

# Technical Note

Project: A29 Realignment Scheme – Phase 1

To: Stephen Reed

Subject: Noise Barrier Design Queries

From: Jackson

Prepared by: D Vince

Approved by: T Symonds

Date: March 2022

Cc:

## 1.0 Introduction

This Technical Note has been prepared in response to a consultation response from the WSCC Highways team concerning the design of the acoustic barrier proposed for the A29 Realignment Scheme – Phase 1. Full documentation concerning the acoustic barrier was submitted to discharge the scheme planning condition 11 (acoustic barrier), and the following response was received.

*From the highways point of view I require the following additional information about the acoustic barrier to be provided in order to consider it further, please:*

- 1. A short design note setting-out how the location of the fence in relation to the new road has been arrived at.*
- 2. Details of maintenance access strategy for the fence (including measures for preventing unauthorised access behind it).*

*Please re-consult when the above information is available to view.*

## 2.0 Response to Comment 1

The WSP Noise Mitigation Technical Note “70060779\_WSP\_MEM\_Noise modelling results\_V01” sets out the performance requirements, position, and specification for the acoustic barrier. These are summarised below.

**Table 1 - Acoustic Barrier Requirements & Constraints**

Noise Barrier Chainage	Corresponding Carriageway Chainage	Carriageway Offset	Barrier Height	Type	Airborne Sound Insulation Performance	Minimum Performance of Class	Acoustic Durability	Non-Acoustic Durability
0m – 124m	765m – 889m	3m or 5m	3m	Absorptive	Class B3 barrier	Class A3	Max of 0.25 dB loss per year	At least 20 years
124m – 275m	889m – 1040m	3m	3m	Absorptive	Class B3 barrier	Class A3	Max of 0.25 dB loss per year	At least 20 years
275m – 435m	1040m – 1200m	3m	3m	Reflective	Class B3 barrier	n/a	Max of 0.25 dB loss per year	At least 20 years

The position of the noise barrier was determined predominately by WSP, following discussions with the Jackson/Capita design team concerning engineering constraints on the location. These included –

- Minimum space requirements so to provide suitable verge width in front of the acoustic barrier to enable the construction team to be able to physically fit in ADS signage, drainage facilities, etc.
- The location of attenuation pond 3 is subject to space constraints due to the vertical alignment design of the road and providing a suitable drainage solution;
- The “pinch point” that exists at approximately carriageway chainage 1020m, where the carriageway alignment is closest to an existing property within Murrell Gardens. Given that the carriageway and acoustic barrier are on embankment, sufficient room is required behind the barrier so to “fit” the embankment within the limits of the site, whilst still providing/maintaining access at the toe of the new embankment for residents within Murrell Gardens who have rights to access. See cross section at this pinch point below.

### Acoustic Fencing

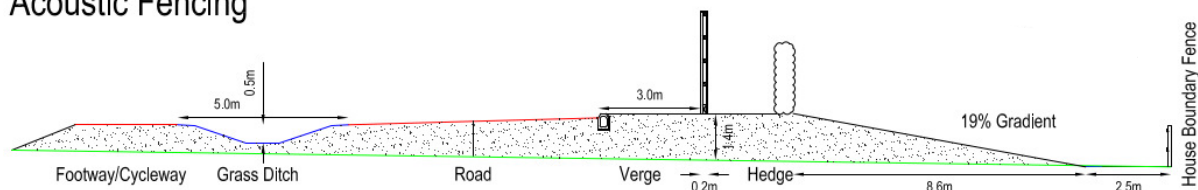


Figure 1 - Cross Section through Pinch Point

Between chainage 765m – 889m a 5m offset was required due to the positioning of a drainage swale between the carriageway and the acoustic barrier.

On receipt of the WSP technical note, Capita prepared the technical note “A29-CAP-HRR-00-AN-0066 – Requirements for Road Restraint Systems” which reviewed the requirements for Road Restraint System throughout the scheme. The assessment was based on guidance from “Design & Maintenance Guidance for Local Authority Roads” as this was considered more appropriate to the scheme than guidance provided by The Design Manual for Roads and Bridges, predominately due to the 30mph speed limit and traffic flows. DMRB standard TD 19 – Requirements for RRS was developed using accident data for routes with over 5000 Annual Average Daily Traffic (AADT) and a speed limit of 50mph or greater.

The Technical Note summarised that whilst the A29 Realignment Scheme – Phase 1 was considered a “medium priority” site, a non-RRS approach was considered sufficient to reduce the overall risk (with the acoustic barrier being set 5m back at its starting location). The risk ranking score for the noise barrier itself was 9, which is border line low/medium priority.

The control measures described below in conjunction with the “medium priority” site rating were considered sufficient to negate RRS in front of the acoustic barrier –

1. Proposed traffic calming measured throughout the scheme are being implemented to reduce mean traffic speeds, which will likely reduce both the incidence and severity of loss of control collisions;
2. The acoustic barrier is located at least 3m back from the carriageway and has been specified as having a smooth face, reducing the overall risk profile;
3. Swales located within the verges at the northern / start of the acoustic barrier will reduce the likelihood of vehicles striking the barrier.

Final chosen acoustic barrier offsets are as follows –

Table 2 - Final Chosen Acoustic Barrier Offsets

Noise Barrier Chainage	Corresponding Carriageway Chainage	Carriageway Offset	Barrier Height
0m – 62m	765m – 827m	5m	3m
62m – 275m	827m – 1040m	3m	3m
275m – 429m	1040m – 1194m	3m	3m
429m – 435m	1194m – 1200m	3.5m	3m

### 3.0 Response to Comment 2

The details for the noise barrier are shown on drawing no. A29-CAP-EXX-00-DR-C-0191 & 0192 with the following access for inspection and maintenance -

- Where the acoustic barrier is adjacent to the carriageway there is the 3m offset for access at the front of the barrier;
- For the short length of acoustic barrier set back behind a swale there is a 1m wide flat access strip in front of the barrier;
- Behind the noise barrier there is a 2m (min) maintenance access strip between the acoustic barrier and landscaping. See below.

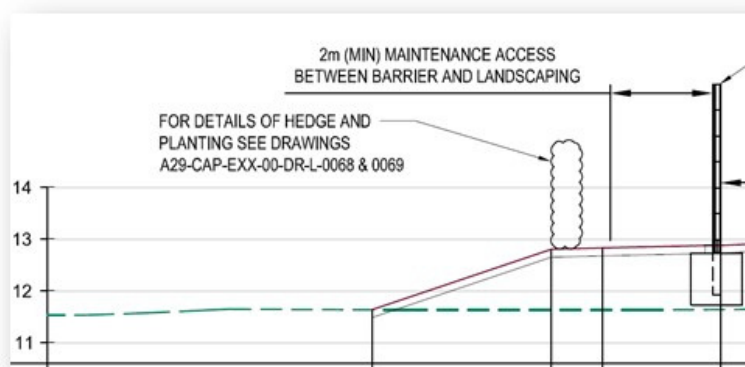


Figure 2 - Maintenance Strip Behind Barrier

The above setbacks were discussed extensively during the design period and agreed with the WSCC TA and wider project team during the detailed design period.

The agreed maintenance access strategy is to access the barrier from behind, along the min 2m wide maintenance strip to the rear of the acoustic barrier. Access to the rear of the barrier is provided at the northern end of the barrier via the access track to pond 3. The proposed fencing layout prevents unauthorised access behind it, with gates provided across the pond 3 access track entrance. At Barnham Road Roundabout fencing with hedgerow has been provided to enclose this area.

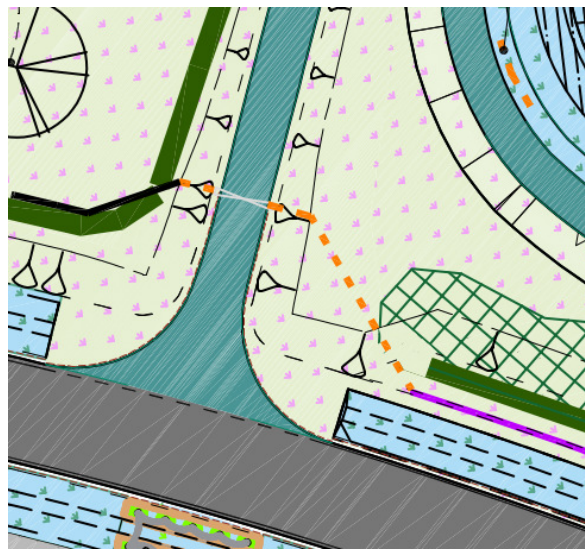


Figure 3 - Access to rear of barrier provided at Pond 3 gated access track

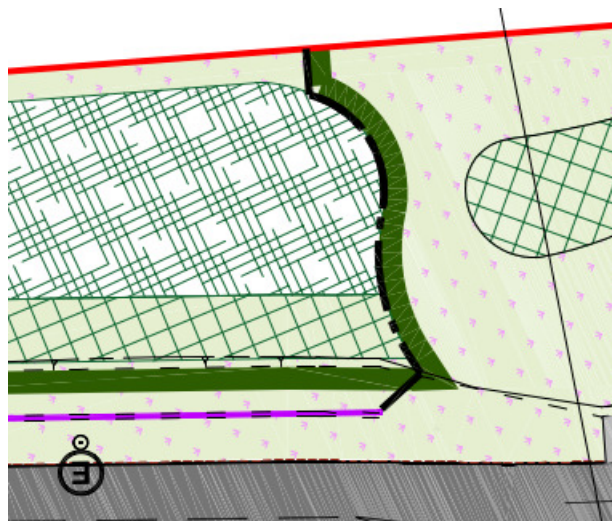


Figure 4 - Rear of Barrier Fenced at South to prevent unauthorised access

## 4.0 Summary

The location of the acoustic barrier in relation to the new road has been specified as a joint effort by the Jackson/Capita design team and the WSP noise modelling team, given the engineering constraints on location as described above. Having received the WSP technical note Capita considered the requirements for Road Restraint Systems in front of the noise barrier by formal assessment and this concluded that, having scored the scheme as a “medium priority site”, a non-RRS approach to reducing the risk proved sufficient when considering the control measures being provided as risk mitigation.

The maintenance access strategy for the acoustic barrier has been previously discussed at length and agreed with the WSCC project team and details are provided above. Suitable gates and fencing have been provided within the design so to prevent unauthorised access behind it.