Agenda – special meeting

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OXFORD CITY COUNCIL

West Area Planning Committee

Date: **Tuesday 15 December 2015**

Time: **4.00 pm**

Place: **Council Chamber, Town Hall**

For any further information please contact:

Jennifer Thompson, Committee and Member Services Officer

Telephone: 01865 252275

Email: democraticservices@oxford.gov.uk

As a matter of courtesy, if you intend to record the meeting please let the Contact Officer know how you wish to do this before the start of the meeting.

West Area Planning Committee

Membership

Chair	Councillor Louise Upton	North;
Vice-Chair	Councillor Michael Gotch	Wolvercote;
	Councillor Elise Benjamin	Iffley Fields;
	Councillor Colin Cook	Jericho and Osney;
	Councillor Andrew Gant	Summertown;
	Councillor Alex Hollingsworth	Carfax;
	Councillor Michele Paule	Rose Hill and Iffley;
	Councillor Bob Price	Hinksey Park;
	Councillor John Tanner	Littlemore;

The quorum for this meeting is five members. Substitutes are permitted

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AGENDA

		Pages
1	**APOLOGIES FOR ABSENCE AND SUBSTITUTIONS**	
2	**DECLARATIONS OF INTEREST**	
3	**CONDITION 19, PART 13 (NOISE BARRIERS- ROUTE SECTION H) OF TWA/10/APP/01- EAST WEST RAIL LINK: 15/03110/CND** **Site Address:** Chiltern Railway from Oxford to Bicester – Section H **Proposal:** Application 15/03110/CND: Detail submitted in compliance with Condition 19, Part 13 (Noise barriers- Route Section H) of TWA Ref: TWA/10/APP/01 (The Chiltern Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990) **Officer Recommendation:** That condition 19(13) be partially discharged in relation to the details of the size, appearance and location of the noise barriers in Section H.	7 - 40

DECLARING INTERESTS

General duty

You must declare any disclosable pecuniary interests when the meeting reaches the item on the agenda headed “Declarations of Interest” or as soon as it becomes apparent to you.

What is a disclosable pecuniary interest?

Disclosable pecuniary interests relate to your* employment; sponsorship (ie payment for expenses incurred by you in carrying out your duties as a councillor or towards your election expenses); contracts; land in the Council’s area; licenses for land in the Council’s area; corporate tenancies; and securities. These declarations must be recorded in each councillor’s Register of Interests which is publicly available on the Council’s website.

Declaring an interest

Where any matter disclosed in your Register of Interests is being considered at a meeting, you must declare that you have an interest. You should also disclose the nature as well as the existence of the interest.

If you have a disclosable pecuniary interest, after having declared it at the meeting you must not participate in discussion or voting on the item and must withdraw from the meeting whilst the matter is discussed.

Members’ Code of Conduct and public perception

Even if you do not have a disclosable pecuniary interest in a matter, the Members’ Code of Conduct says that a member “must serve only the public interest and must never improperly confer an advantage or disadvantage on any person including yourself” and that “you must not place yourself in situations where your honesty and integrity may be questioned”. What this means is that the matter of interests must be viewed within the context of the Code as a whole and regard should continue to be paid to the perception of the public.

*Disclosable pecuniary interests that must be declared are not only those of the member her or himself but also those member’s spouse, civil partner or person they are living with as husband or wife or as if they were civil partners.

CODE OF PRACTICE FOR DEALING WITH PLANNING APPLICATIONS AT AREA PLANNING COMMITTEES AND PLANNING REVIEW COMMITTEE

Planning controls the development and use of land in the public interest. Applications must be determined in accordance with the Council's adopted policies, unless material planning considerations indicate otherwise. The Committee must be conducted in an orderly, fair and impartial manner.

The following minimum standards of practice will be followed.

1. All Members will have pre-read the officers' report. Members are also encouraged to view any supporting material and to visit the site if they feel that would be helpful.

2. At the meeting the Chair will draw attention to this code of practice. The Chair will also explain who is entitled to vote.

3. The sequence for each application discussed at Committee shall be as follows:-

(a) the Planning Officer will introduce it with a short presentation;
(b) any objectors may speak for up to 5 minutes in total;
(c) any supporters may speak for up to 5 minutes in total;
(d) speaking times may be extended by the Chair, provided that equal time is given to both sides. Any non-voting City Councillors and/or Parish and County Councillors who may wish to speak for or against the application will have to do so as part of the two 5-minute slots mentioned above;
(e) voting members of the Committee may raise questions (which shall be directed via the Chair to the lead officer presenting the application, who may pass them to other relevant Officers and/or other speakers); and
(f) voting members will debate and determine the application.

4. Preparation of Planning Policy documents – Public Meetings

At public meetings Councillors should be careful to be neutral and to listen to all points of view. They should take care to express themselves with respect to all present including officers. They should never say anything that could be taken to mean they have already made up their mind before an application is determined.

5. Public requests to speak

Members of the public wishing to speak must notify the Democratic Services Officer before the meeting starts giving their name, the application/agenda item they wish to speak on and whether they are objecting to or supporting the application. Notifications can be made via e-mail or telephone, to the Democratic Services Officer (whose details are on the front of the Committee agenda) or given in person before the meeting starts.

6. Written statements from the public

Members of the public and councillors can send the Democratic Services Officer written statements to circulate to committee members, and the planning officer prior to the meeting. Statements are accepted and circulated by noon, two working days before the start of the meeting.
Material received from the public at the meeting will not be accepted or circulated, as Councillors are unable to view proper consideration to the new information and officers may not be able to check for accuracy or provide considered advice on any material consideration arising.

7. Exhibiting model and displays at the meeting

Applicants or members of the public can exhibit models or displays at the meeting as long as they notify the Democratic Services Officer of their intention at least 24 hours before the start of the meeting so that members can be notified.

8. Recording meetings

Members of the public and press can record the proceedings of any public meeting of the Council. If you do wish to record the meeting, please notify the Committee clerk prior to the meeting so that they can inform the Chair and direct you to the best plan to record. You are not allowed to disturb the meeting and the Chair will stop the meeting if they feel a recording is disruptive.

The Council asks those recording the meeting:

• Not to edit the recording in a way that could lead to misinterpretation of the proceedings. This includes not editing an image or views expressed in a way that may ridicule, or show a lack of respect towards those being recorded.

• To avoid recording members of the public present unless they are addressing the meeting.

For more information on recording at meetings please refer to the Council's Protocol for Recording at Public Meetings

9. Meeting Etiquette

All representations should be heard in silence and without interruption. The Chair will not permit disruptive behaviour. Members of the public are reminded that if the meeting is not allowed to proceed in an orderly manner then the Chair will withdraw the opportunity to address the Committee. The Committee is a meeting held in public, not a public meeting.

10. Members should not:

(a) rely on considerations which are not material planning considerations in law;

(b) question the personal integrity or professionalism of officers in public;

(c) proceed to a vote if minded to determine an application against officer's recommendation until the reasons for that decision have been formulated; or

(d) seek to re-design, or negotiate amendments to, an application. The Committee must determine applications as they stand and may impose appropriate conditions.

WEST AREA PLANNING COMMITTEE 15th December 2015

Application Number: 15/03110/CND

Decision Due by: 18th December 2015

Proposal: Details submitted in compliance with Condition 19, Part 13 (Noise barriers- Route Section H) of TWA Ref: TWA/10/APP/01 (The Chiltern Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990)

Site Address: Chiltern Railway From Oxford To Bicester – Section H **Appendix 1**

Ward: Wolvercote Ward

Agent: ERM **Applicant:** Network Rail

Recommendation:

CONDITION 19(13) BE PARTIALLY DISCHARGED IN RELATION TO THE DETAILS OF THE SIZE, APPEARANCE AND LOCATION OF THE NOISE BARRIERS IN ROUTE SECTION H.

For the following reasons:

1 The application proposes noise barriers which, from a noise control perspective, are of an acceptable size and construction and are suitably located. The proposals conform to the requirements of the Noise and Vibration Mitigation Policy and are in accordance with the approved Noise Scheme of Assessment for route Section H. The external appearance of the proposed barriers is acceptable and the proposals therefore also accord with policies CP10 and CP21 of the adopted Oxford Local Plan 2001-2011 and other material considerations. It is confirmed that prior to and in connection with the granting of this consent, the Council has taken the Environmental Statement and other relevant environmental information into account.

2 Officers have considered carefully all objections to these proposals. Officers have come to the view, for the detailed reasons set out in the officers report, that the objections do not amount, individually or cumulatively, to a reason for refusal and that all the issues that have been raised have been adequately addressed and the relevant bodies consulted.

3 The Council considers that the proposal accords with the policies of the development plan as summarised below. It has taken into consideration all other material matters, including matters raised in response to consultation

and publicity. Any material harm that the development would otherwise give rise to can be offset by the condition imposed.

Subject to the following condition:

1 Development in accordance with plans

Main Local Plan Policies:

Oxford Local Plan 2001-2016

CP10 - Siting Development to Meet Functional Needs
CP21 - Noise

Other Material Considerations:

National Planning Policy Framework
Planning Policy Guidance

Relevant Site History:

15/00956/CND - Details submitted in compliance with condition 19 (operational noise and vibration) of TWA ref: TWA/10/APP/01 (The Chiltern Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990). PERMITTED 30th June 2015.

Representations Received:

35 representations have been received from local residents raising the following points (in summary):

- Inaccurate plan - properties not shown and no contours - need to cross-sections so that residents can see the effects on their property.

- Independent acoustic assessor required.

- At the public inquiry it was said that barriers would be 2.5 m from track. Noise modelling was based on a barrier 2.5 m from the tracks - the modelling is negated because the barriers are not proposed in that position.

- Where the track is located at the bottom of cutting, the barrier should be at top.

- Noise from diesel engines emanates 4 metres above the rail therefore barriers should be higher.

- At Quadrangle House the proposed barrier is too close to the building – this will not provide adequate noise attenuation and will prevent access for fire escape, maintenance and also blocks light to bedroom windows. The barriers

here are too far away from track – quadrangle house is not being treated equally as Blenheim Drive and Bladon Close.

- Adjacent 23 St Peter's Road the barrier should be adjacent to the track.

- Near Blenheim Drive the length of noise barriers has been reduced to save costs - additional barriers are needed to protect Blenheim Drive particularly in the context that felling of trees and shrubbery has made noise worse, and increased train services will make noise worse. These barriers should extend as far south as Richards Lane.

- The barriers will have a negative visual impact, including when seen from upstairs bedrooms.

- Residents should be asked whether they want their views obscured or their gardens shaded by barriers, or whether they want optimum sound insulation.

- The noise barrier proposed adjacent to 396 Woodstock Road needs to be on private land therefore not in same position as in the noise scheme of assessment which undermines the proposal.

- At a meeting with Network Rail, residents in Lakeside were offered four 4 metre high barriers - why are barriers now proposed at only 2.5 metres high?

- The northern and southern ends of Lakeside are not treated equally – the barriers extend for different lengths.

- In places, barriers are lower on the eastside - will this deflect noise from the west side where barriers are higher on the west side than on the east side?

- At 1 Upper Close the barrier offers no protection to first and second floors.

- The gap in the barrier adjacent to 3 Bladon Close should be closed.

Statutory and Internal Consultees:

Environmental Health: in view of the clarification given by ERM on behalf of Network Rail in the letter of 27th November 2015, the detailed submission of 22nd October 2015 is satisfactory from a noise control perspective for the purposes of condition 19 (13).

Background

1. Part 2 of Condition 19 of the deemed planning permission for East West Rail Phase 1 (EWRP1) requires the submission of Noise Schemes of Assessment (NSoAs) and proposals for associated noise mitigation measures.

2. The NSoAs are required to be drawn up in accordance with the Noise and Vibration Mitigation Policy (NVMP) which was approved by the Secretary

of State as part of the deemed planning permission (**Appendix 2**). The NVMP lays down thresholds for noise mitigation; and barrier design principles which respond to non-noise constraints on the practicability of noise barriers, such as health and safety, physical constraints and cost.

3. The NSoA for Section H of the scheme and related noise mitigation was approved by West Area Planning Committee on 16th June 2015 (15/00956/CND). It showed the location and length of noise barriers. It set out the principles to be followed for noise barrier use, including non-acoustic considerations, and described the location and route of each barrier section, also showing these plotted on a large scale map of Section H.

4. Part 13 of Condition 19 requires submission of details of the size, appearance and location of the noise barriers in the following terms:

> *13 Where noise barriers are promoted in an approved scheme of assessment, they shall be installed only once the local planning authority has given written approval of their size, appearance and location. Noise barriers shall be maintained in their approved form and may be removed only with the written approval of the local planning authority.*

5. This report sets out those details as proposed in the application and recommends that they be approved as being in accordance with the NVMP and NSoA for section H.

The Proposals

6. The barriers are to be 2.5m high relative to rail height where they are to be located close to the rails; and 2.5m high relative to local ground level where they are to be located at the top of a cutting.

7. They are to be constructed of proprietary absorptive acoustic material with timber support rails on the rail side, and timber cladding on the public side, supported by steel posts.

8. The barriers are located as follows (north to south):

- along the track near Lakeside the barriers are to be located close to the rails;
- as the track passes through the cutting north and south of the Wolvercote Tunnel the barriers are to be located at the top of the cutting;
- the cutting continues but diminishing southwards as the track passes under First Turn Bridge: here the barriers are still to be located at the top of the cutting;
- south of First Turn Bridge at a point adjacent to Bladon Close on the east side, the land levels, and the barriers return to a position close to

the rails southwards to a point past the nearest properties in Blenheim Drive;

- south of First Turn Bridge on the west side the land tends to level but the barriers remain at the western side of the railway land adjacent to property boundaries at Quadrangle House and properties in St Peters Road returning to rail-side at the rear of Ulfgar Road.

9. ERM on behalf of Network Rail has confirmed that the location of the noise barriers shown on the planning drawings which form this application are based on the approved NSoA barrier locations refined through the design process to take account of issues such as local grounds conditions. There are no substantive differences in the barrier locations now proposed from those which were modelled and approved by this Committee in the NSoA. The proposals therefore reflect the mitigation proposed in the approved NSoA.

10. The proposals and the representations of residents have been the subject of discussions between officers and Network Rail (NR). On behalf of NR, their agent ERM has submitted a further letter dated 27th November 2015 which offers clarification of the application, and responses to the issues raised (**Appendix 3**).

Officers Assessment

Issues

- Appearance
- Barrier locations at cuttings
- Barrier alignment relative to track and dwellings
- Barrier length and height relative to dwellings

Appearance

11. In the view of officers the visual appearance of the barriers being timber-faced to the public side achieves a satisfactory balance between the need for noise mitigation and the visual intrusion.

Barrier locations at cuttings

12. Representations have been made to the effect that barriers should always be located at trackside, including at cuttings, so that acoustic performance is maximised and tree and vegetation removal is minimised.

13. The NSoA (section 5.2.2) states reasons why this is impractical and then specifies the norm for barriers at the top of cuttings:

> ***5.2.2 Noise Barriers***
> *After considering noise control measures at source, the use of noise barriers to reduce significant noise impacts, as far as reasonably practicable, has been determined for locations where noise mitigation is required. Network Rail advises that there are constraints on the height to which barriers can be built*

and maintained in a rail environment, which are summarised in Box 5.1. Noise barriers will be installed as close to the nearest running rail as is permitted by Network Rail, normally at a distance of 2.6 metres. Retaining walls will be required in areas of significant cut, such as occur at either end of the Wolvercot tunnel. Difficulties in maintaining barriers close to or on retaining walls make these locations impractical for installation. Instead, where noise barriers are required in places where retaining walls are planned, they will be installed at the top of the cutting, close to the Network Rail land boundary. Where barriers close to the rail are proposed (i.e. where retaining walls are not planned), they will be built to a height of 2.5 m, relative to rail height. Where barriers at the top of the cutting are proposed, they will be built to a height of 2.5 m, relative to local ground level.

Table 5.1 Design Considerations for Noise Mitigation

Area	Purpose of Noise Mitigation	Up / Down Line [1]	Start Chainage [2] (m)	End Chainage [2] (m)	Noise Barrier: Input from Design Team on Practicability	Noise Barrier: Other Potential Constraints on Proposed Barrier
Wolvercote	To protect properties in Lakeside Sheriff's Drive, First Turn, Bladon Close, Blenheim Drive	Up	125030 [3] 125590 [4] 125955 [4] 126140 [4] 126240 [3]	125465 [3] 125810 [4] 126130 [4] ~~126290~~ 126255 [4] 126630 [3]	The maximum practicable height for a barrier is 2.5m [5]. Detailed input from the design team is presented in *Box 5.1*. Barrier heights in this report for line side barriers are quoted relative to rail height. As a result, if the barrier is located on higher ground than the rail, then the actual height of the barrier will be lower than the quoted height. Conversely, if the barrier is located on lower ground than the rail, then the actual height of the barrier will be higher than the quoted height.	A 2.5 m barrier is not expected to result in any significant visual effects, overshadowing effects or other constraints
Wolvercote	To protect properties in Woodstock Road and the Travelodge, Godstow Road, Fairlawn End, St Peter's Road including Wolvercote Primary School, Ulfgar Road	Down	125005 [3] 125635 [4] 125955 [4] 126160 [4] 126570 [3]	125300 [3] 125825 [4] 126155 [4] ~~126595~~ 126570 [4] 126710 [3]		

1) The Order Scheme (Phase 1, 2A and 2B) includes double track throughout Route Sections A to H. The tracks are identified as an 'Up' line (which carries trains running from Bicester to Oxford) and a 'Down' line (which carries trains running from Oxford to Bicester). As trains drive on the left, the Up line lies to the southeast of the Down line.
2) Project chainage for the Bletchley Line.
3) Line side barrier located at a plan distance of 2.6m from the nearest rail.
4) Barrier located close to the top of the cutting, at a distance of approximately 1.2 m inside the Network Rail land boundary.
5) Height relative to rail height for line side barriers. Height relative to local ground level for barriers close to the top of the cutting / Network Rail land boundary.

14. This approach was accepted by the Independent Expert (IE) for noise, and was approved by this Committee as part of the NSoA. There is no requirement therefore for the applicant to re-ratify this stance at this subsequent, detailed stage.

Barrier alignment relative to the track and dwellings

15. Several residents of Quadrangle House have expressed concern that the application apparently places the barrier at the boundary of NR land, immediately adjacent to their building. They have questioned why it is not located at 2.6m from trackside. Residents are concerned that there should be satisfactory noise mitigation and to maintain access to that part of their building for maintenance, light and emergency egress.

16. On behalf of NR, ERM has provided the rationale for the barrier location (pages 3 and 4 of **Appendix 3**). The main reason is the existence of a retaining wall near Ulfgar Road – for engineering reasons placing a noise barrier on a retaining wall is not acceptable. That letter also clearly confirms that a gap of 1.2m between the barrier and the façade to Quadrangle House will be achieved for residents to access if necessary.

Concerns about barrier length and height relative to dwellings

17. Residents have expressed concern at the apparent disparity between the NSoA and detailed submission regarding barrier length, including at Bladon Close and Lakeside. They have also raised questions about barrier height and overlaps.

18. The responses provided by ERM in the letter of 27th November 2015 (**Appendix 3**) confirm that the barriers in these locations have been designed to achieve the noise mitigation required by the NVMP and are to be located as promulgated in the approved NSoA.

Conclusion

19. The concerns of residents have been thoroughly investigated. The letter of 27th November 2015 from ERM provides appropriate responses and clarifications. Officers conclude that given this clarification, the application is satisfactory from a noise control perspective and for the purposes of Condition 19(13).

Human Rights Act 1998

Officers have considered the Human Rights Act 1998 in reaching a recommendation to grant planning permission, subject to conditions. Officers have considered the potential interference with the rights of the owners/occupiers of surrounding properties under Article 8 and/or Article 1 of the First Protocol of the Act and consider that it is proportionate.

Officers have also considered the interference with the human rights of the applicant under Article 8 and/or Article 1 of the First Protocol caused by imposing conditions. Officers consider that the conditions are necessary to protect the rights and freedoms of others and to control the use of property in accordance with the general interest. The interference is therefore justifiable and proportionate.

Section 17 of the Crime and Disorder Act 1998

Officers have considered, with due regard, the likely effect of the proposal on the need to reduce crime and disorder as part of the determination of this application, in accordance with section 17 of the Crime and Disorder Act 1998. In reaching a recommendation to grant condition discharge, officers consider that the proposal will not undermine crime prevention or the promotion of community safety.

Background Papers: 15/00956/CND; 15/03110/CND

Contact Officer: Fiona Bartholomew
Extension: 2774
Date: 7th December 2015

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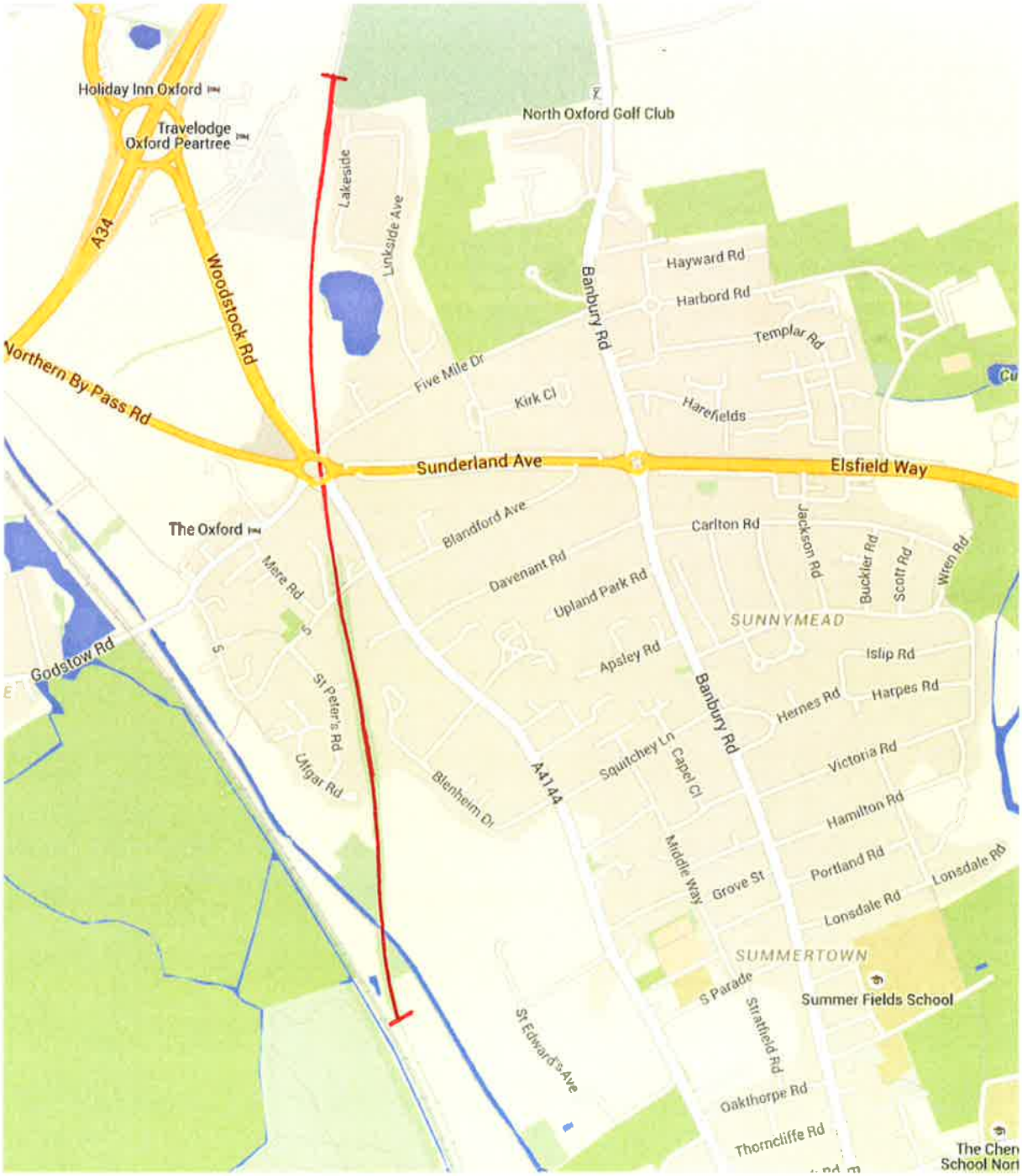
APPENDIX 1

Section H, East West Rail Phase 1



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NOISE AND VIBRATION MITIGATION POLICY

THE CHILTERN RAILWAYS (BICESTER TO OXFORD IMPROVEMENTS) ORDER

TRANSPORT AND WORKS ACT 1992

ERM

Chiltern Railways

JANUARY 2011

The Noise and Vibration Policy has been adopted by Chiltern Railways to ensure that mitigation of noise and vibration from trains using the railway authorised by the Chiltern Railways (Bicester to Oxford Improvements) Order is provided on a fair basis for all occupiers and landowners along the route between Bicester and Oxford.

The Policy has been based on extensive research and modelling and offers a high standard of mitigation, comparable with other similar railway schemes in Britain.

The Policy will ensure that the following are achieved:

(i) Noise will be reduced at source where it is reasonably practicable to do so.

(ii) Where this is not reasonably practicable, noise barriers or noise insulation to properties will be provided, where necessary, in accordance with relevant standards.

(iii) Where predicted noise levels exceed relevant levels set out in the Noise Insulation (Railways and Other Guided Systems) Regulations, noise insulation will be offered to the occupiers of eligible buildings to the standards required by those Regulations and provided at their request.

(iv) At other locations, where statutory noise levels are not exceeded but where significant noise impacts are predicted, noise will be mitigated wherever reasonably practicable. Significant noise impacts include a significant increase in noise in an already noisy area, or the significant exceedance of stringent thresholds in an area where the ambient noise is currently low. Chiltern Railways has chosen to offer this high standard of mitigation. It is not a statutory requirement.

(v) Vibration from trains will not cause damage to structures, and even without mitigation, will be likely only to give rise to 'adverse comments from occupiers being possible' at a few properties that are located very close to the railway. At these locations, appropriate mitigation measures will be provided.

These commitments and the ways in which the Policy will be implemented are set out in the remainder of this Policy.

The Policy, which has been agreed with Network Rail, applies to any works authorised by the Transport and Works Act Order.

1. HOW WILL THE POLICY BE APPLIED?

INTRODUCTION

1.1. Chiltern Railway has applied for the Chiltern Railways (Bicester to Oxford Improvements) Order. The Order, if made, would allow for the railway works to be carried out in phases. Phase 1 consists of those works required to allow the operation of Chiltern Railways' proposed London Marylebone to Oxford passenger services together with the freight services that currently operate on the Bletchley to Oxford line between Bicester and Oxford. Phase 2A, which is the lowering of the trackbed of the Wolvercot Tunnel , will be undertaken at the same time as the Phase 1 works.

1.2. The Phase 1 and 2A works will be carried out as soon as the Order is approved, so that their passenger services can start no later than May 2013. Further works, in Phase 2B, will take place at a later date and be undertaken either by the East West Rail (EWR) consortium or others on behalf of Network Rail (NR). The Phase 2B works are mainly those to provide double track between the MoD depot at Bicester and Islip and through the Wolvercot Tunnel.

1.3. The Noise and Vibration Mitigation Policy has been prepared by Chiltern Railways and agreed by Network Rail. It will be applied, in the first instance, by Chiltern Railways when designing in detail, building and operating the works in Phase 1 and 2A. EWR, or others on behalf of NR, when they undertake the Phase 2B works, will also apply this policy. Hereafter, in this policy, the organisation which builds the relevant works is called the 'Promoter'.

1.4. The purpose of this policy is to set out the Promoter's commitments to mitigating noise and vibration effects arising from operation of the railway. These are based on the commitments made in the Environmental Statement [(1)].

1.5. The mitigation of noise and vibration effects during construction will be the responsibility of the Contractor, who will have to work within and abide by an approved Code of Construction Practice.

1.6. Chiltern Railways' consultants, Environmental Resources Management, have carried out an assessment of the likely effects of noise and vibration which is reported in the Environmental Statement [(2)] . This has been undertaken by:

- identifying representative noise sensitive receptors (primarily residential properties) along the entire railway route;
- measuring current actual noise levels at these locations;

(1) Chiltern Railways (Bicester to Oxford Improvements) Order, Environmental Statement, ERM, 2009
(2) See chapter six (of volume 2) of the Environmental Statement which accompanies the Transport and Works Act Order Application.

- predicting likely future noise levels, based on noise measurements relating to the actual types of passenger and freight trains that will be used on the railway;
- comparing these predicted levels against noise impact assessment criteria and outlining, where necessary, appropriate mitigation measures.

1.7. The detailed design of the Phase 1 and 2A works will be developed by Chiltern Railways' appointed contractor. This will involve refinement of the mitigation following the principles set out in this policy. This will ensure that the residual noise effects at any location are no worse than those reported in the Environmental Statement.

1.8. The assessment of noise and vibration has been based on two operational patterns of new train services:

- After the implementation of the works in Phases 1 and 2A, operational services will consist of up to two Chiltern Railways passenger trains per hour each way. The passenger trains will replace the existing passenger service operated by First Great Western between Bicester Town and Oxford stations.
- After the implementation of the East West Rail (EWR) link including works in Phase 2B, there are likely to be an additional two passenger trains per hour each way.

Neither Chiltern Railways or EWR will be running passenger trains throughout the night, and services in late evening and early morning will be at a reduced frequency. A small number of passenger trains may arrive in Oxford after midnight or depart from Oxford before 0600.

1.9. In the operation of Phase 1 and 2A, there are likely to be no more freight trains than operate at present, as there will be no new freight destinations that can be served. When the East-West Rail (EWR) link is in operation, there may be more freight trains. For this reason, additional freight services were included in the noise assessment in the Environmental Statement, so that this reflects a reasonable planning scenario. The actual number of freight services will reflect national freight demand, but will be limited to the maximum number of available freight 'paths' (1 per hour in each direction). Experience shows that about half of the available freight train paths are likely to be used on a given day, which would suggest a reasonable planning scenario of 8 freight train movements between 11pm and 7am. Freight trains will not use the 'new' railway line between Oxford North Junction (where the Bicester to Oxford Line meets the Oxford-Banbury main line) and Oxford, but instead will use the existing main line, as at present.

1.10. The noise and vibration mitigation will be designed based on the assumptions in paragraph 1.8 and 1.9 regarding the numbers and timing of train movements.

INSTALLATION OF NOISE MITIGATION MEASURES

1.11. Noise mitigation measures in accordance with this policy will be installed during the Phase 1 and 2A works, to be completed before the commencement of Chiltern Railways passenger services. Before the Phase 2B works take place, any additional noise mitigation measures made necessary by those works and the services in the reasonable planning scenario for Phase 2B will be designed. The assessment of noise and vibration for Phase 2B will cover all parts of the route, where service frequencies are expected to increase in Phase 2B. The mitigation measures will be installed before the Phase 2B works are brought into use. After each Phase of works, the effectiveness of the noise insulation measures installed will be monitored, as detailed in para 2.11.

2. *HOW IS NOISE ASSESSED TO DETERMINE APPROPRIATE MITIGATION?*

PRINCIPLES

2.1. The Noise and Vibration Policy is intended to ensure that noise and vibration mitigation is provided on a fair basis for all landowners and occupiers affected by the Order Scheme.

2.2. The Promoter is committed to using the Best Practicable Means [(1)] to design the railway so as to avoid significant noise and vibration impacts at existing sensitive receptors (e.g. residential properties, educational buildings and places of worship). The first preference will be to apply necessary noise control measures at source where this is reasonably practicable. These may include rail damping or other infrastructure measures to reduce noise at source. Where this is not reasonably practicable or sufficient to mitigate significant noise impacts, the Promoter will:

- where they are effective and reasonably practicable to install, provide noise barriers to mitigate noise between the track and sensitive receptors; and

- after considering all practicable mitigation measures that can be taken at source (i.e. within the railway corridor), including noise barriers, offer noise insulation to properties where residual noise impacts on sensitive receptors remain high.

(1) Best Practicable Means are defined in Section 72 of the Control of Pollution Act 1974 as those measures which are "reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge, financial considerations and compatibility with safety and safe working conditions"

2.3. The Promoter will consult with landowners and occupiers who may be affected by noise and vibration to explain the mitigation measures that are proposed.

The assessment of noise uses technical terms, which are described in Annex A. The provision for noise mitigation will be based on two sets of absolute noise levels (1). The first are 'Noise Impact Threshold' levels, below which noise impacts are never significant. The second set of levels are the 'Noise Insulation Trigger' levels. These are the noise levels predicted at the most exposed windows to noise sensitive rooms in noise sensitive buildings, and are free-field (2) noise levels.

Noise Impact Threshold levels: *Day - $L_{Aeq,\ (0700\text{-}2300\ hours)}$ 55 dB* (3)
Night – $L_{Aeq,\ (2300\text{-}0700\ hours)}$ 45 dB

2.4. Where train noise is predicted to be above either of these threshold levels, but where the level is still less than that set out in the Noise Insulation Regulations requiring noise insulation to be provided, the Promoter will provide mitigation measures to reduce the adverse impact of noise. These will vary according to the extent to which the train noise level exceeds the threshold levels and the extent to which overall noise is increased above the existing or ambient noise level, as follows:

- exceedances of 3 dB or greater and increases of 3 dB or greater – mitigation at source through rail infrastructure solutions will be implemented where reasonably practicable;

- exceedances of greater than 5 and up to 7 dB and increases of greater than 5 dB and up to 7 dB -- at source and/or in the form of noise barriers if reasonably practicable and have no other negative effects;

- exceedances of greater than 7dB and increases of greater than 7dB – at source through rail infrastructure solutions and where these cannot be reasonably practicably achieved, noise barriers will be provided, where reasonably practicable.

These standards are consistent with those applied in the Environmental Statement, where noise mitigation is considered at source for impacts that are greater than 3 dB and in the form of noise barriers for impacts above a minimum of 5 dB. (Noise impacts in the ES are calculated by considering both the exceedance of the threshold criteria and the increase in overall noise, and taking the lower of the two.) The noise benefits of noise barriers are more likely to outweigh any dis-benefits, where the noise increase is above 7 dB. There are certain locations where because of the topography of the railway

(1) The standards relate to disturbance of building occupants, and do not relate to specific effects such as speech interference.
(2) Free-field means away from reflective surfaces, except the ground.
(3) $L_{Aeq,\ T}$ is the A-weighted equivalent sound level over the period T. A-weighting is a frequency weighting that replicates the frequency response of the ear. $L_{Aeq,\ T}$ is a widely used noise parameter that represents a varying noise level by calculating the constant noise level that would have the same energy content over the measurement time period. It is recommended parameter for train noise.

and adjacent properties, safety or visual impact, barriers cannot be installed or will not be effective.

2.5. Noise barriers or other noise attenuating infrastructure solutions will achieve noise reductions in most areas, to near to the existing noise levels. However residual noise impacts may still occur at particular locations. If, after consideration of the effects of noise mitigation measures at source, any of the Noise Insulation Trigger levels is still exceeded, then noise insulation to relevant properties will be offered, provided the corresponding existing or ambient noise level is routinely exceeded by at least 1dB. Noise insulation will be provided in accordance with the Noise Insulation (Railways and Other Guided Systems) Regulations. The noise level thresholds at which this will be offered are shown below in terms of free-field noise levels that are equivalent to the façade levels provided for in the Regulations.

Noise Insulation Trigger Levels	*Day* $> L_{Aeq,\ (0600\text{-}0000\ hours)}$ *66 dB* (1)
	Night $> L_{Aeq,\ (0000\text{-}0600\ hours)}$ *61 dB*

2.6. Even with the mitigation in paragraph 2.5, some of the properties close to the railway may still experience residual noise impacts that may be classed as 'high'. A 'high' impact is the equivalent of a noise impact of greater than +10 dB. If these properties are not already to be provided with insulation under the Noise Insulation Regulations, they will be offered additional mitigation, which is likely to be in the form of noise insulation.

2.7. If maximum pass-by free-field noise (L_{Amax}, the instantaneous 'peak' as the train passes) regularly exceeds 82 dB (free-field)at night, this is considered to be a significant impact, based on guidance on the prevention of sleep disturbance, except where ambient maximum noise levels are already above the predicted train noise level. One or two events per night would not be interpreted as regular, but the 8 assumed freight movements each night in Phase 2B are considered to be regular. In those very few locations likely to have such noise effects, additional noise attenuation measures will be taken to include the offer of noise insulation to affected properties. This form of mitigation is particularly effective in addressing night-time noise impacts when noise levels inside buildings are the key factor as regards sleep disturbance. The following additional criterion for noise insulation is therefore being applied.

Significant impact, need for further mitigation likely to be noise insulation:	*Night* $> L_{Amax}$ *82 dB* (2)

(1) Day is generally defined as 0700-2300 hours, except in the Noise Insulation Regulations, where it is defined as 0600 hours to midnight. These noise levels are free-field values that are equivalent to the values defined in the Noise Insulation Regulations

(2) L_{Amax} is a measure of the peak noise level, A-weighted

MITIGATION OF VIBRATION

2.8. The levels of vibration resulting from passenger and freight trains operating on the new railway will be far below the levels that might cause structural damage to buildings. However, the additional trains may give rise to perceptible levels of ground vibration in adjacent occupied properties. Vibration Dose Value (VDV) [(1)] is a measure of the accumulated level of ground vibration over a period, and, through the application of BS6472 [(2)] , is a standard metric for predicting the likelihood of adverse comments from building occupants. The standard gives the following threshold VDV levels at or below which the probability of adverse comment is low:

- Day (0700 – 2300 hours) - 0.4 $m/s^{1.75}$
- Night (2300 – 0700 hours) - 0.2 $m/s^{1.75}$

2.9. By comparison, the measured levels from the types of passenger and freight trains that will be used on the new railway, running on standard ballasted track, suggest that even at 8 m from the track the levels will be 0.14 $m/s^{1.75}$ during the day and 0.12 $m/S^{1.75}$ at night which are very much less than the "adverse comment" thresholds set out above. Trackforms will be designed and installed adjacent to occupied vibration sensitive receptor buildings using Best Practicable Means to keep within the thresholds.

2.10. Where existing vibration levels are already above either of the thresholds set out above, mitigation will be considered where the change in VDV is 50% or more as a result of the Phase 1, 2A and 2B works.

MONITORING AND MAINTENANCE

Monitoring

2.11. A noise and vibration monitoring scheme for the Phase 1 and 2A works will be implemented to ensure that the performance of the mitigation measures that are installed achieve the levels of noise mitigation predicted by the design contractor, whose design instructions will include the requirement to achieve the residual noise levels set out in the Environmental Statement. The monitoring scheme will include the carrying out of surveys, the first being undertaken at around 6 months after the opening of the railway for Chiltern Railways passenger services, at locations agreed with the local planning authorities. A second survey will be undertaken 18 months after opening. If defects in construction or performance are identified in the first survey, these will be corrected in a timely manner by the contractor. If any defects in construction or performance are found in the second survey, these will also be corrected in a timely manner by the contractor. The same procedure for post construction monitoring surveys and the remedy of defects or performance

(1) Vibration Dose Value, VDV, is the vibration metric recommended in BS6472 -1, 2008 for the assessment of annoyance from railway vibration. It is a measure of the overall vibration dose throughout a day or night period. It is highly weighted towards peaks and has the units $m/s^{1.75}$

(2) BS6472: 2008 Guide to Evaluation of human exposure to vibration in buildings (1 Hz to 80 Hz) Part 1 Vibration Sources Other than Blasting.

will be undertaken after the Phase 2B works have been completed and EWR services introduced.

2.12. The results of the Phase 1 and 2A monitoring will be published in an easily accessible format on the Chiltern Railways website and in the project newsletter and will be made available, either in hard copy of in electronic format, to any person requesting the information. Arrangements for publishing the surveys after Phase 2B will be agreed with the local planning authorities.

Maintenance

2.13. The railway, and in particular the wheel and rail surfaces, will be maintained so as to minimise noise and vibration at sensitive receivers.

OTHER NOISE MITIGATION

Station Announcements

2.14. Directional public address systems will be used that minimise the impact on nearby properties whilst maintaining audibility on platforms. The station operator will establish appropriate sound levels for station Public Address systems and will seek to address complaints, if they are received from occupiers of noise sensitive premises, as far as is reasonably practicable within railway safety requirements.

Train Stabling and Servicing

2.15. Chiltern Railways trains will not be stabled or serviced in the carriage sidings at the north end of Oxford station. Drivers will be instructed to shut down engines if the train is not to be moved within 5 minutes of arrival at Oxford station, and all Chiltern trains are equipped with automatic systems to shut down the engines if the train has been standing for more than 15 minutes.

Train Horns

2.16. Safety regulations require train drivers to sound the train's horn to warn of their approach in certain situations, for example, at certain level crossings or where there is risk of collision. This is essential, but after the Phase 1 works are completed, all of the present level crossings, except London Road, Bicester will be permanently closed and the situations where horns need to be sounded will be much reduced. There will be audible alarms on the crossing at London Road, Bicester and horns will not be used except in emergency. Although it is an inherent feature of the scheme rather than a specific mitigation measure, the reduction in horn noise will reduce noise impacts from this distinctive noise source, and so it has been noted in this section.

ANNEX A NOISE TERMINOLOGY

WHAT IS 'NOISE'?

A.1 The terms "sound" and "noise" tend to be used interchangeably, but noise can be defined as unwanted sound. Your neighbour may enjoy the sound of his music at 2am but you would be disturbed by the noise.

A.2 Sound is a normal and desirable part of life. However, when noise is imposed on people (such as from industry, construction or transportation) it can lead to disturbance, annoyance and other undesirable effects.

A.3 It is relatively straightforward to physically measure sound with a sound level meter, but it is a different matter to quantify the sound in terms of how noisy it is perceived to be and the effects it may cause.

A.4 For this reason we draw on various standards and guidelines that relate a measured noise level to the effect it is likely to have. These guidelines are generally based on large scale social surveys that have produced accepted, all be it approximate, relationships between noise level and effect.

AN EXPLANATION OF NOISE LEVELS

A.5 Noise is measured and quantified using decibels (dB). This scale is logarithmic, which means that noise levels do not add up or change according to simple linear arithmetic. For example, any two equal noise sources added together give only an increase of 3dB higher than the individual levels (e.g. 60 dB + 60 dB = 63 dB, not 120 dB). This represents what happens in practice when two equal sounds coincide; the ear perceives only a slight increase in noise and not a doubling.

The following table provides examples typical of noise levels.

Examples of Noise Levels on the Decibel Scale

Noise Level dB(A)*	**Typical noise source / example**
0	Threshold of hearing (lowest sound an average person could hear)
30	Quiet bedroom at night
40	Whispered conversation at 2 metres
50	Conversational speech at 1 metre
60	Busy general office
70	Loud radio indoors
70 – 75	Existing trains at Lakeside
80	Lorry at 30 kph at 7 metres
90	Lawnmower at 1 metre

*The dB(A) scale is a particular way of measuring the different frequencies in sound designed to match how the human ear works, called 'A'-weighting.

A.6 The way human hearing works is conveniently similar to the logarithmic changes in noise.

- An increase of 1 dB in noise levels cannot usually be heard (except possibly in 'laboratory' conditions).
- An increase of 3 dB is generally accepted as the smallest change that is noticeable in ordinary conditions.
- An increase of 5dB is clearly perceptible.
- An increase of 10dB seems to be twice as loud.

HOW IS NOISE MEASURED?

A.7 There is a little more to the measurement of noise than pointing a sound level meter and taking a reading. Because noise tends to vary over time, we need to find a way of measuring it in a manner which represents the variation in noise level that also reflects people's perception of how noisy it is. Over the years a number of different ways to measure noise (metrics or parameters) have been developed as the best ways of representing different types of noise sources (single events, industry, road traffic, railway, aircraft etc). Those relevant to the Chiltern Railways are introduced below.

NOISE MEASUREMENT PARAMETERS

A.8 The parameter or metric $\mathbf{L_{Aeq,\,T}}$ is called the continuous equivalent sound level. It is a widely used noise parameter that represents a varying noise level by calculating the constant noise level that would have the same energy content over the measurement time period. The letter 'A' denotes that 'A'-weighting has been used and 'eq' indicates that an equivalent level has been calculated. Hence, $\mathbf{L_{Aeq}}$ is the A-weighted equivalent continuous sound level, measured over time period 'T'.

A.9 Detailed surveys have been carried out into people's responses to different sources of noise and these have been used to define which noise metrics provide good relationships with perceived noisiness. PPG 24 which deals with the assessment of environmental noise from sources for example, advocates $\mathbf{L_{Aeq\ Period}}$ for all types of transportation noise.

A.10 It is important to appreciate that whilst $\mathbf{L_{Aeq}}$ does give a measure of the accumulated noise over a period of time it is not like a conventional (arithmetic) average. It is in fact a logarithmic average. The effect of this is to give a high weighting to high noise levels even if they are relatively short lived or infrequent peaks.

A.11 The difference between arithmetic and logarithmic ($\mathbf{L_{Aeq}}$) averaging can be illustrated by considering the average age of a class of 30 children and their teacher. Suppose the children are 5 years old and the teacher is 40 years old. The arithmetic average age is just 6, whereas the logarithmic ($\mathbf{L_{eq}}$) average is 16. This partly explains why $\mathbf{L_{eq}}$ has been found to be a good indicator of the

effects of noise that comprise a series of varying signals over a period of time, such as railway noise.

A.12 An $\mathbf{L_{Aeq}}$ level can be calculated over different time periods depending on the characteristics of the noise and how people are exposed to it. If the noise is steady, a relatively short measurement period will be sufficient to characterise it. If it fluctuates randomly or has cyclical elements, then a longer measurement period will be required to obtain a representative sample. Some standards specify a measurement period, but 10 to 15 minutes is often adequate to obtain repeatable results. In terms of train noise for Chiltern Railways, the approach that has been taken is to identify the noise levels from individual trains and to use these to calculate the noise levels over suitable day and night periods.

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Fiona Bartholomew,
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27 November 2015

Our Ref: TWA/10/APP/01/Oxford City/C 19 (13)

Dear Fiona,

Partial Discharge of Planning Condition 19 Part 13 (Section H) of TWA ref: TWA/10/APP/01 (The Chiltern Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990 Application 15/03110/CND

Network Rail, in conjunction with Chiltern Railways, is proposing to construct a new railway (including the reconstruction of an existing railway) between Bicester and Oxford, together with the construction or reconstruction of stations at Bicester Town, Islip and Water Eaton. These improvements will facilitate the operation of direct railway services between London Marylebone, High Wycombe, Bicester Village (formerly Bicester Town) and Oxford.

The Secretary of State has made the Chiltern Railways (Bicester to Oxford Improvements) Transport Works Act Order "the Order" with modifications, and directed that planning permission be deemed to be granted, subject to the conditions set out in Annex 1 to the letter from Martin Woods (Head of TWA Orders Unit) dated 17th October 2012 (ref: TWA/10/APP/01).

An application [15/03110/CND] to partially discharge Condition 19 Part 13 of the deemed planning direction attached to the Order in relation to Section H was made on 22 October 2015. This application which relates to the approval of details of the size, appearance and location of the noise barriers

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promoted in the approved Schemes of Assessment has been formally consulted upon by OCC. As a result of that consultation a number of comments and queries have been raised on which we think it would be helpful to OCC, in making its decision, to have our responses.

I feel it is worth stating at the outset that the location of the noise barriers shown on the planning drawings which form application 15/03110/CND are based on the approved Section H Noise Scheme of Assessment (SoA) barrier locations. We have check the locations at the receptors mentioned in consultation responses, and there are no substantive differences in the barrier locations from those which were modelled and approved in the Section H Noise SoA.

It is noted that whilst the submitted barrier designs take account of known constraints, the final barrier locations that will be approved for construction will inevitably show minor variations which will reflect on-site factors which affect constructability and that are not currently known to the team e.g. unexpected ground conditions and buried services. Post construction noise monitoring will be required which will check the effectiveness of the mitigation and allows the provision of putting right any defects in mitigation or its performance if required.

The location of the noise barriers was subject to extensive discussion at the time of writing the Section H Noise SoA, during the draft SoA public consultation. A public meeting was held on 16 December 2014. Following the public meeting, local residents were invited to submit their comments on the draft Noise SoA for a period up until 12 January 2015. In total 56 responses were received during this period. ERM replied to all the responses on 11 February 2015, with copies also provided to OCC for review by the Independent Expert.

Responses on the location of the barriers were dealt with at that time. Some of the consultation responses on planning application 15/03110/CND revisit issues that were adequately dealt with at that time. ERM's consultation responses to the Section H SoA on barrier location, length and height and associated amenity issues were submitted and approved as part of the Section H Noise SoA.

The Noise SoA has subsequently been approved, after having been reviewed by the Independent Expert and forms the basis of the location of the barriers in this current submission. The requirement under Condition 19 (13) is that *'where noise barriers **are promoted in an approved scheme of assessment**, they shall be installed only once the local planning authority has given written approval*

of their size, appearance and location'. Condition 9 (9) clearly states that *'Noise mitigation measures shall be permanently installed as approved'*.
On this basis it is clear that the 'in principle' decision about where the noise barriers are to be located has already been made through the approval of the Section H Noise SoA. The requirement under condition 19 (13) is merely to provide more detail on the locations than previously within the SoA. It is on this basis that application 15/03110/CND should be determined.

Having said that, we have gone through a further set of checks in order to inform our responses on the consultation points raised on this application.

I have set out our response to each of the main points raised in turn. and have annexed a summary table to this letter which cross refers our responses to the consultees.

Location of the barrier at Quadrangle House
The location of the noise barriers shown on the planning drawings which form the application 15/03110/CND are based on the approved noise SoA barrier locations. The Project's design contractor, Atkins, has been involved in the project from the early stages of the Project's design and has produced the current design based on the barrier specifications in the Noise SoA. The barrier location at Quadrangle House has been checked, once again as requested, by importing both barriers into an electronic drawing package and there are no substantive differences in the barrier locations from that which has been modelled and approved in the Noise SoA. It is, therefore deemed to be acceptable as it reflects the mitigation proposed in the Noise SoA. The noise modelling was undertaken for the barrier in this proposed location, as set out in the approved Scheme of Assessment.

The existence of a retaining wall at the southern end (Ulfgar Road) was a determining factor for setting back the location of the acoustic barrier and was shown at this location when the draft SoA was published in advance of the public consultation event on 16 December 2014. We considered siting the barrier closer to the track but there are significant engineering concerns around locating acoustic barriers on retaining walls.

Also the continuous barrier in front of Quadrangle House is for the benefit of the properties along St Peter's Road to avoid noise flanking around the barrier. It was acknowledged, and discussed and agreed as part of the Section H SoA Approval Process, that the barrier will not provide significant protection to windows on Quadrangle House that face the track but that these properties will be provided with noise insulation measures to mitigate the noise from the railway.

The potential for making a gap in the barrier as it passes Quadrangle House was investigated and discounted at the SoA design modelling stage as the design submitted and approved provides better noise attenuation with no significant effects on amenity.

The barrier will remain within Network Rail land located 1.2 metres from the Network Rail boundary which is formed of a palisade fence and the wall of Quadrangle House. This will allow sufficient space for access by relevant parties should maintenance be required. The barrier height has been designed to the optimum height for noise attenuation and constructability.

Rationale for parallel overlapping barriers at Bladon Close
An overlap is required as one Barrier is at track level whilst the other is set back to allow the installation of a retaining wall. Joining these two Barriers was considered during the SoA modelling process but it was decided that an overlap provided better noise attenuation.

Also the extent of the overlap required to achieve this attenuation, and as presented in the SoA and the planning drawings, has been checked and was found to be optimal at this location.

The principle of the approach to designing barriers to avoid the flanking paths around the end of barriers and were approved by the Independent Expert as they formed part of the calculation method in the SoA.

Extension of the barrier in the vicinity of Bladon Close
The noise barriers in this location are the same as those in the final Noise SoA that has been formally submitted and approved as part of the planning approval process. The length of the barrier in this location was accepted by the Independent Expert as part of the Section H Noise SoA approval process, and it has been designed to meet the requirements of the Noise and Vibration Mitigation Policy.

Location of the barrier in the vicinity of St Peters and Ulfgar Roads
As noted above, the decision to locate barriers 2.6 m from the railway or close to the boundary of Network Rail's land is based on engineering factors rather than topographic features. The current design information shows the a retaining structure adjacent to Ulfgar Road which is the reason for the change in the barrier alignment from 2.6 m from the railway to close to the Network Rail boundary in this area. Since the barriers discussed above are not located at "line side" locations (i.e. 2.6 m from the track), the barrier height is specified relative to the local ground height in the Noise SoA. The absolute height of the top of the barrier is therefore relative to the finished ground level which will form its base at the specified location. There is no requirement for it to meet a specific absolute height as suggested. Barriers

have been placed at locations at which they are effective in reducing noise impacts.

Barrier length in the vicinity of Lakeside
Noise modelling has been carried out to determine the optimal length and height of the noise barriers in Section H, as part of the assessment of the mitigation required under the Noise and Vibration Mitigation Policy. The length of the barriers has been determined through an iterative process to identify the point at which further significant reductions in train noise cannot be gained by further extensions in barrier length. The end point of the barrier in this location was accepted by the Independent Expert as part of the Section H Noise SoA approval process. There is no difference in the barrier location from that which was modelled and approved in the Noise SoA. It is, therefore deemed to be acceptable as it reflects the mitigation proposed in the Noise SoA.

Provision of 4m Barrier at Lakeside
We are unable to find any reference to a formal offer of a 4m barrier in this location. The barriers have been specified taking into account their noise attenuation benefits and practicability, which included the difficulties presented by taller barriers on health and safety, wind loading, engineering, installation and cost grounds. Barriers of 2.5 m (above rail height close to the tracks or above local ground height when on a cutting) have generally been found to be practicable in North Oxford and elsewhere along the route to Bicester. The provision of a 2.5m barrier in this location rather than a 4m barrier was accepted by the Independent Expert as part of the Section H Noise SoA approval process.

Length of Barrier in the vicinity of Bleinham Drive
The location of the noise barriers shown on the planning drawings which form the application 15/03110/CND are based on the approved Noise SoA barrier locations. The Project's design contractor, Atkins, has been involved in the project from the early stages of the Project's design and has produced the current design based on the barrier specifications in the Noise SoA.

Location of the barrier in relation to Upper Close and Woodstock Road
The barrier designs do seek to locate barriers at a location that is effective and is reasonably practicable. The potential for the need for retaining structures in this location determined the location of the barriers close to the NR boundary as there are significant engineering concerns associated with locating barriers on retaining walls.

Request for inclusion of cross section in vicinity of Upper Close
Figure 1.4 of the "Note to Provide Requested Additional Information to the Independent Expert For Noise on the Noise Scheme of Assessment covering Route Section H" December 2014 shows a cross section through the cutting at Upper Close (available at http://public.oxford.gov.uk/online-applications/files/745E34CB17396A07EA3DEE68638A8B0D/pdf/15_00956_CND-NOISE_ASSESMENT-1571637.pdf). This is one of a number of cross sections provided to the Independent Expert to allow him the fully test the result from the now approved SoA.

In addition, drawing No: 5114534-ATK-DRG-CV-003500 Rev P1 shows a typical cross-section through a 2.5 metre high barrier.

Visual impact of barriers
The commitment to mitigate noise considered under the approved SoA has been balanced against that of any potential for visual impacts on property.

Exceedance of modelled noise predictions
The Noise SoA from which the barrier locations are derived is based on the service levels that were discussed and agreed by the Inspector at the TWA Inquiry (and confirmed by the Secretary of State's decision to grant the Order). They continue to represent a 'reasonable assessment of likely future service frequencies'.

Design of the acoustic barriers
The barriers have been designed to absorb rail noise and are carefully specified in terms of design, materials and installation to ensure that the noise reductions which are required will be achieved and that the barrier will only require minimum maintenance. The barriers will have an external timber finish, similar to those used for highway noise barriers.

Barrier protection for first and second floor windows
As stated previously, the optimal length and height of the noise barriers has been determined by the noise modelling. Noise mitigation required under the Noise and Vibration Mitigation Policy requires that eligible rooms will be provided with noise insulation, but the final decision on these will be made once the eligibility surveys have been completed.

Barrier Life Expectancy
The barriers have been designed to achieve a service life of 40 years and require no maintenance for 20 years, as is required for highways noise barriers. Network Rail will be responsible for maintaining the barriers over the life of the railway.

OS mapping
The latest version of OS base mapping has been used in the assessment. At the time of the assessment checks were made to make sure that the modelling did take account of recent changes that have not yet been registered by OS (e.g. Bladon Close), to ensure that these properties were considered in the assessment.

Impact of the loss of vegetation
The foliage of trees and shrubs can provide only a small amount of attenuation to noise, even then only if it is sufficiently dense and deep. ISO 9613-2 [1] includes a small allowance for attenuation through foliage, where it is between 10 m and 20 m deep (no allowance is made for depths less than 10 m). However, CRN, the standard prediction methodology for railways, provides no allowance for attenuation from foliage, which is a cautious approach.

We look forward to receiving your confirmation that the Council is satisfied that the requirements relating to the partial discharge of Condition 19 part 13 for Section H have been met.

Yours sincerely

Sarah Goodall
Principal Consultant
ERM

[1] International Organisation for Standardisation (ISO), (1996); International Standard 9613-2: Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation.

Resident/Property	Issue
McClements, 14 Quadrangle House	Location of the barrier at Quadrangle House
Rosser, 7 Quadrangle House	Location of the barrier at Quadrangle House
10, Quadrangle House	Location of the barrier at Quadrangle House
Edmondson, 3 St Peters Rd	Location of the barrier at Quadrangle House
Dancey, 15 Quadrangle House	Location of the barrier at Quadrangle House
	Location of the barrier in the vicinity of St Peters and Ulfgar Roads
	Design of the acoustic barriers
	Barrier Life Expectancy
Robinson and Usborne, 2b Bladon Close	OS mapping
	Rationale for parallel overlapping barriers at Bladon Close
Thorowgood, 41 Bleinham Drive	Length of Barrier in the vicinity of Bleinham Drive
	Exceedance of modelled noise predictions
	Impact of the loss of vegetation
Taylor, 15 Lakeside	Barrier length in the vicinity of Lakeside
	Provision of 4m Barrier at Lakeside
Lewis, 3 Bladon Close	OS mapping
	Rationale for parallel overlapping barriers at Bladon Close
	Extension of the barrier in the vicinity of Bladon Close
Dyson, 2 Upper Close	Location of the barrier in relation to Upper Close
	Request for inclusion of cross section in vicinity of Upper Close
	Visual impact of barriers
Channer, 313 Woodstock Road	Length of Barrier in the vicinity of Bleinham Drive and Woodstock Road
	Exceedance of modelled noise predictions

Resident/Property	Issue
	Impact of the loss of vegetation
Kauffmann, 61 Blenheim Drive	Length of Barrier in the vicinity of Bleinham Drive
	Exceedance of modelled noise predictions
Scott, 23 Blenheim Drive,	Length of Barrier in the vicinity of Bleinham Drive
	Exceedance of modelled noise predictions
	Impact of the loss of vegetation
Johnson, 57 Blenheim Drive,	Length of Barrier in the vicinity of Bleinham Drive
Boyd, 23a Bleinham Drive	Length of Barrier in the vicinity of Bleinham Drive
	Exceedance of modelled noise predictions
	Impact of the loss of vegetation
Peppiatt, 62 Blenheim	Length of Barrier in the vicinity of Bleinham Drive
	Exceedance of modelled noise predictions
	Impact of the loss of vegetation
White, 24 Blenheim Drive	Length of Barrier in the vicinity of Bleinham Drive
	Exceedance of modelled noise predictions
Stedman, 63 Blenheim Drive	Length of Barrier in the vicinity of Bleinham Drive
	Exceedance of modelled noise predictions
	Impact of the loss of vegetation
Whitby, 1 Upper Close Oxford	OS mapping
	Barrier protection for first and second floor windows
	Location of the barrier in relation to Upper Close
	Request for inclusion of cross section in vicinity of Upper Close
Bleach, 47 Rosamund Road	Request for inclusion of cross section
	Visual impact of barriers
Robertson, 37 Lakeside	Provision of 4m Barrier at Lakeside

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