

# *Hucknall Town Centre Improvement Scheme*

## *Noise Insulation Regulations Assessment*

*Prepared for: Nottinghamshire  
County Council*

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# **CONTENTS**

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Background	1
1.2	Scheme	1
1.3	Purpose of Assessment	1
1.4	Site Description	1
<b>2</b>	<b>Noise Insulation Regulations</b>	<b>3</b>
<b>3</b>	<b>Methodology</b>	<b>4</b>
3.1	Traffic Data	4
3.2	Traffic Noise Calculations	4
3.3	Application of the Regulations	5
<b>4</b>	<b>Results</b>	<b>6</b>
<b>5</b>	<b>Conclusions</b>	<b>8</b>
	<b>Appendix A: Noise Perception and Terminology</b>	<b>10</b>
	<b>Appendix B: Site Photos</b>	<b>11</b>
	<b>Appendix C: Noise Model</b>	<b>20</b>

# 1 Introduction

## 1.1 Background

Nottinghamshire County Council (NCC) has obtained planning permission for various improvement works to the road network in Hucknall Town Centre. The scheme is known as the 'Hucknall Town Centre Improvement Scheme'.

The works involve the construction of new sections of highway and alterations to existing highways, and therefore fall under the requirements of the Noise Insulation Regulations 1975<sup>1</sup> (as amended 1988<sup>2</sup>).

## 1.2 Scheme

The improvement works involve the construction of a new link road extending from Annesley Road/Baker Street in the west to Station Road in the east. The new link road crosses Titchfield Street, Albert Street, Perlethorpe Drive and Woollaton Street. A new bus link will also be constructed between the link road and the High Street, with a connection onto Albert Street. The High Street will be closed to traffic between South Street/Baker Street and Watnall Road.

The existing roundabout junction at Station Road/Ashgate Road will be replaced with a crossroads junction. This requires some realignment of Ashgate Road, Station Road, Linby Road and Station Terrace.

The junction of Thoresby Dale and Station Road is stopped up, and a section of South Street/Baker Street, between Ogle Street and West Street, is realigned.

As part of the works the following buildings will be demolished:

- 22, 24 and 26 Baker Street;
- 27, 29, 31 and 33 Titchfield Street (26 Titchfield Street (industrial premises) has previously been demolished);
- 14, 16, 28, 30, 32 and 34 Woollaton Street (27, 29, 31, 33, 35 and 37 Woollaton Street have previously been demolished); and
- 42 High Street.

A number of sections of brick wall and close boarded fence are proposed along the new link road as part of the works.

The Hucknall Town Centre Improvement Scheme (the Scheme) is illustrated in Figures 1 and 2.

## 1.3 Purpose of Assessment

Aecom has been appointed by NCC to undertake an assessment of road traffic noise levels in the vicinity of the improvement works in accordance with the requirements of the Noise Insulation Regulations 1975 (as amended 1988). The purpose of the assessment is to identify which facades of which residential buildings in the vicinity of the works meet the various criteria in the Regulations, and therefore qualify for noise insulation works.

A brief background to acoustic terminology is provided in Appendix A.

## 1.4 Site Description

The new link road is located to the north of Hucknall town centre, which is focussed on the commercial premises located along the High Street. The closest buildings to the new link are predominantly residential in nature on The Maltings, Titchfield Street, Albert Street, Perlethorpe Drive, Woollaton Street and Thoresby Dale. At each end of the new link road the closest buildings are a mixture of commercial and residential premises on Annesley

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<sup>1</sup> The Noise Insulation Regulations 1975, Statutory Instrument No. 1763, 1975

<sup>2</sup> The Noise Insulation (Amendment) Regulations 1988, Statutory Instrument No. 2000, 1988

Road, Baker Street and Station Road, including The Byron Centre residential flats on the corner of Annesley Road and Baker Street.

A mixture of commercial and residential premises is located along Baker Street/South Street in the vicinity of the road realignment works in this area.

At the new junction of Station Road/Ashgate Road the Station Hotel PH, and two blocks of residential flats (The Junction) are located to the north east of the junction. The tram/station park and ride, and commercial premises including Tesco, are located to the south east/south west of the new junction.

Photos of the area surrounding the town centre improvement works are provided in Appendix B.

## 2 Noise Insulation Regulations

The Noise Insulation Regulations 1975 (as amended in 1988) provide for the insulation of buildings against road traffic noise and provide for ventilation and solar control.

The highway authority (NCC) has a duty to carry out insulation work or to offer grants for the work to be carried out at eligible properties if certain criteria are met when either a new highway (located completely outside the extents of any existing highway) or an additional carriageway is to be constructed. The duty does not apply to altered highways (i.e. where the completed highway overlaps an existing highway). The four noise criteria set out in the Noise Insulation Regulations are:

1. The building must be within 300m of the nearest point on the highway to which the Regulations apply; and
2. The combined maximum traffic noise level in the first 15 years after opening, the 'relevant noise level', from the new or altered highway(s), together with any other traffic in the vicinity, must not be less than the specified noise level of 68 dB,  $L_{A10,18h}$ ; and
3. The relevant noise level must be at least 1.0 dB(A) more than the 'prevailing noise level', defined as the total traffic noise level existing immediately before the highway works were begun; and
4. The 'new/additional highway' must make an effective contribution to the relevant noise level of at least 1.0 dB(A).

Both the 'relevant noise level' and the 'prevailing noise level' are calculated at 1m from the façade of any windows or doors in 'eligible rooms' within an 'eligible building'. The Regulations specify that the traffic noise levels are calculated in accordance with the methodology in the Calculation of Road Traffic Noise' (CRTN<sup>3</sup>). All calculations are completed to the nearest 0.1 dB, however, for the purposes of comparison with the relevant noise level, a predicted level of 67.5 dB is rounded up to 68 dB.

Under the Regulations, an 'eligible building' is defined as a residential property or other building used for residential purposes, such as nursing homes and student flats, within 300m of the scheme. Offices and commercial buildings are not 'eligible' buildings, as defined in the Regulations. The area within 300m of the highway works is illustrated in Figure 1, including the buildings identified as being used for residential purposes.

Within an eligible building, only certain rooms are eligible for noise insulation works. These are bedrooms and living rooms, including dining rooms and studies. In addition, the room must have a window or door in a façade at which all the noise criteria are met. Self-contained kitchens and bathrooms are not eligible.

Noise insulation works specified by the Regulations comprise:

- conversion to a double window by the installation of a new inner window (secondary glazing), or, if essential, replacement by a new double window;
- supplementary ventilation (powered ventilator unit and passive permanent vent);
- venetian blinds fitted between the panes of the double window for each qualifying window which faces a direction within the 270° arc between north-east and north-west; and
- second door behind each qualifying door, or where this is not practicable, provision of a new single door with improved noise insulation properties, or fitting a second panel of glass behind any existing glazed panel in an existing door.

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<sup>3</sup> Calculation of Road Traffic Noise (CRTN), The Department of Transport and the Welsh Office 1988  
 HUCKNALL NOISE INSULATION REGULATIONS  
 January 2016

## 3 Methodology

### 3.1 Traffic Data

To predict traffic noise levels, traffic data in the form of 18 hour weekday flows, % heavy goods vehicles (HGV) and average speed are required. NCC have provided suitable traffic data for the Scheme and surrounding road network, extending approximately 500m from the Scheme in each direction. The data have been provided for 2015 (to represent the situation immediately before construction begins, to enable the calculation of the 'prevailing noise level'), and for 2030 with the Scheme in place (to represent the situation 15 years after opening, to enable the calculation of the 'relevant noise level'). 2030 has been used to calculate the maximum traffic noise level in the first 15 years after opening, based on the assumption that traffic flows gradually increase over time.

### 3.2 Traffic Noise Calculations

The 18 hour traffic data have been used to predict the prevailing noise level and the relevant noise level at each residential building within 300m of the Scheme. The extent of the 300m study area is illustrated on Figure 1.

Traffic noise levels have been calculated following the Calculation of Road Traffic Noise (CRTN) methodology. CRTN is the standard traffic noise prediction methodology for the UK and is specified as the required method in the Noise Insulation Regulations. CRTN is based on 18 hour traffic flow data, % heavy goods vehicles (HGV) and average traffic speed. It also incorporates corrections for road surface type, ground type, road gradient and any attenuation provided by intervening buildings or other features.

The SoundPLAN noise modelling software (v7.3), which implements the CRTN methodology, has been used to calculate the required traffic noise levels at each residential building within 300m of the Scheme. Noise levels have been predicted at each exposed façade and at each floor of each building within 300m of the Scheme, totalling almost 20,000 locations. The prevailing noise level and the relevant noise level at each location are predicted at 1m from each façade of the building. Calculations at the ground, first and second floor levels have been undertaken at a height of 1.5m, 4m and 6.5m above local ground respectively.

The software has been used to create separate 3D models to predict:

1. the prevailing noise level;
2. the relevant noise level;  
and the breakdown of noise contributions to the relevant noise level from
3. new highways; and
4. all other highways.

To create the models, the following data sources have been used:

- 3D AutoCAD topographic survey drawing for the extent of the Hucknall town centre improvement works, to allow as detailed as possible a dataset to be used for the existing ground heights and positions of features along the Scheme;
- 3D AutoCAD scheme design drawing for the new Hucknall town centre improvement works, to be used for the heights and layout of the Scheme;
- 2m ground height contours to provide detailed existing ground height data beyond the extents of the topographic survey and scheme design height information;
- OS mapping (OS mastermap) data, to provide information regarding the position of features including all buildings, roads etc. beyond the topographic survey and scheme drawing extents;
- OS building usage data (OS addressbase), to aid in the identification of residential buildings, this has been supplemented by observations during a site visit and information on council tax on the 'Direct Gov' website<sup>4</sup>; and
- building height data which have been estimated from aerial photography and a site visit.

Further technical details of the noise modelling are provided in Appendix C.

<sup>4</sup> Direct.gov.uk accessed 27<sup>th</sup> May 2015



The noise model extends beyond the 300m calculation area specified by the Regulations to ensure that all significant road traffic noise sources and buildings are included in the model. The buildings to be demolished by the construction of the Scheme are assumed to be present in the calculation of the prevailing noise level and absent in the calculation of the relevant noise level. This means a number of new facades are exposed to traffic noise with the Scheme in operation, which currently form a dividing wall with an adjacent building, and are therefore not currently exposed to traffic noise. The buildings demolished by the Scheme are shown on Figure 2.

Small scale structures such as existing boundary fences have not been incorporated into the noise prediction model. A number of walls will be constructed as part of the Scheme, these are included in the noise predictions of the relevant noise level as they are assumed to be of sufficient mass, with no gaps or holes, to provide an effective acoustic barrier. A number of sections of close-boarded wooden fence will also be installed as part of the Scheme. However, as these are not proposed to be 'acoustic barriers', as specified in the relevant British Standards, a conservative approach has been adopted and they have not been included in the predictions of the relevant noise level. The sections of wall and close boarded fence incorporated within the Scheme are illustrated on Figure 2.

A standard 'hot rolled asphalt' type road surface has been assumed for all road links in the calculation of both the prevailing and relevant noise levels. The new link road will actually be surfaced using a 'low noise surface'. However, current advice from Highways England (formerly the Highways Agency) is to not assume any additional noise benefit from low noise surfaces at low traffic speeds (<75 km/hr)<sup>5</sup>. As the speed limit on the new link road will be 30 mph (48 km/hr), well below 75 km/hr, a conservative approach has been adopted, in line with current guidance, and no additional benefit from the low noise surface has been assumed.

### 3.3 Application of the Regulations

As discussed in Section 2, in order for a residential building to qualify under the duty to provide insulation, the effective contribution to the relevant noise level of at least 1.0 dB(A) must be due to noise from a new highway or additional carriageway. In the context of this scheme, the following sections of the Scheme have been interpreted as new carriageway, as detailed on Figure 2:

- the entire length of the link road from the junction with Annesley Road/Baker Street in the west to the junction with Station Road in the east.
- the new bus link between the link road and the High Street, including the connection to Albert Street;
- the section of Ashgate Road at the new junction with Station Road which is completely outside the boundary of the current carriageway of Ashgate Road; and
- short sections at the southern end of Albert Street and Perlethorpe Drive where they connect onto the link road, and where the new carriageway is completely outside the boundary of the current carriageway.

The remainder of the scheme overlaps, at least in part, an existing highway and is therefore defined as an altered highway:

- the sections of Annesley Road/Baker Street which are realigned to form the new junction with the link road;
- the section of Baker Street (south of Ogle Street) and South Street which are realigned as part of the works;
- Station Road;
- Titchfield Street;
- Linby Road; and
- the sections of Albert Street, Perlethorpe Drive and Ashgate Road which are realigned but overlap with the existing carriageway to some extent.

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<sup>5</sup> Design Manual for Roads and Bridges Volume 11 Part 7, Highways Agency, 2011  
 HUCKNALL NOISE INSULATION REGULATIONS  
 January 2016

## 4 Results

Analysis of the predicted road traffic noise levels at all façades of all residential buildings within 300m of the Scheme indicates that one or more façades, at one or more floors, meet all the noise insulation criteria at a total of 26 buildings. These buildings, and the qualifying façades, are shown in Figure 3 and listed in Table 4.1 below. A façade has been deemed to qualify if it meets all the criteria at one or more floors. Table 4.1 also details if windows and/or doors have been identified on the relevant façades.

Photos of each building are provided in Appendix B. The same Building Reference number is used in Table 4.1 and Figure 3.

**Table 4.1: Qualifying Buildings**

Ref	Building	No. Storeys	Façade	Notes
1	36 Woollaton Street	2	E, W & S	S façade currently forms separating wall with adjacent property therefore no windows or doors on S façade. Windows and door on W façade, no access to check E (rear) façade but likely to be windows and/or a door
2	22 Woollaton Street	2	E & N	N façade currently forms separating wall with adjacent property therefore no windows or doors on this façade, no access to check E (rear) façade but likely to be windows and/or a door
4	28 Titchfield Street	2	W, S & E	Property immediately to N of link road, windows and door on W façade, no windows visible on S façade, though maybe present towards the rear of the property, no access to check E (rear) facade but likely to be windows and/or a door
5	25 Woollaton Street	2	E & N	Property immediately to S of link road, no windows or doors visible on N facade, windows and door on E facade
37	16 Baker Street	2	N	Majority of N façade qualifies. Commercial on ground floor, unclear if residential on first floor (not identified via OS or Council Tax) though from visual inspection potential to be residential
46	7 Wilcockson's Yard	2	E & N	3 storey building at east end of block (connects onto 16 Baker Street – 2 storey), E façade windows, N façade windows though covered up. Not identified as residential via OS or Council Tax though from visual inspection appears likely to be residential
122	Pinfold House, Annelsey Road	3	E	Short section of E façade qualifies but no windows or doors identified
1024	38 Woollaton Street	2	W	W façade faces onto Woollaton Street to north of new link road, windows and door on W façade
1045	41 Titchfield Street	2	S & W	S facade faces onto new link road windows present though boarded up, no access to check W (rear) facade but likely to be windows and/or a door
1329	Rovert House, Station Street	2	NE & NW	NE and NW façades face onto new link road, windows and/or door identified on NE and NW facades
1330	1 Thoresby Dale	2	S	S façade faces onto new link road, window located on S facade

1341	36a High Street	1	NE	Bungalow, windows and door located on NE façade facing link road
1359	36 Titchfield Street	2	W	W façade faces onto Titchfield Street, to north of new link road, windows and door located on W facade
1360	34 Titchfield Street	2	W	W façade faces onto Titchfield Street, to north of new link road, windows and door located on W facade
1361	32 Titchfield Street	2	W	W façade faces onto Titchfield Street, to north of new link road, windows and door located on W facade
1362	30 Titchfield Street	2	W	W façade faces onto Titchfield Street, to north of new link road, windows and door located on W facade
1370	17 Albert Street	2	E	E façade faces onto Albert Street, to south of new link road, windows and door located on E facade
1371	19 Albert Street	2	E, N & W	N and E façade faces onto new link road windows and/or door located on E and W facades, nothing identified on N facade
1372	39 Albert Street	2	W & S	S façade faces onto new link road, windows and/or door located on W and S façades
1373	41 Albert Street	2	N, W & S	Rear (W) façade faces towards new link road, windows and/or door located on W, N and S facades
1374	43 Albert Street	2	W	Rear (W) façade faces towards new link road, windows located on W facade
1375	45 Albert Street	2	W	Rear (W) façade faces towards new link road, windows located on W facade
1387	18 Perlethorpe Drive	2	W & S	S façade faces towards new link road, windows and/or door on W and S facades
1388	16 Perlethorpe Drive	2	S	S façade faces towards new link road, window and door on S facade
1414	5 Wilcockson's Yard	3	N	3 storey building at east end of block (connects onto 16 Baker Street – 2 storey) N façade faces onto new link road, windows present though covered up
1789	The Byron Centre, Annesley Road/Ogle Street	3	E	On corner of realigned Annesley Street/Baker Street, at junction with new link road, residential flats, commercial on ground floor, E façades closet to link road qualify

As would be expected, the buildings that qualify are those in close proximity to the new link road.

The presence of a window or door on the qualifying façades identified in Table 4.1 and Figure 3 has been determined through a site visit (see photos in Appendix B) though at some buildings access to the relevant façade has not been possible (as detailed in Table 4.1).

At the next stage of the assessment NCC will determine the presence of doors/windows on all facades identified as qualifying under the regulations. In addition, the use of the room into which the door/window opens will be determined to identify if it is an eligible room, as defined under the Regulations. As detailed in Table 4.1 for some buildings the residential use of the building will also need to be confirmed (16 Baker Street Ref: 37, and 7 Wilcockson's Yard Ref: 46).

## 5 Conclusions

A total of 26 residential buildings have been identified as meeting the various criteria in the Noise Insulation Regulations at one or more façades at one or more floors. Therefore the highways authority (NCC) has a duty to carry out noise insulation work or to offer grants for the works to be carried out to the eligible facades.

At the next stage of the assessment NCC will determine the presence of doors/windows on all facades identified as qualifying under the regulations. In addition, the use of the room into which the door/window opens will be determined to identify if it is an eligible room, as defined under the Regulations. For some buildings the residential use of the building will also need to be confirmed (16 Baker Street, Ref: 37, and 7 Wilcockson's Yard, Ref: 46).

# *Appendices*

## Appendix A: Noise Perception and Terminology

Between the quietest audible sound and the loudest tolerable sound there is a million to one ratio in sound pressure (measured in Pascal's, Pa). Because of this wide range a noise level scale based on logarithms is used in noise measurement called the decibel (dB) scale. Audibility of sound covers a range of approximately 0 to 140 dB.

The human ear system does not respond uniformly to sound across the detectable frequency range and consequently instrumentation used to measure noise is weighted to represent the performance of the ear. This is known as the 'A weighting' and annotated as dB (A). Table A1 below lists the sound pressure level in dB (A) for common situations.

**Table A.1: Sound Pressure Levels for a Range of Situations**

Typical Noise Levels dB(A)	Example
0	Threshold of hearing
30	Rural area at night, still air
40	Public library Refrigerator humming at 2m
50	Quiet office, no machinery Boiling kettle at 0.5m
60	Normal conversation
70	Telephone ringing at 2m Vacuum cleaner at 3m
80	General factory noise level
100	Pneumatic drill at 5m
120	Discotheque - 1m in front of loudspeaker
140	Threshold of pain

The noise levels at a measurement point are rarely steady, even in rural areas, and vary over a range dependent upon the effects of local noise sources. Close to a busy motorway, the noise levels may vary over a range of 5 dB(A), whereas in a suburban area this may increase up to 40 dB(A) and more due to the multitude of noise sources in such areas (cars, dogs, aircraft etc.) and their variable operation. When considering environmental noise, it is necessary to consider how to quantify the existing noise (the ambient noise) to account for these second to second variations.

With regards to road traffic noise the parameter  $L_{A10}$  is prescribed by the relevant guidance and legislation.  $L_{A10}$  is the noise level exceeded for 10% of the measurement period, it is generally used to describe road traffic noise. The  $L_{A10,18h}$  is defined in CRTN as the arithmetic average of the individual 1 hour  $L_{A10,1h}$  levels between 06:00-00:00.

Human subjects are generally only capable of noticing changes in steady levels of no less than 3 dB(A). It is generally accepted that a change of 10 dB(A) in an overall, steady noise level is perceived to the human ear as a doubling (or halving) of the noise level.

Most environmental noise measurements and assessments are undertaken for 'free-field', away from any existing reflecting surfaces (other than the ground). However, CRTN specifies a position 1m from the façade, and applies a +2.5 dB addition to the free-field level, due to noise reflection from the façade.

## Appendix B: Site Photos



Figure B.1: West façade of 36 (on right of picture) and 38 Woollaton Street ( Ref: 1 and 1024) (No. 40 and 42 on left of picture)



Figure B.2: West façade of 22 (in centre of picture) Woollaton Street (Ref: 2)



**Figure B.3: West and south façade of 28 Titchfield Street (Ref: 4) and no. 28, 30, 32, 34 and 36 Titchfield Street to north of No. 28 (Ref: 1362, 1361, 1360 and 1359)**



**Figure B.4: East and north façade of 25 Woollaton Street (Ref: 5)**





Figure B.5: East façade of Pinfold House (Ref: 122), only short section on left of picture qualifies under the Regulations, no windows or doors on this section



Figure B.6: North façade of 16 Baker Street (Ref: 37) closest to the road, 5 Wilcockson's Yard (Ref: 1414) in centre, and 7 Wilcockson's Yard (Ref: 46), furthest from the road



Figure B.7: East façade of 7 Wilcockson's Yard (Ref: 46) in centre of picture



Figure B.8: South and east façade of 41 Titchfield Street (Ref: 1045)



Figure B.9: North east façade of Rovert House, Station Street (Ref: 1329)



Figure B.10: North east and north west façades of Rovert House, Station Street (Ref: 1329)



**Figure B.11: South and east (front) façade of 1 Thoresby Dale (Ref: 1330)**



**Figure B.12: North façade of 36a High Street (Ref: 1341), photo taken during 2008 baseline noise monitoring survey**



Figure B.13: East façade of 17 and 19 Albert Street (Ref: 1370 and 1371), last two houses on right of picture



Figure B.14: North and west facade of 19 Albert Street (Ref: 1371)



**Figure B.15: South and west facade of 39 Albert Street (Ref: 1372)**



**Figure B.16: West facade of 39, 41, 43 and 45 Albert Street (Ref: 1372, 1373, 1374 and 1375)**



Figure B.17: South and west facade of 18 Perlethorpe Drive (Ref: 1387) and south façade of 16 Perlethorpe Drive (Ref: 1388)



Figure B.18: East façade of The Byron Centre, corner of Baker Street and Annesley Road (Ref: 1789)

## Appendix C: Noise Model

### Data sources




- 3D AutoCAD topographic survey drawing of existing ground heights for the scheme extents, file: Hucknall Design and Survey to OS co-ords.dwg, received from NCC 05/10/12;
- 3D AutoCAD scheme design drawing for the Hucknall town centre improvement scheme, file: Hucknall TC Design Master to OS 3D.dxf, received from NCC 10/04/15;
- Details of location and heights of walls and close boarded fencing within the Scheme, file: HTCIS - Proposed Boundary Treatments [DRAFT].pdf, received from NCC 09/04/15;
- 3D wider area 2m contour ground height data, file: TerrainGrid\_contour\_polyline.dbf, received from NCC 21/11/08;
- OS Mastermap, file: dataOS\_Master\_Map.dbf received from NCC 20/03/15;
- OS Addressbase data on building usage, file: AddressBasePremium\_FULLL\_2015-04-22\_001\_gml.zip, received from NCC 05/05/15
- Traffic data: 'Noise Hucknall.zip' from NCC 17/09/12. Amendments to Perlethorpe Drive received by e-mail 01/10/12 and revised speeds 17/10/12. Additional data for Papplewick Lane and Wigwam Lane received by e-mail 19/10/12. Revised 'with scheme' flows and %HGV received by e-mail 20/11/12 and 22/11/12.

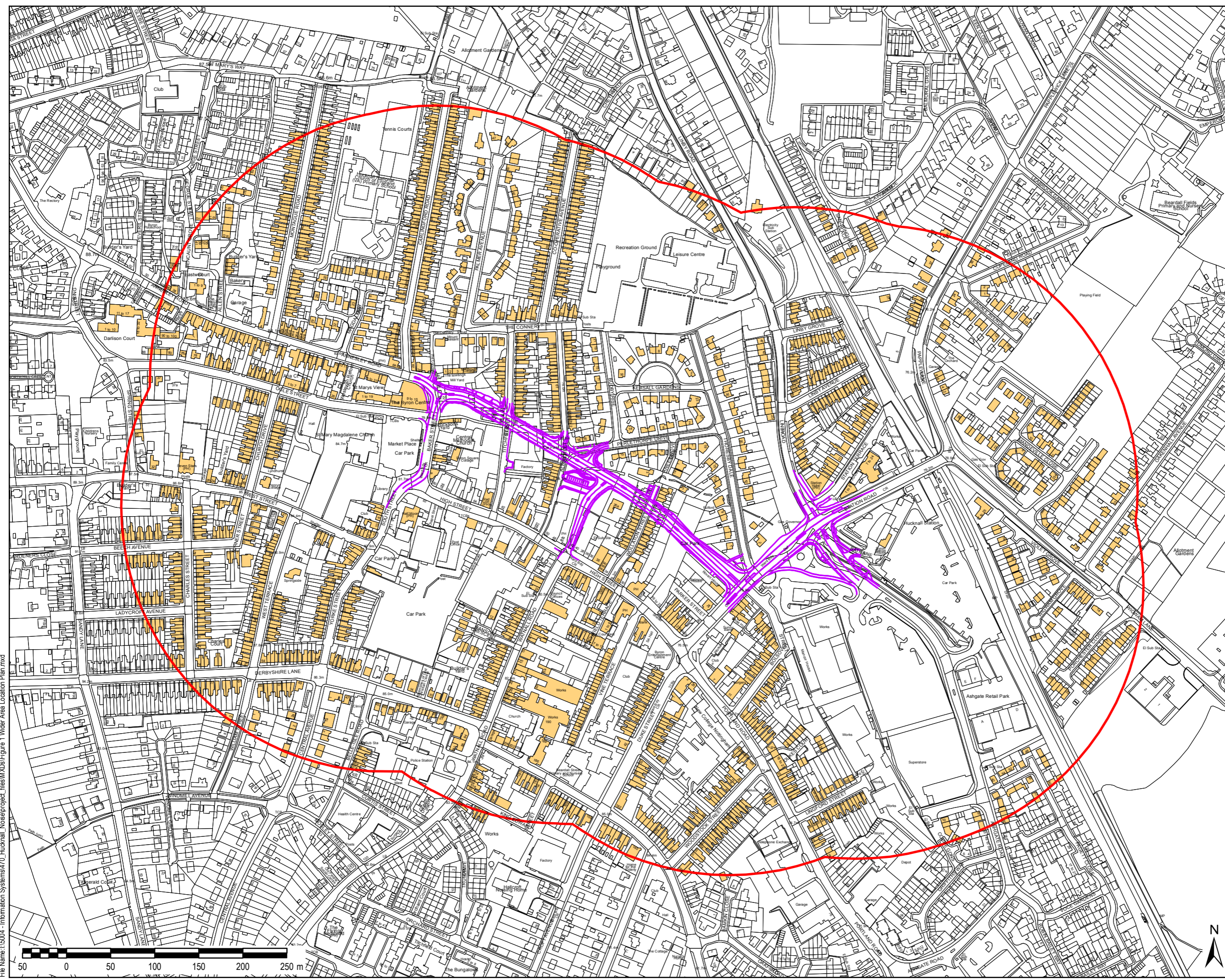
### Modelling Assumptions

- Ground Absorption: 0.25 (predominantly hard/reflective) used for majority of study area which consists of roads and pavements (hard ground) but also some areas of gardens and vegetation (soft/absorbent). 0.0 (hard/reflective) used for all roads included in the traffic noise predictions.
- Building heights generally assumed to be 6m (two storey), 3 storey buildings assumed to be 9m and 1 storey (bungalows) 4m. Garages assumed to be 2m. Based on aerial photography and site visit.
- Traffic speeds on some links, as provided by NCC, are below 20km/hr. The CRTN traffic noise prediction methodology is limited to a minimum speed of 20km/hr, therefore this minimum speed has been applied to road links where the provided speed is below 20km/hr.
- A standard 'hot rolled asphalt' type road surface has been assumed for all road links in the calculation of both the prevailing and relevant noise levels. The new link road will actually be surfaced using a 'low noise surface'. However, current advice from Highways England (formerly the Highways Agency) is to not assume any additional noise benefit from low noise surfaces at low traffic speeds (<75 km/hr). As the speed limit on the new link road will be 30 mph (48 km/hr), well below 75 km/hr, a conservative approach has been adopted, in line with current guidance, and no additional benefit from the low noise surface has been assumed.



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- LEGEND**
-  Scheme
  -  300m from scheme
  -  Residential buildings



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Purpose of Issue  
**FOR INFORMATION**

Client  
**NOTTINGHAMSHIRE COUNTY COUNCIL**

Project Title  
**HUCKNALL TOWN CENTRE  
 IMPROVEMENT SCHEME  
 – NOISE INSULATION  
 REGULATIONS ASSESSMENT**

Drawing Title  
**WIDER AREA LOCATION PLAN**

Drawn DH	Checked AH	Approved SS	Date 27/05/2015
AECOM Internal Project No. 47073918		Scale @ A3 1:3,938	

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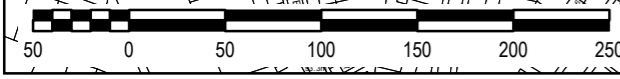
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 Hampshire, RG21 7PP  
 Telephone (01256) 310200  
 Fax (01256) 310201  
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Drawing Number  
**FIGURE 1**

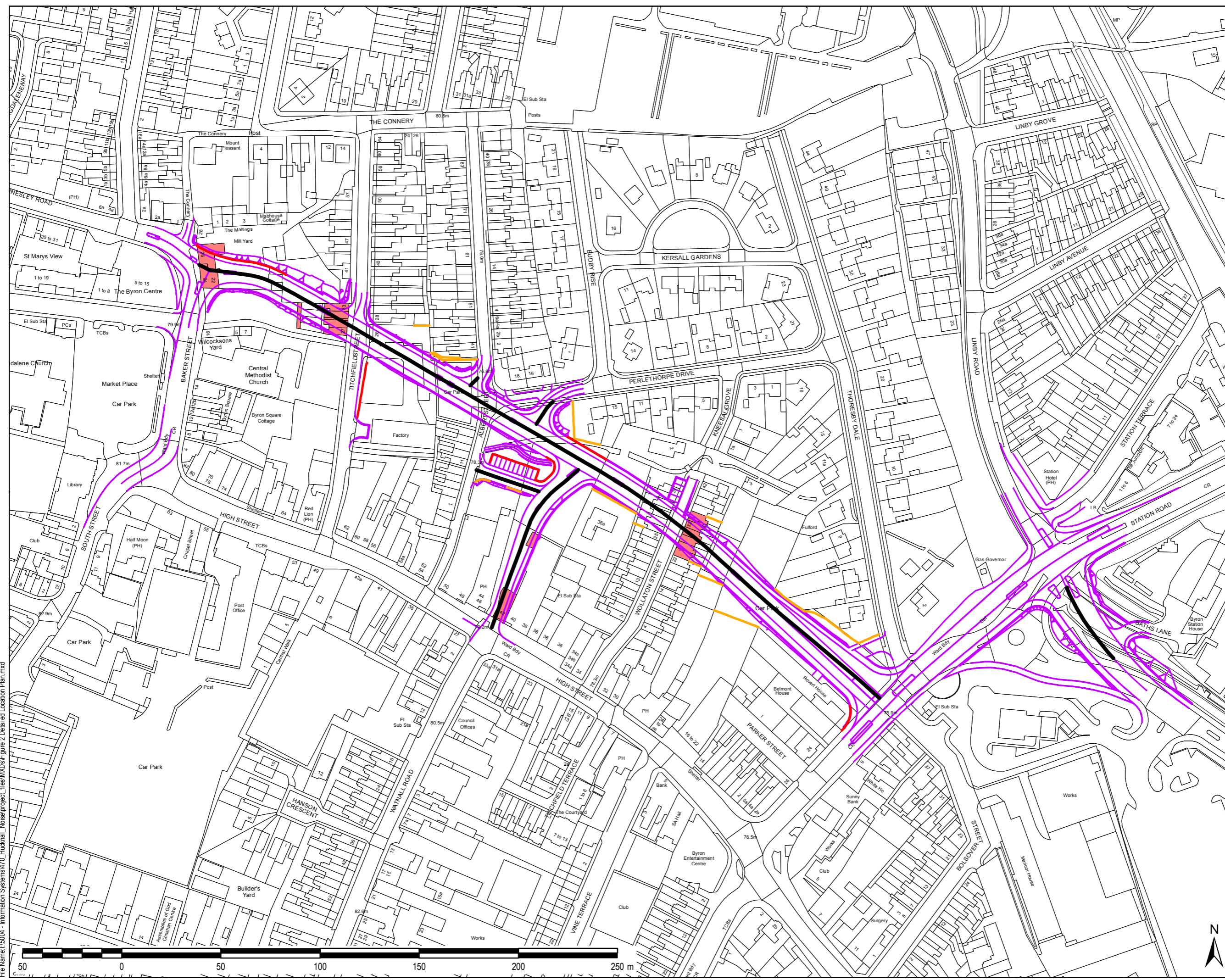
Rev  
**0**

File Name: I:\5004 - Information Systems\70\_Hucknall\_Noise\project\_files\MXDs\Figure 1 Wider Area Location Plan.mxd



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- LEGEND**
- Scheme
  - Wall
  - Close boarded fence
  - Demolished buildings
  - New highway



Revision 1: Removed length of scheme modelled as 'altered highway'.  
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Client  
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Project Title  
**HUCKNALL TOWN CENTRE IMPROVEMENT SCHEME – NOISE INSULATION REGULATIONS ASSESSMENT**

Drawing Title  
**DETAILED LOCATION PLAN**

Drawn DH	Checked AH	Approved SS	Date 13/01/2016
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Drawing Number  
**FIGURE 2**

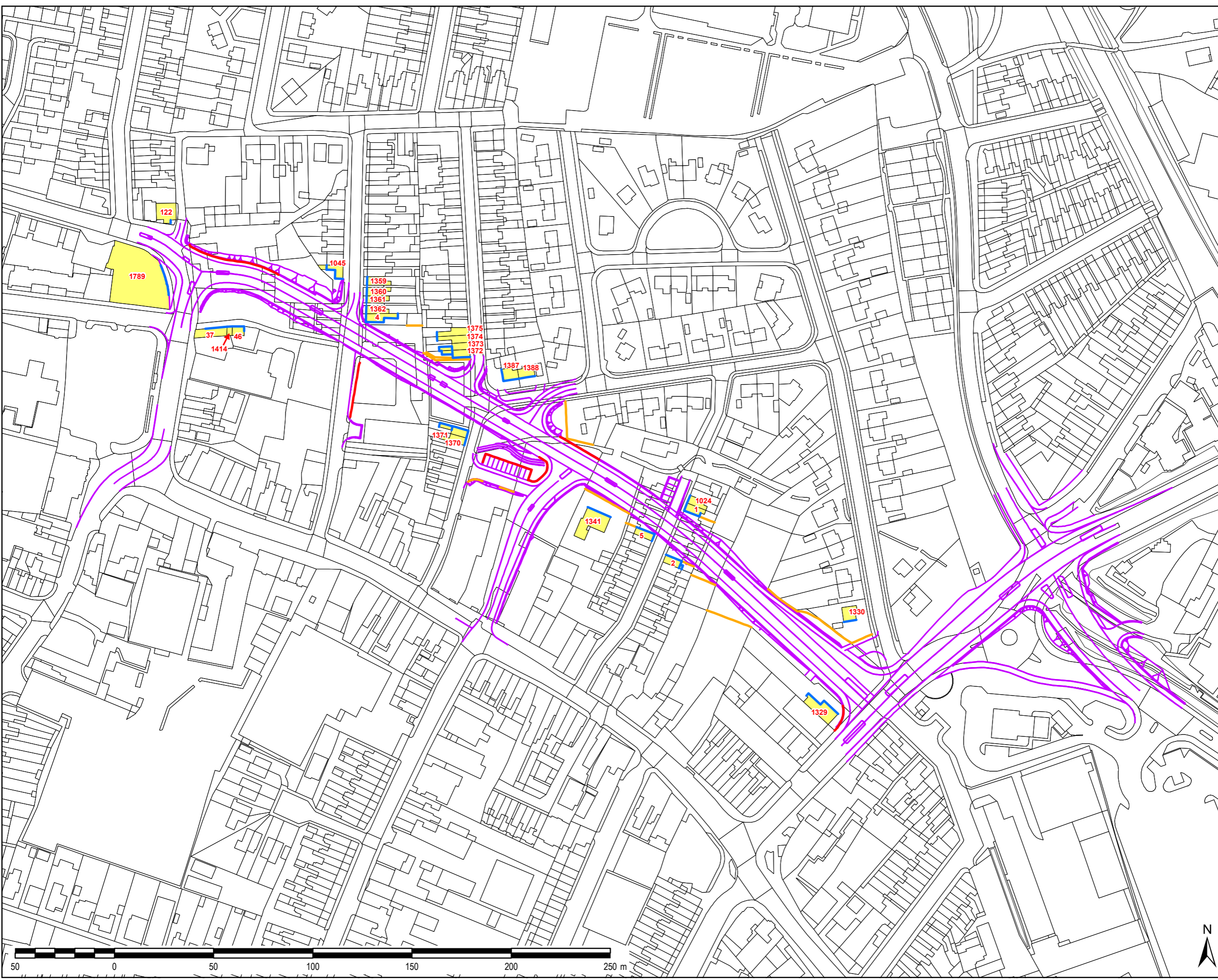
Rev  
**1**

File Name: I:\5004 - Information Systems\K70\_Hucknall\_Noise\project\_files\MXD's\Figure 2 Detailed Location Plan.mxd

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**LEGEND**

- Scheme
- Wall
- Close boarded fence
- Qualifying buildings
- Qualifying facades



Revision 1: Removed qualifying facades (regulation 4) and associated building where no regulation 3 facade was present.

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Client  
**NOTTINGHAMSHIRE COUNTY COUNCIL**

Project Title  
**HUCKNALL TOWN CENTRE  
IMPROVEMENT SCHEME  
– NOISE INSULATION  
REGULATIONS ASSESSMENT**

Drawing Title  
**QUALIFYING BUILDINGS**

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Drawing Number <b>FIGURE 3</b>	Rev <b>1</b>
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File Name: I:\5004 - Information Systems\70\_Hucknall\_Noise\project\_files\MXDs\Figure 3 Qualifying Buildings.mxd

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