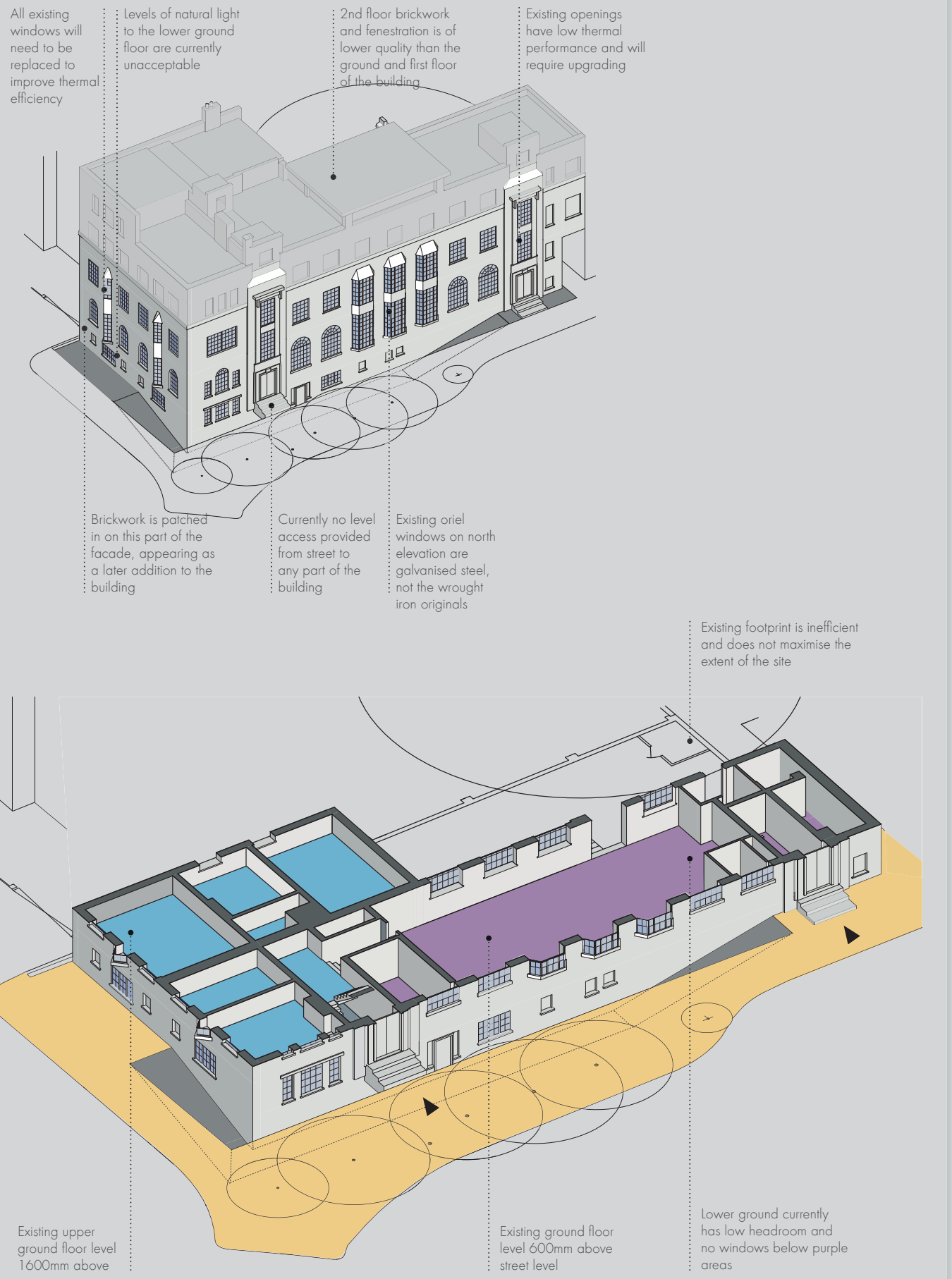
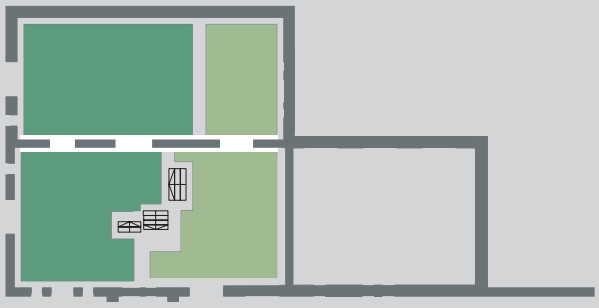
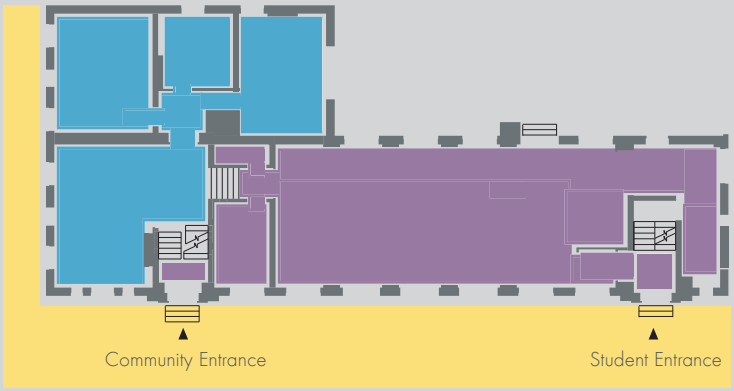

All existing windows will need to be replaced to improve thermal efficiency
Levels of natural light to the lower ground floor are currently unacceptable
2nd floor brickwork and fenestration is of lower quality than the ground and first floor of the building
Existing openings have low thermal performance and will require upgrading
Brickwork is patched in on this part of the facade, appearing as a later addition to the building
Currently no level access provided from street to any part of the building
Existing oriel windows on north elevation are galvanised steel, not the wrought iron originals
Existing footprint is inefficient and does not maximise the extent of the site
Existing upper ground floor level 1600mm above
Existing ground floor level 600mm above street level
Lower ground currently has low headroom and no windows below purple areas

Key to floor levels

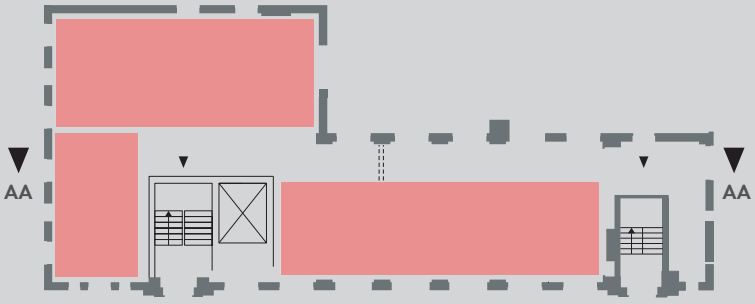
- -3.50m
- -1.15m
- -1.64m
- 0.00m
- +0.60m
- +1.63m
- +4.60m
- New Slab



Lower Ground Floor



Ground Floor



First Floor

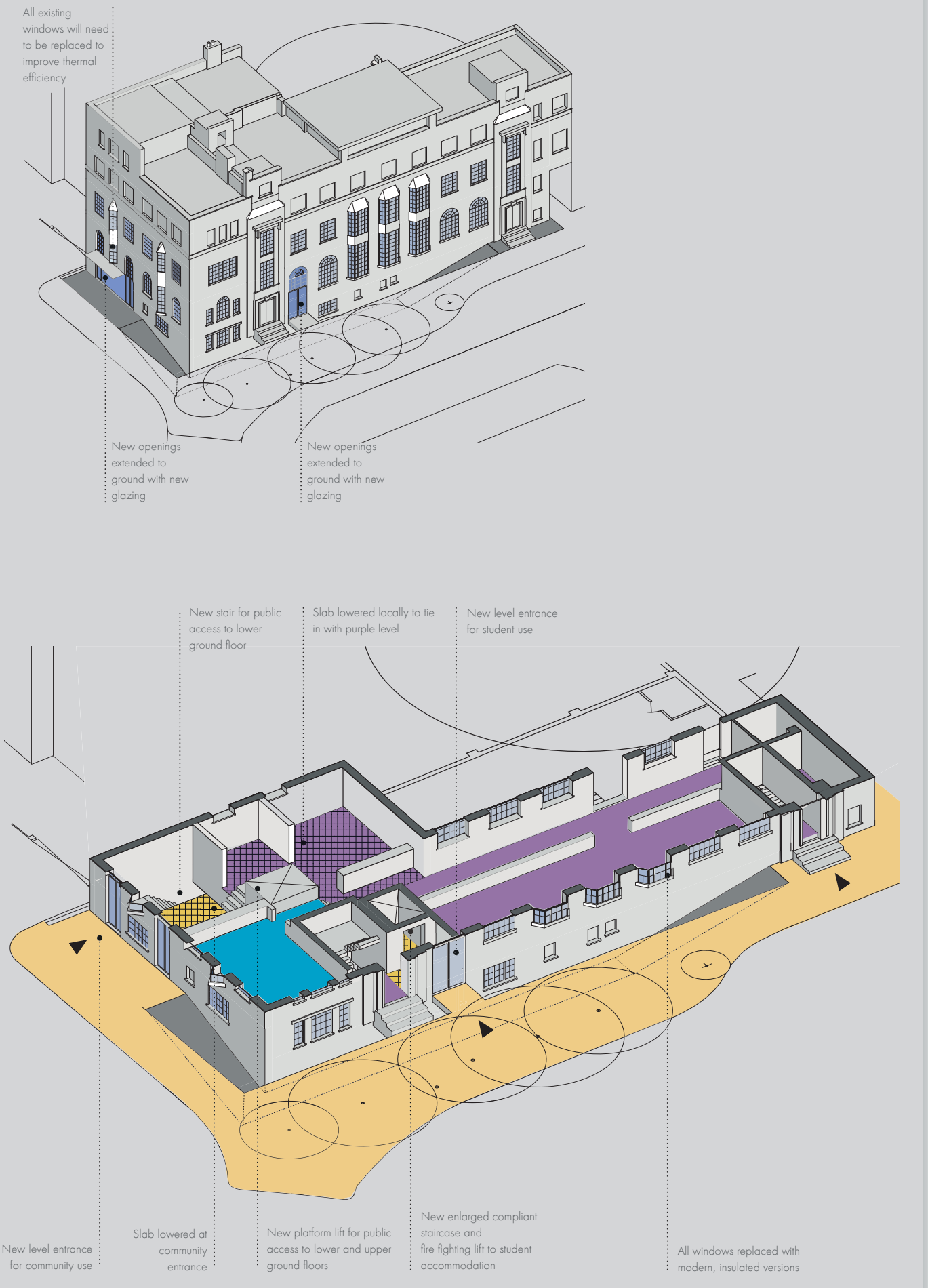
Existing building

As you can see, none of the existing floor levels within the building relate to the existing street level outside (shown in yellow).

The lower ground floor is split into two halves and the main part currently has two different levels.

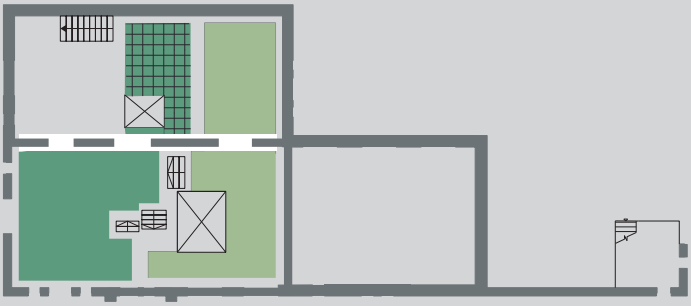
The windows on the facade currently relate to various different floor levels within the ground and first floors and the windows in the stair core relate to the half landing of the stair, meaning windows do not currently line through on each floor of the building.

Due to the shallow depth of the building and two stair cores, the usable space on the upper floors of the building is currently compromised.

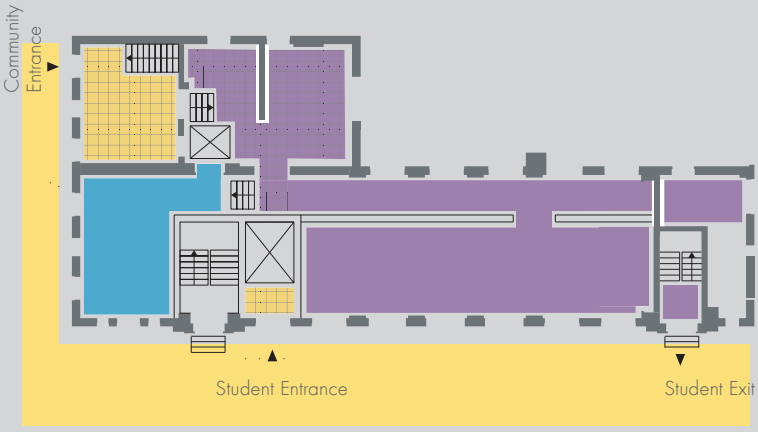

All existing windows will need to be replaced to improve thermal efficiency
New openings extended to ground with new glazing
New openings extended to ground with new glazing
New stair for public access to lower ground floor
Slab lowered locally to tie in with purple level
New level entrance for student use
New level entrance for community use
Slab lowered at community entrance
New platform lift for public access to lower and upper ground floors
New enlarged compliant staircase and fire fighting lift to student accommodation
All windows replaced with modern, insulated versions

Key to floor levels

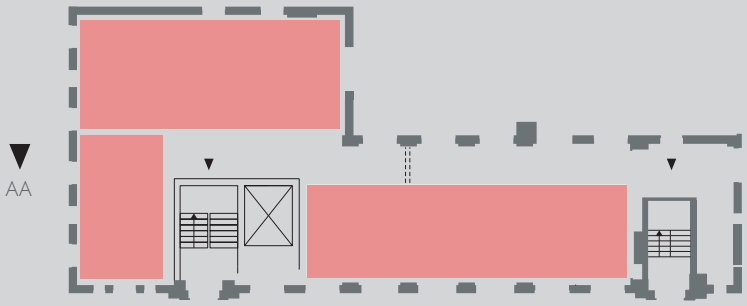
- -3.50m
- -1.15m
- -1.64m
- 0.00m
- +0.60m
- +1.63m
- +4.60m
- New Slab



Lower Ground Floor



Ground Floor



First Floor (enlarged stair core, otherwise no change proposed)

Option One – Adaptation

We began by trying to retain the existing floor levels and provide level access to every floor level via platform lifts. This involved dropping the slab locally in the south east corner of the building to provide a level entrance for D1, including a new staircase to the lower ground floor and a lift serving lower, ground and upper ground floors. There is also a new level entrance provided adjacent to the eastern stair core with access to a lift which serves the upper floors of the building.

Is this option viable?

We are currently undertaking some cost analysis but it is unlikely given the overall reduction in usable floor space.

Does this option provide usable spaces?

These interventions will result in less usable floor space than in the current building.

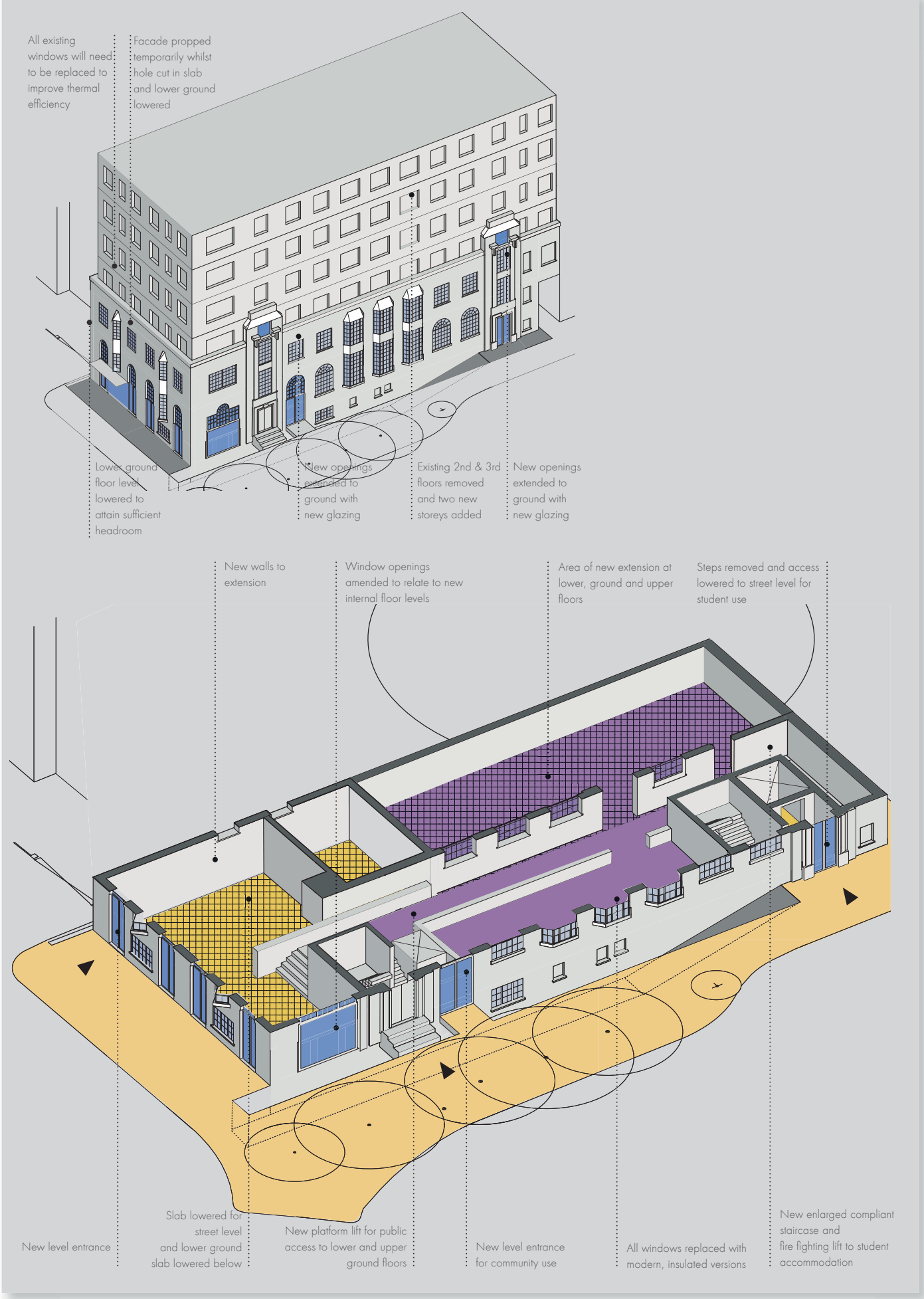
Does this option retain the facade unaltered?

This intervention will require dropping the cill of one arched window to create a new entrance and combining two openings on the east elevation to make a street level entrance.

Conclusion

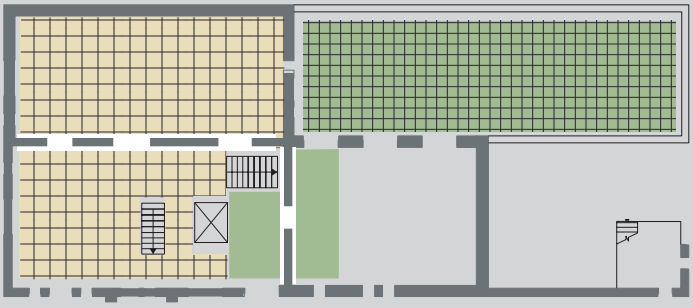
This option has reduced the usable floor space in the building and is inefficient in terms of circulation space vs usable space. This option relies on a platform lift which would hinder the free flowing access of people in and out of the building and could cause congestion.

It is clear that any option to provide level access will reduce the lettable floor area and therefore instigate the need for enabling works to prove viable.

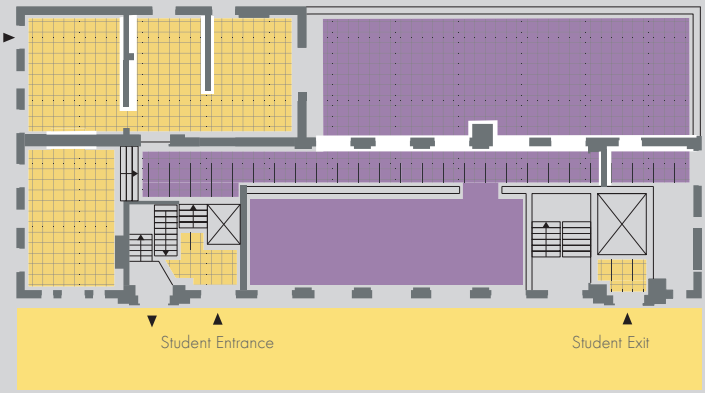

All existing windows will need to be replaced to improve thermal efficiency
Facade propped temporarily whilst hole cut in slab and lower ground lowered
Lower ground floor level lowered to attain sufficient headroom
New openings extended to ground with new glazing
Existing 2nd & 3rd floors removed and two new storeys added
New openings extended to ground with new glazing
New walls to extension
Window openings amended to relate to new internal floor levels
Area of new extension at lower, ground and upper floors
Steps removed and access lowered to street level for student use
New level entrance
Slab lowered for street level and lower ground slab lowered below
New platform lift for public access to lower and upper ground floors
New level entrance for community use
All windows replaced with modern, insulated versions
New enlarged compliant staircase and fire fighting lift to student accommodation

Key to floor levels

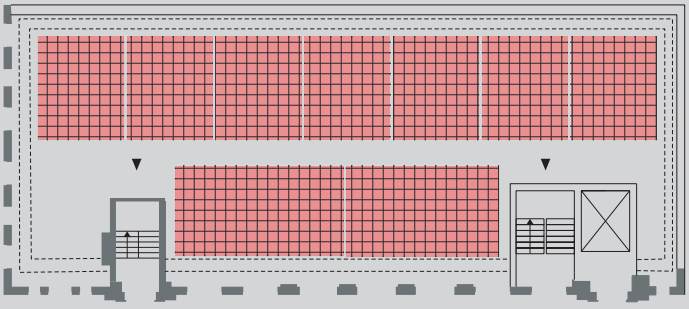
- -3.50m
- -1.15m
- -1.64m
- 0.00m
- +0.60m
- +1.63m
- +4.60m
- New Slab



Lower Ground Floor (extended)



Ground Floor (extended)



First Floor (extended)

Option Two – Extension

This option includes an extension to the footprint at the rear of the building to the boundary of the site. Additional floors are added to the top of the existing building.

The ground floor slab level has been dropped at the eastern end of the building to create an entrance space at street level. The lower ground floor has been excavated in turn, to create head room below this space. Windows at the eastern end have been dropped to ground to relate to the space inside. The student entrance is moved to the western stair core, a lift is added and the stair enlarged to meet current fire regulations.

The eastern core is shared as fire exit for students and public access to the lower ground floor, including a platform lift serving the lower and upper ground floor. The configuration is compromised.

Is this option viable?

We are currently undertaking cost analysis but it is unlikely unless a number of additional storeys are added as enabling works. The number of additional storeys is likely to be unacceptable from a townscape and massing point of view.

Does this option provide usable spaces?

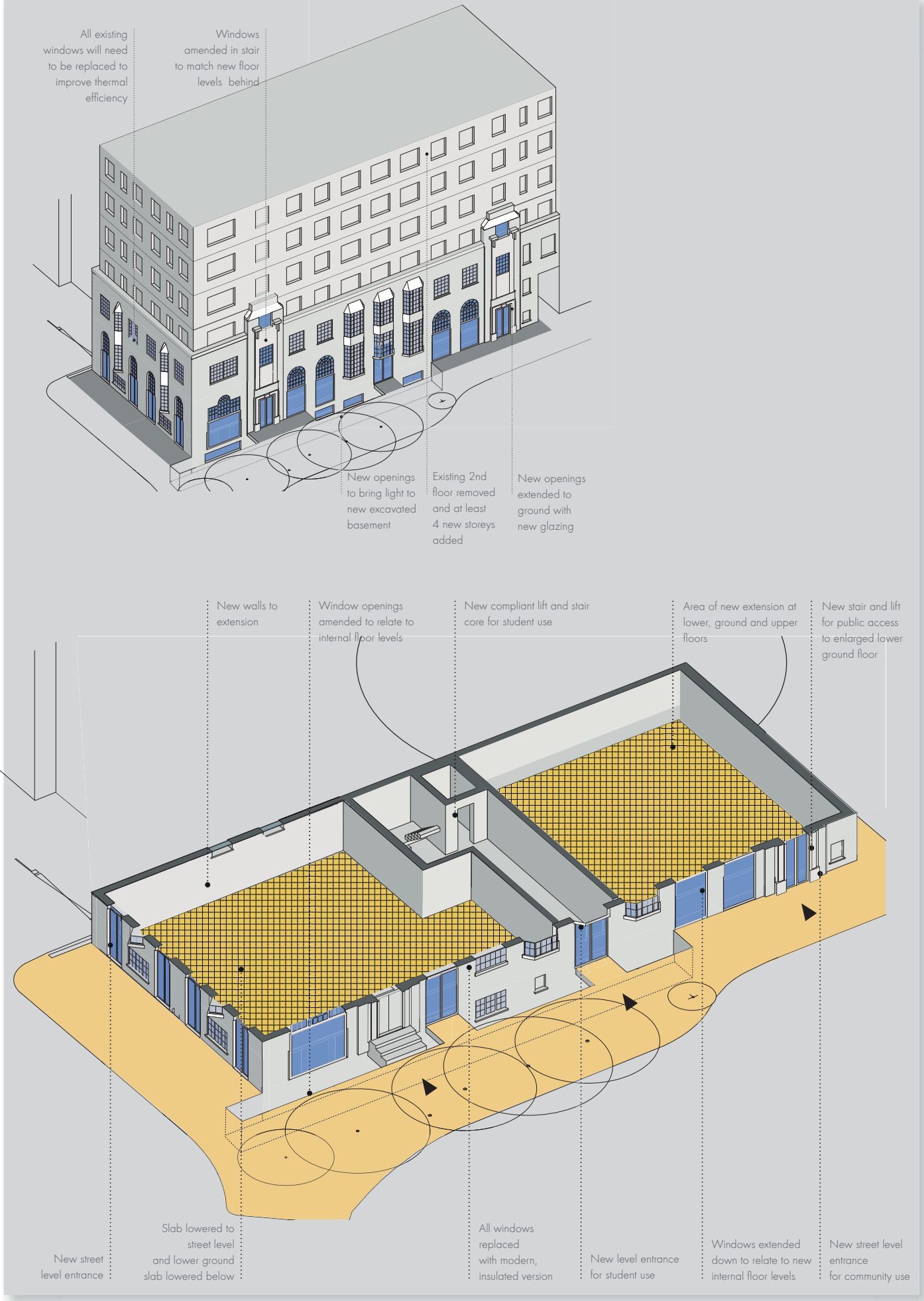
The entrance area is small and still relies on a platform lift. The lower ground floor is split by different levels and the upper floors are inefficient with two stair cores. As the cores are at either end of the building, if one is retained then it is necessary to keep the other due to maximum length of escape in fire.

Does this option retain the facade unaltered?

This intervention will require dropping the cill of one arched window and combining two openings on the east elevation to make street level entrances. All windows will need to be replaced and upgraded for thermal improvements.

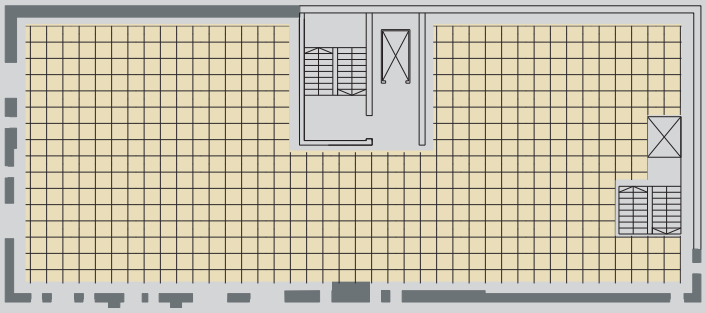
Conclusion

This options improves the usable space at ground and lower ground floors but at the price of new slabs practically throughout. The additional storeys required to justify the works will likely spoil the appearance of the existing building.

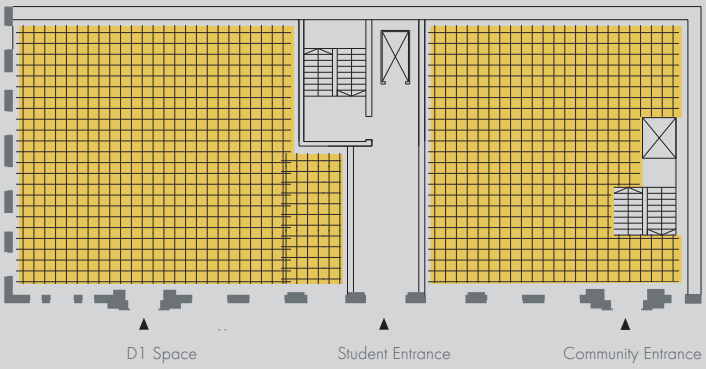

All existing windows will need to be replaced to improve thermal efficiency
Windows amended in stair to match new floor levels behind
New openings to bring light to new excavated basement
Existing 2nd floor removed and at least 4 new storeys added
New openings extended to ground with new glazing
New walls to extension
Window openings amended to relate to internal floor levels
New compliant lift and stair core for student use
Area of new extension at lower, ground and upper floors
New stair and lift for public access to enlarged lower ground floor
New street level entrance
Slab lowered to street level and lower ground slab lowered below
All windows replaced with modern, insulated version
New level entrance for student use
Windows extended down to relate to new internal floor levels
New street level entrance for community use

Key to floor levels

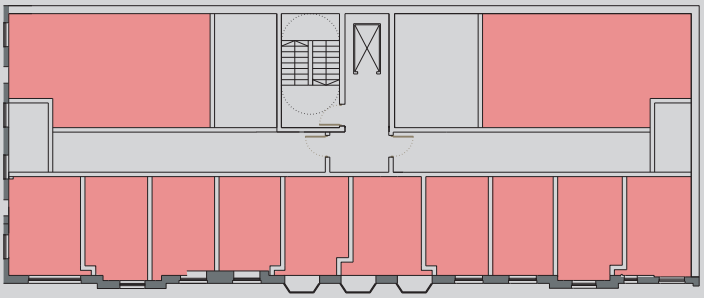
- -3.50m
- -1.15m
- -1.64m
- 0.00m
- +0.60m
- +1.63m
- +4.60m
- New Slab



Lower Ground Floor



Ground Floor



First Floor

Option Three – Facade retention

This option removes the two stair cores and consolidates them to one new central core with the student entrance through an adapted oriel window on Phoenix Road. The other two existing entrances are used for a café on the east and D1 on the west.

The floor slab is lowered to ground level and the window cills are dropped to relate to the floor level inside (at their existing height it would not be possible to see out). The lower ground floor is excavated and extended to provide usable headroom below the dropped ground floor slab.

Is this option viable?

Given the amount of amendments required and high level of technical complexity, it is unlikely that the amount of additional floors proposed here will be enough to make these works viable.

Does this option provide usable spaces?

Yes, all three floors are at one consistent level without the need for platform lifts. The building is opened up providing active frontage onto the street. The central core allows the upper floors to be split into two separate apartments.

Does this option retain the facade unaltered?

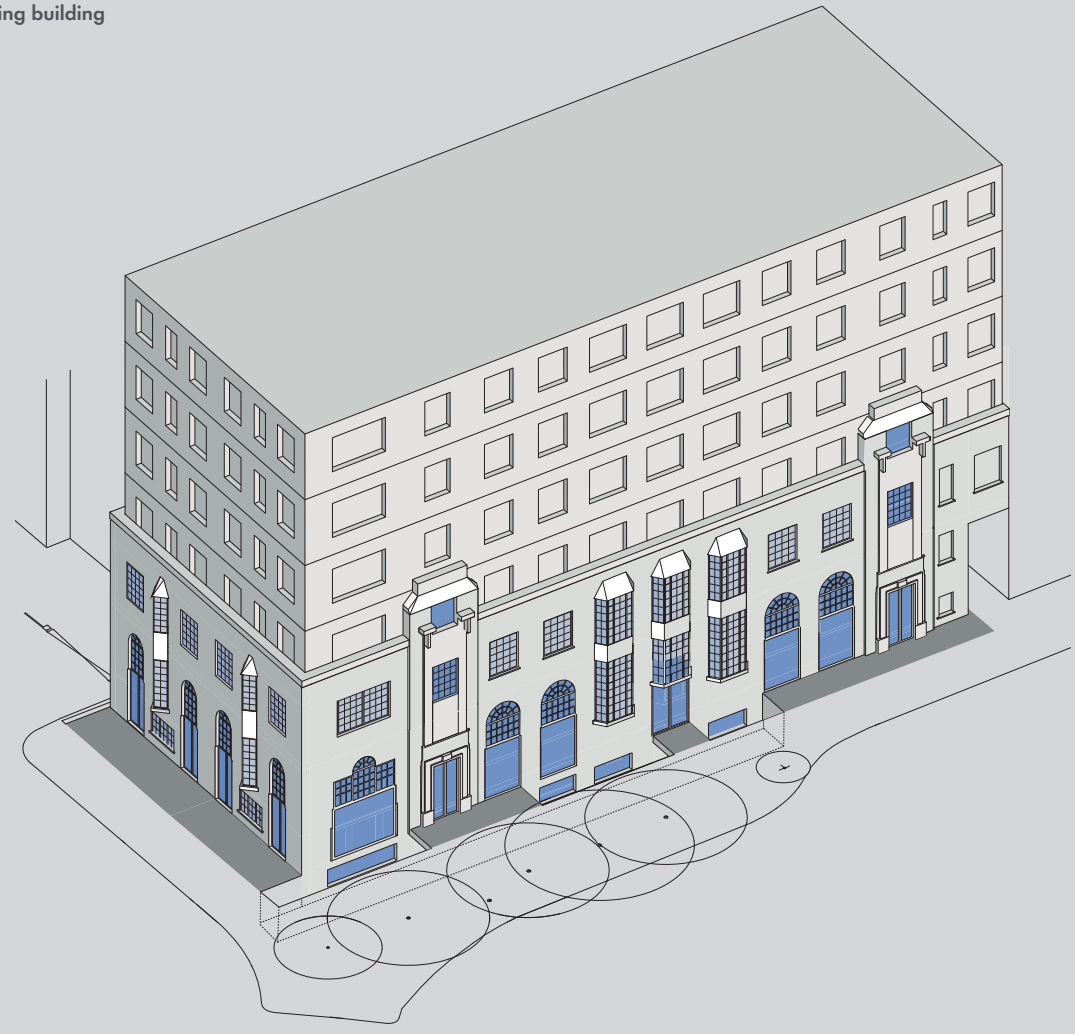
This proposal is the most intrusive to the facade. All ground floor openings are extended to street level and additional openings are made into the lower ground floor. All windows are replaced and the brickwork on the facade is likely to suffer patching where internal floors are removed and replaced.

Conclusion

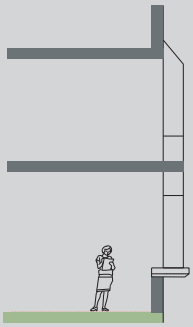
This option provides an increase in lettable floor space and conforms to the client's brief on upper floors. It increases the activity of the building at street level and makes the most of the opportunity for an active corner at the junction of Chalton Street and Phoenix Road.

A viability exercise has been undertaken on this option and has shown that several additional floors of enabling development would be required to justify the cost of the changes. The townscape and visual impact of these upper floors would be significantly detrimental to the integrity of the existing building.

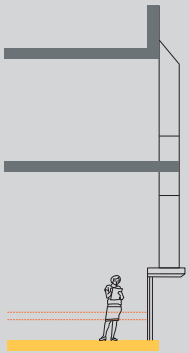
Existing building



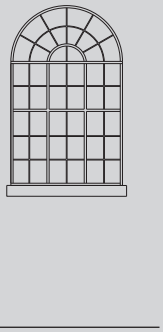
Facade retention scheme with realistic amount of enabling works to make the project viable



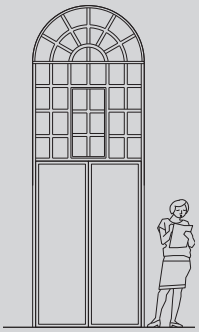
Existing floor level



Dropped floor level

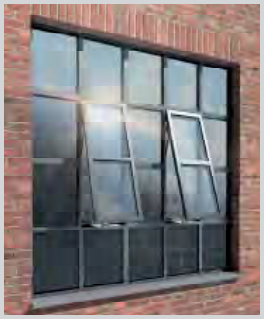


Existing window



Dropped window cill

Existing window



Typical replacement window system

All of the options above will require the existing walls and windows to be upgraded to comply with current building regulations. Any improvement will require thermally broken window frames and double glazing. This will have an impact on the lightness of the existing fenestration, so losing the architectural feature primarily warranting the buildings inclusion on the local list.

Conclusion

Option One would be costly to undertake and would result in a compromised quality of space with a loss of overall lettable floor area. This does not meet the applicant's aspiration for the site.

Option Two would result in compromised spaces and costly enabling works. The extension of the building footprint at the rear and the increase height of the building would significantly impact on the appearance of the existing building.

Option Three would deliver good quality, fully accessible accommodation and allow for good student flats at the upper levels. The drastic changes to the structure of the building would be costly and require additional lettable accommodation to substantiate this cost. The extra floors required would have a detrimental impact on the appearance of the existing building.

The work completed here has demonstrated that the retention of the building facades is not viable due to the high additional development cost, programme extension and construction complexity that would be required against the limited enabling development achievable in offsetting these.

It is likely that the alterations to the retained facades to achieve level access, active frontage, suitable cill heights, thermally efficient windows in addition to the visual impact of temporary propping works and masonry repairs would be significant as to compromise the quality of the existing facades and jeopardise the local listing characteristics.

It is thought that even the amount of enabling additional floors shown on the opposite page may not be enough to balance the cost of the retention works. From completing this exercise the conclusion can be drawn that it is not possible to reuse the existing building in a viable way.

The work seen here was submitted to Camden Planning Department in December 2014. It was reviewed and discussed at a follow up meeting in January 2015.

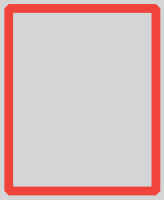
B APPENDIX

B.1 STUDY TWO – PRECEDENT COMPARISON

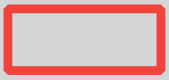
The following information was presented to the local community in Somerstown and again to the Neighbourhood Forum on two occasions.

1 Economy of scale

15-27 Britannia Street (2300 sqm)



Bentley House (1080 sqm)



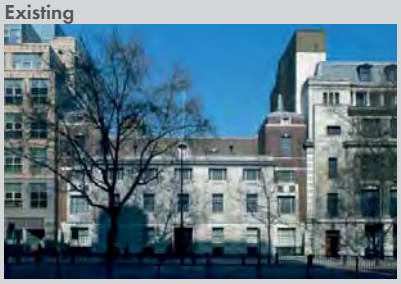
42 Phoenix Road (385 sqm)

2 Opportunity to extend

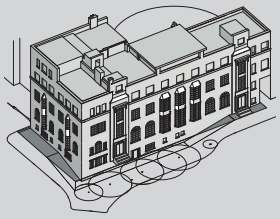
Shown through images of existing building and proposed extension

Existing

Existing



Existing



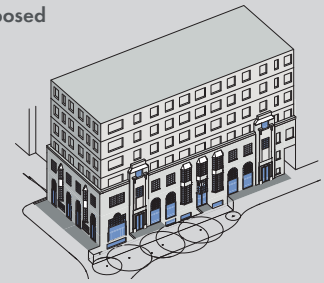
Proposed

15-27 Britannia Street (height added in other parts of the large site)

Proposed

Bentley House (5 additional storeys)

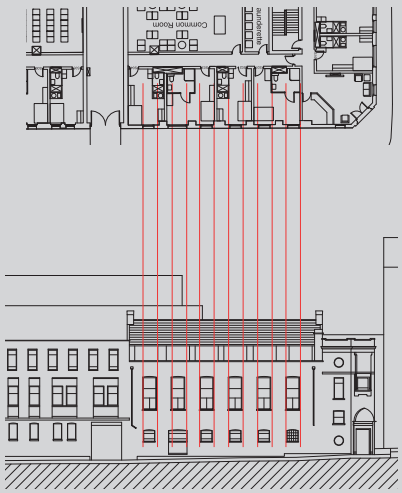
Proposed



42 Phoenix Road

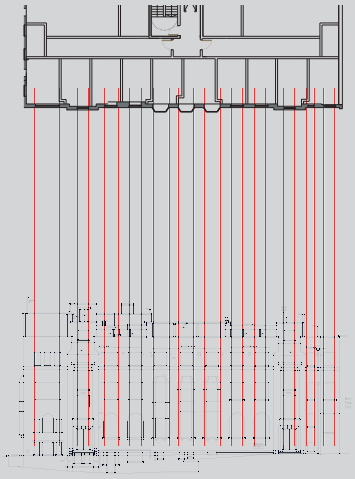
3 Existing proportion and ease of conversion

Represented through existing elevations and proposed plans



15-27 Britannia Street

Bentley House



42 Phoenix Road

STUDY TWO - PRECEDENT COMPARISON

During the meeting on the 5th November the design team explained the complexity associated with a facade retention scheme at 42 Phoenix Road. This included issues relating to lack of street level access, varying internal levels, inefficient footprint, low quality top floors, poor fabric efficiency, windows incapable of upgrade and height sensitivity in townscape terms.

Two recent projects were sited by Camden as examples of facade retention schemes where similar constraints had been overcome. These projects were 'Bentley House' on the Euston Road which is being redeveloped by the Wellcome Trust and 'Depot Point' on Britannia Street by The Student Housing Company. Both of these projects are retention, conversion and extension projects which will provide student residential accommodation in existing buildings.

On closer inspection, when compared to 42 Phoenix Road, the Britannia Street and Bentley House projects benefitted from certain existing factors which made facade retention more feasible in those instances.

We have compared these projects against Phoenix Road under the following criteria:

1. Economy of scale

Both projects have a significantly larger footprints than 42 Phoenix Road – Bentley House is three times the size and Britannia Street is six times the size of the Phoenix Road site. This large site area allows for a substantial amount of new build enabling works which are required to balance the viability of a facade retention project.

2. Opportunity to extend

There are higher buildings on either side of Bentley House which leave a gap above the existing building between two taller plots. This gap in the skyline and the plot depth represent a clear opportunity for the existing facade to be extended in height whilst stepping back in a sympathetic manner. Similarly, the size of the site area at Britannia Street results in the opportunity for the facade to be extended in height on other, less sensitive parts of the site, away from the listed facade which remains the same height in their proposal.

The only opportunity for enabling development at Phoenix Road is to add additional storeys above the existing facade. Because of the small site footprint, several additional storeys are required which, when added, appear disproportionate in scale and overbearing on the retained elements.

3. Ease of conversion due to existing grid

The existing façades of both Britannia Street and Bentley House follow a regular grid which make it relatively straightforward to subdivide the floor plan into cellular student rooms without the need for much amendment to the rhythm of the existing facade.

The existing windows at 42 Phoenix Road are not equally spaced and relate to various different floor levels, including the half landing of the stair case in two locations. Adhering to these window locations would create compromised and irrational internal spaces on the upper floors.

4 Opportunity to improve thermal efficiency of existing facade

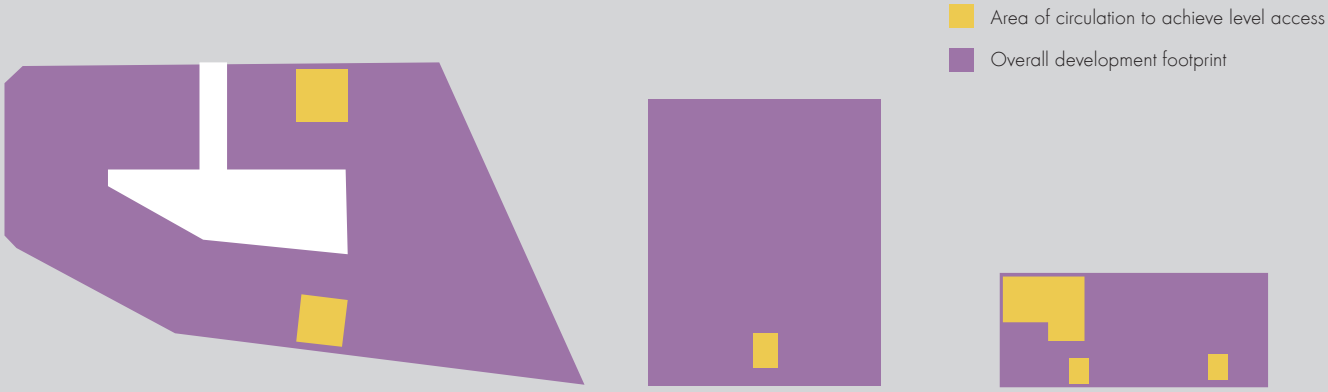
Represented through existing windows and images of facade retention

15-27 Britannia Street

Bentley House

42 Phoenix Road

5 Level access



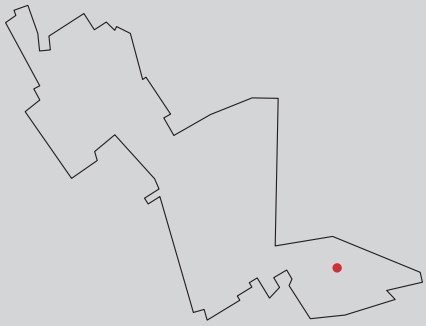
15-27 Britannia Street

Bentley House

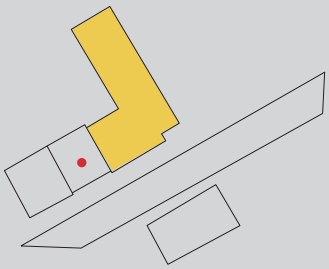
42 Phoenix Road

6 Sensitivity

Represented through site location



15-27 Britannia Street
(in the King's Cross Conservation Area)



Bentley House
(adjoining a Grade II* listed building)

4. Opportunity to improve thermal efficiency

The windows at Bentley House and Britannia Street are more conventional than 42 Phoenix Road in that they do not project from the facade. This makes it easier to consider secondary glazing. There are also more replacement products available for straight plane windows over projecting bay windows.

Bentley House appears to be of more robust construction originally. The larger size of both of these sites mean the space for additional thermal layers inside the retained facade are more justifiable.

5. Level access

On closer inspection, the change in level from the Euston Road into Bentley House is only 400mm which is possible to overcome by the use of a ramp at the entrance to the building. The new floor slabs at upper floors tie in with the existing floor levels in the retained part of the building.

Both entrances into Depot Point at Britannia Street have steps and a platform lift from street level to ground floor. The overall size of the site allows for a better efficiency ratio between circulation and usable space. Once at the raised height the ground floor is only on one level only without the additional split levels found at 42 Phoenix Road.

6. Sensitivity

Bentley House is a high profile and important facade on the Euston Road, just opposite the Wellcome Trust and shares a party wall with a Grade II* listed building. The material quality of the existing building is high, worthy of retention and it appears to be the same as when it was first built.

Britannia Street is sensitive due to its location in the King's Cross Conservation Area. Similar to 42 Phoenix Road, some parts of the facade are of less quality than others. Phoenix Road is neither statutorily listed or in a conservation area.

C APPENDIX

C.1 STATEMENTS FROM M&E AND STRUCTURES CONSULTANTS

Mechanical Engineers Skelly and Couch and
Structural Engineers Momentum made comment on
the feasibility of retaining the existing building

SKELLY&COUCH
Building Environment & Services Engineering Consultants

1293 – Phoenix Road
Commentary of the Existing Facade

1293-SAC-RP-Facade
Rev 1.0, 10/12/2014

North West elevation of 42 Phoenix Road

Having visited site and reviewed the condition of the existing fabric and window/wall composition we can comment as follows.

The poor energy performance of the existing external fabric is of concern. An assessment has been carried out to establish the impact on thermal performance and internal comfort conditions if the façade were replaced with new double glazed solar control windows and Part L compliant solid elements.

The existing facade is made up of uninsulated poorly sealed brickwork and single glazed painted steel frames windows, with top/side hung opening outwards; they are over 60 years old and have significant shortcomings with respect to their performance and do not meet current standards with regards to safety and thermal performance. The quality and condition of the existing façade contributes to the poor internal comfort conditions of the building, resulting in operational difficulties during extreme hot summer and cold winter periods, which affects the buildings ability to provide suitable conditions for community and residential use.

SKELLY&COUCH
Building Environment & Services Engineering Consultants

Limitations of the existing façade/window:

- Poor thermal performance of the existing façade results in a greater energy demand required to heat and cool the building
- High air leakage resulting is wasted heating energy/carbon
- Poor detailing at junctions which provide cold bridges and wasted heat (difficult to resolve even with added insulation)
- Overheating due to large areas of glazing with no solar control/shading
- Poor operation resulting is a lack of ventilation control
- Poor acoustic insulation/separation resulting in noise break-in/out
- Limited locking configuration of the windows/poor security
- No thermal breaks
- High maintenance required including regular re-decoration/overhaul
- Water penetration resulting in damp
- Window heights/proportions mean alternative internal layouts will result in poor daylighting
- Retaining the existing façade would make achieving BREEAM Excellent unrealistic

Advantages of replacing the façade/windows:

- Improved internal comfort
- Prevent heat gain (overheating) in summer and heat loss in the winter
- Reduce the need to include air conditioning to compensate for overheating in the summer
- Improved thermal performance/U-values, will reduce heat loss and energy needed for heating
- Overall CO2 saving due to reduced heat and cooling demands
- Potential to include high specification solar control, double glazing, to reduce solar gain and reduce cooling requirement.
- Improved operation
- Improved security
- Thermally broken frames
- Reduce maintenance requirement
- New façade/windows would mean no regular redecoration required- reduced maintenance costs
- Reduced overall life cycle costs
- Improved internal acoustics
- Better daylighting as new windows would relate better to internal layouts
- BREEAM Excellent rating achievable

The studies have identified that without the façade replacement it will take 4.5 times the amount of energy to heat the building.

If you take into account improvements in thermal comfort and not having to provide cooling if the glazing is replaced then annual energy savings would increase further.

This programme of works provides a unique opportunity to improve the environment, appearance and the overall technical performance of the existing building.

In addition the potential carbon savings offered due to the reduced energy demand associated with the reduced level of cooling and heating required, more than offset any renewable requirement targeted and therefore help secure a sustainable future for this plot through good passive design.

MOMENTUM
structural engineers

Design note

Project	Date	By	Reference
42 Phoenix Road	5 Dec 2014	RH	2255 . DNT . 1

Title

Thoughts on facade retention

Introduction

This design note has been prepared to review the structural implications of retaining the facade to 42 Phoenix Road as part of proposed plans to create new student accommodation and community facilities

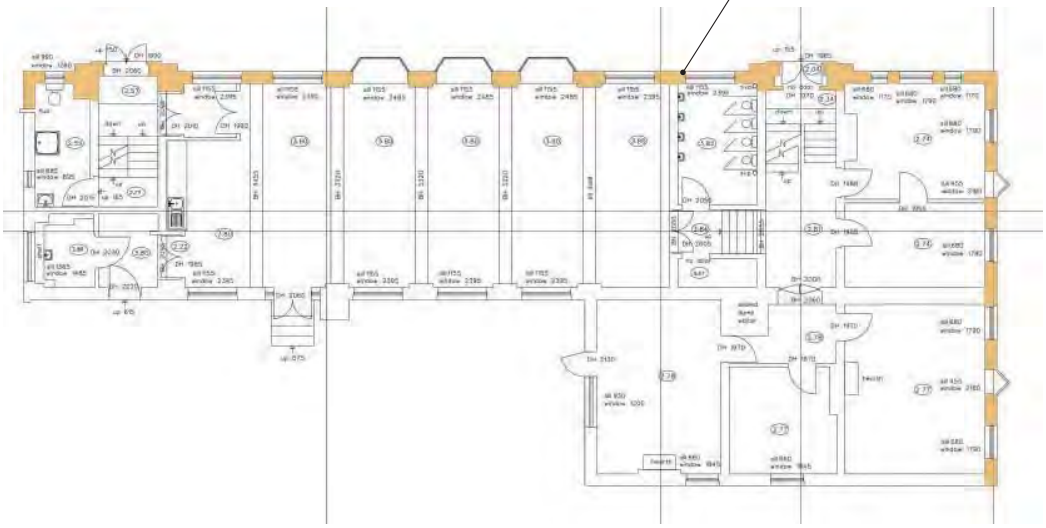
Existing structure

42 Phoenix Road is 3 to 4 storey load bearing masonry building largely rectangular on plan forming a stumpy L-shape.

The existing structure appears to be reinforced concrete beams or concrete encased steel beams supporting concrete floors. The beams bear on piers along the masonry walls.

The layout of the building is complicated, with varying levels serviced by two stairs, varying floor to ceiling heights and areas with stepped back facades and balconies.

Retained facade highlighted



Facade retention
The facade would be retained by a series of temporary steel waling beams either clamped through the windows or resin fixed into the existing masonry. Theses walings would be fixed in place prior to demolition of the internal concrete structure.

The frames can be braced against each other at the corner, triangulating the structure, however the free ends will need temporary lateral support either from an internal temporary steel frame or external frames on the pavement.

Internal temporary works frames will complicate the works as they need to remain in place until the new structure is complete up to the top of the retained element. Temporary piled foundations will also be required as it is proposed to extend and deepen the existing basement. Demolition and construction work will be slow and local disruption prolonged.

External temporary works can alleviate some of the internal complications, but licenses need to be sought and the frames are likely to require the closure of the pavement.

There is always a risk of some damage to the facade during a retention scheme either from the connections or through transfer of load between permanent and temporary works.

Affect on design of new works
It is currently proposed to extend the building a further 4 storeys above the retained section of facade.

The retained brickwork will not be able to support the additional load of the increased structure and so new structure will need to be introduced inside of the existing facade.

The new, higher envelope will not be able to rest on the retained facade as differential movement between the masonry and structure will be too great. The extended facade will therefore need to be supported directly off the new internal structure, with associated movement joints on the facade.

Typical facade retention with walings clamped through windows

D APPENDIX

D.1 PUBLIC CONSULTATION PRESENTATION MATERIAL

The following information was presented to the local community in Somerstown and again to the Neighbourhood Forum on two occasions.