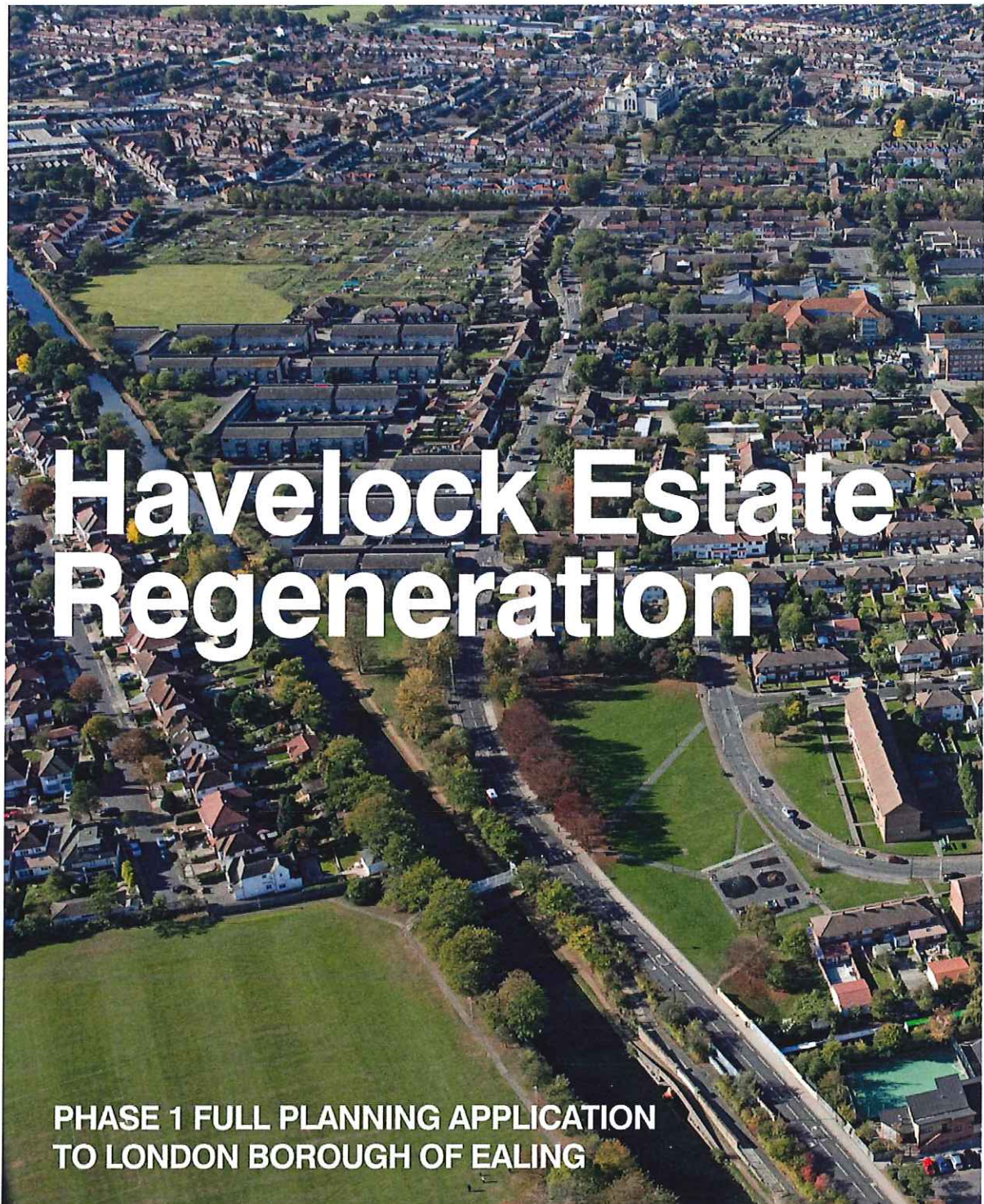


# Environmental Considerations



JULY 2013



**Havelock Estate Regeneration, Southall, Ealing  
Environmental Considerations**

Prepared on behalf of Catalyst Housing Ltd

Prepared by  
Barton Willmore LLP

|                     |                                |
|---------------------|--------------------------------|
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## **EXECUTIVE SUMMARY**

This Environmental Considerations document is submitted to the London Borough of Ealing (LBE) in support of the detailed planning application for the regeneration of Phase 1 of the Havelock Estate in Southall, UB2 (the Application Site). A separate application for outline planning permission is submitted simultaneously with this detailed planning application in respect of the whole masterplan of the proposed estate regeneration.

The Application Site is approximately 4.3 hectares in area and currently comprises the eastern portion of the existing Havelock Estate (18.0 hectares). The Application Site is located approximately 1km south of Southall Broadway Town Centre and currently comprises 156 homes in a mix of tenure and types. Many of the buildings are visually unattractive and are experiencing significant repair problems.

It is proposed to demolish the existing 156 residential buildings and other structures on the Application Site while retaining 30 existing private homes. The demolished homes will be replaced with a residential development of 287 homes with associated car parking, landscaping and access provision (the Proposed Development). When the retained and replacement homes are combined, a total of 317 homes will be contained on the Application Site, which represents a net increase of 131 homes in this part of the Havelock Estate. These proposals represent Phase 1 of the proposed estate-wide regeneration of Havelock.

The Proposed Development represents an opportunity to regenerate and improve this part of the Borough through the use of a significant and exemplary scheme. High quality architecture has been employed in order to create legible, useable and landscaped spaces as well as provide a new and attractive living environment for residents and businesses alike. The Proposed Development will deliver much needed new homes, including affordable homes, for the Borough and represent a significant investment in the Havelock Estate.

The proposed regeneration of the Havelock Estate has evolved as a result of the extensive pre application discussions that have been held with the Council, the Greater London Authority (GLA), Transport for London (TfL), the Canals and River Trust (CRT) and other statutory consultees. The feedback received from the variety of consultation events with the local community and other key stakeholders has also been carefully considered by the Applicant in informing the Proposed Development.

Central to the design of Phase 1 is the relationship with the surrounding estate and wider area, which has informed the design and layout from the outset. The Proposed Development recognises its spatial and functional relationship with the existing residential and business properties that surround

the Application Site. In response, the layout of development has sought to provide a suitable transition between differing uses. Traditional street patterns and homes have been included and are integrated with apartments and the wider site. In order to create inclusive and mixed communities a variety of tenures have been interspersed throughout the development.

Considerable importance has also been attached to preserving and enhancing the setting of the Grand Union Canal and Maypole Dock. Careful consideration has therefore been given to ensuring adequate space is retained for landscaping and areas of open space that will help soften the edges of the Proposed Development as well as enhance character and appearance of the canal and green corridor.

In terms of accessibility, the Application Site is well connected to public transport with bus stops within the Application Site on Havelock Road, Gregory Road and Hilary Road. Further bus stops are also in close proximity to the site on Havelock Road and Merrick Road. The nearest train station is Southall Station located approximately 450m to the northwest of the site. Vehicular access is provided from the west of the site from the A3005 Merrick Road via Swift Road and Havelock Road, which both link into the Application Site.

The Proposed Development is environmentally sustainable, making use of a brownfield site and employing sustainable design and building techniques. It will enhance the surrounding area and encourage the ongoing regeneration of this part of Southall as well as deliver much needed new homes and upgraded affordable housing accommodation.

The purpose of this Environmental Considerations document is to provide a summary of matters relating to the full planning application which, while it represents Phase 1 of the overall masterplan for the Havelock Estate which is the subject of a separate outline planning application, should be determined by LBE on its own merits.



## 1.0 INTRODUCTION

- 1.1 This Environmental Considerations document has been prepared in support of a full planning application by Catalyst Housing Limited (the Applicant) for the residential redevelopment of approximately 4.3 ha at Phase 1 of the Havelock Estate in Southall, London Borough of Ealing, UB2 (the Application Site). The purpose of this Environmental Considerations document is to provide assessments of transport; noise and vibration; wind; and socio economic (including open space) in relation to the proposals.
- 1.2 The majority of the Application Site is under the ownership of the London Borough of Ealing (LBE) and is being disposed of with a view to improving the area for the benefit of the Borough. The Applicant was the preferred bidder for the Application Site and has entered into a contract with LBE to purchase the Application Site. Many of the buildings are visually unattractive and are experiencing significant repair problems.
- 1.3 The Proposed Development represents the opportunity to regenerate and improve of this part of the Borough and offers the prospect of a significant and exemplary development, which will benefit both the locality and the Borough as a whole. Central to the concept of the Proposed Development is its relationship with the surrounding area, which has informed the design and layout from the outset. The architectural form and massing employed seek to integrate with the retained homes on the Site and the surrounding area so facilitating the creation of a desirable neighbourhood.
- 1.4 The Applicant has conducted extensive pre-application discussions with the London Borough of Ealing (the Council), the Greater London Authority (GLA), Transport for London (TfL), the Canals and River Trust (CRT) and has undertaken variety of consultation events with the local community and other key stakeholders.

### **The Proposed Development**

- 1.5 This detailed planning application for the redevelopment of the Application Site seeks full planning permission for:

*'The demolition of existing residential buildings and other structures, the retention of 30 existing homes and the construction of up to 287 homes with associated car parking, landscaping and access provisions, and 70 sqm A1 commercial floorspace and 280 sqm D1 community floorspace' (Proposed Development)*

- 1.6 The design of the Proposed Development recognises the need for high quality architecture on the Application Site, which benefits from a satisfactory level of public transport accessibility (ranging from PTAL 1b-3). It also positively responds to the canalside location of the Application Site as well as the urban grain and morphology of the surrounding area.
- 1.7 Further details of the Proposed Development are provided in Section 3 of this Planning Statement and the Design and Access Statement accompanying this planning application. The principal purposes of this Planning Statement are to assess the Proposed Development against planning policy and to demonstrate that it delivers regeneration opportunities including an appropriate quantum and mix of new homes as well as optimising the potential and attractiveness of the Application Site.

### **The Planning Application**

- 1.8 In addition to this Planning and Regeneration Statement, this full planning application should be read in conjunction with the following documents:
- Planning Application Cover Letter prepared by Barton Willmore (this document)
  - Schedule of Application Documents prepared by Barton Willmore
  - Completed Planning Application Forms and Certificates prepared by Barton Willmore
  - Completed CIL Forms prepared by Barton Willmore
  - Guide to the Planning Application document prepared by Barton Willmore
  - Planning and Regeneration Statement prepared by Barton Willmore
  - Affordable Housing Statement prepared by Barton Willmore
  - Design and Access Statement (including Design Codes, Lifetime Homes and Equal Access Strategy, Play Strategy and Landscape Strategy) prepared by PTE Architects and Ireland Albrecht
  - Architectural Drawings by PTE Architects
  - Landscaping Drawings by Ireland Albrecht
  - Statement of Community Involvement prepared by Catalyst Housing Limited
  - CGIs and Sketches prepared by DesignHive
  - Affordable Housing Toolkit / Viability Assessment prepared by the Applicant (provided under separate confidential cover to the case officer)
  - Environmental Considerations Document incorporating Assessments regarding Transport; Noise and Vibration; Wind; and Socio Economic (including Open Space Assessment)
  - Ground Contamination Report prepared by Leadbitter
  - Flood Risk Assessment prepared by Peter Brett Associates
  - Utilities and Foul Drainage Assessment prepared by Peter Brett Associates
  - Health Impact Assessment prepared by Barton Willmore

- Construction Management Plan prepared by Leadbitter
- Sustainability Statement prepared by BBS Environmental
- Air Quality Assessment prepared by Peter Brett Associates
- Sunlight, Daylight and Overshadowing prepared by Malcolm Hollis
- Lighting Impact Appraisal prepared by Peter Brett Associates
- Heritage Statement prepared by CgMs
- Arboricultural Survey prepared by Arborhelp

1.9 This Planning Statement draws upon the conclusions of these reports where relevant.

### **Consultation**

1.10 The first of several pre application meetings with the Council was held on 30 November 2012. Discussions were also conducted with the GLA, TfL and CRT. The comments received during these discussions as well as members of the local community have been taken into account in the evolution of the final design of the Proposed Development. A number of public exhibitions and design workshops were held by the Applicant in the build up to the submission of the application. In particular, a public exhibition was held at Dairy Meadow Primary School adjacent to the Application Site on Friday evening 22 March 2013 and Saturday day time 23 March 2013.

1.11 Interested parties were also kept informed through the publication of regular newsletters and updates on a designated website. Further details are set out in the Statement of Community Involvement accompanying this full planning application.



## 2.0 SOCIO ECONOMIC (INCLUDING OPEN SPACE ASSESSMENT)

### Introduction

- 2.1 The following Socio Economic Assessment is produced in relation to the regeneration of Havelock Estate in the London Borough of Ealing. The purpose of this report is to provide appropriate assessment of Phase 1 of the Proposed Development incorporating:

*'The demolition of existing residential buildings and other structures, the retention of 30 existing homes and the construction of up to 287 homes with associated car parking, landscaping and access provisions, and 70 sqm A1 commercial floorspace and 280 sqm D1 community floorspace'*

### Population Projections – Phase 1

- 2.2 Specifically over the period 2014 to 2016, which best corresponds to the likely build period of Phase 1 of the Proposed Development, LBE is expected to experience a 2.3% increase in population compared to 2.7% growth in London overall. Whilst it is anticipated that the population of LBE will increase by a lower percentage than the Region, it will nonetheless experience greater growth than England overall where population numbers are set to increase by 1.6% over the same period.

Table 2.1: Anticipated Population Growth 2014 – 2016

|         | 2014       | 2016       | % Change |
|---------|------------|------------|----------|
| Ealing  | 336,000    | 344,000    | 2.3%     |
| London  | 8,437,000  | 8,668,000  | 2.7%     |
| England | 54,018,000 | 54,910,000 | 1.6%     |

Source: ONS, 2010-based sub-national population projections (rounded)

### Household Projections – Phase 1

- 2.3 Household projections during the build period of Phase 1 demonstrate an anticipated increase of 1.78% of households in LBE from 129,682 in 2014 to 131,988 by 2016.



## Likely Effects

### Demolition and Construction Phase

#### *Effects on Population, Housing, Education and Healthcare – Phase 1*

- 2.4 As is the case for the Overall Development, baseline assessment has demonstrated that a construction labour force, sufficient in size to meet the requirements of Phase 1 construction, exists locally in addition to an unemployed workforce seeking employment in construction related roles whilst claiming out of work benefit. For this reason, it is not anticipated that additional labour will migrate to the area during the demolition and construction phase. It is therefore considered that Phase 1 of the Proposed Development will have a negligible effect on population, housing, education or healthcare during the construction phase.

#### *Effects on Employment – Phase 1*

- 2.5 Within Phase 1, the direct employment generated by the demolition of existing residential buildings and other structures and construction of up to 287 homes is expected to produce in excess of 574 jobs over the two year build period.
- 2.6 During Phase 1, the direct employment generated through demolition and construction and the additional indirect employment and economic benefits derived through use of local suppliers/businesses are considered to have a moderate beneficial effect on employment.

### Completed Development

#### *Effects on Population and Housing – Phase 1*

- 2.7 The delivery of up to 287 homes within Phase 1 of the development can be expected to generate circa 927 residents. As 156 (plus the retention of 30 homes) of these homes will replace existing, accounting for 504 of the 927 residents, the number of Phase 1 residents additional to existing conditions would be 423. The Phase 1 delivery of up to 287 homes, 131 net of which are additional to existing conditions, is considered to have a moderate beneficial effect on population and housing.

#### *Effects on Employment – Phase 1*

- 2.8 As Phase 1 is residential-led development, there is considered to be a negligible effect on employment.

*Effects on Healthcare – Phase 1*

- 2.9 Phase 1 of the Proposed Development is expected to provide homes to circa 927 people, 423 of whom will be additional in number to the existing population. On the basis that sufficient GP patient places have been established within 12 minutes walking distance of the Application Site and Dental Practice availability has been confirmed via a telephone survey, it can be concluded that the Phase 1 development will have a negligible effect on healthcare.

*Effects on Education – Phase 1*

- 2.10 Phase 1 of the Proposed Development includes the provision of up to 287 dwellings, 156 of which are to be redeveloped homes and 131 net of which are additional in number. Whether the redeveloped homes are eventually occupied by existing residents or not, baseline education provision has proved sufficient to accommodate the number of school aged children generated by this number of dwellings. Analysis has therefore been conducted to determine whether sufficient capacity exists to accommodate the size of population generated by the net additional 131 dwellings.
- 2.11 Reference to LBE, Child Yield Modelling toolkit provided by LBE establishes that the overall 287 Phase 1 dwellings could produce up to 67 primary aged pupils and 48 secondary aged pupils. Consultation with LBE established that a 10% reduction should be applied to account for parents who choose to have their children educated privately bringing the totals to 60 primary aged pupils and 43 secondary aged pupils.
- 2.12 The net 131 additional dwellings represent 45% of the overall 287 homes provided by Phase 1. In applying 45% to the number of pupils expected to live within Phase 1, the number of additional school places required overall becomes 27 primary school places and 19 secondary school places.
- 2.13 Baseline assessment established that, whilst a surplus of primary school places currently exists, LBE advise that the increase in demand anticipated will generate a deficit of 420 places in Southall by the year 2015. At secondary school level, LBE advise that the closest school (Featherstone High School) will remain over-subscribed but that existing surplus capacity at Villiers High School (700 – 800m to the north of Havelock Estate) will continue.
- 2.14 It is, therefore, considered that Phase 1 of the Proposed Development will have a moderate adverse effect on primary school education, likely to require S106 contribution, but a negligible effect on secondary education.

*Effects on Open Space – Phase 1*

- 2.15 Government guidance states that homes should be within 400m of both local parks and LEAPs. Baseline assessment (Figure 4) demonstrates that within 400m of the Application Site residents of the Proposed Development will have access to six different areas of open space providing opportunities for football, BMX, skateboarding, basketball, tennis, bowls, a dog exercise area and 2 LEAP's. In addition to this there is also access to the Grand Union Canal Walk which in total includes 147 miles of canalside walks.
- 2.16 Baseline assessment has demonstrated that the Phase 1 of the Proposed Development is likely to generate an additional population of 423. Were no additional public open space to be provided, the effect of the additional population would be to reduce the hectares per 1,000 head of population within the Norwood Green ward from 2.73 to 2.65 which would still remain significantly higher than the NPFA standard of 2.40.
- 2.17 However, Phase 1 of the Proposed Development will contribute 6,963 sqm of public open space, of which 1,182 sqm will be play areas. Methodology provided within the LBE, Parks and Open Space Strategy (2003-2008) indicates that only 546 sqm of the 35.7 hectares within the Norwood Green was contributed by the existing Havelock Estate. Therefore, the effect of the Proposed Development upon completion would be:
- $35,700 \text{ sqm} - 546 \text{ sqm} = 35,154 \text{ sqm} + 6,963 \text{ sqm} = 42,117 \text{ sqm}$  or 42.1ha of POS
  - $13,071 \text{ people} + 423 \text{ people} = 13,494 \text{ people} = 13.5 \times 1,000 \text{ head of population}$
  - Therefore  $42.1 \text{ ha} / 13.5 = \text{an increase from } 2.73 \text{ ha per } 1,000 \text{ head of population to } 3.12 \text{ ha}$
- 2.18 Residents of Phase 1 of the Proposed Development will benefit from 6,963 sqm of public space, of which 1,182 sqm will be in the form of play areas with an additional 9,983 sqm of private amenity space. This equates to 6.8 sqm of public open space per resident (plus private amenity space).
- 2.19 On site, this includes play space for 0-11 year olds which is to be located in Central Park (1,056 sqm) providing nine varieties of play equipment. The Village Green will also provide communal gardens and two separate green spaces which could accommodate a range of 'kick-about' and nature walking type activities. As the development progresses and further phases are completed, the residents of Phase 1 will benefit from increased access to formal and informal open space areas. In summary, within 400m of the Application Site, suitable open space is available to meet the diverse needs of a mixed community. On the basis that:



- There are six areas of open space already located within a 400m buffer of the site;
- An additional play space 1,182 sqm is to be provided;
- Norwood Green Ward has the joint sixth highest hectares per 1,000 population provision in the borough (of 23), and by far the highest provision in the south of the borough;
- A proportion of the new residents of the Proposed Development are likely to relocate from within the Borough and therefore be existing users of LBE POS;
- A proportion of the new residents of the Proposed Development already reside on the estate and as such do not represent additional pressure on POS; and
- The high provision of open space within Phase 1 of the Proposed Development increases the overall ward provision of Public Open Space from 2.73 ha per 1,000 head of population to 3.12 ha per 1,000 head of population

2.20 It is considered that Phase 1 of the Proposed Development will have a moderate beneficial effect on open space provision.



### 3.0 TRANSPORT

#### Havelock Estate Phase 1

- 3.1 Phase 1 of the development will entail the demolition of existing buildings units and other structures to the eastern most section of the site, the retention of 30 existing homes and the construction of up to 287 new homes, with associated car parking, landscaping and access provisions. Phase 1 currently has 186 units and the development will see a net increase of 101 units during Phase 1. Table 3.1 presents the existing and proposed number of residential units in Phase 1.

| <b>Table 3.1 Phase 1 Net Additional Quantum of New Homes and Retained Homes<br/>(units by number of bedrooms)</b> |   |   |                          |                                  |                                       |
|---|---|---|--------------------------|----------------------------------|---------------------------------------|
| <b>Home Size</b>  | <b>(a)<br/>Existing<br/>Number of<br/>Homes</b> | <b>(b)<br/>Retained<br/>Number of<br/>Homes</b> | <b>(c)<br/>New Homes</b> | <b>Total<br/>(b) + (c) = (d)</b> | <b>Net<br/>Increase<br/>(d) - (a)</b> |
| Studio  | 0   | 0   | 0                        | 0                                | 0                                     |
| 1 Bedroom   | 31  | 3   | 46                       | 49                               | 18                                    |
| 2 Bedroom   | 80  | 15  | 110                      | 125                              | 45                                    |
| 3 Bedroom   | 75  | 12  | 105                      | 117                              | 42                                    |
| 4 Bedroom   | 0   | 0   | 21                       | 21                               | 21                                    |
| 5 Bedroom   | 0   | 0   | 5                        | 5                                | 5                                     |
| <b>Total</b>  | <b>186</b>                                      | <b>30</b>                                       | <b>287</b>               | <b>317</b>                       | <b>+ 131</b>                          |

#### Travel Characteristics

- 3.2 This section presents the methodology for estimating the trips generated by the Phase 1 of the proposed development. As it is an existing residential development, the total trips have been calculated for the net increase in the residential units. The existing number of residential units is 186 and the proposed development is for 317 residential units providing a net increase of 131 residential units.
- 3.3 The methodology for determining trip generation was discussed with LBE and TfL in the scope of works note and TfL, LBE agreed to the proposed methodology. Subsequently ATC were conducted at the entrance and exit of the site. The vehicle trip rates are based on these counts as they represent a more realistic car mode share for the existing development.

### Trip Rates

- 3.4 Four sites from TRAVL (v8.16) have been used to determine the trip rates. These sites have PTAL between 1 and 3 and are located in Outer London Boroughs. Additionally, all of the sites chosen have been surveyed within the last 10 years and provide a mix of affordable and private residential units. Table 3.2 presents the sites which have been used for trip rate assessment.

Table 3.2 TRAVL Sites used for Trip Rate Assessment

| Sites   | Postcode | Date Surveyed | PTAL | No. of Units | Parking |
|---|----------|---------------|------|--------------|---------|
| Chad Crescent, Affordable Housing             | N9 0FR   | 2005          | 1    | 111          | 100     |
| Kew Riverside, Affordable and Private Housing | TW9 4AD  | 2009          | 2    | 550          | 690     |
| Orchard Court                                 | RM13 8PX | 2011          | 2    | 97           | 147     |
| Tysoe Avenue                                  | EN3 6FE  | 2005          | 1    | 84           | 84      |

- 3.5 Table 3.3 presents the trip rates for morning peak hour, evening peak hour and total daily rates for the four sites chosen from TRAVL. The detailed TRAVL sites and their trip information are presented in Appendix G of the Transport Assessment.

Table 3.3 Trip Rates (per dwelling) used for Trip Generation

| Time Period   | Trip Rate In | Trip Rate Out | Total |
|---------------|--------------|---------------|-------|
| 08:00 – 09:00 | 0.21         | 0.60          | 0.81  |
| 17:00 – 18:00 | 0.45         | 0.28          | 0.73  |
| Total Daily   | 4.23         | 4.23          | 8.46  |

### Existing Trip Generation

- 3.6 There are presently 186 residential units on Phase 1 of the development site. The trip rates presented in Table 1.3 are applied to 186 residential units to obtain the trips generated by the existing development. The morning peak hour, evening peak hour and total daily trips for the existing development are presented in Table 3.4.

Table 3.4 Total Trips Generated by the Phase 1 Site of the Existing Development (156 Residential units)

| Time Period   | Trips In | Trips Out | Total |
|---------------|----------|-----------|-------|
| 08:00 – 09:00 | 33       | 94        | 127   |
| 17:00 – 18:00 | 70       | 44        | 114   |
| Total Daily   | 660      | 660       | 1,320 |

### Proposed Trip Generation

- 3.7 The trip rates presented in Table 7.3 are applied to the proposed 317 residential units to determine the total trips generated by the proposed development in the morning peak hour, evening peak hour and during the day. The morning peak hour, evening peak hour and total daily trips for the proposed development are presented in Table 4.5.

Table 3.5 Total Trips Generated by the Proposed Phase 1 of the Development (317 Residential Units)

| Time Period   | Trips In | Trips Out | Total |
|---------------|----------|-----------|-------|
| 08:00 – 09:00 | 67       | 190       | 257   |
| 17:00 – 18:00 | 143      | 89        | 232   |
| Total Daily   | 1,341    | 1,341     | 2,682 |

### Net Trip Generation

- 3.8 The trip generation from the existing development is subtracted from the trip generation from the proposed development to obtain the net trip generation. The morning peak hour, evening peak hour and total daily trips for the proposed development are presented in Table 3.6.

Table 3.6 Total Trips Generated by the Net Increase in Phase 1 Residential Units (131 Residential Units)

| Time Period   | Trips In | Trips Out | Total |
|---------------|----------|-----------|-------|
| 08:00 – 09:00 | 34       | 97        | 131   |
| 17:00 – 18:00 | 72       | 45        | 117   |
| Total Daily   | 682      | 681       | 1,363 |

### **Mode Splits**

- 3.9 Census (2011) mode splits were obtained for Ealing Lower Layer Super Output Areas (SOA) contained within the site to assess the journey to work by the proposed development. Table 1.7 presents the average mode splits for the SOA Ealing 029C.
- 3.10 This area has a car ownership of 0.83, which is similar to the proposed parking levels.
- 3.11 There are no Underground stations in the vicinity of the development; however people could change from the Network Rail services. Therefore the mode splits for Underground and National Rail were combined together. Table 1.7 presents the Census mode splits. The Census 2011 outputs for car ownership and method of travel to work are presented in Appendix G of the Transport Assessment.
- 3.12 Further as stated in Section 2.4 of the Transport Assessment, ATC counts were undertaken at the entrance and exit of the Havelock Estate. This has also provided of the total vehicle trips generated by the current units on the site for the morning and evening peak hours and for the whole day. The vehicle trips from Census 2011 data are modified to match the vehicle trips estimated from the ATC counts.
- 3.13 The Census 2011 mode split for car driver trips was 46%. This was only pertaining to method of travel to work. The car driver trips from the ATC counts was 46% of the total trips during the morning peak hour, 41% during the evening peak hour and 57% during the day. The mode splits from Census 2011. The ATC does not provide information on walk trips or public transport trips but gives a good representation of car trips generated by the development. Therefore the Census mode splits for other modes have been retained and the public transport modes have been proportionately modified to manage the alterations in vehicle mode split. Table 4.7 presents the modified trips and the calculation are presented in Appendix G of the Transport Assessment.



Table 3.7 Census (2011) Mode Splits and Adjusted Mode Splits

| Mode             | Mode Split   |                                      |              |             |
|------------------|--|--------------------------------------|--------------|-------------|
|                  | Census 2011  | Modified to match ATC Vehicle Counts |              |             |
|                  |  | AM Peak Hour                         | PM Peak Hour | Total Daily |
|                  | Value that needs to be distributed from car drivers to other modes | +4.5%                                | +5.5%        | -10.27%     |
| Car driver       | 46.4%  | 41.9%                                | 40.9%        | 56.6%       |
| Car passenger    | 3.3%   | 3.3%                                 | 3.3%         | 3.3%        |
| Bus              | 19.2%  | 21.5%                                | 22.0%        | 13.8%       |
| Motor Cycle      | 0.4%   | 0.4%                                 | 0.4%         | 0.4%        |
| Rail/underground | 17.7%  | 19.9%                                | 20.3%        | 12.8%       |
| Other            | 0.6%   | 0.6%                                 | 0.6%         | 0.6%        |
| Pedal cycle      | 1.7%   | 1.7%                                 | 1.7%         | 1.7%        |
| Taxi             | 0.5%   | 0.5%                                 | 0.5%         | 0.5%        |
| Walk             | 10.2%  | 10.2%                                | 10.2%        | 10.2%       |
| Total            | 100.0%   | 100.0%                               | 100.0%       | 100.0%      |

### Trip Generation by Mode

3.14 The mode splits presented in Table 3.7 are applied to the net trips generated presented in Table 3.6. The trip generation by mode split for morning peak hour, evening peak hour and total daily is presented in Table 3.8.

Table 3.8 Net Trip Generation by Mode (131 Residential Units)

| Mode             | AM Peak Hour |     |       | PM Peak Hour |     |       | Total |     |       |
|------------------|--------------|-----|-------|--------------|-----|-------|-------|-----|-------|
|                  | In           | Out | Total | In           | Out | Total | In    | Out | Total |
| Car driver       | 14           | 41  | 55    | 30           | 18  | 48    | 386   | 386 | 772   |
| Car passenger    | 1            | 3   | 4     | 2            | 1   | 4     | 23    | 23  | 46    |
| Bus              | 7            | 21  | 28    | 16           | 10  | 26    | 94    | 94  | 189   |
| Motor Cycle      | 0            | 0   | 1     | 0            | 0   | 0     | 3     | 3   | 6     |
| Rail/underground | 7            | 19  | 26    | 15           | 9   | 24    | 87    | 87  | 174   |
| Other            | 0            | 1   | 1     | 0            | 0   | 1     | 4     | 4   | 9     |
| Pedal cycle      | 1            | 2   | 2     | 1            | 1   | 2     | 12    | 12  | 24    |
| Taxi             | 0            | 0   | 1     | 0            | 0   | 1     | 3     | 3   | 6     |
| Walk             | 3            | 10  | 13    | 7            | 5   | 12    | 69    | 69  | 139   |
| Total            | 34           | 97  | 131   | 72           | 45  | 117   | 682   | 681 | 1,363 |

### **Impact of the Development on the Highway Network**

- 3.15 The vehicle trips generated due to the net increase in residential units at Phase 1 of Havelock Estate have been assessed on the highway network in this Section. Table 3.8 presents the net increase in vehicle trips by the net increase of 131 residential units in Phase 1 of the Havelock Estate. The development site is accessed via one junction, between Merrick Road/ Havelock Road.
- 3.16 While proposals have intended to future proof the Application Site with providing for connections to the north towards Bridge Road, for the Transport Assessment purposes, the traffic generated by the development is assigned at this junction.
- 3.17 This section presents the assignment of the vehicular trips generated by the development on the local highway network.

### **Traffic Assignment**

- 3.18 This can be seen in Table 4.8, the proposed net increase of 131 residential units will lead to an estimated increase of 41 outbound vehicle trips and 14 inbound vehicle trips in the morning peak hour and 18 outbound vehicle trips and 30 inbound vehicle trips in the evening peak hour. These vehicular trips generated by the development are assigned through the junction between Merrick Road/ Havelock Road in the same proportions as the current turning counts. The trips assigned northbound towards the High Street and southbound towards Norwood Green are also assigned on the junctions based on the current turning proportions. The total traffic generated by the development are assessed on the following five junctions:
- Havelock Road/ Merrick Road;
  - Merrick Road/ The Green;
  - Park Avenue/ Beaconsfield Road/ South Road;
  - High Street/ A4020 Uxbridge Road/ Lady Margaret Road; and
  - Norwood Road/ Norwood Green
- 3.19 Tempro growth factors have also been used to assess the background growth due to all other consented schemes. The proposed development for Havelock Estate Phase 1 is due to start construction in 2014 and will be completed in 2017. The Tempro growth factor for Ealing is an average of 1.023 for all vehicles.

### Impact Assessment

3.20 As can be seen in Figures 3.1 and 3.2, the total trips generated by the development add a maximum of 4% additional trips on the junction between Havelock Road/ Merrick Road in the morning peak hour and 4% increase in traffic in the evening peak hour. A summary of the impact on the highways is presented in Table 3.9 on the five junctions assessed.

Table 3.9 Impact of the Phase 1 of the Proposed Development on the Highway Network

| Junction   | AM Peak Hour          |                       |   |                     | PM Peak Hour          |                       |   |                     |
|--|-----------------------|-----------------------|---|---------------------|-----------------------|-----------------------|---|---------------------|
|  | Total Current Traffic | Total Traffic in 2017 | Total Traffic Generated by the Proposed Development | Percentage Increase | Total Current Traffic | Total Traffic in 2017 | Total Traffic Generated by the Proposed Development | Percentage Increase |
| Havelock Road/ Merrick Road                          | 1,286                 | 1400                  | 55  | 4%                  | 1,249                 | 1278                  | 48  | 4%                  |
| Merrick Road/ The Green                              | 1,766                 | 1807                  | 18  | 1%                  | 1,647                 | 1685                  | 13  | 1%                  |
| Park Avenue/ Beaconsfield Road/ South Road           | 1,846                 | 1888                  | 16  | 1%                  | 1,799                 | 1841                  | 11  | 1%                  |
| High Street/ A4020 Uxbridge Road/ Lady Margaret Road | 1,960                 | 2005                  | 9   | 0%                  | 1,709                 | 1748                  | 6   | 0%                  |
| Norwood Road/ Norwood Green                          | 1,314                 | 1344                  | 32  | 2%                  | 1,516                 | 1551                  | 28  | 2%                  |

**Impact on other junctions**

3.21 As shown in Table 3.9 and the Figures 3.1 and 3.2, there will be negligible impact on the network due to the traffic generated by the proposed development. The increase in traffic flows on the junction between High Street/ Uxbridge Road is a maximum of 0.5% due to the proposed development which is considered within the daily fluctuations of traffic. Therefore no need to undertake junction capacity assessments for other junctions. The junction between Norwood Green/ Norwood Road will experience a maximum of 2% increase in traffic during the morning peak hour which is within daily variation of traffic fluctuations for London roads.



Figure 3.1 Phase 1 Traffic Assignment and Impact – AM Peak Hour

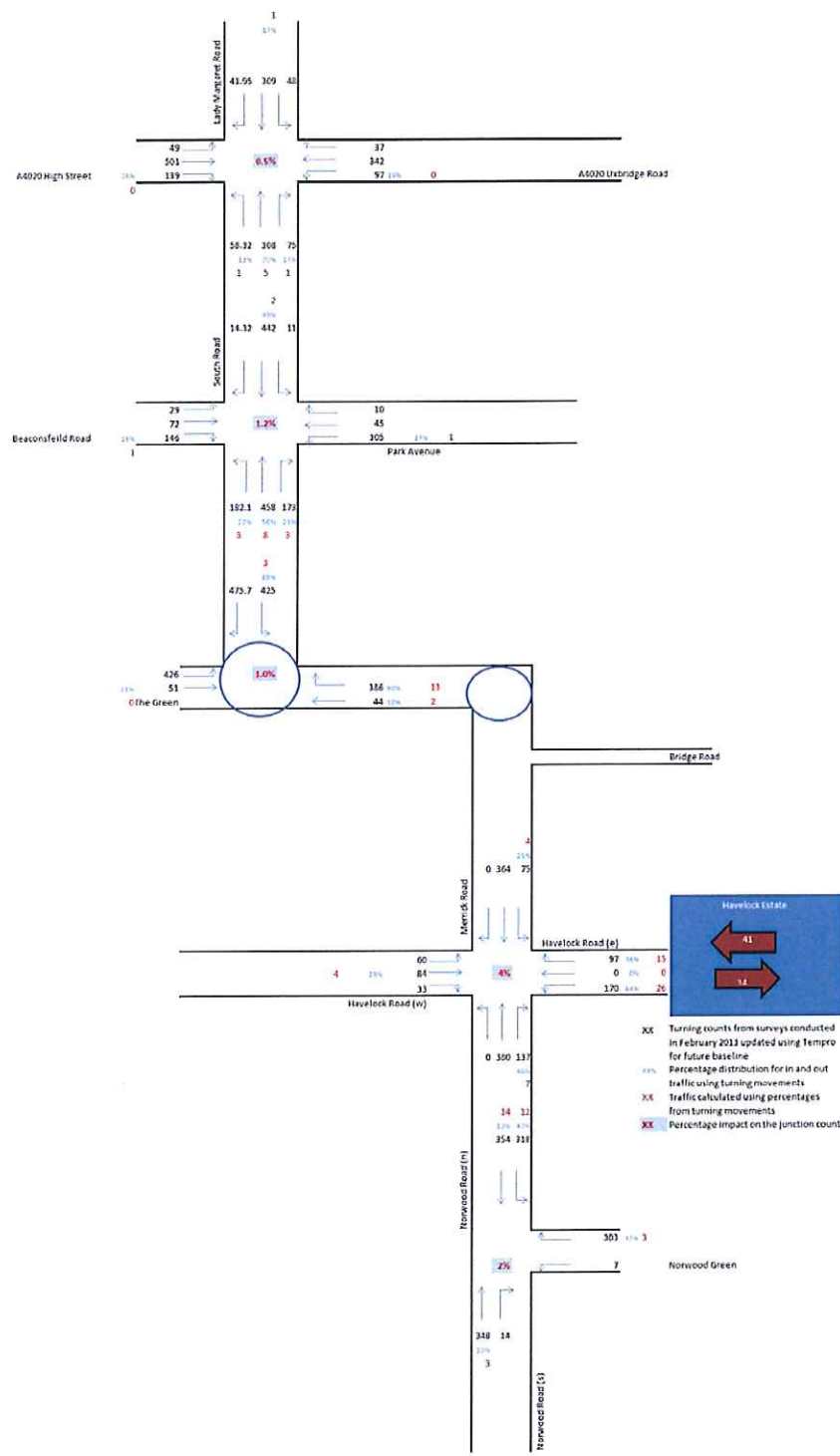
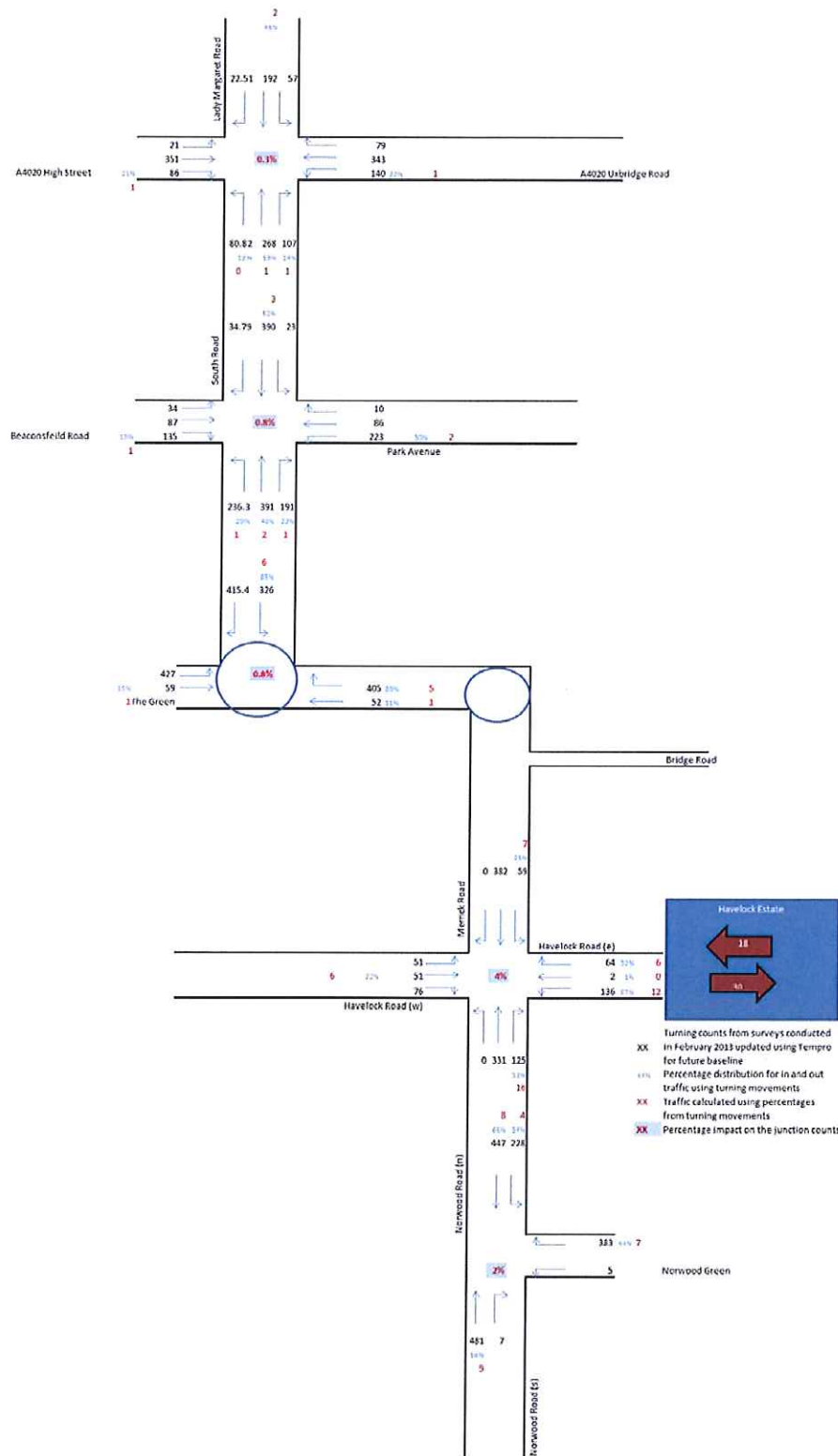


Figure 3.2 Phase 1 Traffic Assignment and Impact – PM Peak Hour



### Impact of Development on Public Transport

3.22 The additional trips generated by the proposed development on the public transport modes are presented in Table 3.8 and is reproduced in Table 3.10.

Table 3.10 Net Increase in Public Transport Trips due to Phase 1 of Havelock Estate

| Mode                  | AM Peak Hour |     |       | PM Peak Hour |     |       | Total |     |       |
|-----------------------|--------------|-----|-------|--------------|-----|-------|-------|-----|-------|
|                       | In           | Out | Total | In           | Out | Total | In    | Out | Total |
| Underground and Train | 7            | 19  | 26    | 15           | 9   | 24    | 87    | 87  | 174   |
| Bus, Minibus or Coach | 7            | 21  | 28    | 16           | 10  | 26    | 94    | 94  | 189   |

### Impact on London Buses

3.23 The proposed development will lead to an estimated additional 28 bus passengers in the morning peak hour and 26 passengers in the evening peak hour. While there are a several bus routes accessed through Merrick Road, these additional passengers have been assigned on the route E5 which traverses through the site. E5 has six services in the morning and in the evening peak hours towards Ealing and Perivale. The proposed development will lead to an increase of up to five passengers per bus in the morning peak hour and five additional passengers per bus in the evening peak hour. This level of increase in bus passengers is considered negligible.

### Impact on National Rail

3.24 The proposed development will lead to an estimated additional 38 train passengers in the morning peak hour and 34 passengers in the evening peak hour. Southall station has five services per hour to London Paddington and two services per hour to London Heathrow during the morning and evening peak hours, providing a total of seven services per hour. The proposed development will lead to an increase of up to four passengers per train in the morning peak hour and four additional passengers per train in the evening peak hour. This level of increase in train passengers is considered negligible.

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**Summary and Conclusions**

- 3.25 The proposed Phase 1 of the development will provide 317 residential units once complete, of which all are new built which is a net increase of 131 residential units (including 30 retained) above the existing 156 residential units. The access proposals do not change from the present situation providing main points of accesses from Havelock Road. The proposed Phase 1 development will be serviced as per the current situation.
- 3.26 The development impact has been assessed and it was found that the impact of a net increase of 131 (317 proposed and 156 existing units) residential units will generate a total of 131 two-way trips during the morning peak hour and 117 two-way trips during the evening peak hour. The development impacts on the surrounding road network and the public transport is estimated to be negligible. The proposed development will provide enhanced pedestrian and cycle connectivity, policy compliant vehicle parking and enhanced cycle parking provision and as such is compliant with the national, regional and local policies.



## 4.0 NOISE AND VIBRATION

### Introduction

- 4.1 Peter Brett Associates LLP has been commissioned by the Applicant to undertake a noise assessment in support of a detailed planning application for the proposed regeneration of Havelock Estate in Southall.
- 4.2 The overall Masterplan will deliver traditional streets and homes; provision of a green arc/heart; a central hub for the apartments, elderly accommodation, shop sand community uses; canalside park/quarter; and mixed tenure/integration.
- 4.3 This Technical Note outlines the assessment methodology and results that have been used to model the predicted Phase 1 noise impact of the proposed redevelopment of Havelock Estate. A separate report will be submitted in support of the outline application for the whole Masterplan.

### Assessment Methodology

- 4.4 A baseline noise survey of the whole site was undertaken between the 7th and 10th May 2013. The survey was aimed at establishing both the existing noise levels at the site, to be used in the calculations and assessment of the whole site.
- 4.5 A total of 8 measurement locations were selected across the whole site. Three of these locations comprised unattended loggers which recorded continuously of the four day period. A further two locations were chosen to establish the noise level of the existing internal road layout and the remaining locations comprised daytime and night-time attended sampling near to existing sensitive receptors and site boundaries.
- 4.6 With respect to Phase 1, four of the measurement locations were within the Phase 1A and 1B, and another one was just outside the boundary. Therefore, the existing noise climate is well represented for this part of the development schedule. The measurement locations within Phase 1's application area are shown in Table 3.1.

Table 4.1: Baseline Noise Monitoring Locations Relevant to Phase 1

| Measurement Location | Description   |
|----------------------|---|
| Location 3           | Onsite, adjacent to south-east boundary of the site, in grassed area adjacent to Havelock Road. SLM placed at elevated level of 4.0m above local ground level.  |
| Location 5           | Onsite, on grassed area approximately 7 m from carriageway edge of Hillary Road. SLM placed 1.5 m above local ground level.                                     |
| Location 7           | Onsite, on grassed area approximately 3 m from carriageway edge of junction between Hillary Road and Quaker Lane. SLM placed 1.5 m above local ground level.    |
| Location 8           | Onsite, on grassed area approximately 3 m from carriageway edge Quaker Lane, near to north-eastern boundary of site. SLM placed 1.5 m above local ground level. |

### Baseline Results

4.7 A summary of the daytime and night-time baseline noise levels relevant for Phase 1 of the development are shown in Tables 4.2 and 4.3.

Table 4.2: Daytime Baseline Noise Results relevant to Phase 1

| Location | Date       | Start Time (hh:mm:ss) | Total Duration of Measurements (hh:mm:ss) | L <sub>Aeq,T</sub> (dB) | L <sub>AF10,T</sub> (dB) | L <sub>AF90,T</sub> (dB) | L <sub>AFmax</sub> (dB) |
|----------|------------|-----------------------|---|-------------------------|--------------------------|--------------------------|-------------------------|
| 3        | 07.05.2013 | 15:30:00              | 07:30:00                                  | 63                      | 66                       | 49                       | 91                      |
|          | 08.05.2013 | 07:00:00              | 16:00:00                                  | 59                      | 63                       | 49                       | 88                      |
|          | 09.05.2013 | 07:00:00              | 16:00:00                                  | 60                      | 63                       | 52                       | 88                      |
|          | 10.05.2013 | 07:00:00              | 10:23:33                                  | 59                      | 63                       | 51                       | 86                      |
| Average  |            |                       |   | <b>61</b>               | <b>64</b>                | <b>49</b>                | <b>91</b>               |
| 5        | 10.05.2013 | 13:11:00              | 01:00:00                                  | 57                      | 58                       | 48                       | 89                      |
|          |            | 14:11:00              | 01:00:00                                  | 56                      | 60                       | 48                       | 76                      |
|          |            | 15:11:00              | 01:00:00                                  | 56                      | 57                       | 48                       | 92                      |
| Average  |            |                       |   | <b>56</b>               | <b>58</b>                | <b>48</b>                | <b>92</b>               |
| 7        | 08.05.2013 | 11:05:35              | 01:00:00                                  | 59                      | 58                       | 45                       | 93                      |
|          |            | 22:13:59              | 01:00:00                                  | 54                      | 55                       | 44                       | 73                      |
| Average  |            |                       |   | <b>57</b>               | <b>57</b>                | <b>44</b>                | <b>93</b>               |
| 8        | 08.05.2013 | 20:59:35              | 01:00:00                                  | 51                      | 53                       | 47                       | 71                      |
|          | 09.05.2013 | 15:03:50              | 01:00:00                                  | 56                      | 56                       | 51                       | 87                      |
| Average  |            |                       |   | <b>54</b>               | <b>55</b>                | <b>47</b>                | <b>87</b>               |

Table 4.3: Night-time Baseline Noise Results relevant to Phase 1

| Location | Date       | Start Time (hh:mm:ss) | Total Duration of Measurements (hh:mm:ss) | L <sub>Aeq,T</sub> (dB) | L <sub>AF10,T</sub> (dB) | L <sub>AF90,T</sub> (dB) | L <sub>AFmax</sub> (dB) |
|----------|------------|-----------------------|---|-------------------------|--------------------------|--------------------------|-------------------------|
| 3        | 07.05.2013 | 23:00:00              | 08:00:00                                  | 54                      | 54                       | 41                       | 79                      |
|          | 08.05.2013 | 23:00:00              | 08:00:00                                  | 52                      | 54                       | 42                       | 75                      |
|          | 09.05.2013 | 23:00:00              | 08:00:00                                  | 52                      | 53                       | 43                       | 78                      |
| Average  |            |                       |   | <b>53</b>               | <b>54</b>                | <b>41</b>                | <b>79</b>               |
| 7        | 09.05.2013 | 02:53:08              | 00:15:00                                  | 44                      | 45                       | 42                       | 52                      |
|          |            | 03:31:54              | 00:15:00                                  | 44                      | 44                       | 41                       | 64                      |
|          |            | 04:08:05              | 00:15:00                                  | 48                      | 51                       | 44                       | 64                      |
| Average  |            |                       |   | <b>46</b>               | <b>47</b>                | <b>41</b>                | <b>64</b>               |
| 8        | 09.05.2013 | 04:26:09              | 00:15:00                                  | 51                      | 51                       | 45                       | 81                      |
| Average  |            |                       |   | <b>51</b>               | <b>51</b>                | <b>45</b>                | <b>81</b>               |

### Noise Model Results

4.8 A summary of the predicted noise levels relevant for Phase 1 of the development are shown in Table 4.4. This has been calculated using the traffic data for the 2017 with development scenario.

Table 4.4: Predicted Noise Results relevant to Phase 1

| Phase of the Development | Indicative Location             | Highest Predicted Noise Levels , dB |                          |                          |
|--------------------------|---------------------------------|-------------------------------------|--------------------------|--------------------------|
|                          |                                 | Daytime L <sub>Aeq,T</sub>          | Night L <sub>Aeq,T</sub> | Night L <sub>AFmax</sub> |
| Phase 1                  | South facing onto Havelock Road | 65                                  | 57                       | 79                       |
|                          | West facing on Hillary Road     | 57                                  | 48                       | 73                       |
|                          | All other facades               | 51                                  | 42                       | 69                       |

4.9 The noise levels across the site are considered broadly acceptable for residential development, as they fall mainly into LBE's SPG10's NECs A and B. The proposed dwellings/flats directly fronting onto either side of Havelock Road fall into NEC C and will require more substantial mitigation to secure a suitable internal environment.



## Mitigation

### Internal Noise Levels

- 4.10 A summary of the calculated sound reduction performance required of the external building fabric for the new build properties to achieve the SPG10 criteria are shown in Table 4.5. This has been calculated using the traffic data for the 2017 with development scenario.

Table 4.5: Calculated sound reduction performance relevant to Phase 1

| Phase of the Development | Indicative Location               | Sound reduction performance required to achieve: |                            |                            |
|--------------------------|-----------------------------------|--|----------------------------|----------------------------|
|                          |                                   | Day 35 dB<br>$L_{Aeq,T}$                         | Night 30 dB<br>$L_{Aeq,T}$ | Night 45 dB<br>$L_{AFmax}$ |
| Phase 1                  | South facing onto Havelock Road   | 30   | 27                         | 34                         |
|                          | South-west facing on Hillary Road | 22   | 18                         | 28                         |
|                          | All other facades                 | 16   | 12                         | 24                         |

- 4.11 It can be seen from Table 8.5 that ensuring that the external building fabric of the proposed properties has a sound reduction performance of 25 to 30 dB should result in the SPG10 criteria being achieved across the vast majority of the site. The exceptions are the proposed dwellings/flats/commercial that front directly onto either side of Havelock Road, for which a sound reduction performance of 35 dB is likely to be required.
- 4.12 Glazing units capable of achieving a 29 dB  $R_{TRA}$  performance include Pilkington's 4/16/4 double-glazing unit, which comprises two 4 mm panes of glass separated by a 16 mm airgap. Glazing units capable of achieving a 40 dB  $R_{TRA}$  performance are likely to be limited to either specialist acoustic glazing, or secondary glazing units with an airgap of at least 150 mm. The use of a secondary glazing system is consistent with the general design principles set out in SPG10. Pilkington's 12/16/16.8 double-glazing, half-laminated unit, which comprises a 12 mm pane of glass and a 16.8 mm pane of glass, separated by a 16 mm airgap.

### External Noise Levels

- 4.13 Noise levels in proposed external amenity areas and balconies within Phase 1 are generally below the 55 dB criterion set out in BS8233 and the WHO Guidelines. However, external amenity areas in the proposed dwellings/flats directly fronting onto either side of Havelock Road are predicted to be subject to noise levels in excess of this criterion.



- 4.14 The noise levels in these garden/balcony areas will be no worse than other similarly situated properties in the area, therefore PBA consider that no mitigation is required for the external amenity space.

#### **Off-site Road Traffic Noise**

- 4.15 Development-generated traffic is predicted to lead to no more than negligible impacts. As a result, mitigation measures are not considered necessary.

#### **Conclusions**

- 4.16 Taking account of national and local planning policies and the noise and vibration climate at the site, the following conclusions have been reached:
- Indicative criteria have been determined that could form the basis of noise control at the site during the construction works.
  - The site is considered acceptable for residential development, as the vast majority of it falls into noise exposure categories A and B, as defined in Ealing Council's Supplementary Planning Guidance (SPG) 10. The proposed dwellings/flats fronting onto either side of Havelock Road fall into NEC C.
  - Sound reduction performance requirements have been calculated to ensure that the internal noise levels of the new build properties achieve the criteria set out in SPG10.
  - No mitigation is considered necessary for proposed external spaces across the development. Some of the proposed dwellings/flats fronting directly onto either side of Havelock Road are predicted to be subject to noise levels in excess of the 55 dB set out in LBE's SPG10, however these areas will be no worse than other similarly situated properties in the area.
  - Development-generated traffic is predicted to be negligible, therefore no mitigation is considered necessary.
  - On the basis of this assessment and subject to the incorporation of the recommendations set out in this report, it is considered that noise should not pose a material constraint to the proposed development.

## 5.0 WIND

- 5.1 The following wind assessment determines the effects of Phases 1A and 1B of the Proposed Development at Havelock Estate (the 'Application Site') in the London Borough of Ealing (LBE). This report summarises the results of the wind environment assessment at pedestrian level within the Application Site and its surroundings and determines any potential effects on pedestrian safety and comfort.
- 5.2 The results of the wind environment assessment for pedestrian safety indicated that there is a negligible effect of the Phase 1 of the proposed development on the wind environment and all the areas are within the recommended safety criterion. This is on the basis that the wind speeds are unlikely to exceed 14.1 m/s for 0.01% of the year in line with the standard. (Fig-5.1)
- 5.3 The results of the wind assessment for pedestrian comfort for sitting indicate that there are some localised areas where wind velocities are likely to exceed 5.6 m/s for 1% of the year. This is observed in the proposed Canalside Park, the Canalside square and in localised areas of South Green. These areas are likely to be used for sitting and recreation thus they would benefit from mitigation to reduce the effect. The results indicate that there are other localised zones between the adjacent building blocks and in close proximity of the corners of building B, C, G and D which also exceed the sitting criterion. (Fig-5.2)
- 5.4 The result of comfort assessment for pedestrian walk through indicates that all areas remain within the comfort criteria on the basis that the wind velocity is unlikely to exceed 8.25m/s for 4% of the year. (Fig-5.3)
- 5.5 The results of the of the comfort assessment for pedestrian standing indicate that all areas in the Application Site are within the recommended criterion. This is based on the wind velocity not exceeding 5.6m/s for 6% of the year in line with the standard. (Fig-5.4)
- 5.6 The results of the wind assessment have indicated that overall, there is a negligible difference between the 'Baseline Scenario' and the 'Proposed Scenario'. Any localised areas of wind acceleration exceeding the recommended pedestrian comfort criteria are not directly attributable to the Proposed Development since most of these areas of wind acceleration have also been observed in the 'Baseline Scenario'. It must also be highlighted that in some areas of the Application Site such as around the Grand Union Canal and the South Green open space, the Proposed Development helps to improve the wind environment due to the new massing which creates wind shelter at pedestrian level.

- 5.7 The most effective options to mitigate any wind effects identified would include tree planting and landscape features as these are likely to reduce wind velocities and assist in obstruction, absorption and deflection of incoming winds.
- 5.8 The proposed landscape drawing prepared by Ireland Albrecht Landscape Architects illustrates that appropriate tree planting along the canal and in the open spaces between the proposed buildings will provide appropriate mitigation to further improve the wind environment.



Figure-5.1 Wind Assessment for pedestrian safety

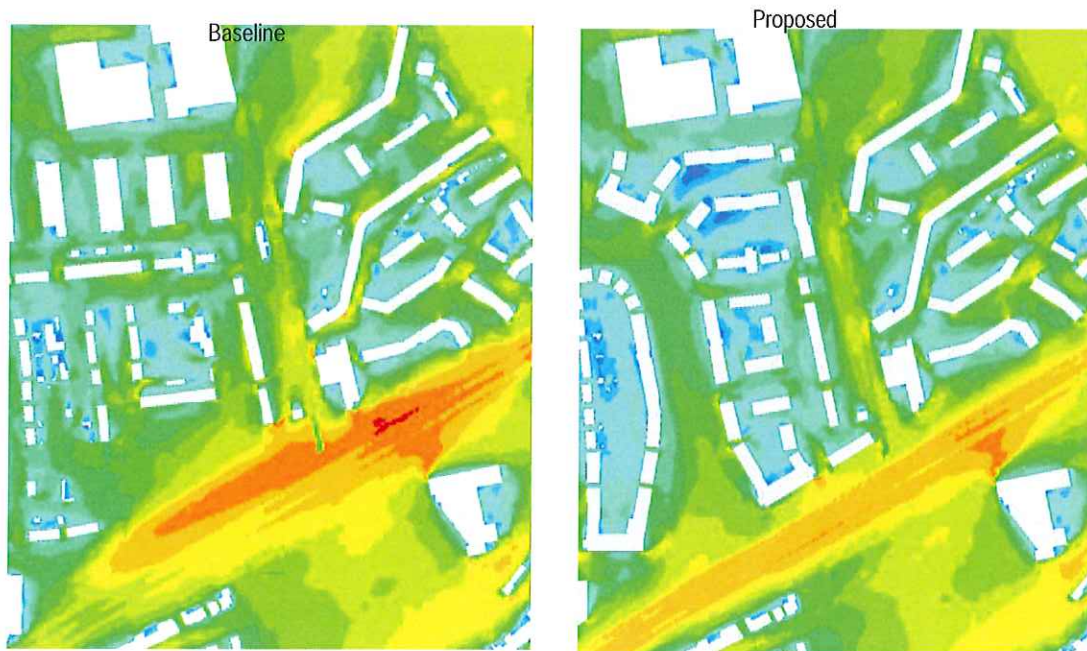


Figure-5.2 Comfort Assessment for pedestrian sitting

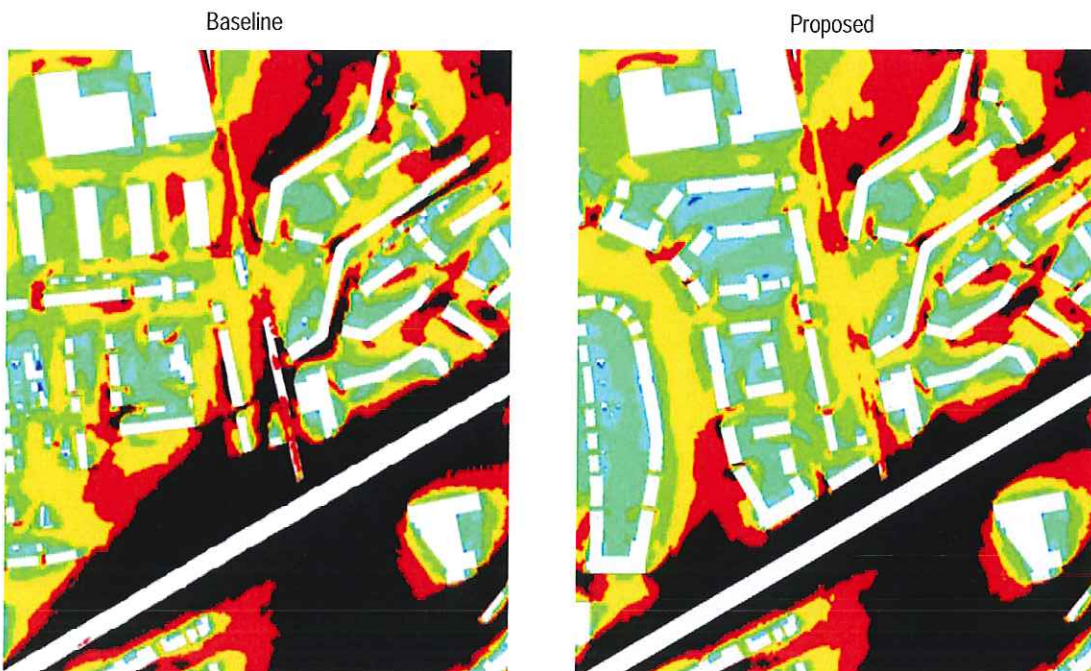




Figure-5.3 Comfort Assessment for pedestrian walk through

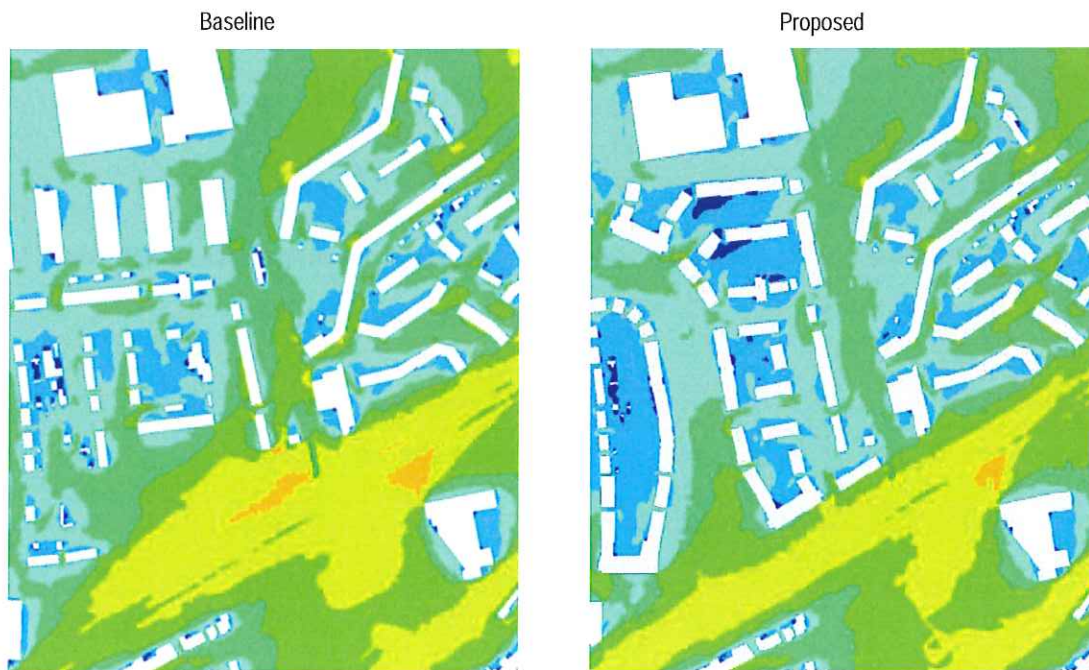


Figure-5.4 Comfort Assessment for pedestrian standing

