

Network Rail Infrastructure Limited

Transport and Works Act 1992

Network Rail (Essex and Others Level Crossing Reduction) Order (the Order) Inquiry

Note regarding plan changes

Introduction

- 1 Since the Inquiry into this Order adjourned in October 2017 there have been two further inquiries, in relation to the Network Rail (Cambridgeshire Level Crossing Reduction) Order, held between November 2017 and February 2018; and the Network Rail (Suffolk Level Crossing Reduction) Order, held between February 2018 and May 2018. All three orders fall under the same wider Anglia Route Level Crossing Reduction Strategy and involve the same project team.
- 2 In relation to the Network Rail (Suffolk Level Crossing Reduction) Order, Network Rail was made aware of issues in relation to the application of digital data to show on the Order plans the alignment of the existing public rights of way as recorded on the definitive map. The issue related to issues of projection (see further below). Network Rail worked with the Highway Authority and these issues were resolved during the inquiry during April and May 2018.

The issues

- 3 Following the Suffolk Inquiry, Network Rail and its consultants, Mott MacDonald, thought it prudent to check whether any similar issues arise in relation to the plans for this Order. Network Rail and Mott MacDonald checked the plans and only identified an issue in relation to the Order plans relating to Essex County Council. Network Rail and Mott MacDonald have liaised with the Council regarding use the electronic (GIS) data from the Council's website and the effects on the plans for this Order. Having considered the information provided by Network Rail and Mott MacDonald, the Council confirmed in late July 2018 use of the electronic (GIS) data on the TWA plans to indicate the prows as shown on the Definitive Map. Network Rail is grateful for the Council's assistance.
- 4 The key issue identified on both the Suffolk and Essex plans arose primarily due to a likely error in use of the conversion tool by Mott MacDonald, which required the projection associated with the Council's MapInfo file to be defined prior to converting it to Mott MacDonald's ESRI shapefile for use in the scheme design development, consultation drawings and TWAO plans.
- 5 A projection is a defined specification for the display of information from a three-dimensional curved surface (the globe) on to a two-dimensional surface (a paper map). There are different forms of projection based on the location on the Earth and often defined by the national mapping agencies as a national standard. These include accepted distortions to properties of the three-dimensional world to represent the world on a two-dimensional surface.
- 6 In the UK this is the British National Grid as defined by the Ordnance Survey, which has limitations in its suitability for the extreme eastern or western extents for Great Britain. The projection is conformal, meaning small shapes are maintained accurately; with directions also maintained.

- 7 The scale is accurate along the two secant lines 180km from the central meridian, but away from these lines, the scale is compressed between them and expanded beyond them, with a scale factor approximating to 0.9996 included in the definition of the projection. Most CAD or GIS software include the use of projections natively and the projection is not calculated by the user.
- 8 In the case of the ESRI shapefile conversion, it appears that the conversion software used applies an approximate projection for the file when first loaded, but requires manual definition of the correct projection to load the electronic depiction of the Definitive Map in the correct location. The tool undertook the conversion assuming the approximate projection to the MapInfo file from the initial load, which was carried forward to the shapefile rather than the correct British National Grid projection which ought to have been defined.
- 9 These parameters for the projection specification would mean that the shape and size of the data would not change substantially and may not have been noticeable on the small-scale plans and drawings without conducting a verification against known 'good' data unaffected by exchange of raw information, e.g. PDFs of the Definitive Map.
- 10 This version of the converted Definitive Map was then used as the base data for the TWAO drawings, with the addition of Non-Definitive routes and the scheme proposals as part of a combined layer of information used in the drawings.

What has been the effect

- 11 The effect of the issue with projection as described above has meant that the distortion on the TWAO plans has shown a number of the public rights of way slightly out of position as against the Definitive Map. A number of the corresponding reference points ("P" points which, for the purposes of the Order and plans identify the route and extent of extinguishments/creation of new highway (prow) by reference to the existing highway position) were correspondingly out of position on the Order plans as originally submitted.
- 12 The intention of the Order is to extinguish or create extents of new highway (prow) from an identifiable point or connection with the existing highway (prow) by reference to these "P" points. Network Rail is not changing its proposals or extending its powers as set out in the draft Order; it is updating the plans to properly reflect the position of the prow as shown on the Definitive Map, and therefore the position of the "P" points, when correctly overlaid on the Order plans including adjustment for projection. .

What Network Rail is doing

- 13 As a result, Network Rail, will therefore submit a set of revised plans, as soon as they are available, which correct the distortion due to the projection error and show revised "P" points. Network Rail will provide the Council, as highway authority, with a set of the revised plans.
- 14 Network Rail will also write to all affected landowners within Order limits to explain the corrections to the plans and to provide a copy of both the original application plan and revised plan. The letter explains that their land will not be affected any differently: existing prow will be stopped up between the relevant P points, or new prow will be dedicated and any necessary works carried out, by reference to the P points on the plans, and within Order limits, if Network Rail exercises the Order powers.
- 15 Given that the distortion is related to projection (curvature), displacement is not uniform across all plans and in some cases there are therefore some very minor adjustments to

the plans which, at the scale required under the Transport and Works (Applications and Objections Procedure)(England and Wales) Rules 2006, result in a change which is not perceptible to the eye. These will nevertheless be amended on the plans.

- 16 The changes to the "P" point references as a result of the projection issue will result in adjustment to the references to the P points in Schedules 2, 4 and 10 to the Order. Those changes will be addressed in a separate note on proposed changes to the draft Order to be submitted when the inquiry resumes.

Other changes to plans

- 17 The revised plans to be submitted will also include other changes which have been agreed with landowners. These changes arose from discussions between Network Rail and landowners. The inspector will recall that in the course of day 1 of the inquiry Network Rail submitted a note (NR-INK-104) detailing the process for comment on modifications to the proposed prowl routes in the draft Order and accompanying plans. The Inspector requested in addition that the plans should appear on the inquiry website.
- 18 Although Network Rail intended to recommence the consultation on these plan changes, well in advance of the reconvening of the inquiry, once it was confirmed that the projection issue affected the Essex Order plans, it was clear that the projection issues on the plans would need to be resolved before the proposed consultation on changes to the proposed prowl routes could take place. Network Rail is now able to initiate the consultation on the basis previously agreed on Sheet 11 (E05 Fullers End), Sheet 16 (E08 Henham), Sheet 30 (E20 Snivellers). Comments are to be received by 24 September 2018. Subject to reaching agreement with landowners, Network Rail may seek comments on proposed changes to a further three plans.

Winckworth Sherwood LLP

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