

Power Court Site Luton Bedfordshire

Archaeological Watching Brief



for
2020 Developments (Luton) Ltd

on behalf of
Luton Town Football Club

CA Project: 660816
CA Report: 17086

Site Code: PCSL17
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SUMMARY

Project Location:	Power Court, Luton, Bedfordshire
NGR:	509603 221263
Type:	Watching Brief
Date:	6th February 2017 to 27th February 2017
Planning Reference:	16/01400/OUTEIA
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During February 2017, Cotswold Archaeology maintained an archaeological watching brief during geotechnical investigations at Power Court, Luton, Bedfordshire. The geotechnical investigations comprised the machine excavation of trial pits, cable-percussion coring and window sampling. The work was commissioned by 2020 Developments (Luton) Ltd on behalf of Luton Town Football Club and was carried out in order to inform a planning application to Luton Borough Council (LBC; the local planning authority) for a new football stadium with ancillary stadium related facilities, along with residential and community/commercial development, hotel and infrastructure.

Previous archaeological investigations to the south of the site had revealed evidence of medieval and post-medieval activity, the former associated with a 13th century castle (known as Fulk de Breaute's Castle). Based on these investigations it had been suggested that evidence for medieval occupation may have extended into the southern part of the site. However, much of the site has undergone extensive modification and multiple phases of redevelopment during the later post-medieval period. Monitoring of the geotechnical interventions revealed that despite much of the site having been disturbed by later phases of redevelopment, earlier deposits survived in some areas. In lower-lying areas, pseudo-peat and alluvial deposits were sealed beneath recent materials and overlay Terrace Gravel and Cretaceous Chalk deposits. In other areas, post-medieval and undated anthropogenic deposits were encountered lying between natural deposits and modern made ground.



1. INTRODUCTION

- 1.1 During February 2017, Cotswold Archaeology (CA) maintained an archaeological watching brief during geotechnical ground investigations at Power Court, Luton, Bedfordshire (site centred on NGR: TL 09603 21263; Fig. 1). The geotechnical investigations comprised the machine excavation of trial pits, cable percussion coring and window sampling at locations across the site (Fig. 2). The work was commissioned by 2020 Developments (Luton) Ltd on behalf of Luton Town Football Club and was carried out in order to inform a planning application to Luton Borough Council (LBC; the local planning authority) for a new football stadium with ancillary stadium related facilities, along with residential and community/commercial development, hotel and infrastructure, which had previously received outline planning permission (16/01400/OUTEIA). The requirement for the archaeological investigation was in accordance with planning guidance stated in the *National Planning Policy Framework* (DCLG 2012).
- 1.2 The scope of the archaeological work, which comprised the monitoring of the geotechnical ground investigations, was established through discussions between CA and Martin Oake and Hannah Firth, Archaeologists for Central Bedfordshire Council's Archaeological Service (CBCAS; the archaeological advisors to LBC). The discussion was informed by an archaeological desk-based assessment (DBA) prepared by CA (2016) and the watching brief was carried out according to a *Written Scheme of Investigation* (WSI) prepared by CA (2017) and approved by Martin Oake.
- 1.3 The project was carried out in accordance with the WSI (*ibid*) and adhered to the Chartered Institute for Archaeologists' (CIfA) *Standard and Guidance for Archaeological Field Evaluation* (CIfA 2014a) and *Standard and Guidance for Archaeological Watching Briefs* (CIfA 2014b), and the Historic England (formerly English Heritage) procedural documents *Management of Archaeological Projects 2* (EH 1991) and *Management of Research Projects in the Historic Environment (MoRPHE): Project Manager's Guide* (HE 2015).

2. SITE BACKGROUND

Site location, topography and geology

- 2.1 The proposed development site, which covers an area of approximately 7ha, is located in the centre of Luton, immediately to the south-east of the railway station (Fig. 1). The Site is bounded to the north by the Luton–Dunstable Busway, which traces the railway line, and the routes and interchange of Church Street/St. Mary's Road (to the south-west) and Crawley Green Road (to the south-east). The Arndale Centre (a large shopping mall) and the Grade I Listed St. Mary's Church are located on the opposite side of St. Mary's Road, c. 20m to the south-west and c. 20m to the south respectively.
- 2.2 The Site was formerly the location of an electricity power station that was in operation from 1901–1969; its two large cooling towers and other structures were demolished in 1972. The Site was subsequently used as an industrial estate, but most of the late 20th-century warehouses and units have now been demolished. The Site lies at approximately 107m above Ordnance Datum (aOD), on roughly flat ground, though there are significantly elevated areas to the east.
- 2.3 The underlying bedrock geology of the area is mapped as Holywell Nodular Chalk Formation and New Pit Chalk Formation of the Cretaceous Period, overlain by glaciofluvial sand and gravel deposits of the Mid Pleistocene epoch (BGS 2016).
- 2.4 Due to the size of the site and for easy reference the site was divided into a number of arbitrary areas during the fieldwork (Figs. 3 & 4): Area A, a raised, former car-park to the north-east; Area B, a large central area, formerly occupied by industrial buildings; Area C, a small area at the west of the site, immediately south and east of a currently occupied commercial premises and itself formerly largely occupied by buildings; Area D, a small area at the north of the site, immediately north of Area A and formerly occupied by a number of buildings, including a public house; Area E, a sloping, vegetated area at the south of the site, formerly occupied by residential and commercial buildings; Area F, a small area at the south-west of the site, formerly occupied by commercial buildings; Area G, a small area at the west of the site, immediately north and east of an industrial estate that is still in use; and Area H, a small area at the south-east corner of the site, formerly under industrial use.

Historical and archaeological background

- 2.5 The archaeological and historical background of the site has been presented in detail in the *Heritage Desk-Based Assessment* prepared by CA (2016), which is summarised as follows:

Pre-Holocene activity (c. 500,000 – 10,000BC)

- 2.6 The earliest evidence for hominin presence in the Luton area comprises flint implements, including a variety of Lower and Middle Palaeolithic tools discovered within brick-earth deposits of clay extraction pits during the 19th and early 20th centuries (Albion Archaeology 2005, 12). Findspots are located at Caddington (c. 3.5km to the south-west of the Site), Ramridge End (c. 2km to the north-east of the Site) and Leagrave (c. 4km to the north-west of the Site).

Later Prehistoric activity (10,000BC – AD43)

- 2.7 While there is no substantial evidence for Mesolithic activity in the area, Neolithic occupation is well-attested (Albion Archaeology 2005, 12) through a number of enclosure and monument sites within the wider landscape surrounding the Site. These include a large curvilinear ditched enclosure known as Waulud's Bank, adjacent to the source springs of the river Lea, c. 4.5km to the north-west of the Site; as well as Neolithic and Bronze Age ceremonial monuments c. 5.5km to the north of the Site at Warden Hill and Galley Hill.
- 2.8 A settlement established c. 3000BC is located north of Waulud's Bank at Sundon Park (Albion Archaeology 2005, 12), with subsequent occupation focused on the alluvial terraces and chalk ridges overlooking the River Lea, c. 1-4km to the north-west of the Site (Carmichael *et al.* 2011, 27). The remains of a 'log causeway' associated with 2nd to 1st-century BC pottery have been discovered at Leagrave, c. 4km to the north-west of the Site (BBC/CBC 2016a). It is likely that the Luton area was 'an extensive agricultural landscape' during the Iron Age (Albion Archaeology 2005, 13).

Roman activity (AD43 – 410)

- 2.8 More substantial evidence of later occupation is recorded within (what is now) the modern town of Luton. At Limbury, slightly to the south of Leagrave and c. 3.7km north-west of the Site, excavations uncovered a timber-built settlement of 2nd–4th century date (Albion Archaeology 2005, 15). A section of a 'service road', which

would have connected settlements to key routes such as Watling Street, has been identified at Leagrave Marsh, c. 3.3km to the north-west of the Site (HER Ref. 167).

- 2.9 A dense concentration of Roman period features and material has been recorded beneath the former Waller Street and at Vicarage Street, c. 50–250m from the Site (Carmichael *et al.* 2011, 27). In 1975–6, groundworks at Vicarage Street, c. 130m to the south of the Site, recovered Roman building debris that included box and flue tile fragments and pottery sherds.
- 2.10 There are no findspots of Roman date recorded within the Site and it is considered unlikely that there would have been a settlement here at this date as the River Lea (which is now culverted) once flowed in a south-easterly direction through the Site (CA 2016). It is probable, however, that the river and its floodplains were exploited for aquatic, floral and faunal resources during the prehistoric and Roman periods.

Early Medieval Origins of Luton (AD410 – 1066)

- 2.11 The establishment of a town at Luton is thought to have occurred in the 6th century, since the Anglo-Saxon Chronicle records an attack by a Saxon army on a place known as *Lygeanberg* (meaning a defended enclosure on the River Lea) in AD571 (Carmichael *et al.* 2011, 28). Archaeological evidence for activity during the first half of the first millennium is scarce, but suggests ongoing occupation at Leagrave, c. 4.5km to the north-west of the Site, from the Roman period (Albion Archaeology 2005, 16).
- 2.12 An extensive cemetery of 5th to 6th-century date has been excavated at Biscott, c. 2km to the north-west of the Site, but no traces of Saxon buildings have yet been found in Luton, where the settlement at this time is likely to have consisted of dispersed hamlets (Albion Archaeology 2005, 16). During the later first millennium, the River Lea formed the boundary of the Kingdom of Wessex, with a number of territorial disputes centred on *Lygetune* (as it was re-named later) and its hinterland (CA 2016).

Medieval development of Luton (AD1066 – 1539)

- 2.13 By the time of the Domesday Survey (AD1086), Luton goes by the name of *Loitoin* and is described as a very large settlement with land for 82 ploughlands, woodland for 2000 pigs, six mills and a market (Open Domesday, accessed 16.12.16).

2.14 Following the ascension of King Stephen, the Manor of Luton was granted to Robert de Waudari, a foreign mercenary who built a substantial motte-and-bailey castle on high ground to the south of (but overlooking) the medieval town, c. 690m south-west of the Site. This castle was demolished in AD1154 under the terms of a truce (Carmichael *et al.* 2011, 29); archaeological investigations have located its 3–4m wide bailey ditch and it is thought that Castle Street follows the alignment of the inner ditch (Albion Archaeology 2005, 23). A new castle was established by Fulk de Breaute when he acquired the Manor of Luton in AD1221, on a Site adjacent to St. Mary's Church and overlooking the River Lea. The castle appears to have been moated. It was partially destroyed in 1224–1225 following de Breaute's exile, but the Site was re-used in the later 13th and 14th centuries (Carmichael *et al.* 2011, 29). Archaeological excavations at Park Square have unearthed buried remains of medieval structures, deposits and debris relating to the use, demolition and re-use of the castle complex.

Fulk de Breaute's castle

2.15 The general location of Fulk de Breaute's castle has been identified from both documentary sources and archaeological evidence. A 13th century account mentions flooding caused by a dam in the River Lea, intended to provide water for the castle's moat (Keir 2011, 20). A map of Luton dating to 1855 notes the Site of the castle with a short description of visible surviving earthworks. It is labelled as 'Site of Fulk de Brent's [sic] Castle' and the accompanying text notes: 'This castle probably stood in the meadow at the east corner of the churchyard, where the site of a large square moated mansion is still very plainly to be seen; the meadow adjoining it is surrounded by a very high bank of earth, and a deep ditch' (Davis 1855, 8, 144). Other more recent works have also repeated this mention of some surviving earthworks (Austin 1928).

2.16 The site of the castle has been the subject of several archaeological investigations, including excavation, since it was first evaluated in 1976 (CA 2016, 25-26). Most recently, investigations were carried out by Albion Archaeology in 2011 and Headland Archaeology in 2011 and 2013-2014. These provided some considerable evidence for the extent and location of the moat, as well as the layout and possible use of the castle buildings. Recovered assemblages of local and imported ceramic wares, decorative metalwork and imported coinage also demonstrated that the site remained a high-status site, perhaps even a political centre, before being abandoned in the mid-14th century (Headland Archaeology 2015, 60). Across the

area of the 2013–2014 excavations, modern ground reduction and levelling had penetrated no deeper than c. 0.3m above the medieval horizon (Headland Archaeology 2015, 28), causing only localised disturbance to medieval deposits.

Medieval settlement

- 2.17 It seems that medieval Luton was a linear settlement comprising George Street and Park Street (on the same orientation as the River Lea), Bridge Street, Castle Street and Church Street (Albion Archaeology 2005, 51–52). Archaeological investigations have unearthed evidence of medieval occupation in these localities. Another medieval settlement was located on rising ground on the north side of the River Lea, c. 400m to the north-east of the Site at Crawley Green. Land here (and probably elsewhere in Luton) was owned by St. Albans Abbey prior to the Dissolution.

Post-medieval (1540 – 1800) and Modern (1800 – present) Luton

- 2.18 Brick-making was an important industry during the post-medieval period, although brewing and the sale of beer and spirits was the town's principal trade (CA 2016, 31).
- 2.19 The main growth of the town did not occur until the middle of the 18th century, when the near-doubling of Luton's population necessitated the creation of many new streets across former farmland and common along the river valley (Carmichael *et al.* 2011, 32). In the early 20th century, surrounding hamlets became absorbed into the town.

3. AIMS AND OBJECTIVES

- 3.1 The principal aim of the archaeological investigation was to provide information about the archaeological resource within the site, including its presence/absence, character, extent, date, integrity, state of preservation and quality.
- 3.2 The specific objectives of the archaeological investigation were:
- to monitor ground investigations, and to identify, investigate and record all significant buried archaeological deposits revealed on the site during the course of the ground investigations;

- To provide archaeological input and interpretation of geotechnical data derived from geotechnical ground investigations
- at the conclusion of the project, to produce an integrated archive for the project work and a report setting out the results of the project and the archaeological conclusions that can be drawn from the recorded data;

4. FIELDWORK METHODOLOGY

4.1 The watching brief comprised the observation by an experienced archaeologist of the machine excavation of 21 geotechnical trial pits (Fig. 2), each measuring between 3m and 4m in length by between 0.6m and 1m wide and up to 4m deep, the mechanical excavator being equipped with a toothless bucket and non-archaeologically significant deposits being removed by the contractors under archaeological supervision. In addition to the trial pits, fifteen windowless sample boreholes (Fig. 2) were also excavated to depths of up to 5m below present ground level (bpgl), preceded by hand digging to 1.2m and monitored archaeologically. A number of cable percussion boreholes (Fig. 2) were also excavated across the site, though only two of these (CP2 and RH3) along with a machine-excavated pit above a third (RH7) were archaeologically monitored. It had initially been intended to excavate a number of rotary boreholes though these were changed to cable percussion boreholes, however the numbering sequence for each of the interventions, devised before the fieldwork commenced, was retained for ease of reference. Three trial pits included in the original plan were not excavated as they lay within buildings still under occupation, whilst a number of other interventions were moved from their intended locations for practical reasons. Sufficient time allowance was made by site contractors for the investigation of any archaeological remains revealed during groundworks.

4.2 When archaeological deposits were encountered, they were investigated by hand, characterised and excavated as necessary. They were then planned and recorded in accordance with *Technical Manual 1: Fieldwork Recording Manual* (CA 2013). Each borehole was recorded on a *pro-forma* borehole recording sheet and each trial pit was recorded on a *pro-forma* trench recording sheet. Representative sections of all pits were drawn and photographed, even if they contained no deposits of archaeological interest, drawn records including the full depth of the geotechnical

intervention. All finds and samples were bagged separately and related to the context record. All artefacts were retained for processing and analysis in accordance with *Technical Manual 3: Treatment of Finds Immediately after Excavation* (CA 1995).

- 4.3 Due care was taken to identify deposits with environmental potential, with a view to possible future environmental sampling, though no such material was sampled at this stage because of the high risk of contamination; geotechnical samples taken during the trial pitting and window sampling, being analysed for contaminants and to inform future works.
- 4.4 Artefacts from topsoil and other recent contexts were noted but not retained unless they were of intrinsic interest (e.g. a complete early 20th-century beer bottle from TP5). All artefacts were collected from stratified excavated contexts except for large assemblages of post-medieval or modern material.

5. INVESTIGATION RESULTS

Summary

- 5.1 The geotechnical investigations revealed extensive evidence of modern redevelopment across much of the site, with up to 3.5m of recently reworked and redeposited material in the former coal yard/car park area at the north of the site (Area A), for example. However, modern deposits had sealed surviving deposits of Holocene pseudo-peat and alluvium as well as Pleistocene Terrace gravel, which in turn overlay natural Cretaceous chalk geology.

Trial Pits

Trial Pit TP1 (Surface elevation: 105.95m aOD)

- 5.2 Only modern demolition rubble (100) was encountered in TP1, which was located within Area D at the north-east corner of the site. The pit was machine excavated to a depth of 1.7m bpgl but because of constant collapsing of loose material from the sides, it was not possible to excavate further. It is likely that the demolition rubble was infilling the cellar of a former public house that had occupied this area.



Trial Pit TP2 (Surface elevation: 106.06m aOD)

- 5.3 The basal material recorded in this trial pit, located some 50m south of TP1, was a buried concrete slab (204), at least 0.4m thick but the breaker on the mechanical excavator could not penetrate beyond this. Above the slab was 0.55m of brick rubble (203), which formed the bedding for an upper reinforced concrete slab (200) that was 0.35m thick. Elsewhere within the pit, the upper slab was underlain by 0.2m of friable, black silt sand containing frequent brick fragments.

Trial Pit TP3 (Surface elevation: 107.60m aOD)

- 5.4 The basal material recorded in this trial pit located towards the north of Area A was a stiff, mid orange brown clay with various inclusions including brick fragments (305), which extended from the base of the pit at 4m bpgl (103.60m aOD) up to 1m bpgl. It was overlain by a 0.2m thick deposit of loose, black, ashy silt sand and coal dust (304), which in turn was covered by a 0.15m thick layer of large, sub-rounded stones and slag fragments in a sandy matrix (303). This was overlain by 0.1m of hard, mid orange brown sandy gravel (302), which in turn was sealed by a 0.43m thick deposit of slightly friable, very dark greyish brown to black silt sand with chalk lensing (301). The stratigraphic sequence was completed by a 0.12m thick layer of asphalt that had formed the former car park surface (300). All of the deposits below the asphalt surface in this pit appear to have been deposited in the recent past, the massive clay deposit at the base largely comprising redeposited alluvial clay with various deposits associated with industrial usage lying above this.

Trial Pit TP4

- 5.5 The proposed location for this trial pit lay within a building, currently in use and hence the trial pit was not excavated.

Trial Pit TP5 (Surface elevation: 107.67m aOD)

- 5.6 This trial pit was located approximately 30m east of TP3 and exhibited a similar stratigraphic sequence. The basal material was a slightly friable, very dark, slightly green, grey brown sand silt with coal dust (506), which extended 0.2m upwards from the 4m bpgl (103.67m aOD) base of the pit. It was overlain by a 2.7m thick, stiff clay deposit (505), comparable with layer 305 in TP3. Above this was a 0.3m thick layer of loose, very dark grey brown, sand silt (504), similar to layer 304 in TP3 but yielding a complete late 19th-/early 20th-century bottle from the Paten Company of Peterborough, though this find is likely to have been residual within this deposit. Overlying this was 0.46m of firm, light grey sandy gravel (503) that included frequent

fragments of sulphurous slag. This was overlaid by two further, friable sand/silt made ground deposits (502 and 501) and the sequence was capped by the modern asphalt surface (500).

Trial Pit TP6

- 5.7 The proposed location for this trial pit lay within a building, currently in use and hence the trial pit was not excavated.

Trial Pit TP7 (Surface elevation: 104.69m aOD)

- 5.8 The basal material recorded in this trial pit, which lay within the footprint of a former building towards the north-west of the site, was a firm, light grey, fine, sand silt alluvium (708). This extended from the base of the pit at 4m bpgl (100.69m aOD) up to 3.6m bpgl and was overlain by a 0.6m thick layer of what appeared to be disturbed chalk (707). Above this was a 0.3m thick deposit of very firm, mid grey brown, coarse alluvial gravel with a moderate organic content (706), which in turn was overlain by 0.7m of slightly firm, dark brown grey silt (705) that contained abundant macrobotanical remains, giving the appearance of a pseudo-peat material, along with bivalve and gastropod mollusc shells, indicating material laid down in a standing water environment. A fragment of very large cattle long bone was also recovered from this deposit. It was sealed by a 0.6m thick layer of friable, mid grey brown clay silt that contained moderate small ceramic building material fragments (CBM) (704), above which were three layers (703, 702 and 701) of modern made ground totalling 1.22m in thickness. The sequence was capped by a 0.18m thick modern concrete floor slab (700). The lower deposits in this sequence represented various high and low energy alluvial materials, the surface of which, lay at 101.99m aOD, capped by standing water deposits (surface elevation: 102.69m aOD), indicating a dynamic floodplain environment with a transition to a standing water environment, possibly within a cut-off channel or similar feature. The area was then exploited for human use prior to modern redevelopment.

Trial Pit TP8 (Surface elevation: 104.69m aOD)

- 5.9 This trial pit was located approximately 30m south-west of TP7 but its excavation was limited by the presence of live services. A live drain run was encountered at a depth of 1.1m bpgl (103.59m aOD), above which, was 0.68m of mixed sand silt and demolition rubble (803). This was overlain by 0.07m of redeposited chalk (802), above which, was a further 0.1m of demolition rubble (801) that provided the bedding for a 0.25m thick concrete floor (800).

Trial Pit TP9 (Surface elevation: 107.54m aOD)

- 5.10 This trial pit was located in the former car park at the north-east of the site and exposed a similar sequence to other interventions in this area. The basal deposit, extending from 4m bpgl (103.54m aOD) up to 2m bpgl was a stiff, mixed clay (905) comparable with 305 in TP3 and 505 in TP5. It was overlain by 0.3m of redeposited chalk (904) which in turn was covered by 0.2m of friable, black, ashy material (903), again comparable with similar materials in TP3 and TP5. Above this were further modern made ground deposits (902 and 901) and the sequence was capped by a 0.05m thick modern root mat.

Trial Pit TP10 (Surface elevation: 107.60m aOD)

- 5.11 This trial pit was also excavated in the former car park area, though a slightly more complex stratigraphic sequence was exposed. Extending from the base of the pit at 4m bpgl (103.60m aOD) up to 3.7m bpgl was a stiff, mixed clay deposit (1011), which was overlain by 0.5m of variably compacted, ashy silt sand and chalk rubble (1010). Above this was 2.38m of stiff, mixed clay (1009), comparable to the massive clay layers recorded in other nearby sequences. The clay was overlain by a series of variable modern made ground deposits (1008, 1007, 1006, 1005, 1004, 1003, 1002 and 1001) totalling 0.76m in thickness and including some clearly industrial residues. The sequence was capped by a 0.06m thick, weakly-developed topsoil (1000).

Trial Pit TP11 (Surface elevation: 107.53m aOD)

- 5.12 This trial pit was also located within the former car park area and exhibited a similar sequence to nearby interventions. Extending from the base of the pit at 3.8m bpgl (103.73m aOD) up to 1.5m bpgl was a stiff, mixed clay (1107), similar to that seen in other sequences, which was overlain by a 0.2m thick layer of large stone and slag blocks in a sandy matrix (1106). Above this was 0.2m of redeposited chalk (1105), which was overlain by a further, 0.4m thick, large stone and slag deposit (1104). Above this were further, modern made ground deposits (1103, 1102 and 1101) totalling 0.62m in thickness and the sequence was completed by a 0.08m thick topsoil (1100).

Trial Pit TP12 (Surface elevation: 105.06m aOD)

- 5.13 This trial pit was located close to the western edge of the site, within the footprint of a former industrial building. Extending from the base of the pit at 3.2m bpgl

(101.86m aOD) up to 1.45m bpgl (103.61m aOD) was a very firm deposit of light yellow brown sandy gravel (1206), probably representing the Pleistocene Terrace gravel. This was overlain by 0.4m of friable, very dark grey brown sand silt (1205), which also contained occasional shell fragments and animal bone but was unfortunately undateable. Above this was 0.45m of slightly friable, dark grey brown silt (1204), which contained small CBM fragments (surface elevation: 104.46m aOD). These latter two deposits may both have some archaeological potential. Above 1204 was a 0.14m thick cement and rubble layer (1203) that had acted as bedding for a checkerboard-patterned tile floor (1202), remnants of which survived within the pit. This floor was possibly associated with development of this area in 1924, when it is shown as Corporation Yard. Above the floor was a 0.14m thick, friable, ashy silt sand layer (1201) and the stratigraphic sequence was completed by a 0.28m thick, reinforced concrete floor slab (1200).

Trial Pit TP13 (Surface elevation: 105.05m aOD)

- 5.14 Located some 40m south-east of TP12 was TP13, which exhibited a somewhat different stratigraphic sequence. The basal deposit, extending up to 3.6m bpgl was a firm, banded, light grey/light orange brown alluvial silt (1308), which was overlain by further alluvial clay silt (1307), gravel (1306), silt (1305) and clay silt (1304) deposits up to 1.25m bpgl (103.80m aOD). This broadly corresponded with the sequence of alluvial deposits recorded in TP7, some 90m to the north, though there was no later pseudo peat layer. Instead, the alluvium was directly overlain by layers (1303 and 1302) of quite recent origin and containing frequent demolition rubble. A former asphalt and gravel surface was located between 0.3m and 0.45m bpgl and the sequence was completed by a 0.3m thick reinforced concrete floor slab (1300).

Trial Pit TP14 (Surface elevation: 105.03m aOD)

- 5.15 During the mechanical breaking out of the concrete slab (1400) for this trial pit, it was realised that the slab had been reinforced with 25mm rebars, which were impenetrable with the equipment available. Consequently this trial pit was abandoned.

Trial Pit TP15 (Surface elevation: 104.55m aOD)

- 5.16 This trial pit was located within the footprint of an extensive former boiler and engineering works towards the centre of the site. The basal material recorded was natural chalk (1505) which extended up to 3.1m bpgl (101.45m aOD) and was overlain by 0.9m of soft to slightly plastic, mid grey brown alluvial silt (1504). Above

this were variable layers (1503, 1502 and 1501) of recent made ground up to 0.3m bpgl, 19th/20th-century CBM, pottery and glass being recovered from the former and the sequence was capped by a reinforced concrete floor.

Trial Pit TP16 (Surface elevation: 104.71m aOD)

- 5.17 This trial pit lay approximately 40m north-east of TP15 and the basal deposit was natural chalk (1606), recorded at an upper level of 0.85m bpgl (103.86m aOD), Cut directly into the chalk was a 0.6m deep feature (1605), which had a steeply sloping, quite straight south-western edge and a flattish base. The exact form and further dimensions of the feature were unclear as it extended beyond both sides and the north-eastern end of the pit, though it measured at least 2m by 0.8m. It was filled with a single, friable, mid brown sand silt deposit (1604) that contained very small fragments and larger pieces of CBM, probably indicating a late 19th-century date. The backfilled feature was sealed by a 0.05m thick layer of mixed, redeposited clay (1603), which was overlain by 0.36m of friable, very dark grey to black ashy sand silt (1602). Above this was a 0.11m thick demolition rubble deposit (1601) that acted as bedding for a 0.33m thick, reinforced concrete floor slab (1600).

Trial Pit TP17

- 5.18 The proposed location for this trial pit lay within a building, currently in use and hence the trial pit was not excavated.

Trial Pit TP18 (Surface elevation: 106.19m aOD)

- 5.19 TP18 was located approximately 30m east of TP16 and its excavation proved somewhat difficult as it was located over an extensive area of modern demolition rubble (1800). During mechanical excavation the loose rubble constantly collapsed into the pit and for practical, as well as health and safety reasons, excavation ceased at 1.3m bpgl.

Trial Pit TP19 (Surface elevation: 104.63m aOD)

- 5.20 TP19 was located approximately 50m south-east of TP15 and its excavation also proved difficult. The basal material excavated was variably compacted modern demolition rubble (1901), which constantly collapsed leaving some dangerous, open voids and for health and safety reasons, excavation was abandoned at 1.8m bpgl (102.83m aOD). It is likely that the rubble was infilling a basement to a former industrial building. Subsequent to the basement infilling a 0.4m thick, reinforced concrete floor (1900) had been laid over the rubble.

Trial Pit TP20 (Surface elevation: 104.20m aOD)

- 5.21 This trial pit was located within the footprint of a former building at the south-west corner of the site. At the base of the trial pit at 4m bpgl (100.20m aOD) was a coarse sandy gravel alluvium that fined upwards to a firm, light, slightly yellow grey silt (2010) at 2.95m bpgl (101.25m aOD). It was overlain by 0.85m of soft, very dark grey brown to black, laminated organic silt (2009, surface elevation: 102.10m aOD), which was very similar to the pseudo peat deposit in TP7. Above this were further alluvial deposits; a 0.3m thick, firm, mid brown grey silt clay (2008) and a 0.55m thick, friable, mid brown sand silt (2007). The latter deposit was overlain by 0.05m of friable, mid grey brown sand silt with occasional CBM fragments (2006) and this in turn was overlain by 0.05m of friable, very dark grey brown to black sand silt (2005, surface elevation: 103.05m aOD). Above this were a number of modern made ground deposits (2004, 2003, 2002 and 2001) totalling 0.85m in thickness, most containing recent demolition rubble. The sequence was completed by a rubble bedding supporting a reinforced concrete floor (2000), 0.3m thick.

Trial Pit TP21 (Surface elevation: 104.17m aOD)

- 5.22 This test pit lay approximately 50m east of TP20 and the earliest material exposed, extending from the base of the pit at 3.6m bpgl up to 2.3m bpgl (101.87m aOD), was a firm, light yellow brown silt, sand and gravel deposit (2108), possibly Pleistocene Terrace Gravel. It was overlain by 0.65m of banded alluvial deposits (2107, surface elevation: 102.52m aOD) comprising friable, mid orange brown fine sand and firm, dark brown silt clay. This in turn was overlain by 0.35m of firm, mottled mid red/grey brown clay silt with occasional charcoal fragments (2106), which appears to have been a disturbed alluvial deposit. Above this was a 0.25m thick layer of firm, mid brown clay silt with occasional small CBM fragments (2105, surface elevation: 103.12m aOD) and this was overlain by a series of modern made ground deposits (2104, 2103, 2102 and 2101) totalling 0.8m in thickness. The sequence was capped by a 0.25m thick, reinforced concrete floor (2100).

Trial Pit TP22 (Surface elevation: 105.04m aOD)

- 5.23 This trial pit was located a short distance east of the culverted River Lea and approximately 50m north-east of TP20. From the base of the pit at 3.1m bpgl up to 1.85m bpgl (103.19m aOD) was a firm, light orange brown, flinty and chalky silt clay that became more gravelly up profile (2208), which appears to have represented partial alluvial reworking of the natural chalk. It was overlain by 0.55m of firm, mid

brown silt with occasional flint and charcoal fragments (2207, surface elevation: 103.74m aOD), which appears to have been a reworked alluvial deposit. It was covered by a 0.1m thick layer of friable, black sand silt (2206) that exhibited a distinctive hydrocarbon odour. This was overlain by further, modern made ground deposits (2205, 2204, 2203, 2202 and 2201) totalling 1.05m in thickness and comprising large amounts of demolition rubble. The sequence was capped by a 0.15m thick deposit of loose vegetation, gravel and CBM fragments.

Trial Pit TP23 (Surface elevation: 105.27m aOD)

- 5.24 This trial pit was located in the southern part of the site, approximately 60m south-east of TP22. The basal material recorded in this pit was natural chalk (2307), the surface of which, was exposed at 2.35m bpgl (102.92m aOD). It was overlain by 0.55m of friable, light grey/grey brown chalky silt (2306, surface elevation: 103.47m aOD), which appears to have represented a reworking of the chalk surface. Above this was 0.4m of friable, mid to dark brown sand silt with occasional small CBM fragments (2305, surface elevation: 103.87m aOD). This was overlain by a series of modern made ground deposits (2304, 2303, 2302 and 2301) totalling 1.32m in thickness, the lowest deposit (2304) including plastic fragments and the others including variable quantities of demolition rubble. The sequence was capped by a weakly developed, mossy topsoil (2300).

Trial Pit TP24 (Surface elevation: 106.07m aOD)

- 5.25 Located approximately 60m north-east of TP23 the earliest deposit encountered in this trial pit was natural chalk (2404), recorded at an upper elevation of 1.5m bpgl (104.57m aOD). This was directly overlain by modern demolition rubble (2403) with further made ground deposits (2402 and 2401) above. The sequence was capped by a 0.08m thick, weakly developed topsoil (2400).

Trial Pit TP25 (Surface elevation: 106.20m aOD)

- 5.26 This trial pit was located approximately 40m south-east of TP24 and the earliest deposit recorded was natural chalk (2504), the surface of which, was encountered at 1.2m bpgl (105.00m aOD). This was overlain by a 0.4m thick layer of very firm, redeposited chalk and demolition rubble (2503). Further made ground deposits (2502 and 2501) lay above this and the sequence was capped by a 0.08m thick, weakly developed, mossy topsoil (2500).

Windowless Samples

Borehole WS1 (Surface elevation: 107.49m aOD)

- 5.24 Located within the former car park at the north of the site, the basal material recorded in this borehole was a hard, mid orange brown, coarse sandy gravel (4315) that extended from the base of the borehole at 5.5m bpgl up to 4.6m bpgl (102.89m aOD). This probably represented Pleistocene Terrace Gravel and was overlain by layers of apparently alluvially reworked material (4314, 4313, 4312, 4311, 4310 and 4309) up to (3.6m bpgl (103.89m aOD). Above these was a 0.25m thick deposit of friable, very dark grey to black sand silt with occasional small CBM fragments (4308), which was covered by a 0.1m thick layer of stiff, mid brown clay (4307). This was overlain by 0.25m of stiff, very light grey/white chalky clay (4306), 0.8m of stiff, mottled, mid grey/orange brown clay (4305) and 1.5m of stiff, mixed, dark grey/mid orange brown clay (4304), these latter two deposits broadly corresponding with the massive clay deposits recorded in test pits in this area. The clay was overlain by further slag-rich made ground deposits (4303, 4302 and 4301) and the sequence was capped by a 0.05m thick deposit of friable, silt sand and gravel (4300).

Borehole WS2 (Surface elevation: 104.83m aOD)

- 5.25 This borehole was located within the car park of a commercial premises, still in use at the north-west of the site. A firm chalky gravel (4410) extending from the base of the borehole at 5.5m bpgl up to 4.5m bpgl (100.33m aOD) appears to have represented the upper levels of disturbed natural chalk. It was overlain by various silt sand and gravel layers (4409, 4408, 4407 and 4406) up to 2.7m bpgl (102.13m aOD), which appear to have represented variable intensity alluvial episodes. The alluvium was overlain by various made ground deposits (4405, 4404 and 4403) up to 0.5m bpgl (104.33m aOD), which were capped by a 0.1m thick asphalt surface (4402). This was subsequently covered by 0.3m of demolition rubble (4401) and a second layer of asphalt (4400) laid to form the current car park surface.

Borehole WS3 (Surface elevation: 107.62m aOD)

- 5.26 This borehole was also located in the former car park area at the north of the site. Extending from the base of the borehole at 5.5m bpgl up to 4.3m bpgl (103.32m aOD) was a layer of very firm, light yellow brown, silt sand gravel (4504), most likely Pleistocene terrace Gravel. This was overlain by 0.75m of firm, very dark grey brown silt clay with occasional small, sub-rounded chalk fragments (4503, surface elevation: 104.07m aOD), which in turn was covered by 1.75m of firm, mixed clay (4502), comparable with the other massive clay deposits recorded in the area. This

was overlain by 1m thick deposit of large stone and slag blocks in a sandy matrix (4501) and the sequence was completed by 0.8m of variably compacted, very dark grey to black, ashy sand and clinker (4500).

Borehole WS4 (Surface elevation: 104.76m aOD)

- 5.27 This borehole was located towards the northern edge of the footprint of the former extensive industrial building complex that had occupied the central area of the site. The basal deposit, which extended from 5.5m bpgl up to 4.8m bpgl (99.96m aOD), was a firm, chalky gravel (4606), which probably represented the disturbed upper level of natural chalk. It was overlain by variable sand and silt layers (4605, 4604 and 4603) up to 2.4m bpgl (102.36m aOD), which probably represented different alluvial episodes. These were overlain by made ground deposits (4602 and 4601, surface elevation: 104.16m aOD) of post-medieval date and the sequence was capped by a 0.6m thick, reinforced concrete floor slab (4600).

Borehole WS5 (Surface elevation: 105.95m aOD)

- 5.28 This borehole was located close to TP18, over the same demolition rubble deposit (4700). Problems were also experienced with this intervention and the corer refused at 1.5m bpgl (104.45m aOD). Recovery of the core revealed asbestos at this level.

Borehole WS6 (Surface elevation: 104.41m aOD)

- 5.29 This borehole was located no more than 20m south-west of TP19 and close to the culverted River Lea. Extending from the base of the core at 5.5m bpgl up to 1.8m bpgl (102.61m aOD) were various sand, silt and gravel layers (4813, 4812, 4811, 4810, 4809, 4808, 4807 and 4806), exhibiting a complex sequence of alluvial deposition. These were overlain by 0.2m of friable, dark grey brown, sand silt clay (4805), which may have been further alluvium, and 0.35m of firm, mid red brown clay (4804, surface elevation: 103.16m aOD), possibly anthropogenically reworked alluvium. This was covered by variable modern made ground deposits (4803, 4802 and 4801) up to 0.15m bpgl and the sequence was capped by a modern asphalt surface.

Borehole WS7 (Surface elevation: 104.52m aOD)

- 5.30 This borehole was located towards the south-west of the site, in a car park associated with a still operating, industrial estate. The basal deposit extending from 2.9m bpgl (where there was core refusal) up to 2m bpgl (102.52m aOD) was a very firm, mid orange brown, coarse sand and gravel (4906), probably Pleistocene

Terrace gravel. This was overlain by 0.3m of firm, very dark grey brown silt (4905, surface elevation: 102.82m aOD) probably the remnants of natural alluviation in this area, whilst above this was 0.7m of firm, mid grey brown clay silt with occasional CBM and charcoal fragments (4904, surface elevation: 103.52m aOD), probably representing post-medieval reworking of the alluvium. This was overlain by a recent deposit of slightly friable, silt sand and gravel with CBM fragments (4903), capped by a 0.2m thick concrete slab (4902). The slab was covered by 0.48m of firmly compacted, modern demolition rubble and the sequence was completed by the 0.12m thick, modern asphalt car park surface.

Borehole WS8 (Surface elevation: 104.83m aOD)

- 5.31 This borehole was located approximately 50m north-west of WS7 and encountered the surface of natural chalk (5008) at 4.5m bpgl (100.33m aOD). This was overlain by various layers of clay, silt, sand and gravel (5007, 5006, 5005, 5004, 5003 and 5002) up to 0.7m bpgl (104.13m aOD), representing a complex sequence of alluviation. The alluvium was capped by a 0.05m thick layer of firm, mid brown silt clay with CBM fragments (5001), which was overlain by 0.65m of variably compacted, mixed modern demolition rubble, capped by gravel at the surface (5000).

Borehole WS9 (Surface elevation: 108.52m aOD)

- 5.32 In this borehole, located towards the eastern side of the site some 80m south-east of TP18 encountered natural chalk (5105) at an upper elevation of 1.4m bpgl (107.12m aOD). It was overlain by 0.4m of firm, mid brown clay silt (5104), representing possible alluvial accumulation. Above this was 0.3m of firm, light yellow grey, redeposited chalk and gravel (5103) and 0.25m of firm, mid brown clay silt with CBM fragments (5102, surface elevation: 108.07m aOD), both of these deposits representing apparent post-medieval activity in this area. Layer 5102 was covered by 0.35m of variably compacted, modern demolition rubble (5101) and the sequence was completed by a 0.1m thick, modern asphalt surface (5100).

Borehole WS10 (Surface elevation: 106.41m aOD)

- 5.33 This borehole was located approximately midway between WS5 and WS9 and encountered the surface of natural chalk (5206) at 3.3m bpgl (103.11m aOD). It was overlain by 1.75m of firm, light grey brown silt with frequent chalk flecks and flint fragments (5205), which appears to have been alluvially reworked chalk. Above this was 0.35m of firm, mid brown clay silt (5204, surface elevation: 105.21m aOD))

representing further alluviation and this was covered by 0.5m of slightly friable, very dark grey brown to black sand silt with CBM fragments (5203), which in turn was overlain by 0.4m of firm, mid grey brown clay silt with CBM fragments (5202, surface elevation: 106.11m aOD), the latter two layers representing possible post-medieval activity. Above these was 0.2m of heavily compacted, modern demolition rubble (5201) and the sequence was completed by a 0.1m thick, modern asphalt surface.

Borehole WS11 (Surface elevation: 104.61m aOD)

- 5.34 This borehole was located a short distance north-west of TP22 and encountered natural chalk (5305) at 3.2m bpgl (101.41m aOD). It was overlain by 1.5m of firm, banded, light red/grey brown silt clay (5304, surface elevation: 102.91m aOD), representing alluviation in this area. Above this was 0.7m of firm, mid grey brown clay silt with occasional CBM and charcoal fragments (5303, surface elevation: 103.61m aOD), representing possible post-medieval activity and this was overlain by deposits of modern demolition rubble (5302 and 5301) up to 0.15m bpgl. The sequence was capped by a layer of loose vegetation, gravel and CBM fragments (5300).

Borehole WS12 (Surface elevation: 108.05m aOD)

- 5.35 WS12, located some 50m south of WS9, encountered the surface of natural chalk (5404) at 1.35m bpgl (106.70m aOD). It was directly overlain by a 0.65m thick layer of firm, mid brown clay silt containing small CBM fragments (5403), probably representing post-medieval activity. Above this was a further 0.3m of post-medieval made ground (5402, surface elevation: 107.65m aOD), which was covered by 0.3m of more recent material containing modern demolition rubble (5401) and the sequence was completed by 0.1m of topsoil (5400).

Borehole WS13 (Surface elevation: 105.10m aOD)

- 5.36 This borehole, located approximately midway between TP22 and TP23, encountered the surface of natural, blocky chalk (5504) at 1.8m bpgl (103.30m aOD). Above this was 0.5m of firm, dark grey brown silt with moderate CBM and charcoal fragments (5503), probably representing post-medieval activity. This was covered by a 0.7m thick layer of redeposited chalk (5502), which in turn was overlain by a 0.1m thick deposit of firm, very dark grey brown ashy silt (5501, surface elevation: 104.60m aOD). The sequence was completed by 0.5m of firmly compacted, mixed modern demolition rubble (5500).

Borehole WS14 (Surface elevation: 104.16m aOD)

- 5.37 WS14 was located at the south-west of the site, approximately 20m west of TP20. The corer struck an impenetrable layer, probably a basement floor (5601) at 2.7m bpgl (102.46m aOD). Above this, variable compacted, mixed modern demolition rubble (5600) extended up to the modern surface.

Borehole WS15 (Surface elevation: 104.26m aOD)

- 5.38 This borehole was located at the south-west of the site, approximately 30m north-west of WS14, and encountered the surface of solid, natural chalk at 5.25m bpgl (99.01m aOD). This was overlain by 0.35m of very firm, light yellow brown chalky silt with frequent flint gravel (5712), probably representing the upper disturbed level of the natural chalk. Above this were a number of deposits (5711, 5710, 5709, 5708, 5707, 5706, 5705 and 5704) up to 0.9m bpgl (103.36m aOD), representing a complex sequence of alluvial deposition. The alluvium was overlain by a number of deposits (5703, 5702 and 5701) up to 0.15m bpgl, mostly containing modern demolition rubble and the sequence was capped by modern topsoil (5700).

Cable-Percussion Boreholes

Borehole CP2 (Surface elevation: 107.65m aOD)

- 5.39 This borehole was located in the former car park at the north-east of the site and the surface of natural chalk geology (2705) was recorded at 6.5m bpgl (101.15m aOD). It was overlain by 2.3m of slightly friable, light yellow brown, Terrace gravel (2704, surface elevation: 103.45m aOD)). Above the gravel was a 0.5m thick layer of friable, black ashy sand (2703), being the remnants of residue from the former coal yard. This was overlain by a 0.2m thick deposit of stiff, mid brown clay (2702), above which was an extensive, 2.7m thick layer of firm, mid brown to mid bluish grey, silt clay (2701), these latter two deposits being interpreted as redeposited alluvial clay. The stratigraphic sequence was completed by a 0.8m thick deposit of slightly friable, very dark grey, silt sand (2700), which had formed the bedding for the car park surface that previously occupied the site.

Borehole RH3 (Surface elevation: 107.65m aOD)

- 5.40 This borehole was also located in the north-eastern former car park area and the surface of natural chalk geology (3806) was recorded at 6m bpgl (101.65m aOD). It was overlain by 1.3m of slightly friable, light yellow brown, Terrace gravel (3805, surface elevation: 102.95m aOD). Above the gravel was a 1.1m thick layer of friable, black ashy sand (3804), being the remnants of residue from the former coal yard.

This was overlain by a 1.6m thick deposit of stiff, mid grey brown clay (3803), above which was a thin, 0.2m thick layer of firm, very dark, grey brown, clay silt (3802), these latter two deposits being interpreted as redeposited alluvial material. This was overlain by a 1.2m thick deposit of firm, sand gravel with frequent sub-rounded cobbles and large stone and slag blocks (3801) and the stratigraphic sequence was completed by a 0.6m thick deposit of slightly friable, very dark grey, silt sand (3800), which had formed the bedding for the car park surface that previously occupied the site.

Borehole RH7 (Surface elevation: 105.30 aOD)

- 5.41 Due to sub-surface, concrete obstructions, it was necessary to break out the top of this borehole in the central area of the site by machine and a small pit was excavated into soft deposits to a depth of 2.4m bpgl (102.90m aOD). The earliest deposit recorded was a friable, silt sand with occasional brick fragments (4205). This was 0.3m thick and overlain by 0.72m of slightly friable, very dark grey to black sand silt with demolition rubble. A further 0.6m of modern made ground deposits (4202 and 4201) lay above and the sequence was capped by a 0.65m thick, reinforced concrete floor slab (4200). Subsequent coring at this location encountered an impenetrable barrier, probably a basement floor slab, a short distance below the level machined to.

6 FINDS

By Jacky Sommerville

- 6.1 Artefactual material from the watching brief was hand-recovered from five deposits (a pit fill, a tiled floor and three made ground layers). The recovered material dates to the post-medieval/modern period. The pottery has been recorded according to sherd count/weight per fabric.

Pottery

- 6.2 A base sherd (20g) from a plate or dish in Creamware, which dates to the 18th century, was retrieved in good condition from made ground layer 1503.

Ceramic building material

- 6.3 Ceramic building material of post-medieval/modern date totalled seven fragments (2.727kg). Included was: a half brick (measuring 4 x 3") from made ground layer

1010; flat roof tile from made ground layer 1503; and two ceramic tiles from tiled floor 1202. The latter, one black and one orange, were square and measured 4 x 4". They featured an impressed decoration with a crown in the centre and are likely to be of 20th century date.

Other finds

- 6.4 Two modern glass items were recovered. Made ground layer 504 produced a complete wine/spirits bottle in dark green-coloured glass. The body was embossed with the maker's mark "Paten & Co, Peterborough". Alfred John Paten established the company as a wine merchant in 1898 and it continued until at least the first quarter of the 20th century. A fragment from the rim of a vessel in opaque, white glass is probably dateable to the 20th century.

7. DISCUSSION

- 7.1 Archaeological monitoring of the geotechnical investigations that took place across the Power Court site recorded sequences that encompassed deposits ranging from natural chalk dating to the Cretaceous era up to modern concrete and asphalt surfaces. The earliest deposit, exposed in a number of the trial pits and window sample boreholes was natural chalk, which generally appeared as a solid mass at lower levels with a more granular, disturbed upper surface. Where exposed, the surface of the chalk exhibited a general upward slope from south-west to north-east, reflecting the natural topographic slope on the north side of the Lea Valley in this area, and the down cutting of the river into the chalk in the base of the valley.
- 7.2 Sands and gravels, apparently associated with Pleistocene Terrace Gravel deposits were also exposed in a number of sequences, though this exposure was not as widespread as that of the chalk, probably because this material, lying at a higher level, was more susceptible to truncation by recent site redevelopment. Therefore rather the natural topography being widely apparent, it was more an indicator of varying levels of survival of materials across the site.
- 7.3 In a number of sequences, particularly those towards the south-west of the site and in the vicinity of the now culverted River Lea, sometimes complex sequences of alluvial deposition were exposed, ranging from high-energy gravel deposits through to banded fine silts and clays, representative of low energy deposition. In a small

number of locations, the alluvial deposits were overlain by organic-rich silts and clays, indicative of standing water or even drying environments. In one location, the organic material was overlain by further alluvial material and it is possible that this later alluvial phase was also present in a number of other sequences. None of these alluvial or organic deposits were dateable, as only undated animal bone was recovered.

- 7.4 Previous archaeological investigations to the south of the site had revealed evidence for medieval activity indicating the possibility that medieval deposits extended into the southern corner of the site and elsewhere across the site where there had not been extensive truncation by basement excavation or other modern disturbance. The watching brief revealed deposits of possible archaeological interest, however many of these were clearly of post-medieval date and activity associated with the row of houses that formerly stood at the southern edge of the site appears to have been present in a number of the sequences in this area. Whilst no medieval deposits were identified many of the deposits remained undated including the organic-rich silt sediments.
- 7.5 There had been extensive late post-medieval remodelling and multiple phases of redevelopment across much of the site, which was borne out by the majority of geotechnical interventions. In central areas of the site, formerly occupied by industrial buildings, deep truncation, particularly for the excavation of basements had significantly impacted upon earlier buried deposits and in other areas, modern materials lay directly over natural deposits, also demonstrating the removal of any earlier deposits and possible archaeological levels.
- 7.6 In addition to the interventions that were archaeologically monitored, there were further cores that were logged but not archaeologically monitored (Webb 2017) and core logs were also made available from previous geotechnical investigations in 2007/8. Logs from the current and previous investigations were combined to create schematic north-west/south-east and north-east/south-west cross-sections across the site (Appendix D), which illustrate the broad pattern of natural chalk, alluvial gravels and made ground across the site.
- 7.7 The former section indicates a raised elevation of Cretaceous Chalk to the south-east of the site, reflecting the rise in the natural morphology, and there are negligible sand and gravel deposits. As the chalk slopes down to the north-west however,

there are significant sand and gravel deposits which continue across the remainder of the site, though thin out slightly towards the north-west of the site; the section indicating a more widespread survival of gravel deposits than suggested by the archaeologically monitored investigations alone. No distinction is made in the cross-section between Pleistocene drift deposits and Holocene alluvium but it is clear that significant superficial deposits, upon which archaeological deposits may survive, are present across much of the site.

- 7.8 The north-east/south-west cross section indicates sand and gravel above natural chalk across the full width of the site with a slight anomaly close to the south-western edge, almost certainly reflective of a former channel of The River Lea here. Again, no distinction has been made between drift and alluvial deposits, though those towards the south-west are more likely to be alluvial, but this cross-section too indicates that there are potential Pleistocene and Holocene surfaces upon which, archaeological deposits may survive.
- 7.9 The cross sections both show extensive made ground across the site, largely indicative of the widespread 20th-century industrial development, however, no distinction is made between recent industrial deposits, made ground and potential archaeological deposits. The archaeologically monitored investigations demonstrated that some modern developments extended a significant distance below current ground level, particularly in basemented areas and it is likely that such developments will have removed any archaeological deposits overlying or cutting into superficial geology. However, the archaeological investigations also revealed deposits with archaeological potential overlying natural materials at a number of locations outside basemented areas. It is likely therefore that there is intermittent survival of archaeological deposits in areas that have not experienced significant deep truncation.
- 7.10 In summary, the investigations have shown that despite extensive industrial development of the site there is a likelihood that remains with both palaeoenvironmental and archaeological potential survive in some areas. The former will be concentrated along the lower-lying areas in the south-west of the site, where there has been a complex chronology of alluvial deposition and peat formation, whilst the latter will be more fragmented according to the nature of the industrial development.

8 CA PROJECT TEAM

8.1 The fieldwork was undertaken by Peter Boyer. The report was written by Peter Boyer, with illustrations prepared by Daniel Bashford and Lucy Martin. The finds report was written by Jacky Sommerville. The archive has been compiled by Emily Evans and prepared for deposition by Jessica Cook. The project was managed for CA by Michelle Collings.

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APPENDIX A: CONTEXT DESCRIPTIONS

Context	Context Interpretation	Context Description	L (m)	W (m)	T (m)	Date
TP1 (3m x 0.6m)						
100	Demolition Rubble	Variably compacted modern demolition rubble. Machining abandoned at 1.7m bpgl because of constant collapse	>3m	>0.6m	>1.7m	Modern
TP2 (3m x 1.3m)						
200	Concrete	Modern reinforced concrete slab	>3m	>3m	0.35m	Modern
201	Made ground	Friable, black silt sand with modern brick fragments. Contaminated	>1m	>0.6m	0.2m	Modern
202	Made ground	Friable, mid orange brown sand with frequent small, sub-rounded to sub-angular stones. Only seen at SE end of trench then trench re-aligned	>1m	>0.6m	>0.1m	Modern
203	Rubble bedding	Brick rubble bedding from concrete slab along with mixed black and mid red brown silt sand and demolition rubble	>1m	>0.6m	0.55m	Modern
204	Concrete	Modern concrete slab	>1m	>0.6m	>0.4m	Modern
TP3 (3.6m x 0.6m)						
300	Asphalt	Modern asphalt surface	>3.6m	>0.6m	0.12m	Modern
301	Made ground	Slightly friable, very dark grey brown to black, silt sand with chalk lensing	>1m	>0.6m	0.43m	Modern
302	Redeposited Terrace gravel	Hard, mid orange brown, coarse sand gravel	>1m	>0.6m	0.1m	Modern
303	Made ground	Hard layer of large, sub-rounded stones and slag fragments in a sand matrix	>1m	>0.6m	0.15m	Modern
304	Made ground	Loose, black, ashy, silt sand and coal dust	>1m	>0.6m	0.2m	Modern
305	Redeposited alluvium	Stiff, mid orange brown clay with variable (modern) inclusions	>1m	>0.6m	>3m	Modern
TP5 (3.5m x 0.6m)						
500	Asphalt	Modern asphalt surface	>3.5m	>0.6m	0.12m	Modern
501	Made ground	Friable, mid brown, sand silt	>1m	>0.6m	0.11m	Modern
502	Made ground	Friable, black silt sand	>1m	>0.6m	0.11m	Modern
503	Made ground	Firm, light grey sand gravel with frequent fragments of sulphurous slag	>1m	>0.6m	0.46m	Modern
504	Made ground	Loose, very dark grey brown sand silt	>1m	>0.6m	0.3m	Modern
505	Redeposited alluvium	Stiff, mid orange brown clay	>1m	>0.6m	2.7m	Modern
506	Made ground	Slightly friable, very dark, slightly greenish, grey brown sand silt with coal dust	>1m	>0.6m	>0.2m	Modern
TP7 (2.8m x 1m)						
700	Concrete	Modern reinforced concrete	>2.8m	>1m	0.18m	Modern

701	Rubble bedding	Firm, concrete, brick and stone rubble bedding for concrete	>1m	>1m	0.12m	Modern
702	Made ground	Firm, white, chalk and flint blocky deposit	>1m	>1m	0.1m	Modern
703	Made ground	Friable, very dark brown/mid orange brown/dark brown/black sand silt with modern demolition rubble	>1m	>1m	1m	Modern
704	Made ground	Friable, mid grey brown clay silt with frequent small, sub-rounded to angular stones and moderate small CBM fragments	>1m	>0.6m	0.6m	Post-Medieval
705	Pseudo peat?	Slightly firm, dark brown grey silt with frequent organics, occasional water snail shell fragments and animal bone. Laminar and anaerobic	>1m	>0.6m	0.7m	Prehistoric/medieval?
706	Alluvium	Very firm, mid grey brown, coarse sand, flinty gravel (coarse clastic sediment)	>1m	>0.6m	0.3m	Holocene
707	Alluvium?	Friable, light grey/white disturbed chalk	>1m	>0.6m	0.6m	Holocene
708	Alluvium	Firm, light grey, fine sand	>1m	>0.6m	>0.4m	Holocene
TP8 (4m x 1m)						
800	Concrete	Modern reinforced concrete	>4m	>1m	0.25m	Modern
801	Rubble bedding	Mixed demolition rubble bedding for concrete	>4m	>1m	0.1m	Modern
802	Made ground	Firm white chalk and blocky flint layer (redeposited)	>2m	>1m	0.07m	Modern
803	Made ground	Friable, dark brown/very dark brown/mid orange brown, sand silt with frequent mixed modern demolition rubble. Pit abandoned at 1.1m bpgl because of modern drain at this level	>2m	<1m	0.68m	Modern
TP9 (3.5m x 0.6m)						
900	Root mat	Friable, dark brown sand silt with very frequent roots	>3.5m	>0.6m	0.05m	Modern
901	Made ground	Variably compacted, mid orange brown, brick demolition rubble	>2m	>0.6m	0.45m	Modern
902	Made ground	Firmly compacted, large, sub-rounded stones and slag fragments in a sand matrix	>1m	>0.6m	0.4m	Modern
903	Made ground	Friable, black ashy sand and coal dust with highly sulphurous smell	>1m	>0.6m	0.8m	Modern
904	Made ground	Firm, light grey/white chalk (redeposited)	>1m	>0.6m	0.3m	Modern
905	Made ground	Stiff, mixed mid brown/mid yellow brown/mid red brown clay	>1m	>0.6m	>2m	Modern
TP10 (3.5m x 0.6m)						
1000	Topsoil	Loose, dark grey brown, silt sand with frequent organics	>3.5m	>0.6m	0.06m	Modern
1001	Made ground	Very firm, mid pinkish brown, coarse sand gravel	>3.5m	>0.6m	0.04m	Modern
1002	Made ground	Friable, black silt sand with coal waste	>3.5m	>0.6m	0.09m	Modern

1003	Made ground	Firm, dark brown, sand gravel	>3.5m	>0.6m	0.1m	Modern
1004	Made ground	Firm, white chalk (redeposited)	>3m	>0.6m	0.09m	Modern
1005	Made ground	Friable, black silt sand with coal waste	>3m	>0.6m	0.04m	Modern
1006	Made ground	Very firm, mid orange brown, coarse sand gravel	>2m	>0.6m	0.08m	Modern
1007	Made ground	Firm, large, sub-rounded stone and slag fragments in a sand matrix	>1m	>0.6m	0.15m	Modern
1008	Made ground	Loose, black, ashy, silt sand	>1m	>0.6m	0.17m	Modern
1009	Made ground	Stiff, mixed dark grey/mid brown/mid orange brown clay with variable modern inclusions	>1m	>0.6m	2.38m	Modern
1010	Made ground	Variably compacted, mixed chalk and black, ashy, silt sand	>1m	>0.6m	0.5m	Modern
1011	Made ground	Stiff, mixed dark grey/mid brown/mid orange brown clay with variable modern inclusions	>1m	>0.6m	>0.3m	Modern
TP11 (3.5m x 0.6m)						
1100	Topsoil	Friable, mid to dark brown, sand silt	>3.5m	>0.6m	0.08m	Modern
1101	Made ground	Friable, mid red brown, silt sand including brick dust with demolition rubble	>3.5m	>0.6m	0.07m	Modern
1102	Made ground	Slightly friable, black, silt sand, becoming brown with depth	>3m	>0.6m	0.3m	Modern
1103	Made ground	Very firm, mid orange brown, coarse, sand gravel lenses	>2m	>0.6m	0.25m	Modern
1104	Made ground	Large sub-rounded, stone and slag fragments in a sand matrix	>1m	>0.6m	0.4m	Modern
1105	Made ground	Firm, white/pale pink, redeposited chalk	>1m	>0.6m	0.2m	Modern
1106	Made ground	Large sub-rounded, stone and slag fragments in a sand matrix	>1m	>0.6m	0.2m	Modern
1107	Made ground	Stiff, mixed mid brown/mid orange brown clay	>1m	>0.6m	>2.3m	Modern
TP12 (3.2m x 0.9m)						
1200	Concrete	Reinforced concrete slab and bedding	>3.2m	>0.9m	0.28m	Modern
1201	Made ground	Friable, very dark grey/black, ashy, silt sand	>3m	>0.9m	0.14m	Modern
1202	Tile floor	Hard red/black chequerboard-patterned floor	>1m	>0.9m	0.04m	Modern
1203	Floor bedding	Firm, cement and demolition rubble bedding for floor	>1m	>0.9m	0.14m	Modern
1204	Made ground	Slightly friable, dark grey brown silt with occasional small to medium, sub-rounded to sub-angular pebbles and CBM fragments	>1m	>0.9m	0.45m	Post-Medieval
1205	Alluvium	Friable, very dark grey brown, sand silt with moderate, small to medium, sub-angular flint nodules, occasional shell fragments and animal bone	>1m	>0.6m	0.4m	Holocene

1206	Terrace Gravel?	Very firm, light yellow brown, sand gravel, becoming a little more clay with depth	>1m	>0.6m	>1.75m	Pleistocene?
TP13 (3m x 1m)						
1300	Concrete	Reinforced concrete slab and bedding	>3m	>1m	0.3m	Modern
1301	Asphalt	Hard, black buried asphalt surface	>2m	>1m	0.15m	Modern
1302	Made ground	Heavily compacted, mixed modern demolition rubble	>2m	>1m	0.09m	Modern
1303	Made ground	Slightly friable, dark grey brown, sand silt with moderate mixed demolition rubble	>2m	>1m	0.71m	19th century?
1304	Alluvium?	Firm, mid red brown, clay silt with occasional organics	>1m	>0.6m	0.85m	Holocene
1305	Alluvium	Slightly friable, light yellow brown silt with occasional small to medium, sub-angular flint fragments	>1m	>0.6m	0.3m	Holocene
1306	Alluvium	Very firm, light yellow brown, sand gravel with frequent small to medium, sub-rounded to sub-angular flints	>1m	>0.6m	0.45m	Holocene
1307	Alluvium	Stiff, mid yellow brown, clay silt with occasional coarse, chalky sand	>1m	>0.6m	0.75m	Holocene
1308	Alluvium	Firm, banded, light grey/light orange brown silt	>1m	>0.6m	>0.4m	Holocene
TP14 (3m x 0.8m)						
1400	Concrete	Modern reinforced concrete with thick rebars. Impenetrable with JCB so abandoned	>3m	>0.8m	>0.1m	Modern
TP15 (3m x 0.8m)						
1500	Concrete	Modern reinforced concrete	>3m	>0.8m	0.3m	Modern
1501	Rubble bedding	Mixed modern demolition rubble bedding for concrete	>3m	>0.8m	0.25m	Modern
1502	Made ground	Friable, very dark grey to black, sand silt with occasional iron slag and CBM fragments. Becoming very firm with depth	>2m	>0.8m	0.85m	Modern
1503	Made ground	Friable, mid brown, clay silt with frequent charcoal, occasional CBM, glass and pot	>1m	>0.8m	0.8m	19th century?
1504	Alluvium?	Soft, slightly plastic, mid grey brown silt with few observable inclusions	>1m	>0.8m	0.9m	Holocene
1505	Natural chalk	Slightly friable, pale pink to white chalk, becoming firmer with depth	>1m	>0.8m	>0.9m	Cretaceous
TP16 (3m x 0.8m)						
1600	Concrete	Modern reinforced concrete	>3m	>0.8m	0.33m	Modern
1601	Rubble bedding	Demolition rubble bedding for concrete	>3m	>0.8m	0.11m	Modern
1602	Made ground	Friable, very dark grey to black, ashy, sand silt	>2m	>0.8m	0.36m	Modern
1603	Made ground	Stiff, mixed mid brown/mid orange brown/mid grey brown clay	>2m	>0.8m	0.05m	Modern
1604	Pit fill	Friable, mid brown sand silt with occasional small, sub-rounded to sub-angular stones, shell fragments and	>1.8m	>0.8m	0.6m	19th century?

		CBM fragments				
1605	Pit cut	Pit with steeply sloping, slightly concave sides and flattish base	>1.8m	>0.8m	0.6m	19th century?
1606	Natural chalk	Firm, light grey/white blocky chalk, becoming very firm with depth	>1.8m	>0.8m	>2.15m	Cretaceous
TP18 (3m x 0.8m)						
1800	Demolition rubble	Friable modern demolition rubble. Pit abandoned at 1.3m bpgl because of constant collapse	>3m	>0.8m	>1.3m	Modern
TP19 (3m x 0.8m)						
1900	Concrete	Modern reinforced concrete	>3m	>0.8m	0.4m	Modern
1901	Made ground	Variably compacted, modern demolition rubble, possibly basement infill. Pit abandoned at 1.8mbpgl because of collapse and voids appearing	>2m	>0.8m	>1.4m	Modern
TP20 (3.5m x 1m)						
2000	Concrete	Modern reinforced concrete	>3.5m	>1m	0.3m	Modern
2001	Made ground	Variably compacted, mixed modern demolition rubble	>3m	>1m	0.1m	Modern
2002	Made ground	Friable, very dark grey brown to black, ashy, silt sand	>3m	>1m	0.2m	Modern
2003	Made ground	Firm to stiff, mid brown grey, silt sand clay with frequent modern demolition rubble	>3m	>1m	0.25m	Modern
2004	Made ground	Firm, mid yellow brown, coarse sand gravel with moderate chalk and demolition rubble	>2m	>1m	0.3m	Modern
2005	Made ground	Friable, very dark grey brown to black, sand silt	>2m	>1m	0.05m	Post-Medieval
2006	Made ground	Friable, mid grey brown, sand silt with occasional small CBM fragments	>2m	>1m	0.05m	Post-Medieval
2007	Alluvium?	Friable, mid brown, sand silt with occasional small, sub-angular flint pebbles	>1m	>0.6m	0.55m	Holocene
2008	Alluvium	Firm, mid brown grey, silt clay	>1m	>0.6m	0.3m	Holocene
2009	Pseudo peat?	Soft, very dark grey brown to black, laminated organic silt with frequent vegetation	>1m	>0.6m	0.85m	Holocene
2010	Alluvium	Firm, light, slightly yellow, grey silt, upward fining with occasional organics	>1m	>0.6m	>1.05m	Holocene
TP21 (4m x 1m)						
2100	Concrete	Modern reinforced concrete	>4m	>1m	0.25m	Modern
2101	Made ground	Friable, very dark grey brown/black/mid red brown silt sand with demolition rubble	>4m	>1m	0.13m	Modern
2102	Asphalt	Buried asphalt surface	>3m	>1m	0.12m	Modern
2103	Made ground	Very firmly compacted, mixed modern demolition rubble	>3m	>1m	0.45m	Modern
2104	Made ground	Firm, very dark grey/black, ashy sand and demolition rubble	>3m	>1m	0.1m	Modern
2105	Made ground	Firm, mid brown, clay silt with moderate, small sub-rounded stones and	>2m	>1m	0.25m	Post-Medieval

		occasional CBM fragments				
2106	Made ground	Firm, mottled mid red/grey brown clay silt with occasional charcoal fragments	>1m	>0.6m	0.35m	Post-Medieval?
2107	Alluvium	Firm, banded, mid orange brown fine sand and da5r4k brown silt clay	>1m	>0.6m	0.65m	Holocene
2108	Terrace Gravel?	Firm, light yellow brown silt/sand/gravel	>1m	>0.6m	>1.3m	Pleistocene?
TP22 (3.5m x 1m)						
2200	Surface deposit	Loose vegetation, gravel and CBM fragments	>3.5m	>1m	0.15m	Modern
2201	Made ground	Heavily compacted, dark grey brown sand silt with moderate demolition rubble	>3.5m	>1m	0.25m	Modern
2202	Made ground	Heavily compacted, mixed modern demolition rubble	>3m	>1m	0.3m	Modern
2203	Made ground	Firm, very dark grey brown silt with frequent demolition rubble	>3m	>1m	0.1m	Modern
2204	Made ground	Firm, mid yellow brown, gravelly clay	>3m	>1m	0.1m	Modern
2205	Made ground	Firm, white chalk (redeposited)	>2m	>1m	0.3m	Modern
2206	Made ground	Friable, black sand silt with hydrocarbon odour	>2m	>1m	0.1m	Modern
2207	Made ground	Firm, mid brown silt with occasional small to medium, sub-rounded to sub-angular flints and occasional charcoal fragments	>1m	>0.6m	0.55m	Post-Medieval?
2208	Natural chalk	Firm, light orange brown to white, flinty chalk	>1mj	>0.6m	>1.25m	Cretaceous
TP23 (3.5m x 0.8m)						
2300	Topsoil	Friable, dark brown, mossy, sand silt	>3.5m	>0.8m	0.08m	Modern
2301	Made ground	Friable, mid brown sand silt with moderate demolition rubble, brick dust and chalk fragments	>3.5m	>0.8m	0.27m	Modern
2302	Made ground	Firm, mid orange brown sand gravel with occasional CBM fragments	>3m	>0.8m	0.15m	Modern
2303	Made ground	Firm, mid brown silt with frequent modern demolition rubble	>3m	>0.8m	0.3m	Modern
2304	Made ground	Slightly friable, banded redeposited chalk and mid brown silt with modern inclusions, including plastics	>2m	>0.8m	0.6m	Modern
2305	Made ground	Friable, mid to dark brown sand silt with occasional small CBM fragments	>1m	>0.8m	0.4m	Post-Medieval?
2306	Natural?	Friable, light grey/light grey brown, chalky silt	>1m	>0.6m	0.55m	Cretaceous?
2307	Natural chalk	Firm white chalk	>1m	>0.6m	>0.55m	Cretaceous
TP24 (3m x 0.8m)						
2400	Topsoil	Friable, dark brown sand silt	>3m	>0.8m	0.08m	Modern
2401	Made ground	Slightly friable demolition rubble in a silt sand, brick dust matrix	>3m	>0.8m	0.36m	Modern
2402	Made ground	Firm, light, slightly pinkish brown sand silt with frequent demolition rubble and chalk	>2m	>0.8m	0.56m	Modern

2403	Made ground	Firm, light pinkish brown and white silt with very frequent chalk and modern demolition rubble	>2m	>0.8m	0.5m	Modern
2404	Natural chalk	Firm white chalk	>2m	>0.8m	>1.7m	Cretaceous
TP25 (3.5m x 0.8m)						
2500	Topsoil	Friable, dark brown, mossy sand silt	>3.5m	>0.8m	0.08m	Modern
2501	Made ground	Friable, light brown grey sand silt with modern demolition rubble	>3.5m	>0.8m	0.27m	Modern
2502	Made ground	Friable, mid brown grey sand silt with moderate modern demolition rubble	>3m	>0.8m	0.45m	Modern
2503	Made ground	Very firm, pale pink/white chalk and demolition rubble, becoming light grey brown with depth	>2m	>0.8m	0.4m	Modern
2504	Natural chalk	Firm white chalk	>2m	>0.8m	>0.8m	Cretaceous
CP2						
2700	Made ground	Slightly friable, very dark grey, silt sand with coal waste	-	-	0.8m	Modern
2701	Redeposited alluvium	Firm, mid brown to mid bluish grey, silt clay	-	-	2.7m	Modern
2702	Redeposited alluvium	Stiff, mid brown clay	-	-	0.2m	Modern
2703	Made ground	Friable, black, ashy, silt sand	-	-	0.5m	Modern
2704	Terrace gravel	Slightly friable, light yellow brown, coarse sand gravel	-	-	2.3m	Pleistocene
2705	Natural	Firm, white, natural chalk	-	-	>8.5m	Cretaceous
RH3						
3800	Made ground	Very firmly compacted, very dark grey to black, silt sand coal waste	-	-	0.6m	Modern
3801	Made ground	Firm, sand gravel with frequent large stone and slag fragments	-	-	1.2m	Modern
3802	Made ground	Firm, very dark grey brown, clay silt	-	-	0.2m	Modern
3803	Redeposited alluvium	Stiff, mid grey brown clay	-	-	1.6m	Modern
3804	Made ground	Friable, very dark grey to black, ashy, silt sand	-	-	1.1m	Modern
3805	Terrace gravel	Firm, light yellow brown, coarse sand gravel	-	-	1.3m	Pleistocene
3806	Natural	Firm, white chalk	-	-	>34m	Cretaceous
RH7 (2.7m x 1m)						
4200	Concrete	Modern reinforced concrete	>2.7m	>1m	0.65m	Modern
4201	Made ground	Firmly compacted modern demolition rubble	>2m	>1m	0.35m	Modern
4202	Made ground	Slightly friable, very dark grey to black sand silt with demolition rubble	>2m	>1m	0.25m	Modern
4203	Made ground	Friable, mid brown silt sand with occasional brick fragments	>1m	>0.6m	0.132m	Modern
4204	Made ground	Slightly friable, very dark grey to black sand silt with demolition rubble	>1m	>0.6m	0.72m	Modern
4205	Made ground	Friable, mid brown silt sand with occasional brick fragments. Probable basement infill	>1m	>0.6m	>0.3m	Modern

WS1						
4300	Car park surface	Friable, dark grey brown, silt sand with frequent roots and coarse, sub-angular gravel	-	-	0.05m	Modern
4301	Made ground	Moderately compact, black ashy sand	-	-	0.15m	Modern
4302	Made ground	Moderately compact, light grey brown sand gravel with slag fragments	-	-	0.4m	Modern
4303	Made ground	Moderately compact, black sand gravel with slag fragments	-	-	0.1m	Modern
4304	Made ground	Firm, mixed dark grey/mid orange brown clay with CBM and wood fragments	-	-	1.5m	Modern
4305	Made ground	Stiff, mottled, mid grey/orange brown clay	-	-	0.8m	Modern
4306	Made ground	Stiff, very light grey/white chalky clay	-	-	0.25m	Modern
4307	Made ground	Stiff, mid brown clay	-	-	0.1m	Post-Medieval?
4308	Made ground	Friable, very dark grey to black, sand silt with occasional CBM fragments	-	-	0.25m	Post-Medieval?
4309	Made ground	Firm, mid brown grey, clay silt with occasional organics and small, sub-angular stone fragments	-	-	0.2m	Post-Medieval?
4310	Made ground	Stiff, mid red brown clay silt with occasional small sub-angular flint and chalk fragments	-	-	0.2m	Post-Medieval?
4311	Made ground	Firm, very dark grey/black clay silt	-	-	0.15m	Post-medieval?
4312	Terrace gravel?	Firm, chalky gravel	-	-	0.1m	Pleistocene?
4313	Terrace gravel?	Firm, mid orange brown silt clay	-	-	0.15m	Pleistocene?
4314	Terrace gravel?	Firm, light yellow brown, chalky gravel	-	-	0.2m	Pleistocene?
4315	Terrace gravel?	Hard, mid orange brown, coarse sand gravel	-	-	>0.9m	Pleistocene?
WS2						
4400	Asphalt	Modern asphalt surface	-	-	0.1m	Modern
4401	Made ground	Firmly compacted, mixed modern demolition rubble	-	-	0.3m	Modern
4402	Asphalt	Buried asphalt surface	-	-	0.1m	Modern
4403	Made ground	Firm, very dark grey brown, silt sand with frequent CBM fragments	-	-	1m	Modern
4404	Made ground	Firm, mid brown clay silt with CBM fragments	-	-	0.27m	Modern
4405	Made ground	Firm, very dark brown organic silt with occasional CBM fragments	-	-	0.93m	Post-Medieval?
4406	Alluvium?	Slightly friable, mid yellow brown, gravelly sand	-	-	0.2m	Holocene?
4407	Alluvium?	Friable, mixed, mottled light grey brown/grey silt sand with moderate small, sub-rounded stones	-	-	0.4m	Holocene?
4408	Alluvium?	Firm, mid yellow brown, slightly clay, gravelly sand	-	-	0.8m	Holocene?
4409	Alluvium?	Firm, light yellow brown, clay sand with frequent gravel	-	-	0.4m	Holocene?
4410	Alluvium?	Firm chalky gravel	-	-	>1m	Holocene?
WS3						

4500	Made ground	Variably compacted, very dark grey/black, ashy sand and clinker with frequent slag fragments	-	-	0.8m	Modern
4501	Made ground	Large, sub-rounded stone and slag fragments in a sand matrix	-	-	1m	Modern
4502	Made ground	Firm, mixed mid red brown/very dark grey brown/mid brown grey, silt clay with CBM fragments	-	-	1.75m	Modern
4503	Alluvium?	Firm, dark brown to very dark grey brown, silt clay with moderate small, sub-rounded chalk fragments	-	-	0.75m	Holocene?
4504	Alluvium/Terrace gravel?	Very firm, light yellow brown, coarse, silt sand gravel	-	-	>1.2m	Holocene/Pleistocene?
WS4						
4600	Concrete	Modern reinforced concrete	-	-	0.6m	Modern
4601	Made ground	Firmly compacted, mid red brown, silt clay with frequent angular flint gravel	-	-	0.8m	Post-Medieval?
4602	Made ground	Firm, dark brown. Clay silt with occasional CBM fragments	-	-	1m	Post-Medieval
4603	Alluvium	Firm, mid orange brown, sand silt with moderate, medium, sub-rounded pebbles	-	-	0.9m	Holocene
4604	Alluvium	Slightly friable, light grey brown, silt sand with frequent angular flint gravel	-	-	1m	Holocene
4605	Alluvium	Firm, light grey brown, silt clay	-	-	0.5m	Holocene
4606	Natural	Firm, chalky gravel	-	-	>0.7m	Cretaceous?
WS5						
4700	Made ground	Variably compacted, mixed modern demolition rubble. Refusal at 1.5m bpgl, asbestos at base, core abandoned	-	-	>1.5m	Modern
WS6						
4800	Asphalt	Modern asphalt surface	-	-	0.15m	Modern
4801	Made ground	Heavily compacted, mixed mid brown silt clay and chalk gravel	-	-	0.3m	Modern
4802	Made ground	Friable, very dark grey to black, silt sand with cinder and CBM fragments	-	-	0.35m	Modern
4803	Made ground	Slightly friable, mid grey brown silt with chalk flecks, small CBM fragments and ash	-	-	0.45m	Post-Medieval?
4804	Alluvium?	Firm, mid red brown clay with occasional chalk flecks	-	-	0.35m	Holocene
4805	Alluvium?	Firm, slightly sand, silt clay with occasional chalk flecks	-	-	0.2m	Holocene
4806	Alluvium	Friable, mid grey brown, coarse sand	-	-	0.2m	Holocene
4807	Alluvium	Firm, mid grey brown silt clay with occasional small to medium sub-angular flints	-	-	0.35m	Holocene
4808	Alluvium	Friable, mid red brown, coarse, gravelly sand	-	-	0.35m	Holocene
4809	Alluvium	Friable, light yellow brown sand	-	-	0.15m	Holocene

4810	Alluvium	Firm, mid grey sand silt	-	-	0.15m	Holocene
4811	Alluvium	Firm, mid grey brown, chalky, silt clay	-	-	0.15m	Holocene
4812	Alluvium	Friable, mid red/yellow brown, chalky gravel	-	-	0.45m	Holocene
4813	Alluvium	Firm, mid grey, chalky, clay, gravelly silt with sand bands	-	-	>1.95m	Holocene
WS7						
4900	Asphalt	Modern asphalt surface	-	-	0.12m	Modern
4901	Made ground	Firmly compacted, modern demolition rubble	-	-	0.48m	Modern
4902	Concrete	Buried concrete slab	-	-	0.2m	Modern
4903	Made ground	Slightly friable, dark brown, silt, gravelly sand with CBM fragments	-	-	0.2m	Modern
4904	Made ground	Firm, mid brown, clay silt with occasional small CBM and charcoal fragments	-	-	0.7m	Post-Medieval?
4905	Alluvium?	Firm, very dark grey brown silt with very frequent, small, sub-rounded white stones and occasional medium, sub-angular flints	-	-	0.3m	Holocene
4906	Terrace Gravel?	Very firm, mid orange brown, coarse sand gravel/gravelly sand. Core refusal at 2.9m bpgl	-	-	>0.9m	Pleistocene?
WS8						
5000	Gravel surface	Modern gravel surface with variably compacted, mixed modern demolition rubble bedding	-	-	0.65m	Modern
5001	Made ground	Firm, mid brown silt clay with moderate small, sub-rounded stones and CBM fragments	-	-	0.05m	Post-Medieval?
5002	Alluvium	Slightly friable, very light grey brown to grey, chalky sand gravel, becoming cleaner with depth	-	-	1.14m	Holocene
5003	Alluvium	Firm, very light grey brown, fine sand silt	-	-	0.28m	Holocene
5004	Alluvium	Bands of firm, mid red brown sand and very light grey brown silt clay	-	-	0.38m	Holocene
5005	Alluvium	Firm, mid orange brown sand silt with occasional medium, sub-angular flints	-	-	0.3m	Holocene
5006	Alluvium	Firm, light grey brown silt clay, becoming mid brown with depth	-	-	1.1m	Holocene
5007	Alluvium	Stiff, dark grey clay	-	-	0.6m	Holocene
5008	Natural Chalk	Firm, white chalk	-	-	>1m	Cretaceous
WS9						
5100	Asphalt	Modern asphalt surface	-	-	0.1m	Modern
5101	Made ground	Variably compacted, mixed modern demolition rubble	-	-	0.35m	Modern
5102	Made ground	Firm, mid brown clay silt with occasional small, sub-angular flints, charcoal and CBM fragments	-	-	0.25m	Post-Medieval?
5103	Made ground?	Firm, white/light yellow grey, blocky, redeposited chalk and chalk gravel	-	-	0.3m	Post-Medieval?
5104	Alluvium	Firm, mid brown clay silt with moderate small to	-	-	0.4m	Holocene

		medium, sub-rounded to sub-angular stones and chalk blocks				
5105	Natural Chalk	Firm, white chalk	-	-	>4.1m	Cretaceous
WS10						
5200	Asphalt	Modern asphalt surface	-	-	0.1m	Modern
5201	Made ground	Heavily compacted, mixed modern demolition rubble	-	-	0.2m	Modern
5202	Made ground	Firm, mid grey brown clay silt with frequent small chalk nodules and moderate CBM fragments	-	-	0.4m	Post-Medieval?
5203	Made ground	Slightly friable, very dark grey brown to black, sandy silt with chalk and CBM fragments	-	-	0.5m	Post-Medieval?
5204	Alluvium?	Firm, mid brown clay silt with occasional small, sub-rounded to sub-angular stones and chalk flecks	-	-	0.35m	Holocene
5205	Alluvium?	Firm, light grey brown silt with frequent chalk flecks and moderate small, sub-angular flint fragments	-	-	1.75m	Holocene?
5206	Natural Chalk	Firm, white chalk	-	-	>2.2m	Cretaceous
WS11						
5300	Modern surface	Loose vegetation, gravel and CBM fragments	-	-	0.15m	Modern
5301	Made ground	Heavily compacted, light brown sandy silt with demolition rubble	-	-	0.15m	Modern
5302	Made ground	Heavily compacted, mixed modern demolition rubble	-	-	0.7m	Modern
5303	Made ground	Firm, mid grey brown clay silt with frequent medium, sub-rounded chalk blocks, occasional CBM fragments and charcoal	-	-	0.7m	Post-Medieval?
5304	Alluvium	Banded, firm, light red/grey brown silt clay with occasional chalk flecks	-	-	1.5m	Holocene
5305	Natural Chalk	Firm, white chalk	-	-	>2.3m	Cretaceous
WS12						
5400	Topsoil	Friable, mid brown clay silt	-	-	0.1m	Modern
5401	Made ground	Slightly friable, light grey brown clay silt with very frequent chalk fragments and moderate CBM	-	-	0.3m	Modern
5402	Made ground	Firm, dark grey brown clay silt with moderate CBM fragments and occasional small, sub-rounded to sub-angular flints	-	-	0.3m	Post-Medieval?
5403	Made ground	Firm, mid brown clay silt with occasional small, sub-angular stones and small CBM fragments	-	-	0.65m	Post-Medieval?
5404	Natural Chalk	Slightly friable, blocky and gravelly chalk becoming solid with depth	-	-	>4.15m	Cretaceous
WS13						
5500	Modern rubble	Firmly compacted, mixed modern demolition rubble	-	-	0.5m	Modern
5501	Made ground	Firm, very dark grey brown, slightly ashy silt	-	-	0.1m	Modern

5502	Made ground	Firm, redeposited chalk in a dark brown, sand silt matrix	-	-	0.7m	Post-Medieval?
5503	Made ground	Firm, dark grey brown silt with moderate CBM and charcoal fragments	-	-	0.5m	Post-Medieval
5504	Natural Chalk	Firm, white, blocky chalk	-	-	>3.7m	Cretaceous
WS14						
5600	Basement infill	Variable compacted, mixed modern demolition rubble	-	-	2.7m	Modern
5601	Concrete floor	Probable concrete basement floor – core refusal at this level	-	-	-	Modern
WS15						
5700	Topsoil	Friable, very dark brown sand silt with frequent roots	-	-	0.15m	Modern
5701	Made ground	Firm, mid grey brown sand silt with moderate roots	-	-	0.1m	Modern
5702	Made ground	Variably compacted, mid grey brown sand silt with moderate demolition rubble	-	-	0.25m	Modern
5703	Made ground	Firm, mid grey brown sand silt with frequent chalk and demolition rubble	-	-	0.4m	Modern
5704	Alluvium?	Firm, light yellow brown silt clay with frequent, coarse, sub-angular flint gravel, becoming dark brown with depth, then mid brown	-	-	0.85m	Holocene?
5705	Alluvium?	Firm, mid orange brown, coarse gravelly sand	-	-	0.45m	Holocene?
5706	Alluvium?	Firm, light grey brown clay silt with occasional small, sub-rounded to sub-angular stones	-	-	0.45m	Holocene?
5707	Alluvium?	Slightly friable, light grey brown silt with frequent small, sub-angular chalk and flint fragments	-	-	0.65m	Holocene?
5708	Alluvium?	Firm, light grey brown clay silt with occasional small, sub-rounded to sub-angular stones. Very stony at base	-	-	0.55m	Holocene?
5709	Alluvium?	Slightly friable, light grey brown silt with frequent small, sub-angular chalk and flint fragments	-	-	0.65m	Holocene?
5710	Alluvium	Firm, light yellow brown, fine silt sand	-	-	0.4m	Holocene
5711	Abraded chalk?	Very firm, light yellow brown, chalky silt with frequent coarse, sub-angular flint gravel	-	-	0.35m	Cretaceous?
5701	Natural Chalk	Firm, white chalk	-	-	>0.25m	Cretaceous

APPENDIX B: FINDS CONCORDANCE

Context	Category	Description	Fabric Code	Count	Weight (g)	Spot-date
504	Modern glass	Bottle		1	479	LC19-EC20
1010	Post-medieval/modern ceramic building material	Brick		1	1487	Post-medieval
1202	Modern ceramic building material	Wall tile		2	965	Modern
1503	Post-medieval pottery Modern glass Post-medieval ceramic building material	Creamware Vessel Flat roof tile, brick	CRM	1 1 3	20 2 185	C19-C20
1604	Post-medieval ceramic building material	Brick		1	90	Post-medieval

APPENDIX C: OASIS REPORT FORM

PROJECT DETAILS		
Project name	Power Court Site, Luton, Bedfordshire	
Short description	<p>During February 2017, Cotswold Archaeology maintained an archaeological watching during geotechnical investigations at Power Court, Luton, Bedfordshire. The geotechnical investigations comprised the machine excavation of trial pits, cable-percussion coring and window sampling. The work was commissioned by 2020 Developments (Luton) Ltd on behalf of Luton Town Football Club and was carried out in order to inform a planning application to Luton Borough Council (LBC; the local planning authority) for a new football stadium with ancillary stadium related facilities, along with residential and community/commercial development, hotel and infrastructure.</p> <p>Previous archaeological investigations to the south of the site had revealed evidence of medieval and post-medieval activity, the former associated with a 13th century castle (known as Fulk de Breaute's Castle). Based on these investigations it had been suggested that evidence for medieval occupation may have extended into the southern part of the site. However, much of the site had undergone extensive modification and multiple phases of redevelopment during the later post-medieval period. Monitoring of the geotechnical interventions revealed that despite much of the site having been disturbed by phases of redevelopment, earlier deposits survived in some areas. In lower-lying areas, pseudo-peat and alluvial deposits were sealed beneath recent materials and overlay Terrace Gravel and Cretaceous Chalk deposits. In other areas, post-medieval and undated anthropogenic deposits were encountered lying between natural deposits and modern made ground.</p>	
Project dates	6th February 2017 to 27th February 2017	
Project type	Watching Brief	
Previous work	Desk-based assessment (CA 2016)	
Future work	Yes	
Monument type		
Significant finds	None	
PROJECT LOCATION		
Site location	Power Court, Luton, Bedfordshire	
Study area	6.9ha	
Site co-ordinates	TL 09603 21263	
PROJECT CREATORS		
Name of organisation	Cotswold Archaeology (CA)	
Project Brief originator	Martin Oake	
Project Design (WSI) originator	CA	
Project Manager	Michelle Collings (CA)	
Project Supervisor	Peter Boyer (CA)	
PROJECT ARCHIVE		
Accession no.	tbc	Content
Physical	Luton Culture	Pottery, glass, pottery, brick, tile, animal bone
Paper	Luton Culture	Borehole sheets, trench sheets, context sheets, drawings
Digital	Bedfordshire HER	Report, digital photos, survey data
BIBLIOGRAPHY		
CA (Cotswold Archaeology) 2017 <i>Power Court Site, Luton, Bedfordshire: Archaeological Watching Brief</i> . CA typescript report 17086		

APPENDIX D: DEPOSIT MODELLING AND CORE LOGS



Luton Town Football Club

Powercourt, Luton
Phase 1 Ground Condition Assessment
Site Location Plan

Figure No	1
Date	14.04.16
Drawn by	GS
Approved by	JA

FINAL



Envirocheck



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Client
LUTON TOWN FOOTBALL CLUB

POWER COURT, LUTON

**PHASE 1 GROUND CONDITION ASSESSMENT:
 SUMMARY OF PRINCIPLE POTENTIAL SOURCES OF CONTAMINATION FROM CURRENT AND HISTORICAL LAND USES
 (REFER TO SECTION 4.5 IN REPORT TEXT FOR DETAIL)**

Date 21.03.2016

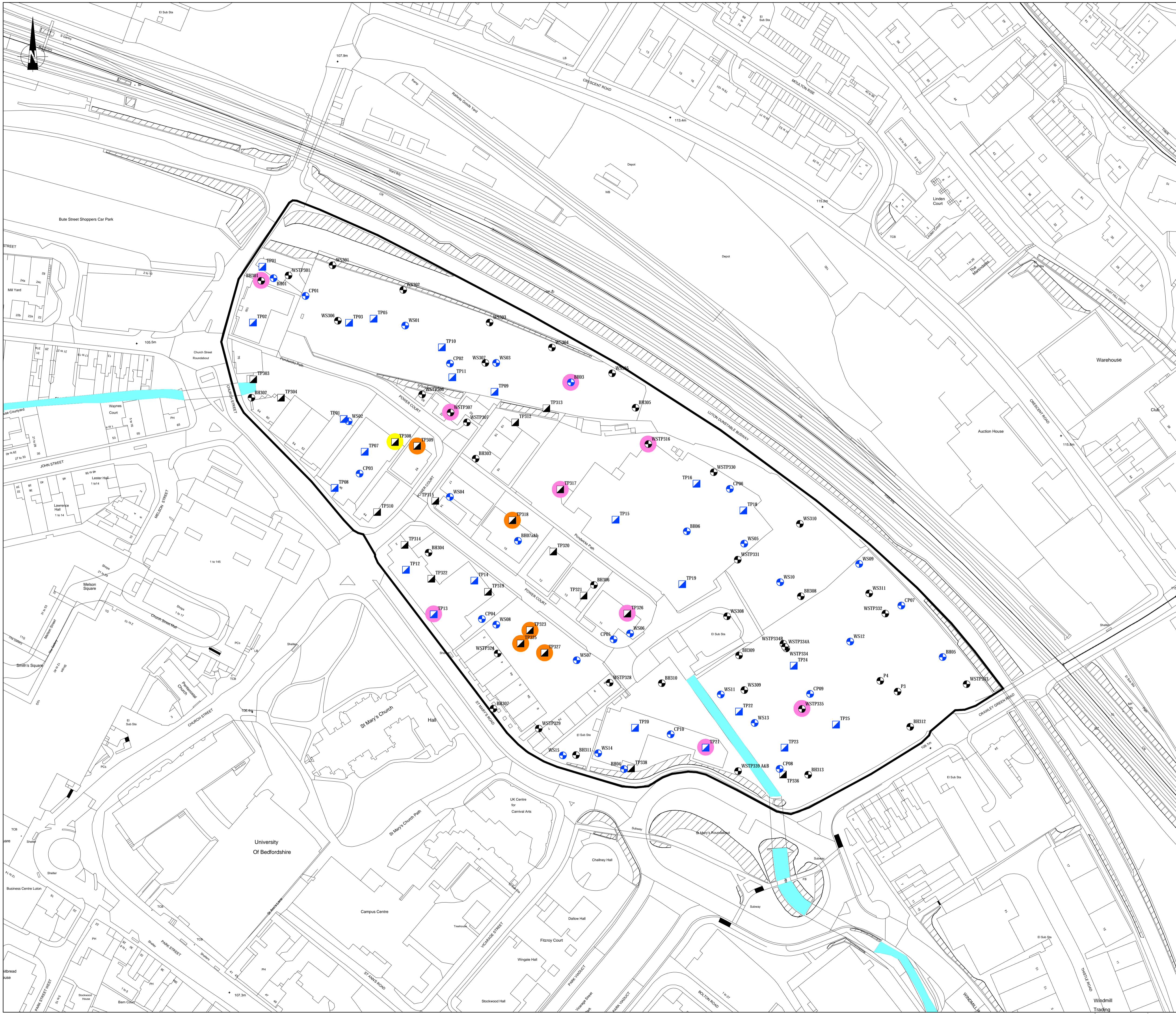
A3 Scale NTS

Drawn by HA

Checked by JA

Figure Number

FIGURE 3



NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATIVE TO ORDNANCE DATUM NEWLYN UNLESS NOTED OTHERWISE.
3. ALL COORDINATES ARE IN METRES RELATIVE TO ORDNANCE SURVEY NATIONAL GRID.
4. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
5. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS AND ARCHITECTS DRAWINGS AND SPECIFICATIONS.

LEGEND

- WSTPXXX PBA INVESTIGATION LOCATIONS (2017)
 - TPXX GEOTECHNICS/PELL FRISCHMANN INVESTIGATION LOCATIONS (2007/8)
 - WSTPXXX
 - TPXX
 - SITE BOUNDARY
- SOIL CONTAMINANTS**
- POSITIVELY IDENTIFIED ASBESTOS
 - LEAD CONCENTRATION - ASSESSMENT CRITERIA
 - PAH CONCENTRATION - ASSESSMENT CRITERIA

Mark	Revision	Date	Drawn	Chkd	Appd

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.
 UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Drawing Issue Status **FINAL**

LUTON POWER COURT
DISTRIBUTION OF CONTAMINANTS
GREATER THAN ASSESSMENT CRITERIA

Client LUTON TOWN FOOTBALL CLUB				 Offices throughout the UK and Europe www.peterbrett.com © Peter Brett Associates LLP CAMBRIDGE Tel: 01223 882 000
Date of 1st Issue 08.06.2107	Designed JA	Drawn GC/davco		
A1 Scale 1:1000	Checked OB	Approved JA		
Drawing Number FIGURE 5				



Site: Luton Power Court	Job No.: GTS-17-900
Client: Peter Brett Associates LLP	
Engineer: N/a	

Summary of Exploratory Holes

Hole ID	Hole Type	National Grid Eastings	National Grid Northing	Ground Level (mAOD)	Completion Depth (m bgl)	Completion Depth (mAOD)	
BH01	Cable Percussion Borehole	509480.92	221465.09	106.13	35.45	70.68	
BH03	Cable Percussion Borehole	509650.05	221405.90	107.68	35.45	72.23	
BH04	Cable Percussion Borehole	509680.27	221186.09	103.99	35.45	68.54	
BH05	Cable Percussion Borehole	509861.46	221249.76	109.31	35.00	74.31	
BH06	Cable Percussion Borehole	509715.98	221321.22	104.57	16.00	88.57	
BH07	Cable Percussion Borehole	509619.94	221315.80	105.31	2.00	103.31	
BH07a	Cable Percussion Borehole	509619.94	221315.80	105.31	2.00	103.31	
BH07b	Cable Percussion Borehole	509619.94	221315.80	105.31	2.50	102.81	
CP01	Cable Percussion Borehole	509499.12	221455.02	107.49	15.00	92.49	
CP02	Cable Percussion Borehole	509581.29	221416.60	107.65	15.45	92.20	
CP03	Cable Percussion Borehole	509529.89	221354.04	104.62	15.45	89.17	
CP04	Cable Percussion Borehole	509599.42	221271.37	104.84	15.45	89.39	
CP05	Cable Percussion Borehole	509674.32	221259.80	104.43	15.45	88.98	
CP06	Cable Percussion Borehole	509740.43	221345.35	105.69	3.14	102.55	
CP07	Cable Percussion Borehole	509837.97	221279.04	109.27	15.45	93.82	
CP08	Cable Percussion Borehole	509786.08	221228.81	106.12		106.12	
CP09	Cable Percussion Borehole	509768.74	221186.22	105.40	6.50	98.90	
CP10	Cable Percussion Borehole	509706.78	221205.84	104.14	15.45	88.69	
TP01	Trial Pit	509474.62	221471.57	105.91	1.70	104.21	
TP02	Trial Pit	508346.21	197735.45	106.07	1.30	104.77	
TP03	Trial Pit	509523.92	221439.76	107.58	4.00	103.58	
TP05	Trial Pit	509537.85	221442.08	107.64	4.00	103.64	
TP07	Trial Pit	509532.82	221366.42	104.69	3.60	101.09	
TP08	Trial Pit	509515.72	221345.88	104.63	1.10	103.53	
TP09	Trial Pit	509606.64	221400.49	107.65	3.50	104.15	
TP10	Trial Pit	509576.69	221425.79	107.62	4.00	103.62	
TP11	Trial Pit	509582.65	221408.77	107.60	3.80	103.80	
TP12	Trial Pit	509556.25	221299.36	105.08	3.20	101.88	
TP13	Trial Pit	509572.03	221274.03	105.06	4.00	101.06	
TP14	Trial Pit	509595.14	221293.20	105.29	0.30	104.99	
TP15	Trial Pit	509675.47	221327.83	104.62	4.00	100.62	
TP16	Trial Pit	509721.48	221348.28	104.67	4.00	100.67	
TP18	Trial Pit	509748.14	221333.08	106.33	1.30	105.03	
TP19	Trial Pit	509713.39	221291.18	104.62	1.90	102.72	
TP20	Trial Pit	509686.54	221209.52	104.18	4.00	100.18	
TP21	Trial Pit	509726.7	221198.26	104.20	3.60	100.60	
TP22	Trial Pit	509745.63	221218.74	105.04	3.00	102.04	
TP23	Trial Pit	509771.54	221198.23	105.38	4.00	101.38	
TP24	Trial Pit	509776.8	221244.82	106.02	4.00	102.02	
TP25	Trial Pit	509800.81	221211.39	106.24	3.00	103.24	
WS01	Window Sample Borehole	509555.82	221438.19	107.50	5.45	102.05	
WS02	Window Sample Borehole	509523.65	221383.79	104.84	5.45	99.39	
WS03	Window Sample Borehole	509607.54	221416.92	107.68	5.45	102.23	
WS04	Window Sample Borehole	509581.24	221340.78	104.78	5.45	99.33	
WS05	Window Sample Borehole	509748.61	221314.22	105.96	5.45	100.51	
WS06	Window Sample Borehole	509683.72	221263.16	104.41	1.50	102.91	
WS07	Window Sample Borehole	509653.34	221247.93	104.53	2.90	101.63	
WS08	Window Sample Borehole	509607.62	221268.19	104.86	5.45	99.41	
WS09	Window Sample Borehole	509813.99	221302.70	108.50	5.45	103.05	
WS10	Window Sample Borehole	509769.07	221292.29	106.37	5.45	100.92	
WS11	Window Sample Borehole	509735.28	221228.49	104.57	5.45	99.12	
WS12	Window Sample Borehole	509808.89	221258.56	108.08	5.45	102.63	
WS13	Window Sample Borehole	509754.52	221212.30	105.07	5.45	99.62	
WS14	Window Sample Borehole	509665.53	221195.08	104.19	2.87	101.32	
WS15	Window Sample Borehole	509645.5	221193.87	104.21	5.45	98.76	



GROUND TECHNOLOGY
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Norfolk, PE34 3AF
Tel: 01553 817657
www.groundtechnology.co.uk

Borehole Record

BH01

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 106.13m AOD

Coordinates: 509480.92(E)

221465.09(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Reddish brown sandy GRAVEL. Sand is medium to coarse. Gravel is angular to sub-angular fine to coarse flint, brick and concrete. [MADE GROUND]		1.50	104.63	D1	0.00						
				B1	0.50	1.00					
				D2 ES1	0.50 0.50						
Yellowish brown slightly gravelly CLAY. Gravel is sub-angular to sub-rounded fine to coarse brick, flint and reworked chalk. [MADE GROUND]		3.50	102.63	D3	1.20		1.20	Dry	N=14 (1,1/1,1,4,8) (C)		
				B2	1.50	2.00					
				D4 ES2	1.50 1.50						
				D5	2.00		2.00	Dry	N=6 (1,1/1,1,2,2) (S)		
				B3	2.50	3.00					
Brownish yellow slightly sandy slightly silty GRAVEL. Sand is fine. Gravel is sub-angular to rounded fine to coarse flint and reworked chalk. [ALLUVIUM]		4.00	102.13	D6 ES3	2.50 2.50	2.50					
				D7	3.00		3.00	Dry	N=9 (2,2/2,2,2,3) (S)		
				B4 D8	3.50 3.50	4.00					
Medium dense whiteish brown gravelly SAND. Sand is fine to medium. Gravel is sub-angular to rounded fine to coarse flint and reworked chalk. [ALLUVIUM]		5.00	101.13	ES4	4.00	4.00	3.00	Dry	N=22 (3,3/4,5,6,7) (S)		
				D9	4.50						
Structureless CHALK composed of very weak creamy white gravelly SILT. Gravel is angular fine to coarse flint. (Grade Dm) [WHITE CHALK SUBGROUP]		7.00	99.13	D10	5.00		3.00	Dry	N=8 (1,1/2,2,2,2) (S)		
				B5	6.00	7.00					
Structureless CHALK composed of weak creamy white SILT. (Grade Dm) [WHITE CHALK SUBGROUP]				D11	7.00		3.00	Dry	N=10 (1,1/2,3,2,3) (S)		

Borehole continued...

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
200mm	35.00m	35.00m	0.00	01:00	09-02-2017	8.50	20	8.50	3.00	

Dates: Start: 09/02/2017 End: 10/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.45m bgl. 3. Exploratory hole backfilled with bentonite upon completion.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: J. Tomalin Status: FINAL	
Checked By: G. Day Rev: 2	



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Borehole Record

BH01

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 106.13mAOD

Coordinates: 509480.92(E)

221465.09(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D12	9.00		9.00	8.5	N=15 (3,3/4,4,4,3) (S)		
				D13	12.00		12.00	9	N=17 (3,3/4,5,4,4) (S)		
				B6 D14	15.00 15.00	17.00	15.00	9	N=50 (4,4/10,11,15,14) (S)		

Borehole continued...

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
200mm	35.00m	35.00m	0.00	01:00	09-02-2017	8.50	20	8.50	3.00	

Dates: Start: 09/02/2017 End: 10/02/2017
 Plant: Dando 2000
 Drilled By: G. Gordan
 Logged By: J. Tomalin Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.45m bgl. 3. Exploratory hole backfilled with bentonite upon completion.



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Borehole Record

BH01

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 106.13mAOD
 Coordinates: 509480.92(E)
 221465.09(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D15	18.00		18.00	9	N=21 (4,4/5,5,5,6) (S)		
				B7	20.00	21.00					
				D16	21.00		21.00	9	N=50 (5,5/9,15,15,11) (S)		
Borehole continued...				D17	24.00		24.00	9			

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
200mm	35.00m	35.00m	0.00	01:00	09-02-2017	8.50	20	8.50	3.00	

Dates: Start: 09/02/2017 End: 10/02/2017

Plant: Dando 2000

Drilled By: G. Gordan

Logged By: J. Tomalin Status: FINAL

Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.45m bgl. 3. Exploratory hole backfilled with bentonite upon completion.



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Borehole Record

BH01

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 106.13m AOD

Coordinates: 509480.92(E)

221465.09(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				B8	25.00	26.00			N=44 (10,10/15,10,10,9) (S)		
				D18	27.00		27.00	9	N=51 (8,8/9,12,15,15) (S)		
				B9 D19	30.00 30.00	31.00	30.00	9	N=50 (10,10/12,14,16,8) (S)		

Borehole continued...

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
200mm	35.00m	35.00m	0.00	01:00	09-02-2017	8.50	20	8.50	3.00	

Dates: Start: 09/02/2017 End: 10/02/2017
 Plant: Dando 2000
 Drilled By: G. Gordan
 Logged By: J. Tomalin Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.45m bgl. 3. Exploratory hole backfilled with bentonite upon completion.



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Borehole Record

BH01

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 106.13mAOD
 Coordinates: 509480.92(E)
 221465.09(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D20	33.00		33.00	9	N=47 (12,12/15,10, 10,12) (S)		
				B10	34.00	35.00					
							33.00		N=50 (12,12/15,15, 10,10) (S)		
Borehole completed at 35.450m		35.45	70.68								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
200mm	35.00m	35.00m	0.00	01:00	09-02-2017	8.50	20	8.50	3.00	

Dates: Start: 09/02/2017 End: 10/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.45m bgl. 3. Exploratory hole backfilled with bentonite upon completion.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: J. Tomalin Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

BH03

Sheet 1 of 5

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 107.68m AOD
 Coordinates: 509650.05(E)
 221405.90(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Black silty sandy fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse flint. Black staining throughout. [MADE GROUND]		0.60	107.08	D1 B1 D2 ES1	0.00 0.10 0.30 0.30	0.60 0.30					
Dark brownish black GRAVEL and COBBLES, with much fine to coarse SAND. Gravel is angular to rounded fine to coarse flint and brick. Cobbles are angular brick, concrete and breeze block. [MADE GROUND]				B2 D3 ES2	0.60 0.60 0.60	1.20 0.60	1.00	Dry	N=11 (1,1/2,3,3,3) (C)		
Soft grey, locally mottled reddish brown, silty CLAY. Locally with some black organic silt. [MADE GROUND]		1.80	105.88	B3 D5 ES3 D6	1.80 1.80 1.80 2.00	2.40 1.80	2.00	Dry	N=7 (1,1/1,2,2,2) (S)		
				D7	2.50						
				D8	3.00		3.00	Dry	N=8 (1,1/1,2,2,3) (S)		
				D9	3.50						
				D10	4.00		4.00	Dry	N=10 (1,1/2,2,3,3) (S)		
Dense yellowish brown silty sandy fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse flint and chalk. [ALLUVIUM]		4.60	103.08	D11 B4 ES4	4.50 4.60 4.60	5.00 4.60					
				D12	5.00		4.50	Dry	N=32 (3,3/6,8,9,9) (S)		
Structureless CHALK composed of white and yellowish white sandy gravelly SILT. Clasts extremely weak, medium density angular to subangular. Ciria Grade Dm [WHITE CHALK SUBGROUP]		6.00	101.68	B5 D13	6.00 6.00	7.00					
				D14	7.00		4.50	Dry	N=7 (2,2/1,2,2,2) (S)		
Borehole continued...											
				D15	8.00						

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:30	07-02-2017	9.00	20	9.00	4.50	
200mm	11.00m	11.00m								

Dates: Start: 16/02/2017 End: 20/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.45m bgl. 3. Exploratory hole backfilled with bentonite upon completion.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: G. Day Status: FINAL	
Checked By: G. Day Rev: 2	



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Borehole Record

BH03

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 107.68m AOD

Coordinates: 509650.05(E)

221405.90(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D16	9.00		4.50	Dry	N=9 (2,2/3,2,2,2) (S)		
				B6	10.00	11.00					
Structureless CHALK composed of silty GRAVEL. Clasts are weak, medium density angular to subangular with rinded flint cobbles throughout. Ciria Grade Dc [WHITE CHALK SUBGROUP]		12.00	95.68	D17	12.00		4.50	7	N=17 (2,2/4,4,4,5) (S)		
				B7 D18	15.00 15.00	16.00	15.00	9	N=23 (3,3/4,5,6,8) (S)		

Borehole continued...

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:30	07-02-2017	9.00	20	9.00	4.50	
200mm	11.00m	11.00m								

Dates: Start: 16/02/2017 End: 20/02/2017
Plant: Dando 2000
Drilled By: G. Gordan
Logged By: G. Day Status: FINAL
Checked By: G. Day Rev: 2

Remarks:
1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.45m bgl. 3. Exploratory hole backfilled with bentonite upon completion.



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Borehole Record

BH03

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 107.68m AOD
 Coordinates: 509650.05(E)
 221405.90(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D19	18.00		18.00	9	N=41 (6,6/9,10,10,12) (S)		
				B8	20.00	21.00					
				D20	21.00		21.00	10.1	N=50 (8,8/10,12,14,14) (S)		
Borehole continued...				D21	24.00		24.00	14			

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:30	07-02-2017	9.00	20	9.00	4.50	
200mm	11.00m	11.00m								

Dates: Start: 16/02/2017 End: 20/02/2017

Plant: Dando 2000

Drilled By: G. Gordan

Logged By: G. Day Status: FINAL

Checked By: G. Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.45m bgl. 3. Exploratory hole backfilled with bentonite upon completion.



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Borehole Record

BH03

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 107.68m AOD
 Coordinates: 509650.05(E)
 221405.90(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				B9	25.00	26.00			N=42 (3,3/4,8,15,15) (S)		
				D22	27.00		27.00	15	N=49 (4,4/8,10,16,15) (S)		
				B10 D23	30.00 30.00	31.00	30.00	15	N=54 (8,8/9,10,15,20) (S)		

Borehole continued...

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:30	07-02-2017	9.00	20	9.00	4.50	
200mm	11.00m	11.00m								

Dates: Start: 16/02/2017 End: 20/02/2017
 Plant: Dando 2000
 Drilled By: G. Gordan
 Logged By: G. Day Status: FINAL
 Checked By: G. Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.45m bgl. 3. Exploratory hole backfilled with bentonite upon completion.



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Borehole Record

BH03

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 107.68m AOD
 Coordinates: 509650.05(E)
 221405.90(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D24	33.00		33.00	15	N=58 (8,8/11,15,15,17) (S)		
				B11	34.00	35.00					
							35.00	15	N=85 (8,8/15,20,15,35) (S)		
Borehole completed at 35.450m		35.45	72.23								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:30	07-02-2017	9.00	20	9.00	4.50	
200mm	11.00m	11.00m								

Dates: Start: 16/02/2017 End: 20/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.45m bgl. 3. Exploratory hole backfilled with bentonite upon completion.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: G. Day Status: FINAL	
Checked By: G. Day Rev: 2	



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Borehole Record

BH04

Sheet 1 of 5

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 103.99m AOD

Coordinates: 509680.27(E)

221186.09(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations							
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)								
Soft dark brown sandy gravelly CLAY. Gravel is angular to subangular fine to coarse flint and brick. Frequent tile, pottery and tarmac fragments with fabric material. [MADE GROUND]		0.50	103.49	B1	0.00	0.50												
Dark brownish black sandy clayey fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse brick and flint. [MADE GROUND]				D1	0.00													
				ES1	0.30	0.30												
				D2	0.50													
				ES2	0.50	0.50												
				D3	1.20													
				D4	2.00													
Soft greyish brown slightly gravelly CLAY. Gravel is angular to subangular fine to coarse flint with some chalk fragments. Rare tarmac and clinker. [MADE GROUND]					2.20	101.79						B2	2.20	3.00			N=4 (1,1/1,1,1,1) (S)	
				ES3	2.20	2.20						D5	2.50			N=23 (3,3/5,5,6,7) (S)		
				B3	3.00	3.50						D6	3.00	3.00		N=12 (4,4/5,3,2,2) (S)		
				ES4	3.00	3.00						D7	3.50					
Soft to firm sandy gravelly SILT. Gravel is angular to subangular fine to medium flint and chalk. Finer fraction is yellowish brown and grey. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]					4.00	99.99						D8	4.00				N=4 (1,1/1,1,1,1) (S)	
Structureless CHALK composed of yellowish brown sandy SILT. Ciria Grade Dc [WHITE CHALK SUBGROUP]	D9	4.50																
Structureless CHALK composed of white sandy gravelly SILT. Clasts are extremely weak, medium density, white, angular to subangular. Ciria Grade Dm [WHITE CHALK SUBGROUP]	B4	5.00	6.00				D10	5.00			N=5 (1,1/1,1,1,2) (S)							
	D11	6.00																
				D12	7.00				N=9 (1,1/1,2,3,3) (S)									

Borehole continued...

Hole Diameter Detail		Chiselling			Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:00	16-02-2017	5.00	20	5.00	4.50	

Dates: Start: 16/02/2017 End: 20/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.00m bgl. 3. Exploratory hole installed with 50mm HDPE standpipe as per client requirements.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: G. Day Status: FINAL	
Checked By: G. Day Rev: 2	



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Borehole Record

BH04

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 103.99m AOD

Coordinates: 509680.27(E)

221186.09(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D13	9.00				N=10 (1,1/2,2,3,3) (S)		
				B5	10.00	11.00					
				D14	12.00				N=14 (1,1/2,3,4,5) (S)		
Structureless CHALK composed of white silty GRAVEL and COBBLES. Clasts are weak, medium density, white, angular to rounded. Rinded angular to subangular flint cobbles. Matrix is silty, white. Ciria grade Dc. [WHITE CHALK SUBGROUP]		15.00	88.99	B6 D15	15.00 15.00	16.00			N=19 (1,1/3,4,5,7) (S)		

Borehole continued...

Hole Diameter Detail		Chiselling			Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:00	16-02-2017	5.00	20	5.00	4.50	

Dates: Start: 16/02/2017 End: 20/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.00m bgl. 3. Exploratory hole installed with 50mm HDPE standpipe as per client requirements.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: G. Day Status: FINAL	
Checked By: G. Day Rev: 2	



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Borehole Record

BH04

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 103.99m AOD

Coordinates: 509680.27(E)

221186.09(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D16	18.00				N=28 (1,1/4,8,8,8) (S)		
				B7	20.00	21.00					
				D17	21.00				N=26 (2,2/3,5,10,8) (S)		
Borehole continued...											
				D18	24.00						

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:00	16-02-2017	5.00	20	5.00	4.50	

Dates: Start: 16/02/2017 End: 20/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.00m bgl. 3. Exploratory hole installed with 50mm HDPE standpipe as per client requirements.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: G. Day Status: FINAL	
Checked By: G. Day Rev: 2	



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Borehole Record

BH04

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 103.99m AOD

Coordinates: 509680.27(E)

221186.09(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				B8	25.00	26.00			N=39 (7,7/9,9,10,11) (S)		
				D19	27.00				N=50 (5.5/10,15,15,10) (S)		
				B9 D20	30.00 30.00	31.00			50 (12,12/15,15,20.) (S)		

Borehole continued...

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:00	16-02-2017	5.00	20	5.00	4.50	

Dates: Start: 16/02/2017 End: 20/02/2017
Plant: Dando 2000
Drilled By: G. Gordan
Logged By: G. Day Status: FINAL
Checked By: G. Day Rev: 2

Remarks:
1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.00m bgl. 3. Exploratory hole installed with 50mm HDPE standpipe as per client requirements.



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Borehole Record

BH04

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 103.99m AOD

Coordinates: 509680.27(E)

221186.09(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D21	33.00				50 (12,12/15,20, 15.) (S)		
				B10	34.00	35.00					
Borehole completed at 35.000m		35.00	68.99								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:00	16-02-2017	5.00	20	5.00	4.50	

Dates: Start: 16/02/2017 End: 20/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.00m bgl. 3. Exploratory hole installed with 50mm HDPE standpipe as per client requirements.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: G. Day Status: FINAL	
Checked By: G. Day Rev: 2	



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Borehole Record

BH05

Sheet 1 of 5

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 109.31m AOD

Coordinates: 509861.46(E)

221249.76(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Whiteish brown slightly silty fine to coarse GRAVEL. Gravel is angular to sub-angular flint, brick and reworked chalk. [MADE GROUND]		1.20	108.11	B1	0.00	1.00					
				D1	0.00						
				D2	0.50						
Structureless CHALK composed of extremely weak creamy white slightly gravelly SILT. Gravel is angular to sub-angular flint and chalk. (Grade Dm) [WHITE CHALK SUBGROUP]		3.50	105.81	B2	1.00	1.50					
				D3	1.20			Dry	N=9 (1,1/2,2,2,3) (S)		
				D4	2.00			Dry	N=8 (1,1/2,2,2,2) (S)		
				D5	2.50						
				D6	3.00			Dry	N=8 (1,1/2,2,2,2) (S)		
Structureless CHALK composed of extremely weak creamy white gravelly SILT. Gravel is angular to sub-angular flint and chalk. (Grade Dc) [WHITE CHALK SUBGROUP]		3.50	105.81	D7	3.50						
				D8	4.00			Dry	N=9 (2,2/2,2,2,3) (S)		
				D9	4.50						
				B3	5.00	6.00					
				D10	5.00			Dry	N=11 (2,2/3,2,1,1) (S)		
				D11	6.00						
				D12	7.00			Dry	N=7 (2,2/3,2,1,1) (S)		

Borehole continued...

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:00	21-02-2017	8.50	20	8.50		

Dates: Start: 21/02/2017 End: 22/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.00m bgl. 3. Exploratory hole backfilled with bentonite upon completion.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: M. Smith Status: FINAL	
Checked By: G. Day Rev: 2	



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Borehole Record

BH05

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 109.31mAOD

Coordinates: 509861.46(E)

221249.76(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D13	9.00			Dry	N=10 (2,2/3,3,3,1) (S)		
				B4	10.00	11.00					
				D14	12.00			12	N=22 (3,3/4,5,6,7) (S)		
				B5 D15	15.00 15.00	16.00		15	N=26 (4,4/5,6,7,8) (S)		

Borehole continued...

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:00	21-02-2017	8.50	20	8.50		

Dates: Start: 21/02/2017 End: 22/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.00m bgl. 3. Exploratory hole backfilled with bentonite upon completion.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: M. Smith Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

BH05

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 109.31mAOD

Coordinates: 509861.46(E)

221249.76(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D16	18.00			18	N=23 (3,3/4,5,7,7) (S)		
				B6	20.00	21.00					
				D17	21.00			21	79 (9,9/15,35,29) (S)		
Borehole continued...											
				D18	24.00			24			

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:00	21-02-2017	8.50	20	8.50		

Dates: Start: 21/02/2017 End: 22/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.00m bgl. 3. Exploratory hole backfilled with bentonite upon completion.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: M. Smith Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

BH05

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 109.31m AOD

Coordinates: 509861.46(E)

221249.76(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				B7	25.00	26.00			N=50 (12,12/20,10,10,10) (S)		
				D19	27.00			27	N=60 (12,12/15,15,15,15) (S)		
				B8 D20	30.00 30.00	31.00		30	79 (9,9/16,34,29) (S)		

Borehole continued...

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:00	21-02-2017	8.50	20	8.50		

Dates: Start: 21/02/2017 End: 22/02/2017
 Plant: Dando 2000
 Drilled By: G. Gordan
 Logged By: M. Smith Status: FINAL
 Checked By: G. Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.00m bgl. 3. Exploratory hole backfilled with bentonite upon completion.



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Borehole Record

BH05

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 109.31mAOD

Coordinates: 509861.46(E)

221249.76(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D21	33.00			33	66 (12,12/20,26, 20.) (S)		
				B9	34.00	35.00					
Borehole completed at 35.000m		35.00	74.31								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	35.00m	33.00m	0.00	01:00	21-02-2017	8.50	20	8.50		

Dates: Start: 21/02/2017 End: 22/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 35.00m bgl. 3. Exploratory hole backfilled with bentonite upon completion.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: M. Smith Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

BH06

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.57mAOD

Coordinates: 509715.98(E)

221321.22(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Brown gravelly slightly silty fine to medium SAND. Gravel is angular to rounded fine to coarse flint, brick and reinforced concrete. [MADE GROUND]				D1	0.00						
				B1	0.40	1.00					
				D2	0.50						
				ES1	0.50	0.50					
				D3	1.20						
Soft to firm whiteish brown slightly sandy CLAY. Sand is fine to medium. [ALLUVIUM]		2.50	102.07	D5	2.50			Dry	N=6 (1,1/1,1,2,2) (S)		
Structureless CHALK composed of weak creamy white gravelly SILT. Gravel is angular fine to coarse flint. (Grade Dm) [WHITE CHALK SUBGROUP]		3.00	101.57	D6	3.00			Dry	N=8 (1,1/2,2,2,2) (S)		
				B3	3.50	4.00					
				D7	3.50						
				ES3	3.50	3.50					
Structureless CHALK composed of weak creamy white SILT. (Grade Dm) [WHITE CHALK SUBGROUP]		5.00	99.57	D8	4.00			Dry	N=10 (1,1/2,2,3,3) (S)		
				D9	4.50						
				D10	5.00			Dry	N=10 (1,1/3,2,2,3) (S)		
				D11	6.00						
				D12	7.00			Dry	N=9 (1,1/2,2,2,3) (S)		

Borehole continued...

Hole Diameter Detail		Chiselling			Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	16.00m	16.00m	0.00	03:00	14-02-2017	8.50	20	8.50	4.50	
			1.00	01:00						

Dates: Start: 14/02/2017 End: 14/02/2017
 Plant: Dando 2000
 Drilled By: G. Gordan
 Logged By: J. Tomalin Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:

1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 16.00m bgl. 3. Exploratory hole backfilled with bentonite upon completion.



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Borehole Record

BH06

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.57m AOD
 Coordinates: 509715.98(E)
 221321.22(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D13	9.00			7.5	N=11 (1,1/2,2,3,4) (S)		
				B4 D14	12.00 12.00	13.00		10.1	N=13 (1,1/2,2,4,5) (S)		
								10.1	N=17 (1,1/3,4,4,6) (S)		
Borehole completed at 16.000m											

16.00 - 88.57

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	16.00m	16.00m	0.00	03:00	14-02-2017	8.50	20	8.50	4.50	
			1.00	01:00						

Dates: Start: 14/02/2017 End: 14/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 16.00m bgl. 3. Exploratory hole backfilled with bentonite upon completion.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: J. Tomalin Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

BH07

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 105.31mAOD
 Coordinates: 509619.94(E)
 221315.80(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Brown gravelly fine to medium gravelly SAND. Gravel is angular to sub-angular fine to coarse flint, brick and reinforced concrete. Concrete slab at base. [MADE GROUND]				B1	0.50	0.50					
				D2	1.20		1.20	Dry	N=14 (6.6/4.4,3.3) (C)		
Borehole completed at 2.000m		2.00	103.31								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	2.00m	1.20m								

Dates: Start: 13/02/2017 End: 13/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 2.00m bgl, where refusal occurred on buried structure. 3. Exploratory hole backfilled with bentonite upon completion.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: M. Smith Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

BH07a

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 105.31m AOD
 Coordinates: 509619.94(E)
 221315.80(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Reinforced concrete (Drillers description). [MADE GROUND]		0.30	105.01								
Brown gravelly fine to medium gravelly SAND. Gravel is angular to subangular flint, brick and reinforced concrete. Concrete slab at base. (Drillers description). [MADE GROUND]											
Borehole completed at 2.000m		2.00	103.31								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	2.00m	2.00m								

Dates: Start: 13/02/2017 End: 13/02/2017

Plant: Dando 2000

Drilled By: G. Gordan

Logged By: G. Gordon Status: FINAL

Checked By: G. Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 2.00m bgl, where refusal occurred on concrete slab. 3. Exploratory hole logged with drillers descriptions 4. Exploratory hole backfilled with bentonite upon completion.



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Borehole Record

BH07b

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 105.31m AOD
 Coordinates: 509619.94(E)
 221315.80(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Reinforced concrete (Drillers description). [MADE GROUND]		0.30	105.01								
Brown gravelly fine to medium gravelly SAND. Gravel is angular to subangular flint, brick and reinforced concrete. Concrete slab at base. (Drillers description). [MADE GROUND]											
Borehole completed at 2.500m		2.50	102.81								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	2.50m	2.50m								

Dates: Start: 13/02/2017 End: 13/02/2017

Plant: Dando 2000

Drilled By: G. Gordan

Logged By: G. Gordon Status: FINAL

Checked By: G. Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 2.50m bgl, where refusal occurred on concrete structure. 3. Exploratory hole logged with drillers descriptions 4. Exploratory hole backfilled with bentonite upon completion.



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Borehole Record

CP01

Sheet 1 of 2

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 107.49m AOD

Coordinates: 509499.12(E)

221455.02(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Tarmacadam [MADE GROUND] Firm dark brown black sandy gravelly CLAY with medium cobble content. Gravel is angular to subangular fine to coarse brick and concrete. Cobbles are angular brick and concrete. Frequent coal, tarmac and clinker fragments. [MADE GROUND]	[Cross-hatch pattern]	0.10	107.39	B2 ES1	0.40 0.50	0.80 0.60					
				D3	1.00	1.45	1.00	Dry	N=3 (1,1/1,1,0,1) (S)		
				B4	1.50	2.00					
				D5	2.20	2.30	2.00	Dry	N=2 (1,0/1,0,1,0) (S)		
				D7	2.50	2.60					
				ES6 D8	2.90 3.00	3.00 3.45	2.50	Dry	N=8 (1,2/2,2,2,2) (S)		
				D9	3.50	3.50					
Firm grey and yellowish brown slightly gravelly slightly sandy SILT. Gravel is angular to subangular fine to medium flint. [ALLUVIUM]	[Cross-hatch pattern]	3.60	103.89	D10	3.70	3.80					
				B12 D11 ES13	4.00 4.00 4.00	4.50 4.45 4.10	4.00	Dry	N=20 (3,3/3,5,6,6) (S)		
				B14	5.00	5.50	5.00	4.9	N=28 (4,5/5,7,8,8) (C)		
Firm grey slightly gravelly slightly sandy SILT. Gravel is angular to subangular fine to medium flint. [ALLUVIUM]	[Cross-hatch pattern]	4.50	102.99								
				D15	6.00	6.45	6.00	5.9	N=23 (3,6/5,5,6,7) (S)		
				B16	6.50	6.90					
				D17	7.00	7.10					
				D18	8.00	8.45	6.00	Dry			

Borehole continued...

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.00m	15.00m			09-02-2017	9.60	20	8.70	9.00	

Dates: Start: 09/02/2017 End: 09/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15m bgl. 3. Exploratory hole installed with 50mm HDPE monitoring standpipe as per clients requirements
Plant: Dando 2000	
Drilled By: Matthew Earl	
Logged By: J. Tomalin Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

CP01

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 107.49m AOD

Coordinates: 509499.12(E)

221455.02(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				B19	8.70	9.00			N=12 (2,2/2,3,3,4) (S)		
				D20	9.50	9.60					
				D21	10.00	10.45	9.00	8.7	N=15 (2,2/3,4,4,4) (S)		
				D22	10.90	11.10					
				D23	12.00	12.45	10.50	9	N=21 (2,2/5,5,6,5) (S)		
Structureless CHALK composed of silty GRAVEL and COBBLES. Clasts are weak medium density, angular to subangular with rinded angular to subangular flint cobbles throughout. Ciria Grade Dc. [WHITE CHALK SUBGROUP]		12.00	95.49	D24	13.00	13.20					
				D25	14.00	14.45	14.00	9	N=15 (2,2/3,3,4,5) (S)		
				D27	14.90	15.00					
Borehole completed at 15.000m		15.00	92.49								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.00m	15.00m			09-02-2017	9.60	20	8.70	9.00	

Dates: Start: 09/02/2017 End: 09/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15m bgl. 3. Exploratory hole installed with 50mm HDPE monitoring standpipe as per clients requirements
Plant: Dando 2000	
Drilled By: Matthew Earl	
Logged By: J. Tomalin Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

CP02

Sheet 1 of 2

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 107.65m AOD

Coordinates: 509581.29(E)

221416.60(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Brownish black slightly sandy fine to coarse GRAVEL. Sand is fine to medium. Gravel is angular to sub-rounded fine to coarse flint, brick, reinforced concrete and reworked chalk. [MADE GROUND]	[Pattern]	0.00 - 0.80	106.85	D1 B1 D2 D3	0.00 0.30 0.30 0.50	0.30 0.80 0.50 0.80					
Brownish black slightly gravelly CLAY. Gravel is angular fine to coarse flint and brick. [MADE GROUND]	[Pattern]	0.80 - 1.20	106.45	B2 D4	0.80 0.80	1.20 1.20	1.20	Dry	2 (1,1/1,1,1) (S)		
Soft to firm brown mottled slightly sandy CLAY. Sand is fine. [ALLUVIUM]	[Pattern]	1.20 - 3.50	104.15	D5 B3 D6 D7 D8 D9	1.20 1.50 1.50 2.00 2.50 3.00	1.50 2.00 2.00 3.00	2.00 3.00	Dry Dry	2 (1,1/1,1,1) (S) 2 (1,1/1,1,1) (S)		
Firm brownish orange mottled CLAY. [ALLUVIUM]	[Pattern]	3.50 - 4.50	103.15	B4 D10 D11 B5	3.50 3.50 4.00 4.20	4.00 4.00 4.50 5.00	4.00	Dry	N=4 (1,1/1,1,1,1) (S) N=7 (1,1/2,1,2,2) (S)		
Dense brownish white slightly silty sandy fine to coarse GRAVEL. Gravel is angular to sub-rounded fine to coarse flint and chalk. [ALLUVIUM]	[Pattern]	4.50 - 6.50	101.15	D12 D13 B6 D14	4.50 5.00 6.50 6.50	5.00 6.50 7.00 7.00	4.50	Dry	N=35 (4,4/8,7,10,10) (S)		
Structureless CHALK composed of very creamy white gravelly SILT. Gravel is angular to sub-angular fine to coarse flint and chalk. Rare cobbles of angular flint. Grade (Grade Dc) [WHITE CHALK SUBGROUP]	[Pattern]	6.50 - 8.00	101.15	D15	7.00	8.00		Dry	N=8 (1,1/2,2,2,2) (S)		
Borehole continued...											
		8.00	99.65	D16	8.00	9.00					

Hole Diameter Detail		Chiselling			Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.00m	4.50m	0.00	01:00	06-02-2017	1.20	20	1.20		
					06-02-2017	10.50	20	10.50	4.50	

Dates: Start: 06/02/2017 End: 06/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15.45m bgl. 3. Exploratory hole installed with 50mm HDPE monitoring standpipe as per client requirements.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: M. Smith Status: FINAL	
Checked By: G. Day Rev: 2	



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Borehole Record

CP02

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 107.65m AOD

Coordinates: 509581.29(E)

221416.60(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Structureless CHALK composed of weak creamy white SILT. (Grade Dm) [WHITE CHALK SUBGROUP]				D17	9.00	10.00			Dry	N=9 (1,1/2,2,2,3) (S)	
				D18	10.00	11.00					
				D19	11.00	12.00		10		N=12 (1,1/2,3,3,4) (S)	
				D20	12.00	13.00					
				D21	13.00	14.00		10		N=12 (2,2/3,4,2,3) (S)	
				B7 D22	14.00 14.00	15.00 15.00					
Borehole completed at 15.450m		15.45	92.20								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.00m	4.50m	0.00	01:00	06-02-2017	1.20	20	1.20		
					06-02-2017	10.50	20	10.50	4.50	

Dates: Start: 06/02/2017 End: 06/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15.45m bgl. 3. Exploratory hole installed with 50mm HDPE monitoring standpipe as per client requirements.
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: M. Smith Status: FINAL	
Checked By: G. Day Rev: 2	



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Borehole Record

CP03

Sheet 1 of 2

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.62m AOD
Coordinates: 509529.89(E)
221354.04(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Re-inforced concrete. [MADE GROUND]		0.25	104.37								
Structureless CHALK with frequent flint gravel. No Gravel description provided. (Drillers description). [MADE GROUND]		0.40	104.22	ES1 D2	0.50 0.60	0.60 0.70					
Soft dark brownish black sandy gravelly CLAY. Gravel is angular to subangular fine to coarse flint, brick and chalk. [MADE GROUND]				D3	1.20	1.65	1.20	Dry	N=10 (2,2/2,2,2,4) (S)		
				D4 ES5	1.60 1.60	1.70 1.70					
Medium dense yellowish brown sandy silty fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse flint and chalk. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		1.90	102.72	D6 D7	1.90 2.00	2.00 2.45	1.50	Dry	N=13 (2,4/4,3,4,2) (S)		
				B8	2.50	3.00					
				D9	3.00	3.45	3.00	Dry	N=21 (3,4/5,4,6,6) (S)		
				B11	3.50	4.00					
				D12	4.00	4.45	4.00	Dry	N=28 (2,4/6,6,8,8) (S)		
				D13	4.60	4.70					
				D14	5.00	5.45	5.00	Dry	N=6 (1,0/1,1,2,2) (S)		
Structureless CHALK composed of white and yellowish white silty GRAVEL. Clasts are weak, medium density, angular to subrounded with angular to subrounded rinded flint cobbles throughout. Matrix is silty, white. Ciria Grade Dc. [WHITE CHALK SUBGROUP]		5.30	99.32	B15	5.50	6.00					
				D16	6.50	6.60					
				D17	7.00	7.45	7.00	Dry	N=3 (1,0/0,1,1,1) (S)		
Borehole continued...											
				D18	8.00	8.10					

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.00m	15.00m			10-02-2017	7.30	20	7.00	7.00	

Dates: Start: 10/02/2017 End: 13/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15.45m bgl. 3. Exploratory hole installed with 50mm HDPE monitoring standpipe as per client requirements.
Plant: Dando 2000	
Drilled By: Matthew Earl	
Logged By: G. Day Status: FINAL	
Checked By: G. Day Rev: 2	



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Borehole Record

CP03

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.62mAOD
 Coordinates: 509529.89(E)
 221354.04(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D19	9.00	9.45	9.00	7	N=15 (3,4/4,4,3,4) (S)		
				B20	9.50	10.00					
				D21	10.40	10.50					
				D22	11.00	11.45	10.70	7	N=19 (4,4/4,4,5,6) (S)		
				D23	12.00	12.10					
				D24	13.00	13.45	13.00	4.5	N=48 (5,5/10,11,12,15) (S)		
				B25	14.00	14.50					
				D26	15.00	15.45	15.00	4.7	N=36 (3,3/6,8,10,12) (S)		
Borehole completed at 15.450m		15.45	89.17								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.00m	15.00m			10-02-2017	7.30	20	7.00	7.00	

Dates: Start: 10/02/2017 End: 13/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15.45m bgl. 3. Exploratory hole installed with 50mm HDPE monitoring standpipe as per client requirements.
Plant: Dando 2000	
Drilled By: Matthew Earl	
Logged By: G. Day Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

CP04

Sheet 1 of 2

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.84m AOD

Coordinates: 509599.42(E)

221271.37(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations	
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)		
Whiteish grey slightly sandy silty fine to coarse GRAVEL. Sand is fine. Gravel is angular to sub-angular flint, concrete and reworked chalk. [MADE GROUND]		0.70	104.14	B1	0.30	0.70						
Brownish white slightly sandy silty fine to coarse GRAVEL. Sand is fine. Gravel is angular fine to coarse reworked chalk and flint. [GLACIOFLUVIAL DEPOSITS - MID-PLEISTOCENE]				B2	0.70	1.20						
				ES3	0.90	1.00					N=7 (1,2/1,2,2,2) (S)	
				D4	1.20	1.65	0.00	Dry				
				B5	1.50	2.00						
				ES6	1.90	2.00						
				B8 D7	2.00 2.50	2.00 2.45	2.00	Dry			N=6 (1,2/2,1,1,2) (S)	
Soft brown slightly gravelly CLAY. Gravel is angular to sub-rounded fine to coarse chalk. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		3.00	101.84	B9	2.70	3.00						
				ES11	2.70	2.80						
				B12	3.00	3.50	1.70	Dry				
				D10	3.00	3.45					N=10 (1,1/2,2,2,4) (S)	
Structureless CHALK composed of weak creamy white SILT. (Grade Dm) [WHITE CHALK SUBGROUP]		4.00	100.84	B15	4.00	4.50	4.00	Dry				
				D13	4.00	4.45					N=26 (1,2/7,7,6,6) (S)	
				D16	5.00	5.45	5.00	Dry				
											N=16 (1,2/4,4,4,4) (S)	
Structureless CHALK composed of weak creamy white SILT, with low cobble content. Cobbles are angular rinded flint. (Grade Dm) [WHITE CHALK SUBGROUP]		6.00	98.84	D17	6.00	6.45	6.00	Dry				
											N=12 (1,3/3,3,3,3) (S)	

Borehole continued...

D18	8.00	8.45	8.00	Dry						
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Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.45m	15.00m								

Dates: Start: 15/02/2017 End: 16/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15.45m bgl. 3. Exploratory hole installed with 50mm HDPE monitoring standpipe as per client requirements.
Plant: Dando 2000	
Drilled By: Shaun Whiteman	
Logged By: M. Smith Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

CP04

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.84m AOD

Coordinates: 509599.42(E)

221271.37(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Structureless CHALK composed of weak creamy white SILT. (Grade Dm) [WHITE CHALK SUBGROUP]		10.00	94.84	B20 D19	10.00 10.00	10.50 10.45	10.00	7.2	N=14 (1,3/3,3,4,4) (S)		
				D21	12.00	12.45	12.00	7.2	N=20 (2,4/4,4,6,6) (S)		
				B23 D22	14.00 14.00	14.50 14.45	14.00	7	N=23 (3,6/6,6,6,6) (S)		
				D24	15.00	15.45	15.00	7.3	N=24 (3,3/5,6,6,7) (S)		
Borehole completed at 15.450m		15.45	89.39								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.45m	15.00m								

Dates: Start: 15/02/2017 End: 16/02/2017

Plant: Dando 2000

Drilled By: Shaun Whiteman

Logged By: M. Smith Status: FINAL

Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15.45m bgl. 3. Exploratory hole installed with 50mm HDPE monitoring standpipe as per client requirements.



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Borehole Record

CP05

Sheet 1 of 2

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.43m AOD
Coordinates: 509674.32(E)
221259.80(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Reinforced Concrete [MADE GROUND]		0.30	104.13								
Loose dark brownish grey silty gravelly fine to coarse SAND. Gravel angular to subrounded fine to coarse flint concrete and brick. Low cobble content of angular concrete. [MADE GROUND]				B1	0.50	1.20					
				ES2	1.00	1.10					
				B4 D3	1.20 1.20	1.70 1.65	0.00	Dry	3 (1,1/1,1,1) (S)		
				B7 D6 ES8	2.00 2.00 2.00	2.50 2.45 2.10	2.00	Dry	N=6 (1,2/2,2,1,1) (S)		
Medium dense yellowish brown silty medium and coarse calcareous SAND and GRAVEL. Gravel is angular to subangular fine and medium flint and chalk. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		3.00	101.43	B10	3.00	3.50					
				D9 ES11	3.00 3.00	3.45 3.10	3.00	Dry	N=11 (1,2/2,3,3,3) (S)		
Medium dense yellowish brown silty very gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse flint. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		4.00	100.43	B14	4.00	4.50					
				D12 ES13	4.00 4.00	4.45 4.10	4.00	Dry	N=21 (2,3/5,6,5,5) (S)		
Medium dense yellowish brown slightly silty fine to coarse calcareous SAND and GRAVEL. Gravel is angular to subangular fine to coarse flint and chalk. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		5.00	99.43	B16	5.00	5.50					
				D15	5.00 5.00	5.45 5.45	5.00	Dry	N=30 (3,6/7,8,7,8) (S)		
Light greyish white structureless CHALK. Composed of a gravelly silt, gravel is angular fine to coarse fine and medium, and very weak. Ciria Grade Dm [WHITE CHALK SUBGROUP]		6.70	97.73	B17	6.70	7.00					
				D18	7.00 7.00	7.45 7.45	7.00	6.2	N=20 (3,5/5,5,4,6) (S)		

Borehole continued...

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.45m	15.00m			13-02-2017	6.60	20	6.10	6.60	

Dates: Start: 13/02/2017 End: 14/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15.45m bgl. 3. Exploratory hole backfilled with bentonite and reinstated with concrete
Plant: Dando 2000	
Drilled By: Shaun Whiteman	
Logged By: M. Smith Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

CP05

Sheet 2 of 2

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.43m AOD

Coordinates: 509674.32(E)

221259.80(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D19	9.00	9.45	9.00	7	N=20 (1,3/3,5,6,6) (S)		
Light greyish white structureless CHALK. Composed of silty angular fine to coarse weak gravel. Ciria Grade Dc [WHITE CHALK SUBGROUP]		11.00	93.43	D20	11.00	11.45	11.00	7.3	N=14 (1,2/3,3,4,4) (S)		
				D21	13.00	13.45	13.00	6.8	N=14 (1,2/2,2,4,6) (S)		
				B22	14.00	14.50					
				D23	15.00	15.45	15.00	6.9	N=18 (1,1/4,4,5,5) (S)		
Borehole completed at 15.450m		15.45	88.98								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.45m	15.00m			13-02-2017	6.60	20	6.10	6.60	

Dates: Start: 13/02/2017 End: 14/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15.45m bgl. 3. Exploratory hole backfilled with bentonite and reinstated with concrete
Plant: Dando 2000	
Drilled By: Shaun Whiteman	
Logged By: M. Smith Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

CP06

Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 105.69m AOD

Coordinates: 509740.43(E)

221345.35(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Brownish black slightly gravelly silty fine to medium SAND. Gravel is angular to sub-rounded fine to coarse brick, flint and reinforced concrete. [MADE GROUND]				B1	0.50	1.20					
				ES2	1.00	1.10					
Brownish black slightly gravelly CLAY. Gravel is angular to sub-rounded fine to coarse flint, brick and reworked chalk. [MADE GROUND]		1.20	104.49	B4 D3	1.20 1.20	1.70 1.65	0.00	Dry	3 (1./1.,1.1) (S)		
Creamy white sandy gravelly SILT. Sand is fine to medium. Gravel is angular to sub-rounded fine to coarse flint and reworked chalk. [MADE GROUND]		2.00	103.69	D5 B8 ES6	2.00 2.10 2.10	2.45 2.60 2.20	2.00	Dry	2 (1./1.,1.) (S)		
Whiteish brown sandy slightly silty GRAVEL. Sand is fine to medium. Gravel is angular to sub-angular fine to coarse flint, reworked chalk and reinforced concrete. [ALLUVIUM]		3.00 3.14	102.69 102.55	D7	3.00	3.14	3.00	Dry	50 (25 for 75mm/50 for 65mm) (S)		
Borehole completed at 3.140m											

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	3.10m	3.00m	3.00	02:00						

Dates: Start: 14/02/2017 End: 14/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 3.14m bgl. 3. Exploratory hole backfilled with bentonite upon completion.
Plant: Dando 2000	
Drilled By: Shaun Whiteman	
Logged By: M. Smith Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

CP07

Sheet 1 of 2

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 109.27mAOD

Coordinates: 509837.97(E)

221279.04(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Dark brown gravelly clayey fine to coarse SAND. Gravel is angular to subangular fine to coarse flint, brick and tarmac. Rare geotextile / fabric material. [MADE GROUND]		0.60	108.67	B1 D1 ES1	0.00 0.00 0.30	0.60 0.50 0.30					
Soft yellowish white sandy SILT. (Probably reworked chalk) [ALLUVIUM]				D2 B2 ES2	0.50 0.60 0.60	1.20 1.50 0.60					
				D3	1.20	2.00		Dry	N=4 (1,1/1,1,1,1) (S)		
				D4	2.00	2.50		Dry	N=5 (1,1/1,1,1,2) (S)		
Structureless CHALK composed of yellowish white gravelly SILT. Clasts are extremely weak, low to medium density, white with some yellowish brown staining, angular to subangular. Rinded flint cobbles throughout. Ciria Grade Dm [WHITE CHALK SUBGROUP]		2.20	107.07	D5	2.50	3.00					
				D6	3.00	3.50		Dry	N=5 (1,1/1,1,1,2) (S)		
				D7	3.50	4.00					
				D8	4.00	4.50		Dry	N=6 (1,1/1,1,2,2) (S)		
				D9	4.50	5.00					
				D10	5.00	6.00		Dry	N=8 (1,1/1,2,2,3) (S)		
				D11	6.00	7.00					
				D12	7.00	8.00		Dry	N=17 (2,2/4,4,3,6) (S)		
Borehole continued...											
				D13	8.00	9.00					

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.45m	15.00m	0.00	00:45	23-02-2017	8.50	20	8.50	1.50	

Dates: Start: 23/02/2017 End: 23/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15.45m bgl. 3. Exploratory hole installed with 50mm HDPE monitoring standpipe as per clients requirements
Plant: Dando 2000	
Drilled By: G. Gordan	
Logged By: G. Day Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

CP07

Sheet 2 of 2

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 109.27m AOD

Coordinates: 509837.97(E)

221279.04(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D14	9.00	10.00		7.5	N=18 (2,2/5,4,4,5) (S)		
				D15	10.00	11.00					
				D16	11.00	12.00		9.5	N=29 (3,3/7,7,7,8) (S)		
				D17	12.00	13.00					
				D18	13.00	14.00		9.5	50 (12,12/35,15,) (S)		
				D19	14.00	15.00					
								9.5	N=43 (5,5/9,9,10,1 5) (S)		
Borehole completed at 15.450m		15.45	93.82								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.45m	15.00m	0.00	00:45	23-02-2017	8.50	20	8.50	1.50	

Dates:	Start: 23/02/2017	End: 23/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15.45m bgl. 3. Exploratory hole installed with 50mm HDPE monitoring standpipe as per clients requirements
Plant:	Dando 2000		
Drilled By:	G. Gordan		
Logged By:	G. Day	Status: FINAL	
Checked By:	G. Day	Rev: 2	



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Borehole Record

CP08

Sheet 1 of 2

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 105.40m AOD

Coordinates: 509768.74(E)

221186.22(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Firm to stiff brownish grey sandy slightly gravelly CLAY, with a low cobble content. Gravel is angular to rounded fine to coarse flint brick and chalk. Cobbles are angular brick fragments. [MADE GROUND]	[Cross-hatched pattern]	0.50	104.90	B1 ES2	0.70 0.70	1.10 0.80					
Firm to stiff light brown and greyish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse flint and chalk with rare brick fragments. [MADE GROUND]	[Cross-hatched pattern]	1.20	104.20	B4 D3	1.20 1.20	1.60 1.65	0.00	Dry	4 (1,1,1,2) (S)		
Structureless CHALK composed of light brownish white gravelly slightly sandy SILT. Gravel is angular to subangular fine to coarse and weak to very weak. From 3.00m becoming weak. Ciria Grade Dm [WHITE CHALK SUBGROUP]	[Horizontal line pattern]			B5 ES6 D7 B8 ES11 B9 D10 D12 D13 W3 D14	1.60 1.80 2.00 2.20 2.30 2.70 3.00 4.00 5.00 5.90 6.00	2.00 1.90 2.45 2.70 2.40 3.00 3.45 4.45 5.45 6.45	2.00 4.00 4.00 6.00	Dry Dry Dry Dry	N=14 (1,1/2,4,4) (S) N=11 (1,2/2,2,3,4) (S) N=10 (1,1/1,2,3,4) (S) N=7 (1,1/1,2,2,2) (S) N=9 (1,1/1,2,2,4) (S)		

Borehole continued...

B1 8.00 8.60 7.50 6.00
 D4 8.00 8.45

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	6.50m	15.00m			17-02-2017	6.00	20	5.08	6.00	
150mm	14.60m	14.60m			21-02-2017	7.00	20	5.90	7.00	

Dates: Start: 21/02/2017 End: 17/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 14.95m bgl. 3. Exploratory hole installed with 50mm HDPE monitoring standpipe as per clients requirements.
Plant: Dando 2000	
Drilled By: Shaun Whiteman	
Logged By: J. Tomalin Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

CP08

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 105.40m AOD

Coordinates: 509768.74(E)

221186.22(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Structureless CHALK composed of silty angular to subangular weak GRAVEL. Clasts are weak, medium density angular to subangular. Ciria Grade Dc. [WHITE CHALK SUBGROUP]		12.00	93.40	D5	10.00	10.45	10.00	6.00	N=5 (1,1/1,1,2,1) (S)		
				B2	13.50	14.50			N=6 (2,3/1,2,2,1) (S)		
				D7	14.50	14.95	14.50	6.00	N=7 (2,1/1,1,3,2) (S)		
Borehole completed at 14.950m		14.95	90.45								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	6.50m	15.00m			17-02-2017	6.00	20	5.08	6.00	
150mm	14.60m	14.60m			21-02-2017	7.00	20	5.90	7.00	

Dates: Start: 21/02/2017 End: 17/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 14.95m bgl. 3. Exploratory hole installed with 50mm HDPE monitoring standpipe as per clients requirements.
Plant: Dando 2000	
Drilled By: Shaun Whiteman	
Logged By: J. Tomalin Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

CP09

Sheet 1 of 2

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 106.12m AOD

Coordinates: 509786.08(E)

221228.81(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Brick hardcore. (Drillers description). [MADE GROUND]		0.30	105.82	B1	0.00	0.50					
Red Brick (Drillers description). [MADE GROUND]		0.70	105.42	B2	0.50	1.20					
Orangish brown silty very gravelly medium to coarse SAND. Gravel is angular fine to coarse brick mortar and flint. Low cobble content of angular brick. [MADE GROUND]		1.10	105.02	B3 D11	1.20 1.20	1.80 1.65	0.00	Dry	N=12 (2,3/3,3,3,3) (S)		
Firm yellowish white chalk SILT, some yellowish brown staining and brown clay pockets 1 cm to 4 cm. [MADE GROUND]		1.60	104.52	B4 D12	2.00 2.00	2.60 2.45	0.00	Dry	N=7 (2,2/2,1,2,2) (S)		
Firm brownish grey sandy clay. Gravel is angular to subangular fine to coarse chalk and brick. [MADE GROUND]		2.20	103.92	B5 D13	3.00 3.00	3.60 3.45	1.50	Dry	N=7 (1,1/2,2,1,2) (S)		
Very stiff orangish brown gravelly calcareous SILT. Gravel is angular to subangular fine to coarse chalk and flint. [ALLUVIUM]		2.70	103.42	B6 D14	4.00 4.00	4.60 4.45	1.50	Dry	N=6 (2,1,1,2,2) (S)		
Stiff light brown and brownish white structureless CHALK. Composed of a gravelly silt. Gravel is angular to subangular fine to coarse and extremely weak. Low nodular flint cobble content. [WHITE CHALK SUBGROUP]		3.20	102.92	B7 D15	5.00 5.00	5.60 5.45	3.00	Dry	N=9 (3,2/2,2,3,2) (S)		
Structureless CHALK recovered as yellowish brown silty fine to coarse calcareous gravelly SAND. Gravel is angular to subangular fine to coarse flint and chalk. [WHITE CHALK SUBGROUP]		3.70	102.42	W10	5.70						
Structureless CHALK composed of a gravelly SILT. Clasts are weak, medium density, angular. From 8.00m bgl locally a SAND and GRAVEL, Clasts becomes weak to very weak. [WHITE CHALK SUBGROUP]				D16	6.00	6.45	6.00	4.00	N=6 (2,1/1,2,1,2) (S)		

Borehole continued...

B8 8.00 8.60 8.00 4.00
D17 8.00 8.45

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	13.80m	14.50m			22-02-2017	7.00	20	5.70	1.50	

Dates: Start: 22/02/2017 End: 23/02/2017
Plant: Dando 2000
Drilled By: G. Gordan
Logged By: J. Tomalin Status: FINAL
Checked By: G. Day Rev: 2

Remarks:
1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 14.95m bgl. 3. Exploratory hole backfilled with bentonite upon completion.



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Borehole Record

CP09

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 106.12mAOD

Coordinates: 509786.08(E)

221228.81(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D18	10.00	10.45	10.00	4.00	N=5 (1,1/2,1,1,1) (S)		
				D19	12.00	12.45	12.00	5.00	N=7 (3,2/2,2,1,2) (S)		
				B9	13.50	14.50					
				D20	14.50	14.95	13.80	5.00	N=11 (3,3/2,3,3,3) (S)		
Borehole completed at 14.950m		14.95	91.17								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	13.80m	14.50m			22-02-2017	7.00	20	5.70	1.50	

Dates: Start: 22/02/2017 End: 23/02/2017

Plant: Dando 2000

Drilled By: G. Gordan

Logged By: J. Tomalin Status: FINAL

Checked By: G. Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 14.95m bgl. 3. Exploratory hole backfilled with bentonite upon completion.



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Borehole Record

CP10

Sheet 1 of 2

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.14mAOD

Coordinates: 509706.78(E)

221205.84(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Reinforced Concrete [MADE GROUND]		0.20	103.94								
Reddish brown silty fine to coarse SAND and GRAVEL. Gravel is angular fine to coarse brick. Medium angular brick cobble content. [MADE GROUND]		0.60	103.54	B1	0.70	1.20					
Reddish greyish brown silty gravelly fine to coarse SAND. Gravel is angular fine to coarse ash brick pottery and flint. [MADE GROUND]		1.20	102.94	ES2	1.00	1.10					
Firm to stiff brownish grey and brown slightly gravelly CLAY. Gravel is angular to subangular fine to coarse flint and chalk with occasional brick. [MADE GROUND]		1.20	102.94	B4 D3	1.20 1.20	1.70 1.65	0.00	Dry	2 (1,1,1,1) (S)		
				B6 D5 ES10	2.00 2.00 2.00	2.50 2.45 2.10	1.70	Dry	4 (1,1,1,1,2) (S)		
Greyish brown sandy slightly gravelly SILT. Gravel is angular fine to coarse flint. Some pockets of dark brown organic silt. [ALLUVIUM]		2.80	101.34	B7	2.80	3.00					
Medium dense light brown and yellowish brown silty gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse flint and chalk. [ALLUVIUM]		3.20	100.94	D8 B9	3.00 3.20	3.45 3.70	3.00	Dry	N=9 (1,1,1,3,4) (S)		
				D11	4.00	4.45	4.00	Dry	N=25 (2,7,7,6,6,6) (S)		
Yellowish brown silty very gravelly fine to coarse SAND. Gravel is angular fine to coarse flint. [ALLUVIUM]		4.40	99.74	B12	4.40	4.80					
Brownish white structureless CHALK. Composed of a gravelly silt, gravel is angular to subangular fine to coarse and very weak. From 7.00m becoming white. Dm [WHITE CHALK SUBGROUP]		4.80	99.34	D13 B14	5.00 5.20	5.45 5.70	5.00	Dry	N=11 (2,2,2,3,3,3) (S)		
				D15	7.00	7.45	7.00	4	N=8 (1,2,2,2,2,2) (S)		

Borehole continued...

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.45m	15.00m								

Dates: Start: 16/02/2017 End: 16/02/2017	Remarks: 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15.45m bgl. 3. Exploratory hole backfilled with bentonite upon completion.
Plant: Dando 2000	
Drilled By: Shaun Whiteman	
Logged By: J. Tomalin Status: FINAL	
Checked By: G.Day Rev: 2	



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Borehole Record

CP10

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.14m AOD

Coordinates: 509706.78(E)

221205.84(N)

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D16	9.00	9.45	9.00	4.2	N=9 (1,2/1,2,3,3) (S)		
Greyish white structureless CHALK. Composed of a silty gravel, gravel is angular to subangular fine to coarse and weak. From 13.00m becoming white. Moderate chemical odour at around 10.0m. Dc [WHITE CHALK SUBGROUP]		10.00	94.14	B17	10.00	10.50					
				D18	11.00	11.45	11.00	7.5	N=12 (1,3/3,2,3,4) (S)		
				D19	13.00	13.45	13.00	6.5	N=13 (3,3/3,3,3,4) (S)		
				B20	14.00	14.50					
				D21	15.00	15.45	15.00	7.3	N=21 (2,4/5,5,6,5) (S)		
Borehole completed at 15.450m		15.45	88.69								

Hole Diameter Detail			Chiselling		Water Strike - General					
Diameter (mm)	Hole Depth (m)	Casing Depth (m)	Depth Top (m)	Duration (mins)	Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
150mm	15.45m	15.00m								

Dates: Start: 16/02/2017 End: 16/02/2017

Plant: Dando 2000

Drilled By: Shaun Whiteman

Logged By: J. Tomalin Status: FINAL

Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20m bgl 2. Exploratory hole advanced using cable percussive drilling techniques to a depth of 15.45m bgl. 3. Exploratory hole backfilled with bentonite upon completion.



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Trial Pit Record

TP01
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 105.91
 Coordinates 509474.62
 221471.57

Orientation of Trial Pit: Length: 1.50 Width: 0.60 Depth: 1.70

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test				Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP	PID (ppm)
Dark orange sandy angular to subangular fine to coarse GRAVEL, with high cobble content. Gravel is angular to subangular fine to coarse brick, tiles, concrete, timber, limestone and sandstone. Cobbles are angular to subangular brick. [MADE GROUND]		1.70	104.21		B	1	0.20			
Trial Pit completed at 1.700m										

Date: 15/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 1.70m bgl. 2. Trial pit terminated due to collapsing hole conditions 3. Trial pit backfilled with arising's upon completion.	
Hole Stability		Unstable	



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Trial Pit Record

TP02
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 106.07
 Coordinates 508346.21
 197735.45

Orientation of Trial Pit: Length: 3.00 Width: 0.60 Depth: 1.00

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test				Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP	PID (ppm)
Reinforced concrete [MADE GROUND]		0.20	105.87							
Reddish brown sandy angular to subrounded fine to coarse GRAVEL. Gravel is angular to subrounded fine to coarse flint, concrete, limestone, sandstone and siltstone. [MADE GROUND] <i>At 0.50m bgl: concrete obstruction approximately 500mm thick.</i>						D	1	0.40		
Trial Pit completed at 1.000m		1.00	105.07							

Date: 15/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 1.00mbgl. 2. Trial pit terminated as could not penetrate through concrete obstruction 3. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Trial Pit Record

TP03
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 107.58
 Coordinates 509523.92
 221439.76

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 4.00

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test			Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP
Asphalt [MADE GROUND]		0.10	107.48						
Black sandy fine to coarse GRAVEL. Gravel is angular to subrounded fine to coarse flint, brick, chalk and sandstone. [MADE GROUND]		0.45	107.13		ES	1	0.30		
Orange sandy slightly clayey fine to coarse GRAVEL. Gravel is angular to subrounded fine to coarse flint. [MADE GROUND]		0.55	107.03		B	2	0.50		
Dark greyish black sandy clayey fine to coarse GRAVEL. Gravel is angular to subrounded fine to coarse flint, brick, clinker, coke, [MADE GROUND]		1.00	106.58						
Soft to firm light green mottled cream and orange sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse brick, flint and sandstone. [MADE GROUND]					D	3	1.50		
					D	4	2.50		
		4.00	103.58						

Trial Pit completed at 4.000m

Date: 20/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)

Groundwater Remarks: No Groundwater Encountered

Remarks: 1. Trial pit excavated using mechanical excavator to a depth of 4.00m bgl. 2. Trial pit backfilled with arising's upon completion.

Hole Stability: Stable



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Trial Pit Record

TP05
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 107.64
 Coordinates 509537.85
 221442.08

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 4.00

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test				Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP	PID (ppm)
Asphalt [MADE GROUND]		0.10	107.54							
Dark brownish black very gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse flint, sandstone, coal, coke and clinker. [MADE GROUND]		0.50	107.14		B	1	0.30	0.50		
Light grey sandy fine to medium GRAVEL. Gravel is angular to subangular fine to medium siltstone, sandstone, coke and clinker. [MADE GROUND]		1.10	106.54		B	3	0.60	0.70		
Firm light orange mottled cream and green silty slightly gravelly CLAY. Gravel is angular to subrounded fine to medium brick and flint. [MADE GROUND]		1.10	106.54		ES	4	1.50			
					D	5	3.00			
Firm dark greyish green sandy CLAY. [ALLUVIUM]		3.80	103.84							
		4.00	103.64		D	6	4.00			

From 2.50m bgl: becoming more gravelly.

Trial Pit completed at 4.000m

Date: 20/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 4.00m bgl. 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Trial Pit Record

TP07
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 104.69
 Coordinates 509532.82
 221366.42

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 3.60

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test			Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP
Reinforced Concrete [MADE GROUND]		0.20	104.49						
Off white very sandy fine to coarse GRAVEL. Gravel is angular to rounded fine to coarse flint, chalk, brick limestone and concrete. [MADE GROUND]		0.40	104.29		B	1	0.30		
Soft dark brownish black sandy gravelly CLAY. Gravel is angular to rounded fine to coarse of mixed lithology (including brick, sandstone, coal and clinker). [MADE GROUND]					ES	2	0.50		
Brown sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse flint, chalk, slate and brick. [MADE GROUND]		1.40	103.29		D	3	1.50		
Firm dark greyish black very organic slightly gravelly SILT. [ALLUVIUM]		2.00	102.69						
Dark greenish grey mottled white gravelly very organic fine to medium SAND. Gravel is angular to subrounded fine to coarse flint and shell fragments. [ALLUVIUM]		2.70	101.99						
Green mottled white very gravelly fine SAND. Gravel is angular to subrounded fine to medium chalk, flint and shell fragments. [ALLUVIUM]		3.00	101.69						
Trial Pit completed at 3.600m		3.60	101.09		D	5	3.50		

Date: 17/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 3.60m bgl. 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Trial Pit Record

TP08
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 104.63
 Coordinates 509515.72
 221345.88

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 1.10

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test				Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP	PID (ppm)
Reinforced Concrete [MADE GROUND]		0.25	104.38							
Greyish white sandy fine to coarse GRAVEL. Gravel is fine to coarse angular to subrounded flint and chalk. [MADE GROUND]		0.55	104.08							
<i>At 0.30m bgl: concrete beam running across long side of pit</i>					B	1	0.70			
Brown clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of mixed lithology (brick, concrete, limestone). [MADE GROUND]		1.10	103.53		ES	2	0.80			
Trial Pit completed at 1.100m										

Date: 16/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit dug with mechanical excavator from ground level to 1.10mbgl and terminated after encountering suspected drain run. 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Trial Pit Record

TP09
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 107.65
 Coordinates 509606.64
 221400.49

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 3.50

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test				Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP	PID (ppm)
Asphalt [MADE GROUND]		0.10	107.55							
Orangish brown and brown sandy fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse limestone (type 1). [MADE GROUND]		0.25	107.40							
Dark greyish black very gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse brick. [MADE GROUND]		0.90	106.75		B	1	0.50			
Medium dense dark greyish black sandy very gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse coal and coke. [MADE GROUND]					ES	2	1.00			
Structureless CHALK Composed of greyish white gravelly SILT. Clasts are extremely weak (Reworked material). [MADE GROUND]		1.70	105.95							
Soft green mottled orangish brown and red silty gravelly CLAY. Gravel is angular to subangular fine to medium chalk, flint and brick. [MADE GROUND]		2.00	105.65		D	3	2.00			
Trial Pit completed at 3.500m		3.50	104.15		D	4	3.50			

Date: 16/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit dug with mechanical excavator from ground level to 3.50m bgl and terminated upon reaching completion depth 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Trial Pit Record

TP10
 Sheet 1 of 2

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 107.62
 Coordinates 509576.69
 221425.79

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 4.00

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test			Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP
Brown sandy clayey GRAVEL. Gravel is subangular to subrounded fine flint (pea shingle), flint, granite. [MADE GROUND]		0.05	107.57		ES	1	0.20		
Dark greyish black sandy fine to coarse GRAVEL. Gravel is angular to subrounded fine to coarse coal, coke, clinker, siltstone, brick and flint. [MADE GROUND]		0.30	107.32		ES	2	0.40		
Structureless CHALK, composed of silty sandy GRAVEL. Clasts are weak medium density angular to subangular. [MADE GROUND]		0.45	107.17		B	3	0.50		
Dark orange mottled grey and brown sandy clayey GRAVEL. Gravel is angular to subrounded fine to coarse flint, brick, limestone, chalk, siltstone and sandstone. [MADE GROUND]		0.65	106.97		ES	4	0.70		
Dark greyish black angular to subangular fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse coal, coke, slag, ferrous metal, flint and chalk. [MADE GROUND]		0.80	106.82						
Soft to firm green mottled red, orange and cream sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium flint and brick. [MADE GROUND]									
Black and white sandy fine to coarse GRAVEL. Gravel is angular to sub rounded fine to coarse brick, limestone, flint and siltstone. [MADE GROUND]		3.20	104.42		ES	6	3.30		
Firm dark green silty gravelly CLAY. Gravel is fine to medium angular to subangular Borehole continued...		3.80	103.82						
		4.00	103.62						

Date: 15/02/2017 Plant: JCB 3CX Logged By: Z. Bella Status: FINAL Checked By: M. Smith Rev: 2	Water Level Observations			
	Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
	Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 4.00m bgl. 2. Trial pit backfilled with arising's upon completion.		
Hole Stability		Stable		



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Trial Pit Record

TP10
 Sheet 2 of 2

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 107.62
 Coordinates 509576.69
 221425.79

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 4.00

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test				Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP	PID (ppm)
brick, flint, chalk and coal. [MADE GROUND] Trial Pit completed at 4.000m										

Date: 15/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 4.00m bgl. 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Trial Pit Record

TP11
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 107.60
 Coordinates 509582.65
 221408.77

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 3.80

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test			Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP
Light brown silty sandy fine GRAVEL. Gravel is angular to subrounded fine flint, claystone and sandstone. [MADE GROUND]		0.10	107.50						
Dark greyish black silty very sandy slightly clayey fine to coarse GRAVEL. Gravel is subangular to rounded fine to coarse subangular to rounded flint, brick, sandstone, siltstone. [MADE GROUND]		0.50	107.10		ES	1	0.50		
Orange sandy clayey fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse flint and limestone. [MADE GROUND]		1.10	106.50		B	2	1.00		
Structureless CHALK composed of white and cream GRAVEL. Clasts are weak low to medium density angular to subangular. [MADE GROUND]		1.30	106.30		D	3	1.20		
Brown silty clayey sandy fine to coarse GRAVEL with medium cobble content. Gravel is angular to subrounded fine to coarse brick, flint and sandstone. [MADE GROUND]		1.50	106.10						
Soft to firm light green mottled orange sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium flint, brick and sandstone. [MADE GROUND]					D	4	3.00		
Trial Pit completed at 3.800m		3.80	103.80						

Date: 20/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 3.80m bgl. 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Trial Pit Record

TP12
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 105.08
 Coordinates 509556.25
 221299.36

Orientation of Trial Pit: Length: 3.00 Width: 0.60 Depth: 3.20

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test			Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP
Reinforced concrete [MADE GROUND]		0.15	104.93						
Light orange gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse brick, flint, slate, tiles, sandstone, coal, coke and concrete. [MADE GROUND]		0.50	104.58		ES	1	0.30		
Soft to firm dark brown sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse brick, flint, coal, coke, glass, limestone and concrete. [MADE GROUND]		1.05	104.03		B	2	1.00		
Soft to firm dark greyish brown sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse flint, brick, bone, metal and shell fragments. [MADE GROUND]		1.45	103.63		D	3	1.20		
Orange clayey sandy angular to subrounded fine to coarse GRAVEL. Gravel is angular to subrounded fine to coarse flint. [GLACIOFLUVIAL DEPOSITS - MID-PLEISTOCENE]		2.00	103.08		ES	4	1.60		
Orange clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse flint [GLACIOFLUVIAL DEPOSITS - MID-PLEISTOCENE]		3.00	101.88		D	5	1.80		
Trial Pit completed at 3.200m		3.20	101.88			D	6	3.00	

Date: 20/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 3.20m bgl, where hole couldn't be advanced due to compacted soils. 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Trial Pit Record

TP13
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 105.06
 Coordinates 509572.03
 221274.03

Orientation of Trial Pit: Length: 3.00 Width: 0.60 Depth: 4.00

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test			Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP
Reinforced concrete. [MADE GROUND]		0.10	104.96						
Dark greyish black very gravelly fine to coarse SAND. Gravel is fine to coarse angular to subrounded limestone, brick, flint, asphalt covered coal and coke. [MADE GROUND]		0.40	104.66		ES	1	0.30		
Multi-coloured sandy fine to coarse GRAVEL. Gravel is fine to coarse angular to subrounded brick, slag, sandstone, flint, limestone, coal and concrete. [MADE GROUND]		0.60	104.46		B	2	0.50		
Soft brown mottled orange sandy gravelly CLAY. Gravel is fine to coarse angular to subangular brick, coal, flint and coke. [MADE GROUND]		1.30	103.76		ES	3	1.50		
Firm desiccated light orange gravelly silty CLAY. Gravel is fine to medium angular to subrounded flint, chalk and shell fragments. [GLACIOFLUVIAL DEPOSITS - MID-PLISTOCENE]		2.10	102.96						
Orange clayey sandy fine GRAVEL. Gravel is fine to medium angular to subrounded flint. [GLACIOFLUVIAL DEPOSITS - MID-PLISTOCENE]		2.50	102.56						
Firm light orange sandy gravelly CLAY. Gravel is fine to medium angular subrounded flint and chalk. [GLACIOFLUVIAL DEPOSITS - MID-PLISTOCENE]									
...becoming very gravelly					D	5	3.50		
		4.00	101.06						

Trial Pit completed at 4.000m

Date: 20/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 4.00m bgl. 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Trial Pit Record

TP14
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 105.29
 Coordinates 509595.14
 221293.20

Orientation of Trial Pit: Length: 2.00 Width: 0.60 Depth: 0.30

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test				Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP	PID (ppm)
Reinforced concrete. [MADE GROUND]		0.30	104.99							
Trial Pit completed at 0.300m										

Date: 20/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. JCB unable to break through surface concrete. Concrete was reinforced with 10mm+ re bar. Trial pit terminated at 0.3m.	
Hole Stability		Stable	



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Trial Pit Record

TP15
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 104.62
 Coordinates 509675.47
 221327.83

Orientation of Trial Pit: Length: 3.00 Width: 0.60 Depth: 4.00

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test			Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP
Reinforced concrete. [MADE GROUND]		0.20	104.42						
Concrete pad. [MADE GROUND]		0.50	104.12						
Soft dark brown sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, coke, chalk, flint, limestone, coal and concrete. [MADE GROUND]		0.60	104.02		ES	1	0.70		
Dark brownish black very sandy fine to coarse GRAVEL. Gravel is fine to coarse angular to subangular brick, flint, glass, slate, ferrous metal and limestone. [MADE GROUND]		1.40	103.22		B	2	1.10		
Soft brown sandy gravelly CLAY. Gravel is fine to medium angular to subrounded flint, brick, chalk, and shell fragments. [ALLUVIUM]		2.20	102.42		ES	3	1.50		
Soft dark grey organic sandy CLAY. [ALLUVIUM]		3.10	101.52		D	4	2.50		
Structureless CHALK composed of white sandy gravelly SILT. Gravel is extremely weak, low density, white, with occasional orangish brown staining and angular to subangular. (Grade Dm) [WHITE CHALK SUBGROUP]		4.00	100.62		D	5	3.50		

Trial Pit completed at 4.000m

Date: 15/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 4.00m bgl. 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Trial Pit Record

TP16
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 104.67
 Coordinates 509721.48
 221348.28

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 4.00

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test				Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP	PID (ppm)
Reinforced Concrete. [MADE GROUND]		0.30	104.37							
Dense brownish black very sandy fine to coarse GRAVEL. Gravel is angular to subrounded fine to coarse brick, flint, concrete, coal, coke and slag. [MADE GROUND]		0.90	103.77		B	1	0.40			
Soft brown sandy gravelly CLAY . Gravel is angular to subrounded fine to medium brick, flint with occasional shell fragments. [MADE GROUND]		1.45	103.22		ES	2	1.00			
Structureless CHALK Composed of off white sandy gravel. Clasts are weak to medium density, with some angular to subangular fine to coarse gravel sized flint. (Grade Dc) [WHITE CHALK SUBGROUP]		2.50	102.17		ES	3	2.00			
Structureless CHALK Composed of off white gravel. Clasts are weak to very weak chalk. Gravel is angular to subangular flint. (Grade Dc) [WHITE CHALK SUBGROUP]		4.00	100.67							

Trial Pit completed at 4.000m

Date: 16/02/2017	Water Level Observations			
	Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Plant: JCB 3CX				
Logged By: Z. Bella Status: FINAL	Groundwater Remarks: No Groundwater Encountered			
Checked By: M. Smith Rev: 2	Remarks:		1. Trial pit dug with mechanical excavator from ground level to 4.00m bgl 2. Trial pit backfilled with arising's upon completion.	
	Hole Stability		Stable	



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Trial Pit Record

TP18
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 106.33
 Coordinates 509748.14
 221333.08

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 1.30

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test				Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP	PID (ppm)
Orange COBBLES, with occasional boulders and some sandy GRAVEL. Gravel is angular to subangular fine to coarse brick, slag and concrete. Cobbles are angular to subangular brick, flint, concrete and slag. Boulders are brick wall fragments up to 50 x 70 x 20 cm in size. [MADE GROUND]										
Trial Pit completed at 1.300m		1.30	105.03			ES 2	1.00			

Date: 16/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit dug with mechanical excavator from ground level to 1.30m bgl. 2. Trial pit terminated at 1.30m bgl due to stability issues affecting progress of trial pit 3. Trial pit backfilled with arising's.	
Hole Stability		Unstable	



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Trial Pit Record

TP19
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 104.62
 Coordinates 509713.39
 221291.18

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 1.90

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test			Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP
Reinforced concrete. [MADE GROUND]		0.40	104.22						
Brown slightly clayey sandy GRAVEL, with a high cobble content. Gravel is angular to subrounded fine to coarse mixed anthropogenic material (brick, concrete, glass etc.). [MADE GROUND] <i>At 0.70m bgl: brick wall exposed on side wall of trial pit.</i>					ES	1	0.50		
					B	2	1.00		
					D	3	1.50		
Trial Pit completed at 1.900m		1.90	102.72						

Date: 16/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit dug with mechanical excavator from ground level to 1.90m bgl. 2. Trial pit terminated at 1.90m bgl due to sidewall stability issues affecting progress of trial pit 3. Trial pit backfilled with arising's.	
Hole Stability		Unstable	



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Trial Pit Record

TP20
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 104.18
 Coordinates 509686.54
 221209.52

Orientation of Trial Pit: Length: 3.00 Width: 0.60 Depth: 4.00

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test			Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP
Reinforced concrete. [MADE GROUND]		0.15	104.03						
Light orange gravelly fine to coarse SAND. [MADE GROUND]		0.30	103.88						
Dark greyish black mottled orange sandy GRAVEL. Gravel is fine to coarse angular to subrounded brick, coke, chalk, flint, slag, metal, slate, sandstone, limestone and coal. [MADE GROUND]		0.85	103.33		ES	1	0.50		
Brown and orange sandy GRAVEL. Gravel is fine to medium angular to subangular brick, flint, coal, coke and clinker. [MADE GROUND]		1.25	102.93		B	2	0.80		
Soft brown sandy gravelly CLAY. Gravel is fine to coarse angular to rounded flint, brick, chalk, and coal. Re worked natural. [MADE GROUND]		1.80	102.38		ES	3	1.60		
Soft dark greyish black sandy gravelly CLAY, with abundant organic material. Gravel is fine to coarse angular to subrounded flint, chalk and shell fragments. [GLACIOFLUVIAL DEPOSITS - MID-PLIISTOCENE]		3.00	101.18		D	4	2.60		
Light brown gravelly silty fine to coarse SAND. Gravel is fine to coarse subangular to rounded chalk and flint. [GLACIOFLUVIAL DEPOSITS - MID-PLIISTOCENE]		4.00	100.18		D	5	3.50		

Trial Pit completed at 4.000m

Date: 20/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations

Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)

Groundwater Remarks: No Groundwater Encountered

Remarks: 1. Trial pit dug with mechanical excavator from ground level to 4.00m bgl 2. Trial pit backfilled with arising's upon completion.

Hole Stability: Stable



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Trial Pit Record

TP21
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 104.20
 Coordinates 509726.70
 221198.26

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 3.60

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test			Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP
Reinforced concrete [MADE GROUND]		0.15	104.05						
Orange gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse brick, clinker, coke, coal, flint, concrete [MADE GROUND]		0.50	103.70		ES	1	0.60		
Orange mottled black and grey sandy COBBLES, with some gravel. Cobbles are angular to subangular brick and concrete. Gravel is angular to subrounded fine to coarse brick, concrete and flint. With some anthropogenic material such as slag, coal, coke, clinker and metal. [MADE GROUND]		1.05	103.15		B	2	1.00		
Soft to firm orange very sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse flint and brick. [MADE GROUND]		1.30	102.90						
Soft brown mottled orange silty slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to medium flint. [ALLUVIUM]		1.75	102.45		ES	3	1.50		
From 1.70m bgl: 50mm band of fine to coarse SAND. Soft brown mottled orange silty slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to medium flint. [ALLUVIUM]		2.30	101.90		D	4	2.50		
Cream mottled orange clayey silty gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse flint (possible natural material). [ALLUVIUM]		3.60	100.60		D	5	3.60		
Trial Pit completed at 3.600m									

Date: 20/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 3.60m bgl, where the trial pit was terminated due to sidewall collapse. 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Unstable	



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Trial Pit Record

TP22
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Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 105.04
 Coordinates 509745.63
 221218.74

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 3.00

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test				Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP	PID (ppm)
Light grey sandy angular to subrounded fine to coarse GRAVEL. Gravel is angular to subrounded fine to coarse flint, brick, sandstone. With anthropogenic material such as slag, metal and glass. [MADE GROUND]		0.30	104.74		ES	1	0.30			
Orange COBBLES, with some sandy Gravel. Cobbles are angular to subangular brick and concrete. Gravel is angular to subangular fine to medium brick and concrete. [MADE GROUND]		0.90	104.14		B	2	1.00			
<i>From 0.40m bgl: 300mm wide beam across width of trial pit and tiled floor exposed</i>		1.20	103.84		ES	3	1.20			
Structureless CHALK, composed of white mottled grey silty GRAVEL. Clasts are extremely weak medium density. [MADE GROUND]		1.30	103.74							
Black very sandy fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse slag, coke and clinker. [MADE GROUND]		1.90	103.14		D	4	1.60			
Firm brown sandy silty gravelly CLAY. Gravel is angular to subrounded fine to medium brick, chalk, flint and coal. [MADE GROUND]										
Light brown clayey sandy fine to coarse GRAVEL. Gravel is angular to subrounded fine to coarse flint and chalk. [ALLUVIUM]										
Trial Pit completed at 3.000m		3.00	102.04		D	5	3.00			

Date: 22/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 3.00m bgl 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Trial Pit Record

TP23
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 105.38
 Coordinates 509771.54
 221198.23

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 4.00

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test				Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP	PID (ppm)
Soft brown sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse brick, coke, clinker, slag, flint and concrete. [MADE GROUND]		0.35	105.03							
Orange slightly clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse flint and brick. [MADE GROUND]		0.50	104.88							
<i>From 0.40m bgl: 300mm wide beam across width of trial pit and tiled floor exposed</i>		0.60	104.78							
Soft brown sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse brick, coal, slag, glass and slate. [MADE GROUND]										
Off white clayey sandy gravelly CHALK. Gravel is angular to subrounded fine to coarse brick, chalk and flint. [MADE GROUND]		1.40	103.98							
Soft brown silty slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse flint and brick. [MADE GROUND]		1.80	103.58							
Soft brown mottled white very sandy SILT. Gravel is angular and subrounded fine to coarse flint and chalk. [ALLUVIUM]		2.35	103.03							
Structureless CHALK composed of sandy GRAVEL. Clasts are weak, medium density angular to subrounded (Grade Dc). [WHITE CHALK SUBGROUP]										
		4.00	101.38							

Trial Pit completed at 4.000m

Date: 17/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 4.00m bgl. 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Trial Pit Record

TP24
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 106.02
 Coordinates 509776.80
 221244.82

Orientation of Trial Pit: Length: 3.00 Width: 0.60 Depth: 4.00

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test			Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP
Soft brown sandy very gravelly CLAY, with a high cobble content. Gravel is angular to subrounded fine to coarse brick, ceramic, chalk, flint, slate, metal, coke, coal, slag and limestone. [MADE GROUND] <i>loose light brown slightly gravelly fine to coarse silt, gravel is fine to coarse flint and brick fragments malodorous black staining</i>					B	1	0.40		
		1.20	104.82		ES	2	0.60		
Off white mottled brown clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse chalk, flint, brick, metal and slate. [MADE GROUND] Structureless CHALK composed of silty sandy gravel. Clasts are weak medium density angular to subangular (Grade Dc). [WHITE CHALK SUBGROUP]		1.40	104.62						
		4.00	102.02		D	4	2.20		

Trial Pit completed at 4.000m

Date: 17/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated from ground level to a depth of 4.0m bgl 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Trial Pit Record

TP25
 Sheet 1 of 1

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level 106.24
 Coordinates 509800.81
 221211.39

Orientation of Trial Pit: Length: 2.50 Width: 0.60 Depth: 3.00

Description	Legend	Depth (m)	O.D. Level (m)	Water	Sample Test			Remarks and Test Results	
					Type	Ref	Depth Top (m)	Depth Base (m)	SPT/HV/PP
Soft light brown mottled white sandy gravelly CLAY. Gravel is angular to subrounded fine coarse brick, chalk and flint. Contains other anthropogenic material such as glass, coal, wood, ceramic fragments and metal. [MADE GROUND]		0.80	105.44		ES	1	0.50		
Off white clayey sandy gravelly CHALK. Gravel is angular to subrounded fine to coarse brick, coal, coke, slate and glass. [MADE GROUND]		1.20	105.04		B	2	1.00		
Structureless CHALK composed of silty GRAVEL. Clasts are very weak, medium density, angular to subangular (Grade Dc). [WHITE CHALK SUBGROUP]		3.00	103.24		D	3	1.50		
Trial Pit completed at 3.000m					D	4	3.00		

Date: 17/02/2017
 Plant: JCB 3CX
 Logged By: Z. Bella Status: FINAL
 Checked By: M. Smith Rev: 2

Water Level Observations			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)
Groundwater Remarks		No Groundwater Encountered	
Remarks		1. Trial pit excavated using mechanical excavator to a depth of 3.00m bgl. 2. Trial pit backfilled with arising's upon completion.	
Hole Stability		Stable	



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Window Sample Record

WS01

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 107.50
 Coordinates: 509555.82
 221438.19

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations							
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP		PID (ppm)						
Dark greyish black sandy fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse limestone, brick, coal, coke, brick slag and clinker [MADE GROUND] From 0.60m bgl: becoming more sandy.		0.70	106.80	B	1	0.10	0.50	0.00	Dry	2 (1,1,1,1)								
Soft orange mottled yellow and green sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of brick, flint, coal and limestone. [MADE GROUND]				B	2	0.80	1.10											
				D	3	1.20	1.65											
				L	4	1.20	2.00											
				D	5	2.00	2.45											
				L	6	2.00	3.00											
Firm multi-coloured sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to medium flint and chalk. [MADE GROUND]					2.20	105.30												
Structureless CHALK Composed of sandy GRAVEL. Clasts are white weak and medium density. [MADE GROUND]					3.00	104.50	D					7	3.00	3.45	0.00	Dry	4 (1,1,1,2)	
				L	8	3.00	4.00											
Firm dark brown and grey sandy slightly gravelly CLAY. Gravel is angular to subangular fine to medium brick, coal and flint. [MADE GROUND]					3.40	104.10												
	D	9	4.00	4.45				0.00	Dry	N=10 (1,1/2,2,3,3)								
	L	10	4.00	5.00														
Medium dense orange sandy fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse flint and chalk.		4.40	103.10															

'Borehole continued..'

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
87	3.00	100%					
77	4.00	100%					
67	5.00	100%					

Dates: Start: 21/02/2017 End: 21/02/2017
 Plant: Hand tools+Dando Terrier
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole backfilled with bentonite upon completion. 4. No groundwater encountered.



GROUND TECHNOLOGY
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Window Sample Record

WS01

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 107.50
 Coordinates: 509555.82
 221438.19

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
[ALLUVIUM]				D	11	5.00	5.45	0.00	Dry	N=22 (6,6/4,6,6,6)		
Borehole completed at 5.450m		5.45	102.05									

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
87	3.00	100%					
77	4.00	100%					
67	5.00	100%					

Dates: Start: 21/02/2017 End: 21/02/2017	Remarks:
Plant: Hand tools+Dando Terrier	1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole backfilled with bentonite upon completion. 4. No groundwater encountered.
Drilled By: Mark Lane	
Logged By: Z. Bella Status: FINAL	
Checked By: G.Day Rev: 2	



GROUND TECHNOLOGY
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Window Sample Record

WS02

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.84
 Coordinates: 509523.65
 221383.79

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Asphalt. [MADE GROUND] Brown sandy clayey fine to coarse GRAVEL. Gravel is angular to subrounded fine to coarse flint, brick, sandstone, glass, coal and clinker. Rare metal fragments. [MADE GROUND]		0.10	104.74	B	1	0.00	0.50					
				B	2	0.60	1.20					
				ES	12	0.60	0.80					
				D	3	1.20	1.65	0.00	Dry	N=11 (2,3/3,3,2,3)		
				L	4	1.20	2.00					
Dark brown gravelly organic SILT. Gravel is angular to subrounded fine to coarse flint and brick. [MADE GROUND]		2.00	102.84	D	5	2.00	2.45	0.00	Dry	N=5 (1,2/1,1,2,1)		
				L	6	2.00	3.00					
				ES	13	2.50	2.70					
Medium dense light orangish brown clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse flint. [ALLUVIUM]		2.70	102.14	D	7	3.00	3.45	0.00	Dry	N=19 (1,1/3,3,6,7)		
				L	8	3.00	4.00					
				D	9	4.00	4.45	0.00	Dry	N=24 (5,7/6,6,7,5)		
				L	10	4.00	5.00					
Medium dense light orangish brown and light grey silty sandy GRAVEL. Gravel is angular to		4.50	100.34									

'Borehole continued..'

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
97	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 23/02/2017 End: 23/02/2017

Plant: Dando Terrier+Hand tools

Drilled By: Mark Lane

Logged By: Z. Bella Status: FINAL

Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 0.50m bgl, with help of excavator to break out hard standing 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS02

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.84
 Coordinates: 509523.65
 221383.79

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
subrounded fine to medium chalk and flint. [ALLUVIUM]		5.00	99.84	D	11	5.00	5.45	0.00	Dry	N=14 (4,3/3,3,4,4)		
Structureless CHALK composed of creamy white silty angular to subangular GRAVEL. Clasts are very weak, creamy white. Frequent flint gravel. Matrix is creamy white. (Grade Dc) [WHITE CHALK SUBGROUP]		5.45	99.39									
Borehole completed at 5.450m												

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
97	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 23/02/2017 End: 23/02/2017	Remarks:
Plant: Dando Terrier+Hand tools	1. Inspection pit hand dug from ground level to 0.50m bgl, with help of excavator to break out hard standing 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.
Drilled By: Mark Lane	
Logged By: Z. Bella Status: FINAL	
Checked By: G.Day Rev: 2	



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS03

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 107.68
 Coordinates: 509607.54
 221416.92

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	
Dark greyish black sandy fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse coal, coke and slag. [MADE GROUND] loose light brown slightly gravelly fine to coarse silt, gravel is fine to coarse flint and brick fragmentsmalodorous black staining				B	1	0.00	0.30				
				B	2	0.30	1.00				
				L	3	0.80	1.20				
Soft dark brownish grey sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse brick, flint, limestone, clinker and slag. [MADE GROUND]		1.10	106.58	D	4	1.20	1.65	0.00	Dry	N=7 (1./2,1,2,2)	
				L	5	1.20	2.00				
				ES	13	1.50	1.70				
Soft orange sandy gravelly silty CLAY. Gravel is angular to subrounded fine to coarse brick, flint, glass, coal, clinker, concrete, limestone and coal. [MADE GROUND]		1.70	105.98	D	6	2.00	2.45	0.00	Dry	3 (1./,2,1.)	
				L	7	2.00	3.00				
				D	14	2.70					
				D	8	3.00	3.45	0.00	Dry	5 (1./1,,2,2)	
				L	9	3.00	4.00				
				D	15	3.70					
				L	10	4.00	4.45	0.00	Dry	N=18 (1,2/4,4,4,6)	
L	11	4.00	5.00								
Medium dense light orange clayey sandy fine to medium GRAVEL. Gravel is angular to subangular fine to coarse flint. [ALLUVIUM]		4.30	103.38	ES	16	4.70	5.00				

'Borehole continued..'

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
117	1.20	25%					
117	2.00	100%					
102	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 21/02/2017 End: 21/02/2017
 Plant: Dando Terrier+360 tracked JCB + Hand tools
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 0.50m bgl, with help of excavator to break out hard standingl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4 No groundwater encountered



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS03

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 107.68
 Coordinates: 509607.54
 221416.92

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D	12	5.00	5.45	0.00	Dry	N=29 (3,6/7,6,8,8)		
Borehole completed at 5.450m		5.45	102.23									

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
117	1.20	25%					
117	2.00	100%					
102	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 21/02/2017 End: 21/02/2017
 Plant: Dando Terrier+360 tracked JCB + Hand tools
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 0.50m bgl, with help of excavator to break out hard standing
 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl
 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements.
 4 No groundwater encountered



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS04

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.78
 Coordinates: 509581.24
 221340.78

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Reinforced Concrete [MADE GROUND]				B 1		0.00	0.60					
Stiff brown sandy gravelly CLAY, with some ash. Gravel is angular to subrounded fine to coarse brick, chalk and flint. [MADE GROUND]		0.70	104.08	B 2		0.70	1.20					
				ES 12		0.70	0.80					
				D 2		1.20	1.65	0.00	Dry	N=6 (2,1/2,1,1,2)		
				D 3		1.20	1.65					
				L 3		1.20	2.00					
				L 4		1.20	2.00					
				ES 13		1.50	1.70					
Light brown silty gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse brick and flint. [MADE GROUND]		1.70	103.08									
Stiff brown sandy gravelly CLAY, with some ash. Gravel is angular to subrounded fine to coarse brick, chalk and flint [MADE GROUND]		2.00	102.78	D 14		2.00	3.20	0.00	Dry	N=11 (2,1/3,2,3,3)		
				D 4		2.00	2.45					
				D 5		2.00	2.45					
				L 5		2.00	3.00					
				L 6		2.00	3.00					
Stiff orangish brown sandy gravelly CLAY. Gravel is angular to subrounded fine to medium flint. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		2.50	102.28									
Medium dense light orangish brown silty gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse flint. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		3.10	101.68	D 6		3.00	3.45	0.00	Dry	N=21 (4,5/5,5,5,6)		
				D 7		3.00	3.45					
				L 7		3.00	4.00					
				L 8		3.00	4.00					
				D 8		4.00	4.45	0.00	Dry	N=10 (2,4/3,2,3,2)		
				D 9		4.00	4.45					
				L 10		4.00	5.00					
				L 9		4.00	5.00					
Soft light brown sandy gravelly SILT. Gravel is angular to subangular fine to medium flint.		4.50	100.28									
'Borehole continued..'				D 15		4.80	5.00					

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
97	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 24/02/2017 End: 24/02/2017	Remarks:
Plant: Hand tools+Dando Terrier	1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.
Drilled By: Mark Lane	
Logged By: Z. Bella Status: FINAL	
Checked By: G.Day Rev: 2	



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS04

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.78
 Coordinates: 509581.24
 221340.78

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	
[GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]				D	10	5.00	5.45	0.00	Dry	N=13 (2,2/4,3,3,3)	
Borehole completed at 5.450m		5.45	99.33								

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
97	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 24/02/2017 End: 24/02/2017	Remarks:
Plant: Hand tools+Dando Terrier	1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.
Drilled By: Mark Lane	
Logged By: Z. Bella Status: FINAL	
Checked By: G.Day Rev: 2	



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS05

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 105.96
 Coordinates: 509748.61
 221314.22

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	
Reinforced Concrete [MADE GROUND]				B	1	0.00	0.20				
				ES	3	0.10	0.20				
Stiff brown sandy gravelly CLAY, with some ash. Gravel is angular to subrounded fine to coarse brick, chalk and flint. [MADE GROUND]		0.70	105.26	B	2	0.70	1.20				
				D	3	1.20	1.65	0.00	Dry	N=6 (2,1/2,1,2,1)	
...becoming slightly gravelly and organic.				L	4	1.20	2.00				
				D	2	1.50					
Light brown silty gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse brick and flint. [MADE GROUND]		1.70	104.26								
				D	5	2.00	2.45	0.00	Dry	N=11 (3,4/3,3,3,2)	
Stiff brown sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse brick, chalk, flint and ash. [MADE GROUND]		2.00	103.96	L	6	2.00	3.00				
Stiff orangish brown sandy gravelly CLAY. Gravel is angular to subrounded fine to medium flint. [ALLUVIUM]		2.50	103.46								
				D	7	3.00	3.45	0.00	Dry	N=24 (3,3/5,5,7,7)	
				L	8	3.00	4.00				
Medium dense light orangish brown silty gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse flint. [ALLUVIUM]		3.10	102.86								
				D	9	4.00	4.45	0.00	Dry	N=23 (3,5/6,6,6,5)	
				L	10	4.00	5.00				
Soft light brown sandy gravelly SILT. Gravel is angular to subangular fine to medium flint.		4.50	101.46								

'Borehole continued..'

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
97	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 24/02/2017 End: 24/02/2017
 Plant: Hand tools+Dando Terrier
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS05

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 105.96
 Coordinates: 509748.61
 221314.22

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
[ALLUVIUM]				D	11	5.00	5.45	0.00	Dry	N=14 (4,3/3,3,5,3)		
Borehole completed at 5.450m		5.45	100.51									

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
97	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 24/02/2017 End: 24/02/2017
 Plant: Hand tools+Dando Terrier
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS06

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.41
 Coordinates: 509683.72
 221263.16

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Orangish brown silty sandy GRAVEL, with high cobble content. Cobbles are angular brick and concrete. Gravel is angular fine to coarse brick, flint and concrete with rare coal. [MADE GROUND]		1.65	102.76	B	1	0.00	0.60					
				D	2	1.20	1.65	1.00	Dry	N=8 (3,2/2,1,1,4)		
				L	3	1.20	1.60					
Borehole completed at 1.650m												

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	1.50	100%					

Dates: Start: 24/02/2017 End: 24/02/2017
 Plant: Dando Terrier+Hand tools
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 1.50m bgl, where hole was terminated due to encountering possible asbestos fragment. 3. Exploratory hole backfilled with bentonite upon completion 4. No groundwater encountered.



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS07

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.53
 Coordinates: 509653.34
 221247.93

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations	
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)		
Reinforced concrete [MADE GROUND] Red COBBLES, with some sandy Gravel. Gravel is angular to subrounded fine to coarse brick. [MADE GROUND]		0.15	104.38	B	1	0.20	0.50						
Red COBBLES, with some sandy Gravel. Gravel is angular to subrounded fine to coarse brick. With coal, coke and clinker. [MADE GROUND] Soft to firm sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded flint, brick, coal, coke, clinker, concrete, sandstone, limestone and metal. [MADE GROUND]		0.80	103.73	B	2	0.80	1.00						
		1.00	103.53	B	3	1.00	1.20						
				ES	9	1.10							
				D	4	1.20	1.65	0.00	Dry	N=4 (1,1,1,1,1)			
				L	5	1.20	2.00						
Soft brown sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse flint and shell fragments. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE] Dense orange clayey sandy fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse flint. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		1.80	102.73										
		2.00	102.53	D	6	2.00	2.45	0.00	Dry	N=24 (1,3/4,6,7,7)			
				L	7	2.00	2.60						
				D	8	2.60	2.90	0.00	Dry	51 (10,14/51 for 150mm)			
Borehole completed at 2.900m		2.90	101.63										

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
87	2.60	100%					

Dates: Start: 22/02/2017 End: 22/02/2017	Remarks:
Plant: Hand tools+Dando Terrier+Mechanical Excavator	1. Inspection pit hand dug from ground level to 1.20mbgl, with help of excavator to break through hard strata 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 2.60m bgl, where refusal occurred on hard strata. 3. Exploratory hole backfilled with bentonite upon completion. 4. No groundwater encountered.
Drilled By: Mark Lane	
Logged By: Z. Bella Status: FINAL	
Checked By: G.Day Rev: 2	



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS08

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.86
 Coordinates: 509607.62
 221268.19

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Compacted GRAVEL, overlying dark brown very sandy clayey fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse brick, coal, coke, slag, clinker, limestone and metal. [MADE GROUND]		0.70	104.16	B	1	0.00	0.30	0.00	Dry	N=26 (3,4/6,7,6,7)		
				B	2	0.30	0.50					
				B	3	0.50	0.70					
				B	4	0.70	1.00					
Light brown mottled grey clayey sandy fine to coarse GRAVEL. Gravel is angular to subangular fine to coarse flint and brick. [MADE GROUND]		1.30	103.56	D	6	1.20	1.65	0.00	Dry	N=21 (2,2/3,8,6,4)		
				L	7	1.20	2.00					
Light brown clayey gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse flint. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		1.80	103.06	D	8	2.00	2.45	0.00	Dry	N=12 (2,2/3,3,3,3)		
				L	9	2.00	3.00					
Soft light brown sandy slightly gravelly very silty CLAY. Gravel is angular to subangular fine flint. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		3.10	101.76	D	10	3.00	3.45	0.00	Dry	N=18 (2,2/4,4,4,6)		
				L	11	3.00	4.00					
Firm brown sandy slightly gravelly CLAY, with thinly spaced bands of fine to coarse sand. Gravel angular to subangular fine to coarse flint. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		4.00	100.86	D	12	4.00	4.45	0.00	Dry	N=18 (2,2/4,4,4,6)		
				L	13	4.00	5.00					

'Borehole continued..'

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
87	3.00	100%					
77	4.00	100%					
67	5.00	100%					

Dates: Start: 22/02/2017 End: 22/02/2017
 Plant: Hand tools+Dando Terrier
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole backfilled with bentonite upon completion. 4. No groundwater encountered.



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS08

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.86
 Coordinates: 509607.62
 221268.19

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	
				D	14	5.00	5.45	0.00	Dry	N=24 (6,6/7,6,5,6)	
Borehole completed at 5.450m		5.45	99.41								

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
87	3.00	100%					
77	4.00	100%					
67	5.00	100%					

Dates: Start: 22/02/2017 End: 22/02/2017
 Plant: Hand tools+Dando Terrier
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole backfilled with bentonite upon completion. 4. No groundwater encountered.



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS09

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 108.50
 Coordinates: 509813.99
 221302.70

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	
Tarmac [MADE GROUND]		0.10	108.40								
Redish brown hardcore type 1 [MADE GROUND]		0.45	108.05	B	1	0.45	0.55				
Firm brown slightly gravelly CLAY. Gravel is angular fine to coarse flint, brick and concrete. [MADE GROUND]		0.70	107.80	D	3	0.80	0.90				
Stiff yellowish brown sandy slightly gravelly SILT. Gravel is angular to subangular fine to medium chalk with rare flint. [ALLUVIUM]		1.30	107.20	D	4	0.90			N=30 (3,9/5,8,9,8)		
Structureless CHALK composed of firm to stiff yellowish white sandy gravelly SILT. Gravel is very weak, low density, white and angular to subangular (Ciria Grade Dm). [WHITE CHALK SUBGROUP]		1.70	106.80	D	5	1.20	1.65				
Structureless CHALK composed of firm to stiff creamy white gravelly SILT. Gravel is very weak, low density, white and angular. A little yellowish brown staining. Rare 1cm - 2cm brown sand pockets (Ciria Grade Dm). [WHITE CHALK SUBGROUP]				D	7	1.90	2.00			N=10 (1,3/2,2,3,3)	
				D	8	2.00	2.45				
				D	10	3.00	3.45			N=10 (2,2/10 for 245mm)	
				D	12	4.00	4.45			N=8 (1,2/2,2,2,2)	

'Borehole continued..'

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
87	3.00	100%					
77	4.00	100%					
67	5.00	100%					

Dates: Start: 27/02/2017 End: 27/02/2017

Plant: Hand tools+Dando Terrier

Drilled By: M Lane

Logged By: J. Tomalin Status: FINAL

Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole backfilled with bentonite upon completion. 4. No groundwater encountered.



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS09

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 108.50
 Coordinates: 509813.99
 221302.70

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	
				D	14	5.00	5.45			N=10 (1,2,2,3,3)	
Borehole completed at 5.450m		5.45	103.05								

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
87	3.00	100%					
77	4.00	100%					
67	5.00	100%					

Dates: Start: 27/02/2017 End: 27/02/2017
 Plant: Hand tools+Dando Terrier
 Drilled By: M Lane
 Logged By: J. Tomalin Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole backfilled with bentonite upon completion. 4. No groundwater encountered.



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS10

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 106.37
 Coordinates: 509769.07
 221292.29

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Reinforced concrete. [MADE GROUND]		0.15	106.22	B	1	0.00	0.30					
Firm brown sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk, flint, brick, limestone coal and clinker. [MADE GROUND]				B	2	0.30	0.70					
...from 0.70m slightly gravelly				B	3	0.70	1.20					
					ES	13	0.80	1.00				
					D	4	1.20	1.65	0.00	Dry	N=9 (1,2/3,3,2,1)	
					L	9	1.20	2.00				
Soft to firm light brown sandy slightly gravelly CLAY. Gravel is angular to subangular fine chalk and flint. [ALLUVIUM]			1.30	105.07								
					ES	14	1.50	1.70				
					D	5	2.00	2.45	0.00	Dry	N=16 (3,2/3,4,5,4)	
					L	10	2.00	3.00				
Soft to firm light brown sandy gravelly CLAY. Gravel is angular to subangular fine to coarse chalk and flint. [ALLUVIUM]			2.20	104.17								
					D	6	3.00	3.45	0.00	Dry	N=7 (2,2/2,2,2,1)	
					L	11	3.00	4.00				
Structureless CHALK composed of creamy white gravelly SILT. Clasts are very weak, creamy white and angular to subangular. Frequent fine to coarse flint gravel. (Grade Dm) [WHITE CHALK SUBGROUP]		3.30	103.07									
				D	7	4.00	4.45	0.00	Dry	N=9 (3,3/2,3,2,2)		
				L	12	4.00	5.00					

'Borehole continued..'

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
97	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 23/02/2017 End: 23/02/2017
 Plant: Dando Terrier+Hand tools
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS10

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 106.37
 Coordinates: 509769.07
 221292.29

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D	8	5.00	5.45	0.00	Dry	N=13 (2,3/3,4,3,3)		
Borehole completed at 5.450m		5.45	100.92									

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
97	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 23/02/2017 End: 23/02/2017
 Plant: Dando Terrier+Hand tools
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.



GROUND TECHNOLOGY
Maple Road, Kings Lynn
Norfolk, PE34 3AF
(01553) 817657

Window Sample Record

WS11

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.57
Coordinates: 509735.28
221228.49

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations								
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP		PID (ppm)							
Light grey sandy clayey fine to coarse GRAVEL. Gravel is fine to coarse angular to subrounded flint, brick, coke, coal, glass, granite, concrete, limestone and sandstone. [MADE GROUND]		1.70	102.87	B	1	0.00	0.50	0.00	Dry	N=4 (2,3/1,1,1,1)									
				B	2	0.50	1.00												
				ES	13	0.60	0.80												
				B	3	1.00	1.20												
				B	5	1.20	2.00												
				D	4	1.20	1.65												
				L	5	1.20	2.00												
				ES	14	1.50	1.70												
				Firm brownish orange gravelly sandy CLAY. Gravel is fine to coarse angular to subangular flint. [ALLUVIUM]		3.20	101.37					D	6	2.00	2.45	0.00	Dry	2 (1,/,1,1,)	
												L	7	2.00	3.00				
D	15	2.80	3.00																
D	8	3.00	3.45																
L	9	3.00	4.00																
D	16	3.80	4.00																
Structureless CHALK composed of creamy mottled orange sandy GRAVEL. Gravel is fine to coarse angular to subrounded flint and chalk (Grade Dc). [WHITE CHALK SUBGROUP]		5.80	101.37	D	10	4.00	4.45	0.00	Dry	N=11 (1,3/2,3,3,3)									
				L	11	4.00	5.00												
				D	17	4.80	5.80												
				Borehole continued..!															

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
102	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 22/02/2017 End: 22/02/2017	Remarks:
Plant: Dando Terrier+Hand tools	1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.
Drilled By: Mark Lane	
Logged By: Z. Bella Status: FINAL	
Checked By: G.Day Rev: 2	



GROUND TECHNOLOGY
Maple Road, Kings Lynn
Norfolk, PE34 3AF
(01553) 817657

Window Sample Record

WS11

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.57
Coordinates: 509735.28
221228.49

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D	12	5.00	5.45	0.00	Dry	N=4 (1,1/1,1,1,1)		
Borehole completed at 5.450m		5.45	99.12									

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
102	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 22/02/2017 End: 22/02/2017
 Plant: Dando Terrier+Hand tools
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS12

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 108.08
 Coordinates: 509808.89
 221258.56

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Firm brownish grey sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse brick, flint, limestone, granite, ash, clinker and glass. [MADE GROUND]	[Cross-hatched pattern]	0.70	107.38	B	1	0.00	0.70					
Soft brown sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to medium flint and brick. [MADE GROUND]				ES	12	0.30	0.50					
Structureless CHALK composed of creamy white silty angular to subangular GRAVEL. Clasts are very weak, creamy white and angular to subangular. Rare flint gravel (Grade Dc). [WHITE CHALK SUBGROUP]	[Horizontal line pattern]	1.35	106.73	B	2	0.70	1.20	0.00	Dry	N=5 (2,2/1,2,1,1)		
Structureless CHALK composed of firm creamy white gravelly SILT. Clasts are very weak, creamy white and angular to subangular. Rare flint gravel (Grade Dm). [WHITE CHALK SUBGROUP]				D	3	1.20	1.65					
				L	8	1.20	2.00					
				D	4	2.00	2.45	0.00	Dry	N=12 (1,2/4,3,3,2)		
				L	9	2.00	3.00					
				D	5	3.00	3.45	0.00	Dry	N=10 (1,2/2,2,3,3)		
				L	10	3.00	4.00					
				D	6	4.00	4.45	0.00	Dry	N=9 (2,3/3,2,2,2)		
				L	11	4.00	5.00					

'Borehole continued..'

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
97	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 23/02/2017 End: 23/02/2017
 Plant: Dando Terrier+Hand tools
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS12

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 108.08
 Coordinates: 509808.89
 221258.56

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D	7	5.00	5.45	0.00	Dry	N=9 (2,3/2,2,2,3)		
Borehole completed at 5.450m		5.45	102.63									

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
97	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 23/02/2017 End: 23/02/2017
 Plant: Dando Terrier+Hand tools
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS13

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 105.07
 Coordinates: 509754.52
 221212.30

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
Grey silty sandy fine to coarse GRAVEL. Gravel is angular to subrounded fine to coarse brick, concrete, coal, granite, flint, limestone and sandstone. Rare glass fragments and timber. [MADE GROUND]		0.60	104.47	B	1	0.00	0.60	0.00	Dry	N=5 (1,1/1,1,1,2)		
Soft white gravelly calcareous SILT. Gravel is angular to subangular fine to coarse flint and chalk. [MADE GROUND]				ES	12	0.70	0.90					
Soft brown and clayey gravelly very organic SILT. Gravel is angular to subrounded fine to coarse brick, flint and coal. [MADE GROUND]		1.30	103.77	D	3	1.20	1.65	0.00	Dry	N=26 (4,4/5,5,6,10)		
Structureless CHALK composed of firm white and orangish brown gravelly SILT. Clasts are extremely weak, creamy white angular to subangular chalk with frequent flint (Grade Dm). [WHITE CHALK SUBGROUP]				L	4	1.20	2.00					
Structureless CHALK composed of firm white gravelly SILT. Clasts are extremely weak, white angular to subangular chalk with frequent flint (Grade Dm). [WHITE CHALK SUBGROUP]		3.00	102.07	D	7	3.00	3.45	0.00	Dry	N=4 (1,1/1,1,1,1)		
				L	8	3.00	4.00					
				ES	13	3.50	3.70					
				D	9	4.00	4.45					
	L	10	4.00	5.00								

'Borehole continued..'

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
97	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 23/02/2017 End: 23/02/2017
 Plant: Dando Terrier+Hand tools
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.



GROUND TECHNOLOGY
Maple Road, Kings Lynn
Norfolk, PE34 3AF
(01553) 817657

Window Sample Record

WS13

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 105.07
Coordinates: 509754.52
221212.30

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
				D	11	5.00	5.45	0.00	Dry	N=6 (2,1/2,2,1,1)		
Borehole completed at 5.450m		5.45	99.62									

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
97	3.00	100%					
87	4.00	100%					
77	5.00	100%					

Dates: Start: 23/02/2017 End: 23/02/2017
 Plant: Dando Terrier+Hand tools
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.



GROUND TECHNOLOGY
Maple Road, Kings Lynn
Norfolk, PE34 3AF
(01553) 817657

Window Sample Record

WS14

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.19
Coordinates: 509665.53
221195.08

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	
Grey slightly silty fine to coarse SAND and GRAVEL, with medium cobble content. Cobbles are angular brick tarmac and concrete. Gravel is angular fine to coarse brick concrete and tarmac. Rare wood fragments. [MADE GROUND]		0.60	103.59	B	1	0.10	0.60	0.00	Dry	N=32 (7,6/7,8,10,7)	
Medium dense greyish brown slightly silty fine to coarse SAND and GRAVEL, with medium cobble content. Cobbles are angular brick and concrete. Brick with frequent concrete. Rare wood and plastic. [MADE GROUND]				B	3	0.60	1.00				
				D	2	0.70	0.80				
				D	4	1.00	1.45				
Medium dense grey slightly silty fine and medium SAND and GRAVEL. Gravel is angular fine to coarse concrete with frequent brick. Rare fragments of roofing felt. [MADE GROUND]				L	5	1.20	2.00				
	B	8	2.00	2.70							
	D	6	2.00	2.45							
Possible concrete slab. [MADE GROUND]	L	7	2.00	2.70							
	B	9	2.70	2.87							
Borehole completed at 2.870m											

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
87	2.70	70%					

Dates: Start: 22/02/2017 End: 22/02/2017	Remarks:
Plant: Hand tools+Dando Terrier	1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.
Drilled By: Mark Lane	
Logged By: J. Tomalin Status: FINAL	
Checked By: G.Day Rev: 2	



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS15

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

Ground Level: 104.21
 Coordinates: 509645.50
 221193.87

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test			SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	
Soft brown sandy gravelly fine to coarse CLAY. Gravel is angular to subrounded fine to coarse flint and brick. [MADE GROUND]		0.40	103.81	B	1	0.00	0.40				
Firm brown mottled white sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse flint, chalk and brick fragments. [MADE GROUND]				B	2	0.40	0.90				
				ES	13	0.50	0.70				
				D	3	0.90	1.10				
				D	4	1.20	1.65	0.00	Dry	N=10 (2,2/2,2,3,3)	
				L	5	1.20	2.00				
Soft to firm orangish brown sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse flint and chalk. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		1.40	102.81								
Medium dense orange clayey sandy fine to medium GRAVEL. Gravel is angular to subrounded fine to medium flint. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		1.90	102.31								
				D	6	2.00	2.45	0.00	Dry	N=11 (2,3/3,3,2,3)	
				L	7	2.00	3.00				
Soft light orange silty gravelly CLAY. Gravel is angular to subangular fine to medium flint and chalk. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		2.20	102.01								
				D	8	3.00	3.45	0.00	Dry	N=7 (4,5/2,1,2,2)	
				L	9	3.00	4.00				
Medium dense orange clayey sandy fine to medium GRAVEL. Gravel is angular to subangular fine to medium flint and chalk. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		2.90	101.31								
Soft light orange silty gravelly CLAY. Gravel is angular to subrounded fine to coarse flint. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		3.30	100.91								
				D	10	4.00	4.45	0.00	Dry	N=11 (5,3/2,3,3,3)	
				L	11	4.00	5.00				
Medium dense light orange silty gravelly fine to coarse SAND. Gravel is angular to subrounded fine to medium flint. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		3.80	100.41								
Medium dense creamy yellow silty gravelly fine to coarse SAND. Gravel is angular to		4.50	99.71								

'Borehole continued..'

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
87	3.00	100%					
77	4.00	100%					
77	5.00	100%					

Dates: Start: 21/02/2017 End: 21/02/2017
 Plant: Dando Terrier+Hand tools
 Drilled By: Mark Lane
 Logged By: Z. Bella Status: FINAL
 Checked By: G.Day Rev: 2

Remarks:
 1. Inspection pit hand dug from ground level to 1.20mbgl 2. Exploratory hole advanced using continuous dynamic sampling techniques to a depth of 5.45mbgl 3. Exploratory hole installed with gas and groundwater monitoring standpipe as per client requirements. 4. No groundwater encountered.



GROUND TECHNOLOGY
 Maple Road, Kings Lynn
 Norfolk, PE34 3AF
 (01553) 817657

Window Sample Record

WS15

Project: Luton Power Court

Project ID: GTS-17-900

Client: Peter Brett Associates LLP

Engineer: Z. Bella

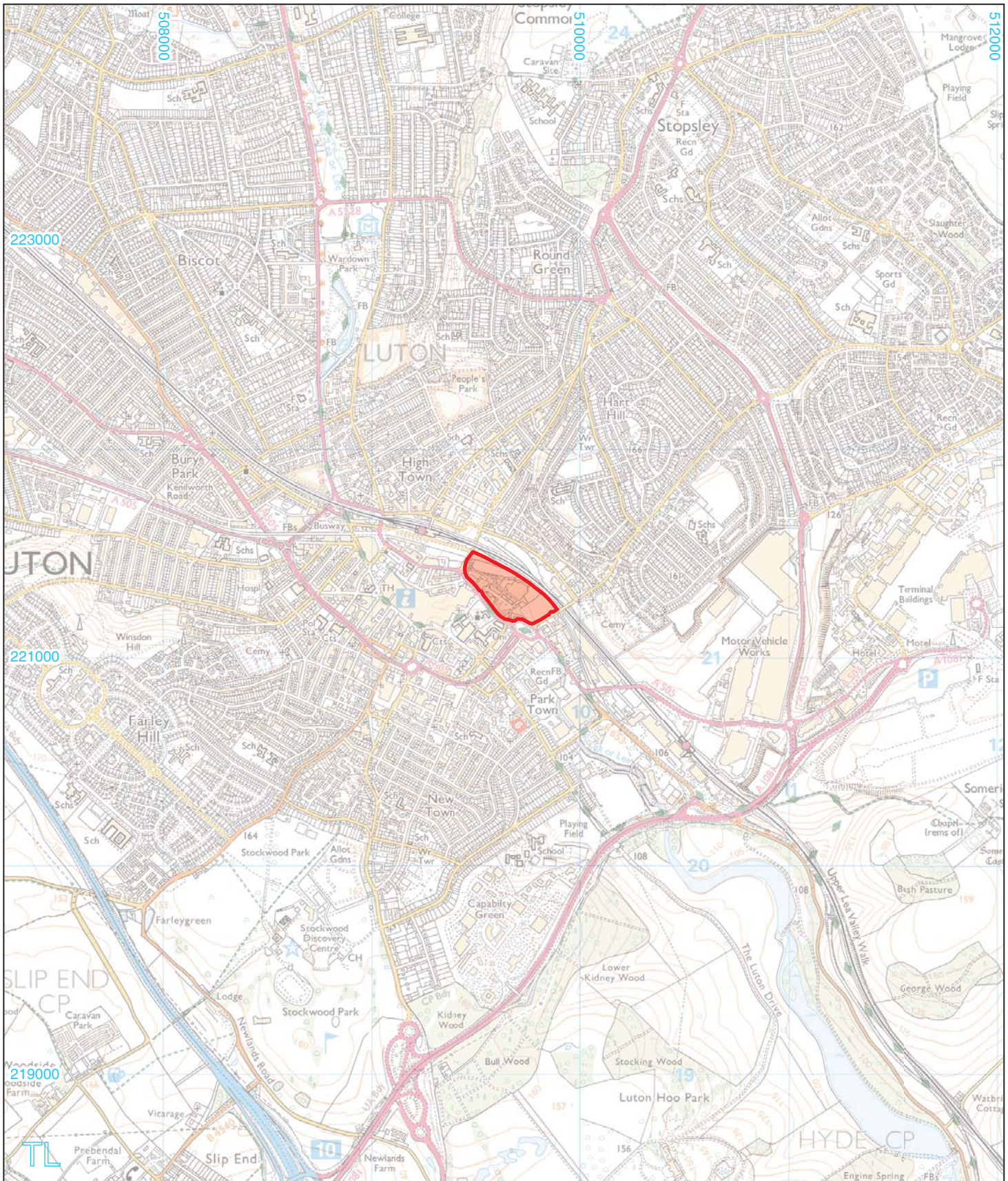
Ground Level: 104.21
 Coordinates: 509645.50
 221193.87

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test				SPT/CPT		Remarks and Test Results		Installations
				Type	Ref	Depth Top (m)	Depth Base (m)	Casing Depth	Water Depth	SPT/HV/PP	PID (ppm)	
subangular fine to medium flint. [GLACIO-FLUVIAL DEPOSITS - MID PLEISTOCENE]		5.45	98.76	D	12	5.00	5.45	0.00	Dry	N=16 (3,7/4,4,4,4)		
Borehole completed at 5.450m												

Drive Records			Water Level Observations				
Diameter	To (m)	Sample Recovery	Date	Depth Strike	Standing Time (mins)	Standing Level (m)	Casing Depth (m)
102	2.00	100%					
87	3.00	100%					
77	4.00	100%					
77	5.00	100%					

Dates: Start: 21/02/2017 End: 21/02/2017
 Plant: Dando Terrier+Hand tools
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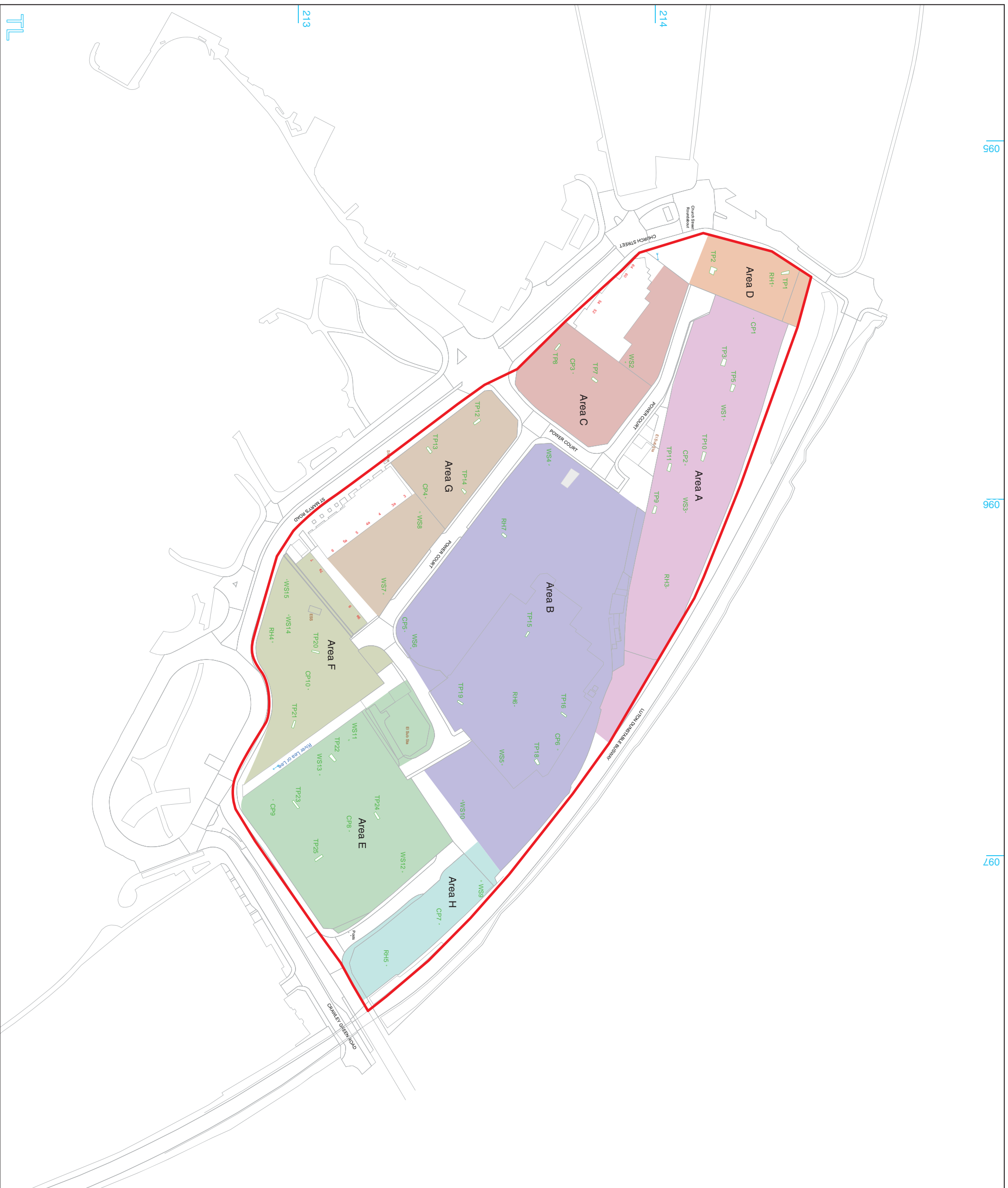
PROJECT TITLE
 Power Court, Luton, Bedfordshire

FIGURE TITLE
 Site location plan



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CHECKED BY	DJB	DATE	16/08/2017		
APPROVED BY	MC	SCALE@A4	1:25,000		



 Site boundary
 Evaluation trench



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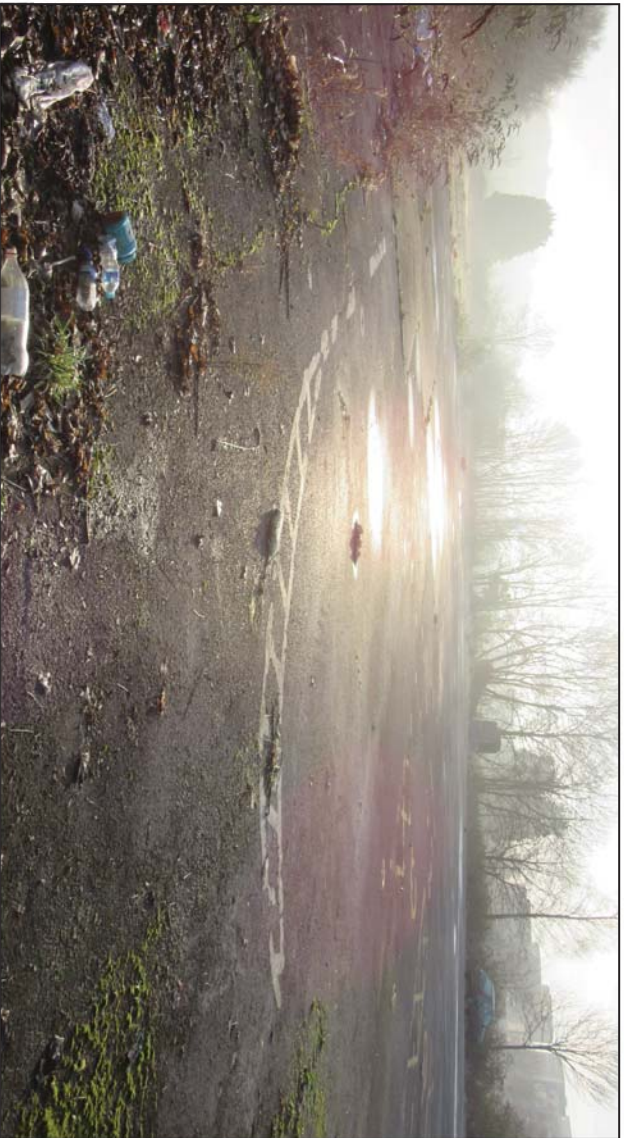

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PROJECT TITLE
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FIGURE TITLE
 Trial Pit and Borehole locations

DRAWN BY: DJB PROJECT NO: 660816 FIGURE NO: 2
 CHECKED BY: AO DATE: 16/08/2017
 APPROVED BY: MH SCALE: @A3 1:2000





Area A, looking south-east



Area B, looking east



Area C, looking south-west


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PROJECT TITLE
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FIGURE TITLE
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Area D, looking north



Area F, looking south-east



Area H, looking north-north-west


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Machining Trial Pit 12



Window sampling WS15, looking north-north-west



Coring RH3, looking south-east

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6

Upper part of TP5, looking north-east (0.5m scale)

7



TP13, looking south-east (0.5m scale)



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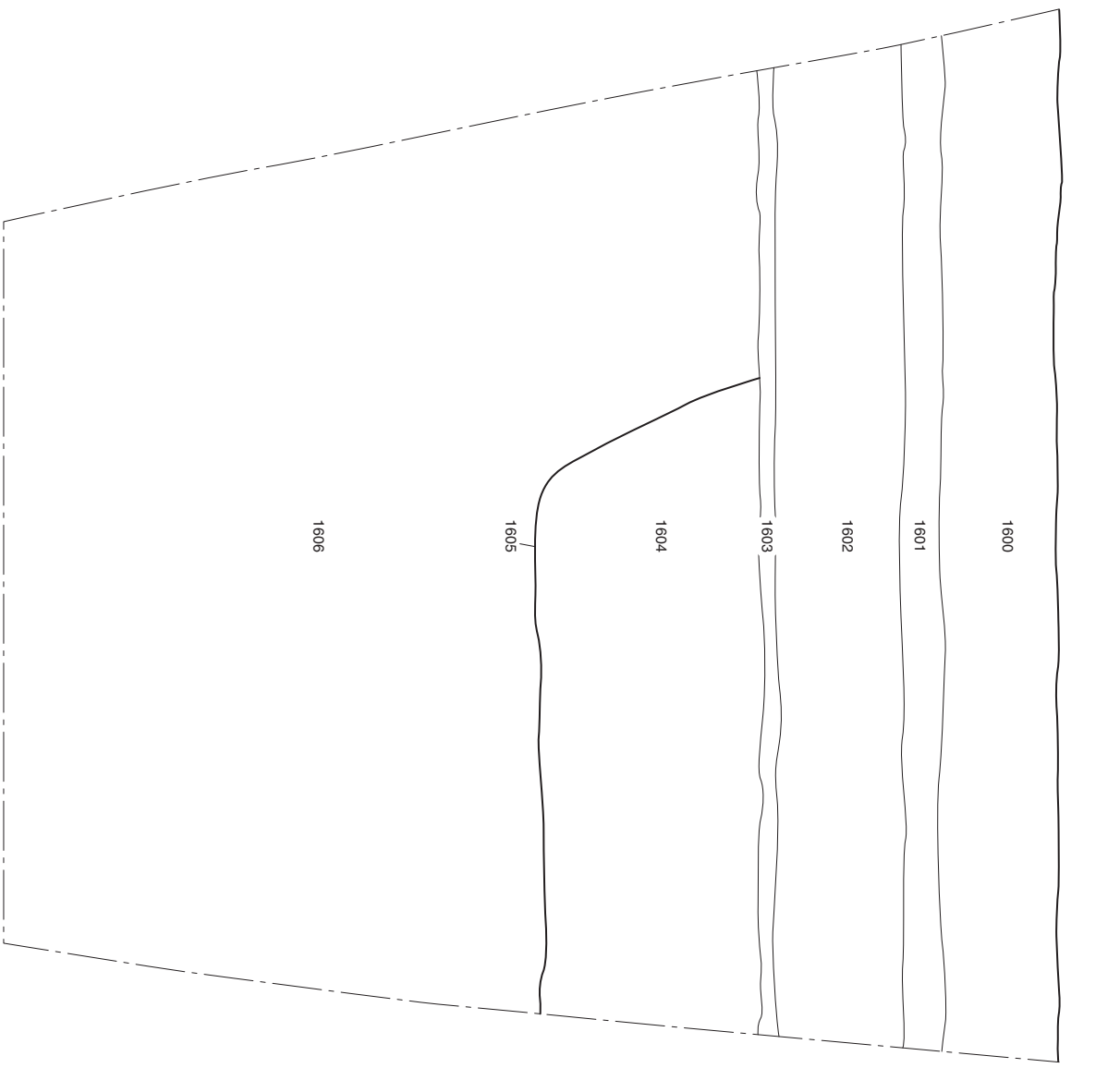
PROJECT TITLE
Power Court, Luton, Bedfordshire

FIGURE TITLE
Photographs

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CHECKED BY	DJB	DATE	16/08/2017	6 & 7
APPROVED BY	MC	SCALE	NA	

Section AA

SW
104.75m
AOD



NE



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PROJECT TITLE

Power Court, Luton, Bedfordshire

FIGURE TITLE

TP16, south-east facing section

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CHECKED BY	DJB	DATE	16/08/2017	8
APPROVED BY	MC	SCALE	@A4 1:20	




TP20, looking north-east (0.5m scale)

9



TP22, looking north-west (0.5m scale)

10

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<p>FIGURE TITLE Photographs</p>		<p>FIGURE NO. 9 & 10</p>
<p>DRAWN BY EE CHECKED BY DJB APPROVED BY MC</p>	<p>PROJECT NO. 660816 DATE 16/08/2017 SCALE NA</p>	

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