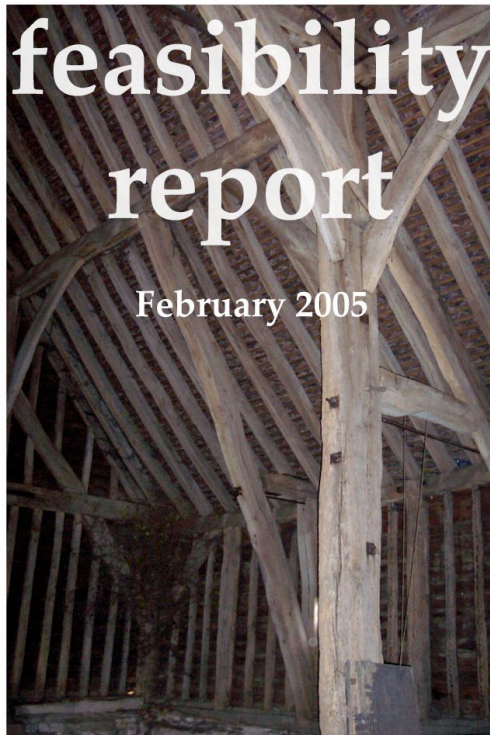


CROXLEY  
Rickmansworth  
GREAT BARN

feasibility  
report

February 2005



**We would like to acknowledge the Architectural Heritage Fund,  
which has provided support and funding  
for the production of this Feasibility Report.**

***Scurr & Partners Limited***

# Contents

## **1.0 Introduction – Conservation Statement & Purpose of Study**

- 1.1 Conservation Statement
- 1.2 The Hertfordshire Building Preservation Trust
- 1.3 The Friends of Croxley Great Barn
- 1.4 Introduction
- 1.5 History of the Barn
- 1.6 The Feasibility Study
- 1.7 Sources of Funding
- 1.8 Professional Contributors
- 1.9 Advisory Bodies
- 1.10 Relevant Issues

## **2.0 The Property**

- 2.1 Brief Description
- 2.2 Location Map
- 2.3 Construction
- 2.4 Dating
- 2.5 Listing
- 2.6 History

## **3.0 Access**

- 3.1 Existing Access
- 3.2 Croxley Hall Farm
- 3.3 Proposals for Access

## **4.0 Ownership**

- 4.1 Summary
- 4.2 Reasons

## **5.0 Conservation of the Barn**

- 5.1 Repairs to the timber frame
- 5.2 Repairs to masonry
- 5.3 Conversion to new use

## **6.0 If all else fails... The Option to Relocate**

## **7.0 Alternative Uses**

- 7.1 External Influencing Factors
- 7.2 Uses Matrix
- 7.3 Proposed Use
- 7.4 Alternative Uses
- 7.5 Proposed Plans

## **8.0 Detail Design and Construction**

- 8.1 Outline Specification
- 8.2 Building Regulation Compliance

## **9.0 Planning Context**

- 9.1 Diagram of Land Uses
- 9.2 Prevailing Planning Policy Framework
- 9.3 Assessment of possible alternative Uses for Croxley Great Barn
- 9.4 Approach of the Local Planning Authority
- 9.5 Summary

## **10.0 Financial and Market Analysis**

- 10.1 Probable Values of Building in Different Uses
- 10.2 Resale and other income from building once repaired (as proposed).
- 10.3 Local Property Market and Market Analysis

## **11.0 Budget Costings and Quantity Surveyor Costings**

- 11.1 Cost Plan Summary for Access Option A
- 11.2 Cost Plan Summary for Access Option A with 'Upstand' Option
- 11.3 Cost Plan Summary for Access Option B
- 11.4 Cost Plan Summary for Access Option C
- 11.5 Cost Plan Summary for Access Option D
- 11.6 Cost Plan Summary for Access Option E
- 11.7 Cost Plan Summary for Access Option F

## **12.0 Potential Funding**

- 12.1 List of Fund Potentials

## **13.0 Long Term Management**

- 13.1 Valuation

## **14.0 Summary and Conclusion**

- 14.1 Summary and recommendations

## **15.0 Appendices**

- A Photographs
- B Case Studies and Examples
- C Approximate Utilities Charges

## **16.0 Bibliography and References**

## 1.0 Introduction – Conservation Statement & Purpose of Study

### 1.1 Conservation Statement

The Croxley Great Barn is an important member of a series of buildings commissioned by the Abbot and is believed to include Kingsbury, Abbots Langley, St Julians Parkbury and, possibly, the barn at Harpendenbury. These barns were designed for the purpose of threshing and grain storage. The bays and aisles were utilised for the storage of the cereal crop. Threshing took place on a hard surface such as rammed chalk. The decline of the barn was caused by the introduction of mechanisation. The production of grain straight from the field replaced the need for storage and of unthreshed grain.

Croxley Great Barn, now Grade II\* Listed, is a timber-framed aisled barn with a crown-post roof. Dated, as commissioned by English Heritage, at around 1397/98 [following dendrochronological testing]. This places it in history during the Abbacy of John Moote.

The barn, which is one of the larger of its type in Hertfordshire, measures 101ft by 40ft, consists of five weather-boarded bays and is aisled. The peg-tiled roof has half-hipped gable ends and gablets. A contemporary timber framed gabled porch projects from the eastern side of the central bay. Two of the open trusses are of collar and tie beam type and those forming the central bay are of crown-post type. The crown-posts are tall and square in section with single curved braces which spring from near the bottom of the post to the central purlin. The arcade posts are 13 inches square and the arch braces and passing braces are 6inches and 4½ inches thick respectively.

The aisles in the northern half of the barn are divided by sleeper-beams 9ft 3ins long by 13 ins wide resting on walls 4ft 10 ins high, constructed of flint with Totternhoe clunch limestone and, in places, brickwork copings. Because of the sloping ground the southern aisle partitions are higher and the southern external wall is 6ft 6ins high with remains of flint buttresses.

Midway between the principal wall-posts are jowled wall-posts, chamfered shores or secondary braces, 9ins by 11ins in section and these are tenoned into the arcade plates. Tenoned to the shores and jointed to the wall-plates are short square-section ties. The right aisle tie and wall-plate of the porch are one and the supporting wall-post is not jowled.

The door within the porch, which is in the centre of the eastern side of the barn, is large enough to admit a fully laden hay cart to pass over the extant threshing floor of 4ins thick oak boards.

The adjoining farmyard of Croxley Hall Farm surrounds it on three sides and the only access is across the school playing field of the St. Joan of Arc Catholic School. The barn was conveyed to Hertfordshire County Council in 1972 and was fully repaired by the Council between 1973 and 1975. Its state of repair remains reasonable, but there are problems with ivy growth, missing and slipped tiles and retaining wall damage. It is on the English Heritage Buildings at Risk Register.

Herts Building Preservation Trust (HBPT) wishes to investigate the feasibility of taking over the ownership of the building, as presently neither the School (except for some storage) or the (now redundant) Farm use it. Despite its Listing, the barn is not being maintained, and its condition is starting to deteriorate.

This deterioration is in the main due to the lack of access to the barn which in turn limits its potential use.

It is strongly believed that the barn is not 'redundant' and a Feasibility Study has been commissioned by HBPT to investigate a way forward and a future for this historic oak barn. The Feasibility Study not only sets out ways of conserving and repairing the barn, but also some practical uses for it, which will not only earn income for its upkeep but will allow it to be seen by the general public.

The intention is to retain as much of the historic fabric as possible. This is one of the guiding principles of conservation repair. Historical fabric will only be removed or replaced which is essential for the long-term future of the building, or where urgent structural work is deemed necessary. Wherever possible techniques will be used to prolong the life of the fabric rather than replace it. Any fabric that must be removed will first be photographed and recorded.

Future uses are described and investigated fully within the Feasibility Study, all of them will require the provision of services and most important of all easy access. To this end the HBPT are determined to achieve a barn development which secures the historic fabric and provides both access and a working space around the building that will ensure the building's long term survival.

## **1.2 Hertfordshire Building Preservation Trust**

The Hertfordshire Building Preservation Trust was formed in 1963 in response to growing public concern over the future of Hertfordshire's historic built environment. Since this time the organisation has been involved in the repair and restoration of a number of historic buildings which, without the Trust, might have been lost or irredeemably damaged.

The Trust benefits from the support of the County Council, the District Council and individual subscriptions.

## **1.3 The Friends of Croxley Great Barn**

Concerned that continuing neglect could cause deterioration in the fabric of the barn and possibly irreparable decay, the Friends of Croxley Great Barn was set up in late 2002 to seek public support for:

- promoting a secure future for this fine fourteenth century structure for the benefit of the community;
- seeking funding support from statutory and charitable bodies (English Heritage has indicated that a grant covering up to 75% of the cost of repair could be made available subject to certain conditions being met);
- ensuring continued access to, and giving consideration to the re-use of, the building, and the issue of public access for interested parties.

## **1.4 Introduction**

The Great Barn represents one of the most impressive and important types of agricultural building that was developed within England and served the agricultural community. The farm occupies a fundamental role in respect of the architectural heritage of the English landscape; the barn has both an intrinsic value as a farm building and also contributes strongly to the rural scene. The erosion of its functional purpose began in the 18<sup>th</sup> century with the introduction of new farming techniques, this process became greatly hastened by mechanisation and industrial management techniques following the Second World War. The Croxley Great Barn became isolated from the Parish of Croxley following the construction of the railway and was further affected by the effects of gravel extraction within the locality. This also hastened its demise as a practical farm building.

The Croxley Great Barn was a monastic structure designed exclusively for the purpose of threshing and grain storage. The main structure, consisting of a series of bays and aisles, was devoted to the storage of the cereal crop. The floors were constructed of a hard material and indeed we can still see the semblance of the threshing floor within the Croxley Great Barn. It was from the threshing floor that the grain was beaten out with flails during the winter months. Porch-like projections known as midstreys extended the threshing floors outside the Barn affording overnight cover for loaded harvest wagons. The great doors admitted light and air for the threshers to work.

## **1.5 History of Croxley Green**

The first written history of Croxley is thought to have begun when "Crox Monier" (one who makes metal in to coins) to King Canute in 1016 assessed the value of property in the clearing along the Green and at Croxley Hall Farm. In the Domesday Book, this was listed as Croxley or Lear meaning valley. The area in Crox's time would have been heavily wooded country intersected by occasional tracks and with little more than the site of the present green. The oldest building in Croxley is the Monastic Great Barn, which was later to be associated with Croxley Hall. The Barn measures 101 feet x 38 feet 5 inches.

The first inhabitant to have his name recorded was Richard de Croxley who was a knight of St Albans in 1166. It is known that he gave a mill at Croxley to the nunnery of St Mary Clerkenwell.

The manorial rights of Croxley stayed with his family until the early 15<sup>th</sup> century when in the absence of a direct male heir the manor was conveyed to the abbot of St Albans.

Over the years the name of Croxley developed as follows:

Crokesleya, Crokeslea, Crockesle, Crockesleigrene, Crosley Green and then to Croxley Green.

During the 13<sup>th</sup> century Croxley developed into a small hamlet of cottages and farms, in 1557 the Manor was given to Gonville and Caius College, Cambridge by Dr John Caius, he having acquired it following the dissolution of St Albans Abbey, and remained in the College's ownership for many centuries.

During the 19<sup>th</sup> century industrial business along the rivers and canal brought the railway from Watford and later Metropolitan Railway – Rickmansworth and Amersham.

- Dormitory Housing
- Greenbelt / SSI Moor
- Suburban economy
- Recreation **not** farming

## **1.6 The Feasibility Study**

This Study and Report were commissioned in July 2004 by The Hertfordshire Building Preservation Trust to assess the feasibility of taking ownership of the structure and the restoration of the Grade II\* Listed Croxley Great Barn in Rickmansworth.

The Trust's intention is to ensure both the immediate and the long-term preservation of The Croxley Great Barn and explore alternative uses that could contribute to the building's future sustainability.

The study's aim is to explore the various physical, financial and regulatory constraints which influence the building and its' successful restoration and conversion.

The Study and report have been undertaken by Scurr and Partners and a small team of specialist consultants, with considerable support and knowledge from Robert Dimsdale of the HBPT and the 'Friends of Croxley Great Barn'.

## **1.7 Sources of Funding**

The Study is funded by the Hertfordshire Building Preservation Trust, The Friends, 3 Rivers District Council and a grant from The Architectural Heritage Fund.

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## 1.10 Relevant Issues

The building is at risk for a number of reasons, these being namely:

- The historic loss of amenity space and access.
- Neglect by the present owners who lack the funds to repair and renovate the building.
- Penetration by the elements through existing holes in the building fabric.
- Deterioration of the roof.
- Pigeon infestation.
- Signs of structural distress.
- Fire hazard from rubbish.
- The lack of defined boundaries.
- The lack of any security and fire safety equipment.
- Its setting within the wider area.

There are a number of issues which the feasibility study will address, the most significant of these are:

- Remedial works to bring an immediate halt to further decay of the building.
- The general conservation, refurbishment and renovation of the barn.
- Appropriate use for the building to provide future funding and opportunity for public viewing.
- Access.
- The restrictive covenant.
- Define the significance of the building.

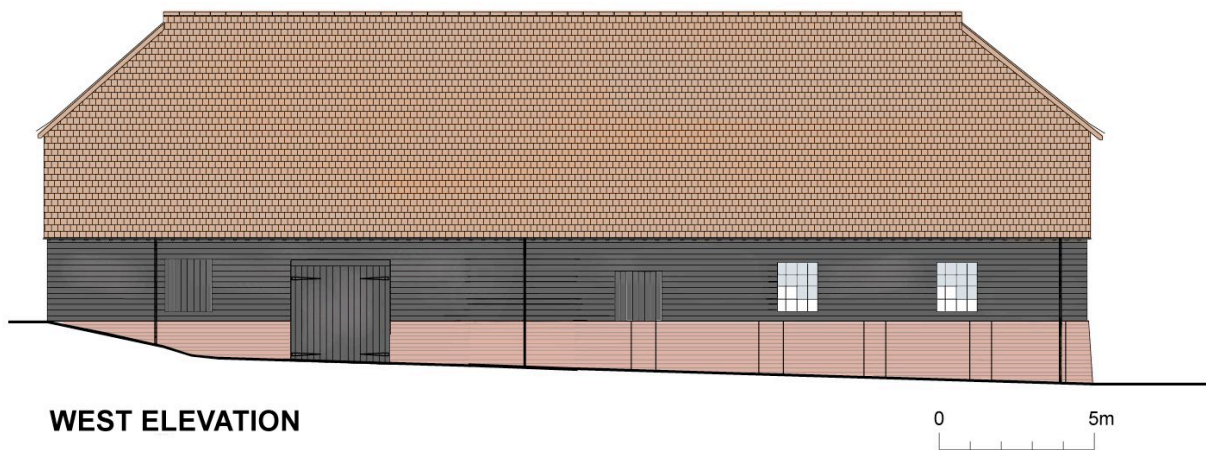


Fig. 1 Croxley Great Barn, West Elevation



**Fig. 2 Croxley Great Barn, Western Elevation, Southern End circa 1975  
Photograph courtesy of Hertfordshire County Council**



**Fig. 3 Croxley Great Barn, Western Elevation, Northern End circa 1975  
Photograph courtesy of Hertfordshire County Council**

## 2.0 The Property

### 2.1 Brief Description

Croxley Great Barn is a Grade II\* Listed Oak framed building dating from the late 14<sup>th</sup> Century. It is situated just to the south of the London Underground Metropolitan line to Amersham close to its junction with the Watford branch, and in close proximity to Croxley Hall Wood where the original Croxley Manor is believed to have been sited.

Evidence shows that the building dates from between 1396-1401 when Abbot John reportedly paid 100 marks (about £66) for the making of a very large barn and other buildings. At the Dissolution in the 1540's The Manor of Croxley became Crown Land and it was sold in 1557 to Dr Caius who was educated at Gonville College, Cambridge. Dr Caius gave the Manor of Croxley including the barn and surrounding land to the college (then Gonville and Caius College) and the land stayed in the ownership of the college until 1972 when it was purchased by Hertfordshire County Council to form part of the enlarged St Joan of Arc School.

The barn underwent restoration during 1973-5, at great public expense, under the guidance of the County Council. It has remained unused ever since but given its age the building is in remarkably good condition, the main oak structure is intact and the building fabric remains mostly complete. The ownership of the barn was transferred to the School in 1995.

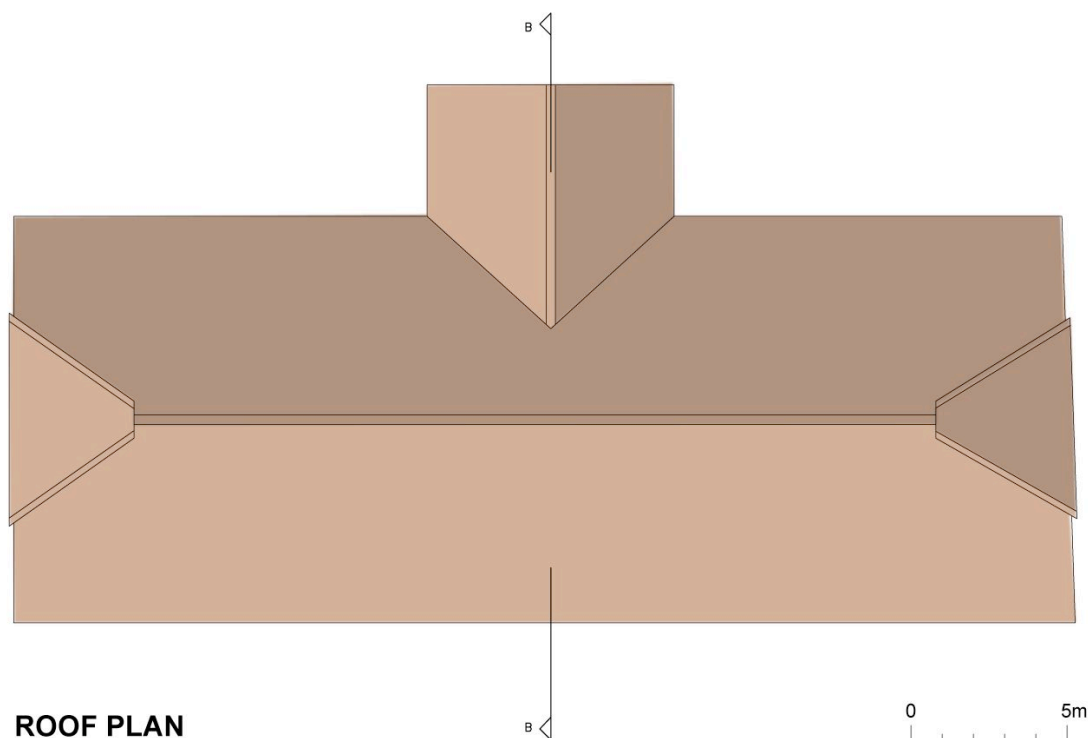
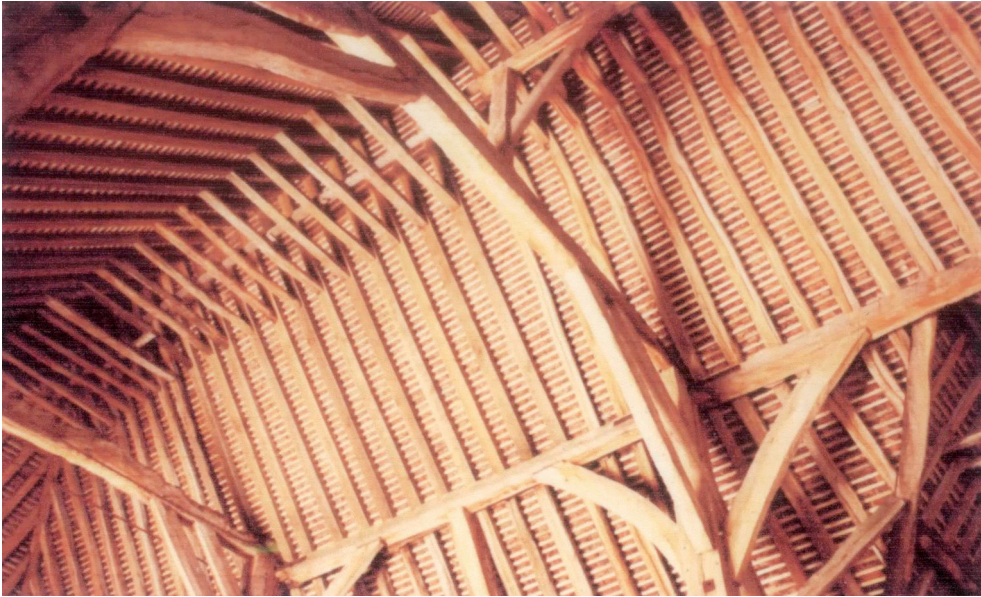


Fig. 4 Croxley Great Barn, Roof Plan



**Fig. 5 Croxley Great Barn, View of Roof Structure circa 1975**  
Photograph courtesy of Hertfordshire County Council



**Fig. 6 Croxley Great Barn, Internal View Looking North circa 1975**  
Photograph courtesy of Hertfordshire County Council

## 2.2 Location Map

2.2.1 The following area map shows the location of both Croxley Great Barn and St Joan of Arc School. Rickmansworth is located to the South West of the map.

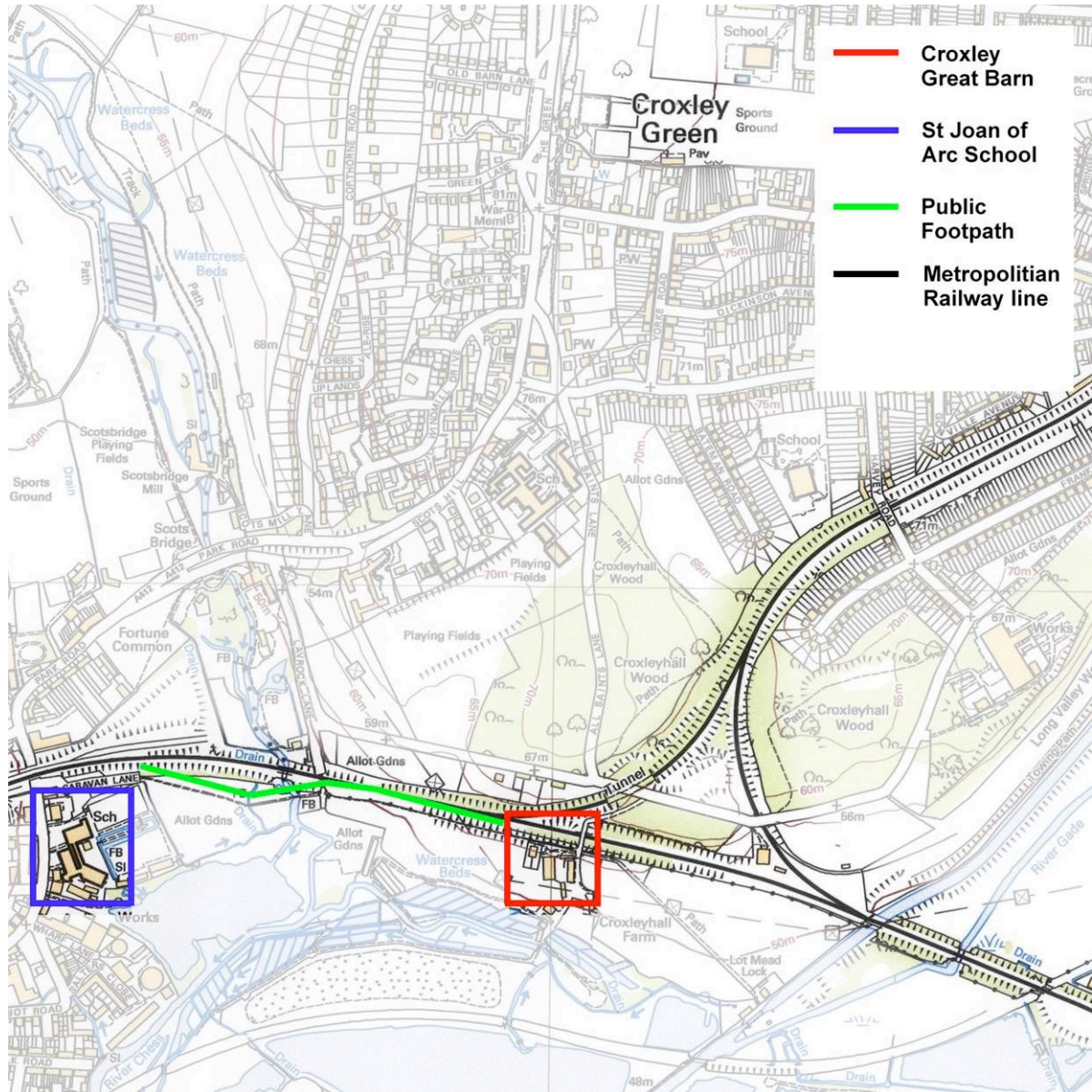


Fig. 7 Ordnance Survey Map of Croxley Green showing Croxley Great Barn and St Joan of Arc School

### 2.2.2 Aerial Photograph

This photograph shows an aerial view of part of the area indicated above. The barn can be seen to the right of centre at the end of the school playing field.



Fig. 8 Aerial Photograph of land to the south East of Croxley



### 2.3 Construction

Croxley Great Barn is one of a group of stylistically similar timber-framed barns in the vicinity of St Albans and one of the largest of its type in Hertfordshire. It measures 101ft by 38 ft 5 ins (33m by 12m) and consists of five weatherboarded bays and is aisled.

It is of particular interest in that it has a number of crucklike intermediate arcade shores set at half bay intervals which look a little like basecrucks. They are braced back to the aisle wall posts by 'stubbies' that appear original, but at their tops they only cradle the arcade plates. Confirmed as original by M Bridge dendrochronology (2000).

The passingbraces rise to stop at tie beam level. The crownpost/crown plate support was apparently only set over the midstrey bay. All the tie beams are slightly cambered, though the collars are not.

The peghole tiled roof has half hipped gable ends and gablets.

A contemporary timber framed gabled porch projects from the eastern side of the central bay. Two of the open trusses are of collar and tie beam type and those forming the central bay are of crownpost type. The crownposts are tall and square in section, with single curved braces which spring from near the bottom of the post to the crown plate. The arcade posts are 13 inches square and the arch braces and passing braces are 6 inches and 42 inches thick respectively.

The aisles in the northern half of the barn are divided by sleeperbeams 9 ft 3 ins long by 13 ins wide resting on walls 4ft 10ins high, constructed of flint, with Totternhoe clunch brickwork and in places coping.

Because of the sloping ground the southern aisle partitions are higher and the southern external wall is 6ft 6ins high with remains of buttresses of flint faced in brickwork of a later date at the southwest corner.

Midway between the principal wallposts are jowled wallposts, chamfered shores or secondary braces, 9 ins by 11 ins in section, and these are tenoned to the arcade plates.

Tenoned to the shores and jointed to the wallplates are short squaresection ties. The right aisle tie and wall plate of the porch are one, and the supporting wall post is not jowled.

The doors within the eastern porch, which is in the centre of the eastern side of the barn, are large enough to admit a fully laden hay cart to pass over the flailing floor of 4 ins thick (oak) boards.

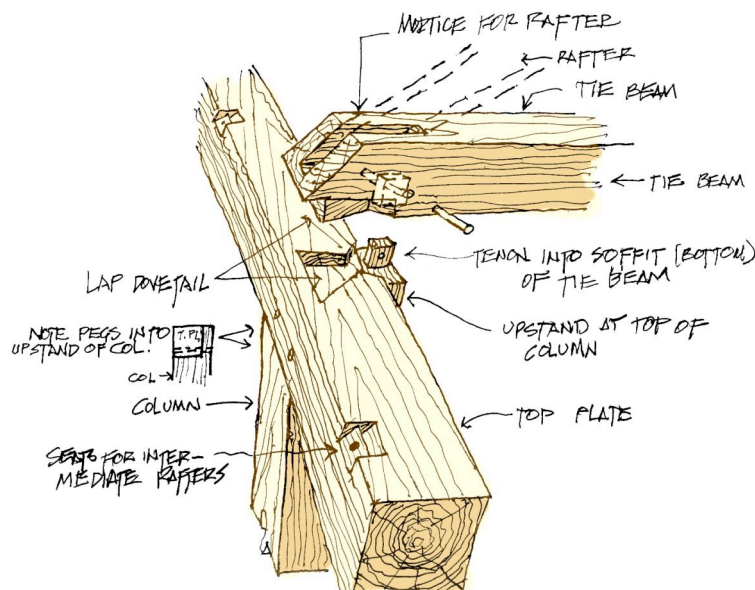


Fig. 9 Sketch Detail of arcade post/principal wall post showing traditional jointing

## 2.4 Dating

Dating of the timber was commissioned by English Heritage in order to try and establish the date for this barn, thus perhaps dating the other similar barns in the vicinity, and to see if dendrochronology would be able to settle the discussion about whether or not the intermediate arcade shores were original.

Despite the use of relatively fast grown young oak trees to provide the large timbers in this barn, dendrochronological dating was possible. Some timbers exhibited unusual growth patterns and these could not be dated. This implies that some of the timbers may have been managed, suffered disease, or insect defoliation, during their lifetime.

Only one sample retained complete sapwood, giving a felling date of the winter AD 1397/8. Three of the other timbers which dated cross matched well with each other and appeared to have come from a single group of timbers, perhaps representing a single woodland source. The other dated timbers exhibited likely felling dates which incorporated winter AD 1397/8, and it seems likely that they were all felled at the same time.

This date agrees well with the historical records suggesting that the barn was most likely to have been constructed during John Moote's abbacy. One intermediate arcade shore was dated, this being one of the four timbers in the site chronology. This shows that these unusual features were indeed part of the original build of the barn.

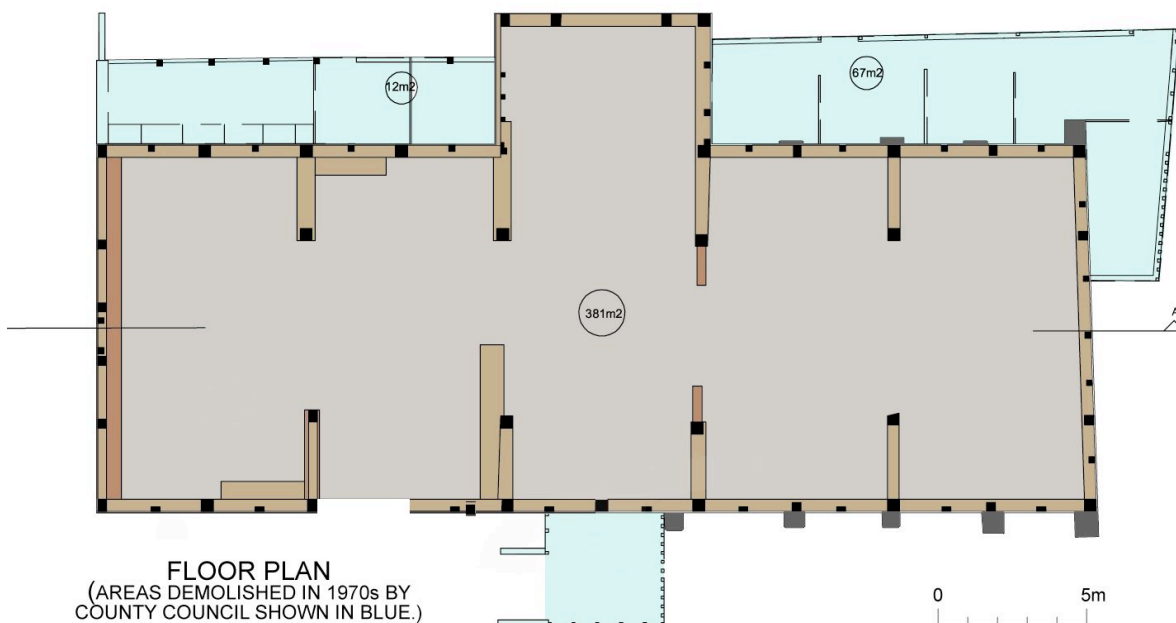
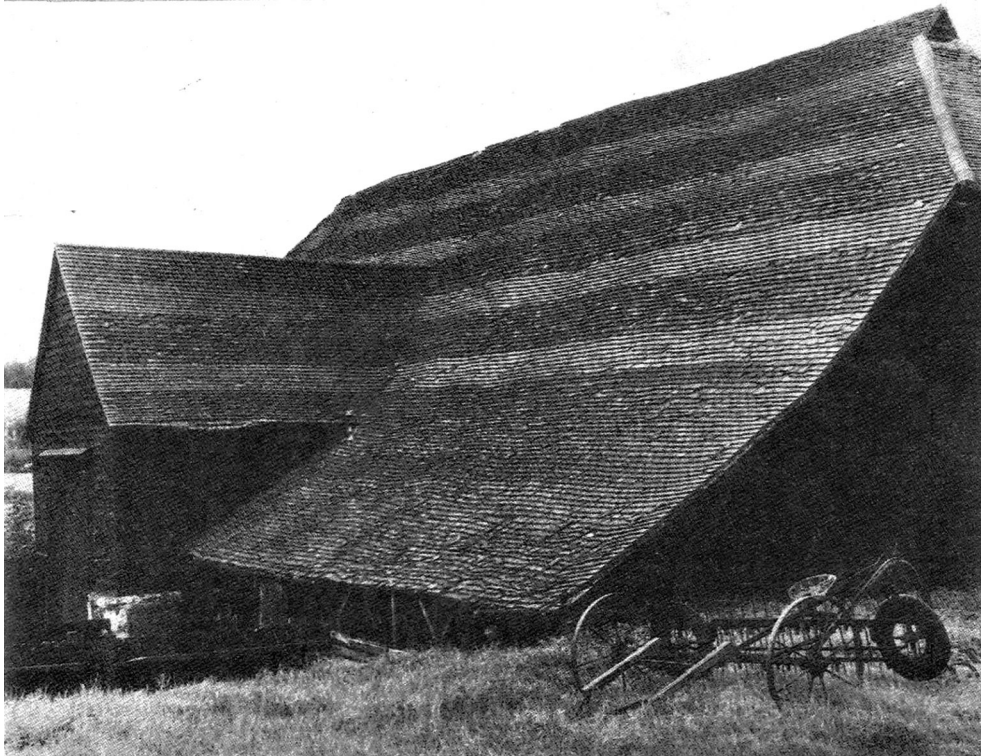
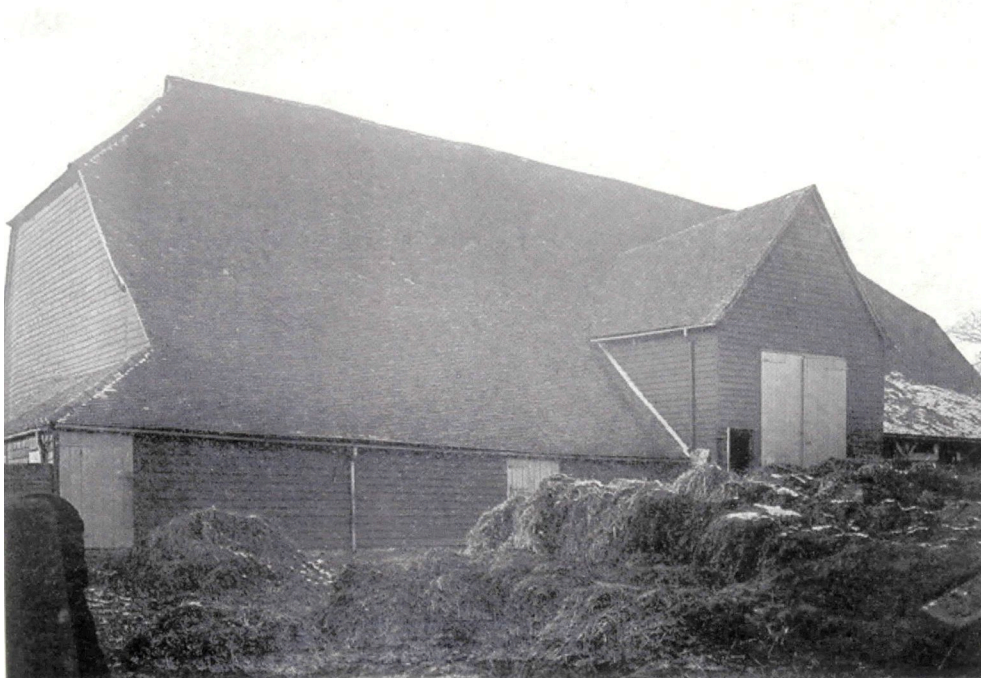


Fig. 10 Croxley Great Barn, Floor Plan



**Fig. 11 Croxley Great Barn, East Elevation Showing 'Upstand' at Northern End circa 1912**  
Photograph courtesy of Gonville and Caius



**Fig. 12 Croxley Great Barn, East Elevation Showing Demolished 'Upstand' Structures circa 1912**  
Photograph courtesy of Gonville and Caius

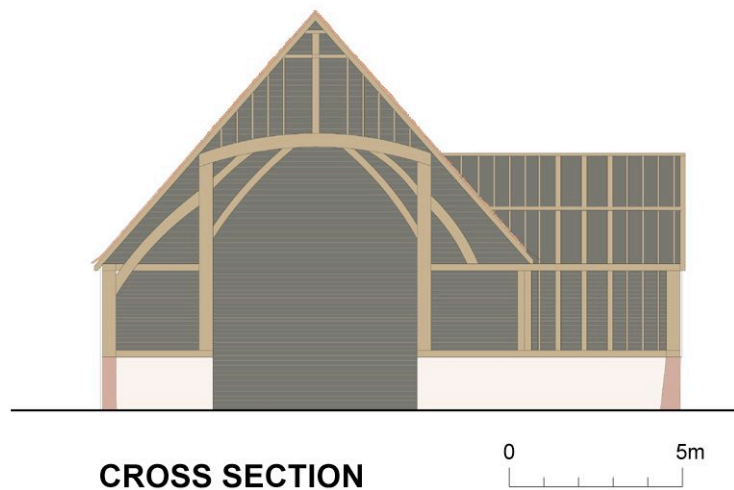


**Fig. 13 Croxley Great Barn, South Elevation Showing Demolished Upstand Structure circa 1972  
Photograph courtesy of Three Rivers Museum Trust.**

## 2.5 Listing

Croxley Great Barn was de-listed from Grade III to grade II\* in April 1970. The listing applies to the whole of the original Barn and is described as follows:

*Probably built 1396-1401 for Abbey of St Albans during abbacy of John Moote, restored in 1975. Timber frame. Flint, clunch and brick base walls. Weatherboarded. Tiled roof. 5 bays with nave and aisles, 2 bay entrance porch. 101ft by 38<sup>1/2</sup>ft. Central gabled entrance porch to E with double doors. C17 brick buttresses to base which has a low hipped roof with gablets. Interior: hoggin floor, lime washed, 5ft high flint walls with clunch quoins and coping separate each bay in aisles. 2 central crown post trusses with outer collar and tie beam trusses. Arched braces from jowled arcade posts to tie beams and arcade plates. Crown posts braced to crown plate. Passing braces from wall posts to tie beams with lap joints to aisle ties and arcade posts. Intermediate braces from wall posts to arcade plates. Arched braces in end walls. Angled queen struts clasp purlins in entrance porch.*



**Fig. 14 Cross section showing main structural frame and bracing**



**Fig. 15 Croxley Great Barn, Internal View circa 1975**  
Photograph courtesy of Hertfordshire County Council

## 2.6 History

Prior to the dissolution of the monasteries, the manor of Croxley, like so many other manors in southwest Hertfordshire, belonged to the Abbey of St Albans. The farm was allocated to the abbey's cellarer and it supplied the abbey with grain for the monks' food and drink, barley being used to make malt. This area of southwest Hertfordshire had very fertile land in those days and the farm was very profitable.

Entries in the St Albans Abbey Chronicles give a few details about the building of the barn. Sometime between 1396 and 1401, Abbot John paid 100 marks (about £66) for making a very large barn and other buildings at Croxley. (*Gesta Abbatum Monasterii Sancti Albani* 1396/1401, p 447).

Given to the Monastery of St Albans by Offa, King of Mercia (757-796), at the Dissolution in the 1540s the Manor of Croxley became Crown land and was tenanted by William Baldwin under a 44 year lease. It was sold in 1557 to Dr Caius who was educated at Gonville College, Cambridge. He endowed and greatly enlarged the College, obtaining permission from Queen Mary (1553-1558) to be a cofounder and to change its name to Gonville and Caius College.

The Manor and barn were owned by the College from that time until 1972 when the barn and part of the adjoining land were purchased by Hertfordshire County Council to form part of the enlarged St. Joan of Arc School complex. The County Council later undertook extensive repairs to the barn during 1973-5. The adjacent farmhouse and building of Croxley Hall Farm were sold to Mr and Mrs Samson-Timms at this time.



**Fig. 16 Croxley Great Barn just before restoration in 1973-5**  
Photograph courtesy of Three Rivers Museum Trust



**Fig. 17 Croxley Great Barn, south west aspect circa 1961**  
Photograph courtesy of Three Rivers Museum Trust

## **3.0 Access**

Croxley Great Barn is located on the eastern boundary of the grounds of The St Joan of Arc School in Rickmansworth. Access to the immediate vicinity of the barn is possible from both Rickmansworth and Croxley Green. (Under no circumstances should an approach be made via Croxley Hall Farm or the adjoining cottages in order to strictly respect the privacy of the adjoining owner and gratuitous tenants). The different routes are listed below:

### **3.1 Existing Access to Croxley Great Barn**

#### **3.1.1 Caravan Lane/ Public Footpath/ School Grounds (approximate distance 800m) (shown in purple on following map)**

Caravan Lane is a public road which can be accessed from the end of Rickmansworth High Street close to The St Joan of Arc School. The road terminates within a hundred metres of The High Street to become an unmade public footpath that runs along the side of the school playing fields adjacent to the land belonging to The Metropolitan railway line. (Footpath 30).

Croxley Great Barn can be found approximately 700 metres along the footpath but it is only accessible via the school playing field which can be entered via a pedestrian gate near its eastern boundary. The final approach to the barn is via unmade land close to the electrical pylon within the school field. See photo on back of report.

#### **3.1.2 Lavrock Lane/ Public Footpath/ School Grounds (approximate distance 1km) (shown in yellow on following map)**

Lavrock Lane is a restricted width unmade road which runs South from the A412, Scots Hill/Park Road. It passes beneath the Metropolitan Line railway by way of a narrow underpass and links up with the unmade public footpath (Footpath 30) that runs along the side of the school playing fields. From here access to the barn is along the footpath and through the school grounds as above. We have been unable to ascertain the ownership of Lavrock Lane, although there is speculation that the local access roads could be owned by London underground.

An alternative route from Lavrock Lane requires the user to access the school field through the gate at the end of Lavrock Lane and approach the barn from the school field.

#### **3.1.3 All Saints Lane/ Public Footpath/ School Grounds (approximate distance 900m) (shown in red on following map)**

All Saints Lane is a public unmade road which runs South from Croxley Green, through Croxley Hall Wood. It terminates at another narrow road\* which, to the West, connects to Lavrock Lane. To the East the road meets with a smaller lane\* which crosses over The Metropolitan Line via a small bridge and arrives at the gates of Croxley Hall Farm. From here access to the barn is along the aforementioned footpath (Footpath 30) and through the school grounds as above.

\*Exhaustive enquiries have failed to determine the ownership of these roadways.

Due to the close proximity of Croxley Hall Farm and the neighbour issues and concerns, the final approach to the Barn, from every direction, involves the use of the school grounds which requires the consent of the school.

All of the above routes are accessible to the pedestrian but vehicular access is only possible via Lavrock Lane, through the gates to the school playing field, and across the playing fields themselves. Vehicular access is therefore difficult and unsuitable during wet conditions.

### **3.1.3 Maintenance Access**

Legal access for the purposes of repair and maintenance is defined within the deeds (subject to serving notice and informing the owner of Croxley Hall Farm). A 10 foot strip around original footprint of the building is defined within the deeds, but has not been tested since the completion of the restoration in 1975.



3.1.4 Map showing existing access routes to Croxley Great Barn

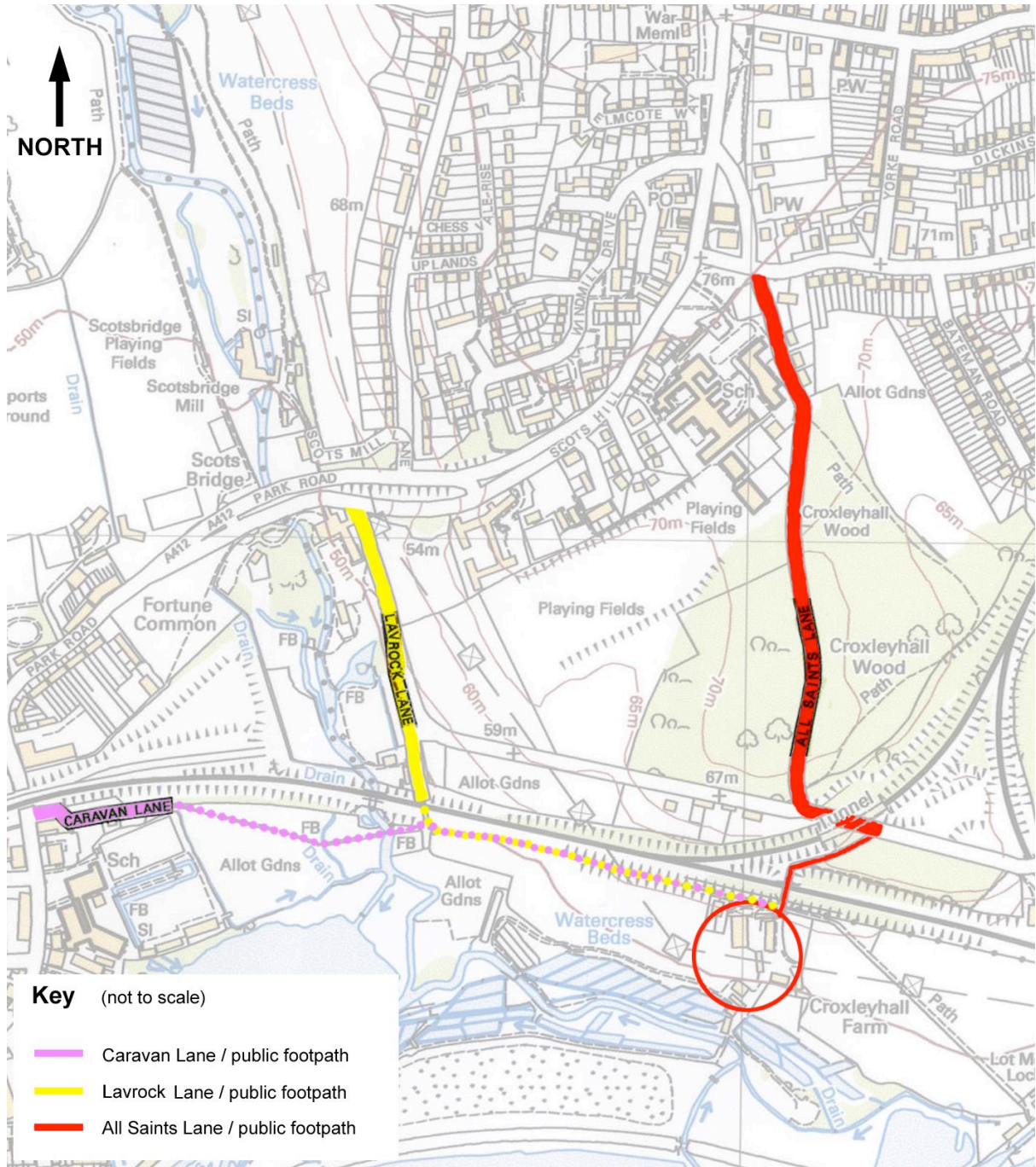


Fig. 18 OS map highlighting routes to Croxley Great Barn from Croxley Green and Rickmansworth

### 3.2 Croxley Hall Farm

Croxley Great Barn, a monastic structure, was leased along with Croxley Hall Farm until 1972 when it was purchased, together with the adjoining playing fields, by Hertfordshire County Council from the then owners, Gonville and Caius College of Cambridge, to form part of the enlarged St Joan of Arc School complex. Croxley Great Barn pre-dates Croxley Hall Farm by 300 years.

The purchase comprised the grounds to the West, the main barn building and the outskirts to the east elevation, which were later dismantled along with part of the main roof that extended over the 'upstand' portion of the barn, which had been integral to the structure of the barn.

The purchase did not include land to the North, South or East of the building although the right to access a maintenance zone of 10 feet around the building was reserved.

The Barn is subject to a restrictive covenant which is enforceable by the owners of Croxley Hall Farm and others. This applies to both future development and change of use; this could also include changes to routes of access to the barn. This subject is discussed in greater detail in the next chapter 'Ownership'.

An extract from the deed map below shows the current extent of land ownership.

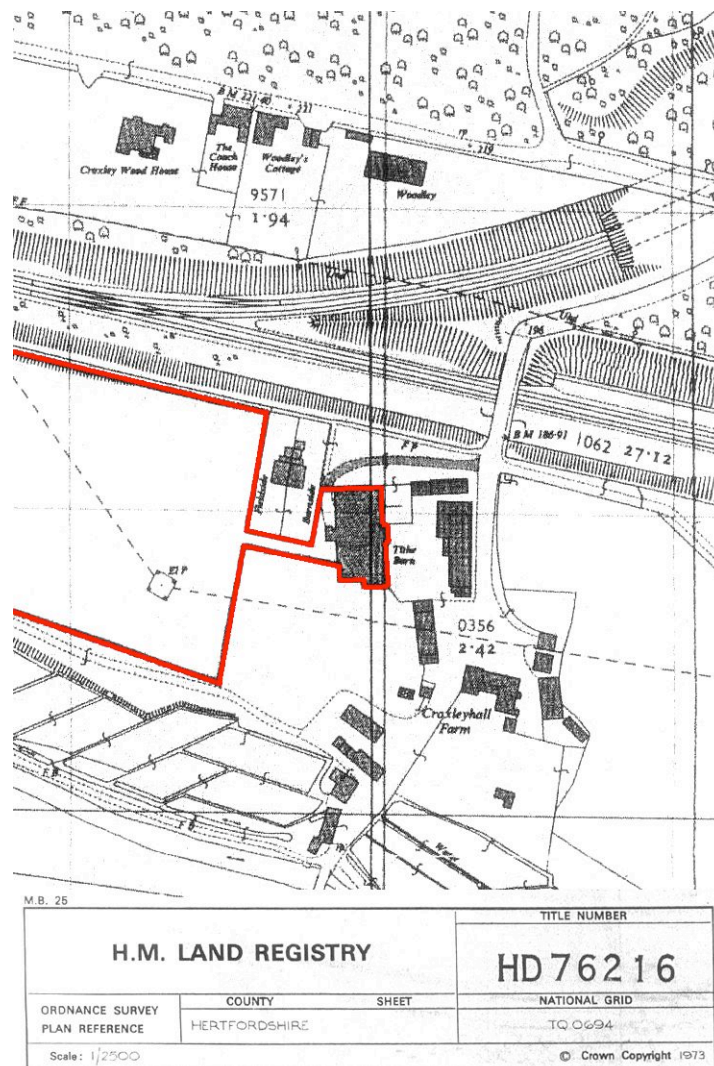


Fig. 19 Extract from Land Registry Map

Notwithstanding the restrictive covenant the access to the barn is severely restricted with three sides of the building surrounded by the land of Croxley Hall Farm (east and south), and the access road to the more

recently built houses (north). Only part of the west elevation remains accessible from the school grounds and it is from here that at present entry to the building must be gained.

### 3.3 Proposals for Access

The current access limitations severely restrict both the future use of the barn and the construction works which will need to be undertaken as part of any proposed renovation scheme.

The following proposals indicate permanent solutions which may overcome the restricted access. In order that all options are explored the proposals disregard the restrictive covenant. The restrictive covenant is discussed in detail in section 4.0.

#### 3.3.1 Option A

##### Negotiation with St Joan of Arc School

Negotiate with the school to take a section of the school playing field immediately adjacent to the public footpath, and construct a single track road, 3m wide adjacent to the existing public footpath which will provide a vehicular connection to Lavrock Lane and Caravan Lane.

Negotiate with the school to take the eastern most section of the school playing field (up to the existing electricity pylon) and the new single track road. Convert the area immediately around the pylon to car parking and access the building through the existing door in the West elevation.

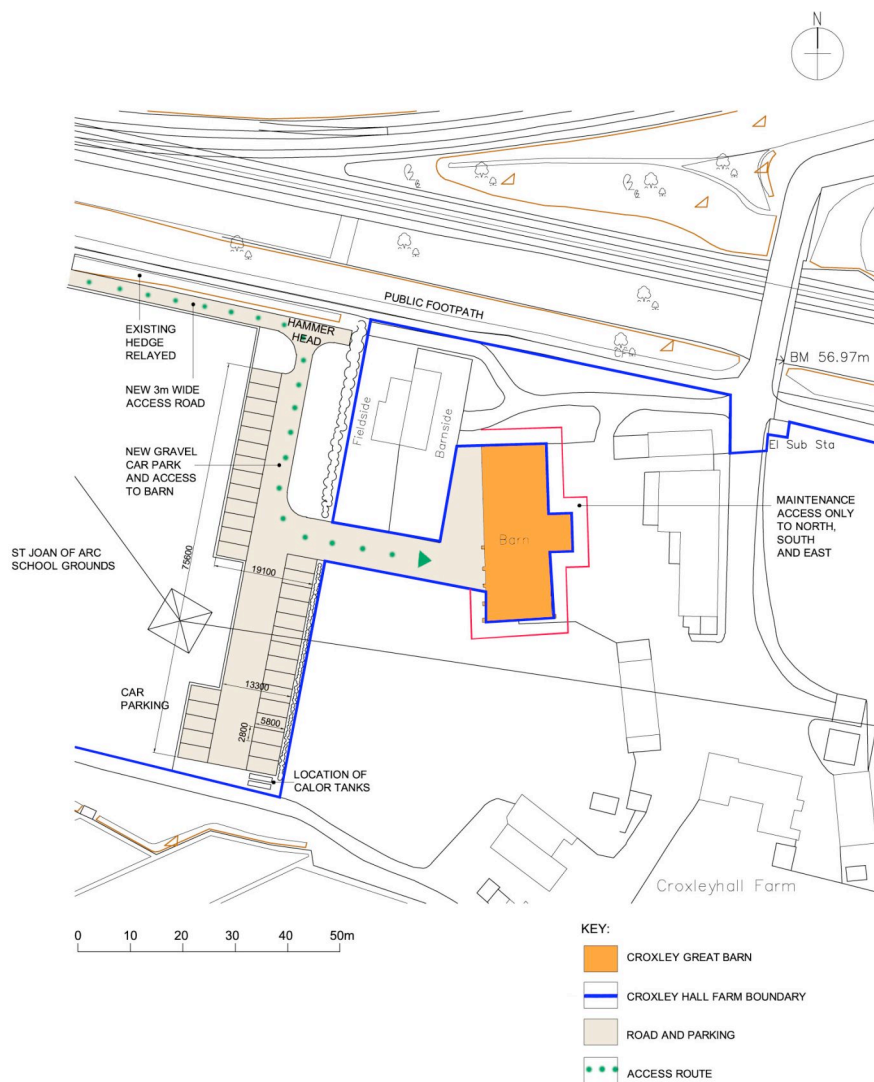


Fig. 20 Plan showing access to barn – Option A (not to scale)

### 3.3.2 Option B

#### Residential Properties (Fieldside and Barnside)

Negotiate with the owners of Croxley Hall Farm to purchase the 2 residential properties (Fieldside and Barnside built 1894) to the north side of the barn, accessed from All Saints Lane. Redefine the existing rights-of-way to allow for vehicular access to and from the roadway to the north side of the barn and sell the houses on the open market, with their gardens reduced on the south side to improve the west elevation of the barn. Agree with the owner of Croxley Hall Farm to redefine the south boundary, with car parking created to the west of the Great Barn.

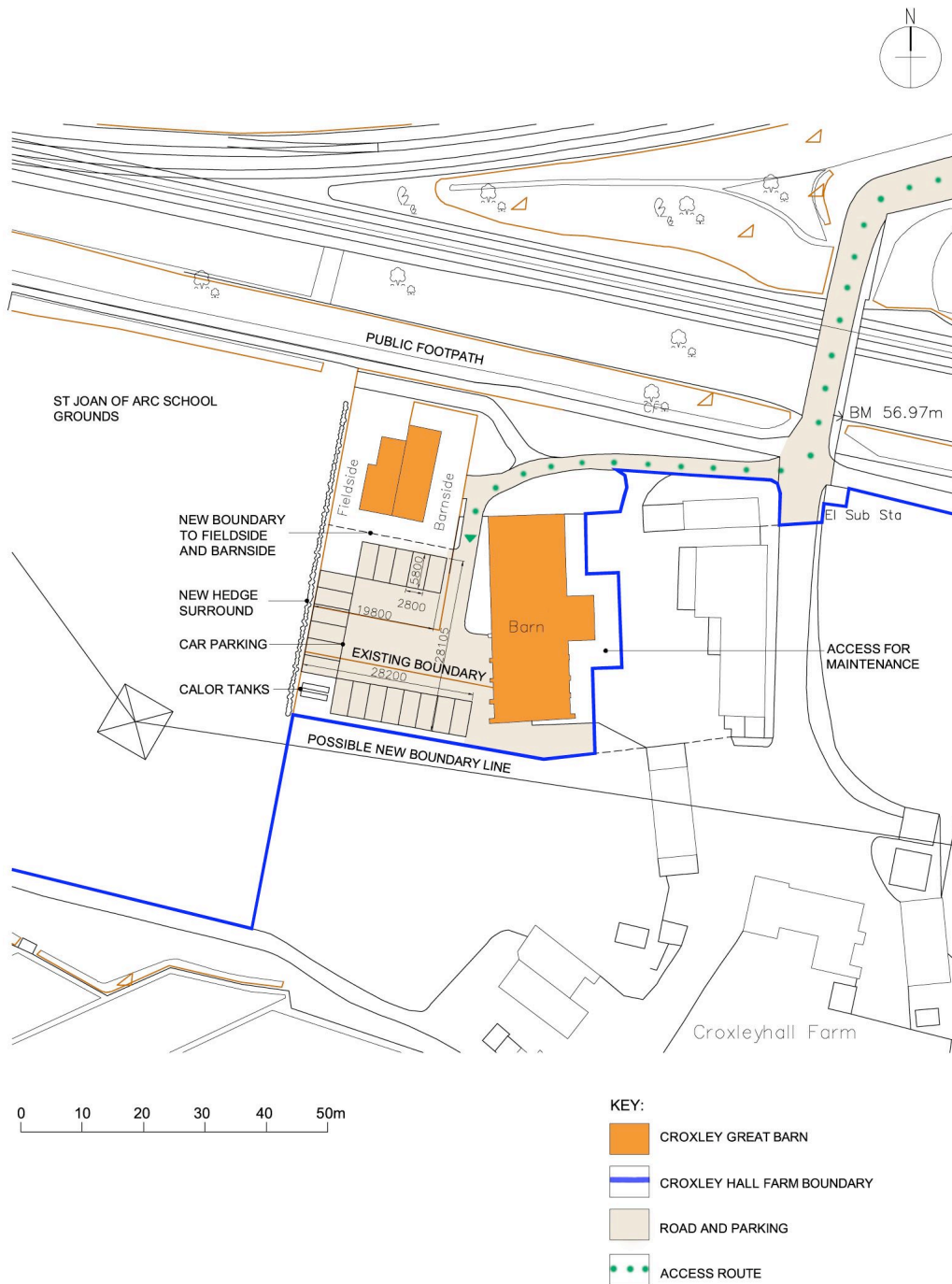


Fig. 21 Plan showing access to barn – Option B (not to scale)

### 3.3.3 Option C

#### Cowshed and adjacent outbuildings of Croxley Hall Farm

Negotiate with the owners of Croxley Hall Farm to purchase the former cowshed building and the adjacent out-building (believed 19<sup>th</sup> Century), including the land between these buildings and the barn. Introduce a new boundary between this land and that of the Farm house and use the intermediate land for car parking and access to the north and east sides of the barn.

Combined with this if it is possible to negotiate with the school to take a strip of land to the west of the building complete access would be possible on all but the south side. A further negotiation with the adjoining area to relocate the southern boundary may be a further solution (see dotted boundary line)

Further negotiations could be entered into with the owner of Croxley Hall Farm to reposition the location of the boundary to the south of the barn, to avoid disturbance for maintenance in the future.

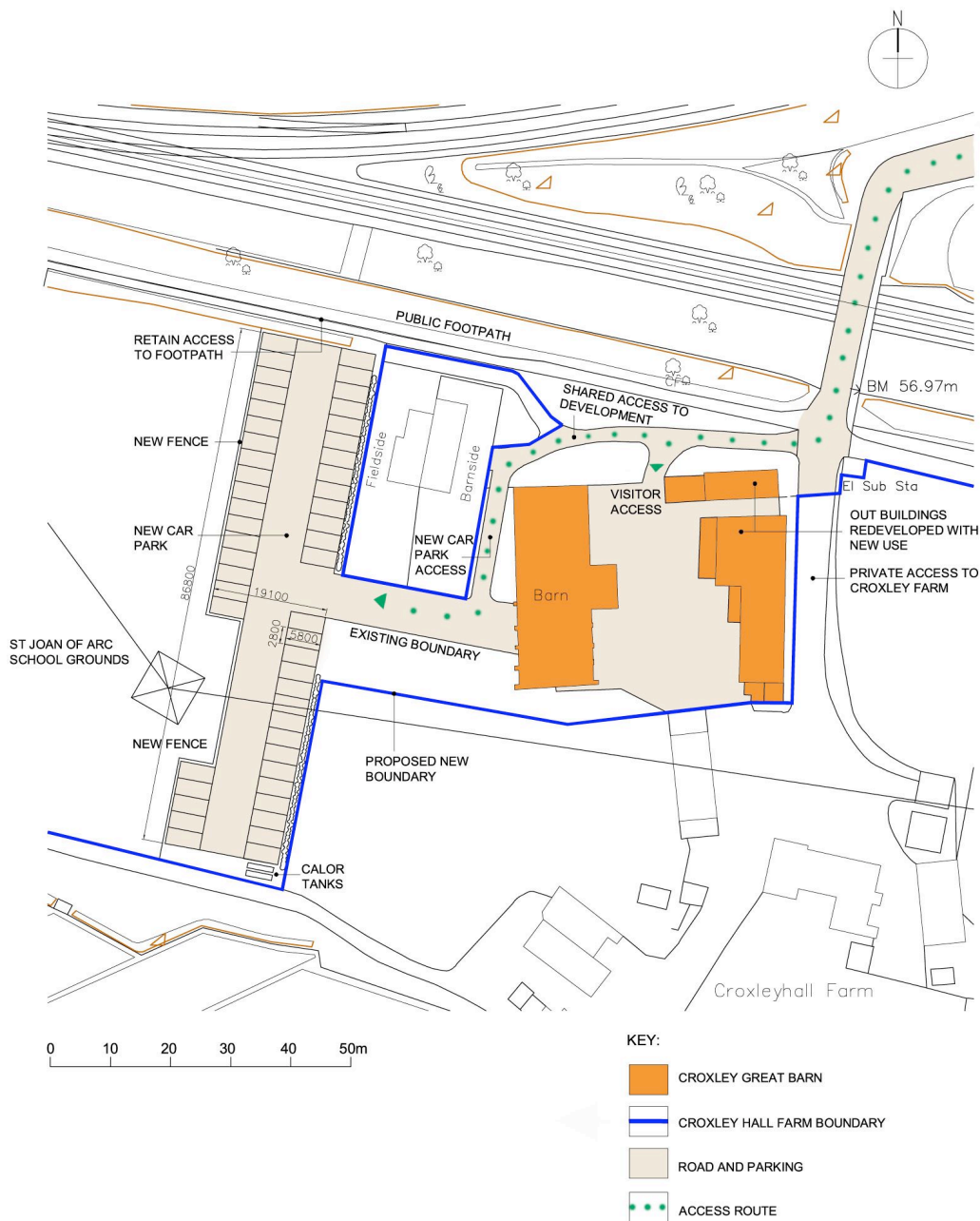


Fig. 22 Plan showing access to Croxley Great Barn – Option C (not to scale)

### 3.3.4 Option D

#### Relocation to West End of the Playing Fields

The issue of relocation is highly complex and open to wide ranging views. Options D and E seek to illustrate and explore the potential of moving the barn to an alternative location on site.

The location examined may be made available, subject to discussion with the school. A possible 'Sale and Leaseback' of the playing fields could facilitate an alternative site.

The suggestion is made on the basis of 'brainstorming' and it is understood that Green Belt, Planning and English Heritage concerns may render this option unlikely. None the less, it is felt a valuable exercise to evaluate likely costs and the physical potential.



Fig. 23 Plan showing access to Croxley Great Barn – Option D (not to scale)

### 3.3.5 Option E

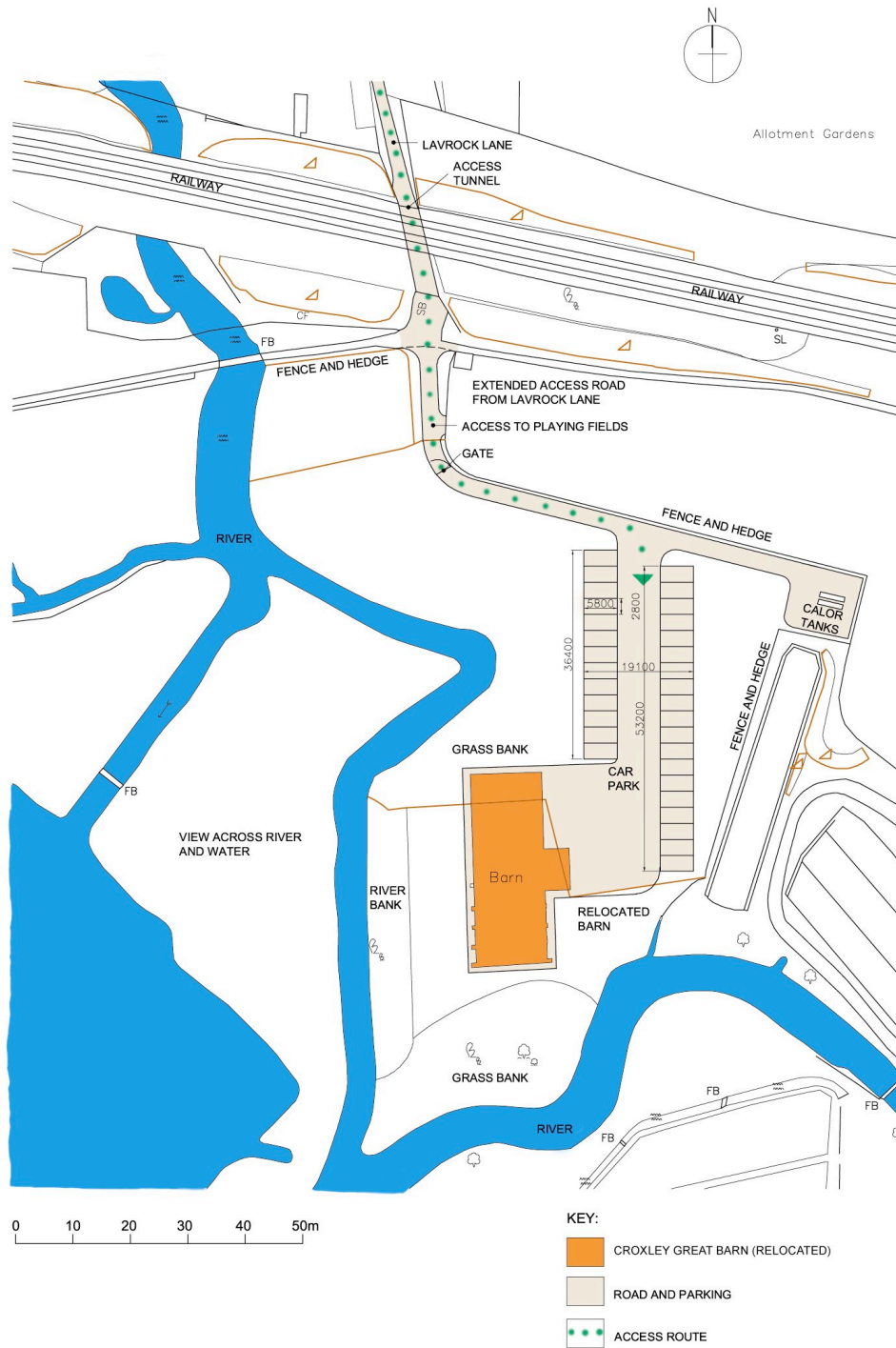


Fig. 24 Plan showing access to Croxley Great Barn – Option E (not to scale)

### **3.3.6 Option F**

#### **Minimum Intervention, Maintenance and Repair Only**

##### **General Clearance**

Tidy and clear around exterior demise. Treat with weed killer first.

Cut back hedging, clear away self-seeded trees and general vegetation.

Form new access paths and hard standing around building.

Excavate top soil and clear site to a depth of 400mm to form a hard standing and paths.

Create new base utilising 250ml well compacted crush concrete, with 150mm type 1 MOT grade, high quality limestone.

On completion, dress with 20ml washed stone to a depth of 70mm.

Please note, on carrying out the excavation, this must be properly superintended by the Local Authority Historic Building Control Officer, English Heritage and the Consultants responsible for the project.

An archaeological survey of excavations and any excavated materials will be required.

Supply and install new fencing, which is to be post and rail. Four rails utilising proprietary system from Jackson or similar approved.

Install 7x7" gateposts and install 12 ft wide 'estate type' gate at the access from the playing fields, complete with ironmongery.

##### **Surface Water Drainage**

Form two soakaways, located 10 metres from the building.

Utilise concrete segmented soakaways by Milton or similar, installed in accordance with good practice and manufacturers instructions. Soakaways to be fitted with heavy duty manhole covers.

Allow for six inspection chambers and connections in respect of surface water, linked to soakaways.

Inspection chambers to also be fitted with heavy duty covers.

Rainwater goods to be connected via surface water gulleys and Roddable Hepstore drainage, linked to new surface water drainage installation. Allow for six surface water gulleys.

##### **Utilities**

Allow for new power and water supplies to the building.

New services to terminate in Hepworth utility boxes.

##### **Floor**

Allow for clearing the floor of all debris.

Leave floor levelled.

Investigate threshing floor and leave existing materials secure and sound.



Seek guidance from Supervising Officer, Local Historic Building Officer and English Heritage, should areas of the threshing floor need repair.

### **Timber Walls**

Carefully repair all defective weather boarding with material matched to existing timber thickness and profile. Finish entire building with NBT external quality black woodstain.

### **Windows**

Allow for supply and installation of new windows to replace existing, complete with glazing.

Leave windows, finish with Sadolins Sadoptop, colour Palisander.

Windows to be fully glazed.

Allow for security locks to windows.

### **Doors / Hatches**

Repair and renovate main doors and retain all doors in fair condition. Make allowances for piecing in and general overhaul of doors and frames in which they are located.

Supply and install new doors to openings where no doors exist or where doors that exist are beyond repair.

Finish doors, on completion, with Sadolins Sadoptop, colour Palisander.

Ensure all doors are provided with security bolts and, where appropriate, 5 lever mortise locks.

All other doors and hatches to be fitted with appropriate hinges and with clasp and staple and heavy duty padlocks.

Please note that in respect of all locking ironmongery, six sets of keys are to be provided.

### **Structural Frame**

A detailed Structural Engineers report is still awaited.

In respect of this aspect of the project, a suitable allowance is to be made for repairs.

Specialist repairs are to be carried out to the timber frame in accordance with good conservation practice, in agreement with the Local Authority Historic Buildings Officer and English Heritage, the client's Specialist Conservation Consultant and the Structural Engineer, specifying and superintending the works.

### **Masonry**

Masonry to be carefully repaired where damaged.

Appropriate lime mortar to be utilised to re-point brickwork to a depth of 40mm.

Loose brickwork to be carefully reconstructed.

Flints to be carefully re-embedded in lime mortar.

A Code 4 lead flashing is to be dressed up behind the bottom most weather boards and to be carefully dressed over projecting masonry to form an appropriate drip.

## **Rainwater Goods**

New gutters to be supplied and installed.

Gutters to be cast iron, 150mm in width, fixed utilising proprietary brackets and installed in accordance with good practice to appropriate falls.

Allow for six 100mm cast iron rainwater pipes, connected via gulleys to new surface water system.

All rainwater goods to be painted gloss black.

## **Roof**

Generally the roof is to be ranged over and all missing clay tiles to be replaced with carefully selected clay tiles to match existing.

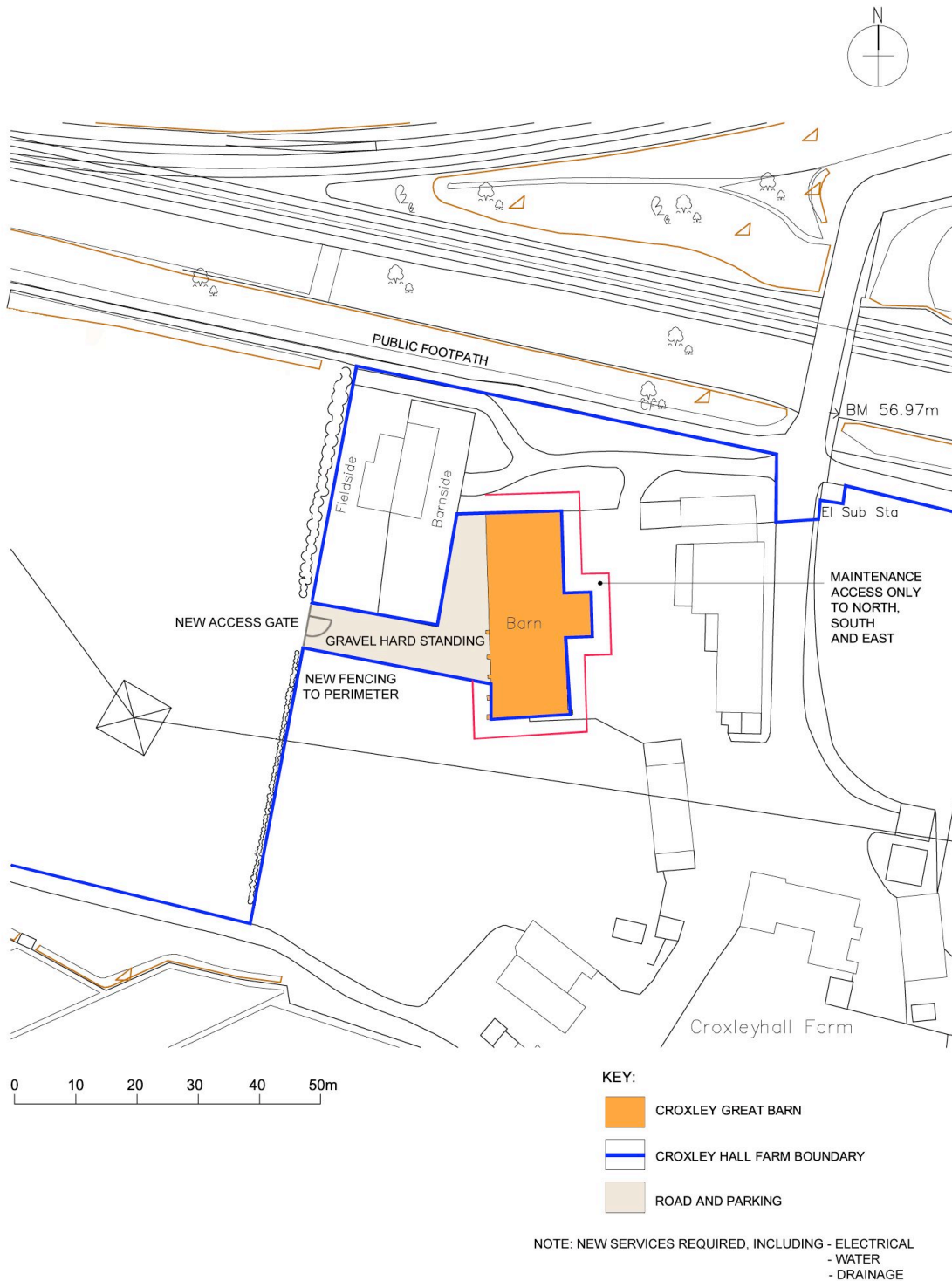
Investigate battens and roof fixings and replace all suspect battens and fixings.

Where appropriate, re-bed ridge tiles in lime mortar.

Re-bed any defective hip tiles in lime mortar.

Carefully re-point and re-bed verges in lime mortar.

### 3.3.7 Option F Minimum Works



Plan showing access to barn - Option F (not to scale)

### 3.4 Summary

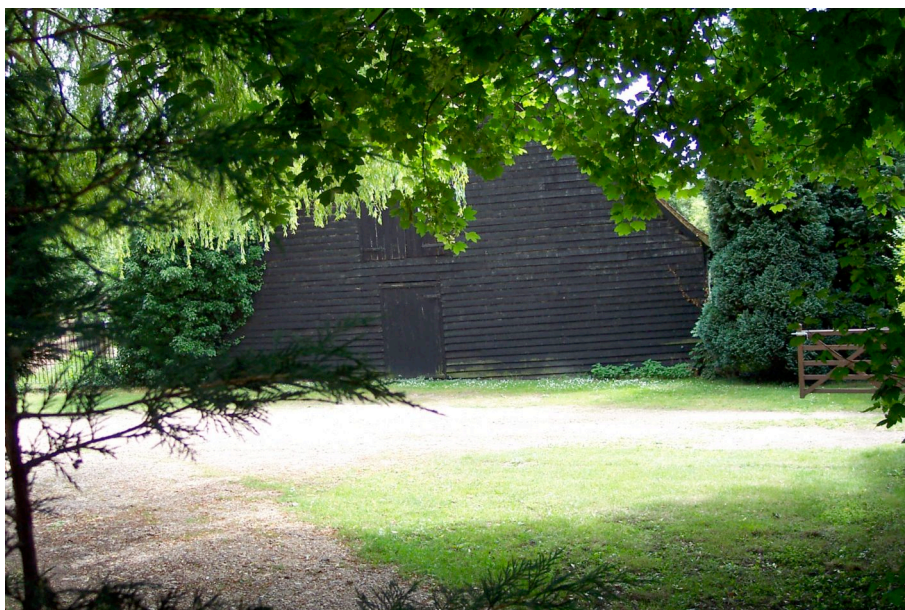
Option C, the purchase of Croxley Hall Farm 19/20c cowshed and outbuilding provides the most satisfactory solution to the problem of access. It also goes some way to addressing the problem of vehicular access and car parking and at the same time provides opportunities for the commercial use of the cowshed building as part of the overall Croxley Great Barn development.

The potential cost of purchasing the buildings from the owners of Croxley Hall Farm should be considered against the cost of providing a new access road and car parking to the school grounds.

As a further possibility, this scheme could give rise to a joint development with the owner of Croxley Hall Farm, working with the HBPT and their consultants in a spirit of mutual co-operation.



**Fig. 25 Croxley Hall Farm viewed from the public footpath (bridge)  
The building to the right could be purchased to allow access to the Barn**



**Fig. 26 Croxley Great Barn (north elevation) viewed from the public footpath**

## **4.0 Ownership**

### **4.1 Summary**

It is proposed (Option A) to access the Croxley Great Barn ("the Barn") from Lavrock Lane over footpath 30 and then over land, belonging to The Governing Body of St Joan of Arc RC School ("the School").

The land on which the Croxley Great Barn is situated is subject to a restrictive covenant, which appears to be enforceable by the owners of Croxley Hall Farm, restricting any development within the meaning of the Town and Country Planning Act 1971. As "Development" includes a change of use anything more than simple restoration of the Barn (even moving it to another part of the Schools land would be a breach of this covenant).

For the reasons set out later in this report, given that there is a belief that the owners of the Farm have tried unsuccessfully to obtain planning permission to develop some adjoining buildings for commercial use (there would appear to be no covenants restricting this) it may be best to try to agree a joint venture with the adjoining owner whereby a joint development is proposed so that the owner of the Farm obtains a planning consent on his property on similar or acceptable complementary terms to the Barn.

### **4.2 Reasons**

#### **4.2.1**

This report relates to the legal aspects of the proposed restoration and development of the Croxley Great Barn ownership of which is vested in the Governing Body of St Joan of Arc RC plan School. The Barn is part of the land comprised in title number HD76216 ("the Title").

#### **4.2.2**

Two issues arise-

1. How will the Barn be accessed?
2. Are there any restrictions in the Title which affect how the Barn can be used?

#### **4.2.3**

Whilst a sensible route for access would be a right of way over the adjoining Croxley Hall Farm this will not be a practical possibility as the owners Mr Paul Douglas and Mrs Philomena Carol Sansom -Timms remain strongly opposed to any development or restoration of the Barn (November 2004). Not only do they own the land adjoining the Barn but they also now own the two cottages adjoining it, namely Barnside and Fieldside.

#### **4.2.4**

An initial proposal is to access the Barn via Lavrock Lane and over footpath 30, taking such additional land either absolutely or by right of way, from the School as may be necessary for this. Initial enquiries indicate that:-

- Lavrock Lane itself is not a publicly adopted highway and steps are being taken to ascertain who owns this land.
- In respect of footpath 30 there is no hard and fast rule regarding possible upgrading of this footpath and certainly no presumption against it. It will depend on all of the circumstances and the proposals. However, it is first necessary to ascertain who owns this land as any upgraded rights will of course depend on the owners. I am waiting for confirmation, if this land is registered, as to who the owners are. It is possible that it will be Transport for London. Negotiations will need to be had with the owners of the land and the County Council, at all times ensuring that the existing footpath rights are not affected.

#### 4.2.5

There is however a more fundamental problem. The land comprised in Title Number HD76216 (copy attached) on which the Barn is built is subject to a covenant that:-

**"the council to the intent and so as to bind (so far as practicable the property hereby conveyed and each and every part thereof into whosoever hands the same may come ) and to benefit and protect the adjoining and neighbouring land belonging to the vendors and each and every part hereby covenant with the vendors that neither the Council nor those deriving title under them will erect any buildings on the property hereby conveyed nor *permit any development thereof as defined by the Town And Country Planning Act 1971 (my italics)* other then such buildings and works as may be reasonably required in connection with the use of the land as school playing fields or in connection with school sporting activities and such work as may be necessary for the restoration of the said tithe barn".**

#### 4.2.6

Restrictive Covenants pass with the land. The Council has passed the land to the School and the land which has the benefit of the Covenant has now passed from Gonville and Caius College to Mr and Mrs Sansom - Timms. The property register in respect of Croxley Hall Farm (attached) specifically states that the property has the benefit of the rights reserved in and is subject to rights granted by the conveyance which created the above covenant.

#### 4.2.7

In considering the covenant, one has to consider the meaning of the word "Development". Development, has been defined in the various Town And Country Planning Acts in a similar manner since the 1947 Town and Country Planning Act and includes "the carrying out of building, engineering, mining or other operations, in, on, over or under land, *or the making of any material change in the use of any buildings or other land.*

#### 4.2.8

It is therefore probable that the use suggested for the Barn will require planning permission. Once planning permission is required for development the covenant will be effective and unless the Sansom -Timms (or any other owners of the adjoining land) were to agree to the change of use (which seems unlikely) the change of use would be a breach of the covenant. Whilst it is quite clear that remedial works can be undertaken on the Barn pursuant to the covenant, as soon as planning permission is required for the envisaged use, the covenant will bite.

#### 4.2.9

I am advised that planning permission will be required for any intended use unless planning permission was granted to use the Barn for Class D1 education use, thus providing scope for flexibility to switch between other uses, eg medical or health services or day nursery or museum. I have spoken with Mr Chris Brady The Conservation Officer in the planning Department at Three Rivers District Council who advises that there is no planning history attaching to the Barn. The only records are of consultation in the early 1970's when some remedial work was apparently carried out. Even if this was a planning consent allowing a change of use within the class, the works required to carry this out would probably be beyond restoration and it may be argued to be these works in themselves constituted development in breach of the Covenant.

#### 4.2.10

Furthermore, any development of a roadway over the land in the Title (assuming same to be development requiring planning permission) would not be reasonably required in connection with the use of the Land as school playing fields or in connection with school sporting activities and I doubt that a permanent roadway would be necessary for the restoration of the Barn. In my view a pathway round the field may be able to be used in connection with the use of the land for school sporting activities, but this would probably be a secondary rather than a primary use (the primary use being the access to the Barn) and as such may also be regarded as a breach of the covenant.

#### **4.2.11**

Returning to the question of access, it has been suggested that it may be possible to purchase from the adjoining owner two unused buildings (Option C and a piece of land giving access to the Barn. It is understood (but not confirmed) that the owner has already applied for planning permission for these buildings, for residential purposes and that the application has been rejected. The buildings remain unused. Any such approach could be met in a number of ways, for example:

##### **4.2.11.1**

The owner could simply refuse (considered most likely in all the circumstances).

##### **4.2.11.2**

The owner may wish to agree, for a consideration, which would only be worthwhile if the Trust could raise the funds and be able to develop the buildings for a viable purpose which would be income or capital generating.

##### **4.2.11.3**

If the scenario in 11.2 above is followed, it may well be that the Owner would be prepared to agree to an arrangement whereby he was able to participate in future profits of the development. Clearly this would depend on what the Trustees did with this land and whether they could and would sell it off. If an attractive package could be arranged then the farm owner may be prepared to accept this as consideration for releasing the restrictive covenant. The key point seems to be to try and arrive at a deal which makes the development of the barn attractive to the farm owner and the Trust.

##### **4.2.11.4**

As an extension of 11.3 above, it may be possible to agree a joint venture with the adjoining owner whereby a joint development is proposed so that the adjoining owner obtains a planning consent on his property on similar terms to the Barn.

##### **4.2.11.5**

Access over Barnside and Fieldside (Option B) has been considered but as these properties are now in the ownership of Mr and Mrs Sansom – Timms, this would not seem a practical approach due to their reluctance to assist or negotiate.

#### **4.2.12**

The restrictive covenant can be modified or discharged upon application to the Lands Tribunal. The Tribunal has power to order a full or partial discharge or modify the restriction on one of four grounds. These can be summarised as:-

- The covenant is obsolete by reason of changes in the character of the property or neighbourhood or other material circumstances. In my view this would not apply.
- The restrictive covenants would impede some reasonable use of the land for public or private purposes and it no longer confers any practical benefit of substantial value or it is contrary to public interest and any loss can be adequately compensated in money. If the covenant can still confer a practical benefit it will not be discharged or modified. On balance, in my view this is the provision which is most likely to be applicable although I think it rather dubious and in any event it would not be possible to take this point further until there were specific proposals for the land. Subject to these proposals being more clearly formulated, I would certainly recommend, at the very least, that the Council's advice is sought before considering this point further. This provision may be more attractive if, as I understand it, the local authority comes out strongly in favour of the proposals.
- The persons entitled to the benefit of the restrictions have agreed either expressly or by implication by acts or omissions, to the discharge or modification. This is clearly not the case here.

- The discharge or modification will not injure the persons entitled to the benefit of the covenant. In my view this is not a point which could be easily pursued as the farm owners will argue that they will be affected by any intensification of use which could change the character of the area.

#### **4.2.13**

In respect of services, when the property was originally sold to the County Council, rights were reserved over it, in favour of the adjoining Farm, to access the usual services. There was no reciprocal easement over the Farm in favour of the Barn Land. The easiest way of dealing with this (assuming that no services are now enjoyed which originate on the adjoining farm land, the easements for which in those circumstances would have been acquired under Section 62LPA 1925) is to reserve appropriate rights over the land to be retained by the school.

#### **4.2.14**

If the Barn were to be moved to another part of the land then the act of moving would constitute development and would be caught by the restrictive covenant. The relocation of the Croxley Great Barn from its original site to an alternative, may well be unopposed by the owner of Croxley Hall Farm. It is believed that he has made the comment that it would be better for him if the barn was not in its current location. We therefore believe that such an option may receive his support.

#### **4.2.15**

The illustrations that form a part of this feasibility demonstrate the possibility of relocating the Barn to the western end of the playing fields. Further consideration however, could be given to alternative locations, subject to appropriate negotiations to obtain a site elsewhere. Possibilities include The Green at Croxley or, alternatively, Stones Orchard where, until recent times, a barn had stood. The above options are considered important, but detailed negotiation would be required to establish the interests of the existing land owners and would depend on the consideration, support and acceptance of the Local Authority and other interested parties.



## 5.0 Conservation of The Barn

Timber-framed buildings have a remarkable ability to survive all manner of abuses except neglect. The time has arrived when 'something needs to be done' for Croxley Great Barn if its future is to be assured.

The barn is in fair condition and, at present, does not look in imminent danger of collapse. All the building elements must therefore be considered a part of the structure – not just the frame. The featheredge boarding for instance is forming a structural and stabilising membrane as well as being the outer walls. The roof has a similar function. All this must be taken into consideration when undertaking the repairs.

The following points ought to be noted:

- A detailed measured survey will be required. The most efficient will be a digital survey suitable for AutoCAD 2000 dwg format. The annotation of the drawing(s) numbering and labelling each timber should be undertaken.
- A condition survey, carefully recording defects, rot, infestation and so on from which an assessment of repair can be formulated.
- Sufficient detailed information for Local Authority Approvals. This will involve details of repair to joints; sequence of work to minimise intervention. Detailed drawings of proposals for new use. As the building is listed, a more detailed application is usually required before Listed Building Consent is given.
- Removal of whole timbers because a joint has failed is not necessary, with careful detailing new sections/joints can be introduced with minimal intervention.
- Stainless Steel or galvanised iron straps can also be of benefit to stabilise a weak area in order to preserve the maximum amount of original timber.
- Temporary propping and stabilising of the frame will be required during the repair and conversion processes.
- The use of second-hand timber is to be avoided in barn repairs, not only is it extremely difficult to work, it is archaeologically misleading.
- Accessing suitable materials for repairs is not a problem and a list of suppliers can be made available to contractors when tendering, if required.
- Specification and Schedule of repairs for cost purposes and for tendering to suitably experienced contractors.
- Programme of work.
- Grants may be available from CITB (Construction Industry Training Board).
- There may be an opportunity for craft training, objectives of HCF – Hertfordshire Countryside Forum.

All manner of types of repair should be considered in order to keep intervention to a minimum and should be honestly expressed and well executed. Provided, of course, they are not detrimental in the long term and are 'in-keeping' visually with the rest of the barn.

In conservation terms historic buildings whether in private ownership or not are simply in safekeeping for the length of that particular ownership. In the 21<sup>st</sup> Century the function of the barn has changed from its original purpose, but mostly these changes simply reflect the temporary status of an era. The fashionable and/or financial advantage of the time. Croxley Great Barn has changed minutely during its 600-year lifespan but life around it has changed - and will again.

The restrictions placed on the barn i.e. access, covenants, uses, are all of the present time and will no doubt change again in subsequent decades.



**Fig. 27 Croxley Great Barn, South Elevation circa 2003**  
Photograph courtesy of David Brockwell, Croxley Camera Club



**Fig. 28 Croxley Great Barn, West Elevation circa 2003**  
Photograph courtesy of David Brockwell, Croxley Camera Club

Our aim is to secure the barn in its present historic location, now, and make all efforts to influence and adapt the surrounding problems to suit this goal. To put in place a practical use for the barn in order for it to be maintained, enjoyed by as many people as possible and given the opportunity to last another 600 years.

- The first steps would be to achieve suitable access for pedestrians, vehicles and parking space that would be Disability Discrimination Act (DDA) compliant.
- Secondly, a resolution to the restrictive covenant which would make the barn even more attractive to future or potential new users. So that even though the barn is not a functioning part of the (now non-functional) farm its historic setting would remain.
- It can be viewed as important that the barn stays in its historic/rural setting despite the changes to the surrounding area.
- A proposal to relocate the Barn itself has been investigated. It is clear that the context has been extensively damaged, the Barn's original setting has been effectively lost and the development over time of the railways, the gravel workings and the pylons have all impacted upon the original context of the building itself. The reluctance of the adjoining owners to negotiate also creates significant issues. There are examples of listed buildings that have been relocated and retained both their listing and status as ancient monuments.

Alternative uses for the barn are covered elsewhere in this report.

## **5.1 Repairs to the Timber Frame**

In principle all timber repairs should match the original joints with any new work clearly defined. No doubt original 'carpenters marks' will be extant on the timbers and wherever possible these should be conserved and not accidentally cut away to allow for replacement repairs. Should this arise then an alternative repair needs to be considered.

Detailed inspection was not possible at this early stage so the following scarf joints and repair suggestions are for guidance purposes only and may not reflect the true construction on site. More detailed inspection will be needed to ascertain the construction joints used or at least as much as possible without dismantling.

It is most likely that the entire timber frame is English Oak (about 1-2 years after felling). Usually referred to as green oak when first cut and air-dried after that. [Elm and Sweet Chestnut have also been used in timber-frame construction].

Repairs and replacement timbers should be from green English Oak (from a sustainable source that meets the Forest Stewardship Council standards – see list of possible suppliers). Green oak is much easier to work and for record purposes expressing the repairs honestly is preferred.

Air-dried Oak can also be utilised; this reduces the movement of timber when drying out after construction. Air-dried oak is more expensive than green oak. Using 'second-hand' timber is not acceptable, as not only it is extremely difficult to work it is, archaeologically, very misleading.

When putting together the programme, it is important to consider time required for the supply of sufficient quantity, quality, size and maturity of timber. It may also be possible - time permitting - to match moisture content of new timber to the existing frame. Kiln dried timber is not acceptable except for the pegs.

### **5.1.2 Roof**

The roof is made up of clay peg tiles on battens and was completely re-roofed when the Barn was last repaired.

As this is a critical part of the building and due to evidence of slipped and missing tiles it is recommended to re-roof using as many existing tiles as is practical. Replacement tiles should be mixed in with existing to avoid large areas of patching and should match the originals.

Roof tiles should be removed and stacked for reuse. Complete replacement of tiling battens and 25% of tiles will most likely be required. Whilst the roof finish is removed repairs to the rafters can be undertaken.

Temporary protection against the elements will be needed.

In general the feet of rafters is where most decay occurs due to poor surface water disposal at the eaves, therefore, some scarfing-in of new sections of rafter feet is likely.

Water ingress has occurred in the past therefore some replacement of complete rafters should be allowed for each roof pitch both above and below the purlins.

Replacement of some collars (for the same reasons as above) may be required using joints to match the existing.

New cast iron rainwater goods need to be fitted and the water discharged to a soak-away, located on land accessible to the barn.

### 5.1.3 Walls

The *featheredge boarding* on the barn was most likely a later detail (perhaps first used in the 18<sup>th</sup> century). This was a natural development on infill panels to walls and should be respected as such and repaired as found. The exact date of the present boarding is not known (but is likely to date from 1973-1975).

*Wall plates* can be patch repaired. This means the rotten area is cut away and an oak patch repair fitted (minimum thickness of timber for a patch repair should be 75mm) held in place with stainless steel bolts to existing sound timber. The bolt heads can be recessed and plugged to disguise their presence and the borehole drilled slightly larger to allow for movement. This repair detail also helps maintain as much of the original fabric as possible as well as avoiding dismantling – two major considerations in the conservation of the barn.

*Cill beams* are another vulnerable area, but generally are of such large girth they rarely rot right through their girth and again a patch repair can be undertaken. Should a whole new section be needed then a copy of an existing cill beam scarf joint can be used. As a rule of thumb a scarf joint length should be at least twice the thickness of the timber being repaired.

*Intermediate studs* are secondary structural timbers and one should always allow for some replacement. The most vulnerable area is the lower section. Allow for scarfing in new top and bottom to say 15% of intermediate studwork using a mortice and tenon joint top and bottom. Existing mortice should be re-used.

Replacement pegs are usually kiln dried so that when fixed in the peg hole they will absorb the ambient moisture making them expand to give a tight joint.

*Arcade posts* there is a common weakness at the jowl (top of the post) where the post is cut wider (the jowl) to accommodate the complex junction of principal rafter, tie beam and arcade plate. The jowls have a tendency to split away from the main post, if this is not too severe then the simplest solution is to use a metal strap around the jowl to give extra support to this area. Replacing this damaged section of timber is an extremely complex detail as it is the main support structure and would incur some major dismantling. Throughout the centuries, strapping has been a common repair feature.

*Arch braces* generally braces become loose due to movement of the frame, which can pull the brace tenon out of the mortice (especially if the pegs have disintegrated). Croxley Great Barn doesn't appear to have any severe movement, but if on more in-depth investigation this is the case, then as mentioned earlier, timber-framed structures will accept some movement both when pushed out of plumb and, with care, pushed back into place. Pegs need to be checked and any missing or rotten replaced with new. Noticeably, if a peg is rotten then the tenon behind could have some rot, which may go unnoticed visually and may require more intrusive investigation if the joint feels 'loose'. Scarfing in a new tenon section into the arch brace is possible but the brace will have to be bolted together in-situ using a scarf lap joint. In certain situations a 'slip tenon' can be used in order to avoid a mid section scarf joint.

**King Post and Crown Plate are located in the central bay only and appear to be sound viewed from the ground.**

**Threshing floor it is exceptionally rare to find extant timber threshing floors. The threshing floor is evident under the stored items. Careful consideration will be needed with regard to its conservation/repair. Normally during a change of use barns are fitted with standard slab floor for**

***practical reasons. Should the threshing floor be repairable then serious consideration must be given to conserving and incorporating it as part of the future use of the barn. The “threshing floor” appeared to be railway sleepers.***

## **5.2 Repairs to Masonry**

The masonry walls appear sound, but the building is very overgrown externally so we must assume some repairs are needed. It is considered that the external ‘buttresses’ are not part of the original build and this may be indicative that some movement has occurred in the past. Bricks have been used as infill in certain areas. The walls internally are painted and it would be appropriate to analyse this for identification of the material. The most straightforward approach is to repair as found, keeping the external buttresses and infill areas of brickwork and viewing them as part of the historic development of the barn.

Some ground investigation (trial holes) would be useful both internally and externally next to the walls to ascertain the depth (or lack) of foundations. Also a trial hole next to a partition wall could prove enlightening.

Flint walls are usually loose rubble filled and if repairs are required then it is best undertaken in very small sections. In general unless there is a serious fracture some consolidation of the flint is all that is needed and perhaps the replacement of the odd ‘missing’ flint. The flints should be pointed and protrude slightly showing their individual shapes, not smeared with mortar. A suitable mix of pointing mortar for most situations is 1:3 feebly hydraulic lime to sand; aggregate: 1½ sharp sand, 1½ soft sand, NHL2. An analysis of the existing pointing should be undertaken prior to any repair work.

## **5.3 Conversion to New Use**

New breathable materials introduced into the structure of the building must fit in and around the original structure. The framework must not be changed to accommodate new building materials.

### **5.3.1 Openings**

No new openings should be introduced, though some openings were closed during 1973-75 repair. The existing large barn doors must be repaired and kept. The opening can be infilled with a glazed area incorporating entrance door(s) as can be seen under Case Study No1. The original barn doors would be held in the open position and perhaps closed, covering the glazed screen, when the building is not in use. The existing window openings can be re-used as windows. Sensitive introduction of glazing could be done between timbers to improve light levels within the barn at the same time maintaining the frame module. The roofscape should be kept uninterrupted.

### **5.3.2 Insulation**

To come as close as is practical to Building Control Approval the building will require insulation in the roof, walls and floor. Modern and Eco-friendly insulation materials can be used effectively between timbers. Some give and take regarding meeting present day ‘U’ Values will need to be negotiated with the local authorities.

Insulating and heating the barn will change its ambient environment. In consideration of its 600-year history of being a farm building this change will have its effects. For at least the first year there is bound to be some movement within the frame. So a ‘repair schedule’ would have to be agreed with the new user. During this transitional drying out period the building must be well ventilated. Generally no voids must be created without through ventilation. For instance the roof if insulated must have through ventilation, vapour open insulation materials are available.

### **5.3.3 Walls & Ceiling**

It is most unlikely the interior of the barn was plastered, although a lime daub using straw as a binder may have been used as infill panels in its earlier days, an internal plaster finish to walls and ceiling will be a new development. Should the future use require a plaster finish then a 2-coat lime based (breathable) plaster ought to be used say a 1:3 lime, coarse sand mix, ½ part horsehair (or goat hair) as a binder to the first coat. Hair should be at least 20mm in length and well teased out throughout the mix. As a preference timber laths could be used, as this helps to slow down the drying out of the lime plaster avoiding shrinkage. Now-a-days stainless steel mesh is frequently used.

Internal plastering will help with U values and will occur between the timber frame elements so that the uninterrupted view of the timber frame will be maintained.

#### **5.3.4 Heating**

A fully insulated and membrane floor slab has been suggested incorporating under floor heating, which avoids unsightly radiators and 'hot-spots' next to the existing frame. It would have to be borne in mind that one goal is to conserve and repair the extant threshing floor if at all possible. The compatibility of these two goals requires careful consideration.

All of the above should be reviewed once a new use for the barn is decided.

#### **5.4 Maintenance Schedule**

Grounds                      - Keep trees and shrubs away from the foot of the building.  
                                     - Drainage away from footings.

Rainwater Goods            - Gutter  
                                     - Downpipes  
                                     - Soakaways

Access for Scaffolding    - Cherry picker platform for future roof maintenance.

Services                      - Electric  
                                     - Gas  
                                     - Water  
                                     - Fire Detection

Twice yearly inspection, gutter, October / January.

Pointing to brick / masonry 5 years.

Timber survey, 10 years.

## 5.5 Suggested Suppliers

Timber	Notes
<p> <b>English Oak</b>  <b>English Timber Merchants</b>  <b>Whippletree Hardwoods</b>  <b>Milestone Far</b>  <b>Barley Road</b>  <b>Flint Cross</b>    <b>Heydon</b>  <b>Royston</b>  <b>Herts SG8 7QD</b>  <b>Tel: 01763 208 966 (Richard)</b> </p> <p> Morgan &amp; Co (Strood) Ltd  Knight Road  Strood  Rochester  Kent ME2 2BA  Tel: 01634 290 909 </p>	<p> All timber must be from FSC sustainable source.  Certification of timber: Prior to ordering timber, contractor to provide CA with documentary evidence of certification of timber source. Documentary evidence to also include the name of the certifying organisation and the criteria under which the certification has taken place. </p> <p> Forest Stewardship Council Tel: 01686 412176/413916 </p> <p> 3 weeks from order to delivery.  A small delivery lorry is used.  2-year air-dried oak would cost 30% more than fresh cut green oak. </p>
<p> <b>Roofing</b>  Handmade plain bricks &amp; tiles </p> <p> <b>Bulmer Brick &amp; Tile</b>  <b>Sudbury</b>  <b>Suffolk</b> </p> <p> Sandtoft Roof Tiles  Sandtoft  Doncaster  South Yorkshire  01427 871 200 </p> <p> Keymer Hand makes  Nye Road  Burgess Hill  West Sussex  RH15 0LZ </p>	<p> Hand-made clay peg tiles require 12 weeks from order to delivery onsite. (longer during Winter months).  Each tile would cost £1 and delivery of the tiles £150  Bulmer do have second-hand clay peg tiles but this depends on availability at the time. </p>
<p> <b>Lime Mortar</b>  Bleaklow Industries Ltd  Hasop Avenue  Hassop  Bakewell  Derbyshire DE45 1NS  01246 582 284 </p>	<p> (Lime or line / sand (Crane and fine stuff) </p>
<p> <b>Hirst Conservation Materials</b>  <b>Laughton</b>  <b>Sleaford</b>  <b>Lincolnshire NG34 0HE</b>  <b>01529 497 517</b> </p>	<p> For, say, a pallet of lime putty delivery would take 10 working days. </p>
<p> <b>Flints</b>  IJP  Henley  Tymawr </p>	<p> (Hair – sand) </p>

## 6.0 If all else fails.... The Option to Relocate

Should it be impossible to have the covenant restricting the use of the barn lifted and permission denied regarding an access roads to the barn there exists the possibility that the project could be put on hold or into 'mothballs'. This would be no solution for securing the future of the barn, as neglect and deterioration would continue as has happened between 1975 – 2005.

If all else fails then it may become more acceptable to move the barn to a new location rather than see it gradually fall into total disrepair and be lost forever.

The practical and financial implications of embarking on this route must be thoroughly understood prior to considering this as a solution. Dismantling and moving the barn cannot be considered 'conservation' but as a 'rescue from oblivion' which could become a new priority.

- Practical/financial implications encompass finding a new site, which may entail a new access road, supply of services and perhaps a new set of planning restrictions.
- Listed Building Consent would be required before dismantling and moving the barn.
- It is likely that an archaeological dig would be requested on the old site.
- Planning Approval for the new site, as well as Building Control approvals for the new use.
- It is imperative that the listing goes with the barn, otherwise the whole point of moving it will be lost, along with the barn no doubt at some stage in its future. See Harrow Granary Grade II after moving.
- Grade Listing will require equally careful repairs and re-erection principles on the proposed site.
- The barn in its present location would still require a detailed measured and condition survey.
- A photographic record should be undertaken.
- Each timber recorded and given a reference on the measured survey drawings and each timber fixed with a reference tag. Each repair detailed prior to dismantling.
- A full set of plans and detailed drawings for the proposed site and use.
- An access route (temporary) would still be required for the removal of the dismantled timbers i.e. a heavy vehicles will need access, both from the old to the new site.
- Suitable storage of timbers/building materials would be imperative during re-construction.
- A sequence of dismantling and a sequence of re-erection would be essential.
- The barn has, over 600 years, no doubt shifted from the plumb and the timbers, as they dried, distorted. Re-erection would have to encompass these foibles.
- Conversion to a new use would still be required.
- The barn should not be moved until all requirements are in place i.e. new site, new use and all LA approvals for moving. This would also include the finance to carry out the work. The project tendered and a contractor appointed, ready for a Spring start.

Moving the barn could be put into two categories or phases:

### 6.1 Phase1

- a) Survey (both measured & condition) of the existing structure itemising and recording all details and labelling of each timber to co-ordinate with the drawings. A thorough photographic survey



- b) Apply for Local Authority permissions for the dismantling, moving, re-erection and repair of the barn. Also permissions for proposed use.

## **6.2 Phase 2**

- a) The careful dismantling and moving of the barn to suitable temporary storage area, if possible on the proposed site, ready for re-erection. Ideally this should be a temporary structure for instance a poly tunnel where repairs to the timbers can be carried out and the frames put together prior to erection into final position. This means work can continue during any weather and transportation to and from a joinery yard would be unnecessary. Dismantled timbers must not be left exposed to the elements.
- b) The re-erection of the barn and the careful incorporation of new building elements to meet current regulations for the proposed use.

## **6.3 Pros**

- The barn is saved for posterity and can be used and seen by the general public which is crucial.
- If a new site with good access can be found this will make the barn much more viable for a commercial/community use.
- The dismantled timbers will be much easier to repair before re-erection.

## **6.4 Cons**

- The barn will have lost its original setting. One cannot really say 'context', as at this stage of its development it is no longer functioning as a barn forming an integral part of the farm. The farm being a non-functioning farm and greatly post dating the Monastic barn.

Conservation also means conserving the work of the original craftsmen who erected the barn and did so well it lasted 600 years. A number of buildings have been successfully relocated given their historic importance. The Chiltern Outdoor Museum at Chalfont St Giles has rescued many local buildings. It would be worth exploring their experience in the context of the Croxley Great Barn.

As an example, the Wellington Pub in Manchester Arndale Centre moved three times and is still Grade II listed. The building was painstakingly dismantled, relocated some 100 metres and identically reassembled, peg by peg and timber by timber. Today, this Grade II listed building is one of only four Scheduled Ancient Monuments in Manchester.

## 7.0 Alternative Uses

There are many examples of listed barn buildings which have been successfully restored and employed in alternative uses while at the same time preserving the character, detail, fabric and structure of the original building.

The uses range from private residential conversions to function halls, museums and artists studios. Examples of these can be seen in Appendix D – Examples.

The future use of Croxley Great Barn is currently undecided. Many different categories of use have been suggested and of these, a varied sample of sixteen have been selected for further analysis and consideration.

The sixteen uses are:

<b>Single Office</b>	<b>Multiple Office</b>
<b>Craft Workshops</b>	<b>Artists Studios</b>
<b>Field Study Centre</b>	<b>Film/ TV/ Video Production Unit</b>
<b>Event Hire / Conference Centre?</b>	<b>Residential</b>
<b>Closed Storage</b>	<b>Working Museum</b>
<b>Building Research Centre</b>	<b>Theatre</b>
<b>Doctors Surgery</b>	<b>Youth Club</b>
<b>Leisure Facility (Health Club)</b>	<b>Restaurant</b>

The sixteen represent a broad cross-section of potential uses for The Barn, and successful examples of each type of conversion can be found elsewhere.

### Revenue

One of the key decisions in the selection of the above list is that the building must be capable of generating revenue to fund its on-going maintenance and future survival.

Residential use has been discounted as being inappropriate. The nature of a dwelling requires more cellular spaces and the creation of an unacceptable number of openings for daylight and ventilation. Both the fabric and the structure as well as the appearance can be compromised.

Whole Life Cost Study would help decide, material labour etc.

## **7.1 External Influencing Factors**

There are many external factors which will to a greater or lesser degree influence the final use of The Croxley Great Barn. Listed below are the eight factors which we believe to be the most relevant to the conversion of The Barn.

### **7.1.1 Revenue** (*return on investment*)

Will the buildings use provide sufficient revenue to fund the development costs and the future up-keep of the building?

### **7.1.2 Public Exposure**

Can the building be viewed by the general public? Will it receive public exposure?

### **7.1.3 Traffic Generation**

Will the building generate a high level of traffic and overload the limited capabilities of the roads surrounding the site?

### **7.1.4 Risk**

Will the use create undue risk to the timber frame building?

### **7.1.5 Minimum Intervention**

Will the use retain the original building fabric, structure and detail and preserve the interior as a single space?

### **7.1.6 Valuation**

Will the building's future value reflect the development cost? Can the building use generate the rent required to fund the building's future up-keep?

### **7.1.7 Planning**

Will the use be viewed favourably by the local planning, conservation departments and English Heritage?

### **7.1.8 Access and Infrastructure**

Will the building require a high level of servicing? Extensive car parking facilities? Improved access roads? Pedestrian and disabled access must be considered.

### **7.1.9 Sustainability, Future Maintenance and Preservation**

Which use will provide the most sustainable building and provide access for future maintenance and preservation?

To undertake a comparative assessment of the potential uses of the building we will need to consider each of the external influencing factors in terms of their effect on each of the building uses.

To ensure that this assessment is analytical the following Uses Matrix has been developed (see 7.2).

## 7.2 Uses Matrix

The following Uses Matrix has been developed to assess the different uses against the external influencing factors. To decide upon the most appropriate use for the building each factor has been ranked against each of the uses. The final ranking provides an indication of appropriateness for each use.

The Matrix provides a simple method of comparing the uses and marks each of the influencing factors against the relative building use. Once complete the matrix ranks each use in order of suitability for The Croxley Great Barn.

<b>USES MATRIX FOR CROXLEY GREAT BARN (August 2004)</b>										
<b>Potential Uses</b>	<b>Revenue (weighted x 2)</b>	<b>Public Exposure</b>	<b>Traffic</b>	<b>Least Risk (Fire etc.)</b>	<b>Minimum Intervention</b>	<b>Valuation</b>	<b>Planning Permission</b>	<b>Infrastructure</b>	<b>Total</b>	<b>Final Ranking</b>
Single Office	28	4	13	8	13	14	7	7	94	1st
Multiple Office	30	5	14	7	10	15	6	6	93	2nd
Craft Workshop	12	8	8	6	12	5	11	11	73	8th
Artists Studio	10	7	7	5	11	4	10	12	66	10th
Field Study Centre	0	13	5	14	14	2	13	13	74	7th
Film/ TV/ Video Production	20	2	6	1	5	12	5	0	51	13th
Event Hire	16	14	2	11	9	11	8	8	79	5th
Residential	26	1	3	10	8	13	9	9	79	5th
Closed Storage	4	0	0	15	7	3	15	15	59	11th
Working Museum	6	15	4	12	15	6	14	14	86	3rd
Building Research Centre	14	12	9	13	6	10	12	4	80	4th
Theatre	8	10	1	4	4	1	3	5	36	15th
Doctors Surgery	24	11	15	9	0	9	1	3	72	9th
Youth Club	2	3	11	2	3	0	2	10	33	16th
Leisure Facility	18	6	12	3	2	8	4	2	55	12th
Restaurant	22	9	10	0	1	7	0	1	50	14th

### **7.3 Proposed Use – Commercial Office**

When the external influencing factors are scored against the uses the matrix marginally shows the single occupation office as the most appropriate use for The Croxley Great Barn.

In terms of the advantages and disadvantages of office use the key aspects are described as follows:

#### **7.3.1 Advantages**

##### ***Revenue***

The building will provide a continuous revenue stream in the form of monthly / annual rental.

##### ***Valuation***

The value of the building will be considerably increased with use as an office. The addition of mezzanine could enhance the lettable floor space.

##### ***Minimum Intervention***

As an open-plan office it should be possible to retain the barn's internal space and exposed structure

##### ***Public Exposure***

In normal business use the office will attract regular visitors. Subject to the agreement of the tenant it should also be possible for members of the general public to visit and view the building interior.

##### ***Planning***

With regard to conservation this use should meet the conservation officers' key requirements as it should allow the buildings internal space to remain free from partitions and sub-division and at the same time maintain the exposed structure.

#### **7.3.2 Disadvantages**

##### ***Infrastructure***

The building will need to be highly serviced to meet modern standards and attract a reasonable rental. This will require the addition of under-floor heating, cable trunking, lighting, and security systems.

WC and Kitchen provision should be located outside of the main building to avoid partitioning and the risk of fire.

Need to make building comfortable and attractive for potential tenants

##### ***Traffic Generation and Car Parking***

An office use will create additional car parking requirements. These will be screened with hedging and planting.

##### ***Access***

It is considered that a group of people working in the current location would cope best with the remote siting and the limitations of the access roads.

##### ***Building Regulations***

Change of Use will need to comply with modern standards. On the grounds of the Grade II \* listing there may be leniency on some aspects related to the building fabric and structure

### **7.4 Alternative Uses**

#### **7.4.1 Public Use**

The Barn as a structure lends itself well to the accommodation of many uses catering for public activities. The key reasons for this is that in general terms, public uses are less demanding in their requirement for day lighting and internal sub-division of space.

Accessibility is the key factor in respect of the use of The Croxley Great Barn as a public facility. The difficulty of access and the quality of Lavrock Lane and All Saints Lane mean that an increased and intensive use by the public would in all likelihood be unsuitable.

It would be essential to attract sufficient members of the public to the building on a paying basis to ensure that sufficient revenue is created to maintain the up keep of the building. This in itself would require the provision of sufficient land to satisfy car parking standards. Additional space would be required to allow access to service vehicles and also to enable them to turn satisfactorily.

A building such as The Croxley Great Barn in an urban location would provide a facility serving its local community. It is considered however that the access issues to the Croxley Great Barn are too severe to make such a facility accessible to pedestrians, young mothers with children, the disabled and that an intensive use by many members of the public would be unnecessarily disruptive to other local residents served by the access roads.

#### **7.4.2 Museums**

The conversion of the Great Barn to a museum is an ideal solution if based upon purely aesthetic and practical criteria. A museum such as this could provide a good showcase of a variety of exhibits.

Conversions of such buildings to museums are generally found to be more financially viable when linked to an additional attraction. Where a complex such as Hatfield House exists there are many significant historic buildings that are capable of serving a large number of visitors. This again allows a greater revenue stream to be developed. The issues in respect of both access and car parking still remain problematic with the location of the Croxley Great Barn and, of course, income would be miniscule.

#### **7.4.3 Community Uses**

The viability of the conversion to community use is heavily dependent on proximity to both the town centre and residential areas. The access issues previously referred to again present difficulties in respect of the community use in particular as the elderly, young mothers and the disabled would find it problematic accessing the Croxley Great Barn due to the difficulty of the access roads.

#### **7.4.4 Restaurant Use**

An ideal conversion for a restaurant involves the provision of kitchen with suitable extract and catering provisions, toilets and storage areas. The issues regarding disabled access and disabled facilities are important to give full and proper consideration to. A barn with greater amenity space and more land would provide a far better subject for restaurant conversion in so far as additional land would provide the opportunity for extension and development of kitchen and storage areas without prejudicing the main frame of the building.

A good example of a barn converted to restaurant use is the Water End Barn located adjacent to the Civic Centre at St Albans. This has recently been converted to a Wetherspoons and provides a comprehensive public house and restaurant facility, a key difference is use of ancillary buildings to house the kitchen, the WC's etc. This example is also located centrally within St Albans city and is well served by public car parks. In such a location this type of use is capable of generating the necessary revenue for both a commercial enterprise and the preservation of the building.

#### **7.4.5 Leisure and Recreation Facility**

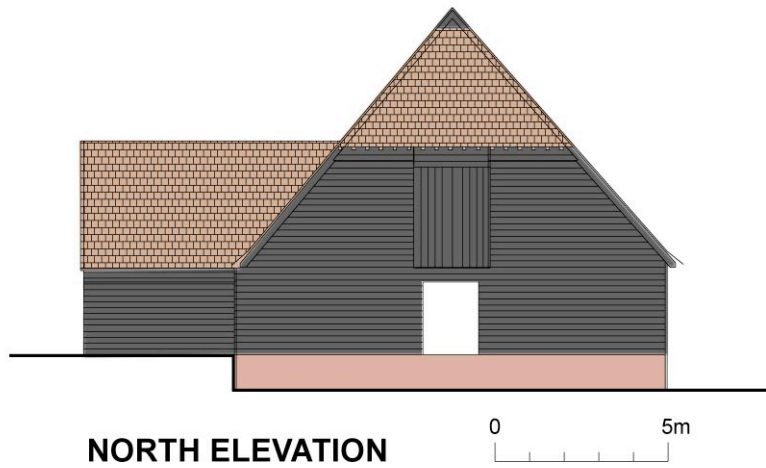
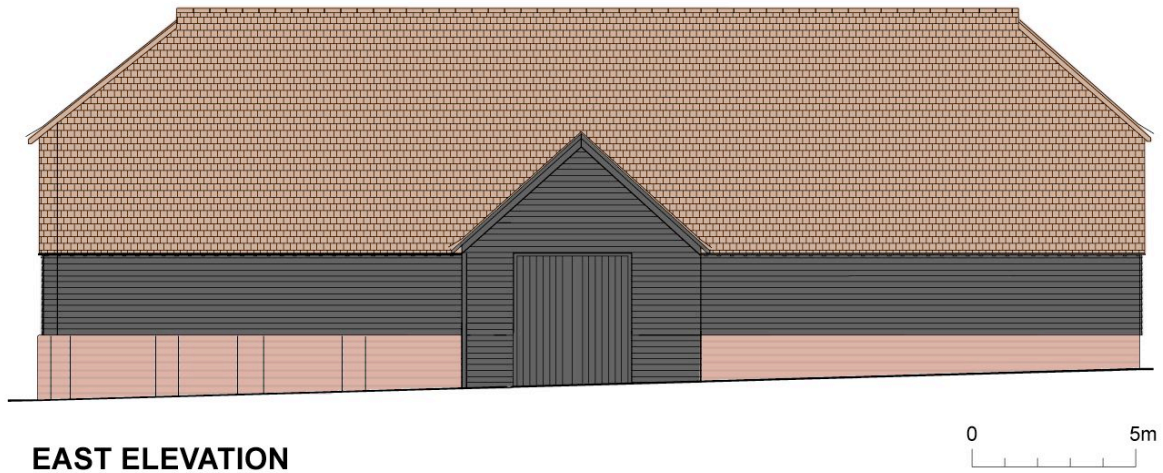
It has been suggested that the building be utilised as a leisure facility or health club. There is now significant competition in this market and key commercial operators such as David Lloyd Leisure, Holmes Place, Cannons and Esporta to mention but a few are developing highly sophisticated sport and leisure complexes. All the above are capable of providing far more sophisticated facilities than could be incorporated within a converted barn. Such a proposal is also prejudiced by lack of external amenity space and a requirement for a far greater internal area than the Barn would be able to provide. The intensification of access would be a key matter to be considered in this case and again it is likely that the generation and volume of traffic would create an unacceptable level of disturbance for nearby residents.

#### **7.4.6 Craft Workshop**

Craft workshops, the Barn would make an attractive environment for a craft workshop and may provide a facility for one occupier. It has been suggested that one could give consideration to business such as candle making, furniture making, pottery antique restoration etc. Traditional crafts would be encouraged as being more sympathetic to the surroundings and building. It is however believed that such a use would be far

better again in a 'complex' situation with other attractions to generate public interest and custom for the craftsmen. The issues of access and parking remain as noted before.

In conclusion, it is believed that the ability of the building to be reutilised as office premises will provide the optimum income stream with the least prejudice to the immediate environment. For the reason noted above, our recommendation would therefore be to follow this strategy.



**Fig. 29 Croxley Great Barn, East and North Elevations**

## 7.5 Proposed Plans

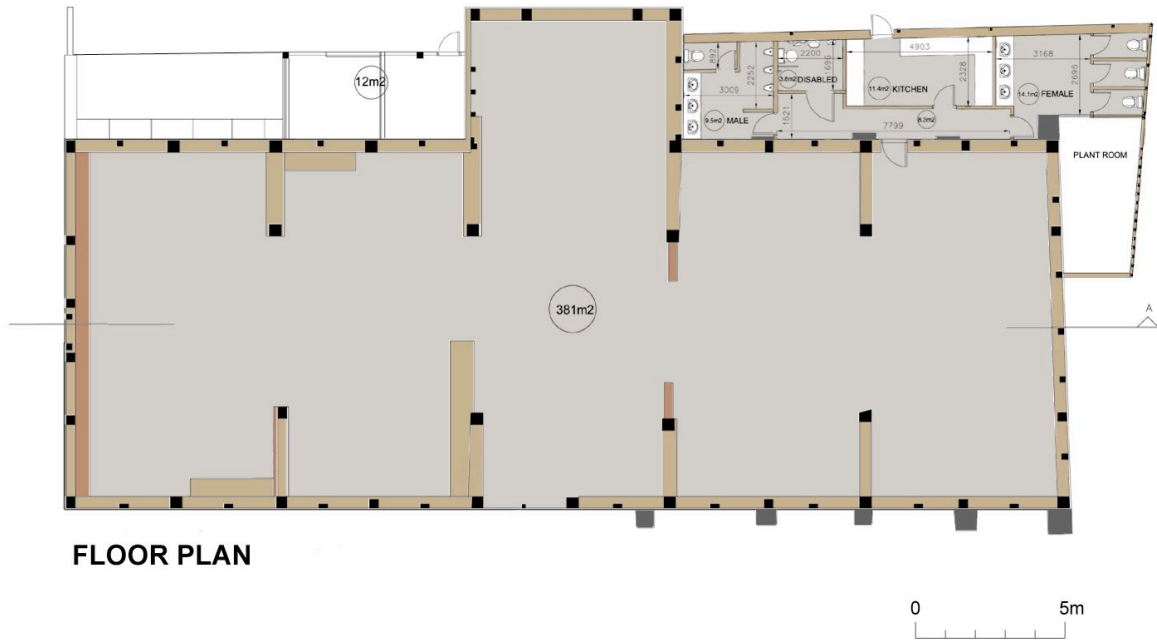


Fig. 30 Croxley Great Barn, Proposed Plan Illustrating Reconstructed 'Upstand' Structures to East Elevation

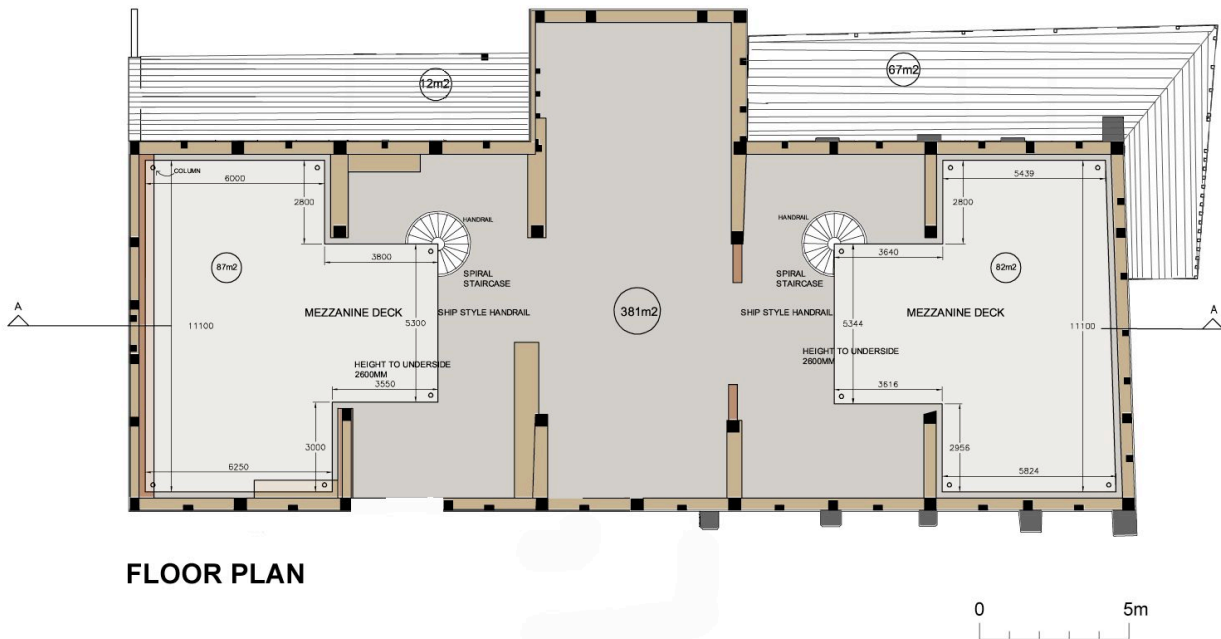


Fig. 31 Croxley Great Barn, Proposed Plan including Mezzanine floors



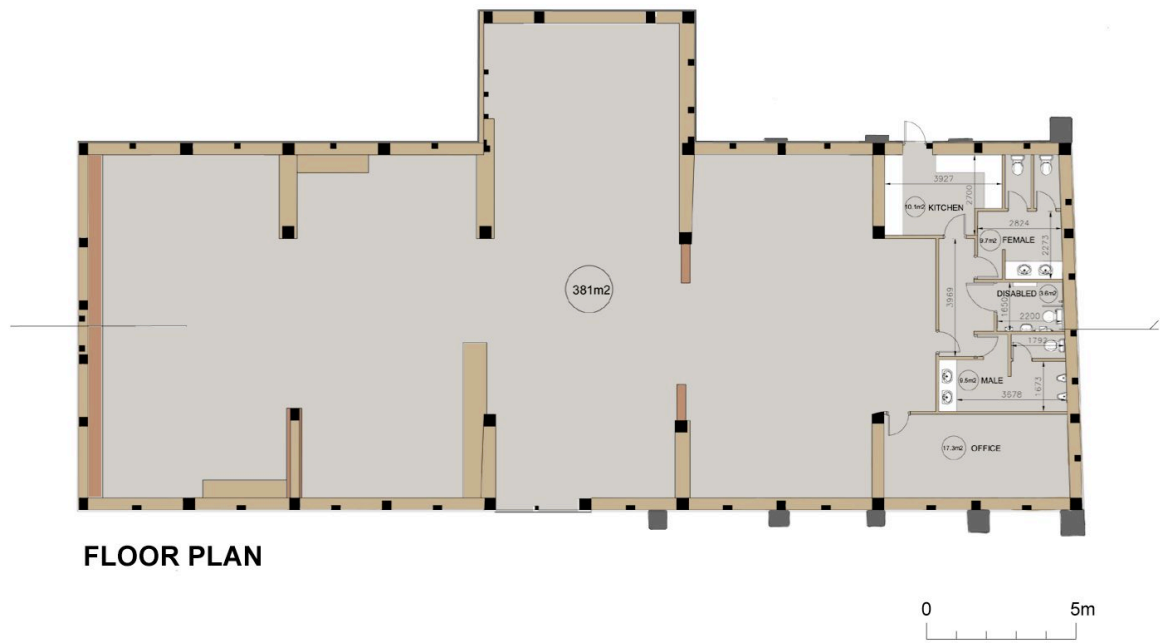


Fig. 32 Croxley Great Barn, Proposed Option including Internal WC's at South End of Building

## 8.0 Detail Design and Construction

Whatever the end use of the building the detail design and construction will need to conform to current building regulations. In brief this will require that:

- all elements of the building envelope are upgraded to meet the required U-values
- disabled access can be achieved in accordance with the new DDA legislation
- fire prevention measures are undertaken
- satisfactory toilet provision including disabled

Dispensation may be granted for some of the works, in light of the listing of the building, but this will need prior agreement between the local planning authority and building control.

In addition to this the areas of sustainability and ecological design should be considered as part of the detail design process. This may involve the use of:

- Lime or clay plasters
- Timber from sustainable resources
- Natural insulation
- Natural methods of ventilation
- Appropriate timber treatment

Many barn conversions are carried out using modern impervious coverings, insulation and plastic finishes. This often results in moisture being trapped within the structure, potentially leading to problems of damp and mould growth and timber decay. Evidence shows that using natural, 'breathing' materials with qualities of permeability, hygroscopicity and capillarity, maximises the ability of the fabric itself to absorb and regulate moisture, thus assisting the health of the building shell and of the internal environment.

### 8.1 Outline Specification

The following specification outlines the possible construction methods and materials which could be used in the refurbishment and renovation of the building envelope.

#### 8.1.1 Access Road

For a new access road a concrete track will be formed.

Width 3m wide, with passing places also 3m wide and 10m long, passing bays to be every 150m.

Length of track approximately 800m.

Top soil to be excavated to a depth of 400mm.

Crushed concrete 250mm deep to be compacted into place.

150mm high strength concrete to be laid on heavy duty mesh between steel formers.

Surface of concrete road to be laid to fall with tamped surface.

Allow for lighting standards installed in accordance with IEE regulations and good practice every 25m. Noral or similar.

Lighting to be on time clock or photo cell operated.

Surface water to be allowed to run off naturally.

#### 8.1.2 Car Park

Allow for excavating over the area of the car park to a depth of 400mm.

Excavate and form appropriate falls.

Allow for 6 no. heavy duty road gullies connected to appropriate petrol interceptor and 4 no. concrete soakaways.

Create car park base utilising 250mm crushed concrete top with 150mm crushed type 1 mot grade high quality limestone.

On completion dress with 50mm depth of washed 20mm stone.

Allow for 20 external lighting points and standards Noral or similar wired through a time clock and daylight sensor.

Car park bays to be denoted by posts 900mm high from FCL. Oak posts with engraved car park space numbers set 600mm into ground.

Erect post and rail fence to car park. 4 rails utilising propriety timber treated system from Jacksons.

Allow for high quality 12' 0" wide estate type gates where shown on plan complete with all ironmongery.

Gate posts to be 175mm x 2.4m total length with approximately 900mm set into the ground.

Allow for 24 trees (minimum height 3m). Native species.

Allow for development of 100 linear metres of flower bed, double dug and enhanced with well rotted manure with concrete edging. Bed to be 1m wide.

Allow for	300 Lavender plants	@ £2.50 each
	200 Fastigate rosemary	@ £2.50 each
	200 Roses	@ £5.00 each
	30 Pyracantha	@ £7.50 each

Allow for 100 sq metres of prepared ground sown with good quality grass seed.

### **8.1.3 Calor Tank**

Allow for installation of LPG tanks by specialists complete with control gear.

Form Calor base.

Excavate to 450mm with edge thickening to 900 mm.

Lay hardcore to depth of 250mm.

Lay 200mm concrete slab with heavy duty mesh reinforcement.

Allow for 175 x 175 mm oak post 3 no placed in front of Calor tank for protection from vehicles.

Allow for trench from Calor tank to barn to take pvc sheathed copper pipe overlaid with safety tape. Depth to be 900mm and to terminate in pvc service pit at each end utilising a Hepworths access chamber.

Armoured electrical cable to run from barn to Calor position and to terminate 3 metres from tanks for possible power supply.

### **8.1.4 Surface Water Drainage, Soakaways for Building**

Grey water for toilet and water of gardens.

Form 2 no soakaways located 10 metres from the building.

Utilise concrete segmented soakaways, Marshalls or similar installed in accordance with good practice and manufactures instructions installed with HEAVY DUTY highway covers.

Allow for 6 no inspection chambers and connections in respect of surface water drainage installed with heavy duty covers.

Allow for 10 no surface water gullies.

#### **8.1.5 Utilities**

Allow provisional sum for new power, water, telephone and incoming supplies.

Allow for service trenches and cable access chambers to service telecom, electricity and water services in the barn. Each trench to be 50m in length.

#### **8.1.6 Sewage/Treatment Plant**

Allow for foul drainage to run to sewage treatment plant located in accordance with good practice. (Note: HCC required to put two cottages on mains sewer 1972 as part of deal with Gonville and Caius College. Further investigation needed to determine current practicality.)

Klargester e.g. Klargester airflow 19-75.

Allow for electrical supply run to Klargester plant.

#### **8.1.7 Floor Specification**

Note threshing floor to be investigated, carefully stored and re-instated on completion of new floor slabs.

Excavate existing floor to depth of 500mm.

Note: Archaeological remains may be present and will be subject to investigation and repair. The contractor needs to allow extra time for this.

The floor is to include under floor heating laid in accordance with Multibeaton specification by Multibeaton specialist sub contractor. Note: Consider the Ecofloorings offered by Ty-mawr which avoids concrete.

75mm sand and cement screed with mesh reinforcement.

500 gauge Visqueen vapour membrane.

75mm high density flooring grade insulation.

Bituthene 1200 gauge damp proof membrane.

150 mm concrete slab.

200 mm well compacted hardcore base.

Floor to be finished with slate tiles from 'Hard Stuff' or similar.

Mat wells to be formed at entrance doors with high quality mat system installed.

#### **8.1.8 Walls**

Existing weather board removed to expose structural elements and marked and numbered and set aside for possible reuse (if not reused allow for disposal).

Specialist repairs to be carried out to timber frame in accordance with good conservation practice in agreement with English Heritage, the Local Authority Historic Buildings Officer and the Specialist Conservation Consultant. All timber to be from sustainable sources.

Existing doors, windows and frames to be set aside for overhaul, repair and re-installation.

Masonry is to be carefully repaired with appropriate lime hydraulic mortar.

Loose brickwork is to be reconstructed.  
Flints to be re-embedded in lime hydraulic mortar.

Code 4 lead flashing to be dressed over projecting masonry from underside of external cladding to form appropriate drip.

### **8.1.9 Insulation and Wall Renovation**

Walls to be renovated as follows:

60mm pavatherm floor NK to be installed between studs or sheep's wool, .....

100mm pavatherm plus to overlay initial material.

Overlay with Tyvek HP plus vapour barrier.

Heavy duty 25 x 38 treated battens to be fixed to structure with stainless steel screws to carry weatherboarding at approx 900cts.

32mm x175mm larch featheredge board to reclad exterior.

Allow for treated trim to edges and head cills etc all at openings.

Refinish all joinery, windows, doors etc and reinstall.

Walls to be finished with NBT black timber paint.

### **8.1.10 Internal Wall Face**

Internal face of pavatherm to be finished with clay plaster.

Clay undercoat plaster rendered onto pavatherm (pavatherm can be used as a render carrier).

Finish with skim of clay top coat plaster.

Clay face to be decorated with NBT trade white emulsion.

Note existing internal timber to be gently brushed clean with a bristle brush.

### **8.1.11 Internal Walls and Partitions**

Forming wcs and kitchen

Form internal walls in traditional softwood timber studwork.

Overclad with NBT reed mat.

Finish with clay undercoat plaster and clay top coat plaster.

Paint with NBT trade emulsion.

### **8.1.12 WC Areas**

Allow for tiling wc cubicles behind urinals and wash hand basins with 200 x 200 white rustic effect tiles allow £25 per metre materials cost.

Allow for Armitage Shanks or similar white wc's, urinals and wash hand basins.

Taps and fittings to be chrome plate and by Pegler or similar.

All wc's to have mechanical extract installation.

Disabled wc allow for full Armitage Shanks disabled sanitary fittings installation. Disabled wc to be tiled with white rustic effect tiles and allow £25.00 per material cost.

Floors to be finished with 300 x 300 natural slate tiles from Hardstuff or similar supplier. Allow £40.00 per metre material cost.

#### **8.1.13 Kitchen Area**

Kitchen area formed as shown on plan.

New walls as previously.

Partitions as previously.

Walls to be painted with NBT white eggshell.

Ceilings to be painted with NBT trade white emulsion.

New kitchen and fittings to be from Magnet or similar. Allow for base units, wall cupboards, laminate work top, oven hob, microwave, extracts, under cupboard lights, tiled splash back, built in fridge. Allow provisional sum of £6,000.00 for fixtures and fittings.

Floor to be finished with Altro Safety Floor or similar. Slip resistant material.

Underside of mezzanine to be under drawn with NBT clay board skim finished with a top coat of clay plaster.

Paint finished ceiling with NBT trade matt emulsion.

#### **8.1.14 Electrical Installation**

Allow provisional sum of £45,000 for complete electrical including lighting and power.

#### **8.1.15 Alarm and Security**

Security alarm installation by Secom or similar.

CCTV installation also by Secom.

#### **8.1.16 Fire**

Fire alarm and heat detector system linked to Redcare will be needed.

### **8.2 Building Regulation Compliance**

As a general rule all works to buildings must be carried out in accordance and compliance with the building regulations.

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## 9.2 Prevailing Planning Policy Framework

Croxley Great Barn is a Grade II\* Listed Barn dating from the late 14<sup>th</sup> Century and therefore is of very important historic and architectural value. Grade II\* listed buildings count for approximately 19% of all listed buildings in this Country and, as such, there is a very strong presumption against any form of development or change of use which would harm the external or internal appearance or its setting. Coupled with this is the Barn's location within the Green Belt which means that any uses for the barn or its access which are held to be detrimental to the Green Belt's openness would be less likely to be considered favourably by the local planning authority – matters which are dealt with below.

At the national level, general planning guidance for the reuse of listed buildings is contained in 'PPG15: Planning & the Historic Environment, 1994'. Para 2.18 states that:

'New uses may often be the key to a building's or area's preservation and controls over use, density, plot ratio, day-lighting and other planning matters should be exercised sympathetically where this would enable a historic building or area to be given a new lease of life'.

Importantly, however, English Heritage has published separate guidance on 'The Conversion of Historic Farm Buildings, 1992' mainly to make sure that proposals to convert listed barns to alternative uses are sensitive to the buildings' structure. It states that whilst the relaxation of planning constraints for the possible reuse of a listed building is a principle already encouraged by the Department of the Environment that:

'Clearly, if a proposed new use destroys essential features, it will not be appropriate and relaxation of planning constraints may not be justified. The loss of such features can in practice destroy the special interest of a building as effectively as outright demolition, and the common argument of applicants that conversion is better than nothing may not hold true'.

In terms of the features considered essential by English Heritage in most types of farm building, the following matters are cited. The protection of these features will weigh heavily in the Local Planning Authority's and English Heritages future consideration and determination of a planning and listed building application for the site.

- The original permanent fabric of the walls, whether brick, earth, stone or timber-frame, and of the roof structure;
- An exterior appearance characterised by extensive blank walls and roofs with unbroken lines and few openings;
- An unpartitioned interior, often of impressive proportions and long sight lines, with the structural elements exposed; there may be fittings of interest;
- An agricultural setting, often as part of a group of farmstead buildings, without a separate boundary; the site on which the building stands may have archaeological importance.'

In terms of specific advice regarding the future use of listed barns, English Heritage's statement confirms that in the case of Grade I or II\* buildings, standards must be especially high and it is very unlikely that any form of residential conversion will be acceptable. It states that:

'Residential conversion should be considered as a last resort for most farm buildings, and local planning authorities should always consider whether agricultural, commercial, or community uses are feasible before contemplating residential conversions.'

With respect to Croxley Great Barn's location within the Green Belt, Government Policy set out in 'PPG2: Green Belts, 1995' is directly relevant in this case. Para 3.8 relating to the 'Re-use of buildings' in the Green Belt states that:

- (a) it does not have a materially greater impact than the present use on the openness of the Green Belt and the purposes of including land in it;
- (b) strict control is exercised over the extension of re-used buildings, and over any associated uses of land surrounding the building which might conflict with the openness of the Green Belt and the



purposes of including land in it (e.g. because they involve extensive external storage or extensive hard standing, car parking, boundary walling or fencing);

- (c) the buildings are of permanent and substantial construction and are capable of conversion without major or complete reconstruction; and
- (d) the form, bulk and general design of the buildings are in keeping with their surroundings. (Conversion proposals may be more acceptable if they respect local building styles and materials, though the use of equivalent natural materials that are not local should not be ruled out.'

At the local level, planning policy is set out in the 'Three Rivers Local Plan 1996-2011'. This is in accordance with national planning policy advice set out above; namely, Para 3.39 dealing with the conversion of historic timber framed barns states that:

'The conversion of historic timber framed barns to dwellings is likely to result in the loss of key building features such as non-partitioned interiors, exposed structural elements and extensive roof and wall surfaces with few openings. The external settings and character of these buildings is also likely to be drastically altered by such conversions. These barns may be more suitable for agricultural, commercial, leisure or community based uses where such uses have an acceptable impact on a historic barns character. In cases where protected species may be present (e.g. bats and owls) applicants are referred to Policy N.3 (Protected Species)'

In this respect, Policy C7 'Change of Use of Listed Buildings' states that:

- (1) Change of use of a Listed Building will be granted only where the Council is satisfied that the historic and architectural characteristics of the building both external and internal will not be adversely affected, and;

In the case of residential conversion of barns,

- (2) it can be demonstrated that the applicant has made every reasonable effort to secure other uses without success'

Local Plan policy dealing with the re-use of buildings in the Green Belt is set out at Policy GB9. This states that:

Proposals for the change of use of a building in the Green Belt may be permitted where:-

- (i) The form, bulk and general design of the building is in keeping with its surroundings;
- (ii) Any proposed adaptation of the building is sympathetic to the character and appearance of the building or group of buildings;
- (iii) Any proposal, by way of e.g. alterations, extension, parking/turning area, modifications to access or landscaping, does not have a significant adverse effect on the appearance of the landscape;
- (iv) The scale of the proposed use is not likely to have a detrimental effect on the locality (e.g. by noise, smell or by bringing heavy traffic to narrow lanes or involving associated uses not appropriate to the Green Belt or areas of open land);
- (v) The building is suitable for re-use / conversion without extensive alteration, rebuilding and / or extension'

More specifically, Local Plan policy dealing with the residential conversion of farm buildings in the Green Belt is set out at Policy GB 9. This states that:

- (i) 'The District Council will not grant permission for proposals likely to adversely affect the openness or visual amenity of the Green Belt.

- (ii) The number of new dwellings shall be determined by the capacity of the existing yards or spaces delineated by the existing buildings to provide satisfactory amenity area for each dwelling;
- (iii) Proposals which include open or agricultural land to provide new gardens / amenity space or include doors giving access from buildings directly onto such land will not be acceptable.'

In summary, it is evident that the combination of Listed Building and Green Belt policy creates a restrictive planning framework in terms of the possible future re-use of Croxley Great Barn.

### **9.3 Assessment of possible Alternative Uses for Croxley Great Barn**

In accordance with the matrix table of possible uses for Croxley Great Barn set out at Paragraph 6.4, it is evident from the prevailing policy framework for the site that prospect of obtaining planning and listed building consent are as follows.

#### **(1) Residential Use**

For a Grade II\* listed Barn of important historic and architectural value, residential use is probably the least favourable alternative use on the grounds that this sort of use / activity would almost certainly have the greatest impact on the internal integrity of building (internal partitioning / mezzanine floors) and its external appearance (new window openings / roof lights / domestic curtilages). Generally, residential use would only be supported as a last resort if it could be demonstrated that there was no other commercially viable use for the barn in terms of putting it back into beneficial use and the internal and external works were kept to a minimum i.e. open plan type of accommodation.

#### **(2) Commercial Use**

##### **(i) Offices / Workshops**

In accordance with Government and Local Plan policy, the re-use of the barn for office or workshop use is likely to be supported on the grounds that it has been demonstrated in the past that office / workshop use would have the least impact on the internal and external fabric of the barn and, in turn, would be a source of new employment for local people which is particularly important in rural areas. (NB: The employment generation factor is less likely to carry weight in this case given the site's close proximity to the urban area).

An important factor in considering commercial office / workshop use is the fact that it is likely to be a fairly high traffic generator with between 15 and 25 cars entering and leaving the site daily. In highway terms, this might require more than a low key new access from Lavrock Lane or All Saints Lane with capacity for 2 cars passing or at the very least single carriage width with passing spaces. In Green Belt terms a road link of this calibre across open grassland might be resisted in view of the potential impact that a major increase in activity levels would have on the Green Belt's openness.

##### **(ii) Commercial Use – Storage Use**

In the light of the barn's subsisting use for storage purposes connected with the education use of the site, a storage use, such as event hire, is likely to be supported on the grounds that it would have a minimum impact on the internal / external integrity of the building and would be a low traffic generator. However, the possible need to access the site by heavy lorries might give rise to potential highway issues with both the Local Authority and residents.

##### **(iii) Commercial Use – Restaurant Use**

On the basis that a restaurant use often provides significant scope to use the internal space of the barn to its fullest effect, it may often be an appropriate re-use of a redundant barn close to a built up area or on a main road. In this case, however, the barn's backwater location plus lack of direct access means that restaurant use is unlikely to be acceptable in planning or highway terms.

#### **(3) Community Use**

##### **(iv) Activity Centre**

It is likely that there would be strong local support for the re-use of the barn to provide a use which is open to the general public such as field study centre, working museum, building research centre, youth club, crèche or local theatre, In this case, it is possible that relevant planning and highway considerations relating to the need to provide a new road access would meet with less resistance than some form of commercial use, but access for the young, the disabled, and those without a vehicle remains somewhat remote.

#### (v) Leisure Use

A private gymnasium is likely to be an appropriate alternative use of the barn subject to their being sufficient floor space and scope to build changing room facilities. Also, there might be the possibility of linking this use with its joint use for school purposes thereby increasing the prospects of obtaining an access across school land.

#### (vi) Health Centre / Doctor's Surgery

In most cases, opportunity to provide new health centre and doctor's surgeries are welcomed in planning terms. However, in this particularly case the fact that both uses would be major traffic and activity generators means that they would probably be resisted on Green Belt and highway grounds.

### **9.4 Attitude of the Local Planning Authority**

At this stage, a preliminary discussion has been held with Mr Chris Brady of Three Rivers District Council Conservation Area Team. In principle, he would be generally supportive of Croxley Great Barn's conversion to either commercial or community use. Subject to a new access across school land being fairly low key, he does not consider that the proposals would meet resistance on Green Belt grounds. Further discussions would need to take place with relevant planning and highway officers to discuss the detail of the proposals in due course.

In terms of possibly relocating Croxley Great Barn to another part of the School site close to end of Lavrock Lane, Mr C Brady confirmed that English Heritage had already mooted that this would not be acceptable. Indeed, it is evident from the Barn's context that a physical relationship continues to exist between the Barn and its original setting with the confines of Croxley Hall Farm. To move the Barn would certainly destroy this historical relationship to the detriment of the Barn's setting.

### **9.5 Summary**

From the review of Government and Local Planning Policy and from our discussions with the Local Planning Authority it is likely that planning and listed building consent would be granted for the sensitive conversion of Croxley Great Barn to either commercial or community use, including the provision of a new low key access across school playing field land. However, it is less likely that permission would be granted for the Barn's conversion to residential use unless it could be demonstrated that this was the only viable use for the Barn. Finally, there would appear to be little prospect of being able to relocate the Barn given its physical and functional relationship with adjoining farm buildings.

## 10.0 Financial and Market Analysis

### 10.1 Probable Values of The Barn in Different Uses

We have considered the valuations of possible alternative uses as set out in 6.0, in the building's present condition, access arrangements and with planning permission granted. Without definitive costings for refurbishment in each of the alternatives it is obviously difficult to be precise and these figures can only be considered as guidance, they assume however that access can be provided under Option A, set out in 3.3.1. It is assumed furthermore that negotiations have been completed with St Joan of Arc's School.

#### The Building as Existing (un-repaired)

##### 1. Residential Use

£500,000.

##### 2. Commercial Use

- i. Offices - £400,000
- ii. Storage Use - £150,000
- iii. Restaurant Use - £200,000

##### 3. Community Use

- iv. Activity Centre - £175,000
- v. Leisure Use - £200,000
- vi. Health Centre/Doctors Surgery - £300,000

### 10.2 Re-sale and other income from building, once repaired (as proposed)

It is assumed that the building has been refurbished to a good modern standard, and provided with good access and car parking. Also that the old demolished structures have been reinstated for facilities and services. In addition two internal mezzanines have been taken into account.

##### 1. Residential

£1,500,000

##### 2. Commercial Use

- i. Offices  
Rental Value - £77,000 per annum  
Capital Value - £1,000,000
- ii. Storage Use  
Rental Value - £26,000 per annum  
Capital Value - £300,000
- iii. Restaurant Use  
Rental Value - £38,000 per annum  
Capital Value - £450,000

##### 3. Community Use

- iv. Activity Centre  
Rental Value - £30,000 per annum  
Capital Value - £350,000
- v. Leisure Use  
Rental Value - £38,000 per annum

Capital Value - £450,000

- vi. Health Centre/Doctors Surgery  
Rental Value - £65,000 per annum  
Capital Value - £800,000

In the event that the Great Barn could be re-sited further west towards Rickmansworth High Street, these values could be revised as follows:

1. **Residential**

£1,500,000

2. **Commercial Use**

- i. Offices - £1,200,000
- ii. Storage Use - £350,000
- iii. Restaurant Use - £550,000

3. **Community Use**

- iv. Activity Centre - £400,000
- v. Leisure Use - £550,000
- vi. Health Centre/Doctors Surgery - £900,000

Rental values would rise proportionately.

### 10.3 Local Property Market and Market Analysis

Generally there is reasonably good demand for historic buildings in this part of Hertfordshire. Road and rail links are excellent and Heathrow Airport is within ½ hours drive.

Refurbished projects with adequate car parking access and landscaping have proved of considerable interest to freehold purchasers, although commercial lettings are still difficult to arrange. The freehold market is driven by relatively low interest rates, but commercial rents are still somewhat depressed on account of continuing over supply in the market, particularly for offices.

The residential market is beginning to slow down on account of recent increases in base rate and a lack of active purchasers in the market, particularly for the highest priced properties. This will translate into less readily saleable development propositions, even with planning permission granted and of course the planning hurdles for the refurbishment of a Grade II star listed oak framed building would be enormous.

## 11.0 Budget Costings and Quantity Surveyor Costings

### 11.1 Cost Plan Summary for Access Option A

#### ACCESS OPTION A

##### A. SHELL

1.0 GENERALLY	9.6	
2.0 LOWEST FLOOR	57.2	
3.0 UPPER FLOORS(MEZZANINE)	64.2	
4.0 ROOF	87.5	
5.0 EXTERNAL WALLS	75.6	
6.0 EXTERNAL WINDOWS & DOORS	15.1	
7.0 SCAFFOLDING, PROPPING AND COVERING	84	
	<hr/>	393.2

##### B. FITTING OUT

1.0 INTERNAL DIVISIONS	3.1	
2.0 INTERNAL DOORS	5.9	
3.0 FLOOR FINISHES	33.2	
4.0 WALL FINISHES	18.4	
5.0 CEILING FINISHES	25.4	
6.0 PLUMBING SERVICES	13.8	
7.0 ELECTRICAL INSTALLATION	77.5	
8.0 HEATING & VENTILATION INSTALLATION	27.0	
9.0 PAINTING & DECORATING	32.7	
10.0 FIXTURES & FITTINGS	7.5	
	<hr/>	244.5

##### C. EXTERNAL WORKS

1.0 GENERALLY	5.0	
2.0 UTILITIES	18.5	
3.0 DRAINAGE	26.4	
4.0 CALOR TANK	9.3	
5.0 CAR PARK	121.9	
6.0 ACCESS ROAD	264.5	
	<hr/>	445.6

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1083.3

PRELIMINARIES 20% 

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216.7

1,300.0

CONTINGENCY 5% 

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65.0

**CONSTRUCTION TOTAL** 

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1,365.0

cost/m2 GFA (excl contingency & external works) £1,952

GFA = 392m2

## 11.2 Cost Plan Summary for Access Option A with 'Upstand' Option

**UPSTAND OPTION** (additional costs if 'upstand to area for toilets and kitchen' is used in association with Access Options 1, 2, 3, 4 and 5

### **A. SHELL**

1.0 GENERALLY	0				9.6
2.0 LOWEST FLOOR	16.4		16.4		32.8
3.0 UPPER FLOORS(MEZZANINE)	0				64.2
4.0 ROOF	27.2		27.2		54.4
5.0 EXTERNAL WALLS	9.8	4.9	14.7		19.6
6.0 EXTERNAL WINDOWS & DOORS	3.3		3.3		6.6
7.0 SCAFFOLDING, PROPPING AND COVERING	<u>-7.5</u>	7.5			-15.0
	49.2		12.4		61.6
					172.2

### **B. FITTING OUT**

1.0 INTERNAL DIVISIONS	0.3	3.1	3.4		0.6
2.0 INTERNAL DOORS	0	5.9	5.9		0.0
3.0 FLOOR FINISHES	6.8	0.5	7.3		13.6
4.0 WALL FINISHES	5.0	8.2	13.2		10.0
5.0 CEILING FINISHES	1.6		1.6		3.2
6.0 PLUMBING SERVICES	3.8		3.8		7.6
7.0 ELECTRICAL INSTALLATION	3.3		3.3		6.6
8.0 HEATING & VENTILATION INSTALLATION	3.5		3.5		7.0
10.0 PAINTING & DECORATING	7.5	2.3	9.8		15.0
11.0 FIXTURES & FITTINGS	<u>0.5</u>		0.5		1.0
	32.3		32.4	113.9	-81.5
					64.6

### **C. EXTERNAL WORKS**

1.0 GENERALLY	0.0				5.0
2.0 UTILITIES	0				18.5
3.0 DRAINAGE	0				26.4
4.0 CALOR TANK	0				14.7
5.0 CAR PARK	0				121.9
6.0 ACCESS ROAD	<u>0</u>				<u>264.5</u>
	0.0				451.0

		<u>81.5</u>			<u>687.8</u>
PRELIMINARIES	20%	<u>16.3</u>		20%	<u>137.6</u>
		97.8			825.4
CONTINGENCY	5%	<u>4.9</u>		5%	<u>41.3</u>
<b>CONSTRUCTION TOTAL</b>		<u>102.7</u>			<u>866.6</u>

### 11.3 Cost Plan Summary for Access Option B

#### ACCESS OPTION B

##### A. SHELL

1.0 GENERALLY	9.6					9.6	
2.0 LOWEST FLOOR	57.2					57.2	
3.0 UPPER FLOORS(MEZZANINE)	64.2					64.2	
4.0 ROOF	87.5					87.5	
5.0 EXTERNAL WALLS	75.6					75.6	
6.0 EXTERNAL WINDOWS & DOORS	15.1					15.1	
7.0 SCAFFOLDING, PROPPING AND COVERING	84.0					84.0	
		393.2					393.2

##### B. FITTING OUT

1.0 INTERNAL DIVISIONS	3.1					3.1	
2.0 INTERNAL DOORS	5.9					5.9	
3.0 FLOOR FINISHES	33.2					33.2	
4.0 WALL FINISHES	18.4					18.4	
5.0 CEILING FINISHES	25.4					25.4	
6.0 PLUMBING SERVICES	13.8					13.8	
7.0 ELECTRICAL INSTALLATION	77.5					77.5	
8.0 HEATING & VENTILATION INSTALLATION	27					27	
9.0 PAINTING & DECORATING	32.7					32.7	
10.0 FIXTURES & FITTINGS	7.5					7.5	
		244.5					244.5

##### C. EXTERNAL WORKS

1.0 GENERALLY	5.0					5.0	
2.0 UTILITIES	18.5					18.5	
3.0 DRAINAGE	26.4					26.4	
4.0 CALOR TANK	7.8		9.3	1.5		7.8	
5.0 CAR PARK	80.4		121.9	121.9	80.4	80.4	
6.0 ACCESS ROAD	51.0		264.5	213.5		51	
		189.1		336.9	80.4	256.5	189.1
			826.8				826.8

PRELIMINARIES 20% 165.4 20% 165.4

992.2 992.2

CONTINGENCY 5% 49.6 5% 49.6

**CONSTRUCTION TOTAL** 1,041.8 1,041.8

cost/m2 GFA (excl contingency & external works) £1,952

GFA = 392m2



## 11.4 Cost Plan Summary for Access Option C

### ACCESS OPTION C

#### A. SHELL

1.0 GENERALLY	9.6				9.6
2.0 LOWEST FLOOR	57.2				57.2
3.0 UPPER FLOORS(MEZZANINE)	64.2				64.2
4.0 ROOF	87.5				87.5
5.0 EXTERNAL WALLS	75.6				75.6
6.0 EXTERNAL WINDOWS & DOORS	15.1				15.1
7.0 SCAFFOLDING, PROPPING AND COVERING	84.0				84.0
		393.2			393.2

#### B. FITTING OUT

1.0 INTERNAL DIVISIONS	3.1				3.1
2.0 INTERNAL DOORS	5.9				5.9
3.0 FLOOR FINISHES	33.2				33.2
4.0 WALL FINISHES	18.4				18.4
5.0 CEILING FINISHES	25.4				25.4
6.0 PLUMBING SERVICES	13.8				13.8
7.0 ELECTRICAL INSTALLATION	77.5				77.5
8.0 HEATING & VENTILATION INSTALLATION	27				27
9.0 PAINTING & DECORATING	32.7				32.7
10.0 FIXTURES & FITTINGS	7.5				7.5
		244.5			244.5

#### C. EXTERNAL WORKS

1.0 GENERALLY	5.0				5.0
2.0 UTILITIES	18.5				18.5
3.0 DRAINAGE	26.4				26.4
4.0 CALOR TANK	9.3				9.3
5.0 CAR PARK	137.1	121.9		15.2	137.1
6.0 ACCESS ROAD	0	264.5	264.5		0
7.0 OUT BUILDINGS	4.0			4.0	4.0
		200.3	264.5	19.2	245.3
					200.3
		838			838

PRELIMINARIES	20%	167.6			20%	167.6
---------------	-----	-------	--	--	-----	-------

		1,005.6				1,005.6
--	--	---------	--	--	--	---------

CONTINGENCY	5%	50.3			5%	50.3
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<b>CONSTRUCTION TOTAL</b>		<b>1,055.9</b>				<b>1,055.9</b>
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cost/m2 GFA (excl contingency & external works) £1,952

GFA = 392m2

## 11.5 Cost Plan Summary for Access Option D

### ACCESS OPTION D

#### A. RELOCATION OF BARN

500.0

#### B. WORK TO RENOVATE BARN

1.0 Shell	393.2	1.0 As Access Option 1 Cost Plan
2.0 Fit Out	244.5	2.0 As Access Option 1 Cost Plan

637.7

#### C. EXTERNAL WORKS

1.0 GENERALLY	5.0
2.0 UTILITIES	18.5
3.0 DRAINAGE	21.4
4.0 CALOR TANK	9.0
5.0 CAR PARK	127.4

0

181.3

1319.0

PRELIMINARIES 20% 263.8

1,582.8

CONTINGENCY 5% 79.1

**CONSTRUCTION TOTAL** 1,661.9

cost/m2 GFA (excl contingency & external works) £3,483

GFA = 392m2

## 11.6 Cost Plan Summary for Access Option E

<b>ACCESS OPTION E</b>	£'000	£'000
<b><u>A. RELOCATION OF BARN</u></b>		500.0
<b><u>B. WORK TO RENOVATE BARN</u></b>		
1.0 Shell	393.2	1.0 As Access Option 1 Cost Plan
2.0 Fit Out	244.5	2.0 As Access Option 1 Cost Plan
	—————	637.7
<b><u>C. EXTERNAL WORKS AS ACCESS OPTION D</u></b>		181.3
<b><u>C. EXTERNAL WORKS Additional work</u></b>		
<b><u>5.0 CAR PARK</u></b>		7.3
		————— 1326.3
PRELIMINARIES	20%	————— 265.3
		1,591.6
CONTINGENCY	5%	————— 79.6
<b>CONSTRUCTION TOTAL</b>		————— <b>1,671.1</b>
cost/m2 GFA (excl contingency & external works)		£3,483
GFA = 392m2		

## 11.7 Cost Plan Summary for Access Option F

### ACCESS OPTION F

#### A. SHELL

1.0 GENERALLY	9.6	
2.0 LOWEST FLOOR	7.8	
3.0 ROOF	65.3	
4.0 EXTERNAL WALLS	55.2	
5.0 EXTERNAL WINDOWS & DOORS	13.9	
6.0 SCAFFOLDING, PROPPING AND COVERING	84	
		<hr/>
		235.8

#### C. EXTERNAL WORKS

1.0 GENERALLY	25.0	
2.0 UTILITIES	18.5	
3.0 DRAINAGE	9.4	
4.0 HARD STANDING AND ACCESS PATHS	32.7	
		<hr/>
		85.6

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PRELIMINARIES	20%	<hr/>
		64.3

385.7

CONTINGENCY	5%	<hr/>
		19.3

<b>CONSTRUCTION TOTAL</b>		<hr/>
		405.0

cost/m2 GFA (excl contingency & external works) £722

GFA = 392m2

## 11.8 Cost Plan Summary Sheet

### Financial Executive Summary

		£ £'000
<b><u>Access Option A</u></b>		
Repair and renovation to barn with toilets, kitchen and office constructed within existing barn structure but with access via 800m long roadway		1759.7
<b><u>Access Option A with upstand extension</u></b>		
Repair and renovation to barn with toilets and kitchen constructed in 'upstand' structure outside existing barn structure	1759.7	
	extra	<u>85.7</u>
		1845.4
<b><u>Access Option B</u></b>		
Repair and renovation to barn with toilets, kitchen and office constructed within existing barn structure as access option 1 but with access via roadway serving Croxley Hall Farm, Fieldside and Barnside properties but with a smaller car park	1759.7	
	saving	<u>476.7</u>
		1283.0
<b><u>Access Option C</u></b>		
Repair and renovation to barn with toilets, kitchen and office constructed within existing barn structure as access option A but with access via roadway serving Croxley Hall Farm, Fieldside and Barnside properties and with a car park the same size as in Access Option A	1759.7	
	saving	<u>309.0</u>
		1450.7
<b><u>Access Option D</u></b>		
Repair and renovation to barn with toilets, kitchen and office constructed within existing barn structure as access option 1 but with the Barn relocated to the opposite end of the field with access via Lavrock Lane with the Barn positioned near to the access tunnel under the railway		1416.4
<b><u>Access Option E</u></b>		
Repair and renovation to barn with toilets, kitchen and office constructed within existing barn structure as access option 1 but with the Barn relocated to the opposite end of the field with access via Lavrock Lane with the Barn further away from the access tunnel under the railway		1425.6
<b><u>Access Option F - Minimum Intervention</u></b>		
Repairs only carried out to existing barn structure with services supplied to barn, surface water drainage to soakaways and hard standing access paths and fencing		405.1

## **12.0 Potential Funding**

### **12.1 Potential Funding**

#### **THE ADAPT TRUST - GENERAL GRANTS FOR ARTS & HERITAGE VENUES**

The grants are intended for capital and long-term improvements in access facilities to arts and heritage venues for disabled people.

#### **THE ADAPT TRUST - SIGHT AND SOUND GRANTS FOR ARTS AND HERITAGE VENUES**

The grants (which are sponsored by the Tubney Trust) are intended for capital and long-term improvements in access facilities to arts and heritage venues for disabled people.

#### **THE ARCHITECTURAL HERITAGE FUND - FEASIBILITY STUDY GRANTS**

The aim of the Feasibility Study Grant scheme is to encourage building preservation trusts and other charities to carry out a thorough options appraisal before taking on a new project with confidence.

#### **THE ARCHITECTURAL HERITAGE FUND - PROJECT ORGANISER GRANTS**

The aim of the Project Organiser Grant scheme is to help building preservation trusts to appoint project organisers to take forward viable projects, and to encourage BPTs to take on more projects.

#### **THE ARCHITECTURAL HERITAGE FUND - PROJECT ADMINISTRATION GRANTS**

The aim of the Project Administration Grant scheme is to help building preservation trusts (BPTs) meet the non-professional costs and expenses of developing a project after a feasibility study has established that it is likely to be viable.

#### **THE ARCHITECTURAL HERITAGE FUND - REFUNDABLE PROJECT DEVELOPMENT GRANTS**

The aim of the Refundable Project Development Grant scheme is to help building preservation trusts and other registered charities meet the cost of the professional fees needed to develop a project, once a feasibility study has established that it is likely to be viable, to the point where it can apply for grants and loans to finance it.

#### **THE ARCHITECTURAL HERITAGE FUND - LOANS**

The Fund makes short-term, low-interest loans to charities to provide the working capital essential in projects to restore historic buildings.

#### **ARTS & BUSINESS**

Arts & Business is not a direct provider of funding. However for projects that might lend themselves to support from the corporate sector (perhaps because of some logical association between the project and a particular industry, or on a local level between a project and a local business) the organisation functions as a "clearing house" to bring together businesses which are prepared to offer some level of corporate sponsorship and projects seeking financial support.

#### **LORD BARNBY'S FOUNDATION**

The Foundation will consider giving grants for the preservation of buildings, both religious and secular, of historic or architectural interest.

#### **THE WOODROFFE BENTON FOUNDATION**

The Foundation will consider giving grants for the preservation of buildings, both religious and secular, of national historic or architectural interest. Grants are not normally made for projects of local interest only.

### **CHARITY BANK**

Charity Bank (jointly regulated by the Financial Services Authority and the Charity Commission) is the first general charity in the UK to be authorised as a bank; it offers affordable finance to communities or organisations that regular commercial lenders either cannot or will not assist.

### **THE CHASE CHARITY**

The Trustees of the Charity have three broad areas of interest, one of which includes historic buildings.

### **THE CITB – THE CONSTRUCTION INDUSTRY TRAINING BOARD**

CITB supports the construction industry's need for a sufficient pool of competent people, trained in the skills needed to allow the industry to remain competitive and achieve growth.

### **THE CLOTHWORKERS' FOUNDATION**

The Foundation offers grants for the preservation of buildings of historic or architectural interest, under its Heritage and Environment category of charitable giving.

### **THE CONSERVATION FOUNDATION - PARISH PUMPS PRIMING AWARDS**

The Conservation Foundation was founded in 1982 to provide a means for people in public, private and not-for-profit sectors to collaborate on environmental causes. Parish Pump Priming Awards was launched in 2002 by the Foundation in response to requests to fund the initial stage of local environmental projects.

### **THE COUNTRYSIDE AGENCY - LOCAL HERITAGE INITIATIVE**

The Local Heritage Initiative (LHI) offers grants and advice to local communities to help people care for their local landscape, landmarks and traditions. Its principal purpose is to help projects that otherwise would not be able to go ahead.

### **DEPARTMENT OF THE ENVIRONMENT, FOOD AND RURAL AFFAIRS (DEFRA)/ENGLISH HERITAGE - AGGREGATE LEVY SUSTAINABILITY FUND**

Along with the Landfill Tax Credit Scheme (see separate entry) the Aggregate Levy Sustainability Fund is one of the measures by which, subject to certain eligibility criteria, historic buildings are able to benefit from the Government's policies designed principally to promote a sustainable rural environment.

### **DEPARTMENT OF THE ENVIRONMENT, FOOD AND RURAL AFFAIRS (DEFRA) - Design Advice**

The two principal aims of the Design Advice service are to improve the environmental performance of the UK's building stock, and to assist construction professionals and their clients to create buildings that are economical to construct and maintain and have a healthy internal environment.

### **ECOLOGY BUILDING SOCIETY - ECOLOGY MORTGAGES**

The Ecology Building Society is a specialist mortgage provider and will only lend on properties or projects that provide an environmental or community benefit.

### **ENGLISH HERITAGE - Historic Buildings, Monuments, Parks and Gardens Grants**

Grants for the country's most important historic properties and historic parks and gardens, including prehistoric monuments, archaeological sites, small domestic buildings, country houses, agricultural or industrial sites, and historic landscapes.

### **ENGLISH HERITAGE - REGIONAL CAPACITY BUILDING FUND**

Grants to build capacity in local communities, encouraging the use of conservation best-practice, and interpretation and sustainable enjoyment of the historic environment for all.

## **13.0 Long Term Management**

The strategic long term management of the building can be achieved with the introduction of either a long term tenant or a responsible new owner.

A new custodian of the barn in either of the above scenarios would be responsible for the maintenance and upkeep of the building, it is suggested that a periodic inspection perhaps tri-annually could be written into a lease or made a condition of the sale of the building.

The reinstatement of the building with an appropriate use for both the Croxley Great Barn and the 21<sup>st</sup> Century would mean in effect that the building would both be utilised on a regular basis and that funds would be generated via an appropriate rental to ensure the permanent upkeep, security and maintenance of the building.

It is suggested that the Hertfordshire Building Preservation Trust keep a watching brief on the building following completion to ensure that terms and conditions are complied with.

### **13.1 Valuation**

It is suggested that a tri-annual valuation may be appropriate dependent upon the ownership of the building and the sources of funding. Both the above may make such valuation a requirement and also mean that a Chartered Surveyor or Valuer would be obliged to inspect the building and report. It is suggested that this report could be made available to interested parties as an indicator of the health of the building.



## 14.0 Summary and Conclusion

### 14.1 Summary and Conclusion

We have evaluated a variety of uses as shown on the matrix produced to illustrate the potential uses.

The importance of the building - its architectural quality, the nature of the structure and the Croxley Great Barn's historical connections all contribute to the importance of the building.

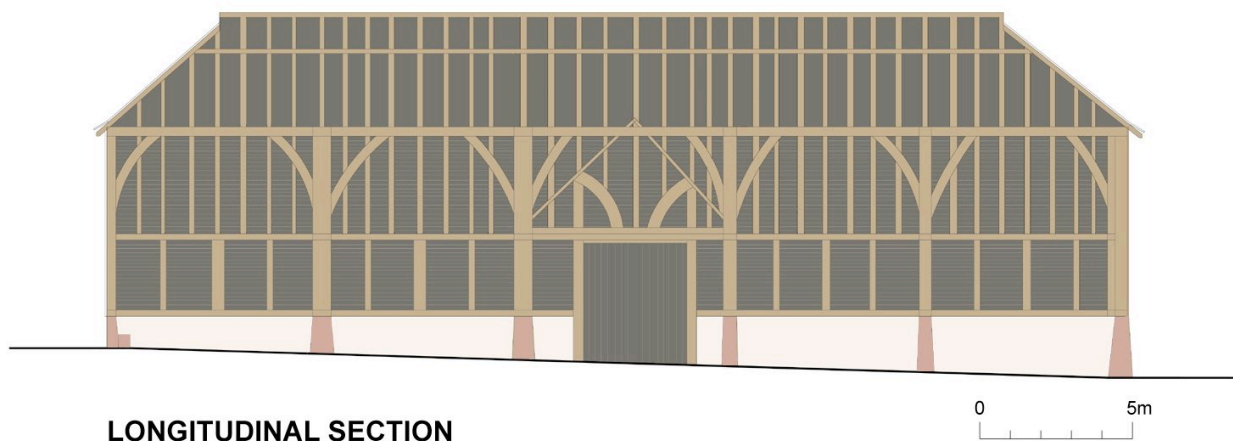
We have considered the impact that a variety of uses will have both upon the structure itself and also the changes to its (currently prejudiced) surroundings.

The optimum solution would be for a joint development to be carried out in conjunction with the owners of Croxley Hall Farm enabling a reinstatement of the barn's context and a refurbishment and redevelopment of the farm buildings belonging to Croxley Hall Farm. This scenario can only be achieved through careful negotiations with Mr and Mrs Samson-Timms who may be persuaded of the benefits of a joint approach to the Local Authority for the statutory consent required. An initiative such as this that would alleviate the access difficulties and issues that currently affect the Croxley Great Barn, and would enable a sensitive repair to the building and the renewal of its life.

The proposal to utilise the building as a single office enables the building to be utilised as one large space. The advantages of this are clear, the structural frame can be kept both unaltered and visible and the external appearance of the building can be controlled far more effectively than in a multi occupancy situation or indeed a variety of other uses. The level of vehicular traffic would be reduced over a public use and the difficulty of access due to the remoteness of the building would again reduce the demands placed on the poor quality roads leading to the Croxley Great Barn.

We have considered as a final option the relocation of the building to an alternative site. It must and can only be a last resort if an impasse is reached with the owner of Croxley Hall Farm and or the school. This last resort should only be considered an option if without such intervention the building would be lost.

The key issue to resolve is the relationship with the adjoining owner and the effect of the restrictive covenant. A negotiated solution benefiting both the Barn and the owners of Croxley Hall Farm must be the optimum solution to restore the building and re-instate an appropriate context.



**LONGITUDINAL SECTION**

**Fig. 33 Croxley Great Barn, Longitudinal Section**

## 15.0 Appendices

### A Photographs



Fig. 34 Croxley Great Barn, Pylon Adjacent to Barn, circa 2004



Fig. 35 Croxley Great Barn, Adjacent Cottages known as Fieldside and Barnside, circa 2004



**Fig. 36 Croxley Great Barn, Western Elevation Viewed from Playing Field, circa 2004**



**Fig. 37 Croxley Great Barn, Interior, circa 2004**



**Fig. 39 Croxley Great Barn, Access Tunnel from Lavrock Lane to Playing Field**

## **B Case Studies and Examples**

### ***Case Study 1 - Theatre / Museum***

**Harrow Museum and Heritage Centre,  
Harrow**

**Use: Museum and Arts Centre**

**Listing: Grade II\*, Scheduled Ancient Monument**

#### **Description**

This is a group of buildings and land known as Headstone Manor - a medieval estate, with a moated manor house, several timber barns including a tithe barn and farmland.

Used as part of farm until 1928, then for tool storage and during Second World War as The Barn Theatre. The Tithe Barn was extensively restored in 1973/74 and is now the focus of events and special displays.



**Fig. 40 Harrow Museum and Heritage Centre**



**Fig. 41 Harrow Museum and Heritage Centre**

The buildings are listed by English Heritage and are used for education, entertainment, community projects, collections care and exhibitions. (The Granary was dismantled and reassembled on this site and retained Grade II listing).

## **Case Study 2 - Dwelling House**

**Private Residence, Surrey**

**Use: Family Dwelling**

**Listing: Grade II**

### **Description**

Grade II listed, 16th Century aisled timber barn conversion, queen-post trusses. Perefrith Barn lies within the grounds of Pirbright Manor which was the site of the ancient Manor House of Perefrith mentioned in the

Domesday Book as being held by Chertsey Abbey and administered from their Manor at Coulsdon.

Sometime after the dissolution of the monasteries, Pirbright Manor was re-built, probably in the 17th Century, with later additions in the 18th and 19th Century.

It was first a private estate, then a school, Fair Dene, and latterly was converted to luxury period houses.

Perefrith Barn is believed to date from the late 16th Century (around 1575) and is a fine example of a gabled aisled barn with five bays exhibiting the original roof timbers of the Queenpost roof with principal rafters and clasped purlins on substantial replacement wall posts.



**Fig. 42 Private Residence, Surrey**



**Fig. 43 Private Residence, Surrey**

### **Case Study 3 - Event Hire**

**Old Jordans, Beaconsfield, Buckinghamshire**

**Use: Event Hire and Function Hall**

**Listing: Grade II\* Scheduled Ancient Monument**

#### **Description**

The Barn is a historical monument and national asset of the first importance. There is a cogent probability that it is constructed from the remains of the most famous ship in American history.

- site of historic interest
- wedding venue
- concerts and performances
- exhibition and conferences

The respected antiquarian, Rendal Harris, famous for his discovery of the Syriac 'Odes of Soloman', concluded after meticulous research that the Barn was built with the timbers of the very same Mayflower that carried the Pilgrim Fathers from Plymouth to what is now New England.

Today the beautifully preserved structure is a major tourist attraction, receiving many visitors each year from all over the world and particularly from the Americas.

The Barn is also an exciting cultural venue hosting concerts, plays, exhibitions, shows and all manner of community and social events.



**Fig. 44 The Mayflower Barn, Jordans, Bucks**



**Fig. 45 The Mayflower Barn, Internal**

The series of summer concerts organised by the Jordans music club attracts front rank performers from all corners of the Globe.



## Case Study 4 - Office

### The Tithe Barn, Redbourn

Use: Commercial office

Listing: Grade II

#### Description

Grade II Listed Tithe Barn, circa 1400 recently renovated and refurbished to provide Commercial Office space. Renovation included the addition of 2 mezzanine decks within the main internal space and the addition of a service block incorporating WC's and kitchen facilities.

The floor area of the barn is approx. 343m<sup>2</sup> on the ground floor (inc. lean-to) and 150m<sup>2</sup> on the mezzanine decks. (500m<sup>2</sup> overall)



Fig. 46 The Tithe Barn, Harpendenbury Farm, Redbourn



Fig. 47 The Tithe Barn, Internal

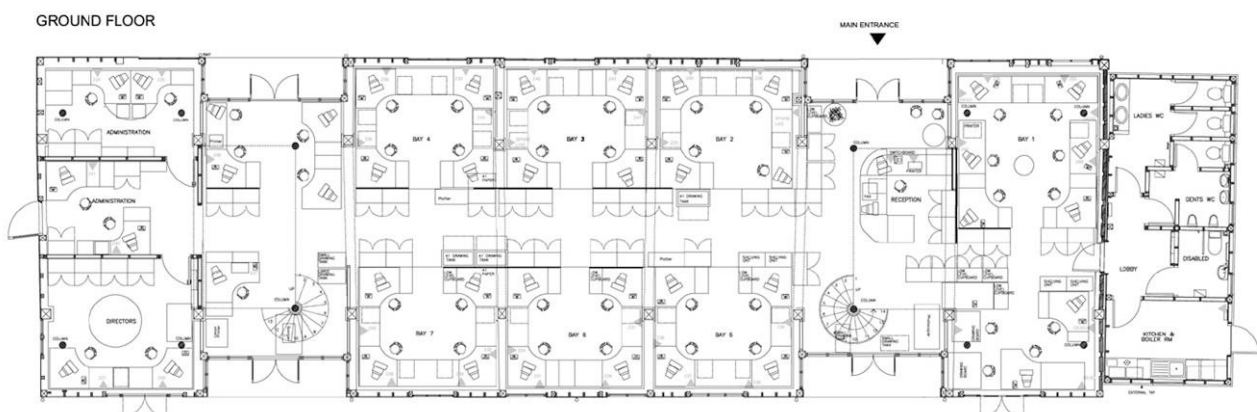


Fig. 48 The Tithe Barn, Harpendenbury Farm, Redbourn – Floor Plan

## **C Approximate Utilities Charges**

The following list details utilities charges for the general running of the barn on a yearly basis. These are approximate figures only and have been provided as merely a guide.

<b>Utility</b>	<b>Amount per annum</b>
<b>Cleaning</b>	<b>6139.40</b>
<b>Electricity</b>	<b>2996.50</b>
<b>Heating – Calor</b>	<b>2771.71</b>
<b>Insurance – Buildings</b>	<b>1446.44</b>
<b>Insurance – Contents</b>	<b>2288.66</b>
<b>Rates</b>	<b>16500.00</b>
<b>Waste Disposal</b>	<b>823.96</b>
<b>Water</b>	<b>341.30</b>

## 16.0 Bibliography and References

- The Essex Countryside  
Historic Barns  
A Planning Appraisal
- A History of Croxley Green  
Through its Street Names  
by Shirley Greenman
- A Guide to Medieval English  
Tithe Barns  
By James Griswold
- The Descriptive History “An introduction to Croxley Great Barn”

Edited by David Harding with special acknowledgement to Dr Martin Bridge, Stephen Castle, Heather Falvey, Adrian Gibson, Len Leach, and the Master and Fellows of Gonville and Caius College.

- Informed Conservation. Understanding historic buildings and their landscape for conservation  
English Heritage  
Kate Clark 2001
- Conservation Plans in Action, Proceedings of the Oxford Conference  
Ed. Kate Clark (1999)  
English Heritage
- Discovering Timber-Framed buildings  
Richard Harris (1993)  
Shine Publications Ltd.
- Conservation of Timber Building  
Charles FWB 1984  
  
Charles Frost 1984
- Timber-Framed building in England  
Smith JT 1966  
Archaeological Jnl.

### Special Acknowledgements

- Robert Dimsdale - HBPT
- Friends of Croxley Great Barn



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hertfordshire • AL3 7QA