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Archaeological Perspectives Analysis Consultancy

ARCHAEOLOGICAL

WATCHING BRIEF

WB01/BR/07

Site at Canal Bank Brecon

Cranmoor (Brecon) Ltd

Brecon Beacons National Park Authority

Planning Application No: P20804

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Non technical Summary

This report results from work undertaken by Archaeological Perspectives & Analysis Consultancy (A.P.A.C. Ltd) on behalf of Cranmoor (Brecon) Ltd. The site of the former gas works at Canal Bank Brecon comprised land remediated for the purpose of a housing development. The remediation work was carried out in 2002 and warranted by Celtic Technologies and Edmund Nuttall Ltd. An archaeological desktop during remediation work was undertaken by Cgms. Due to concerns about the archaeological cover during this previous work; a watching brief was requested by Mark Walters of CPAT. The purpose of this watching brief was to record any archaeological traces left in situ.

1 Introduction

1.1 Location and scope of work

Planning permission, P20804, was requested from the Brecon Beacons National Parks Authority for the construction of 12 dwellings on the site of the former gasworks: Canal Rd, Brecon. The location of the site is at OS grid reference SO 048 281, *fig 1*.

Clause 24 was imposed on the planning document P20804, expressing the need for the presence of an archaeologist during the early stages of development.

A.P.A.C. Ltd was contacted in relation to clause 24 and a watching brief was tailored to the requirements of the planning document. Copies of the watching brief were sent to the Client, Cranmoor (Brecon) Ltd, Clwyd Powys Archaeological Trust, and Brecon Beacons National Parks Authority.

On the 22nd January 2007, Dr Neil Phillips of A.P.A.C. Ltd, commenced the archaeological watching brief; the fieldwork element of which, continued through till 6th March 2007. The period from 22nd January 2007 until the 6th March 2007 did not require the daily presence of an archaeologist as excavation was not a daily procedure. Arrangements were discussed with the client and site manager concerning archaeological presence.

The watching brief was directed to any sub surface work, within the boundary enclosure of the site, approximately 0.188 hectares. This area was highlighted as possibly retaining sub-surface traces of the former gasworks, used in the early production of coal gas. Although remediation work had been completed at the site, concern was expressed by Mark Walters, CPAT, as to the possibility survival of former structures. One such feature, (1) *Plate 1*, part of a gasholder and cast iron tank rim, was visible at the start of this project. A section of the buried south boundary wall is also shown on the plate.

During the initial consultation with the client, it was stated that remediation work had replaced the volume of fill contained on the site with sterile fill; however, although this statement is true of area A; area B was subjected to selected remediation: ‘removal of tar filled western gasholder…and underlying tarry alluvium to depths of 6.2 bgl’, (Celtic 2004. 6). ‘hotspots of contaminants around the eastern and central gasholder and an area of tarry made ground and clay that was delineated on the southern boundary’(Celtic 2004. 6). It was also stated in the report that only the top 1.5 m of structures relating to the central and eastern gas holders were removed, the remains punctured and left in situ (Celtic 2004. 6).

Fig 2, shows the layout of the site at the start of the work covered by this watching brief. During the initial levelling work; the hachured banks shown on the plan in relation to the N, E and S sides of the site, were found to have not been part of the remediation work. The banks proved to be the remains of an earlier land surface, possibly from a time when the gas works were in use. The existence of an elevated land surface 'upper terrace' was recorded in the remediation report (Celtic 2004. 4). Although, the remediation report stated that the earlier terrace was reduced by approx 1m (Celtic 2004. 6), it was obvious that remains were left around the north, east and southern boundaries. The watching brief was therefore, extended to excavation work relating to the removal of these banks, context [001].

1.2 Geology and Topography

Within the boundary of the site, evaluation work carried out prior to remediation recorded the geology as: made up ground of varying thickness over a sequence of fluvio-glacial gravels and clays. The solid geology of sandstones underlie the site at a depth of (>30M).

The site lies between the River Usk, 300m south and the Brecon and Monmouth Canal 10 north, (Celtic 2004).

1.3 Archaeological and historical background

Brecon Museum and Art Gallery and Brecon library were able to provide some insight into the history of the site and its importance to Brecon. CPAT were able to make available a copy of the previous watching brief report by Cgms, which contained some useful information concerning some of the structures that used to occupy the site. Further useful information was gleaned from the Factual Remediation Validation Report (Celtic Technologies Ltd).

Overall, very little direct information was available relating to the potential of surviving archaeological features at the site, prior to the commencement of this work.

The only recourse to interpret the site was through map regressions collated from the available cartographic data. A working composite site plan, *fig 3*, was produced from overlays of other period site plans:

1958 Wales Gas Board Site Plan *fig 4*
2004, Post remediation site plan, *fig 2*
2007 Engineering Plan, Elliot place Brecon *fig 5*.

Utilising the site plan, *fig 3* on site, it was not only possible to establish potential hotspots for survival of features but also provided the ability to interpret any features that were uncovered against their recoded positions and shapes. The final results are shown on *fig 6.*

In order for this process to be effective it was necessary to impose an arbitrary site grid on the overlays. As no grid was in place on the site, one was constructed from a spot height survey *Fig 5*; supplied by the site manager, which was scaled and aligned from an included OS data grid.

The grid is used throughout the report to locate photographic positions, illustration positions or structures being discussed.

All works were undertaken in accordance with both the IFA's *Standards and Guidance: for an archaeological watching brief* and current Health and Safety legislation.

1.4 History of gas production

The illumination of coal gas was first demonstrated in 1684, by John Clayton, who ignited distillations he had collected in bladders from coal processing, www.gasmuseum.co.uk/. A more scientific approach however, was to wait until 1727, when Stephen Hales was to record his experiment: when coal was heated in an enclosed vessel, 'inflammable air' was produced, www.gasmuseum.co.uk/. The result was possibly one of the most important inventions of the late 18th century; gas lighting. Initial gas production was experimented with in 1760, by George Dixton; with disastrous results, but by 1782, Culcross Abbey was illuminated by gas produced in ovens on site www.gasmuseum.co.uk/. It was in 1792 that the concept became tenable: William Murdock, the son of an Ayrshire millwright demonstrated the use of coal gas, produced in a retort, to light his house www.localhistory.scit.wlv.ac.uk/articles/Gas/Beginnings.htm . In 1801 Philippe Lebon demonstrated gas lighting publicly in Paris and in 1802 Boulton and Watt agreed to the installation of two gas lamps outside their Soho factory; the first installation of gas lighting in the country (Phillips & Smith 2004). The benefits of gas lighting soon became evident and in 1807, gas lamps were installed in Pall Mall, the first street to be lit by gas www.gasmuseum.co.uk/.

Various Acts of Parliament issued in the late 18th, early 19th century helped the new industry as towns were compelled to clean light and pave to produce healthier and safer environments. To meet this new need gas works were built, the first being the Gas Light and Coke Company, which was established in 1812 to light the City of Westminster (Phillips & Smith 2004). By 1819, 288 miles of pipes had been laid in London to supply 51,000 burners. Within ten years most of the country's larger towns and cities were lit by gas.

1.5 Brecon Gas Works

The gas works at Brecon were originally built in 1822; the first manufacturing plant of its type in mid Wales (Thomas 1993. 83). The date coincides with the invention of horizontal clay retort technology, which replaced earlier cast iron cylinder techniques www.localhistory.scit.wlv.ac.uk/articles/Gas/Beginnings.htm. It is possible therefore, that Brecon Gas works may have been built to house state of the art technology.

The location of the works must have been greatly influenced by the adjacent canal wharf and Hay tram road; from which supply of coal could be easily obtained. The gas works and loading areas around the canal at Brecon were linked by the 'Watton Plateway', which also carried horse drawn goods wagons http://history.powys.org.uk/school/brecon/terminus.shtml.

Remarkably, the first attempt to light the town was also 1822, consent having being given in June to Mr Benjamin Broadmeadow, civil engineer, to erect gas apparatus, which it seems he had completed by September (Poole, 1886, 75). Thomas, records gas being used for lighting in schools; though masters were required to be frugal, the theatre, lodging houses and streets but does not state at which period (Thomas 1993, 83). Certainly by 1855, lamps were in use at the Market Hall as can be attested by the council minutes recorded in the local paper, complaining about the gas bill of £22 10/- as some of the light was still provided by candles, (BJTCN November 24th 1855).

The extortionate rates of the Gas Company, were the focus of much concern to the council throughout 1855, as was the quality of the supply.

> Look to the Hereford gas supply for the inhabitants of Brecon "for assuredly there is no town where gas is charged so exorbitantly for a scanty supply and that of bad quality".
>
> (BJTCN October 13th 1855).

> I would like to draw the attention of the board to the state of public lighting, as shown in my street report, which the board can refer to. At the time the gas is most wanted, the streets are left in total darkness. The gas goes out at 2 o clock in the morning, the time most needed by the police.
>
> Chief Superintendent
> (BJTCN October 27th 1855).

A decision was voiced in November 1855 to purchase the Gas Company for the benefit of the town (BJTCN November 24th 1855).

Provisional formation of: The New Brecon Gas Company Ltd, was formed in December 1855, *fig 7*. In July 1856 an advert ran in the BJTCN, for one week:

> Persons desireous of contracting with the directors of the above company for excavating ground for laying of mains will be furnished with particulars upon application to the undersigned.
>
> Coke and Tar
> Now for sale at reasonable prices
> Apply to Richard Fryer, Secretary.
> Offices High St.

The takeover had promoted expansion for the good of the town; feelings ran high in the Brecon Board of Health and Town council meetings:

> Brecon is not to be always as it is now, we are not long from having a railway and likely to become a military depot
>
> (BJTCN July 8th 1856).

> Let the poor man have advantage of gas lights in his streets as well as the high
>
> (BJTCN July 19th 1856).

By August 16th agreement had been reached to extend the lighting in Brecon from 61 lamps to 100 and they were to be lit during the hours of darkness throughout the year.

(BJTCN August 16th 1856).

Many improvements were undertaken by 1870; the street lights expanded to 141 and the gas was metered. (Poole 1886, 76). The site continued in gas production until 1958 after which its use became limited to that of gas storage. It use as a gas storage facility ended in 1970, (Freeman 2004).

It can be seen therefore, that the Gas Works at Brecon were an important part of the history of the town, helping to shape its future. For this reason, record of its passing, however small, is an important undertaking.

2 Aims and Objectives

2.1 Watching Brief

To carry out an archaeological watching brief to the standards laid down in the Institute of Field Archaeologists Guideline for Watching Briefs.

This will entail a programme of observation and investigation in the specified area during ground works and to produce an archive report of the same.

3 Watching Brief Methodology

3.1 Desk-based assessment

Due to doubts having been expressed as to the effectiveness of the previous remediation work, it was felt necessary to include some background research into the watching brief design. This was accomplished by visits to Brecon Museum and Art Gallery, Brecon Library and the SMR at CPAT.

The purpose of the visits was to collate and assess relevant information held documentary, photographic or cartographic (including the results of previous archaeological investigations).

The Factual Remediation Validation Report, R523D/03/2141, 2004, (Celtic Technologies Ltd), for the work at the site was also consulted. This document was supplied by the contracts manager of Harper & Sons (Leominster) Ltd, the contractors for the site works.

3.2 Fieldwork

The watching brief consisted of an archaeological fieldworker being present during the excavation of approximately 0.188 hectares of land, south of the canal, on which stood the former Brecon Gasworks.

A private contractor, using wheeled and tracked mechanical diggers, fitted with a variety of buckets, carried out all excavation work.

Four phases of excavation requiring an archaeological presence were identified:

- Phase 1, excavation of three test pits to assess the drainage potential of the ground.
- Phase 2, removal of the overburden of soil around the boundary *fig 2*.
- Phase 3, removal of the suspected cast iron tank liner, east tank, (1) & (12) *fig 3*.
- Phase 4, excavation of pile and beam trenches *fig 7*.

Where possible and within safe working practices, all features uncovered were cleaned back to provide a reasonable surface for photographic recording. Such photographs included a scale and north direction arrow, where appropriate. Longer sections were recorded as stereo images for photogrammetric processing, if necessary.

All photographs taken have been given a unique number and listed in the archive of this report, appendix 2. The archive also includes a contact sheet.

Features (1)-(6), (12) and (13) were related to a 5m site grid using hand tapes. The site grid was created from previous survey information supplied by the developer. The potential complexity of features (7)-(10) required greater accuracy of recording, and so a total Station was used to plot their positions.

All features uncovered were given a brief description in the site log. Any observation of interesting or anomalous data was also recorded for later interpretation.

Illustrations included below have been compiled from annotated sketches made on site and digital photographs. Where illustrations have been included their use is to clarify points which are difficult to see. Illustrations can be found in appendix 3.

4 Watching Brief Results

4.1 Soils and ground conditions

Site and weather conditions varied throughout the fieldwork period but were generally good. Rain was never a serious problem during any of the critical periods; when features were under investigation. Snow did cause some problems but as the site closed during these periods, the archaeological watching brief was not compromised.

Ground conditions did however; present a major problem as far as stratigraphic context was concerned. The extensive coverage of remediation fill rendered the top 1.5m of the site, an indecipherable mix of made up ground. Beneath this level, where structures and undisturbed ground were visible, the unstable nature of the surrounding remediation fill rendered close examination and detailed recording unsafe.

Only two areas provided any stratigraphic evidence; the surviving fill of the upper terrace and the stratigraphy above features (9) – (11).

4.2 Descriptions

Phase 1, Test pits

Three test pits were excavated by mechanical digger fitted with a toothed bucket. The positions were roughly parallel to the south boundary of the site, at about 6-8 m from the wall. Approximate positions were TP1 J2, TP2 F4 and TP 3 C6, *fig 3*.

TP1,

Test pit TP1 measuring 2m x 2m was excavated to depth of 1m after which, due to the unstable nature of the ground, the excavator bucket was changed to 0.5m toothed and a further depth of 1.5m was reached, at the extent of the diggers arm, 02. The soil consisted of made up ground containing building rubble, plastic sheeting and red sandy clay and grey aggregate [context 002].

TP2,

Test pit TP2 measuring 2m x 2m was excavated to depth of 1.2m and again the ground stability required a change of excavator bucket; 0.5m toothed allowing and a further depth of 2.5m to be reached, 03. The soil consisted of made up ground containing building rubble and red sandy clay [002] to a depth of around 1.6m.

TP3,

Test pit TP3, again, measuring 2m x 2m was excavated to depth of 1m before ground stability forced a change of tactics. The 0.5m added an extra depth of .85m before the trench started to seep water, 03. The soil consisted of made up ground containing building rubble, red sandy clay and grey clay, [context 002].

Phase 2, Removal of overburden

Removal of the overburden soil was conducted piecemeal over a period of about two weeks. Unfortunately, the work consisted of constantly shifting and piling of stocks of soil to cater for other

works and transportation requirements. It was not possible therefore, to make any useful record of this aspect of the work.

The consistency of the overburden soil was constant; soft, dark red and sandy with very little stone [001]. This directly overlay, in undisturbed areas, a red clay surface [004].

Six features (1)-(6) were uncovered within and under the overburden and additional structural detail of the boundary wall was exposed. Feature (1) unfortunately, was uncovered and removed during this phase but not recorded fully due to an error in communication.

Boundary wall

At the start of the watching brief, a masonry wall formed the boundary to the north east and south of the site, *fig 4*. The western 23m, of the northern section of wall stood to a height of 3m; the bottom 2.5 of which were masonry and mortar construction with the top 0.5 m being 8 courses of brick *plate 05*. At approx 23m from the western end, the brick course ended and the masonry wall reduced to about 1.9m. Approximately, 30 m from its western edge, the remains of an access gate to the upper terrace level remained *plate 6*.

An anomaly; both colour and construction width, can be seen running unevenly along the inside of the wall, about 1 m below the top of the masonry edge *plate 05*. This entire section of wall, separating the site from the canal, was removed to surface level. A section of the wall foundation was exposed during Phase 3 (*below*) and was observed to extend at least a further 2m' to a double course of dressed stone *Plate 07*. Unfortunately, it was not possible to examine the exposed foundation in any detail.

The east section of wall; of similar above surface masonry construction, was exposed to a height of 1.5m above ground level. Approximately, 1m below the surviving top of the wall and 0.8m above the ground level, the wall has a 0.22m width reduction along its entire length, *plate 08.*

The southern section of wall is again of similar construction, height and condition to the east wall including the width reduction. *Plate 09* shows part of the south wall, at the point where feature (2) *(see below)* was exposed. The ranging rod is standing on the width reduction.

Feature (2) grid ref: C4

This feature comprises a partial wall built of rough stone with mortar remaining to a height of 0.6m, for a distance of .75m, at a width of .65m. The base of the wall was excavated with a towel but no discernible foundation cut could be found *Plate 10*. The wall stood on a base of compacted red clay context [004]. To the east of the wall the fill was consistent with [003] but to the west the remains of a brown/black fill with ferrous streaks was evident [005]. Feature (2) was not attached to the south wall but butted against it.

Feature (3) grid ref: K0

This feature comprised a brick pillar built against the south boundary wall, *plate 11*. The pillar stood 1.5m above ground level and 18m from the south east boundary. Its length, parallel to the wall, reached 1.4m and its width 1.16. The top of the pillar was capped with a bevelled slab of stone 0.25m thick and drilled with four holes through which protruded 40mm iron bars.

Feature (1) grid ref: J2

This feature comprised a rectangular brick structure out of which protruded four 40mm iron bars *plate 12*. Its position was aligned with the outside iron rim of the eastern gas holder, shown in plate 1. Plate 1, also shows two of the iron bars which appear in plate 12.

This feature was unfortunately removed by mistake, and so any further information other than that contained in the plates was lost. However, it can be assumed that the feature was a pillar similar to features (2) and (13) (*see below*).

Feature (4) grid ref: I5-J6

Feature (4) was discovered just under the remediated surface, when the bucket of the mechanical digger dislodged the southern end. Overburden removal work was stopped in this area and the mechanical digger put to the task of defining the edge of the feature. Once this had been determined, further excavation was undertaken by hand, and eventually trowelled clean.

The wall, *plate 13*, survived to a length of 2.6m at 0.7m wide and ran roughly NNE by SSW. Its construction was brick on the western side, *plate 14* and dressed stone on the eastern side *plate 15*. It stood to a height of 0.35m above the present surface and a small test pit, *plates 13 & 15*, revealed its depth beneath the surface as a further 0.4m. The north eastern end of feature (4) also revealed some brick tumble at its base but this extended beyond the limit of excavation *plate 16*.

North, west and south of the wall the surrounding fill was test pitted and found to be similar to contexts [002] and [003]; remediated back fill. The east side of the wall however, had a context of dark brown/black soil with gritty inclusions, possibly coal and cinder [006]. The context also smelled of acrid burning. The extent of this context is unknown to the north and east as it spread beyond the limit of excavation. However; to the south and west it was contained within features (4) & (5).

Feature (5) grid ref: I5-J5

Feature 5, *plate 17,* was a short length of wall constructed of stone and brick and butted to feature (4) at right angles to its southern end. There was no evidence of mortar within the wall or between (4) & (5). The wall survived to a length of 1.2m at 0.28m wide.

South of the wall, the fill was again context [002] & [003], but north of the wall; as stated above, was context [006]. During the excavation of context [006] several pieces of clay pipe were uncovered laying on a brick surface, feature (6), *see below and finds*. Context [006] extended to a depth of 0.4m between features (4), (5) & (6), ending at the same depth as features (4), (5) & (6).

Feature (6) grid ref: J5

Feature (6) was uncovered during the excavation of [006] and comprised a plinth of bricks underlying feature (5) *plate 13*. The feature did not extend beyond feature (5) and as can be seen in plate 17 posed no rational alignment to it which could suggest a contemporary use *plate 18*.

The feature stood two bricks high about 0.2m, measuring 0.5m by 0.42m.

All three features were removed as part of the overburden phase.

Phase 3, Removal of cast iron liner, east tank

Feature (12) grid ref: L5, M4 ,N4, N3 & N2

This phase of the work was heavily restricted by health and safety concerns. The remains of the gas holder were around 1.5m below the present ground surface, and covered by very unstable aggregate fill. The instability of the ground can be seen in *plate 19, grid N4*.

The iron tank liner of the eastern tank appeared to be substantially intact below the 1.5m mark. It comprised vertical sections of iron plate surrounded by a retaining strap and vertical brick wall *plate 20*. The cast iron base was also substantially complete and still held liquid residues *plate 21*.

Feature (13) grid ref: M5,

As work on the removal of the gas holder progressed towards the north and west; feature (13), another of the support pillars similar to features (1) and (3) was uncovered and followed to a depth exceeding 2m *plate 22*. The pillar seems to have been built on top of a substantial foundation of river pebbles as hardcore but it was not possible to investigate this to any detail.

Also shown in plate 22 is view of a shackle coupling on the tank binding strap.

Phase 4, Excavation of pile and beam trenches

The condition of the ground across the northern area of the site; where houses were to be built *fig 5*, required the construction of beam and pile foundation. Two areas were marked out for this, an eastern area, already covered by Phase 3, and a western area. Of the western area; covered generally by grid columns A to H, no archaeological resources were evident. The beam trenches themselves provided sections to a depth of around 0.6m show which showed that remediation work had been completed in this area. Findings in Phase 3 confirmed that remediation had been completed to a depth of 1.5m. Also, *fig 3*, showed an absence of structures other than the central gas holder in the area.

The piling operation was conducted without the cover of a watching brief. The watching brief recommenced during the digging of the beam trenches where the following features (7)-(11) were uncovered.

Feature (7) grid ref: J5

Feature (7) is a 2.3m length of brick floor exposed in the south side of the beam trench *plate 23*. The east edge has been lost during earlier remediation work as no evidence was found during this excavation. The western edge shows a slump of grey aggregate which was deposited when feature (4) was removed earlier, context [008]. The brick tumble, mentioned above during the description of feature (4) is the west section of feature, to the right of the plate (7).

Feature (8) grid ref: J5-J6

Feature (8) comprises three sides of a brick floor; exposed in three sections of the beam trench. It measures 2.8m by 2.90, most of which remained uncovered and so preserved in situ, *plate 24*. This section of floor is the same as feature (7) having been cut by the excavation for the beam trench. The east edge has been lost during earlier remediation work as no evidence was found during this excavation. The

south western edge was indistinct, but again cut by [008]. The north western edge buts to feature (11) *see below*.

The eastern exposure of (8), shown in plate 25, shows as a line of yellow brick which differs from any other part of this feature. The unexposed section to the left shows a different context of darker clay with root and small stone inclusions [009]. This can be seen more clearly in plate 26 which has been annotated.

Feature (8) can also be seen to dip down towards the right of the plate, however, there is no evidence that it continued beyond the yellow edge shown in plate 25.

The northern edge of feature (8) differs from its eastern and southern exposure *plate 27*. Under contexts [008] and [004] lies the brick surface of feature (8). Towards the west end of the exposed surface and abutting feature (11) however, there is evidence of mortar between and over the brick [010]. Beneath both the mortar [008] and the brick floor (8) is a single layer of cobbles [011].

Feature (9) grid ref: J6

Feature (9) is a 2m length of brick floor opposite the north edge of feature (8). Having the same stratigraphy it can be assumed that it is the same as (8) and has been cut by the excavation *plate 28*.

Feature (10) grid ref: J5-K6,

Feature (10) another area of brick floor but does not seem to be related to features (8) or (9) being at a slightly lower level of elevation and having a different alignment pattern *plate 29*. The brick pattern seems to follow a slight curve but unfortunately extends beyond the excavation. Problems with the client at this stage did not allow for any further excavation which may have solved the mystery of a function for this feature.

Feature (11) grid ref: J6,

Feature (11) is a short section of masonry wall; 0.75m long and 0.7 wide. It is on the same alignment as feature (4), *see above*. East of the wall are the brick floor features of (8) & (9) whilst to the west there is no evidence of any archaeological resources.

4.3 Finds

The site was remarkably sterile as far as finds were concerned, which does tend to support the efficiency of a proportion of the remediation works carried out in 2002. With the exception metalwork relating to the cast iron tanks, the only diagnostic find was a broken Churchwarden Clay pipe found on feature (5). The pieces of the pipe were refitted *plate 31* and dated to 1830-50, *Smith pers com.*

Sections of the gas holder lining can be seen in plates 32 & 33. It is also possible to see that the metalwork is contaminated with visible tars and so presumably less visible contaminant. Close inspection therefore was deemed inadvisable. The plate itself was about 0.25m thick, the nuts used for connection about 0.4m dia.

5 Discussion and Interpretation

5.1 Reliability of field investigation

The reliability of the field investigation was greatly affected by the conditions of the ground, which led to many health and safety considerations that had to take precedent. The general ground instability meant that the deeper finds could only be observed and recorded from a distance and further more, any detailed examination of such items as gas tank linings were prevented due to their potential of contamination.

Other problems were encountered due the logistics of the development, which gave only limited access to areas of interest within constantly changing contexts. The constant removal and stockpiling of the overburden, whilst simultaneously laying an aggregate piling mat, is a prime example.

Another cause of concern would have to be the large percentage of remediation work, completed prior to this work, which arguably, had disastrous consequences for any contextual evidence.

However, considering the initial, largely negative archaeological expectations for the site; the amount of archaeological resource uncovered and recorded has been very successful and reliable.

5.2 Interpretation

Features (1), (3) and (12) are the remains of the support towers that used to surround the gas holders. In the case of the eastern holder there were ten as can be seen in fig 9. The quality of the image is poor but it is possible to see that only the tops of the pillars are visible, probably the dressed and bevelled stone slabs, in situ on feature (3) plate. This raised level of ground has already been noted above **2.1** (Celtic 2004. 4). The depth of the base of (12), beneath ground level, was approx 3m whilst the height of (3), above a relative ground level, was about 1.5. If all were equal then the pillars were 1.16m x 1.4m x 4.5m arranged at every 36 degrees around the rim of the tank; radius 10m approx.

Feature (13) the eastern gas holder survived virtually intact from approximately 1.5m beneath the ground surface. It s construction was made from 1 inch thick curved plates of steel, bolted together both vertically and horizontally *plate 33*.

The whole of the subsurface iron tank was encased in a curved brick wall *plate 20*. Further structural integrity for the tank was supplied with a substantial metal strap which surrounded the tank like a modern ‘jubilee clip’ but on a massive scale. The connecting shackle is shown in plate 22.

Feature (2) the small section of wall in grid square C4 appears to have been structural due to the survival of mortar between some of the joints. It is an addition to the site after the boundary wall was built as it abuts the former and is not tied in. The difference in ground fill, east and west of the wall would suggest that the west side was used to “contain” in some way. The location plan *fig 7* shows the position of (2) in the vicinity of the 1958 store 5; therefore, it is probable that (2) is part of the eastern wall of this building.

Features (4) and (11) represent two linear walls that align with one another across interviewing episodes of excavation and remediation. Both delineate areas of brick floor to the east and remediated ground to the west. Both have a similar width but only (4) has any associated brick fill. Unfortunately, there is no known historical plans and documentary evidence for either wall. The aerial photograph *fig 09* does show a white building in the vicinity but considering the terrace information, this building would be over 1m higher and so is probably associated with the site access gate, *plate 06*.

It is probable, based on the evidence available but with the exception of the aforementioned brick inclusions, that (4) and (11) are one in the same.

Features (7), (8) and (9) are exposed episodes of a single brick floor delineated to the west by features (4) and (11). The eastern extent is unknown but possibly ended at the excavation giving a width of approx 2.6m. The northern extent goes beyond the limit of excavation and little is known of the south end other than a glimpse in plate 16.

Differences in construction towards the north end can be seen, with the subsurface layer of cobble, but this may be as a result of ground conditions; being closer to the canal, and not evidence that the floor areas are not contemporary.

Feature (10) however, another brick floor is not so easy to interpret. The curved pattern of the floor does not seem related to the lay of the bricks in the combined feature (7)-(9) above. The western extremity of feature 10 ends with a slab of stone rather than brick and takes the level of (10) beneath the level of the cobles under (9), *plate 34*. It is possible therefore that (10) pre-dates (7)-(9). It is not possible to offer an interpretation for this feature with the limited evidence available. The feature is preserved in situ.

Feature 5 a short length of wall at right angles to, and abutting (4) is probably therefore a later addition. Its use is unknown.

Feature (6) would appear to be an isolated brick built stand or pillar. It obviously predates (5) which passes over it and does not relate to its alignment. The churchwarden pipe found on top of it gives it a *terminus ante quem* of 1840 ± 20. The alignment discrepancy and by association may also be applied to feature (4) but with less certainty.

5.3 Overall Interpretation

At the beginning of the work there was a suspicion that archaeological resources may have still been present at the site. This was proved to be correct and allowed for a record of their presence to be made before they were lost to development. Further more archaeological resources that were entirely unknown or recorded have now been added to our knowledge database with some of their structure preserved in situ for later generations.

Acknowledgements

Thanks to: S Harrison (site manager), M Brown (contracts manager), M Walters (CPAT), staff at (Brecon Museum and Art Gallery), and staff at (Brecon Library), who worked towards a common goal; if sometimes from different directions.

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Ordnance Survey. 2nd edition map 25 inch to a mile. *Brecon Sheet* 28. SW 1903-4

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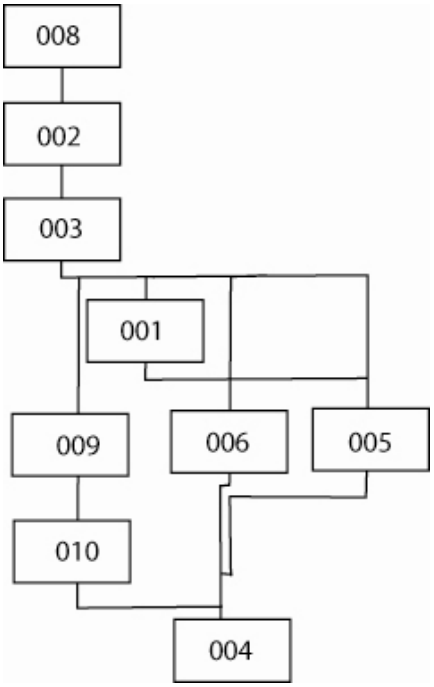
Appendix

Features list

(1)	G2	Pillar base
(2)	C4	Wall end
(3)	L0-L1	Pillar
(4)	I5-J6	Wall
(5)	I5-J5	Wall
(6)	J5	Brick pillar base
(7)	J5	Brick floor
(8)	J5-J6	Brick floor
(9)	J6	Brick floor
(10)	J6-K6	Brick floor
(11)	J6	Wall base
(12)	N2-L5	Gas holder rim
(13)	M5	Pillar base

Contexts

[001] overburden
[002] remediation (red sandy soil and rubble)
[003} remediation (red clay less rubble)
[004] underlying red clay
[005] brown black soil with ferrous content (2)
[006] dark brown grit/burnt (4), (5) & (6)
[008] modern remediation
[009] dark brown soil, roots and pebbles (8)
[010] mortar (8)



ARCHIVE COVER SHEET

Site Name:	Gasworks, Brecon
Site Code:	WB01/BR/07
PRN:	-
NPRN :	-
SAM:	-
Other Ref No:	A.P.A.C. Report No. 20
NGR:	SO 5890 7405
Site Type:	Industrial
Project Type:	Watching Brief
Project Officer:	Dr Neil Phillips
Project Dates:	2007
Location of Original Archive:	A.P.A.C. Ltd
Location of duplicate Archives:	Brecon Museum and Art Gallery
Number of Finds Boxes:	N/A
Location of Finds:	Brecon Museum and Art Gallery
Museum Reference:	N/A
Copyright:	A.P.A.C. Ltd
Restrictions to access:	None

2nd Edition OS
updated 1948.
Sheet 28. 6"

Fig 01: Location Map

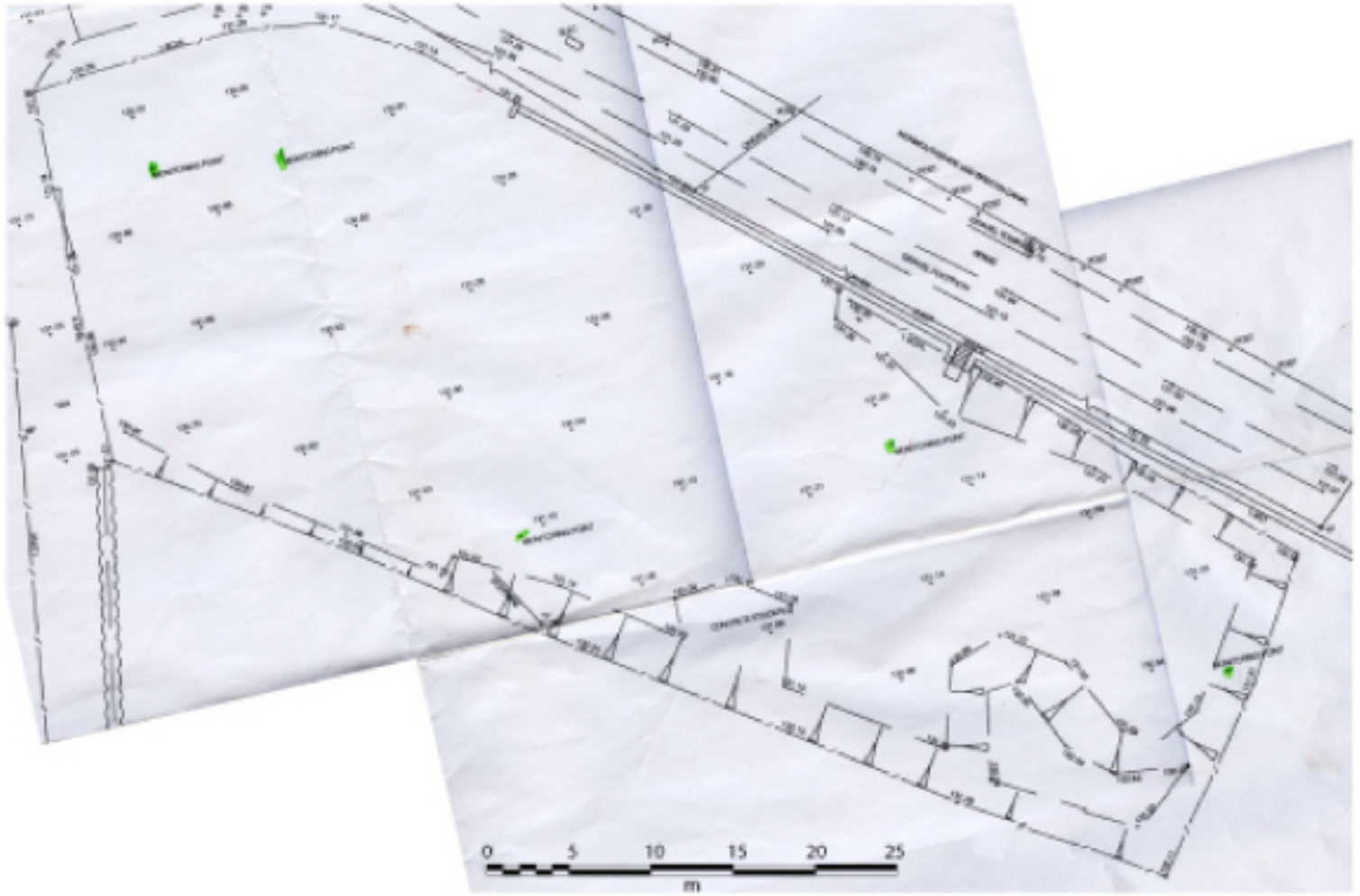


Fig: 02

N

SITE
Old Gasworks
Canal Bank,
Brecon,
Powys.

JOB No:
WB01/BR/07

TITLE
Initial site

Notes

Post remediation survey showing non remediated banks, 2004.

Supplied by Client

ADAPTED BY:
N Phillips

DATE
02/02/07

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Abergavenny,
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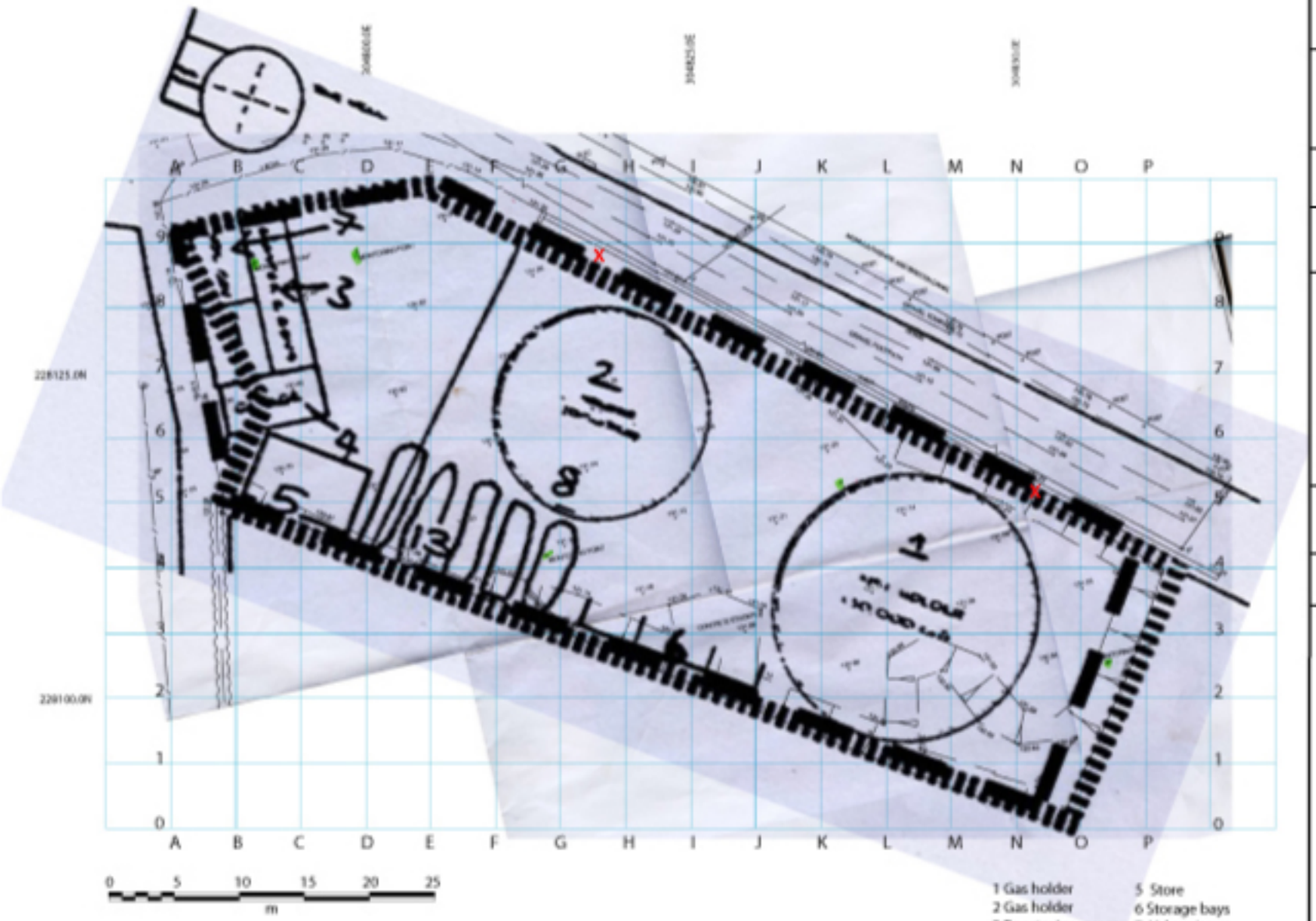

Fig 03

N

SITE
Old Gasworks
Canal Bank,
Brecon,
Powys.

JOB No:
WB01/BR/07

TITLE
Arbitary site grid

Notes
Site grid transposed over 2004, post remediation plan, fig 2 and 1958 Gas Board Plan, fig 4.
Grid scale based on Construction Design Services, plan, fig 5 and alligned to OS grid.

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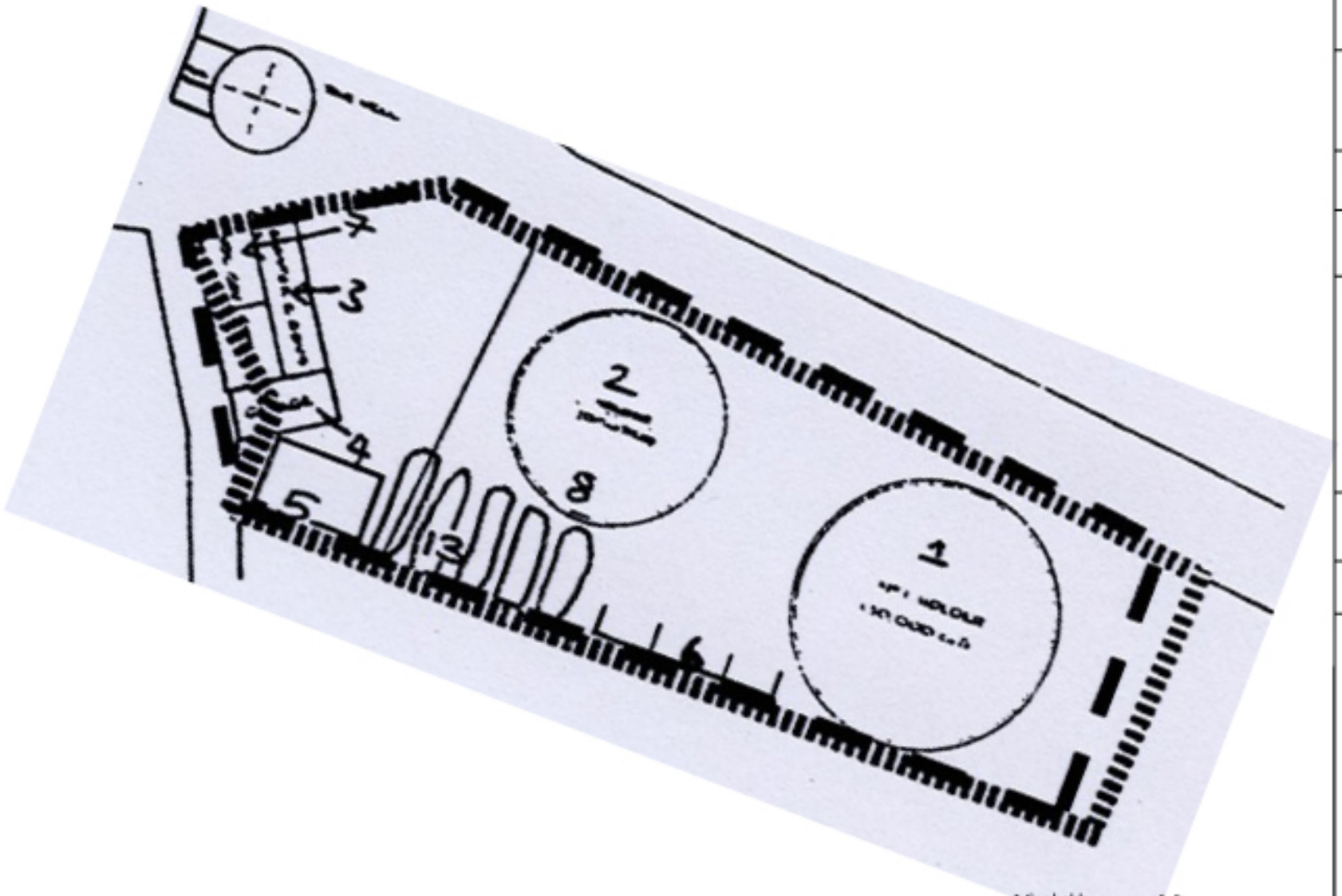

1 Gas holder
2 Gas holder
3 Booster/governor
4 Stores/garage
5 Store
6 Storage bays
7 Valve pits
8 Concrete area
13 Cylindrical tanks

Fig 04

N

SITE
Old Gasworks
Canal Bank,
Brecon,
Powys.

JOB No:
WB01/BR/07

TITLE
1958 Site plan

Notes
Not to scale

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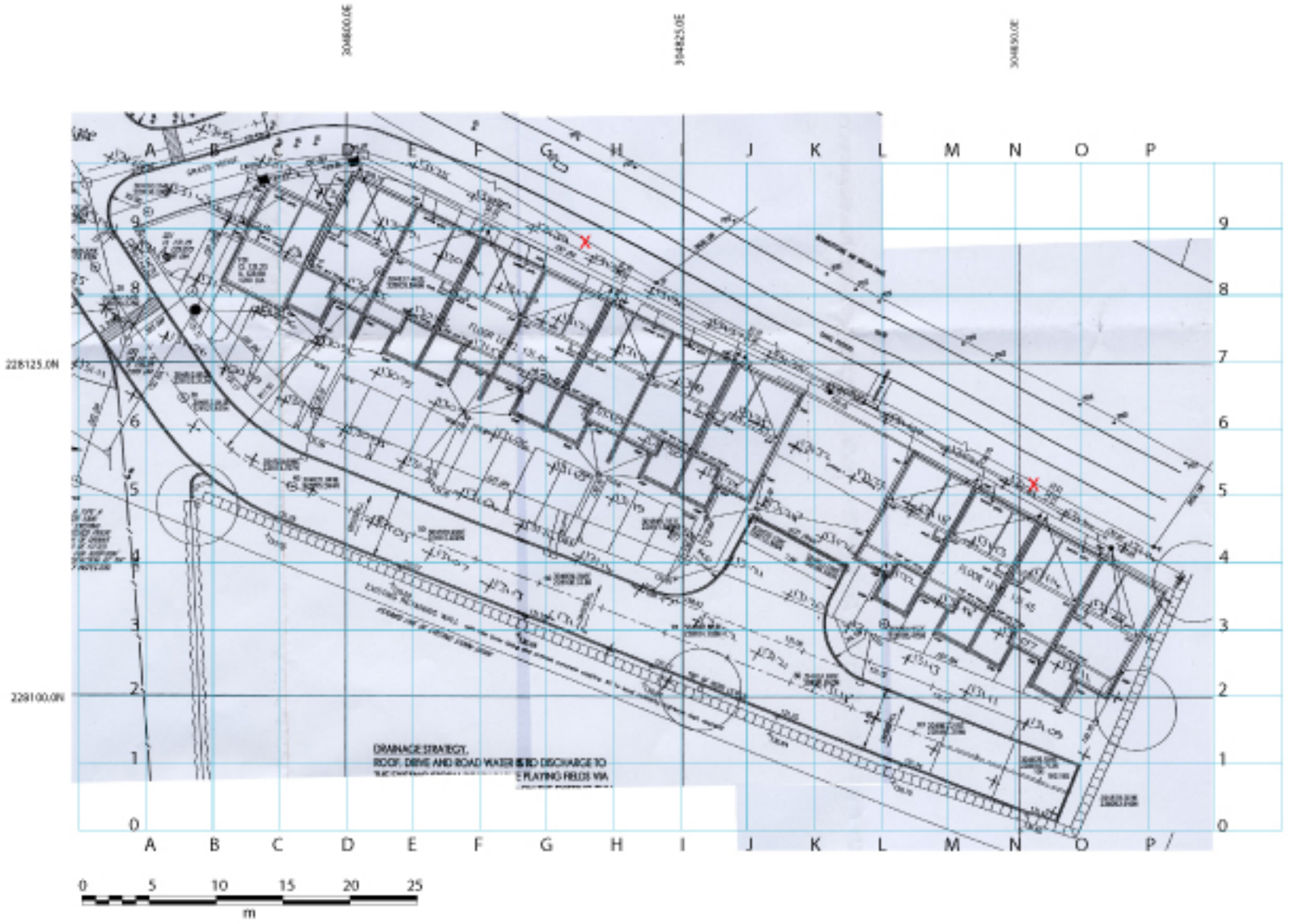

Fig 05

N

SITE
Old Gasworks
Canal Bank,
Brecon,
Powys.

JOB No:
WB01/BR/07

TITLE
Arbitary site grid
(base)

Notes
Grid scale based on Construction Design Services, plan, and alligned to OS grid.

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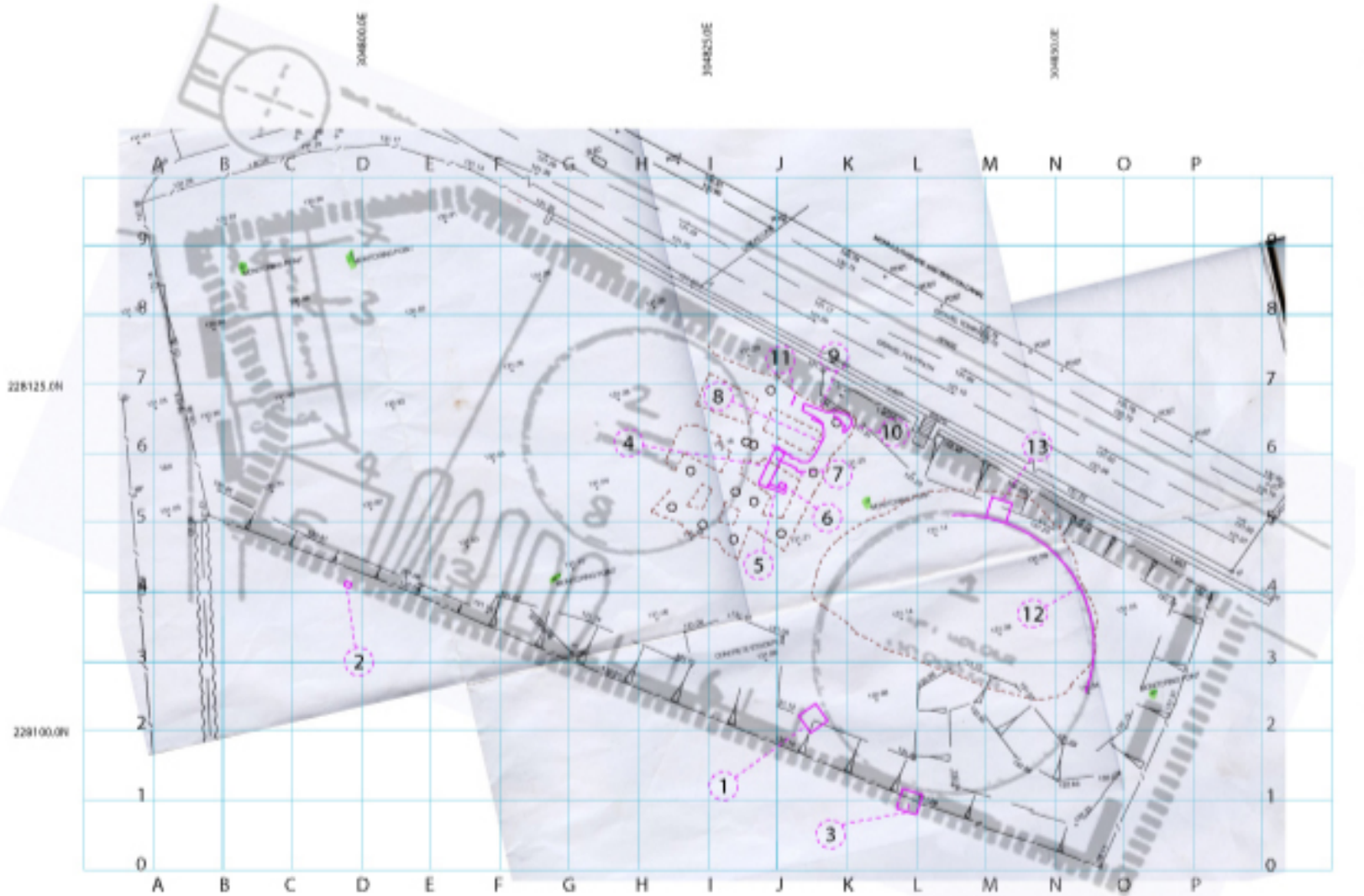

Fig 06

N

SITE
Old Gasworks
Canal Bank,
Brecon,
Powys.

JOB No:
WB01/BR/07

TITLE
Archaeological features, location plan

Notes

Site grid transposed over 1958 site plan, fig 4 & 2004 post remediation plan fig 2.

ADAPTED BY:
N Phillips

DATE
03/07/07

A.P.A.C. Ltd

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Abergavenny,
Monmouthshire.
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Tel: 07734962919

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BRECON NEW GAS COMPANY LIMITED.

[PROVISIONALLY REGISTERED.]

Capital £6,000, *in* 600 *Shares of* £10 *each.*

Provisional Directors:

Col. Pearce, K.H., Mayor of Brecon;	Mr. Cummins;
Mr. J. Powell, Watton Mount;	Mr. Kirk;
Dr. Lucas;	Mr. Dd. Thomas, Llanfaes;
Mr. J. Jeffreys DeWinton;	Mr. Edwards;
Mr. Pateshall, Fynonau;	Mr. Rd. Fryer;
Mr. H. De Winton;	Mr. Jones, druggist;
Mr. W. L. Banks;	Mr. Bright;
Mr. J. Williams, Old Banks;	Mr. Shum;
Mr. J. Bridgewater;	Mr. Hodges;
Mr. Mordecai Jones;	Mr. Davies, jeweller;
	Mr. Rd. Webb.

With power to add to their number.

Trustees:

Colonel Watkins, M.P., Lord Lieutenant;
John Jones, Esq., Chairman of Quarter Sessions.
Perry Williams, Esq., Pengent.

Bankers and Treasurers:

Messrs. Wilkins, & Co., Old Bank.

Secretary pro tempore and Solicitor:

Mr. J. R. Cobb.

THIS Company is formed under the recent Limited Liability Act, so that the responsibility of each Shareholder is limited to the extent of his shares. It is formed for the purpose of supplying the borough with gas of the best quality at the lowest remunerating price. With this view a contract has been entered into for the purchase of the existing works.

For full particulars of the proposed scheme, the attention of parties interested is called to the Minutes of a Public Meeting, held on the 4th instant, and which were ordered to be published; and to the detailed prospectus of the proposed scheme, which with forms of applications for shares, may be obtained on application to Messrs. MAYBERY & Co., Brecon.

Share Lists are open for signature at the MECHANICS' INSTITUTE, and at Mr. SHUM'S READING ROOM, up to the 20th instant; and Applications for Shares may be addressed, up to that day, to the SECRETARY *pro tempore*, CASTLE STREET.

No Applications can possibly be entertained after the 20th inst., as the number required is already applied for. Parties whose names appear on the public lists, but who have not signed such lists, are requested to fill up and sign the form on the prospectus, and send it to the Secretary.

The Provisional Directors meet on Friday next, the 21st, at the Town Hall, at noon, to allot the shares.

Brecon, Dec. 14, 1855.

BRECON COLLEGIATE SCHOOL,

ESTABLISHED UNDER CHRIST COLLEGE OF BRECKNOCK ACT,

(16 and 17 Vict., cap. 82).

Governors:

The Right Rev. the LORD BISHOP OF ST. DAVID'S;
The Right Rev. the LORD BISHOP OF LLANDAFF;
The LORD LIEUTENANT of the County of Brecon;
The Very Rev. the PRINCIPAL OF ST. DAVID'S COLLEGE, Lampeter;
The Venerable the ARCHDEACON OF BRECON;
The Venerable the ARCHDEACON OF LLANDAFF;
The Worshipful the MAYOR OF BRECON;
Sir THOMAS PHILLIPS, Llanelen, Monmouthshire;
CHARLES ALEX. WOOD, Esquire, Littleton, Middlesex;
JOHN POWELL, Esquire, Brecknock;
JOHN PARRY DE WINTON, Esquire, Macsyderwen, Brecknock;
JOHN JONES, Esquire, Glanhonddu, Brecknock.

Head Master and Lecturer in Divinity:

BRECON NEW GAS COMPANY. LIMITED.

[PROVISIONALLY REGISTERED.]

IN pursuance of a REQUISITION to the Mayor, Lieut. Colonel WILLIAM PEARCE, a PUBLIC MEETING of the Inhabitants of the Borough was convened in the TOWN HALL, on TUESDAY, the 4th December, 1855, for the purpose of receiving the statement of the promoters of the above Company, and of determining upon the steps to be taken in reference thereto; and agreeably to such notice the Mayor opened the meeting punctually at 12, and having called upon the Town Clerk to read the Notice, explained the objects thereof, when Mr. Cobb, as the Registered Promoter of the New Company, explained the steps that had already been taken in Contracting for the Present Works, and in obtaining a Certificate of Provisional Registration, and stated such Contract was open for acceptance by the public on certain terms.

It was moved by J. PARRY DE WINTON, Esq., seconded by Mr. MORDECAI JONES, and carried unanimously:—

"That it is the opinion of this meeting that it is desirable to form a Joint Stock Gas Company in this Borough."

Moved by Mr. RD. FRYER, and seconded by Mr. Councillor JOHN MORRIS:—

"That such Company avail itself of the recent Limited Liability Act."

Moved by EVAN PATESHALL, Esq., seconded by Mr. J. BRIDGWATER, and carried unanimously:—

"That this meeting, on behalf of such Company, do adopt the Contract entered into by Mr. Cobb with the present Gas Company, and do adopt his Provisional Registration. Such Contract and Registration being placed at the service of the public, provided the Share List be filled before the 20th inst., when the Valuation of the present concern may be completed."

Moved by Mr. MORDECAI JONES, seconded by Mr. JNO. DAVIES, Jeweller, and carried unanimously:—

"That the capital of the New Company be £6,000, in shares of £10 each."

Moved by Mr. BRIGHT, seconded by Mr. R. FRYER, and carried unanimously:—

"That the number of shares to be held by each shareholder do not exceed twenty."

Moved by J. PARRY DE WINTON, Esq., seconded by Mr. SHUM, and carried unanimously:—

"That each Director of the New Company shall be a holder of not less than five shares."

Moved by EVAN PATESHALL, Esq., seconded by Mr. JOHN BRIDGWATER, and carried unanimously:—

"That the Prospectus now conditionally submitted be issued to the public with the names of the Provisional Directors, as soon as such names with consents be returned to the Registration Office. That a Share List be made as public as possible, and that the following gentlemen be Provisional Directors, with power to add to their number—Colonel Pearce, K.H., mayor; John Powell, Esq.; Prestwood Lucas, Esq., M.D.; J. Jeffreys De Winton, Esq.; Evan Pateshall, Esq.; Henry de Winton, Esq.; W. L. Banks, Esq.; Mr. John Bridgwater, Mr. Mordecai Jones, Mr. Dd. Thomas, Llanfaes, Mr. Matthews, Mr. John Williams, Old Bank, Mr. Tho. Cummins, Mr. J. Jones, druggist, Mr. Jno. Kirk, Mr. Rd. Fryer, Mr. Jno. Davies, Mr. P. Bright, Mr. Henry Shum, Mr. P. Hodges, and Mr. Edwards. That Colonel Watkins, M.P., Lord Lieutenant, and John Jones, Esq., Chairman of Quarter Sessions, be requested to act as Trustees; and Mr. Cobb be Secretary pro tem. and Solicitor."

The thanks of the meeting were then voted to Mr. Cobb, and also to Colonel Pearce for his conduct in the chair; and the proceedings of the meeting were ordered to be printed."

By order of the Meeting,
R. THOS. WATKINS,
TOWN CLERK.

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Fig 07 Brecon Journal 15/12/1855

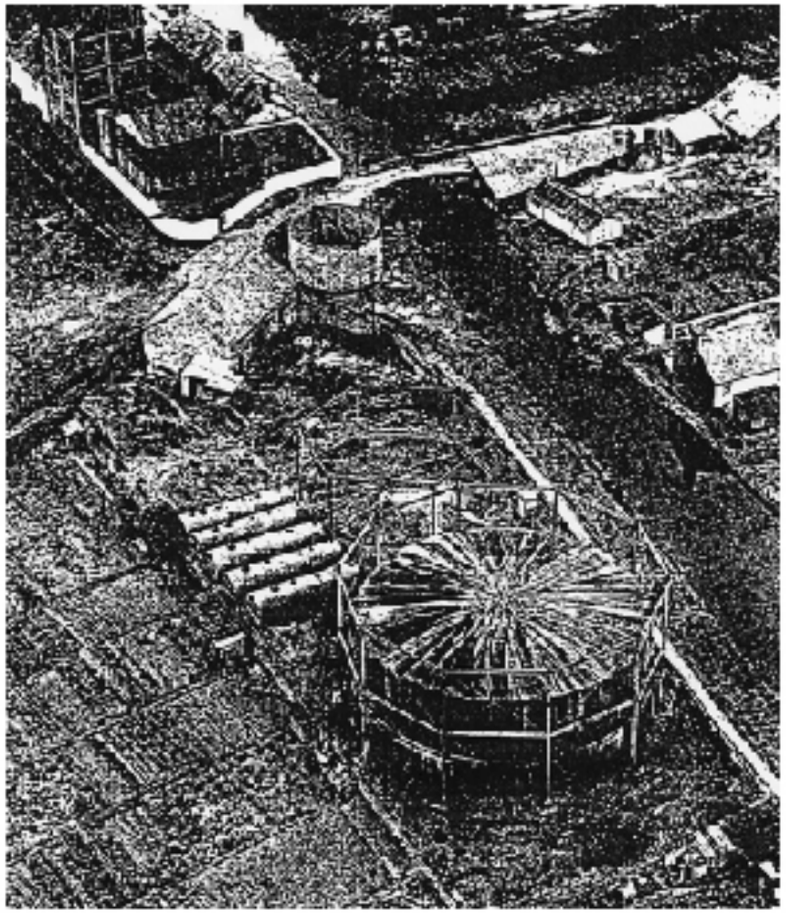

Fig 08

N

SITE
Old Gasworks
Canal Bank,
Brecon,
Powys.

JOB No:
WB01/BR/07

TITLE
Aerial photograph
1940s-1950s

Notes

This image was scanned from a photocopy. The original was part of Celtic Technologies work Figure 4, Job: CS328. June 2000.

Supplied by CPAT

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N Phillips

DATE
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A.P.A.C. Ltd

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Tel: 07734962919

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Plate 01: Cast iron gas holder rim.

Plate 02: TP1

Plate 03: TP2

Plate 04: TP3

Plate 05: North boundary wall

Plate 06: Gated access to upper terrace

Plate 07: North wall foundation)

Plate 08: East wall, width reduction

Plate 09: South wall & feature (2)

Plate 10: Feature (2)

Plate 11: Feature (3)

Plate 12: Feature (1)

Plate 13: Wall, feature (4)

Plate 14: Wall, feature (4)

Plate 15: Wall, feature (4)

Plate 16: Features (4) with underlying tumble)

Plate 17: Wall, features (4), (5) & (6)

Plate 18: Wall, features (4), (5) & (6)

Plate 19: East tank position

Plate 20: Wall and liner, feature (12)

Plate 21: Iron base feature (12

Plate 22: Pillar, feature (13)

Plate 23: Brick floor, feature (7)

Plate 24: Brick floor, feature (7) & (8)

Plate 25: East edge, feature (8)

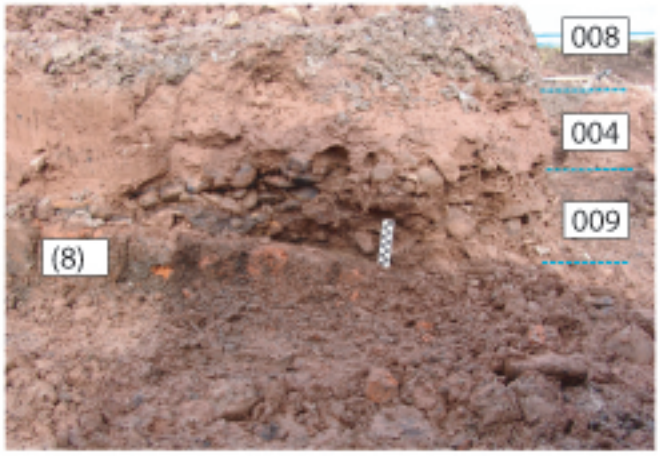

Plate 26: Stratigraphy, feature (8) south east

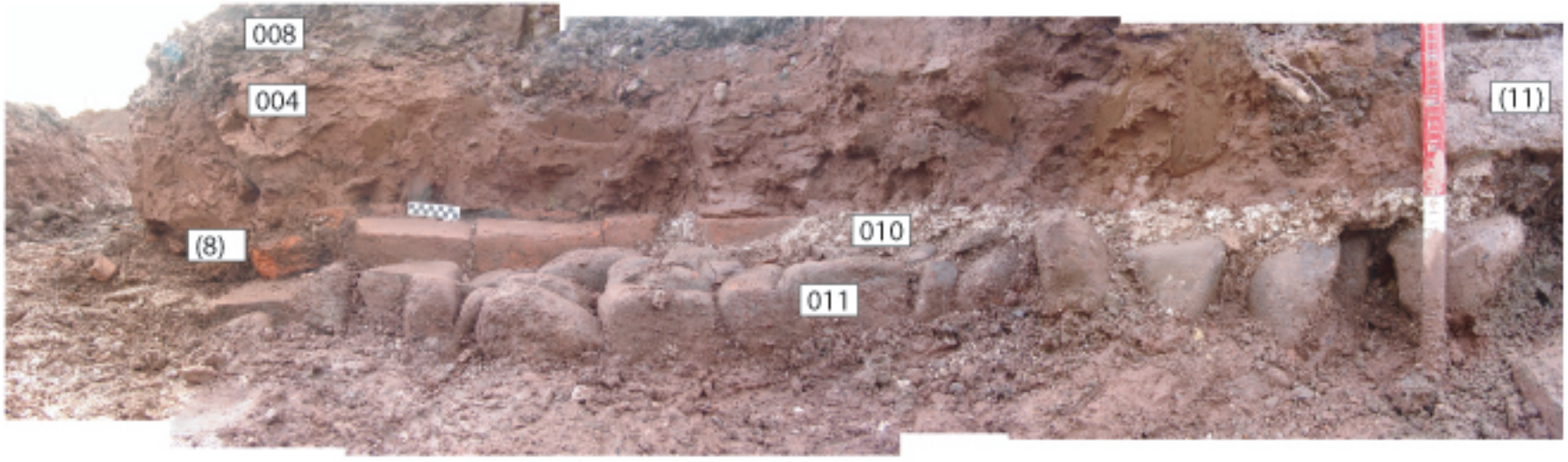

Plate 27: Feature (8) north section

Plate 28: Feature (9)

Plate 29: Feature (10)

Plate 30: Brick floor, feature (11)

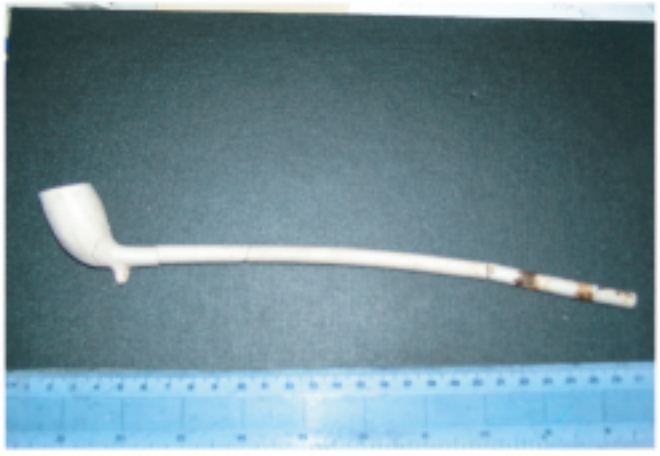

Plate 31: Churchwarden pipe

Plate 32: Iron liner sections

Plate 33: Iron liner sections

Plate 34: Features (10), (8), (9) & (11)