Do not scale drawings. All dimensions to be checked on site.
Errors to be reported immediately to landscape architect.
To be read in conjunction with all relevant architects, Services and engineers drawings.

Revision Tracker
00 - Planning Submission

Status
S0 MARCH.2021

Churchman Thornhill Finch

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Bristol
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mail@churchmanthornhillfinch.co.uk

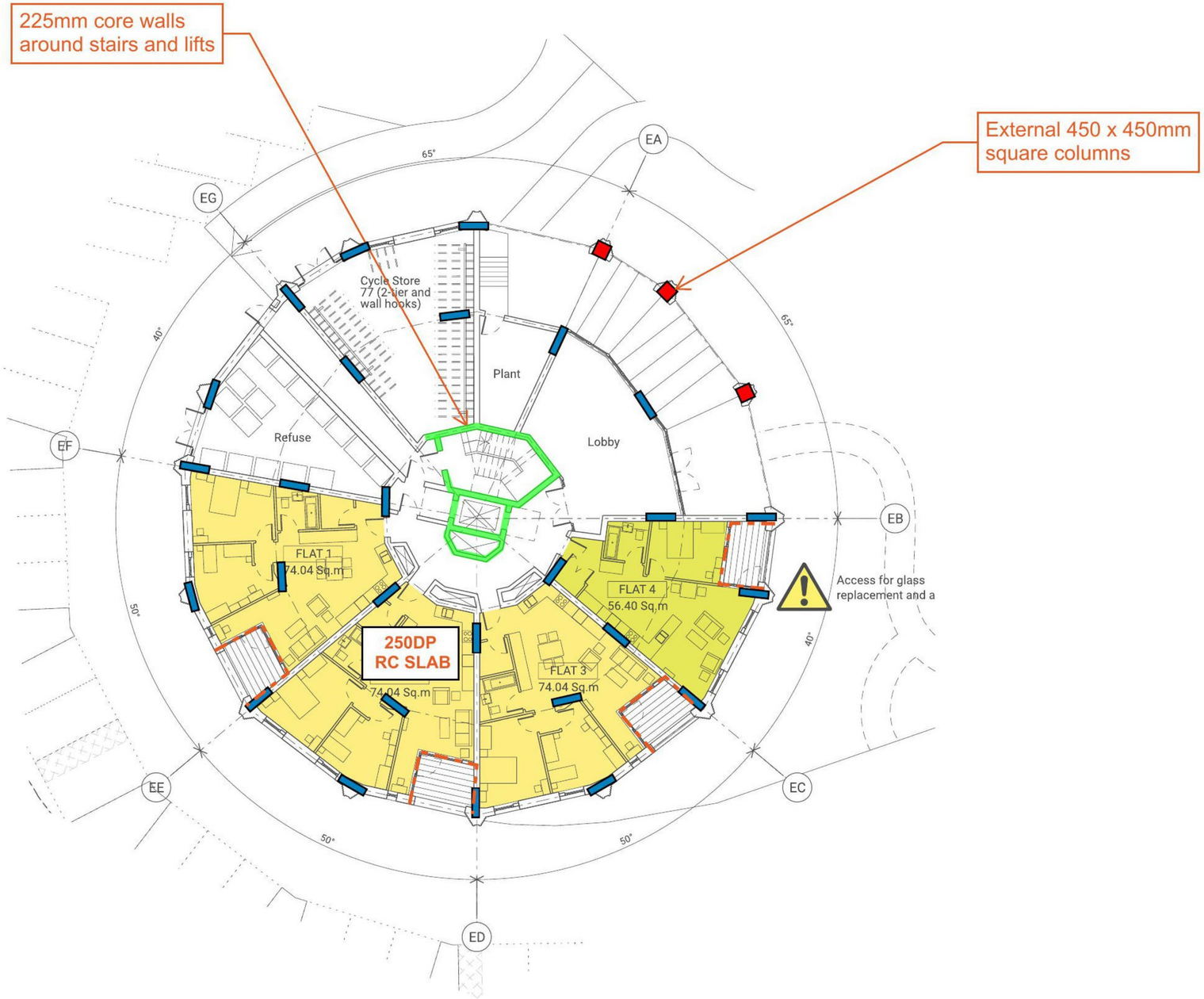
Date 09.11.2020
Scale 1:250/A1
Drawn FP/AT

Location Sevenoaks
Client KIN Developments

Sevenoaks Gasholders Site
General Arrangement Landscape Plan

573-CTF-XX-00-DR-L-1000

Status **S0**
Revision **00**



Structural Schedule

RC Columns

1000 x 250 mm

450 x 450 mm

RC Walls

225 mm

Thermal Break

Sevenoaks Gasholder Site

Rotunda Structural Scheme

Ground Floor (L00)

General Notes:

Assumed loadings:

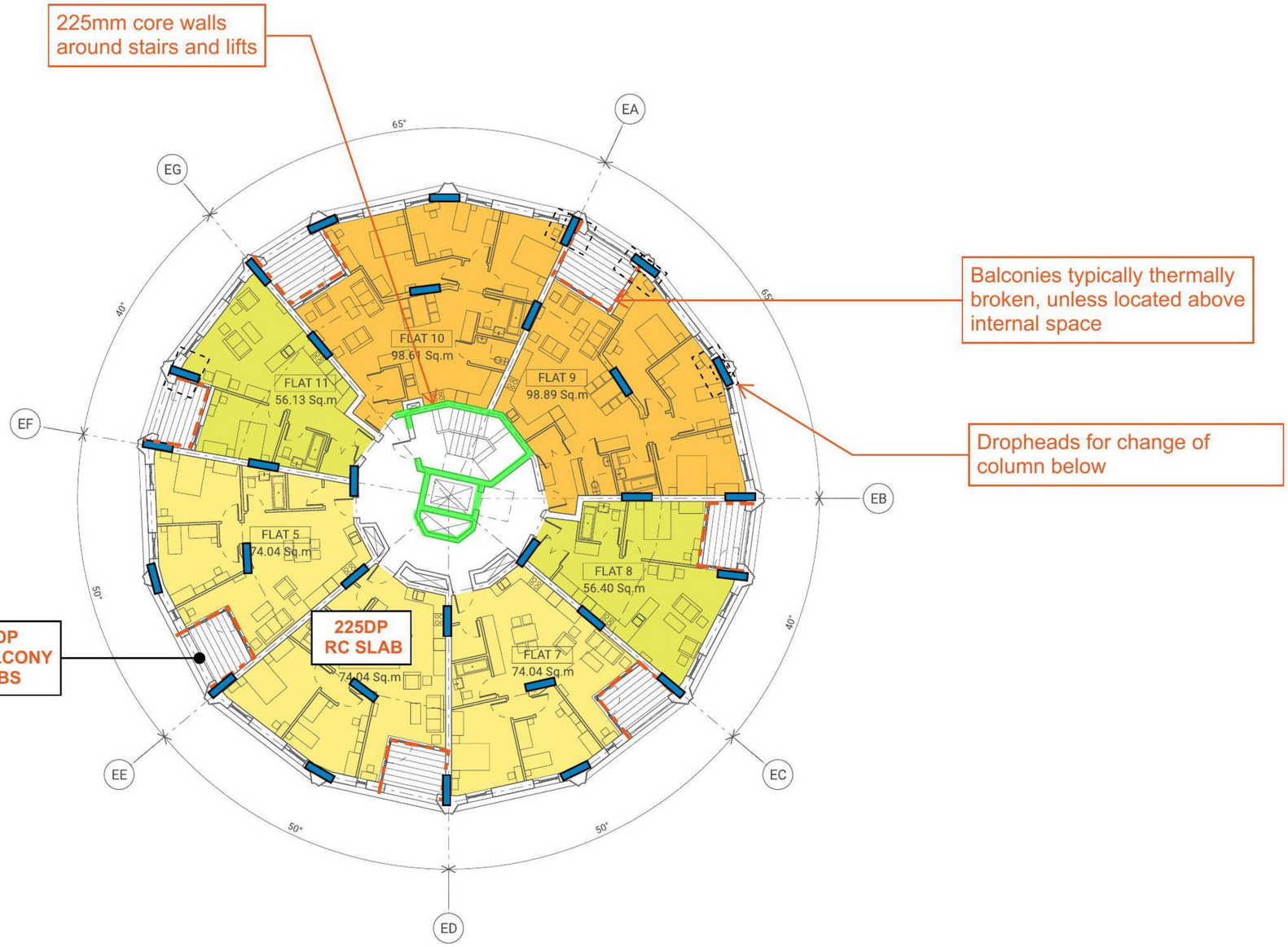
Residential

SDL = 1.0kN/m^2 (no screed)
LL = 2.5 kN/m^2
Facade = 20kN/m (precast concrete)

PRELIMINARY

whitby wood

Project Title:		Sevenoaks Gasholder Site		
Project No:		P450483		
Sketch No:		SK-001		
Title:		Rotunda - Flat slab GF		
Scale:	Rev:	Date:	Eng:	Checked:
NTS	03	01/03/21	AZ	AS



Structural Schedule

RC Columns

1000 x 250 mm

450 x 450 mm

RC Walls

225 mm

Thermal Break

Sevenoaks Gasholder Site

Rotunda Structural Scheme

First Floor (L01)

General Notes:

Assumed loadings:

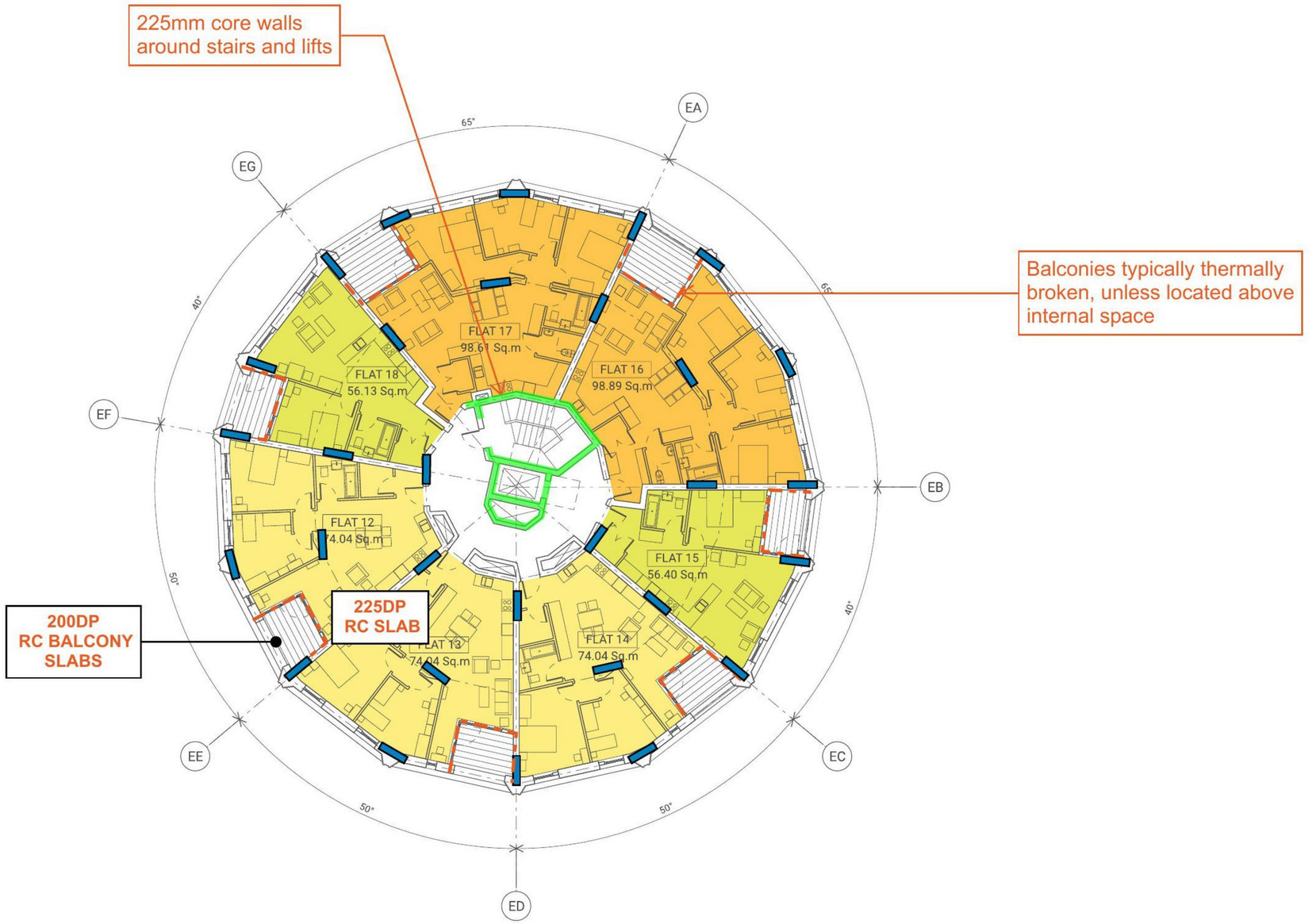
Residential

SDL = 1.0kN/m^2 (no screed)
LL = 2.5 kN/m^2
Facade = 20kN/m (precast concrete)

PRELIMINARY

whitby wood

Project Title:		Sevenoaks Gasholder Site		
Project No:		P450483		
Sketch No:		SK-001		
Title:		Rotunda - Flat slab Lvl 1		
Scale:	Rev:	Date:	Eng:	Checked:
NTS	03	01/03/21	AZ	AS



Structural Schedule

RC Columns

900 x 225 mm

450 x 450 mm

RC Walls

225 mm

Thermal Break

Sevenoaks Gasholder Site

Rotunda Structural Scheme

Typical Floor (L02 - L09)

General Notes:

Assumed loadings:

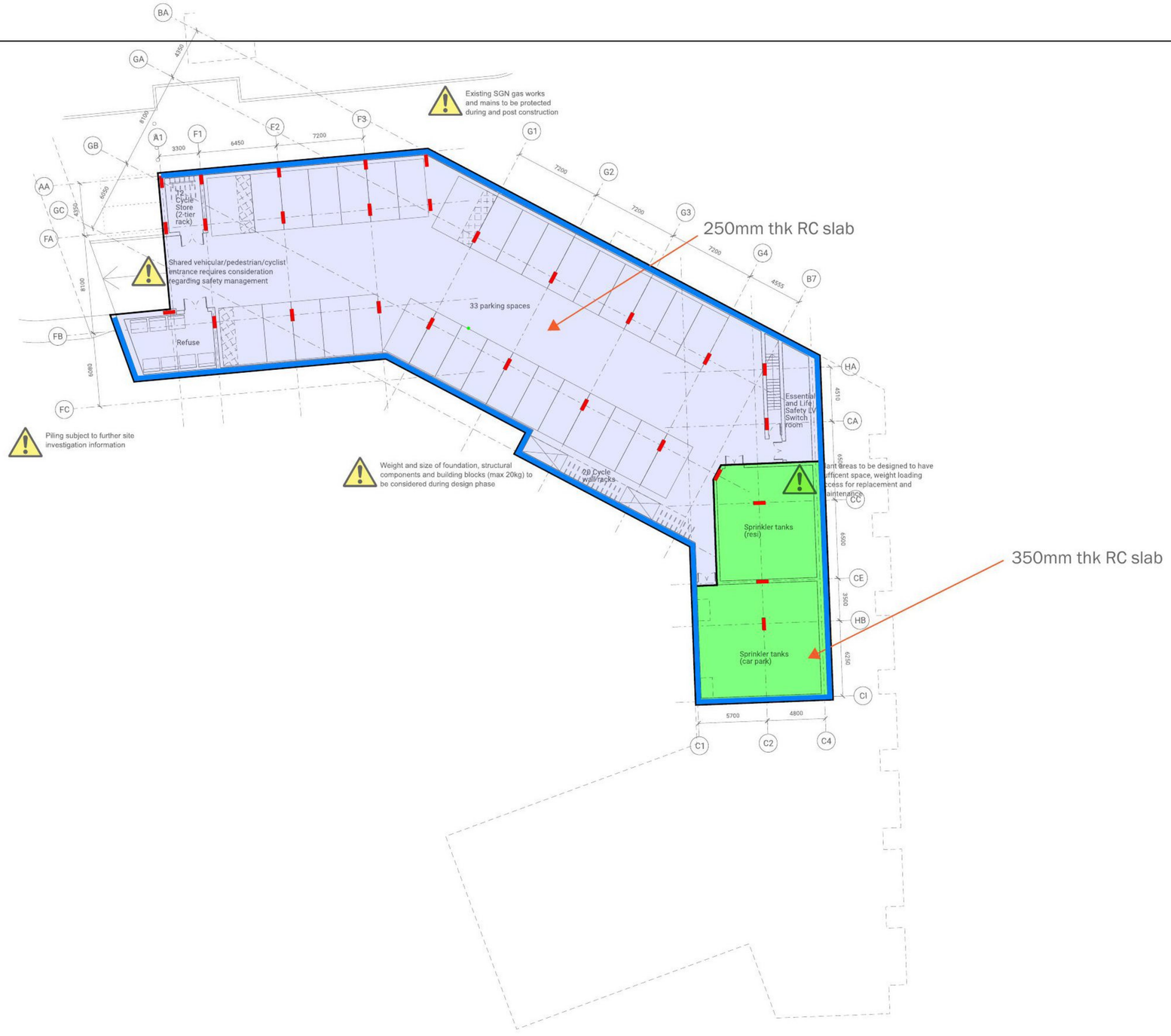
Residential

SDL = 1.0kN/m² (no screed)
LL = 2.5 kN/m²
Facade = 20kN/m (precast concrete)

PRELIMINARY

whitby wood

Project Title:		Sevenoaks Gasholder Site		
Project No:		P450483		
Sketch No:		SK-001		
Title:		Rotunda - Flat slab Lvl 2-9		
Scale:	Rev:	Date:	Eng:	Checked:
NTS	03	01/03/21	AZ	AS



350x1000mm RC columns

250mm thk RC wall

Sevenoaks Gasholder Site

Main Building - Masonry + Precast

Podium

General Notes:

Assumed loadings:

Car park

SDL = 0kN/m²
LL = 2.5 kN/m²

Sprinkler tank
SDL = 0kN/m²
LL = 20kN/m²

Stability of podium provided by moment frame

PRELIMINARY

whitby wood

Project Title:		Sevenoaks Gasholder Site		
Project No:		P450483		
Sketch No:		SK-004		
Title:		Main Building - Masonry + Precast Podium		
Scale:	Rev:	Date:	Eng:	Checked:
NTS	07	01/03/21	AZ	AS

Sevenoaks Gasholder Site

Main Building - Masonry + Precast

Ground Floor (L00)

General Notes:

Assumed loadings:

Residential

SDL = 1.0kN/m^2 (no screed)
LL = 2.5 kN/m^2

Assumed medium dense blocks (e.g. Stowlite) to reduce weight of individual blocks. At GF only, 140mm blocks require 10.4N strength and weigh approx 22kg so may require mechanical lifting.

The portion of the building over the podium is assumed class 2B for robustness as lower ground is a partial basement so should be counted as an above ground storey. Therefore horizontal and vertical ties are required - refer to SK-005 for details

PRELIMINARY

whitby wood

Project Title:		Sevenoaks Gasholder Site		
Project No:		P450483		
Sketch No:		SK-004		
Title:		Main Building - Masonry + Precast GF		
Scale:	Rev:	Date:	Eng:	Checked:
NTS	07	01/03/21	AZ	AS

150mm hollowcore + 50mm topping

Load bearing external cavity wall (inner leaf 140mm blockwork)

Load bearing blockwork wall (140mm thk)

Load bearing blockwork cavity wall (140 + 100mm + 100mm cavity)

Load bearing blockwork wall (2 x 100mm + 100mm cavity)

Non-load bearing blockwork wall (2 x 100mm + 100mm cavity)

Non-load bearing blockwork wall (100mm thk)

UC 305x305x240

UC 305x305x137

UC 254x254x107

UC 203x203x60

UC 152x152x30

Sevenoaks Gasholder Site

Main Building - Masonry + Precast

First Floor (L01)

General Notes:

Assumed loadings:

Residential

SDL = 1.0kN/m^2 (no screed)
LL = 2.5 kN/m^2

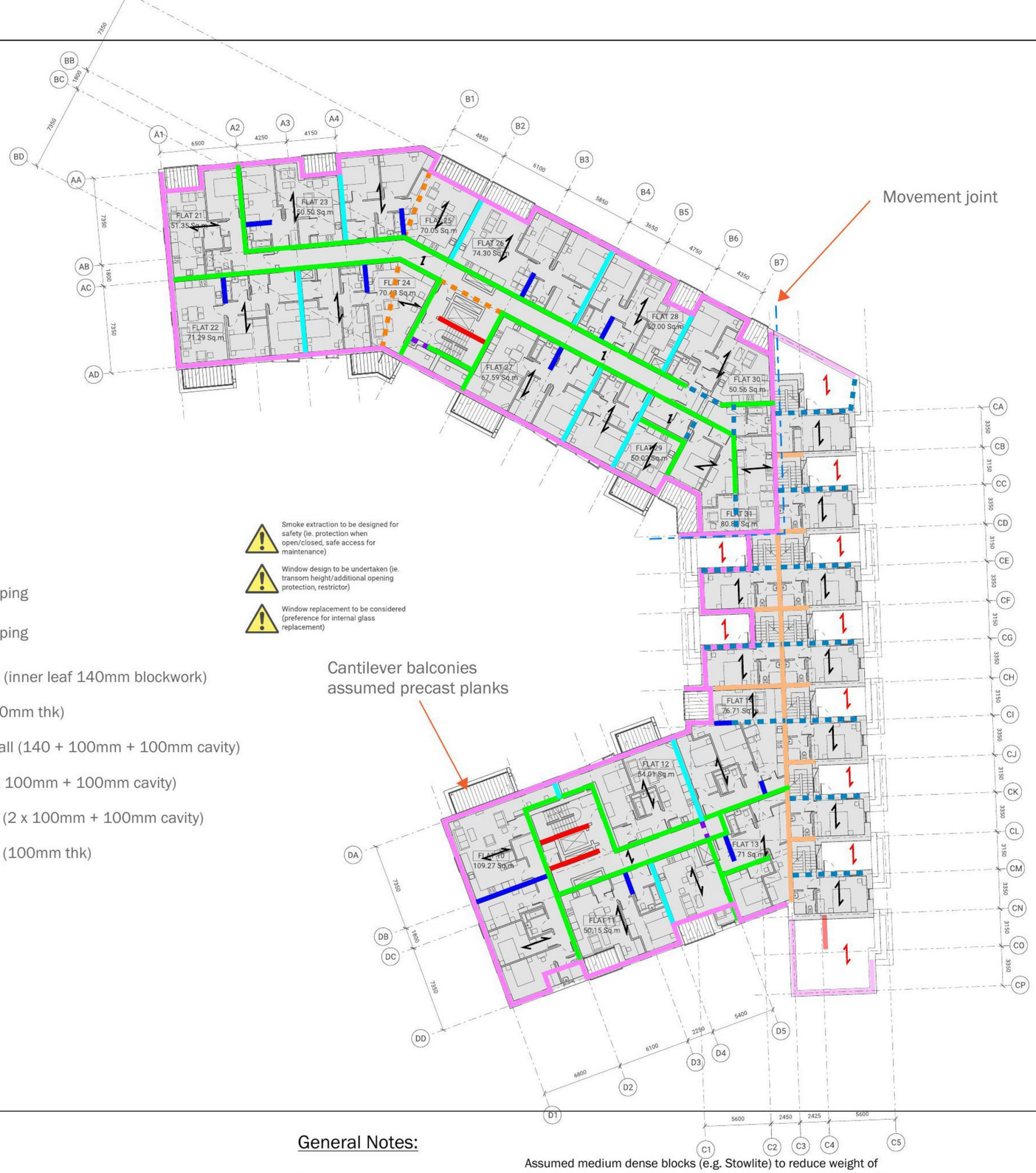
Assumed medium dense blocks (e.g. Stowlite) to reduce weight of individual blocks. At GF only, 140mm blocks require 10.4N strength and weigh approx 22kg so may require mechanical lifting.

The portion of the building over the podium is assumed class 2B for robustness as lower ground is a partial basement so should be counted as an above ground storey. Therefore horizontal and vertical ties are required - refer to SK-005 for details

PRELIMINARY

whitby wood

Project Title:	Sevenoaks Gasholder Site			
Project No:	P450483			
Sketch No:	SK-004			
Title:	Main Building - Masonry + Precast Lvl 1			
Scale:	Rev:	Date:	Eng:	Checked:
NTS	07	01/03/21	AZ	AS



Smoke extraction to be designed for safety (ie. protection when open/closed, safe access for maintenance)

Window design to be undertaken (ie. transom height/additional opening protection, restrictor)

Window replacement to be considered (preference for internal glass replacement)

200mm hollowcore + 50mm topping

150mm hollowcore + 50mm topping

Load bearing external cavity wall (inner leaf 140mm blockwork)

Load bearing blockwork wall (140mm thk)

Load bearing blockwork cavity wall (140 + 100mm + 100mm cavity)

Load bearing blockwork wall (2 x 100mm + 100mm cavity)

Non-load bearing blockwork wall (2 x 100mm + 100mm cavity)

Non-load bearing blockwork wall (100mm thk)

UC 305x305x240

UC 305x305x137

UC 254x254x107

UC 203x203x60

UC 152x152x30

Sevenoaks Gasholder Site

Main Building - Masonry + Precast

Second Floor (L02)

General Notes:

Assumed loadings:

Residential

SDL = 1.0kN/m^2 (no screed)
LL = 2.5 kN/m^2

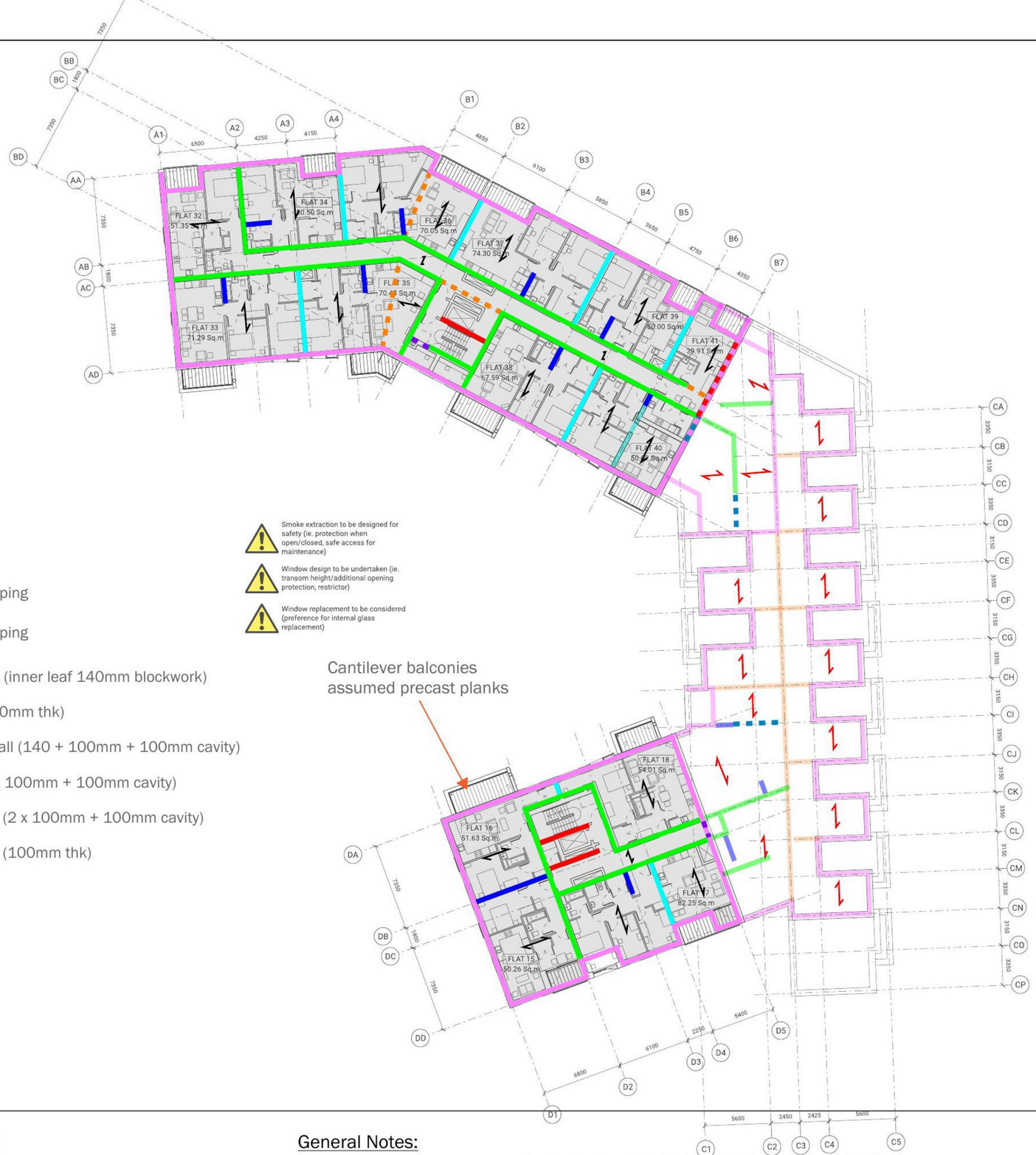
Assumed medium dense blocks (e.g. Stowlite) to reduce weight of individual blocks. At GF only, 140mm blocks require 10.4N strength and weigh approx 22kg so may require mechanical lifting.

The portion of the building over the podium is assumed class 2B for robustness as lower ground is a partial basement so should be counted as an above ground storey. Therefore horizontal and vertical ties are required - refer to SK-005 for details

PRELIMINARY

whitby wood

Project Title:	Sevenoaks Gasholder Site			
Project No:	P450483			
Sketch No:	SK-004			
Title:	Main Building - Masonry + Precast Lvl 2			
Scale:	Rev:	Date:	Eng:	Checked:
NTS	07	01/03/21	AZ	AS



Smoke extraction to be designed for safety (ie. protection when open/closed, safe access for maintenance)

Window design to be undertaken (ie. transom height/additional opening protection, restrictor)

Window replacement to be considered (preference for internal glass replacement)

- 200mm hollowcore + 50mm topping
- 150mm hollowcore + 50mm topping
- Load bearing external cavity wall (inner leaf 140mm blockwork)
- Load bearing blockwork wall (140mm thk)
- Load bearing blockwork cavity wall (140 + 100mm + 100mm cavity)
- Load bearing blockwork wall (2 x 100mm + 100mm cavity)
- Non-load bearing blockwork wall (2 x 100mm + 100mm cavity)
- Non-load bearing blockwork wall (100mm thk)

- UC 305x305x240
- UC 305x305x137
- UC 254x254x107
- UC 203x203x60
- UC 152x152x30

Sevenoaks Gasholder Site

Main Building - Masonry + Precast

Third Floor (L03)

General Notes:

Assumed loadings:

Residential

SDL = 1.0kN/m^2 (no screed)
LL = 2.5 kN/m^2

Roof areas
SDL = 1.0kN/m^2 (no screed)
LL = 5.0kN/m^2 (plant)

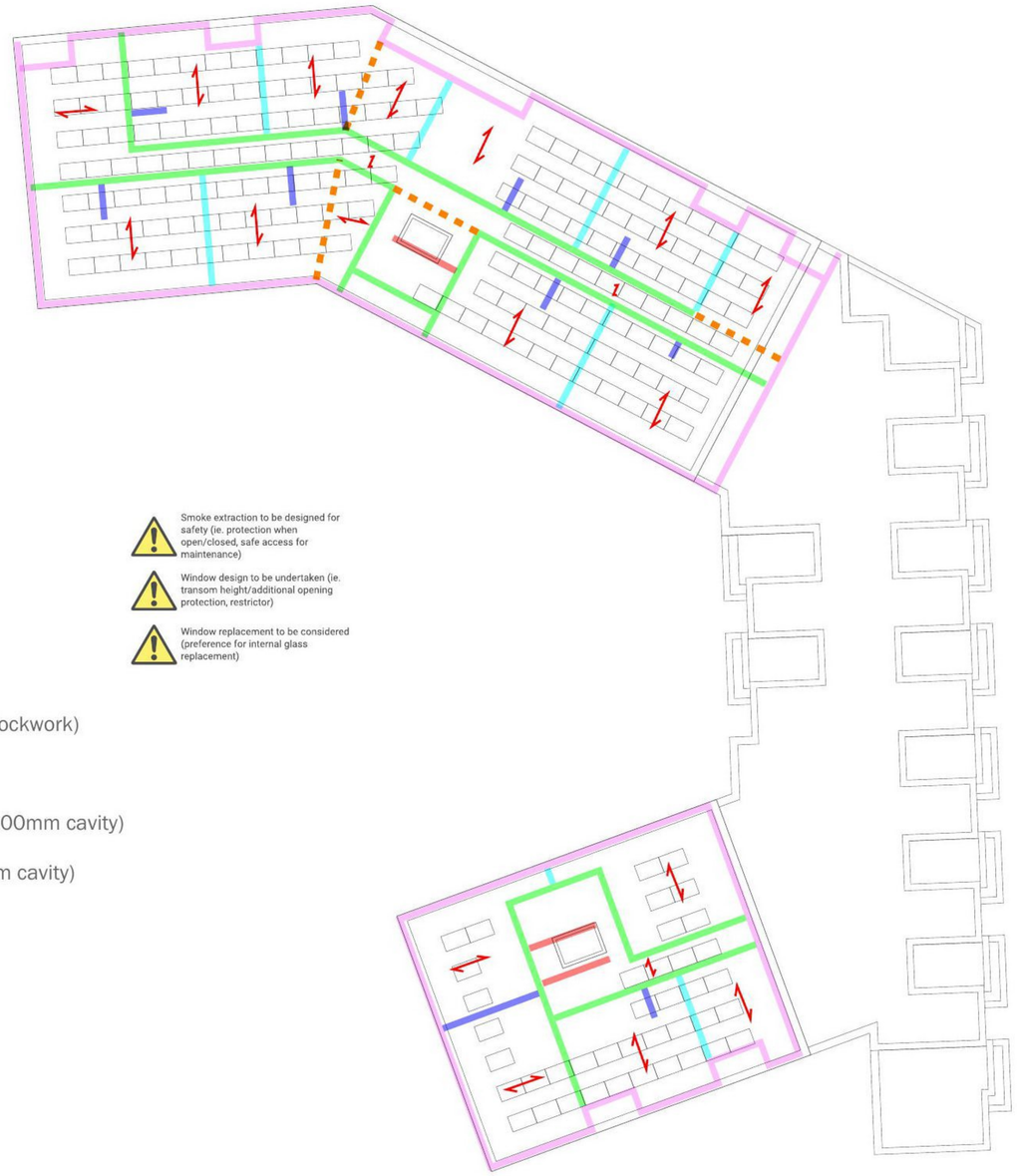
Assumed medium dense blocks (e.g. Stowlite) to reduce weight of individual blocks. At GF only, 140mm blocks require 10.4N strength and weigh approx 22kg so may require mechanical lifting.

The portion of the building over the podium is assumed class 2B for robustness as lower ground is a partial basement so should be counted as an above ground storey. Therefore horizontal and vertical ties are required - refer to SK-005 for details

PRELIMINARY

whitby wood

Project Title:		Sevenoaks Gasholder Site		
Project No:		P450483		
Sketch No:		SK-004		
Title:		Main Building - Masonry + Precast Lvl 3		
Scale:	Rev:	Date:	Eng:	Checked:
NTS	07	01/03/21	AZ	AS



200mm hollowcore + 50mm topping

Load bearing external cavity wall (inner leaf 140mm blockwork)

Load bearing blockwork wall (140mm thk)

Load bearing blockwork cavity wall (140 + 100mm + 100mm cavity)

Non-load bearing blockwork wall (2 x 100mm + 100mm cavity)

UC 305x305x137

UC 152x152x30

Sevenoaks Gasholder Site

Main Building - Masonry + Precast

Fourth Floor (L04/Roof)

General Notes:

Assumed loadings:

Residential

SDL = 1.0kN/m² (no screed)
LL = 2.5 kN/m²

Roof areas
SDL = 1.0kN/m² (no screed)
LL = 5.0kN/m² (plant)

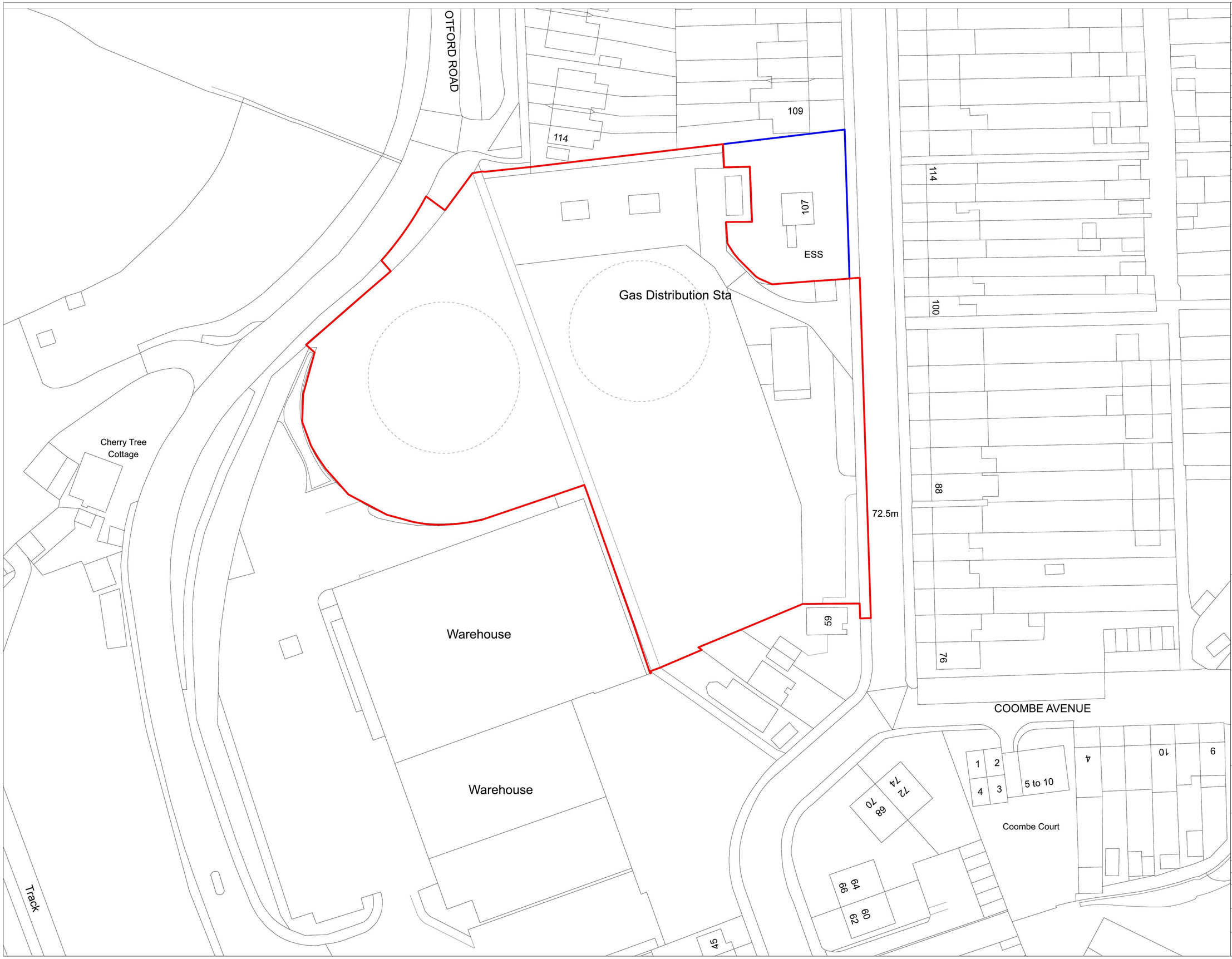
Assumed medium dense blocks (e.g. Stowlite) to reduce weight of individual blocks. At GF only, 140mm blocks require 10.4N strength and weigh approx 22kg so may require mechanical lifting.

The portion of the building over the podium is assumed class 2B for robustness as lower ground is a partial basement so should be counted as an above ground storey. Therefore horizontal and vertical ties are required - refer to SK-005 for details

PRELIMINARY

whitby wood

Project Title:		Sevenoaks Gasholder Site		
Project No:		P450483		
Sketch No:		SK-004		
Title:		Main Building - Masonry + Precast Lvl 4		
Scale:	Rev:	Date:	Eng:	Checked:
NTS	07	01/03/21	AZ	AS



ISSUE	REVISION NOTE	DATE
A	Issued for Information	13.08.2020
B	Stage 2 Report	02.09.2020
C	Issued for Information	11.11.2020
D	Issued for Information	25.11.2020
E	Issued for Information	18.02.2021

GENERAL NOTES

1. DO NOT SCALE DRAWINGS
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED
3. ALL DIMENSIONS SHALL BE VERIFIED ON SITE BEFORE PROCEEDING WITH THE WORK
4. REPORT ANY DISCREPANCIES WITH CONTRACT DOCUMENTATION AND / OR CONSULTANTS' DRAWINGS

LEGEND

SGN OWNERSHIP BOUNDARY

PLANNING APPLICATION BOUNDARY

0 2 5 10 20M

N

SGN Place

MAX architects
Chester House, Unit 1.09
Kennington Park, 1-3 Brixton Road
London SW9 6DE

SEVENOAKS GASHOLDER SITE

LOCATION PLAN

DIRECTOR	MT	CHECKED	MT
DRAWN	AG	APPROVED	MT
PROJECT NO.	0330	FIRST ISSUE	13.08.2020
SCALE	1:750 @ A3 1:375 @ A1	REVISION	E
DRAWING NO.			0330_0005

Appendix D: Historical Ground Investigation Information

HARRISON & COMPANY

(Soils and Foundation Engineers) Limited.
117 Beulah Road, Thornton Heath, Surrey CR7 8JJ.
Telephone 081 653 9168 Fax 081 768 0628

Directors: David Harrison B.Sc.(Eng), F.G.S., Allen Davis M.Sc., Ph.D., D.Sc., Malcolm Price M.Sc., C.Eng., M.I.C.E., F.G.S., Pauline Clarke (Secretary), Associate: Michael Hoar B.Sc., C.Geol., F.G.S.
Consultant: Eric Steger B.Sc., C.Eng., F.I.C.E., F.I. Struct.E., F.G.S.

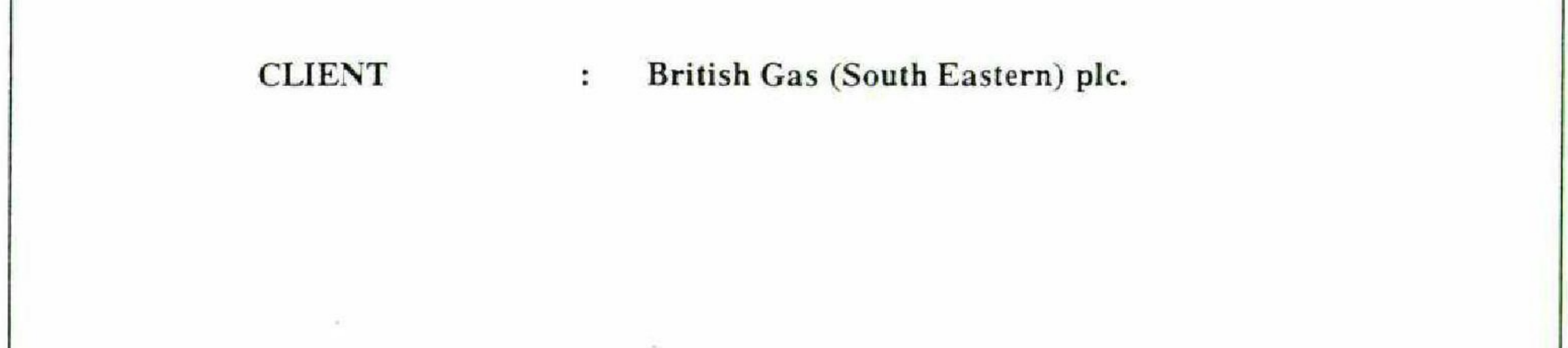
Registered in England No. 1306165. Registered Office: 50 Unthank Road, Norwich.

REPORT No. : **C1935 / 22**

DATE : **November 1992**

LOCATION : **Otford Road, Sevenoaks, Kent.**

CLIENT : **British Gas (South Eastern) plc.**



FOREWORD

General Conditions Relating To Site Investigation

The information provided in this report is based on the ground conditions revealed by the site works, together with an assessment of the site and of laboratory test results. Whilst opinions may be expressed relating to sub-soil conditions in parts of the site not investigated, for example, between trial hole and borehole positions, these are only for guidance and no liability can be accepted for their accuracy.

Unless otherwise stated in this report sampling was undertaken using a J.C.B. type mechanical excavator and, in places of restricted access, hand portable, drive-in-sampler boring techniques was used. Whilst these methods are regarded as being one of the most reliable and practical for such an investigation, a certain amount of mixing of soils is inevitable.

The groundwater conditions entered on the trial pit and borehole records are those observed at the time of the investigation. The normal rates of excavation, or boring, usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions.

Excavation, boring and sampling procedures were undertaken in accordance with the British Gas's 'Technical Specification for Assessing Soil Contamination", (April 1992). Likewise laboratory testing complies with the guidelines given in British Gas's Technical Specification (April 1992) unless stated otherwise in the text. All testing was carried out by Messrs. Applied Environmental Research Centre Limited, a British Gas accredited laboratory.

This report is produced for the benefit of the Client alone. No responsibility can be accepted for any consequences of this information being passed to a third party who may act upon its contents.

CONTENTS

FACTUAL REPORT

ON A

CONTAMINATED LAND BOUNDARY SURVEY

AT

OTFORD ROAD, SEVENOAKS, KENT

FOR

BRITISH GAS (South Eastern) plc

1 INTRODUCTION

The work covered by this report was carried out by Harrison & Company (Soils and Foundation Engineers) Limited, to the instructions of the Client, British Gas (South Eastern) plc., under their Order No. CA2054, dated 26th May 1992.

The site under consideration was located at Otford Road, Sevenoaks, Kent. The investigation was required to provide factual information on the sub-soil characteristics of the site and to assess any potential for soil contamination.

This report presents the work carried out and outlines the findings.

2 DESK STUDY

A small desk study has been undertaken by Harrison & Company at this site in order to ascertain past and more recent land use purposes. In addition, former site boundaries and whether the site had contained other buildings or structures together with their approximate locations has been investigated.

The desk study involved the collection and review of the limited historic information available concerning the site. In particular, the map room of the Kent Record Office was visited and old Ordnance Survey maps studied.

Included in the appendix to this report are copies of four Ordnance Survey County Series Sheets together with the most recent map obtained from the archives at British Gas of the site. Between the period of 1871 to present the maps revealed the following information :

2.1 O.S. County Series Map, Kent Sheet XXIX (Published 1871), 1st. Edition. **(Scale 1:10560)**

Due to the small scale of the map details of the site cannot be clearly distinguished. However, the map does indicate that the gas works was established at this time and it would appear that three unspecified buildings together with two holders occupy the central and southern areas of the site. In addition, the site is shown to be bounded by open fields. (Drawing No. C1935/22/1).

2.2 **O.S. County Series Map, Kent Sheet XXIX - S.W. (Published 1897), 2nd. Edition. (Scale 1:10560)**

Similarly, due to the small scale of the map it is difficult to clearly define the boundary of the gas works site. However, it can now be seen that there are at least five unspecified buildings occupying the southern area of the site together with three holders located in the central and northern areas of the site. (Drawing No. C1935/22/2).

2.3 **O.S. County Series Map, Kent Sheet XXIX.13 (Published 1909), 3rd. Edition. (Scale 1:2500)**

The site is shown to be roughly rectangular in outline and still mainly bounded by open fields. The two northernmost holders are shown to have been removed and a tramway line now enters the site via the southern boundary. (Drawing No. C1935/22/3).

2.4 **O.S. County Series Map, Kent Sheet XXIX.13, Revision of 1936. (Scale 1:2500)**

The site has increased in size extending southwards along the tramway / railway siding. A number of unspecified buildings and tanks together with a crane system have developed. Three new holders are now shown to occupy the northern area of the site with the holder formerly sited roughly in the centre of the site having been removed. An open plot of land remains adjacent to part of the eastern boundary but, generally, residential properties have now developed along the southern and eastern boundaries while the northern and western boundaries remain open land. (Drawing No. C1935/22/4).

2.5 Map Supplied by British Gas, May 1935.

The area of the site is now shown to have reduced considerably in size and moved to the previously vacant plot of land adjacent to the gas work site as described in O.S. Kent Sheet Revision of 1936, Drawing No. C1935/22/4. Only one holder remains in the north eastern corner of the 'old' gas works site with an additional holder now shown on the 'new' site. Further, a number of unspecified buildings are also shown to occupy the 'new' site. (Drawing No. C1935/22/5).

2.6 Existing Site

At the time of writing this report the existing site, which was approximately 1.00 hectares in area, was an operational gas works site with a small office and secure stores together with two gas holder compound areas and a pressure reducing station. A plan showing the layout of the gas works in 1949is shown in Drawing No. C1935/22/6. The most recent map showing the layout of the site is indicated in Drawing No. C1935/22/5.

The site sloped gently from the south east to the north west and the surface topography varied across the site consisting of a car park and access road with tarmacadam cover, occasional small buildings, two gas holders and a gravel covered pressure reducing station to the northern area of the site and booster unit in the central area of the site with, in parts, grass and paving slab cover.

The gas holder compound to the west was divided from the main gas works site by security fencing together with a public footpath. However, access can be obtained via a footbridge over the public footpath. This holder compound area was slightly raised, being sited on a gentle hill, with a retaining wall, approximately 1.50m to 2.00m in height, along the boundary fronting Otford Road. Surface topography varied, with tarmac and concrete cover in parts, but generally composed of made ground with patches of overgrown vegetation.

In addition, there was an area of relatively flat made ground to the south of the site used by local contractors for material storage.

2.7 Services

At the time of writing this report it was believed that the site was underlain by limited gas, electricity and water main services together with a drainage system.

Limited service drawings provided by the Client reveal a number of gas mains to underlie the site. Some gas mains are believed to be redundant but presently used gas mains include two eighteen inch and one eight inch district gas mains running adjacent to the public footpath which dissects the site. These gas mains are connected to the booster unit and pressure reducing station. In addition, a twelve inch high pressure gas main runs parallel to the northern boundary with an additional twelve inch gas main linking the pressure reducing station to the booster unit. Copies of the service drawings showing the approximate gas main locations are appended to this report.

In addition, a service drawing showing the extent of electricity supplies on the site is also appended to this report. An electricity cable is shown to enter the site at the main gates on The Hill / St. David's Bridge and linking up to the Segas office building.

No service drawings were provided by British Gas for electricity, water or drainage, although these services are known to exist in parts of the site. An electricity sub-station is located along the eastern boundary, near to the entrance gate on Crampton's Road, although it was believed that electricity supply cables left the site and ran along Crampton's Road. However, there was an electricity supply cable recently laid which was shown to enter the site near to the entrance gate on Crampton's Road and was believed to link up to the office building and an electric meter kiosk by the side of the electricity sub-station.

At present, there is no surface drainage, such as streams or rivers, on site. However, it may be that perched water tables occur in the made ground encountered across the site.

3 FIELDWORK

Prior to any site works a site visit and site appraisal was carried out. All trial pit locations were checked with a cable avoidance tool, together with the study of any available drawings indicating possible nearby services. Once the location was agreed the trial pit position was marked out. The site visit was carried out on the 31st July 1992.

The site investigation was undertaken over a two day period on the 6th and 7th August 1992. A total of twenty trial pits were mechanically excavated around the boundary of the site to depths of up to 3.00m. However, in some cases the nature of the fill material encountered or the presence of below ground service pipes meant some of the trial pits had to be terminated at depths of less than 3.00m.

Approximately two trial pit locations required surface hardstanding tarmac and concrete to be broken out.

The location of the trial pits were based on an approximate twenty metre spacings around the site boundary. The position of the trial pits are shown on the appended site plan, Drawing No. C1935/22/7.

Photographs were taken of each trial pit, together with the spoil, and copies of these are included under separate cover with this report.

Three soil samples , (approximately 5 kg in weight), were taken from each trial pit at intervals of 0.50m-1.00m, 1.50m-2.00m and 2.50m-3.00m unless early termination prevented otherwise. In addition, a small amount of soil sample, (approximately 50g to 100g in weight), was added to a prepared phenol sample jar and shaken. These samples subsequently underwent contamination testing to British Gas's "Technical Specification for Assessing Potential Soil Contamination", dated April 1992.

Soil samples were also taken from any characteristic horizon / strata that occurred outside these identified ranges.

Methane sampling and groundwater samples were not required by the Client. However, any distinct odours were noted and if groundwater was encountered then this too was noted and the depth recorded on the accompanying trial pit record sheets.

The results of the contamination tests are appended to this report and are also included under separate cover on a disc in Lotus 123 spreadsheet format.

The material encountered in each trial pit have been drawn up as trial pit records, which are presented in the appendix.

On completion of the trial pits simple backfilling, compaction and making relatively level of each trial pit location was carried out. If excess spoil remained this was left proud of the trial pit. Approximately two trial pit locations may require special reinstating at this site. Further, it was understood that should any special reinstating be required then this was to be carried out by British Gas.

Ground levels at the trial pit positions were not required by the Client.

4 FINDINGS

4.1 Regional Geology

The regional geology, as mapped by the British Geological Survey, consists of the Folkstone Beds (Lower Greensand) of the Cretaceous Period. The Folkstone Beds consist predominantly of poorly consolidated sands with seams of pebbles and clay, and veins and 'doggers' (large concretion) of hard ferruginous sandstone. The sands are generally fine to medium grained and stained yellow to reddish brown in colour, although white sands ('silversands') also occur.

4.2 Ground Conditions

Full details of the trial pit findings are given on the accompanying trial pit records. It should be noted that the purpose of the current work was purely to provide an assessment of contamination around the boundary of the site. No geotechnical information other than what appears on the trial pit and borehole records, has been obtained.

5 CONTAMINATION TESTING

A total of 59 samples were collected from the twenty trial pits. All samples were sent to an accredited laboratory for analysis for a range of contaminants. Testing for the full suite of contaminants was carried out in accordance with the British Gas's "Technical Specification for Assessing Soil Contamination", (April 1992).

The full results are tabulated in the appendix and are included on disc in Lotus 123 format as requested in the Specification.

The full details of the contamination results appended are in factual format only and it is understood that 'staff' within British Gas will assess these with regard to any potential problems.

In addition, it should be noted that the current work provides no direct information with regard to the geotechnical aspects of the site.

[redacted]

Trevor Pearson B.Sc. (Hons).
Project Engineer

[redacted]

Malcolm S[redacted] Price M.Sc., C. Eng., M.I.C.E., F.G.S.
Director [redacted]

APPENDIX

O.S. Kent Sheet XXIX, 1st. Edition (Drawing No. C1935/22/1)

O.S. Kent Sheet XXIX - S.W., 2nd. Edition (Drawing No. C1935/22/2)

O.S. Kent Sheet XXIX.13, 3rd. Edition (Drawing No. C1935/22/3)

O.S. Kent Sheet XXIX.13, Revision of 1936 (Drawing No. C1935/22/4)

Map supplied by British Gas, May 1985 (Drawing No. C1935/22/5)

Gas Works Layout Plan, 1949 (Drawing No. C1935/22/6)

Trial Pit Records

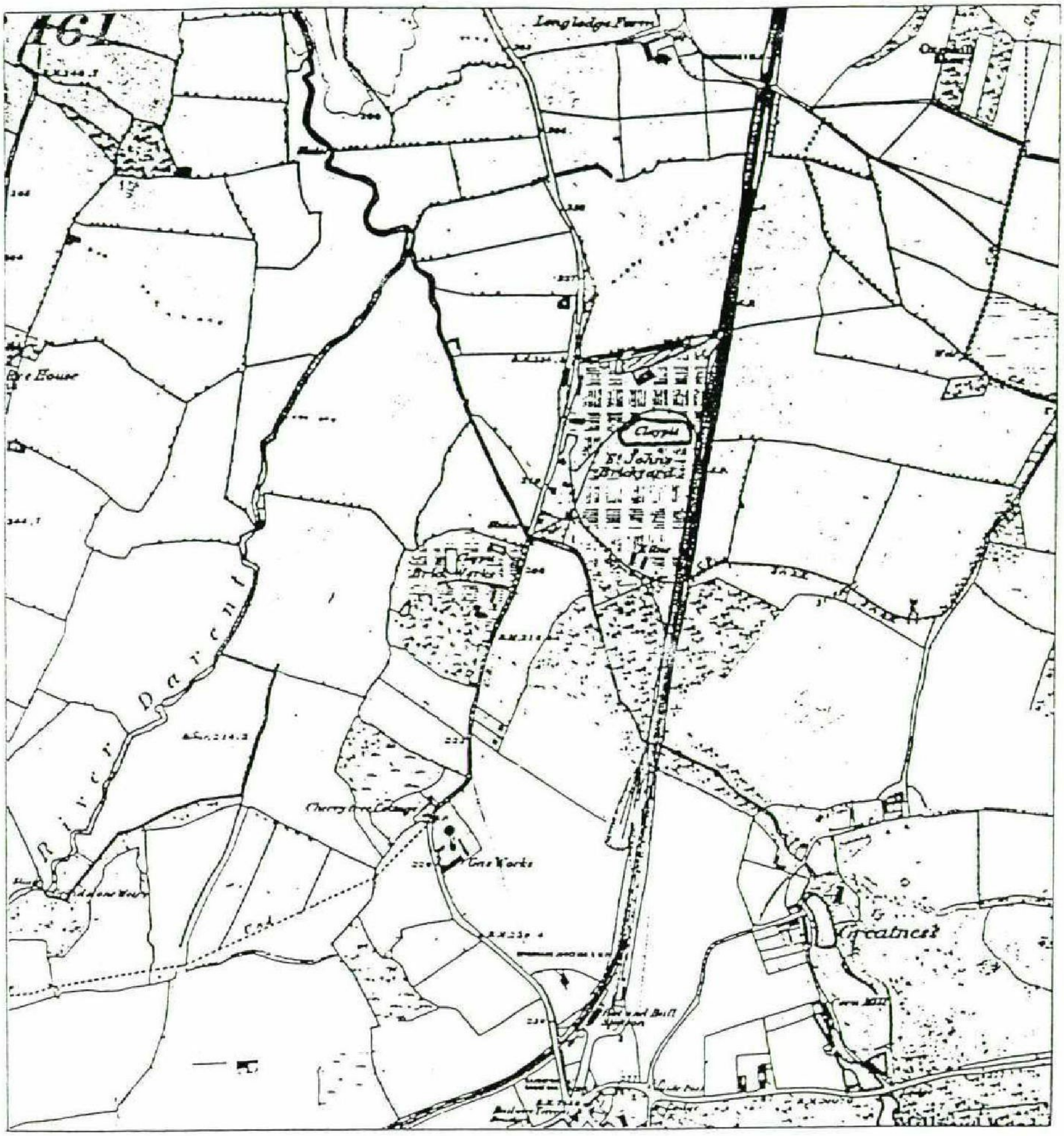
Contamination Test Results

Trial Pit Location Plan (Drawing No. C1935/22/7)

British Gas Service Drawings

Contamination Test Results Disc (Lotus 123)

Trial Pit Photographs



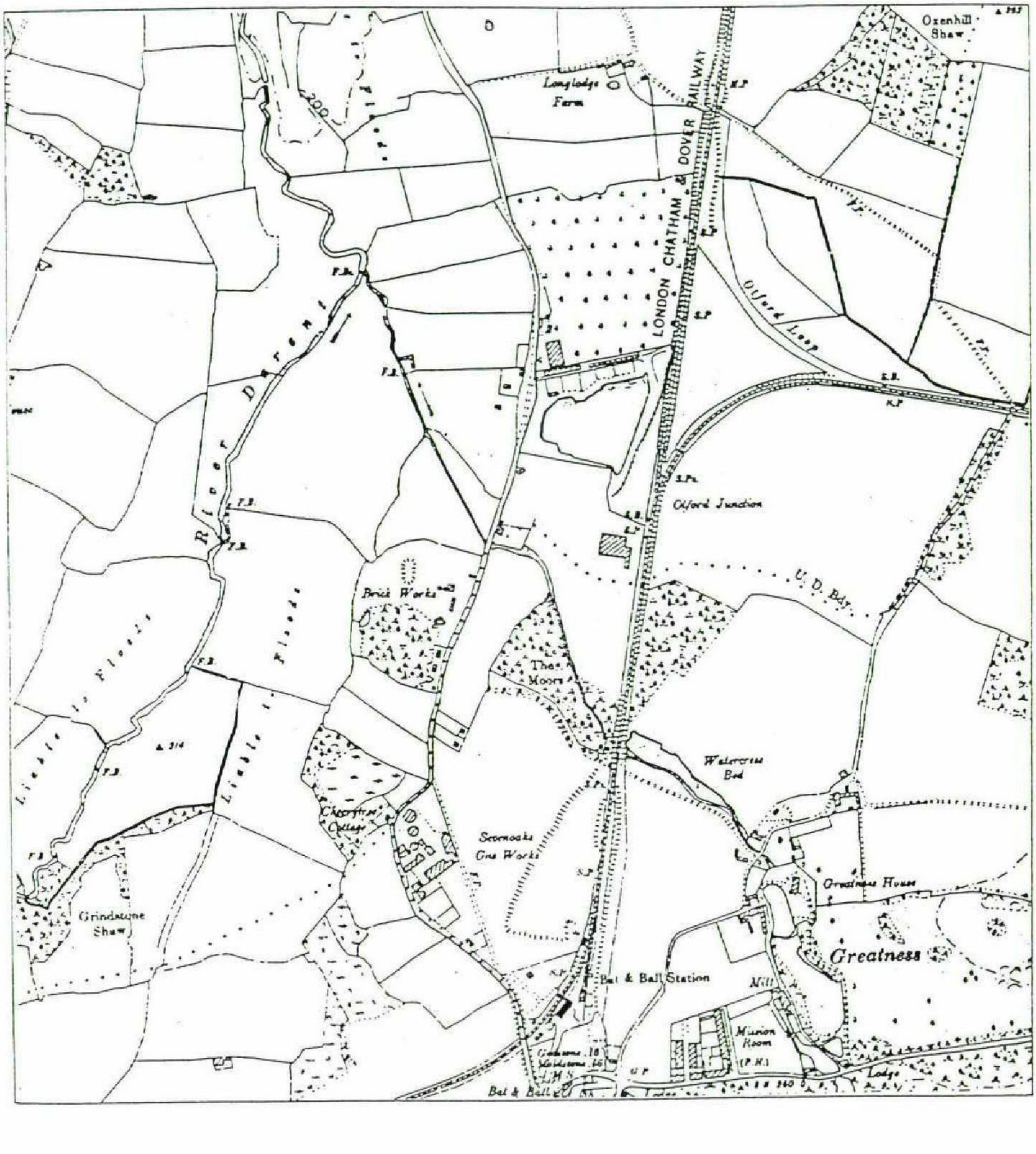
Otford Road, Sevenoaks, Kent.

O.S. County Series Map : Drawing No. C1935/22/1

O.S. Kent Sheet XXIX (Published 1871), 1st. Edition

Scale : 1 : 10560

November 1992



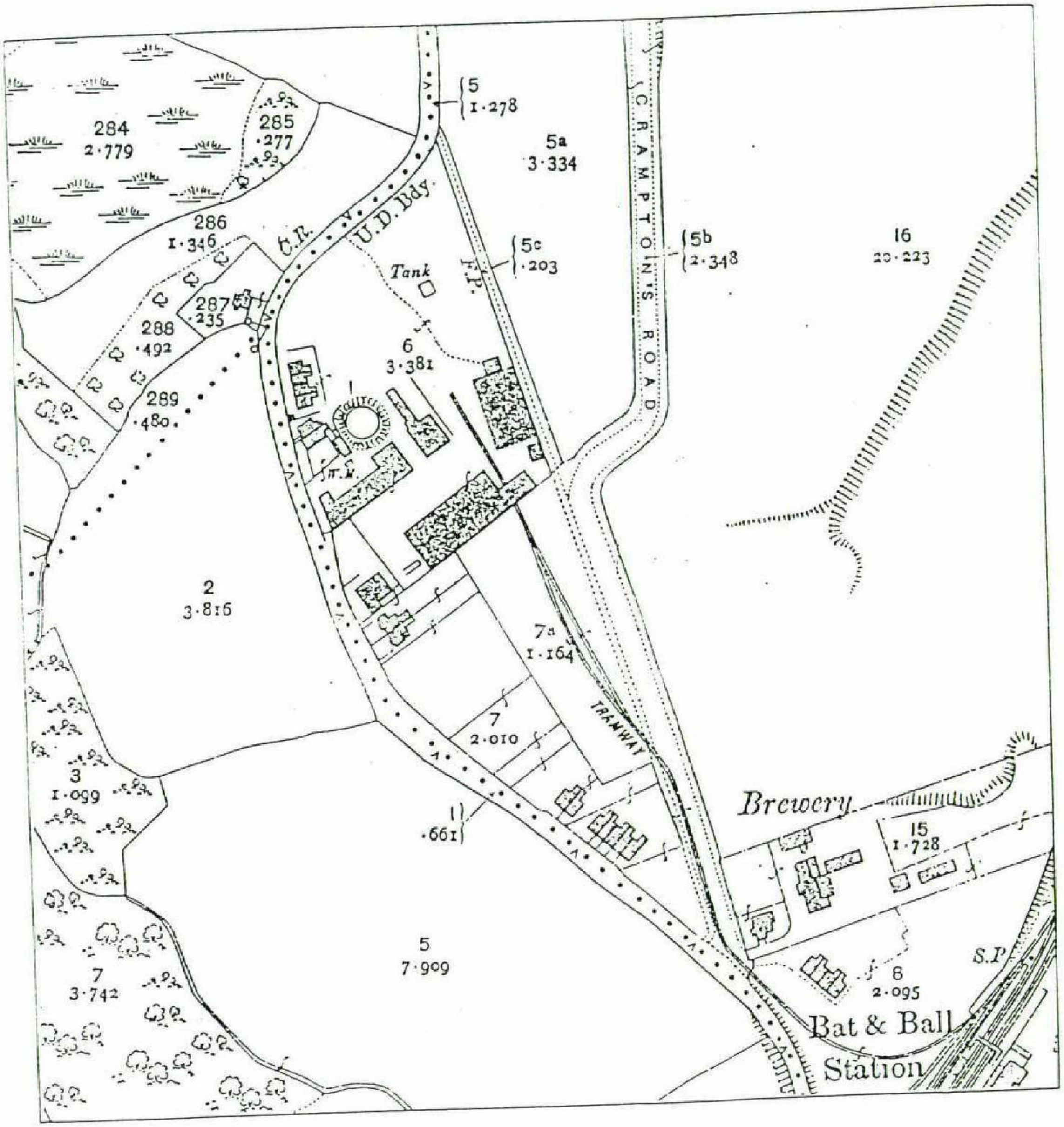
Otford Road, Sevenoaks, Kent.

O.S. County Series Map : Drawing No. C1935/22/2

O.S. Kent Sheet XXIX - S.W. (Published 1897), **2nd. Edition**

Scale : 1 : 10560

November 1992



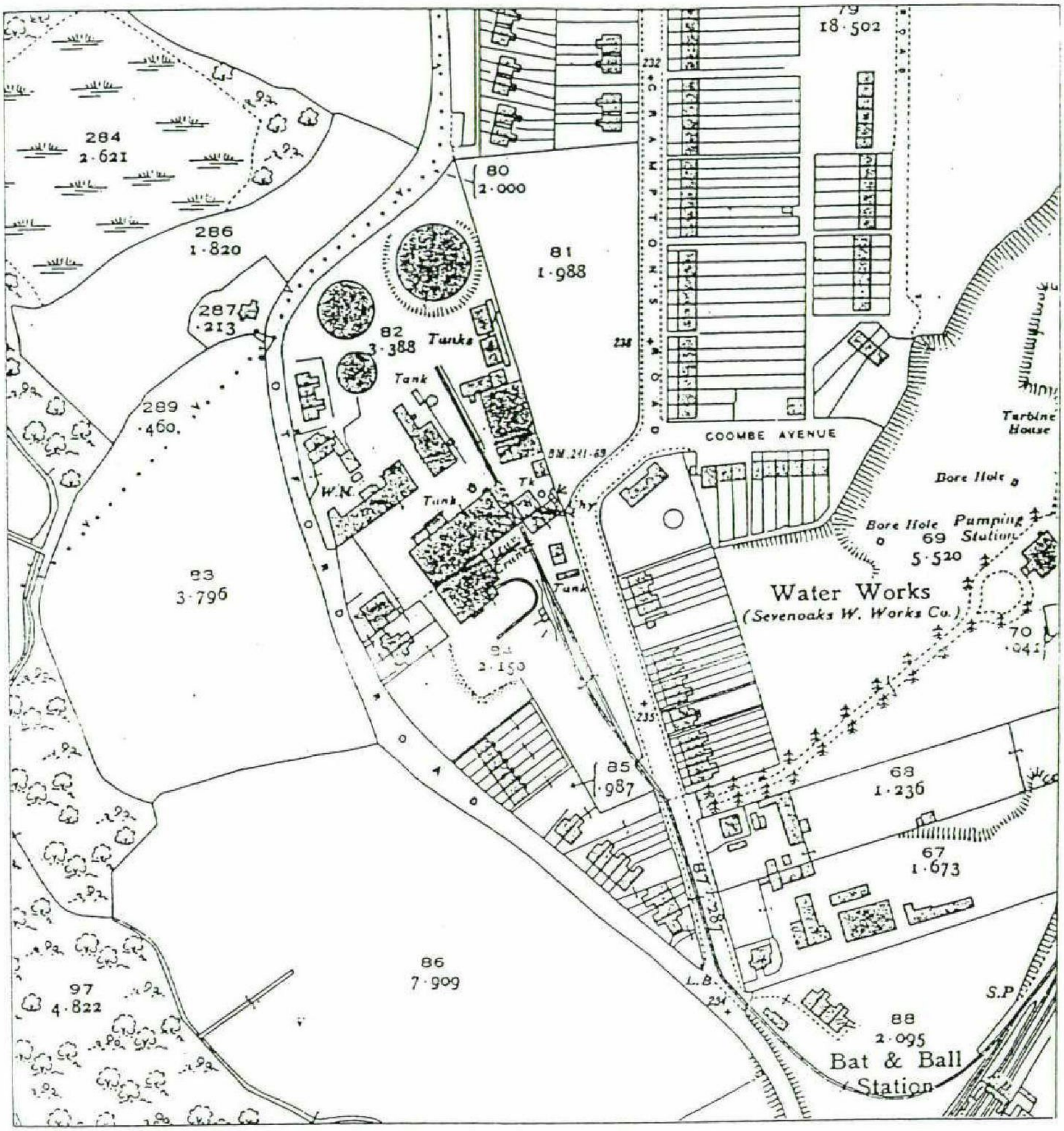
Otford Road, Sevenoaks, Kent.

O.S. County Series Map : Drawing No. C1935/22/3

O.S. Kent Sheet XXIX.13 (Published 1909), **3rd. Edition**

Scale : 1 : 2500

November 1992



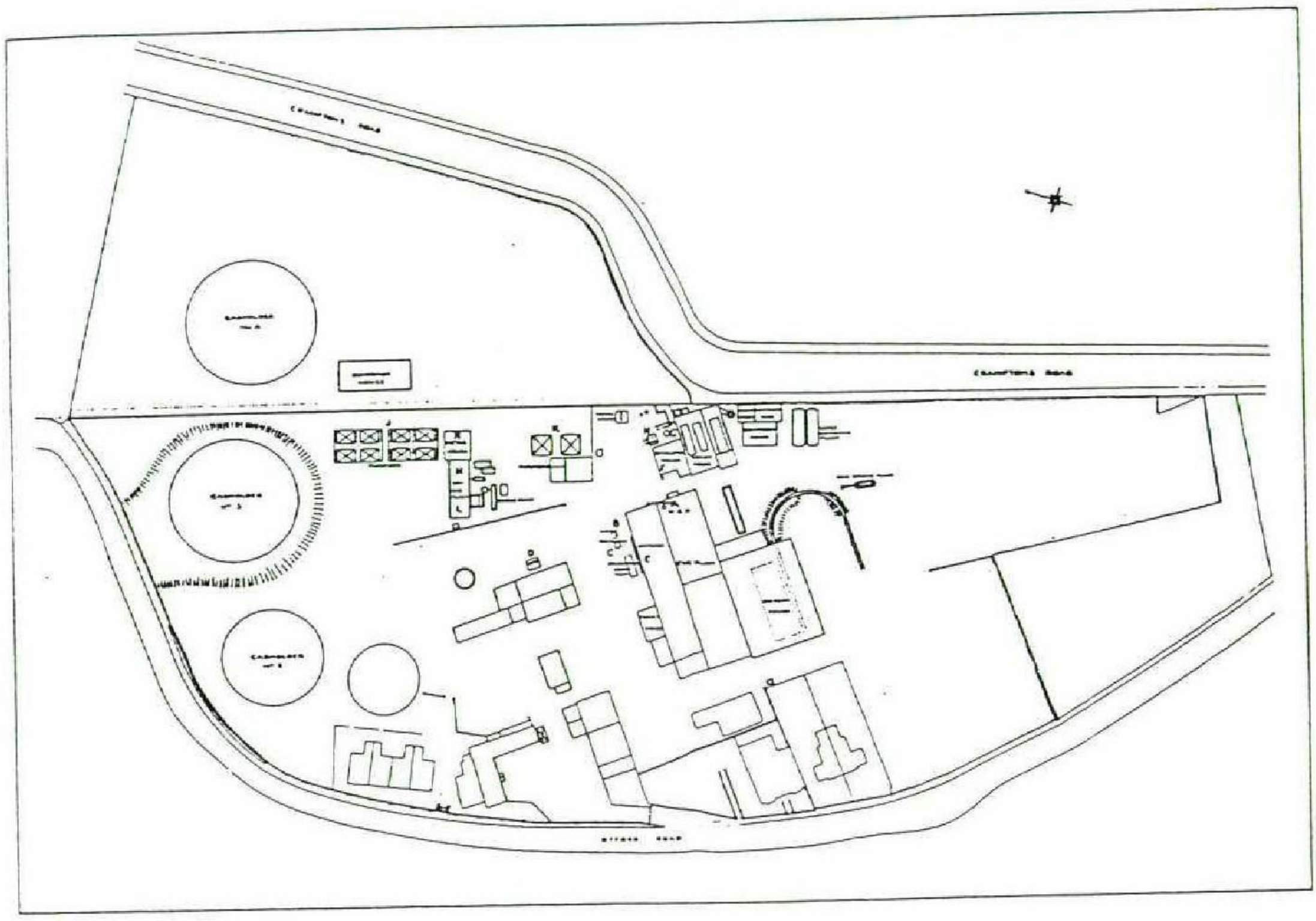
Otford Road, Sevenoaks, Kent.

O.S. County Series Map : Drawing No. C1935/22/4

O.S. Kent Sheet XXIX.13 (Published 1936), Revision of 1936

Scale : 1 : 2500

November 1992

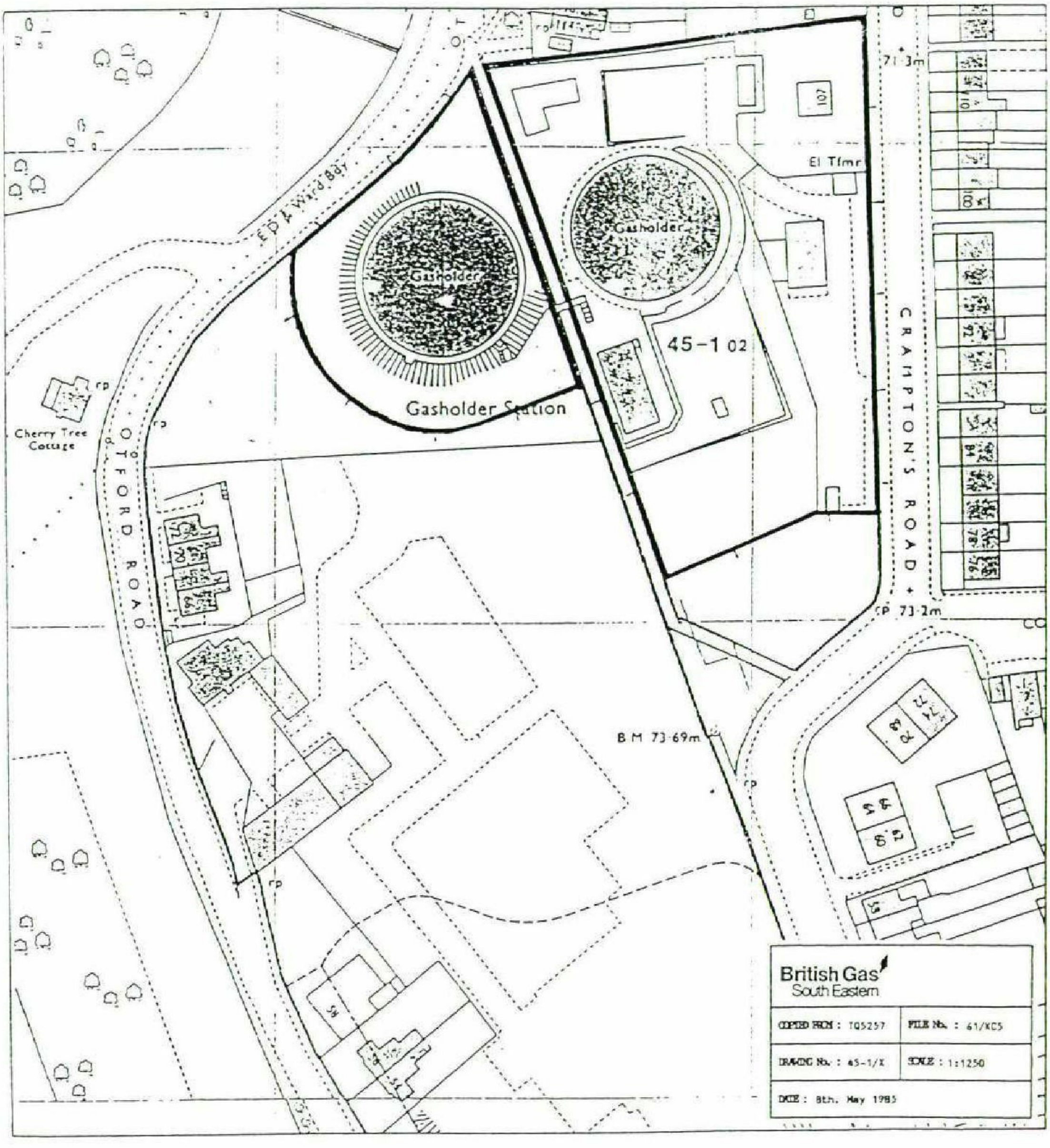


Drawing No. C1935/22/6

Site Plan : Sevenoaks Gasworks (1949)

Scale : Not to Scale

November 1992



Otford Road, Sevenoaks, Kent.

Drawing No. C1935/22/5

Map Supplied by British Gas, May 1985

Scale : As shown.

November 1992

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 6/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 1

Soil Description	Depth below Ground Level (m)	Sample		Notes (e.g. Colour, Smell)
		Type	Depth (m)	
	0.0			
		D1/J1	0.5-1.0	
Gravel and vegetation over soft to firm brown fine sandy silty CLAY containing frequent roots. (Possibly FILL?).				
		D2/J2	1.5-2.0	
	2.0			
Yellow-brown silty fine to coarse SAND. (Possibly FILL?).		D3/J3	2.5-3.0	
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 6/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 2

Soil Description	Depth below Ground Level (m)	Sample Type	Sample Depth (m)	Notes (e.g. Colour, Smell)
Vegetation over TOPSOIL (Grey-brown silty CLAY containing frequent roots).	0.0			
Orange-brown silty fine to medium SAND. (Possibly FILL?).	0.5	D1/J1	0.5-1.0	
		D2/J2	1.5-2.0	
Green-grey silty fine to coarse SAND. (Possibly FILL?).	2.2	D3/J3	2.5-3.0	1 : There was a slight oil / diesel (?) smell between 2.2m and 3.0m depth.
Trial Pit Complete at 3.0m.	3.0			

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 6/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 3

Soil Description	Depth below Ground Level (m)	Sample		Notes (e.g. Colour, Smell)
		Type	Depth (m)	
	0.0			
Vegetation over TOPSOIL (Grey-brown silty clay containing frequent roots).	0.2			
Orange-brown very clayey silty fine to coarse SAND, becoming brown and less clayey with depth. (Possibly FILL?).		D1/J1	0.5-1.0	
		D2/J2	1.5-2.0	
	1.7			
Orange-brown silty fine to coarse SAND. (Possibly FILL?).		D3/J3	2.5-3.0	
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 6/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 4

Soil Description	Depth below Ground Level (m)	Sample Type	Sample Depth (m)	Notes (e.g. Colour, Smell)
	0.0			
TARMAC.	0.05			
Soft to firm brown silty CLAY. (Possibly FILL?).	0.6	D1/J1	0.5-1.0	
Orange-brown silty fine to coarse SAND and fine GRAVEL. (Possibly FILL?).	1.2			
Firm orange-brown very fine sandy silty CLAY. (Possibly FILL?).	1.7	D2/J2	1.5-2.0	
Firm grey-brown silty CLAY. (Possibly FILL?).	2.3			
White-brown silty fine to coarse SAND. (Possibly FILL?).	3.0	D3/J3	2.5-3.0	
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

Gasholder

Gasholder

Gasholder Station

SEV

Warehouse

Warehouse

TQ5257S3

TQ5257S2

24 to 32

36

33

BERWI

SCALE: 1 : 500

USER ID: st092

DATE: 28/02/2001

PSWA RESPONSE

GRID REFERENCE:
552825, 157102

LP MAINS
MP MAINS
IP MAINS
LHP MAINS
MHP MAINS

This plan shows only those pipes owned by Transco plc in its role as a Licensed Public Gas Transporter (PGT). Gas pipes owned by other PGTs and also privately owned may be present in this area. Information with regard to such pipes should be obtained from the owners. The information shown on this plan is given without obligation, or warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc., are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Transco plc, its agents or servants for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the

Desktop MAPS Version 2.0.1

Transco

St Mary Cray

This plan is reproduced from or based on the OS map by Transco plc, with the sanction

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 6/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 5

Soil Description	Depth below Ground Level (m)	Sample Type	Sample Depth (m)	Notes (e.g. Colour, Smell)
	0.0			
FILL (Grey slightly clayey silt with frequent fine shale fragments).	0.2			
Soft to firm brown very sandy silty CLAY. (Possibly FILL?).	0.6	D1/J1	0.5-1.0	
Orange-brown silty fine to coarse SAND and fine GRAVEL. (Possibly FILL?).	1.1			
		D2/J2	1.5-2.0	
Orange-brown silty fine to coarse SAND. (Possibly FILL?).		D3/J3	2.5-3.0	
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 7/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 6

Soil Description	Depth below Ground Level (m)	Sample		Notes
		Type	Depth (m)	(e.g. Colour, Smell)
	0.0			
FILL (Brown slightly sandy silty clay containing frequent concrete, timber and brick fragments).		D1/J1	0.5-1.0	
		D2/J2	1.5-2.0	
Firm blue-grey, black in parts, silty CLAY. (Possibly FILL?).	1.8			1 : There was a strong organic/tar (?) smell and occasional black staining below 1.8m depth.
Trial Pit Complete at 2.0m.	2.0			

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Trial pit terminated at 2.0m due to an obstruction (?).

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 7/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 7

Soil Description	Depth below Ground Level (m)	Sample Type	Sample Depth (m)	Notes (e.g. Colour. Smell)
	0.0			
FILL (Grey-brown slightly sandy silty clay with frequent brick, coke and concrete fragments).		D1/J1	0.5-1.0	
FILL (Yellow-brown silty fine to coarse sand).	0.7			
FILL (Black silty fine to coarse sand. Stained with black tar (?) in parts).	0.8			1 : There was a strong tar (?) smell below 0.8m depth.
FILL (Black-grey silty clay).	1.3	D2/J2	1.5-2.0	
FILL (Black silty ash).	1.7			
Black to brown silty fine to coarse SAND. (Possibly FILL?).	2.2	D3/J3	2.5-3.0	
Trial Pit Complete at 3.0m.	3.0			

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks. Kent.

Client : British Gas (South Eastern).

Date : 7/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 8

Soil Description	Depth below Ground Level (m)	Sample Type	Sample Depth (m)	Notes (e.g. Colour, Smell)
	0.0			
FILL (Grey-brown sandy silty clay with frequent brick and coke fragments).				1 : There was a strong tar (?) smell throughout the excavation.
	0.6	D1/J1	0.5-1.0	
FILL (Black silty fine to coarse sand. Stained with black tar (?) in parts).				
	0.9			
FILL (Black-grey silty clay).				
	1.3			
		D2/J2	1.5-2.0	
FILL (Black silty ashy clay).				
		D3/J3	2.5-3.0	
	2.7			
Black to brown silty fine to coarse SAND. (Possibly FILL?).				
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 7/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 9

Soil Description	Depth below Ground Level (m)	Sample		Notes (e.g. Colour, Smell)
		Type	Depth (m)	
	0.0			
FILL (Grey-brown sandy silty clay with frequent brick and coke fragments).		D1/J1	0.5-1.0	
	0.7			
Orange-brown silty fine to coarse SAND. (Possibly FILL?).		D2/J2	1.5-2.0	
	2.0			
Firm brown very sandy silty CLAY. (Possibly FILL?).		D3/J3	2.5-3.0	
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 7/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 10

Soil Description	Depth below Ground Level (m)	Sample		Notes (e.g. Colour, Smell)
		Type	Depth (m)	
	0.0			
		D1/J1	0.5-1.0	
FILL (Grey-brown sandy silty clay with frequent brick, concrete, pipe and coke fragments).		D2/J2	1.5-2.0	
		D3/J3	2.5-3.0	
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 7/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 11

Soil Description	Depth below Ground Level (m)	Sample Type	Sample Depth (m)	Notes (e.g. Colour, Smell)
	0.0			
FILL (Grey slightly silty clay with occasional brick and coke fragments. Stained with black tar (?) in parts).				1 : There was a slight naphthalene (?) smell between about 0.2m and 0.5m depth.
	0.5	D1/J1	0.5-1.0	
Firm brown slightly sandy silty CLAY containing occasional roots. (Possibly FILL?).		D2/J2	1.5-2.0	
	2.1			
Orange-brown slightly clayey silty fine to coarse SAND. (Possibly FILL?).		D3/J3	2.5-3.0	
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 7/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 12

Soil Description	Depth below Ground Level (m)	Sample		Notes (e.g. Colour, Smell)
		Type	Depth (m)	
	0.0			
FILL (Grey slightly clayey silty sand containing frequent brick rubble. Very tarry in parts).		D1/J1	0.5-1.0	
	1.4			
Red-brown silty SAND. (Possibly FILL?).		D2/J2	1.5-2.0	
	1.8			
Firm brown very sandy silty CLAY. (Possibly FILL?).		D3/J3	2.5-3.0	
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 7/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 13

Soil Description	Depth below Ground Level (m)	Sample		Notes (e.g. Colour, Smell)
		Type	Depth (m)	
	0.0			
Vegetation over TOPSOIL (Grey silty clay with frequent roots).	0.2			
Soft becoming firm brown very sandy silty CLAY containing occasional roots. (Possibly FILL?).		D1/J1	0.5-1.0	
		D2/J2	1.5-2.0	
	2.6	D3/J3	2.5-3.0	
Firm brown becoming grey silty CLAY. (Possibly FILL?).				
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 6/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 14

Soil Description	Depth below Ground Level (m)	Sample		Notes (e.g. Colour, Smell)
		Type	Depth (m)	
Vegetation over TOPSOIL (Brown silty clay containing frequent roots).	0.0			
Brown slightly clayey silty SAND. (Possibly FILL?).	0.3	D1/J1	0.5-1.0	
		D2/J2	1.5-2.0	
Firm orange-brown silty CLAY. (Possibly FILL?).	1.8			
		D3/J3	2.5-3.0	
Firm green-brown very clayey silty SAND. (Possibly FILL?).	2.6			
Trial Pit Complete at 3.0m.	3.0			

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY	Trial Pit Record		
	Location : Otford Road, Sevenoaks, Kent.		
Client : British Gas (South Eastern).	Date : 6/8/92		Job No. : C1935/22
Plant : J.C.B. Excavator	Diameter : 0.70m x 1.50m		Trial Pit No. : 15

Soil Description	Depth below Ground Level (m)	Sample		Notes (e.g. Colour, Smell)
		Type	Depth (m)	
	0.0			
Vegetation over TOPSOIL (Brown silty clay containing frequent roots).	0.15			
Firm brown slightly sandy silty CLAY. (Possibly FILL?).		D1/J1	0.5-1.0	
		D2/J2	1.5-2.0	
	1.7			
Firm orange-brown silty CLAY. (Possibly FILL?).		D3/J3	2.5-3.0	
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 7/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 16

Soil Description	Depth below Ground Level (m)	Sample Type	Sample Depth (m)	Notes (e.g. Colour, Smell)
	0.0			
TARMAC.	0.05			
FILL (Grey silty clay with frequent gravel).	0.5			
Brown silty fine to coarse SAND. (Possibly FILL?).		D1/J1	0.5-1.0	
		D2/J2	1.5-2.0	
	2.2			
Firm orange-brown very sandy silty CLAY. (Possibly FILL?).		D3/J3	2.5-3.0	
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 7/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 17

Soil Description	Depth below Ground Level (m)	Sample		Notes (e.g. Colour, Smell)
		Type	Depth (m)	
	0.0			
TARMAC.	0.05			
FILL (Grey silty sand with frequent gravel).	0.3			
FILL (Grey-black silty ashy clay containing occasional timber fragments).	0.7	D1/J1	0.5-1.0	
Firm brown becoming orange-brown very sandy silty CLAY. (Possibly FILL?).		D2/J2	1.5-2.0	
		D3/J3	2.5-3.0	
Trial Pit Complete at 3.0m.	3.0			

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 6/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 18

Soil Description	Depth below Ground Level (m)	Sample Type	Sample Depth (m)	Notes (e.g. Colour, Smell)
	0.0			
Gravel over FILL (Grey silty clay and gravel with occaisonal roots).	0.2			
FILL (Grey to brown slightly sandy silty clay containing frequent brick, coke and ash fragments).		D1/J1	0.5-1.0	
	1.0			
		D2/J2	1.5-2.0	
Firm brown very fine sandy silty CLAY. (Possibly FILL?).		D3/J3	2.5-3.0	
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 6/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 19

Soil Description	Depth below Ground Level (m)	Sample Type	Sample Depth (m)	Notes (e.g. Colour, Smell)
Vegetation over TOPSOIL (Grey slightly sandy silty clay containing frequent gravel and roots).	0.0			
	0.2			
Firm black-grey silty CLAY. (Possibly FILL?).				
	0.5	D1/J1	0.5-1.0	
Firm brown silty CLAY. (Possibly FILL?).				
	1.2			
		D2/J2	1.5-2.0	
Orange-brown silty fine SAND. (Possibly FILL?).				
		D3/J3	2.5-3.0	
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

Trial Pit Record

Location : Otford Road, Sevenoaks, Kent.

Client : British Gas (South Eastern).

Date : 6/8/92

Job No. : C1935/22

Plant : J.C.B. Excavator

Diameter : 0.70m x 1.50m

Trial Pit No. : 20

Soil Description	Depth below Ground Level (m)	Sample		Notes
		Type	Depth (m)	(e.g. Colour, Smell)
	0.0			
Vegetation over TOPSOIL (Grey slightly sandy silty clay containing frequent roots).	0.3			
Firm brown silty CLAY. (Possibly FILL?).		D1/J1	0.5-1.0	
	1.5	D2/J2	1.5-2.0	
Orange-brown silty fine SAND. (Possibly FILL?).		D3/J3	2.5-3.0	
	3.0			
Trial Pit Complete at 3.0m.				

Remarks :

Groundwater was not encountered.

Trial pit relatively stable on completion.

Key :

D : Disturbed Sample

J : Jar Sample

W : Water Sample

HARRISON & COMPANY

SITE : SEVENOAKS

Results relate to air dried whole soil and are expressed in mg/kg, unless otherwise stated

		pH	Stone Content %	Loss on Ignition %	Soil Moisture Content %	PAH	Phenols	Copper	Nickel	Chromium	Zinc	Cadmium	Lead	Iron	Arsenic	Mercury	Total Cyanide	Elemental Sulphur %	Water Soluble Sulphate	Water Soluble Chloride
Trial Pit/Borehole No.	1																			
Depth D1		5.70	0.40	1.02	5.1	<5	<0.5	<10	32.0	12.7	31.9	1.11	23.7	19718	4.07	0.02	9.4	<0.01	33.96	11.81
D2		6.20	0.00	0.62	9.8	<5	<0.5	<10	54.7	26.2	31.4	1.06	21.7	21029	2.26	0.10	1.1	<0.01	25.13	6.80
D3		5.70	1.32	0.56	5.0	<5	<0.5	<10	56.6	39.7	31.1	0.60	<20	24545	1.58	0.02	<1	<0.01	28.72	10.23
Trial Pit/Borehole No.	2																			
Depth D1		6.65	0.81	0.80	6.0	<5	<0.5	17.4	20.5	12.6	32.3	0.50	23.6	23413	6.3	0.02	6.4	<0.01	99.19	16.37
D2		5.95	0.00	0.75	10.0	<5	<0.5	<10	13.2	<10	23.3	0.88	27.5	11714	12.25	0.04	10.0	<0.01	34.54	10.46
D3		6.15	0.53	0.76	9.4	<5	<0.5	<10	63.9	23.2	28.0	0.40	23.7	24236	9.19	0.40	17.6	<0.01	29.89	9.58
Trial Pit/Borehole No.	3																			
Depth D1		5.40	0.00	1.01	12.2	<5	<0.5	<10	39.8	21.6	38.1	0.62	29.2	34963	6.28	0.02	<1	<0.01	61.61	9.77
D2		5.70	0.00	0.51	11.8	<5	<0.5	<10	37.1	19.3	38.7	0.62	34.1	32559	3.72	<0.02	13.4	<0.01	33.83	8.57
D3		5.55	0.00	0.75	10.3	<5	<0.5	<10	36.7	14.8	30.5	0.61	28.6	24873	9.8	0.10	<1	<0.01	33.25	9.04
Trial Pit/Borehole No.	4																			
Depth D1		3.30	0.00	0.78	15.1	<5	<0.5	<10	29.0	12.3	32.0	1.08	32.4	21684	2.5	0.02	4.7	<0.01	468.00	13.06
D2		4.00	0.00	0.98	15.9	<5	<0.5	<10	67.2	32.1	40.6	1.23	57.8	40506	17.91	0.08	5.9	<0.01	850.22	14.64
D3		3.90	0.26	0.34	8.3	<5	<0.5	<10	42.1	12.9	30.6	1.24	24.3	27123	18.69	<0.02	4.9	7.81	337.11	6.53
Trial Pit/Borehole No.	5																			
Depth D1		4.70	0.00	1.18	14.4	<5	<0.5	<10	55.1	19.1	39.8	1.22	23.8	35025	4.7	0.05	0.9	<0.01	100.42	11.85
D2		5.00	0.00	1.19	12.0	<5	<0.5	<10	63.0	18.7	37.5	0.90	<20	37324	4.6	0.02	11.9	<0.01	67.35	8.26
D3		5.50	0.00	4.48	9.2	<5	<0.5	<10	48.2	16.9	30.1	0.91	<20	30203	2.36	0.02	21.6	<0.01	37.88	5.70
Trial Pit/Borehole No.	6																			
Depth D1		3.50	11.99	3.80	20.5	<5	<0.5	53.8	41.6	20.1	119.6	1.58	<20	30877	1.93	1.01	906.5	<0.01	1941.41	13.25
D2		3.90	2.36	23.43	25.4	5210	1252.1	29.4	60.1	44.8	334.2	3.68	<20	40111	2.51	2.52	10224.0	0.07	2329.03	15.11
D3																				
Trial Pit/Borehole No.	7																			
Depth D1		6.05	0.00	18.44	27.8	1923	<0.5	<10	20.7	12.7	339.3	1.73	486.4	40609	23.25	14.25	1268.1	3.06	2978.13	14.87
D2		2.85	0.25	3.57	18.0	31	21.1	30.2	33.3	10.3	73.0	0.69	175.5	29494	24.94	0.30	217.2	<0.01	3110.66	10.43
D3		5.15	0.48	1.73	12.9	<5	<0.5	11.5	27.1	20.9	61.1	0.90	79.9	31509	2.26	0.24	138.5	0.02	4156.88	10.03

HARRISON & COMPANY

SITE : SEVENOAKS

Results relate to air dried whole soil and are expressed in mg/kg, unless otherwise stated

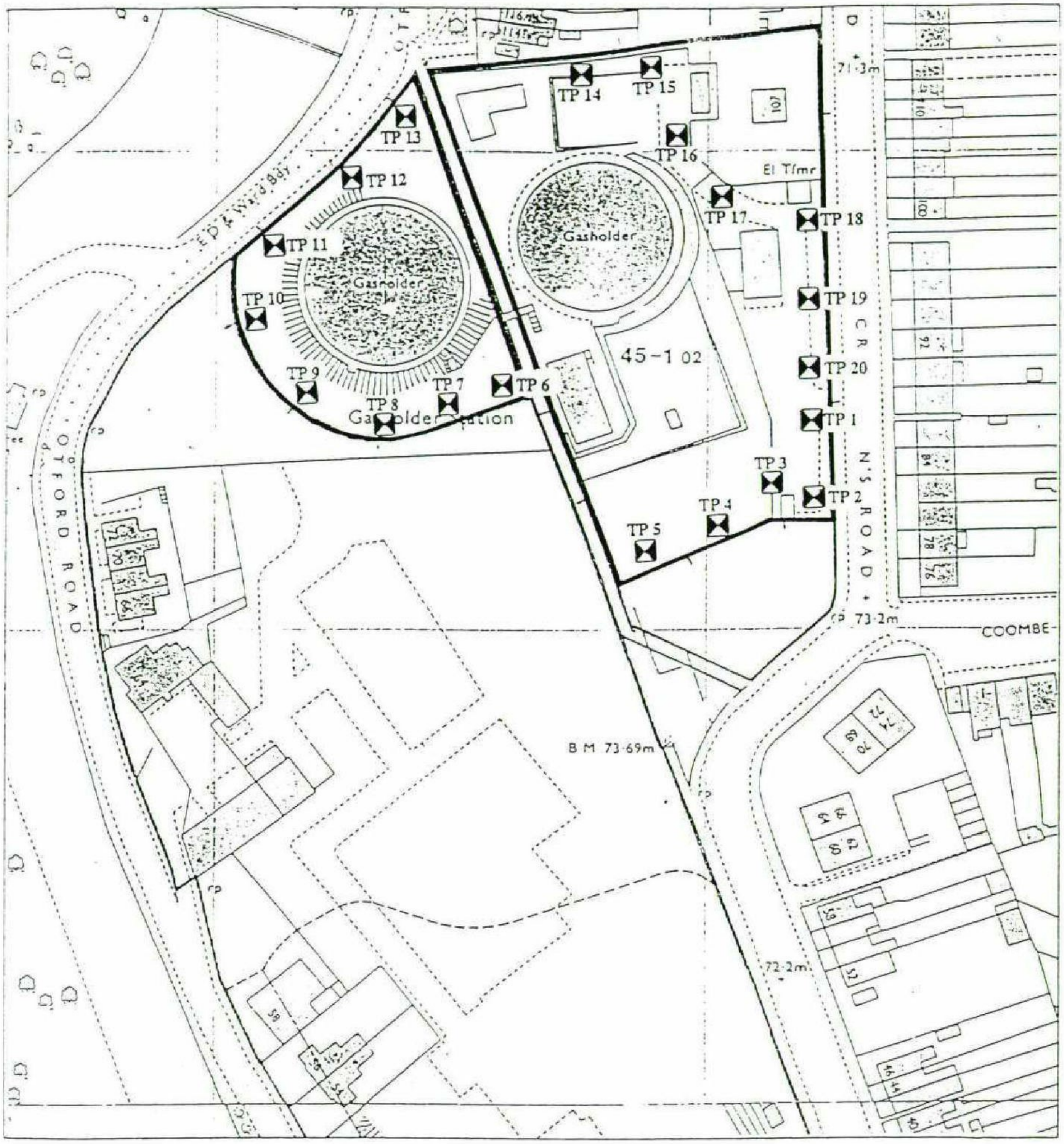
		pH	Stone Content %	Loss on Ignition %	Soil Moisture Content %	PAH	Phenols	Copper	Nickel	Chromium	Zinc	Cadmium	Lead	Iron	Arsenic	Mercury	Total Cyanide	Elemental Sulphur %	Water Soluble Sulphate	Water Soluble Chloride
Trial Pit/Borehole No.	8																			
Depth	D1	6.50	0.00	9.45	26.1	344.6	<0.5	189.2	113.6	18.5	374.1	3.06	856.5	47555	9.95	1.50	304.4	0.45	2261.64	13.98
	D2	3.25	0.00	2.92	17.7	110.8	<0.5	19.7	18.6	12.8	58.8	0.62	187.9	22817	9.8	0.19	162.9	0.71	3375.02	8.07
	D3	3.90	0.00	1.42	11.5	<5	<0.5	28.1	42.6	14.5	39.0	0.73	83.6	35323	2.44	0.24	149.2	0.03	1904.62	60.22
Trial Pit/Borehole No.	9																			
Depth	D1	3.70	0.00	1.01	14.8	<5	<0.5	<10	27.5	19.1	49.4	1.32	47.7	30456	8.62	0.08	7.8	<0.01	136.04	5.44
	D2	6.70	0.00	1.34	13.9	<5	<0.5	13.4	42.8	24.9	77.0	0.50	42.1	28366	7.21	0.29	4.6	<0.01	99.52	9.05
	D3	4.90	0.48	1.87	15.7	<5	<0.5	90.1	32.3	12.8	35.1	0.51	47.9	21175	4.8	0.05	<1	<0.01	575.07	11.85
Trial Pit/Borehole No.	10																			
Depth	D1	7.10	5.67	2.69	12.5	<5	<0.5	28.1	64.1	18.4	252.0	1.27	344.3	30049	1.89	0.25	67.4	0.11	286.68	12.05
	D2	7.20	13.82	1.65	18.5	<5	<0.5	47.0	55.4	16.4	73.9	1.14	180.8	25.53	1.78	0.13	8.7	<0.01	276.65	13.14
	D3	7.25	3.83	3.62	12.6	2690	<0.5	27.3	66.4	31.6	142.1	2.28	587.7	21802	1.81	0.18	2.8	<0.01	475.67	25.39
Trial Pit/Borehole No.	11																			
Depth	D1	6.30	0.00	16.80	22.1	3826	1313.1	179.1	25.5	10.7	161.6	1.13	794.8	28200	2.68	0.08	696.1	0.64	1217.73	17.78
	D2	6.70	0.12	2.77	11.0	<5	214.2	17.5	48.2	12.7	159.8	0.71	76.2	20280	6.19	0.06	9.3	<0.01	26.11	22.04
	D3	4.20	0.00	1.11	9.5	<5	226.8	<10	28.7	10.2	32.2	<0.1	32.1	17571	4.27	0.03	3.8	<0.01	279.78	14.49
Trial Pit/Borehole No.	12																			
Depth	D1	6.30	1.15	13.59	19.0	3314	236.2	219.0	40.0	16.4	422.8	1.97	554.6	33696	33.03	<0.02	564.6	10.69	1752.52	24.87
	D2	5.85	0.89	4.74	9.8	16.6	71.6	93.6	52.9	19.1	148.5	1.41	276.9	34557	21.52	1.55	1114.3	<0.01	1989.22	19.32
	D3	3.00	0.00	1.11	19.4	<5	<0.5	35.1	32.1	14.8	46.5	0.61	28.6	19543	5.00	0.22	14.9	<0.01	483.79	15.39
Trial Pit/Borehole No.	13																			
Depth	D1	4.40	0.00	1.35	8.6	<5	<0.5	<10	39.7	12.2	36.4	0.29	22.9	22452	0.63	0.10	3.3	<0.01	26.76	12.842
	D2	3.90	0.02	1.15	12.2	<5	<0.5	<10	27.3	10.5	36.0	1.41	<20	18090	1.14	0.05	1.1	<0.01	42.47	11.066
	D3	4.70	0.00	0.86	15.1	<5	<0.5	<10	25.0	12.6	27.4	0.91	<20	9549	0.61	0.04	<1	<0.01	53.37	9.098
Trial Pit/Borehole No.	14																			
Depth	D1	5.45	0.47	1.19	10.6	<5	<0.5	<10	32.0	12.6	42.5	0.91	23.7	21218	1.87	0.06	<1	<0.01	56.88	5.306
	D2	5.65	1.91	0.86	13.6	<5	<0.5	<10	50.8	18.3	32.6	0.78	<20	29045	1.8	0.13	1.2	<0.01	79.65	10.635
	D3	6.00	0.00	1.19	13.6	<5	<0.5	<10	48.2	33.9	50.4	0.41	<20	47461	3.13	0.04	2.3	0.10	36.12	10.91

HARRISON & COMPANY

SITE : SEVENOAKS

Results relate to air dried whole soil and are expressed in mg/kg, unless otherwise stated

		pH	Stone Content %	Loss on Ignition %	Soil Moisture Content %	PAH	Phenols	Copper	Nickel	Chromium	Zinc	Cadmium	Lead	Iron	Arsenic	Mercury	Total Cyanide	Elemental Sulphur %	Water Soluble Sulphate	Water Soluble Chloride
Trial Pit/Borehole No.	15																			
Depth	D1	5.90	0.00	1.31	11.2	<5	<0.5	<10	13.6	10.5	36.5	1.11	<20	18847	0.67	0.02	5.6	<0.01	51.13	11.136
	D2	3.85	0.24	0.56	8.0	<5	<0.5	<10	48.6	19.2	33.2	0.51	24.0	31968	1.56	0.04	2.2	<0.01	306.65	16.298
	D3	4.00	0.00	43.22	14.6	<5	<0.5	<10	78.7	36.3	48.0	1.16	27.3	61880	2.17	0.03	2.3	<0.01	13.26	11.166
Trial Pit/Borehole No.	16																			
Depth	D1	6.95	2.71	1.13	10.5	<5	<0.5	<10	36.5	12.6	33.2	1.11	37.9	21164	3.23	0.07	6.5	<0.01	12.13	5.697
	D2	5.90	0.00	1.13	13.9	<5	<0.5	<10	30.6	14.1	28.6	0.87	36.3	24413	4.08	0.03	2.9	<0.01	36.07	6.992
	D3	5.20	0.00	1.19	18.0	<5	<0.5	<10	47.3	18.7	29.9	0.80	28.1	18662	24.26	0.03	<1	<0.01	53.53	9.165
Trial Pit/Borehole No.	17																			
Depth	D1	5.45	1.01	5.523	15.9	<5	<0.5	30.8	<10	12.2	55.9	1.46	274.96	25122	2.88	0.29	107.84	0.54	2056.353	22.53
	D2	6.75	0	0.57	9.4	<5	<0.5	<10	34.4	10.6	27.1	0.51	<20	13451	0.6	0.04	<1	<0.01	210.734	9.28
	D3	6.00	0	0.83	14.3	<5	<0.5	15.6	40.9	25.2	39.8	1.01	<20	40458	2.27	0.06	<1	<0.01	192.55	15.048
Trial Pit/Borehole No.	18																			
Depth	D1	4.40	0.55	11.52	11.2	33.9	<0.5	79.4	41.1	14.7	83.9	1.21	678.2	40132	18.99	2.93	1035.0	0.50	349.75	21.228
	D2	5.60	0.00	1.03	12.3	<5	<0.5	<10	74.2	34.2	39.2	0.62	24.1	21535	6.83	0.02	7.6	<0.01	14.00	6.464
	D3	6.20	0.00	0.96	10.3	<5	<0.5	<10	67.8	24.4	52.7	0.49	50.4	42463	14.82	0.04	2.2	<0.01	22.14	9.426
Trial Pit/Borehole No.	19																			
Depth	D1	4.90	1.67	0.99	4.6	<5	<0.5	<10	84.6	42.1	33.5	0.67	49.6	25195	1.73	0.07	16.5	<0.01	149.99	77.483
	D2	5.55	0.00	1.07	5.0	<5	<0.5	<10	52.8	16.9	39.8	0.51	38.2	34771	7.29	0.09	1.1	<0.01	534.73	59.935
	D3	6.10	0.00	0.41	5.5	<5	<0.5	<10	30.5	13.0	24.7	1.14	24.3	26157	1.01	0.05	9.5	<0.01	282.70	37.348
Trial Pit/Borehole No.	20																			
Depth	D1	6.10	0.00	1.16	4.3	<5	<0.5	<10	34.8	12.8	37.2	0.72	48.2	21535	1.85	0.04	2.8	<0.01	30.34	10.686
	D2	5.50	0.00	0.64	4.5	<5	<0.5	<10	39.4	19.3	29.9	0.62	24.1	27688	0.62	0.29	<1	<0.01	16.76	22.044
	D3	5.50	0.00	0.35	2.1	<5	<0.5	15.6	45.9	12.7	13.4	1.22	28.6	17005	1.9	0.06	<1	<0.01	29.16	29.558



Otford Road, Sevenoaks, Kent.

Drawing No. C1935/22/7

Trial Pit Location Plan

Scale : Not to Scale

November 1992

Lattice Property

TRANSCO SITE
CRAMPTONS ROAD, SEVENOAKS
MENTOR NO. 11090

ENVIRONMENTAL ASSESSMENT SITE INVESTIGATION

FINAL FACTUAL REPORT

April 2001

WS Atkins

WS/Atkins

Client:	**Lattice Property Holdings**
Project:	**TRANSCO SITE, CRAMPTONS RD, SEVENOAKS** **Mentor No. 11090**
Title:	**Environmental Assessment Site Investigation** **Final Factual Report**
Job No:	**A71430/GTG.2000078** *Copy No:*
Document Reference:	*A71430/GTG.2000078/R005rev0/April2001*

Revision/ Status	Purpose Description	Originated	Checked	Reviewed	Authorised	Date	Client
0	Final	M Watts	P Meares	JE Steeds	MW Reed		
		[redacted]					
		WS Atkins					

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Appendices

0. EXECUTIVE SUMMARY

Current Site Status	The site covers an area of approximately 0.67 hectares, and is currently occupied by two operational Transco compounds, including two gasholders. It is bounded by a retail warehouse with associated car parking to the south, low level office space and car parking to the east, housing with gardens to the north and by Otford Road to the west. Along the north western boundary of the site is a steep bank sloping down up to two metres. The majority of the site is flat, with the northern part of the compound sloping gently upward.
Site History	A gasworks was located on the site from at least 1877, with production buildings being predominantly located to the south and south east of the present site boundary. Gasholders have been located on the site since approximately 1936.
Geology	The site is underlain by the Folkestone Beds (sands), with thin deposits of Gault Clay in the northern part of the site. Investigations indicated the presence of Made Ground on the site up to 2.6m below ground level.
Hydrogeology	The Folkestone Beds are a major aquifer from which water is abstracted locally. Water abstraction is undertaken approximately 500m to the east of the site from the Hythe Beds. Ground cover is predominantly gravel with some vegetation.
Hydrology	The nearest water features are two field drains located approximately 60m north west and 90m west of the site. The River Darent is the closest watercourse, and is approximately 780m west of the site flowing north. A lake forming a wildfowl reserve exists to the west of the site.
Site Investigation	A previous desk study by Stanger (1997) and site investigations by Travers Morgan (1988) and Harrison and Co. (1992) have documented the geology and site history, with further recommendations for site investigation work. Chemical analysis from the current investigation has shown the highest concentrations of contamination to be present within the western Transco compound. Data from the investigation of an adjacent site has shown that the backfilled below ground portion of a former holder (Ref. 1, Figure 3) crosses the western boundary of this compound, while a section of a former purifier (Ref. 2, Figure 3) is believed to cross the southern boundary. There also appears to be contamination of the Folkestone Beds aquifer believed to be related to the current operational holders.

1. INTRODUCTION

General

1.1 WS Atkins was commissioned by Lattice Property Holdings in July 2000 to undertake an assessment of possible ground contamination at their premises at Cramptons Road, Sevenoaks resulting from historical use of the site for gas production, storage and transmission. The proposed end use for the site is residential/soft cover.

1.2 This document provides a combined desk study and site investigation report.

Report Format

1.3 The following sections of the report contain:

(i) a description of the site status, i.e. site use and surface ground conditions;

(ii) a description of the site geology, hydrology and hydrogeology;

(iii) a description of the site history i.e. process activities, waste disposal and potential contaminants; and

(iv) details of the current site investigation undertaken to confirm the extent of liabilities and required remediation;

2. SITE LOCATION AND DESCRIPTION

2.1 The Ordnance Survey National Grid Reference No. is TQ 552850 157150 and the site covers an area of approximately 0.67 hectares (Figure 2a). Full details of the site are provided in Table 2.1 (Site visit record sheet).

2.2 The site is located adjacent to Cramptons Road and Otford Road. The site is currently occupied by two operational Transco holder stations, which have a postal address of Transco Holder Station, Cramptons Road, Sevenoaks, TN14 5DY.

Table 2.1 : Site Visit Record Sheet

Site Name: Sevenoaks, Cramptons Road

Date of Visit: 01/08/2000
Visited by: Matthew Watts

SUBJECT	INFORMATION
Current site size and uses	Site covers approximately 0.67 hectares. 100% of site area occupied by operational holder station and pressure reduction station.
Description of ground cover, % of hard standing, (gravel/concentration/tarmac), condition of ground, % infiltration of precipitation	100% of study site groundcover has a gravel or vegetated surface.
Location and type of surface drainage,(culverts, streams, rivers, ponds	No drainage observed on the site.
Adjacent land uses	*North*: Houses with gardens and Otford Road. *East*: Low level office space and car parking, beyond which are houses with gardens. *South*: Retail warehouse and associated car parking area. *West:* Otford Road, beyond which is a wildfowl reserve.
Name of adjacent roads/rivers/canals	Cramptons Road, Otford Road.
Level of ground in relation to adjacent areas and other parts of site	The northern part of the compound is slightly elevated compared with area to the south and south west, a bank dips down approximately 2.0m to Otford Road.
Site boundary length, type and condition	The study site boundary is approximately 538 metres in length and consists of a chainlink/steel palisade fence in good condition for the most part. The boundary with Otford Road in the north west consists of a 2.0m high retaining wall.

SUBJECT	INFORMATION
Access to site boundaries	Access to the site boundary is good in all areas of the site.
Site services	Medium and low pressure gas mains enter and exit the Transco holder station. Electricity, telephone and water services exist on both the Transco site and the warehouse site. Electricity, telephone and water enters from Cramptons Road.
Visibly contaminated areas	Some blue staining on the ground observed in the western holder compound, blue stained wood also observed in the eastern holder compound.
Visible evidence of foundations	Foundations and concrete base seen on surface in western holder compound.
Present day potentially contaminative activities	Storage of natural gas, transit of vehicles.

3. GEOLOGY, HYDROGEOLOGY, HYDROLOGY

3.1 The geology, hydrogeology and hydrology are summarised below and described in detail in the Stanger Desk Study Report, 1997 (Appendix A).

Geology

3.2 The general geology in the vicinity of the site is shown on the British Geological Survey (BGS) 1:50 000 scale series sheet 287.

3.3 It appears that the northern half of the site is underlain by Gault Clay which overlies the Folkestone Beds. The southern part of the site is directly underlain by the Folkestone beds. Observations on site confirmed this, with thin clay strata appearing in the north, while elsewhere the natural ground encountered consisted of medium/coarse sands, consistent with the Folkestone Beds.

Hydrogeology

3.4 The Gault Clay is classified as a non-aquifer and is negligibly permeable, while the Folkestone Beds are highly permeable and are classified as major aquifers. They are a highly productive strata of regional importance used for large potable abstractions.

3.5 Groundwater flow beneath the site appears to be to the south west towards the lake in the wildfowl reserve. This has been inferred after a second round of groundwater monitoring on the site.

Hydrology

3.6 The nearest surface water features are two field drains approximately 60m north west and 90m west of the site respectively. Both converge and flow in a westerly direction and join the River Darent. To the south west of the site is a lake forming a wildfowl reserve on the west side of Otford Road. The River Darent is located approximately 780m west. These watercourses are detailed in the Stanger Desk Study Report, 1997 (Appendix A).

3.7 There are four licenced surface water abstractions recorded within 500m of the site (1997), these are detailed in the Stanger Desk Study Report, 1997 (Appendix A). Four licenced discharge consents also exist within 500m of the site, also detailed in the Stanger Desk Study Report, 1997 (Appendix A).

4. SITE HISTORY

4.1 The site history has been assessed using all available plans, records and anecdotal information (see Appendix A). The information has been summarised in Table 4.1 and Figure 3. Each feature described in Table 4.1 is given a reference number, which can be used to identify it on Figure 3. All processes and activities which are likely to have, or are known to have, resulted in contamination have been included in Table 4.2.

4.2 The following sections outline the principal forms of ground contamination that may be present on the site based on the previous industrial use and surrounding industries.

4.3 The major forms of ground contamination on gasworks sites generally result from the following activities:

i) the disposal of waste products on site;

ii) storage areas;

iii) process activities;

iv) leakage from tanks, especially those which are underground; and

v) leakage from underground pipework.

4.4 The various activities that are thought likely to have resulted in ground or water resource contamination on this site are listed below in Table 4.2. The potential contaminants from each process or activity are described along with the hazards they pose. The areas can again be identified using the reference numbers that correspond to those given in Figure 3.