



Cambridge Market Square Concept Design

Concept Design Report
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LD&DESIGN

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This document has been prepared and checked
 in accordance with ISO 9001:2015

1.0 Introduction

Executive Summary

This report details the concept design proposal for Cambridge Market Square. A variety of potential options for the design of the square were explored during this design stage and through a collaborative process of iterative testing and consultation they have been distilled into a preferred direction for the design of the square. As a concept design proposal this document focuses on the principle premises of the design rather than their technical resolution. Care and due diligence has been taken to put forth proposals that are feasible. Future stages will explore and develop the design's applicability in more detail and adjustments may be made accordingly.

The design of the square has been considered on 3 levels: the landscape design of the public realm, the architecture of the market stalls and the programmatic function of the space. All 3 directly influence each other and have been considered in parallel. While the design addresses a range of aspects, the brief for the redesign of the square revolved around a set of key requirements. Flexible use of the space and the creation of meaningful and noteworthy public realm akin to international benchmarks were perhaps at the top of the agenda. These were not criteria to measure the success of the design in isolation and a substantial context of high design standards for accessibility, inclusivity, sustainability, heritage, commercial and logistical functionality have been driving the process from the onset.

Information Base

Part of the research performed in preparation for this design stage was the collection and assessment of existing information around and in relation to the project. Amongst historical data and documentation, relevant policies, regulations and guidance that were consulted there was a particularly relevant document that preceded this design stage and which assisted in informing the direction of the design investigations. This was the “Market Square Redevelopment Feasibility Assessment” study that was completed in July 2019. The study set a clear picture of the context in which the redevelopment is to take place. The technical desktop and site specific studies conducted within this assessment are particularly robust and helpful. The ultimate goal of the study was to provide development scenarios for the project with anticipated cost levels. This was also a very helpful bracketing of the development potential. The options explored an adequate range of possibilities allowing for some refinement of the approach to occur at early stages of the concept design such as the consideration of a whole new permanent structure for the market.

Other information and institutions that were consulted include amongst others:

- National Planning Policy Framework
- Cambridge Local Plan 2018
- The Museum of Cambridge
- Capturing Cambridge Website (<http://www.capturingcambridge.org/>)
- Council archived files and images
- Previous stakeholder engagement records

Collaboration

This design proposal is the result of a collaborative process between a range of consultants that comprise the design team as well as council officers of different departments and external advisors consulted at various stages. The members of the design team have common previous experience of collaboration in similar projects together and with council officers. However, the most crucial collaboration was achieved in the alignment of the design team with Quarterbridge, the market consultant that was appointed to sit alongside the design team. Quarterbridge have influenced the direction of the design significantly with invaluable benchmarking information and advice throughout the design process.

Sustainability

In view of the climate change crisis facing the planet, the responsibility of producing an ecologically sustainable development has never been greater. It is important to note here that ecological sustainability is the achievement of a development that balances its consumption and replenishment of natural resources. That means a development that can exist and function in perpetuity without burdening the environment. The requirements to achieve a truly sustainable development are therefore so much broader and intricate than merely introducing more green to a site. In the case of the design for the Market Square an overarching sustainability approach has been considered that influences every aspect and decision taken for the project. The strategy involves the consideration of embodied energy as well as operational energy requirements through the project's

life in every aspect of its design. In all decisions taken the least impactful path was chosen.

Next Steps

Whilst every design stage has specific outputs and clear directions there are always aspects of a design that require refinement at a technical and even regulatory level at a subsequent phase and in line with the requirements of each stage according to the RIBA plan of works 2020. This concept design stage (RIBA Stage 2) sets out the principal concept of the design purposefully avoiding technical detail and aiming for strategic considerations and alignment with the brief and cost expectations. Design decisions have been taken based on collective experience and research of similar applications. What is proposed in this report has been asserted as a feasible solution that may or may not require refinement in subsequent stages. Certain products and materials proposed are offered here as design directions and in-depth technical performance and suitability will be assessed at the next stage (RIBA Stage 3 – “Spatial Coordination”) when a closer collaboration with an engineering team will take place for both structural and civil engineering aspects of the design. Each chapter in this report discusses the next steps required to advance the design in the next stage.

Engagement

The Market square is one of the city's most important public spaces. As such any design development effort needs to engage with as much of the city as possible. The space has various dimensions of significance to the city: civic, historic, commercial, political and social. Various groups, institutions and even individuals may have a direct relation to each one of these dimensions but combined they concern the public as a whole.

There are obvious practical difficulties associated with carrying out an engagement exercise across an entire city. To overcome them a combined approach was employed by utilising previous engagement outputs, engaging key stakeholders and sampling advice and opinions from local organisations through the process. The effort was carried out both by the council and the design team's own initiative.

The market traders were the first group to be approached as the most directly relevant stakeholders. This took place as various informal meetings and discussions at the market and through a dedicated presentation of the design direction and options followed by a Q&A session. The same presentation format was also extended to other groups at a subsequent event. Both events were held online through video conferencing due to the public meeting restrictions in place during the Covid-19 pandemic. Beyond the meetings at the market and the 2 events, certain key organisations and departments of the council were consulted during the design process through online virtual meetings.

The input to the design exercise has been significant and has informed fundamental aspects of the proposals. In certain cases the design team's thinking was already aligned with views of those consulted and in other cases

the team received advice and information that guided the design concept. It must be noted that this is only the concept design stage of the development of the scheme and the consultation is and will be an ongoing process as the design matures further and to also include any groups that were either missed, not extensively consulted or simply have more to add.

Below is a full list of groups and bodies consulted through the aforementioned processes.

Cambridge City Council
 Cambridgeshire County Council
 Greater Cambridge Partnership
 Cambridgeshire and Peterborough Combined Authority
 Cambridge Equalities Panel
 Cambridge Disability Panel
 Smart Cambridge
 Market Traders
 Market Traders Association
 Friends of Cambridge Market
 University of Cambridge
 Gonville & Caius College
 St John's College
 Kings College
 Tenants of Square
 Bidwells
 Cambridge Association of Architects
 CamCycle
 Smarter Cambridge Transport
 FeCRA
 Collusion Cambridge
 Cambridge Live
 Cambridge Business Improvement District

2.0 Heritage

Cambridge Market Square – Heritage Assessment

This assessment has been prepared following two focussed meetings with Heritage and Urban Design officers from Greater Cambridge Planning in addition to more wider-ranging meetings with other stakeholders. These meetings have highlighted some of the key issues and considerations which will need to be borne in mind as the proposals develop.

The scope of this heritage assessment is relatively restricted and it deliberately does not include a detailed history of the site nor does it repeat the factual information about the heritage assets in and around the square which can be found in (for example) the City Council's Historic Core Appraisal (<https://www.cambridge.gov.uk/media/2940/historic-core-appraisal-2016-market-hill.pdf>), the feasibility report for the Market Square project prepared by BDP or on Historic England's National Heritage List for England (website at <https://historicengland.org.uk/listing/the-list/>).

Similarly, the statutory duty to preserve or enhance Listed Buildings and their settings and the character and appearance of Conservation Areas within sections 16, 66 and 72 of the Planning (Listed Buildings and Conservation Areas) Act 1990 is acknowledged as a guiding principle within these proposals and this together with the guidance in Section 16 of the National Planning Policy Framework and policy 61 of the Cambridge Local Plan 2018 are not explored in further detail though their requirements are fully understood.

This assessment does therefore focus on the following:

- The heritage assets which will be physically affected by the proposals – the listed surfacing in Market Hill (which includes two sets of iron railings) and the listed fountain base;
- The aspects of the setting of any other heritage assets which could be affected by potential works to the Market Square will also be considered as will any impacts on the character and appearance of the Conservation Area where they differ from setting considerations.
- Conclusions on the impact on the heritage significance of the above assets from the works

proposed and comments on how any impacts could be avoided or reduced as detailed design progresses.

Heritage Assets Physically Affected By The Potential Works

A - The listed surfacing of the Market Square and associated railings

Brief History

Although the market has been in existence in some form possibly for more than 1000 years, it could not be described as a 'market square' until the 1850s. Prior to that, and as shown on plans from the C16 up to Baker's Plan of the City in 1830, the space was far more amorphous, with specialist markets in the surrounding streets though one constant seems to have been the relatively open nature of the east side of the present space (shown as Market Hill even on the 1575 Braun Hogenberg Plan). Perhaps not surprisingly this side retains quite grand merchants' houses today. However from Loggan's Plan of 1690 through to Baker's Plan of 1830, there was a mass of buildings hard against the back (east side) of Great St Mary's Church and a whole block of buildings on what is now the west side of the market square.

The market was said to have been first paved as early as 1613, the year before the erection of Hobson's Conduit¹. However, after a major fire in 1849 which destroyed the buildings on the west side of the market, the Cambridge Corporation Act gave the Council the means to expand and resurface the market using granite setts. At the same time the old Conduit Head was moved to Brookside and a new Gothic fountain added as the centrepiece (the upper part demolished in 1953).

Lowry's Plan of 1863 is the first to show the much larger and more regular space, though even this suggests a rather more ragged building line on the west and south boundaries; the latter being resolved when the present Guildhall (which was built in two parts either side of the Second World War) was finally completed in 1948. Lowry's map shows the fountain as the centrepiece of

this larger space, in contrast with Baker's plan where the conduit head stood much closer to the junction with Petty Cury. Prior to this, the original Market Cross apparently stood near to the north end of what is now Peas Hill.

The first Ordnance Survey Plan of the city in 1888 is extremely helpful in showing in detail the extent of 'Market Hill'. Although the sett work is not shown, the space is defined by an outer cordon of lamp posts, which presumably helped differentiate the market from the carriageway. The 'drinking fountain' dominates the centre of the market, in line with the chancel of Great St Mary's and is itself surrounded by lamp posts on the compass points. Whilst a number of stop cocks are identified, it is notable that the lavatories and railings were not there at this time and were still not shown on the 1903 plan. A letter box is shown in the NE corner of the market on the 1903 plan, but this had moved to opposite St May's Passage on the 1927 plan, by which time the lavatories are shown. What are presumably the paired steps down surrounded by railings can be seen and interestingly they sit north and south of a rectangle demarcated by a dotted line – which could be the extent of the underground structure or possibly a change in surface material. Early C20 photos appear to suggest a change in material with what may have been in situ concrete laid in panels (as can be seen elsewhere in parts of the city centre) and possibly glass blocks (as evident today) or certainly some form of smaller-module surfacing in the centre of space. The enclosed steps are shown also on the 1967 Ordnance Survey but not the rectangular demarcation – and telephone boxes (together with a flat-roofed kiosk building) located between the two sets of steps.

Several old photographs of the market are helpful in showing how the place has been used from the late C19 and through the C20. Photographs for the late 1960s show a limited number of stalls along the east and west sides which much of the central space used for car parking. At this time, three K6 telephone boxes and a flat roofed car park attendant's kiosk stood by the underground toilets. The phone boxes were moved onto Market Street on the NE side of Great St Mary's in 1995. A row of bollards now lines the east side of the concrete apron over the lavatories.

Today, in addition to the changed surface above the lavatories, there is a further area of concrete surfacing immediately to the south of it, on axis with the fountain and a larger area to the south east of this. The old photos do not provide any help in explaining this, though certainly the latter area was covered in setts in the late 1960s.

The original gas lamps on posts complete with ladder bars can be seen on the oldest photographs though by the 1920s the lanterns had gone and certainly by the time the fountain was dismantled, so had the posts.

The Listing and present condition

The surface of the Market Square was listed as 'Market Place paving and two sets of iron railings' on 30 October 2019. The reasons for designation states that 'the granite setts laid out in 1855-56 and iron railings installed later in the C19' are listed as an 'integral part of the mid-C19 scheme for the expansion and re-laying of the Market Place which can be accurately dated' and are therefore a relatively early example of large-scale historic paving. This forms part of the architectural interest as do the 'handsomely designed' railings which are considered to be of good quality ironwork (with the exception of one later gate). The historic interest is considered to stem from their being 'good quality examples of C19 street furniture which (together with the previously listed fountain base) form a significant ensemble at the heart of the city. The group value with the fountain and other listed buildings around the Market Square (especially Great St Mary's Church and the Guildhall is specifically mentioned.

The list description acknowledges that two areas along the west side (totalling 220sqm of the 2000sqm total listed area) have been either replaced or covered over by asphalt. These include the area in which the underground lavatories were provided in the early C20, though the present surfacing is not that shown on the early C20. Similarly there is the concreted area beneath the present rubbish skips, which is edged with some larger setts laid in a different pattern. SW of the fountain is a further L-shaped area of concrete. The reason for the change of surfacing is unknown (possibly modifications to electrical supply?), though it appears to date from after the late 1960s.

¹ Taylor, A. 'Cambridge: The Hidden History' Stroud (1999) p137

Drainage channels survive in the sett work though are not specifically mentioned in the listing. Generally, they run north to south and there are clear Vs at the south and north end to channel run off. These appear to have been interrupted in places in the SE and NW corners, all along the western side of the market and in the central area around the fountain.

It seems likely that the drainage channels reflected the original proportions and form of stalls which may themselves have been a product of the original market

layout prior to the 1849 fire when it was a long, thin space on the east side of the present market.

The list description similarly makes no mention of the sett patterns. A full and detailed survey of these is required as the 'mosaic' is far more complex than it would first appear. The setts are in fact a mixture of broadly square and more rectangular setts. Generally they are laid in a staggered bond though there are (presumably repaired) areas where they are stack bonded. The setts change direction in places or are separated into panels by

rectangular sets laid at right angles. Drainage channels are generally created by dished rows of setts laid at right angles to the main bond, but similar areas do not appear to be for drainage.

It is similarly not clear if the setts are all from one source or (as is more likely) other setts have been mixed in as repairs have taken place. Whilst some areas of repair are obvious (with the use of hard cement mortar in places) it is hard to be clear what the original binding material was (and consequently how easy it will be to lift the setts).

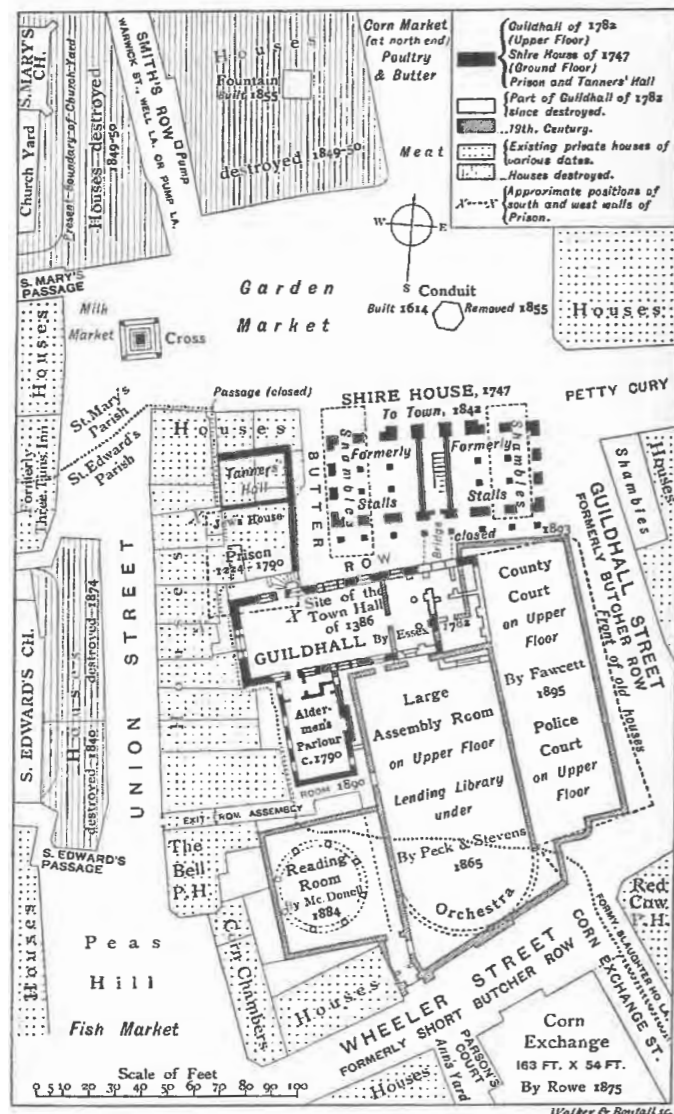
Heritage Significance

The heritage significance of the market square surfacing is described in the listing as being as it is an early surviving area of historic paving, using granite setts and as part of the ensemble of historic street furniture at the civic heart of the City. As noted, the list description recognises the areas where the setts have been lost and specifically excludes the subterranean former lavatories. In general terms, the market place surfacing is therefore of high heritage significance. The later areas of concrete or asphalt in contrast are of little heritage significance and resurfacing them in setts would be a clear heritage benefit. The area above the lavatories is however considered further below.

From the list description, an important part of the market surface's heritage interest is as an holistic entity – a large area paved with granite setts, at the heart of the city's commercial core and with the ornate fountain and railings demonstrating civic pride in the area. Making it function better as a market and civic space in general terms would enhance its significance, and would be another phase in the place's evolution to respond to the needs of citizens. The need for adaptation today stems from many years of piecemeal changes to both the way the market functions and society's expectations of it rather than a single cataclysmic event such as the 1849 fire.

Now the surface is listed, its fabric too has importance however. The surfacing is not one uniform plateau. We cannot be sure if it ever was. What is clear though is that in 165 years it has had to adapt to changing needs, it has been used and abused, repaired and altered. Even the most sensitive restoration, which maximises the opportunities for enhancement needs to be based on an agreed strategy about what, in all probability, the original surface pattern was and which, if any, of the subsequent later changes are of heritage interest in themselves because they reflect key moments in the market's history. To enable this to happen, an accurate survey is needed. In the absence of an accurate survey of the whole surfaced area, which is detailed enough to identify the patterns of setts, any changes in material and size and the binding material, it is impossible to identify which parts of the surface have been altered and therefore where relaying them to the original pattern would be an opportunity for enhancing the heritage significance. This needs to be provided before a detailed proposal is drawn up. Without this, only the following general principles can be advanced.

1. The relaying of poorly altered areas of setts to the original pattern would enhance the heritage significance.



Historic Development Of Market. Extract from 'Cambridge Described and Illustrated' by T D Atkinson (1897) showing historical development of Cambridge Market Square and its features over time. Note how different produce had specific markets spread out over a much wider area.



1888 Ordnance Survey Map – note the regimented lighting. The underground lavatories were not in existence at this time.



Extract From 1927 Ordnance Survey. The lavatories are now in situ, but the present Guildhall and Market Hill Buildings have not yet been built (south and north of the market respectively).



1960s photo – half market, half car park. Note the reduced fountain and telephone boxes and kiosk over the underground lavatories.



Photo from early C20 – note the original fountain design, the surface change over the now-extant underground lavatories and the lamp posts without lanterns.

2. It seems likely that the main N-S drainage pattern is a feature of the original pattern. Where the pattern has been lost, reinstating it could be considered a heritage benefit provided that enough evidence exists to avoid conjecture.
3. Reinstating patched areas and removing inappropriate hard concrete binding with more appropriate binding would enhance the significance.

As noted earlier, the list description is incorrect in the dating of the lavatory railings. These were installed somewhere between 1903 and 1927 according to the Ordnance Survey plans of those years. From a photograph which appears to be from the 1920s, it appears that the surface over the lavatories was relaid and the granite setts removed. The photograph suggests large panels – possibly of concrete – and presumably with the central bank of pavement lights.

Whilst the factual detail of the listing could be

challenged, it doesn't alter the substance of why the railings were included within the listing. The altered surface is within the area of listing. The present surface treatment is of no heritage interest, and so replacing this with a more acceptable surface would be a clear enhancement. Recovering the area with granite setts would not be appropriate as this would obscure that 'layer' of the market's evolution and weaken the significance of the lavatory provision and therefore the railings.

Potential Heritage Impact of Potential Options

A key driver of the project must be to make the surface of the market more level. This could be achieved in a number of ways. Replacing all the existing setts with a new surface would constitute substantial harm and is not being considered.

It is likely that all the setts will need to be lifted and relaid. This provides the opportunity to relay using more

appropriate binding, replace any redundant sockets, covers etc which have been inserted, replace badly damaged setts and, subject to decisions following the detailed survey, relay to the most appropriate pattern(s). Whilst some aspects could be considered to cause minor harm to heritage significance, others would be clearly beneficial and in heritage terms alone, this is the most sensitive option. It would be unlikely to significantly improve the surface though and other changes would be needed to make the square fit for modern needs.

Relaying the setts to remove the drainage channels would help make the surface more level. The degree of heritage harm would be less if the setts were laid flush but the pattern was retained (clearly drainage would need to be provided in another way).

Cutting the setts would allow them to be laid flatter. Where setts are original, this would harm their historic integrity and the appearance may inevitably change as

surface texture and patina would be lost (the latter would over time largely return). If possible, dressing rather than cutting would be less harmful.

Removal of some of the later fixings and re-providing electricity, water supply etc more neatly could also potentially be a heritage benefit, including removing the fuse box from the main vista E-W across the market to the fountain and Great St Marys.

Removing individual setts to allow well-designed floor-mounted sockets for stalls should cause minimal harm where the numbers are kept to a minimum and the socket covers well-designed. This should give a neater appearance than the current ad-hoc anchor arrangement and minimise disturbance to the historic surface.

Other features added to the market later – including the bollards adjacent to the top of the lavatory – could be moved with no harm to heritage significance. The

replicating the existing original gate and removing the later addition would be a heritage benefit.

B - The Fountain

Brief History

The Gothic fountain was created as the focal point of the newly enlarged market square in 1855. It was apparently designed by Gordon M Hills.² Hills appears to have later become Diocesan Surveyor to London and Rochester but appears to have been a relatively little-known architect.

Just short of its centenary at the heart of the market, it 'was seen to be swaying in the breeze in 1953. It was dismantled, leaving only the base, and each carefully numbered piece was stored safely and never seen again!'³ The exception is the four corner figures which are in the courtyard of the Museum of Cambridge.

An architectural competition for a new fountain, part of a drive to breathe new life into the market, was held in the mid-1990s and consent to demolish the fountain base applied for. The proposed designs however proved too controversial and consent for demolition was refused as premature.

The Listing and Present Condition

The list description (which dates from 1972) simply states 'stone fountain, much weathered, set in a granite basin'. What remains today is a rather sad shadow of its former self. It remains in quite poor condition with some continuing movement of the structure evident and lacking any explanation of its original form. It has rather lost its role as the centrepiece of the market.

Heritage Significance

The fountain has historical interest as an example of Victorian civic pride at the heart of the commercial and administrative centre of the city. The fountain provided fresh water for those using the market and was the central feature of the newly enlarged and planned marketplace. As noted in the list description for the surfacing, it therefore has strong group value with the sett work and the later lavatories and railings.

Its architectural interest is today rather more limited. Only the base and a small part of the rest of the structure survives and it is difficult for anyone who does not know the history of the fountain to understand what it was originally like. The architect of the fountain is

not particularly well-known but the original structure, although not long-lived, seems to have been an accomplished Gothic design.

Whether or not it was a conscious design intent, the fountain, in addition to being generally in the centre of the paved area of the market, is also broadly in line with the east end of the chancel of Great St Mary's Church and what would have been merchants' houses on the east side of Market Hill (of which the Grade I listed No. 5 Market Hill is the finest). This inter-relationship of the market, the main city church and the most prestigious early merchants' houses goes to the heart of the heritage significance of all these assets.

However, the limited height of the current structure compared to the original fountain means it is not general visible above the stalls and skips on the west side. This lack of visibility and pre-eminence reduces its heritage significance.

Potential Heritage Impact of Proposed Layout

The main aspect of the proposed layout options is a clear open axis east-west through the market square. This helps to re-connect the church, market, fountain and houses and is a clear heritage benefit of the scheme as is the removal of the waste skips from this axis line. The repair of the fountain is a further obvious benefit as would be making it function once again. Allowing people to better understand its original form either through physical works or through some form of interpretation material would similarly enhance the fountain's heritage significance and the ability of people to appreciate it. This reflects the comment in the Historic Core Appraisal that 'any enhancement scheme should attempt to raise its profile.'

C - The Setting Of Other Heritage Assets

Although not completed until many years after the refashioning of the market in 1855, the Guildhall dominates the south side of the space and is the latest (and last) civic building to be provided in the city's commercial heart. The main civic rooms are on the first floor and the balcony allowed civic leaders to address people gathering outside. As a consequence, both the location of the market and the relative openness of the space immediately in front of the Guildhall are aspects of the building's setting which contribute to its heritage significance. The loss of either would harm our understanding of the building and its function within the city.

Whilst of similar age to the oldest part of the Guildhall, the Market Hill Buildings on the north side of the market do not have the same functional and civic relationship with space and when built in 1937, the 'white cliffs of Caius' replaced C19 and earlier buildings with more traditional narrow plot widths. Nevertheless, the building with its ground floor arcade of shops attractively defines the space. The Portland Stone façade catches the sun and its lightness contrasts with the more austere Guildhall (which sits in shadow) to the north.

The other listed buildings around the market are generally of C18 and C19 and are of a type which characterises the commercial streets in the centre of the City. Works to the market itself, provided they enhance its function at the heart of the city would not affect their settings or heritage significance.

The three K6 telephone boxes, which are Grade II Listed, and stand to the NW of the church were originally adjacent to the lavatories on the west side of the market square. They were moved in the 1990s. Whilst their position in traditionally the busiest part of the city centre was noteworthy, their relocation has reduced this and again, works to the market would be unlikely to impact their heritage significance.

The Historic Core Conservation Area Appraisal highlights a number of 'key positive views' across the market square. These include views of King's College Chapel and the tower of Great St Mary's from the east side of the square, of Nos. 4 & 5 Market Hill from the end of St Mary's Passage and the west end of Market Hill and of the Guildhall from similar positions. Within all these views, the bustle of the market and the lack of height of the market stalls give a sense of informality which contrasts with the often grand buildings. When looking south in particular, the life and colour of the market gives a vibrant foreground to the grey tones of the Guildhall.

In terms of the contribution to the character and appearance of the conservation area, the presence of a bustling market in a major civic space is a key characteristic of central Cambridge and the physical and commercial improvement of this has the potential to benefit both the character and appearance of the area. In terms of the components of the market, the stalls themselves, whilst they add to the colour, are relatively recent structures and so there is nothing of intrinsic significance in heritage terms. Similarly their exact orientation and even permanence has changed throughout the years and certainly in the 1960s the space was as much as car park as it was a market.

That said, it is the sense of informality which they create which is attractive and permanent market stalls or structural elements could run counter to this and give the square an odd appearance in the times when the stalls have been cleared.

Other features within the market have, like the market, evolved over time. In terms of lighting, the regimented perimeter gas lamps of the 1850s appear to have gone by the early years of the C20 (though the posts survived longer) and lighting today is from modern highway columns on the corners and edges of the space. Some discrete lighting of the fountain could help lift its profile at the heart of the space and reduce the gloom in the centre of the market in the hours of darkness.

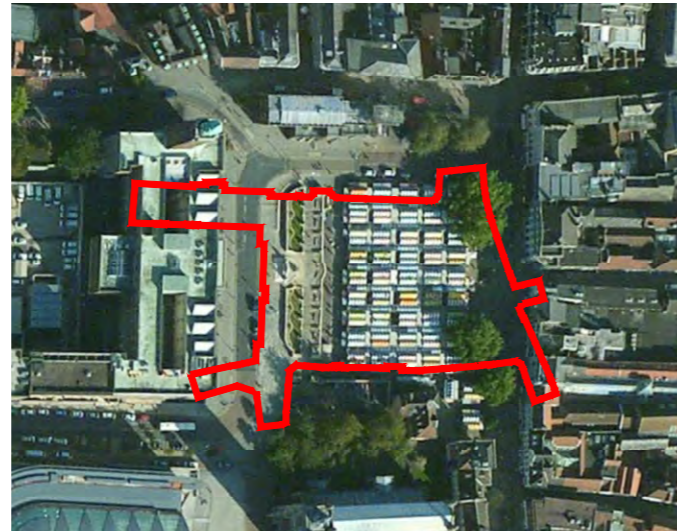
² Atkinson, T D 'Cambridge Described and Illustrated...': Cambridge (1897) p70.

³ Durrant, J 'Cambridge Past and Present...': Stroud (2007) p15.

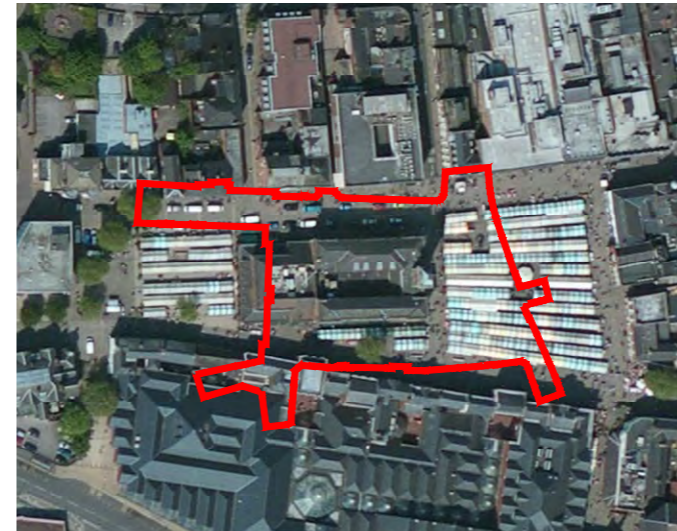
3.0 Design

3.1 Market Precedents

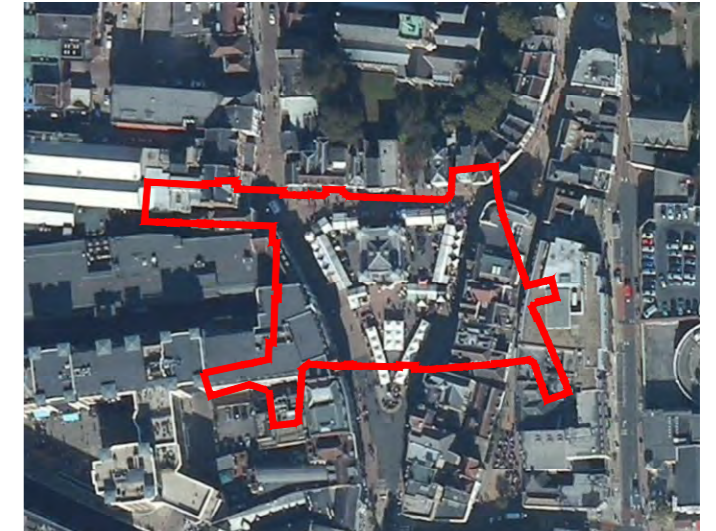
A review of other existing markets has been undertaken to understand how different towns and cities in the UK and internationally have approached the design of their market spaces. This information is supplemented by Quarterbridges report of how the existing market functions and future market opportunities. The focus has been on other regularly trading markets that operate on multiple days of the week to understand the flexibility of each market and the opportunities for other uses alongside the market stalls.



Norwich market scale comparison



Chesterfield market scale comparison



Kingston Upon Thames market scale comparison



Image credit Roger Cornfoot



Image credit John Slater



Image credit Mike Faherty

Norwich Market

A larger market than Cambridge Market with 189 stalls, it is one of the oldest and largest outdoor markets in the country. The market trades Monday to Saturday, with a handful open on Sundays. The stalls are permanent steel units with roller doors laid out in rows A-H. The rows are tight and can feel claustrophobic and the permanent nature of them means there are limited opportunities for events. Previous more radical proposals for rebuilding of the area were extremely controversial and were abandoned in favour of the current scheme which retains the parallel rows of stalls. The rebuilt was completed in early 2006.

Chesterfield Market

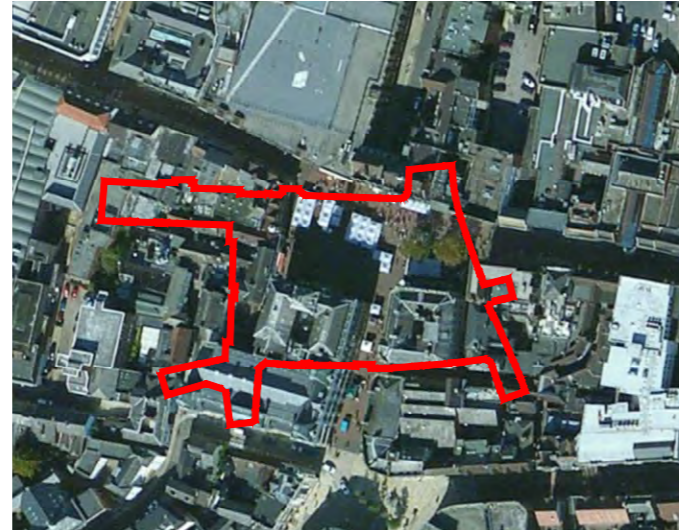
Larger than Cambridge market, it is one of the largest open air markets in England. General Markets take place on Mondays, Fridays and Saturdays and themed markets on other days e.g. Flea Market, Artisan market, Auto jumble Market, Young Persons Market and Farmers markets. The stalls are timber T post structures with canvas roof with trestle tables that are left out overnight. Some stalls can be demounted with ground fixings. Flush surfacing of the surrounding streets connects the market to neighbouring streets, shops and cafes. Speciality events take place throughout the year. Permanent open space with seating at western end allows for a some events space. However the market has falling customer numbers and a poor visual appearance and is currently seeking to upgrade the market and make it more flexible.

Kingston Upon Thames Market

Slightly smaller than Cambridge Market, a triangular shaped space with a central permanent building. It has 28 permanent stalls containing back of house and storage facilities with branded pop up 3x3m gazebos set up backing onto the structures. Flush surfacing and fully pedestrianised area makes the space accessible and feel spacious, encouraging people to linger. The market trades 7 days a week, 10am – 5pm. An open area to the south is used for events and is large enough for a stage or extra Christmas markets. The permanent structures seem to create visual barriers and the layout is limited to 28 stalls, however the space works well with the surrounding shops and can accommodate other uses as seen by its varied events program.



Salisbury Market scale comparison



Ipswich Market scale comparison



Blaak Market scale comparison



Torvehallerne Market scale comparison



Image credit Richard Avery



Image credit Chris Holfield



Image credit Pengyao Lai



Image credit Kund Winkelmann

Salisbury Market

Larger area than Cambridge Market with less stalls. Approximately 70 stalls of various sizes. They have their own farmers' market of 12 blue/white stalls incorporated in to the main market and other traders use pop up gazebos. A central hot food area offering Hog roast, Thai, South African and Indian Food. Carpark was recently removed and new accessible flush surfacing installed. The Charter Market is twice-weekly held every Tuesday and Saturday. The use of demountable stalls mean the space is a flexible open space when the market isn't in use. When the market is on the eastern end of the space can still be used for events.

Ipswich Market

A smaller space and market than Cambridge Market with 40 stalls (27 primary stalls and 13 secondary). The stalls used are pop up gazebos, colour coordinated and branded. The Market links Cornhill to Giles Circus along Princess street and is a series of spaces and streets rather than one big space. It is held 4 days a week operating Tuesday, Thursday, Friday and Saturday from 9am till 4pm. It is managed by Ipswich Borough Council. The Cornhill provides a flexible open space when no market is on which has in ground flush water fountains and deckchairs are brought out for extra seating.

Rotterdam, Blaak Market

Europe's longest street market, which consists of a 2.5 km long track of over 400 stalls and a permanent indoor market building. Every Tuesday and Saturday 9 a.m. to 5 p.m. and Friday noon to 5 p.m. Use of ground anchors to fix stalls down in the street.

Torvehallerne Market, Copenhagen

A permanent covered marketplace and outdoor market area with space for seating to enjoy food and drink from the market whilst listening to live music. Overall space is larger than Cambridge but with less outdoor stalls. Operates 7 days a week from 10am-7pm. The use of giant umbrellas provides cover for outdoor market stalls and seating.

Other markets

To understand the potential for other market uses in the Market Square a review of pop markets, markets with specific food offers and indoor markets was undertaken to see what can be learnt from other types of markets.



Image credit

Tobacco Factory Market, Bristol

A regular Sunday market associated with a cultural theatre and bar venue. Using pop up gazebo stalls in a small outdoor space next to the venue. Additional Wednesday evening street food pop ups and themed market days such as the plant market. Combination food, drink and retail with live music and workshops. A road closure is needed for bigger markets that spill out onto the street.



Image credit

Berlin Bite Club

A rolling out twice a month on Friday nights. The newest and best of Berlin's food traders and trucks. A core of regulars are joined by new members at each edition, complemented by specialist wine, whisky and craft beer bars. Diners are invited aboard the vintage Hoppetosse boat, with its magnificent view of the city scape and set the tone of the evening with a curated music stage.



Image credit

The Bridge Street Kitchen, Copenhagen

During the season, guest chefs from all over the world are invited to present their personal perspective on street food and on certain Fridays The Bridge Street Kitchen will host the event Bar & Bølger (meaning bar and waves) where the street kitchen is focused on tasty drinks and free samples.



Image credit Philafrenzy

The Real Food Market, Kings Cross

Market for around 40 producers who rear, grow and produce their own high quality artisan produce. Operating on Weds-Fri 12pm-7pm. A successful pop up market with high footfall due to it's location next to a major London railway terminus.



Image credit Cambridge foodPark

Cambridge foodPark

A collective of top quality Cambridge based street food traders operating at regular lunchtime markets on weekdays and evening events throughout the year. Trading all year round at University of Cambridge's West Cambridge Campus, Cambridge Science Park, Eddington and the CBI Development at Cambridge Railway Station.



Image credit Cambridge foodPark

All traders are independent owner-operated businesses with an emphasis on high quality and carefully sourced ingredients. Each of the traders are local to Cambridge or Cambridgeshire and all of the food is freshly prepared.

This is a pop up food market that is already operating in the local area. The option of something similar in Cambridge Market Square on specific evening or as an additional location for foodPark.



Image credit Pete Gloria

Indoor markets

There are many indoor market across the world and although not directly relevant to Cambridge Market there are some useful insights.

- * Spitalfields market have created a successful modular market stall.
- * Borough Market is well known for it's demonstration areas that allow market traders to hold events
- * Greenwich Market has strong recognisable heritage branding

Market Precedents Summary

The research undertaken has informed the design proposals. It has highlighted challenges specific to Cambridge as well as lessons that can be learnt from other existing markets.

Market frequency

- * Cambridge Market is open everyday of the week, there aren't many other markets that are open this often.
- * Markets that operate less frequently are more temporary in nature e.g Salisbury.
- * Other markets have similar operating hours e.g Chesterfield and Norwich and Kingston Upon Thames.

Flexibility

- * Several markets have a core number of stalls with the option of more on special days which creates more flexibility.
- * All the Markets reviewed had more space than Cambridge Market or less stalls allowing for more space around the market stalls
- * The type of stalls influence the flexibility. Norwich has permanent stalls and no flexibility. Salisbury market stalls clear away creating a large open space.
- * Most of the markets either have demountable stalls or an open area dedicated to events e.g Salisbury stalls are demountable and Kingston Upon Thames has a combination of permanent stalls and demountable ones alongside an open area for events. Chesterfield Market has a small area of events but has a similar issue to Cambridge regarding the stalls limiting flexibility of the space.

Stalls

- * A range of stalls types exist in different markets, some using a mix of stall types e.g Kingston Upon Thames.
- * Pop Up 3x3m gazebos appear to be the most commonly used temporary stall and can be colour coordinated and branded. When uncoordinated the stalls can end up fighting for attention and appear less unified as a place e.g Salisbury Market.
- * Permanent fixed stalls limit the flexibility of the space e.g Norwich
- * A modular/moveable/demountable permanent market stall for outdoor use doesn't yet exist (there are some indoor examples of adaptable stalls e.g. Spitalfields)
- * Visual permeability of stalls and lighting when not in use is important for successful and safe evening use of the space
- * Sight lines and prominence of stalls can cause issues with traders e.g Chesterfield
- * Stalls need to provide enough shelter from the weather and provide a suitable modern trading environment to attract the best traders.
- * Fixing points in paving to tie down stalls are often used on temporary market stalls.

Space/surfacing

- * All the other market example have either less market stalls or a larger surrounding area, Cambridge is a particularly dense market place with a lot of stalls for the space it sits within, this is amplified by it being surrounded by a road.
- * Reducing the presence of vehicles and pedestrianising a market place creates more space to dwell and space for pedestrian circulation, this has been successful in many of the examples.
- * Flush paving surfacing in the examples is successful in creating more usable pedestrian space and visually connects shops, cafe and surrounding uses, this is evident in most of the examples.

Events

- * Benefit of having a small flexible open space for everyday pop up small events, this has been achieved in other market that have more space or fewer stalls.
- * A larger area is needed for big events, other markets have achieved this by having no regular market or limited market days such as Nottingham and Salisbury.
- * Markets with a similar 6-7 day market have similar issues with events and flexibility of space such as Chesterfield.
- * Pop up food and drink markets have become very popular.
- * The option to have themed market days is an attraction in some markets.

Key design criteria to incorporate

- * Creating some breathing space.
- * Permanent open spaces with more seating to allow for smaller events to happen more regularly and for people to linger and spend more time in the space.
- * A stall design that allows flexibility is critical to enable greater more flexible use of the space
- * Reducing the presence of the road and prioritising pedestrians
- * Connecting the Market Square to its surrounding with flush paving
- * An events programme

3.2 Design Statement

Market Hill is not just one of the city's most important public spaces, it is the primary civic node of the city's public realm. Historically it has performed a pivotal function in the political frictions and reconciliations of this university city. Spatially it is the only public open place with the definition, qualities and proportions akin to the typology of the college courtyards that define so much of the city's structure and grain. While this urban condition has made the square at Market Hill the indisputable centre of gravity for all public life and movement much of its original vigour has been overshadowed by peripheral retail development of a highly competitive growth rate, offer and quality. A place with the significance of the market square will naturally evolve much slower and more deliberately than private retail premises yet there is abundant emerging context and grounds for the regeneration of this key city asset.

The design approach is aimed directly at seizing this opportunity of public realm design to generate a forward-looking concept grounded in its history, contextualised in its present and surroundings and, above all, places people first and at the heart of its vision. The Market Square is a place of confluence for very diverse types of visitors and inhabitants. The group most present and directly associated with the space are the market stall traders. The traders are not just the key end user group to be consulted but they are themselves part of the definition of the square's character and therefore an integral part of the approach to the design. Just as much as their focus is on their customers and the market's footfall, the design aims to carefully consider how the square caters for those who visit, live or work in and around it. This includes employees of surrounding buildings, students and members of both universities, city dwellers as well as local and international tourists. An important aspect in analysing users, their movements and behaviours is the temporal aspect of the square's inhabitation from a daily rhythm to a seasonal cycle and how this is defined by the city's transient populations such as the students and tourists as well as by the high time economy and occasional public events. In essence, the design approach investigated how to create a place that functions efficiently and is modernised to be in tune with how society has evolved by addressing public life, urban movement, social interaction, communications and consumption.

While people and activity is much of what defines a place, the physical aspect of the space and how

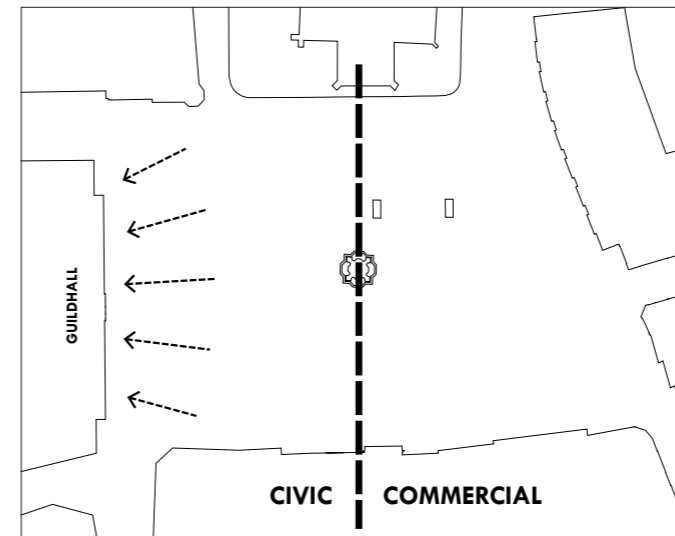
this is articulated to host life cannot be overlooked. Externally, the square's open room-like nature needs to be recognised against and in synergy with other key moments of decompression in the public realm network such as the wide length of Kings Parade, the great openness of Parker's Piece, the protected interiority of the Grand Arcade and even the hidden setting of the river. Internally, the square has not only memories to preserve and highlight but also inherent characteristics to articulate. Such is the space's orientation and directionality, its programmatic articulation and its temporal utilisation.

The unexpected context of the Covid-19 pandemic has invariably influenced the design for the future development of the Market Square. While it is impossible to determine the length of time the restrictions imposed on everyday life by the pandemic will be with us it also wouldn't be appropriate to design a central public space around them. With that in mind, the design of the square was developed to be adaptable to the new norms of everyday life in a pandemic but also to respond to the effects it has had, and will continue to have, on the operation and vitality of the market. The pandemic has accelerated the decline of the high-street which directly affects the life of city centres. In the case of Cambridge there is also a significant shift in visitor traffic to the centre with the decline of international tourism. Inversely, the pandemic and decline of traditional retail has also created moments of opportunity with a new wave of entrepreneurship that needs low-risk, testbed environments like markets to experiment in. The safety of open-air conditions during the pandemic has also revealed a natural advantage of outdoors markets as a retail spaces against their brick and mortar counterparts. The design endeavours to capitalise on these trends by offering an adaptable space that can accommodate a variety of uses, from market and outdoor dining to public events. Social distancing, visitor flows and effective queue management have been considered in the structuring of a well organised and permeable layout with generous interstitial spaces.

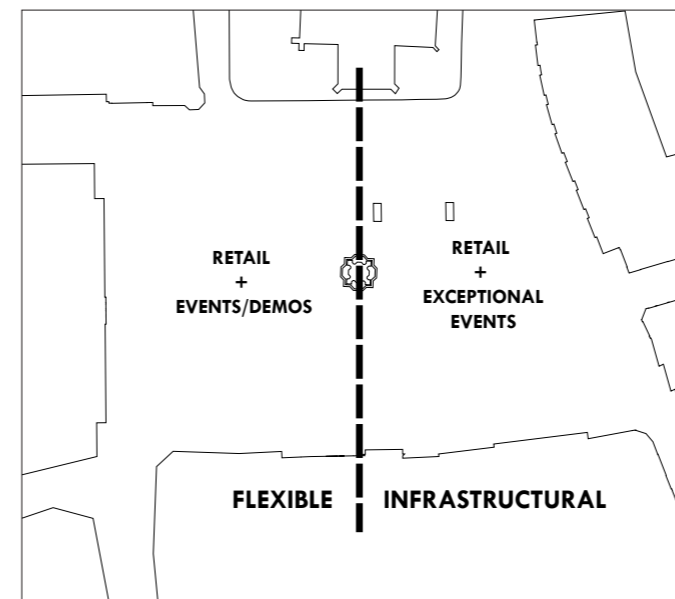
3.3 Design Strategy

A set of overarching concepts have been established as the starting points of the design approach. They set guiding principles in which all the considered options are grounded. The following diagrams illustrate these strategic moves with short explanations.

Spatial Character



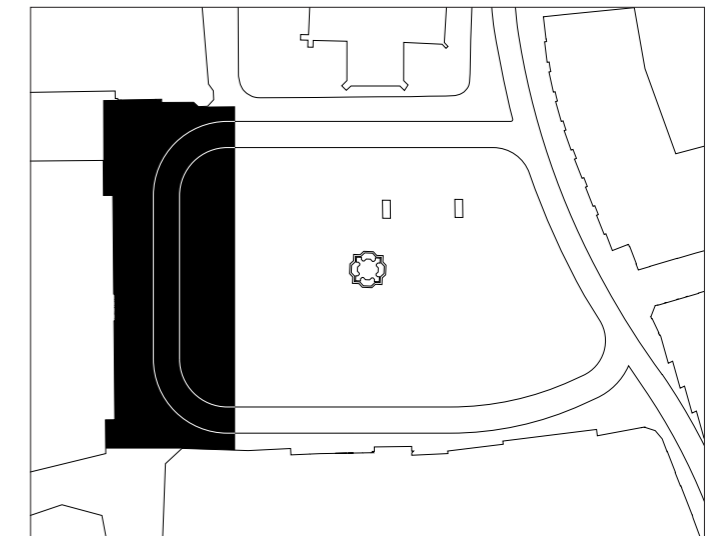
The Guildhall defines a "civic" side of the square



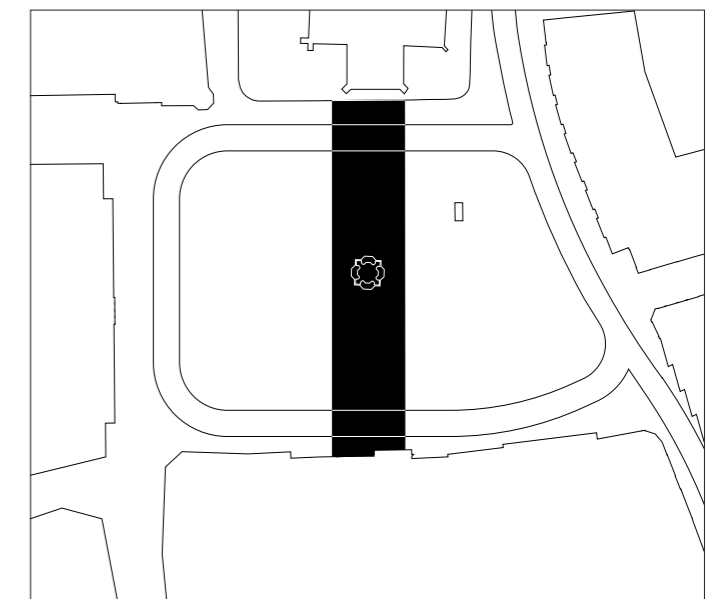
Allocation of flexible and core area of the market

To understand how to articulate the space and explore its flexibility it is necessary to identify its different spatial characters based on the urban context. The Guildhall functionally and symbolically creates a distinct focus on the space of a "civic" character. The main physical object of the space, the fountain, divides the square into 2 halves on either side of an axis aligned with Gt. St. Mary's and the grade 1 listed Nr. 5 Market Hill. The "civic" half on the side of the Guildhall relates to events and demonstrations demanding more flexibility from the market whereas the other half is more "commercial" in character and hosts the market's infrastructure and core functions.

Strategic Open Space



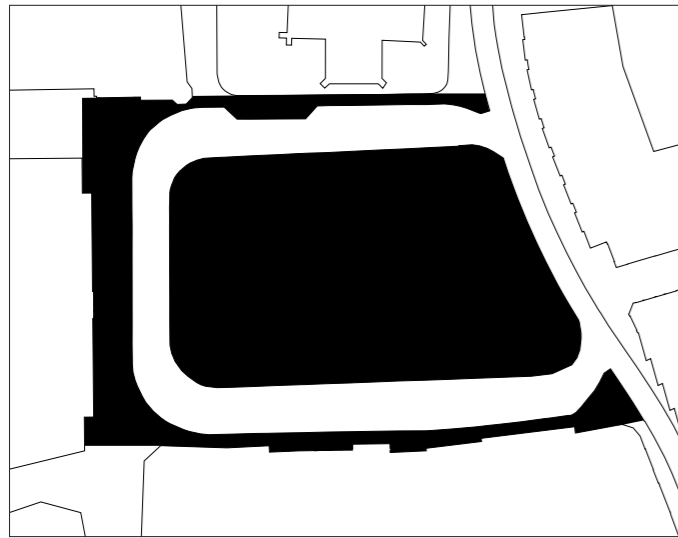
The Guildhall Forecourt



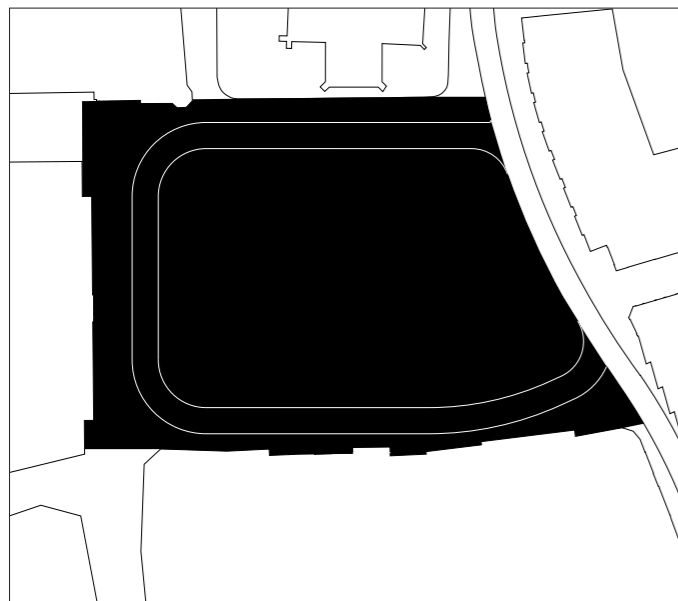
The Fountain Piazza

While the proposals seek to establish a flexible space that can ultimately release in parts or in whole the square from the market, 2 areas are strategically designated as permanent open spaces. Through an efficient new stall layout a much larger space can be opened up in front of the Guildhall acting as a type of forecourt. The fountain together with the church and Nr. 5 define a strip of open space to be reserved for seating and as a central buffer space.

Spatial Cohesion



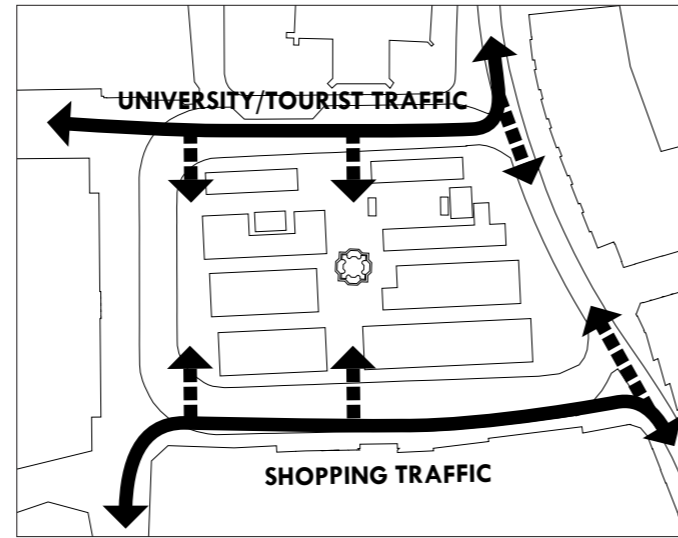
Current fragmentation



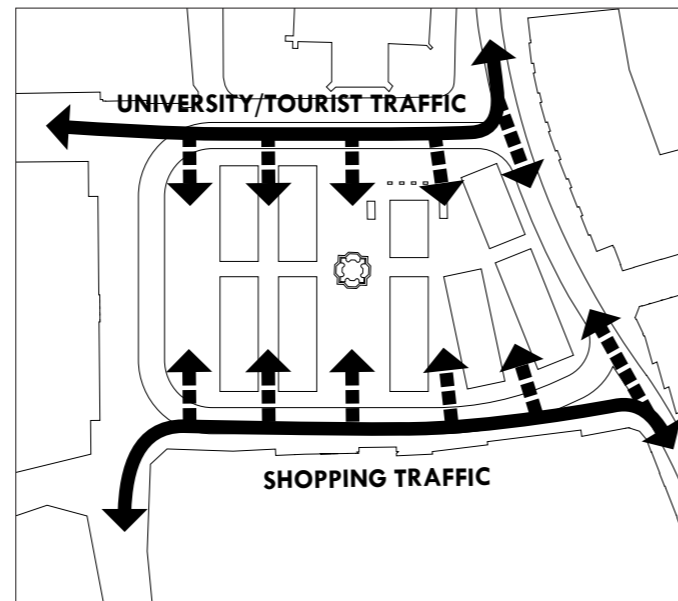
Proposed unification

Currently the square is read and experienced as a fragmented space consisting of a central island, a predominantly vehicular road and surrounding pavements. The design proposal seeks a reunification of the square into a single coherent space.

Access and Circulation



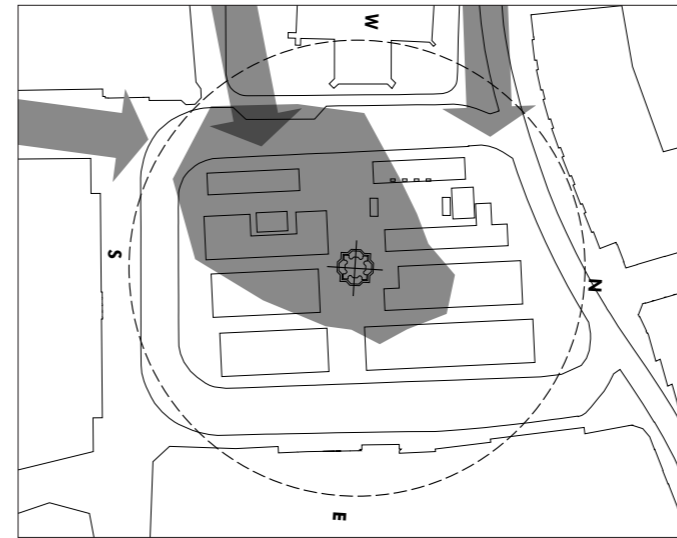
Current row orientation



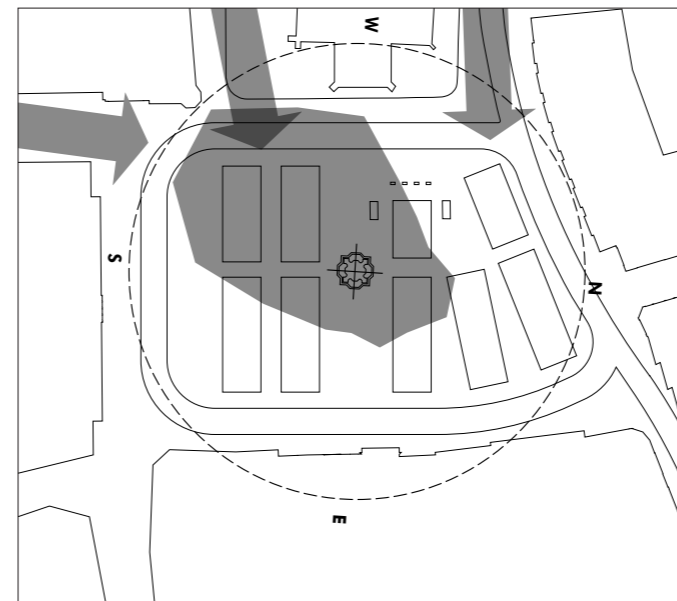
Proposed row orientation

In contrast to the historical function of the city centre, today there are 2 main strands of circulation of a N-S orientation. The current stall row orientation is at odds with these traffic flows and hinder the permeability of the market area. The proposal will seek to align with these flows to improve on the circulation flows.

The Elements



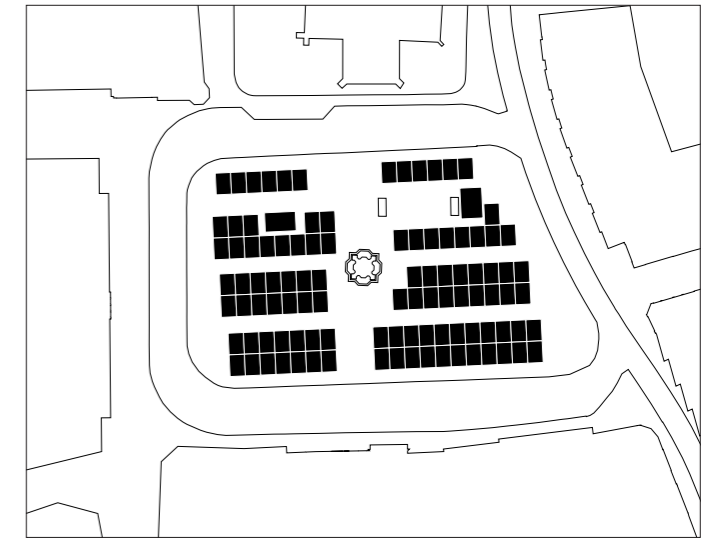
Current rows with wind rose and prevalent wind funnelled direction



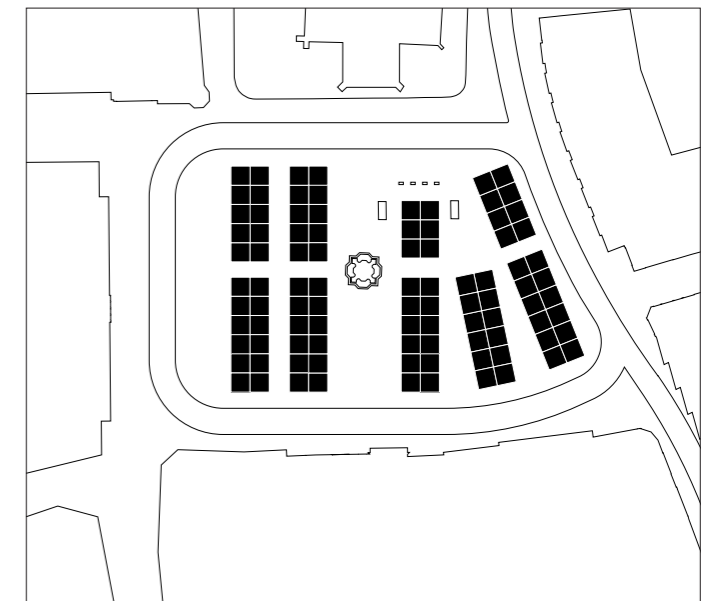
Proposed rows with wind rose and prevalent wind funnelled direction

Weather conditions and sunlight are important factors for an open-air market. The prevalent wind direction and how it funnels between buildings is particularly important for the proposal of the market arrangement. The new orientation of the stalls facilitates the prevalent wind directions and utilises them to ventilate the market corridors.

Stall Definition



Current stall structures



Proposed stall modules

The stalls on the market and their occupation has developed over time into a mix of different and uncoordinated structures. Additionally, the stall size currently defined is below the size of contemporary standards. The new stalls will be defined as a modular (variable but consistent) solution of modern size standards.

3.4 Flexible Use

Existing flexibility

The Market Square is currently limited to accommodate other uses beyond the market stalls. A key part of the brief for this project includes making the space more flexible. Spaces that can be adapted provide greater flexibility and opportunities than a static fixed space. By creating a flexible layout and fixtures that can respond to the users needs will allow the space to accommodate other uses.

To understand the current issues discussions with the Market Team and BID have provided information on how the space is currently used other than for the market stalls. This illustrates how flexible the space currently is and what the challenges are to make the space more adaptable whilst responding to all the Market Square users needs.

Flexibility of fixtures - The market stalls aren't moveable which means there is no flexibility in the central area. Market traders are allowed to trade until 6pm.

Performance space - The only performance space is in front of the Guildhall. The space between the Guildhall and the road can be used for small events, larger events require the road to be closed with 13 weeks notice.

Programming of events - Currently events take place about twice a year due to road and market restrictions. It takes about 13 weeks notice to close the road currently.

Events organisation and funding - Events on Market Square are currently organised by Cambridge City Council (Market Team) with BID. Events are run not for a profit and are free to attend.

Types of events - Currently events include Big Light switch on (5000-7000 ppl) and outdoor cinema with night market, buskers and demonstrations.



Big Switch On - Stage in front of the Guildhall with a standing audience (night market)



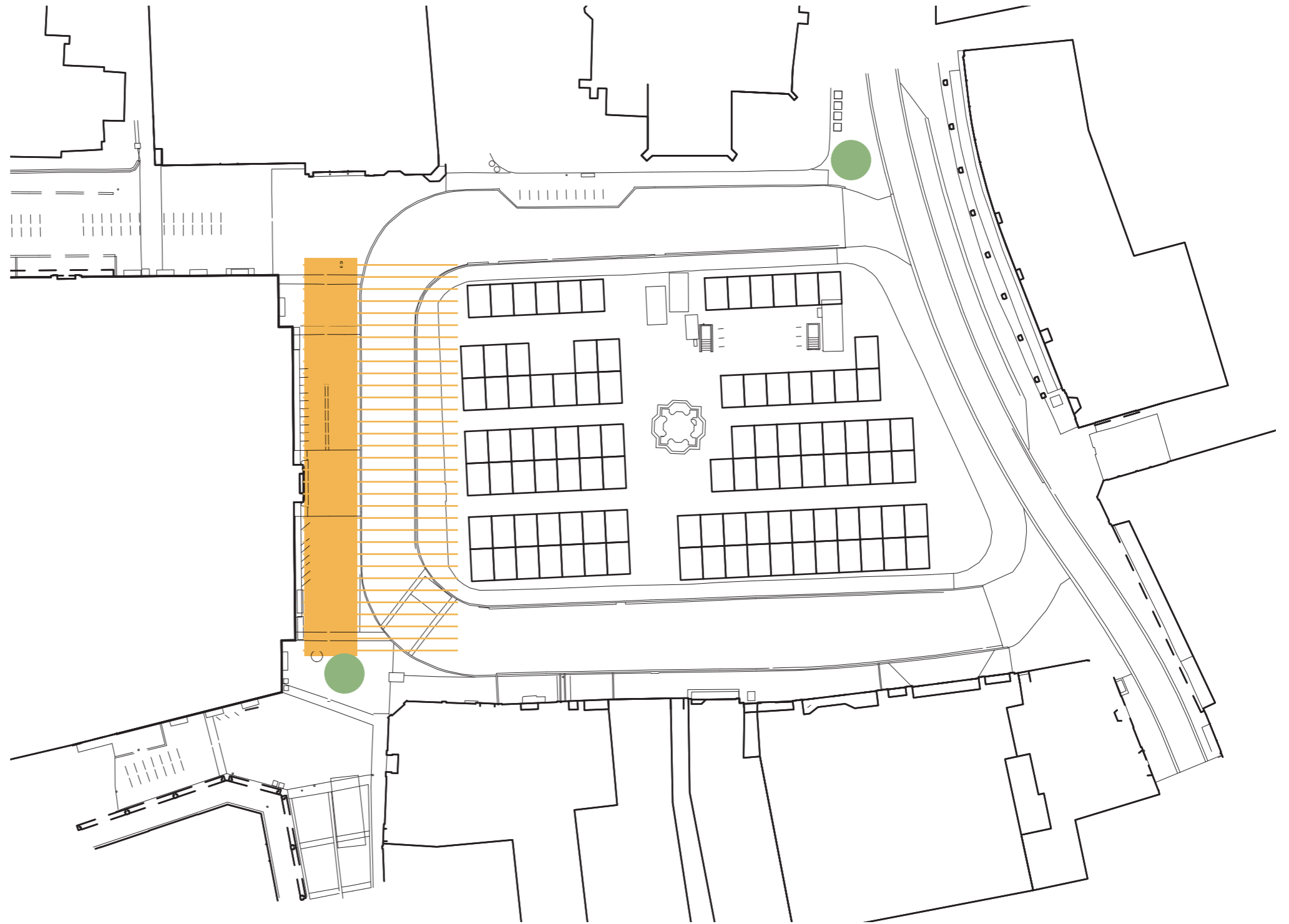
Outdoor Cinema - truss staging screen and directors chairs outside the Guildhall






Outdoor Cinema - Inflatable screen with deckchairs outside the Guildhall



Demonstrations/protests



-  Outdoor Cinema set up and seating/Big Light Switch on stage location
-  Outdoor cinema overflow area/Big Light Switch on audience
-  Busking spots

Plan showing current area used for events outside the Guildhall

Future flexibility aspiration

Further discussions with the Market Team, BID and Cambridge Live have helped inform the future aspiration of how the space could become more flexible and adaptable to accommodate other uses including events within the Market Square.

Flexibility of fixtures - Desire for the market stalls to be able to be cleared away from 6pm to create a clear space that would lend itself to things happening such as live music or theatre or dance performance during the summer.

Performance space - Aspiration for a permanent performance area with seating that would lend itself to impromptu performances at short notice that could be advertised on social media plus a larger formally organised event requiring the space to be booked out

Programming of events - Desire for them to be more regular and space to allow for 'spontaneous events' and trial some 'pop up'.

Events organisation and funding - Events to continue to be organised by Cambridge City Council and BID but with opportunities for other to host other uses and events. Cambridge Live feel that they could add the market square to their programme and include it when they have the Big Weekend and run fringe events. The University's may also use it for their events programmes. Option for free uses and events and potentially ticketed ones. There may be opportunities for arts funding for arts events and installations.

Types of uses and events

The desire is for uses and events that cater for a range of tastes and audiences. Ideas included but are not limited to the following:

- * Arts events
- * Book Signings
- * Buskers and street performers
- * Cambridge Live Big Weekend
- * Choirs
- * Concerts
- * Eating areas
- * Family Fun Day Event
- * Homecomings
- * Interactive light projections
- * Lectures/demonstrations
- * Lights switch on
- * Live Music
- * Mass Dining
- * Night market
- * Outdoor cinema
- * Pop up events
- * Protests
- * Science Festival
- * Seating areas
- * Speakers
- * Sports Events
- * Staged events
- * Theatre performances
- * University events

Potential uses

Based on the potential uses these have been grouped into 4 themes based on the type of use:

Arts and technology uses

- * Light projections
- * Interactive arts events
- * Festival of Ideas, University of Cambridge
- * Open Cambridge
- * Hidden Nature
- * Science Festival, University of Cambridge

Seasonal entertainment event uses

- * Film nights/film festival
- * Seasonal events
- * Christmas lights
- * Sporting events
- * Big news screenings e.g. Space missions
- * Family Fun days
- * Live music
- * Concerts
- * Theatre
- * Comedy
- * Choirs

Market Stall Holder uses

- * Night markets
- * Themed markets
- * Workshops/demonstrations

Buskers

- * Street performers

Scale of uses

The type of use, combined with the scale of use, will inform the degree of flexibility required to accommodate it. To test this the uses have been grouped into three categories of scale to inform how the space can be flexible to accommodate them.

Everyday Small Scale Uses

Uses that can happen when all the market stalls are in use at anytime of day.

- * Seating and eating areas
- * Spontaneous small events such as pop up events
- * Street performers
- * Small protests

Medium Scale Uses

Uses that need a dedicated area but can operate with some or most of the market stalls in place. Involving reduced market stalls in the day or evenings. Depending on the event these could happen alongside everyday small scale uses.

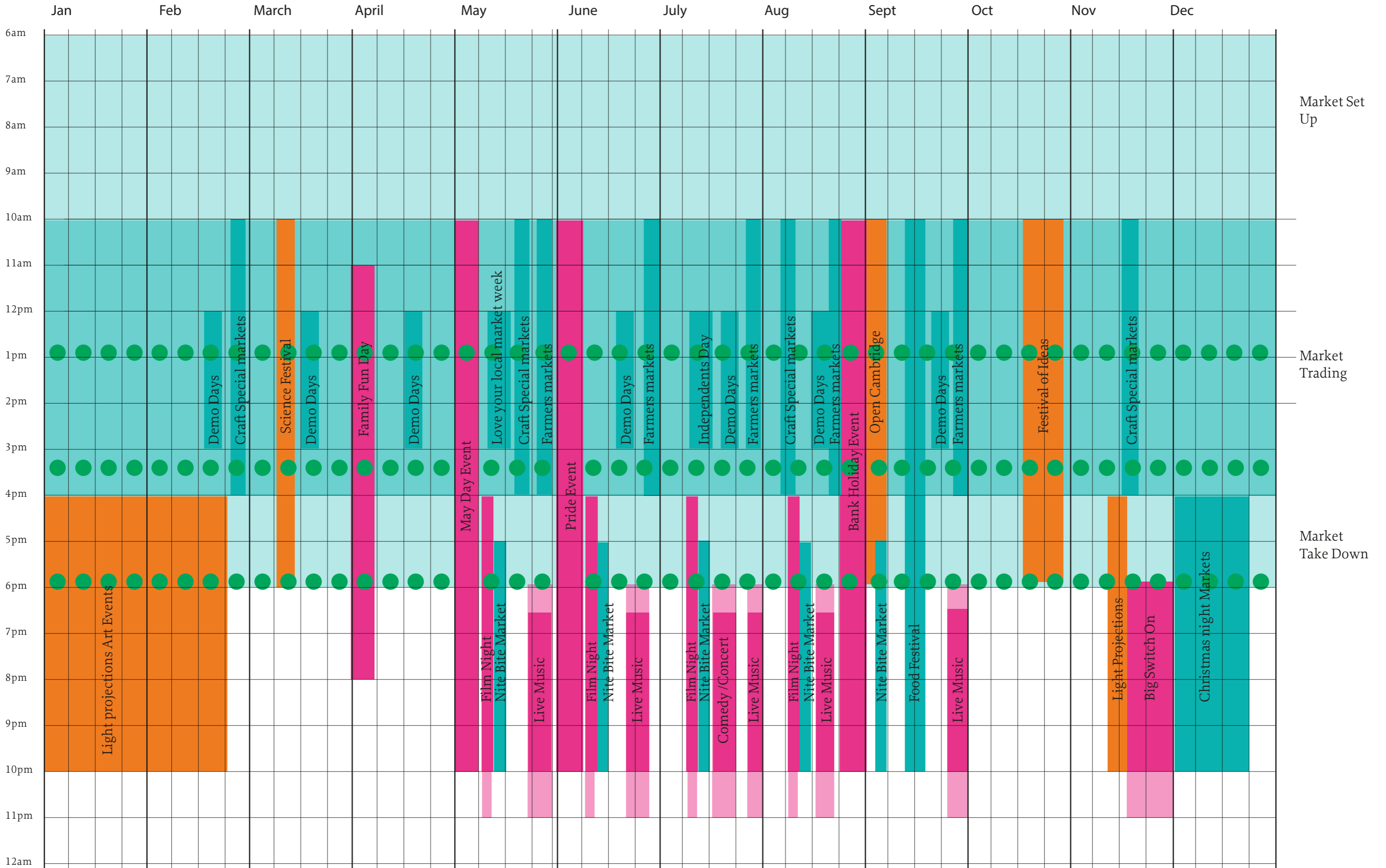
- * Book Signings
- * Speakers
- * Lectures/demonstrations
- * Small staged events
- * Medium outdoor cinema
- * Choir
- * Homecomings
- * Medium scale organised protests
- * Lights switch on
- * Mass Dining
- * Medium Sports Events
- * Family Fun Day Events
- * University events
- * Arts events/Interactive light projections

Large Scale Uses

Uses that need a large open area that would generally happen after 6pm. Reduced market stalls or all the market stalls cleared to create a larger events space.

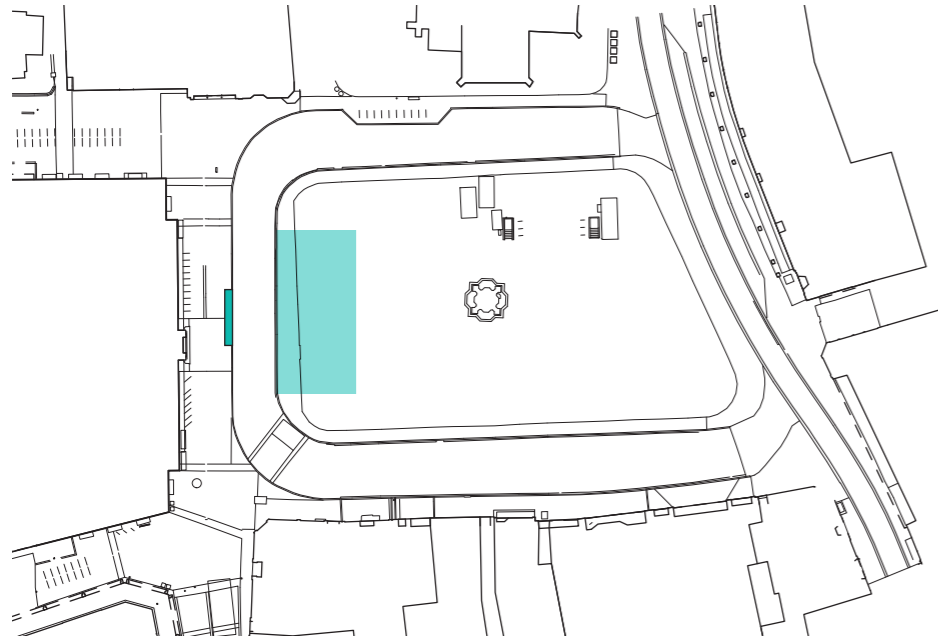
- * Large open air cinema
- * Large staged events such as concerts, live music, Cambridge Live Big Weekend, theatre performances
- * Large scale organised protests
- * Large Sporting Events

The following page displays a potential distribution of events programme through the year against daily market function and annual calendar events.



Indicative annual Market Square uses programme showing the occurrence of potential uses (colour key as per heading colours of "Potential Uses" on opposite page)

Medium Cinema Event



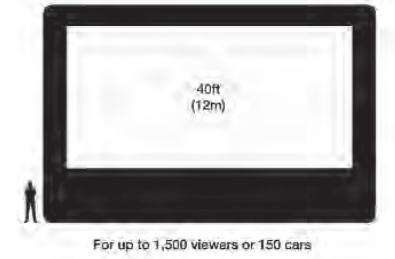
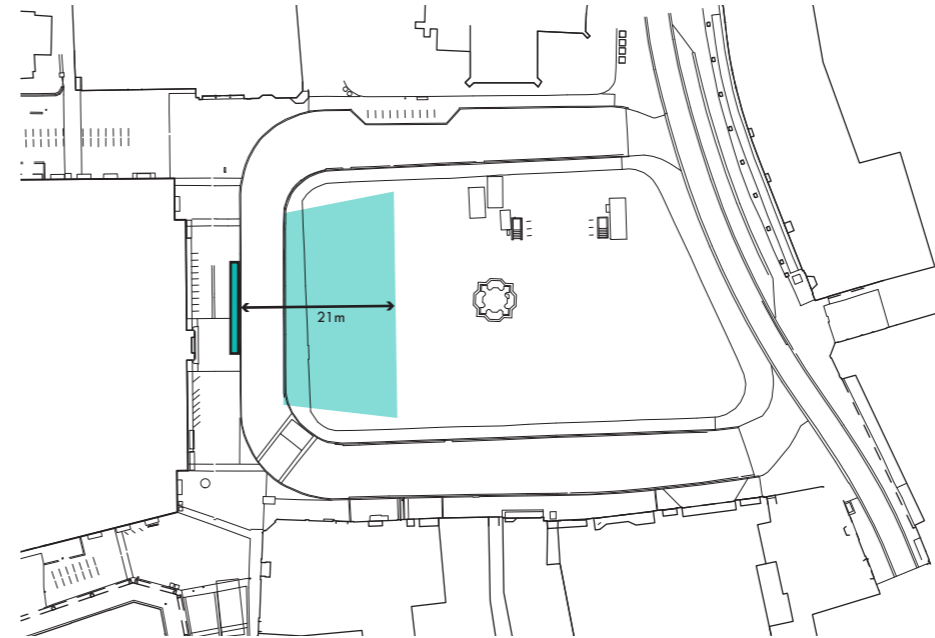
Medium cinema event layout

- * 24ft/7.32m screen
- * 5m offset/access between screen and audience
- * Back of house area behind screen

Capacity of audience seated

- * 230m² of space at 0.6m² per person (0.5m² pp plus circulation) = approx. 385 people

Large Cinema Event



Large cinema event layout

- * 40ft/12m screen
- * 21m maximum audience depth from screen
- * 5m offset/access between screen and audience
- * Back of house area behind screen

Capacity of audience seated

- * 410m² of space at 0.6m² per person (0.5m² pp plus circulation) = approx. 680 people



Outdoor cinema event using Airscreen, Royal Academy London. Using directors chairs



Outdoor cinema event using Airscreen, with deckchairs

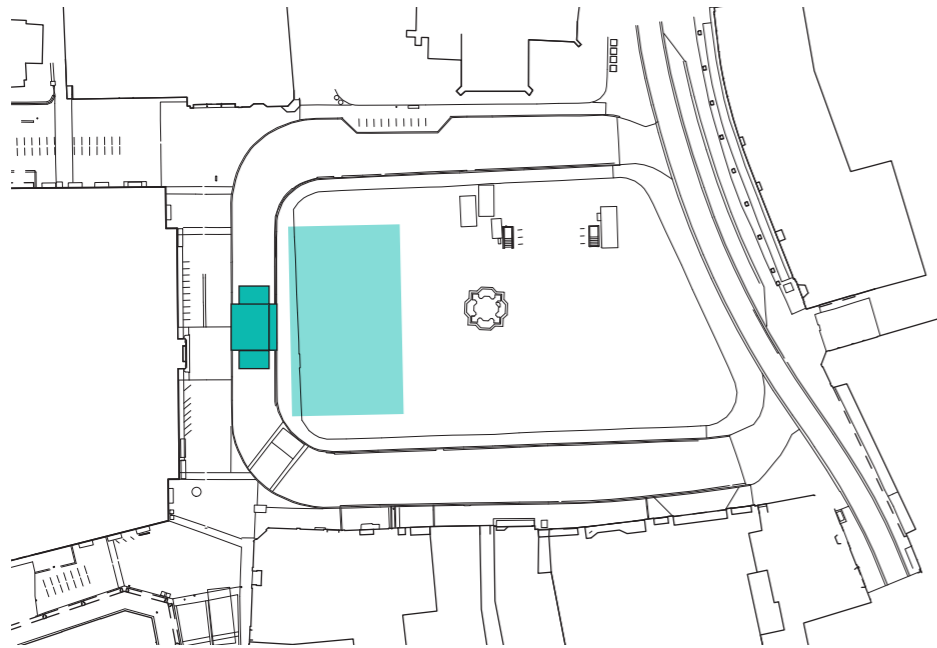


Airscreen 12m x 6m Bologna, Italy Open-air concert



Airscreen 30m x 20m St. Mark's Square, Italy Venice Film Festival

Medium staged event



SL75 stage layout

- * 2m offset between stage and audience
- * Back of house area/crossover area behind stage

Capacity of audience

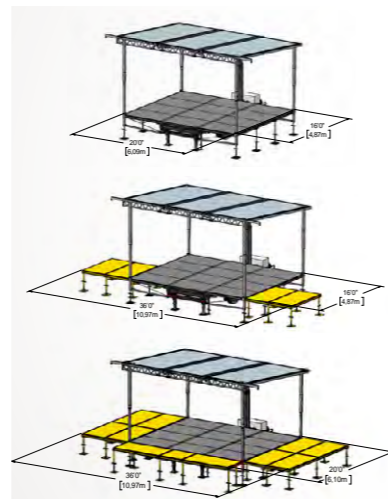
- * 350m² at 0.3m² per person = Approx. 1150 people standing
- * 350m² at 0.6m² per person = Approx. 580 people sitting
- * 350m² at 2m² per person = Approx 175 people socially distanced



SL75 20' X 16' (6.1M X 4.9M)

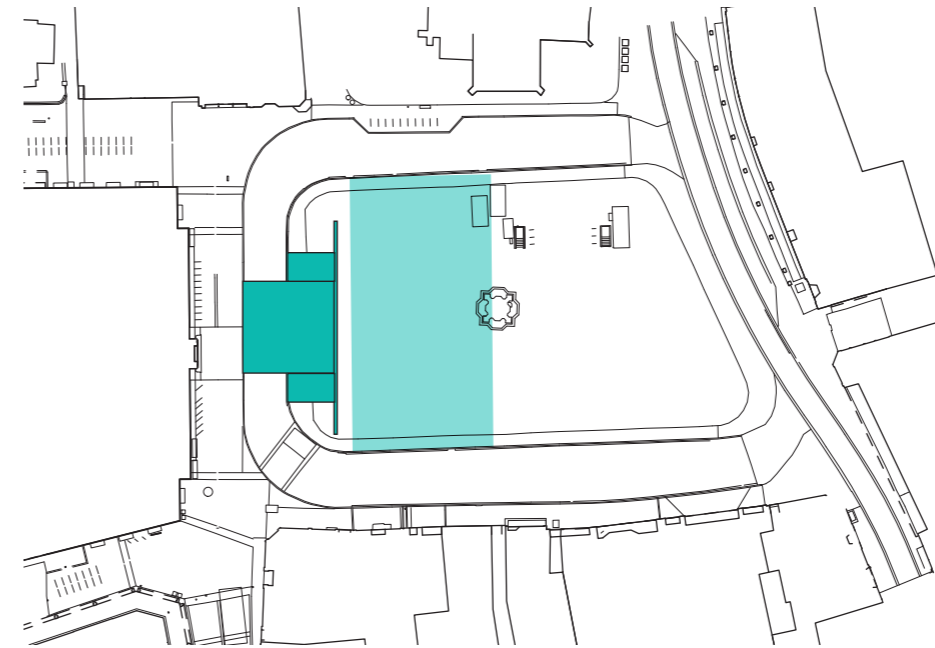


Indication of time and people required to set up SL75 stage



SL75 dimensions and options

Large staged event



SL320 stage layout

- * 21m maximum audience depth from stage
- * 2m offset between stage and audience
- * Back of house area/crossover area behind stage
- * 12x12m stage floor

Capacity of audience

- * 680m² at 0.3m² per person = Approx. 260 people standing
- * 680m² at 0.6m² per person = Approx. 1130 people sitting
- * 680m² at 2m² per person = Approx. 340 people socially distanced



SL320 40' X 40' (12.2M X 12.2M)



Indication of time and people required to set up SL320 stage



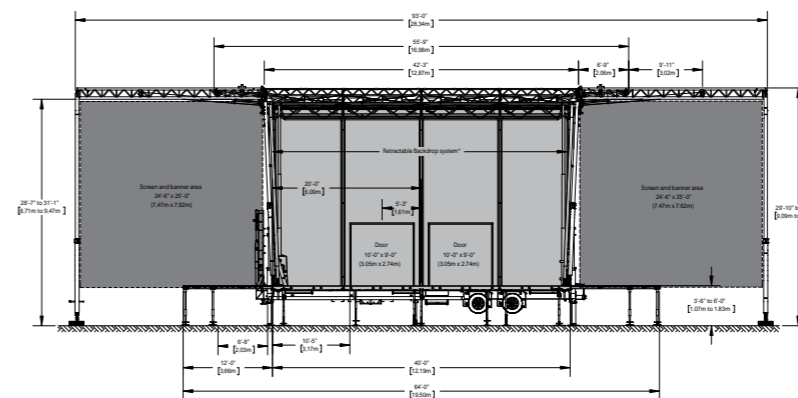
SL320 example



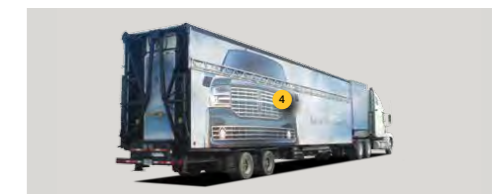
Example of a Stagemobile SL75 stage



Example of a Stagemobile SL75 stage



SL320 stage dimensions and options



SL320 stage arrives on a lorry and unfolds

Proposed Flexibility

Discussions have established the need for a space that has the flexibility to cater for everyday small uses that can be fairly spontaneous, medium scale uses that can be programmed in and happen on regular intervals as well as larger scale uses such as staged events that are booked in and require a greater degree of organisation and logistics.

The proposal layout of the Market Square create 3 permanent open spaces alongside a flexible and adaptable approach to the market stalls. This provides a range of flexibility to respond to different potential uses.

These spaces are:

1. Guildhall Forecourt (1,160m²)

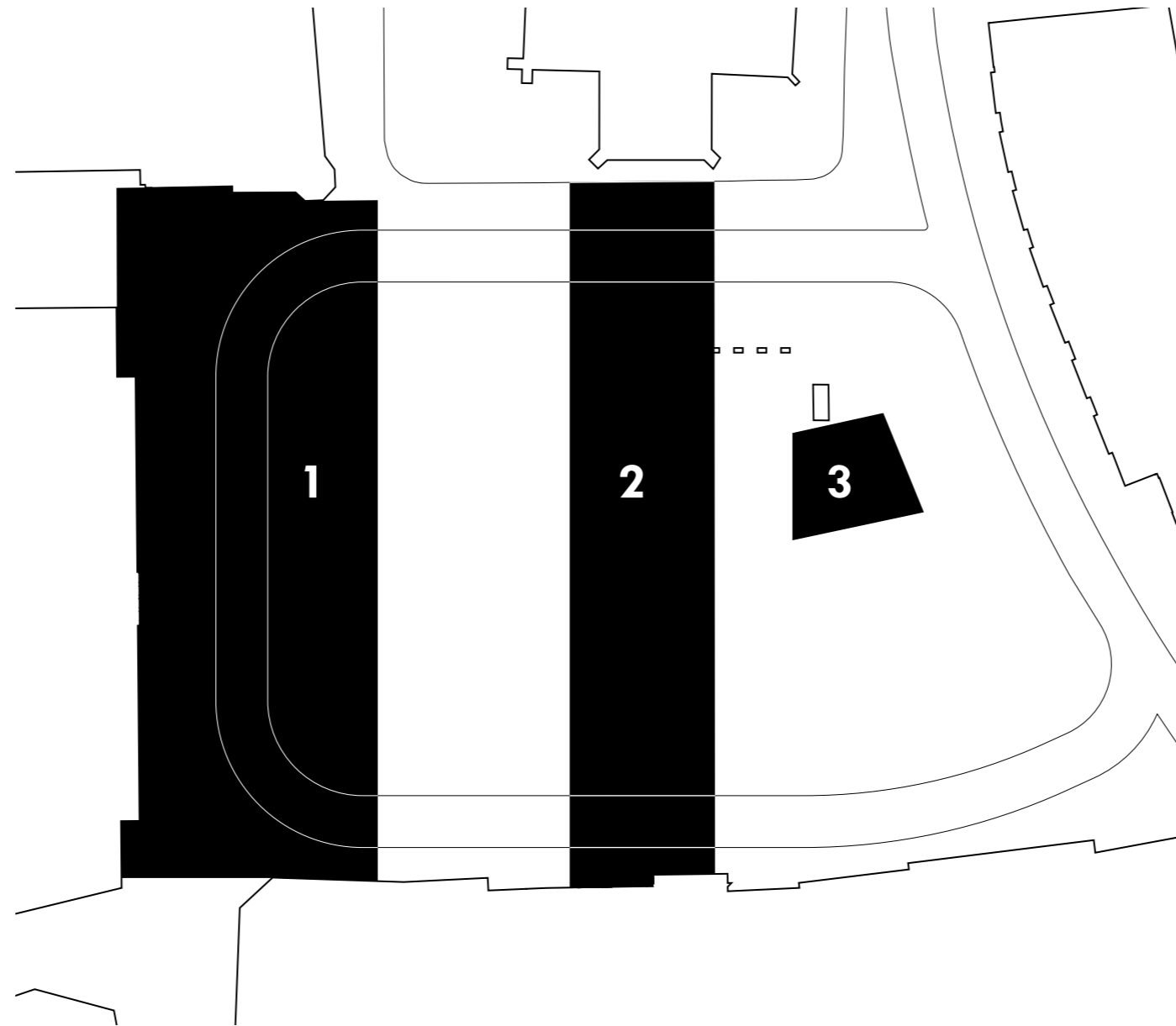
This provides for permanent spaces everyday on either side of the road that can combine to create a larger space when the road is closed. When also combined with flexible market stalls this allows for this space to meet space 2.

2. Central Seating Area (640m²)

The Central Seating Area provides space for extended dwelling time on the square with the long tables and seating where Market produce may be consumed.

3. The Meeting Place (80m²)

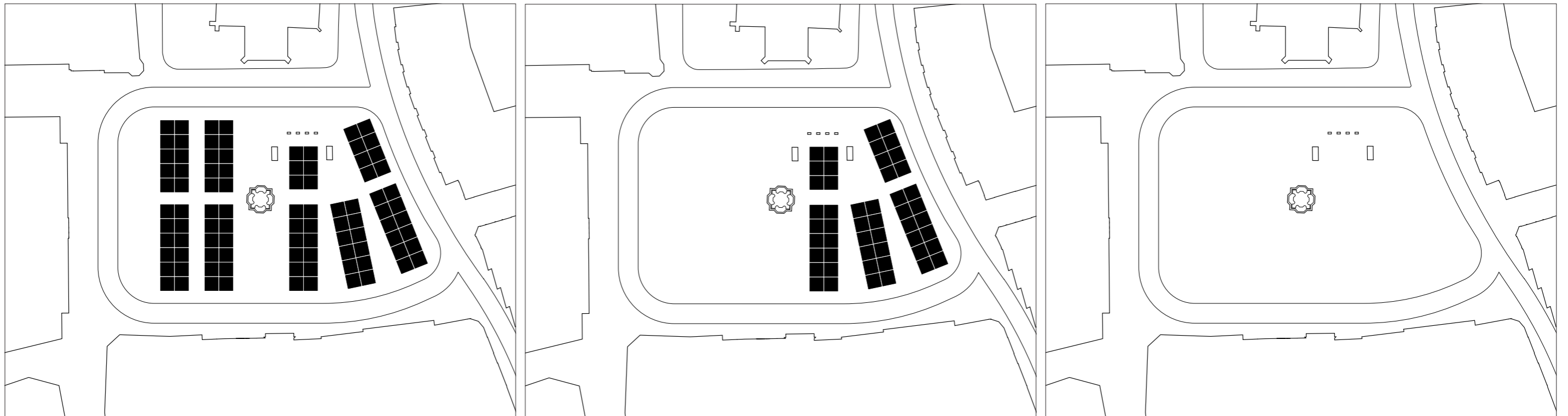
A smaller space within the market with informal seating, suitable for small everyday uses such as seating, eating and street performers.



Plan illustrating 3 permanent open spaces

When combined with the flexible market stalls approach these spaces can be combined to make larger open spaces.

The diagrams of the opposite page illustrate three scenarios that accommodate the different scale of uses:



Everyday scale uses mode

This mode accommodates all the market stalls along with the everyday smaller uses by utilising the flexibility of the 3 permanent spaces.

- * Seating and eating areas provide places to meet, eat and socialise.
- * Buskers and street performers can use the current locations or any of the 3 permanent spaces depending on the type of space they require.
- * Pop up and small events such as market demonstrations can be accommodated in front of the Guildhall, the Central Axis or northern triangle.

Medium scale uses mode

This mode accommodates a proportion of the market stalls such as on quieter market days or for an evening event. The amount of stalls cleared away would depend on both the market and other uses requirements and would need to be agreed based with both parties depending on the type of use and time of day.

- * Some uses may require very minimal alterations to the market stall layout such as book signings, speakers or demonstrations which could operate on quieter market days or with only a couple of stalls being cleared away.
- * Other uses such as small staged events, medium outdoor cinema, home comings would require a larger proportion of stall to be cleared away and are more likely to happen outside of core market hours.

Large scale uses mode

This mode accommodates uses that need a large open area that would generally happen after 6pm. Providing as much open space as possible with either a large proportion of the market stalls cleared away or all the market stalls cleared such as on sunny summer evenings or for large events.

- * This would be suitable for large staged events such as concerts and live music.

3.5 Layout

Existing Layout

Currently the market is arranged in a mixture of single and double stall rows of a north-south orientation. Some stalls are extended with makeshift canopies and umbrellas while some larger cabins have acquired more permanent positions in between the stalls. The central area between the fountain and Great St Mary's is dominated by waste disposal infrastructure and storage. The market trading grounds is defined by the extent of

the Grade II listed granite setts and is surrounded by a wide asphalt surfaced road leaving narrow pavements in the periphery.

There are currently 99 frame stalls (49 at premium locations and 50 in standard locations) covering a total area of 808m² and 2 trailers.



View of existing layout from the Guildhall

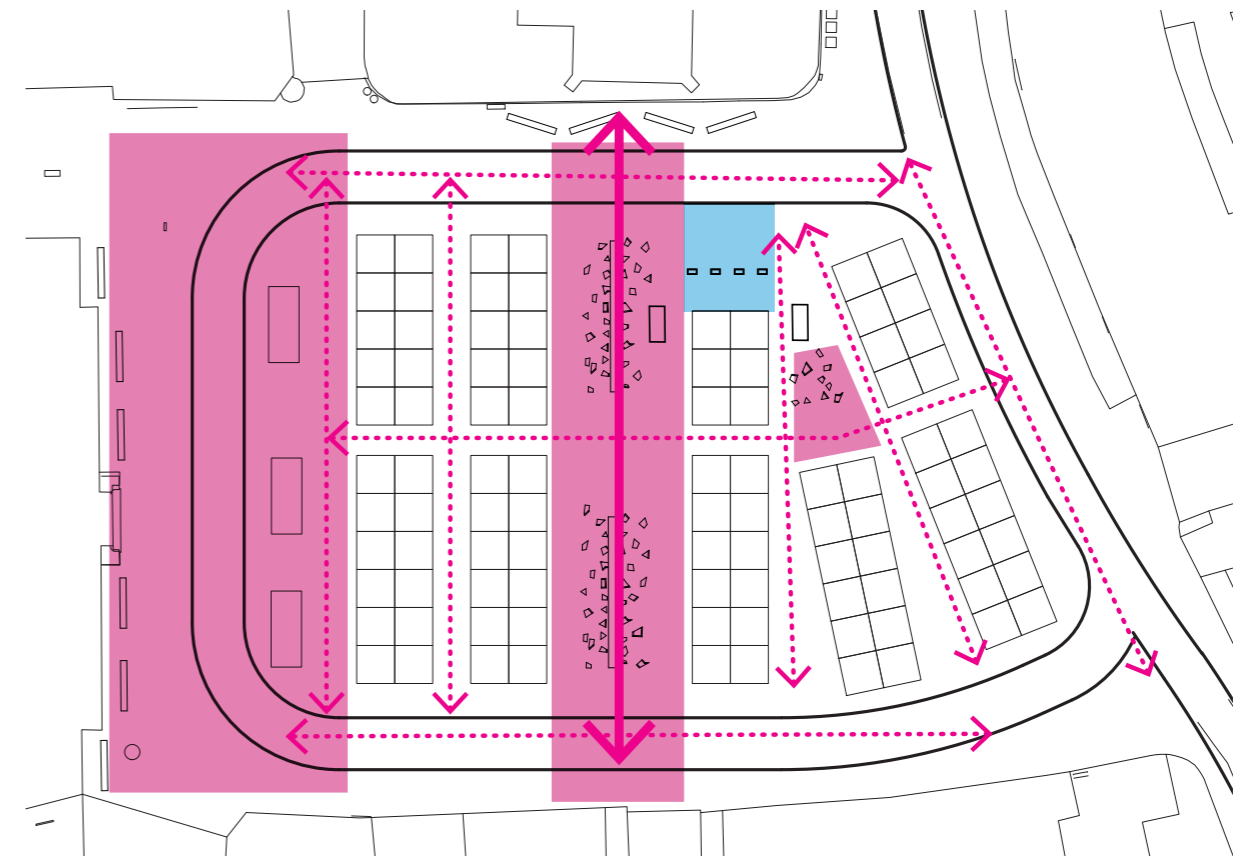
Proposed Layout

Several options of layout arrangements have been considered. While these options considered layouts with the existing stall module and road layout it quickly became apparent that the most successful arrangements were being achieved by a narrower road width and a more consistent stall dimensioned at the modern standard of 3m x 3m.

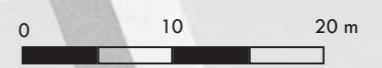
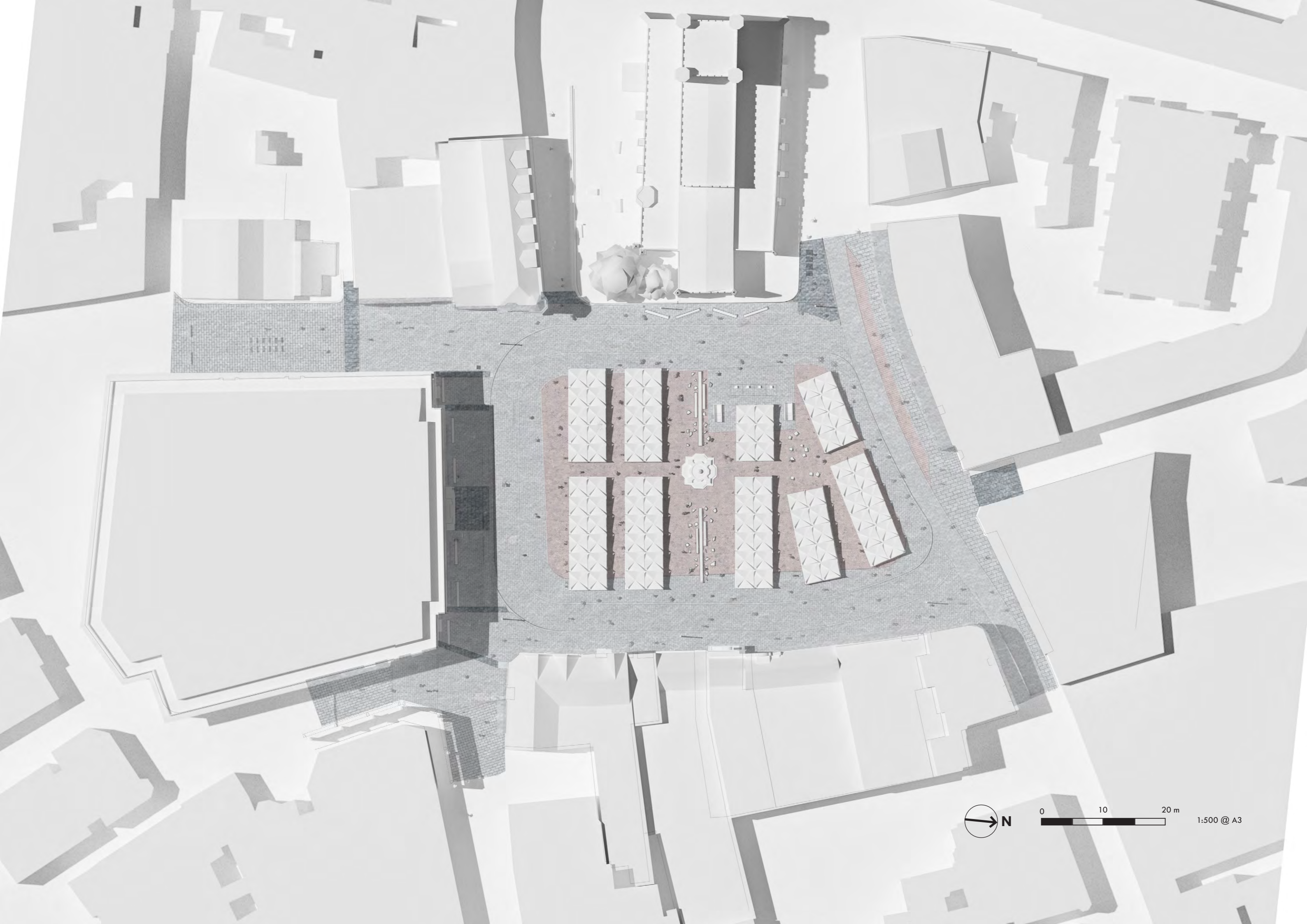
The defining characteristic of the preferred option is the east-west stall row orientation. This new alignment answers better to the pedestrian circulation patterns of the city centre, the prevalent wind direction (see “3.3 Design Strategy”) and creates shorter corridors with more entrances into the market that is more conducive to set-up and take-down processes for the traders.

The most important achievement of the layout is the opening up of the central corridor pivoting on the fountain and focusing on Great St Mary's re-introducing the church to the square. This space is reserved for seating and extended dwelling time on the square. A larger opening is also created in front of the Guildhall as a type of forecourt allowing for a more generous pedestrian environment at the head of the square, offering more prominence to the building and creating an apron space at the edge of the market for trader vehicles during set-up and take-down of their stalls. The enlargement of the open space in front of the Guildhall also offers the opportunity for smaller events to take place without disturbing the market operation.

In the proposed layout there are 92 stalls (48 at premium locations and 44 in standard locations) covering a total area of 828m².



Plan illustrating proposed layout



1:500 @ A3

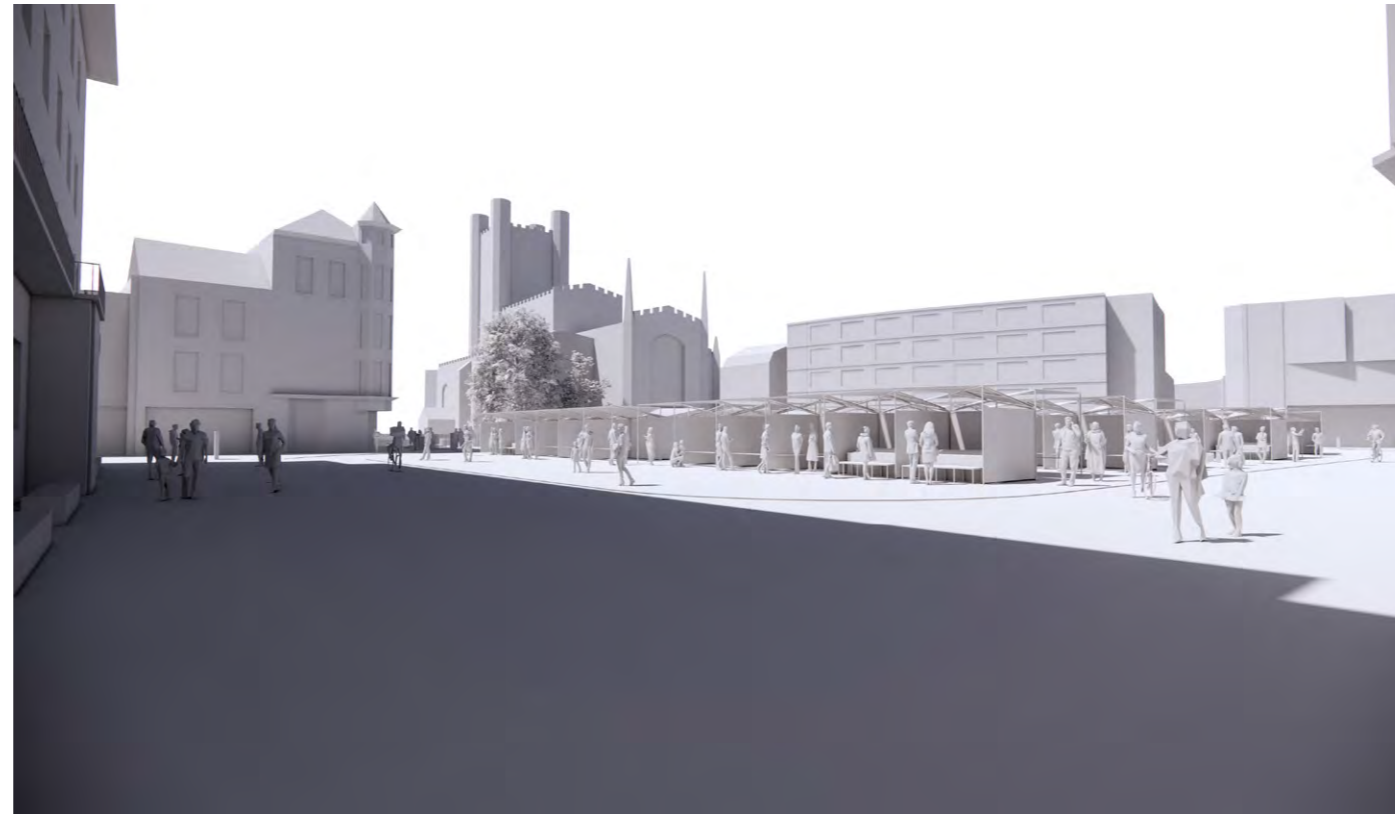


View of the central seating area with Gt St Mary's in the background

The removal of all of the waste collection infrastructure (bins, compactors and containers) allows for Great St Mary's to step back into the market. For the first time in many years the Boer War Memorial on the church's chancel will be visible again not just from the fountain but from the diametrically opposite side of Market Hill. The opening will create a heritage corridor that links the 2 Grade I listed buildings on the square, the church and No 5 Market Hill, with the Grade II listed fountain at the midpoint. Two long tables will sit on either side of the fountain open to public use as a place to consume food and drinks purchased on the market as well as places to rest, work and socialise at the very heart of the city. Conceptually the tables are public interpretations of the long dining tables found in college dining halls.



View of the central seating area looking towards No. 5 Market Hill



View of the new enlarged forecourt of the Guildhall

A new extended forecourt for the Guildhall is established not only by narrowing the road between the building and the square and moving the first line of stalls further away but crucially by connecting the sidewalk and road surface and lowering the kerb thresholds.



View of the north-south connecting corridor towards the Guildhall

A secondary network of passages is created between the market stalls with a main central axis running from Market Street to the Guildhall via the fountain. The main attempt of the layout is to make the navigation of the market intelligible through consistent and simplified articulation of the stall arrangements.

4.0 Surfacing

4.1 Existing surfacing

The existing surface materials consist of a mix of different surfaces. They lack consistency and quality.

Setts

Historic setts are located in the central area of the Market Square. This area of setts are Grade 2 listed. The setts along St Marys Street and the junctions of Market Hill were laid at a later date. The setts are an important heritage feature and contribute to the character of the market but are not accessible to everyone due their unevenness.



Yorkstone flags

Yorkstone flags are located in several locations on the streets that connect to the Market Square such as Rose Crescent, St Mary's Passage and to the north-east of Great St Mary's along St Mary's Street. There are also bands of yorkstone flag paving around the Guildhall that relate to the Guildhall features such as the entrance, corners and facade details.



Block paving

St Mary's Street carriageway is laid in a herringbone pattern of block paving. This continues along the length of the street. The adjacent pavement to the south of St Marys Street is also an area of block paving.



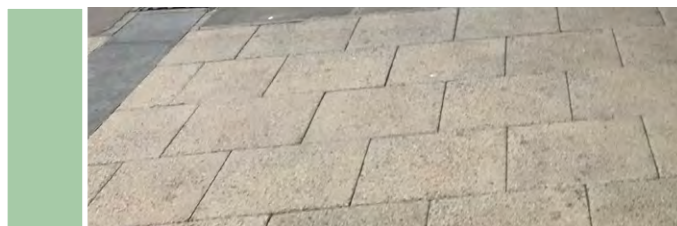
Mixed block and concrete paving

The pavements on the eastern and western edges are a mix of block and concrete paving, generally concrete paving in the centre and block paving at the edges. The contrast of paving material, size and colour creates an inconsistent cluttered appearance.



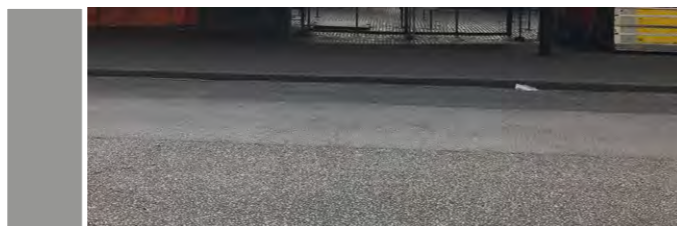
Concrete flag paving

A large percentage of the paving around the Guildhall and north of St Marys Street is concrete flag paving.



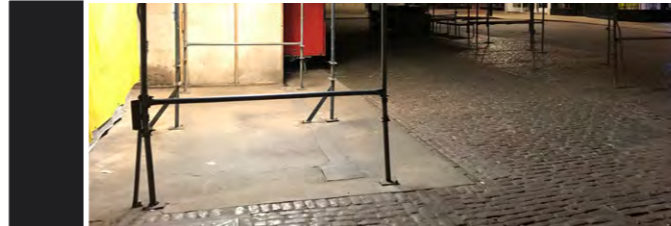
Asphalt

Market Hill is surfaced in asphalt which visually separates the central area of the market from the outer area. An area above the underground toilet block is also surfaced in asphalt.



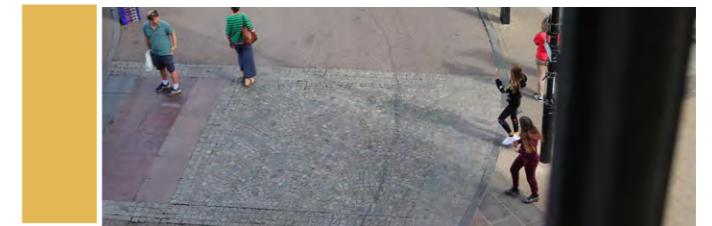
Concrete

Areas within the central historic setts have been replaced or poured over with concrete. This includes the area under the fishmongers stall and an area under the waste compactors.



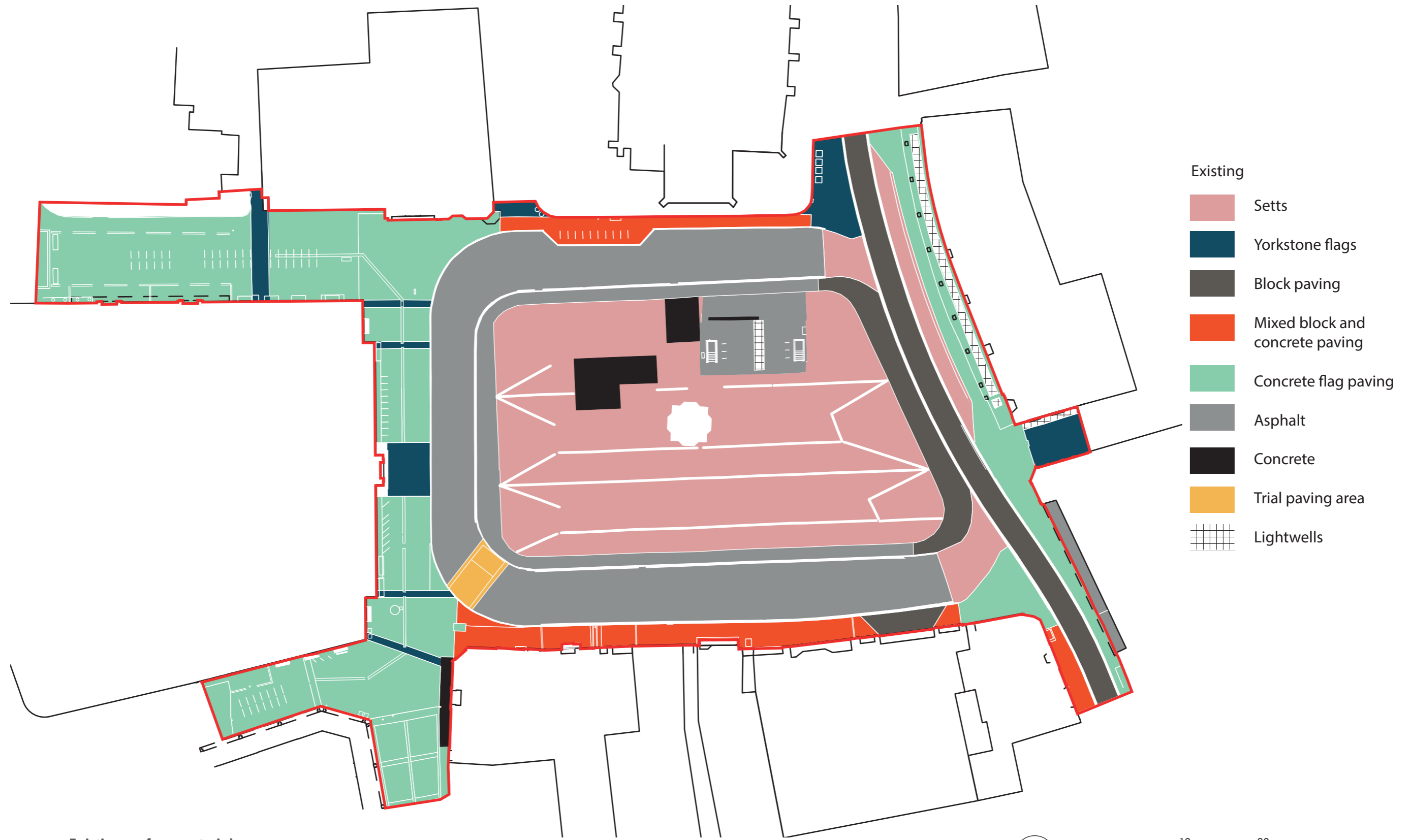
Trail paving area

There is an area of paving in the southeast of Market Hill connecting to Petty Curry that has been used for paving trials.

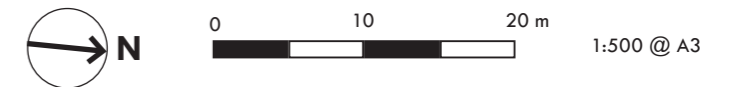


Lightwells

Are found associated with buildings that front onto the market square and one above the underground toilets.



Existing surface materials



4.2 Existing Setts

The existing setts consist of several different sizes and laying patterns. The setts appear to be Mount Sorrel granite, also known as Leicester pinks, which would have come from Leicester from the Mount Sorrell quarry transported on the midlands train line. This is to be confirmed with further on site investigations at the next stage.

The central area of setts located under the market stalls date back to c1850 and have been Grade 2 listed. This means listed building consent is required for any works to the setts.

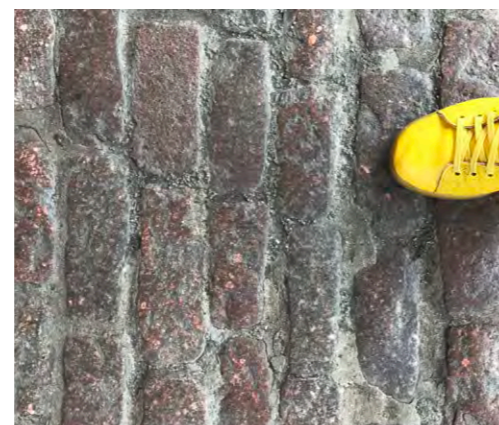
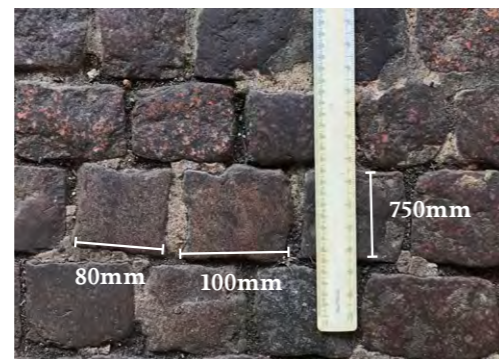
The setts in the two access junctions and the lay by to the north of St Marys Street were laid later as part of the redesign of the central triangle and do not form part of the listed setts.

The existing surface of the setts are uneven and causes accessibility issues, some areas of setts are missing or damaged and may present safety issues.

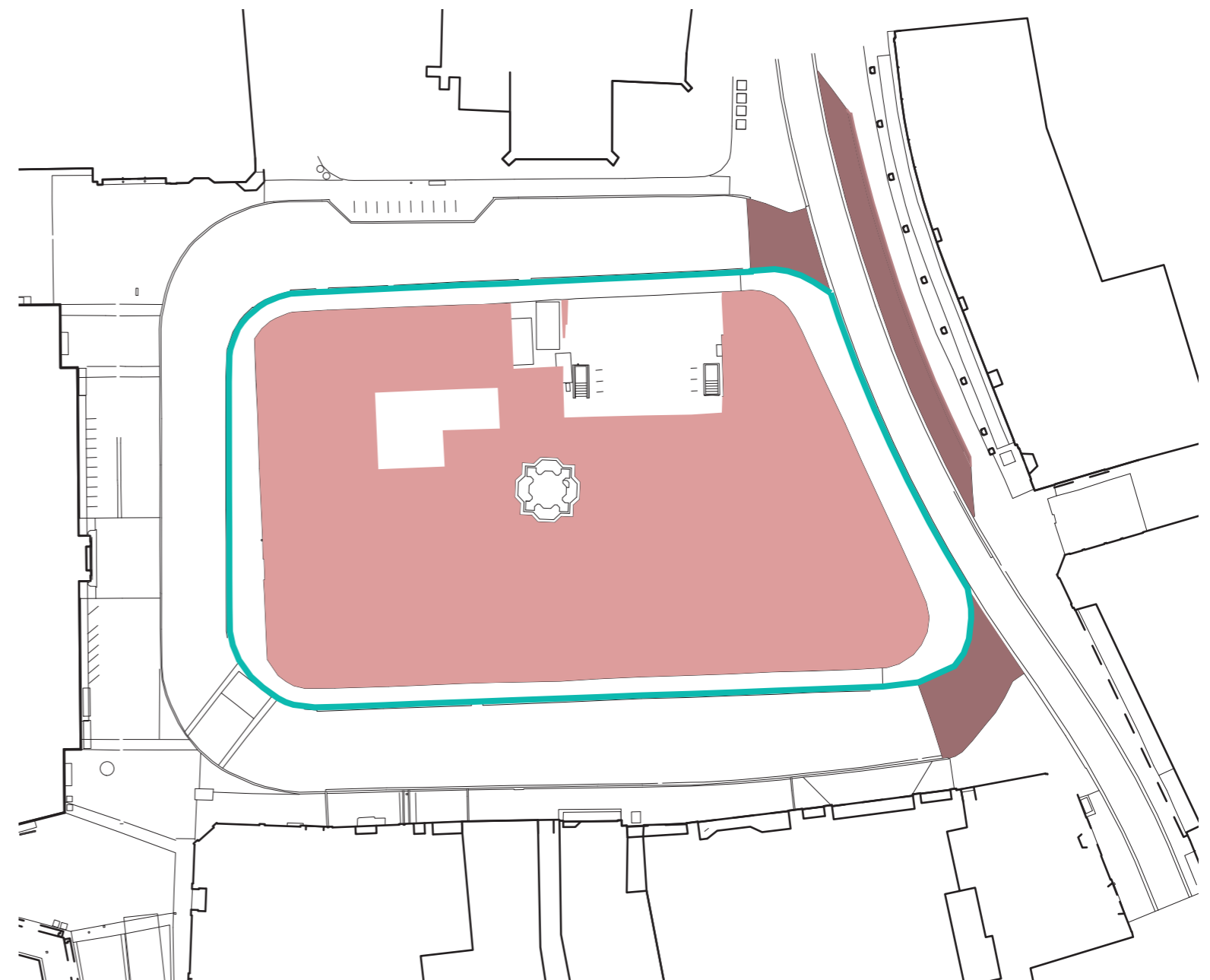
Some areas of the historic setts are no longer visible where they have been covered or removed and replaced with areas of asphalt or concrete.

The council is undertaking a survey of the setts (extent of scope to be confirmed). An accurate record of the locations of the different sizes, laying patterns, edge demarcations, drainage channel details, condition of the setts, areas of infill/repair and the type of bedding and mortar used is a crucial record to inform the next stage proposals.

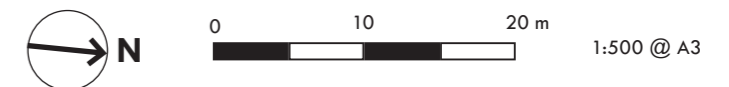
- Existing historic setts within central market area
- Area shown on Historic England listing
- Existing setts laid at a later date



Photos of existing setts



Areas of existing setts and extent of listed area



In the absence of a comprehensive survey an analysis of the existing setts was undertaken to understand the current surface materials and inform the design proposals. It provides a record of the analysis undertaken from various site visits and site photos.

The arrangement of setts and how they are laid create many different laying pattern details across the market square.

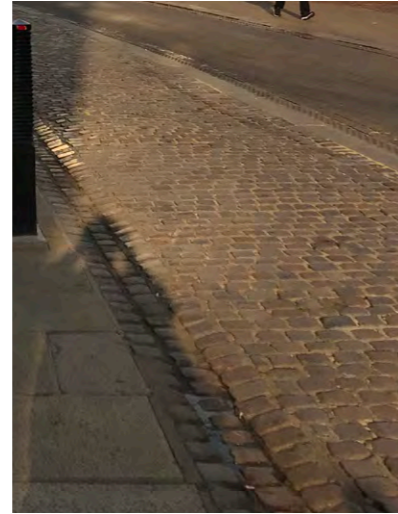
These have been grouped into:

- * Channel drainage details - which generally consist of rows or 3,4 or 5 setts laid in a dished profile to enable surface water to run along them to the gullies.
- * Laying bond pattern - generally staggered bond laying pattern for square or rectangular setts with some limited use of stack bonded for square setts, this appears to be in areas that have been poorly repaired or infilled.
- * Edge details - generally a line of setts orientated against the laying pattern to create a linear edge, one instance of rows of rectangular setts on end which appears next to where concrete has been used to replace an areas of setts .
- * Dividing details - Rectangular setts used to divide areas of square setts, rectangular sett rotated dividing rectangular setts, rectangular sett rotated dividing rectangular and square setts, band of 4 rectangular or square setts and bands of 3 square setts.

Next Steps

- * Confirm scope and time scales or setts survey.
- * Further analysis of the existing jointing mortars (both make-up and depth) where present, would inform that to be used.

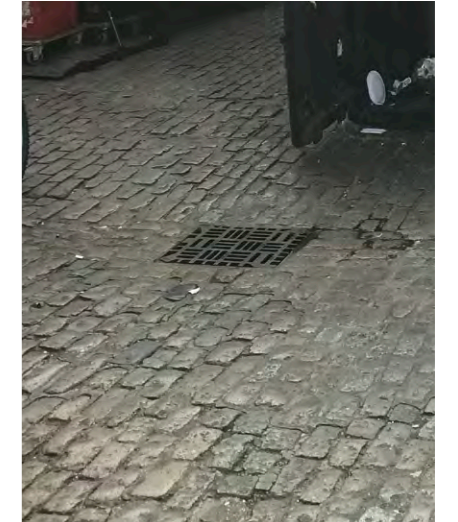
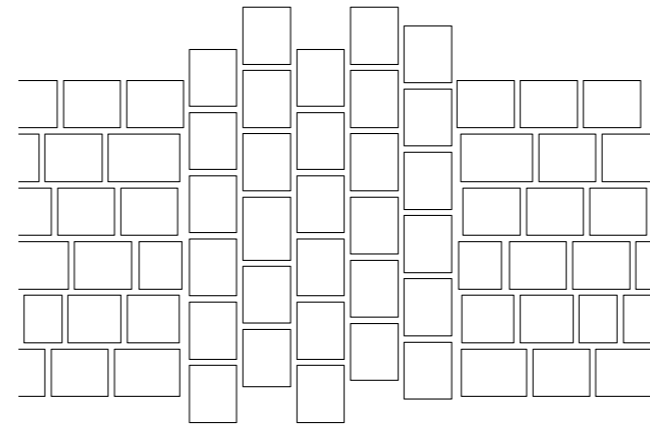
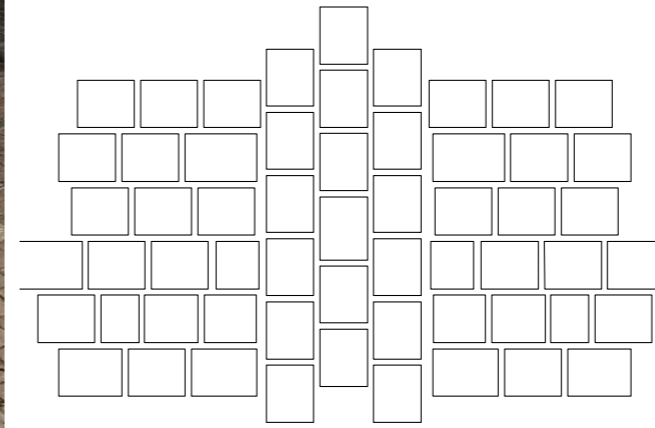
Drainage details



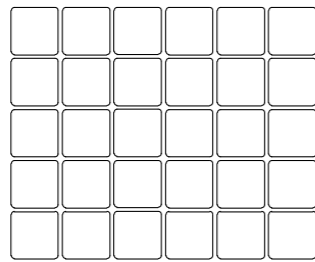
Dished row of 3 setts



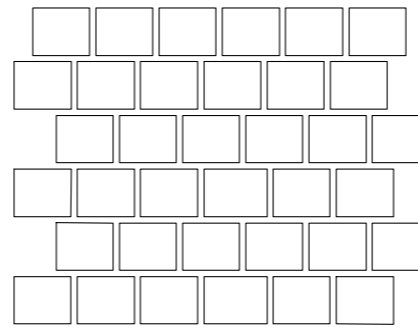
Dished row of 5 setts



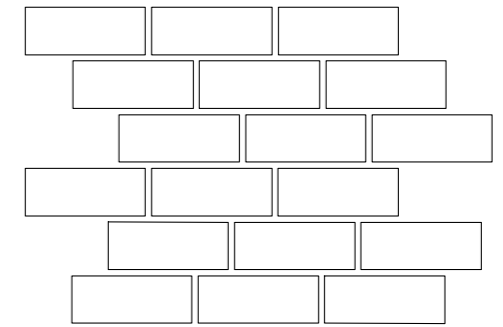
Laying pattern



Stack bond (Square setts) limited use

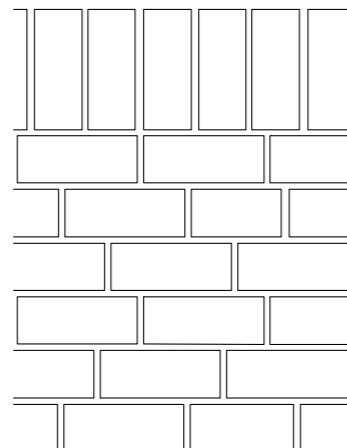


Staggered bond (square setts)

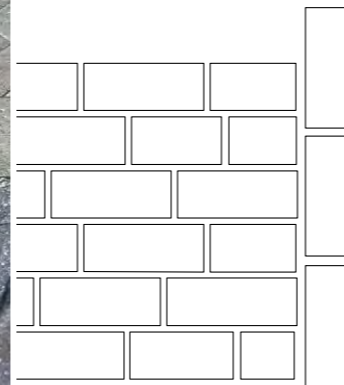


Staggered bond (rectangular setts)

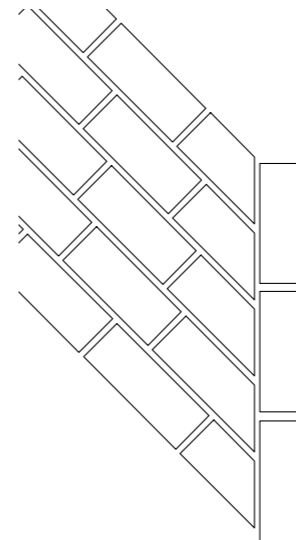
Edge details



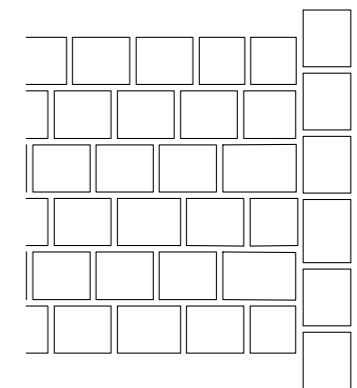
Rotated rectangular setts



Rotated rectangular setts

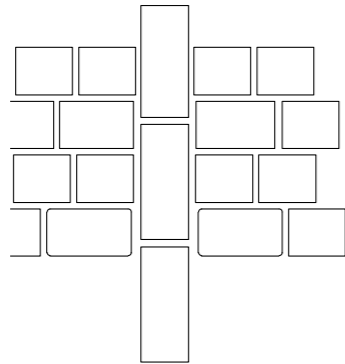


Alternate rows of rectangular setts are started with cubes or half setts

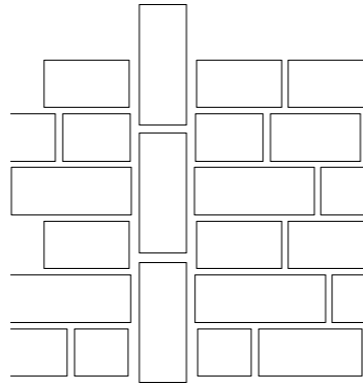


Square setts

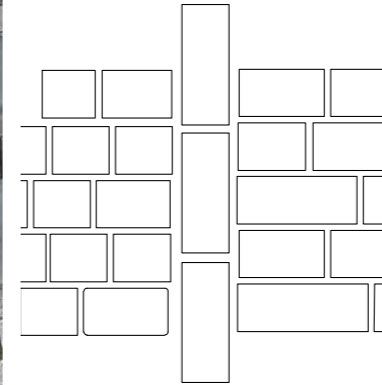
Dividing details



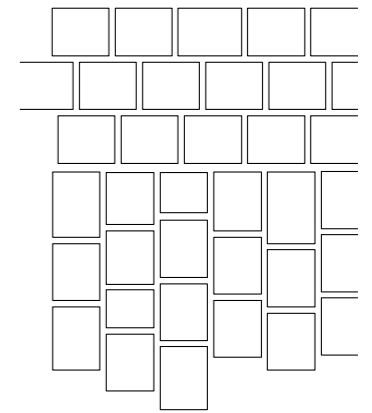
Rectangular sett within square setts



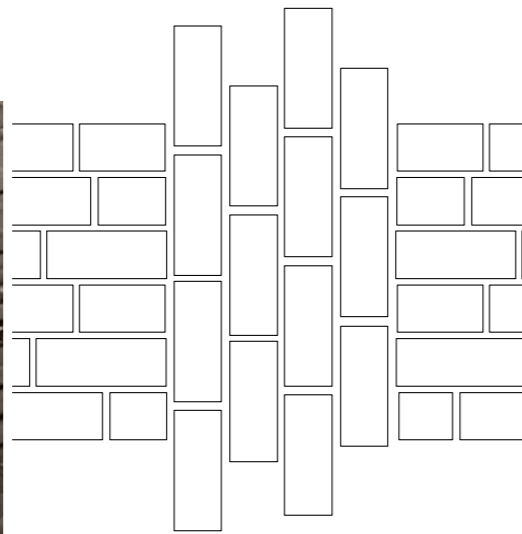
Rectangular sett rotated dividing rectangular setts



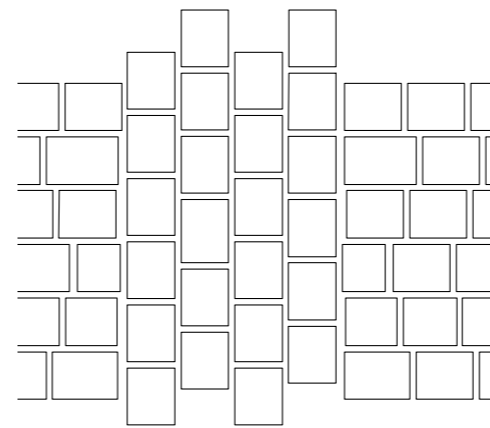
Rectangular sett rotated dividing rectangular and square setts



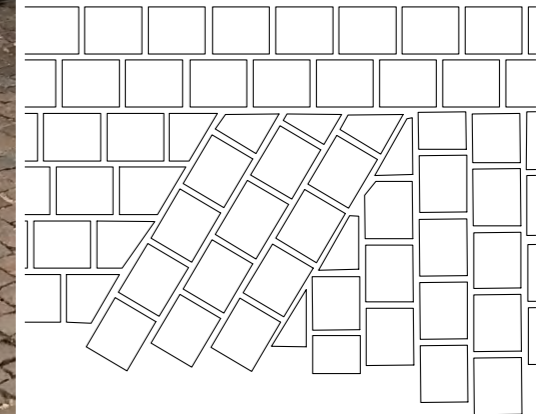
No divide, change of direction of square setts



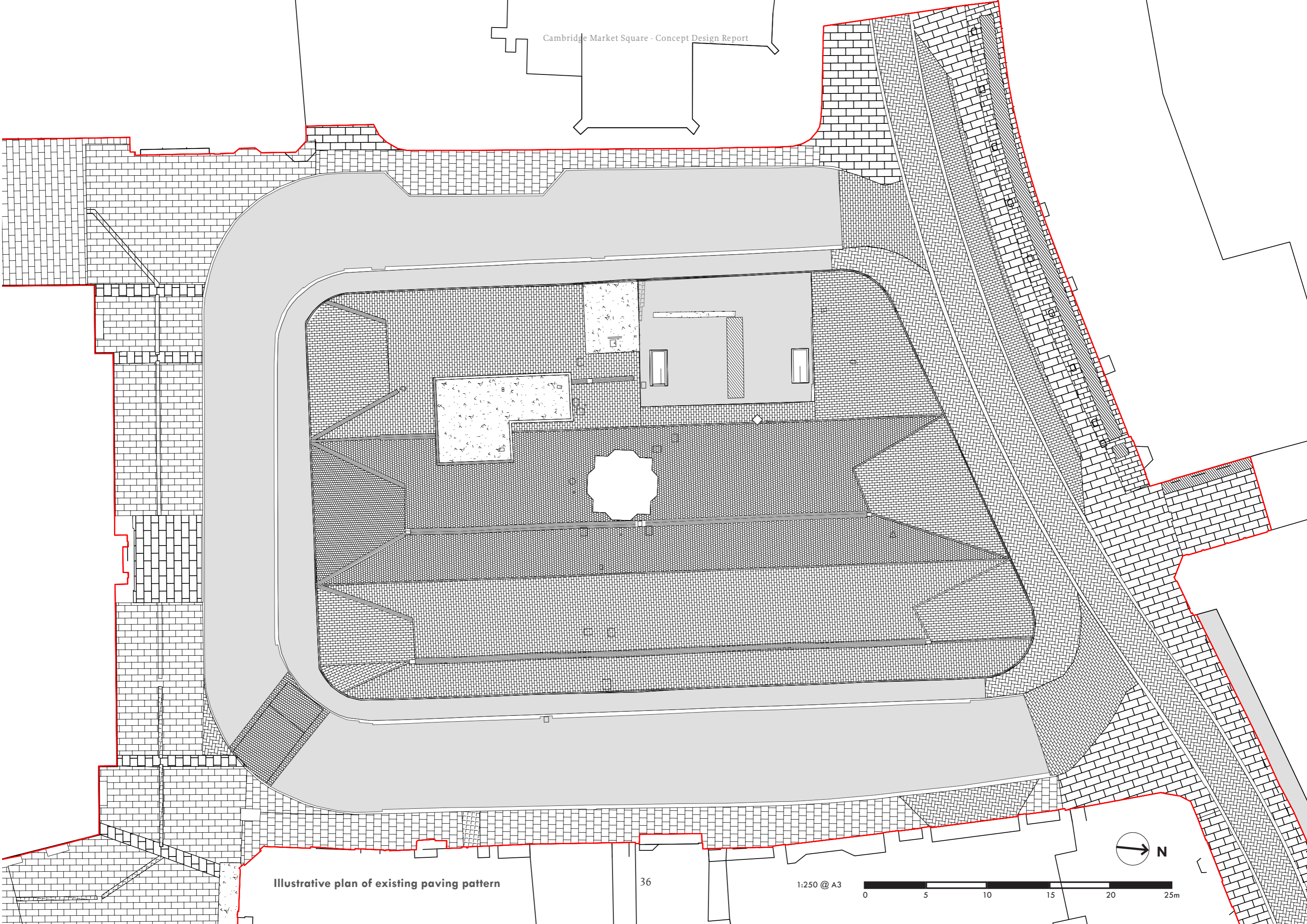
Band of 4 rectangular setts



Band of 4 square setts



Band of 3 square setts



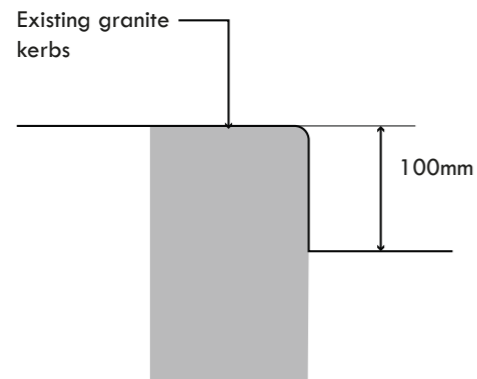
Illustrative plan of existing paving pattern



Existing pedestrian accessibility

There are several factors contributing to the existing pedestrian accessibility issues:

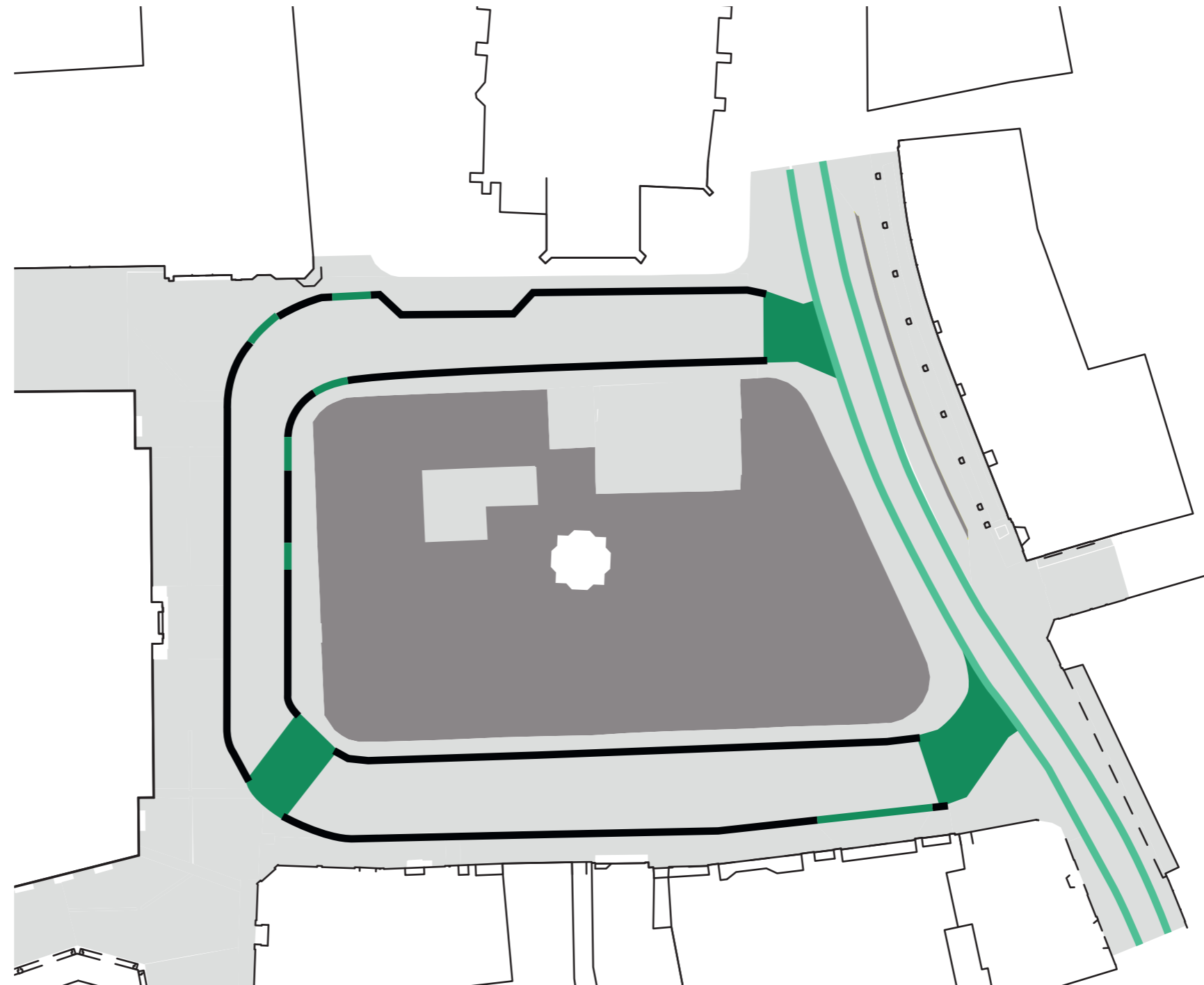
- * The uneven surface of existing pavements
- * The uneven surface of the historic existing setts in the centre of the market are extremely difficult for self-propelled wheelchair users.
- * The dished drainage channels causes accessibility issues and barriers to wheelchair users crossing spaces.
- * Existing level changes and kerb heights provide limited pedestrian priority.
- * Raised tables on St Marys Street/Market Hill junctions and flush kerbs along St Mary Street provides pedestrian permeability to the north compared to limited opportunities to the south by Guildhall.








Existing kerb profile



Existing kerbs



-  Raised Table
-  Flush kerbs
-  Dropped kerbs
-  100mm kerbs
-  Uneven setts and dished drainage channels

Existing kerbs and pedestrian accessibility



1:500 @ A3

4.3 Proposed Surfacing

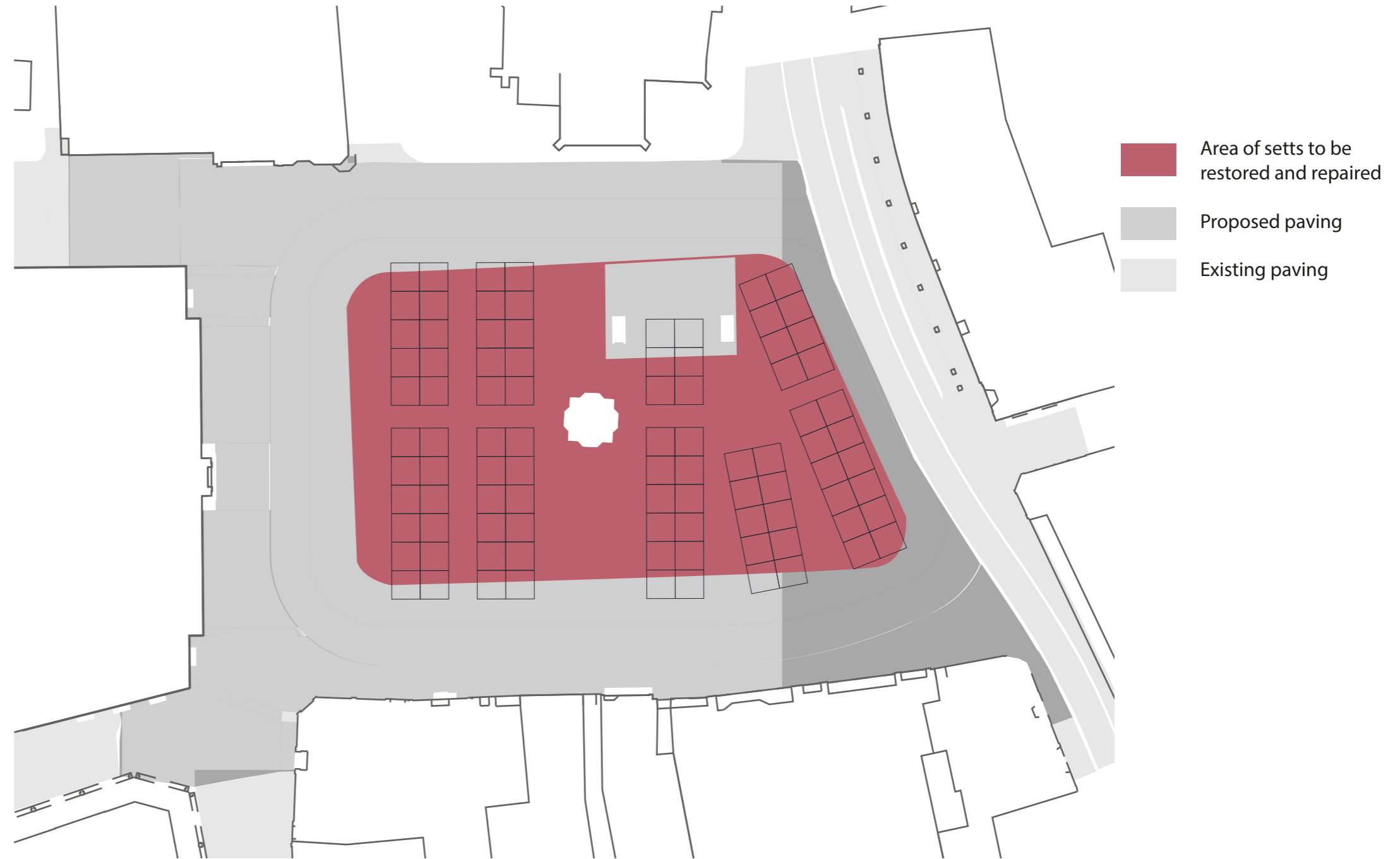
The proposed surfacing is based on the idea of a central historic carpet laid over a new unified floorscape.

The proposals are underpinned by:

- * The aim to retain tradition but meet modern requirements;
- * The aspiration of the scheme as a world class cultural square and thriving English market;
- * The local attributes of the place as a historic square;
- * An understanding of local colour tone and the elements of existing paving which will be retained;
- * The users as predominately pedestrians but with the requirement for vehicle loading.

The proposals

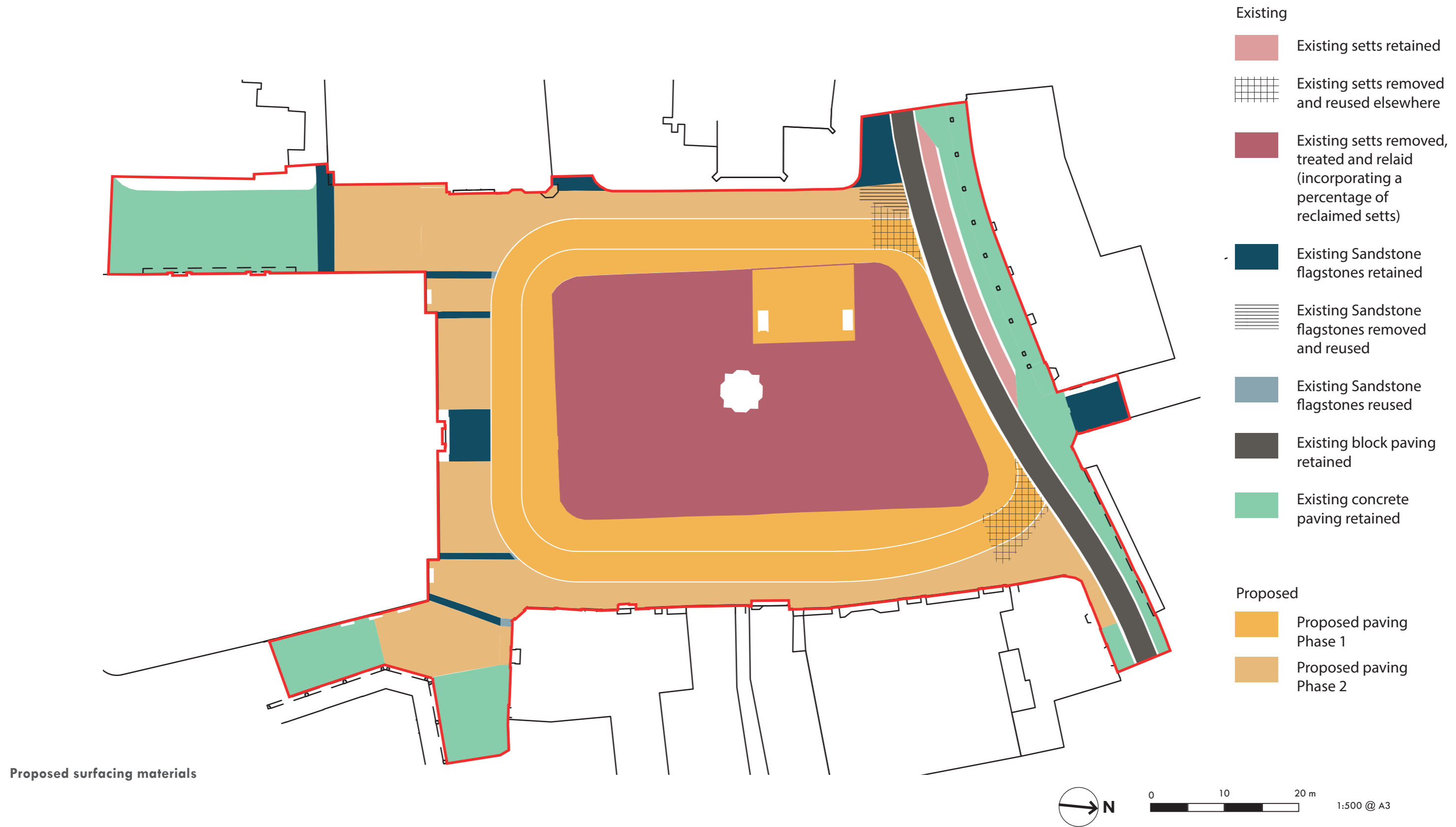
- * Restore and repair the existing historic setts whilst meeting modern accessibility requirements to comply with the Equality Act Duty;
- * Reinstating setts where they have been replaced by concrete under the fishmongers and compactors;
- * A strategy to reusing setts and sourcing reclaimed setts to meet any shortfall;
- * Removing the concrete, asphalt and lightwell surfacing above the underground toilet block and replacing with proposed granite paving to match the surrounding proposed paving;
- * Retain the majority of the existing high quality Yorkstone paving with some alterations to the north east of St Mary's Church removing an area and reusing it outside the Guildhall to allow the existing areas to meet the new road edge;
- * Retain the existing surfacing along St Marys Street. The proposed paving starts to the south of this street as any works to St Marys Street would require the whole of the street to be resurfaced, not just a small section adjacent to the market.
- * Improved pedestrian accessibility with reduced kerb heights.
- * A consistent and continuous approach to the surrounding paving with a phased approach.



Proposed surfacing concept



1:500 @ A3



Strategy for reusing/reclaimed setts

The existing setts will require works to meet modern accessibility requirements. The method to achieve this is to be confirmed after consultation with Historic England and industry technical experts.

The method is likely to involve taking up some or all of the setts to restore and repair them. This may result in some setts being damaged or unusable and needing replacing. This along with reinstating setts where they have been replaced by concrete under the fishmongers and compactors will mean extra setts will be required.

The approach to this is two fold:

- * To take up and reuse the area of setts by the Market Hill junction areas. These setts were laid at a later date so should be used together and not intermixed with the older setts.
- * Source reclaimed setts of the same type to make up the shortfall.

Setts required (approx. areas)

Existing sett area to be repaired/ restored	1481m ²
Reinstating fishmonger and compactor areas	80m ²
Total area of setts required	1562m²

Reusing existing setts (approx. areas)

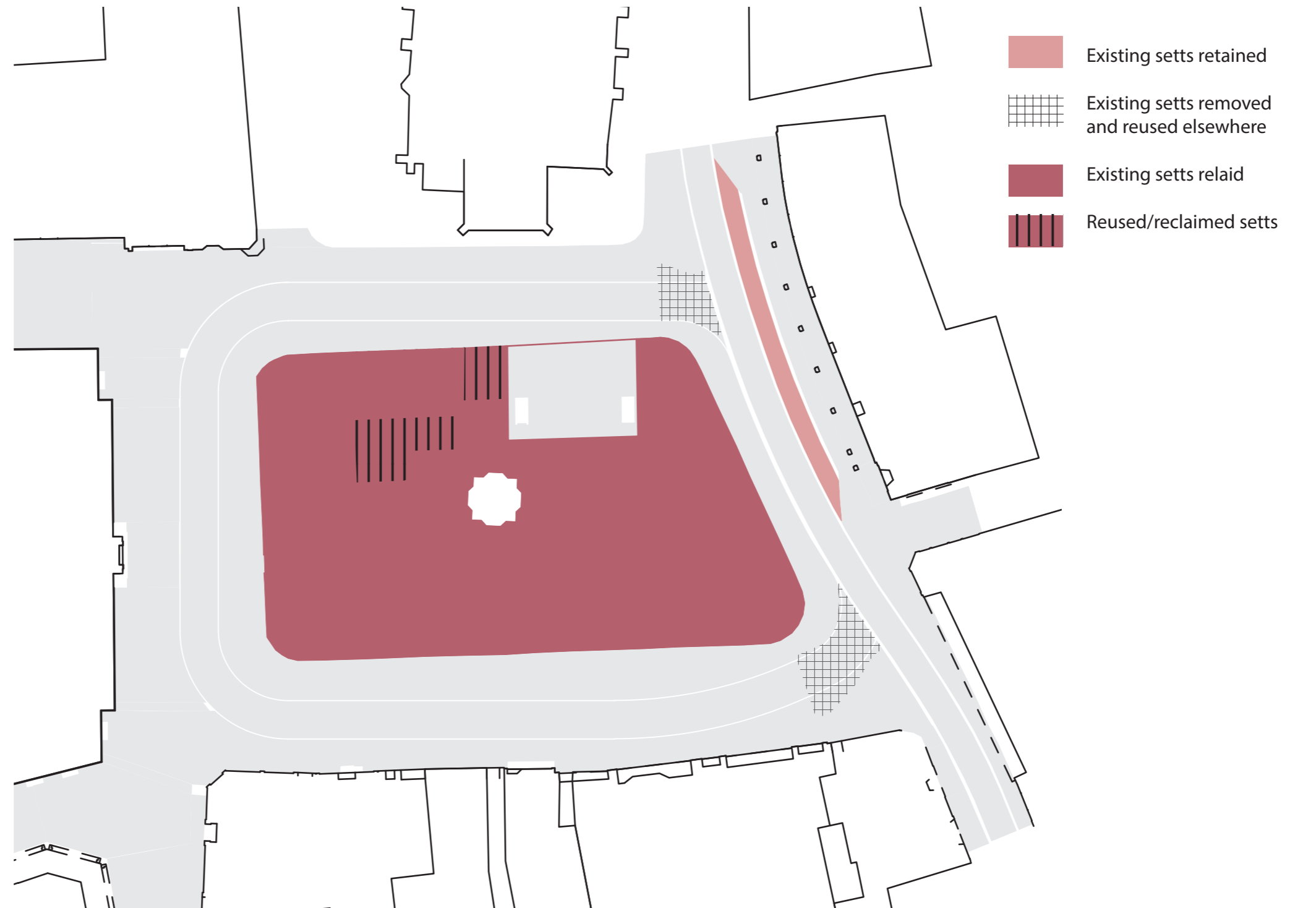
Reusing existing setts (based on 80% utilisation)	1185m ²
Reusing Market Hill junction areas	92m ²
Total setts to be reused	1277m²

Reclaimed setts required (approx. areas)

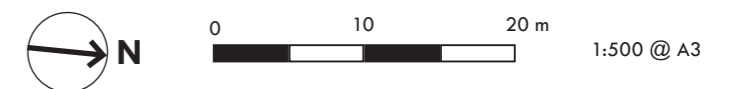
Potential additional reclaimed setts	285m ²
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Pattern

The pattern of the existing setts will be retained and restored with some modifications to levels, drainage falls and drainage channel depths to ensure appropriate drainage and accessibility requirements can be met.



Strategy for reusing/reclaiming setts



Proposed pedestrian accessibility

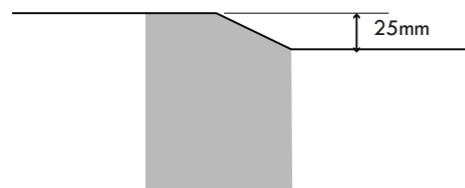
To provide a more accessible and inclusive pedestrian prioritised space the proposals look to address the accessibility issues and comply with the Equalities Act by:

- * Replacing the uneven existing pavements;
- * Improving the surface of the existing historic setts;
- * Reducing the depth of the dished drainage channels within the central market area;
- * Reduce the amount of space for vehicles by reducing the carriageway width;
- * Bringing the carriageway height up to reduce the kerb height to 25mm;
- * Incorporate colour contrast to carriageway edges with the use of a contrasting kerb colour.

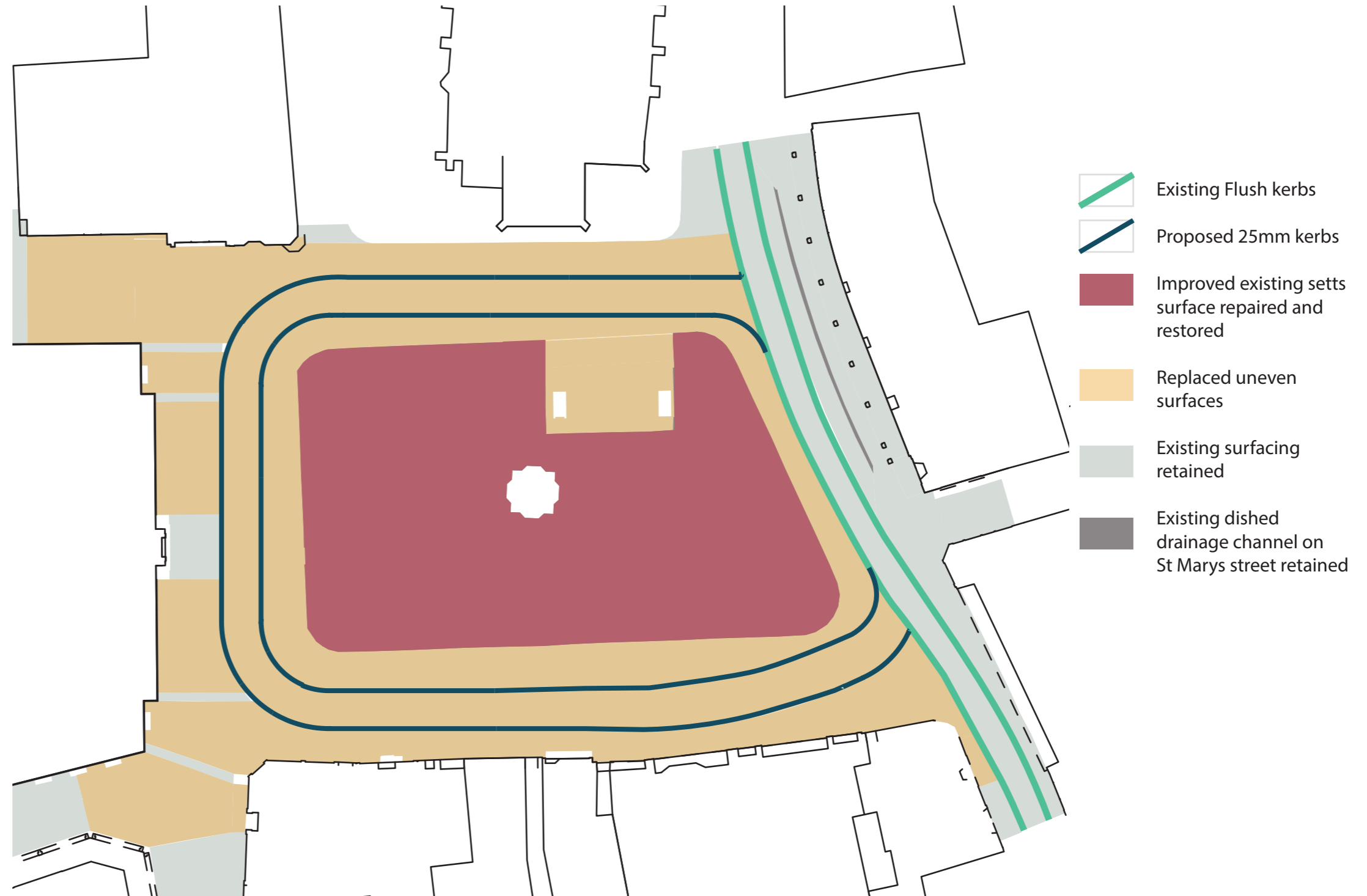


CYCLE KERB

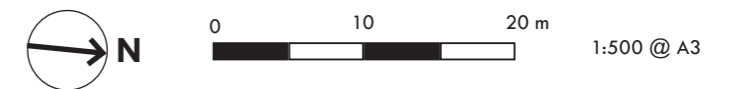
Developed in conjunction with Cambridgeshire County Council, Cycle Kerb is produced in a standard concrete finish. The angled profile to the top face of the kerb provides both a distinct visual and tactile division between the carriageway and cycle lane. Available in standard grey and Eco Countryside finishes.



Proposed kerb profile



Proposed pedestrian accessibility



Proposed surfacing

The proposed surfacing around the central setts area will provide a continuous and consistent surface, replacing the current uneven and mixed paving. This paving will need to accommodate daily traffic of small vans and cars from market traders and occasional HGVs and large emergency vehicles. Large events may also require paving areas to accommodate large stages or event equipment.

The existing colour tones of the square and local materials have influenced the choice of surface materials. The existing setts that will be retained have a pinky purple hue and the surrounding buildings and materials contain a range of buffs, oranges and browns.

Grampian Granite is proposed which is a buff grey granite which suits the local colour tones and contrasts against the existing setts.

Size

- * A consistent size that provides a change in scale from the existing setts;
- * A larger size than the existing setts but small enough that it can be trafficked;
- * A size based on the proportions of the existing rectangular setts e.g twice as big 380mm x 150mm
- * An appropriate depth to be trafficked (60mm depth).

Laid

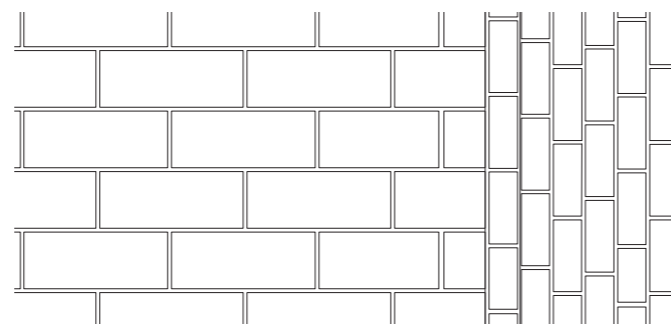
- * Bound, set on concrete bed using quality mortar
- * Staggered bond laying pattern

Origin

- * British – north Scotland quarry



Grampian granite



Proposed size and laying pattern in relation to existing setts

Paving details

Recess covers

- * Existing covers to be replaced with recessed covers to achieve a continuous surface.
- * All new covers to be specified as recessed covers.

Next Steps Surfacing

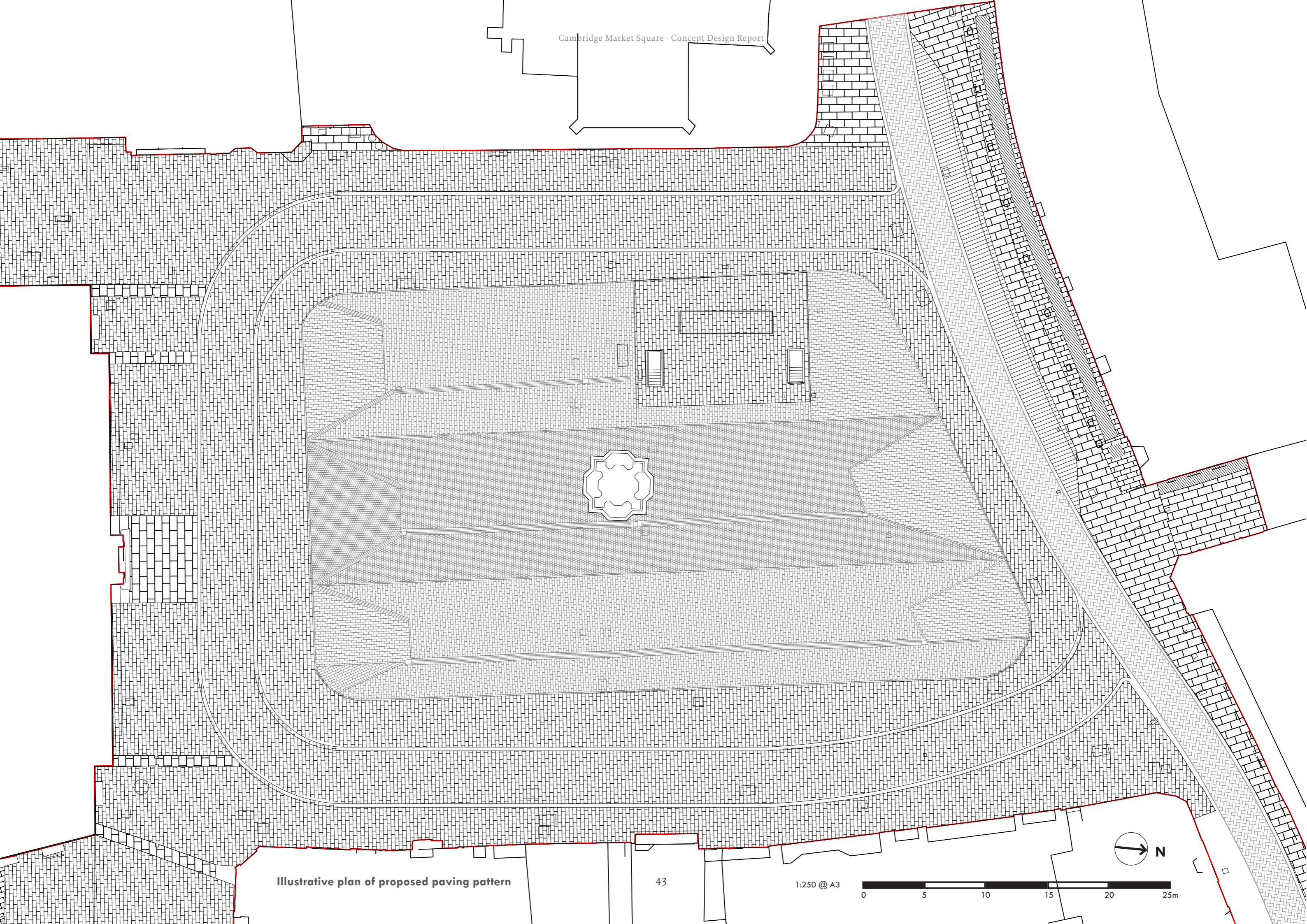
- * Meeting with Historic England to discuss historic setts proposals.
- * Check proposed materials against sustainability requirements and supply chain availability.
- * Develop technical information for granite paving for adopted public highway approval.



Existing recessed cover within setts



Proposed recessed cover within paving



Illustrative plan of proposed paving pattern

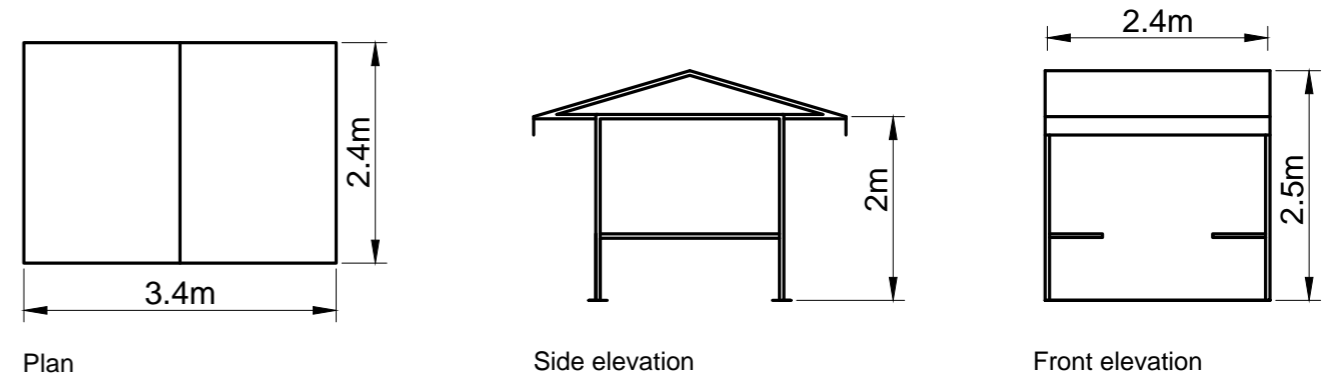
5.0 Stalls

5.1 Existing stalls

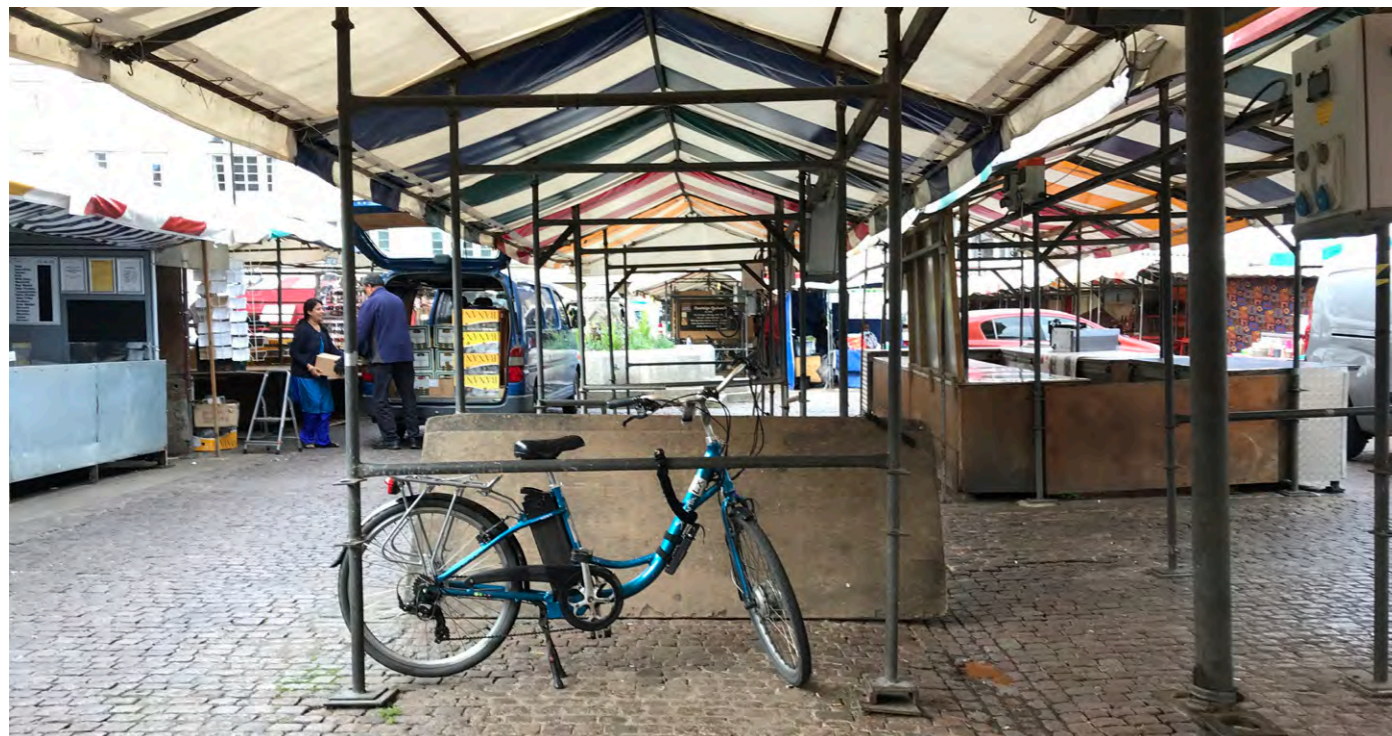
The existing market stalls are rectilinear areas defined by repurposed scaffolding frames. The frames have been heavily adapted and modified over time and they have been bolted directly on to the granite setts through the metal plates of their footings. This fixing, the roof covering tying method and the electricity supply units make it impossible for the stalls to be dismantled temporarily for any occasion.

The shape of the frame originates in the historic timber frames but the striped tarpaulin cover appears to be a later addition of unknown origin. The frames are equipped with simple swivelling angled arms that can support boards horizontally for the use as tables.

Certain traders keep large benches and other display objects overnight at the market which have become permanent fixtures and extensions of the stalls.



Existing stall dimensions



Interior view of current stalls



The market and stalls circa 1900

5.2 Stall Design

Beyond a much needed renovation and de-cluttering, the design options for the stalls were developed to address specific requirements of the brief such as flexibility in their deployment, an appearance appropriate for the city centre of a city like Cambridge, modern space standards and to work with a new and improved utility infrastructure. In achieving all of these, the proposed stalls should not miss any of the practicality of their predecessors.

Certain attributes and assumptions are shared among the proposed options:

- The stalls are provided by the market, not the traders.
- The stall module size will be 3x3m across the market
- The stalls provide the roofing but the traders are responsible for the side separation material (frames are provided)
- The stalls are flexible in being joined up to form trading stalls larger than 1 module.
- The stalls do not include any horizontal surfaces such as benches and tables which will be provided by the traders as required.

Following an iterative design process the design of the stalls has concluded on 2 potential options that will be carried on to the next stage for further appraisal until one is chosen. These options represent the 2 broad categories that were investigated at the beginning of this design stage: Modular and Framework.

The Modular option employs a single unit of a frame that repeats across the market to form rows and the Framework option comprises of larger groups of trading areas within a larger frame.

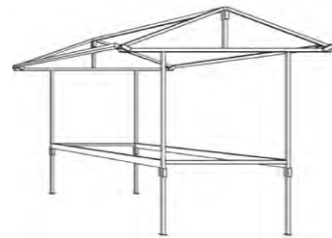
Research

Prior to developing the design options a market research was carried out to determine what existing solutions are available to use off the shelf that could fulfil the brief's requirements. The result of the research is that existing market stall products do not offer much versatility or respond adequately to the brief.

The four main types of stalls available today are:

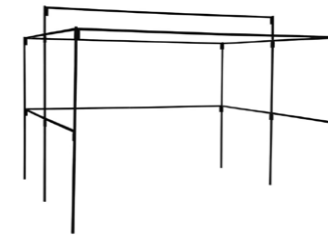
1. The Traditional Frame

This is a product that is a simple upgrade to the existing frames and wouldn't offer more to the market beyond a refurbishment of the existing condition.



2. The Frame Kits

These kits are similar to the traditional frames but offer a more flexible solution at the price of robustness and appearance.



3. The Gazebo

There are some exceptional gazebo products in the market but despite their high quality gazebos always convey a temporary character and wouldn't be a robust solution for a 7 day/week market in the long run.



4. The Folding Stand

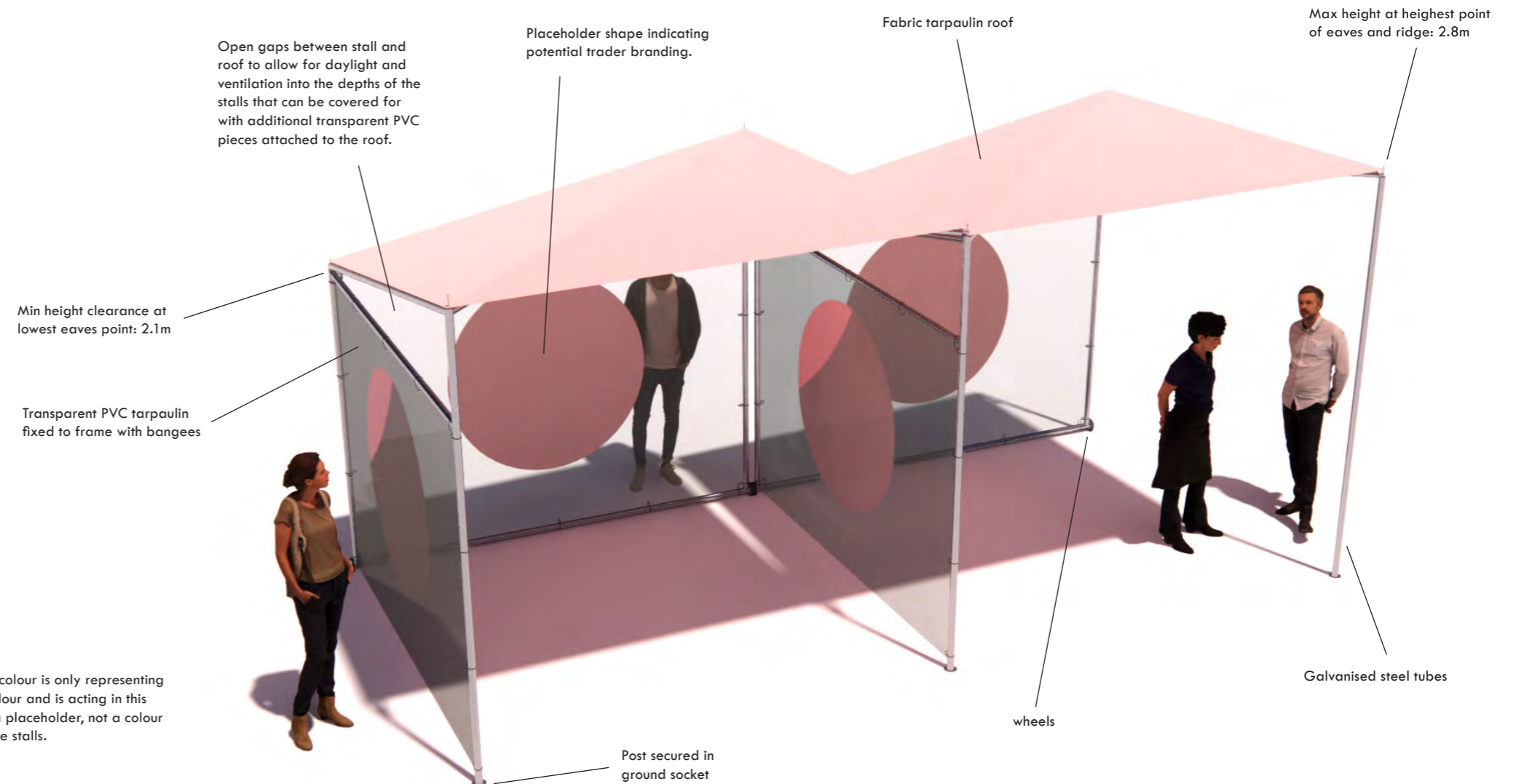
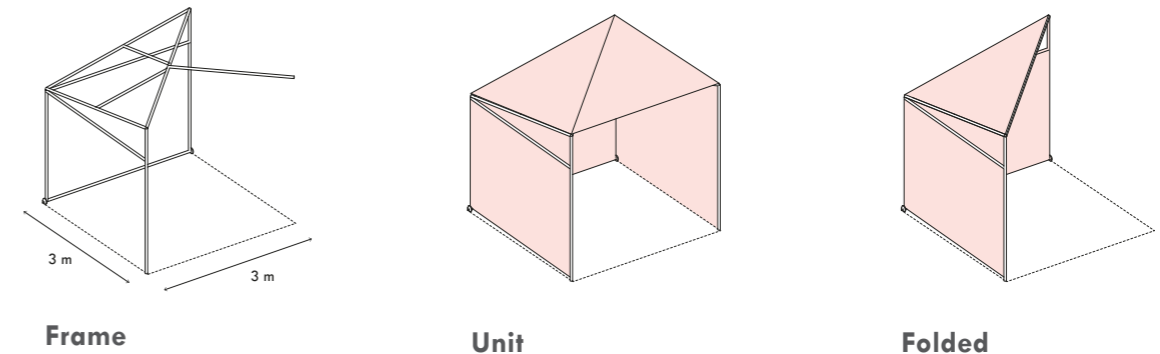
Originating in medieval stall designs, this product is particularly simple, flexible and elegant. Unfortunately it doesn't meet the required space standards and is not suited for all trading types. It is also not designed to perform well in rough weather conditions.



5.3 Option A: Module

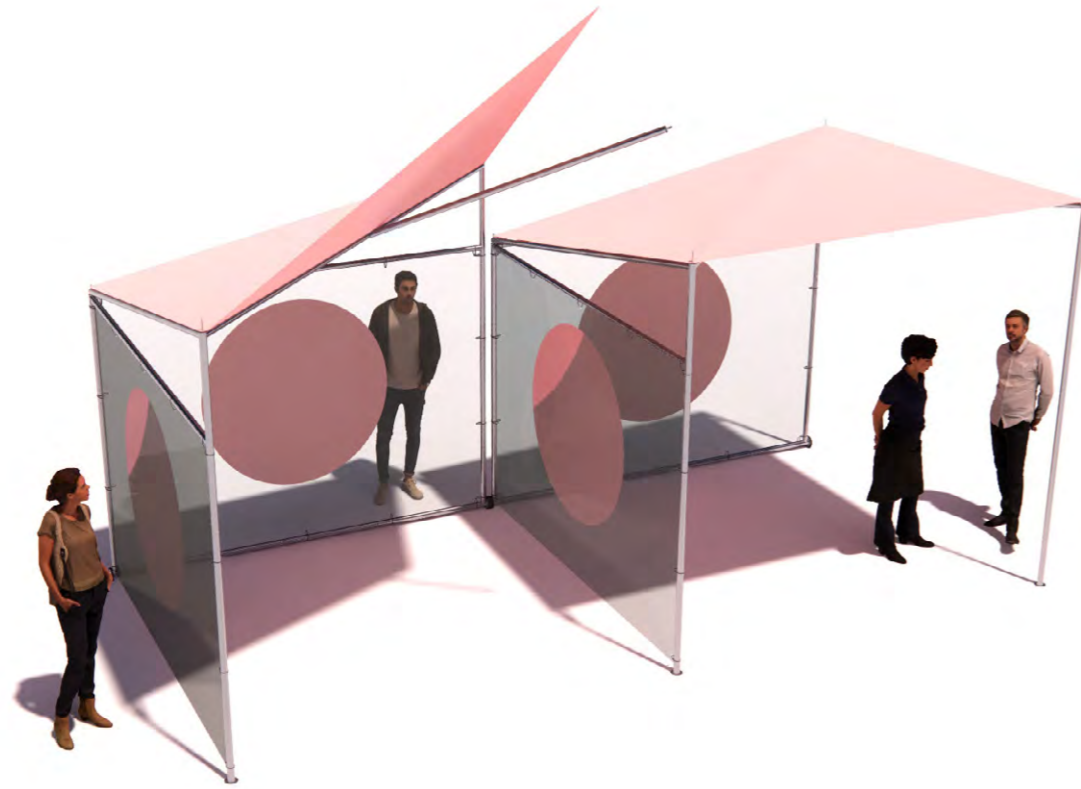
The Module is a design of a repeating individual stall unit measuring 3x3m in plan. The modules are then clustered together in pairs and rows to form the market. Vertical separators of transparent PVC tarpaulin can be positioned at the traders' discretion to define any size of retail area in the same way it is currently done but in a much clearer and defined grid of units. Each unit will be secured to the ground by inserting and fastening with a bolt the front post in a ground socket. All units will also be secured to each other by clamps attaching on every neighbouring post along the central spine of each cluster.

The main advantage of this design is the stacking efficiency it can achieve when folded and moved out of the way. The only rigid part of the frame are 3 posts that form a corner and support a triangular roof. The corners stack into each other like open books and the roofs have a slight pitch so that they can stack under each other. The rear frame of the module is equipped with 2 wheels at either end so that the structure can be lifted from the front pole and manoeuvred around like a shopping trolley. When deployed the Module depends on the front post of its neighbour to complete the square arrangement of a 3x3m stall. It is on that neighbouring post that the triangle roof unfolds and secures on to with a rotating post and a triangular piece of fabric stiffened at the edges with batons. When it is needed to clear the square from the market stalls, the roof is folded back onto itself, the front posts are unbolted out of their ground sockets and the stall is wheeled over to a designated area to be stacked with the others by one or two people.

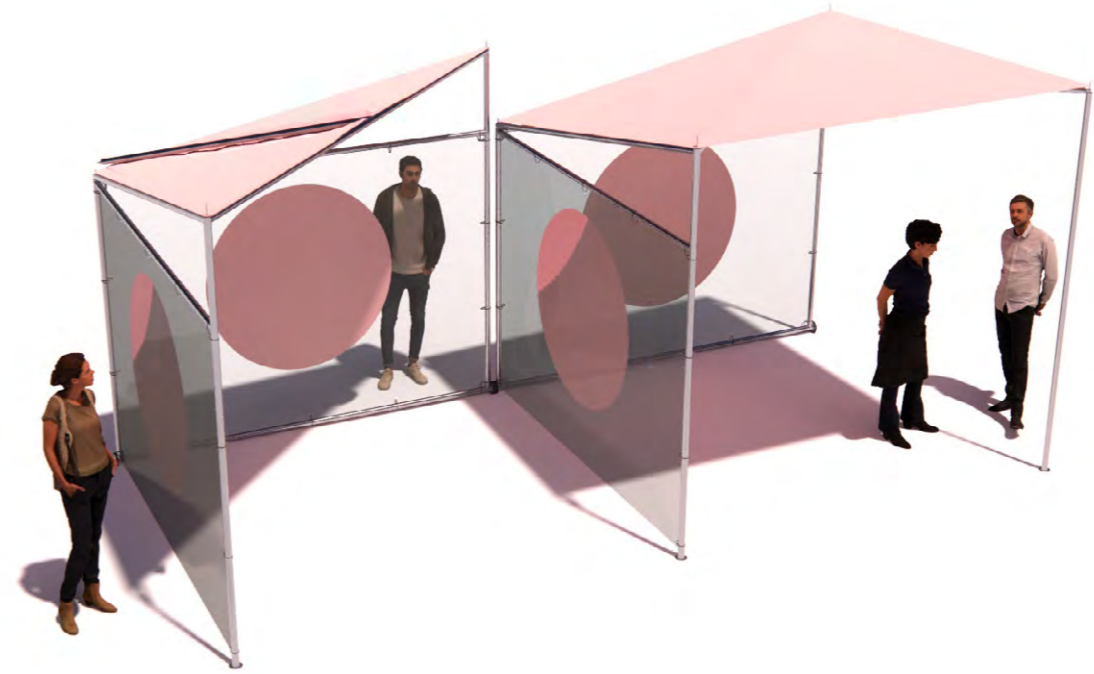




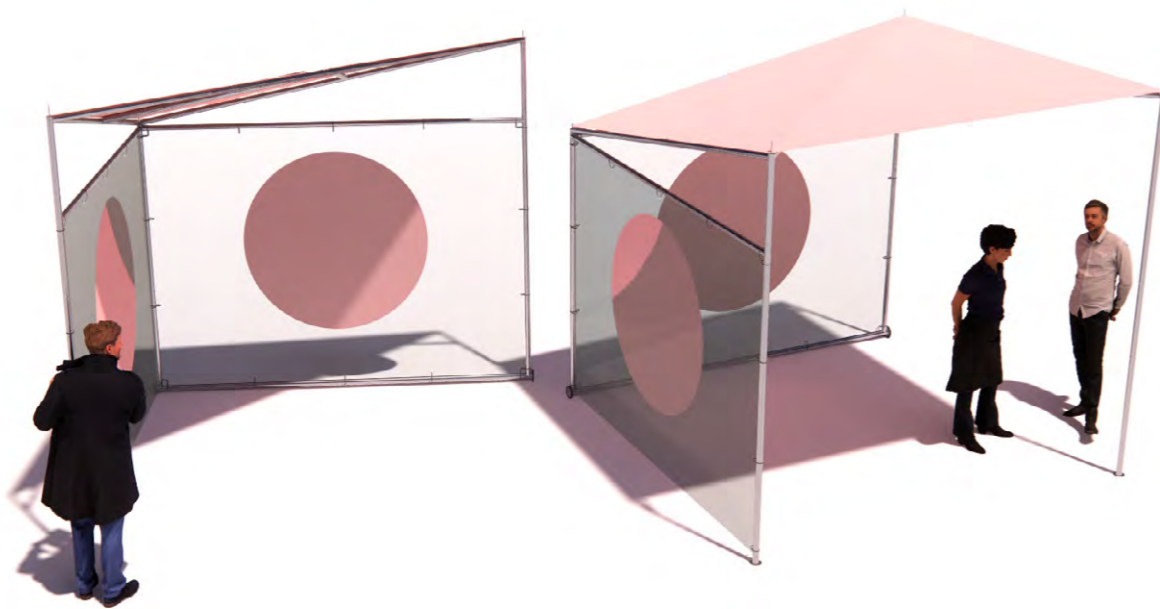
Birds eye view of all stalls deployed on a typical market day



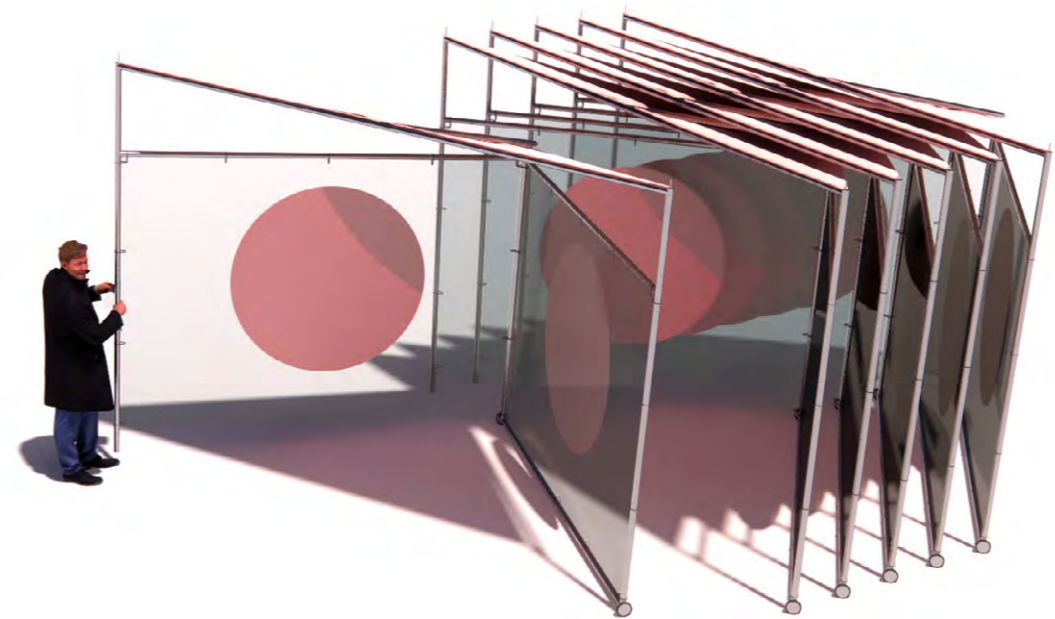
Unhooking and folding back of roof



Stall fully folded into triangle shape



Stall lifted out of ground socket and wheeled away

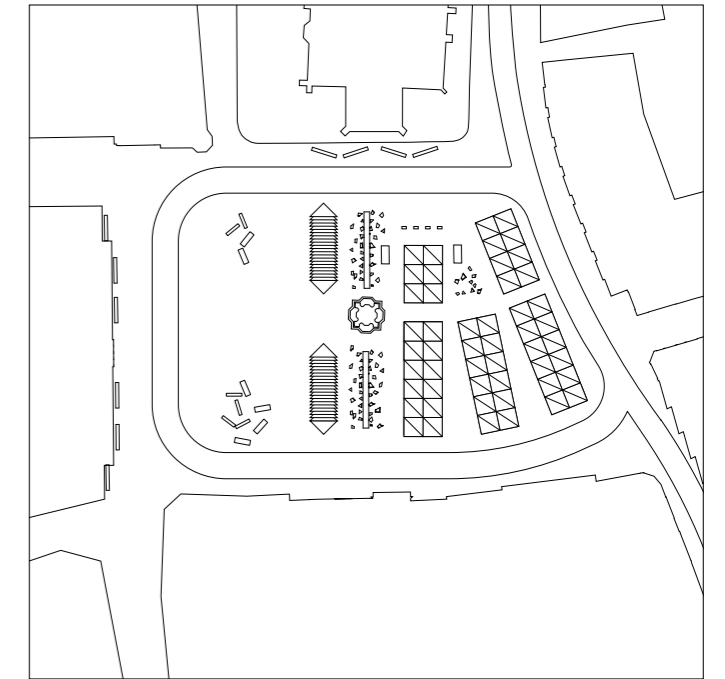


Stall wheeled into a stacked row of stalls for storing

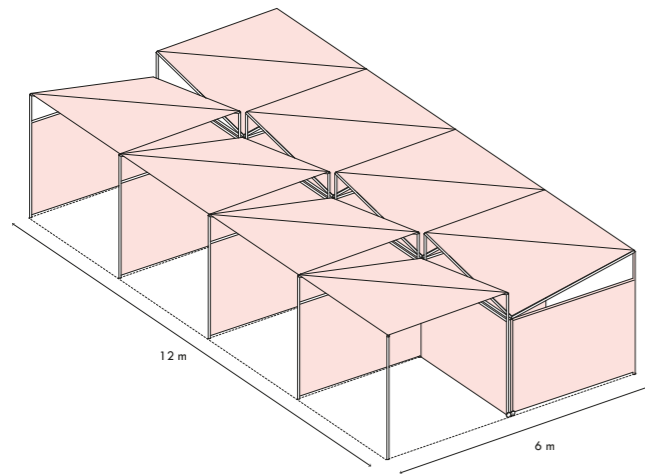
The Module achieves up to 86% stall footprint reduction across the site when all stalls have been stacked.



Birds eye view square partly cleared from stalls



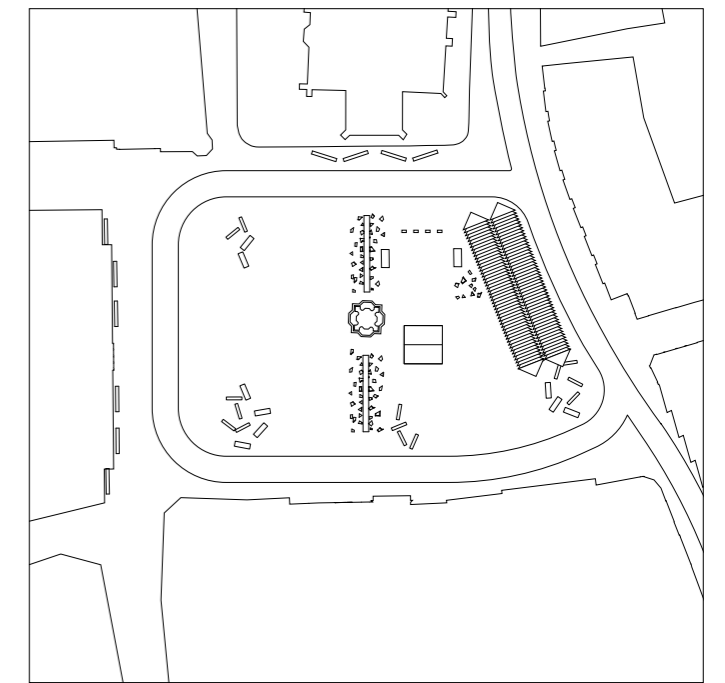
Plan of partly cleared square



8 Stalls deployed and stacked



Birds eye view square fully cleared from stalls



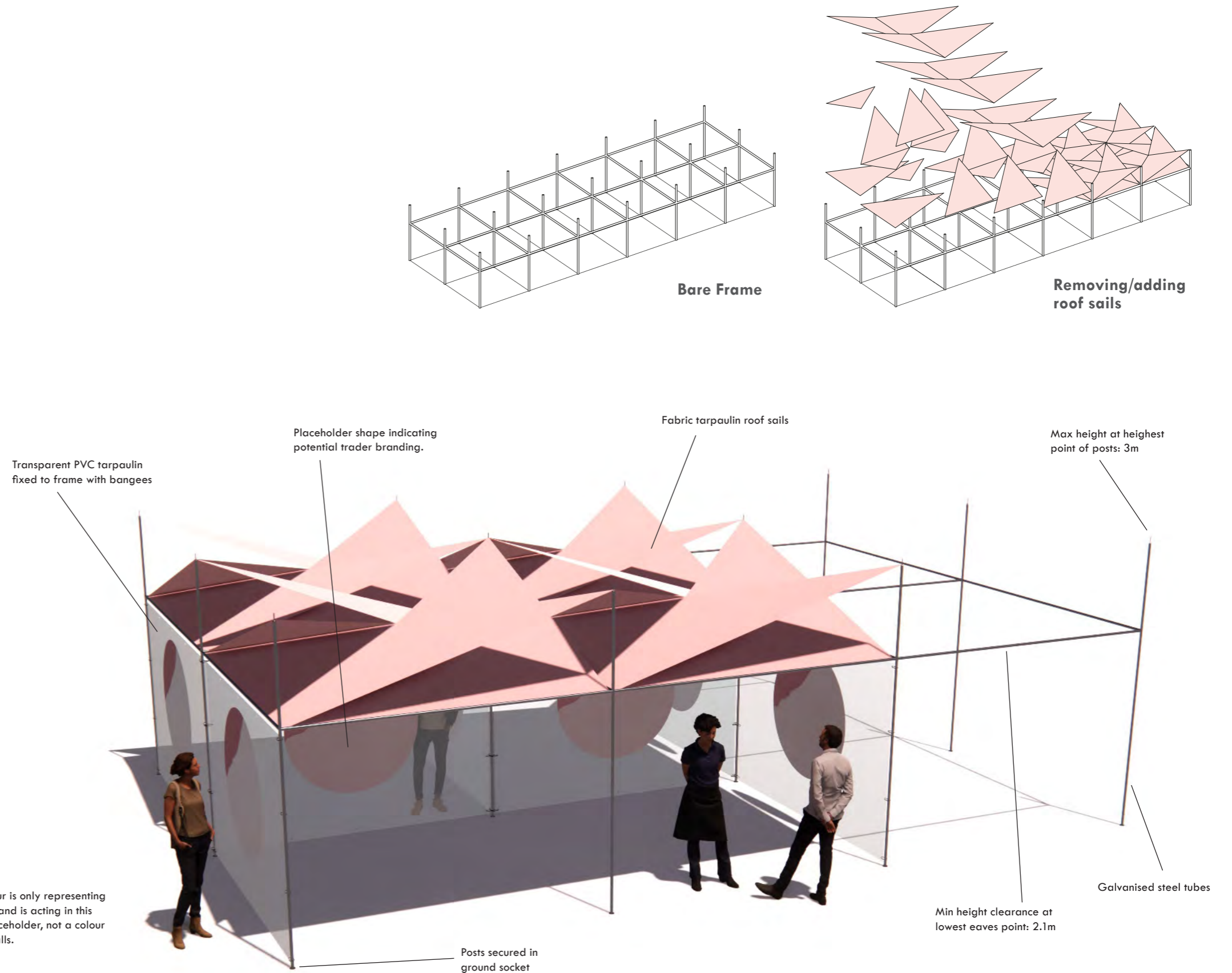
Plan of fully cleared square

5.4 Option B: Frame

The Framework was developed in an attempt to resolve the existing stall typology into its most efficient and flexible structural expression. While the current stalls require a minimum of 2 posts (sometimes 4) per stall plus 4 at the end of each row, the Framework combines the posts at the spine of each row reducing the requirement to 1.5 posts per stall maximum plus 3 at the end of each row. The posts are also spaced further apart, and the roof structure is reduced to an absolute minimum of a single layer of single horizontal elements joining the posts together on a 3x3m grid. The roof is comprised of 2 simple shapes (potentially only 1, a skewed parallelogram) cut out of a fabric type of tarpaulin and stretched from the horizontal beams to the peaks of the posts. In this way the roof forms together with the posts and beams of the Framework a spaceframe participating in the structural performance of the Framework as an active structural member in tension thus reducing the structural components that would be traditionally required. An additional advantage of this roof geometry is that it eliminates the need for guttering by utilising and thus covering the edges of each grid square (1 stall) with the roof sails. The water can only run to the edges of the stalls or down the posts along the central spine of the rows where it is picked up by the surface channels, drains and gullies.

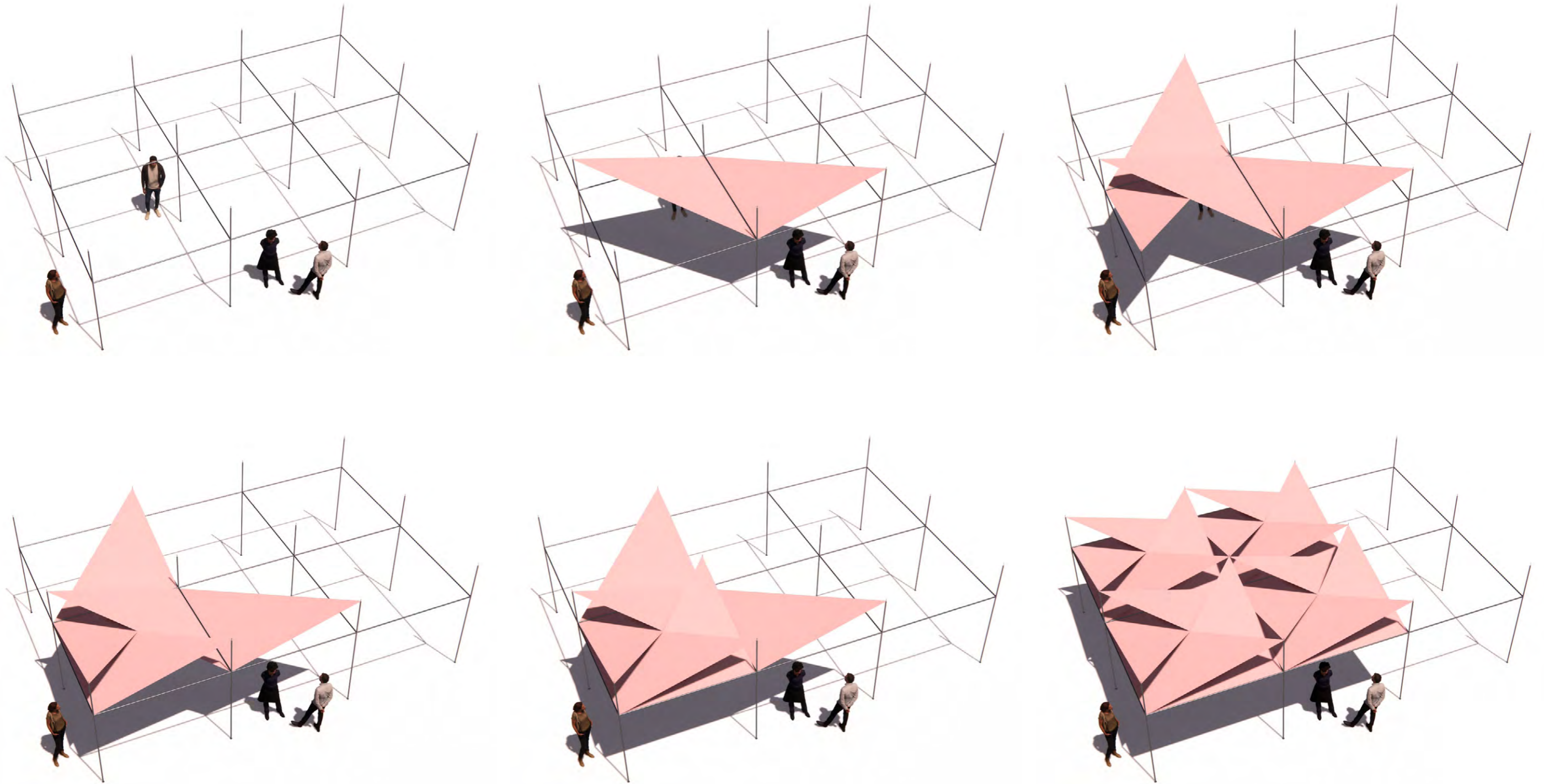
Each post of the Framework is secured to the ground in ground sockets and held in place with bolts. Similarly to the Module, the Framework can be divided to retail areas of any number of 3x3 units by positioning vertical separators of transparent PVC tarpaulin as required. When the Stalls need to be dismantled, the roof sails are unhooked and folded, the vertical posts are unbolted from the ground sockets and from the connections of every other pair (a total of 6 bolts per 2 stalls) and carried away by two people to a designated area.

Note: the pink colour is only representing a non-white colour and is acting in this illustration as a placeholder, not a colour proposal for the stalls.





Birds eye view of all stalls deployed on a typical market day

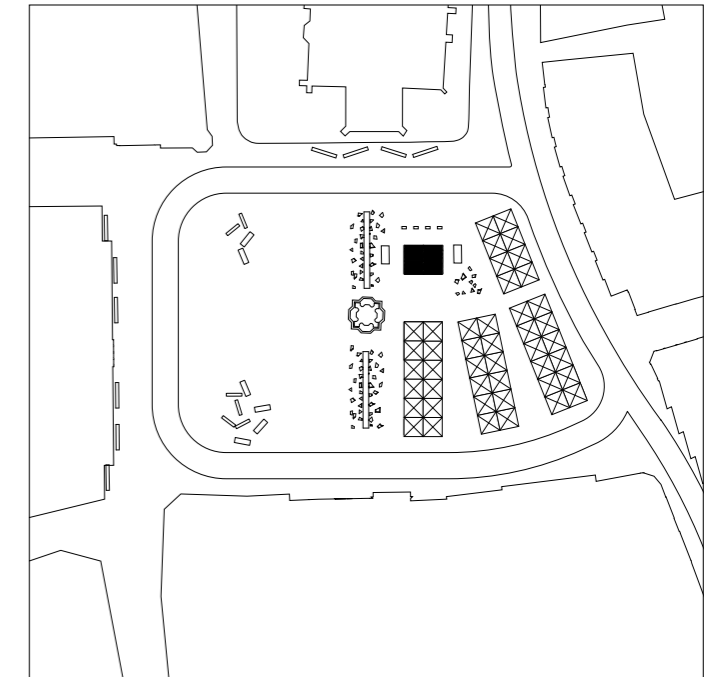


Sequence of roof sail weaving

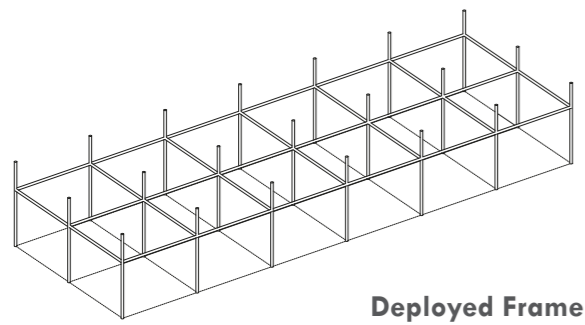
The Framework is the most efficient design option since it comprises of only simple steel posts and the beams holding them together. It achieves 99.7% footprint reduction across the site. In relation to the Module its downside is that it requires slightly more effort to disassemble and it would be expected to remain standing overnight during weekdays if not through the week.



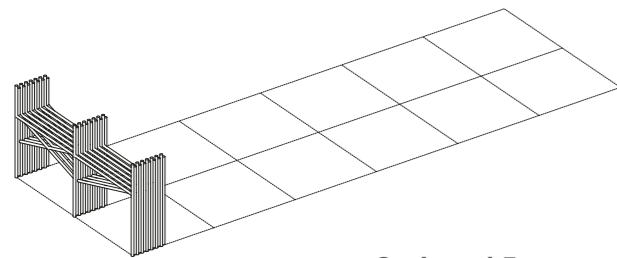
Birds eye view square partly cleared from stalls



Plan of partly cleared square



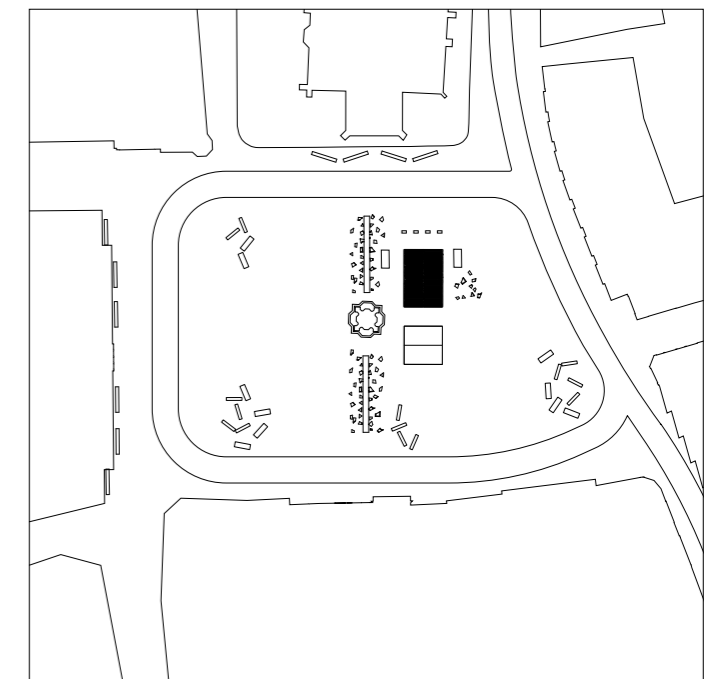
Deployed Frame



Gathered Frame



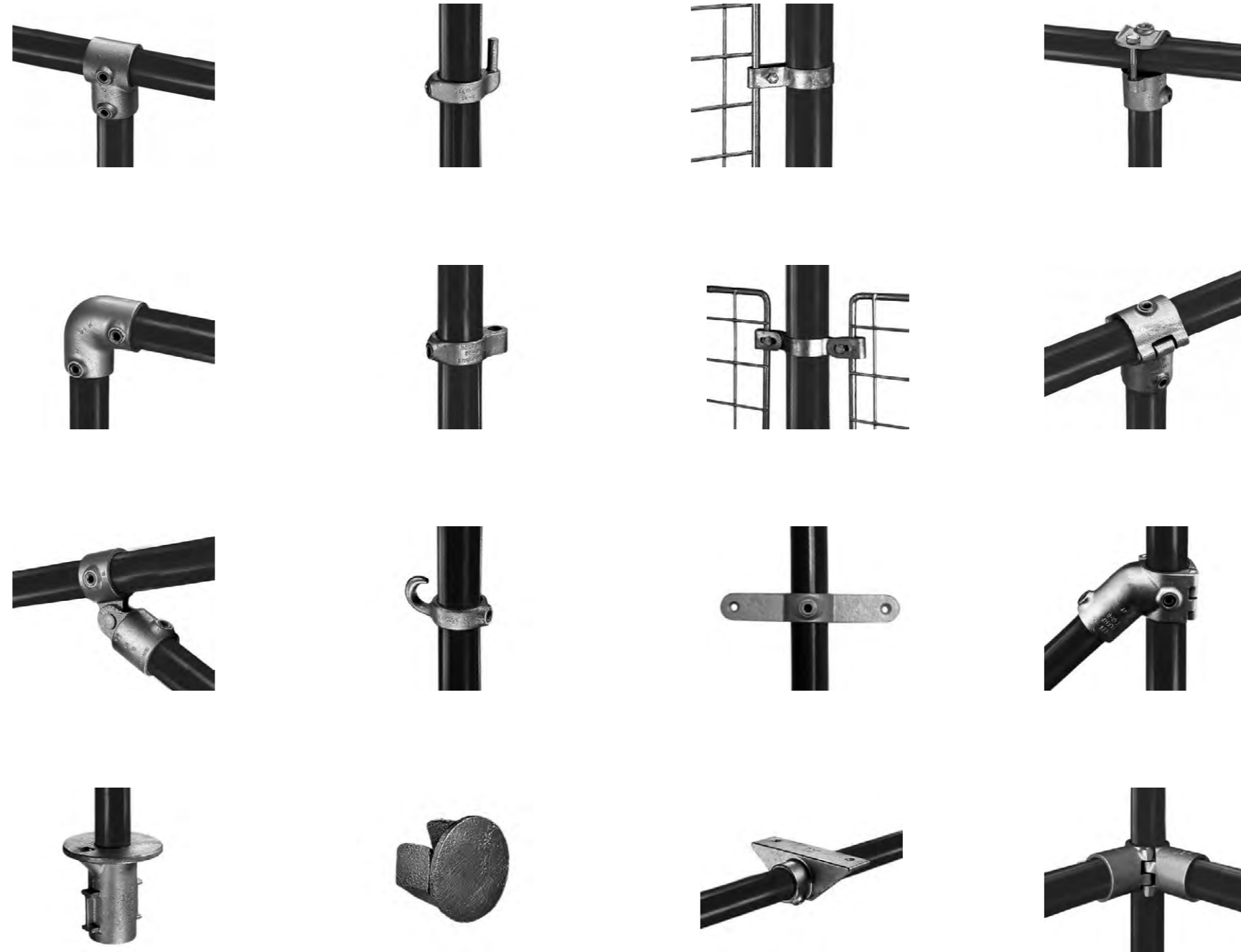
Birds eye view square fully cleared from stalls



Plan of fully cleared square

5.5 Structure and Materials

The proposal for the primary structure of the stalls is to employ the Kee Klamp system. It should be noted that this is not an exercise to develop a new product for the industry with specially machined parts to be mass produced in a factory but an architectural exercise of building something from known components to be mostly assembled on site. The Kee Klamp system offers an incredible combination of structural integrity, modularity, cost efficiency and compatibility. There is clear evidence that traders already use Kee Klamps either for their own structures or to attach extensions to the existing stalls. Providing a frame from Kee Klamp tubes and fittings means that any new extensions will happen in harmony with the market's own infrastructure. Kee Klamp also offers a certain structural aesthetic that is very apt to the condition of an open-air market frame and would recede in the background allowing the focus to be on the contents of each stall.



Kee Klamp fittings for the frame: T and elbow joins and ground socket for securing stalls to the ground.

Kee Klamp fittings for the frame. Swivel pin system, hook and security tap to protect certain screws from being tampered with.

Kee Klamp fittings for fixing panels to the frame.

Kee Klamp clamp-on fixings for attaching to stall frames without having to disassemble them.



Other parts of the frames are either borrowed from existing market stall solutions, such as tarpaulin rain gutters and post clamps (1) or from matching components such as solid galvanised steel castors with rubber rims (2).

The ideal material for the roof would be a waterproof cotton-synthetic mix canvas tarpaulin. This is a mostly natural and breathable fabric that would protect from the elements and is particularly hardy and tear-proof. (3)

The proposal for the vertical separators between stalls is to specify transparent tarpaulin (4) or wire rope netting (5), depending on the required use, as a standard across the piece in order to allow for as much light to be introduced under the markets canopies.



1. Rain gutter and post clamp



3. Waterproof heavy duty cotton canvas tarp



Evidence of existing Kee Klamp use by the traders



2. Galvanised steel castor



4. Transparent tarpaulin (PVC)



5. Steel wire netting

5.6 Canopies and Colours

The existing stall canopies are made out of single sheet of thick vinyl tarpaulin with a semi-gloss top side that features a pattern of alternating coloured and white stripes. Looking at historical photographs and prints of the square, the stalls appear to have carried fabric canopies of single colours. The stripe pattern begins to appear in photographs later on also with thinner stripes. It is unclear exactly when the current roof was installed but it is equally vague whether and to what extent the design and material was considered at the time of the installation beyond addressing the covering of the stalls as a practical exercise.

As a result, the current canopies sport a selection of the 3 primary colours and green of an unjustifiably bold, primary hue. The strong tones create stark contrasts with the white stripes and together with the selected material of the canopies produce an effect of crudeness and artificiality that is at odds with the architectural fabric of the square. The stripes are grouped together in batches of the same colours but they do not always align with the structure or the modularity of the stalls producing a visually inconsistent result across the market. The broad width of the stripes is less forgiving with this misalignment than a finer density pattern or a solid colour would have been. The canopy is mostly translucent with the darker stripes being more opaque than the rest of the surface. The pattern is particularly visible from under the stalls often clashing with the traders' own visual set up and branding resulting in interiors with a cluttered appearance.



1841



1907



1915



1960's



c. 1970



1982



Birds eye view of the canopies (2020)

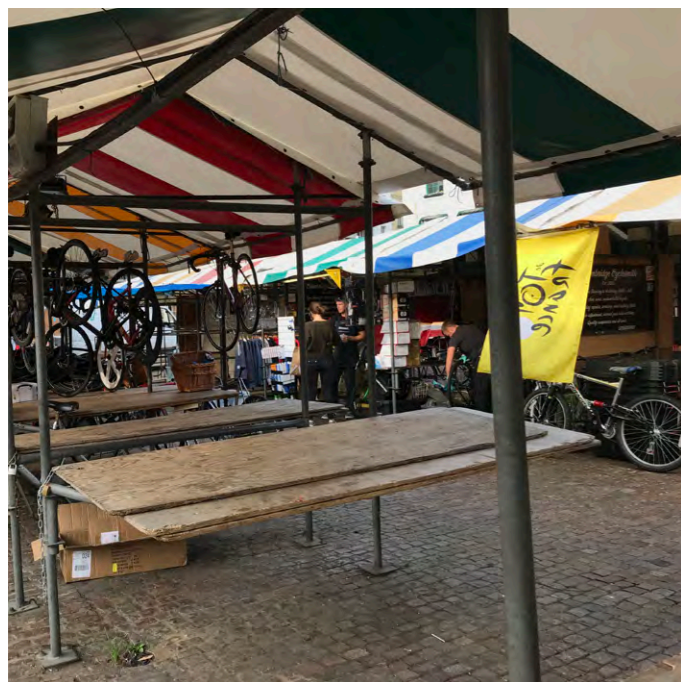
Regardless of the pattern or the material, the canopies have always shared the common attribute of being colourful and bestowing the market square a visual vibrancy. The proposal aims to refine the existing colours into hues that originate in the 4 colours in use today. The primary colours are mixed with the white to result in more softened hues achieving an improved visual synergy with the more natural palettes of the surrounding architecture but without depriving the stalls of their colourfulness.

The option of sampling some stripe patterns in the swatch mix is not completely abandoned but it may be more difficult to achieve technically with a cotton canvas without incurring high costs. This option will be explored further on the next design stage where technical feasibility and cost implications will be explored further.

A potential mix and arrangement of the canopy colours is shown in the next pages for both of the stall options.



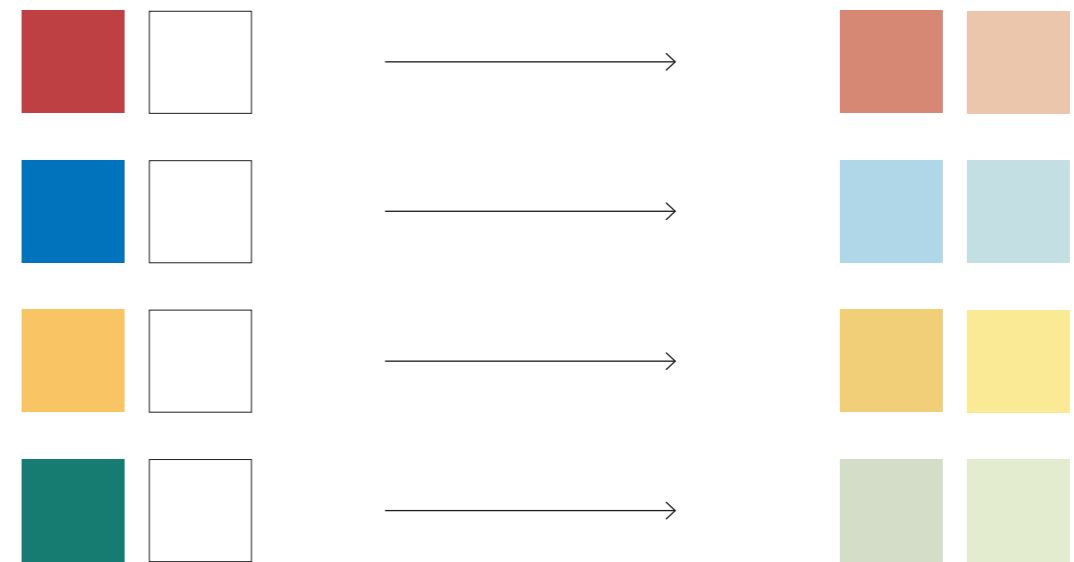
Building colour tones



View of the canopies from within the stalls (2020)



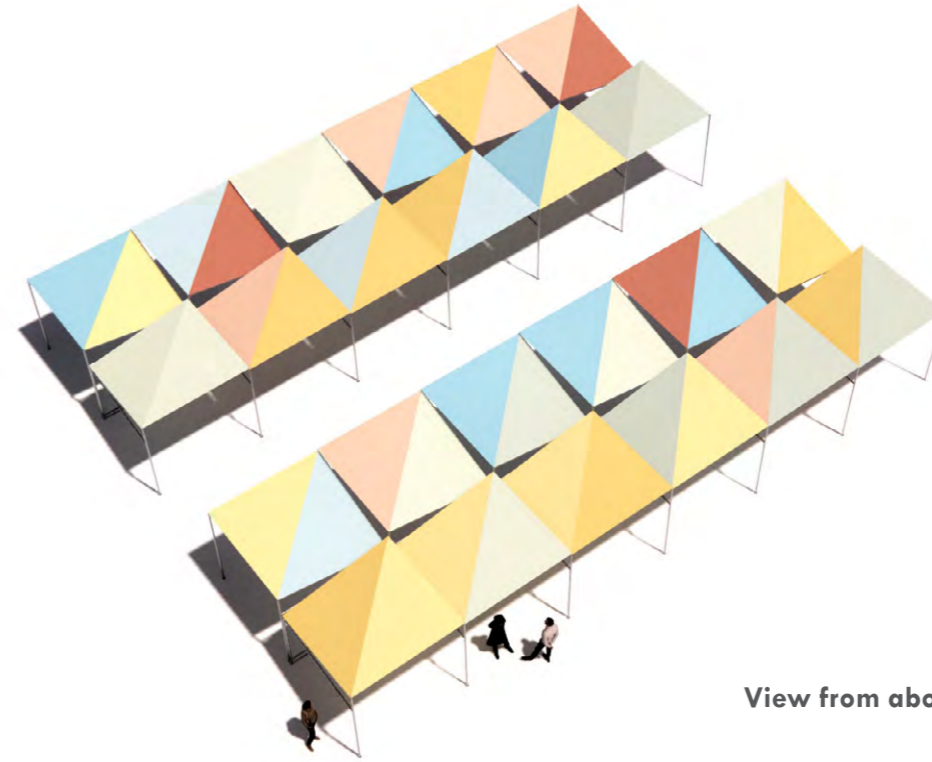
Aerial view of the canopies today



Existing colours

Proposed colours

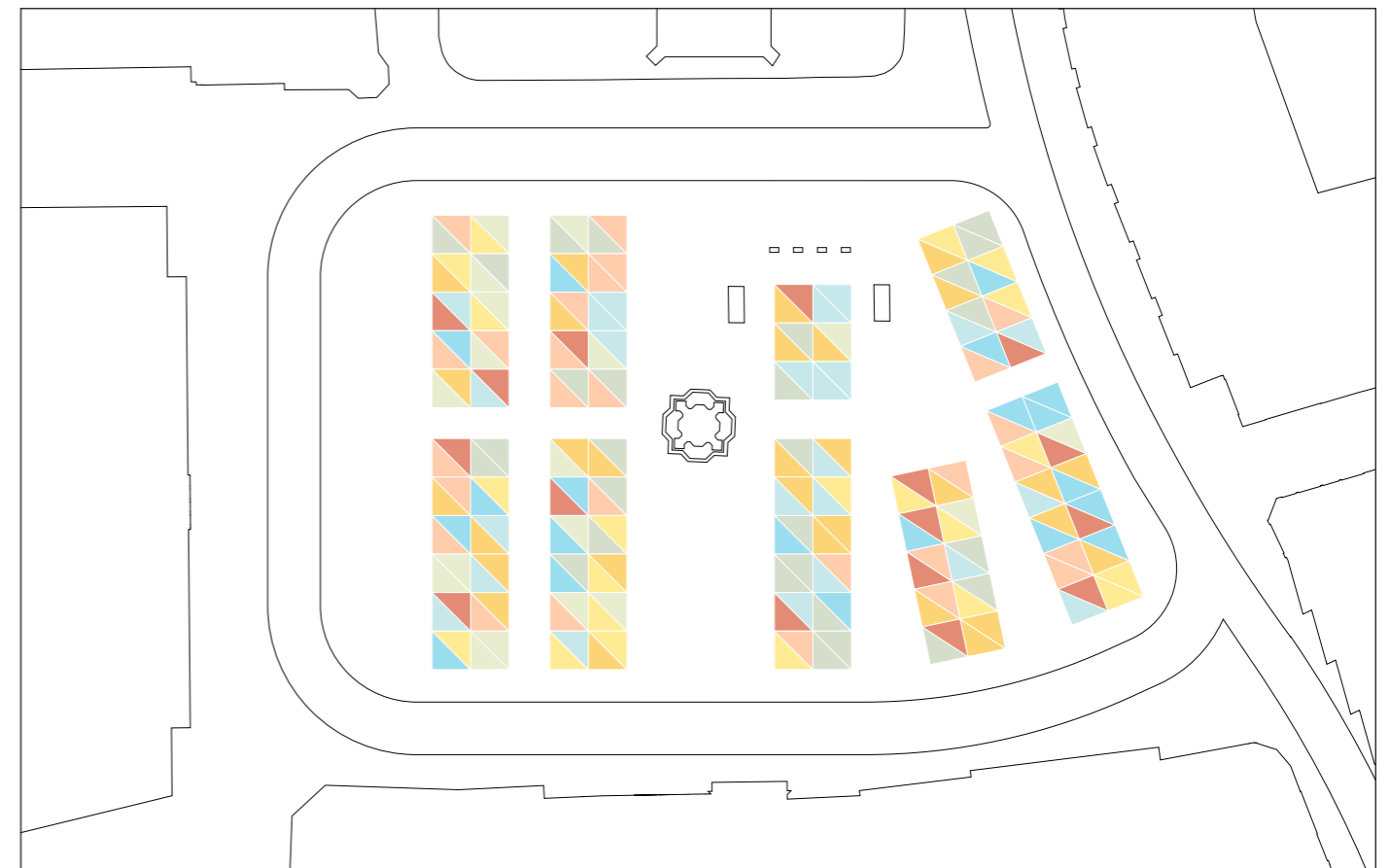
Triangle pattern of alternating tones for the roofs of the modular stalls



View from above



View of the colours from under and inside the stalls



Plan: Distribution of colours across the site

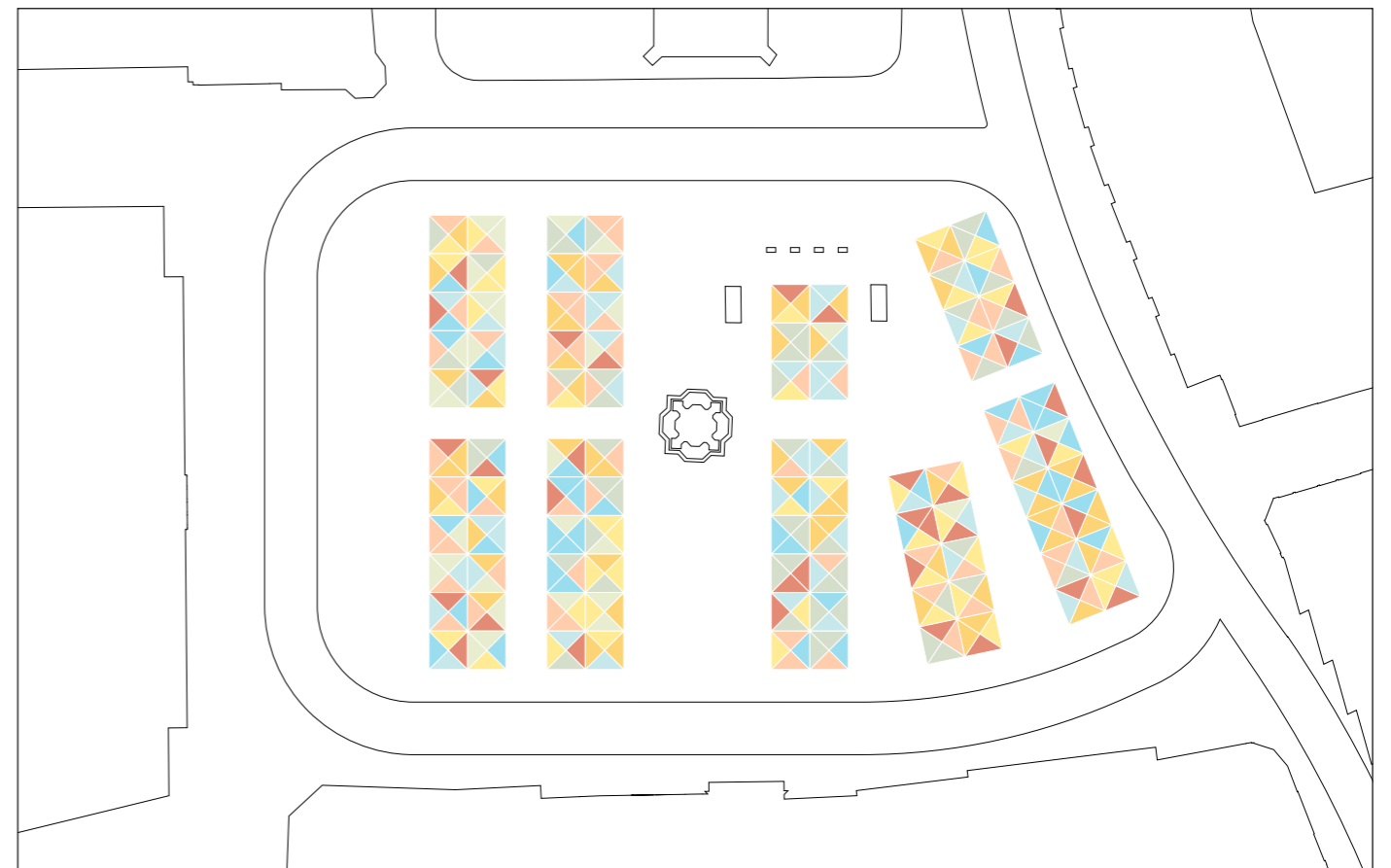
Triangle weaving pattern of alternating tones for the roofs of the frame stalls



View from above



View of the colours from under and inside the stalls



Plan: Distribution of colours across the site

6.0 Access

6.1 Road Layout

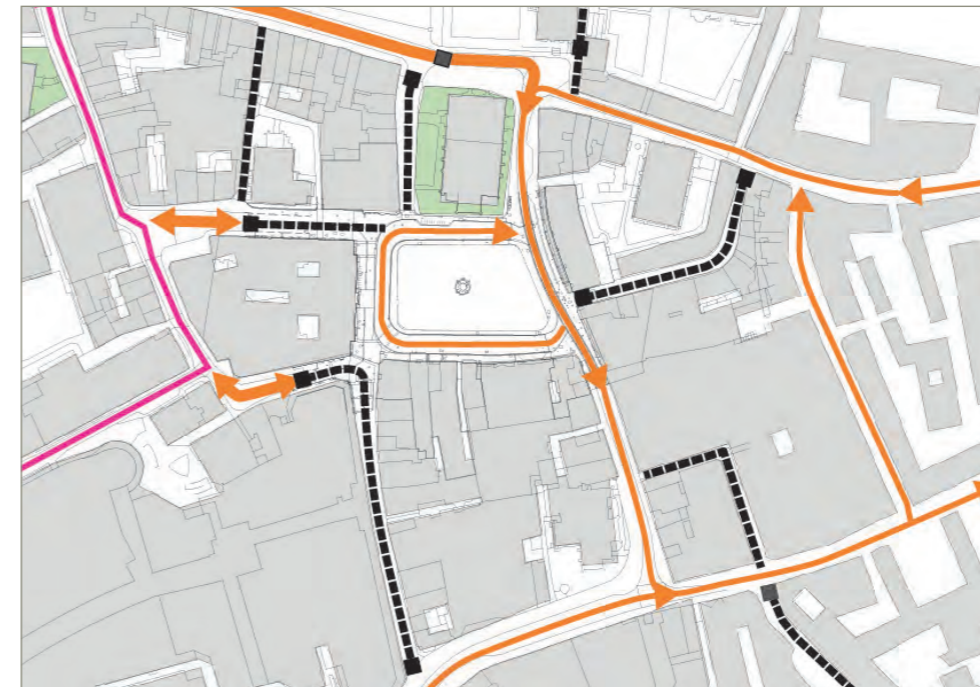
One of the overarching ambitions of the scheme is to create a more pedestrian, cycle and disabled friendly environment for Market Square. The vision is that the market square should be considered as a pedestrian-orientated civic space and people should be able to move around the market stalls and shops with as little interaction with motor vehicle traffic as possible. Over the years, however, the Market Square has been used by a combination of motor vehicles and pedestrians with limited success; there are issues including congestion, safety, efficiency, security, air quality and noise pollution. Therefore, the intention is to address the layout of the roads and their design in order to prioritise pedestrian movement across and around Market Square. The ambition is that people will visit the marketplace because it has been designed in a way that makes it a pleasant place to be. To encourage pedestrian footfall, the proposal is to minimise the disruption caused by loading/unloading of motor vehicles through a number of inset parking bays with restricted use at certain times of the day.

Proposed Changes to Road Layout:

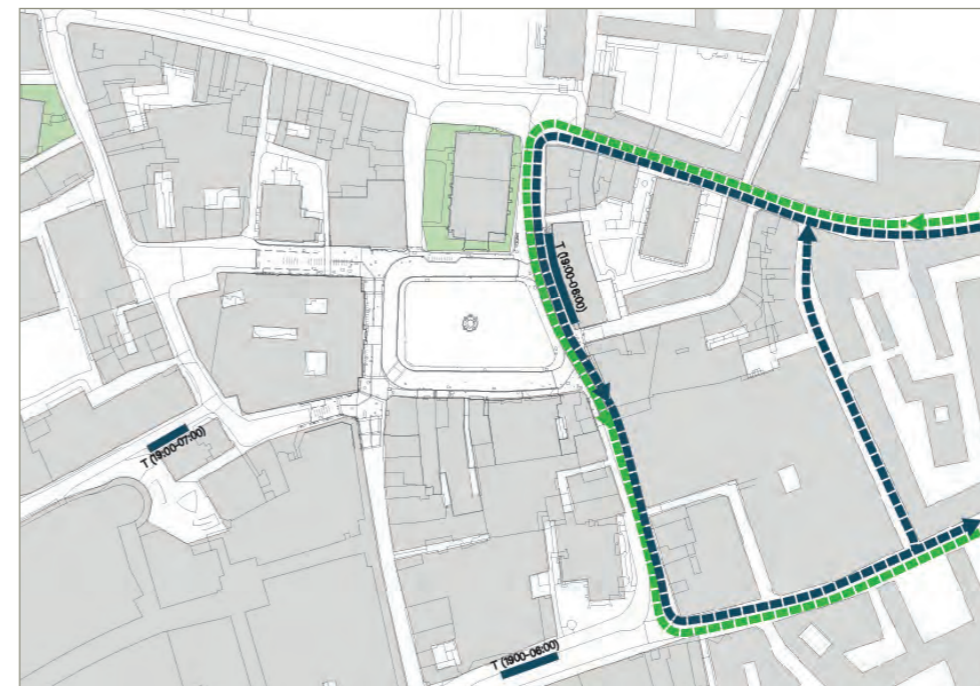
Principally, the proposal is to reduce the width of the road to 4.25m all the way around market square. The route taken by the motor vehicles will need to accommodate the correct size of motor vehicles and be suitably constructed for the weight of the trucks including the impact of power steering on the surfaces. The kerb drops will be reduced from 100mm to 25mm with a 45 degree chamfer which will help avoid physical damage to the street when motor vehicles drive up them to park, which can be potentially hazardous and incur additional costs for repair of over time.

The introduction of a number of specific inset parking bays will create a safer pedestrian environment. The location of the loading facilities and their availability are critical to the successful performance of the market square. Facilitating inset parking bays at the right place and at the right time can smooth traffic flow at key times while still benefitting the local shops and market traders. Inset bays allow motor vehicles to be loaded and unloaded without effecting the flow of traffic around the market square while also maintaining a minimum space for pedestrians to pass.

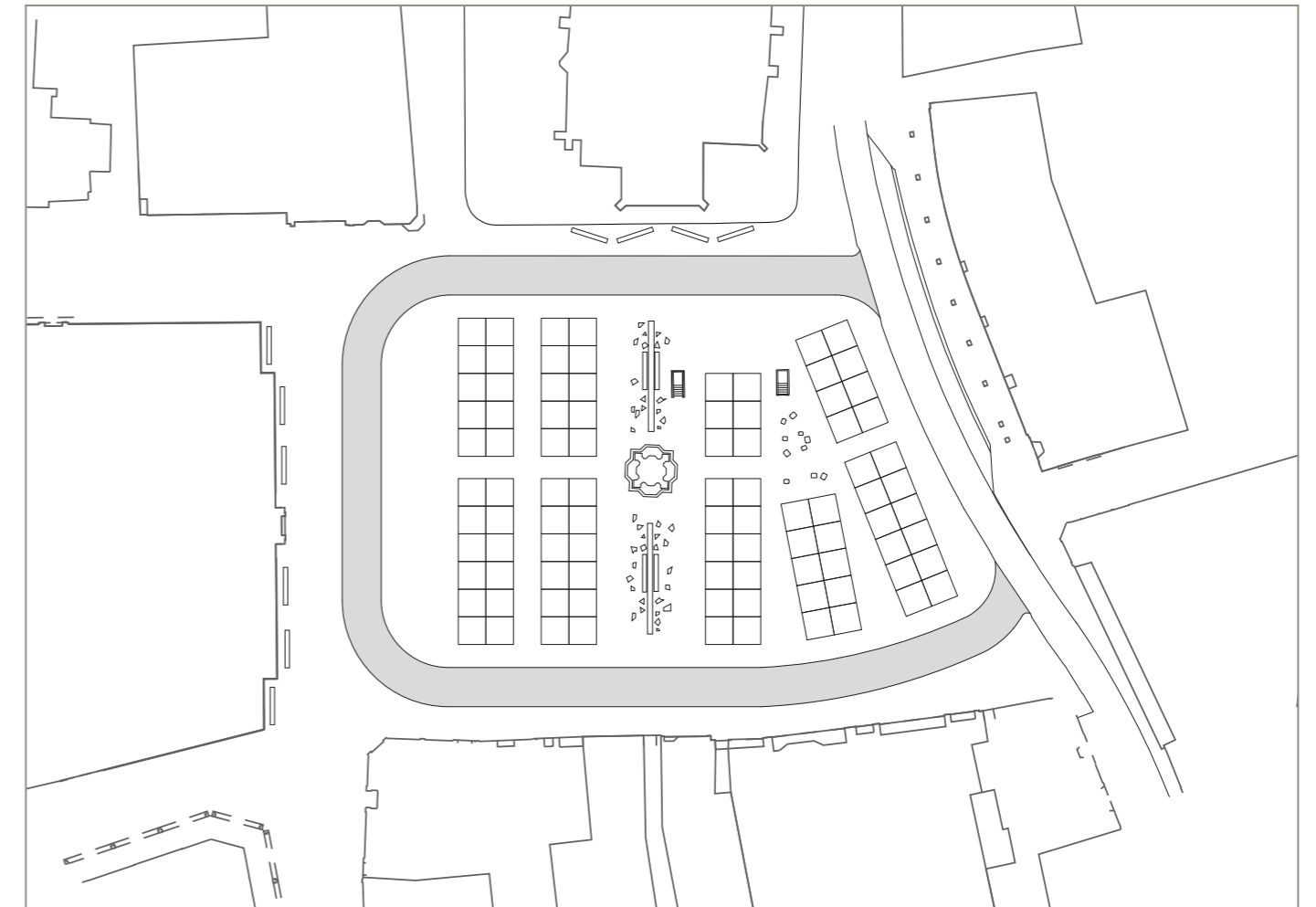
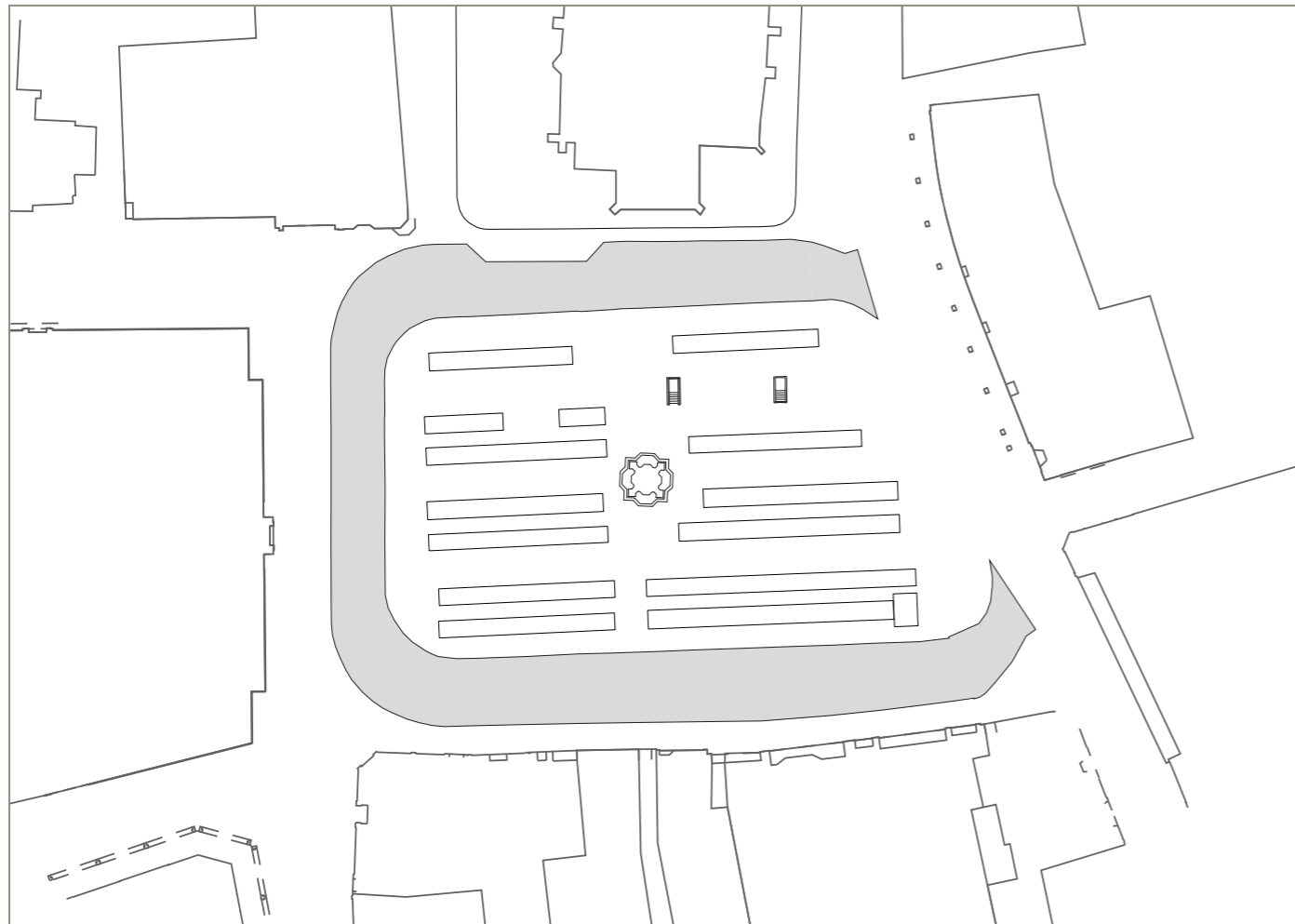
The overall layout has been rationalised to provide cleaner kerb lines to delineate between what is considered a road surface and pedestrian only surfaces.



Existing Vehicle Access routes into and surrounding the market with the direction of one way streets indicated by the arrows.



Existing Public Transport Access including the sightseeing tour bus, flexible dial-a-ride service and taxis



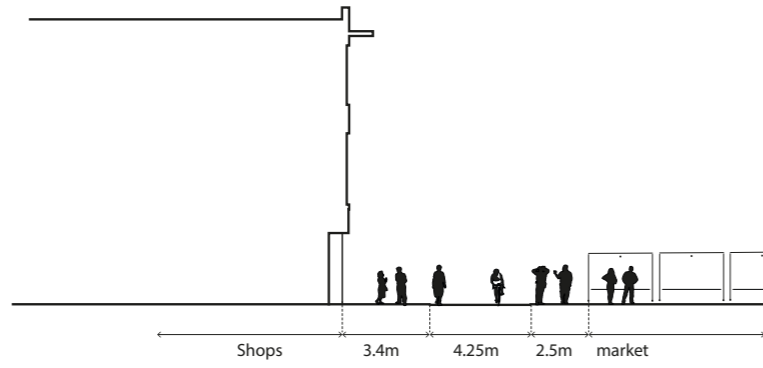
Existing Road Layout

The existing road surrounding the market varies in width at different parts of the road. The kerbs are typically around 100mm in height and there is no designated parking around the square apart from a small taxi rank in front of Great St Mary's Church.

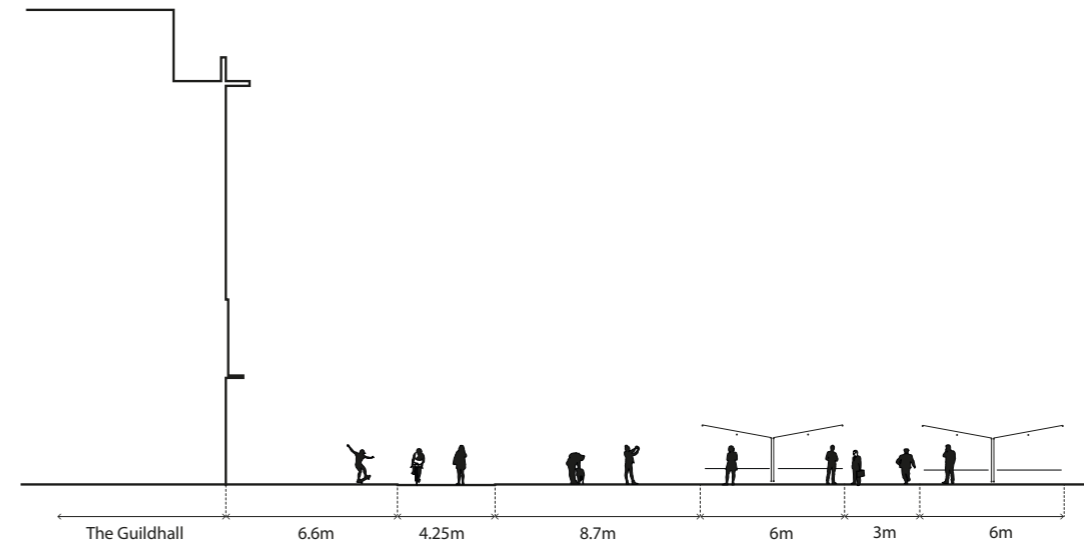
Proposed Changes to Road Layout

The proposed road layout will consistently be 4.25m all the way around the square and thereby aid efficiency and improve ease of accessibility for pedestrians, cyclist and motor vehicles within the Market Square.

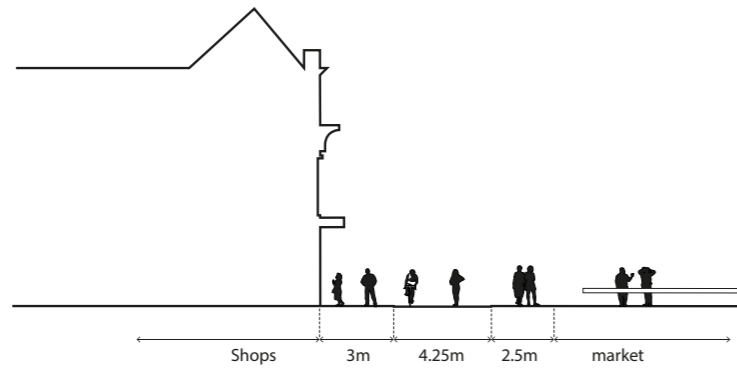
The proposal reduces the amount of road surface, thereby increasing the pedestrian area and it simplifies the road by removing some of the existing lay-by's and widening the footways around the square.



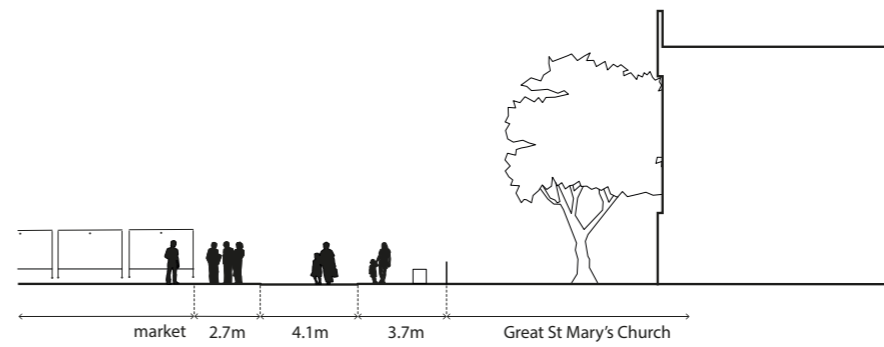
Section A-A



Section D-D



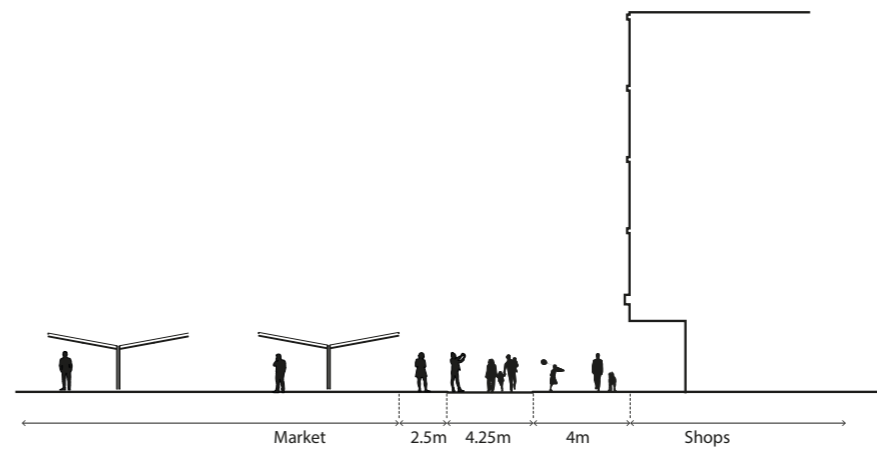
Section B-B



Section E-E

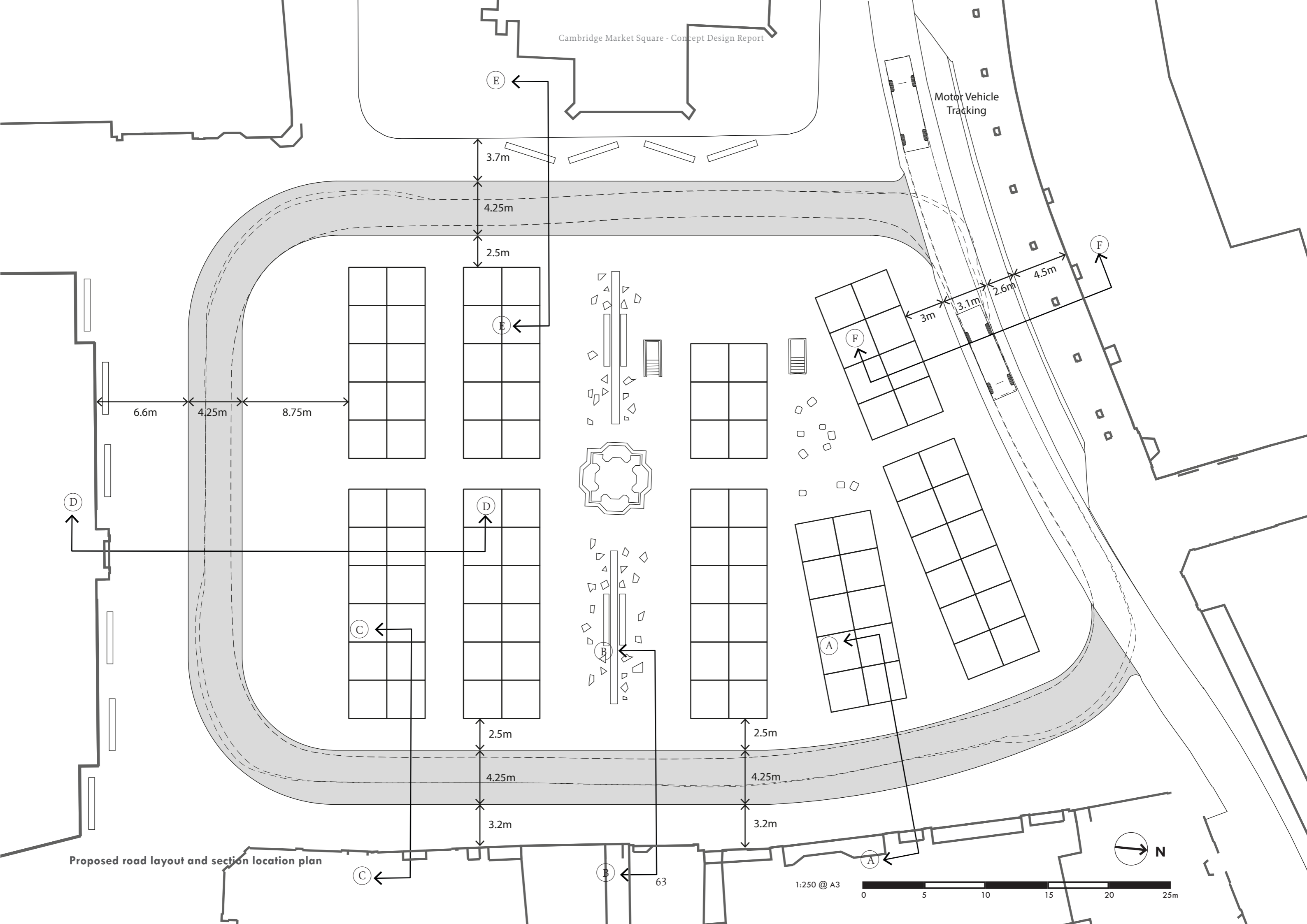


Section C-C



Section F-F

Proposed sections



Motor Vehicle Tracking

Proposed road layout and section location plan

1:250 @ A3



6.2 Inset Parking Bays

Part of the proposed highways strategy is to review and improve the current road layout for motor vehicle access around market square. Motor vehicles are vital for delivering goods to the shops and in setting-up or taking-down the market stalls. The current condition, however, is such that motor vehicles stop to load or unload where and when they are not intended to, which has a detrimental effect on road reliability and the safety of other users. This strategy provides a design response and guidance on improving the loading/unloading environment around market square by considering and balancing the needs of a variety of stakeholders. The type of vehicles delivering goods to market square ranges from a van or small truck while an articulated truck will deliver to M&S. On occasion a 26 tonne waste collection truck will enter Market Square to collect the waste bins.

The location of the loading facilities and their availability are critical to the successful performance of the market square. Facilitating inset parking bays at the right place and at the right time can smooth traffic flow at key times while still benefitting the local shops and market traders. Inset bays allow vehicles to be loaded and unloaded without effecting the flow of traffic around the market square while also maintaining a minimum space for pedestrians to pass thereby improving overall safety for all market users.

On-footway loading involves a vehicles mounting the kerb and parking across part of the sidewalk. Fundamental to this strategy is the need to ensure sufficient space remains for pedestrians to pass safely. The strategy we are proposing restricts this scenario to two specific time periods in the day – 07:00-08:00am and 15:00-16:00pm - when the market traders are expected to set-up and take-down their stalls.

Next Steps:

- * Test motor vehicle tracking for the larger articulated truck and the waste collection truck on the proposed 4.25m carriageway.
- * Review and engage stakeholders to consider how deliveries can be consolidated to reduce motor vehicle traffic. A number of issues including congestion, safety, efficiency, security and air quality and noise pollution can be addressed by managing and coordinating the delivery and servicing trips of the different stakeholders to market square. Frontages, land-use and deliveries all change over time so timings and strategies that were appropriate a number of years ago may not be applicable today.



Articulated delivery truck clashing with trader's van



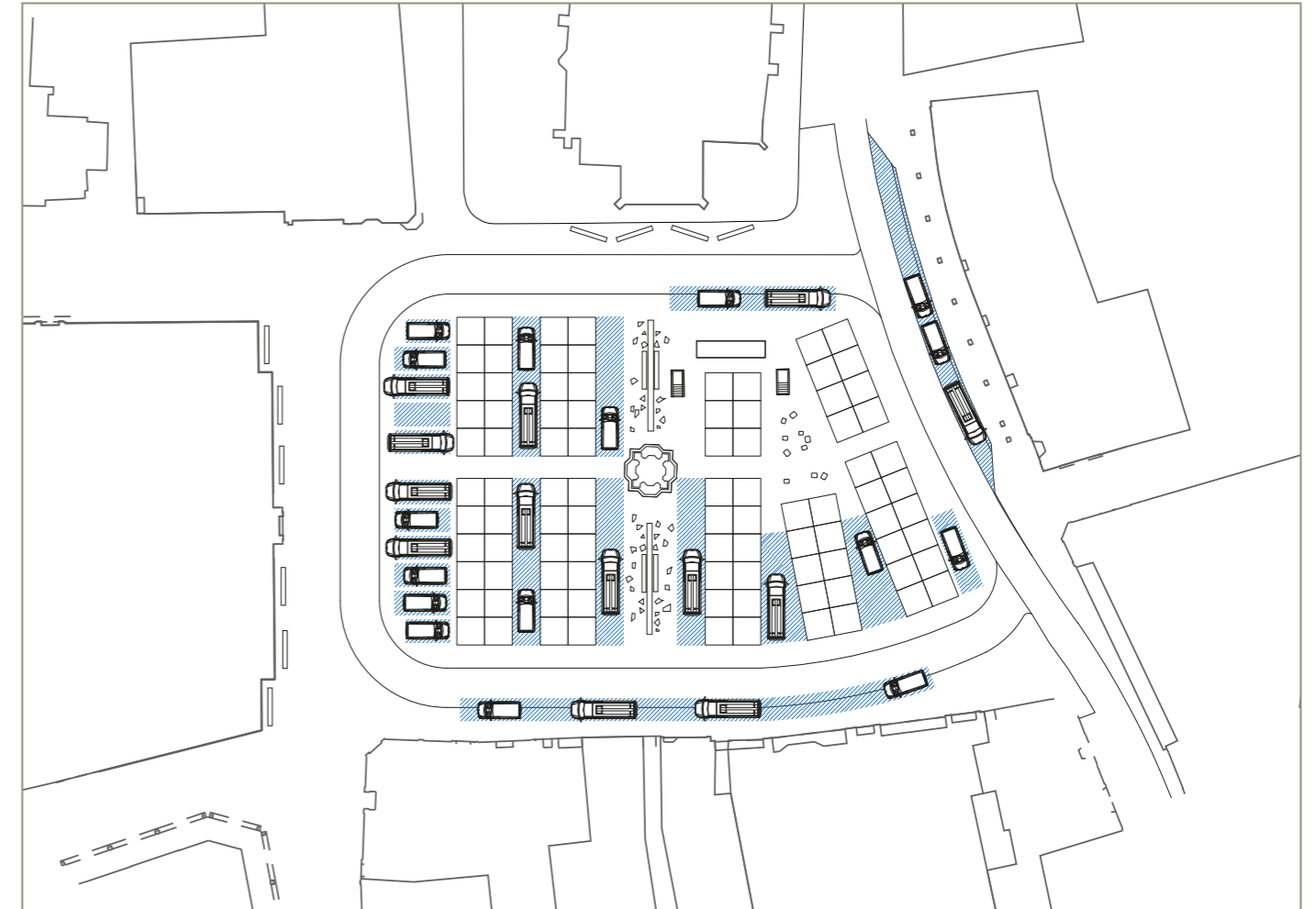
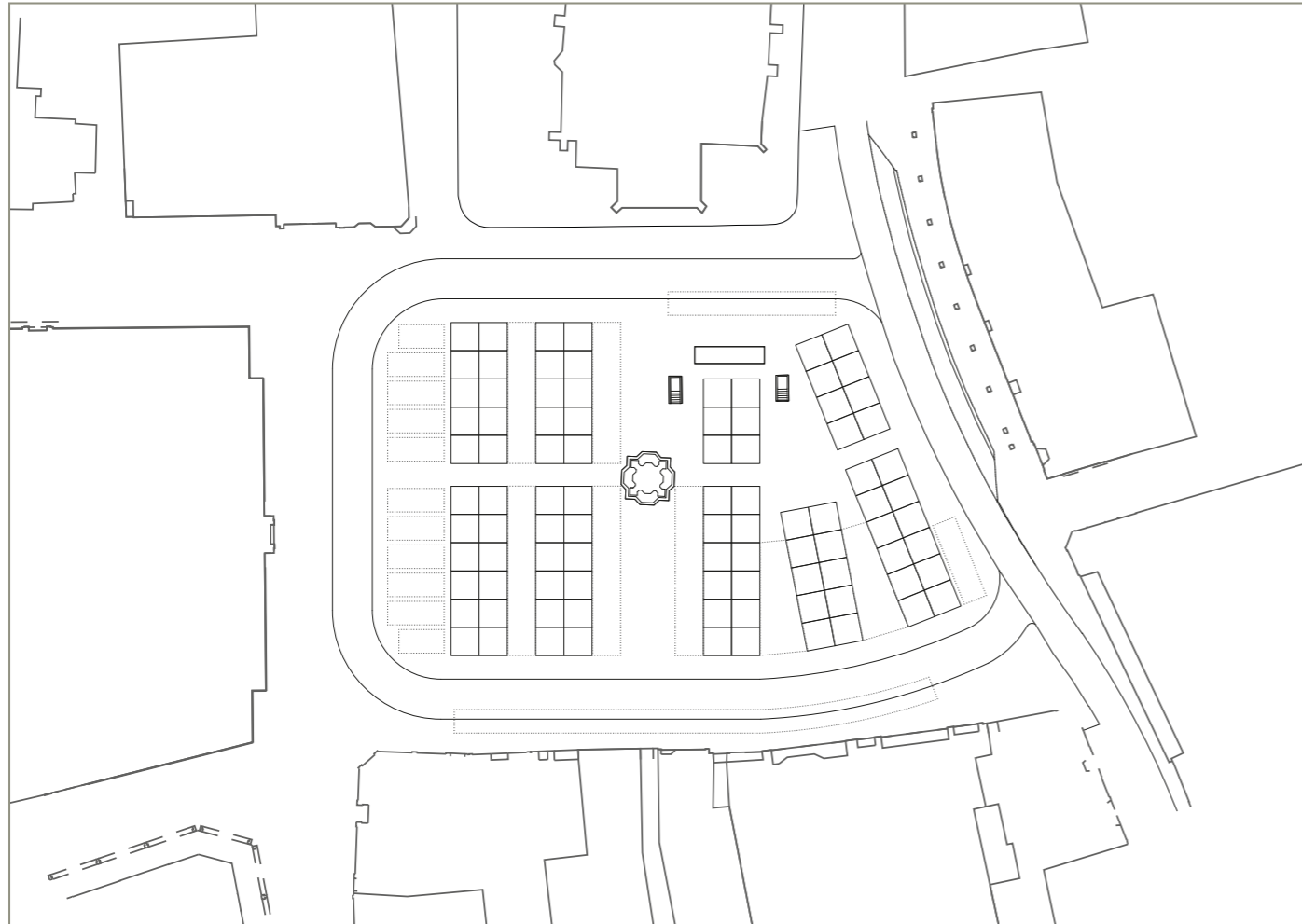
Unregulated parking creates problematic highways conditions and pinch points



Trader's van parking fully across footway restricting pedestrian access



Without designated spaces the traders park their vans at potentially dangerous locations



Market during normal operating hours

Outside of the designated loading and unloading hours for deliveries and market traders, the market square will have minimal vehicular traffic. The intention of having subtly demarcated parking bays is that the space and surfaces will feel like they are intended for pedestrians, rather than the pedestrians are encroaching onto parking spaces.

Proposed parking inset bays during loading/unloading hours

The inset parking bays are located around the Market Square to provide the market traders with as quick and easy access to their stall as possible, which will be particularly important if they have to carry heavy goods. It is expected that the traders will drive their motor vehicles between the stalls to drop off their goods and equipment before driving off and parking their motor vehicles elsewhere. Although they run the risk of becoming congested, it is intended that these internal thoroughfares provide quick and easy access to the stalls allowing the traders to set up as efficiently as possible.



The inset bays will be identifiable through stainless steel anti-slip demarcation studs which subtly contrast with the paving.

Example demarcation studs for inset parking bays

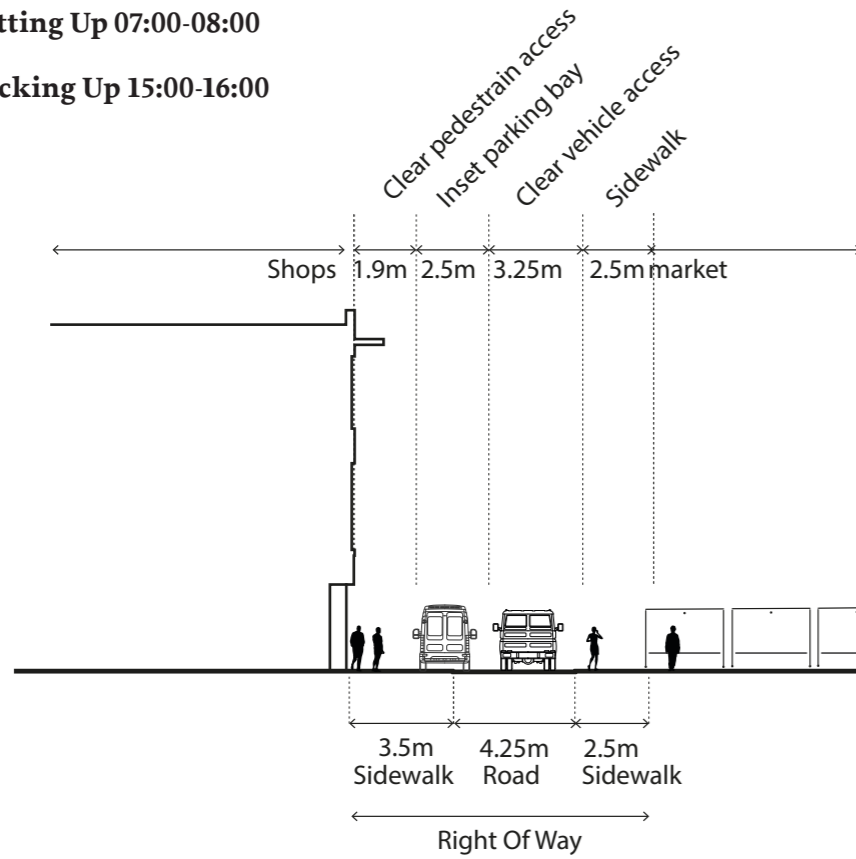
Inset bays are on-carriageway facilities, fully recessed into the footway, offering additional protection for parked vehicles by being positioned out of the general flow of traffic.



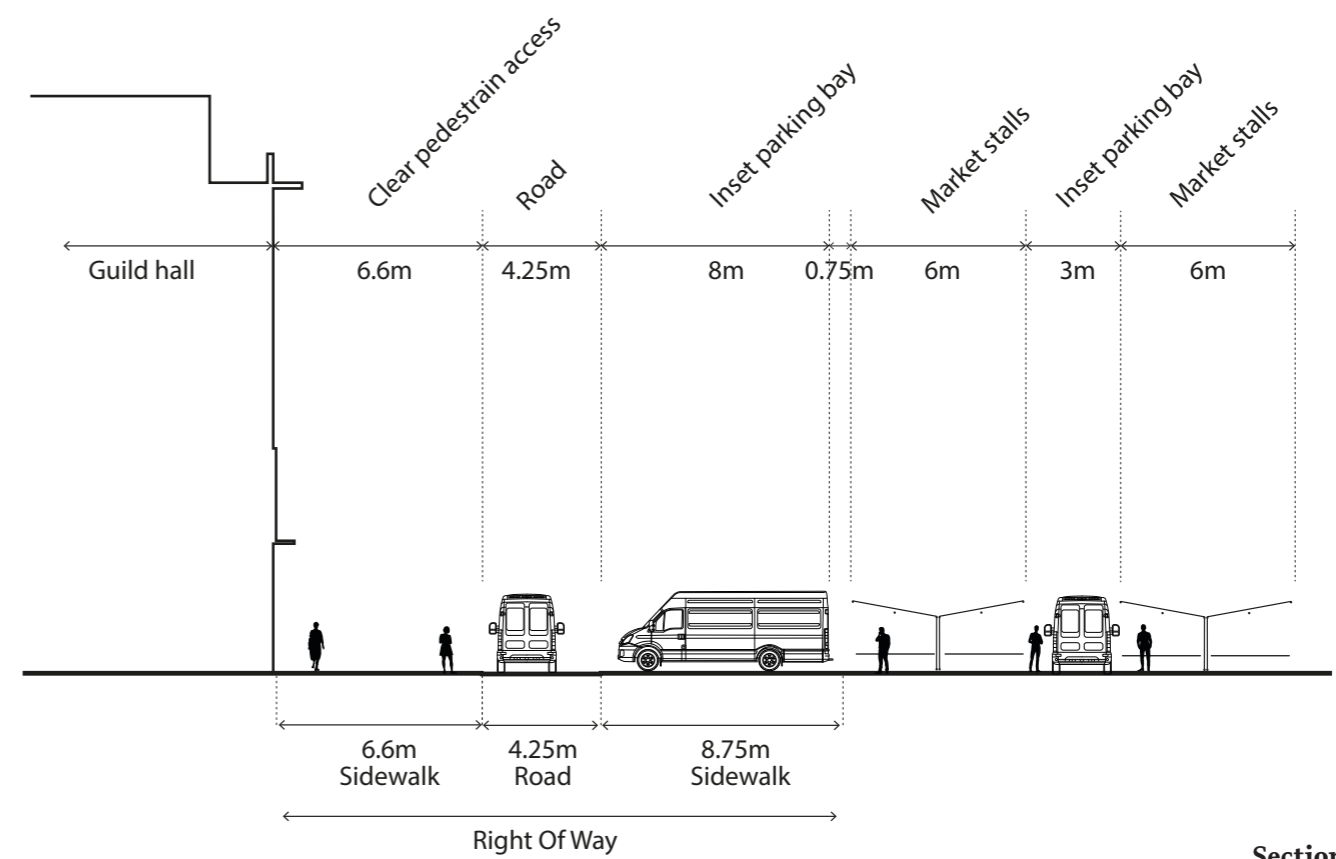
Example inset bay

Market Setting Up 07:00-08:00

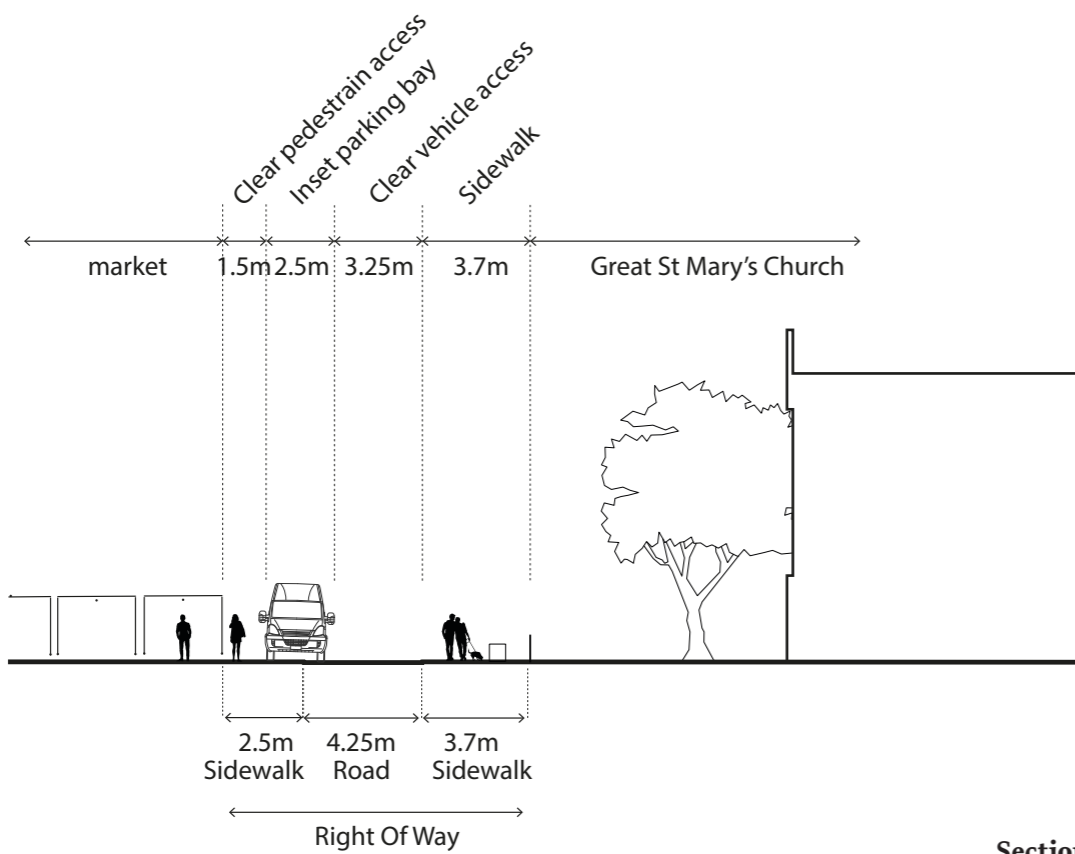
Market Packing Up 15:00-16:00



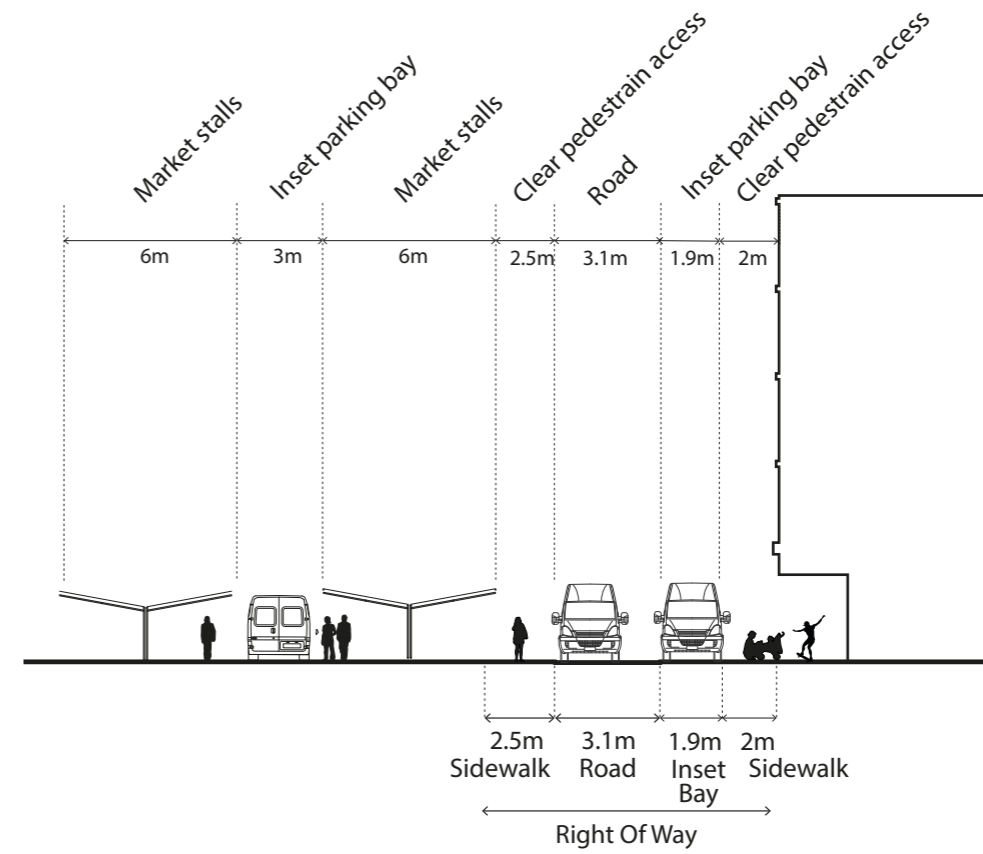
Section A-A



Section B-B



Section C-C



Section D-D

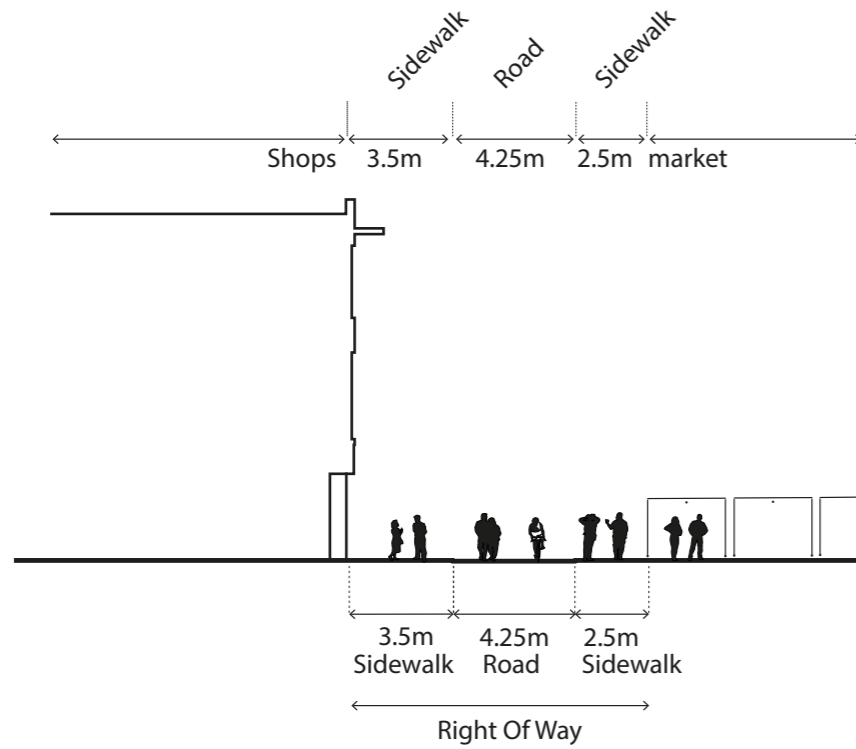
Loading and unloading sections



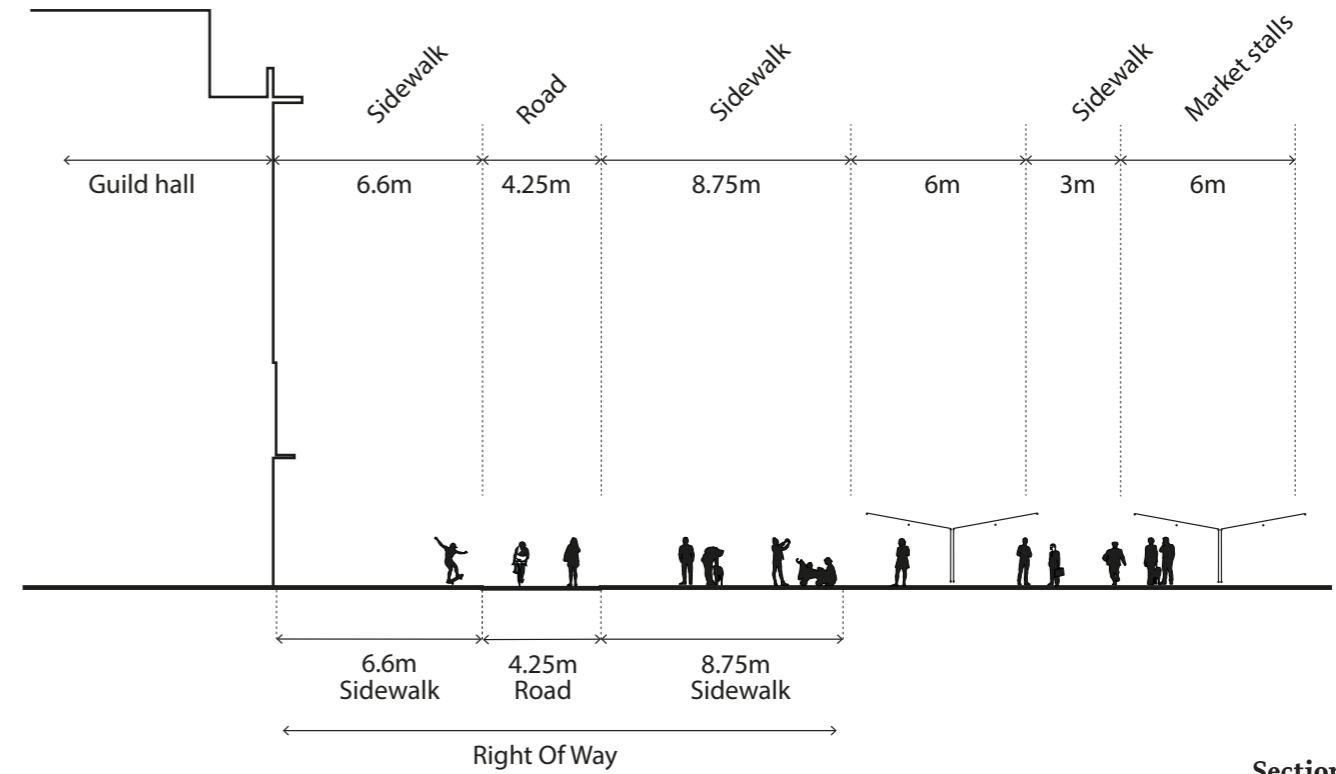
Loading and unloading locations

Market Trading Hours 08:00-15:00

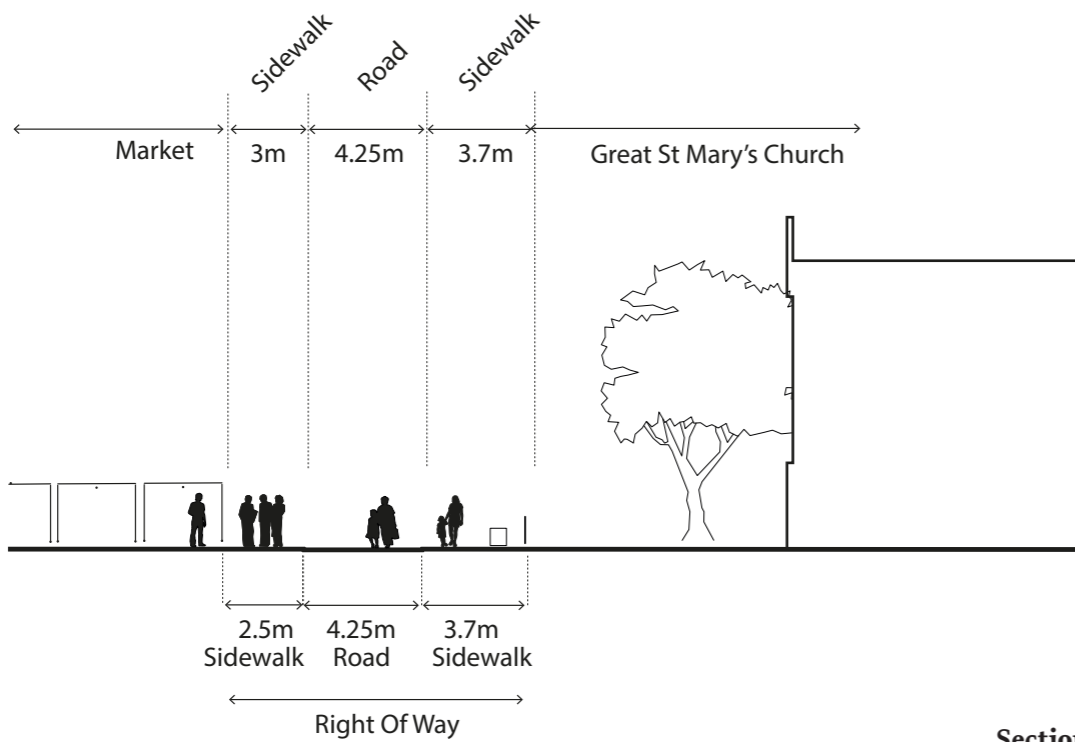
Out of Hours 16:00-07:00



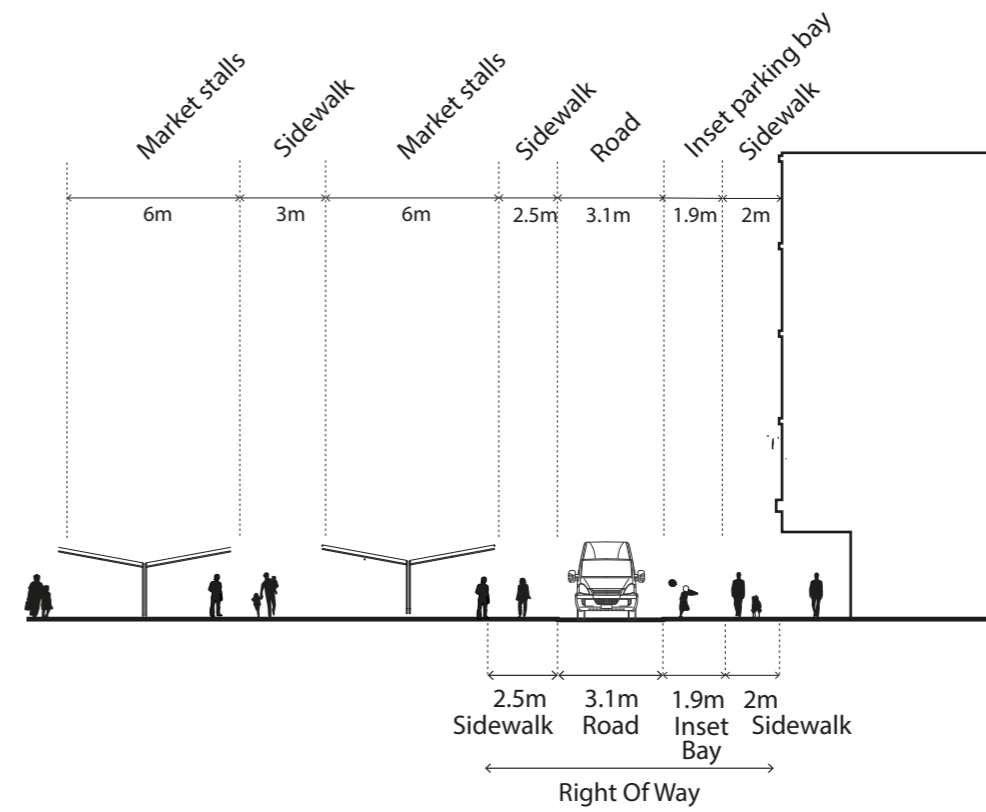
Section A-A



Section B-B

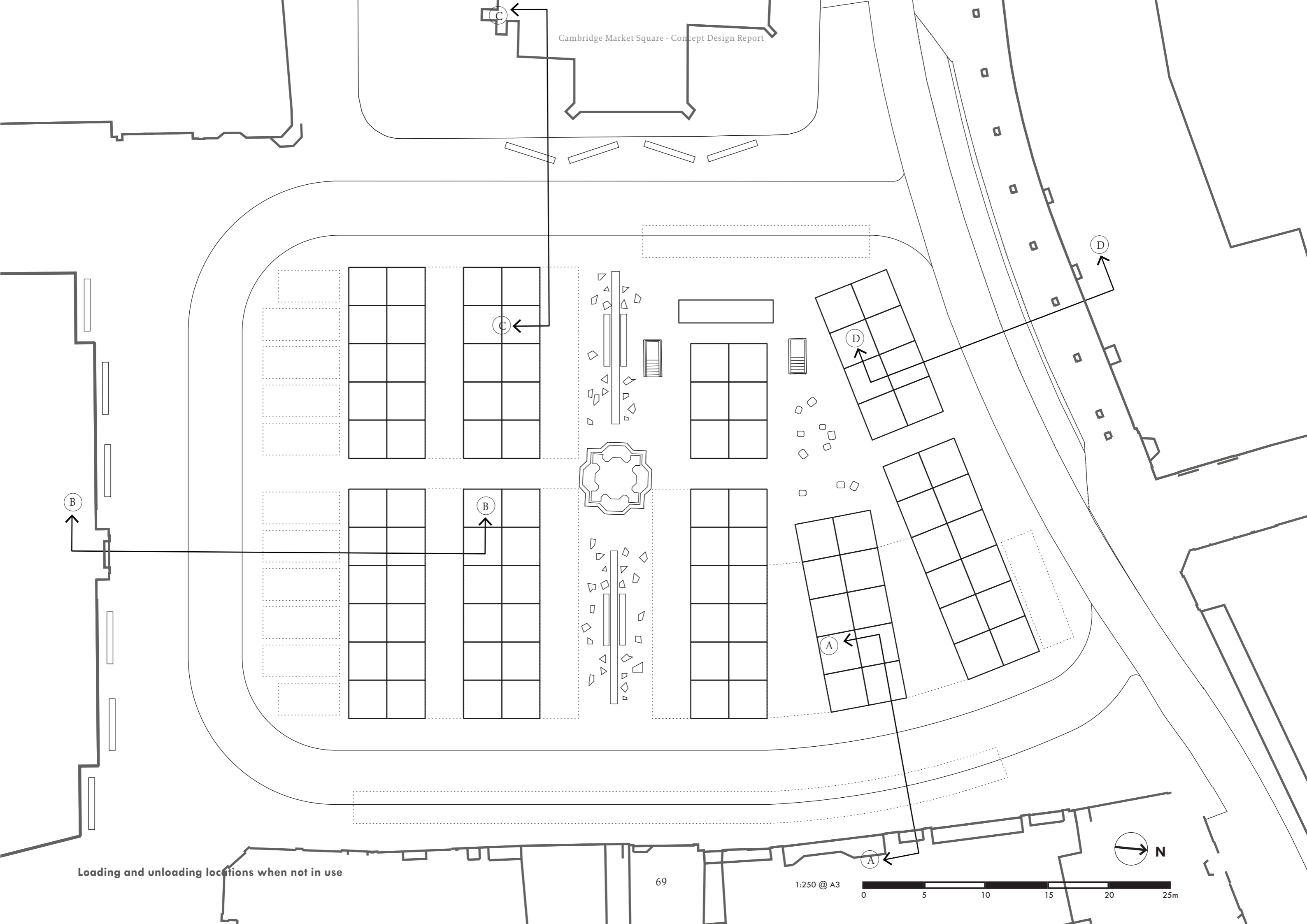


Section C-C



Section D-D

Proposed sections



Loading and unloading locations when not in use

6.3 Cycle Access

Existing Cycle Access

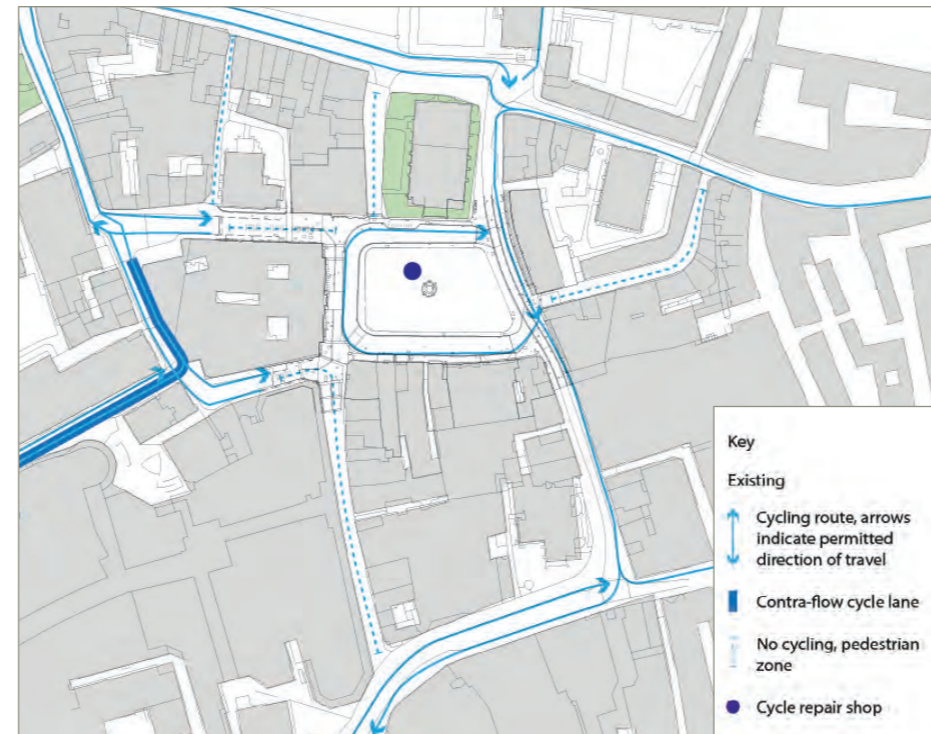
Currently the market square is littered with bikes parked in ad-hoc ways, attached to fences, lampposts, market stalls etc. In order to rationalise what is currently happening and de-clutter the market square it is proposed to move a number of the cycle parking racks to streets that run adjacent to market square.

Proposed Cycle Access

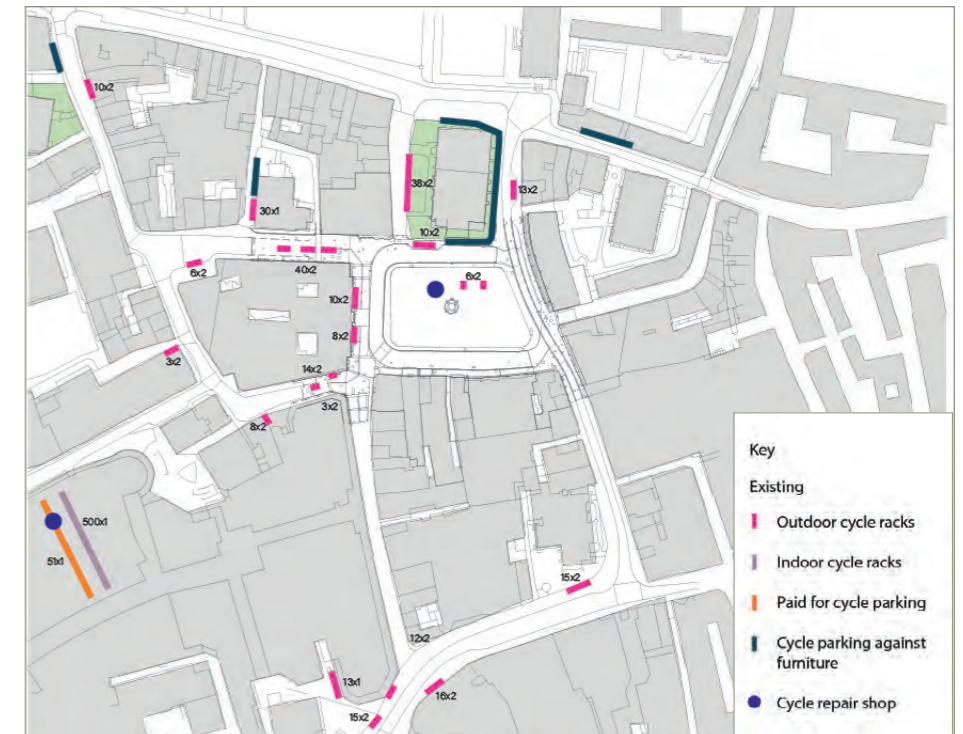
Part of the overarching strategy is to minimise the potential accidents between pedestrians and other forms of transport and that involves reducing the number of bikes which cycle around Market Square. This is in part achieved by repositioning a number of bike racks away from the central market area so that those who are visiting Market Square by bike don't need to traverse the square in order to find somewhere to park their bikes.

Next Steps:

- * Further investigation of the proposal to move some of the cycle racks to Peas Hill will require undertaking a detailed study looking at the exact proposed locations and ascertain any possible conflict from a technical perspective. For example, whether it will create a problem with the light wells which run alongside the Guildhall building on the Peas Hill side.
- * Review existing bike racks and compare with other options for a more space-efficient alternative



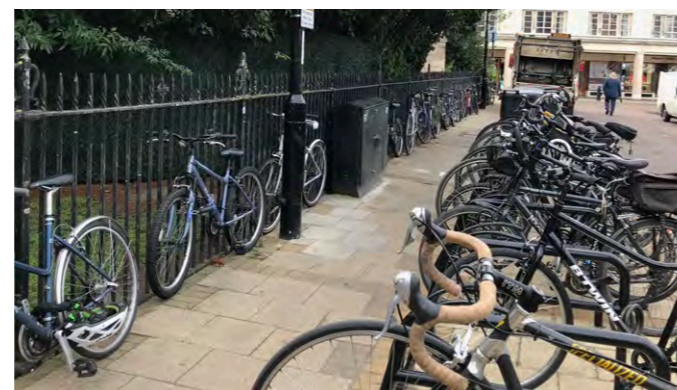
Existing Cyclist Access



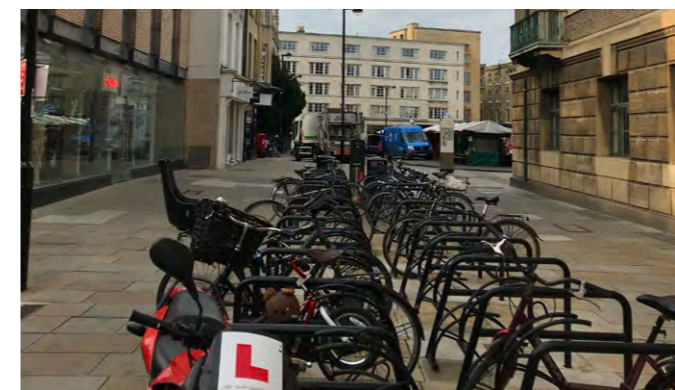
Existing Cycle Parking

Cambridge City Centre is largely accessible by bike and cyclists have access to a number of city centre streets where motor vehicle access is restricted. As a result many people visit the city centre on bike.

Existing provision of cycle parking includes a variety of hoop stands (pink), cycle parking against railings (blue), and paid for cycle parking (orange).



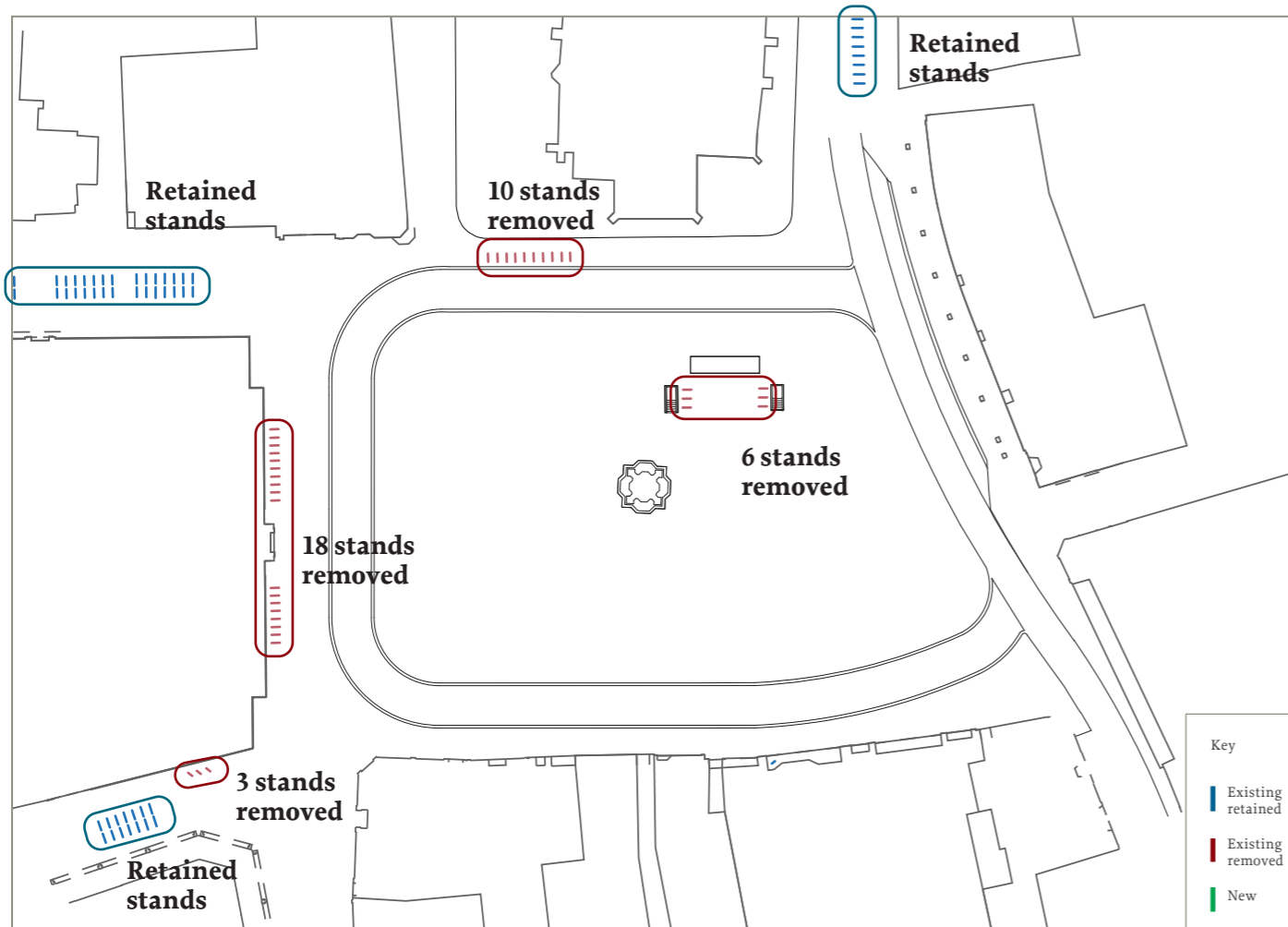
Existing cycle parking in front of Great St Mary's Church to be relocated off Market Square



Existing cycle parking provision on Peas Hill to be improved

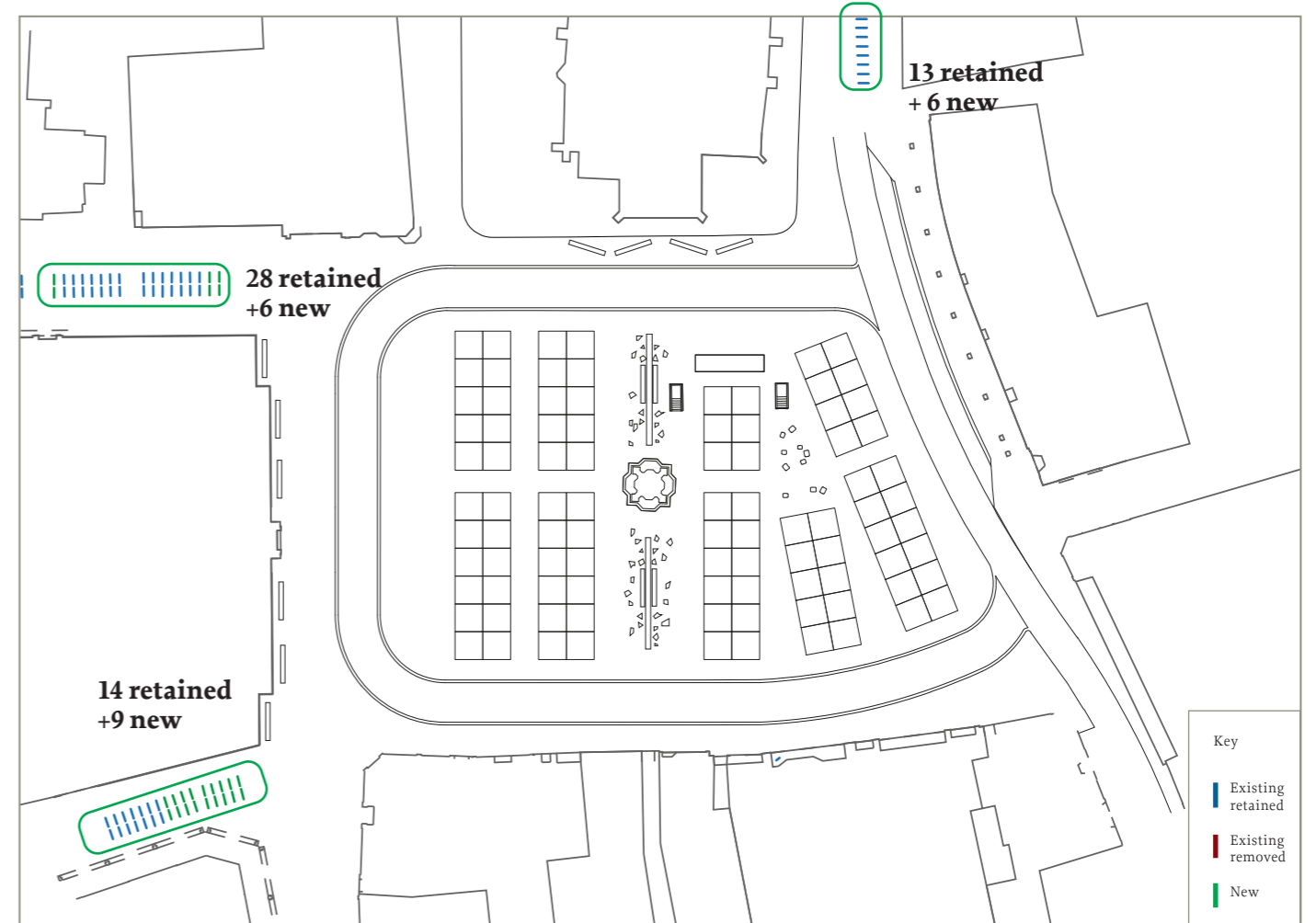


Problematic cycle parking on sidewalk



Existing cycle stands

A number of the racks being removed include the ones that sit directly in front of the Guildhall, also a those which are in front of Great St Mary's Church and some which are near to the entrances for the toilets.



Retained cycle stands and proposed cycle stands

The removed stand will be reprovided on the streets surrounding market square, including Peas Hill, St Mary's Street and Guildhall Street.

6.4 Pedestrian & Disabled Access

The Market Square can be an inaccessible space for people with disabilities. Despite being intended as a pedestrian environment there are particular difficulties in navigating the existing market, such as; uneven surfaces, high kerbs, obstacles, large and disjointed setts, slopes and slippery surfaces. As a result some users are unable to access the square safely or lack the confidence to use it.

Therefore, it is important to create an inclusive pedestrian environment that facilitates dignified and equal use by everyone in full compliance with the Equalities Act of 2010.

Proposed Accessibility:

The project aims to create an inclusive environment that recognises and accommodates the difference in the way people will use the Market Square. This will be done by creating a space that is simpler, with clear and distinct features that aid navigation for all users without discrimination in accordance with all aspects of the Equalities Act.

In order to make the square as accessible as possible there are a number of strategies proposed. As set out earlier in the report these include; reviewing the surface treatment of the existing granite setts with Historic England and technical experts, dropping the kerbs heights to 25mm with a 45 degree chamfer (without tactile paving) so they can be mounted more easily and creating a tonal contrast between the surfaces thereby enabling users to transition between the carriageway and strictly pedestrian areas. It must be noted that it was a conscious design decision to avoid the creation of a single shared space in the Market Square by leveling all areas into one continuous surface as there is enough evidence to suggest that such treatments may create unequal conditions in navigating the public realm. Instead, the intention is to preserve a distinction between carriageway and sidewalks while making the former more inviting to walk on establishing across the square the prioritisation of pedestrians over vehicles.






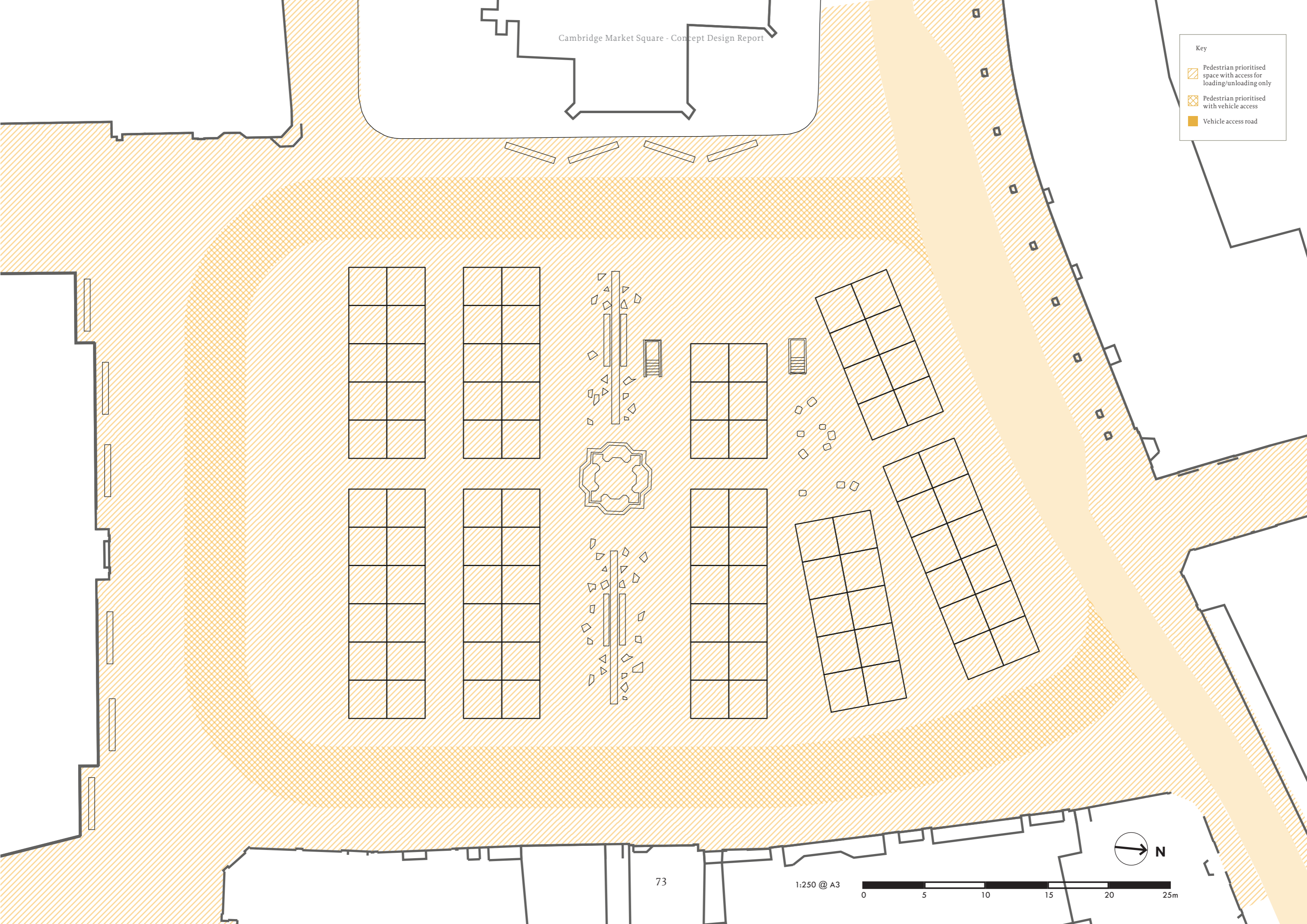
Examples of people using the carriageway as a pedestrian surface

Next Steps:

- * Further consultation with stakeholders who represent disability groups within Cambridge to understand their views of the design.

Key

-  Pedestrian prioritised space with access for loading/unloading only
-  Pedestrian prioritised with vehicle access
-  Vehicle access road



7.0 Utilities

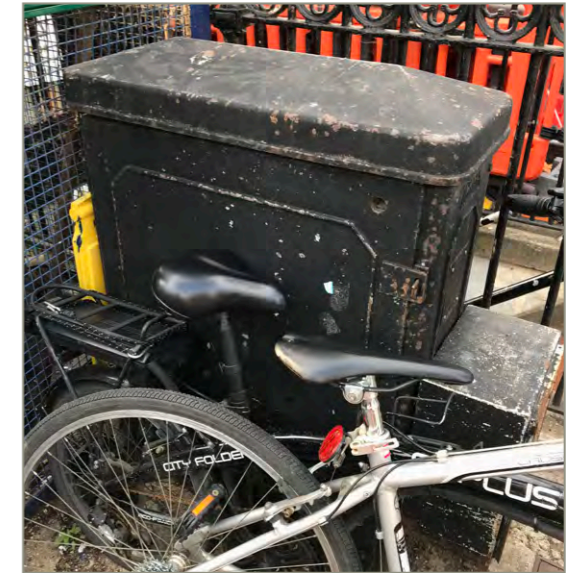
7.1 Electricity

Existing Electricity Supply

At present the market stalls are supplied with electricity by underground cables, which come above ground at untidy, inefficient sockets. Market traders have commented that the electricity is often unreliable with interruptions.

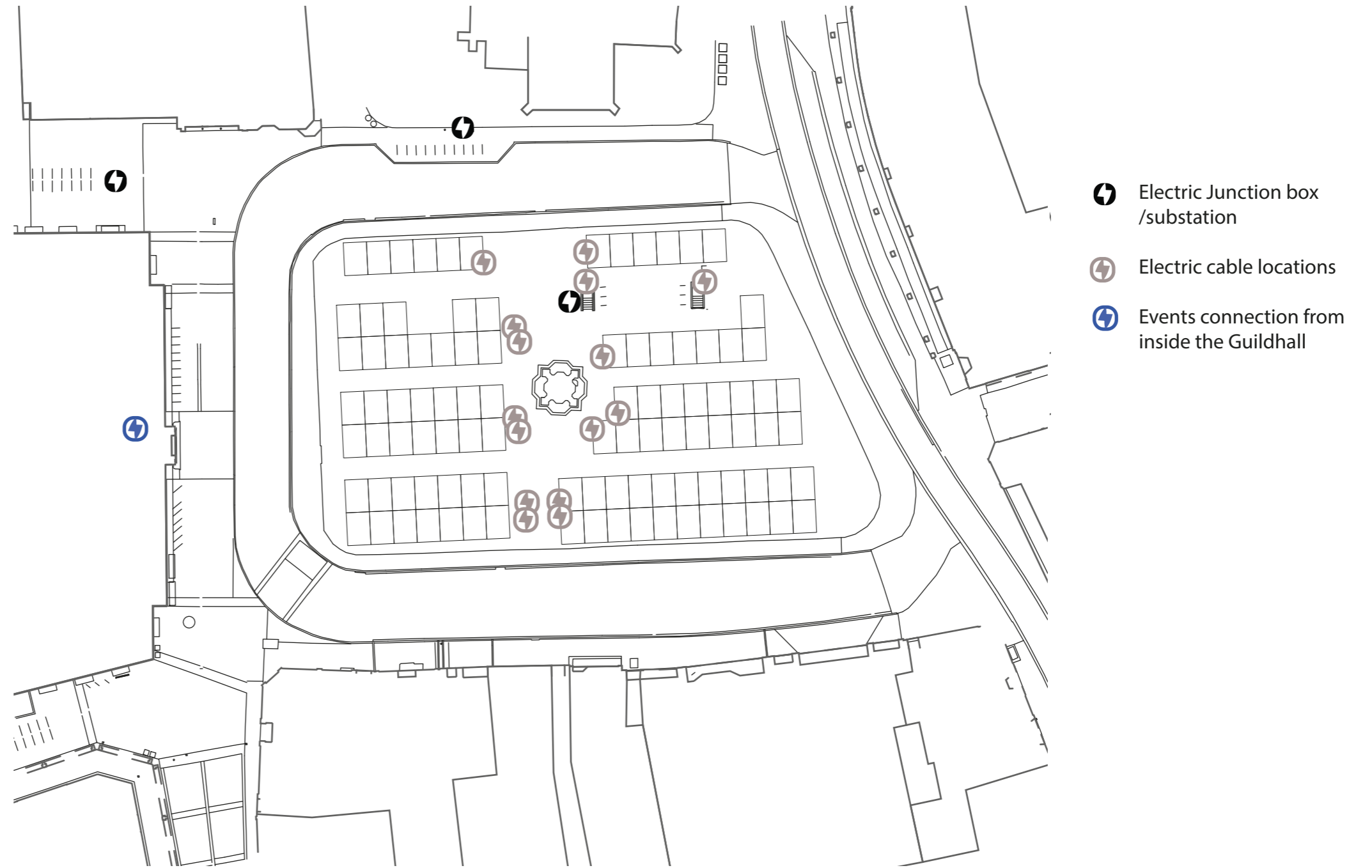
The existing fuse box adjacent to the stairs leading to the underground toilets, is in need of updating due to its undesirable and aged exterior cover and its underperforming capacity to service the market stalls power requirements resulting in frequent outages.

Power for events is currently only available from inside the Guildhall. This involves lengths of cables running from inside the Guildhall to where it is required.



Photos showing existing electricity supply to stalls.

Photos showing existing fuse box for market square.



Existing electricity supply



1:500 @ A3

Proposed Electricity Supply

A reconfigured electricity supply is proposed to distribute power to all market stalls and provide power in suitable locations for future events. The proposals include underground cable routes with restricted access points and a new fuse box located in a more functional and appropriate location in the reconfigured underground toilet space. This removes the need for above ground solutions and maintains flexibility to the space.

Market Stalls

Electrical cables are proposed to be run to the end of each row of stalls. New in ground sockets inlaid in the paving will provide connection points. Each line of stalls will then have a cable running from these sockets, along their roof lines to supply each stall.

The market stalls are proposed to each have their own in built cable with two 13A sockets at its ends. Each stalls cable can then be connected to it's adjacent stalls cable, like a 'daisy chain'. This will allow for each stall to be easily disassembled when needed and cables protected and tidy.



Weatherproof double socket daisy chain connectors

Events

Power supply for events or other uses is proposed to be provided by 5no. additional new socket connection points inlaid in the paving. These would allow events to happen without interference of the market stall power supply points. For larger events where market stalls are dismantled or relocated the market stall power points could also be used. Additional points would be located outside the Guildhall on either side of the entrance, within the central axis on either side of the existing fountain and one in the smaller space north of the fountain.

Toilet block

Power for lighting columns and underground toilets will be coordinated with further work.

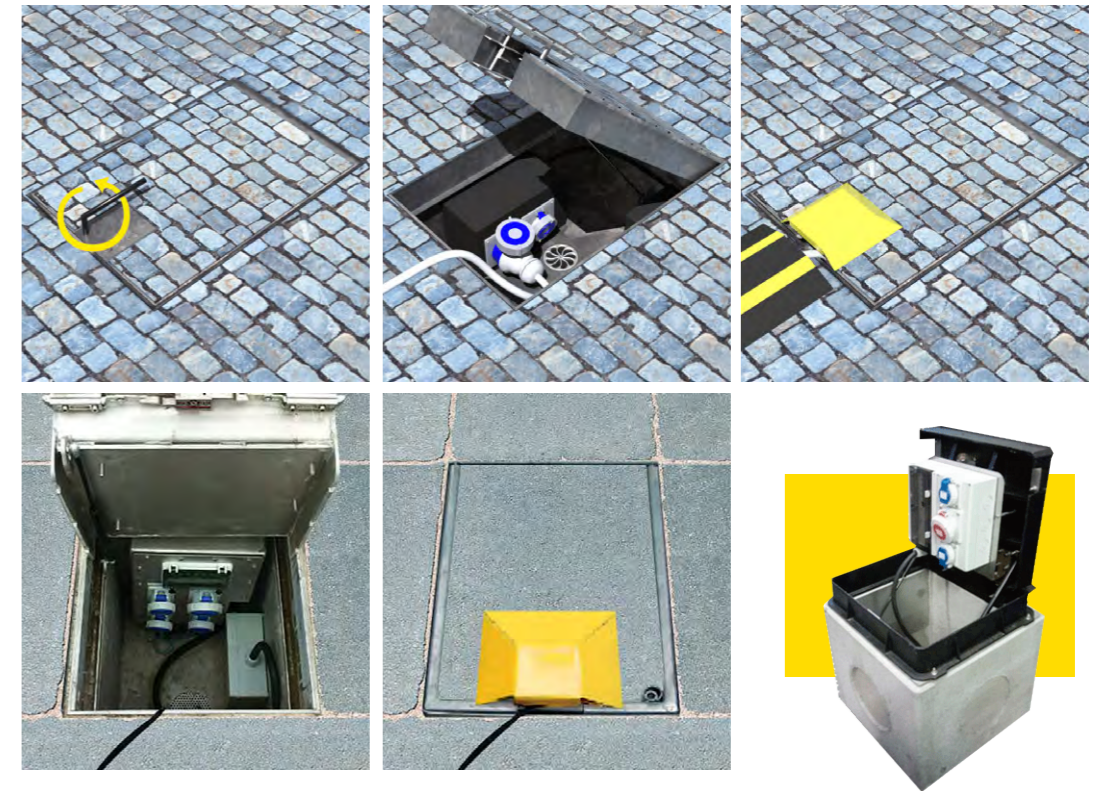
Renewable and smart energy

The integration of renewable energy technology with smart energy distribution is being considered.

In-Ground power points

The proposed in-ground power points can be specified in a range of sizes and connections to supply electricity, water, gas and telephone. This allows for services to be coordinated and minimise access points and the number of recessed covers.

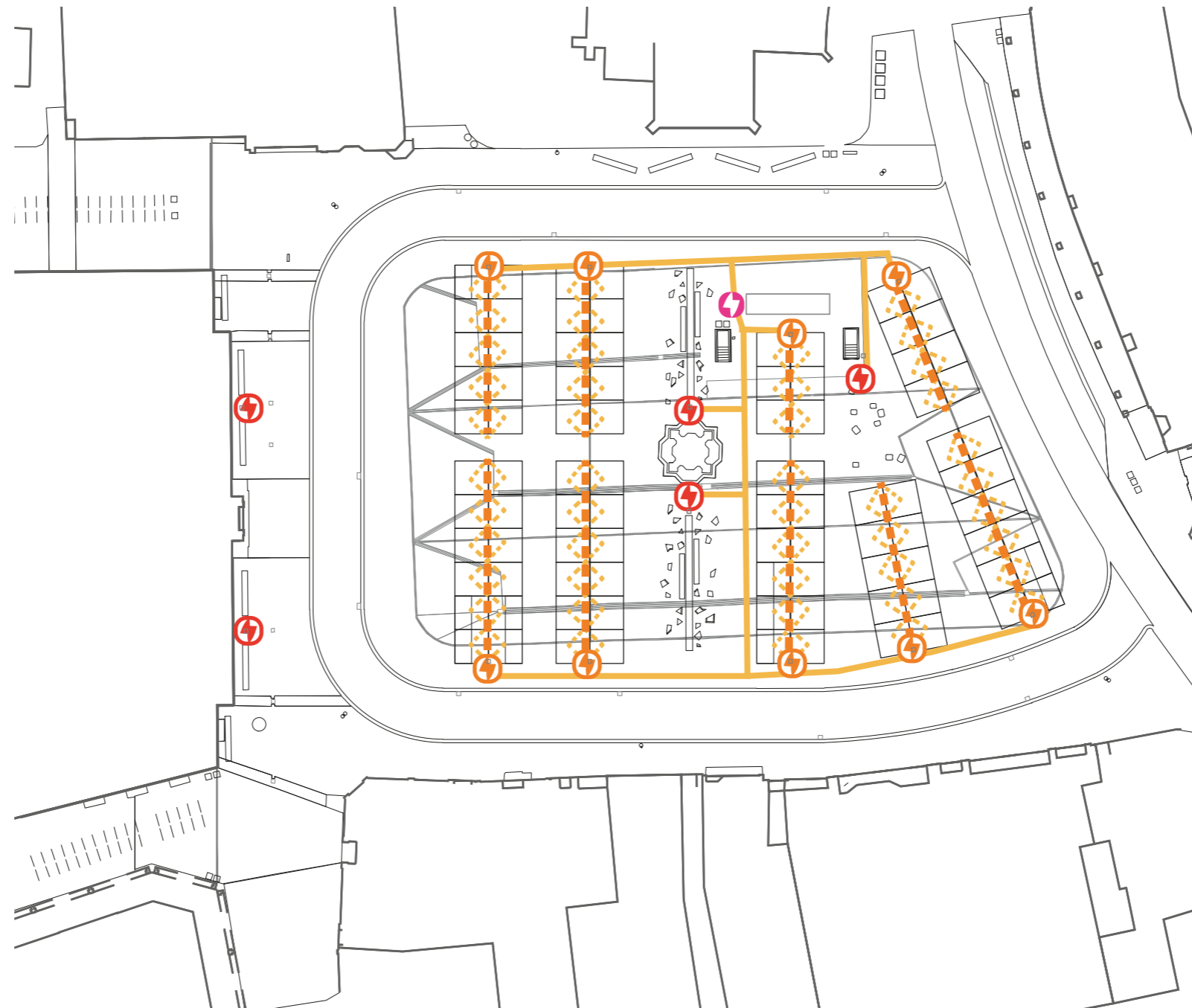
The flip lid units provide round the clock power for days, weeks or even months on end. To minimise the potential for damage owing to vandalism and harsh weather because they operate unattended with the lid locked down, with only the power cable protruding. The lids are raised manually and are gas strut assisted to reduce the risk of them failing compared to motorised pop up power points. The recessed covers allow them to integrate into the surrounding floorscape.



Proposed in-ground power supply points

Next Steps

- * Explore the requirement and technical feasibility of metering stall holders individually
- * Consult with the sustainability team to establish the potential for integration of renewable energy technology with smart energy distribution



-  New fuse box location
-  New stall socket locations
-  New event socket locations
-  Underground cables
-  Modular stall cables above ground
-  Non modular stall cables above ground

Proposed electricity supply



1:500 @ A3

7.2 Data

Existing Data

Provision of data in the market square is not adequate for one of the worlds most influential cities. As part of CambWifi there is free public Wifi in the Guildhall public building and the Market Place via The Cloud. The secure network is free and simple to join, allowing people to work flexibly, access public services, shop and pay bills online, and keep in touch with family and friends. The secure public access Wifi network is provided as part of Cambridgeshire County Council's Connecting Cambridgeshire digital connectivity programme, with Government funding, to support local communities. The free Wifi is understood to not be very usable and is not performing very well. There is also limited opportunities to sit down and use the Wifi due to limited seating.

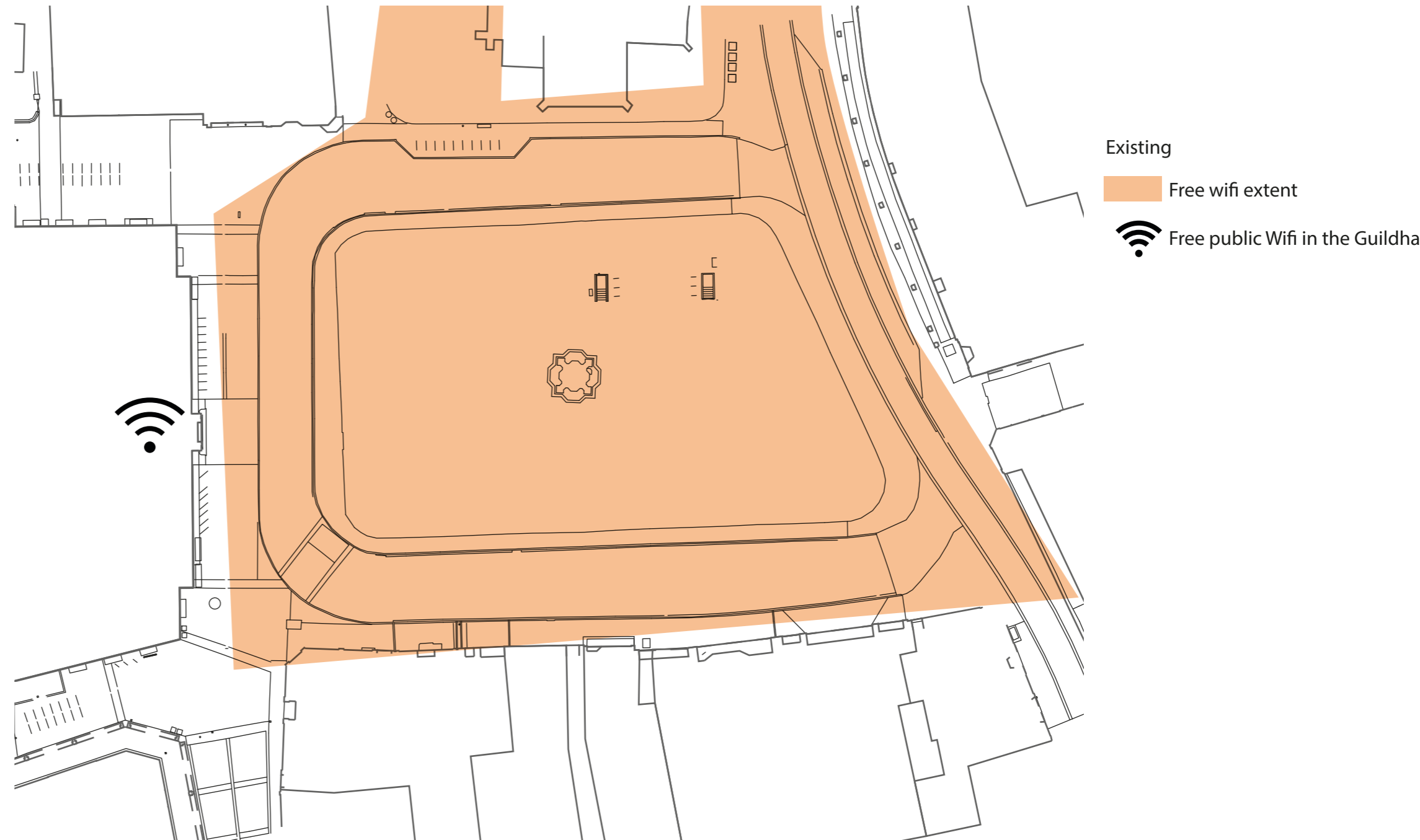
Proposed Data

Integrating data into the Market Square will help deliver a world class environment and solve some of the areas challenges. The proposals have been informed by conversations with Smart Cambridge who's aim is to ensure that Greater Cambridge is a 'smart city region' and Collusion, a not-for-profit company that's aim is to build an international profile for the wider Cambridge area as an R&D centre for interdisciplinary arts and technology collaboration. The proposals may be delivered in full as part of the project and some may be designed to future proof the scheme and initially provide only the connections or basic infrastructure needed but that enables future investment. This will create much more flexibility within the space by considering all possibilities at this stage.

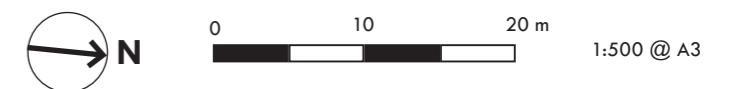
Better provision of wifi and 5G

Better access to 5G Data is inevitable for the future of modern cities globally. Providing improved free Wifi to its visitors in the centre of the city would enhance its attraction and functionality.

- * Upgraded Wifi connection to be installed to create a faster and more reliable connection.
- * New proposed posts for 5G or integration into new lighting columns or street furniture TBC.



Plan showing existing data



Internet of Things

IoT (The Internet of Things) could be installed in the market square. This is a smart network of physical permanent objects (i.e. lampposts or market stalls) with in-built sensors, software, and other technologies for exchanging data with other devices and systems over the internet. This infrastructure could be used to collect and analyse data and create a moving map of market traders which could be used to communicate who trades where on each day, this data could be linked to a dynamic/digital dashboard. Other uses include smart furniture that communicates environmental and social data or levels of congestion and pollution.

Projectors

The option to have a projector available within the space would create a very flexible method to create a changing environment and could create an ongoing revenue for the council. Requirements:

- * A fixed location on a structure within the square to fix a weatherproof box to house a projector to project onto the Guildhall. This could be integrated into the fixed stall option.
- * The windows in the Guildhall would require blinds
- * A media manager to look after it and a reliable and stable centralised management system that uses a basic platform but that can have interactive elements added. In other places engineers that maintain CCTV have been trained to maintain projection equipment.

Further advice on projection equipment may be available from The Cambridge Film Trust (CFT) a registered charity that fosters film culture and education for the benefit of the public in Cambridge.

Events data

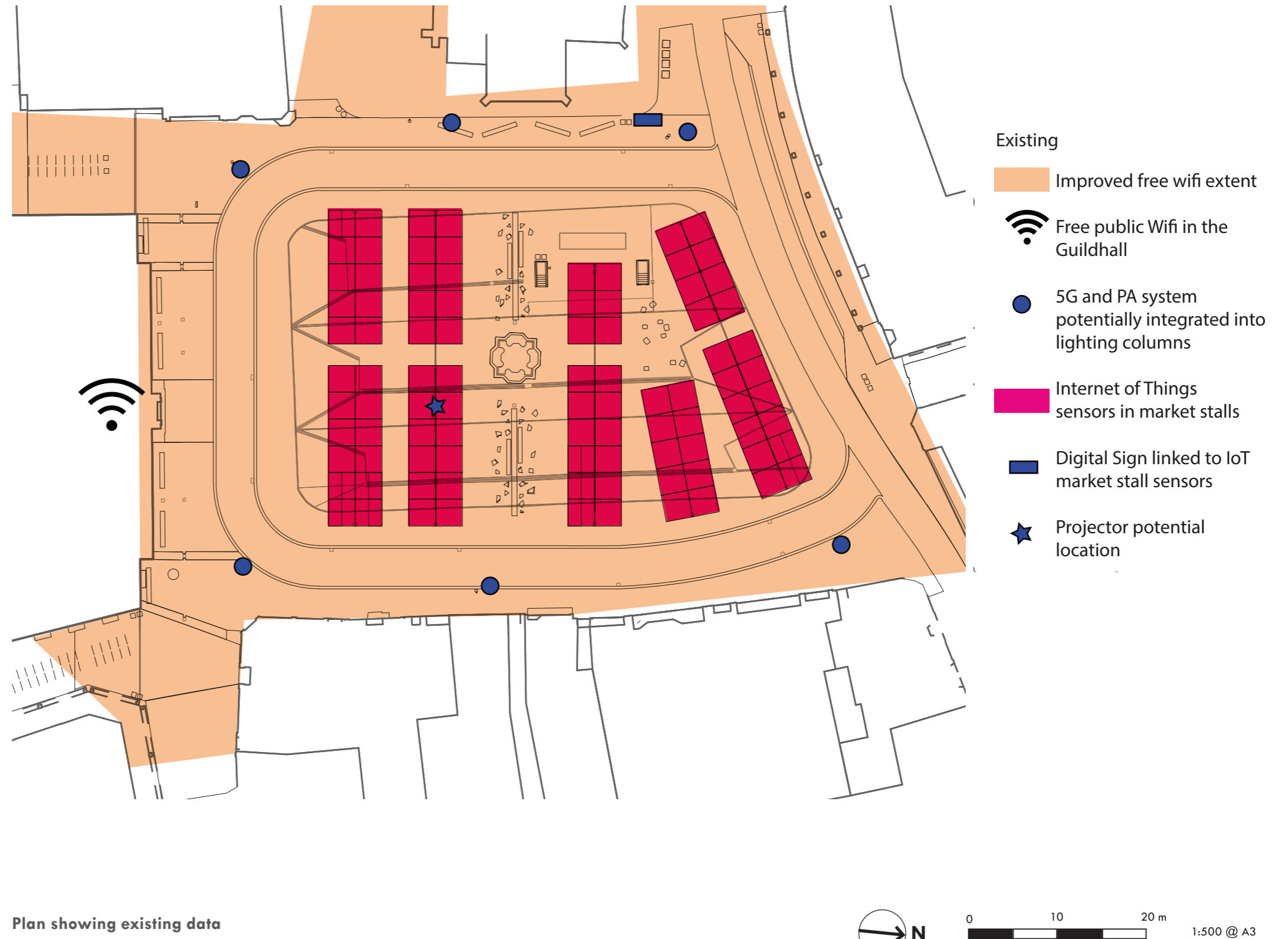
PA system, this could be on new posts or integrated into new lighting columns.

Externalising discussions from inside the Guildhall

There is the potential to bring discussions held within the inside of the Guildhall outside by using audio/projection, this would open up democracy and share the knowledge from what happens inside the Guildhall.

Next Steps

- * Phasing of proposals to be agreed
- * Proposals to be developed with appropriate consultants with coordination with electricity and data existing services.







Plan showing existing data

7.3 Drainage








Existing Drainage

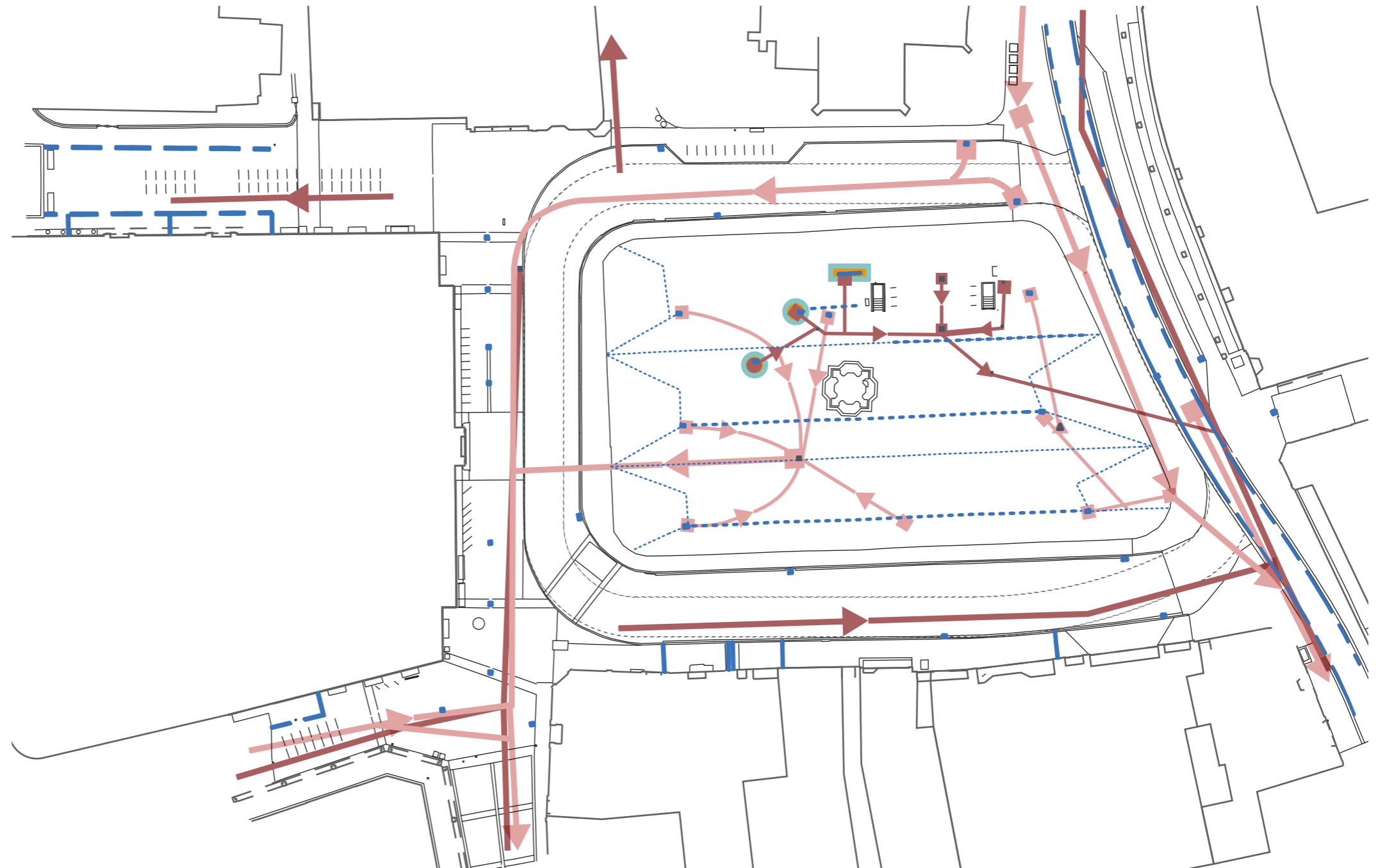
The existing underground drainage provision for surface water and foul sewer connects the Cambridge City Council services into the public services.

Existing underground drainage

-  Public surface water sewer
-  Cambridge City Council surface water
-  Public Foul Water Sewer
-  Cambridge City Council foul water

Existing above ground drainage

-  Fish mongers stall drain
-  Fat drain
-  Gulleys
-  Linear drainage features
-  Manholes for access to drainage system
-  Drainage channels (dished channels made from setts)
-  Drainage channels (linear lines of setts)



Existing drainage plan



1:500 @ A3

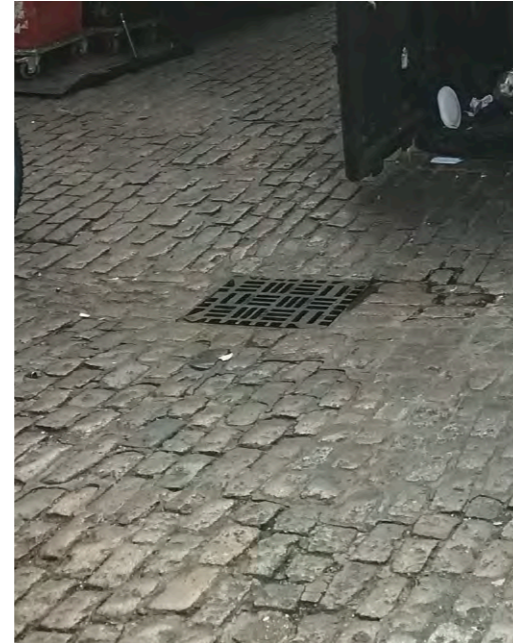
The central market area surfaced in historic setts uses dished drainage channels constructed from setts running north-south to drain into gulleys. The northern gulleys connect into the underground pipes and flow under St Mary Street and the southern gulleys flow towards the Guildhall.

There are two drains associated with the fishmongers stall, these connect into the foul sewer.

A fat drain located by the waste compacter also connects into the foul sewer. It is not clear if there is a fat trap which gets emptied regularly.

Both of these connect to the underground toilet foul connection before flowing north towards the public foul sewer under St Marys Street.

Road gullies and linear drainage features serve Market Hill and St Marys Street and connect into the public surface water pipes.



Existing rain gulleys



Photo showing existing drain used by fish monger for their waste

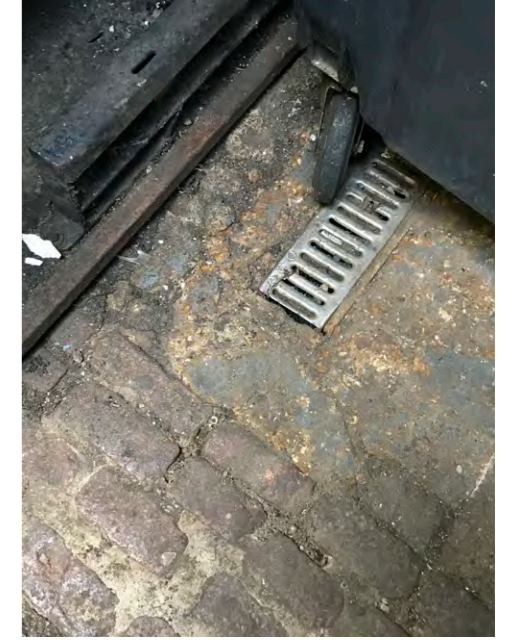
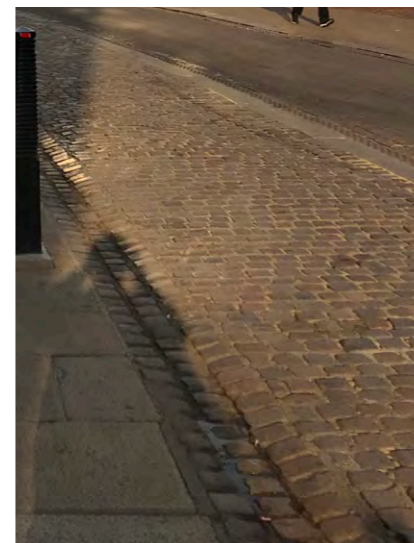
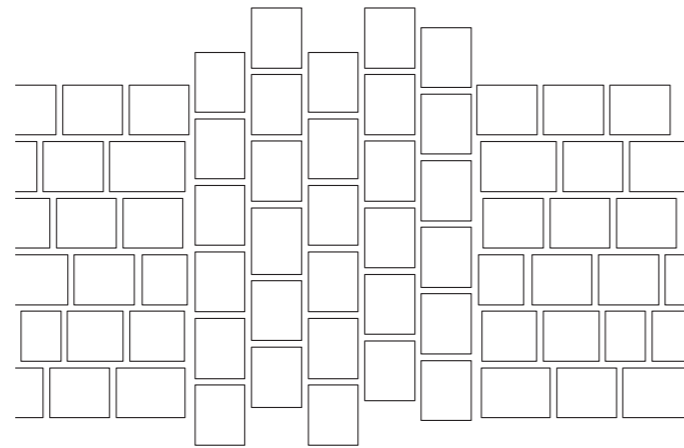


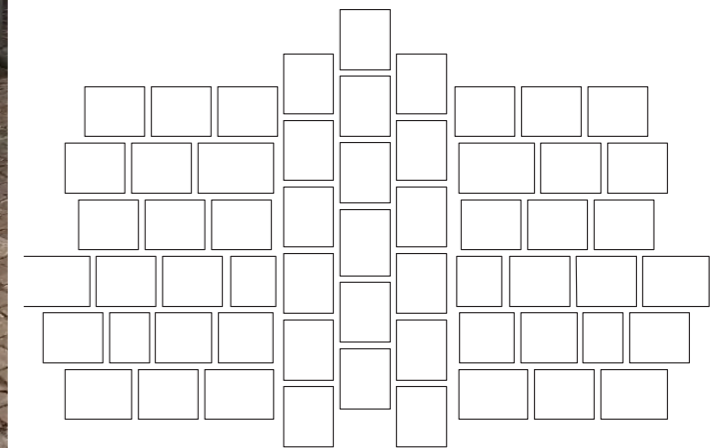
Photo showing existing fat drain



Dished row of 5 setts



Dished row of 3 setts



Proposed Drainage Adjustment

Surface run off

The existing linear drains will be retained along St Mary's Street as will the gullies in front of the Guildhall. Some modifications are proposed to road gullies on Market Hill to align with the new road alignment.

The drainage channel alignments within the historic setts will be retained and restored where they have been lost. Their drainage function will be maintained albeit reduced as part of the proposed additional drainage to ensure accessibility requirements at met. This would involve the channel depth being modified to reduce the depth. New linear slot drains would then run east-west to connect into the existing drainage channels.

Toilet block

The existing toilet block will be configured whilst reusing the existing drainage connections.

Event toilets

An events foul drainage connection is proposed. This would allow extra toilets to be brought in for events that can be connected to the existing drainage system. This would allow for a more sustainable event infrastructure allowing non-plastic and chemical temporary toilets to be used.

Fishmongers

A relocated foul connection drain to service the fish mongers stall is proposed.

Fat drain

The existing fat drain is proposed to be relocated to the north of the underground toilet block reusing an existing foul connection.

Next Steps

All connections and underground pipe work to existing drainage to be confirmed by drainage engineer in coordination with the CCTV assessment.



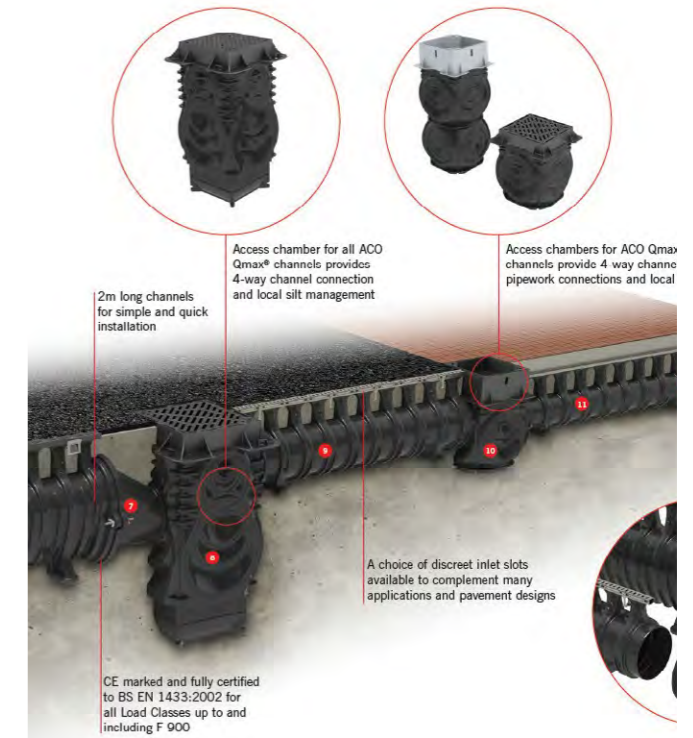
Slot channel maintenance access



Slot channel with perpendicular rather than linear divides to avoid debris getting stuck



















Coordinated proposed gullies



Slot drains connected to drainage channels



Events toilet foul drain connection

-  Slot drains
-  Reinstated above ground drainage channels (dished channels made from setts)
-  Gulleys
-  Paving fall
-  Public surface water sewer
-  Cambridge City Council surface water
-  Public Foul Water Sewer
-  Cambridge City Council foul water
-  Fish mongers stall drain
-  Fat drain
-  Event toilets connection point
-  Existing Gulleys retained/relocated
-  Linear drainage features
-  Manholes for access to drainage system
-  Above ground drainage channels (dished channels made from setts) relaid to shallower depth
-  Above ground drainage channels (linear lines of setts) relaid



Proposed drainage plan



1:500 @ A3

7.4 Water Provision

Existing Water Supply

Access to water in the Market Square is from an existing water tap with a dog bowl next to it. The tap is located on a standalone housing which is in poor condition, the water source is not controlled so can be accessed by anyone and could be left running. The existing fountain has an underground chamber that is connected to Hobsons conduit which historically supplied the fountain with water.

The fish monger has an existing water supply and drain used for their waste (refer to drainage section of this report for drain proposals).

The underground toilets have an existing water supply.



Fountain water supply existing features



Existing water tap

Proposed Water Availability

New water sources are proposed for access to the general public, market stall traders and for events. These would consist of:

Operational Fountain Taps

Adapting the existing historical fountain, reconnecting it the water mains and restoring/adding four working taps for the use of market stall owners and the public. This would require listed building consent as the fountain is listed.

Water tap water supply

A new water tap providing a water supply to market stall owners and the general public. The dual function offers the possibility to fill a bottle but also to drink water directly from the tap. The tap is vandal-resistant and can be used 365 days a year.

Fishmongers Tap and Drain

Provide a tap adjacent to permanent fishmongers stall for predominantly their use only.

Events and Maintenance water supply

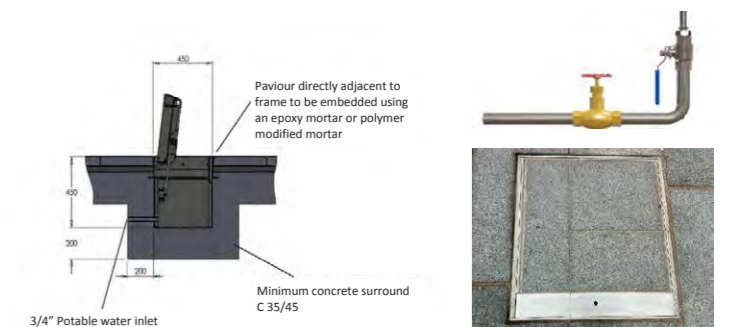
Provide an in-ground water supply that can be accessed for events such as events toilets and for general upkeep and maintenance purposes of the square in general such as wash downs after trading hours.

Underground toilets

Existing water supply to the toilets will be retained and modified as required.



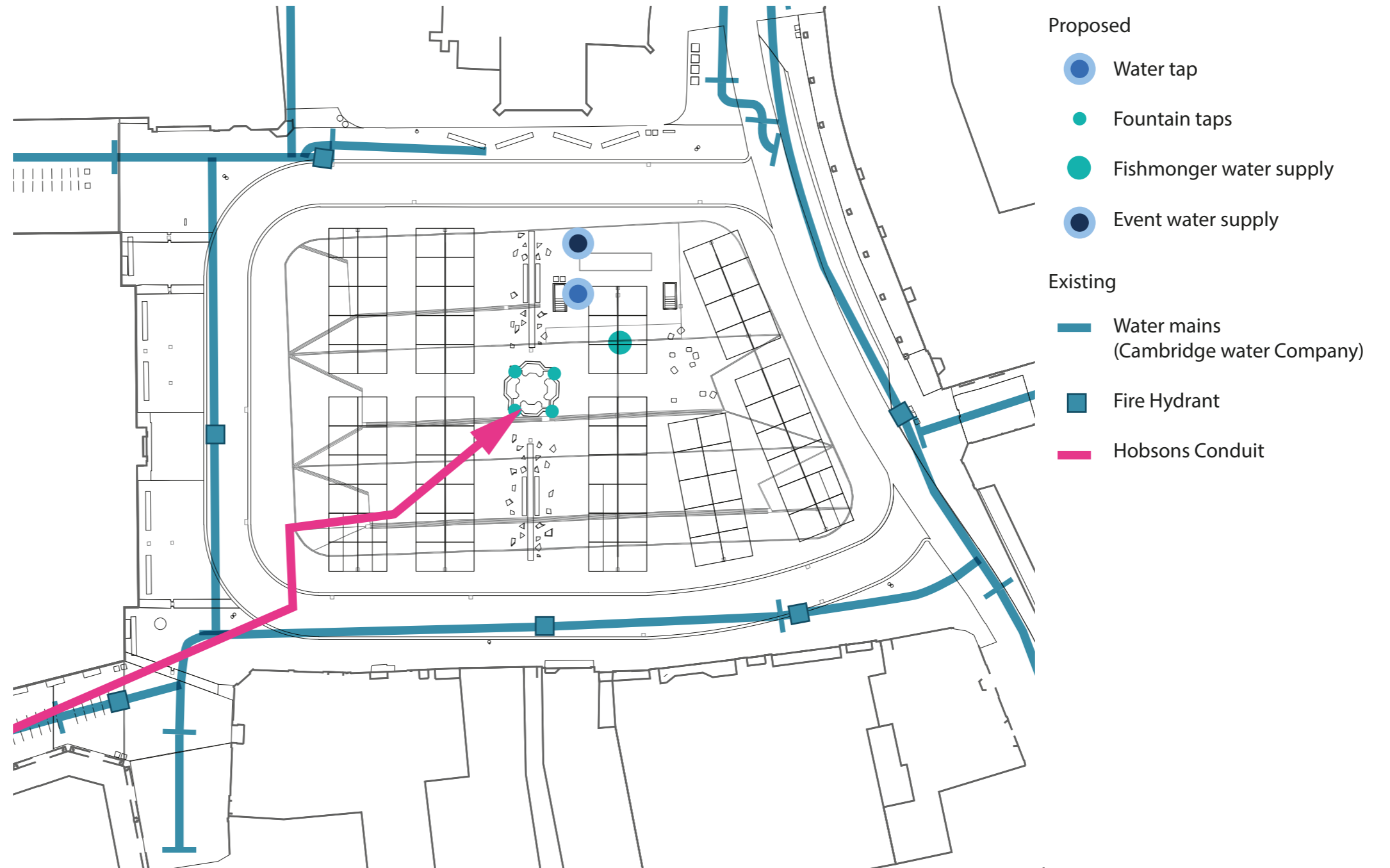
Proposed new water tap (join the pipe)



In ground water supply for events

Next Steps

- * Explore the technical feasibility with an M&E engineer regarding making the fountain taps operational again.
- * Consult with Historic England regarding listed building consent for any works to the fountain.
- * Involve an M&E engineer to understand the existing water supply within the square



Proposed water provision



1:500 @ A3

7.5 Market Waste Removal

Existing Waste Removal System

(See street furniture chapter for public waste removal proposals)

For market waste, there are currently five general waste 1100L waste bins. These are collected daily or every other day. These bins alone currently provide an inadequate amount of waste disposal for the waste generated by the market stall traders. The recycling waste is collected twice a week.

Proposed Waste Removal System

The proposal for the management strategy of the waste created by the market stall traders is to use an innovative underground storage and removal system. An example of a similar scheme is found at the Eddington site of West Cambridge.

The system houses a number of underground bins with access to them via an above ground chute. The proposal is for no. 2 of 5m³ capacity bins for general waste and a further no. 2 of 3m³ - one for recycling and one for food waste. As part of the system the market traders will each be given a smart card which allows them to 'tap-in tap-out' of the waste bins whenever they deposit waste and will be charged proportionally to how much waste they drop.

It is proposed to locate this waste system within the existing underground toilet and storage facility in

the corner of the site near St Mary's church. There are two principal reasons behind this decision; one is to minimise costs by utilising the existing structure as much as possible. The second is to avoid excavating new areas of Market Square and potentially unearthing land with archaeological significance.

The sealed subterranean units have a number of benefits over above ground waste storage.

- * There is a significantly higher capacity than regular bins.
- * It is expected that the increased waste capacity combined with the smart collection technology will reduce the number of times a waste truck will be required to enter market square, increasing efficiency and reducing emissions.
- * They have been shown to minimise the bad odours associated with traditional bin systems.
- * Limited chance for vandalism
- * They are more aesthetically pleasing than the cluttered on-street bins currently in operation and can therefore play a real role in improving the space facing St Mary's church which is currently littered with various bins and waste elements.
- * Smart access card provides a good level of security and minimises risks to general public.



Existing waste bins



Cardboard waste compressor



Current on-street 1100L waste bins



Existing cardboard waste container



Proposed Waste Removal Locations

The proposal is to have no. 2 of the 5m³ capacity bins for general waste and a further no. 2 3m³ - one for recycling and one for food waste.

Finish proposed to be matt black to integrate with other existing and proposed street furniture while the square plate will be integrated with the same paving treatment as the surfaces around it.



Example of underground waste system at Eddington, West Cambridge

Despite offering a significant amount of waste capacity, compared to on-street bins, the below-ground waste bins are relatively unobtrusive at street level, with just a number of bin chutes visible.

Next Steps:

- * Receive and evaluate data on the volume of market waste being produced by the market traders and assess how this compares with the current proposed provisions.
- * Review existing manufactures and systems available for smart subterranean waste management systems and understand how this could integrate with existing systems already being operated by Cambridge City Council.
- * Ensure structural compatibility with the current proposal to house the waste units within the existing underground toilet and storage facilities.
- * Review opportunities to integrate system with existing smart waste management strategies and vehicle fleet in Cambridgeshire.



Technical Details

Typically the bin dimensions are around 1800 x 1800mm and either 2000mm deep for the 3m³ version or 3200 mm deep for the 5m³ version.

The installation requires a concrete 'bunker' to be sunk into the ground which can be placed individually or in a configuration with a number of other bunkers.

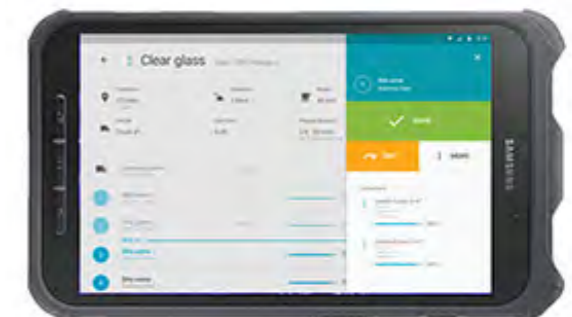


When the bin is nearing full an alert will be sent to council's waste to collect the contents. The bin is then hoisted out of the ground and emptied using a crane on the back of a regular size waste collection truck.

The pedestrian platform at ground level is made of a laminated steel plate set within a fixed frame, which allows the cover to be customised and integrated with the paved surface around it.

Smart Collection System

Part of the proposal is to integrate the collection of bins on Market Square with an existing fleet of refuse collection trucks in Cambridgeshire. The bins use sensors to recognise when they are nearing full and notify the council to collect the waste, rather than collecting every day irrespective of how full the bins are, as is currently the case. This is to improve overall efficiency and reduce traffic of waste trucks around Market Square.



Pay-As-You-Throw (PAYT)

Using an intelligent waste system it is possible to identify who is using the waste system, when and how many times. Market traders will each be issued with a key card that allows them access to the bins.

This system allows a fairer taxation system based on a 'pay-as-you-throw' principle so that each market trader is only charged for the waste they produce.

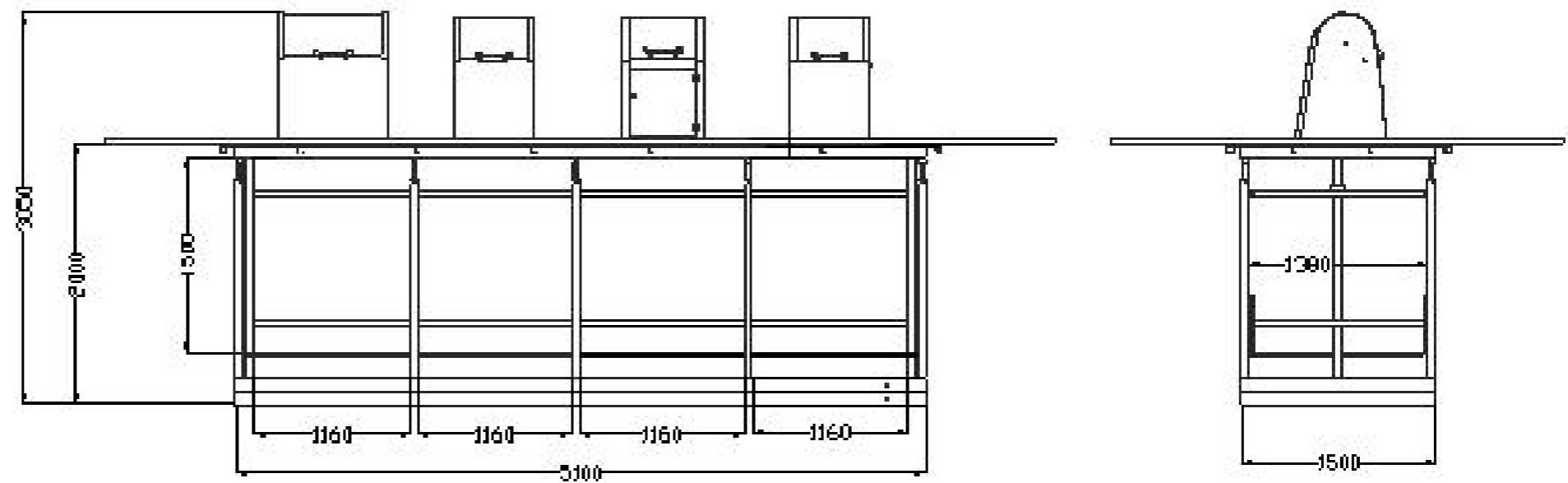
A secondary advantage of this system is safety. It means the general public will not have access to the bins and there is limited risk of somebody misusing the bins and entering the chute.



An example of a below ground waste management system with PAYT chip readers and rear access hatches for bulkier waste



An example of a PAYT bin



Typical dimension of a below-ground waste system

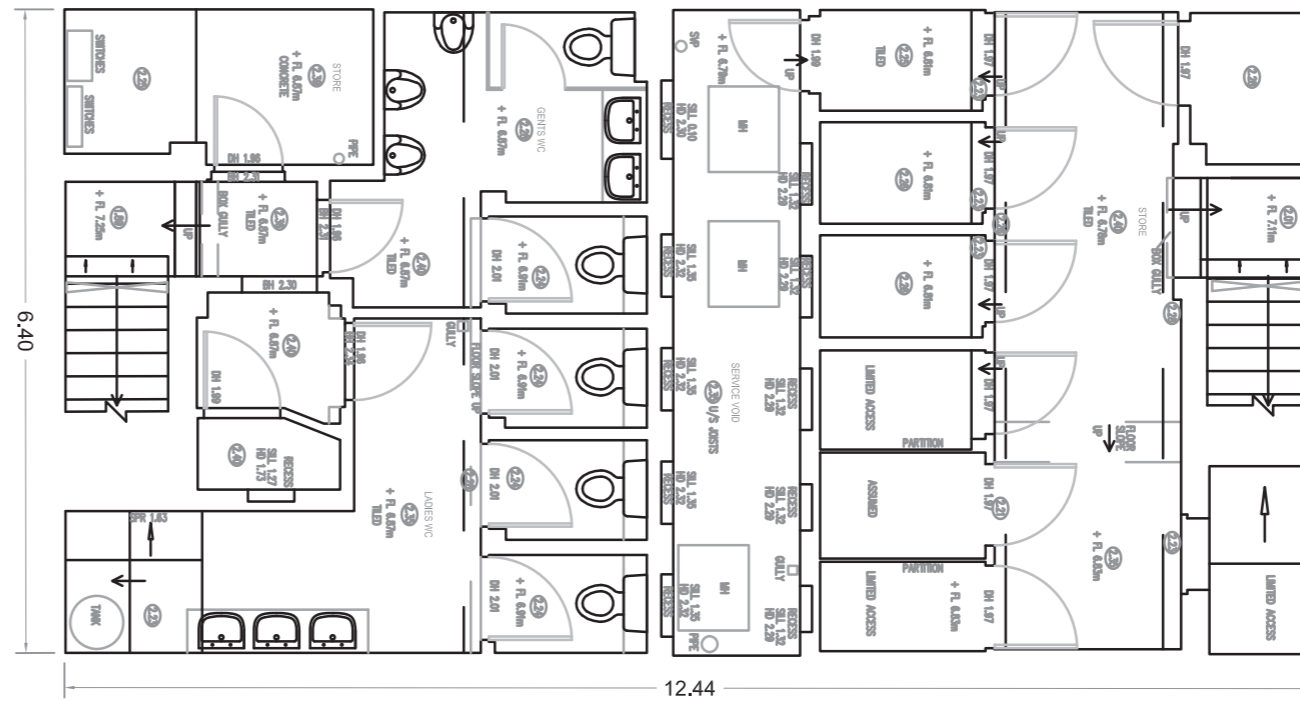
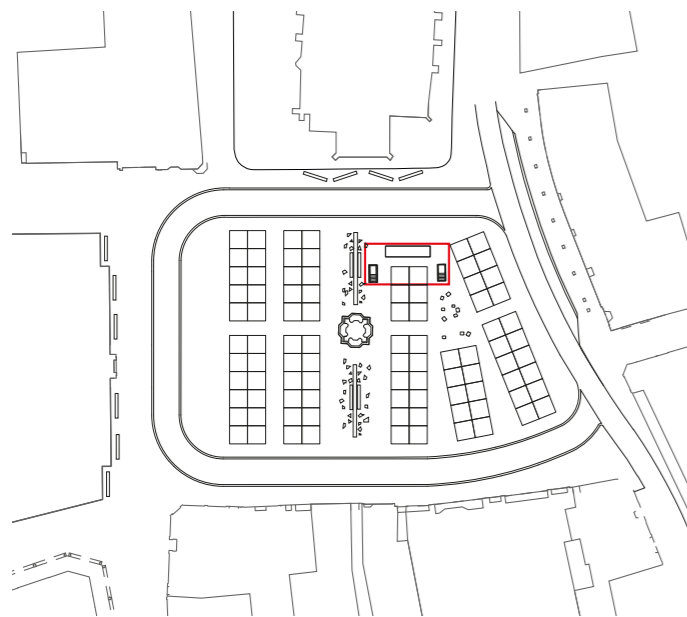
7.6 Toilets & Storage

There are existing toilets provided to the market traders through facilities which sit below ground close to Great St Mary's Church. Access is via secured stairs on the Market Square. Alongside the toilets, the underground amenities have provisions for a number of the market traders to use storage cupboards. The facilities are on the whole in a poor condition and need updating.

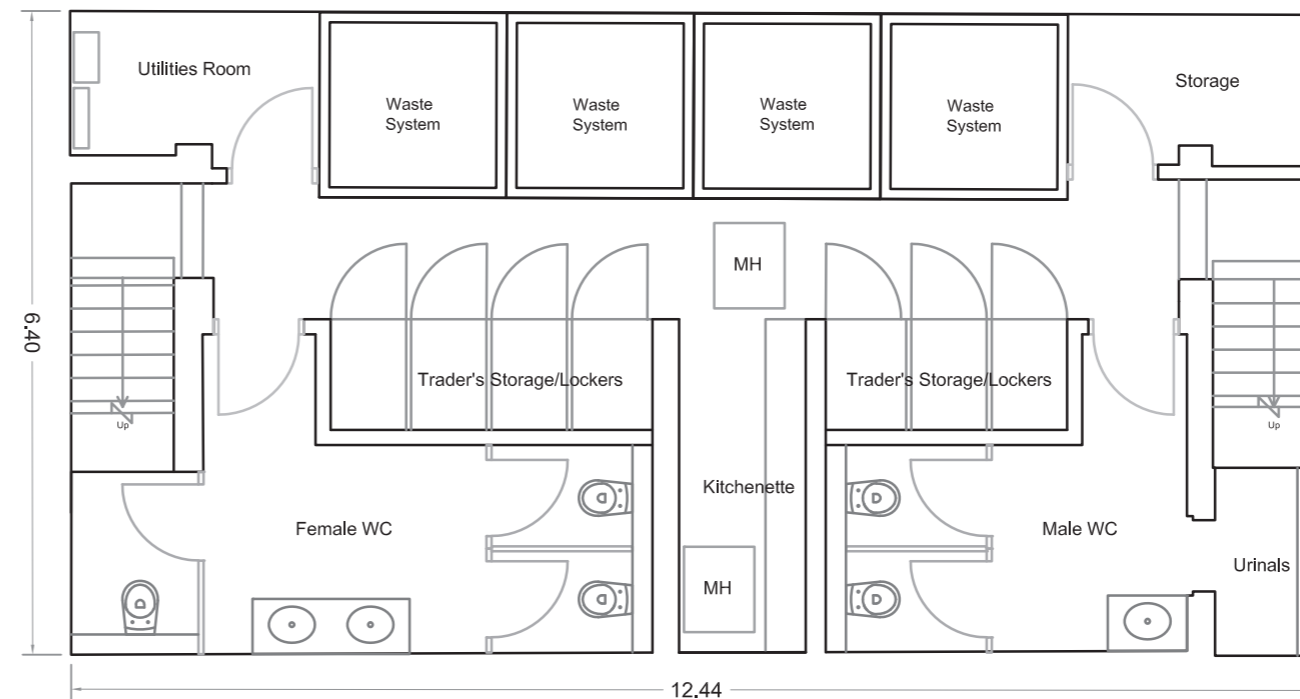
The proposal is to use the existing underground facility's structure but redesign the internal layout. This includes creating a corridor that connect both staircases, facilities for a small kitchenette and maintains storage facilities. The design accommodates the excavated space required for the no. 4 waste 'bunkers' which also sit below ground.

Next Steps:

- undertake a full structural survey to understand the extents of the services that can be retained or need to be replaced.
- understand the structural requirements of the waste system 'bunkers' and how they are integrated into the existing structure.



1:75 Existing Plans

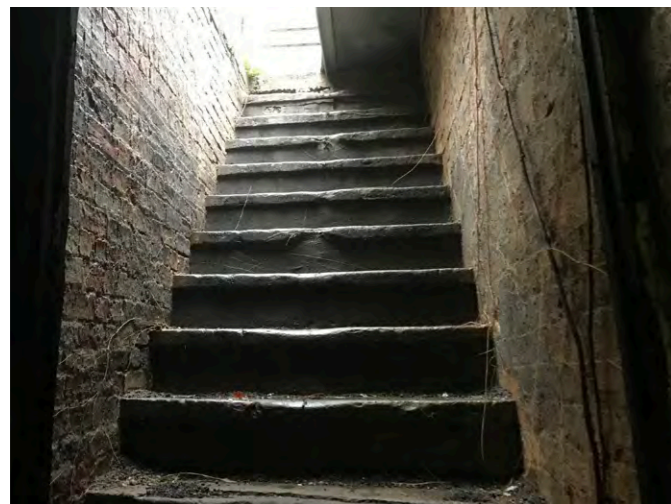


1:75 Proposed Plans

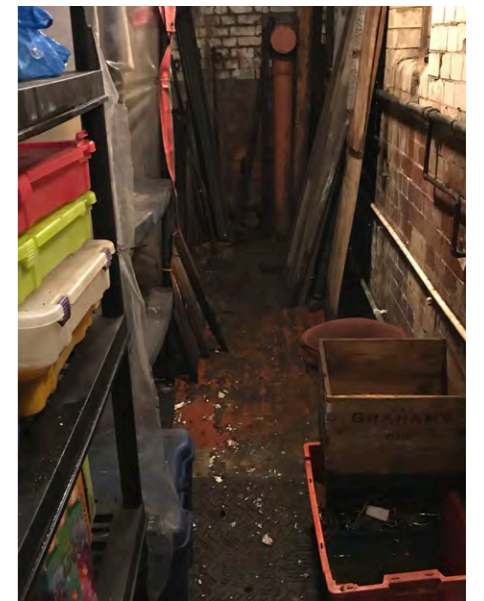


As part of the proposal to reconfigure the underground amenities, it is proposed to introduce a new storage facility to be used by the market traders. Beneath the St. Edwards King & Martyr C of E Church there is a historic vaulted storage facility which could be re-purposed and used as a place for the traders to store items they require on market days but would be inconvenient to transport to and-from site everyday, such as tables, signs and boards.

The vaults are accessed from a staircase at the North-East corner of St Edwards, leading down to them directly off Peas Hill. While the stairs would benefit from renovation and some improvement the access condition could be described as better than that for the existing storage units.



Underground vaults proposed to be used for storage by market traders



The current storage facilities for the market traders

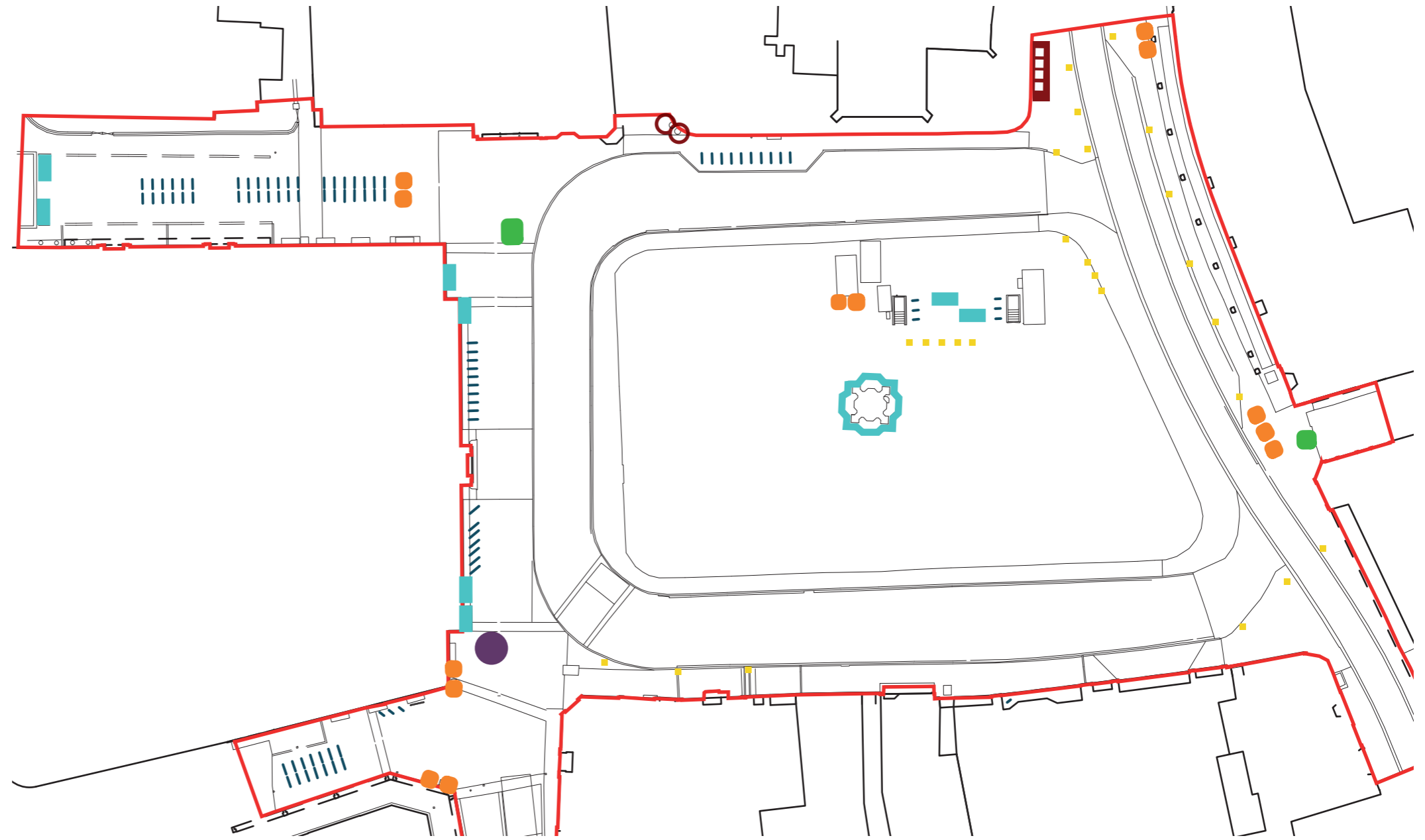
8.0 Street Furniture

8.1 Existing street furniture

The existing street furniture within the Market Square is uncoordinated and lacking a considered and consistent approach. The majority of the street furniture is located around the square on the edges, with very little in the central market area. The limited furniture that is present in the market area appears to have been an after thought or the result of inadequate provision such as the picnic tables and that fact that people use the fountain to sit on as there isn't enough seating. There are some features of interest such as the post boxes, telephone kiosks and memorial artwork.

The market appearance and layout currently does not lend itself as a space to stay, sit and spend time other than to buy items and then leave. The amount and location of street furniture contributes towards this. A considered street furniture palette is required which is designed appropriately to the character of the square, coordinates locations with uses of the space, views and sunny aspects and provides adequate provision. This would improve the appearance of the space, enable people to enjoy the space rather than just passing through it and reduce clutter.

- Waste bins (general and mixed recycling bins)
- Memorial artwork
- Post Boxes
- Telephone Kiosks
- Seating
- Signage
- | | Cycle stands
- Bollards



Plan of existing street furniture



1:500 @ A3

Waste bins

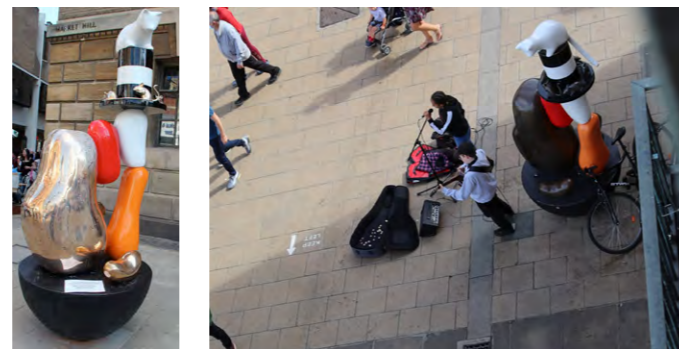
Currently waste provision for the general public in the Market Square consists of general waste and mixed recycling bins in pairs or groups. The type and size of bins vary. A consistent and coordinated approach is needed.



Waste bins that house wheelie bins in the market

Memorial Artwork

A memorial artwork is located outside the Guildhall, in memory of Walter 'Snowy' Farr MBE (1919 to 2007). He was a well-known presence in Cambridge Market Square, where he would collect money for charity. It is proposed to retain the artwork in its current location.



Snowy Farr memorial

Image Geophones

Post boxes

A pair of post boxes are located by St Marys Passage. Usually for a pair they are from different reigns G VI R and E II R vintages. It is proposed to retain the postboxes in their current location.



Pair of postboxes Image Richard Humphries

Telephone Kiosks

Four K6 Telephone Kiosks are located on St Mary Street adjacent to Church of St Mary. They are Grade II listed. The kiosks were moved to their current location in the mid 1990s from above the and were formerly listed as Three Telephone Kiosks, Market Hill. It is proposed to retain the kiosks in their current location.



Telephone kiosks now and previous location of 3no. in the Market Square

Seating

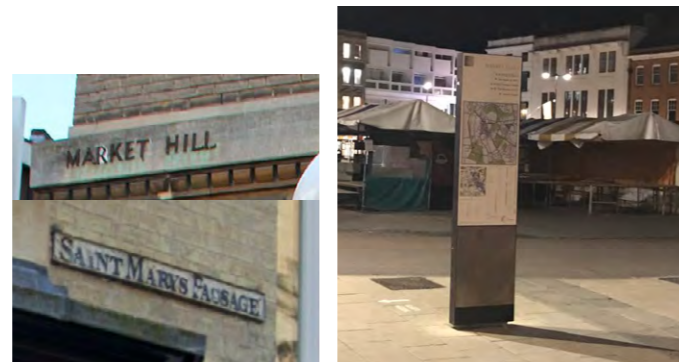
Currently there is very limited seating within the square, a few benches positioned against the Guildhall facade within a shaded location and a couple of picnic benches by the market toilets. People often use the fountain as an informal seat. There is a clear need for additional seating especially in locations associated with the market to allow people to buy food and drink and enjoy it within the Market Square.



Picnic benches and benches outside the Guildhall

Signage and Wayfinding

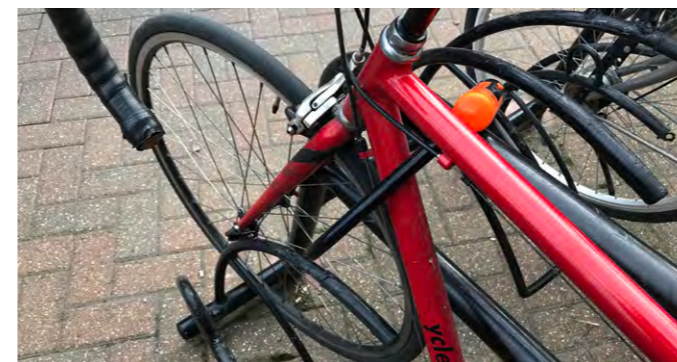
Currently there is one wayfinding totem sign with a map by Peas Hill and one wayfinding post located by Rose Crescent. These will both be retained. There is no signage associated with the Market. All street names if named are located on the buildings. Additional signage and wayfinding could help visitors to the market and provide



Signage totem and street signage

Cycle Stands

The current design of cycle stands used are not suitable for all types of bikes. A simpler cycle stand design would be more inclusive. The location of cycle stands is covered in the Access section of this report.



Cycle stands

Bollards

There are several bollards within the Market Square, these will be removed if not required (subject to highways works).



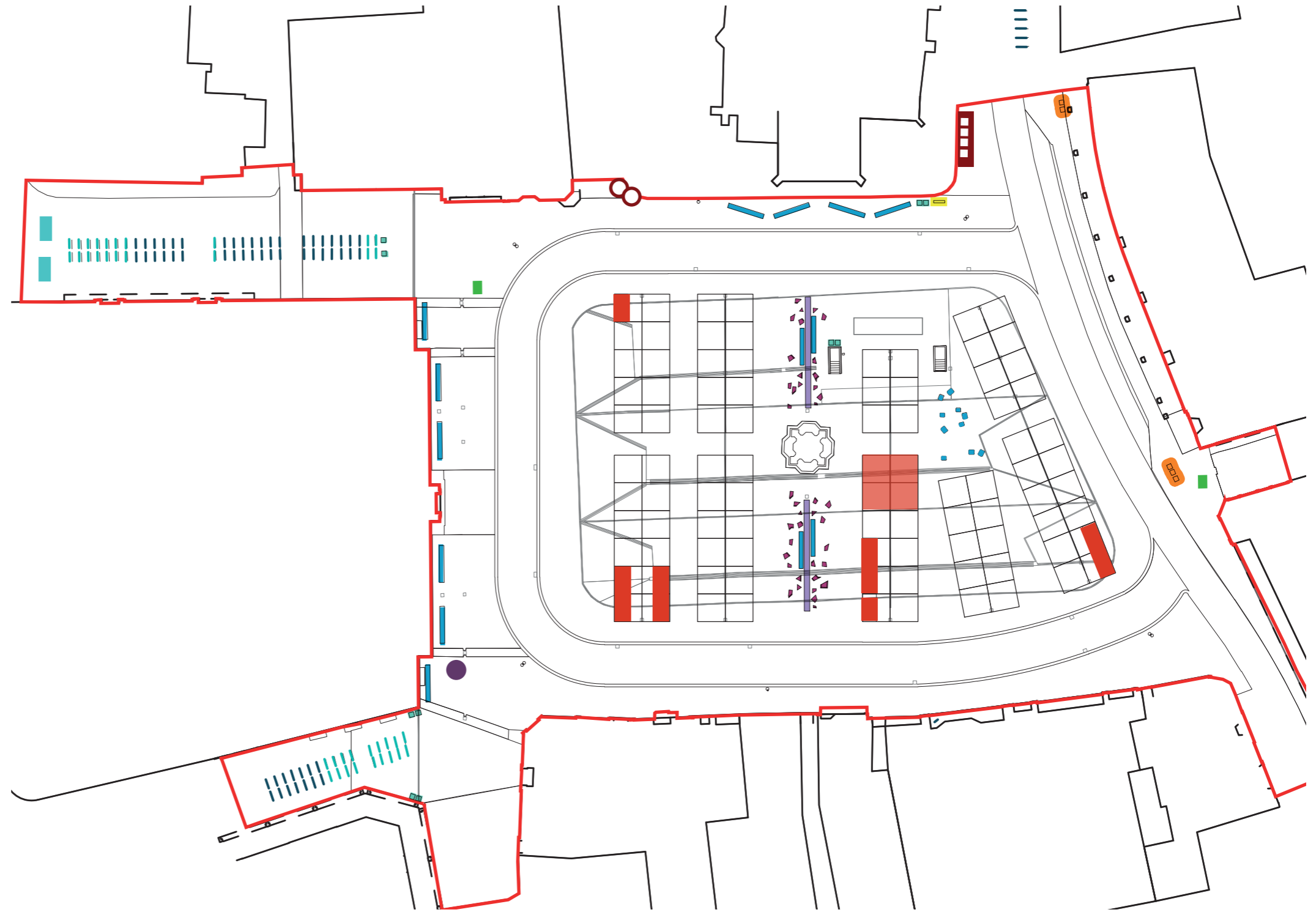
Bollards

8.2 Proposed strategy

The street furniture proposals aim to create a coordinated and cohesive design that is considered and appropriate to the character of the square. Making the most of the space available by reducing clutter of unnecessary items and and introducing more of what's lacking such as seating.

The opportunity to incorporate smart street furniture has been considered. This could provide a range of benefits for the council and users of the space by using smart technology and building in IoT infrastructure to create sustainable solutions.

- * Street furniture that allows for the creation of dynamic and flexible spaces
- * Supporting the move to zero carbon and providing educational elements in terms of renewable energy and environmental data
- * Improved WiFi connectivity
- * Communication of market information, local information and services on screens that can be updated easily
- * Saving energy by more efficient waste collections
- * Collecting big data to improve public services (e.g. pedestrian traffic, use of public facilities, comparison of different locations)



Plan showing proposed street furniture



1:500 @ A3

8.3 Seating

Existing Retained

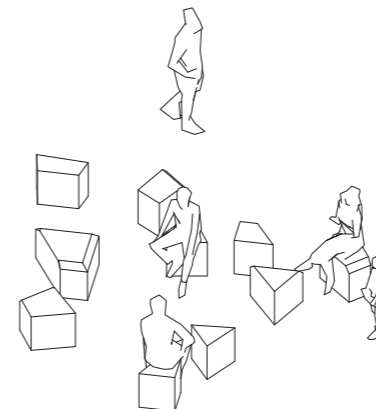
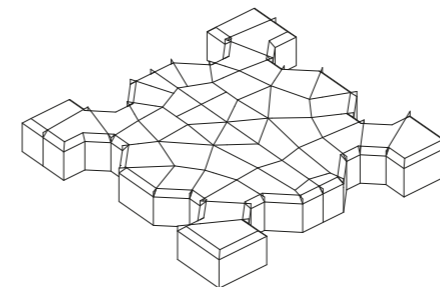
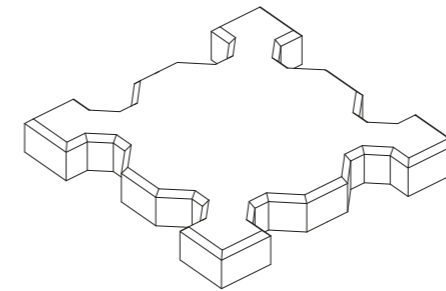
- Memorial artwork
- Post Boxes
- Telephone Kiosks
- | Cycle Stands
- Sign
- Litter bins
- Seating

Proposed

- Litter Bins and mixed recycling bins
- Long Benches
- Communal Table
- ⋈ Fragment Seating
- Market objects
- Fish Monger counter
- | Relocated cycle stands
- Digital sign

Proposed Seating

The seating proposals provide additional seating opportunities within the square with a range of seating types. The locations have been considered in relation to uses, views and sunny aspects. The seating types include fragmented seating, long tables, long benches and seating blocks. They will cater for different uses such as for people that want a quick rest, somewhere to sit, relax and watch the world go by or to meet as a group and eat at a table. Seating that is adaptable and flexible will allow the space to respond to events and future needs, this may involve some seating types that are moveable by a forklift or similar. Some seating types could provide places to charge electronic devices for free so people can browse the internet using the free WiFi, charge their phone or check the environmental data for the area.



Fragmented seating concept

Fragmented Seating

Informal seating within the square is located within the central axis associated with the long tables.

The seating is derived from the fountain geometry, taking the form of the fountain base and fragmenting it into small seating fragments that are then scattered about to form seats. The fragments could be static or potentially moveable (by forklift or similar) to allow greater flexibility in some areas.

Design/Product criteria

- * Bespoke product
- * Granite to match the existing fountain
- * Geometric fragments
- * Approx 450mm height, with a range of approx 10 different sizes and shapes 450x450mm up to 750x750mm
- * Approx.50no.
- * Fixing TBC (Sat on top of granite setts to retain flexibility)



Example of bespoke granite seats (Marshalls bespoke prospero granite seating)



Geometric form similar to Old Bailey street, London



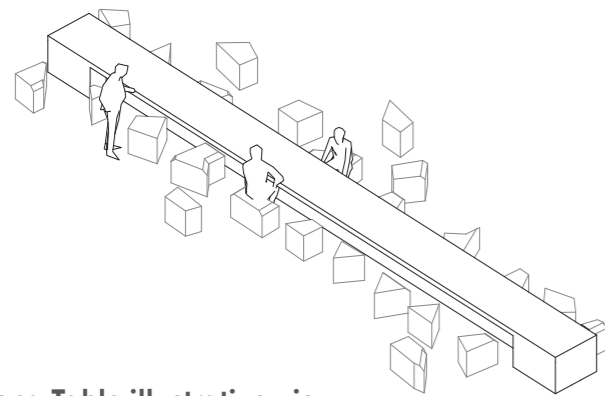
Granite used to match the existing granite fountain

Long Table

Two long timber communal tables are proposed aligned to the centre of the central axis. The tables will provide space for people to eat and drink within the market and to sit and socialise around a table or bring political discussions outside from the Guildhall. Fragmented seating and long benches will provide seating around the table with spaces for buggies and wheelchairs.

Design/Product criteria

- * Bespoke product similar to Eddington
- * Metal/timber material
- * Linear form
- * Approx dimensions 12metres length x 0.9m width x 0.72m height
- * 2no. quantity
- * Fixing TBC (Fixing points within granite setts)



Long Table illustrative view



Eddington example

Long Benches

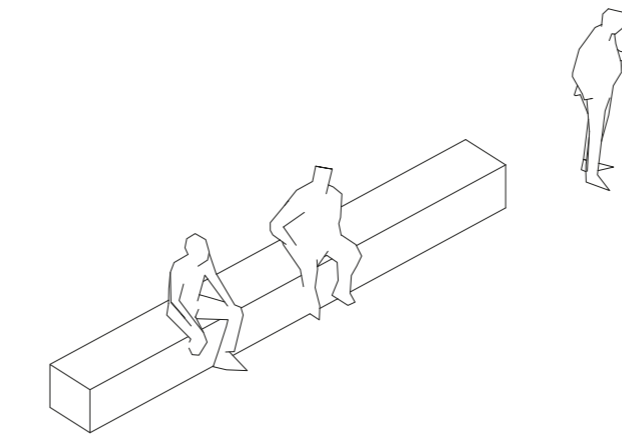
Elegant linear seating elements incorporating backrests and arms are proposed located in front of the church, alongside the long tables and in front of the Guildhall. These will replace the existing benches outside the Guildhall and provide additional seating.

Design/Product criteria

- * Supplier Chris Nangle
- * Carved oak benches
- * Simple metal back rests incorporated along a proportion of the bench length
- * Invisible metal feet so that benches appear to be floating
- * Sculpted carved form to deter rough sleeping and skateboarding
- * Approx. dimensions 4.8metres long by 0.5m width and 0.45m height.
- * 14no. long benches
- * In ground fixings. Fixing points within granite setts TBC



Double bench and Green oak Wave bench



Long Benches illustrative view



The Coal Drops Yard, London Kings Cross
Carved charred oak bench

Seating blocks

Elegant blocks as informal seating elements within the northern market space. Associated with long benches.

Design/Product criteria

- * Supplier Chris Nangle <https://www.chrisnanglefurniture.co.uk/about-us/>
- * Carved Oak Seating Blocks
- * Carved from a single solid piece
- * Charred finish makes a bold impact and is colourfast and maintenance free
- * Approx. dimensions 0.5m width and 0.45m height.
- * Approx. 10no



Carved charred oak seating blocks

8.4 Objects

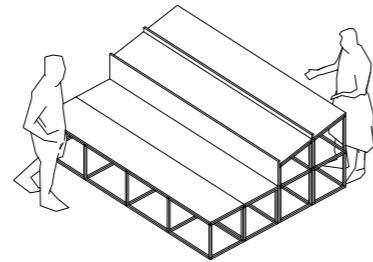
Currently some market traders leave display equipment or infrastructure in the market overnight.

The proposals look to reduce the amount of clutter and deter traders from leaving equipment out. The small amount required to stay overnight will be designed into the scheme so that they appear as beautiful objects or transform into usable seating in the evening.

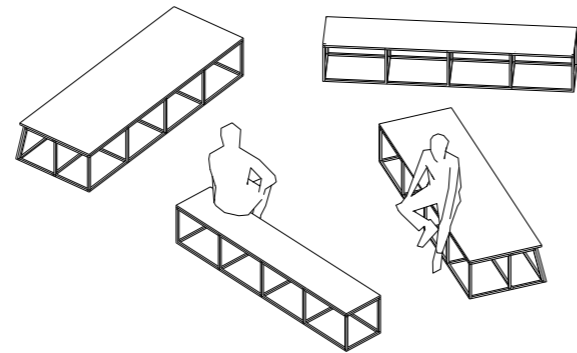
Display/seating

A black metal framed structure with timber boards that can transform from a display stand in the day to seating in the evening.

- * Small units 0.45m x 0.45m
- * Tall units 0.45m x 0.9m



Objects as display stands

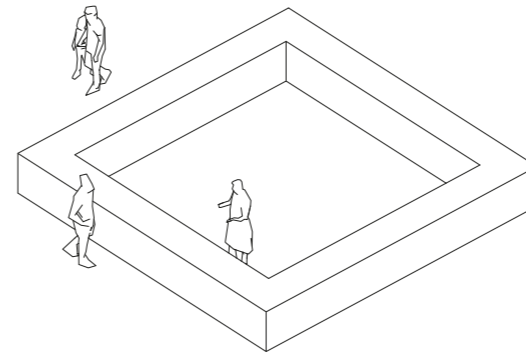


Objects as seating

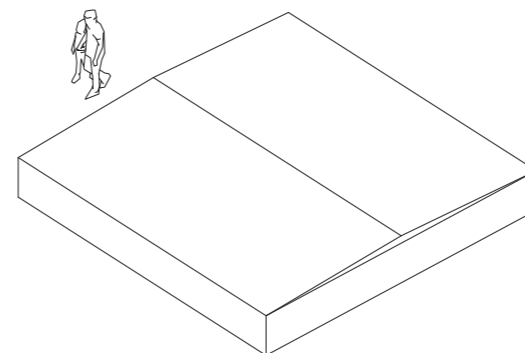
Fish Mongers counter

An open counter in the day that transforms into a closed box at night.

- * 6m x 6m footprint (equivalent to 4no. 3x3m stalls)



Counter open



Counter closed

8.5 Waste Bins

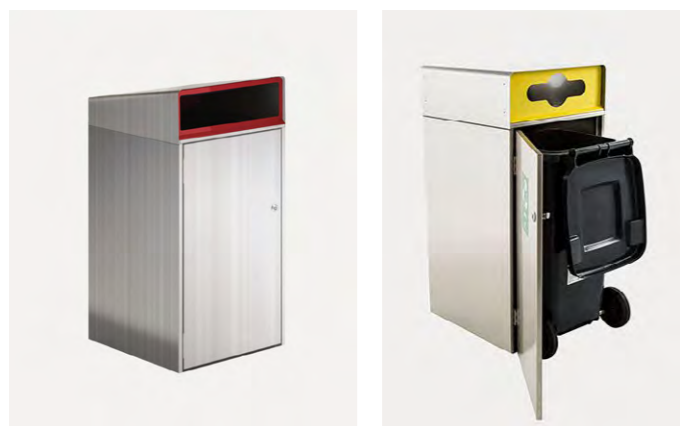
The waste bin proposals would replace the existing bins in the central area, Peas Hill and Petty Curry and coordinate the locations with the street furniture provision. The bins in the central market area would be relocated west of the railings with an additional pair of bins proposed next to the proposed long seating benches in front of the church.

The proposals are for Smart Wheelie bins housing bins. Replacing the existing bins with new bins which house wheelie bins and include a smart sensors.

Smart bins are connected to WiFi and equipped with fill-level sensors that track the situation in real time and send data alerts to the collection team that the bin is 85 per cent full to ensure that they are not allowed to overflow, but also are not emptied unnecessarily.



Escola Smart sensor bins



Escola bin housing

8.6 Cycle stands

The proposals relocate several cycle stands outside of the main market area. Refer to access section for cycle stand strategy. New or relocated cycle stands would be Sheffield stands powder coated black that allow both front and back wheels to be locked securely.



Sheffield stands coated black

8.7 Wayfinding and Digital signs

Currently there is one signage totem with a map and one wayfinding sign within the square. These will both be retained.

An additional digital signage totem providing Market Square news feed is proposed that connects the Market Square users with a screen everyone can see and anyone can use. Empowering market traders and community members to share relevant local content, businesses of all sizes to engage with customers, artists to showcase their work, and Cambridge to better communicate with its residents and visitors. The proposed location is next to the long benches outside the church near the telephone kiosks.

The digital signage totem could run on solar power, which means no wires and no emissions. It could include environmental sensors and data to check pollen and noise levels. If linked to IoT sensors the sign could provide an constantly up to date map of market stall traders locations.



Double Sided outdoor screens installed at the Wales Millennium Centre, Cardiff, Wales

Image Digital Media Systems

8.8 Lighting

Existing lighting

The square is currently illuminated by a series of 10m double headed columns. These columns provide decent lighting for the vehicular activity for the square and suitable light for the current activities and standard. The visual appearance is dated and specification is a luminaire which would be suited to a highway, equally the lamp type is outdated and should be, if not soon, be upgraded to LED from Metal Halide. There is also concern that these lights may be create obtrusive light for the residential buildings surrounding the square and the side roads which should be addressed by any future schemes.






The current locations give a good indication that the column locations could be moved to more suitable spaces to match the design and layout of the new square uses and orientation. A survey of services would be useful to determine if there are any areas which are prohibitive for use, but based on this layout we believe much of the square could be used for future locations.

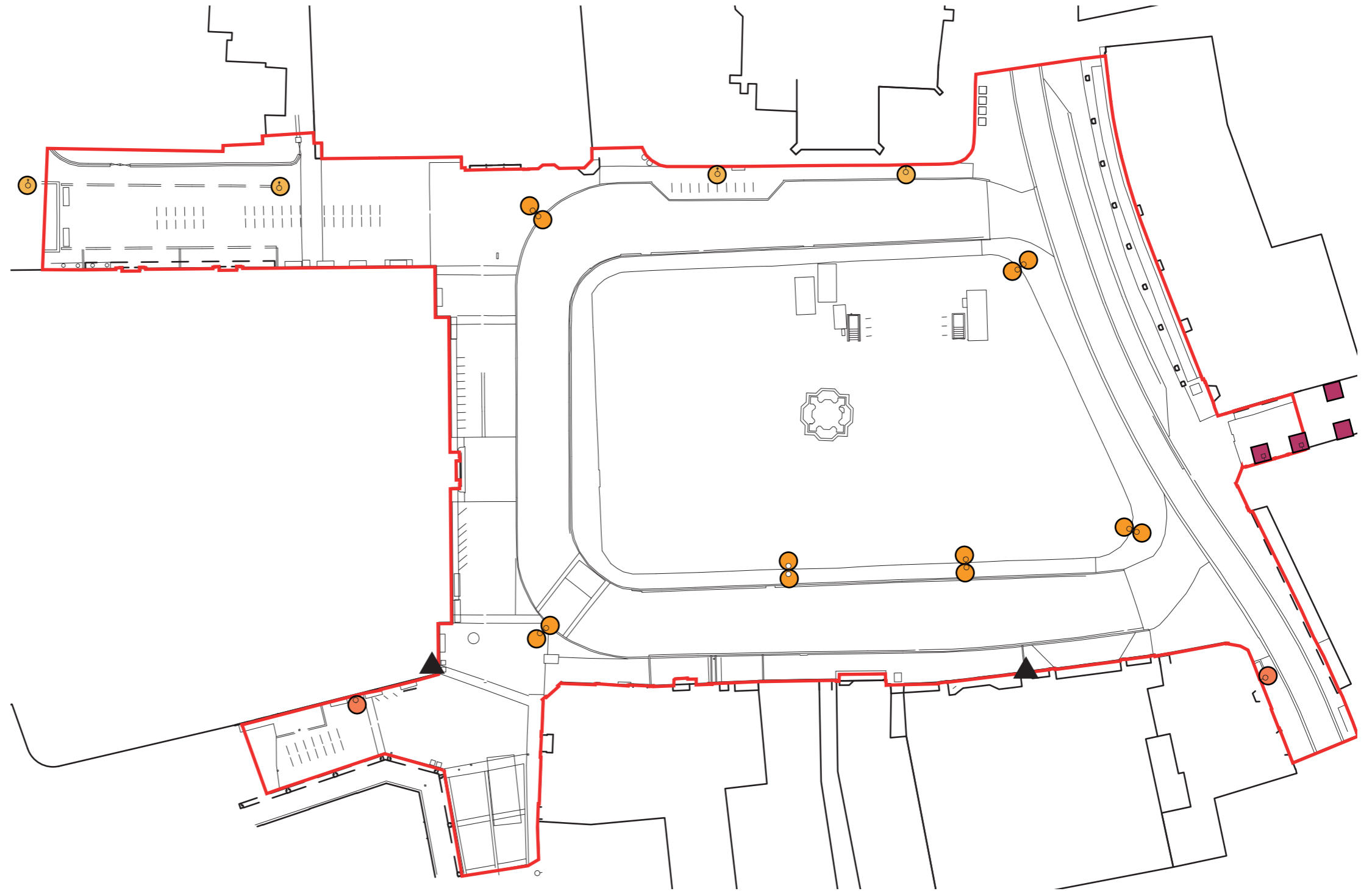
Information on the current agreements and standards from the street lighting team for Cambridge council would be useful to indicate what type of adoptability, future functionality and uses, as well as other infrastructure presumed to be used on these columns - CCTV, signage, 5G, would be beneficial for the next stage of the project. Equally the lights are part of a bigger scheme, especially the corner columns which link to Peas Hill and Guildhall St.

Additional infrastructure on these columns is festive lighting exterior rated 16amp plugs, signage for numerous items around the square and hanging baskets. One column has what appears to be mobile data or 5G.



Existing lighting columns

-  Double lighting column
-  Single lighting column
-  Wall mounted
-  Historical wall-mounted lighting
-  CCTV



Plan showing existing lighting locations








1:500 @ A3

Proposed Lighting Concepts

The new proposals should work in tandem with the option which is chosen, but some overarching themes should be applied to the thought of future lighting design for the Square so the range of proposed activities and potential uses can be understood.

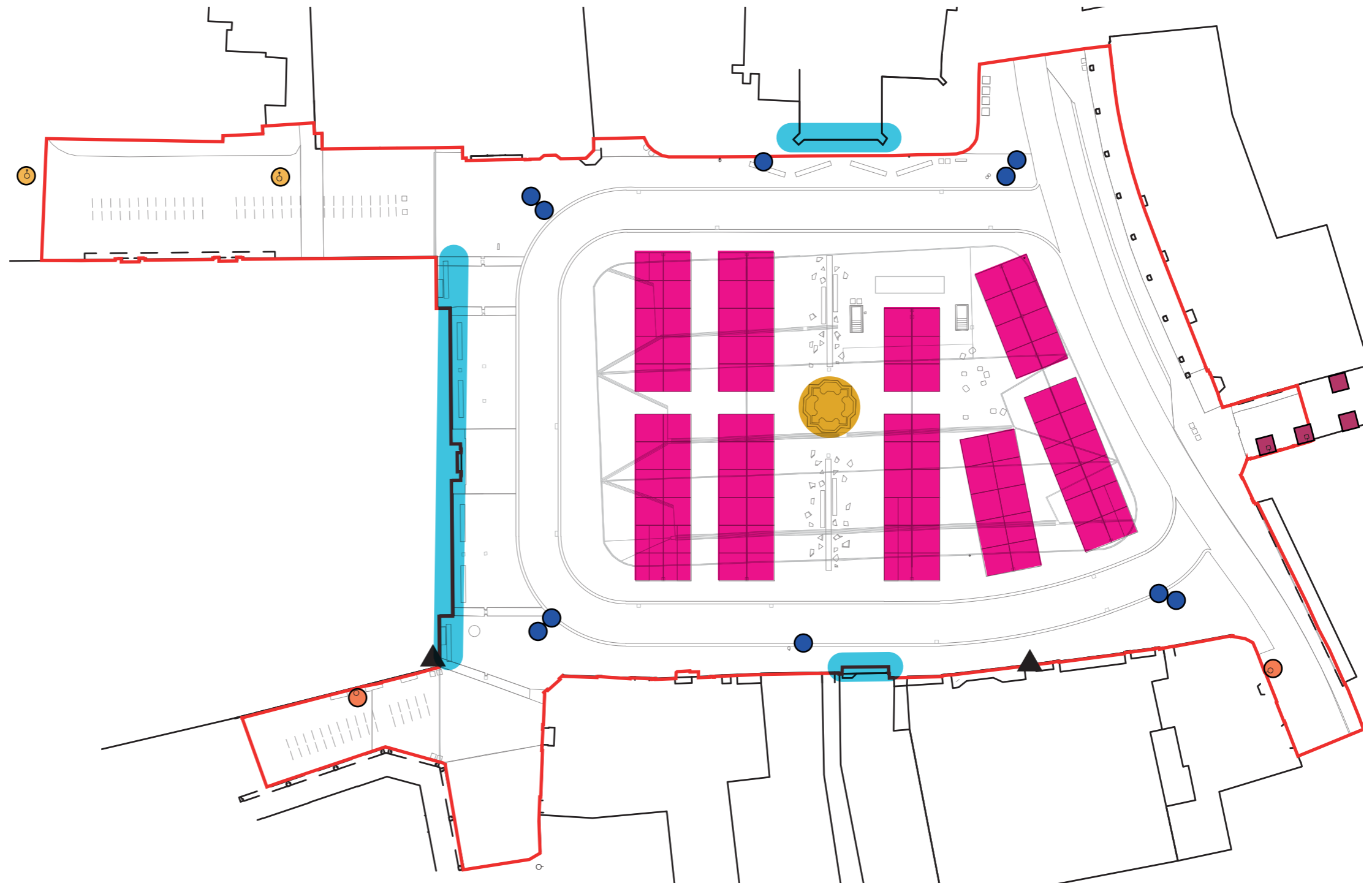
- * Lighting to provide good lighting for the pedestrian and market use experience first and foremost.
- * Lighting should work with the current town control system, CMS or other method of lighting control.
- * Lighting should be controlled in terms of time, allowing for lights to be dimmed at low used times of night, as well as having specific lights for busy, or times of increased risk.

Existing Lighting

-  Double lighting column
-  Single lighting column
-  Wall mounted
-  Historical wall-mounted lighting
-  CCTV

Proposed Lighting

-  Market Stall Lighting
-  Column Lighting
-  Facade Lighting
-  Fountain Lighting



Lighting proposals plan



1:500 @ A3

Lighting Columns

- * The lighting columns should be arranged so they do not block the view of Great St Mary's Church, the Guildhall or no. 5 the Grade 1 Listed building. They should sit against buildings or view points which are not as critical.
- * The Columns should be arranged to fit the layouts for the market stands, a series of tall columns on the South side of the square with additional columns either side and close to the fence of the Church would give a good layout. These could be feature columns and provide a high level viewing item. The columns would suit to be on the average datum of the buildings on the South side, which they will be close to, this is between 12-15m (tbc).
- * If other components such as signage, CCTV, 5G, Wi-Fi or more are required by any columns, this should be set out prior to any development of column design so that the lighting design can look to integrate and minimise the visual appearance of their impact on the columns.
- * The column materiality and finish should match the finishes and types that are set out across the rest of the public realm by the Landscape Architects. The design should sit in conjunction to these decisions and not separate.

Architectural Lighting

- * Architectural lighting should be used on specifically buildings, such as the church, Guildhall and Grade 1 listed building to allow the scheme to have more depth than columns and downward facing light. This will really build the space visuals for visitors and users at night and make a loci destination which feels safer and more inviting at night than many other items.

Events

- * Lighting for events should be considered and infrastructure should be integrated within the columns to allow for this. This could be for Christmas lighting, Cambridge Light Festival and other events during the year. Engagement of what uses there could, should be considered.
- * Additionally if required, rigging points could be considered on columns to allow for other events, such as Opera and musical events to have speakers and other components mounted to them, with cables already considered within the design to allow for full flexibility and future use.

Lighting Levels

- * The classification of pedestrian and vehicular activities should be chosen to allow for the correct specification of lighting levels.
- * The lighting standards rarely consider public squares, or Piazzas, in great detail and we would advise that the light levels may be lower in the centre of the square. If the vertical surfaces around the square are illuminated and there is sufficient light around the perimeter of the square, there is no perceived risk to the human eye in having very low lux levels in the centre of squares. We have done this in numerous town squares across the UK and is a given across Europe for this scale of space.

Maintainance

- * Ongoing maintainance and functionality in the long term should be discussed with the Council and incorporated into the lighting design early in design process. We find bringing members along with the journey of the design reaps dividends later in delivering a project which they understand, feel part of, and takes in their considerations for the future.

Market Stalls

The market layouts and design should integrate lighting for each individual market stall. This means that:

- * No market stall needs to provide their own lighting, this is usually a major visual downfall of marketplaces as people bring bright, awkward, or no lights to their stall. With this everyone has the same decent set of lights.
- * The views and vistas of the market from afar can be greatly enhanced during day and night with a well designed and aesthetic response to brief.
- * All cables and plugs can be integrated into the design so it is plug and play, making something which has a long life and can be maintained with easily replaceable items.
- * Most importantly. The colour temperature can be controlled and be 2,700K very warm white with high colour rendition (CRI). This would mean that the market feels warm in the afternoon, evening and night. People will have light from a human level illuminating them and equally all the products will look great, all the food will look great, and the whole atmosphere of the market will vastly improved to a very high level. (See images opposite of a recent example of this approach).

Most of all, the lighting should make the space attractive, usable and safe everyday, for all people.

Next Steps

- * A deep research of existing lighting throughout the city centre is to be undertaken in order to create references and a shared aesthetic with the lighting proposed within the square. Matching tones, materials or colours should be considered and brought forward to inspire and influence this more modern approach and design aesthetic within the Square.
- * Research and testing with the incorporation of Richardson Candles will be a starting point for the evolution of the design within the Square.



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