RCKA ARCHITECTS

HIGHGATE NEWTOWN COMMUNITY CENTRE (HNCC) AND FRESH YOUTH ACADEMY (FYA), BERTRAM STREET, LONDON

AIR QUALITY NEUTRAL ASSESSMENT

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1.0 INTRODUCTION

The Highgate Newtown Community Centre and Fresh Youth Academy is proposed on land at Bertram Street, Camden, London, N19 5DQ. The site is located with the administrative area of Camden Council, with the Islington Council boundary located less than 200m to the east.

This air quality neutral assessment is aimed at meeting the requirements for such an assessment as detailed in The Mayor of London Supplementary Planning Guidance on Sustainable Design and Construction.

1.1 Site Location and Proposals

Full details are provided in the documents issued in support of London Borough of Camden planning application reference **2016/6088/P**. The site is located at the southern end of Bertram Street in the London Borough of Camden and is currently occupied by:

- Highgate Newtown Community Centre (HNCC);
- Main Hall;
- Nursery;
- Fresh Youth Academy (FYA)
- Gospel Hall; and
- Cottage.

The site is surrounded by residences, along Bertram Street, Winscombe Street and Croftdown Road. However, the development site is some distance (>150m) from the main roads in the area (A5200 Dartmouth Park Hill to the East and B518 Highgate Road to the West)

The proposals include demolition of the existing buildings (with the exception of Gospel Hall) and construction of a new HNCC, FYA alongside a maximum of 31 No. residential units (apartments).

1.2 Scope and Limitations

The scope of this air quality neutral assessment is limited to the calculation of impacts against emission benchmarks and is based on supplied design information and traffic generation rates.

1.3 Aims and Objectives

The objectives of the assessment are as follows:

- To estimate air pollution emissions from the proposed development;
- To compare these against emission benchmarks; and
- To determine whether the proposed development is ‘air quality neutral’.

2.0 ASSESSMENT METHODOLOGY

The Mayor of London has published Supplementary Planning Guidance on Sustainable Design and Construction:

> *Sustainable Design and Construction. Supplementary Planning Guidance. London Plan 2011 Implementation Framework. April 2014.*

This includes a requirement that new developments in London are air quality neutral.

All major new developments, taken to be 10 or more dwellings or 1,000m^2 or more floor space for all other developments, must therefore include a calculation of building and transport emissions and compare these with a benchmark for development. The calculations cover the emissions of NO_2 and PM_{10}.

Further guidance on the application of the guidance is provided in:

> *Air Quality Neutral Planning Support Update: GLA 80371 April 2014*

2.1 Design Information

This assessment draws on information provided in the following documents:

- Highgate Newtown Community Centre and Fresh Youth Academy. *Design and Access Statement*. November 2016;
- Highgate Newtown Community Centre and Fresh Youth Academy. *Planning Statement*. November 2016;
- Highgate Newtown Community Centre and Fresh Youth Academy. *Transport Statement*. November 2016;
- Highgate Newtown Community Centre and Fresh Youth Academy. *Energy Strategy*. November 2016; and
- Highgate Newtown Community Centre and Fresh Youth Academy for Camden Council. *Energy Strategy Additional Information*. December 2016.

2.2 Relevant Development Details

The proposed redevelopment involves the provision of a replacement Highgate Newtown Community Centre ('HNCC') and Fresh Youth Academy ('FYA') (Use Class D1) following the demolition of the existing building on Site (with the exception of the People's Mission Gospel Hall on Winscombe Street), along with 31 private residential units (Use Class C3). The scheme will also deliver amendments to both the access and Site layout.

The proposed change in floor areas are given in the Planning Statement as shown in the table below. The difference in the size of the community centre is attributed to an increase in 'ancillary space'.

In terms of housing, 31 high quality market residential units will be provided by the scheme, totalling an area of 2943 m^2 GIA. The mix of units include the provision of 8 one bedroom units (25.8% of the mix), 13 two bedroom units (41.9% of the mix), 8 three bedroom units (25.8% of the mix) and 2 four bedroom unit (6.5%).

Table 3-2
Floor Areas: GIA (m^2)

Use	Existing	Proposed	Change
C3 Residential	154	3258	+3104
D1 Community Centre	1701	2161	+460

The transport statement describes that an average of 55 vehicles per day currently use the site. As the proposed development does not entail an increase in community facilities or rentable floorspace (the uplift is more for communal/circulation space), it is considered within the Transport Statement that future trip generation of the community centre will be very similar to the existing one.

The transport statement also states that TRICS data indicates that the proposed development will result in an increase of 146 person trips although this will equate to only 25 vehicles for the residences (due to the majority using public transport, bike or foot) using the surrounding roads. This number is calculated based on 2011 Census data for Highgate Ward. In reality, this is likely to be an overestimation as the proposed development will be car-free and future residents will not be given parking permits. The conclusions of the assessment are that, at worst, the proposed development will be traffic neutral and the development is described as 'car free' with the exception of a disabled parking space. The non-essential informal parking which is currently taking place within the courtyard will be reduced as a result of the proposals encouraging non-car modes in this accessible location.

The development will include on site power generation in the form of a gas fired EnerG 25kW CHP unit. It is envisaged that the CHP scheme will modulate electrically and thermally and will meet the energy needs of the proposed development. As the CHP will be connected to the Community Centre it will offset a large proportion of the Community Centre electricity and will not be exporting any electricity.

2.3 Potential Sources

The Highgate Newtown Community Centre and Fresh Youth Academy replaces existing buildings and the 'air quality neutral' calculations below must therefore be considered against the existing emissions (trips and buildings) at the site.

Notwithstanding this (and as described above) the development will include on site power generation (Gas fired CHP (EnerG 25kW CHP unit) which is the primary source of NO_x and PM_{10} from the site as it is 'car free' and any disabled or 'essential' trips will be significantly fewer in number that the informal parking which is currently taking place within the courtyard.

2.4 Traffic

The 'average' number of trips for C3 uses are shown below.

Table 7: Average Number of Trips per Annum for Different Development Categories

Land use	Number of Trips (trips/m^2/annum)		
	CAZ	Inner	Outer
Retail (A1)	43	100	131
Office (B1)*	1	4	18
	Number of Trips (trips/dwelling/annum)		
Residential (C3)	129	407	386

[Source: Air Quality Neutral Planning Support Update: GLA 80371 April 2014]

As described above, this scheme will be 'car free'.

The emission factors from the Air Quality Neutral Planning Support Update are as follows:

- NO_x: 0.353 g/vehicle-km
- PM_{10}: 0.0606 g/vehicle-km

For residential (C3) the Transport Emissions Benchmarks (TEBs) are:

- NO_x: TEB 1553 g/dwelling/annum; and
- PM_{10}: TEB 267 g/dwelling/annum.

The saving in transport emissions is therefore significant in comparison with the 'average' development as a result of the access and transport priorities at this site and the scheme is beneficial in terms of air quality impacts.

2.5 Buildings

A gas fired CHP (EnerG 25kW unit) is proposed at the site, the details of which are provided in the energy statements for the development. The total volume flow at the exhaust of the CHP is 85.1m^3/hr (0.0236 m^3/s) with negligible PM_{10} emission and a maximum NO_x emission of 20mg/Nm^3. The total NO_x emission from the unit would therefore be negligible, at 0.000473 g/s emitted (at roof level) for the predicted 4400 hours of operation per year.

The total heating loads, gas consumption, NOx emissions and annual energy consumption for the development are shown below:

- Heat Generated: 150453 kWh/yr;
- Electric Generated: 109980 kWh/yr;
- Annual energy consumption: 360718 kWh/year; and
- NOx emissions: 0.000473 g/s (**1702 mg/hr**).

The LAEI 2008 NOx Emission Factors indicate an average NOx emission factor of 78.5mg NOx / kWhr for residential development, which when multiplied by the Annual energy consumption of 360718 kWh/year would result in a benchmark emission rate of **3232 mg/hr**, nearly double that of the proposed CHP unit.

It can be seen that the development NOx emissions are significantly below the benchmark for this development type as a result of the use of the low NO_x CHP unit.

The LAEI 2008 NOx Emission Factors indicate an average PM_{10} emission factor of 3.14 mg PM_{10}/kWhr for residential development. The CHP unit, with burner control and natural gas fuel will not emit significant PM_{10} (in the way that an oil or biomass fuelled unit may, for example) and the use of the proposed CHP unit means that there is a significant benefit when compared with the emissions benchmark.

3.0 CONCLUSIONS

Highgate Newtown Community Centre and Fresh Youth Academy is proposed on land at Bertram Street, Camden, London, N19 5DQ. The site is located with the administrative area of Camden Council, with the Islington Council boundary located less than 200m to the east.

An air quality neutral assessment has been completed, which is aimed at meeting the requirements for such an assessment as detailed in The Mayor of London Supplementary Planning Guidance on Sustainable Design and Construction.

The proposed community centre is anticipated to generate similar or fewer car journeys to and from the site and the residential development will be 'car free'. The air quality impacts of the proposed scheme in relation to traffic are therefore negligible and therefore below benchmarks.

A gas fuelled CHP unit will meet the energy needs of the development. Emissions will be significantly lower than benchmarks for heat and electricity generation for a scheme of this site.

Overall emissions are therefore an improvement on the existing scheme and significantly lower than relevant emission benchmarks. The scheme is therefore compliant with the requirements of The Mayor of London Supplementary Planning Guidance on Sustainable Design and Construction.

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