

TECHNICAL NOTE 1

DATE:	04 March 2022	CONFIDENTIALITY:	Public
SUBJECT:	Proposed design changes: air quality impacts		
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INTRODUCTION

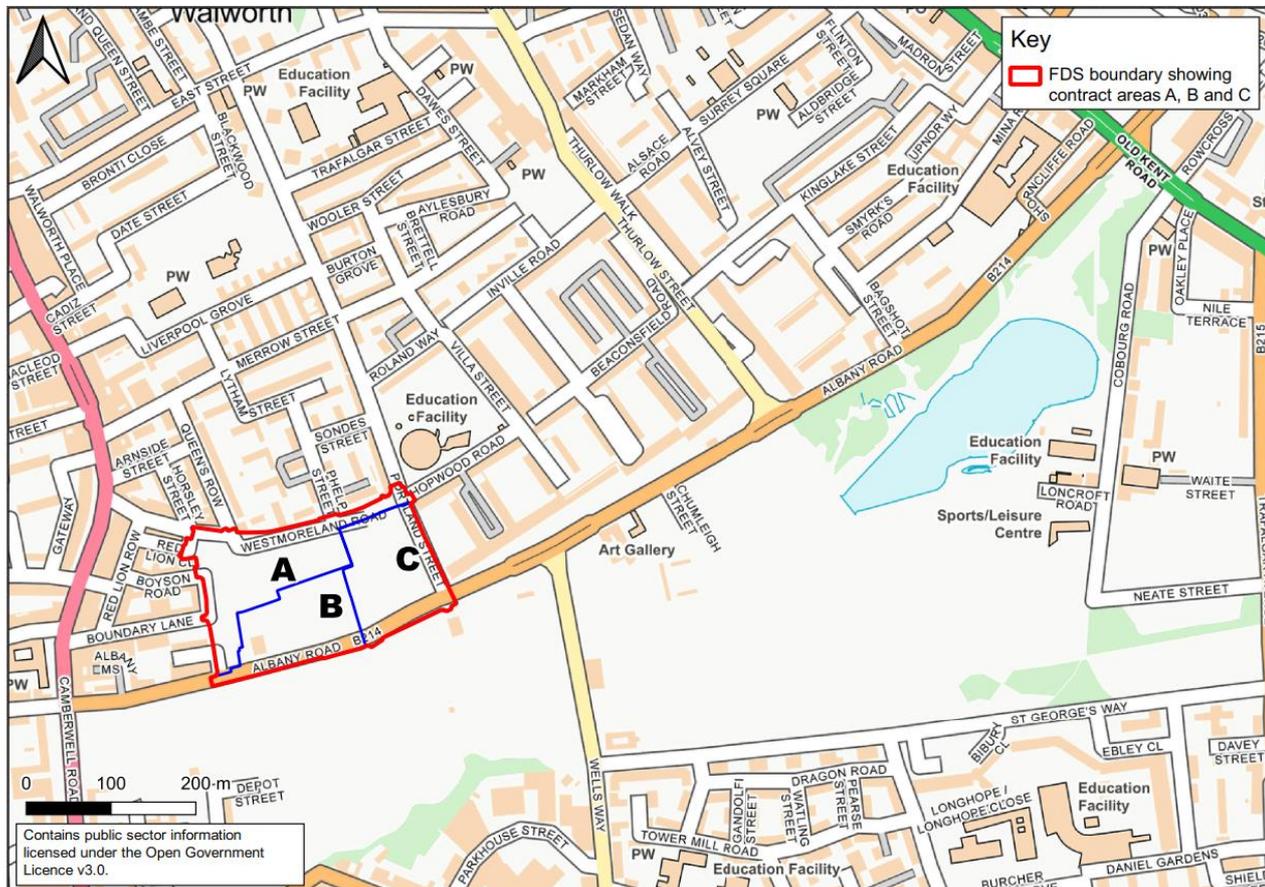
This technical note considers the potential implications of proposed changes to the consented Aylesbury Estate First Development Site (FDS) development on the conclusions drawn in the 2014 Environmental Statement (ES), Volume 1, Chapter 13 'Local Air Quality' and the 2015 ES Addendum.

The FDS is divided into three contract areas, each of which is further divided into subplots:

- FDS A: comprises subplots S01, S02 and part of S06;
- FDS B: comprises subplots S05 and part of S06; and
- FDS C: comprises subplots S03 and S04.

The proposed changes to the consented FDS development concern FDS C. Figure 1 shows the location of the FDS including contract areas and subplots.

Figure 1 – Location of the FDS



PLANNING HISTORY

The FDS was granted detailed planning permission by the London Borough of Southwark (LBS) (Ref No:14-AP-3843) on 5 August 2015. The development comprised:

“Demolition of existing buildings and redevelopment to provide a mixed use development comprising a number of buildings ranging between 2 to 20 storeys in height (9.45m - 72.2m AOD), providing 830 residential dwellings (Class C3); flexible community use, early years facility (Class D1) or gym (Class D2); public and private open space; formation of new accesses and alterations to existing accesses; energy centre; gas pressure reduction station; associated car and cycle parking and associated works.”

The ES (dated 8 October 2014), as part of the planning submission, addressed local air quality impacts within Volume 1 Chapter 13. The chapter presented the *“likely significant effects on local air quality resulting from air emissions associated with both the construction and operation phases of the Site Wide Development Option and the FDS Development Option. It considers the potential impacts on local air quality concentrations on sensitive receptors both on, and in the vicinity of, the Site.”*

For the FDS, the ES Volume 1, Chapter 13 determined the following:

- Effects due to dust from demolition and construction activities, and emissions from construction traffic were found to be of negligible significance with the application of appropriate mitigation (set out in a Construction Environmental Management Plan).
- Effects due to emissions from operational road traffic and on-site energy centres were found to be of negligible significance.
- Air quality at new residential receptors was determined to be within the London Councils' Air Pollution Exposure Criteria (APEC) category A as NO₂ and PM₁₀ concentrations were predicted to be well below air quality objective levels.
- Building (energy centre) and transport emissions for the FDS development meet the Mayor of London's air quality neutral criteria.

A planning application detailing a minor amendment to include an additional 12 residential units (from 830 to 842 units) was then granted by LBS on 14th February 2019 (Ref No: 17/AP/3885). The submission was accompanied by an ES Addendum (dated February 2015), which determined the following:

“The proposed changes do not result in a significant change in the trip generation estimate reported in the October 2014 ES.

The proposed changes do not alter assessment of effects or the resultant requirement for mitigation. The scheme changes are not considered significant enough to alter the significance of residual effects identified in the 2014 Air Quality Assessment. There will be no change in the traffic data used for the assessment of air quality and the energy centres in both the FDS and Masterplan Application remain the same. Therefore the original assessment reported in the 2014 ES remains valid and no further assessment is considered necessary.”

PROPOSED CHANGES TO THE CONSENTED DEVELOPMENT

The proposed changes to the consented development relate to FDS C and comprise:

- An increase of 60 residential units across subplots S03 and S04;
- An overall uplift of 9 social rent units (and 53 social rent habitable rooms);

- An overall uplift of 18 shared ownership units (and 63 shared ownership habitable rooms);
- An overall provision of affordable housing (social rent and shared ownership) across the FDS of 65.70% (which has increased from 64.40%) when measured by habitable rooms;
- Proportional increase to both shared ownership and social rent provision when measured by habitable rooms;
- The tower on subplot S04 is proposed to increase from 20 storeys to 23 storeys (an increase from 72m to 82.65m above ordnance datum);
- Subplot S03 has increased in height from a maximum of 6 storeys to 7 storeys;
- Reduction in both the number and proportion of single bedroom units and the delivery of a greater number of larger family-sized units (primarily two bedrooms/four people); and
- Significant uplift in the provision of cycle parking to meet the requirements of the new London Plan standards for the entirety of FDS C.

In addition, energy provision for FDS C now includes air source heat pumps (ASHP) for all heating/cooling and hot water requirements instead of natural gas fired boiler and combined heat and power plant (CHP).

CHANGES TO LEGISLATION, POLICY AND GUIDANCE

Legislation

The only change of relevance since the ES and ES Addendum is the introduction of a 20 μ g/m³ objective for annual mean PM_{2.5} under the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020¹. Impacts on PM_{2.5} were not considered in the ES or ES Addendum. The implications of this are considered further in this technical note (below).

Policy

Whilst national planning policy has evolved, the current National Planning Policy Framework (NPPF) (last updated July 2021)² has not changed in a way that affects the ES or ES Addendum conclusions on the air quality impacts of the FDS.

In terms of regional policy, the London Plan (2021)³ Policy SI 1 requirements are for all new development to be at least air quality neutral, and that major new development subject to an EIA should have an Air Quality Positive Statement demonstrating:

“1) how proposals have considered ways to maximise benefits to local air quality, and

2) what measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.”

¹ The National Archives (2020) *The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 – Statutory Instrument No. 1313* [online]. Available at: <https://www.legislation.gov.uk/uksi/2020/1313/regulation/1/made> [accessed February 2022]

² Ministry of Housing, Communities and Local Government, (2021). National Planning Policy Framework. Available online at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2> [accessed February 2022]

³ The Mayor of London, (2021). The London Plan: Spatial Development Strategy for Greater London. Available online at: <https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/london-plan-2021> [accessed February 2022]

As the FDS is consented development it is not considered that an Air Quality Positive Statement is required for the proposed changes concerning FDS C. However, the change from energy centre combustion plant to ASHP to meet heating/cooling and hot water requirements for FDS C is in the spirit of 'air quality positive', since this means a reduction in overall FDS energy centre NO_x emissions from that previously addressed in the ES.

The Saved Southwark Plan⁴ and Core Strategy⁵ have been replaced by the Southwark Plan 2022⁶. Policy P65 aligns with the London Plan 2021 and states:

"1. Development must:

- 1. Achieve or exceed air quality neutral standards; and*
- 2. Address the impacts of poor air quality on building occupiers and public realm users by reducing exposure to and mitigating the effects of poor air quality. This must be achieved through design solutions that include:*
 - 1. Orientation and layout of buildings, taking into account vulnerable building occupiers, and public realm and amenity space users; and*
 - 2. Ventilation systems; and*
 - 3. Urban greening appropriate for providing air quality benefits proportionate to the scale of the development; and*

2. Any shortfall in air quality standards on site must be secured of site through planning obligations or as a financial contribution".

Policy P65 does not affect the ES or ES Addendum conclusions on the air quality impacts of the FDS.

Guidance

As per the NPPF, the associated air quality guidance has been updated (November 2019)⁷. However, this has not changed in a way that affects the ES or ES Addendum conclusions on the air quality impacts of the FDS.

New London Plan guidance concerning air quality neutral and air quality positive have not been finalised and are currently at draft consultation stage⁸. The previous London Plan Sustainable Design and Construction Supplementary Planning Guidance, setting out the requirements for air quality neutral requirements, has been withdrawn.

⁴ London borough of Southwark, (2007). Saved Local Plan. Available online at:

<https://www.southwark.gov.uk/planning-and-building-control/planning-policy-and-transport-policy/development-plan/local-plan> [accessed February 2022]

⁵ London borough of Southwark, (2011). Core Strategy. Available at: <https://www.southwark.gov.uk/planning-and-building-control/planning-policy-and-transport-policy/development-plan/local-plan?chapter=2> [accessed February 2022]

⁶ <https://www.southwark.gov.uk/planning-and-building-control/planning-policy-and-transport-policy/development-plan/local-plan> [accessed February 2022]

⁷ <https://www.gov.uk/guidance/air-quality--3> [accessed February 2022]

⁸ <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/london-plan-guidance#acc-i-63690> [accessed February 2022]

Defra Local Air Quality Management (LAQM) guidance has also been updated⁹ since the ES and ES Addendum, and guidance that is specific to Greater London authorities has been issued¹⁰. These changes do not affect the ES or ES Addendum conclusions on the air quality impacts of the FDS.

Relevant air quality assessment guidance 'Development Control: Planning for Air Quality (2010 Update)' issued by Environmental Protection UK and the Institute of Air Quality Management has been replaced by 'Land-Use Planning & Development Control: Planning for Air Quality' (January 2017)¹¹. Whilst this has changed the way that impacts are now described for individual receptors, the changes do not affect the ES or ES Addendum conclusions on the air quality impacts of the FDS.

LBS has also issued 'Technical Guidance on Air Quality' (2017)¹², although this has yet to be updated to align with the more recent update to the London Plan. This does not affect the ES or ES Addendum conclusions on the air quality impacts of the FDS.

CHANGES TO THE AIR QUALITY BASELINE

Local air quality monitoring undertaken by LBS since 2014 shows a general decline in annual mean NO₂ concentrations across the borough although the lower concentrations in 2020 and 2021 will have been influenced somewhat by the COVID-19 pandemic restrictions that were in-place. Evidence of downward trends in PM₁₀ concentrations are however less clear. PM_{2.5} was not monitored in the borough before 2020. The improvements in air quality have largely occurred because of the increasing proportions of less polluting and zero emissions technologies within the road vehicle fleet, which will have been influenced by national Government, GLA and London Borough policies and actions. The extension of the Ultra Low Emission Zone (ULEZ) since 25th October 2021 out from central London to the North and South Circular roads is expected to drive down vehicle emissions further and bring about noticeable improvements in local air quality.

The ES air quality assessment of the FDS therefore reflects worse baseline conditions than are likely at present and in the future when the whole FDS is operational.

⁹ Defra, (2021). Local Air Quality Management Technical Guidance LAQM.TG(16). Available online at: <https://laqm.defra.gov.uk/documents/LAQM-TG16-April-21-v1.pdf> [accessed February 2022]

¹⁰ Mayor of London, (2019). London Local Air Quality Management (LLAQM) Technical Guidance 2016 (LLAQM.TG (19)). Available online at: https://www.london.gov.uk/sites/default/files/llaqm_technical_guidance_2019.pdf [accessed February 2022]

¹¹ Moorcroft and Barrowcliffe. *et al.* (2017). Land-use Planning & Development Control: Planning for Air Quality. v1.2. Institute of Air Quality Management, London. Available online at: <https://iaqm.co.uk/guidance/> [accessed February 2022]

¹² London Borough of Southwark, (2017). Technical Guidance on Air Quality. Available online at: <https://www.southwark.gov.uk/environment/air-quality/what-we-re-doing/air-quality-strategies-plans-and-letters?chapter=2> [accessed February 2022]



IMPLICATIONS OF THE PROPOSED CHANGES TO THE CONSENTED DEVELOPMENT

Construction Phase

DUST EMISSIONS

The proposed changes to the consented development are insufficient to alter the risks associated with dust and PM₁₀ impacts that were determined in the ES. The ES findings, including mitigation requirements, remain valid.

It is considered that an update to the ES with regard to this aspect is not required.

CONSTRUCTION TRAFFIC EMISSIONS

The air quality impacts determined in the ES were based upon:

- construction taking place for the whole FDS at the same time, whereas substantial construction activities have been completed – in-particular at subplots S01, S02, S05 and S06;
- vehicle emissions factors for 2014 (Defra Emissions Factors Toolkit version 6.0.1) which reflect an older vehicle fleet with greater emissions of NO_x and particulates than at present or in the future; and
- the FDS not being within the ULEZ.

The ES findings are considered very robust with regard to present day circumstances - where vehicle emissions will be lower than assessed - and in the context of the proposed changes to the consented development.

Operational Phase

ROAD TRAFFIC AND ENERGY CENTRE EMISSIONS

The ES assumed 2020 as the opening year for the whole FDS. The air quality impacts determined in the ES were based upon:

- vehicle emissions factors for 2015 (Defra Emissions Factors Toolkit version 6.0.1) which reflect an older vehicle fleet with substantially greater emissions of NO_x and particulates than in 2020 or future years; and
- the FDS not being within the ULEZ, which it has been since 25th October 2021.

The proposed changes to the consented development would result in an additional total 49 vehicles per day (expressed as annual average daily traffic or 'AADT') distributed over the local road network. This additional traffic is in itself considered insufficient to change the findings of the ES which are based on very robust assumptions in the context of the proposed changes to the consented development.

The ASHP for FDS C remove the requirement for gas boilers and CHP for this portion of the FDS as a whole. NO_x emissions from the FDS energy centre provisions will therefore be less than assumed in the ES.



With consideration to the combined air quality impacts of traffic and energy centre emissions, the proposed changes to the consented development are not considered to materially alter the conclusions drawn in the ES and ES Addendum. No additional mitigation measures beyond those set out in the ES are necessary.

The ES assessment also considered the potential nuisance impacts from secondary power supplies for fire-fighting and life safety due to emissions from monthly maintenance testing of diesel generators. The proposed changes to the consented development do affect the ES assessment findings for this aspect.

AIR QUALITY NEUTRAL ASSESSMENT

The air quality neutral assessment as presented in the ES for the whole FDS was on the basis of gas fired combustion plant only. This found that building emissions met the requirement for air quality neutrality. The provision of ASHP for FDS C does not change this finding but does mean that overall building emissions will be lower than assessed in the ES.

The additional 60 residential units increases the number of vehicle trips over that assumed in the ES. This is illustrated in Table 1, which gives annual two-way vehicle trips for 830 units and 902 units.

Table 1 – Annual two-way vehicle trips

Scenario	830 residential units	902 residential units
Vehicular trips	149,285	162,060
Servicing/delivery trips	61,685	66,795

Source: RPS, February 2022. Based on the following calculation steps:
 1) TRICS database gives 12-hour (07:00-19:00) two-way vehicular trip rate as 0.428 per residential unit, and two-way servicing/delivery trip rate of 0.177 per residential unit;
 2) Multiply trip rates by the number of residential units to give the 12-hour two-way development trips;
 3) Multiply 12-hour two-way development trips by 1.15 (COBA 2018) to give the 24-hour two-way development trips; and
 4) Multiply 24-hour two-way development trips by 365 to give the annual two-way trips.

The air quality neutral assessment as presented in the ES for the whole FDS found that transport emissions met the requirement for air quality neutrality. The air quality neutral calculation for transport emissions has been repeated for 902 residential units using the same methodology as in the ES, and does not change the original finding; this is presented in Table 2.

The proposed changes to the consented development do not alter the conclusion in the ES that the FDS as a whole is air quality neutral.

Table 2 – Air quality neutral calculation for transport emissions for FDS with 902 residential units

Parameter	Value	Transport emissions minus benchmark emissions	Meets requirement for air quality neutrality?
TEB NO _x (g/dwelling/year)	558		
TEB PM ₁₀ (g/dwelling/year)	100		

Parameter	Value	Transport emissions minus benchmark emissions	Meets requirement for air quality neutrality?
Number of residential units	902		
Benchmark NO _x emissions (kg/year)	503		
Benchmark PM ₁₀ emissions (kg/year)	90		
Average distance travelled by car per trip (km)	3.7		
NO _x emission factor kg/vehicle-km	0.00037		
PM ₁₀ emission factor kg/vehicle-km	0.0000665		
Annual two-way trips (excluding servicing and deliveries)	162,060		
Transport NO _x emissions (kg/year)	222	-281	Yes
Transport PM ₁₀ emissions (kg/year)	40	-50	Yes

CONCLUSIONS

From the review undertaken, it is clear that the nature of the proposed changes to the consented FDS development do not materially alter the conclusions drawn in the 2014 ES, Volume 1, Chapter 13 'Local Air Quality' and the 2015 ES Addendum. No further air quality assessment is necessary to support the application for the changes to the consented development.