Historic Analysis of the Remaining Buildings in the Farmyard of Butler's Farm, Broomfield Road, Broomfield, Chelmsford, Essex.

Map Reference: TL 7079 1102

HEM Site Reference No. BROBF11.

Introduction.

This report follows the recommendation of an Archaeological Survey of the site following planning consent under planning application 10/01969/FUL to Chelmsford Borough Council for the conversion to domestic use of barn and associated farm buildings with the demolition of others, the brief for which was prepared by the Historic Environment Management Team at Essex County Council and forms the basis for this report. The buildings discussed in the report have been given numbers that are marked on the site plan.

Building 1. Barn.

Building 2. Calf pens & machinery store.

Building 3. Range adjacent to the Chase.

Building 4. Range adjacent to Broomfield Road.

Building 5. Dutch barn.

Building 6. Remnant of cattle shed & yard.

Building 7. Modern grain store.

Butler's Farm is located on Main Road, Broomfield (TL 7079 1102). The farm is situated between the main north south orientated road, B1008, and the valley of the River Chelmer towards the northern end of Broomfield Parish. This land was completely undeveloped until 1837 when it was sold off in Lots as part of the Butler's estate. Four of the Lots of the land were purchased by Thomas Christy, which along with some fields that stretch into Little Waltham parish formed an area of some seventy acres. In 1791 when a Mr Charles Porter owned Butlers an estate map gave the field sizes and names. What became Butler's Farm was built on a field called Seven Acres. All the land purchased by Thomas Christy is shown as arable on the estate map for the sale in 1837 other than Lot 5, some 4½ acres, that was pasture.

History and Development.

By the time of the Tithe Award map for Broomfield in 1842 a house and farm buildings had been built along the north-south main road and to the south of the access called the Chase. The Tithe Award records the land as being owned and worked by Thomas Christy other than the small cottage down the side of the Chase

that was occupied by Leonard Goodeve & another. Christy himself appears to be living at this time at Brooklands, a house set to the south of Mill Lane, also in Broomfield parish. It is assumed that the house was used by a farm manager or equivalent as the land was not tenanted.

The buildings shown on the copy of the Tithe Map can be translated as the house, barn and roadside range. The buildings along the Chase are possibly shown and a south western range but other outlines suggest further buildings or yards in this area.

In 1875 when the first edition Ordnance Survey map was surveyed (published 1878) the buildings are more clearly defined. The range to the road and those down the side of the Chase clearly represent the shape of those still extant today and are coloured pink on the Ordnance Survey map denoting a related domestic use. To the east of the Chase range is an L-shaped building that no longer survives. Beyond the barn to the east is another connected long building having a long southern wing covering the area to the east of the surviving building 2. The area now covered by building 2 is shown as a yard area.

The second edition published in 1896 and revised in 1895 now clearly shows that building 2 has been built. The building to the east of the barn is shown extended to the south filling the gap between the buildings to the south. The long southern wing appears to have been rebuilt so that it finishes on the line of the spine wall of building 2. The L-shaped building to the north of the barn has been demolished.

By the third edition of the OS map from 1921 the building to the south abutting building 2 appears to have been completely rebuilt square to the end of that building and across to the building to the east of the barn. On this map is also a line of pigsty's beyond the farmyard and along the side of the Chase. No trace of these remain other than a rough corner of field that was not ploughed and planted when the farm was last in use.

The development after this period is the replacement of buildings within a similar footprint other than the south projection linking the east of the farmyard. This link is demolished and the present much rebuilt, corrugated iron covered eastern end of building 2 must reflect this change. The large square block to the east of the barn has been replaced with a similar sized 'Atcost' concrete portal framed storage building, possibly 1970's. The small remaining portion of the original in line building to the east of the barn survives beyond this new build as two bays with a section of timber framed walling on a brick plinth. It shows much restructuring possibly using elements from the demolished part of the building. To the north of the modern storage building now stands an 'Atcost' concrete portal framed Dutch barn that commences in line with the end of the barn and finishes beyond the remaining section of the timber–framed building to the east. Another Dutch barn now demolished had been erected to fill the western farmyard between the barn and the roadside range.

Farming history.

In the nineteenth century the fields of this farm were mainly designated as arable. Situated on the ground gradually sloping down to the river Chelmer they would be ideal crop producing ground with good drainage towards the river.

When sold in 1837 to a local entrepreneur he must have been well aware of the latest farming techniques to consider starting a new venture. What remains now is a farmstead built predominantly for arable farming. The five bay barn with its stone threshing floor, the stables and implement sheds plus a collection of other buildings to the south east of the site that may have been for animals shows a well thought out small production unit. The animals, possibly cattle would have provided manure for the arable fields. The four acre field nearest the farm is called 'Home Pasture' in the Tithe Award. 'Butlers Mead' another field of just over four acres was possibly to provide the hay crop. This field was accessible from Mill Lane and on the other side of that road to Brooklands, Thomas Christy's main residence.

The one question that remains an enigma is the use of the long building to the east of the barn as shown on the First Edition maps. Was this a beef production unit as appears on many of the model farms being built towards the middle of the nineteenth century. This scenario is backed up by the number of yards shown on this map. It was built after the initial build so is a further development on the farm site. The building now lost to the east of The Chase range could have been a feed preparation mill, the barn mostly providing for feed crops. The new buildings on the Second Edition map would provide a shelter shed to the yard and possible calf rearing units to the south. This has to be surmise but the remaining bay of the long building is the one building not easily explainable by any other reason.

After WWII the farm develops into a purely arable farm with the large concrete portal framed building almost certainly put in as a bulk grain store with the use of combine harvesters to provide the ready threshed grain and the Dutch barn to store baled straw mainly for resale. From this period comes the slow deterioration of the earlier buildings not required or big enough to support the needs of modern farming.

The Buildings.

Building 1. The Barn.

The five bay timber-framed barn is aligned west to east with the midstrey to the south. It is set on a relatively high plinth of brick and flint infill panels. It is of classic mid nineteenth century design using machined section timbers, minimal pegged joints and all critical jointed areas being iron strapped.

The barn structure sits on a brick plinth that reduces from 18" (470mm) at two courses from the floor with plinth bricks to become a pillared and flint panelled wall. This continues for a further ten courses at 13½" (345mm) before a top course of plinth bricks on which sits the sill plate of the barn. The wall structure is solid brick at

the pillars only. Between each bay pillar the area is shutter filled with flint panelling. The top plinth brick course was then laid to provide the flat bearing for the timber sill of the barn. This is a walling type seen in domestic and agricultural settings from the end of the eighteenth century in Essex and neighbouring counties and comes as a free material that would have been collected from the fields during cultivation. Sometimes the flint panels are found to the full wall thickness and sometimes the inner skin is brick or clunch. The barn weight is transmitted on to the brick pillars the infill is not load bearing. At regular intervals in the bottom of the plinth cast iron air vents have been inserted to keep good airflow at low level through the barn.

The main frame of the barn is mainly in Scandinavian softwood, as shown by the 'bracking' marks and of approximately 7" x 7" (180 x 180mm) sections. Unusually the intermediate bay and central posts of the end gables are in oak of slightly smaller section. The timber-framing is of primary brace design with the studs nailed either side of the main braces. The long primary bracing, along the length of the barn, falls from the pegged bay posts to the sill finishing one stud short of the next post. It is only in the end walls that any stud runs full height from sill to wall plate. With the long lengths available in Scandinavian softwood the need for scarf joints is limited. Where used they are of the shouldered bridle design with slightly sloping meeting faces. The top shoulder of this design gives protection to the bridled joint under. The joints were pegged but there was also a flat iron strap with staples retaining the ends and face nails fitted across the scarf. The main post to tiebeam joints were strapped and solid corner braces were bolted through posts and tiebeams. Originally both gables had a high pitching door.

The roof structure of the barn is a very simple side purlin roof with the purlins supported by slightly cranked collars that are trenched to the principle rafters and nailed in position. At the apex of each collar truss a saddle is nailed under the ridge board. The principle rafters have the same depth as common rafters but increased thickness to accommodate the collars. The roof is controlled by typical mid nineteenth century long single bay wind braces at each end of the barn from the end collar to the tiebeam of the next bay. The roof is now covered with profiled asbestos sheeting.

The midstrey (porch) is an original feature of the barn and is framed by using very long tiebeams that continue through as the top plates of the midstrey. These show a notable 'carpenters mistake' in that both were marked out and cut for the stud mortises on the same side. The mortises, on the east side, are filled and re-cut to place the studs to the outer face of the tiebeam/plate. The walling structure is similar to the main barn walls. The main doors are hung on posts set in from the main corner posts and fitted with small solid corner braces attached with bolts as the tiebeam braces. The doors were hung on the outside with large pintle hinges bolted through the posts. The same design of structure was used to construct the north opening with doors of the same height. This opening was later filled in. The midstrey doors have slotted guides for leap boards to close the lower part of the opening. The

unusual detail found here was the chisel cut numbering from I – IIII on the guide to show the order in which the leap boards fit. Two boards survive and are numbered III and IIII. The blocked opening to the north wall also had leap boards but no remains could be seen of a numbering system. The west wall of the midstrey had a small side access door as an original feature and clearly shown by the change in the bracing and frame structure.

The plinth walls of the midstrey had flush walls to the inside with no lower plinth bricks and were lined with 2" (50mm) thick oak boarding that was bolted through the wall. This unusual feature provided a clean junction between wall and the stone threshing floor slabs. It also stopped the flails from damaging the brick face of the wall. Although now cut back across the small door opening they do appear to have originally continued across at a reduced height as the side access door now has a lower extension.

The surviving high doors, ledged with half braces to each ledge are clad with vertical tongue and grooved softwood boarding all of which appears to be original albeit in a poor condition. The roof to the midstrey is similar to the barn roof. This upper area has been boarded off as a floored storage area for most of its length at plate level with access from high door in an inner gable. Typical arch headed holes survive on the front face of the gable suggesting that part of the floored storage area was also used as a pigeon loft.

The walls of the barn are clad in feather edge weatherboarding, much replaced, and generally in a poor condition. Each end gable has a pitching door set above tiebeam level.

To each side of the midstrey are lean-tos that appear to have been constructed very soon after the original barn. The extended plinth wall at the west has a clean break to the main plinth and the one to the east appears to be the same. The framing structure is very basic and uses much reused and poor timber.

That to the west (not entered) had to have an inner return wall to allow for an access lobby to the side door of the midstrey. The entry door to the lean-to is set in the centre of the remaining front wall. It is clad in weather boarding.

The lean-to to the east was possibly open fronted when built, but later divided into two small pens by iron fence sections. The remains of later front panels survive to the front. The tiebeam supporting the roof structure is a small tree of minimal conversion with the rafters above resting on a purlin with supports back to the tiebeam and end walls. These timbers are machined section softwood.

Building 2. To the south of the farmyard and west of the house.

This building does not appear on the First Edition maps but is in place by the revised Second Edition published in 1896. It is a building comprising a long east west brick wall with an asymmetric roof built from it. This gives a wider, originally open fronted,

shelter shed facing to the north with a narrower closed building to the south. The roof is still partly clad in pan tiles to the north and multi-profiled clay tiles to the south. The spine wall had inserted cast iron vents at regular intervals equivalent to one to each bay of the roof structure. These vented the southern side of the building that was built with brick end walls and frontage.

The brick south front had relatively wide openings originally divided in half to make two doorways (one post survives) with internal divisions between each of the bays. These divisions were timber framed with vertical boarding, one survives. The front openings have been modified from the first build but little information survives. It is thought that these six units could possibly have been calf pens. The floors were of brick and stepped at the divisions to allow for the natural slope of the land. Whereas the first four units have ordinary bricks as flooring the eastern units had grey Staffordshire engineering sets on the floor to accommodate heavier wear. No fittings survive. The sloping tiebeams sit on a timber lacing piece set into the brick spine wall. The underside of the rafters was also lathed suggesting an insulated roof.

What was the open shelter shed side has seen more changes. The first two bays are now infilled as a shed with a door and window inserted into the west wall. This was possibly always framed and boarded as the end wall of the shelter shed. The north wall of this area has one bay with vertical timber cladding and the next bay has double doors fitted. This suggests conversion to a workshop with the large doors as access for equipment. The next two and a half bays exist as an open fronted shed but other than for one of the asymmetrical trusses surviving it is much changed from the original. Beyond this point it has been totally reconstructed from odd timbers and clad in corrugated iron. One of the original truss positions can be evidenced by the cut end of the tiebeam in the brick wall.

Originally at the eastern end an earlier, possible shelter shed, ran north south from the building to the east of the barn. All trace of this has gone other than for a small amount of brickwork to the south of the existing corrugated shed and just north of the line of the east west wall of the main unit. By comparing maps this would have been the end, south, wall of the north south building.

Building 3. To the north of the site adjoining The Chase.

This building is orientated east west with a gable end to the roadside. It is in fact two separate buildings.

The building to the west is a brick building with flint panels similar to the construction of the barn plinth other than the elevation to the road which is red brick to tiebeam and yellow stocks above. A wide opening to the road has been infilled in brick but was most likely the original entrance to a carriage shed. It has a window in the gable wall above the tiebeam. The original end wall to the east has been removed to open the building through to the adjoining building. The timber-framed and plastered gable survives above the tiebeam. The south wall had a further wide opening into the

farmyard that appears to have been increased in width at a later date but subsequently infilled with a timber frame that divides it and now has boards fitted in slots to approx. half height. The building is now roofed in profiled asbestos sheet. From the remaining laths on the rafters it would originally have had pan tiles on the roof. Inside the building is lined out with stretched canvas sheeting removing any signs of original fittings but all the inner faces had been lime washed. The roof structure is machined section softwood rafters supported by purlins that are located by trenched and nailed collars into thicker rafters as the barn. Above each collar position a high saddle provides extra support for the ridge board.

The building to the east is timber-framed, all in softwood, and built as an open fronted implement shed with an open rear aisle. It was built with an open frame to the western building showing that it at least followed that in construction time although both were in existence by 1875. The south side is of four open bays with bracing to each upper corner of the bay posts and return bracing to the tiebeams. The tiebeams are machined section timbers with iron brackets to the wall and aisle plates. As the tiebeams do not align with the posts some braces are nailed and some tenoned in. At the aisle posts the three intermediate posts have nailed braces. The aisle posts are actually two timbers bolted together with the aisle side timber reduced in height by the depth of the arcade plate to allow it to rest on the post and be bolted through the inner one. The roof structure has no collars just larger section rafters and ridge board. This roof is still covered in pan tiles. The wall to the east was also originally open with vertical boarding applied above the tiebeam to fill the gable. The two eastern bays of the north aisle have been closed off with a return from the aisle post containing an access door to make a lean-to shed and a further doorway built into the closed in east end of the building. The wall between the arcade posts has vertical boarding made from reused floorboards set on a low plinth. About half of the original front openings are now closed with boarded panels and the east wall converted to a large double door opening with a small door at the south.

Building 4. The roadside range of buildings.

This range comprises six main bays. The northern two bays were a separate building with the rest of the range adjoining. The road frontage is a brick pillared wall with flint panel infill, the division between the two is shown by the double width brick pillar with a central straight joint. This long range, adjacent to the main road, was roofed in slate as being the most visually important of the farm complex.

The northern building.

This was constructed as a two bay building. The walling was brick pillared with flint panels on the outside between the pillars and the inside face being all brick. The front to the farmyard had a central doorway with small pane window above. To either side of it were high level wooden ventilation flap doors and at floor level clearance holes (now filled) for sweeping out the muck and straw. This stable, most likely to

house the carriage horses, has lost all of its fittings through later changes of use. The inside of the north wall is still lined with vertical boarding as would be expected to each of the walls in a high quality stable. The roof structure follows the same pattern as all the previous buildings from the first build with trenched collars nailed to wider principles and saddles supporting the ridge board. When the building was opened through a small section of the south wall was retained against the west wall.

The southern building.

This is constructed to a similar width as the first stable block and the outside face of the roof is contiguous. Other than the roadside walling the rest of the structure is very different. The east wall to the farmyard nominally has open bays with a door entry in each all designated by full height timber posts. To waist level this open area is filled with yellow stock brick topped with a heavy timber sill. Above this is a light frame for weather boarded cladding. This infill could have been later but as most of the detail is now covered it is impossible to prove. However the very unusual roof design implies a very specific use. The major difference is the roof structure. The variation to the south is where the top plate has been set inwards on the tiebeams and heavy braces fitted from the bay posts to clasp the tiebeam and finish under the plate. The braces are bolted through the posts. This produces an over sailing roof which one would expect with an open frontage. The nominally heavier rafters have no collars or purlins only a ridge board making it similar to the eastern section of building 3. The rafter ends have also been shaped being a feature not noted elsewhere on the farmstead. The south gable wall is clad in weatherboarding above a waist level brick plinth. The inside cross divisions must have been in timber as only slight shadows suggest positions. These stables now appear to have been without light and ventilation as expected, did a later conversion change or infill the east elevation? Was there possibly some form of opening flap to allow light and ventilation that was later solidly filled after it became redundant as a stable.

Buildings 5. Concrete framed building.

To the north of the site aligned with the Chase is a concrete portal framed Dutch barn manufactured by Atcost. The Dutch barn commences at the end of the barn, building 1, and oversails the end of the grain store building 7 and also building 6. The small gap between the two corrugated asbestos covered roofs of this and building 7 has been linked with a strip of corrugated roofing.

Building 6. Remnant of the long building to the east of the barn.

This building appears on the first Edition map and when the concrete portal framed unit, building 7, was erected has been shortened to leave two bays of the building. Its use has been surmised previously in this report as possibly for cattle. It has a brick plinth on which is a primary braced timber frame clad with weatherboarding on

the outside and filled between the studs with hay as insulation, kept in place by wire netting. (wire netting was first manufactured in 1844 although the present material is modern). The roof is supported by a heavy truss, nearly complete but almost certainly restructured at some time during the alterations to the building. It may not even be in its original place as the truss is supported on posts inside the walls of the building although this may have been in the original design to keep the wall framing to the minimal. The truss is typical of the Victorian era having an iron bracketed King post and jack braces out to the purlin positions. The heavy section purlins are cut into the heavy principles of the truss. The remaining common rafters are a mix of size and age and with the change of roof cladding most likely not in original positions. The end gable of the building has a high set window with semi-circular top section designed to throw light along the building. To the south of this end bay is the remnant of a walled yard area with two cast iron gate posts surviving. This does not show on any edition of the maps but the remnant brickwork is very similar to the main plinth of this building. The building is constructed sometime before 1875 but after the first buildings recorded on the Tithe map. If original to the site the east high pitching door of the barn would have had no use.

Buildings 7. Concrete framed building.

Absorbing the space between building 6 and the east end of the barn, building 1, is a large 'Atcost' portal framed grain store. The lower walls are infilled with concrete blocks to all but the north side. The blocks are taken higher against the end wall against the barn as they would not have been able to attach the corrugated asbestos panelling. Inside it is concrete floored with one Roll-over door fitted to the south wall as a main entry. The north wall was never filled but has a 'wall' of straw bales covered with canvas on the inside in a similar way to which some of the earlier buildings had been treated.

Discussion.

For such a late farmyard, the land having been only fields prior to 1837, the site has undergone many changes with additions and demolitions from relatively soon after the farmstead was built. Possibly started as a semi-mixed farm with some animals for manure supply for the arable fields it appears to have quickly changed to a cattle production unit as corn prices reduced from the 1860's. This situation, with various building changes appears to have continued until after WWII when it became a grain centre. Initially the grain was stored by lining existing buildings with canvas to allow for bulk storage. Later when incorporated into a larger farming unit was used as the central grain and bale store for a large acreage farm. This small farmstead is important given its development on a green field site within the date of sale of the land, 1837, and the Tithe map of 1843. Due to continual change to suit agricultural conditions, none of the original fittings or fixtures of the buildings survive. This has led to scenarios being mooted with little positive evidence to back them other than the construction and juxta-position of the buildings.

Notes.

ERO D/DSu P1	Photo of map of the estates in Broomfield belonging to Charles Porter made in 1791. In Estate map folder 8.
ERO D/CT 54B	Broomfield Tithe map 1843.
ERO D/CT 54A	Broomfield Tithe Apportionment 1846.
ERO D/DDw T179/4	Draft deeds for Thomas Christie 1837.
ERO D/DU 813/1	Notes by Thomas Christie on realising that part of Butlers Farm lands were in Little Waltham parish. c1840.
ERO D/DDw B6/1	Will Thomas Christie of 15/6/1846. Talks of new built house and farm on land bought from Cheveley.
1st Edition OS map.	25" surveyed 1875, published 1878. Sheet 43/12.
2nd Edition OS map.	25" revised 1895 and published 1896. Sheet 43/12.
3rd Edition OS map.	25" revised 1919, published 1921. Sheet 54/3.

The Evolution of the English Farm. M E Seebohm. Revised edition 1952. George Allan & Unwin Ltd. London.

The Industrial Revolution 1760 – 1830. T S Ashton. Revised 1968. Oxford University Press.

Historic Farm Buildings Susanna Wade Martins. 1991. B T Batsford Ltd. London.

English Farmsteads 1750 – 1914. 1997. P S Barnwell & Colum Giles. RCHM England.

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Elphin & Brenda Watkin August 2011.