent Road Trade Park
Havant

Drawing Title
Proposed Drainage
Sheet 2

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Scale	1:250	At original	A1
Drawing Number	1451/D1.2	Revision	A

Appendix 4

Watercourse photographs

1 page

Photographs of watercourse along southern side of Solent Road, taken from east to west



Blocked crossing



General poor state of watercourse



Blocked crossing



Partially blocked crossing



Partially blocked crossing



Partially blocked crossing