

**Twickenham Station,
Twickenham**

**Addendum to the Air Quality Chapter
(Chapter 9)**

1. AIR QUALITY CHAPTER ADDENDUM NOTE

1.1 This addendum note has been prepared to respond to the London Borough of Richmond upon Thames' EIA Regulation 19 Request, in relation to the proposed development at Twickenham Station.

1.2 In relation to Air Quality, the EIA Regulation 19 Request stated:

- 1) Monitoring results – Doubts have been expressed regarding the accuracy of the monitoring for NO₂ taken at the site, even after the one month of monitoring is scaled up to annualised concentrations (Table 9-7). The results come in quite a bit lower than the neighbouring sites, as monitored by the London Borough of Richmond upon Thames over a true calendar year. Further monitoring should be carried out to establish a more accurate level. The monitoring should preferably be carried out for at least 3 months, to give greater precision on the annualised estimate. It is possible that the Air Quality Significance Criteria would be 'major adverse'.
- 2) Air inlets - The Table 9-11 conclusion, indicating the possible advantage in venting buildings from the rear, is accepted. The building design will then need to ensure that sufficient clean air can be supplied to the rooms facing the road, when their windows are closed against the road/rail noise and air pollution. The mechanical ventilation should be acoustically treated so that noise from the rear of the property is not funnelled into the front rooms.
- 3) CHP emissions – the composition, toxicity and other hazards of all emissions to air produced by the Project, methods for collecting, treating and discharging these and locations for discharge of and emission and characterises of these are not fully discussed. There does not appear to be any discussion in the Environment Statement or Energy Statement about dispersion from the CHP flue/flues. If dispersion is inadequate, the risk is that flue emission odours/products of combustion could be drawn in to the properties via the mechanical ventilation ducts or through open windows.

1.3 The comments/points are considered in the following sections.

Point 1: Additional air quality monitoring

1.4 A further three months of NO₂ diffusion tube monitoring has been carried out. Completion of the laboratory analysis is currently awaited. When the NO₂ results are received back from the laboratory, analysis will be undertaken and the addendum updated.

1.5 Currently, the results from the first two months of monitoring seem generally to confirm the conclusions of the initial monitoring.

Point 2: Air inlets

1.6 Acoustic performance of the mechanical ventilation will be reviewed once details of the design are known. The advantage of ventilating the buildings from the rear to improve internal air quality will be reviewed once the results of the additional air quality monitoring are assessed.

Point 3: CHP Emissions

1.7 The proposed plant equipment to supply the space heating and hot water requirements will comprise three Dachs HKA G 5.0 Low NO_x gas fired mini Combined Heat and Power (CHP) plants with communal gas back-up boilers. The Dachs HKA G 5.0 has an electrical output of 5 kW and a thermal output of 12.3 kW. Fuel efficiency is given by the manufacturer at 89 %.

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- 1.8 The Dachs mini CHP units comprise a 580 cm³ single cylinder four-stroke lean-burn (low NO_x) engine driving a water-cooled asynchronous generator via a single stage gear. The exhaust incorporates an integral catalyser to convert CO and residual hydrocarbons. Flue gas is discharged via a boiler flue or chimney. Flue gas temperature is approximately 150° C, although this may be reduced by the addition of a condensing exhaust heat exchanger (which will further increase fuel efficiency).
- 1.9 Total NO_x emissions for the Dachs mini-CHP plant (corrected to 0 % O₂) is given as 630 mg/kWh. However, the Dachs mini-CHP plant meets the requirements for the award of 3 BREEAM credits for the supply of heat from a system that minimises NO_x emissions, and therefore reduces pollution in the local environment.
- 1.10 The choice of systems is considered appropriate for the site location within an AQMA, and is anticipated to have a negligible impact on NO₂ at or within the vicinity of the site.
- 1.11 There is also concern that the discharge from the CHP system flue will re-circulate into the air handling and other ventilation system intakes. The location of the CHP system flue in relation to the building air intakes is not yet known, however, once this is known, the risks may fairly easily be addressed (including thermal and wind effects).