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Historic Building Recording

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Geophysical Survey

Pathbrae Maltings Building, Kirkliston Historic Building Survey & Demolition Watching Brief

Report No. 2007

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**Pathbrae Maltings Building, Kirkliston
Historic Building Survey
&
Demolition Watching Brief
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1. INTRODUCTION

1.1 General

This report presents the results of a Level 3 standing building survey carried out by CFA Archaeology Ltd in January 2012 at the former double kiln malting building that formed part of the now demolished Pathbrae Distillery, Kirkliston (Figs. 1 & 2). As part of the programme of work a demolition phase watching brief was carried out to record any architectural features of significance that came to light during its dismantling. A Written Scheme of Investigation (WSI) was produced following discussions with John Lawson, City of Edinburgh Council Archaeology Service (CECAS). The work was commissioned by Turley Associates on behalf of their client.

1.2 Historical Background

The distillery complex originated as the Glen Forth Distillery in 1795, and was converted into a grain distillery in c1830 and taken over by Stewart & Amp Co in 1855 which then became a founder member of Distillers Company Limited in 1877. The distillery continued to operate pot stills but by the 1880s a Coffey still was in production. A maltings block was added in 1857, and was extended in 1914. However, distilling ceased on the site in 1920 following a fire, and production was instead diverted to producing yeast and malt extract for the brewing industry. The complex was last owned by 'Scotmalt Limited' producers of malt and malt extract, primarily for use in the manufacture of foods, health-foods, food supplements and home brewing kits until 2008 when the complex closed.

1.3 Previous work

AOC Archaeology Ltd carried out a desk-based assessment and archaeological evaluations following the demolition of the distillery in 2005. The results confirmed a wealth of archaeological remains dating from mainly the post-medieval period (Hindmarch 2008). The structural remains of a water-wheel plinth and various other brick-built structures were also recorded. The archaeologists concluded that the earliest archaeological remains may date from the 17th century and may be associated with Lamb's Mill which is seen on maps dating from this time (ie Blaeu's map of 1654).

1.4 Objectives

The objectives of this programme of work were to:

- Undertake historical research commensurate with a Level 3 survey to trace the historical and chronological development of the distillery building and to place it in its local industrial setting.
- Undertake a Level 3 standing building survey to include a drawn record of all four external elevations.

- Undertake a demolition watching brief to record interior features within the building as they became exposed (roof trusses/partitions/supporting pillar work etc).
- Produce an illustrated survey report presenting the results of the survey.
- Establish any further mitigation work based on the results of the survey if considered appropriate.

2. METHODOLOGY

2.1 General

CFA follows the Institute for Archaeologists' Code of Conduct and Standards and Guidelines for Historic Building Survey as appropriate. Architectural detail recording followed the recommendations outlined by English Heritage (2009, Section 5).

2.2 Desk-based Survey

The National Monuments Record of Scotland (NMRS) was consulted to establish what information they held in relation to the functional aspects of the malting building. AOC Archaeology Ltd were consulted for information including any digital photographs of buildings undergoing demolition that were at the time still attached to the malting building.

2.3 Building recording

A Level 3 standing building survey, as defined by English Heritage (2006), was carried out.

A photographic survey was carried out using a Nikon D300. A digital photographic record is included in Appendix 1.

Standard CFA building recording sheets were completed for each elevation. Notes were taken on the key features on each elevation along with, where relevant, the brick type and bond and surviving fixtures and fittings.

An accurate survey of the elevations was carried out using an industry-standard, reflectorless Total Station (REDM). The infra-red beam from this instrument enabled points to be recorded in 3D to an accuracy of 1mm. For the external elevations, control points on eaves, windows, doors and architectural phasing were surveyed. The data was downloaded using PenMap software and imported to AutoCAD software.

2.4 Recording Constraints

On the grounds of health and safety owing to the unsafe condition of the building the recording work was confined to the exterior of the building only. Photographic access to the first and second floor and roof level was possible using an aerial platform both prior to and during the building's demolition.

3. DESK-BASED ASSESSMENT RESULTS

3.1 General

The desk-based results provide a summary of the readily available historical and cartographic sources that have been examined to provide a succinct account of how the building fits within the distillery complex.

3.2 Historic Scotland's Statutory List

Historic Scotland's Statutory List was prepared before earlier demolition of distillery structures and records the double kiln (HB No. 45644) as a Category C(S) structure grouped with other distillery buildings listed in 1998. The double kiln is described as probably late 19th century and sited at the centre of the main grain processing range. The building is orientated north-south. The four-storey structure has a tall piended roof and paired pagoda ventilators. The building adjoins a deposit store and ancillary ranges to east.

3.3 National Monuments Record of Scotland (NMRS)

The NMRS holds four records relating to the former distillery:

NT17SW182.00 NT 12313 74254 General Overview

NT17SW 182.01 NT 12184 74213 Granary

NT17SW 182.02 NT 12292 74239 Still House

NT17SW 182.03 NT 12207 74222 Malt barns, double Kiln, deposit store and ancillary ranges

The NMRS holds a collection of photographs when the distillery was still working. Figure 2 is an aerial photograph (date 2003) showing the double kiln building in relation to the rest of the former distillery buildings. The collection also holds photographs taken within the distillery complex. Figure 3 shows part of the north-facing elevation and the adjoining floor malting block on its west side. Figure 4 shows a photograph of the malting block building taken from the north-west showing the south and part of the west-facing elevation of the double kiln building. Figure 5 is a photograph of a single storey lofted building and a larger three-and-a-half storey structure to its rear on the east side of the double kiln building.

3.4 Early map coverage

The early Ordnance Survey maps and subsequent map editions show the development of the distillery. Although of interest they only show the buildings in block-layout plan. A full list of the maps examined is listed in Section 7. The map in Fig 2 shows Kirkliston Distillery in 1968. The positions of the upstanding buildings that remained on the site at the time of the survey (2012) are highlighted in red.

3.5 Bibliographic Sources

Within the lifetime of the distillery the company changed hands many times. A comprehensive list of the owners and major events are listed in Table 1.

Date	Ownership/Event
1795-99	George Simpson & Co
1817-19	William Gibb
1821	A.H. Rennie
1825	Andrew Stein
1825-27	Stein & Allan when dissolved
1827-31	Andrew Stein & Co. when bankrupt
1828-29	Stein still installed
1832	Acquired by Patent Distillery Co.
1833	Patent Distillery Co. licensees
1834	Andrew Philp
1837-43	Ralph Strachan & Co. when bankrupt
1851	Operating without patent still, pot stills only
1852	Buchanan & Co.
1855	Sold to John Stewart & Co.
1855	Sold to John Stewart & Co.
1874	Dissolved
1877	Converted to Stewart & Co. which became founding member of the Distillers Company Ltd. (DCL)
1880s	Pot still whisky still made
1920	Distillery closed. Subsequently a malt extract factory and maltings for the Distillers Co. (Malt Products) Ltd.
1988	Closed and sold to Brewing Products UK Ltd.

Table 1 List of owners and major events by year (source Worm tub.com)

The *Third Statistical Account of Scotland* 1964 mentions that 140 workers were employed by the Distillers Company Ltd.

The most comprehensive description of Kirkliston Distillery is that of Alfred Barnard (who in 1885 carried out a survey of every distillery in Scotland. Then it appears that only single kiln buildings were in use. He mentions the use of aerial conveyors and the size of the majority of the principal buildings. He mentioned that Kirkliston's annual output was 200,000 gallons of both single and malted whisky.

Townsend (1993) writing on the lost distilleries of Scotland (mainly based on Barnard op.cit.) mentions that in the late 19th century Kirkliston was the first distillery in Scotland to employ an overhead conveyor system that carried grain and barley to the many storage lofts. The conveyor ran above roof height and was totally enclosed in a big box duct made from iron sheeting. Although considered common now the system at Kirkliston was unique. A second innovation was cooling the worts by running them through pipes submerged in the mill lade, saving the need for refrigerators. A third innovation was running waste products down a sewage pipe following the same route as a railway line to the Firth of Forth.

4. BUILDING SURVEY RESULTS

4.1 Pre-demolition record

Ground floor plan

The floor plan is produced as Fig 6. The floor plan was rectangular with an internal measurement of 19.4m by 9.8m. The walls were on average 0.5m thick. The main ground floor openings were via a shuttered bay door on the south-facing elevation. A door way was also present at the north-east corner and at the north end of the west-facing elevation. In the south-west corner, an electrical switch-gear room was present. Occupying the floor were four brick-built columns and two furnaces. The load bearing columns each measured approximately 0.8m x 0.8m. The furnaces (Fig 14) measured c. 4m x 2.5m with east-facing openings lined with fire-brick but all the cast-iron work associated with the furnaces (grates, doors and dampers) had been robbed. The location of these features has been extrapolated from the results obtained during the demolition watching brief.

North-facing elevation

The principal features on the north-facing elevation are listed in Table 2 and shown on Fig 7a and Fig 9. The north-facing elevation measures 11.4m wide and stands to a height of 17.5m. The main build (n1) is well coursed sandstone blocks bonded by grey cement. The fenestration comprises ground, first and second floor windows (n2-n6) and all have droved ashlar surrounds and iron lintels. The first floor windows are rectangular and not in alignment with the windows above. The second floor windows are half shuttered. The remains of a concrete floor (n7) projects off the elevation for about 1m and is supported by five I-beams. Below the eaves is a sandstone ashlar stringcourse (n8) which terminates above the easternmost second floor window. Two blocked doorways (n9-10) are situated at second and first floor levels of a former staircase that was situated on the east side of the elevation. A scar formed by the removal of the stair treads is visible (n11) situated above the main doorway into the building (n12). The roof is covered with grey slate (n13) which are missing above the former stairwell. The roof is surmounted by a pagoda which is clad with asbestos sheeting (n14). A cast-iron drain pipe (n15) runs down the wall and through the former floor (n7). At the east end of the elevation, two return walls (n16-17) are visible marking the position and width of the former stairwell. Above the second floor doorway (n9) is a section of brickwork (n18) comprising 15 courses laid in English Garden bond (5:1). Situated on the west corner of the elevation is a line of quoins which include both stugged and droved blocks of sandstone. Some minor brick repair is also visible towards the upper section of the elevation.

Feature No.	Element	Summary Description
n1	Main Build	Sandstone blocks laid in regular courses bonded by grey cement
n2	Window	Ground floor, rectangular window with droved ashlar surrounds and an iron lintel
n3	Window	Ground floor, rectangular window with droved ashlar surrounds and an iron lintel
n4	Window	First floor window, rectangular window with droved ashlar surrounds with iron lintel and an in-situ window frame
n5	Window	Second floor window, rectangular window with droved ashlar

		surrounds with iron lintel and an in-situ window frame
n6	Window	Second floor window, rectangular window with droved ashlar surrounds with iron lintel and an in-situ window frame
n7	Floor	Former concrete gantry floor supported on five I-beams. Projects of the elevation for c. 1m
n8	Stringcourse	Ashlar sandstone stringcourse below eaves level continues as far as the former staircase at the north-east corner.
n9	Blocked doorway	Second floor blocked doorway at the former staircase, infilled with painted blockwork
n10	Blocked doorway	First floor blocked doorway in the former staircase. Blocked with 15 courses of red brick laid in stretcher bond
n11	Stairs scar	The line of a concrete staircase
n12	Main door	Ground floor main doorway situated at the north-east corner
n13	Slate roof	A void in the north-east corner with exposed steelwork supporting timber roof joists
n14	Pagoda	Painted corrugated iron clad side of the roof pagoda
n15	Drain pipe	Cast iron drain pipe running down through the feature N7
n16	Staircase return wall	The vertical alignment of the return wall of the staircase situated on the east side of N11. Some evidence for keying in
n17	Staircase return wall	The vertical alignment of the return wall of the staircase on the west side of N11. Projecting masonry with large blocks of sandstone suggest it was related to a thicker projecting wall
n18	Brickwork	Brickwork surmounted above doorway N9 with * courses laid in English garden bond 5:1.
n19	Quoins	Ashlar quoins on the west corner of the elevation. Regular in size with droving. Some lower down are stugged. Minor brick repair below the stringcourse.

Table 2 Principal features recorded on the north-facing elevation

East-facing elevation

The principal features extant on the east-facing elevation are listed in Table 3 and shown on Fig 7b and Fig 10.

The east elevation measures 21m long and is 17.5m high. The main build (**e1**) is well coursed sandstone blocks bonded by grey cement. The outline of an attached single-storey building with a pitched roof is marked by its former roofline (**e3**) and whitewashed interior (**e2**). At the base of the wall, a section of masonry (**e4**) forming part of the rear wall of the attached building is present. On the north side of this feature is a blocked door (**e5**) with a wooden lintel. The door interior has been blocked with brickwork laid in stretcher bond. At the centre of the elevation approximately 2.5m above the current ground level is a roughly horizontal roof raggle (**e6**) from a flat or lean-to roof. A series of floor-joist sockets (**e7**) are associated with this attached structure. Running vertically down the wall from its eaves to ground floor is the stub of a return wall (**e8**) a fragment of which still survives at ground level. A fragment of upstanding brickwork, forming the remains of another return wall (**e9**) is present towards the north end of the elevation. The remains of a staircase (**e10**) are visible on the north side of the return wall stub (**e8**). At the north-east corner of the elevation a considerable section of the walls facing stone has collapsed exposing the rubble hearting (**e11**) behind. This material is crude mixture of random rubble, bricks and mortar. Above this feature is a heart-shaped section of cement render (**e12**) pierced by iron reinforcing bar and an I-beam. Above the render at eaves level is a section of brickwork laid in English Garden bond (3:1 and 2:1). At just below eaves level is a section of ashlar stringcourse which terminates above window (**e15**) towards

the north end of the elevation. Window (e15) shares the same dimensions as window (e16) the latter being blind. The slate roof (e17) has a large void at its north end exposing steel trusses. The pagodas are clad with asbestos sheeting (e18-19) and the timber framework that supported its roof is exposed (e20-21).

Feature No.	Element	Description
e1	Main build	Sandstone blocks laid in regular courses bonded by grey cement
e2	Wall	Whitewashed cement render forming the interior wall of a demolished single storey building with a pitched roofline
e3	Roofline	Pitched roofline of a two storey building. Asphalt and lead flashing in situ
e4	Wall scar	Return wall scar of an abutting wall, a fragment of the wall survives at the base of the elevation
e5	Blocked door	A blocked door measuring 1.9m x 1.5m x 0.2m deep with a wooden lintel still in situ. Blocked with brick laid in stretched bond
e6	Roof raggle	Near horizontal incised roof channel for lead flashing of a flat roof
e7	Floor joist sockets	Six floor-joist sockets c. 0.25m x 0.25m associated with the roofline Feature E7
e8	Return wall line	Vertical aligned return wall line running the full height of the main elevation. Large sandstone blocks project off the main wall
e9	Brickwork	Brickwork c.1.2m high situated at the base of the north side of the main elevation
e10	Staircase remains	Oblique remains of a staircase soffit at the north end of the elevation.
e11	Harting	Exposed rubble hearting in a large void at the North end of the main elevation
e12	Render	Light brown cement render situated on the upper section of the north end of the main elevation
e13	Brickwork	Ten courses of brickwork at eves level at the north end of the elevation, English garden bond (3:1)
e14	Stringcourse	Ashlar stringcourse running below the eves broken by Feature E13 brickwork
e15	Window	Rectangular window at second floor level with droved ashlar dressings. A timber window frame is still in situ
e16	Window	Rectangular window at second floor level with droved ashlar dressings. A timber window frame is still in situ
e17	Slate roof	Slate roof with large void exposing steel trusses at north end
e18	Cladding	Cladded sides of the pagoda using corrugated iron sheeting
e19	Cladding	Cladded sides of the pagoda using corrugated iron sheeting
e20	Pagoda	Remains of the pagoda roof extending outwards to form wide eves.
e21	Pagoda	Remains of the pagoda roof extending outwards to form wide eves.

Table 3 Principal features recorded on the east-facing elevation e20

South-facing elevation

The principal features extant on the east-facing elevation are listed in Table 4 and shown on Fig 7c and Fig 11.

The south-facing elevation measures 12.3m wide and is 17.5m high and constructed of regularly laid sandstone blocks (s1) with ashlar quoins at each corner (s2). On the ground floor, on the west side of the elevation is a rectangular opening that includes a doorframe (s3) which accessed an electrical switch gear room. Immediately on the west side of the doorway is a buttress (s4) formed from when an adjoining building was demolished. Immediately above doorway (s3) is a blind window with ashlar dressings (s5). On the east side of the elevation there is a large bay door which is

partly blocked with shuttering (s7) and two welded steel panels (s6). A door hanger relating to a large sliding door is still present (s8). At more or less the centre of the elevation there is a small rectangular window opening with large sandstone lintel and dressed surrounds (s9). Above this at second floor level are two windows (s10 and s11) which are of similar size. Window s11 is flanked by four cast-iron tie plates (s12). Just below the eaves is an ashlar sandstone string course (s13). A timber snow board (s14) has been attached to the slate roof (s15) that is intact. The slate roof is surmounted by the asbestos clad side of the pagoda (s16) that has the timber framework (s17) for the pagoda roof.

Feature No.	Element	Description
s1	Main build	Sandstone blocks laid in regular courses bonded by grey cement
s2	Quoins	Ashlar sandstone quoins, on average 0.6m x 0.32m
s3	Opening	Rectangular opening forming the entrance to the L-shaped electrical switch gear room. The timber door-frame is still in situ
s4	Buttress	Buttress formed from a section of an adjoining building
s5	Window	Blind rectangular window with ashlar dressings and cast-iron lintel
s6	Steel panels	Welded steel panelling forming reduction work surmounting a large bay opening
s7	Doorway	Large bay doorway 3.3m high and 2.4m wide
s8	Hanger	Sliding door hanger associated with the large doorway
s9	Window	Rectangular first floor window with ashlar dressings
s10	Window	Rectangular second floor window with timber window frame
s11	Window	Rectangular second floor window with timber window frame
s12	Tie plates	Square tie-plates surrounding window S11
s13	Stringcourse	Ashlar sandstone stringcourse running across the elevation just below eaves level
s14	Snowboards	Timber snow boards fixed to the slate roof with iron brackets
s15	Roof	Slate roof covering the hipped roof arrangement
s16	Cladding	Asbestos sheet cladding on the sides of the pagoda
s17	Pagoda	Remains of the pagoda roof support extending outwards to form wide eaves.

Table 4 Principal features recorded on the south-facing elevation

West-facing elevation

The principal features extant on the west-facing elevation are listed in Table 5 and shown on Fig 7d and Fig 12.

The west-facing elevation is 20.8m long and 17m high and is constructed of coursed blocks of sandstone (w1). At the ground floor on the south side, is the remains of the buttress which incorporates rubble and ashlar work (w2). Immediately behind the buttress is a blocked doorway (w3). Another doorway is present above the current ground level (w4) which appears to be a more recent insert. A blocked square feature (w5) is present at the north end of the elevation and is blocked with eleven courses of brick. A ground floor doorway (w6) is an original entrance and is surrounded by droved ashlar dressings. At the north end of the elevation are the remains a doorway (w7) in which only its ashlar reveals survive. Above door W6, is a large void (w8) which has exposed the rubble hearting of the main elevation. Above right of the void are the remains of three concrete steps (w9) which have been broached flush with the main elevation. Marking the position of a floor level of an adjoining building is a line of sockets (w10). A channel (w11) has been cut into the wall and is associated with a floor immediately above the sockets. A line of roof-joist sockets are present at the

south end of the elevation (**w12**) and are associated with a pitched felt roof. Above the former roofline is a rectangular window (**w13**) with a timber window frame is present at first floor level. At the second floor level there is another window (**w14**) part of which is blind. The second floor level of an adjoining building is marked by a line of floor-joist sockets (**w15**). Associated with the second floor of this former building are two grey-painted steel double-leaved fire doors (**w16**). Above the two fire doors is a large section of brickwork (**w17**) conforming to the shape of a mansard roof. The brickwork survives with 22 courses laid in English Garden bond (5:1). The machine-made bricks are stamped 'Dougal Winchburgh'. Set within the brickwork is a small square cast-iron bearing box (**w18**) which relates to a line-shaft that ran between the grain store and the double kiln building. Exposed where the slates have fallen is the softwood timber sarking boards (**w19**). Where the sarking boards have fallen away the steel roof trusses are exposed (**w20**). About one third of the original ashlar stringcourse (**w21**) survives below the slate roof (**w22**). Both sides of the west-facing elevations of the pagodas are clad with corrugated asbestos sheets (**w23**). The framework of the pagoda roof is exposed timber (**w24** and **w25**).

Feature No.	Element	Description
w1	Main build	Coursed blocks of sandstone bonded with cement render
w2	Projecting wall	Projecting wall remains at the south-east corner
w3	Doorway	Blocked doorway (2m x 1m) on the ground floor, brick and stone surrounds and rendered
w4	Inserted doorway	Inserted doorway (2m x 1m) blocked and rendered with a Fe lintel
w5	Blocked feature	Square opening (1m x 1m) blocked with 11 courses of brick laid in stretcher bond
w6	Doorway	Doorway (2.2m x 1.1m) surrounded by six courses of dressed ashlar. Sandstone lintel.
w7	Doorway rybatts	Ashlar reveal of a doorway c.2.2m high with moulded door jamb
w8	Void	A large void where the main elevation fabric has collapsed exposing the rubble hearting or wall core behind
w9	Stair treads	Three concrete steps broached and cut flush with the main elevation
w10	Sockets	A series of sockets to support steel I-beams
w11	Floor raggle	A channel cut horizontally across the elevation marking the position of a concrete floor supported on the I-beams in sockets (W10).
w12	Roofline and sockets	Roofline and sockets at the south end of the elevation marking the position of a lean-to roofed structure
w13	Window	Window with droved ashlar surrounds at first floor level. Large stone lintel. Wooden window frame still in-situ
w14	Window	Second floor window, with droved ashlar surrounds. Half shuttered with plank-built shutter
w15	Floor level	Line of floor-joist sockets and floor scar.
w16(x 2)	Fire door	Grey painted steel fire-door double leafed within an opening measuring c. 2m x 1m
w17	Brickwork	A large section of brickwork with 22 courses laid in English Garden bond (5:1) . The brickwork conforms to an adjoining roofline with a mansard roof configuration
w18	Bearing box	Cast-iron bearing box set within the brickwork. The box is square and the brick below is oil stained. This feature carried a horizontal drive shaft
w19	Sarking boards	Softwood (probably pine) sarking boards exposed where the roofing slates are missing, steel roof trusses are visible where sarking is missing

w20	Slate roof	Largely intact slate roof with exposed sarking at the north end of the elevation
w21	Stringcourse	Sandstone ashlar stringcourse, removed beyond the fire doors (feature W15),
w22	Cladding	Cladded sides of the pagoda using corrugated iron sheeting
w23	Cladding	Cladded sides of the pagoda using corrugated iron sheeting
w24	Pagoda	Remains of the pagoda roof extending outwards to form wide eaves
w25	Pagoda	Remains of the pagoda roof extending outwards to form wide eaves

Table 5 Principal features recorded on the west-facing elevation

4.2 Demolition recording results

The demolition works were monitored under watching brief conditions (Figs. 15–21). During the demolition of the south-facing elevation a cross-section through the building was obtained. The principal features exposed are listed alphabetically in Table 6 and shown on Figure 8.

Feature.	Element	Description
A	Floor	First floor constructed of reinforced concrete
B	Furnace baffle plate	Steel framed concrete baffle plate that allowed heat and fumes to rise out through the sides vents below
C	Drying floor	Steel frame of the second floor formed by east-west trending I-beams with north-south trending lateral beams. No floor cladding was visible.
D	Smoke chamber	Concrete and mesh-constructed smoke chamber allowing fumes to vent upwards through a circular opening housing an electric fan (Fig 17).
E	Roof Vent	Surviving north side of the pagoda vent constructed of concrete and steel with a lining of plaster.
F	Roof frame	Steel-framed roof frame carrying the ventilator hood and the slate roof. The steelwork was composite steel with mainly L-shaped sections bolted with fish plates at the main junctions.
G	Gantry	An inspection gantry was present more or less at the level of the electric fan housing.
H	Steel purlins	U-shaped steel purlins carried by the main roof frame (F)
I	Roof rafters	Timber roof rafters supporting the sarking boards. These rafters were carried by steel U-shaped purlins (H) that were bolted to the main roof frame.

Table 6 Principal features observed during demolition of the south-facing elevation.

5. DISCUSSION

5.1 Elevations

North-facing elevation

The north-facing elevation has the structural elements associated with a staircase that was attached on the north-east corner of the elevation. The surviving elements of this feature include a staircase scar (**n11**), its enclosing return wall scar (**n16**) and the brickwork (**n18**) surmounting the second floor doorway (**n9**) which carried up to the roof level of an three storey lofted building built against the east-facing elevation.

South-facing elevation

The south-facing elevation is largely unaltered since its construction and as it faced onto a yard it never had any buildings attached to it.

East-facing elevation

The east-facing elevation displays evidence for the presence of three attached structures that have left evidence of their presence in the form of former roof lines, floor-joist sockets and return wall stubs. Features (**e2-e4**) relate to an adjoining single storey lofted building with a pitched roof (Fig 5). This building was on the same alignment as the south-facing elevation and was approximately c.35m long, trending east to west and fronting a concrete yard. Features (**e6-e7**) relate to a series of pitched roof buildings that ran behind the building just described. Features **E8**, a return wall scar and the render finish (**e12**) mark the position of a stone-built malting building that was three-and-a-half stories high with a pitched roof. The building had a brick-built structure with a doorway providing access to a gantry that ran alongside the east-facing elevation at eaves level. The roof of this structure was roughly keyed into the east-facing elevation and brickwork (**e18**) is related to its adjoining wall.

West-facing elevation

The west-facing elevation was almost entirely enveloped by an adjoining brick-built building that occupied most of the elevation. Figure 3 shows the adjoining building when it was still standing. The roof configuration of this three storey building is evident in the brickwork (**w17**) which has maintained its Mansard shape that stood above the gutter line of the former malting building. Access between this building was via the two steel fire doors (**w16**). The floor level below (**w15**) and a first floor level (**w11**) is extrapolated from the position of the floor joist sockets. The south side of the building had a lean-to roof which relates to Feature (**w12**) and the whitewashed wall below ran the full length of the interior ground floor. Access into the ground floor level kiln floor was via doorway **w6**.

Internal Features

The ground floor of the former malting building was open plan with brick-built columns supporting the steel-frame concrete first floor. The principal features on the ground floor were the two furnaces (Fig 19-21) that were either fired with coke for

high heat generation or peat which would have generated the aromatic peaty input into the malt that was roasted on the second floor (malting floor). The interior of the first floor was occupied by the two re-enforced concrete smoke chambers that vented fumes out through the roof pagodas. An electric fan was housed at the top of the smoke hoods to allow smoke and fumes to pass through the pagoda vents. The two smoke hoods were supported on composite steel trusses that also carried the steel purlins that in turn supported the wooden roof rafters. Grain was fed directly into the malting floor by a large iron pipe from an adjoining grain store on the west-facing elevation.

The malting floor (second floor) comprised a series of transverse steel I-beams that were probably covered with a fine mesh that allowed the heat from below to pass through it. The barley or wheat was turned by a mechanical plough (Fig 13) that contained a series of rotating brushes that were attached to a large shaft that ran across the full length of the floor in order that green barley could be turned to aid its drying.

Drying kilns were an integral part of the distilling process and there are numerous still surviving today within the whisky industry. The drying kiln has three purposes. The first is to stop the germination of the barley at the optimum time by heating it. The second is to dry the green barley enough to allow it to be milled, to be broken down enough to promote the mashing process. And the third purpose, in some cases, is to add a peaty smokiness to the flavour of the malt, and the whisky that is eventually produced from it.

5.2 Phase development

Phase 1 Late 19th century

The core block of the double kiln malting building dates to the late 19th century and its footprint has not changed since it was constructed.

Phase 2 Mid-20th century

The interior of the building was completely re-fitted with a steel-framework that supported the malting floor. The roof was re-built using composite steel trusses which carried the two internal fume hoods and the roof itself. An electrically driven plough was installed on the second floor to mechanically turn the drying malt that was heated by two furnaces installed on the ground floor.

The demolished buildings attached to the east-facing elevations appear to have been constructed at the same time during the late 19th century. It is possible that the building adjoining the west-facing elevation was also constructed during the late 19th century. The aforementioned stamped brick (*Dougal Winchburgh*) used on the west-facing elevation (Feature w17) was manufactured at the Winchburgh Brickworks, West Lothian (NMRS NT07NE 44) that was in operation between 1873-1970s.

6. CONCLUSION

The Level 3 standing building recording survey has been successful in recording the major architectural elements that survived at the former maltings building prior to its demolition. Important internal features, fixtures and fittings provide reliable evidence on how the building operated as a malt drier using a pair of brick-built kilns situated on its ground floor.

The survey confirmed that the north and south-facing elevations are largely unaltered since the building was first constructed in the late 19th century. The east-and west-facing elevations contain a number of features relating to adjoining 19th century buildings which combined to form a long range of buildings relating to grain storage and ancillary stores.

The demolition of the building confirmed the position of the two ground floor furnaces and the position of the smoke hoods above the malting floor. The hoods vented the entire structure. The malting floor was on the second floor and here a mechanical plough was in operation. The grain was allowed to dry and was periodically turned by the plough.

Externally the malting building has remained largely unaltered since its construction in the late 19th century. During the first half of the 20th century the building's interior was completely refitted to house two furnaces with smoke chambers above.

In line with the Written Scheme of Investigation a detailed record of the former Pathbrae Distillery building has now been attained both prior to and during its demolition.

An entry in *Discovery and Excavation in Scotland 2012* (Appendix 2) and the completion of the online OASIS form will be sufficient to disseminate the results of this work.

A copy of the report will be lodged with the SMR and RCAHMS.

7. REFERENCES

Bibliographic

Barnard, A 2008 *The Whisky Distilleries of the United Kingdom* p.333

Hindmarch E 2008 'Distillery Company Works, Kirkliston Excavation Data Structure Report' AOC Archaeology Ltd. Report No. 20223. Unpublished Report

Townsend, B 1993 *Scotch Missed; The Lost Distilleries of Scotland* 97-98.
<http://www.wormtub.com/distilleries/distillery.php?distillery=Kirkliston>

Cartographic

Ordnance Survey 1853 First Edition map Edinburghshire Sheet 1 1:10,560

Ordnance Survey 1895 Second Edition map Edinburghshire Sheet II.6 1:10,560

Ordnance Survey 1907 Edinburghshire Sheet II.6 1:2,500

Ordnance Survey Linlithgow sheet NVIII.4 and Edinburghshire sheet LL.6.10 (parts of) Scale 1:10,560

Ordnance Survey 1964, NT 1274 & Plan 1374 1:25000

Ordnance Survey 1968 sheet Plan NT 1274 & NT1374 1:2500

Ordnance Survey 1969, sheet NT1274, scale 1:10,000

Ordnance Survey 1969, sheet NT 1374, scale 1:10,000

Ordnance Survey 1986, sheet NT 1374, Scale 1:2500

Photographic

Canmore Reference No.	Description	Date
DPO18513	Oblique aerial view centered on the whisky distillery during demolition with the church, churchyard and cemetery adjacent, taken from the WSW.	c.2003
DPO18514	Oblique aerial view centered on the whisky distillery during demolition, taken from the SW.	c.2003
DPO18515	Oblique aerial view centered on the whisky distillery during demolition, taken from the SSW.	c.2003
DPO18516	Oblique aerial view centered on the whisky distillery during demolition with the cemetery adjacent, taken from the S.	c.2003
DPO18517	Oblique aerial view centered on the whisky distillery during demolition with the cemetery adjacent, taken from the SE.	c.2003
DPO18518	Oblique aerial view centered on the whisky distillery during demolition, taken from the ESE.	c.2003

APPENDIX 1: PHOTOGRAPHIC RECORD

Standing Building Survey

Shot No.	Description	Facing
001-002	South and west-facing elevations, general view	NE
003	South-facing elevation, general view	N
004*	South-facing elevation, general view of the roof detail and pagoda	N
005*	South-facing elevation, general distance view	N
006-007	South and east-facing elevation, general view	NW
008-009*	South-facing elevation, fenestration general view	N
010	South-facing elevation, detailed view of the second floor fenestration	N
011*	South-facing elevation, general view of the ground floor fenestration	N
012	South-facing elevation, general view of the second floor fenestration	N
013	South-facing elevation, ground floor fenestration	N
014*	South-facing elevation, general view of the second floor fenestration	N
015*	South-facing elevation, general view of the blind doorway	N
016*	West-facing elevation, general view	E
017	West-facing elevation, general view of the south end	E
018*-019*	West-facing elevation, general view	E
020-021	West-facing elevation, general view of the north end	E
022	West-facing elevation, ground floor blocked doorway at south end	E
023	West-facing elevation, general view of the first and second floor fenestration at the south end	E
024	West-facing elevation, detailed shot of a blocked doorway mid-section ground floor	E
025	West-facing elevation, second floor fire doors	E
026	West-facing elevation, ground floor main doorway	E
027	West-facing elevation, mansard roofline marked by brickwork	E
028	West-and south facing elevations from a distance	NE
029-030	West-facing elevation, distance shot	E
031-032	East-facing elevation, general shot	W
033	East-facing elevation, former roofline of an attached building	W
034	East-facing elevation, general view on fabric above the roofline	W
035	East-facing elevation, lean-to roofline mid-section	W
036	East-facing elevation, second floor fenestration and roofline	W
037*	East-facing elevation, ground floor, roofline	W
038	East-facing elevation, fenestration and stringcourse	W
039	East-facing elevation, floor joist sockets and roofline above	W
040-041*	East-facing elevation, return wall scar and second floor fenestration	W
042*	East-facing elevation, north-east corner showing hearting	W
043	East-facing elevation, cement harling at second floor level	W
044	East-facing elevation, general view	W
045-049	North-facing elevation, general view (camera contrast)	S

050*-051	North and west-facing elevations	SE
052-053*	North and east-facing elevations	SW
054	North-facing elevation, detailed shot of former stair tower	S
054	North-facing elevation, detailed shot of former stair tower	S
055	North-facing elevation, general view of the second floor level of the stair tower	S
056	North-facing elevation, ground floor fenestration, general view	S
057	North-facing elevation, first floor fenestration, general	S
058*	North-facing elevation, ground floor quoins at west end	S
059-060	North-facing elevation, roof detail and pagoda	S
061	North-facing elevation, distance view	S
062*-065	North and west-facing elevations, general shots	S
066	South-facing elevation general view	S
067*	South and west-facing elevations with a former distillery building in the distance	E
068-070	North and west-facing elevations with the former distillery building in the distance	SE
071-072	East and north-facing elevations, general view	SW
073	North and west-facing elevations of an upstanding derelict distillery building.	SE

Watching Brief

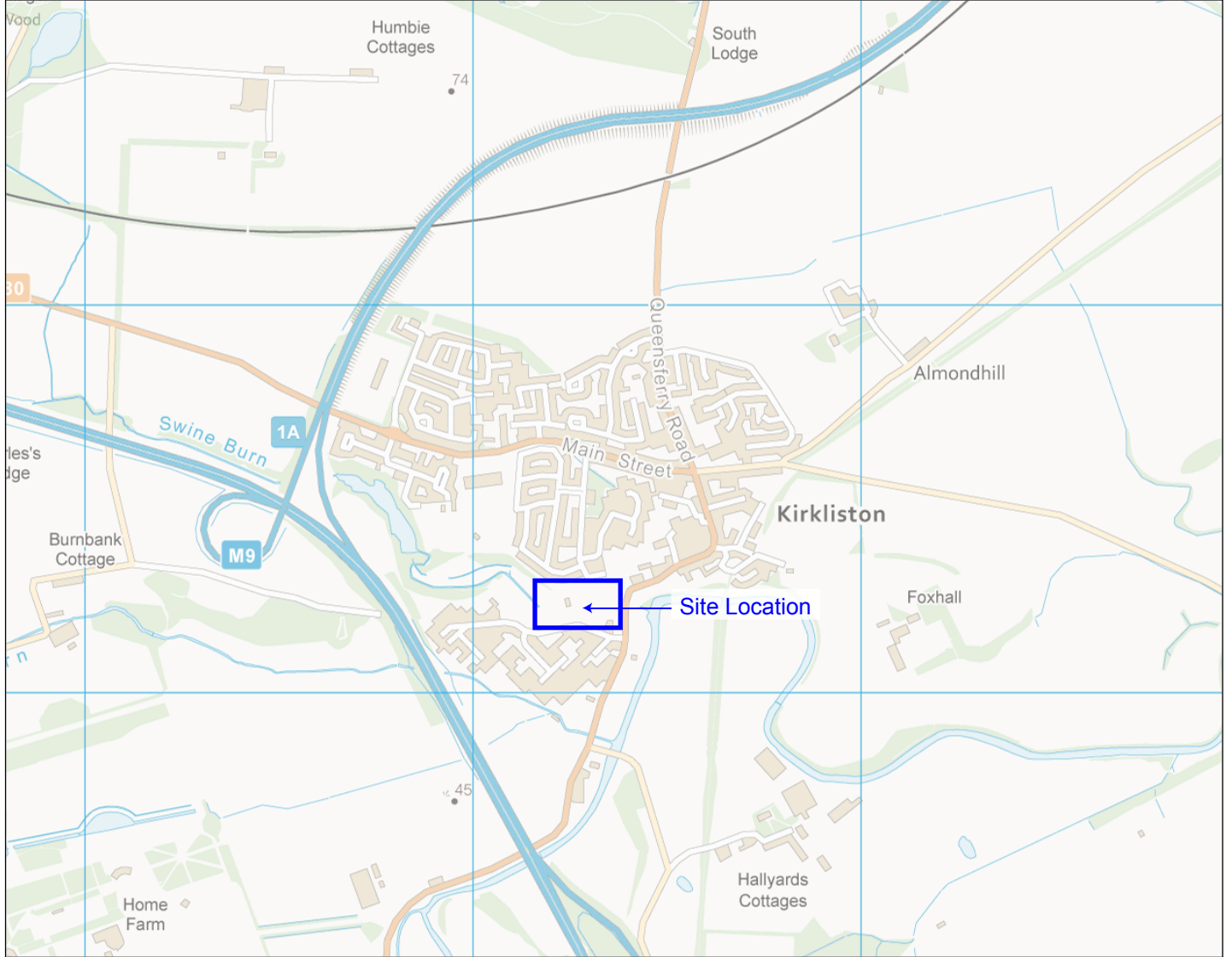
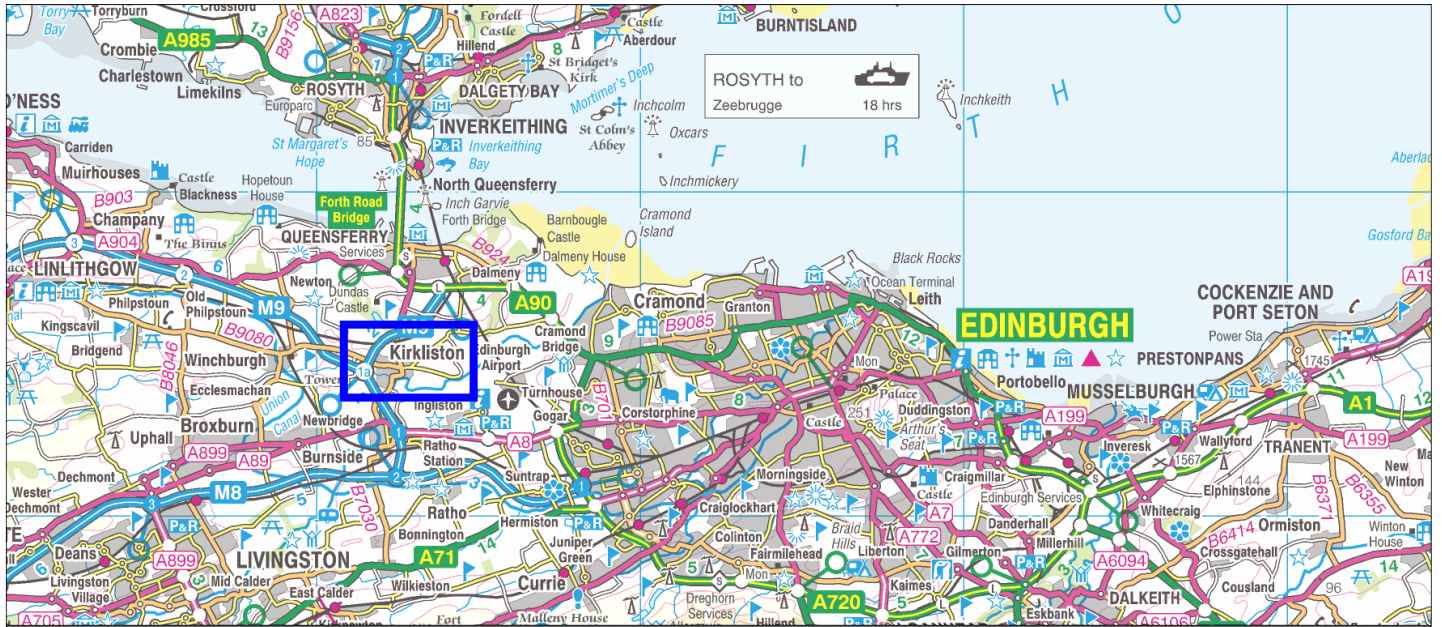
Shot No.	Description	Facing
1-2	Rear south-facing wall of the electrical switchgear room showing electrical switches	N
3	Internal shot of the second floor through window s11	N
4-6	Internal shot of the second floor through window s11	N
7	Internal shot of the second floor through window s11	E
8-12	Internal shots of the second floor through window s11	E
13	Internal shot of the first floor through window s11	E
14-20	Internal shot of the first floor through window s9 showing heat diffuser	E
21	Internal shot of the interior first floor through window s9 showing structural steel work supporting the second floor	Oblique
22-26	West elevation at eaves level showing the sarking boards and steel roof trusses	E
27	West elevation, general shot of the pagoda at the north end of the roof	E
28	West elevation, general shot of the pagoda at the south end of the roof	SE
29-31	West elevation, structural steel work in the roof space and sarking	E
32	West elevation roof sarking boards and slates cut by former roofline	N
33-34	West elevation, steel grain feeder pipe into the roofspace	E
35-37	West elevation general shots of the pagodas	E
38	West elevation , shot of stamped brick from adjoining mansard-type roof (Feature w17) stamped <i>Dougal Winchburgh</i>	n/a
38-40	West elevation, close up of structural steelwork exposed within the interior of the roof	E

41-42*	West elevation, exposed toothed gear train to support rotating brushes carried on the steel frame	E
43-45	Ground floor interior shot of one of the hearths	W
46	Ground floor, rear view of the northernmost hearth	SE
47-50*	West elevation, second floor rotating brushers in situ	W
51-52	Ground floor, interior hearth at the north end of the building	W
53*-57	South-facing elevation during demolition	N
58*-65	South-facing elevation, structural steel work exposed on the second floor	N
66	South-facing elevation with first, second and roof steelwork exposed	N
67-69*	South-facing elevation with first, second and roof steelwork exposed and showing mesh and concreted suspended ceiling	N
70-73	South-facing elevation partially demolished revealing the interior framework of the building	N
74	Ground floor, shot of one of the steel trusses that supported the suspended ceiling	E
75-79	South-facing elevation removed to first floor level	N
80-85	South-facing elevation removed to first floor level taken from the aerial platform	N
86-87	West-facing elevation partially demolished showing roof trusses	E
88	West-facing elevation during demolition with roof steelwork exposed	NE
89	West-facing elevation partially demolished showing the second floor vent through the second floor	NE
90-91	Ground floor, bolted steel fish-plate and plate that rested on the wall head	N/a
92, 93* 94	Ground floor, exposed rear wall of one of the ground floor furnaces	E
95-97*, 98	Ground floor demolition of the interior brickwork	NE
99-100	Ground floor, brick-built support columns	N
101	Ground floor rubble wall exposed and supporting column	NE
102-103	Ground floor, brick-built columns supporting the first floor	N & NW
104	Ground floor interior showing the position of the furnace	N
105-106	Ground floor, support column brickwork detail	N
107-109	Demolition of the north end of the building taken from the aerial platform	N
110-114	Demolition of the north end of the building taken from the aerial platform	N
115-116	Ground floor, demolition of the one of the furnaces in progress	W
117	Ground floor, structural steelwork within the furnace exposed during demolition	NW
118	Ground floor, brickwork surviving within part of the furnace	E
119	Electrical boxes labeled 'Green malt elevator and 'Green Malt Conveyor'.	N/a
120-124	Scrap salvage including one of the second floor malt brushers	N/a
125	Scrap salvage including one of the toothed racks that carried the malt brusher	N/a

Note- Shots marked with * have been deleted from the thumbnail prints as they were too dark

APPENDIX 2: DISCOVERY AND EXCAVATION IN SCOTLAND ENTRY

LOCAL AUTHORITY:	Edinburgh City Council
PROJECT TITLE/SITE NAME:	Pathbrae Distillery Maltings Building: Historic Building Survey
PROJECT CODE:	NERO
PARISH:	Kirkliston
NAME OF CONTRIBUTOR:	Dr M Cressey
NAME OF ORGANISATION:	CFA Archaeology Ltd,
TYPE(S) OF PROJECT:	Standing Building Recording
NMRS NO(S):	NT17SW182.00 General Overview NT17SW 182.01 Granary NT17SW 182.02 Still House Only NT17SW 182.03 Malt barns, double Kiln, deposit store and ancillary ranges
SITE/MONUMENT TYPE(S):	Former distillery/malting building
SIGNIFICANT FINDS:	N/A
NGR (2 letters, 6 figures)	NT 12313 742554
START DATE (this season)	January 2012
END DATE (this season)	February 2012
PREVIOUS WORK (incl. DES ref.)	AOC Scotland Ltd carried out an archaeological evaluation at the site following the demolition of the distillery. Hindmarch E 2008 'Distillery Company Works, Kirkliston Excavation Data Structure Report, AOC Archaeology Ltd. Report No. 20223. Unpublished Report Hindmarch, E (2008c) 'Former Distillery Company Works, Kirkliston, City of Edinburgh (Kirkliston parish), excavation', <i>Discovery Excav Scot, New, vol.9</i> Cathedral Communications Limited, Wiltshire, England. Page(s): 81
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	<p>A level 3 historic building survey was conducted on a Category C(s) listed former double-kiln malting building prior to its demolition. A demolition watching brief was also carried out to record the building as it was taken down.. The building occupied a rectangular footprint measuring 21.5 by 11.5m. The principal features on the ground floor were a pair of brick-built kilns that supplied heat and smoke to the second floor via smoke hoods. The first floor contained baffles above the kiln for diffusing heat and smoke to the hoods which in turn vented the malting floor. The drying malt was turned by an electric rotating plough that traversed the length of the building on a steel rack.</p> <p>The original rubble-built walls of the structure date to the late 19th century. The building was re-fitted during the early 20th century to accommodate the structural composite steelwork that carried the roof and the smoke hoods. Historical records show the building was constructed during the late 19th century and it was part of a much larger range of distillery buildings.</p>
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRS:	None
SPONSOR OR FUNDING BODY:	Turley Associates
ADDRESS OF MAIN CONTRIBUTOR:	Old Engine House, Eskmills Business Park, Musselburgh, EH21 7PQ
EMAIL ADDRESS:	cfa@cfa-archaeology.co.uk
ARCHIVE LOCATION (intended/deposited)	Report Lodged with Edinburgh Council SMR NMRS intended archive



Key: Fig. No: 1 Revision: A Client: Turley Associates



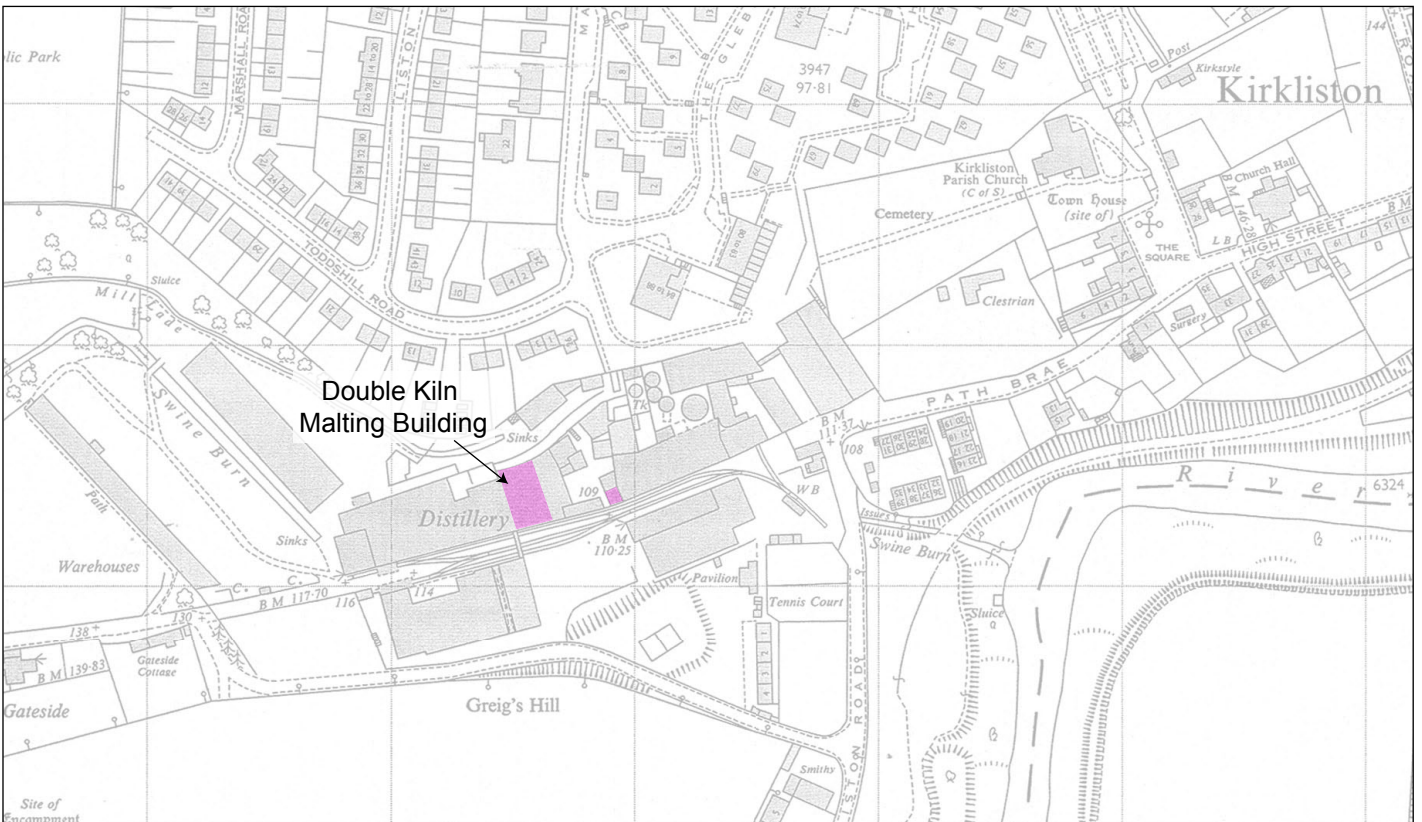
Title: General location map

Project: Pathbrae Maltings Building, Kirkliston
Historic Building Survey



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Key:
 Upstanding buildings



Fig. No:	2	Revision:	A	Client:	Turley Associates
Title:	Aerial photograph & 1:10,000 Ordnance Survey map sheet				
Project:	Pathbrae Maltings Building, Kirkliston Historic Building Survey				

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	LW	LW	2007



Fig. 3 - View from the southwest along south side of floor maltings attached to the west elevation of the double kiln maltings building (Source: RCAHMS, 2001, photo no. E021167)



Fig. 4 - View from the northwest side of the floor malting and double kiln malting building (Source: RCAHMS, 2001, photo no. E021160)

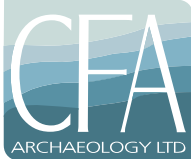
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Fig. 5 - View from the east end of the old malting block with stores buildings in the foreground
(Source: RCAHMS, 2001, photo no. E02145)

Key:

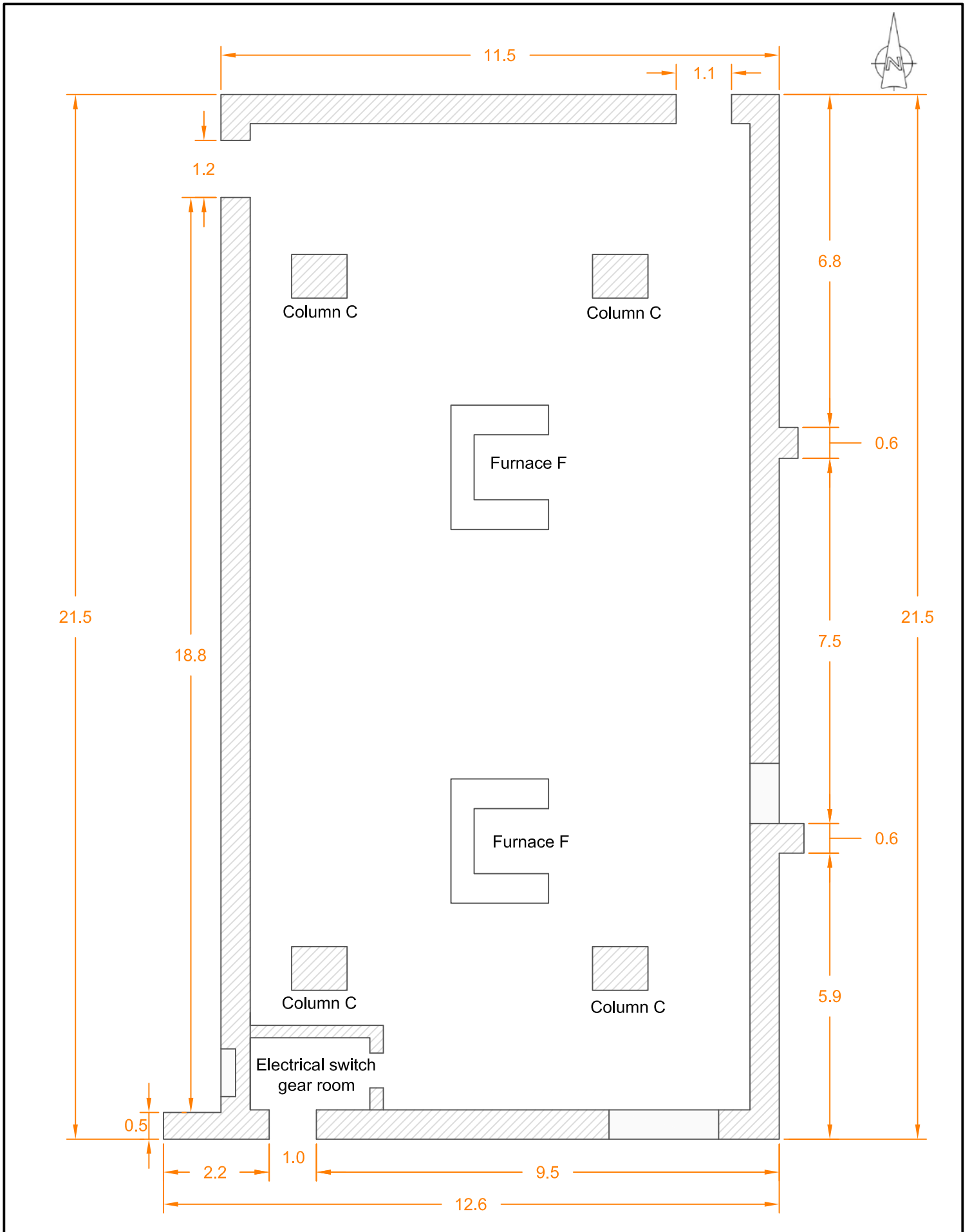
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Project:	Pathbrae Maltings Building, Kirkliston Historic Building Survey				



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Scale at A4: 1:100	Fig No: 6	Revision: A	Client: Turley Associates	Drawn by: LW	Checked: LW	Report No: 2007
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Title:
Ground plan of the double kiln malting building

Project:
Pathbrae Maltings Building, Kirkliston
Historic Building Survey



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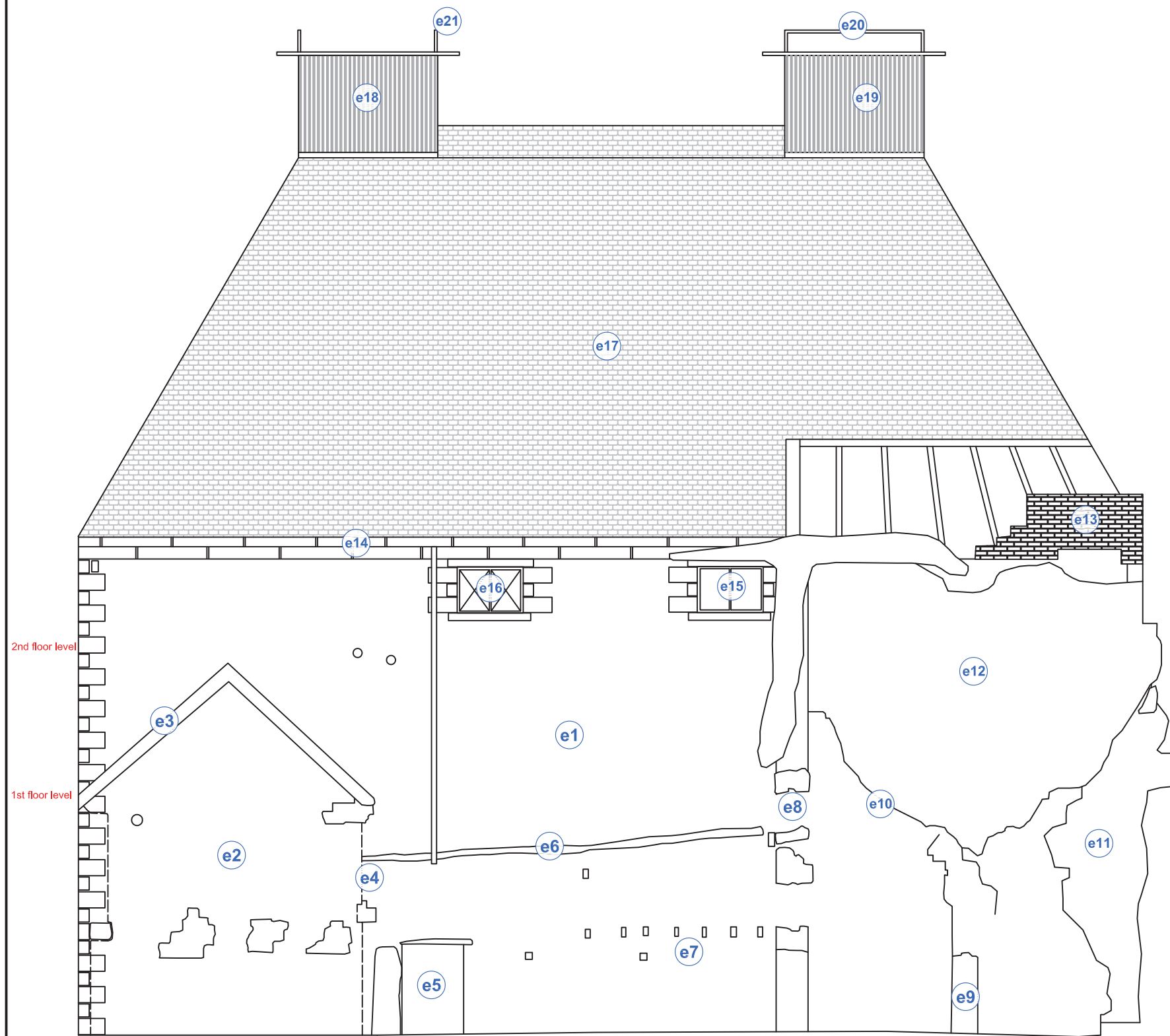


Fig 7b - East-facing Elevation

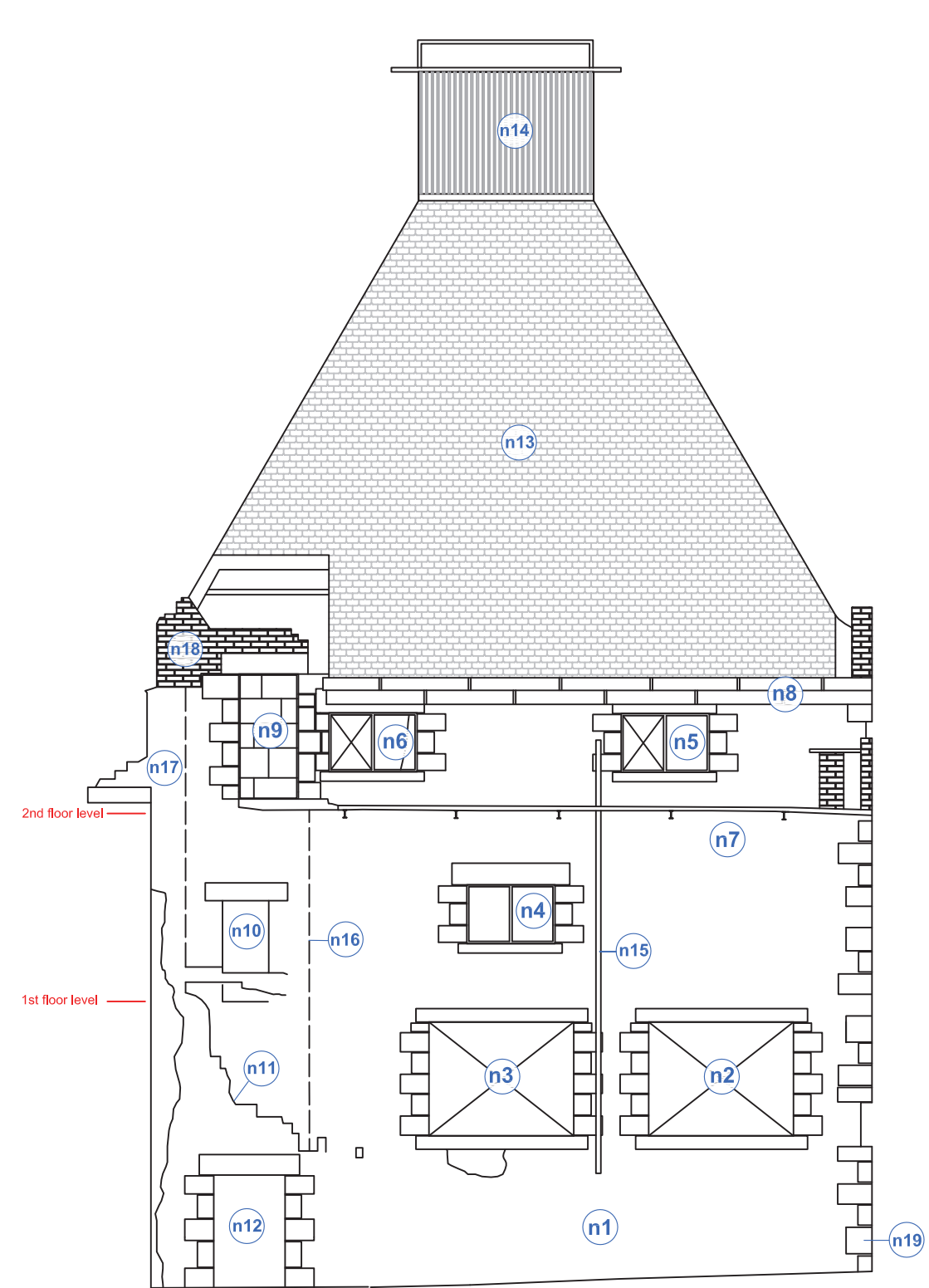




Fig 7a - North-facing Elevation

Fig. No: 7a-b	Revision:	Client: Turley Associates	 <p>CFA ARCHAEOLOGY LTD The Old Engine House Eskmills Park Musselburgh East Lothian, EH21 7PQ t: 0131 273 4380 f: 0131 273 4381 e: info@cfa-archaeology.co.uk w: www.cfa-archaeology.co.uk</p>
Title: Double kiln malting building - elevations			
Project: Pathbrae Maltings Building, Kirkliston Historic Building Survey			
Scale at A3: 1:100	Drawn by: LW	Checked: LW	Report No: 2007

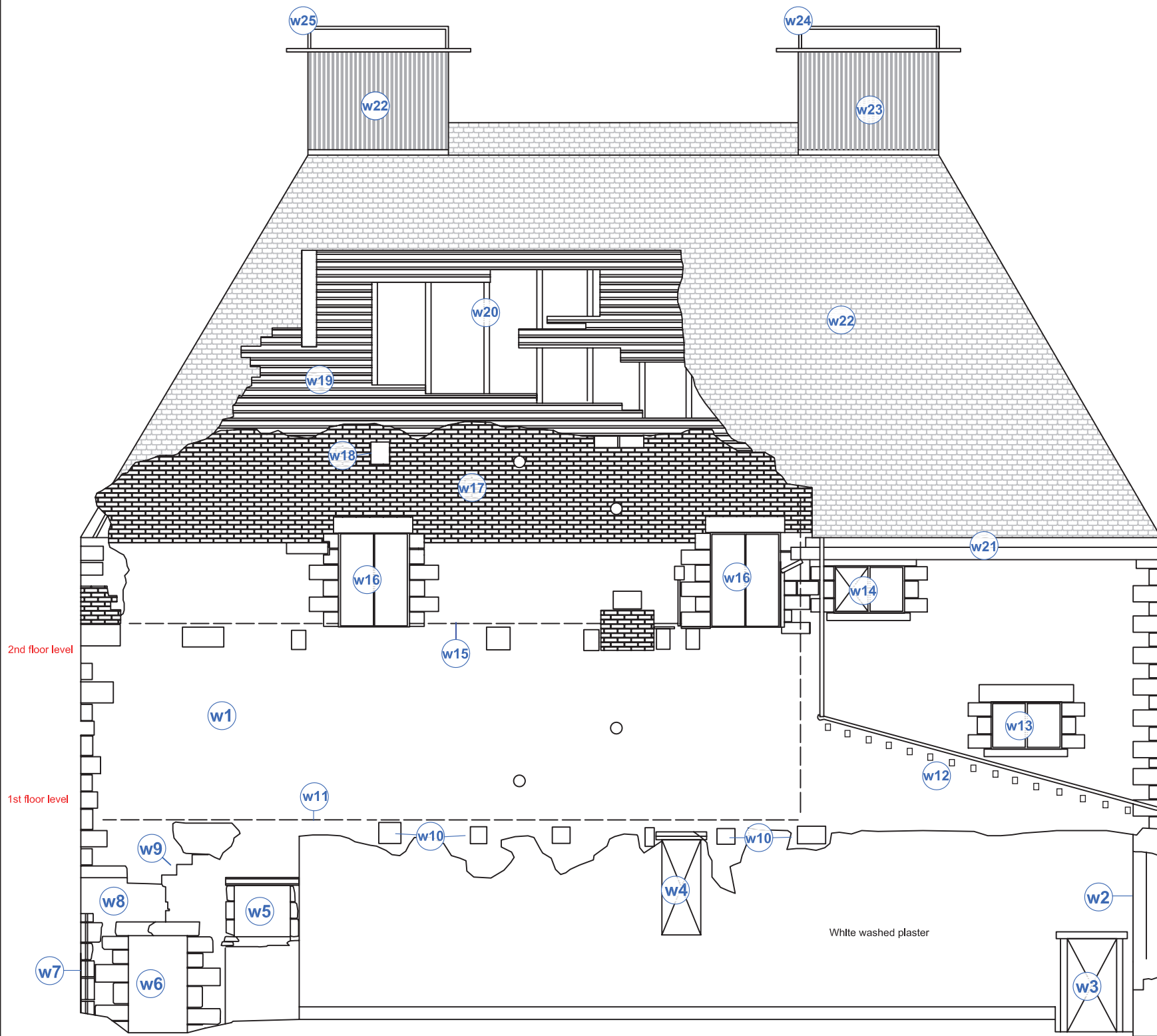


Fig 7d - West-facing Elevation

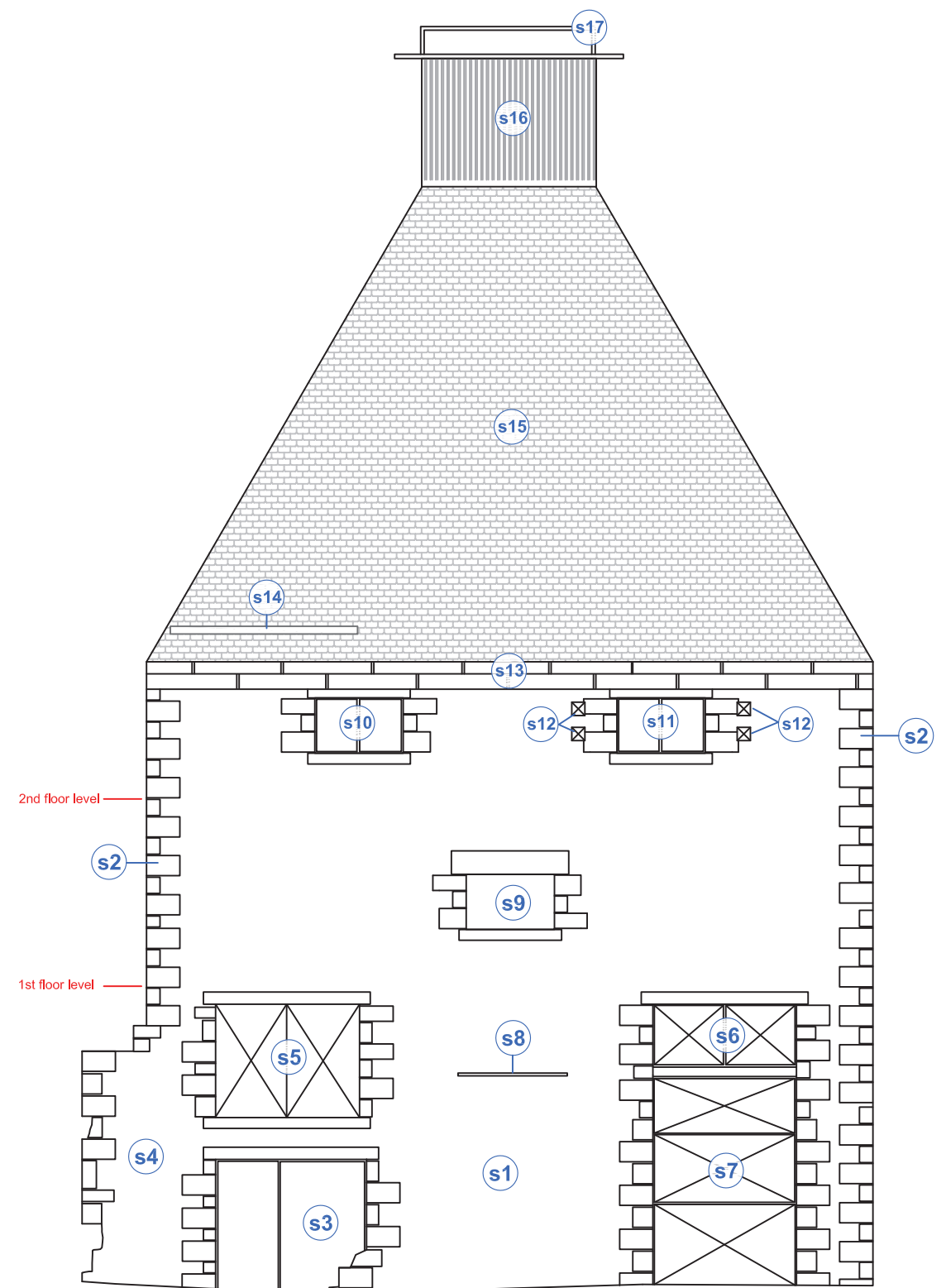


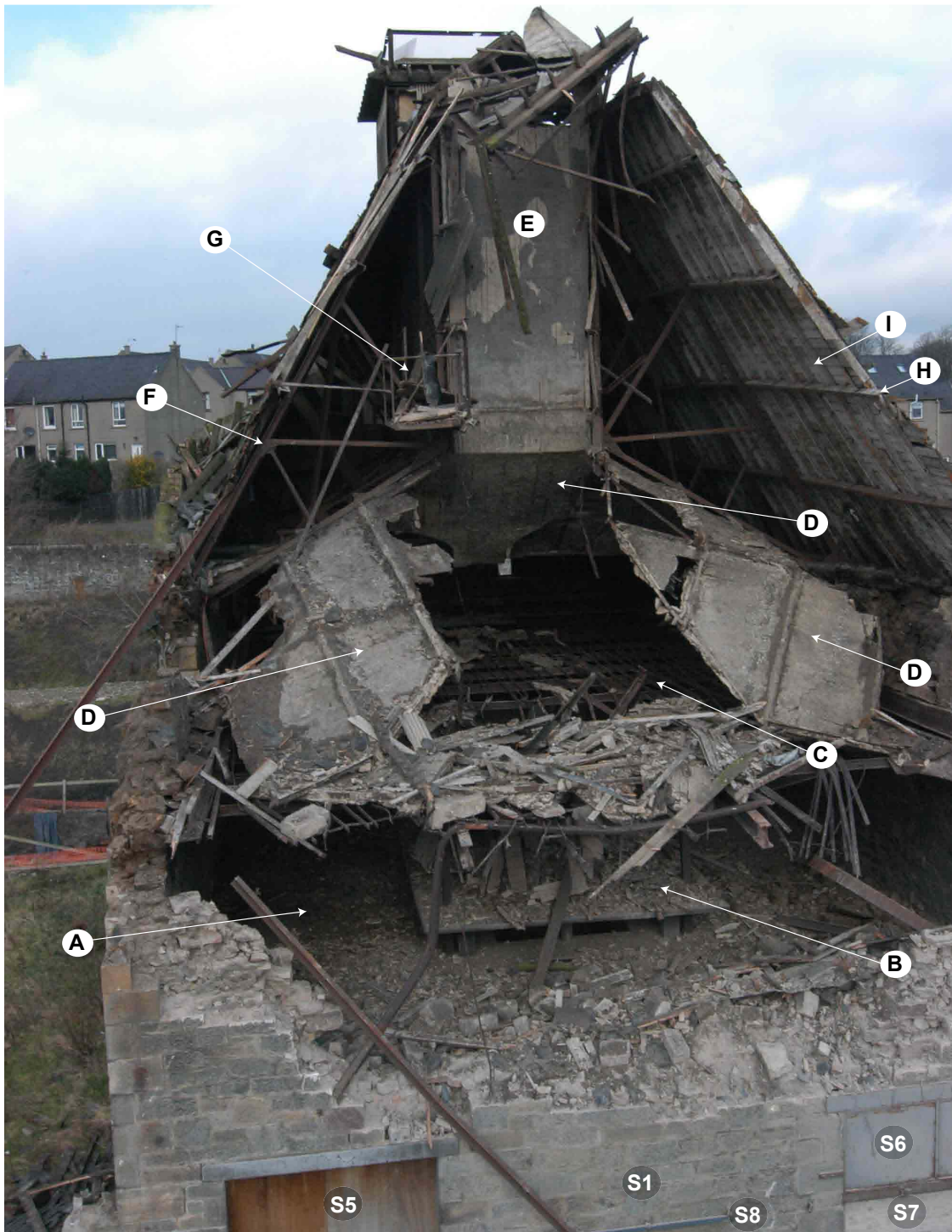


Fig 7c - South-facing Elevation

Fig. No: 7c-d	Revision:	Client: Turley Associates	 <p>CFA ARCHAEOLOGY LTD The Old Engine House Eskmills Park Musselburgh East Lothian, EH21 7PQ t 0131 273 4380 f 0131 273 4381 e info@cfa-archaeology.co.uk w www.cfa-archaeology.co.uk</p>
Title: Double kiln malting building - Elevations			
Project: Pathbrae Maltings Building, Kirkliston Historic Building Survey			
Scale at A3: 1:100	Drawn by: LW	Checked: LW	Report No: 2007



Feature No.	Element	Description
A	Floor	First floor constructed of reinforced concreteFurnace baffle plate
B	Furnace baffle plate	Steel framed concrete baffle plate that allowed heat and fumes to rise out through the sides vents below
C	Drying floor	Steel frame of the second floor formed by east-west trending I-beams with north-south trending lateral beams. No floor cladding was visible
D	Smoke chamber	Concrete and mesh-constructed smoke chamber allowing fumes to vent upwards through a circular opening housing an electric fan.
E	Roof vent	Surviving north side of the pagoda vent constructed of concrete and steel with a lining of plaster.
F	Roof frame	Steel-framed roof frame carrying the ventilator hood and the slate roof. The steelwork was composite steel with mainly L-shaped sections bolted with fish plates at the main junctions.
G	Gantry	An inspection gantry was present more or less at the level of the electric fan housing.
H	Steel purlins	U-shaped steel purlins carried by the main roof frame (F)
I	Roof rafters	Timber roof rafters supporting the sarking boards. These rafters were carried by steel U-shaped purlins (H) that were bolted to the main roof frame.

Key:

Fig. No:	8	Revision:	A	Client:	Turley Associates
Title:	Annotated section through the building during demolition of the south-facing elevation				
Project:	Pathbrae Maltings Building, Kirkliston Historic Building Survey				

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Fig. 9 - Pre-demolition shot of the north-facing elevation



Fig. 10 - Pre-demolition shot of the east-facing elevation



Fig. 11 - Pre-demolition shot of the south-facing elevation



Fig. 12 - Pre-demolition shot of the west-facing elevation

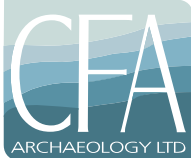
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Fig. 13 - Pre-demolition shot of the rotating plough housed on the second floor



Fig. 14 - Pre-demolition shot of one of the kilns on the ground floor



Fig. 15 - Demolition in progress on the south-facing elevation

Fig. 16 - First floor steel work exposed

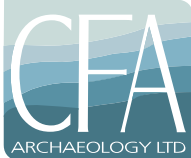
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	Title:										
	Project:	Pathbrae Maltings Building, Kirkliston Historic Building Survey									
 CFA ARCHAEOLOGY LTD The Old Engine House Eskmills Park Musselburgh East Lothian, EH21 7PQ t: 0131 273 4380 f: 0131 273 4381 e: info@cfa-archaeology.co.uk w: www.cfa-archaeology.co.uk						Drawn by:	LW	Checked:	LW	Report No:	2007



Fig. 17 - Smoke chamber exposed and structural steelwork



Fig. 18 - Smoke chamber and first floor baffle exposed



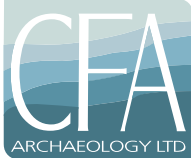
Fig. 19 - Southern-most kiln exposed on the ground floor



Fig. 20 - Northern-most kiln exposed within the near demolished building



Fig. 21 - Close-up of the northern-most kiln part demolished

Key:	Fig. No:	17-21	Revision:	A	Client:	Turley Associates					
	Title:										
	Project: Pathbrae Maltings Building, Kirkliston Historic Building Survey										
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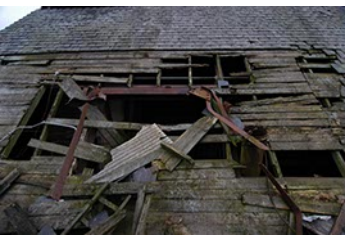
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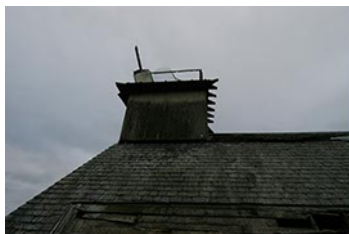
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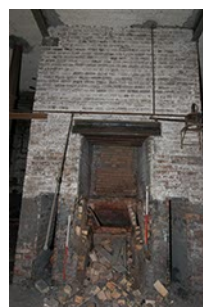
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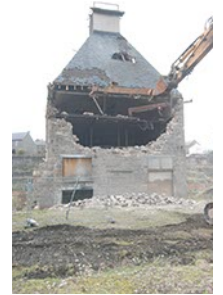
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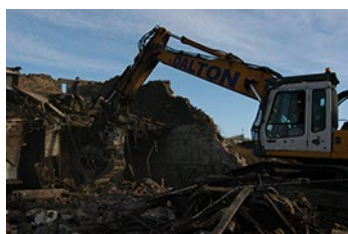
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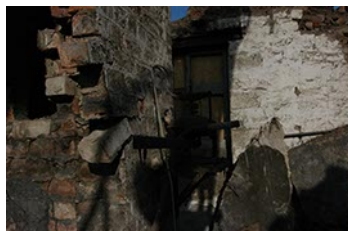
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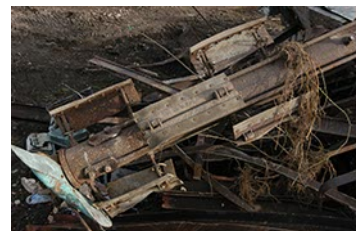
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