



2023s1333

Blake Lea Lane, Marsden

Photographic Record of Condition

Of Blake Lea Lane Highway Retaining walls

Thursday 19th October 2023

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Contract

This report describes work commissioned by JN Bentleys. Sarah Cropley & Jacob Milton of JBA Consulting carried out this work.

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Purpose

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1 Highway retaining walls, Blake Lea Lane

1.1 Brief

The brief was received from JN Bentley to undertake the following with relation to the highway retaining walls along Blake Lea Lane:

- Photographic record of condition and dilapidation inspection of the existing highway retaining walls.

A Photographic Record of Condition and Dilapidation Inspection is to provide photographic evidence of the condition of the wall at the time of inspection, supported by comments where necessary to highlight any particular visible features.

The inspection was to record the condition of the highway burr walls before the commencement of the works creating an access route to the reservoir. Burr walls are walls that directly support the highway or support an embankment carrying it.

Burr dry stone walls are gravity retaining structures, formed from informally coursed stone facing with more graded stone backing. They are likely around 100-150 years old and were empirically sized by local tradesmen based upon local experience with no formal engineering design (CIRIA guidance C676 Drystone Retaining Walls)

The report is valid only for the period up to completion of the access route works.

Other structures and services have not been considered.

1.2 Date of Inspections

Wednesday 18th October 2023 and Wednesday 29th November 2023. The weather at the time of inspections was dry with mainly clear skies.

The dry-stone walls were filmed along their length, and selected photos of the burr walls are included within this report.

1.3 Proposed Works

Proposed works comprise the creation of a new access route from the upper end of Blake Lea Lane through to the March Haigh Reservoir. Construction traffic will use Blake Lea Lane which is generally a sloping (sometimes steeply) bending single-carriageway adopted road with passing places. Beyond Lower Green Owlers Farm, after crossing over Green Owlers Clough Stream, the road becomes private and is stoned/cobbled. This is believed to be an old drovers road, to take animals to market, as evidenced by the large cobbles visible in places beneath the bitumen topping.

Blake Lea Lane gives access to about 10 properties, and is generally lined with dry stone walls to either side. The walls are generally in private ownership.

From talking to local residents, it is understood that weekly household rubbish collection lorries access the road for its entire adopted length and beyond as well as tractors and agricultural vehicles, so Blake Lea Lane is currently used by larger vehicles on an occasional but regular basis.

1.4 Description of Highway Retaining walls

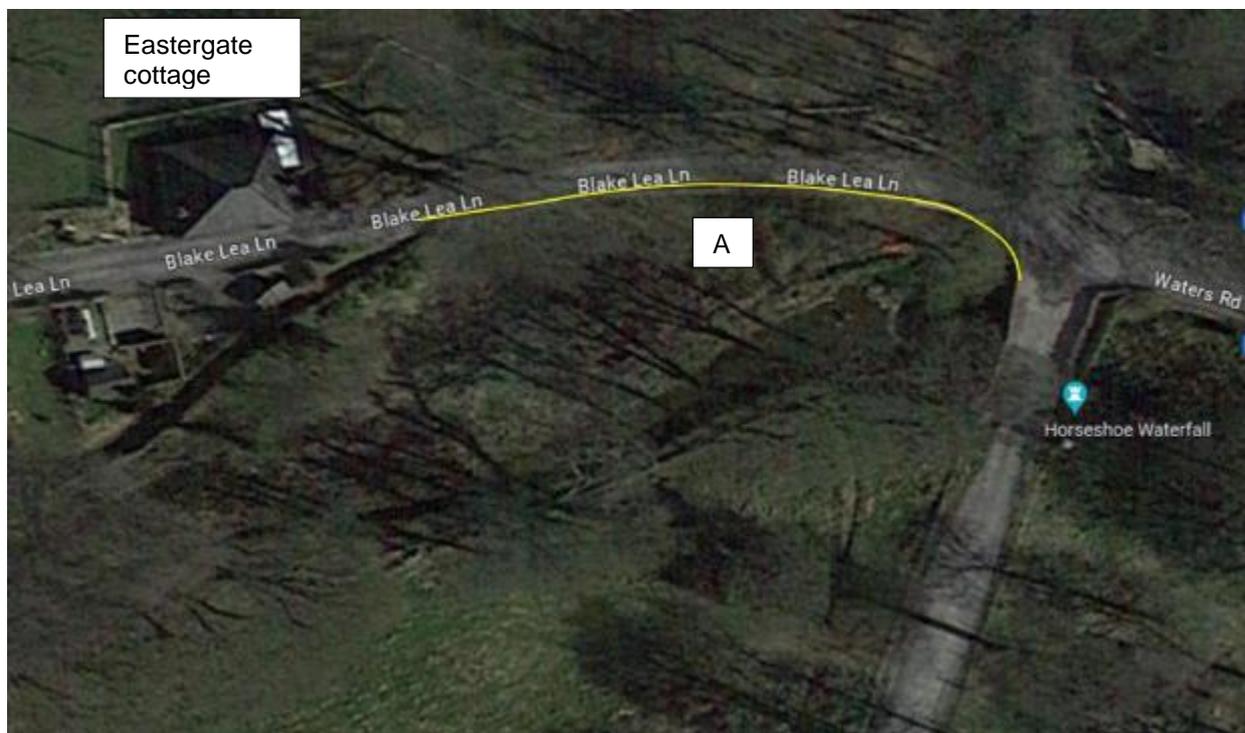
For the majority of the length of Blake Lea Lane, the dry stone walls are not supporting the highway, or are supporting higher ground levels behind them. Hence, they are generally not acting as retaining walls for the highway.

There are three lengths of highway burr walls that this report will focus on:

- Section A Start of Blake Lea Lane (Junction with Waters Road and Hey Green) up to Eastergate Cottage - left hand wall as heading towards reservoir, supported on natural stone outcrops
- Section B Blake Lea House entrance to Blake Lea Cottage entrance - (right hand side as heading towards reservoir)

1.5 Observations

1.5.1 Section A - Start of Blake Lea Lane (junction with Waters Road) up to Eastergate Cottage



At the start of Blake Lea Lane, the road travels parallel to River Colne, with Horseshoe Waterfall just downstream of the bridge crossing.

The road has dry stone walling on both sides. On the LHS (when heading towards the reservoir), the dry stone walling is about 600mm high above road level.

Looking from the other side of the bridge, at the back face of the wall, the dry stone wall has been built off natural stone outcrops, forming both the bank of the water channel and providing support for the highway.

To both faces of upstand of this wall there is vegetative growth of ivy. There are also a number of significant trees and bushes growing out of the vertical channel bank face.

The natural stone outcrop continues to be the support for the highway up to the start of Eastergate Cottage, where a footpath peels off to the left and heads down towards the river bank. Beyond Eastergate Cottage, the ground levels on the LHS match the road levels.

There is extensive vegetative growth out of the stone banking, however there is no indication of any significant distress within the highway wall.

The visible roadside face of the drystone wall looks regular in verticality, although there are one or two instances of larger vertical joints, indicating some previous possible movement or rebuilding of the wall.

Since the highway is supported off natural stone outcrops, this support for the retained section of highway is not subject to the planning condition requirements, and has not been assessed further.



View on Waters Road looking towards start of Blake Lea Lane, section A



Section A - roadside face of wall



Highway wall A at start of Blake Lea Lane, from roadside



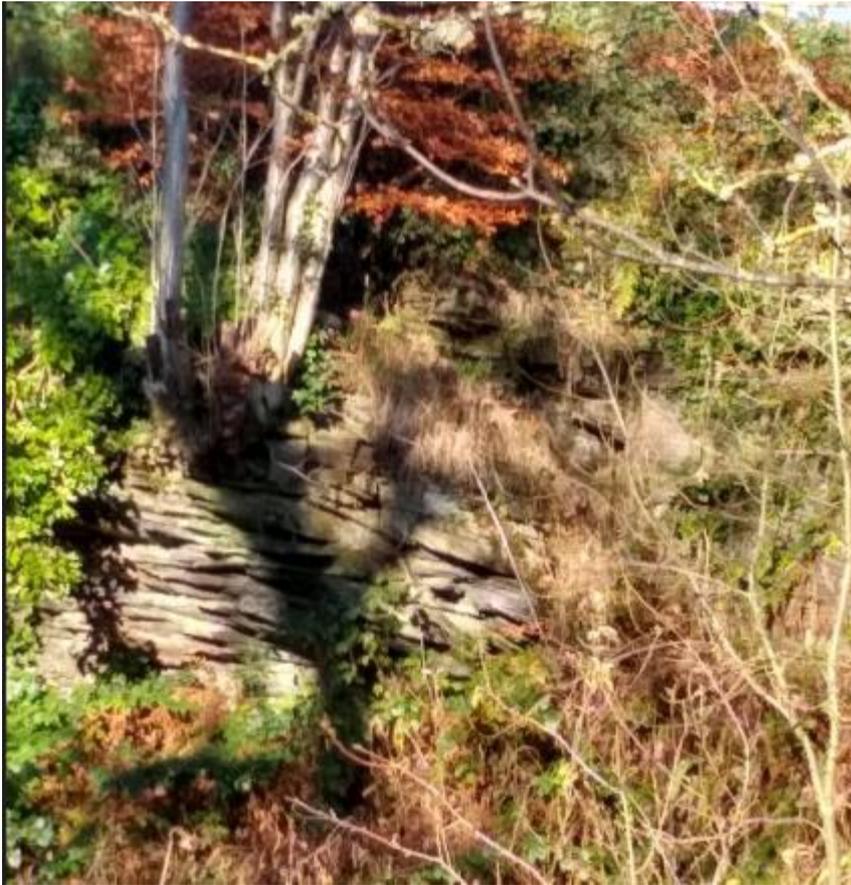
View from across the bridge, looking at rear channel side of highway, section A



View from across the bridge, looking at rear channel side of highway, section A



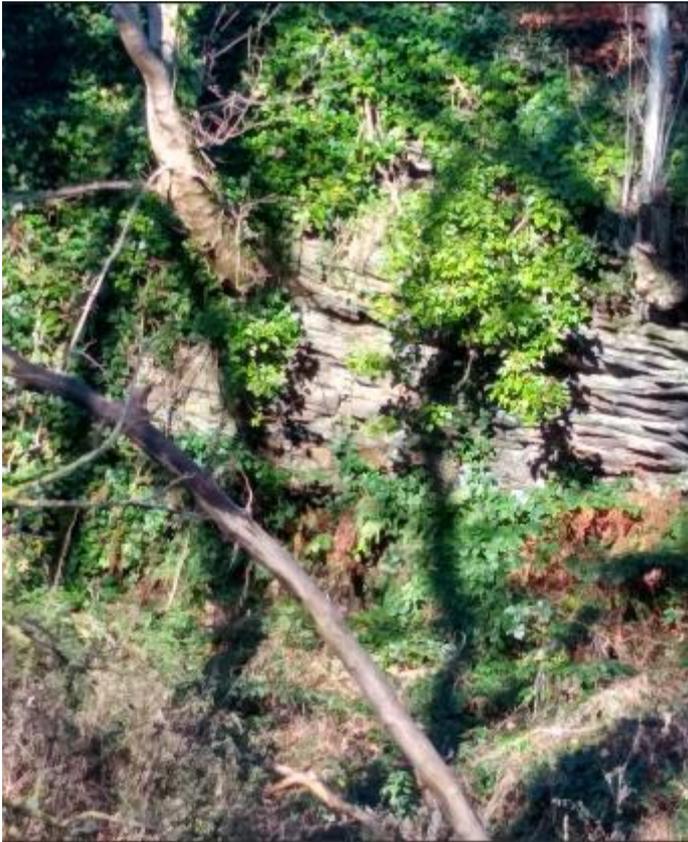
Start of Blake Lea Lane - View of dry-stone wall A, from roadside, with ivy vegetation and enlarged joint



Rear of highway section A, showing natural stone outcrops forming support to highway



Rear of highway section A, showing natural stone outcrops forming support to highway



Rear of highway section A, showing natural stone outcrops forming support to highway

1.5.2 Section B - Blake Lea House entrance to Blake Lea Cottage entrance

The section of road between the entrance to Blake Lea House and the entrance to Blake Lea Cottage is supported by a vertical dry stone burr wall on the right hand side (when heading up towards the reservoir).

The retained ground height of the wall varies from 0m to approximately 4.8m height along the 50m length, with the road level being above the eaves height of Blake Lea House at its maximum. The height of highways loading acting varies between 0m and 3.1m height, due to widened verges at the top of the slope. A dry stone buttress has been built partway along, on the garden side.

The downhill approach towards the retaining wall is very steep and has a hairpin bend just after the entrance to Blake Lea Cottage. Several concrete block kerbs have been placed in front of the wall, to deflect vehicle impact. Anecdotally, residents informed of vehicles having previously collided with this wall, when travelling downhill under icy conditions.

The dry stone wall where it sits above Blake Lea House, has been rebuilt from road level up, using larger stones, and is now mortared on the back face.

The retaining section of burr wall, is generally a dry stone wall with no mortar. The thickness of the wall, and its foundation construction, is unknown. Limited vegetation is visible growing out of the back face of the wall, with signs of previous vegetation pruning.





Roadside view of Section B wall (on RHS as heading up to reservoir)



Roadside view of Section B wall (on RHS as heading up to reservoir)



Roadside view of Section B wall (on RHS as heading up to reservoir)



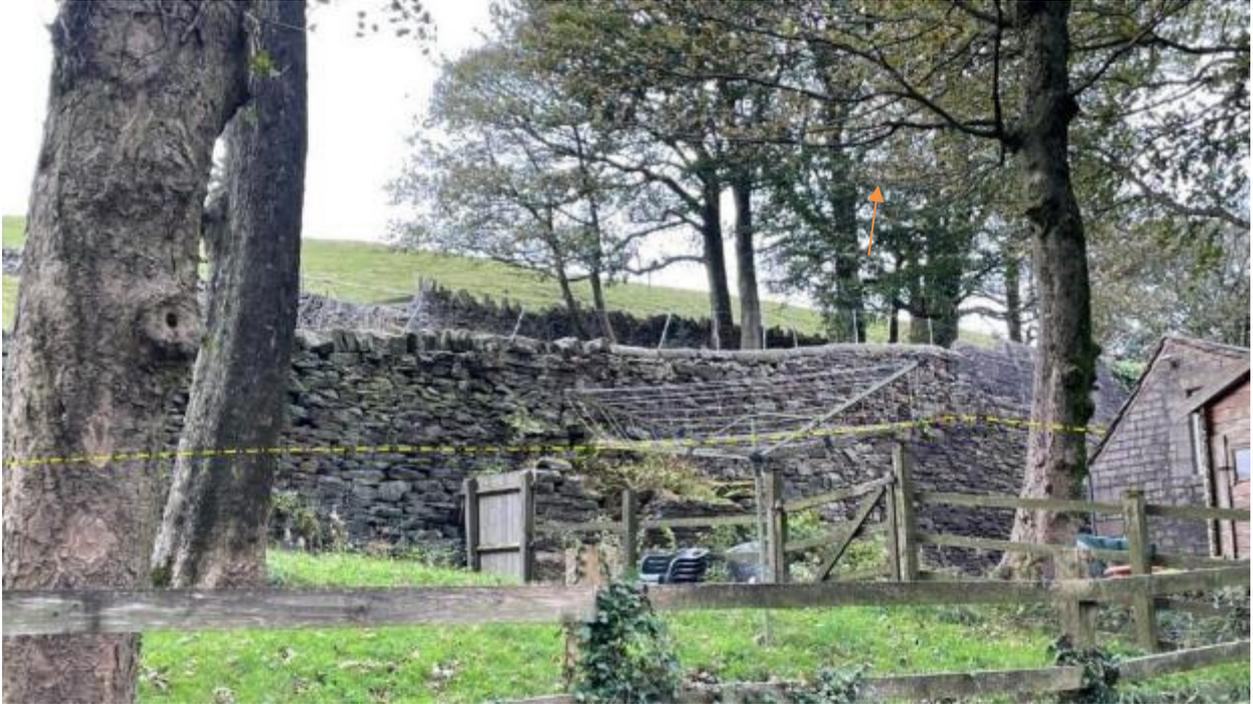
Blake Lea House - view from drive



Rear view of Section B - with approximate road level shown as dotted yellow line



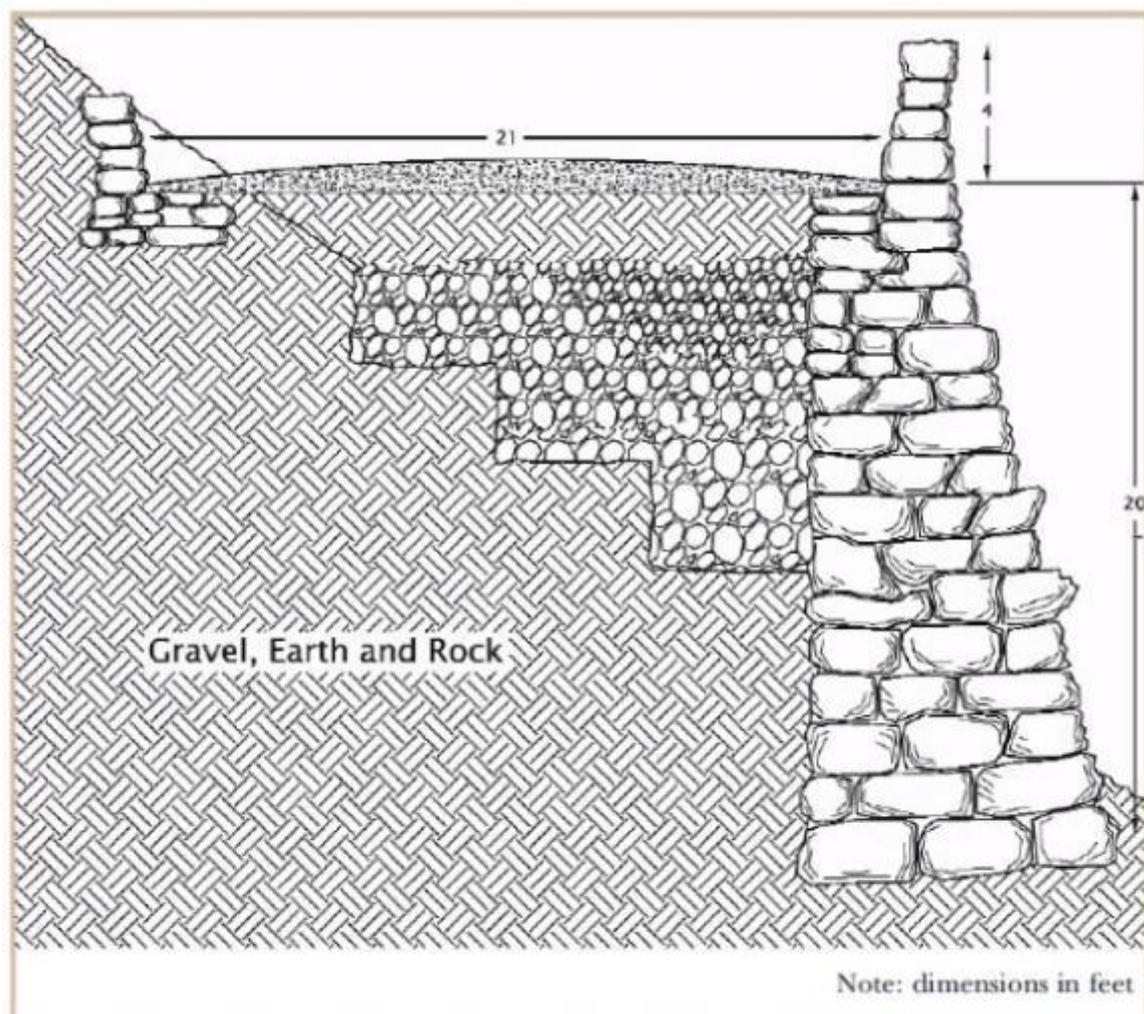
Rear view of Section B - with approximate road level shown as dotted yellow line



Rear view of Section B - with approximate road level shown as dotted yellow line



Rear view of Section B - where wall is behind Blake Lea House & upper section has been rebuilt & mortared



Cross-section of drystone wall at Carey Mountain on the Antrim Coast Road

Included above is an example of burr dry stone wall construction (as depicted in CIRIA C676 Guidance). It is likely that a high retaining wall such as this will extend back into the hillside, reducing the lateral loading experienced by the wall. However, without significant intrusive investigations within the road, the actual construction is not known.

As stated in Section 1.1, the walls are not readily analysed and whilst outside the scope of the current brief, any further details obtained relating to the form of construction would add to the body of knowledge as to the likely integrity and robustness of the walls.

However, given the age, nature and likely form of construction, the visual inspection of the burr wall appears to be in good condition, with no obvious serious signs of distress for a dry stone retaining wall.

1.5.3 Section C - Lower Green Owlers Farm to bridge crossing over Green Owlers Clough

The section of adopted road beyond Lower Green Owlers Farm drops down to a low point where it crosses over Green Owlers Clough. The dry stone wall on the left hand side, as heading towards the reservoir, acts as a burr wall to the highway for a length of about 42m, generally with a retained height of 0.3m to 0.5m, with 2 localised areas where the ground drops away and the retained height is about 1m, forming the channel banking.



The drystone wall adjacent to the bridge has been rebuilt as a mortared wall using larger size stones. There are some hairline vertical and diagonal cracks through the mortar indicating previous localised ground movement or vehicle impact or freeze/thaw.

Within the mortared section, there is a 25mm wide diagonal crack tracking through the mortar, indicating some horizontal movement has occurred. This coincides with change of ground levels to the rear but may also have been exacerbated by preventing the previous free-draining of the wall.

At the diagonal transition of dry stone to mortared wall, the non-mortared stones below the mortared section look to have loosened slightly - which may be a result of increased susceptibility to freeze/thaw and expansion between the mortared section and the dry stone wall stones. However, the dry stone section has no serious flaws.

The dry stone wall generally looks in good condition, with some coping stone replacement having occurred.

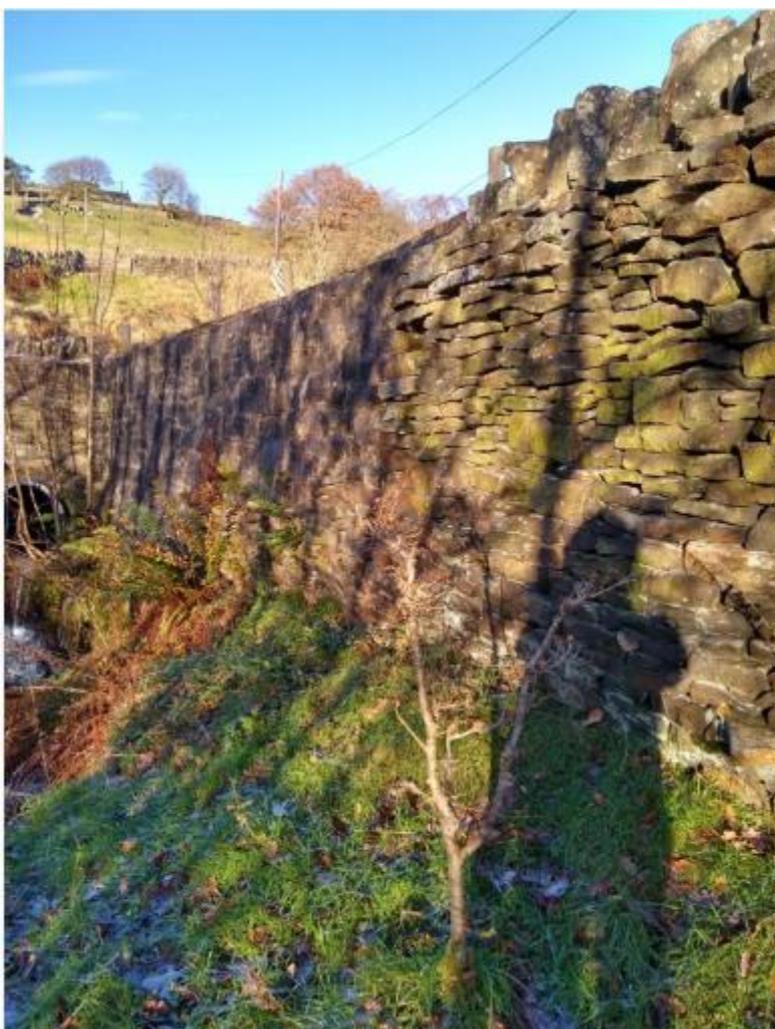


Typical roadside views of Section C wall









1.6 Summary

Blake Lea Lane is an adopted road that is used by residents and serviced by domestic waste lorries on a weekly basis, plus residents, vans, tractors and fire engines (when needed to access the moors). It has therefore been used by a variety of sizes of vehicles over many years.

The two sections of drystone wall that act as a burr wall to the highway have occasional vegetation growing out of them. There is also localised evidence of some previous movement or vehicle impacts as can be seen via enlarged joints within the highway upstands. Some areas or lengths of the walls above the highway level have also been rebuilt and are now mortared into position. However, generally the retaining sections of walls look to be in sound condition without obvious signs of distress.

Based upon performance to date the walls are in reasonable condition commensurate with their age and form of construction. Whilst traffic volumes may increase during construction, the road has already been subject to vehicles of similar size previously. Standard mitigation measures of applying reduced vehicle speeds is already dictated by the road layout itself, (especially adjacent to Blake Lea House burr wall).

Within the current brief, no analysis or assessment of the retaining walls has been carried out, to try and verify their suitability to act as highways retaining walls. Purely a visual inspection of their current condition has been carried out.

The retaining walls have also been filmed on both sides to provide a good pre-works record of wall conditions that can be used to compare post-works conditions.

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