

Air Quality Barrier – Market Engagement Briefing Note

This Briefing Note has been prepared to assist potential suppliers in understanding the requirements of Highways England as detailed within the Air Quality Barrier Prior Information Notice (PIN).

Background

Highways England are the government company charged with operating, maintaining and improving England's motorways and major A roads, known as the "Strategic" Road Network.

Highways England has developed a programme to implement Air Quality Barriers (AQB) to improve air quality at selected locations alongside the Strategic Road Network. The programme will: target known pollution hotspots and support the UK government to ensure the annual mean nitrogen dioxide (NO₂) EU limit value is achieved within the shortest time possible, in line with the National Air Quality Plan.

The programme has been progressed on the assumption that a cantilever canopy air quality barrier of a similar form to the barrier located on the A16 at Dordrecht in the Netherlands will be adopted at one or more sites, but other barrier forms will be considered as part of this programme.

Scale of the Programme

Highways England are currently undertaking feasibility studies for fourteen potential sites located throughout England with a combined length of 4274 metres, and with an anticipated delivery budget of £50-80 million (€55-88 million).

Performance Requirements for Air Quality Barriers

Initial analysis of the market has identified that suppliers of acoustic "noise" barriers and similar barrier systems, as well as suppliers of bespoke air quality barriers, may have products that can meet the requirements of Highways England. In order to maximise market potential and the opportunity for innovative solutions Highways England are developing a performance specification as part of the Air Quality Barrier programme against which proposed air quality barrier products will need to conform. Suppliers should note that the performance specification is in draft form and subject to amendment.

The following section summarises some of the key geometrical and performance requirements proposed:

- **General** - The AQB must perform such that pollutant particulates are retained on the traffic face of the AQB and that the panels and joints are sufficiently air tight to prevent pollutants from passing through the AQB. The supplier shall ensure that all members of the AQB can drain freely and do not allow water to stand on their surfaces or within joints and that water staining does not occur;
- **Geometrical** - Reference is made to the AQB definition drawings contained in Appendix A to this briefing note. Drawing 600625-AAJV-EAQ-XX-DR-CB-001 shows the curved cantilever canopy AQB and drawing 600625-AAJV-EAQ-XX-DR-CB-002 shows the vertical AQB. The AQBs shown on the drawings are based on a modular arrangement with posts at 9.4 metre spacing (nominal) for the curved cantilever canopy option and 3.0 metre spacing (nominal) for the vertical barrier. The AQB Supplier may propose to increase or decrease the post spacing by a maximum of 1 metre. If preferred, a different

post spacing may be proposed for the AQB at the entrance and exit to the barriers, subject to agreement with Highways England;

- **Standards** - The AQB shall be compliant with the Principles and Application Rules of Eurocodes and the Design Manual for Roads and Bridges. The characteristics, the corresponding methods of evaluation and the provisions on evaluation of conformity marking shall be in accordance with BS EN 14388:2015 “Road Traffic Noise Reducing Devices – Specifications”. The appearance of the AQB is particularly important given their visual impact, and will be required to comply with the requirements of the Aesthetic Design Basis, which will be made available at a later date;
- **CE Marking** - Structural steelwork shall be in accordance with BS EN 1993 and does not require CE marking. Proprietary components incorporated into the works shall comply with the requirements of the Construction Products Regulation and be CE marked in accordance with BS EN 14388:2015 where appropriate. Prefabricated concrete skirts shall be CE marked in accordance with BS EN 14992:2007+A1:2012;
- **Design Working Life** - The Design Working Life (as defined in BS EN 1990) shall be 30 years in accordance with BD51/14 Clause 3.2 and Table NA 2.1 of NA to BS EN 1990:2002+A1:2005;
- **Wind Loads** - Wind loading to be applied in accordance with BS EN 1991-1-4:2005 and its National Annex, as amended by BD 51/14. The AQB Supplier shall demonstrate, by wind tunnel testing if necessary, that the AQB is aerodynamically stable when subject to the site-specific wind conditions;
- **Materials** - The AQB shall have an environmental product declaration according to the Construction Product Regulation, EU No. 305/2011. This applies for the overall AQB and for each individual subcomponent. This environmental product declaration shall be verified in accordance with the requirements of the European standard BS EN 15804:2012+A1:2013. All materials used within the AQB shall be compliant with the respective BS or BS EN Standards;
- **Sound Absorbing Panels** - Panel end profiles are to be made with installation profiles designed to ensure tightness between the profile and post. The panel surface/side towards the road shall be sound-absorbing, whereas the other side towards the neighbour shall be reflective;
- **Transparent Panels** - The transparent panels shall comprise acrylic or polycarbonate plastic to EN 1793 and EN 1794 supported by aluminium clamping profiles with EDPM rubber gaskets. Transparent AQB panels shall be clear and appear float green. The panels shall be UV resistant.

Next steps

Highways England is keen to understand current market capability and interest in delivering this programme before setting its procurement strategy. Options for delivery are still open for consideration and will be influenced by the feedback received, however two of the routes being considered are:

- 1) Companies to supply the barrier as a component to be erected by Highways England’s existing construction contractors;
- 2) Companies to both supply and erect the barriers as a single service.

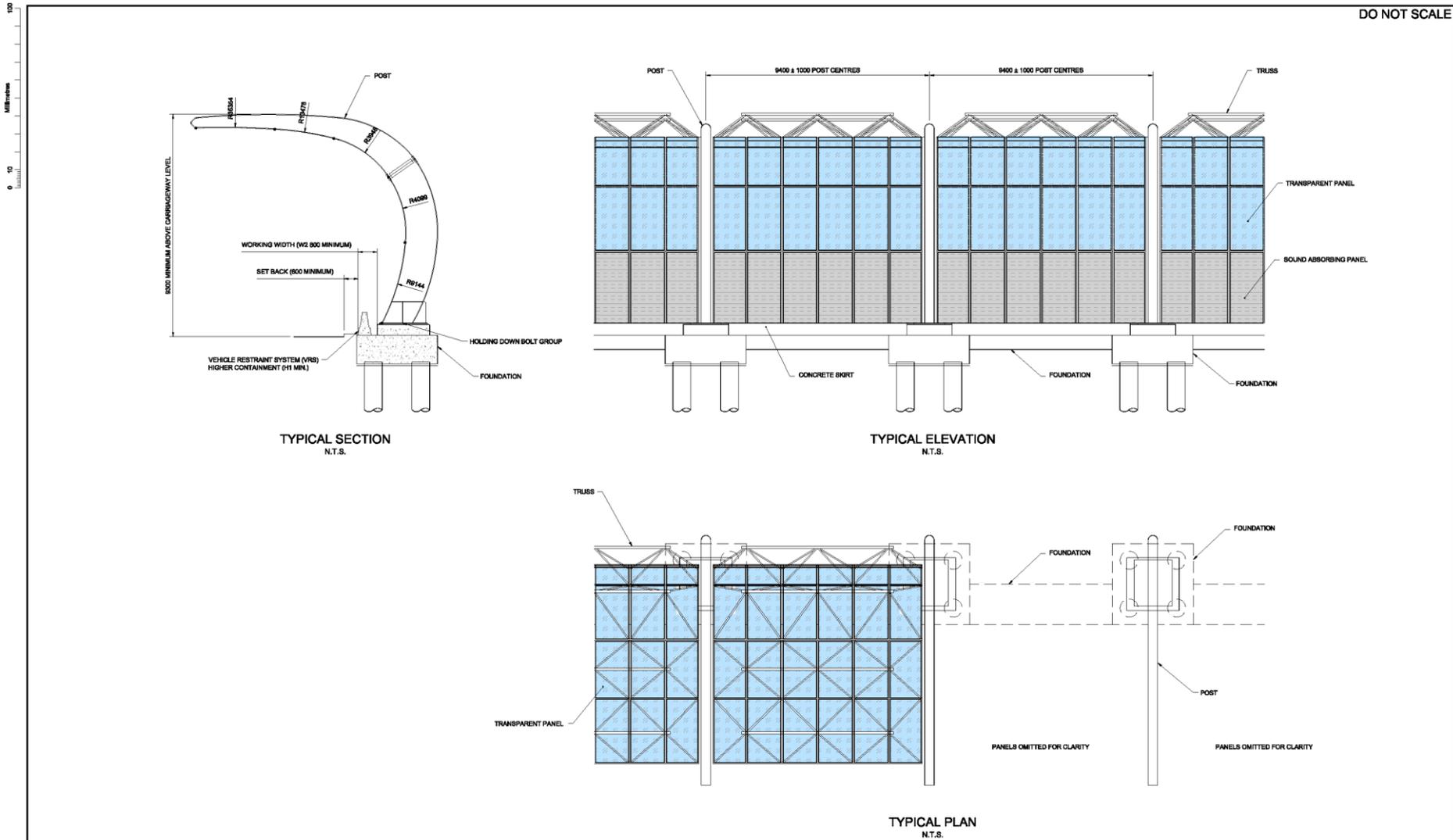
Interested parties are invited to contact Highways England at the address given below to express their interest, advise on their capability to provide the barrier (and possibly erect it), raise any questions about the requirement, or make any general comments.

There is no set deadline for receiving comments, but we will be collating feedback received in January in preparation for a second stage of engagement in February. We intend to publish a second PIN in mid-February 2019 with details of the second stage.

Feedback received after the end of January will be collated with the feedback from the second stage of engagement.

Please direct any communications to AQBprocurement@highwaysengland.co.uk.

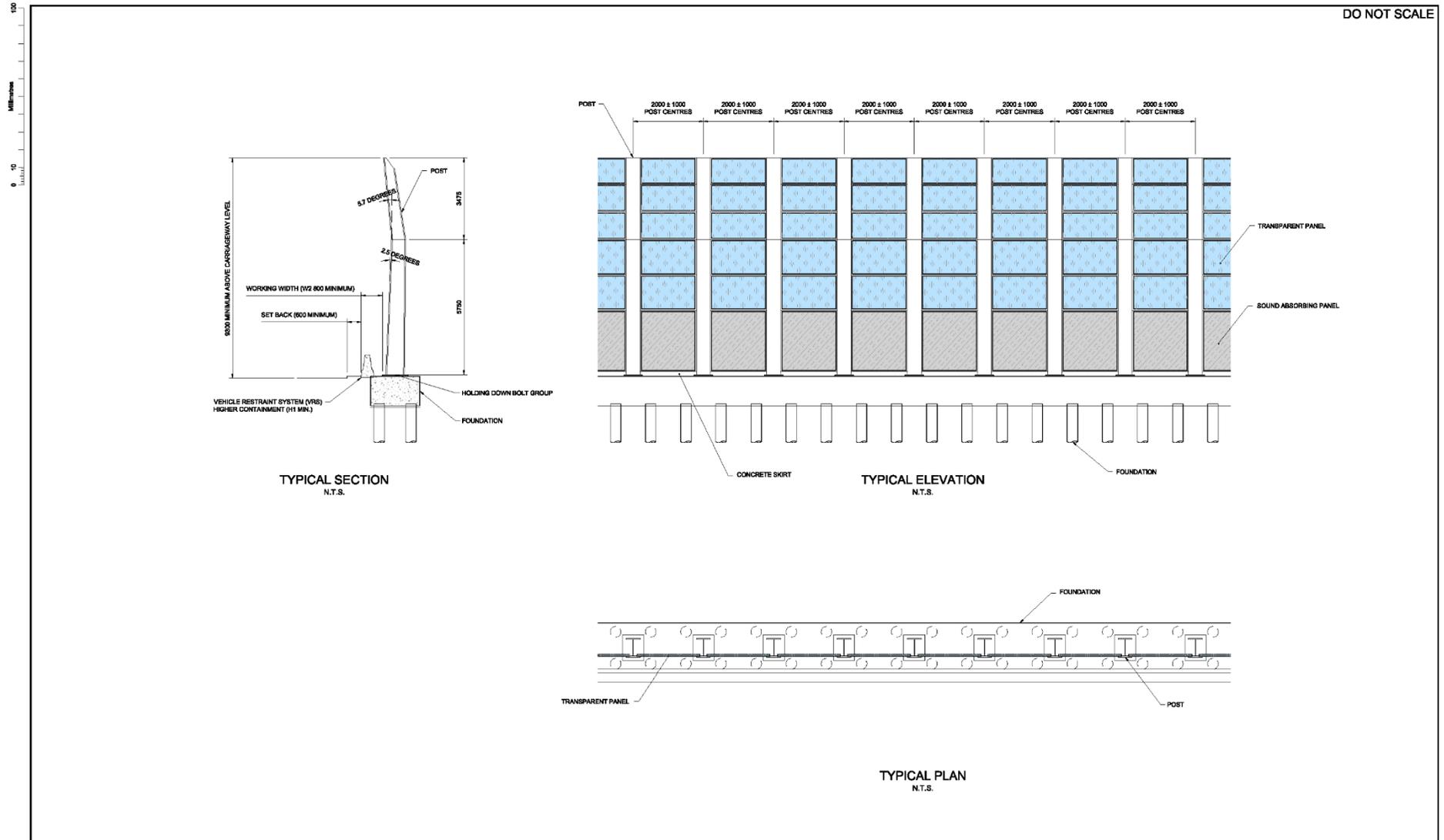
Appendix A – Air Quality Barrier Definition Drawings



Notes:
1. All dimensions are in millimetres (mm) unless noted otherwise.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION						
Description	Status	Revised	Drawn	Checked	Reviewed	Issue Date
In addition to the hazards/risks normally associated with the type of work detailed on this drawing, note the following significant residual risks:						
Description	Status	Revised	Drawn	Checked	Reviewed	Issue Date
None						
Description	Status	Revised	Drawn	Checked	Reviewed	Issue Date
Maintenance / Cleaning						
None						
Description	Status	Revised	Drawn	Checked	Reviewed	Issue Date
Use						
None						
Description	Status	Revised	Drawn	Checked	Reviewed	Issue Date
Disassembly / Demolition						
None						

FOR INFORMATION	SO	Project Title
ATKINS JACOBS		AIR QUALITY BARRIER PROGRAMME
Working on behalf of highways england		Drawing Title PERFORMANCE SPECIFICATION AIR QUALITY BARRIER DEFINITIONS CURVED CANTILEVER CANOPY BARRIER
Client	Drawing Number	Project Ref. No.
Scale	Original Size	Revision
1/75	A1	P0
Designed	Date	Checked
NSK	11/12/18	NAF
Drawn	Date	Authorised
NSK	11/12/18	NAF
600625-AAJV-EAQ-XX-DR-CB-001		10/12/18



DO NOT SCALE

Notes:
1. All dimensions are in millimetres (mm) unless noted otherwise.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION						
Drawn	Revised	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
In addition to the hazards/risks normally associated with the type of work detailed on this drawing, note the following significant residual risks:						
Name						
Classification						
Drawn	Revised	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Maintenance / Change						
Name						
Use						
Drawn	Revised	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Description FOR INFORMATION						
Drawn	Revised	Drawn	Checked	Reviewed	Authorised	Issue Date
Name						
Drawn	Revised	Drawn	Checked	Reviewed	Authorised	Issue Date
Name						

FOR INFORMATION		Subsidiary	SO	Project Title	AIR QUALITY BARRIER PROGRAMME
ATKINS JACOBS		Drawing Title: PERFORMANCE SPECIFICATION AIR QUALITY BARRIER DEFINITIONS VERTICAL BARRIER			
Working on behalf of		Scale			
highways england		1:75	Designed	Drawn	Checked
		Original	NSK	NSK	NAF
		Step	11/12/18	Date	11/12/18
		Drawn	10/12/18	Date	10/12/18
		Drawing Number			Project Ref. No.
		800625-AAJV-EAQ-XX-DR-CB-002			Revision
					P0