

William Turner MRP

by William Turner

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Conflicting interests on small estates:
Balancing existing residents' well-being with the need for more homes

UNIVERSITY COLLEGE LONDON

FACULTY OF THE BUILT ENVIRONMENT

BARTLETT SCHOOL OF PLANNING

Conflicting interests on small estates: Balancing existing residents' well-being with the need for more homes

William Turner

Being a major research project submitted to the faculty of The Built Environment as part of the requirements for the award of the MSc Urban Design and City Planning at University College London: I declare that this major research project is entirely my own work and that ideas, data and images, as well as direct quotations, drawn from elsewhere are identified and referenced.

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Abstract

Estate regeneration has been the subject of extensive research for decades, originally stemming from a need to improve conditions for those living in what were considered to be unsafe and poorly designed developments. This focus has shifted in recent years towards the need for additional homes, with regeneration schemes also delivering large uplifts in density. Although attitudes are changing, there is a general presumption in favour of mass decanting of residents and subsequent demolition, with estates thought to be of a poor build quality and inefficient layout.

This project argues that urban estates with a site area below 0.5ha require a different way of thinking, this separation being required because the general discussion of estates focuses almost exclusively on those with a far larger site area. Larger estates require urban design interventions such as increased public permeability and connection to the wider urban context, which is proposed to be neither necessary nor desirable on smaller estates.

Existing residents' well-being is used as an indicator to understand their requirements from where they live, derived from a review of literature. Key themes from literature informed a case study review, used to propose a toolkit of urban design interventions to intensify the use of the spaces around homes. Interventions include enhanced green and communal spaces, facilitation and encouragement of active travel over private car use, integrated children's play facilities, and adjustments to movement patterns and connections. The need for more homes is addressed with a design-led approach to infill development, with positive impacts on existing residents' well-being captured and enhanced, and negative real or perceived impacts mitigated. The research focuses on London, and the proposed tool-kit is tested at a design level across three small estates in the London Borough of Wandsworth.

01. Introduction

01. Introduction

This project seeks to broaden the discussion of social housing estate renewal, focussing on small sites with a total area below 0.5ha. Of particular focus are urban design interventions to improve spaces commonly found on these estates. A framework based around well-being is proposed, acknowledging that whereas interventions proposed for larger estates may have a wider impact on the city area beyond their boundaries, any proposals for small estates should be for the benefit of its residents foremost.

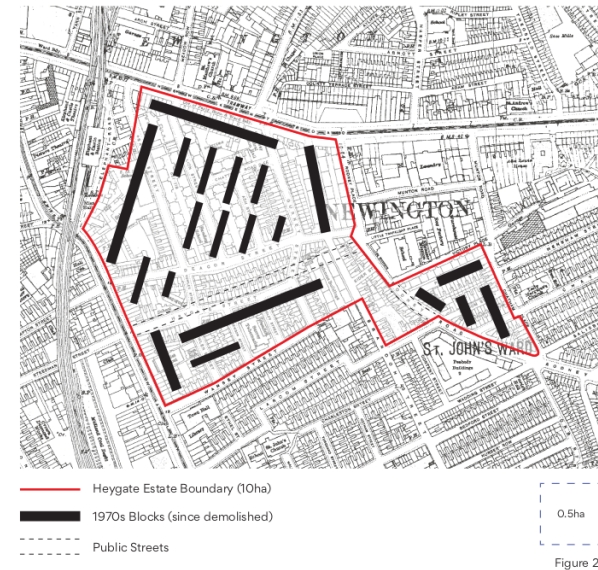
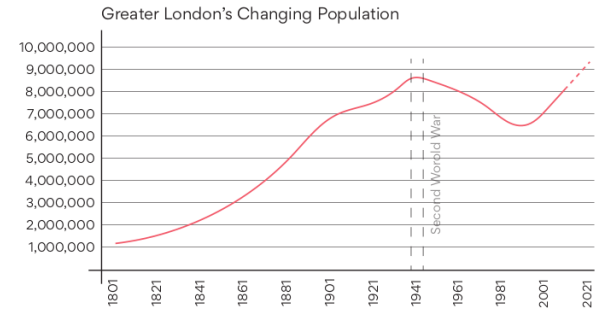
The need for more homes

It is widely accepted that the UK has a housing supply deficit, as well as crucially a lack of truly affordable homes. Nowhere is this truer than in London, which along with other UK towns and cities has experienced a so called 'urban renaissance', with the post-war population decline being reversed dramatically (Figure. 1). The need for more homes in constrained cities ultimately means densification of the existing built area. To ignore the pressure for increased density whilst proposing improvements to underutilised pieces of residential land would be naive. Crucially, this project hopes to reconcile the needs of existing residents with a requirement for new homes in close proximity to them through infill development.

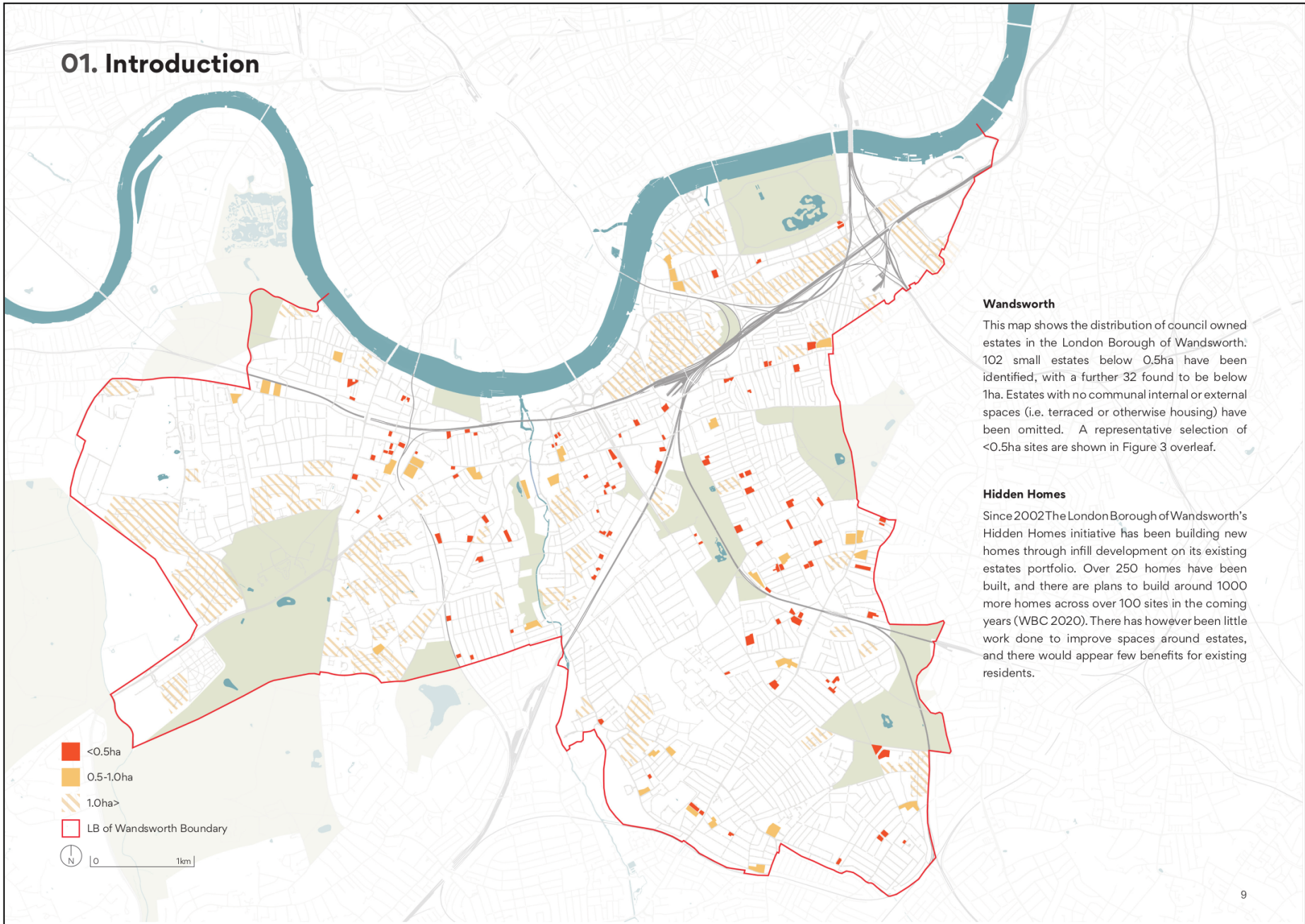
Small estates vs. large estates

In the discussion of estates and estate regeneration there is seldom a distinction in terms of overall site area. There is therefore a danger of over generalising urban design approaches to all estates, regardless of size. A prominent example in literature is Elephant and Castle's Heygate Estate, which prior to demolition covered around 10ha (Figure. 2). During its construction in the early 1970s, numerous city streets were bulldozed and replaced with a homogeneous layout, discouraging through access. Repairing this fragmentation of the wider urban grain is

often a key driver behind estate renewal and can support the case for full or partial demolition and rebuilding. Smaller estates (here classified as below 0.5ha) tend to sit within the traditional street pattern, and as such pose a far more limited impact on the surrounding city.



01. Introduction



Wandsworth

This map shows the distribution of council owned estates in the London Borough of Wandsworth. 102 small estates below 0.5ha have been identified, with a further 32 found to be below 1ha. Estates with no communal internal or external spaces (i.e. terraced or otherwise housing) have been omitted. A representative selection of <0.5ha sites are shown in Figure 3 overleaf.

Hidden Homes

Since 2002 The London Borough of Wandsworth's Hidden Homes initiative has been building new homes through infill development on its existing estates portfolio. Over 250 homes have been built, and there are plans to build around 1000 more homes across over 100 sites in the coming years (WBC 2020). There has however been little work done to improve spaces around estates, and there would appear few benefits for existing residents.

01. Introduction



 Estate Boundaries

Figure 3: Representative selection of <0.5ha Wandsworth estates, source: Apple Maps

Research Question

How can urban design interventions on small (<0.5ha) urban social housing estates be used to improve the well-being of residents, whilst facilitating and capturing the benefits of increased population density?

Objectives

1. Understand how urban design interventions can be used to enhance residents' well-being on estates
2. Create a framework and toolkit of suitable urban design interventions including criteria for space suitability
3. Explore both the perceived and real impacts of building new homes through infill within estates, and suggest design solutions to mitigate these, as well as ways in which increased density can benefit existing residents

Limitations

This project is primarily concerned with physical urban design interventions, and their as-built impact on people's well-being. The need for strong resident engagement in the planning and design process is touched upon, but a thorough investigation is not within the scope of this project. Similarly governance and management (prior to, during and after implementation) structures would form a crucial part to any scheme but would be best explored in separate research. Despite the project's focus on London due to its acute need for additional homes, compounded by high land and property values, it is hoped that a majority of ideas will be transferable elsewhere.

Contribution to practice

As previously outlined the majority of existing academic literature, guides and toolkits are concerned with much larger estates, and as such propose ideas and interventions most suitable to them. This research aims to highlight the need for differences in thinking when considering smaller estates, as well as suggesting suitable approaches to ensure the needs and well-being of existing residents is central to any discussion.

02. Methodology

02. Methodology

The project began by defining a research question, along with four more detailed objectives. A brief mapping exercise and photographic typology was used to focus the research, identifying broadly existing site conditions.

A literature review then considers the relationship of estates with residents' well-being. Next the existing body of work regarding estate regeneration was interrogated, including methods of increased housing density and its real/perceived impacts on residents. Limitations and gaps regarding privacy and permeability were identified and a resolution sought from other literature. Relevant local and national policy regarding estates and density was also scrutinised.

A case study review was used to analyse real world applications of the themes and interventions derived from literature. Three estates of different sizes were chosen to further research the relationship between site area and privacy and permeability, as well as to gather general strategies. A further six case studies were included to further understand the impact of different built typologies.

Next a conceptual framework was proposed capturing the key outputs of the preceding research, itself framing an urban design toolkit of interventions. This toolkit was then tested across three estates in the London Borough of Wandsworth, selected due to their variation in size density and built form. Their location also allowed multiple site visits undertaken safely during the COVID-19 pandemic, where photography and sketching informed the design process. Design interventions are set out in 2D/3D drawings and diagrams.

A reflective review concludes the project, highlighting successful elements of the toolkit, as well as limitations identified that require further research and testing.

03. Literature Review

03. Literature Review

In his book *City of Well-being*, Hugh Barton stresses the importance of centring people at the heart of planning. He argues that historically city planning focussed on improving the health, well-being and quality of life of its citizens, but that this focus has been diminished (Barton 2016). Subsequently the places we create often perform poorly and fail to meet the basic needs of the people who interact with them (Barton 2016; Gehl 2010). This echoes Jane Jacobs' writings nearly 60 years before, consistently deploring planners and architects for their inability to make places that work for the people who inhabit them: city planning lacks tactics for building cities that work like cities (Jacobs 1961).

Barton outlines how the built environment both directly influences health and well-being, for example through pollution and access to nature, as well as indirectly such as its impacts on social support networks and the perception of feeling at home in a place (Barton 2016). He also highlights a level of interdependence, both between physical and mental well-being, as well as with external factors (Fig.4). There is a need however to recognise that design can only go so far, and therefore an overly deterministic view should be avoided (Barton 2016; Carmona et al 2010; Adams 2014; Aked et al 2010).



Figure 4: Barton's (2016) Framework for Well-being (redrawn by author)

03. Literature Review

Well-being in the context of estates

In their 2013 paper *Small Changes – Big Gains: Transforming the Public and Communal Open Spaces in Run-down Neighbourhoods*, Georgia Butina Watson & Liz Kessler documented the process of multiple actors working coherently together to improve a large area in Islington, London. Urban design improvements and interventions included but were not limited to:

- Green spaces and parks
- Allotment gardens
- Sight lines and connectivity
- Pedestrian routes
- Parking and vehicular infrastructure (reduction of use and impact)
- Play areas
- Sitting areas
- Improvements to buildings and communal spaces on estates

Their analysis frames the interventions from the perspective of residents' well-being, as well as similarly mental and physical health, feelings of safety, neighbourliness and self-esteem (Watson & Kessler 2013). In order to assess the scheme's impact they formed a conceptual framework titled *Qualities for retrofitting neighbourhoods*, derived from existing literature (Fig.5). Their framework is shown compared with Barton's (2016), where *Clarification and distinction between public and communal spaces on estates* is not addressed.

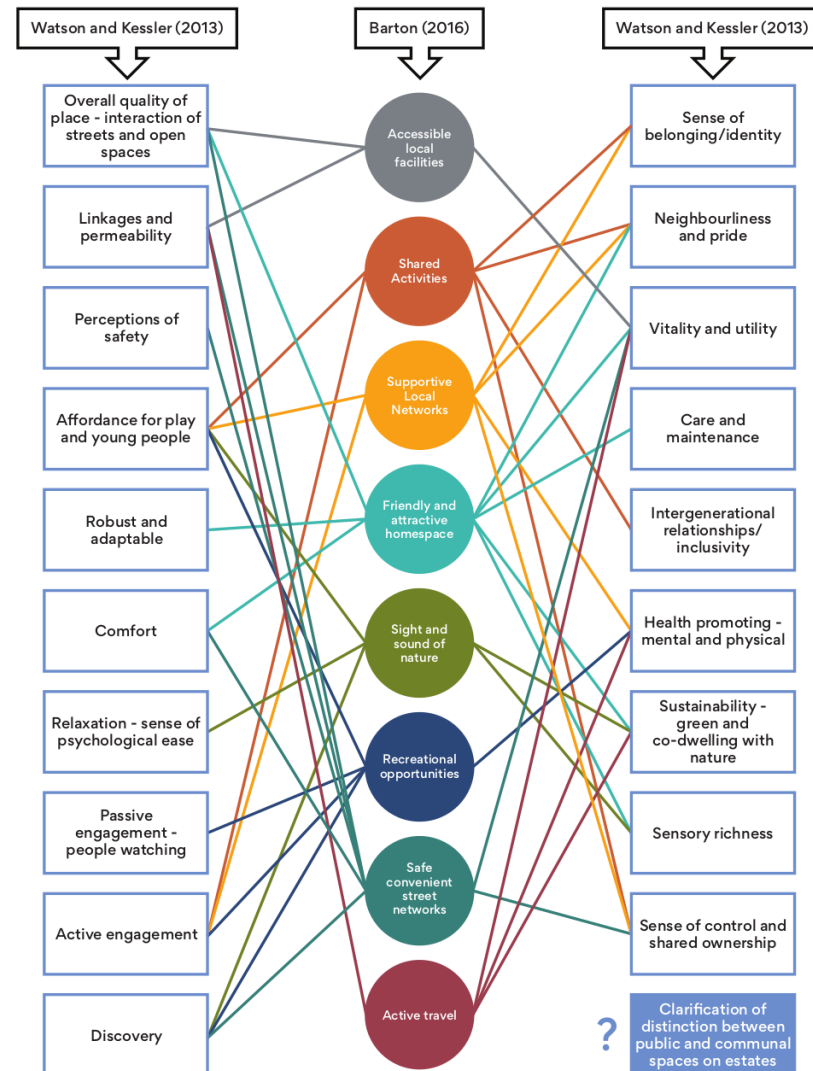
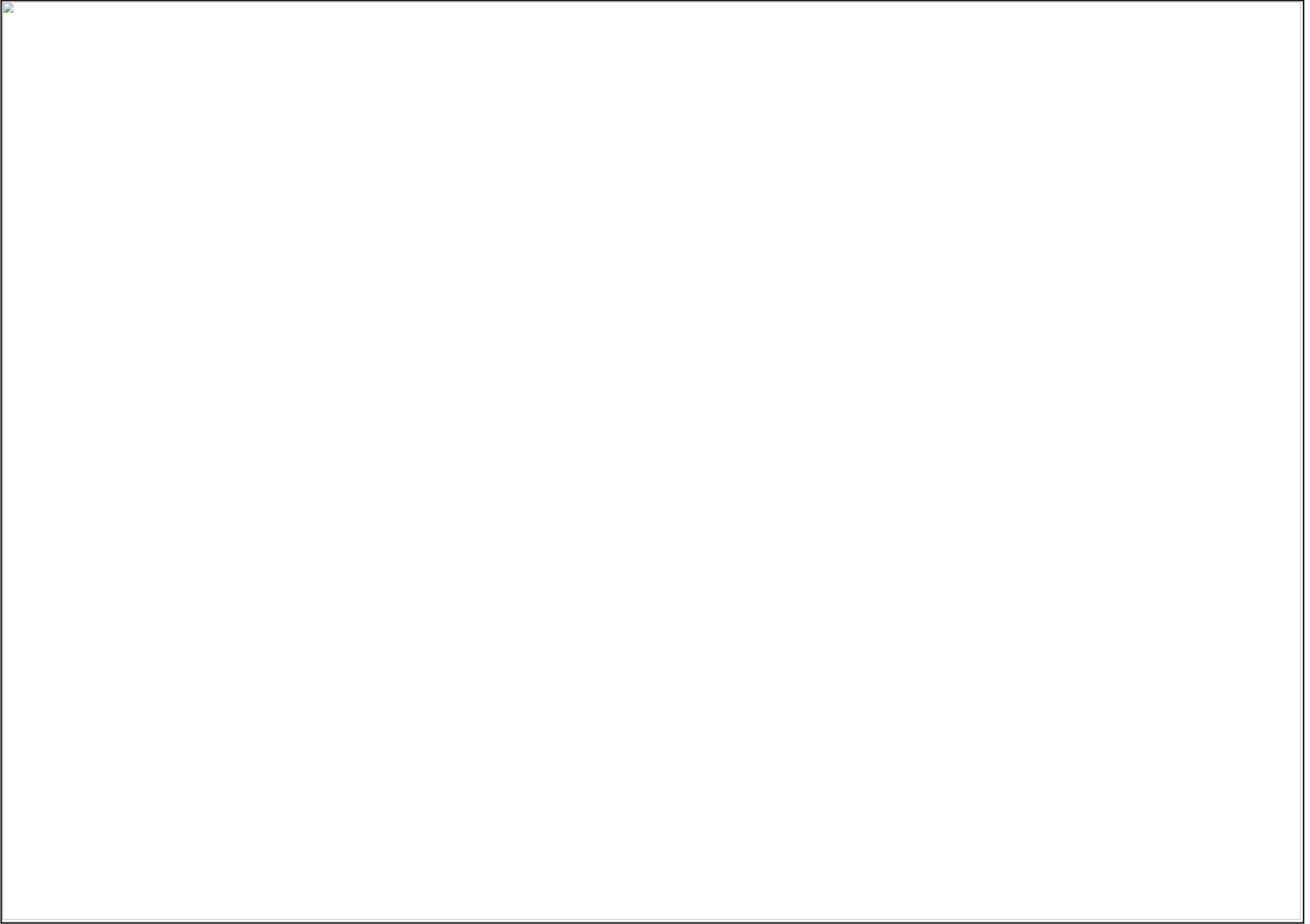


Figure 5: Comparison of Barton (2016) and Watson and Kessler's (2013) Frameworks for Well-being (redrawn by author)



03. Literature Review

The relationship with the wider city

Modernist estates are frequently referred to as inward looking, as well as being disconnected from and in turn fragmenting the surrounding city. Construction of larger estates in already urbanised areas often resulted in the interruption of the traditional street pattern (Savills 2016). This lack of integration combined with architectural form lead to criticisms that estates stand out harshly and were crudely implanted (Rogers & Power 2000; Tunstall 2020).

This disconnect and the need for better integration is regularly cited as justification for either the partial or wholesale demolition of estates. New building on a new layout not only addresses the issues discussed here, but also potentially that of low quality, hard to maintain and unpopular homes (HTA, L.B. & Edwards, P.T., & PRP 2016).

These findings are often generalised, with no reference to the estate's size. From the preliminary research into estates with a total area below 0.5ha (see introduction), only one was found to have altered the street pattern when compared with historic maps. Also, conversely, some of the estates studied now provide walking routes across them that would not have been there prior to their construction. A majority were found to face and engage well with surrounding streets in terms of layout, access to front/block doors, and overlooking. This engagement with the street was primarily to facilitate the most optimal layout to achieve the desired density on constrained sites, as well as to harmonise the new development with its surroundings (LCC 1949; Day 1988).

Demolition vs. Refurbishment

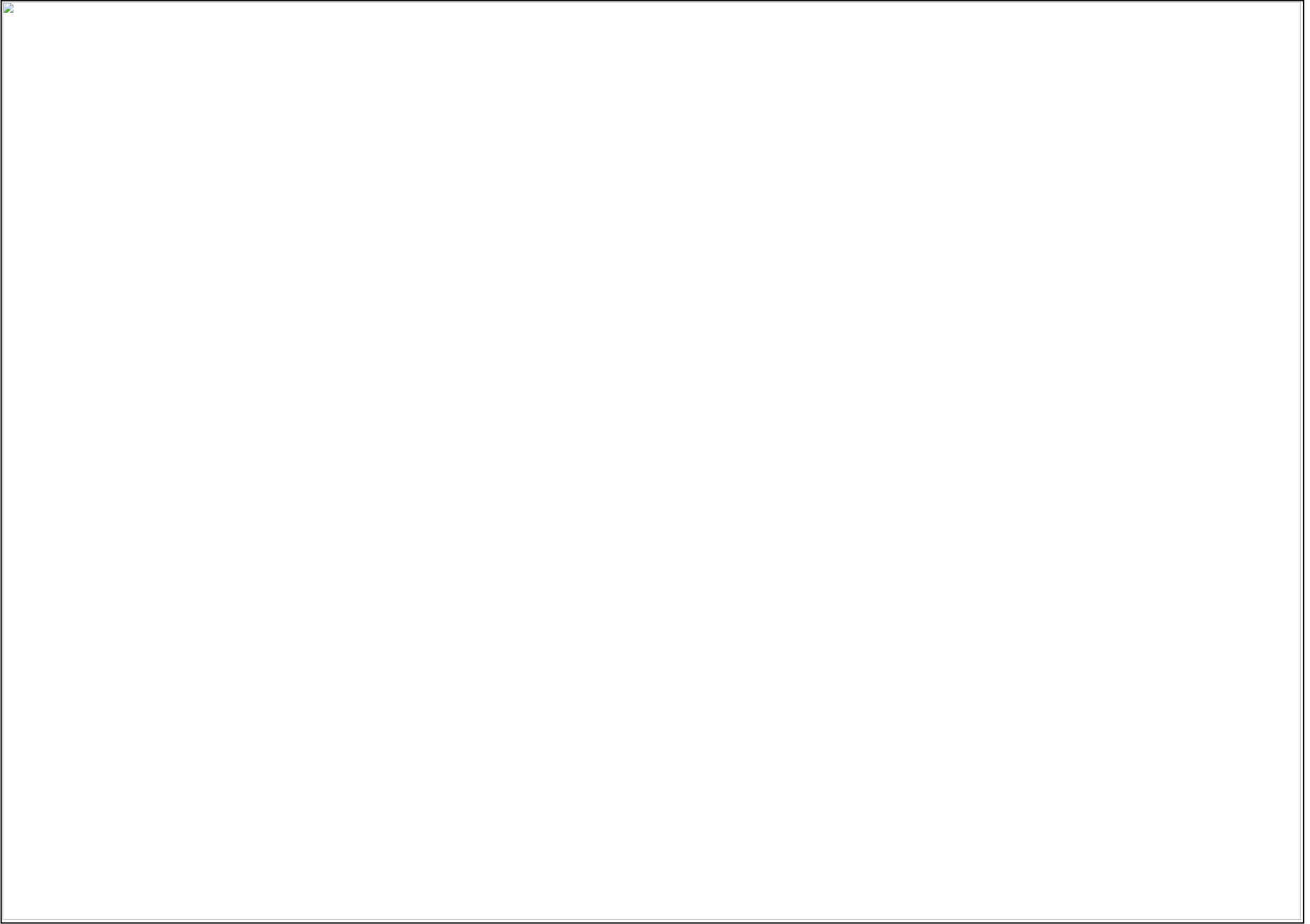
Even before the end of the social housing building boom in the late 1970s, deficiencies of built quality and design on estates was being scrutinised and researched (HTA, L.B. & Edwards, P.T., & PRP 2016). The quality of the built stock itself is an important aspect of the current debate regarding the future of estates. There is a tendency within the various regeneration guides and toolkits for buildings to be presumed firstly in poor condition structurally, and secondly that any necessary repairs will be too complex or costly to be justifiable (Denning & Elmer 2018; Tunstall 2020; Lees 2014). This predilection for demolition was supported by government, who in 2003 adopted it as a tool for regeneration (Power, 2010).

Altered Estates asserts that: *Those estates which combine failures in urban planning, poor building layout and physical deterioration ultimately need replacement – modernisation works can only delay the inevitable. They do however reference the negative environmental, social and architectural implications of wholesale demolition, and encourage a review of government policy that expresses a presumption for demolition, echoing The London Plan which states that alternative options should always be considered (GLA 2019). Also suggested is that older estates have proven better suited to adaptation, referencing the London County Council brick built flats of the inter-war period. (HTA, L.B. & Edwards, P.T., & PRP 2016). Construction of new flatted estates by the London County Council in the immediate post-war period tended to consist of a traditional brick construction, with external and internal spine walls receiving floor loads (LCC 1949), suggesting similar suitability for refurbishment as earlier examples¹.*

Increasingly the decision to demolish or retain existing built stock is being framed from an ecological point of view, with retention of stock and embodied carbon consistently being considered preferable. Through retrofitting, estate buildings can generally achieve the same energy performance as low energy new builds (Crawford et al 2014; Power 2010; Provan & Power 2019). The issue of embodied carbon of demolished and new buildings is often hard to establish and relate to long-term targets, and as such frequently ignored (London Assembly 2015)

The discussion around demolition vs. retention and refurbishment must also be considered from the perspective of existing residents' well-being, both having their own positive and negative impacts. There is a clear direct positive influence on health and well-being from energy based improvements to buildings, as well as the fact that communities to remain together, and individuals in their homes (Crawford 2014; Provan & Power 2019; Power 2008). Even in the best managed demolish and rebuild schemes there is inevitable disruption for residents (G15 2016). Where phasing of building works cannot be achieved to allow residents to remain on site at all times and temporary accommodation elsewhere must be provided, there is a risk of community instability and disruption. Similar impacts have been shown to occur from the uncertainty at earlier stages of planning for demolition (HTA, L.B. & Edwards, P.T., & PRP 2016; Provan & Power 2019).

¹ From the preliminary research (see introduction), a majority of small estates were found to date from the 1940s and '50s and were constructed with the more traditional methods as described above.



03. Literature Review

Infill Development

Due to the housing crisis, the objectives of estate regeneration have evolved to not simply improve the lives of those living on or around estates, but to increase densities and make better use of public land (HTA, L.B. & Edwards, P.T., & PRP 2016). The Mayor of London's 2018 publication *The mayor's good practice guide to estate regeneration* sets out three main options for estate regeneration, to be used to suit different situations individually or in combination:

- Repairs to, and refurbishment of, existing homes
- Building new homes on 'infill' sites
- Demolition and rebuilding

(Mayor of London 2018)

In the context of the issues surrounding wholesale demolition of estates as discussed in the previous section, there is a growing interest in utilising infill development to increase densities. New homes have been built on underutilised pieces of land such as parking, garage courts, storage sheds, underused or over provided green and open spaces, rooftops, undercrofts, and redundant utilities such as pram stores and clothes drying areas (GLA 2016; Baily Garner 2016; Denning & Elmer 2018).

Partial demolition of buildings and associated structures has also been used to create spaces for new building, as well as potentially removing problematic elements such as above ground walkways. This so called 'scalpel' demolition can also remove buildings that have reached the end of their serviceable life, that are of a particularly inefficient layout or typology, or would otherwise impede efforts to rearrange external spaces and improve permeability (HTA, L.B. & Edwards, P.T., & PRP 2016; Power 2010).

A consideration when planning infill development is the longer term longevity of the existing built stock, over and above that possibly removed through scalpel demolition. If buildings are deemed to be reaching the end of their useful life, they may be harder to eventually remove if hemmed in by newer homes (HTA, L.B. & Edwards, P.T., & PRP 2016; Johnson 2015).

Perceptions of infill and increased density

Estate regeneration has become increasingly controversial in recent years, with fears of gentrification and social cleansing, combined with decanting of residents (Hanna & Redman 2016; (Johnson 2015). Whilst densification of estates through infill is less divisive, there are still legitimate social concerns of new residents burdening existing infrastructure, and a sense of being 'singled out' for development whilst surroundings not under public ownership are left alone (Johnson 2015).

Strong resident engagement is encouraged near universally in literature and regeneration guides to help with resident perception. *Altered Estates* goes on to recommend this starts before any design is even proposed, with residents' security in their homes reassured, and realistic options discussed (HTA, L.B. & Edwards, P.T., & PRP 2016). At a London government level, the use of a Residents' Charter is encouraged to clearly set out aims and engage with residents (Mayor of London 2018), as well as possibilities of 'trade-offs' such as shared ownership options and flexibly designed new homes to meet their specific requirements over time (London Assembly 2015).

In addition to assuaging concerns over social issues, resident engagement can also help understand perceived deficiencies in spaces and facilities provided and propose interventions, such as improved landscaping or community spaces (Douglas 2016).

Estate infill presents similar physical issues which occur generally in densifying cities. Engagement with residents can help explain the benefits to safety and social life that increased density brings, but issues such as loss of open space, sunlight, views and privacy (Arvola & Pennanen 2014) also require careful assessment and consideration at the design stage. Derbyshire

et al's (2014) research into a permissive approach to infill development in semi-detached Metroland suburbs suggests a range of standard solutions in the form of building typologies. These typologies vary depending on the size of spaces available, proximity to other homes and access, and are designed to maximise density whilst not 'garden grabbing' and implanting inconsiderately designed new homes. Whilst the spaces and existing buildings found on estates can vary greatly, as identified previously there are certain common themes that appear (GLA 2016; Baily Garner 2016) and as such a similar typological approach could aid decision making. However, as *The London Plan* suggests, a 'design-led' approach to site capacity is most appropriate and responds best to a site's context (GLA 2019).

03. Literature Review

Summary of Findings

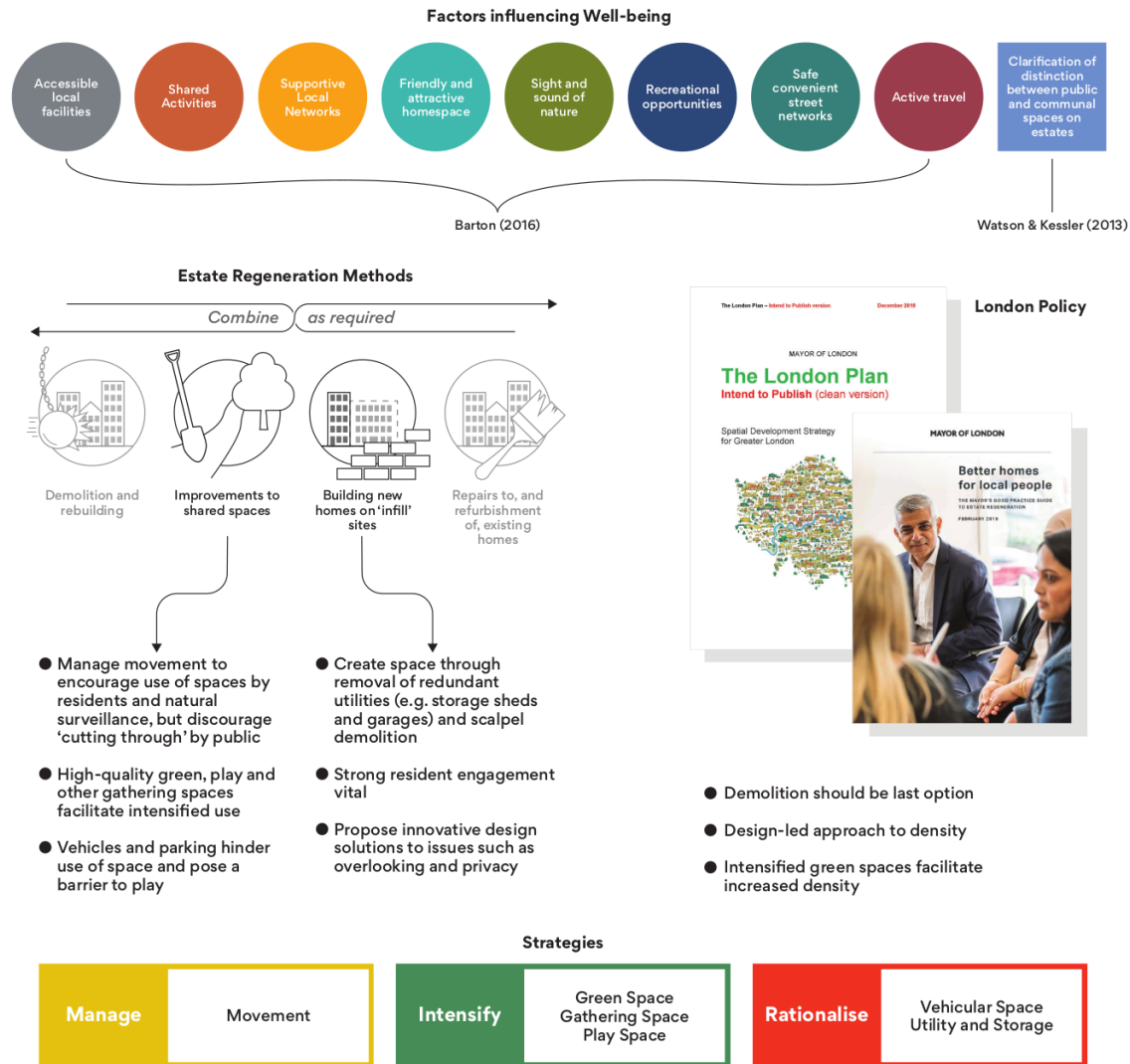


Figure 10: Literature review summary

04. Case Study Review

04. Case Study Review

King's Crescent Estate (Phase 1)

Original Estate



Location:	Stoke Newington, London
Site Area:	1.92ha Phase 1 only
Practice:	Karakusevic Carson Architects Henley Halebrown Architects Muf Architecture/Art
Client:	LB of Hackney
Dwellings:	273 new, 101 refurbished Approx. 150 previously demolished
Density:	Before: 130dph After: 195dph

Around half of the estate was demolished prior to this masterplan being developed

Existing units were refurbished and retrofitted with balconies providing all with outside space (a)

In addition to internal courtyard landscaping and street, fringe spaces facing external streets were improved



Railings demarcate (b) private patios from the communal courtyard allowing ownership of space whilst encouraging overlooking and interaction.

Semi-private communal gardens are enclosed by blocks. Access is via block stair cores (c) or fob-operated gates.

The courtyard is designed to encourage informal play using differences in height (d), materials and hard-wearing planting. Some formal play equipment is provided.

Raised allotments are allocated to flats and appear well tended, located amongst play spaces and communal gardens.

Legible internal streets are laid to allow wider permeability. A central street with partial pedestrianisation features a 'play street' and seating (e).

Car parking has been rationalised and moved to streets.

Architectural treatment and brick colour differentiates new building from old (f), with details such as balconies and railings being consistent across the site.

Where impractical to integrate into existing buildings, high quality bin stores (g) are located on key routes leaving the estate.

Fringe spaces at the edge of the estate have been planted attractively (h) with low maintenance shrubs and ground cover plants.

New Estate



- Site Outline
- Park
- Original Estate Housing
- New Housing
- Surrounding Buildings
- Vehicular Access
- Pedestrian only Access
- Semi-Private Communal Gardens
- Private Gardens and Terraces
- Phase 2 (not completed)



Figure 11

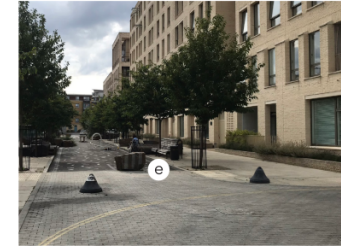


Figure 12



Figure 13



Figure 14



Figure 15

04. Case Study Review

Hannibal Road Gardens

Original Estate



Location:	Stepney Green, London
Site Area:	0.83ha
Practice:	Peter Barber Architects Phase 1 FBM Architects Phase 2
Client:	LB of Tower Hamlets
Dwellings:	87 New Total Phase 1 = 9 Phase 2 = 78 65 retained 30 Demolished for Phase 2
Density:	Before: 114dph After: 183dph

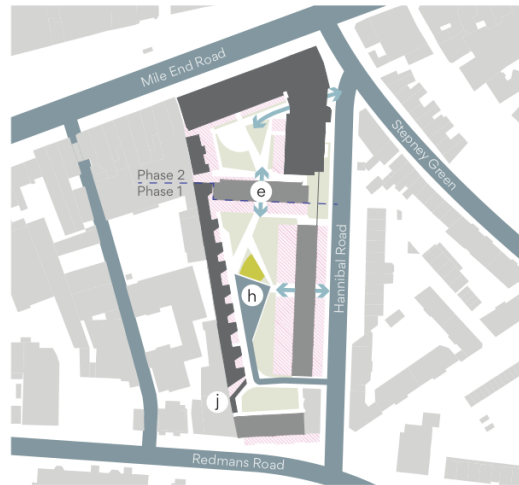
Phase 1 consists of an infill of high density terrace typology where garages and storage sheds once stood

Phase 2 required demolition of two inefficiently laid out blocks, garages and storage sheds

Both phases included enhancements to communal spaces



New Estate



- Site Outline
- Phase 1 & 2 Boundary
- Original Estate Housing
- New Housing
- Electricity Substation
- Garages and Storage Sheds
- Vehicular Access
- Pedestrian only Access
- Semi-Private Communal Gardens
- Private Gardens and Terraces
- Play Area



Homes in Phase 1 are designed to allow them to be built alongside the boundary. With no windows facing the rear, all homes are dual aspect due to private external terraces (a). Small front yards (b) open onto a communal courtyard.

Phase 2 consists of a flatted block with balconies and private terraces (c) overlooking a communal courtyard. Block access is via an archway linking the internal courtyard to Hannibal Road.

Three terraced houses overlook the courtyard (d).

The estate's communal spaces were previously divided by the retained central block. An archway built through scalpel demolition at ground floor level (e) allows a sight line and connection (see map).

Dedicated play equipment (f) is provided, whilst the paths and green spaces are interlaced with boulders and tree trunks and appear well used for informal play (g).

Car parking dominates (h) one courtyard.

A small number of raised allotments (i) are provided and appear well tended.

Access to all communal courtyards on site is possible to the public, with no restrictions. Courtyards clearly feel for use of residents primarily, with strong overlooking and enclosure from surrounding homes and terraces.

A substation was unable to be removed, and has been absorbed into the new block's built fabric.

Storage sheds (j) were re-provided for existing residents.



Figure 17



Figure 18



Figure XX

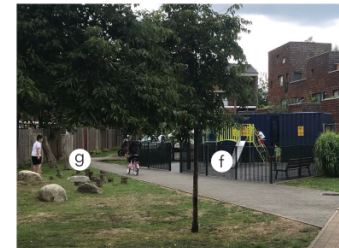
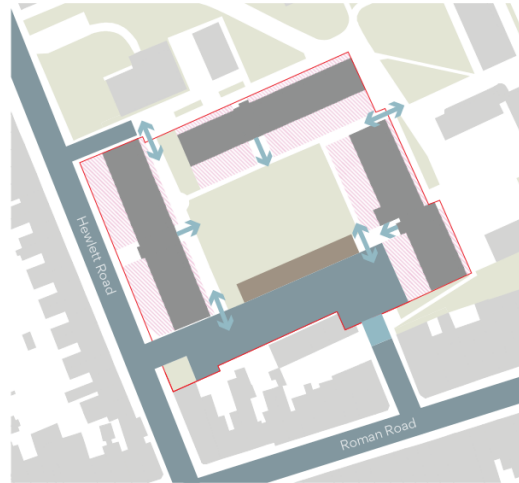


Figure 19

04. Case Study Review

Hitchin Square (Parkside Estate)

Original Estate



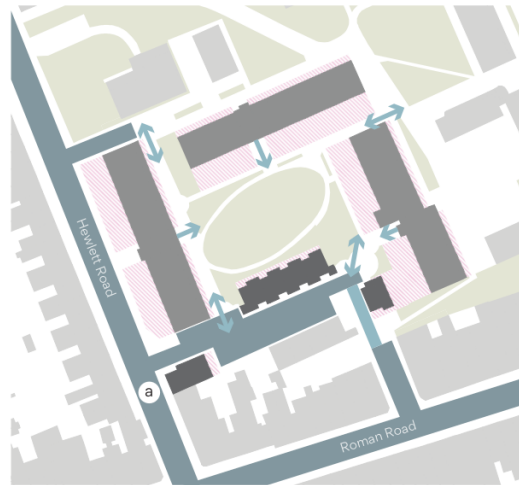
Location:	Bow, London
Site Area:	0.68ha
Practice:	PRP Architects
Client:	Old Ford HA (Clarion HA)
Dwellings:	6 new, 95 retained
Density:	Before: 140dph After: 149dph

New homes were built on a previous garage court and parking

Existing communal gardens and walkways improved with new paths and planting



New Estate



- Site Outline
- Original Estate Housing
- New Housing
- Garages
- Vehicular Access
- Pedestrian only Access
- Semi-Public Communal Gardens
- Private Gardens and Terraces



New home built at entrance to site (a) follows line of adjacent terrace.

All homes have private yards (b) enclosed by low railings, with first and second floor terraces (c) in addition, with some projecting and their massing echoing balconies on the existing blocks whilst overlooking communal garden.

Front doors and multiple windows (d) face the parking court, encouraging overlooking.

Communal garden courtyard has been improved with upgraded and additional paths and planting (e). Some ground floor gardens of other blocks feature high 'defensible space' walls (f), isolating them from the space.

Some seating and basic timber play equipment (g) has been provided

High quality paving follows a shared space approach and distinguishes the parking court from public roads (h), encouraging respectful driving

An overprovision of roadway width encourages parking outside of marked bays (i). Bollards separate the gardens from parking

Bicycle storage provided in space inefficient and unattractive lockers (j).

Public access to communal courtyard is possible, but not visible or encouraged from public streets.



Figure 21



Figure 22



Figure 23



Figure 20



Figure 24

04. Case Study Review

Infill Housing Typologies

Gaps and bookends

Ravenglass (Regent's Park Estate)

Location: Camden, London

Practice: Mae Architects

Client: LB of Camden

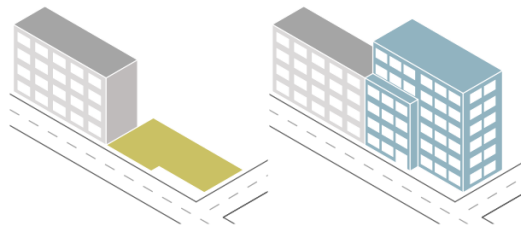


Figure 25



Figure 26

A flatted block has been built in place of car parking and a pub, facing a main street at the edge of the estate. The new building follows the line of the street, and mirrors the height of the existing block where it abuts a windowless elevation. Height increases at the street corner, and where the building recesses behind the original block.



Before

After

Undercrofts & redundant enclosed spaces

Hillingdon Square Estate

Location: Norwich, Norfolk

Practice: Mae Architects

Client: Freebridge Community Housing

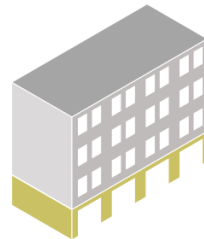


Figure 27



Figure 28

Garages under 1960s maisonette blocks have been converted into an additional storey for homes previously accessed by communal deck, providing additional floorspace and front doors direct to courtyard level.



Before



After

Rooftops

Abbott House

Location: Balham, London

Practice: Wandsworth Council Design Service

Client: LB of Wandsworth

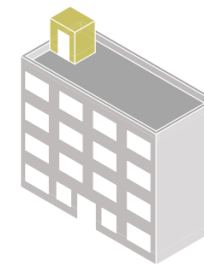


Figure 29

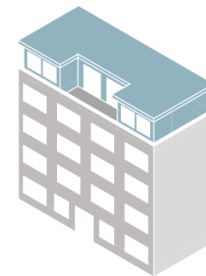


Figure 30

A flat-roofed 1950s block has had an additional storey added. Lift access is provided to the floor below, with new flats then accessible by stair. Lightweight modular building methods reduced loading and allowed for quick construction. Recessed external terraces are provided.



Before



After

04. Case Study Review

Infill Housing Typologies

Open edges

Kirkfell (Regent's Park Estate)

Location: Camden, London

Practice: Mae Architects

Client: LB of Camden

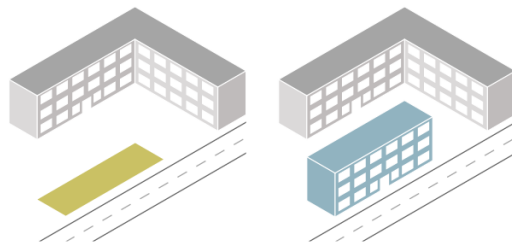


Figure 31



Figure 32

A new maisonette block has been built in place of car parking, facing a main street running across the estate. The new building follows the line and massing of the street, whilst enclosing and providing privacy to the communal gardens behind. Each home has a private external terrace



Before

After

Wedges & corners

Darbshire Place (Whitechapel Estate)

Location: Whitechapel, London

Practice: Niall McLaughlin Architects

Client: Peabody



Figure 33



Figure 34

A new brick flatted block strongly emulates the original 1880s buildings, and encloses the central communal gardens. The street is well addressed, and a tapered plan allows flats to enjoy a triple aspect, whilst allowing a convenient walkway into the courtyard. Each home has a private external terrace



Before

After

Overlooked edges

Moray Mews

Location: Finsbury Park, London

Practice: Peter Barber Architects

Client: Roberto Caravona (Developer)

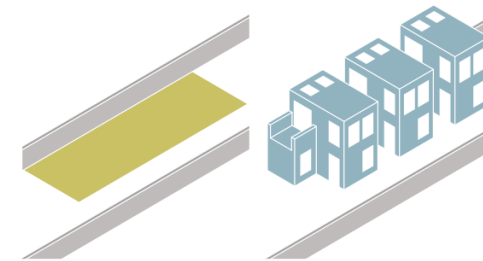


Figure 35



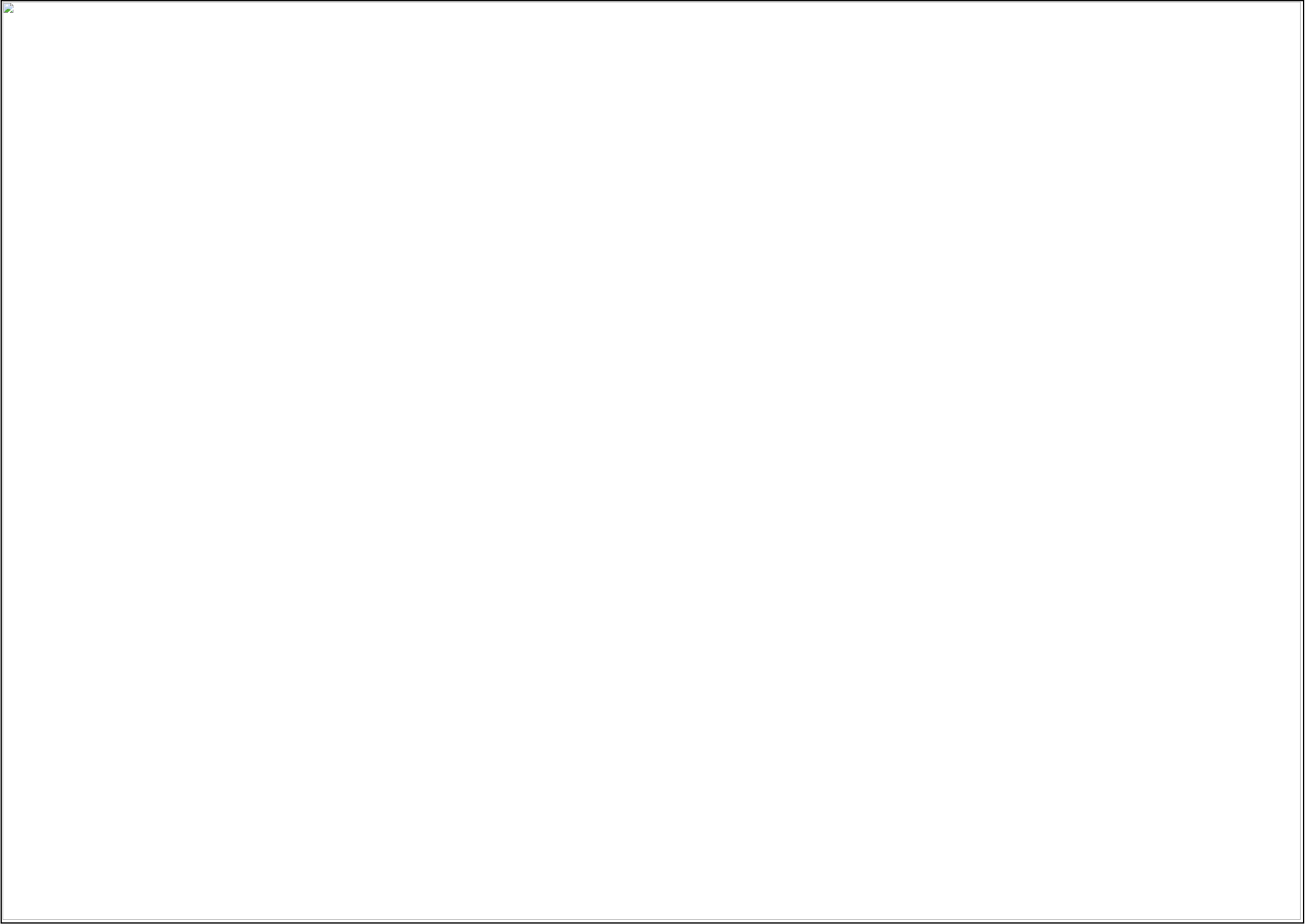
Figure 36

Eight courtyard houses utilise a narrow strip of land closely surrounded by other residential buildings. With no windows allowed rear facing, homes are pushed to the boundary and afforded dual aspect windows by overlooking small private courtyard gardens, articulating the façades, as well as rooflights.



Before

After





05. Design Framework

Conceptual Framework

The conceptual framework combines six main categories of interventions derived from literature and case study reviews. These interventions are framed by three overarching strategies to:

- **Manage** desirable and undesirable movement of people
- **Intensify** spaces and uses that have been shown key to enhancing residents' well-being
- **Rationalise** and thus reduce the impact of those spaces and uses that although in some cases are deemed necessary, negatively impact well-being or hinder other more desirable uses

The objective of these strategies is an *Intensification of Use*, which has been found to be vital in ensuring enhanced well-being.

Due to the small scale and interconnectedness of the interventions proposed in the following urban design tool kit, it is expected that a wide range of tools will be required in tandem with one another to address the factors influencing well-being. The relative consistency between application sites in terms of size, use and existing built structures and spaces means a large spread of interventions will be required.

The tool kit outlines the space suitability of each intervention, as well as advising which should and shouldn't be placed in close proximity to one another. Thorough site analysis prior to specifying interventions is required. Well-being objectives are given for each intervention, allowing an assessment of their impact to the wider aim of enhanced well-being.

Building New Homes forms a seventh category of intervention and relates to a tool kit of relevant typologies and considerations for building new homes through infill and scalpel demolition. The primary objective is *Densification*, with a secondary objective of *Intensification of Use* leading to enhanced well-being for new and existing residents.

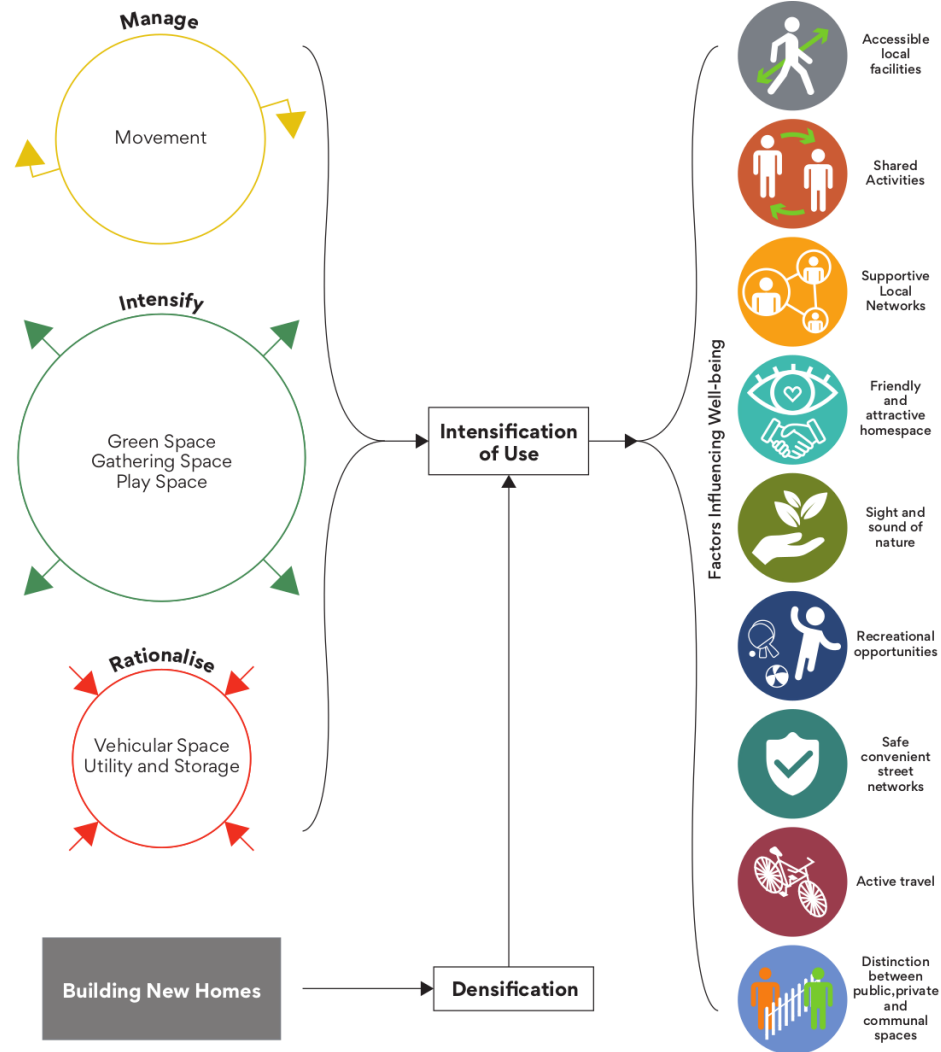
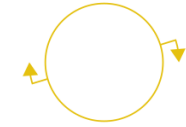

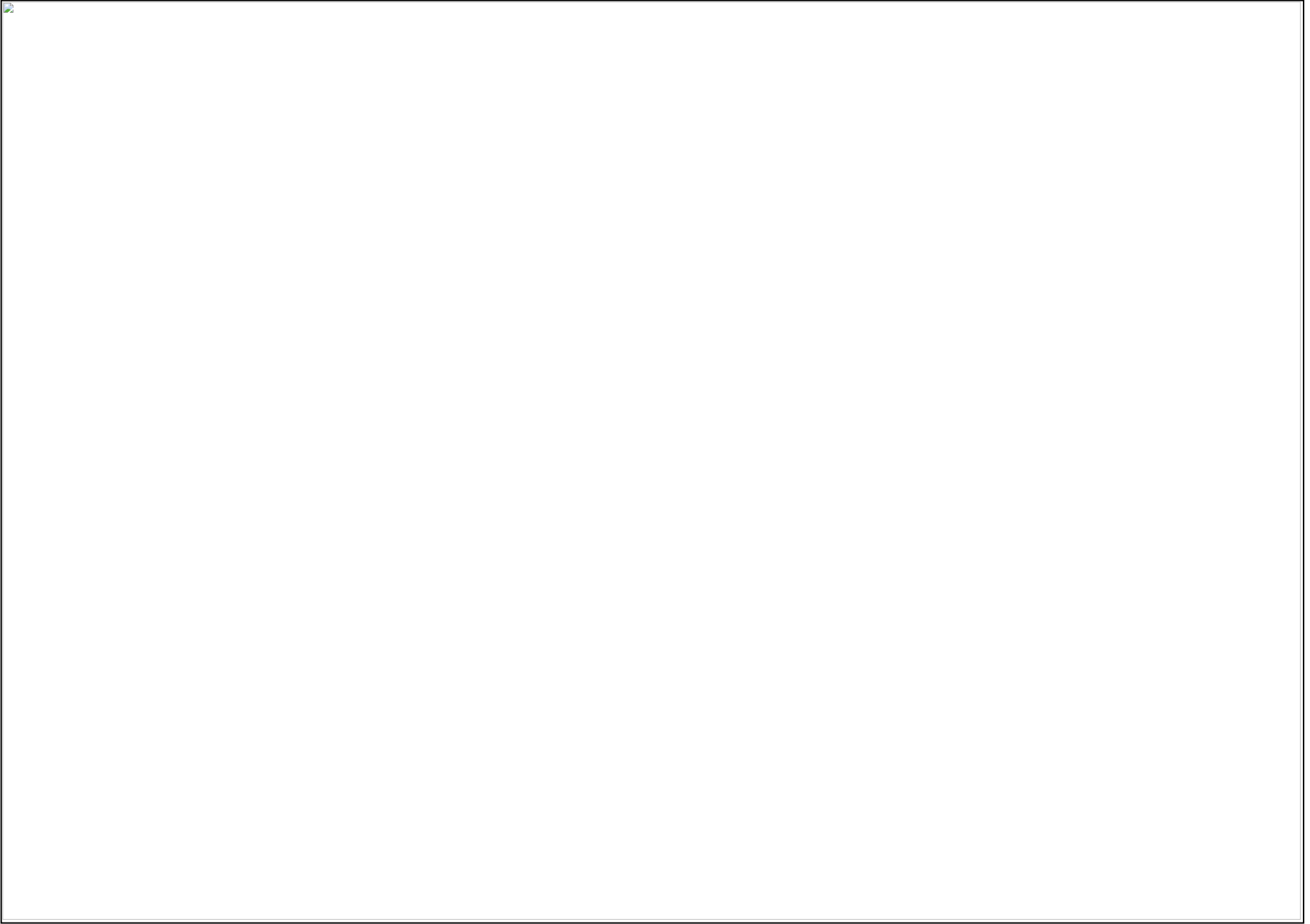


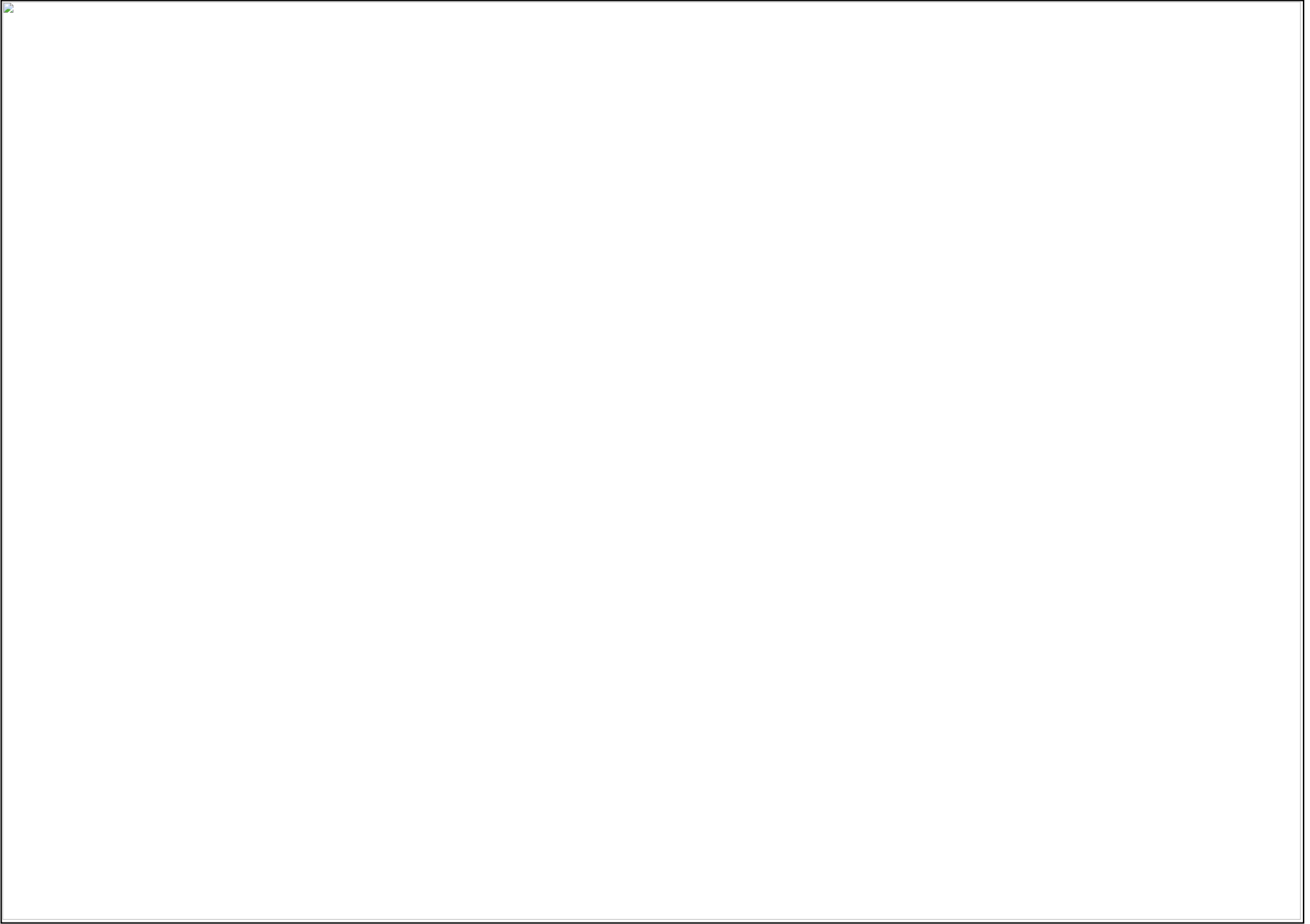
Figure 37: Conceptual Framework

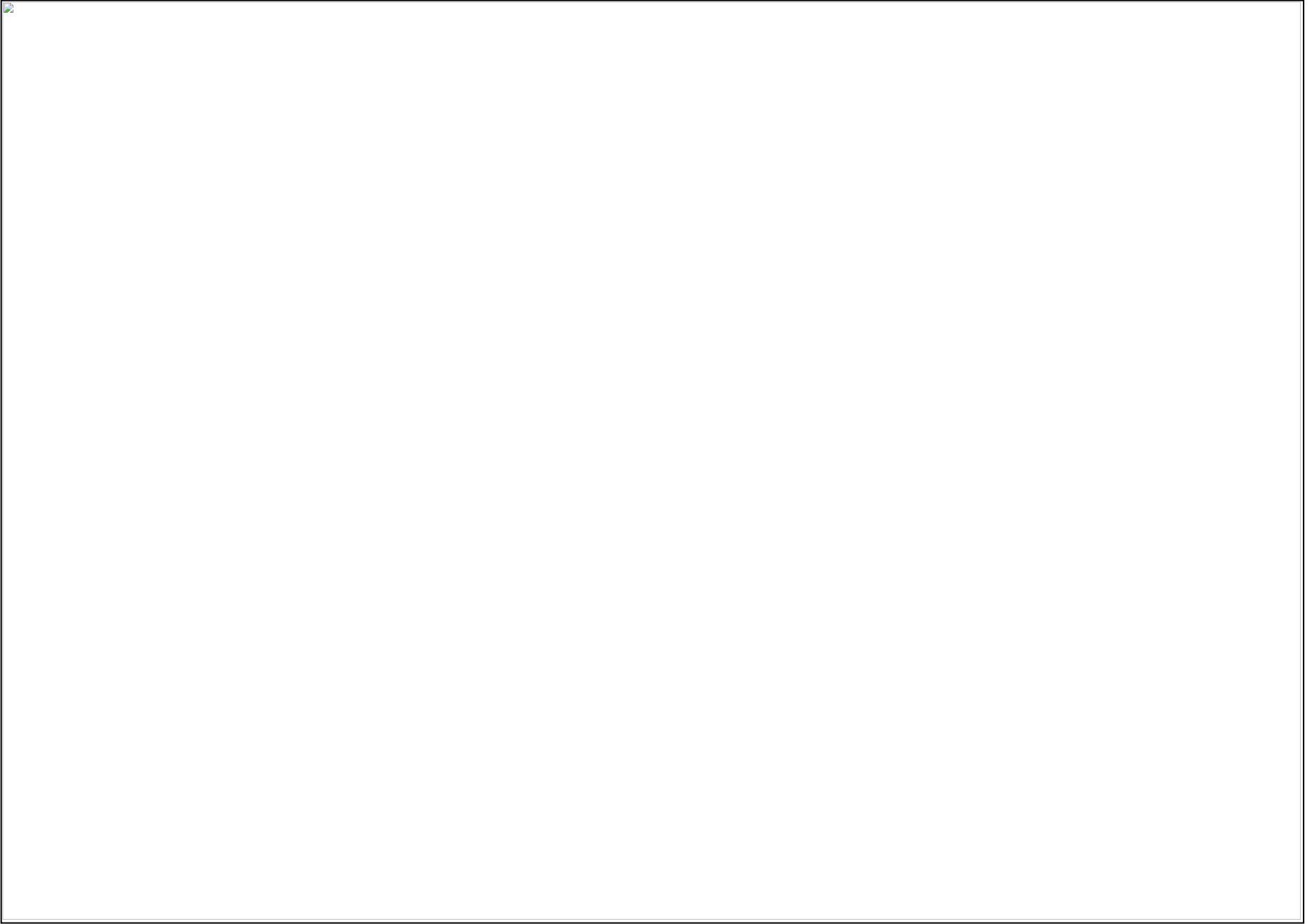


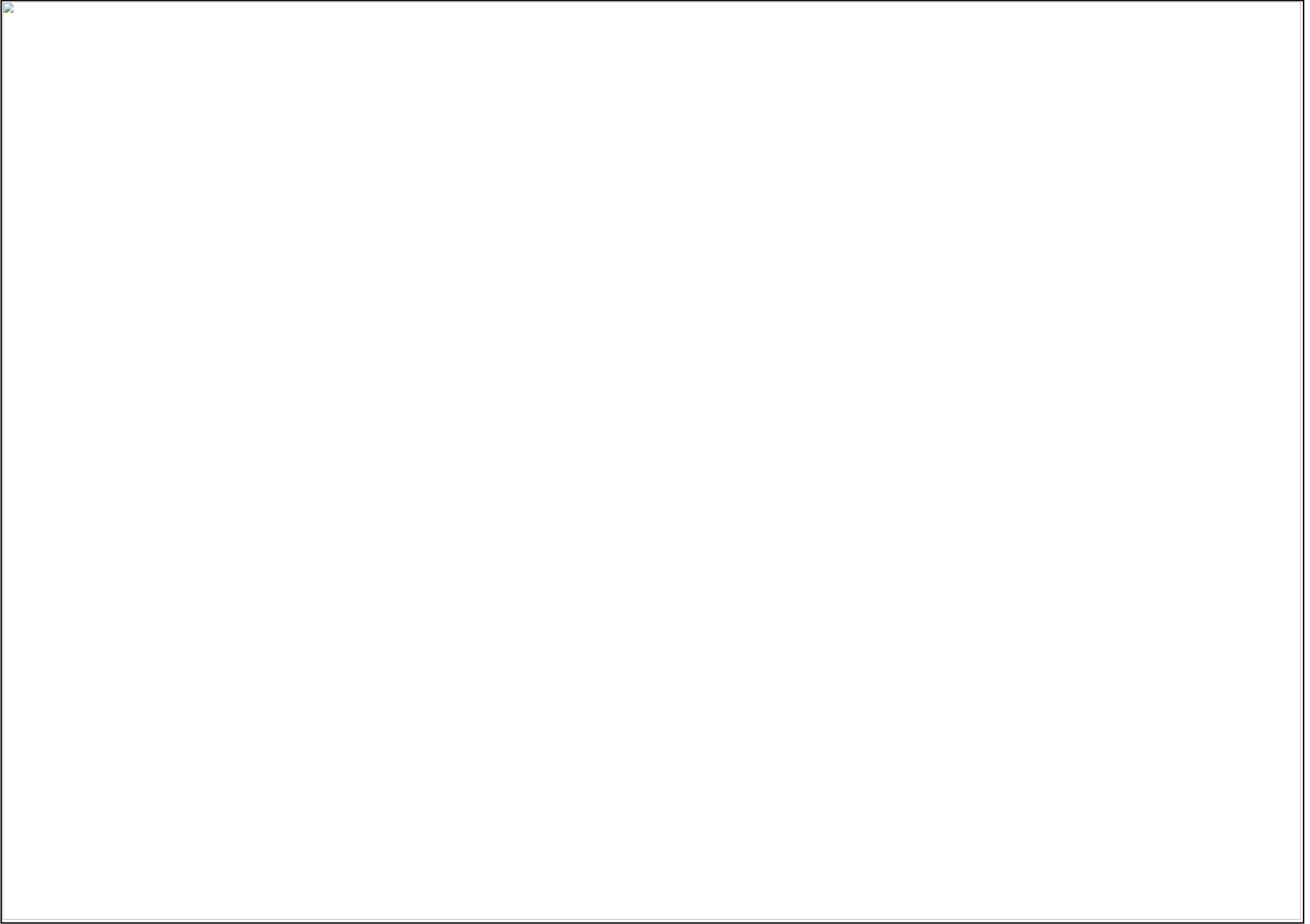
Intervention	Space Suitability	Concept	Objectives	Considerations
Reduce sight lines across estate from streets	<ul style="list-style-type: none"> • Paths • Roadways • Communal Gardens 			<ul style="list-style-type: none"> • Ensure routes are adequately overlooked and offer convenient access for residents
Rationalise estate entrances/exits	<ul style="list-style-type: none"> • Paths • Roadways 	<ul style="list-style-type: none"> • Over-provided 'leaky' entrances removed whilst retaining key desire lines (e.g to shops, transport etc.) • Intensify use of remaining entrances/exits • Provide new entrances/exits where desire lines dictate 		<ul style="list-style-type: none"> • Ensure routes are adequately overlooked and offer convenient access for residents
Increase number of front/back doors opening onto communal spaces <i>(Retrofit)</i>	<ul style="list-style-type: none"> • Ground floor properties with access via block door 	<ul style="list-style-type: none"> • Greater spread of entrances enhances natural surveillance • Improved access to communal spaces 		<ul style="list-style-type: none"> • Consider disruption to residents during works • Ensure suitability of internal room giving access (<i>i.e. existing entrance hall</i>)
Link spaces	<ul style="list-style-type: none"> • Where existing poor design, building layout or redundant infrastructure separate communal areas 	<ul style="list-style-type: none"> • Allow access to all areas for residents • Link existing fragmented communities and enhance resident permeability • Allow use of spaces and infrastructure to all without the need to double up 		<ul style="list-style-type: none"> • Ensure routes are adequately overlooked and offer attractive, straightforward connection







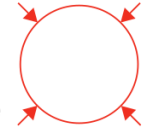




05. Design Framework

Toolkit

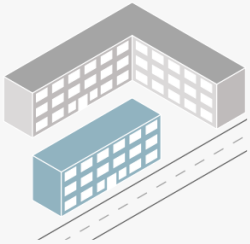
Utility and Storage



Intervention	Space Suitability	Concept	Objectives	Considerations
Remove redundant infrastructure	<ul style="list-style-type: none"> Pram stores Clothes drying areas Electrical Substations Garages 		<ul style="list-style-type: none"> Creates additional space for other interventions Link existing fragmented spaces and enhance resident permeability 	<ul style="list-style-type: none"> Ensure retained or alternative rationalised facilities provided if well used and low impact
Dedicated bicycle lockers	<ul style="list-style-type: none"> Visible fringe spaces Entrances/exits to estate 		<ul style="list-style-type: none"> Encourage active travel through covered and secure bicycle storage Reduce requirement for large residents' storage sheds, or storage inside dwellings 	<ul style="list-style-type: none"> Ensure located in position convenient for access to wider street network Ensure a degree of natural surveillance - not suitable for hidden/fringe spaces
Storage elimination/reduction	<ul style="list-style-type: none"> Residents' storage sheds 		<ul style="list-style-type: none"> Where practical and alternative bicycle storage provided, large and/or dominating storage sheds to be removed Where storage in dwellings appears poor, consider provision of smaller storage sheds, nearby to dwellings 	<ul style="list-style-type: none"> Ensure adequate provision for bicycles provided elsewhere
Low-impact bin stores	<ul style="list-style-type: none"> Entrances/exits to estate 		<ul style="list-style-type: none"> Locate close to estate entrances for resident convenience 	<ul style="list-style-type: none"> Ensure high quality to withstand misuse Ensure adequate provision

05. Design Framework

Toolkit: Building New Homes



Open edges

- Increased enclosure of internal courtyards increases residents' privacy
- Potential for greater interaction with streets



Gaps and bookends

- Increased enclosure of internal courtyards increases residents' privacy
- Potential for greater interaction with streets



Wedges & corners

- Increased enclosure of internal courtyards increases residents' privacy
- Opportunity for overlooking of paths and communal spaces whilst retaining access where required



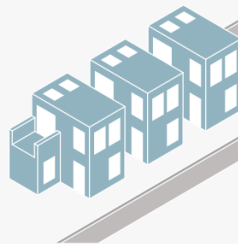
Undercrofts & redundant enclosed spaces

- Activation of ground level through provision of front doors and windows
- Reduced opportunity for antisocial use and behaviour in redundant spaces



Rooftops

- Opportunity for overlooking of communal spaces through windows and balconies/terraces
-



Overlooked edges

- Increased enclosure of internal courtyards increases residents' privacy
- Potential for greater interaction with streets

Key Considerations:

- Ensure private outside space provided for each dwelling (balcony, terrace or garden)
- Combine as required to suit sites where multiple space typologies are adjacent
- Consider existing estate homes and neighbours when placing windows and doors to ensure undesirable overlooking reduced, using roof windows and recessed courtyards to ensure dual-aspect lighting is provided to all dwellings
- Articulate facades to reduce overlooking and overshadowing, using sunlight analysis to ensure adequate daylighting to estate spaces and neighbours

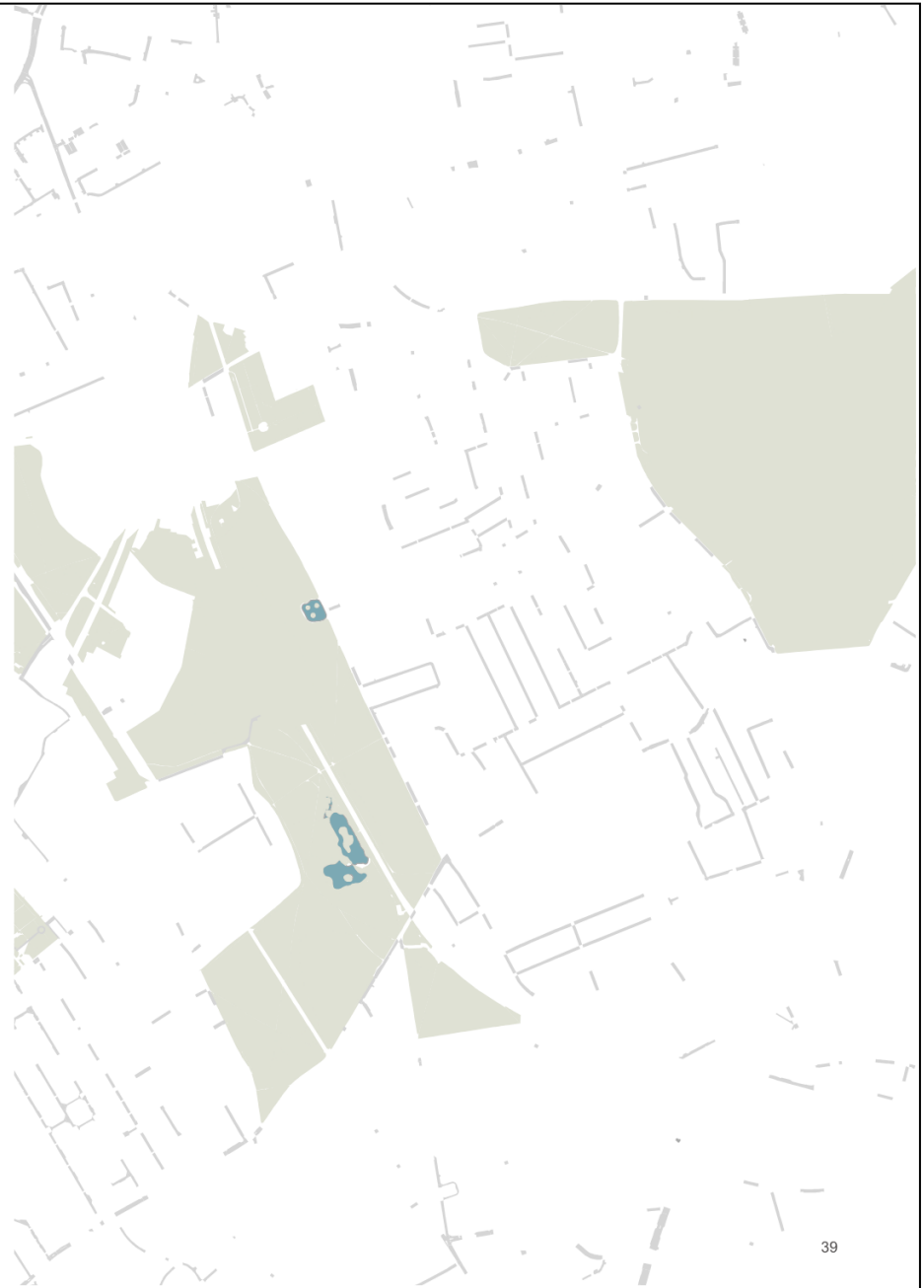
06. Site Introduction

06. Site Introduction



■ LB of Wandsworth

□ Greater London



07. Design Application

Site 1

07. Design Application

Site 1: Analysis

The first testing site consists five 3-storey walk up flatted blocks, constructed in the immediate post-war period. The site is dominated by parked cars and tarmac and a redundant clothes drying area



Figure 40:



Figure 41:



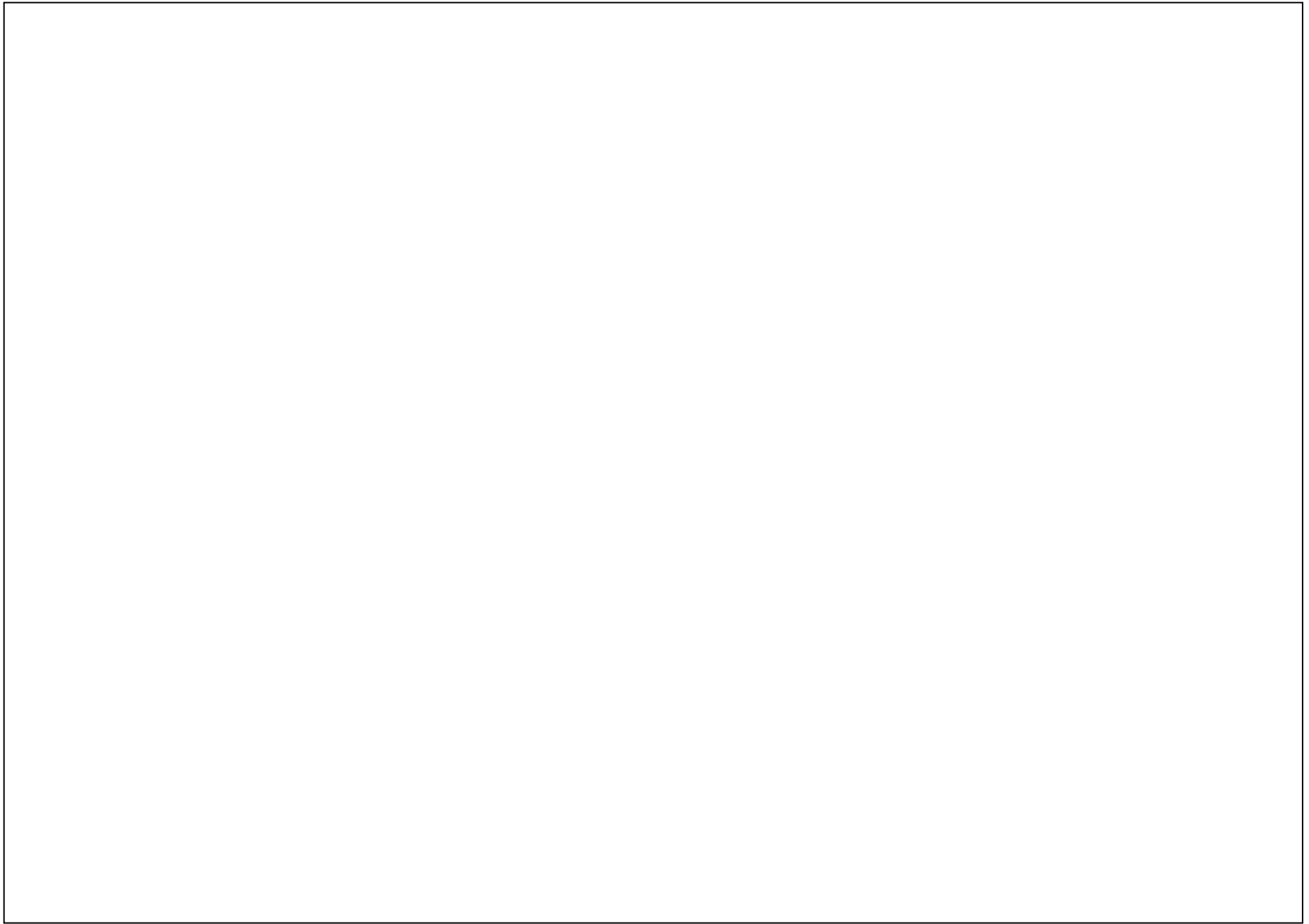
Figure 42:

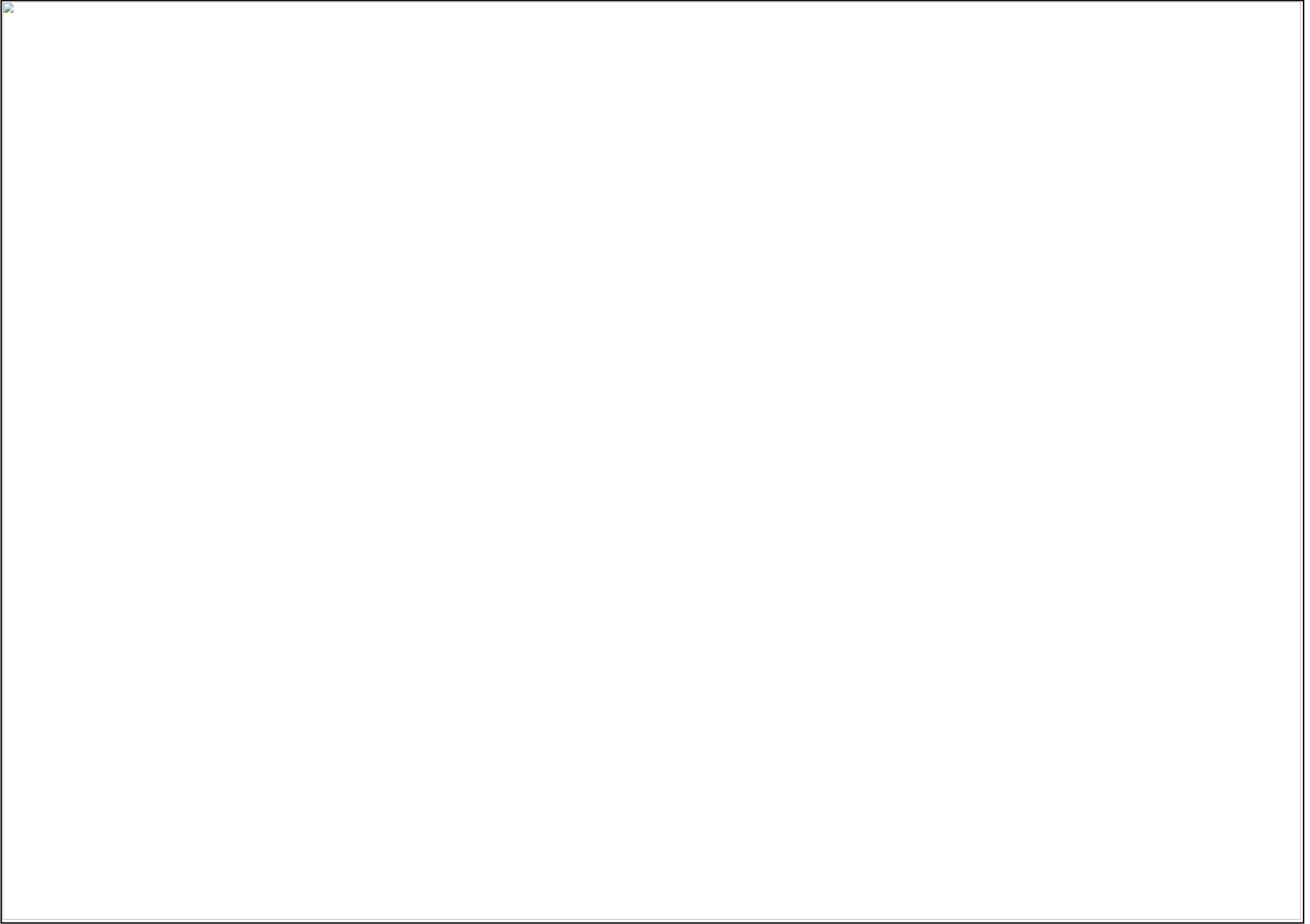


Figure 43:



Figure 44:

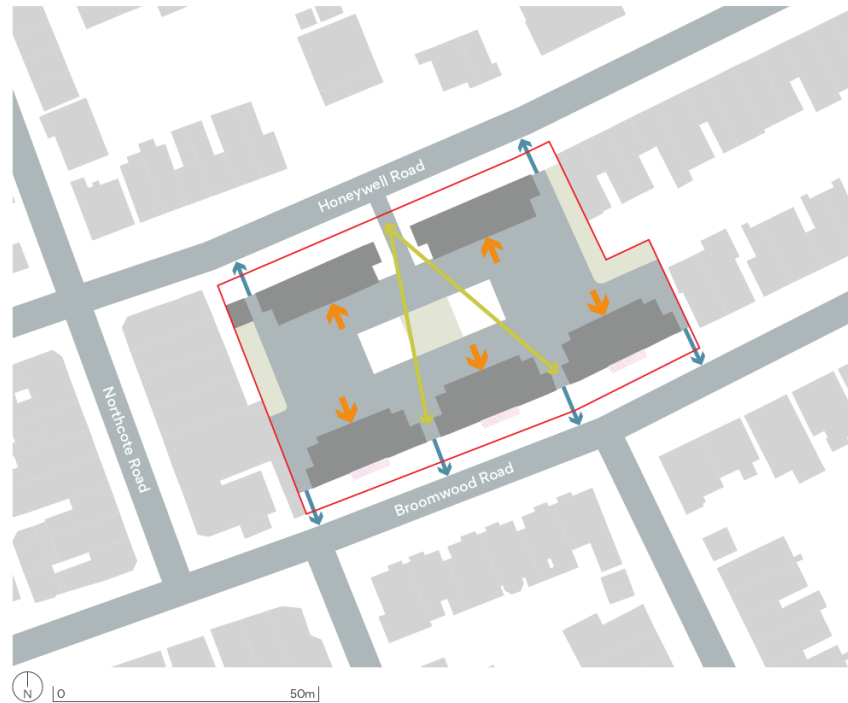




07. Design Application

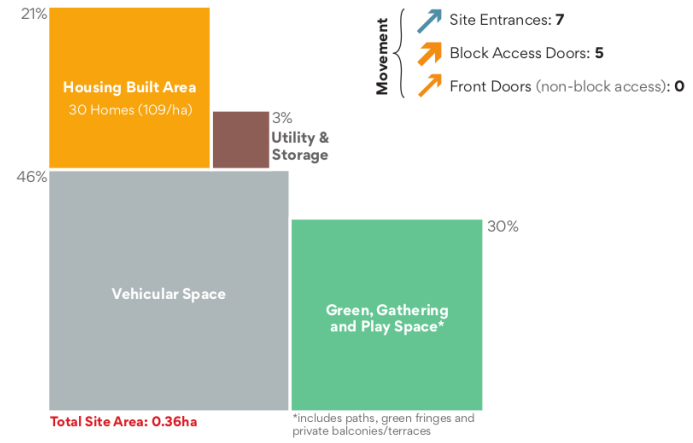
Site 1: Analysis

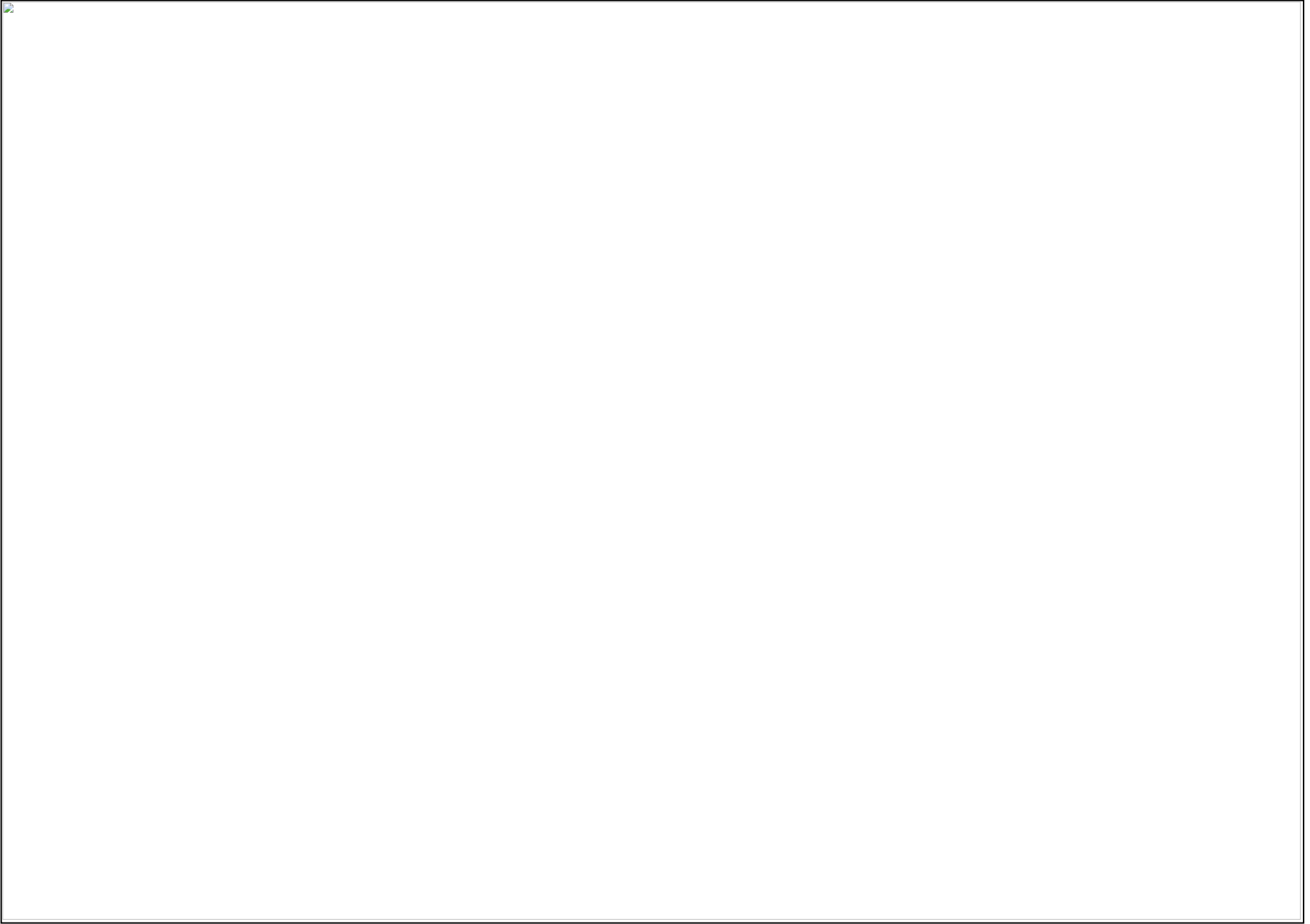
Existing Access and Public/Private Interface

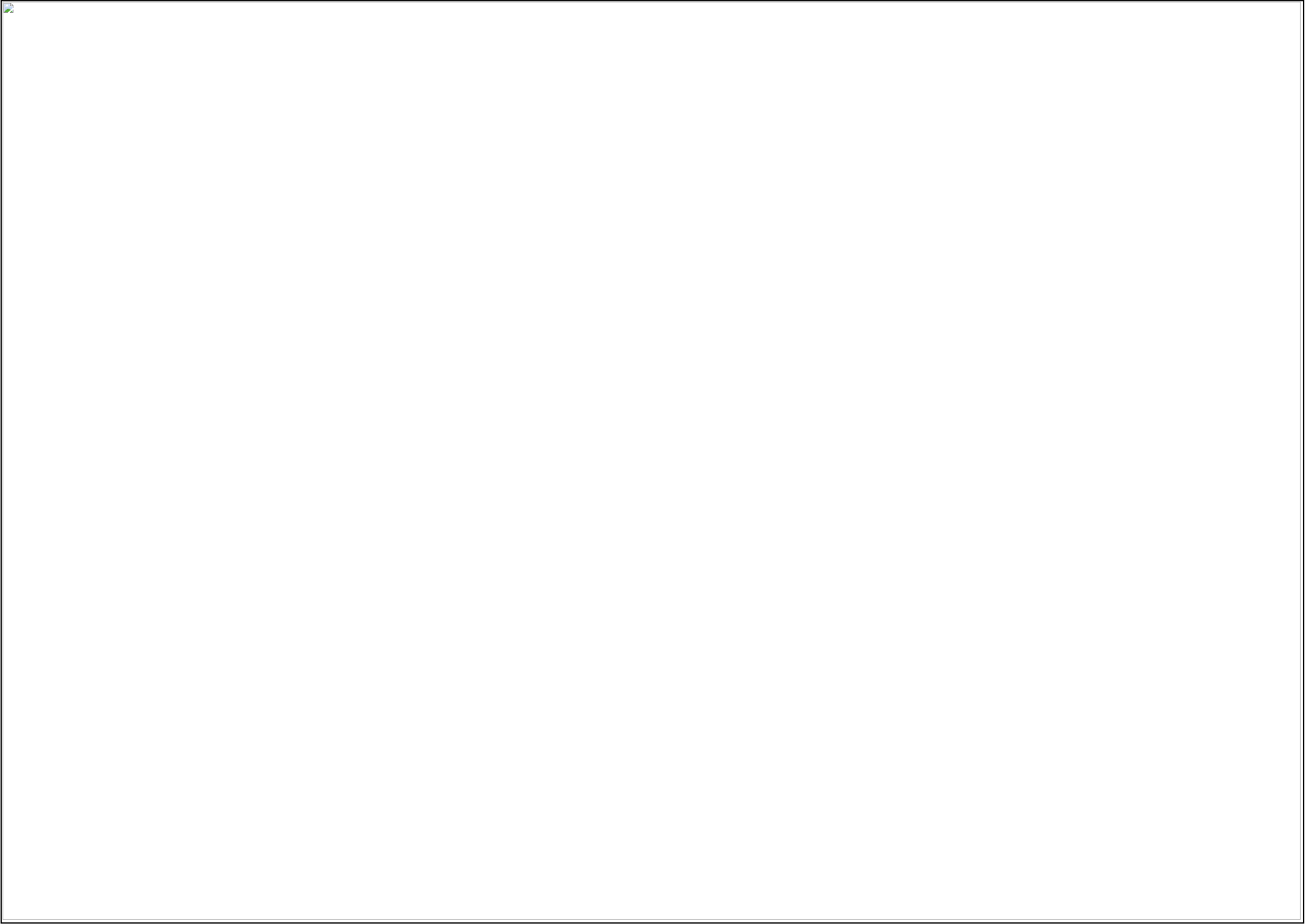


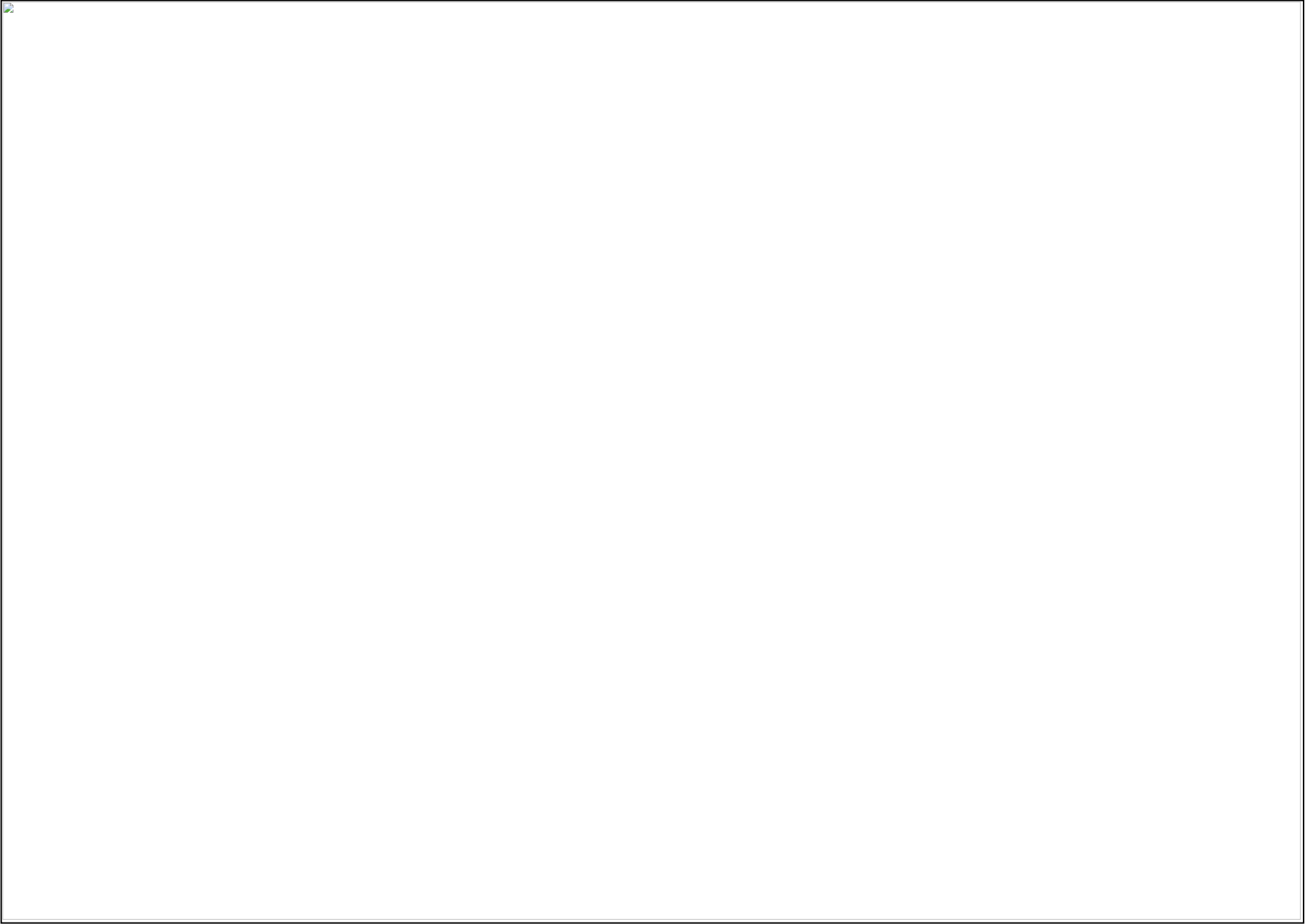
- Site Boundary
- Estate Buildings
- Vehicular Access
- ↗ Pedestrian only Access
- ↗ Block Access
- ↗ Sightline across estate
- Private Balconies
- Semi-Private Communal Gardens

Existing Site Area Allocation







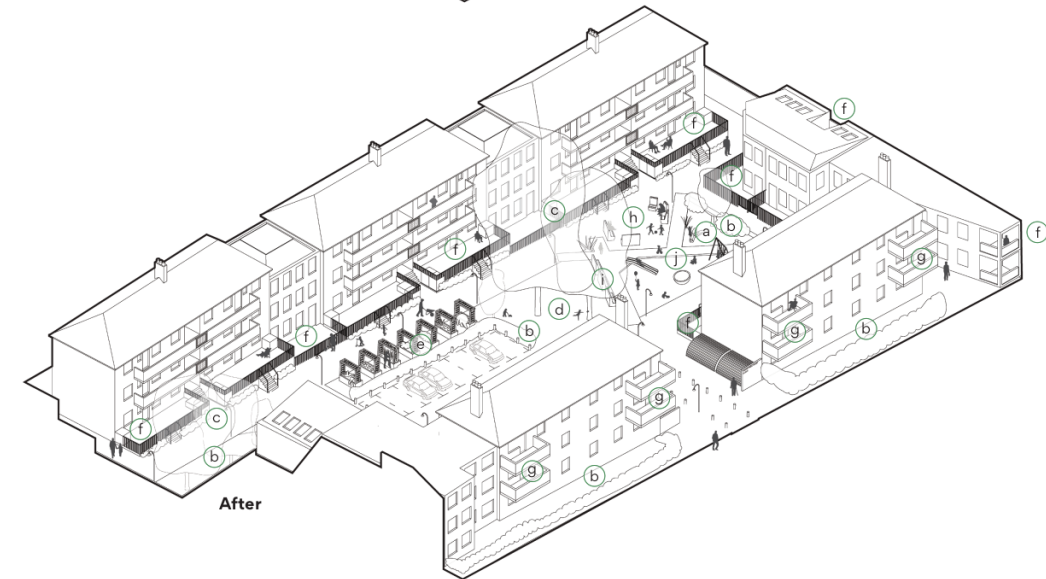
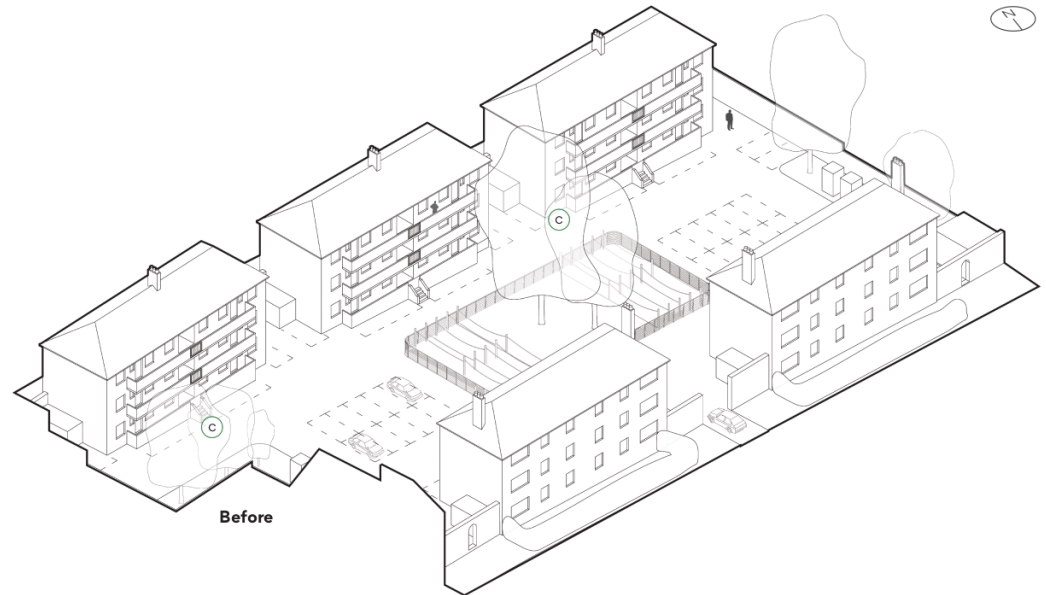


07. Design Application

Site 1: Interventions



- (a) Grass/parkland
- (b) Re-wilding/
planting
- (c) Trees
- (d) Semi-hard
surfaces
- (e) Productive
spaces
- (f) Private Gardens
and Terraces
- (g) Balconies
- (h) Formal
gathering areas
- (i) Informal
gathering
opportunities
- (j) Dedicated play
equipment

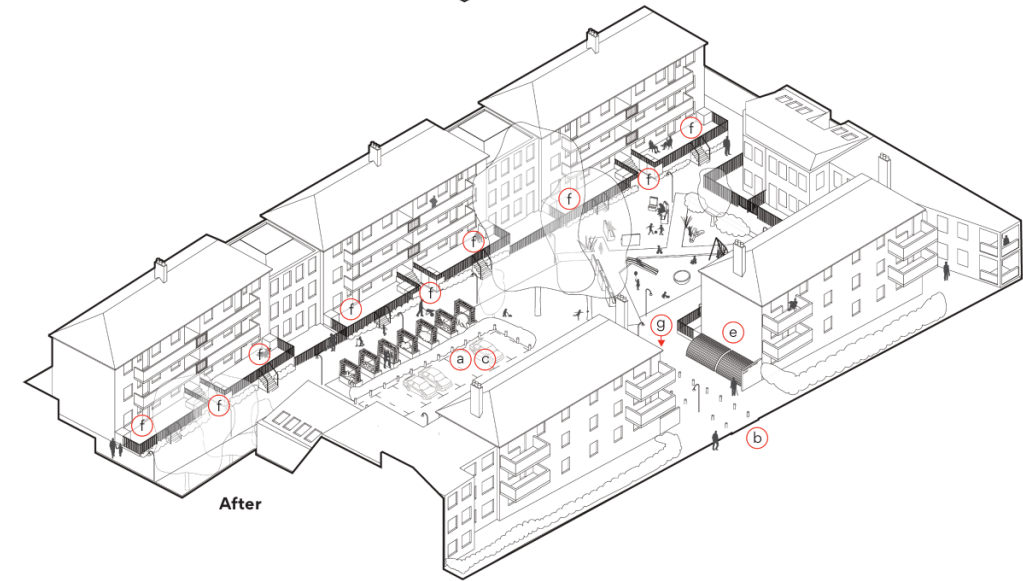
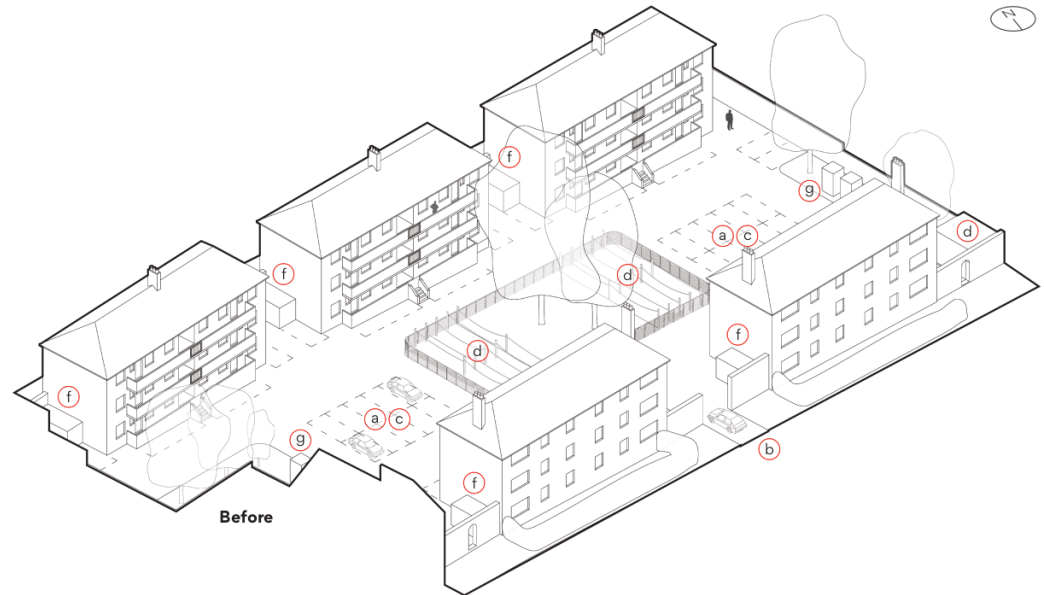


07. Design Application

Site 1: Interventions

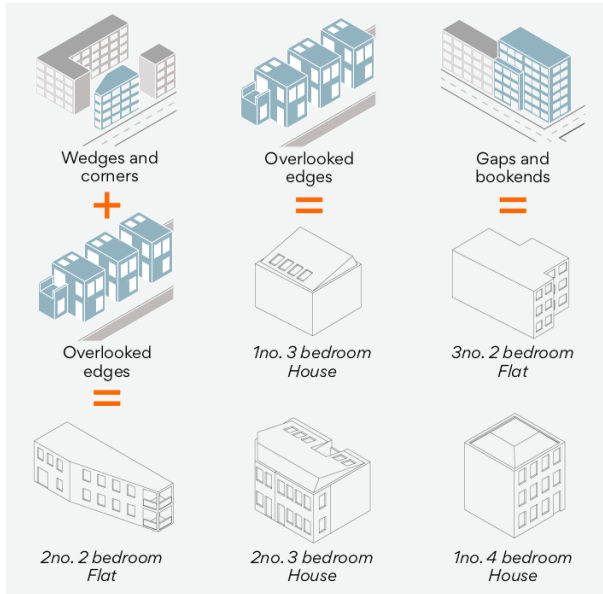


- (a)** On site vehicle and parking elimination/reduction
- (b)** Less impactful roadways
- (c)** Less impactful parking
- (d)** Remove redundant infrastructure
- (e)** Dedicated bicycle lockers
- (f)** Storage elimination/reduction
- (g)** Low-impact bin stores

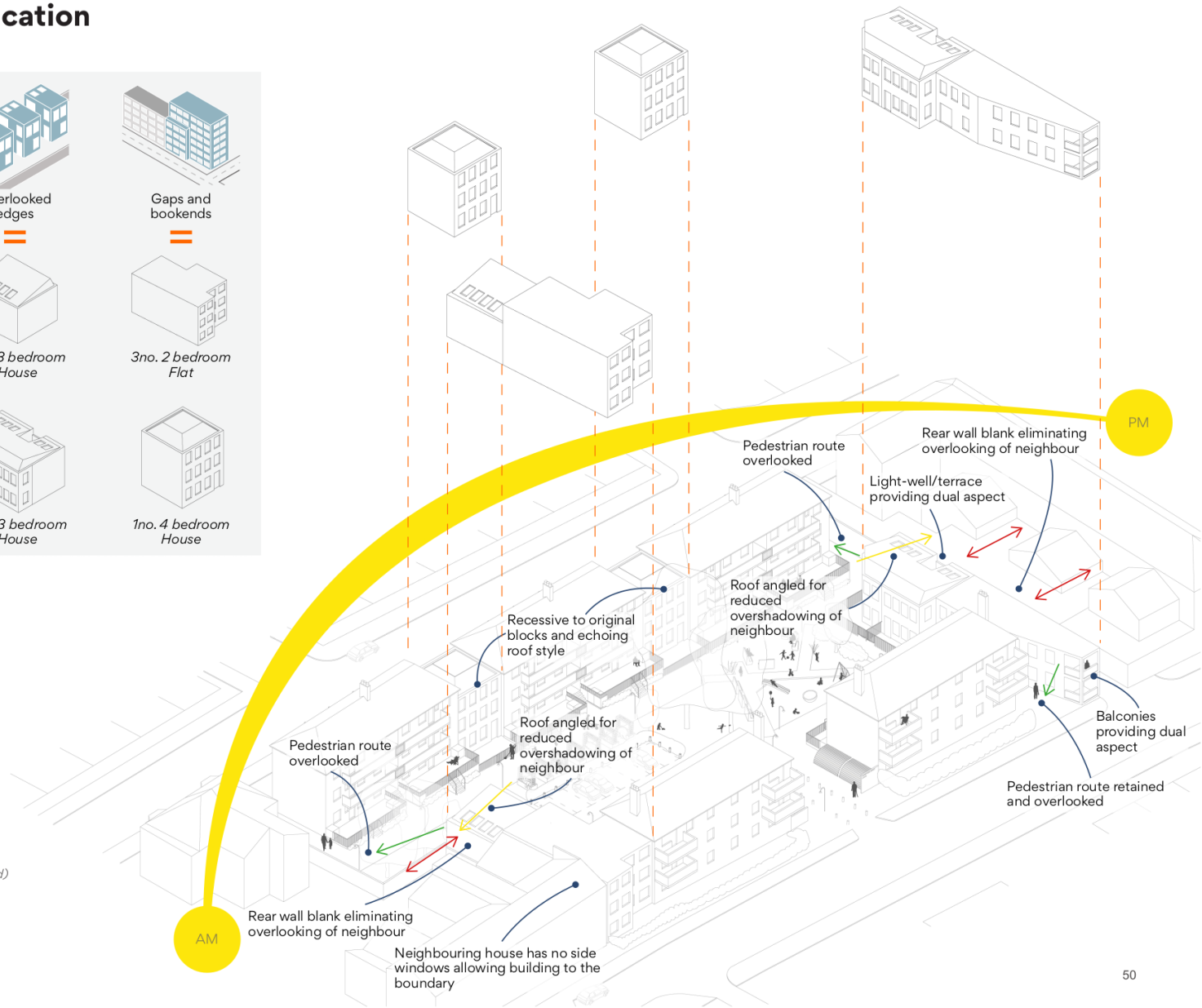


07. Design Application

Site 1: Interventions



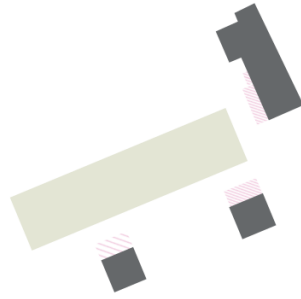
- Sun Path
- ↗ Overshadowing (removed/mitigated)
- ↗ Overlooking (removed/mitigated)
- ↗ Overlooking (harnessed)



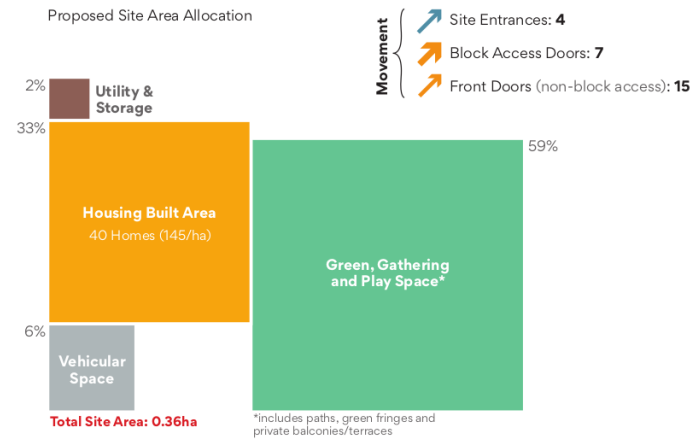
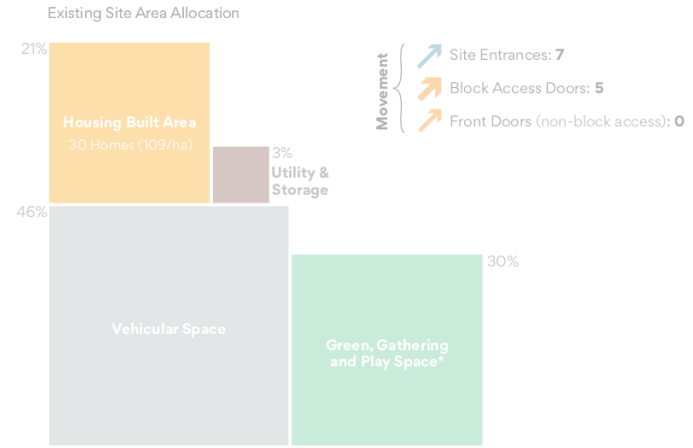
07. Design Application

Site 1: Interventions

Proposed Access and Public/Private Interface



- Site Boundary
- Original Estate Buildings
- New Buildings
- Vehicular Access
- Pedestrian only Access
- Block Access
- Front Door
- Private Terraces/Gardens
- Semi-Private Communal Gardens



07. Design Application

Site 2

07. Design Application

Site 2: Analysis

Site 2 consists a single 1950s 'L' shaped block, articulated between four and five stories. Single lift access is provided. A central garden courtyard is laid to lawn, and overlooks Wandsworth Common. Block entrances provide access to upper floors, whilst ground floor flats have front doors facing a public street, and an internal service road.



Figure 45:



Figure 46:



Figure 47:



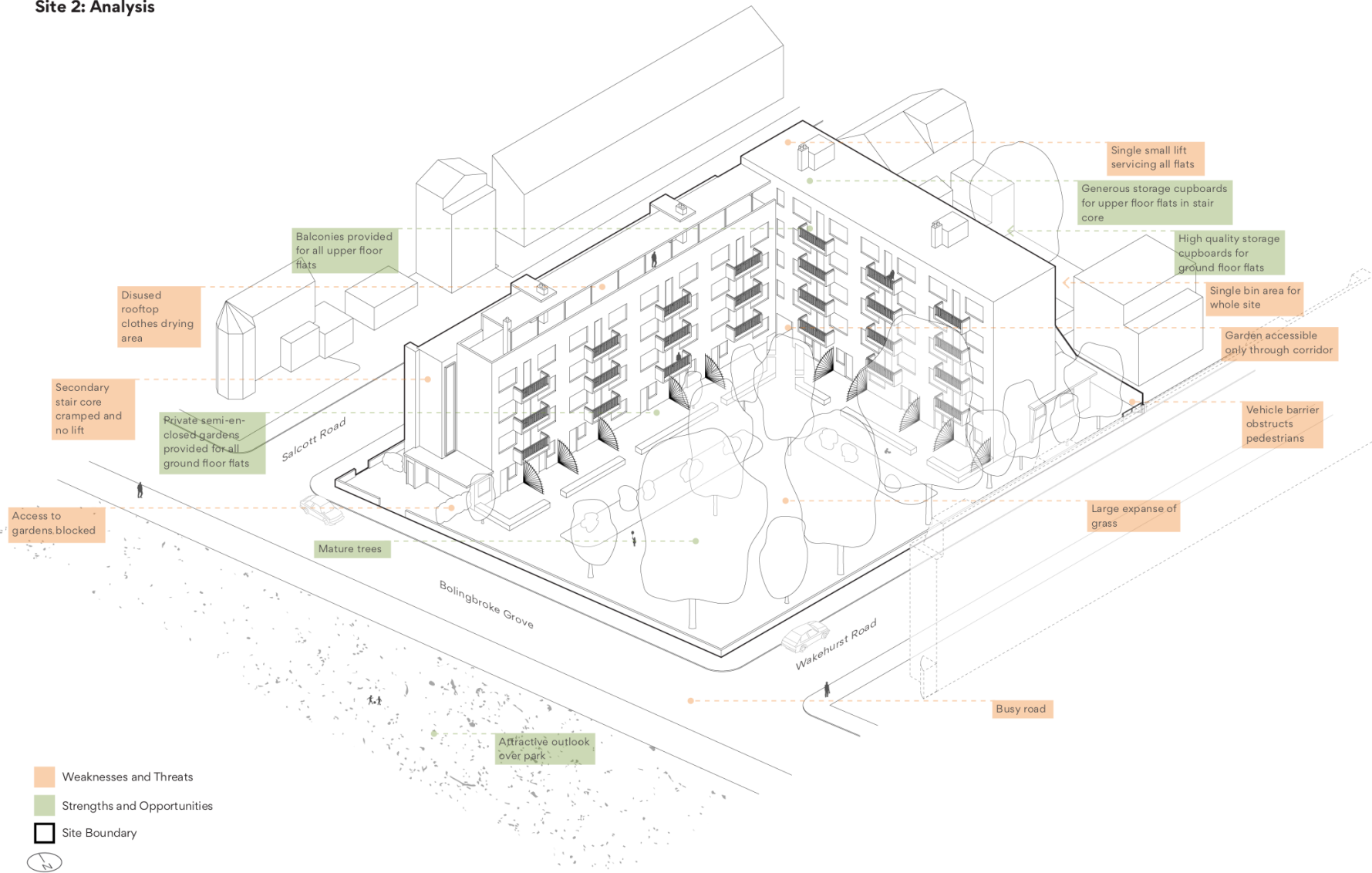
Figure 48:



Figure 49:

07. Design Application

Site 2: Analysis



07. Design Application

Site 2: Analysis

Wandsworth Common

Salcott Road

Ballingbroke Grove

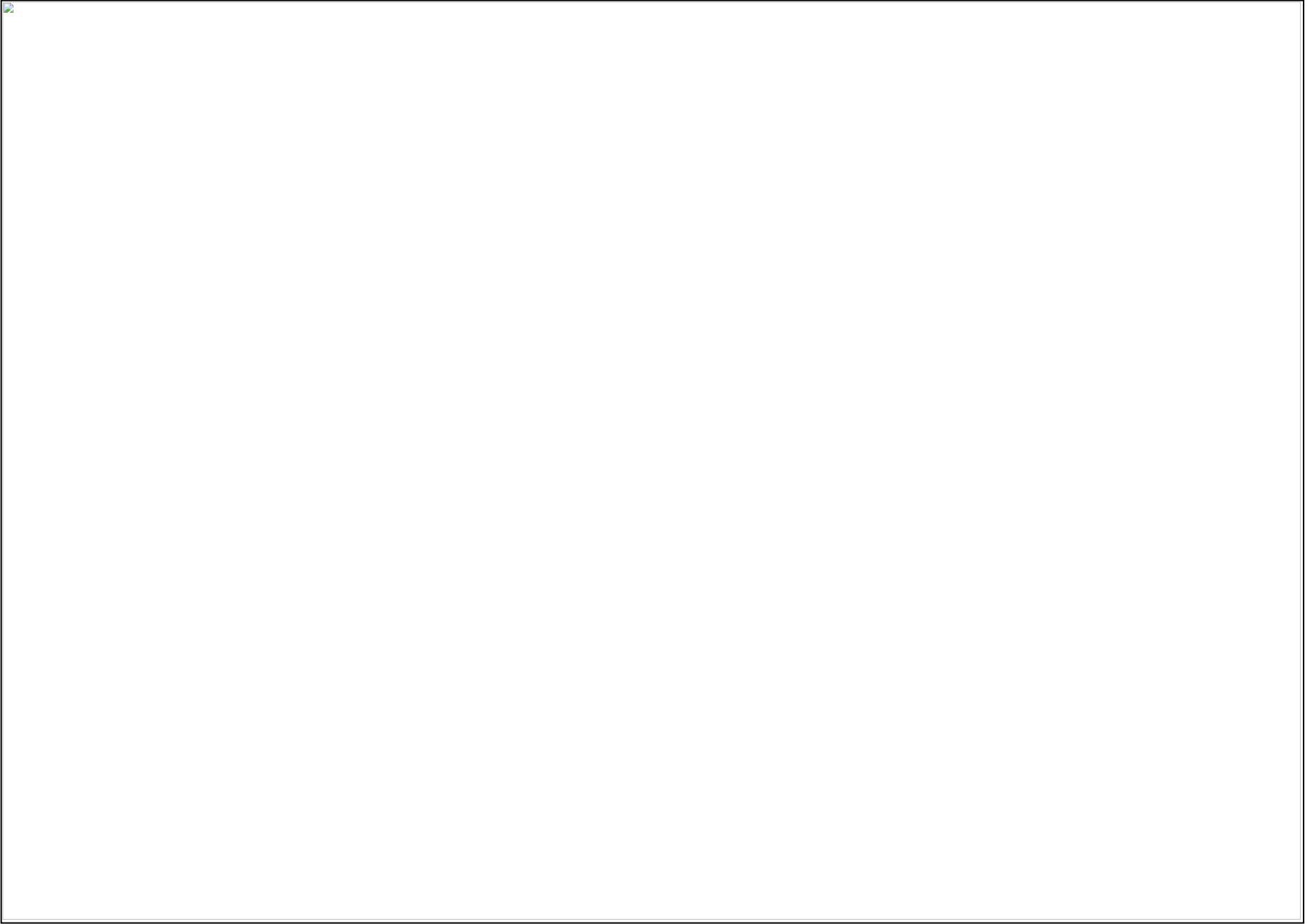
Wakehurst Road



- Site Boundary
- Built Area
- Paths and Pedestrian Space
- Private Gardens
- Green Space (Grass)
- Semi-Hard Surfaces (Bark)
- Planting

- a Stair Core
- b Storage Sheds
- c Bin Stores
- d Clothes Drying Roof Area
- e Balconies
- f Balcony Access





07. Design Application

Site 2: Interventions

Wandsworth Common

Salcott Road

Balldinghoke Grove

Wakehurst Road



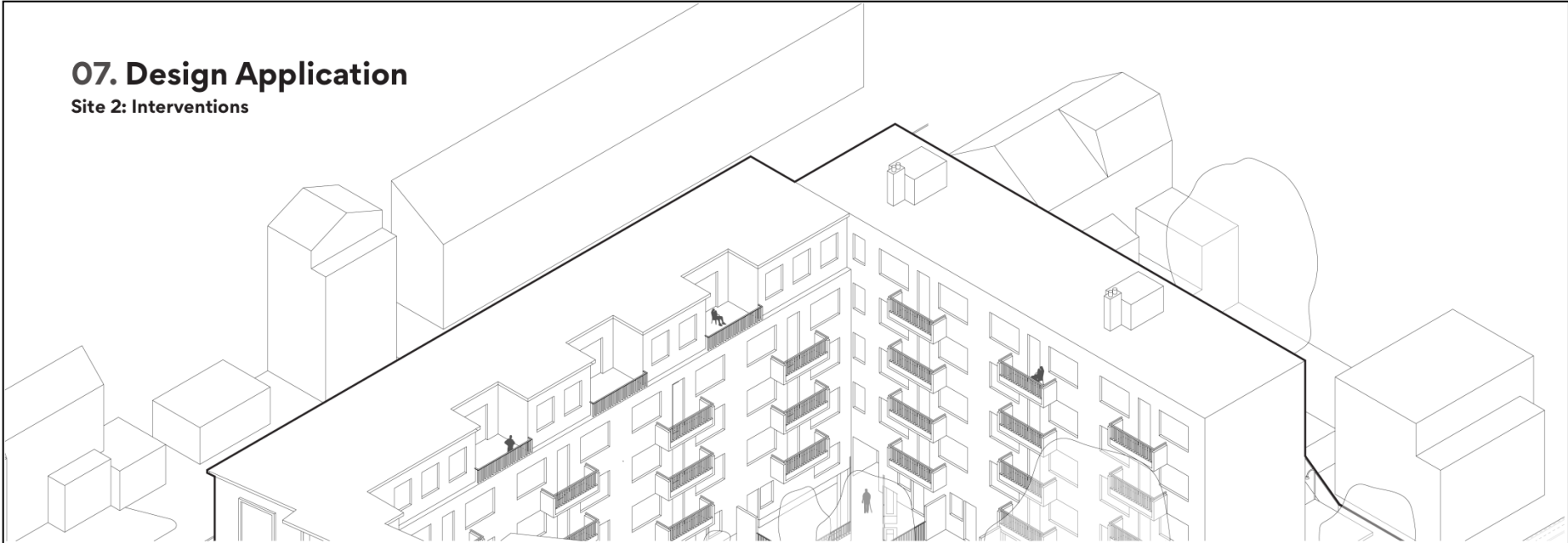
- Site Boundary
- Built Area
- Paths and Pedestrian Space
- Private Gardens/Balconies
- Green Space (Grass)
- Semi-Hard Surfaces (Bark)
- Planting

- (a) Stair Core
- (b) Storage Sheds
- (c) Bin Stores
- (d) Productive Allotments
- (e) Play Area
- (f) Gathering/Seating Area
- (g) Bicycle Lockers



07. Design Application

Site 2: Interventions



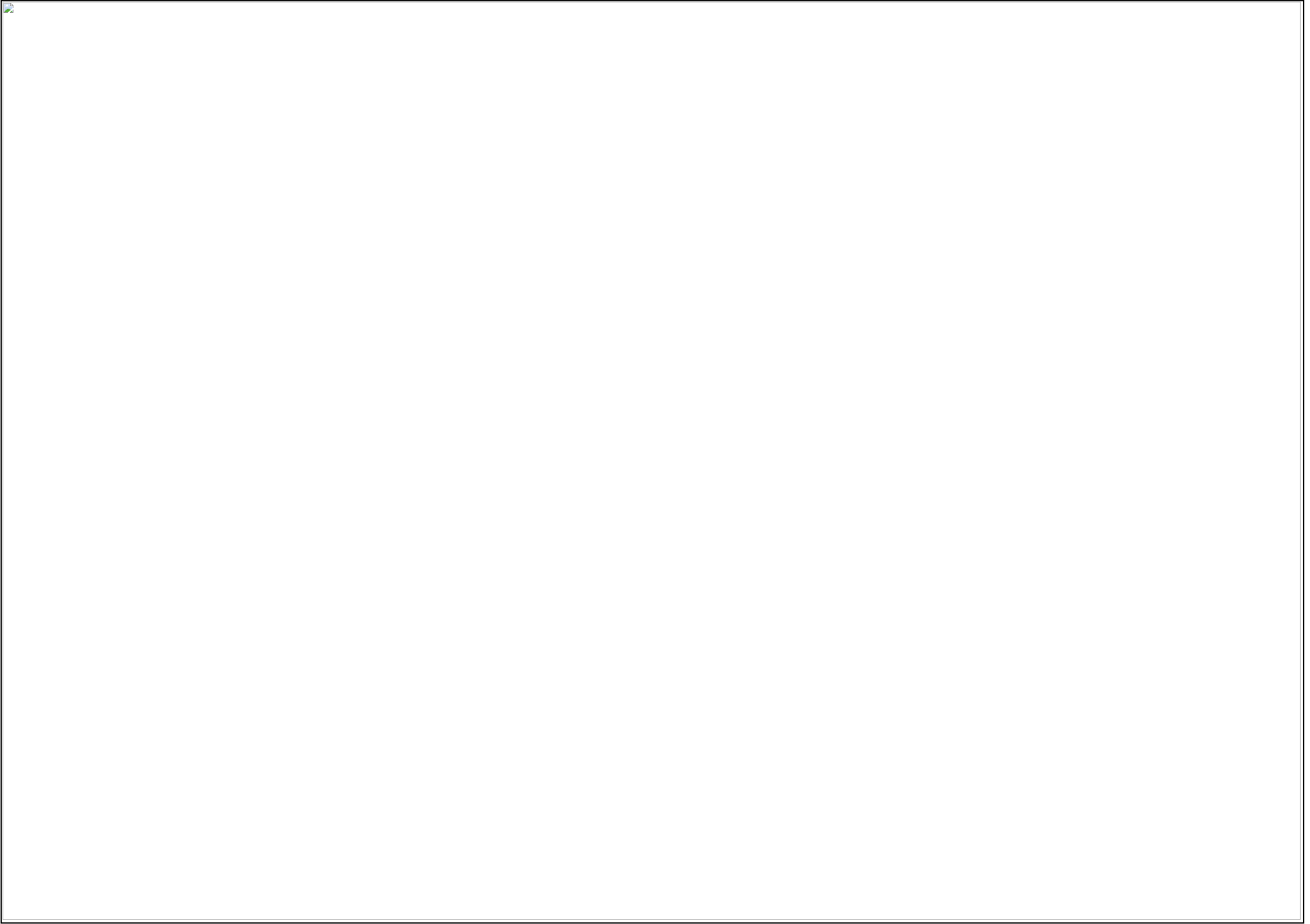
Salcott Road

Bolingbroke Grove

Wakehurst Road

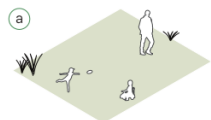
□ Site Boundary



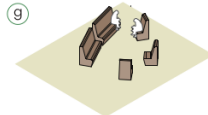


07. Design Application

Site 2: Interventions



Grass/parkland



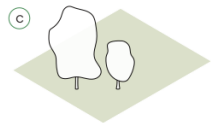
Formal gathering areas



Re-wilding/
planting



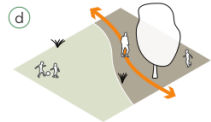
Informal gathering opportunities



Trees



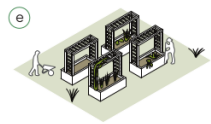
Dedicated play equipment



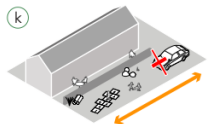
Semi-hard surfaces



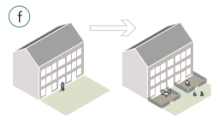
Informal play in other areas



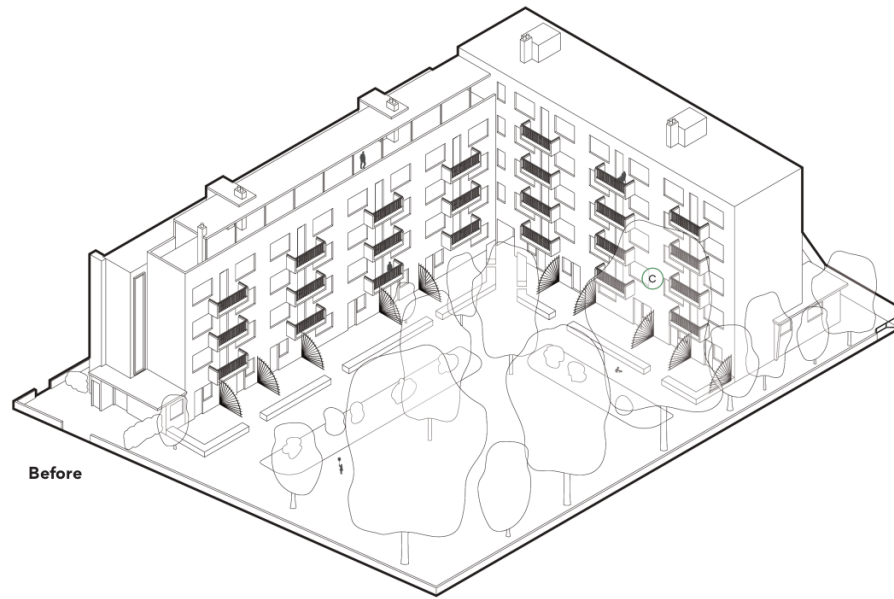
Productive spaces



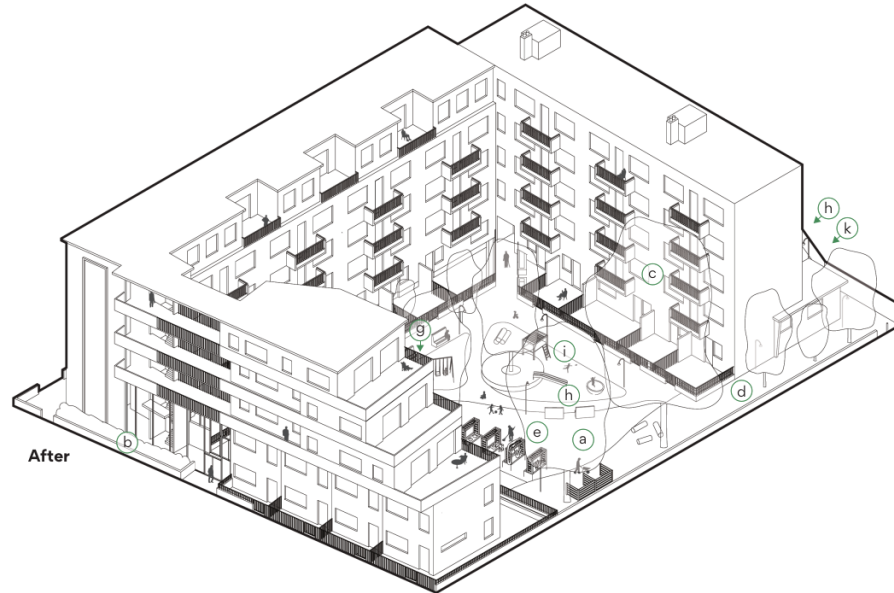
Play Street



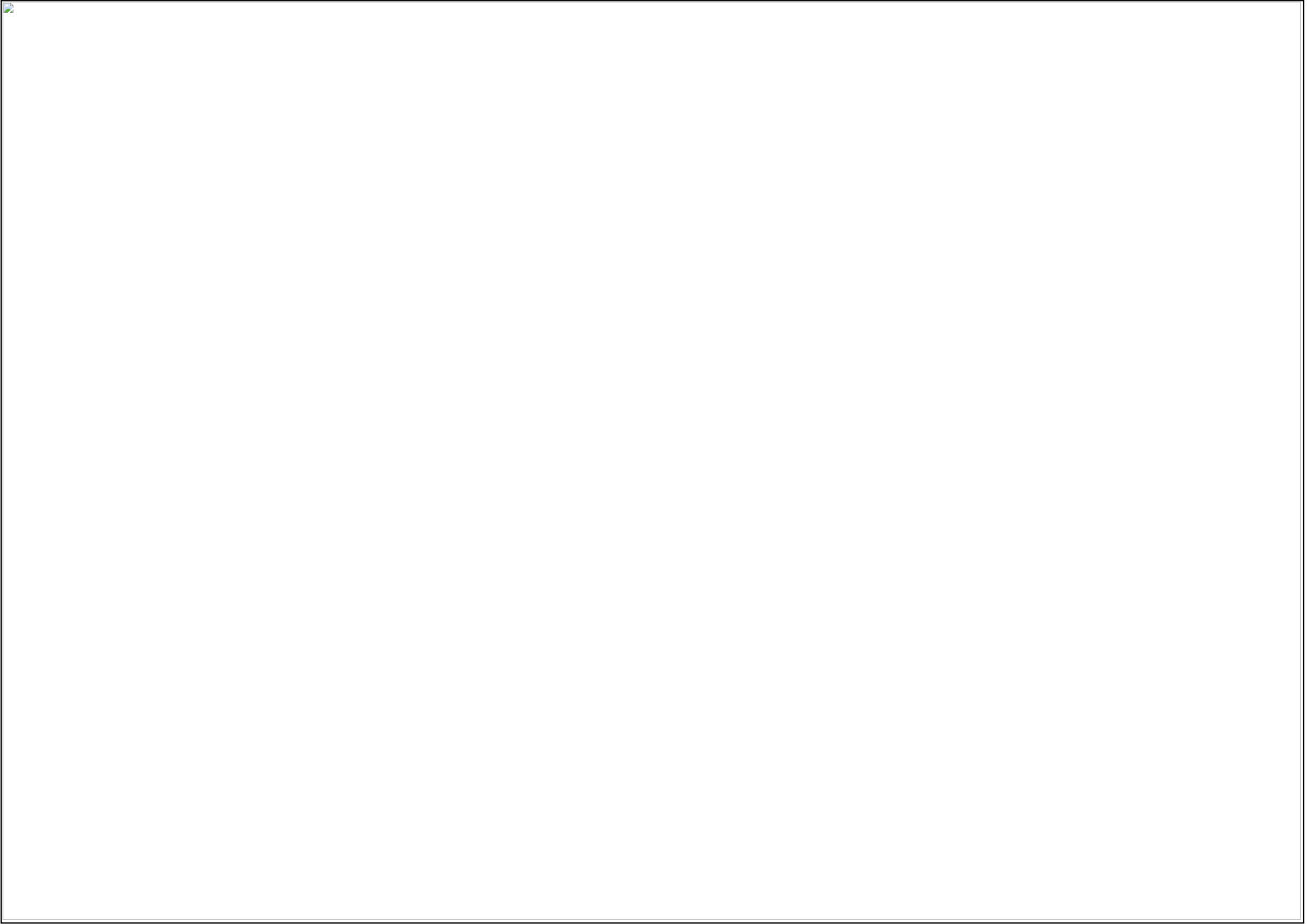
Private Gardens and Terraces



Before

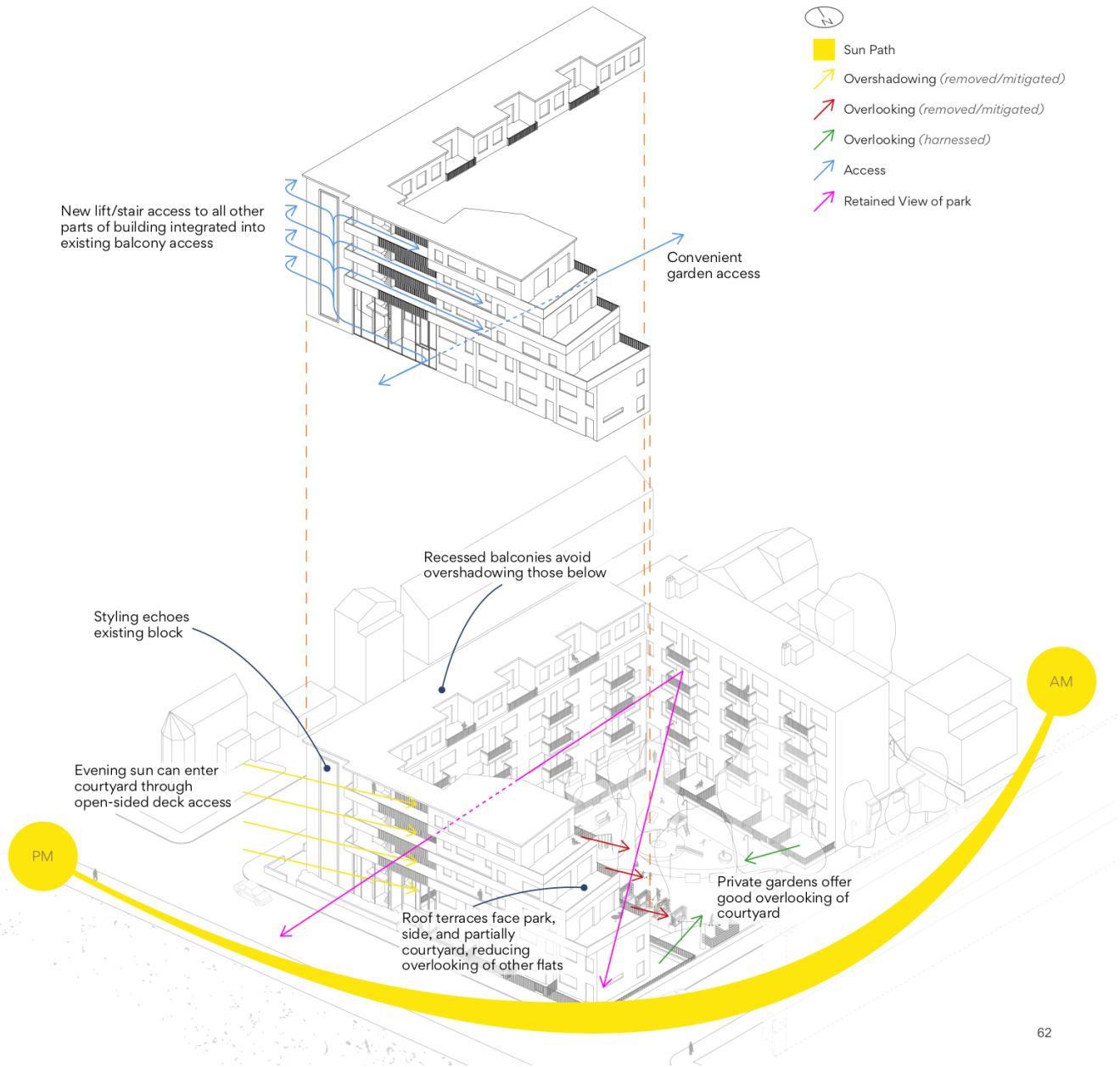
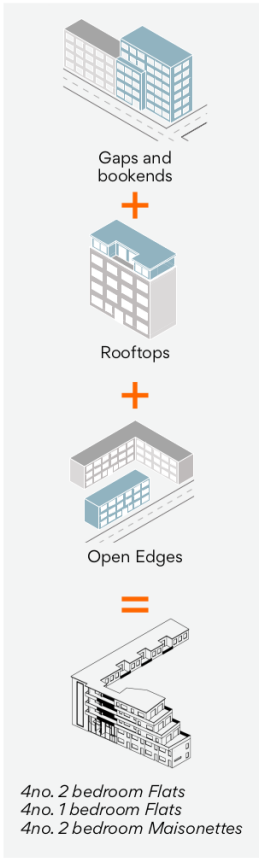


After



07. Design Application

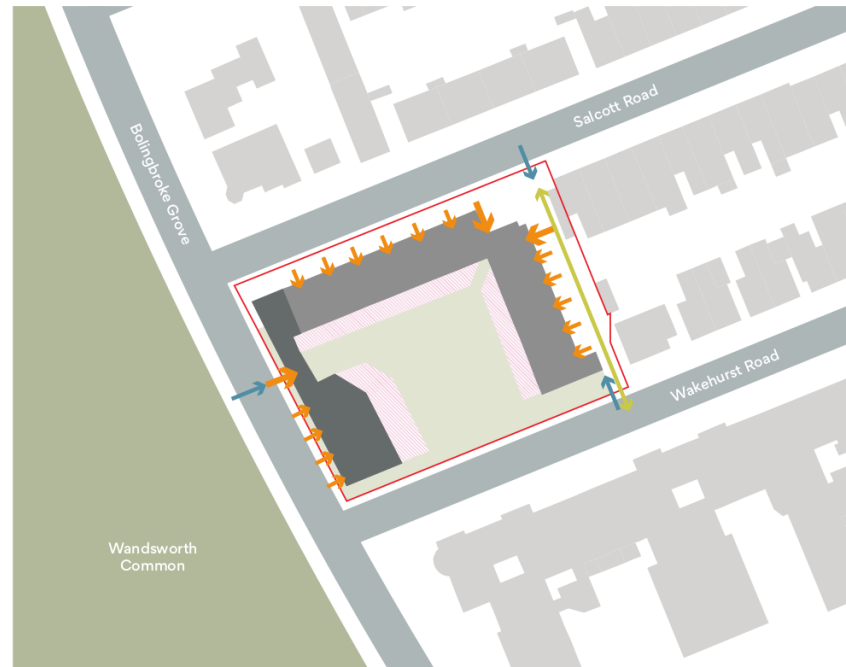
Site 2: Interventions



07. Design Application

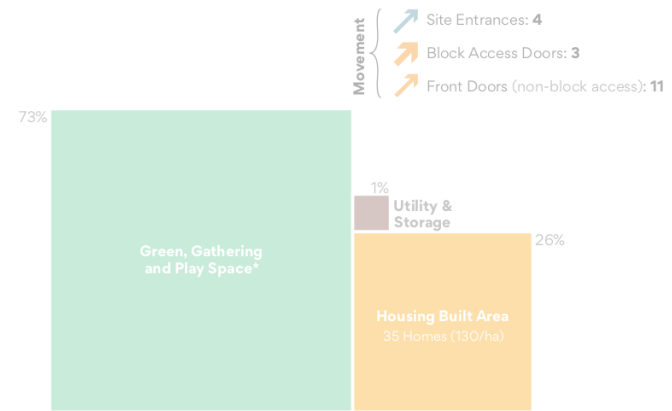
Site 2: Interventions

Proposed Access and Public/Private Interface

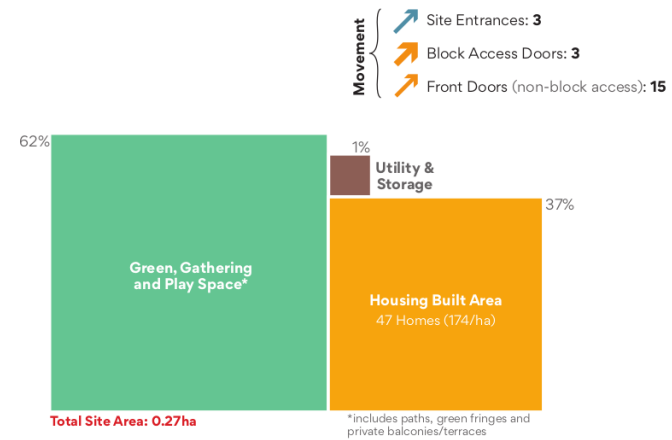


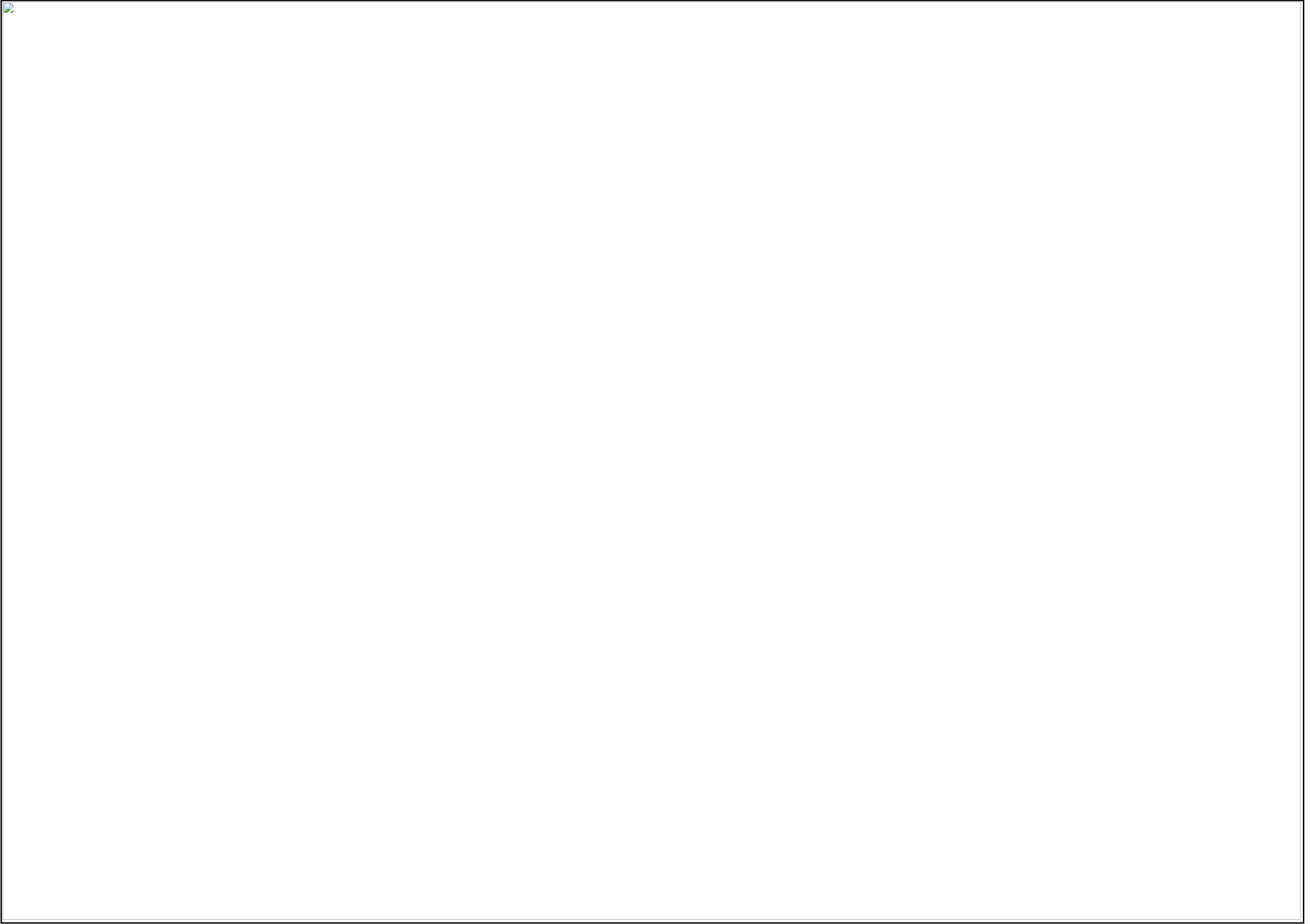
- Site Boundary
- Original Estate Buildings
- New Buildings
- Public Park
- Pedestrian only Access
- Block Access
- Partial sightline across estate (obscured by ground level change)
- Private Gardens
- Semi-Private Communal Gardens

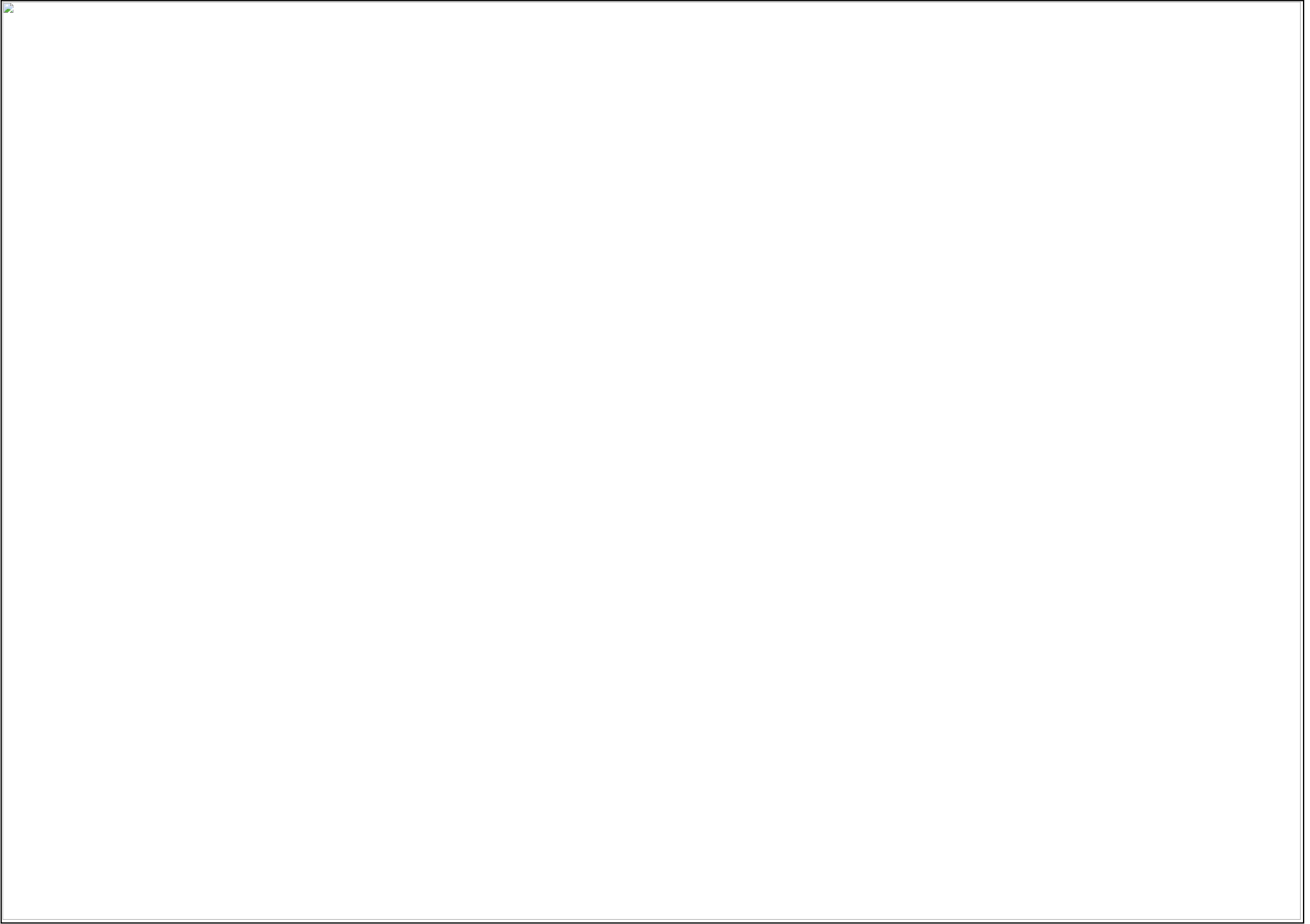
Existing Site Area Allocation



Proposed Site Area Allocation

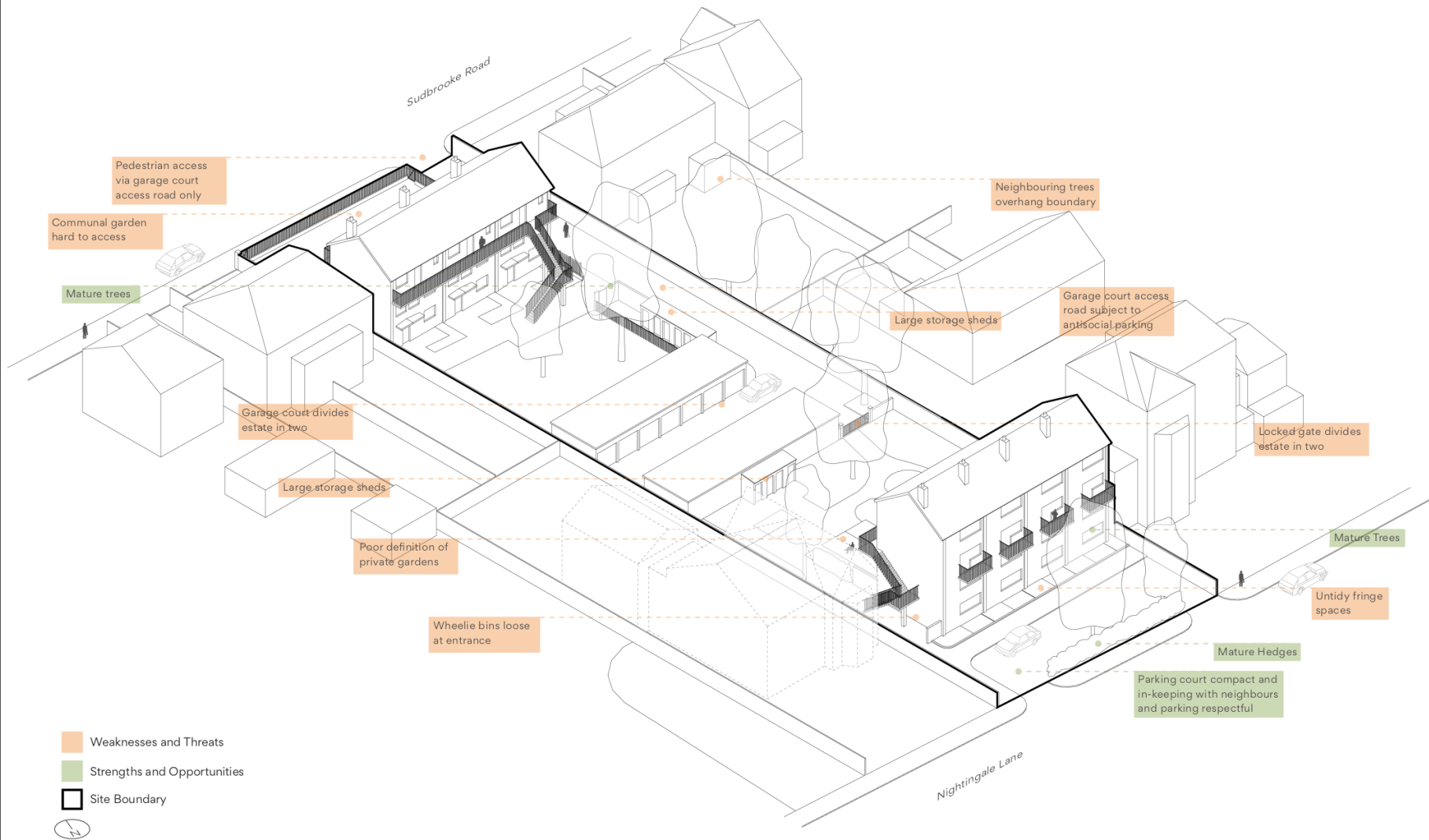


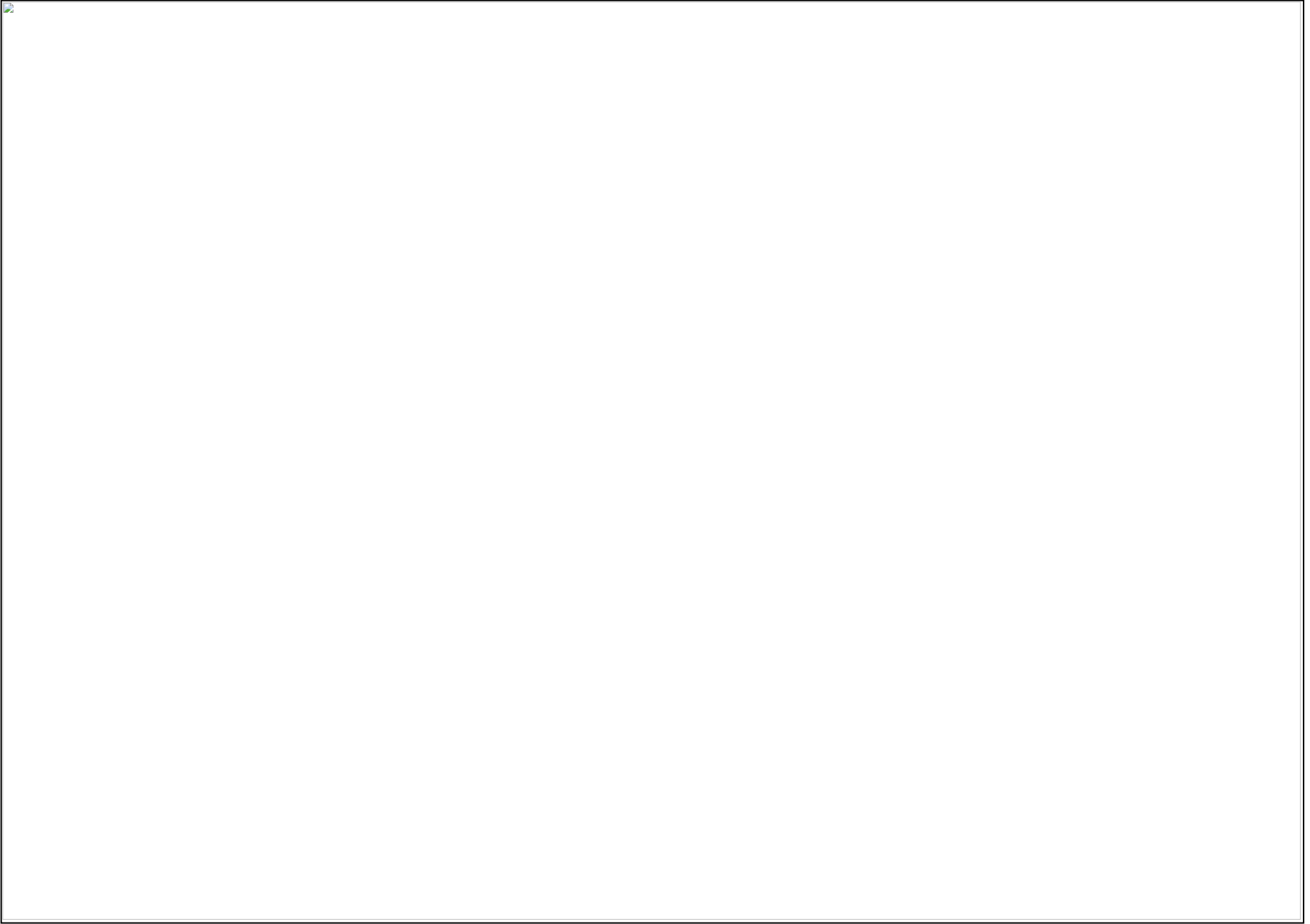


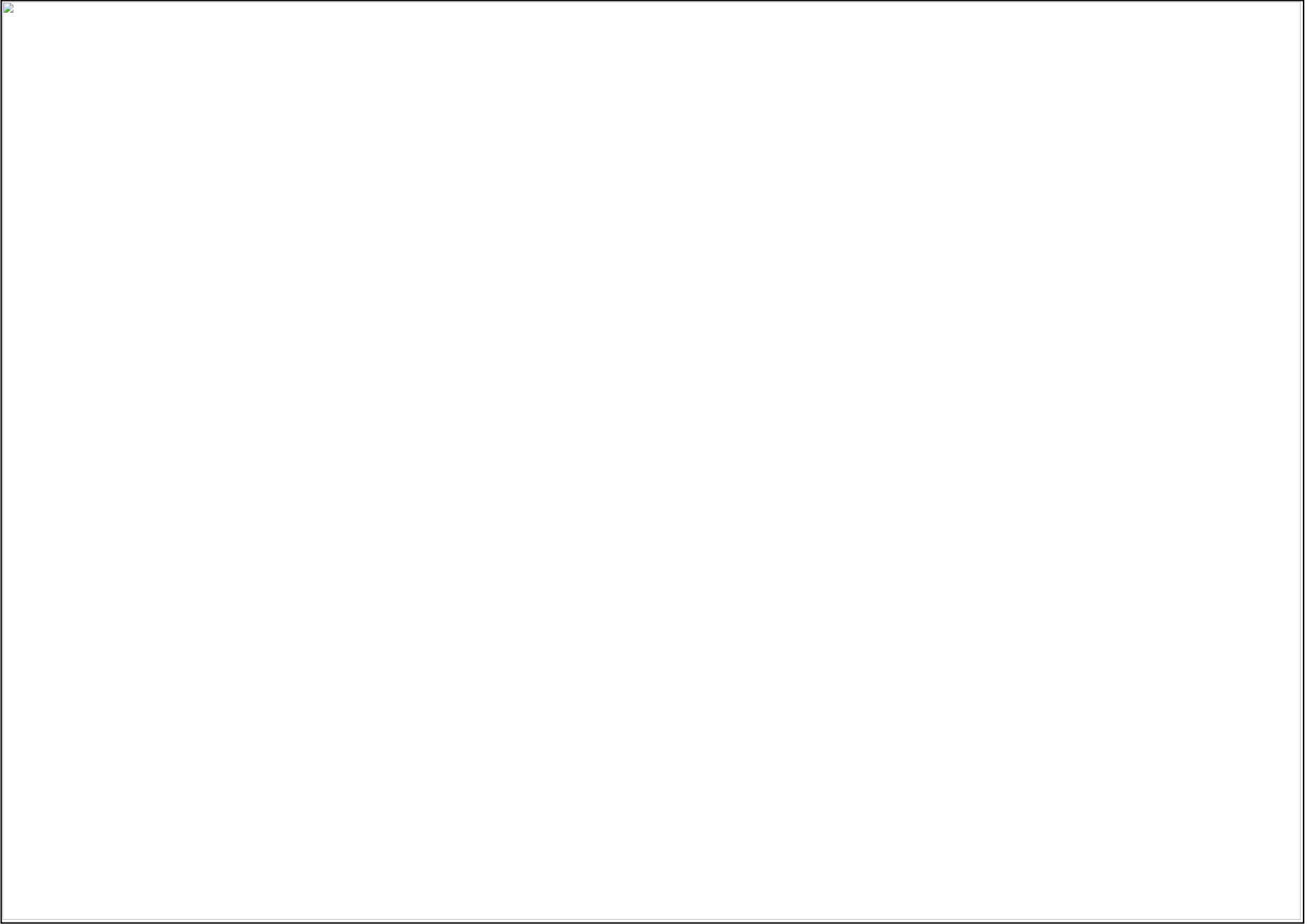


07. Design Application

Site 3: Analysis



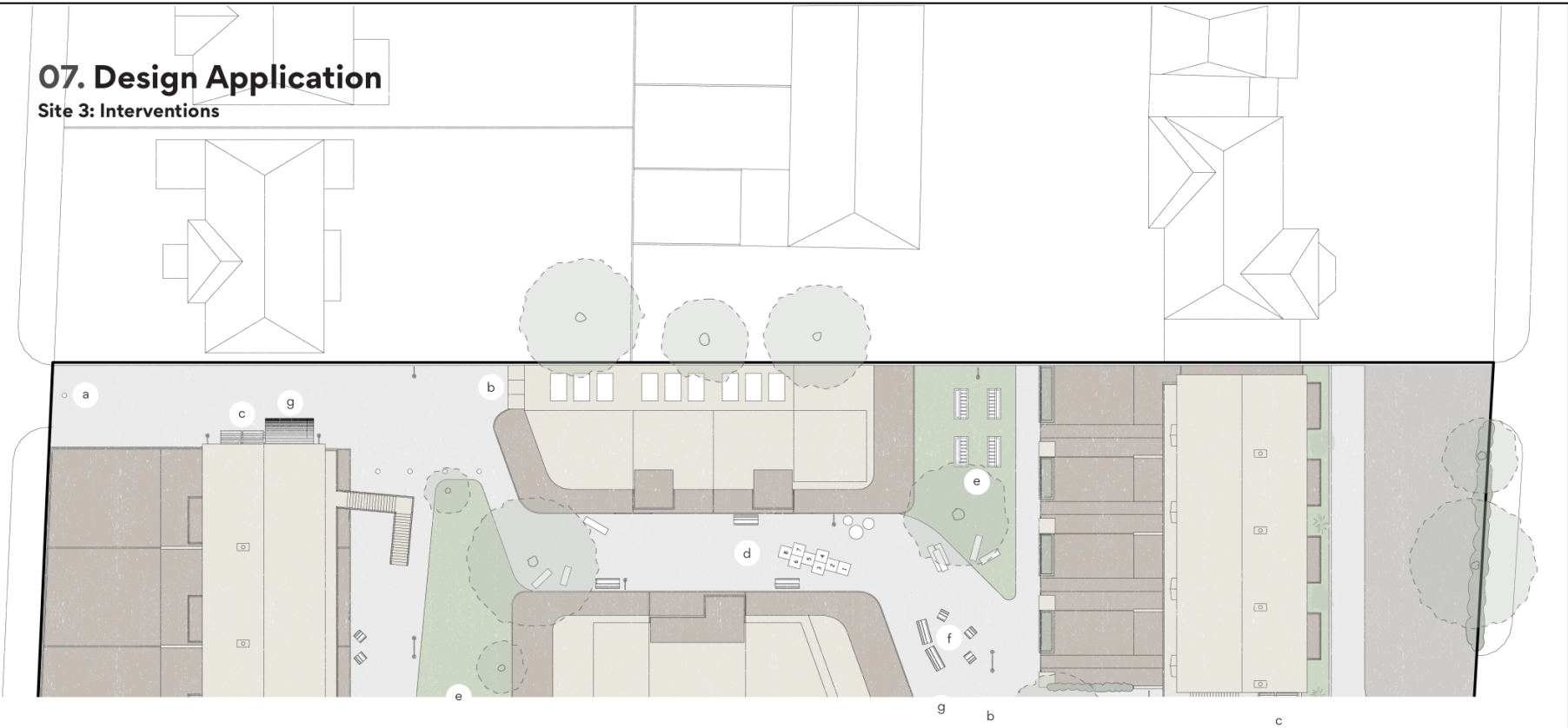




07. Design Application

Site 3: Interventions

Sudbrooke Road



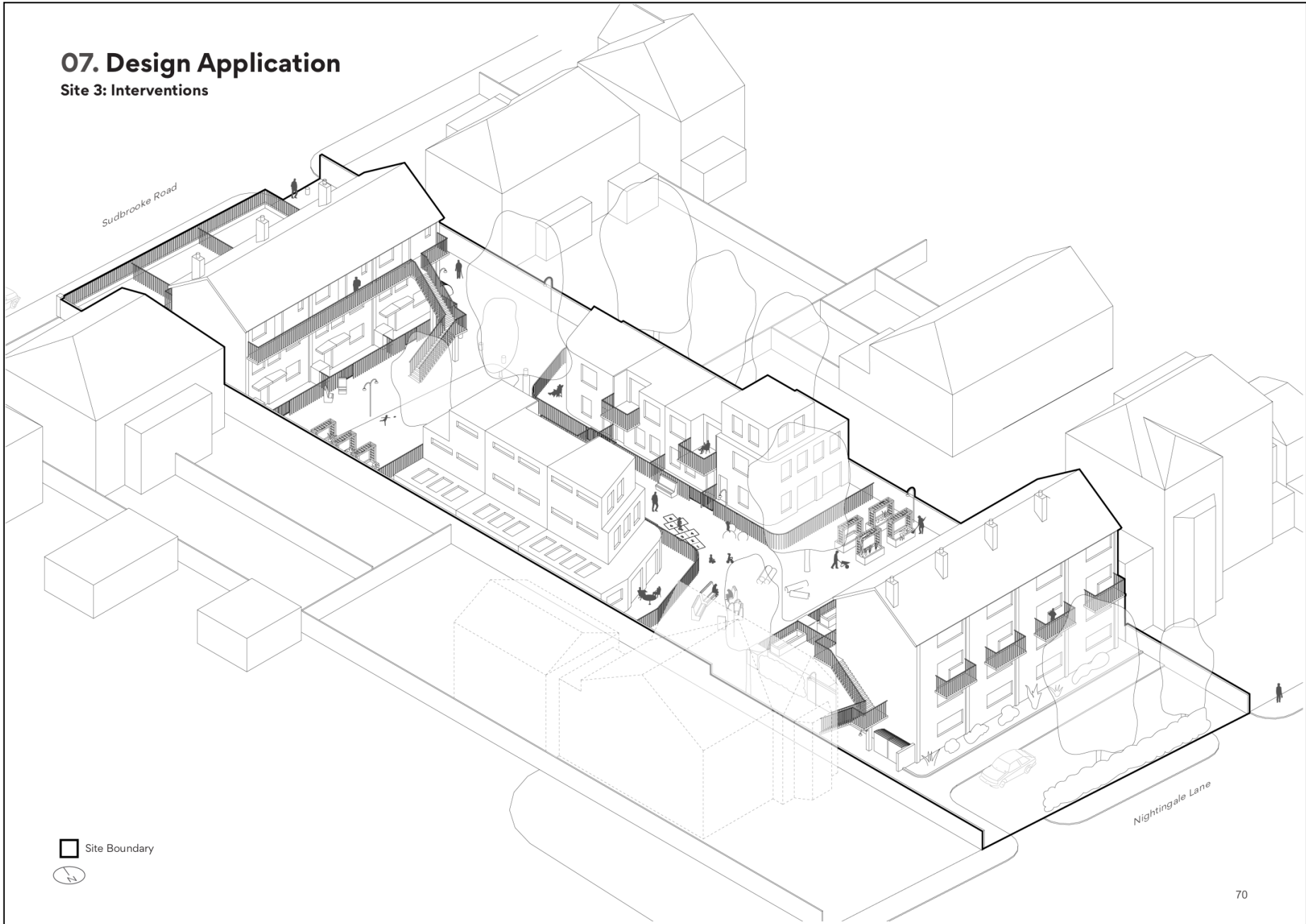
- Site Boundary
- Built Area
- Paths and Pedestrian Space
- Vehicular Space/Parking
- Green Space (Grass)
- Planting
- Private Gardens/Terraces

- (a) Removable Bollard
- (b) Storage Sheds
- (c) Bin Stores
- (d) Play Street
- (e) Productive Allotments
- (f) Gathering/Seating Area
- (g) Bicycle Lockers

Nightingale Lane

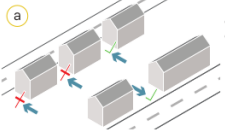
07. Design Application

Site 3: Interventions

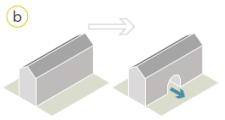


07. Design Application

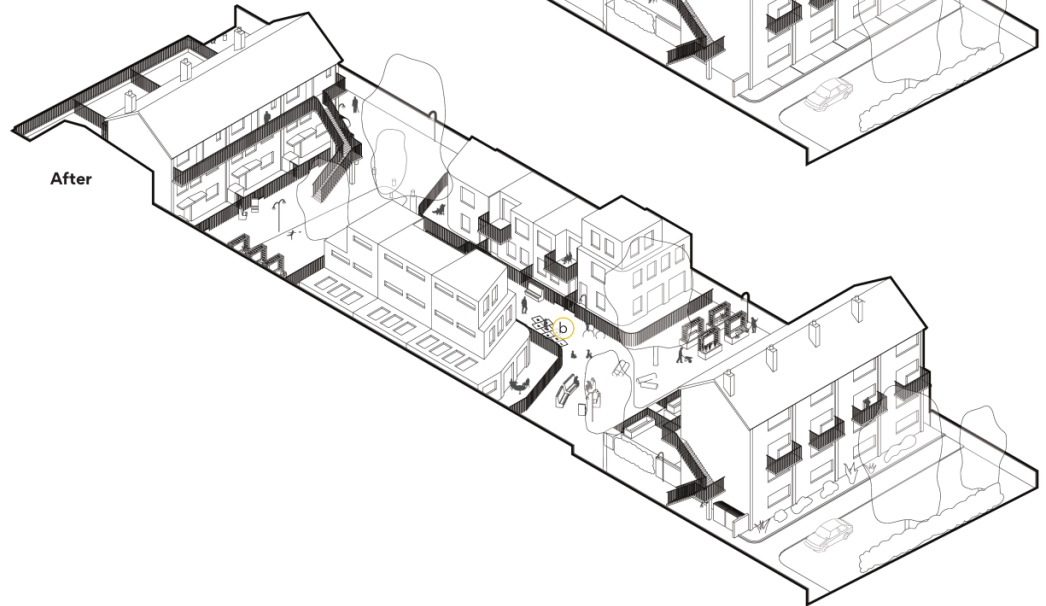
Site 3: Interventions

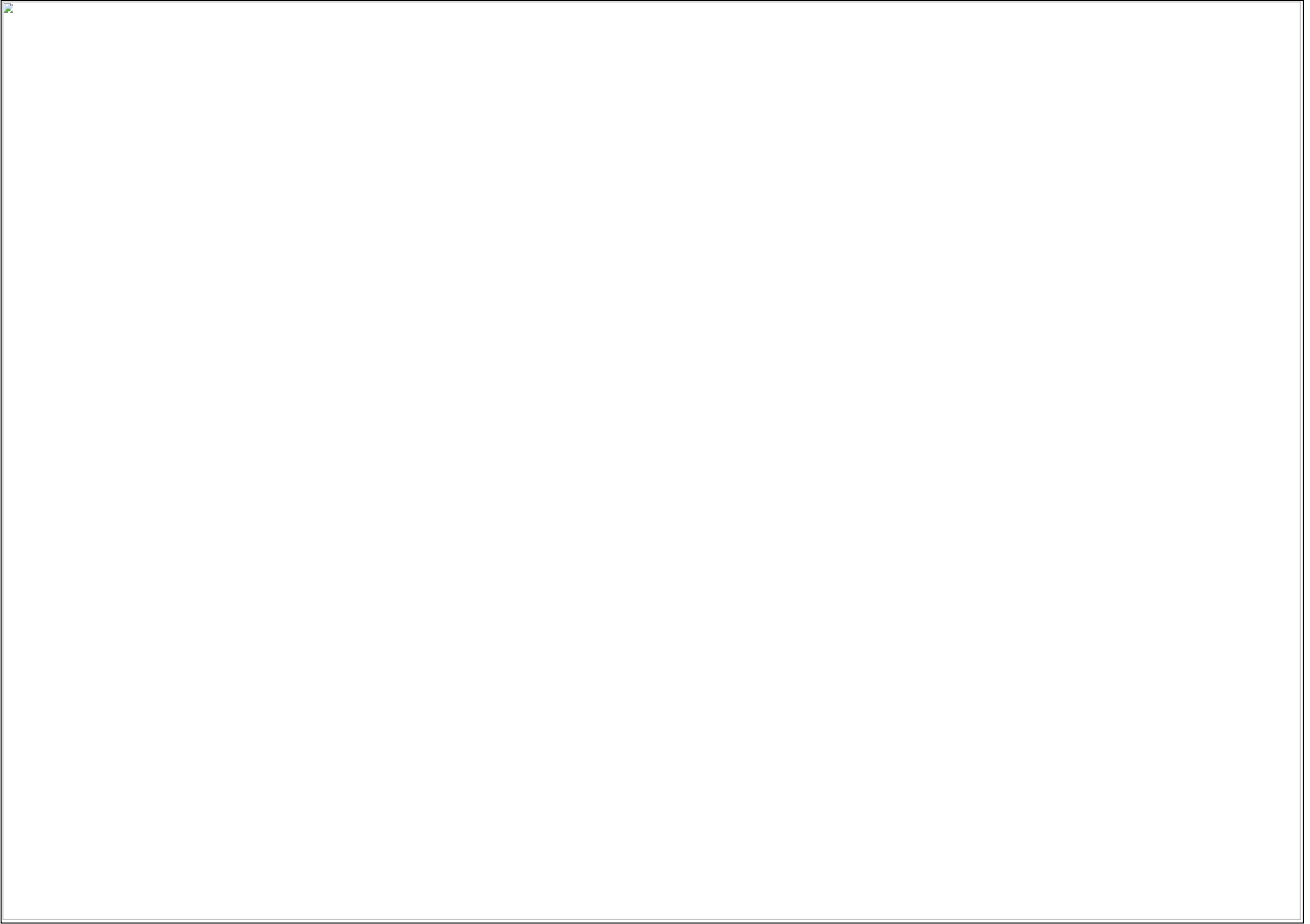


Rationalise estate entrances/exits



Link Spaces



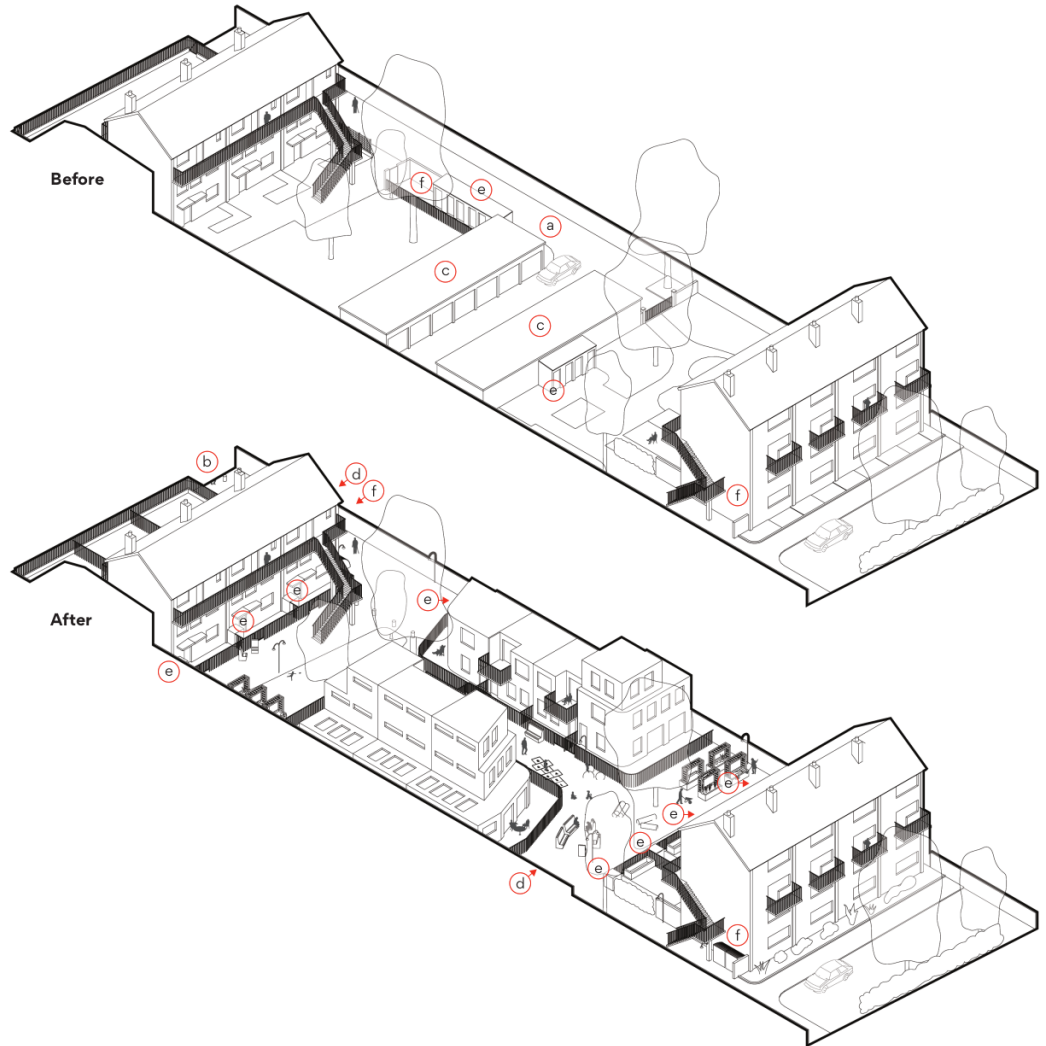


07. Design Application

Site 3: Interventions

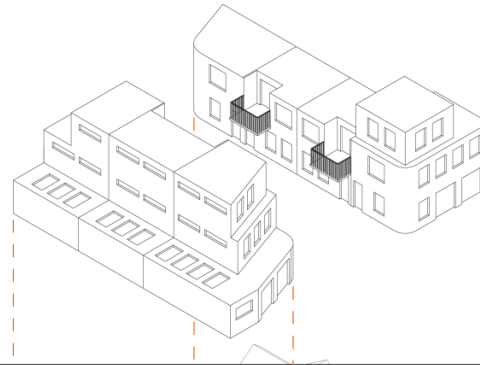
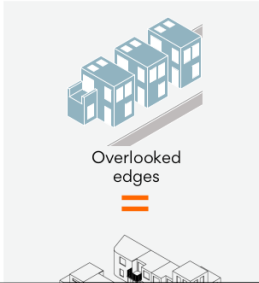


- (a)** On site vehicle and parking elimination/reduction
- (b)** Less impactful roadways
- (c)** Remove redundant infrastructure
- (d)** Dedicated bicycle lockers
- (e)** Storage elimination/reduction
- (f)** Low-impact bin stores

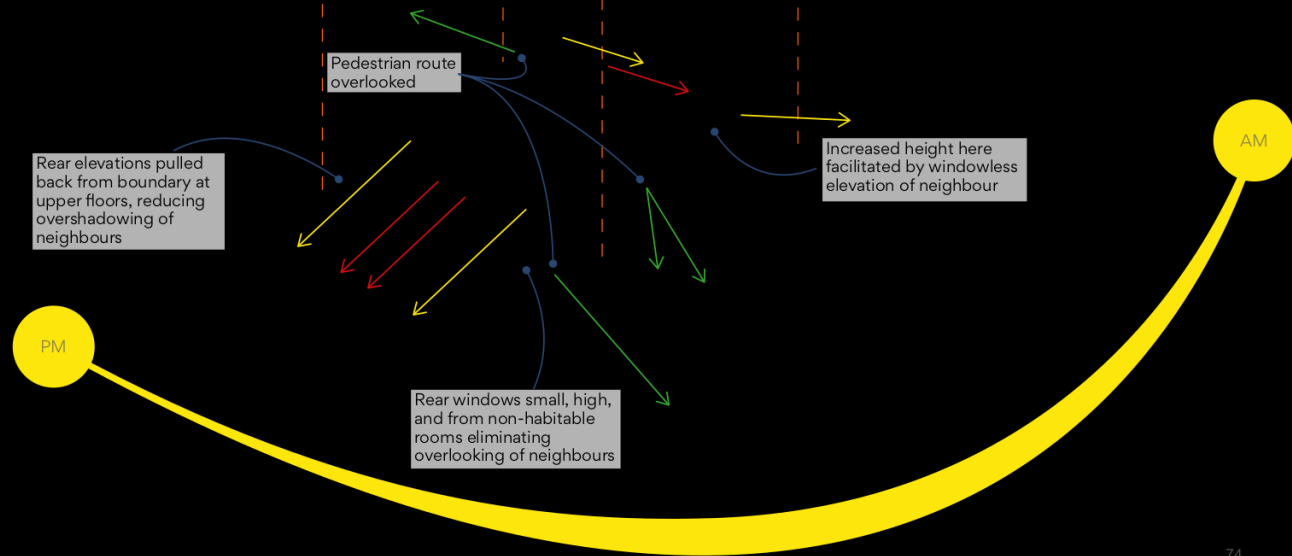


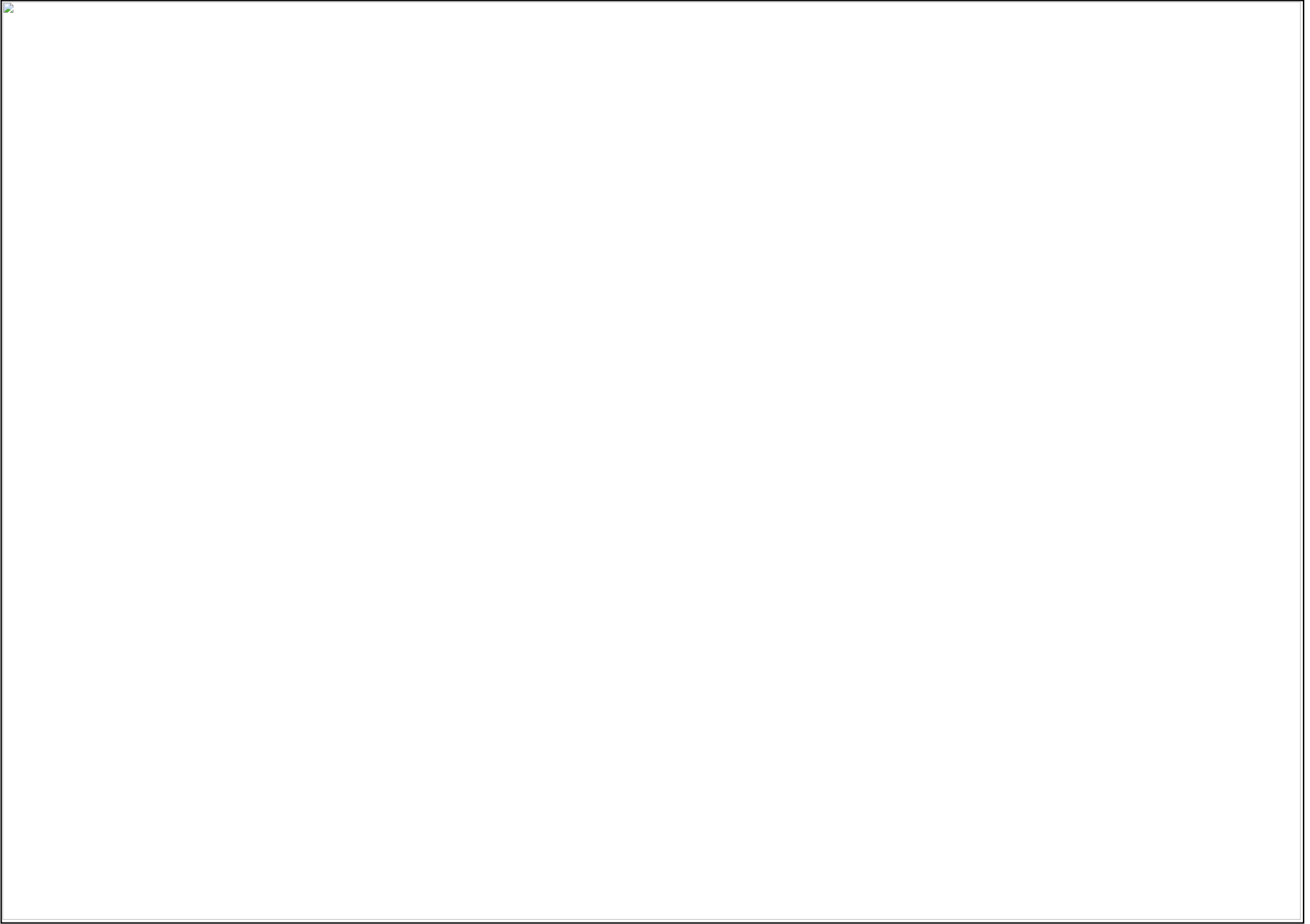
07. Design Application

Site 3: Interventions



- Sun Path
- Overshadowing (removed/mitigated)
- Overlooking (removed/mitigated)
- Overlooking (harnessed)





08. Conclusion

08. Conclusion

The basis for this project came from the pressure cities with rapidly growing populations are facing in order to house their citizens, as well as the impact this is having on estate regeneration and renewal. With building land in such great demand there is a justifiable fear that profit and unit numbers are often deemed more important than the well-being of residents, existing or new.

From a review of academic literature, regeneration guides, toolkits and policy documents, it became clear that there is seldom a distinction in terms of estate size when discussing strategies for regeneration. High-level strategies often involve better integration of estates within their surrounding network of streets, increased access for non-residents, and an assumption that existing built stock is of a poor quality and a barrier to redevelopment. This project argues that at a small estate scale, here defined as below 0.5ha, many of these strategies would have a negative impact, and that their shared and private spaces must be considered foremost for the benefit of its residents.

A toolkit of urban design interventions is proposed, derived from literature and a review of case studies. Firstly it aims to manage the movement of people, reducing undesirable use of spaces, and increasing those patterns which are beneficial to safety, perceived or otherwise, and encourage interaction and an active sharing of the estate. Secondly strategies to intensify those uses that were found to directly positively impact well-being were proposed, such as play spaces, green spaces and the opportunity to gather. Lastly set out are ways to reduce and mitigate those uses that whilst in some instances are essential, offer negligible benefit to well-being, and often hinder it. These strategies combine to achieve the overarching goal of an intensification of use, which has been shown to be vital if a real improvements to well-being are to be achieved.

Combined with the toolkit for intensifying the use of spaces is a guide to respectful infill development, including a collection of built typologies best suited to constrained small sites, and wider strategies to lessen the negative impacts of densification such as overlooking, as well as harnessing positive impacts such as improved surveillance of otherwise 'dark' spaces and intensified used of spaces on the estate. These strategies follow the London Plan's requirement for a design led density approach.

The toolkit has been tested across three small estates in the London Borough of Wandsworth. Each estate features variations in terms of size, existing density and built typology. This variation allowed for an understanding of how the interventions specified in the toolkit work in combination with one another, as well as with different spaces commonly found on small estates.

As routinely asserted in the literature reviewed, strong and genuine resident engagement from an early stage of a project would be required in any real world scenario. This must be a continual conversation and should be seen as an opportunity to harness residents' unique hyper-local knowledge. Engagement with residents was not within the scope of this project, and as such strategies to facilitate it and capture its benefit to the design process would be best explored in a separate work.

Application of the design toolkit on the three sites required an extensive iterative process, to take the basic principles outlined and adjust them for each situation. Whilst the toolkit was never intended to take a *rubber stamp* approach, testing has highlighted that strategies can only go so far before a skilled designer is required to make them work at a site specific level. Despite this, the toolkit greatly aided the initial design process of identifying what interventions are best suited to what spaces.

Although refurbishment and retrofitting works to existing estate homes and buildings was beyond the scope of this project, during application of the design toolkit on Site 2, it became apparent that there is a strong potential for infill development to form a key part of it. Here a redundant secondary stair core is removed through scalpel demolition and replaced with a new stair and lift core, servicing new flats, as well as integrating with the existing building.

In conclusion, this project has shown the high potential for underused and low quality spaces on small estates to enhance existing and new residents' well-being. Also shown has been how new homes can be built in close proximity to existing residents, in such a way that strengthens the quality of their living environment. It is hoped that this reframing of infill as something positive, as opposed to that which should be feared and resisted, could help in nudging wider opinion of densification of cities and estates. It is also hoped that although focussed on small estates below 0.5ha, that many of the lessons learned would be transferable to larger estates, and strengthen the case for a retention, refurbishment and reinvention approach to regeneration.

09. References

09. References

- Adams, M., 2014.** Quality of urban spaces and wellbeing. Wellbeing: A Complete Reference Guide. New Jersey: John Wiley & Sons. pp.1-21.
- Aked, J., Michaelson, J. and Steuer, N., 2010.** Good Foundations: Towards a Low Carbon, High Wellbeing Built Environment. London: New Economics Foundation.
- Arvola, A. and Pennanen, K., 2014.** Understanding residents' attitudes towards infill development at Finnish urban suburbs. Barcelona: World Sustainable Building. pp.1-10.
- B. Derbyshire, R. Oosthuizen, A. Beharrell, Y. Barnes, P. Roberts., 2014.** Transforming Suburbia: Supurbia Semi-Permissive. London: HTA, PTE, Savills, NLP.
- Barton, H., 2017.** City of well-being: A radical guide to planning. Oxford: Taylor & Francis.
- Carmona, M., Heath, T., Tiesdell, S. and Oc, T., 2010.** Public places, urban spaces: the dimensions of urban design. 2nd ed. Oxford: Routledge.
- Cattell, V., 2001.** Poor people, poor places, and poor health: the mediating role of social networks and social capital. *Social science & medicine*, 52(10), pp.1501-1516.
- Cattell, V., Gesler, W.M. and Curtis, S., 2006.** Public spaces, social relations and well-being in East London. Bristol: Policy Press.
- Coley, R.L., Sullivan, W.C. and Kuo, F.E., 1997.** Where does community grow? The social context created by nature in urban public housing. *Environment and behaviour*, 29(4), pp.468-494.
- Commission for Architecture and the Built Environment, 2009.** Future health: sustainable places for health and well-being. London: CABE
- Commission for Architecture and the Built Environment, 2010.** Managing green spaces Seven ingredients for success. London: CABE.
- Crawford, K., Johnson, C.E., Davies, F., Joo, S. and Bell, S., 2014.** Demolition or Refurbishment of Social Housing? A review of the evidence. London: UCL Urban Lab and Engineering Exchange.
- Day, Nicholas Merthyr, 1988.** The role of the architect in post-war state housing: a case study of the housing work of the London County Council, 1919-1956. PhD thesis, University of Warwick.
- Dening, G. and Elmer, S., 2018.** The Costs of Estate Regeneration: A Report by Architects for Social Housing. Architects for Social Housing.
- Douglas, E., 2016.** Great Estates: Putting communities at the heart of regeneration. ResPublica.
- G15. 2016.** Meeting the Challenge of Urban Renewal: The G15's Contribution to Regenerating London's Estates. G15. London, UK.
- Garner, B., 2016.** Hidden Homes. Available at: <https://www.bailygarner.co.uk/wp-content/uploads/3338-BG-Hidden-homes-v8b-web.pdf> [Accessed 25th August 2020].
- Gehl, J., 2010.** Cities for people. Washington: Island press
- GLA (Greater London Authority), 2016.** Up or Out: A False Choice. Options for London's Growth.
- GLA (Greater London Authority), 2019.** The London Plan – Intend to publish version.
- Greater London Authority, 2018.** Better Homes for Local People – The Mayor's Good Practice Guide to Estate Regeneration.
- GVA and Levitt Bernstein, 2018.** Thinking Ahead—Estate Regeneration: What You Need to Ask and When.
- Hanna, K. and Redman, P., 2016.** Another Storey: The real potential for estate densification.
- Hillier, B., 1996.** Space is the machine: a configurational theory of architecture. London: Space Syntax.
- HTA, L.B. and Edwards, P.T., PRP., 2016.** Altered Estates: How to Reconcile Competing Interests in Estate Regeneration.
- Jacobs, J., 1961.** The death and life of great American cities. London: Random House.
- Jacobs, J.M. and Lees, L., 2013.** Defensible Space on the Move: Revisiting the Urban Geography of Alice Coleman. *International Journal of Urban and Regional Research*, 37(5), pp.1559-1583
- Johnson, J., 2015.** Delivering Infill Development: A London 2050 briefing paper.
- LCC (London County Council), 1949.** London County Council – Post War Housing. London: London County Council.
- Lees, L., 2014.** The urban injustices of new Labour's "New Urban Renewal": The case of the Aylesbury Estate in London. *Antipode*, 46(4), pp.921-947.
- London Assembly., 2015.** Knock it down or do it up. The challenge of estate regeneration.
- Minton, A., 2009.** Fear and happiness in the twenty-first-century city. London: Penguin Books.
- Morphet, J. and Clifford, B.P., 2017.** Local authority direct provision of housing.
- N, Krysiak., 2019.** Designing Child-Friendly High Density Neighbourhoods Transforming our cities for the health, wellbeing and happiness of children. Australia: Cities for Play.
- Phillips, E. and Wandsworth Council (2014).** Letter to Wandsworth Borough Council (Obtained under the Freedom of Information Act; requested as "Council house stock"; received 6 March 2014) available at https://www.whatdotheyknow.com/request/council_house_stock_8 [accessed on 07.07.2020]
- Power, A., 1999.** Estates on the Edge. London: Palgrave Macmillan.
- Power, A., 2008.** Does demolition or refurbishment of old and inefficient homes help to increase our environmental, social and economic viability?. *Energy policy*, 36(12), pp.4487-4501.

