STATEMENT OF GROUNDS

Public Path Order Section 118A Highways Act 1980 (Railway Crossing Stopping Up)

Proposed Stopping Up of Footpath TC-504 (Formerly Footpath 1) in the Parish of Tutnall and Cobley and Footpath LK-524 (Part) (Formerly Footpath 61) in the Parish of Lickey

(Blackwell Rail Level Crossing)

Location

Public right of way, Tutnall and Cobley footpath TC-504, passes over the Birmingham to Gloucester railway at the Blackwell rail level crossing. The line is one of the main cross-country routes connecting the North East and the West Midlands to the South West of England. The public right continues to the north-west of the railway line as Lickey footpath LK-524 to connect to Fairways Drive. To the south-east the public right continues over a golf course as Tutnall and Cobley footpaths TC-503 and TC-505.

Blackwell rail crossing is over a three-track line and there is an associated goods loop. The crossing is on a curve, the up (north east) side being on the inside of the curve.

The Bromsgrove Electrification Project undertaken in 2016 has resulted in the erection of overhead electrification gantries and associated structures and an increase in the number of train services on the line running quieter and faster.

Train services

The train service over Blackwell level crossing consists of Passenger and Freight trains. There are 203 trains per day; a total of 184 passenger trains and 19 freight being 92 passenger services on up and down line and 14 freight on up line and 5 freight on down line. Trains are timetabled to run for 24 hours per day. The highest permissible line speed of trains is 90 mph. (Figures taken from Network Rail's TRUST system.) It should be noted that prior to electrification of the line, a TSR (Temporary Speed Restriction) was in place for 75mph.

Level Crossing Usage

A 24 hour census was carried out on 18-07-2015 by The Surveillance Group. The census applies to 100% of the year. The census taken on the day is as follows:

Pedal / motor cyclists	1
Pedestrians	31
Horse riders	0
Animal herders	0

Data from a previous 20-day census averaged approximately 31 users a day. 27 Vulnerable users were identified over the 20 days averaged at 1.4 a day.

It was considered night time use to be 7%.

A covert camera was put out on site in August 2016 and captured regular level crossing misuse:

- Users noted to linger on the crossing itself
- Users walking down the track away from the crossing
- User standing on the crossing itself while two trains passed within metres
- Users crossing with dogs not on leads causing user to linger on the crossing
- Users crossing without looking and while wearing headphones
- Children using and lingering on the crossing at night while using mobile phones

The electrification now presents an increased risk of serious injury or death if member of the public come into direct contact with it.

There are no known local attractions that would see an increase of irregular users.

It is considered the crossing would see regular users wishing to get to and from Blackwell village and for walking around the golf course. Spring and summer months can be a little busier due to these being the better weather months. There are several local attractions, Blackwell Adventure, Blackwell Golf Club and Blackwell Social Club that are likely to attract regular walkers.

A new census is not possible to undertake given the crossing is currently closed however it is envisaged that there is likely to be an increase in the number of users. Some reasoning behind this is that it is believed that more homeowners now have a dog following the covid lockdown period and the crossing could now appeal to more users.

Traversing the crossing

The traverse distance of the crossing is 13.2m (average rail crossing distances are between 8m and 10m). At a walking speed of 1.189m/s this gives a traverse time for pedestrians of 11.1 seconds. Note the current census has not identified a high proportion of vulnerable users. Therefore, the pedestrian traverse time has not been increased.

The crossing is on a curve, thus restricting sighting distances for pedestrians crossing from the up (north east) side.

Risk to Public

Sighting

Sighting at Blackwell level crossing is recorded as:

	Up side looking at trains travelling in the up direction		Up side looking at trains travelling in the down direction		Down side looking at trains travelling in the up direction		Down side looking at trains travelling in the down direction	
Line 1: Line 1	Minimum required sighting distance	Actual sighting distance	Minimum required sighting distance	Actual sighting distance	Minimum required sighting distance	Actual sighting distance	Minimum required sighting distance	Actual sighting distance
	447	332	447	238	447	512	447	378
	Sighting distance measured to point		Sighting distance measured to point		Sighting distance measured to point		Sighting distance measured to point	
	OLE Stantion on down side		OLE Stantion on down side		Vegetation on down side		Vegetation on down side	
Line 2: Line 2	Minimum required sighting distance	Actual sighting distance	Minimum required sighting distance	Actual sighting distance	Minimum required sighting distance	Actual sighting distance	Minimum required sighting distance	Actual sighting distance
	447	332	447	238	447	512	447	378
	Sighting distance measured to point		Sighting distance measured to point		Sighting distance measured to point		Sighting distance measured to point	
	Vegetation on down side		Vegetation on down side		Vegetation on up side		Vegetation on down side	
Line 3: Line 3	Minimum required sighting distance	Actual sighting distance	Minimum required sighting distance	Actual sighting distance	Minimum required sighting distance	Actual sighting distance	Minimum required sighting distance	Actual sighting distance
	447	332	447	238	447	512	447	378
	Sighting distance measured to point		Sighting distance measured to point		Sighting distance measured to point		Sighting distance measured to point	
	Vegetation on up side		Vegetation on down side		Vegetation on down side		Vegetation on down side	

Sighting restrictions:

	Up Direction	Down Direction
Nothing; vanishing point	No	No
Track curvature	Yes	Yes
Permanent structure (building/wall etc)	Yes	Yes
Signage or crossing equipment	No	No
Vegetation	Yes	No
Bad weather on the day of visit	No	No
Other	No	No

There are no known issues with foliage, fog or other issues that might impair visibility of the crossing, crossing equipment or approaching trains however sun glare was observed on the upside on the day of the risk assessment which can hinder sighting.

Trains are known to sometimes pass each other at this crossing.

It should be noted that the environment surrounding the crossing now looks very different to before the crossing was last open. Due to the electrification multiple overhead line stations are now present that could easily distract the sight of an oncoming train. The environment is now a lot busier, and trains are quieter with electrification.

Banked freight trains require a banking engine to assist from the loop at Bromsgrove which provides rear-end power as the train ascends the Lickey bank. The summit is approximately 600m south of the crossing, at which point the banking engine drops off but follows the train and comes to a stand at the first controlled signal which is beyond the crossing. Therefore, the potential exists for a member of public standing on the up side of the crossing waiting to cross to assume that once the final wagon has passed over the crossing it is safe to cross or be looking in the up direction for a down train and not be aware of the banking engine following up behind the freight train.

Mitigation:

Blackwell level crossing is provided with whistle boards.

	Line speed	Whistle board distance (m)	Whistle board warning time (s)	Is the train horn clearly audible at the crossing?	Is the whistle board warning effective?	Comments on audibility and whistle board position
Up line	90	443	9.67	No	Yes, but not effective	The whistle boards are non compliant on both up and down line.
Down line	90	418	9.12	No	Yes, but not effective	Maximum distance for WB at a LC is 400 metres. Both WB's exceed this as well as not providing sufficient warning time. The Whistle board situated at 443 metres only provides a warning time of 9.67 seconds

	If sighting is deficient, is it mitigated?	Notes on deficient sighting
Up side looking at trains travelling in the up direction	No	WB on approach to crossing which are non compliant and cannot be moved back any further.
Up side looking at trains travelling in the down direction	No	WB on approach to crossing which are non compliant and cannot be moved back any further.
Down side looking at trains travelling in the up direction	No	WB on approach to crossing which are non compliant and cannot be moved back any further.
Down side looking at trains travelling in the down direction	No	WB on approach to crossing which are non compliant and cannot be moved back any further.

Due to the sighting at the crossing being inadequate, a warning for pedestrians of an approaching train is given in the form of a train horn sounded by the train driver at a ‘whistle board’.

To keep the crossing open and compliant with the then existing guidelines, the whistle boards at Blackwell were moved in 2015 to the distances stated to allow for an adequate warning time. The train horns were tested at these distances and it was found they were audible from the crossing in all weather conditions. It is important to note whistle board warnings are reliant on the driver sounding the train horn, this is not an automatic system.

The whistle boards are situated at 443m from the crossing on the up side and 418m on the down side. The boards give warning times of 11.87s and 11.20s respectively (noting traverse timing is 11.1s). Sighting and whistle board compliance cannot be achieved in this location on either line due to track layout. The warning time in respect of the up line is reduced to 9.67 seconds at train speeds of 90mph.

It should be noted, the maximum distance a whistle board can be sited under current guidelines is 400m.

Sighting at the crossing has worsened with the construction of overhead electrification gantries and structures. Overhead line equipment **(**OLE) stanchions can hinder sighting for crossing users, more infrastructure making the area look busier and cluttered and restricting sighting of oncoming trains.

Line speed over the crossing in the up direction is 90mph. Attainable speed for trains in the up direction has been assessed at 75mph rather than 90mph, as the change in speed only occurs a very short distance from the crossing itself, and therefore 90mph in not attainable.

At 90mph whistle boards would need to be placed at a minimum 507 metres; this would place them 107 metres out of compliance.

The percentage of users who use the crossing during the night-time quiet period, between midnight and 06:00, is estimated as 7%. This figure is considered as fairly high compared to other level crossings of a similar type. During the night time quiet period use of whistle boards as a mitigation is not permitted. Therefore, the user would be reliant on sighting of oncoming trains alone and sighting is not compliant.

It should be noted, whistle boards now being considered less acceptable as mitigation at passive crossings.

The driver of a banking engine sounds a warning whistle when in line of sight of the crossing to warn crossing users.

Risk Assessment

Network Rail undertake risk assessment of crossings. The risk assessments utilise a tool known as ALCRM, All Level Crossing Risk Model (see (1) below). Various pieces of data such as train frequency, train speed, available sighting distances, traverse distance, traverse time and usage numbers are inputted into the system which provides a risk score for a crossing.

A quantitative risk assessment completed on the 29 August 2016 gave the Blackwell crossing a risk score of C4. This risk assessment predated electrification of the line and the changes in rail use and impact on the crossing this has brought about.

Following electrification, with the additional train service and a line speed of 90mph, the Blackwell level crossing ALCRM calculated safety risk is B3.

Electrification masts erected as part of the Bromsgrove electrification project have reduced already poor sighting further and with the increase in train service, risk modelling of this suggests the crossing has changed from C4 to B4 (B being High Risk) if no additional mitigation is provided. Increase of train service and removal of the 75mph speed restriction in place for down trains make the crossing non-compliant; required sighting of approaching trains would need to be in excess of 440m which is unachievable and in its present situation means an additional seven seconds warning time is required. Whistle boards are already at the far limit of acceptability and cannot be placed any further away from the level crossing because of the associated drop in audibility to crossing users.

(1) ALCRM Explained:
Risk assessment is based on data collected at the crossing and entered into the ALCRM. This is a computer-based application used by Network Rail to assist in the risk management of level crossings. It takes the features and usage of the crossing into account to calculate a risk score. This is made up of two parts a collective risk and an individual risk. The collective risk is an estimate of the total risk generated by the crossing for all users of the crossing and the occupants of trains whereas the individual risk is an estimate of the risk of death for a notional regular crossing user (this is an annual risk of death based on 500 transits of the crossing per annum). The risk score from ALCRM is intended to support and inform an assessor in considering the risk mitigation options for the crossing.

Alternatives to Stopping Up

When considering any site, the preferred solution is to remove the public interface with the railway which will eliminate risk of pedestrians being hit by a train. This would involve closing the level crossing to users so the next step would be to identify whether suitable alternative routes are available.

A number of options have been considered:

- Reposition the level crossing

  The current approach from the north is along a public right of way that runs between residential houses; this would be difficult to divert as the area along the north side of the railway corridor is developed.

  NR is in discussion with Worcestershire County Council over a provision of a pedestrian footway on the railway bridge crossing at Linthurst Newtown and along Blackwell Road as an alternative route for the public.

- Provision of an underpass

  The railway corridor is in a low cutting on the north and at grade with the golf course to the south, the topography does not suit the installation of an underpass. An underpass at this location would require a significant area of land on either side of the railway to create the required approach gradients to the underpass. The installation of an underpass has the potential to be extremely disruptive to the railway with three lines running in this area. In addition, an underpass has the potential to attract antisocial behaviour and would need a power supply for lighting.

- Install a footbridge with stepped access

The level crossing is bordered by residential dwellings and associated gardens to the north of the railway corridor. A stepped footbridge solution at the level crossing site would maintain access over the railway corridor for public rights of way users. However, there is insufficient land available at the level crossing to construct a footbridge within the railway corridor. The footprint would require some purchase of third-party land from residential gardens on the north and Blackwell Golf Club on the south. The footbridge structure would be significant in size to clear the three lines and the proposed OLE system. The structure would have an impact on the amenity of Blackwell Golf Club and overlook residents on Fairway Drive. Blackwell Golf Club has already expressed their opposition to the installation of a footbridge at the level crossing site and written representations have been received from local residents.

There is potential to install a footbridge approximately 485m west of the existing crossing however in this location a footbridge is unlikely to benefit rights of way users. This area is immediately east of Blackwell underbridge but this underbridge does not have sufficient room for a footway. It is thought that a footbridge would be contained within the railway corridor at this point. The footbridge would not overlook any residential properties adjacent to the railway however it would be close to the club house of Blackwell Golf Club and therefore is likely to be rejected by the golf club. The railway is on an embankment here and a Network Rail authorised access track runs parallel to the railway lines on the north side. There is overhead power infrastructure and a flood attenuation area which would need to be avoided. This proposal would require a diversion of the public rights of way along Station Road to the north where a footway is provided. However, Agmore Road which runs south towards public footpath 500(B) is narrow with no public lighting or footway provided.

There is also a potential footbridge location approximately 150m west of the current level crossing however a bridge in this position would also overlook residential properties and would be unacceptable to local residents. In light of the above a stepped footbridge is not recommended.

- Install a footbridge with stepped and ramped access

  The existing approaches to the level crossing are via a golf course to the south and a residential public footpath to the north. The current rights of way on the south side are unlikely to be used by self-propelled wheelchairs or users with prams/pushchairs given their rural location, rough terrain and obstacles such as timber stiles. This is evident in the census survey which recorded no cyclists or pushchair/wheelchair users over the 9-day period. A ramped structure would have a significant impact on the amenity of Blackwell Golf Club, require significant residential land for construction and overlook residents on Fairway Drive. Typically, the construction cost of a ramped structure is three times that of a stepped only footbridge. This is a result of the length of ramp structure which typically can be over 100m in length depending on the bridge soffit height required. The construction costs may be increased further due to requirements for third party land purchase on the north and south sides of the railway corridor. This option has been discounted due to overall delivery, visual intrusion and cost considerations.
- Miniature Stop Light (MSL)

  MSL technology is dependent on the signalling systems in the area and can prove complex and expensive to install and maintain, particularly in this location given the proximity to the switches and crossings at the top of Lickey Incline approximately 200m west of the level crossing. There are three railway tracks at this location and according to NR/L2/SIG/11201/ModX40 new MSL crossing systems shall not be installed over more

than two tracks. Therefore, an MSL system for a single crossing at this location has been discounted. The crossing could be split into two crossings with a separate MSL system for each however this would cause confusion and may lead people to think it is safe to cross both crossings when that may not be the case. This option is therefore not recommended.

- VAMOS

  Further investigation would be needed in order to assess its suitability for Vamos at this location. However, This option would not mitigate against misuse of the crossing and performs poorly in the CBA.