

High Speed Rail (Crewe to Manchester and West Midlands to Leeds)

Working Draft Environmental Statement

Volume 2: Community Area map book

MA08: Manchester Piccadilly Station

High Speed Rail (Crewe to Manchester and West Midlands to Leeds)

Working Draft Environmental Statement

Volume 2: Community Area map book

MA08: Manchester Piccadilly Station



High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

High Speed Two (HS2) Limited,
Two Snowhill
Snow Hill Queensway
Birmingham B4 6GA

Telephone: 08081 434 434

General email enquiries: HS2enquiries@hs2.org.uk

Website: www.hs2.org.uk

A report prepared for High Speed Two (HS2) Limited:



High Speed Two (HS2) Limited has actively considered the needs of blind and partially sighted people in accessing this document. The text will be made available in full on the HS2 website. The text may be freely downloaded and translated by individuals or organisations for conversion into other accessible formats. If you have other needs in this regard, please contact High Speed Two (HS2) Limited.

© High Speed Two (HS2) Limited, 2018, except where otherwise stated.

Copyright in the typographical arrangement rests with High Speed Two (HS2) Limited.

This information is licensed under the Open Government Licence v2.0. To view this licence, visit www.nationalarchives.gov.uk/doc/open-government-licence/version/2 **OGL** or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or e-mail: psi@nationalarchives.gsi.gov.uk. Where we have identified any third-party copyright information you will need to obtain permission from the copyright holders concerned.



Printed in Great Britain on paper containing at least 75% recycled fibre.

Contents

Mapping explanatory notes

Data dictionary and definitions

Map series name	Map series description
CT-05 – Construction Phase	These plans show the land potentially required during construction, the construction features, access requirements and infrastructure associated with construction of the Proposed Scheme. The plans also show the construction phase arrangements for public access using public rights of way. The base mapping shown on the plans is reflective of 2018 Ordnance Survey (OS) data.
CT-06 – Proposed Scheme	These maps show permanent features, infrastructure, restored land, and areas for landscaping, screening and ecological mitigation associated with the Proposed Scheme. The base mapping shown on the plans is reflective of 2018 Ordnance Survey (OS) data.
CT-10 – Environmental Baseline	The Environmental Baseline maps display a range of environmental data layers.
LV-00 – Route Wide Landscape Character Areas and National Character Areas	Route Wide Landscape Character Areas and National Character Areas.
LV-02 – Landscape Character Areas	Maps showing the Landscape Character Areas that have been considered for assessment and illustrating significant residual effects during construction and operation.
LV-03 – Construction Phase Significantly Affected Viewpoints	Maps showing the viewpoint locations from which the Proposed Scheme has been assessed to give rise to significant effects during the construction phase (All significant and non-significant photomontage locations are shown).
LV-04 – Construction Phase Significantly Affected Viewpoints	Maps showing the viewpoint locations from which the Proposed Scheme has been assessed to give rise to significant effects during the operational phase (All significant and non-significant photomontage locations are shown).
SV-01 – Operational Sound Contour Maps and Likely Significant Effects	SV-01 presents the predicted operational sound from the new railway. The sound levels from the new railway (expressed as LpAeq,T) are presented in typical noise mapping colours in 5dB steps. There is a panel at the top right of the figure; the left-hand section of this panel contains a key communicating the night-time and daytime sound levels represented by the various colours. The right-hand part of the same panel contains text explaining how the sound levels presented on the figure inform the assessment of direct noise impacts and likely significant effects.
WR-01 – Surface Water Baseline	This map series shows surface water features such as rivers, streams, ponds, canals and reservoirs, flood zones, and surface water abstractions as referred to in the working draft ES.
WR-02 – Groundwater Baseline	These maps show geology and hydrogeological features such as aquifers and groundwater abstractions that are referred to in the working draft ES.

Mapping explanatory notes

Structure of the HS2 Phase 2b Working Draft Environmental Statement

This map book is part of the suite of documents that make up the working draft Environmental Statement (ES) for Phase 2b of the proposed High Speed Two (HS2) rail network Crewe to Manchester and West Midlands to Leeds.

The working draft ES comprises the following documents:

- **Non-technical summary:** This provides a summary in non-technical language of the following, identified at a stage in the ongoing design and environmental assessment: the Proposed Scheme and the reasonable alternatives studied; the likely significant beneficial and adverse effects of the Proposed Scheme; the means to avoid or reduce likely significant environmental effects; and an outline of the monitoring measures to manage the effects of construction and the effectiveness of mitigation post construction, as well as appropriate monitoring during operation.
- **Glossary of terms and list of abbreviations.** This contains terms and abbreviations, including units of measurement, used throughout the working draft ES
- **Volume 1: Introduction and methodology.** This provides: a description of HS2, the environmental impact assessment (EIA) process and the approach to consultation and engagement; details of the permanent features of the Proposed Scheme and general construction techniques, based on a stage in the ongoing design; a summary of the scope and methodology for the environmental topics; an outline of the general approach to mitigation; an outline of the approach to monitoring, including measures to manage the effects of construction, the effectiveness of mitigation post construction, as well as the approach to monitoring during the operational phase, based on a stage in the ongoing design; and a summary of the reasonable alternatives studied (including local alternatives studied prior to the Government's announcement of the preferred route in July 2017). Local alternatives studied post July 2017 are reported in the relevant Volume 2: Community area reports.
- **Volume 2: Community area reports and map books.** These cover the following community areas: western leg: MA01 Hough to Walley's Green; MA02 Wimboldsley to Lostock Gralam; MA03 Pickmere to Agden and Hulseheath; MA04 Broomedge to Glazebrook; MA05 Risley to Bamfurlong; MA06 Hulseheath to Manchester Airport; MA07 Davenport Green to Ardwick; MA08 Manchester Piccadilly Station; and eastern leg: LA01 Lea Marston to Tamworth; LA02 Birchmoor to Austrey; LA03 Appleby Parva to Ashby-de-la-Zouch; LA04 Coleorton to Kegworth; LA05 Ratcliffe-on-Soar to Long Eaton; LA06 Stapleford to Nuthall; LA07 Hucknall to Selston; LA08 Pinxton to Newton and Huthwaite; LA09 Stonebroom to Clay Cross; LA10 Tibshelf to Shuttlewood; LA11 Staveley to Aston; LA12 Ulley to Bramley; LA13 Ravenfield to Clayton; LA14 South Kirkby to Charlston Common; LA15 Warmfield to Swillington and Woodlesford; LA16 Garforth and Church Fenton; LA17 Stourton to Hunslet; and LA18 Leeds Station. The reports provide the following information for each area, as identified at a stage in the ongoing design and environmental assessment: an overview of the area; a description of the construction and operation of the Proposed Scheme within the area; a summary of the local alternatives considered since the Government's announcement of the preferred route in July 2017; a description of the environmental baseline; a description of the likely significant beneficial and adverse effects of the Proposed Scheme; the proposed means of avoiding, reducing or managing the likely significant adverse effects; and where possible, the proposals for monitoring, including measures during and post construction, and during the operational phase. The maps relevant to each community area are provided in a separate Volume 2: Community area map book. These maps include the location of the key environmental features (Map Series CT-10), key construction features (Map Series CT-05) and operation features (Map Series CT-06) of the Proposed Scheme. There are also specific maps showing proposed viewpoint and photomontage locations (Map Series LV-00, LV-02, LV-03, and LV-04, to be read in conjunction with Section 11, Landscape and visual of the Volume 2: Community area reports), operational sound contour maps (Map Series SV-01, to be read in conjunction with Section 13, Sound, noise and vibration of the Volume 2: Community area reports) and maps showing key surface water and groundwater features (Map Series WR-01 and WR-02, to be read in conjunction with Section 15, Water resources and flood risk of the Volume 2: Community area reports). In addition to the community areas detailed above, reports are provided for community areas within which electrification of a section of the MML is proposed: MML01 Danesmoor to Brierley Bridge and MML02 Unstone Green to Sheffield Station. Maps for these community areas are embedded in the reports, not this map book. These reports are provided at an earlier stage of the design and environmental assessment process, following the amendment of the route of the Proposed Scheme to include the electrification of a section of the MML between Clay Cross and Sheffield Midland Station. This would enable high speed trains to connect to Chesterfield and Sheffield as part of the Proposed Scheme. They include for each area: an overview of the area; a description of the proposed works within the area, based on a stage in the ongoing design; an outline of potential effects; and an overview of stakeholder engagement and consultation to be carried out as part of the EIA process. Mitigation measures have not been identified at this stage of the design and environmental assessment process in relation to the likely effects arising from construction and operation of the Proposed Scheme for the MML01 Danesmoor to Brierley Bridge and MML02 Unstone Green to Sheffield Station areas. Any required mitigation measures will be reported in the formal ES. In addition, any required environmental monitoring during operation of the Proposed Scheme will be reported in the formal ES.
- **Volume 3: Route-wide effects.** This describes the effects that are likely to occur at a geographical scale greater than the community areas described in the Volume 2: Community area reports, based on a stage in the ongoing design and environmental assessment.
- **Volume 4: Off-route effects.** This provides an overview of anticipated off-route works and surrounding environment (where locations are known). These works are at an early stage of design and will be reported in full in the formal ES.

Supporting documents: EIA Scope and Methodology Report: this outlines the scope and methodology adopted for the EIA. HS2 Ltd consulted on a draft of the EIA Scope and Methodology Report (SMR) between July and September 2017. This updated version takes into consideration comments received, where appropriate, in addition to changes required as a result of updates to legislation or industry best practice guidance. **Alternatives report:** this describes the evolution of the Proposed Scheme and the reasonable alternatives considered at this stage of the design, at the strategic, route-wide, route corridor and local levels. **Draft Code of Construction Practice (CoCP):** this sets out measures and standards to provide effective planning, management and control of potential impacts on individuals, communities and the environment during construction.

Copyright statements

Copyright statements are presented in the Data dictionary and definitions section at the front of the map book, due to limited space to include this on the individual maps themselves.

Ordnance Survey data

All maps produced as part of the working draft ES contain Ordnance Survey (OS) data. HS2 Ltd use the most up to date mapping available, where possible, supplied by the OS and as such, we cannot be held responsible for any inaccuracies within this data.

As part of our licence conditions, all digital maps carry a watermark.

Chainage

Most of the maps presented as part of the working draft ES have a chainage value shown next to the alignment. Chainage is presented on the maps in black font, in the form of XX+YYY, e.g. 192+000 or 239+500.

Chainage (known as reference chainage) is referenced from Euston Station, which is 0+000, and the value presented is in metres, e.g. 192+000 refers to the point, 192,000m, or 192km, from Euston Station. Chainage values increase in intervals dependant on the map scale. For maps at 1:50,000 scale chainage is shown at 5km intervals. For maps at 1:25,000 scale chainage is shown at 2km intervals. For maps at 1:20,000, 1:10,000, 1:5,000 and 1:2,500 scales, chainage is shown at 1km intervals.

Chainage has been included on the maps as a useful tool for comparing different map sets showing the different environmental themes or engineering plans, due to map sets having different scales, and therefore, showing differing amounts of alignment on the map.

Map orientation

The majority of the maps presented in these map books are presented with the railway alignment running horizontally across the page. The direction of travel to London would be following the alignment to the left hand side of the page, and Leeds or Manchester to the right.

The exception to this, are map series LV-00, LV-02, LV-03 and LV-04, which present the alignment running from bottom to top of the page. This is to allow more of the modelled outputs to be shown at the appropriate map scale. In this instance, the direction of travel to London would be to the bottom of the page, and Leeds or Manchester to the top.

Map books

In total there are 26 map books, which make up the working draft ES, found in volume 2. A list of the titles is provided below for reference.

Name	Name
Volume 2: Map book – MA01: Hough to Walley's Green	Volume 2: Map book – LA06: Stapleford to Nuthall
Volume 2: Map book – MA02: Wimboldsley to Lostock Gralam	Volume 2: Map book – LA07: Hucknall to Selston
Volume 2: Map book – MA03: Pickmere to Agden and Hulseheath	Volume 2: Map book – LA08: Pinxton to Newton and Huthwaite
Volume 2: Map book – MA04: Broomedge to Glazebrook	Volume 2: Map book – LA09: Stonebroom to Clay Cross
Volume 2: Map book – MA05: Risley to Bamfurlong	Volume 2: Map book – LA10: Tibshelf to Shuttlewood
Volume 2: Map book – MA06: Hulseheath to Manchester Airport	Volume 2: Map book – LA11: Staveley to Aston
Volume 2: Map book – MA07: Davenport to Green Ardwick	Volume 2: Map book – LA12: Ulley to Bramley
Volume 2: Map book – MA08: Manchester Piccadilly Station	Volume 2: Map book – LA13: Ravenfield to Clayton
Volume 2: Map book – LA01: Lea Marston to Tamworth	Volume 2: Map book – LA14: South Kirkby to Sharlston Common
Volume 2: Map book – LA02: Birchmoor to Austrey	Volume 2: Map book – LA15: Warmfield to Swillington and Woodlesford
Volume 2: Map book – LA03: Appleby Parva to Ashby-de-la-Zouch	Volume 2: Map book – LA16: Garforth and Church Fenton
Volume 2: Map book – LA04: Coleorton to Kegworth	Volume 2: Map book – LA17: Stourton Hunslet
Volume 2: Map book – LA05: Ratcliffe-on-Soar to Long Eaton	Volume 2: Map book – LA18: Leeds Station

HS2

This page is intentionally blank

HS2

High Speed Rail (Crewe to Manchester and West Midlands to Leeds)

Working Draft Environmental Statement

Data dictionary and definitions

Data dictionary and definitions

Legend features	Definition	Source	Copyright
5m contours	A contour line showing points of equal elevation (height) above a reference level, such as mean sea level and therefore gives indication of the topography, showing valleys and hills, and the steepness of slopes. Spaced at intervals of 5m.	High Speed Two (HS2) Ltd	
Airborne sound study area	This defines the area within which operational airborne sound impacts of the scheme have been quantitatively assessed. This area is defined as within 1km of surface sections of the route in rural areas and within 500m of surface sections of the route in urban areas.	High Speed Two (HS2) Ltd	
Ancient Woodland Inventory Sites (AWIS)	Ancient Woodland is land that has had continuous woodland cover since at least 1600AD. Natural England maintain an inventory of ancient woodlands.	Natural England	© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2017
Balancing pond	Part of a drainage system that is used to temporarily store, and thereby attenuate, the flow of surface water run-off. The proposed location and extent of balancing ponds for drainage attenuation and infiltration. Outer boundary represents the perimeter.	High Speed Two (HS2) Ltd	
Bedrock geology	Soils or rocks older than Quaternary deposits. The data that comprises the geological theme of 'Bedrock' as depicted on the 1:50000 published map DiGMapGB-50. The legend on the full geological legend page (WR-02 - Legend) comprises the LEX_RCS (a unique abbreviation to identify the rock), the rock name and its aquifer status.	British Geological Survey (BGS)	Reproduced with the permission of the British Geological Survey ©NERC. All rights Reserved
Chainage	The distance (measured in metres) along the centre line of the HS2 route from a defined start point at Euston station, London.Chainage (known as reference chainage) is referenced from Euston Station, which is 0+000, and the value presented is in metres. E.g. 192+000 refers to the point, 192,000m, or 192km, from Euston Station. Chainage values increase in intervals dependant on the map scale. For maps at 1:50,000 scale chainage is shown at 5km intervals. For maps at 1:25,000 scale chainage is shown at 2km intervals. For maps at 1:10,000, 1:5,000 and 1:2,500 scale chainage is shown at 1km intervals. Chainage has been included on the maps as a useful tool for comparing different map sets showing the different environmental themes or engineering plans, due to map sets having different scales and therefore showing differing amounts of alignment on the map.	High Speed Two (HS2) Ltd	
Community area boundary	Defined areas along the proposed HS2 Phase 2b route (e.g. Wimboldsley to Lostock Gralam community area). They are used as a geographical basis for reporting local community and environmental impacts and effects in the working draft Environmental Statement.	High Speed Two (HS2) Ltd	© Crown copyright. Reproduced by permission of Ordnance Survey Licence Number 100049190. Year of Publication 2017.
Consented discharge to groundwater	A discharge to groundwater under permit regulations (the Environmental Permitting, England and Wales Regulations, 2010 (EPR)).	Environment Agency	Contains Environment Agency information © Environment Agency and database right
Consented discharge to surface water	A discharge to surface water e.g. a river or lake under permit regulations (the Environmental Permitting, England and Wales Regulations, 2010 (EPR)). A permit is required for the discharge of treated effluent to surface water under the Environmental Permitting (England and Wales) Regulations, 2010 (EPR).	Environment Agency	Contains Environment Agency information © Environment Agency and database right

Conservation areas	Areas considered worthy of preservation or enhancement because of their special architectural or historic interest. Conservation Areas have been captured and digitised from desktop based studies using publically available local authority information. Accuracy of the data is dependent upon that of the individual data source and areas are provided as indicative site boundaries only.	Ashfield District Council Broxtowe Borough Council Cheshire Historic Environment Record Chesterfield Borough Council Derbyshire County Council Doncaster Metropolitan Borough Council Erewash Borough Council Leeds City Council Leicestershire County Council Newcastle-Under-Lyme Borough Council North Warwickshire Borough Council North West Leicestershire District Council North Yorkshire County Council Nottingham City Council Nottinghamshire County Council Rotherham Metropolitan Borough Council Rushcliffe Borough Council Selby District Council St Helens Council Staffordshire County Council Warrington Borough Council Warrington Borough Council Wigan Council	© Ashfield District Council © Broxtowe Borough Council © Cheshire Historic Environment Record © Chesterfield Borough Council © Derbyshire County Council © Doncaster Metropolitan Borough Council © Erewash Borough Council © Erewash Borough Council © Leeds City Council © Leicestershire County Council © Newcastle-Under-Lyme Borough Council © North Warwickshire Borough Council © North West Leicestershire District Council © North Yorkshire County Council © Nottingham City Council © Nottinghamshire County Council © Rotherham Metropolitan Borough Council © Rushcliffe Borough Council © Selby District Council © St Helens Council © Staffordshire County Council © Warrington Borough Council © Warrington Borough Council © Wigan Council
Construction compounds	A strategic construction hub for core project management (engineering, planning and construction delivery), commercial and administrative staff associated with the construction of the Proposed Scheme. These compounds will include an area for equipment and materials storage, as well as providing main welfare facilities for construction staff, with some compounds also providing overnight sleeping accommodation for construction staff.	High Speed Two (HS2) Ltd	
Construction traffic route	Public highways which may be used for HGV construction traffic.	High Speed Two (HS2) Ltd	
County boundary	County boundaries from Ordnance Survey boundary mapping.	Ordnance Survey	© Crown copyright and database rights 2017 OS 100049190. You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of this data to third parties in any form.
Depot, station, headhouse or portal building	Extends to cover operational footprint of each depot and station and the footprint of each tunnel vent shaft and headhouse at surface level. Excludes any ancillary buildings associated with these structures.	High Speed Two (HS2) Ltd	

District/Borough boundary	Ordnance Survey local authority boundary mapping.	Ordnance Survey	© Crown copyright and database rights 2017 OS 100049190. You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of this data to third parties in any form.
Ditches – new	The proposed location and extent of drainage ditches.	High Speed Two (HS2) Ltd	
Ecological mitigation pond	Ponds whose primary function is to provide ecological mitigation. This could be a standalone pond or part of a wider wetland habitat creation plan.	High Speed Two (HS2) Ltd	
Electricity substation	Includes all auto-transformers and feeder stations.	High Speed Two (HS2) Ltd	
Engineering earthworks	Engineering (structural) earthworks which include railway slopes and crossings (roads etc.).	High Speed Two (HS2) Ltd	
Engineering earthworks: Cutting	Cuttings created in the construction of the railway and associated works such as highways.	High Speed Two (HS2) Ltd	
Engineering earthworks: Embankment	Embankments created in the construction of the railway and associated works such as highways.	High Speed Two (HS2) Ltd	
Envisaged features further reducing noise effects	Other environmental features e.g. landscaping: These lines represent environmental mitigation features provided for reasons other than noise mitigation which also reduce sound levels from the Proposed Scheme to the surrounding environment. These features are not placed specifically to reduce or remove a likely significant noise effect. Examples include landscaping and visual mitigation earthworks (non-engineering earthworks). Engineering e.g. cuttings: These lines represent engineering features which reduce sound levels from the Proposed Scheme to the surrounding environment but are not placed specifically to reduce or remove a likely significant noise effect. Examples include cuttings and safety barriers on viaducts which are not close to sensitive receptors.	High Speed Two (HS2) Ltd	
Envisaged mitigation to avoid / reduce significant noise effects	Landscaping and/or fence barriers: These lines represent the envisaged mitigation provided specifically to reduce sound levels from the Proposed Scheme at sensitive receptors in order to reduce or remove likely operational significant noise effects. Examples include noise fence barriers or earth bunds (non-engineering earthworks) acting as noise barriers. These features are labelled with the height of the top of the barrier/bund above rail level. Engineering e.g. cuttings: These lines represent engineering features of the route which reduce sound levels from the Proposed Scheme at potentially significant sensitive receptors. These features, therefore, serve a material purpose in reducing or avoiding likely significant noise effects. Examples include engineering cuttings near to sensitive receptors. These features are labelled with the height of the top of the feature above rail level.	High Speed Two (HS2) Ltd	

Existing contours	Lines depicting land heights to show topography.	Ordnance Survey	© Crown copyright and database rights 2017 OS 100049190. You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of this data to third parties in any form.
Existing public right of way (PROW)	A highway where the public has the right to walk; and, depending on its class, use for other modes of travel. It can be a footpath (used for walking only), a bridleway (used for walking, riding a horse and cycling), a restricted byway (as a bridleway, but use by non-motorised vehicles also permitted) or a byway that is open to all traffic (include motor vehicles).	See Public Rights of Way.	See Public Rights of Way.
Existing watercourse	See Watercourse.	See Watercourse.	See Watercourse.
Existing woodland and tree belts	A dataset showing large areas of trees that are likely to have an impact on whether the scheme is visible during construction and vegetation. It was used in the ZTV as part of the base models.	High Speed Two (HS2) Ltd	
Flood Zone 2	National Flood Zone 2 (FZ2). Land assessed, ignoring the presence of flood defences, as having between a 1% and 0.1% annual probability of river flooding.	Environment Agency	Contains Environment Agency information © Environment Agency and database right
Flood Zone 3	National Flood Zone 3 (FZ3). Land assessed, ignoring the presence of flood defences, as having a 1% or greater annual probability of river flooding.	Environment Agency	Contains Environment Agency information © Environment Agency and database right
Geological fault line	The surface of a fault fracture along which the rocks have been displaced. The data that comprises the geological theme of 'Linear' as depicted on the 1:50,000 published map DiGMapGB-50.	British Geological Survey (BGS)	Collins English Dictionary – Complete and Unabridged © HarperCollins Publishers 1991, 1994, 1998, 2000, 2003 Reproduced with the permission of the British Geological Survey ©NERC. All rights Reserved
Grassed areas	Any other area grassed not included in landscaped earthworks or ecological habitat.	High Speed Two (HS2) Ltd	
Grassland habitat creation	Soft landscape design that can include any seeded areas for the purpose of creating grassland except for the engineering earthworks.	High Speed Two (HS2) Ltd	
Groundwater source protection zone	Source Protection Zones (SPZs) have been defined for approximately two thousand groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk. The maps show three main zones; SPZ1 - inner, SPZ2 - outer and SPZ3 - total catchment.	Environment Agency	Contains Environment Agency information © Environment Agency and database right
Hedgerow habitat creation	Ecological mitigation to provide new hedgerow planting, connectivity enhancements to existing areas and areas for ecological management. This level does not include screening planting for visual mitigation purposes.	High Speed Two (HS2) Ltd	
Historic flooding area	Historic Flood Map is the maximum extent of all recorded individual Historic Flood Events Outlines from river, the sea and groundwater springs and shows areas of land that have previously been subject to flooding in England & Wales.	Environment Agency	Contains Environment Agency information © Environment Agency and database right

HS2 access road	Access road to HS2 infrastructure such as electricity substations, balancing ponds and maintenance access points to the railway.	High Speed Two (HS2) Ltd	
Key non-residential receptors identified for assessment	These labelled locations identify the key non-residential receptors currently identified for assessment in the Sound, Noise & Vibration assessment. These key receptors will be further reviewed - both my HS2 and in consultation and engagement with stakeholders - with any additional receptors added as part of the formal ES. Feedback from stakeholders about both any sensitive locations which are not currently included, or about further relevant information regarding receptors is actively encouraged as part of the Working Draft ES consultation.	High Speed Two (HS2) Ltd	
Lakes & Reservoirs	A body of water such as a lake or pond forming a geographical feature. Based on Ordnance Survey Vector Map District.	Ordnance Survey	© Crown copyright and database rights 2017 OS 100049190. You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of this data to third parties in any form.
Land potentially required during construction	Boundary defining the maximum possible extent of construction works required to build HS2 as far as the current level of design allows. This only covers surface works and includes all tunnel portals, vent shafts and headhouses, but does not apply to wholly tunnelled sections or to air rights. It also encompasses associated highway, access, drainage and utility works.	High Speed Two (HS2) Ltd	
Landscape character areas (LCA)	This dataset represents the landscape character areas that have been assessed route wide as defined by the Landscape Architects. Landscape character areas (LCAs) are single unique areas which are the discrete geographical areas of a particular landscape type	High Speed Two (HS2) Ltd	
Landscape earthworks	Landscape earthworks to provide permanent landscape, visual or acoustic mitigation.	High Speed Two (HS2) Ltd	
Landscape mitigation planting (scrub / woodland)	Screening planting, using woodland, for visual mitigation and landscape integration purposes.	High Speed Two (HS2) Ltd	
Licensed groundwater abstraction (excluding public water supplies)	A groundwater abstraction licence issued by the Environment Agency, which abstracts more than 20 cubic metres a day Data supplied as spreadsheet. Excludes the precise location of public water supplies in order to comply with Security and Environmental Measures Direction 1998.	Environment Agency	Contains Environment Agency information © Environment Agency and database right
Licensed surface water abstraction (excluding public water supplies)	A surface water abstraction licence issued by the Environment Agency, which abstracts more than 20 cubic metres a day. Data supplied as spreadsheet. Excludes the precise location of public water supplies in order to comply with Security and Environmental Measures Direction 1998.	Environment Agency	Contains Environment Agency information © Environment Agency and database right
Listed building grade I	Buildings and structures in England of special architectural or historic interest. In some instances the source data for individual buildings is grouped under a single grid reference, in these instances the data may have been interrogated further to identify addresses of individual buildings with Listed Building status so that these can be displayed individually on the map. The Listed Building data consists of approximately 375,000 standing structures. The information has been converted from paper records georeferenced to digital mapping. A small percentage of the data was manually located. The data is subject to continuous review and regularly updated as new structures are designated and positional accuracy improves.	Historic England	© Historic England 2017. Contains Ordnance Survey data © Crown copyright and database right 2017 The Historic England GIS Data contained in this material was obtained July 2017. The most publicly available up to date Historic England GIS Data can be obtained from HistoricEngland.org.uk.
Listed building grade II*			
Listed building grade II			

Local Nature Reserve (LNR)	A Local Nature Reserve (LNR) is a statutory designation made under Section 21 of the National Parks and Access to the Countryside Act 1949 by principal local authorities. Data supplied has the status of Declared. The boundaries are interpreted from material gathered from the local authorities and does not currently cover all LNRs. This national dataset is indicative not definitive. Definitive information can only be provided by individual local authorities and you should refer directly to their information for all purposes that require the most up to date and complete dataset.	Natural England	© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2017
Local Wildlife Site (LWS)	A non-statutory site of nature conservation value that has been designated 'locally'. These sites are referred to differently between counties. Common terms including site of importance for nature conservation, county wildlife site, site of biological importance, site of local importance and sites of metropolitan importance. In some cases Local Wildlife data is not shown as this is still being verified.	Barnsley Metropolitan Borough Council Broxtowe Borough Council Cheshire Biological Record Cheshire East Council Cheshire West and Chester Derbyshire Wildlife Trust Doncaster Metropolitan Borough Council Erewash Borough Council Greater Manchester Biological Record Leicestershire and Rutland Environment Records Centre (LRERC). Nottingham City Council Nottingham City Council Rotherham Metropolitan Borough Council Sheffield City Council St Helens Council Staffordshire Ecological Record Wakefield Council Warrington Borough Council Warwickshire County Council West Yorkshire Ecological Data Wigan Council	© Barnsley Metropolitan Borough Council © Broxtowe Borough Council © Cheshire Biological Record © Cheshire East Council © Cheshire West and Chester © Derbyshire Wildlife Trust © Doncaster Metropolitan Borough Council © Erewash Borough Council © Greater Manchester Biological Record © Leicestershire and Rutland Environment Records Centre (LRERC). © Nottingham City Council © Nottingham City Council © Rotherham Metropolitan Borough Council © Sheffield City Council © St Helens Council © Staffordshire Ecological Record © Wakefield Council © Warrington Borough Council © Warwickshire County Council © West Yorkshire Ecological Data © Wigan Council
Location of major utility	Represents all new major utility installations (included in the hybrid Bill). Includes water, electricity, telecommunications and gas.	High Speed Two (HS2) Ltd	
Main construction compound	Main Construction Compounds in which main contractors offices and welfare facilities will be located.	High Speed Two (HS2) Ltd	
National Nature Reserve (NNR)	National Nature Reserve are declared by the statutory country conservation agencies under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981.	Natural England	© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2017
New, diverted or realigned PRoW	New, realigned or diverted Public Rights of Way (PRoW).	High Speed Two (HS2) Ltd	
Noise fence barrier	Denotes fence-style barriers provided as part of the noise mitigation measures. Note that other noise barriers have also been included in the form of landscaping and engineering cuttings - see the SV map series for more detail on noise mitigation.	High Speed Two (HS2) Ltd	

Noise Important Areas defined in national noise action plans (DEFRA 2014)	Noise Important Areas - as defined in national action plans – indicate existing noise 'hotspots' identified by strategic noise mapping carried out by Defra and published in the Noise action plans: large urban areas, roads and railways in 2014. These are intended as information which relevant authorities can use when identifying noise management measures.	Department for Environment, Food and Rural Affairs (DEFRA)	© Crown 2017 copyright Defra via data.gov.uk, licenced under the Open Government Licence (OGL).
Non engineering earthworks: Cutting	Cuttings created in the construction of landscape features and mitigation measures.	High Speed Two (HS2) Ltd	
Non engineering earthworks: Embankment	Embankments created in the construction of landscape features and mitigation measures.	High Speed Two (HS2) Ltd	
Photomontage location	Shows the locations from which verifiable photomontages have been produced. The locations are based on a fully surveyed point.	High Speed Two (HS2) Ltd	
Potential noise insulation qualifier	Potential noise insulation qualifier due to noise from the Proposed Scheme. Further information on noise insulation can be found in Volume 2 reports.	High Speed Two (HS2) Ltd	
Proposed tree planting	A dataset showing proposed planting that may have an impact on whether the scheme is visible during construction and operation. It was used in the operation year 15 ZTV.	High Speed Two (HS2) Ltd	
PRoW closure	Public rights of way that will be closed due to construction of the scheme.	High Speed Two (HS2) Ltd	
Public realm/Replacement community facility	Public realm: Specifically provided to show areas to be used for public realm. This layer is mainly associated with station sites and is to be used to indicate general areas for designed soft and hard landscaping. Replacement community facility: Area of land for the provision of a permanent replacement community facility, such as a playground, community centre or activity centre.	High Speed Two (HS2) Ltd	
Public Rights of Way (PRoW)	Public rights of way are highways which can be used for the following purposes: - Footpaths - pedestrians only - Bridleways - pedestrians, cyclists and equestrians - Restricted byways - as bridleways plus non-motorised vehicles - Byways open to all traffic. Definitive Map data supplied by surveying authorities.	Ashfield District Council Barnsley Metropolitan Borough Council Bolton Metropolitan Borough Council Derbyshire Council Doncaster Metropolitan Borough Council Leeds City Council Leicestershire County Council North Yorkshire County Council Rotherham Metropolitan Borough Council St.Helens Council Warrington Borough Council Wigan Council	© Ashfield District Council © Barnsley Metropolitan Borough Council © Bolton Metropolitan Borough Council © Derbyshire Council © Doncaster Metropolitan Borough Council © Leeds City Council © Leicestershire County Council © North Yorkshire County Council © Rotherham Metropolitan Borough Council © St.Helens Council © Warrington Borough Council © Wigan Council
Pumping station	Pumping stations is a machine that lifts water from a lower to upper level, providing protection against flooding of the railway and effective drainage of low spots. The square box represents the extent of the sump which stores the water ready to be pumped.	High Speed Two (HS2) Ltd	
Rail alignment	Longitudinal geometry of the tracks consisting of a series of straights and curves.	High Speed Two (HS2) Ltd	
Rail alignment formation	The space required to accommodate the railway infrastructure which typically includes the tracks, overhead line equipment, drainage, lineside access paths and cable routes for electrification and communication systems.	High Speed Two (HS2) Ltd	

Ramsar Site – Wetland of International Importance	Wetland sites that are of international importance, as designated under Article 2(1) of the Convention on Wetlands of International Importance especially as Waterfowl Habitat. Ramsar (Iran), 2 February 1971. UN Treaty Series No. 14583.	Natural England	© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2017
Registered park or garden	Parks and Gardens of special historic interest. Supplied by Historic England. Of the 1,590 Registered Parks and Gardens, over 91% were captured against the 1:10,000 Ordnance Survey Raster product. 135 records are potentially subject to movement under Positional Accuracy Improvement (PAI) improvements.	Historic England	© Historic England 2017. Contains Ordnance Survey data © Crown copyright and database right 2017 The Historic England GIS Data contained in this material was obtained on 25 January 2017. The most publicly available up to date Historic England GIS Data can be obtained from HistoricEngland.org.uk.
Replacement floodplain storage	An area of low-lying land designed to temporarily fill with flood water to replace an area of existing floodplain lost due to development.	High Speed Two (HS2) Ltd	
Risk of Flooding from Surface Water	The risk of flooding from surface water that hasn't yet entered a watercourse	Environment Agency	Contains Environment Agency information © Environment Agency and database right
Route in tunnel Route on surface	Represents the proposed route of HS2, split into route on surface and tunnelled sections.	High Speed Two (HS2) Ltd	
Satellite construction compound	A compound that is smaller in size than the main compounds. Satellite compounds provide office accommodation for limited numbers of staff involved in the construction of the Proposed Scheme. Welfare facilities for staff are also provided.	High Speed Two (HS2) Ltd	
Scheduled monument	Nationally significant heritage assets protected by the Ancient Monuments and Archaeological Areas Act 1979. The Scheduled Monument layer consists of approximately 22,380 monuments tied into the Ordnance Survey. The majority of these are fixed; however, a small number of records may be updated as digital positional accuracy improves. The data is subject to continuous review and regularly updated as new monuments are designated.	Historic England	© Historic England 2017. Contains Ordnance Survey data © Crown copyright and database right 2017 The Historic England GIS Data contained in this material was obtained on 25 January 2017. The most publicly available up to date Historic England GIS Data can be obtained from HistoricEngland.org.uk.
Significantly affected viewpoint	This dataset shows the locations of the visual receptors from which the schemes visual impact has been assessed and shows whether or not the impact is significant or non-significant during construction and operation.	High Speed Two (HS2) Ltd	
Site of Special Scientific Interest (SSSI)	Area of land notified by Natural England under Section 28 of the Wildlife and Countryside Act 1981 as being of special interest due to its flora, fauna or geological or physiological features.	Natural England	© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2017
Special Areas of Conservation (SAC)	Special Areas of Conservation (SACs) are strictly protected sites designated under the EC Habitats Directive. Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended).	Natural England	© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2017

Special Protection Areas (SPA)	Special Protection Areas (SPAs) are strictly protected sites classified in accordance with Article 4 of the EC Birds Directive, which came into force in April 1979. They are classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species.	Natural England	© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2017
Spring	A surface expression of a groundwater body.	High Speed Two (HS2) Ltd	
Superficial deposits	A geological deposit that was laid down during the Quaternary period. Such deposits were largely formed by river and glacial processes but may also include wind-blown deposits known as loess. The data that comprises the geological theme of 'Superficial' as depicted on the 1:50000 published map DiGMapGB-50. The legend on the full geological legend page (WR-02-LEGEND) comprises the LEX_RCS (a unique abbreviation to identify the rock), the rock name and its aquifer status.	British Geological Survey (BGS)	Reproduced with the permission of the British Geological Survey ©NERC. All rights Reserved
System compounds	Represents railway systems compounds which facilitate installation, testing and commissioning of the railway systems, including track, overhead line equipment, communications and signalling equipment and traction power supply.	High Speed Two (HS2) Ltd	
Temporary highway diversion / realignment	Indicative temporary highway diversion layouts during the construction phase.	High Speed Two (HS2) Ltd	
Temporary material stockpile	Represents temporary stockpiling of topsoil, subsoil and other excavated materials to be used for reinstatement purposes, and also stockpile areas for managing movement of excavated materials during construction.	High Speed Two (HS2) Ltd	
Temporary PRoW closure	Indicative temporary closures to public rights of way as a result of construction of the scheme.	High Speed Two (HS2) Ltd	
Temporary PRoW diversion / realignment	Indicative temporary diversions to public rights of way as a result of construction of the scheme. These will vary depending on construction phase and local conditions.	High Speed Two (HS2) Ltd	
Temporary replacement community facility	Area of land for the provision of a temporary replacement community facility, such as a playground, community centre or activity centre, whilst construction works are in progress.	High Speed Two (HS2) Ltd	
Temporary workers accommodation	Temporary accommodation for workers during the construction period.	High Speed Two (HS2) Ltd	
Tunnel portal	The footprint of a tunnel portal.	High Speed Two (HS2) Ltd	
Tunnels external extent	The external excavated extent of each tunnel bore.	High Speed Two (HS2) Ltd	
Unlicensed private groundwater abstraction (or private surface water abstractions)	A private water supply from either a groundwater or a surface water source, which abstracts less than 20 cubic metres a day. Local authorities currently hold a register of private water supplies. The local authorities are required in accordance with The Private Water Supplies Regulations 2009, to ensure that unlicensed abstractions meet certain quality standards. Data supplied as spreadsheet. Digitised within 2km.	Environment Agency	Contains Environment Agency information © Environment Agency and database right
Water body	Any mass of water having definite hydrological, physical, chemical and biological characteristics.	Ordnance Survey	© Crown copyright and database rights 2017 OS 100049190. You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of this data to third parties in any form.
Watercourse	Any channel through which water flows, can be natural or manmade. They are split into two categories (main rivers or ordinary watercourses) in England and Wales for regulation purposes.	Environment Agency	Contains Environment Agency information © Environment Agency and database right

Watercourse diversion	Includes rivers, streams, ditches and other open channels, diversions to these, together with any new culverts required.	High Speed Two (HS2) Ltd	
Wetland habitat creation	Ecological mitigation area to provide new wetland habitat creation, enhancements to existing areas and areas for ecological management. This level does not include screening planting for visual mitigation purposes.	High Speed Two (HS2) Ltd	
Woodland	Woodland areas derived from Ordnance Survey MasterMap data.	Ordnance Survey	© Crown copyright and database rights 2017 OS 100049190. You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of this data to third parties in any form.
Woodland habitat creation	Ecological mitigation area to provide new woodland planting, connectivity enhancements to existing areas and areas for ecological management. This level does not include screening planting for visual mitigation purposes.	High Speed Two (HS2) Ltd	

HS2

This page is intentionally blank

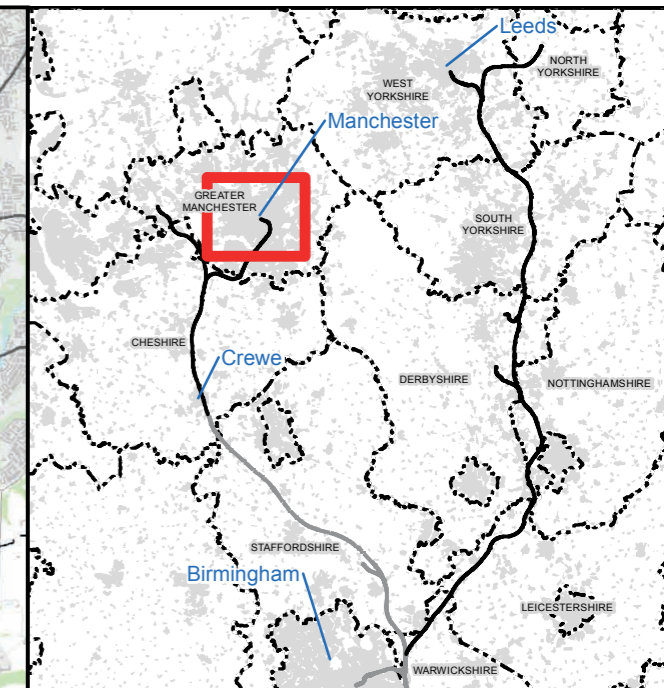
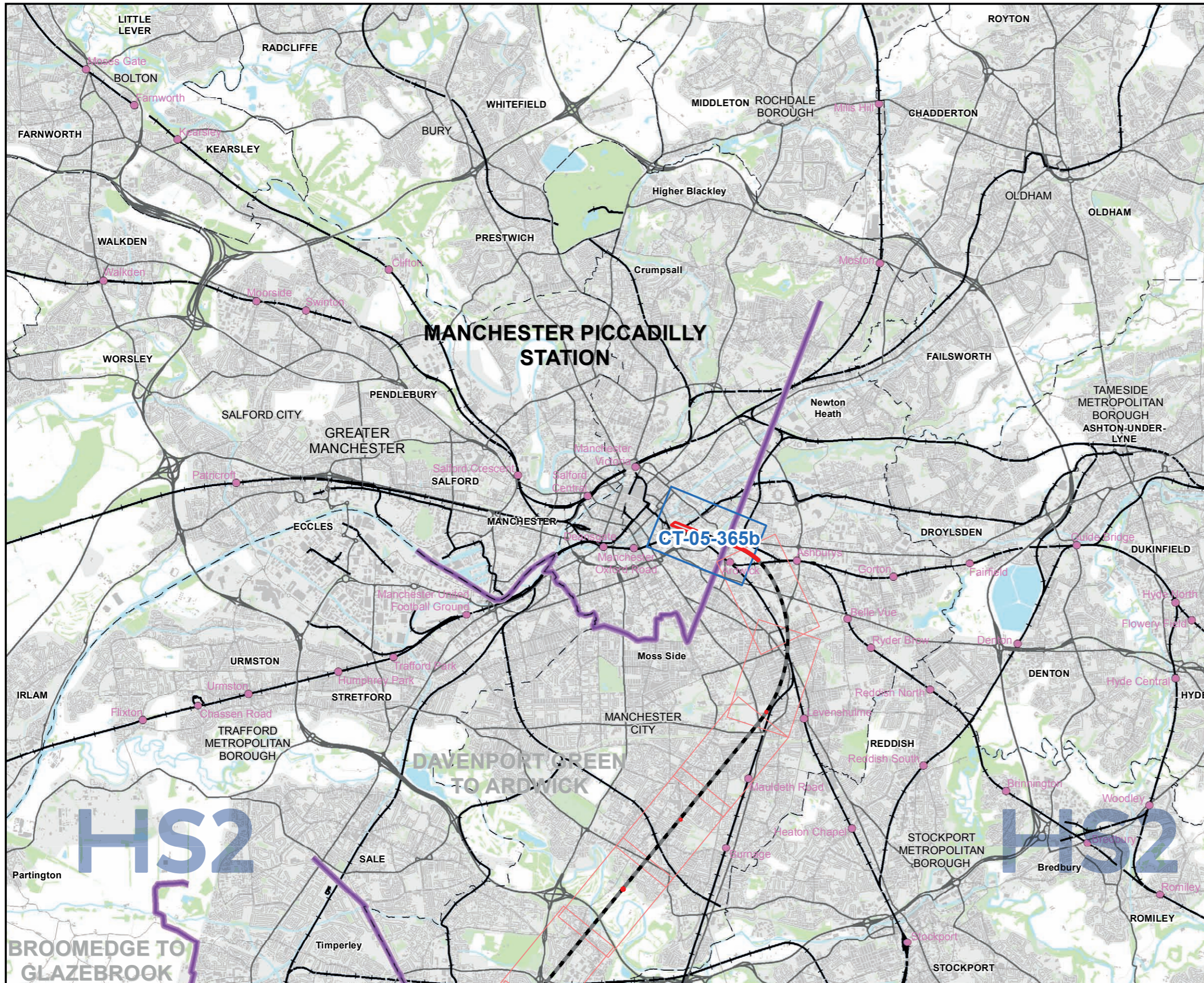
HS2

High Speed Rail (Crewe to Manchester and West Midlands to Leeds)

Working Draft Environmental Statement

CT-05 – Construction Phase

CT-06 – Proposed Scheme



Map Series Information:

These plans show the land potentially required during construction, the construction features, access requirements and infrastructure associated with construction of the Proposed Scheme. The plans also show the construction phase arrangements for public access using Public Rights of Way.

The base mapping shown on the plans is reflective of 2018 Ordnance Survey (OS) data.

Main Map Legend	
Route in tunnel	Map sheets included in this community area
Route on surface	Map sheets not included in this community area
Depot, station, headhouse or portal building	Community area boundary
Community area boundary	Existing railway station
Existing railway station	County boundary
County boundary	District/Borough boundary

Map Number	CT-05-INDEX-MA08
Map Name	Index Map of: CT-05 - Construction Phase WDES
Community Area MA08: Manchester Piccadilly Station	

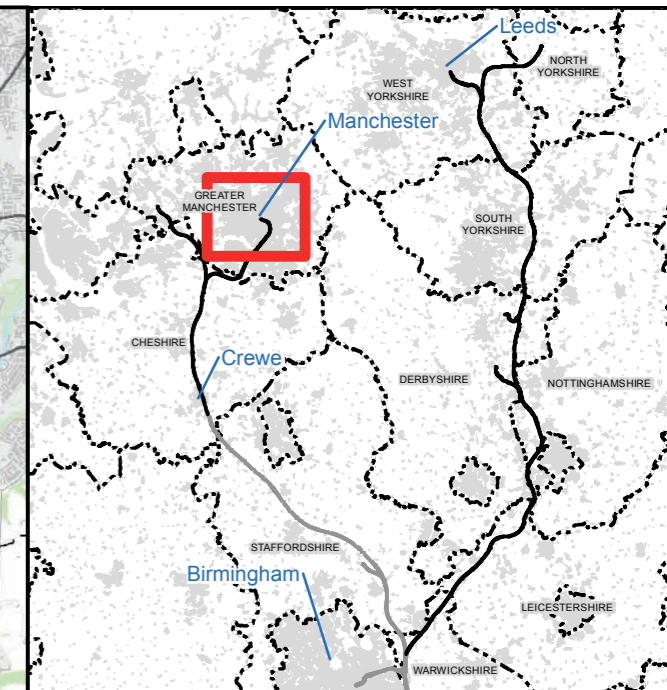
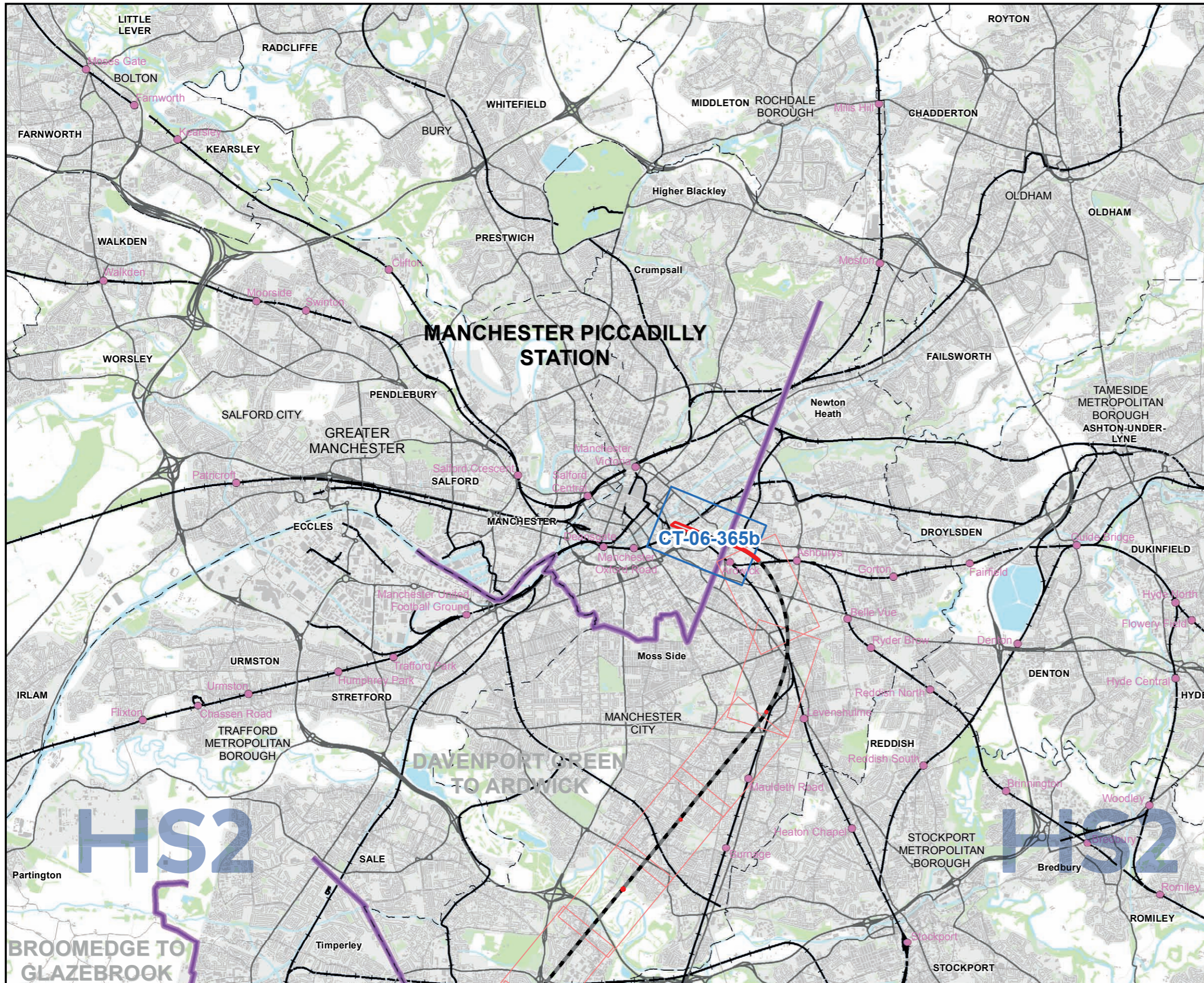
HS2 HS2 Ltd accept no responsibility for any circumstances, which arise from the reproduction of this map after alteration, amendment or abbreviation or if it is issued in part or issued incomplete in any way.

Registered in England. Registration number 06791686. Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

© Crown copyright and database rights 2017 OS 100049190

Scale at A3: 1:75,000

Doc Number: 2DE01-MWJ-EV-MAP-M000-000008-P04 Date: 11/07/18



Map Series Information:

These maps show the permanent features, infrastructure, restored land, and areas for landscaping, screening and ecological mitigation associated with the Proposed Scheme.

The base mapping shown on the plans is reflective of 2018 Ordnance Survey (OS) data

Main Map Legend	
Route in tunnel	Map sheets included in this community area
Route on surface	Map sheets not included in this community area
Depot, station, headhouse or portal building	Community area boundary
Community area boundary	Existing railway station
Existing railway station	County boundary
County boundary	District/Borough boundary
District/Borough boundary	

Map Number	CT-06-INDEX-MA08
Map Name	Index Map of: CT-06 - Proposed Scheme WDES
	Community Area MA08: Manchester Piccadilly Station

HS2 HS2 Ltd accept no responsibility for any circumstances, which arise from the reproduction of this map after alteration, amendment or abbreviation or if it is issued in part or issued incomplete in any way.

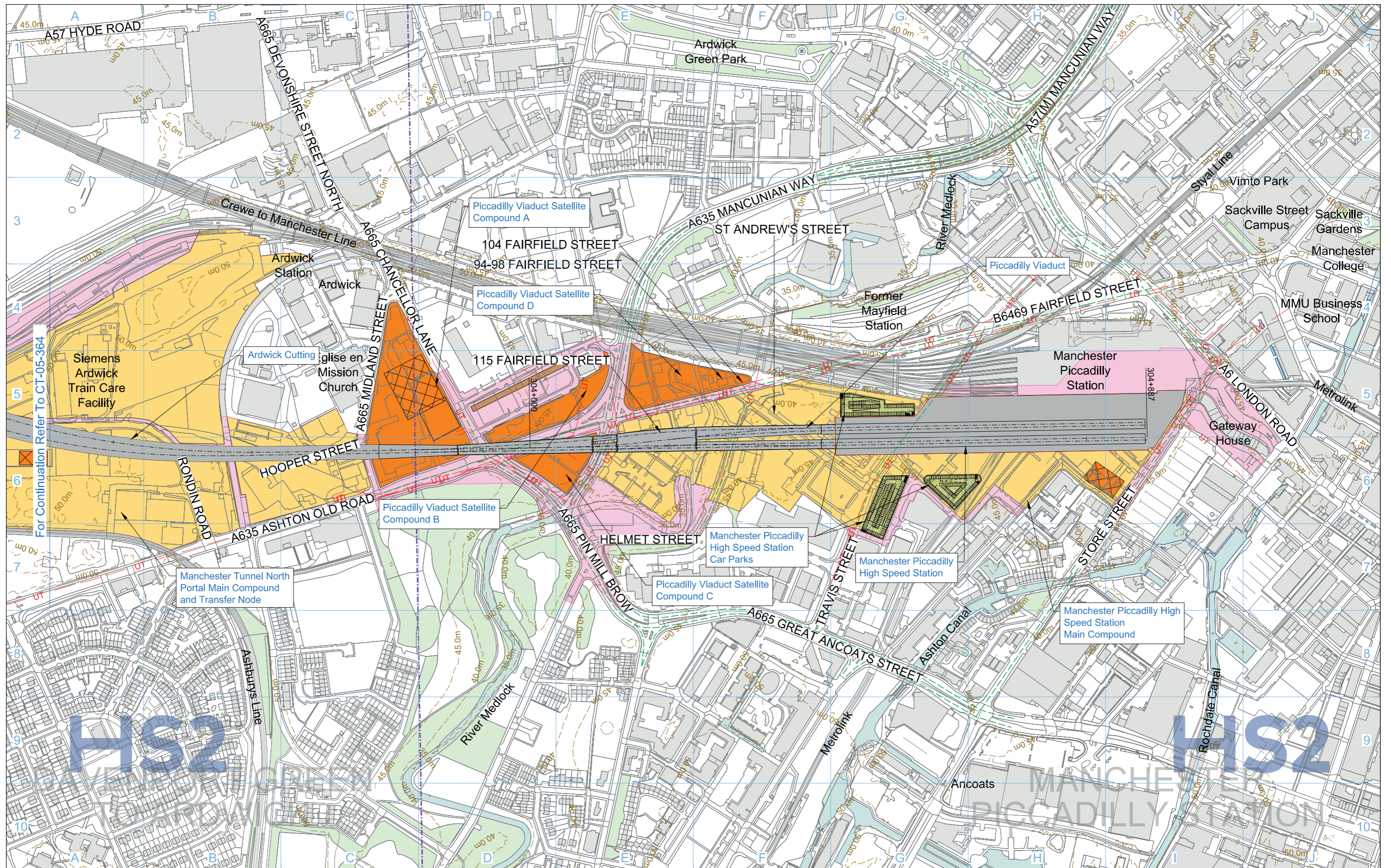
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

© Crown copyright and database rights 2017
OS 100049190

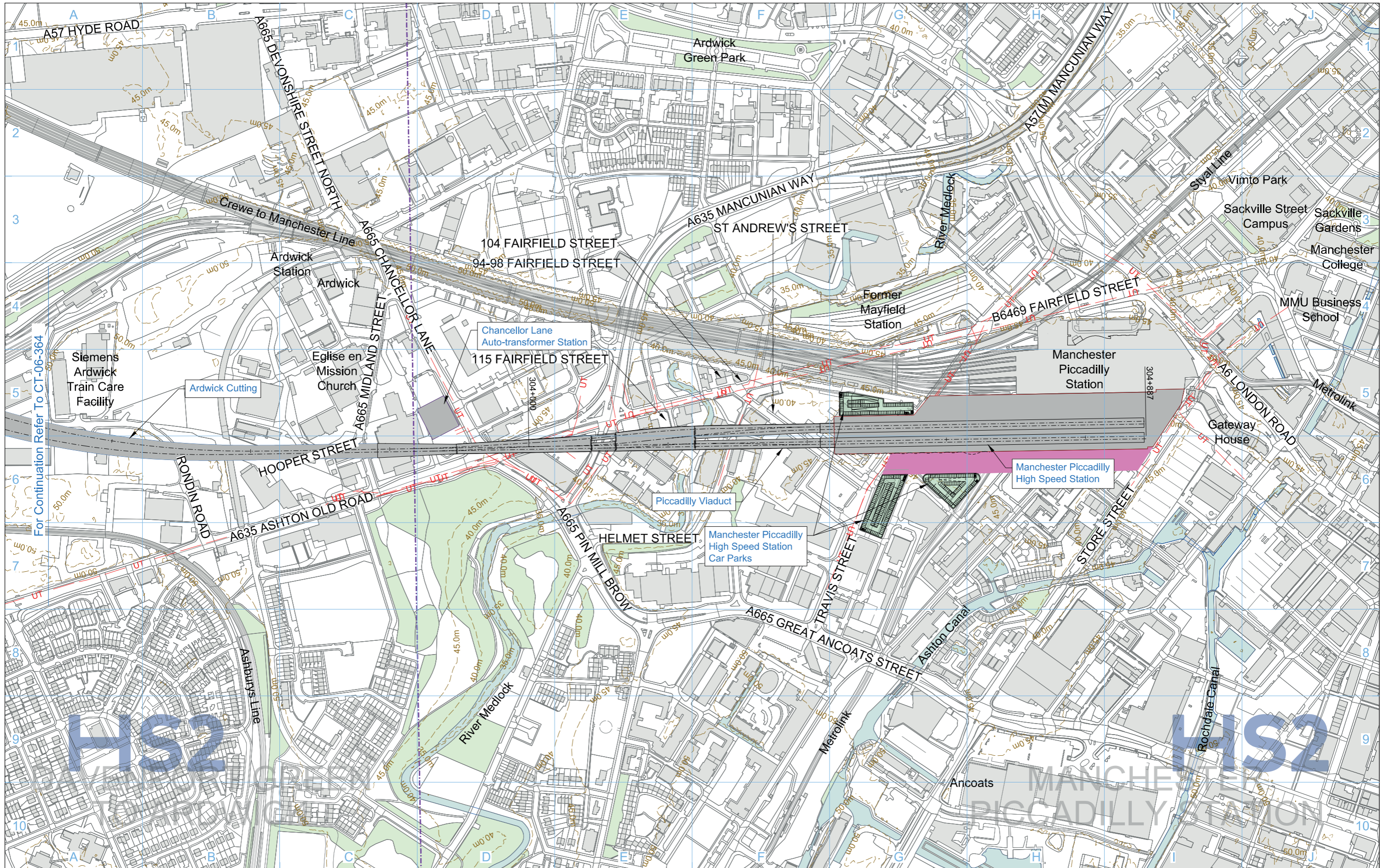
Scale at A3: 1:75,000

0 750 1,500 2,250 3,000 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-000016-P04 Date: 11/07/18



Legend 							
Map Number CT-05-365b		Map Name CT-05 - Construction Phase WDES				<small>HS2 Ltd accept no responsibility for any circumstances, which arise from the reproduction of this map or alteration, amendment or abbreviation or if it is issued in part or issued incomplete in any way.</small>	
Community Area MA08 Manchester Piccadilly Station		<small>Registered in England Registration No. 06791686 Registered office: 2 Snow Hill, Queensway, Birmingham, B4 6GA.</small>		<small>Scale at A3: 1:5,000</small> 		<small>© Crown copyright and database rights 2018, Ordnance Survey Licence Number 100049190.</small>	
Doc Number: 2DE01-MWJ-EV-DPL-M003-520365		P03		Date: 10/07/18			



- Legend**
- Depot, station, headhouse or portal building
 - Tunnel portal
 - Electricity substation
 - Ecological mitigation pond
 - Balancing pond
 - Replacement floodplain storage

- Pumping Station
- Woodland habitat creation
- Wetland habitat creation
- Grassland habitat creation
- Landscape mitigation planting (scrub / woodland)
- Grassed areas
- Public realm

- Engineering earthworks
- Landscape earthworks
- Rail alignment formation
- Tunnels external extent

- Community Area boundary
- Watercourse diversion
- Existing watercourse
- Ditches - new
- Hedgerow habitat creation
- Location of major utility
- Existing public right of way (PRoW)
- New, diverted or realigned PRoW
- PRoW Closure

- County boundary
- Borough / District boundary
- Existing contours
- HS2 access road
- Noise fence barrier
- Rail alignment
- Chainage (e.g. 10+000)

Map Number: **CT-06-365b**

Map Name: **CT-06 - Proposed Scheme WDES**

Community Area: **MA08 Manchester Piccadilly Station**

Registered in England
Registration No. 06791686
Registered office:
2 Snow Hill, Queensway,
Birmingham, B4 6GA

Scale at A3: 1:5,000

Metres

© Crown copyright and database rights 2018,
Ordnance Survey Licence Number 100049190.

Doc Number: 2DE01-MWJ-EV-DPL-M003-620365 P03 Date: 11/07/18

HS2

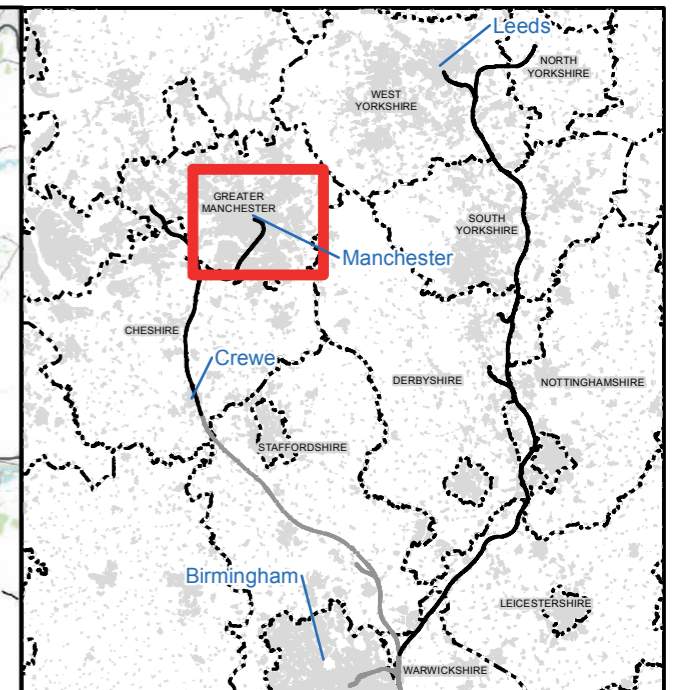
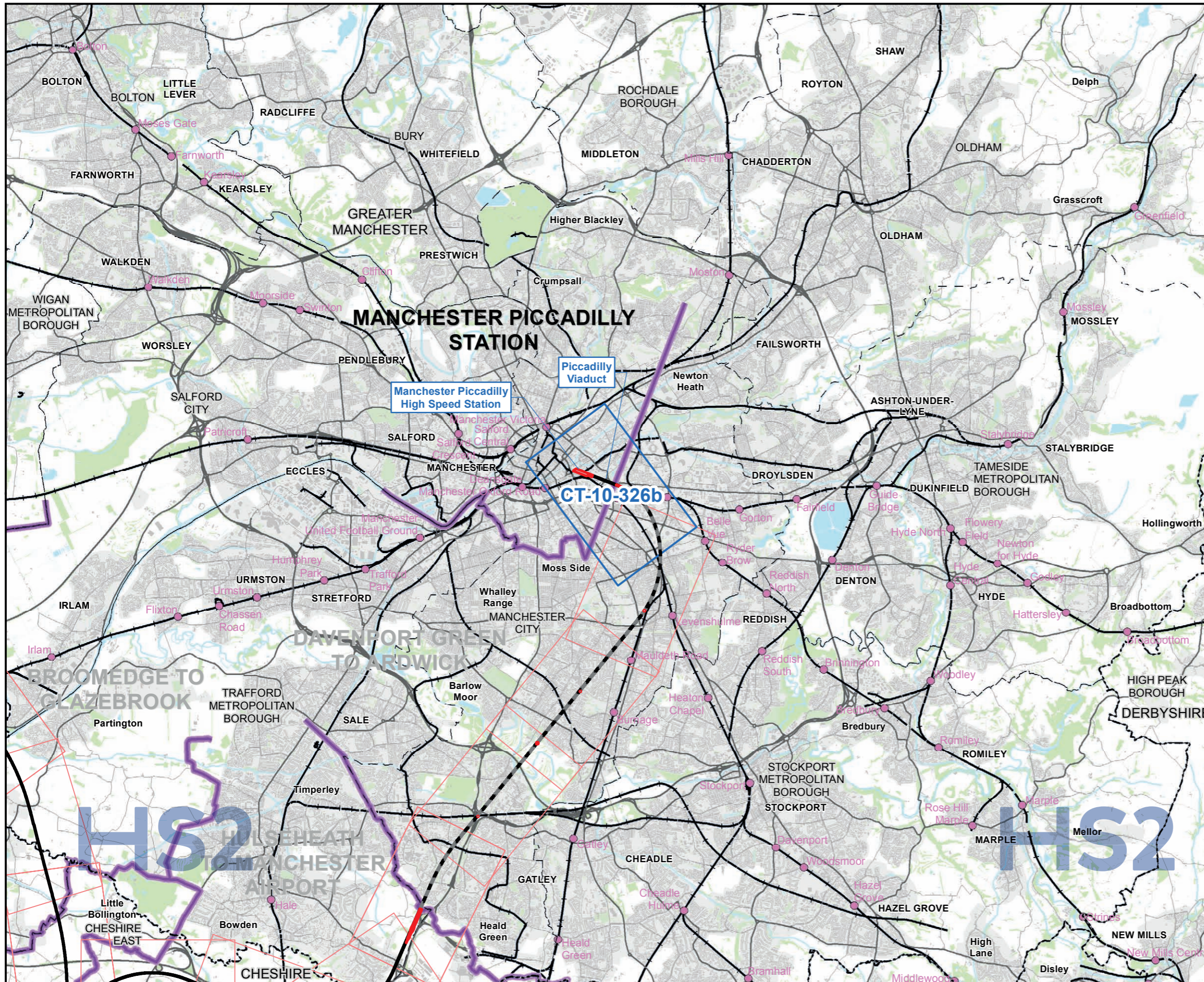
This page is intentionally blank

HS2

High Speed Rail (Crewe to Manchester and West Midlands to Leeds)

Working Draft Environmental Statement

CT-10 – Environmental baseline



Map Series Information:

The Environmental Baseline maps display a range of environmental data layers.

- Main Map Legend**
- Route in tunnel
 - Route on surface
 - Depot, station, headhouse or portal building
 - Community area boundary
 - Existing railway station
 - County boundary
 - District/Borough boundary
 - Map sheets included in this community area
 - Map sheets not included in this community area

Map Number	CT-10-INDEX-MA08
Map Name	Index Map of: Environmental Baseline WDES
	Community Area MA08: Manchester Piccadilly Station

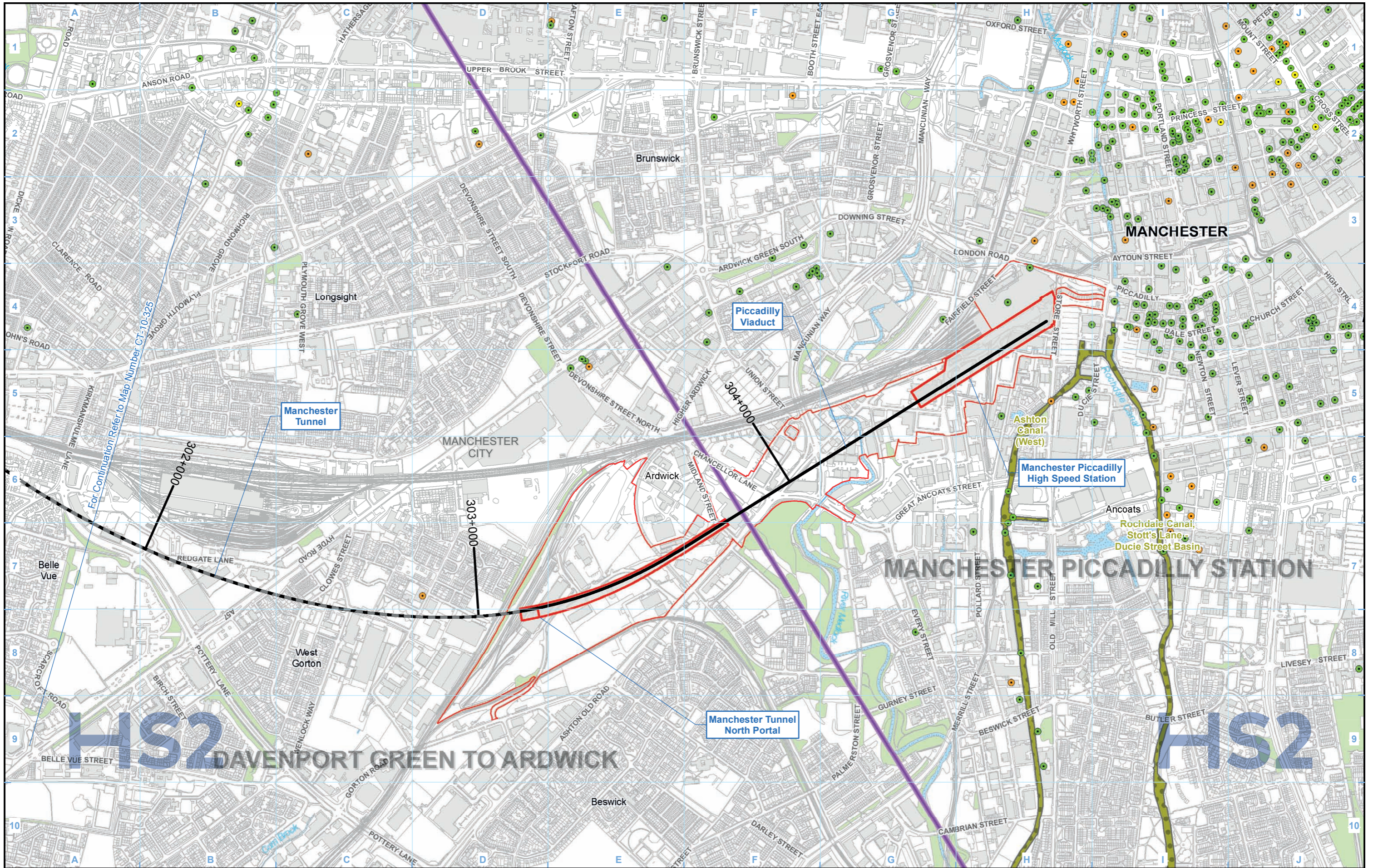
HS2 HS2 Ltd accept no responsibility for any circumstances, which arise from the reproduction of this map after alteration, amendment or abbreviation or if it is issued in part or issued incomplete in any way.

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:100,000

© Crown copyright and database rights 2017
OS 100049190

Doc Number: 2DE01-MWJ-EV-MAP-M000-000200-P04 Date: 11/07/18



Legend	
	Route in tunnel
	Route on surface
	Depot, station, headhouse or portal building
	Land potentially required during construction
	Community area boundary
	County boundary
	District/Borough boundary
	Watercourse
	Water body
	Woodland
	Conservation areas
	Scheduled monument
	Listed building grade I
	Listed building grade II*
	Listed building grade II
	Registered park or garden
	Special Protection Area (SPA)
	Special Area of Conservation (SAC)
	Site of Special Scientific Interest (SSSI)
	National Nature Reserve (NNR)
	Local Nature Reserve (LNR)
	Local Wildlife Site (LWS)
	Ancient Woodland Inventory Sites (AWIS)
	Ramsar Site - Wetland of International Importance

Map Number	CT-10-326b
Map Name	Environmental Baseline WDES
Community Area MA08: Manchester Piccadilly Station	

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

© Crown copyright and database rights 2018
OS 100049190

Doc Number: 2DE01-MWJ-EV-MAP-M000-000232-P04

Scale at A3: 1:10,000

Metres

Date: 11/07/18

HS2 Ltd accept no responsibility for any circumstances, which arise from the reproduction of this map after alteration, amendment or abbreviation or if it is issued in part or issued incomplete in any way.

HS2

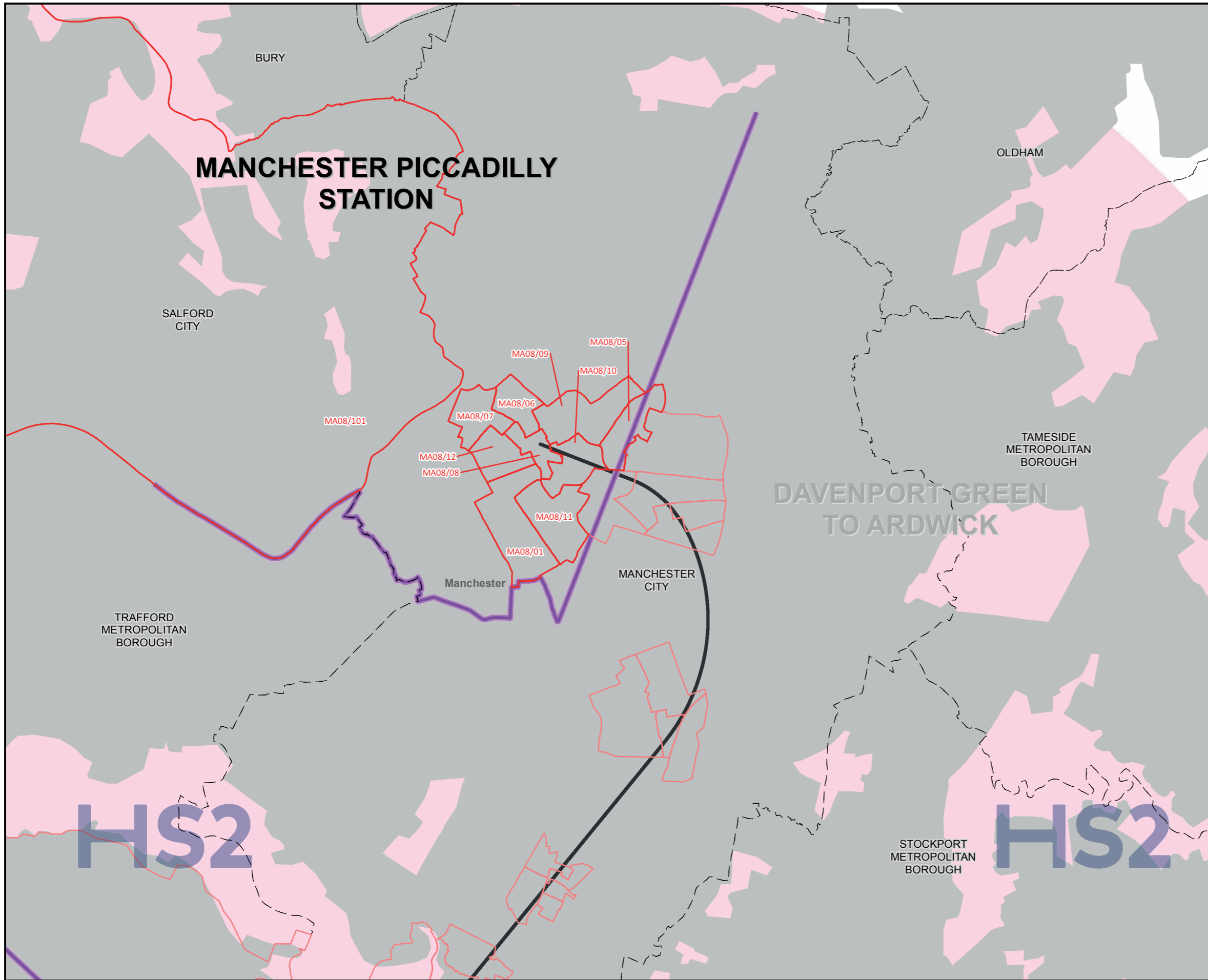
This page is intentionally blank

HS2

High Speed Rail (Crewe to Manchester and West Midlands to Leeds)

Working Draft Environmental Statement

LV-00 – Route-wide Landscape Character Areas and
National Character Areas



Landscape Character Areas

MA08/01	University Campus
MA08/05	Medlock Valley Open Space
MA08/06	City Centre East Historic Commercial Grain
MA08/07	City Centre Core
MA08/08	Piccadilly Station and Surrounds
MA08/09	New Islington Area of Change
MA08/10	Piccadilly East Industrial
MA08/101	Cadishead and Partington Suburban
MA08/11	Brunswick Residential
MA08/12	City Centre South Historic Commercial Grain

Legend

	Route in tunnel		Landscape Character Area boundary (included in this community area)		Manchester Conurbation
	Route on surface		Landscape Character Area boundary (not included in this community area)		
	Community area boundary				
	County boundary				
	District/Borough boundary				
	Large urban area				

Map Number	LV-00-308
Map Name	Route Wide Landscape Character Areas and National Character Areas WDES
	Community Area MA08: Manchester Piccadilly Station

HS2

Registered in England. Registration number 06791686. Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

© Crown copyright and database rights 2017 OS 100049190.

Doc Number: 2DE01-MWJ-EV-MAP-M000-000325-P04

Date: 10/07/18

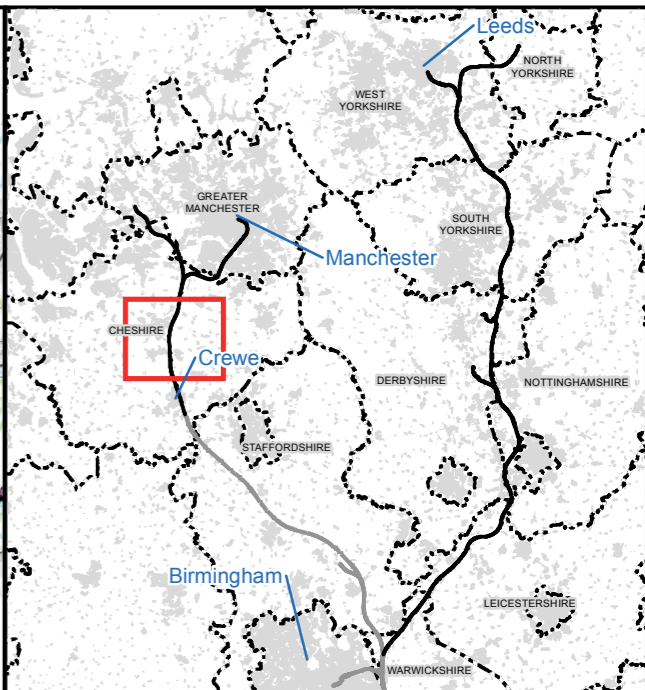
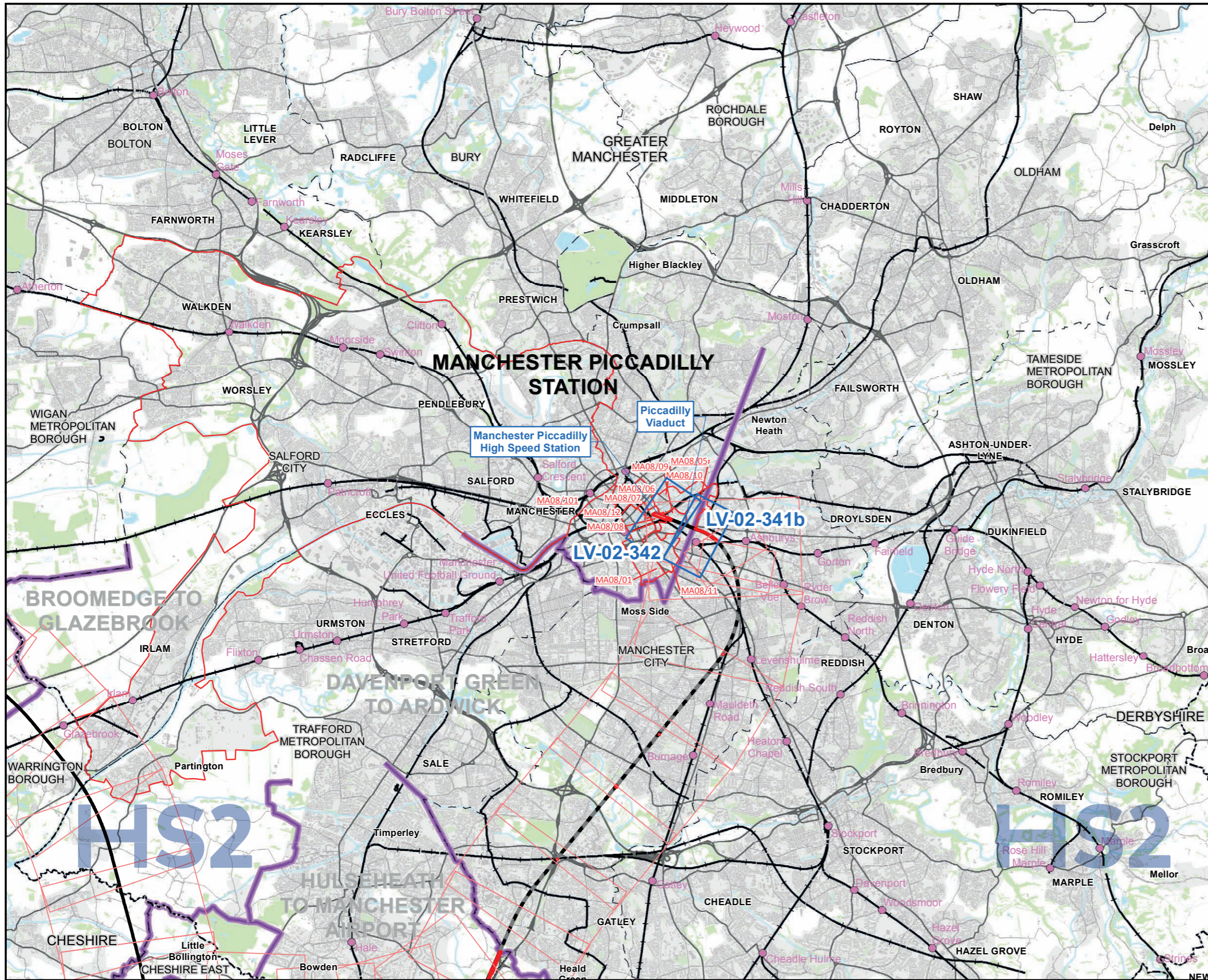
Scale at A3: 1:50,000

HS2

High Speed Rail (Crewe to Manchester and West Midlands to Leeds)

Working Draft Environmental Statement

LV-02 – Construction Phase Significantly Affected Viewpoints



Map Series Information:

Maps showing the landscape character areas that have been considered for assessment and illustrating significant residual effects during construction and operation.

LCA No.	LCA Name
MA08/01	University Campus
MA08/05	Medlock Valley Open Space
MA08/06	City Centre East Historic Commercial Grain
MA08/07	City Centre Core
MA08/08	Piccadilly Station and Surrounds
MA08/09	New Islington Area of Change
MA08/10	Piccadilly East Industrial
MA08/11	Brunswick Residential
MA08/12	City Centre South Historic Commercial Grain
MA08/101	Cadishead and Partington Suburban

Main Map Legend

	Route in tunnel		Landscape Character Area boundary
	Route on surface		Map sheets included in this community area
	Depot, station, headhouse or portal building		Map sheets not included in this community area
	Community area boundary		Landscape Character Area Number
	Existing railway station		
	County boundary		
	District/Borough boundary		

Map Number	LV-02-INDEX-MA08
Map Name	Index Map of: Landscape Character Areas WDES
	Community Area MA08: Manchester Piccadilly Station

HS2 HS2 Ltd accept no responsibility for any circumstances, which arise from the reproduction of this map after alteration, amendment or abbreviation or if it is issued in part or issued incomplete in any way.

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:100,000

© Crown copyright and database rights 2017
OS 100049190

Doc Number: 2DE01-MWJ-EV-MAP-M000-000025-P04 Date: 26/07/18



- Legend**
- Route in tunnel
 - Route on surface
 - Depot, station, headhouse or portal building
 - Land potentially required during construction
 - Community area boundary
 - County boundary
 - District/Borough boundary

- Landscape character areas (LCA)

- Engineering earthworks:**
- Embankment
 - Cutting
- Non engineering earthworks:**
- Embankment
 - Cutting

Map Number LV-02-341b

Map Name
**Landscape Character Areas
WDES**

Community Area MA08:
Manchester Piccadilly Station

HS2

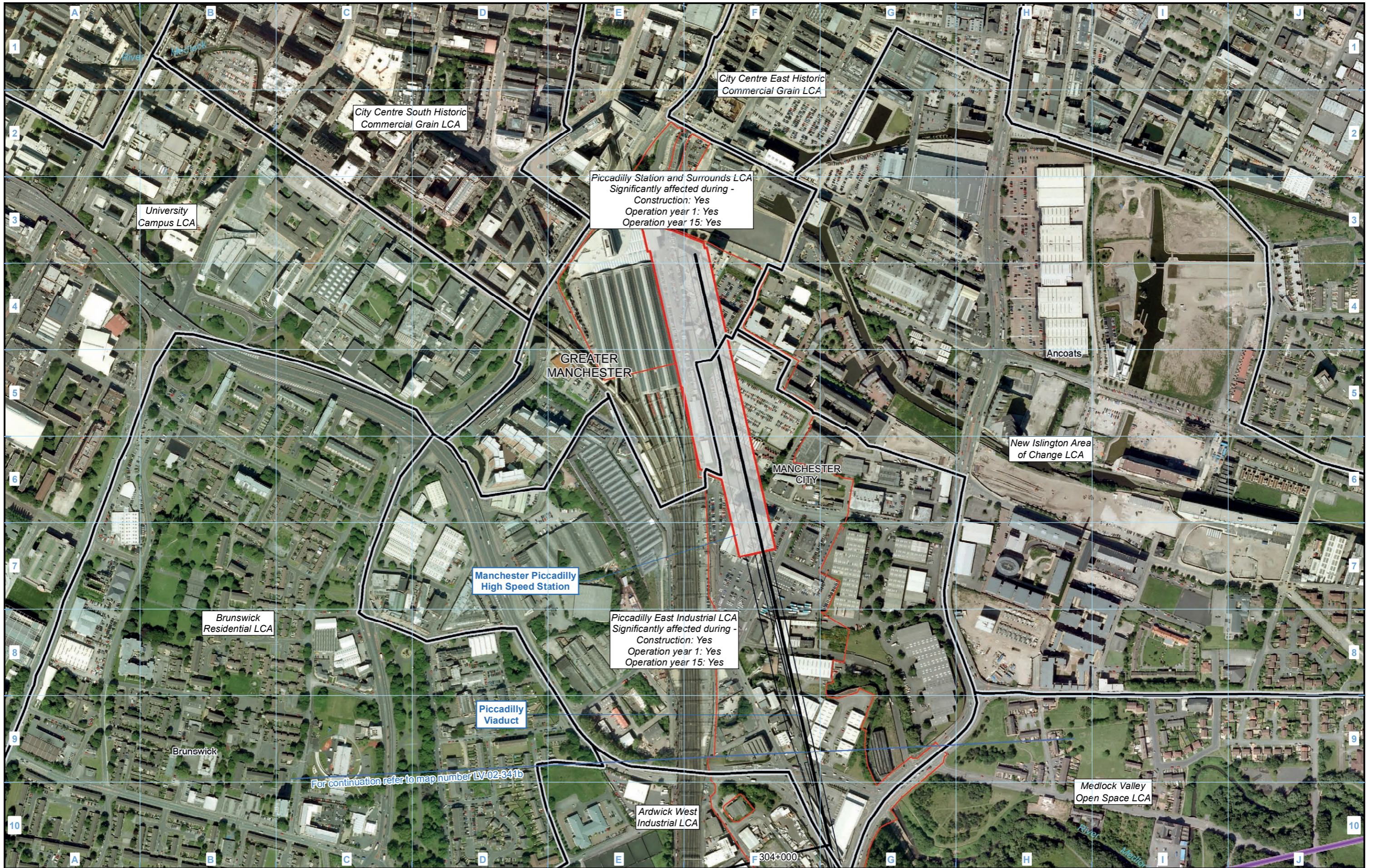
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway,
Birmingham B4 6GA.

Scale at A3: 1:5,000

0 50 100 150 200
Metres

© Crown copyright and database rights 2017
OS 100049190
© Airbus Defence and Space Ltd. Imagery rights 2017
Doc Number: 2DE01-MWJ-EV-MAP-M000-000346-P04

Date: 26/07/18



- Legend**
- Route in tunnel
 - Route on surface
 - Depot, station, headhouse or portal building
 - Land potentially required during construction
 - Community area boundary
 - County boundary
 - District/Borough boundary

Landscape character areas (LCA)

- Engineering earthworks:**
- Embankment
 - Cutting
- Non engineering earthworks:**
- Embankment
 - Cutting

Map Number LV-02-342

Map Name
**Landscape Character Areas
WDES**

Community Area MA08:
Manchester Piccadilly Station

HS2

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway,
Birmingham B4 6GA.

Scale at A3: 1:5,000

© Crown copyright and database rights 2017
OS 100049190
© Airbus Defence and Space Ltd. Imagery rights 2017
Doc Number: 2DE01-MWJ-EV-MAP-M000-000347-P04

Metres

Date: 26/07/18

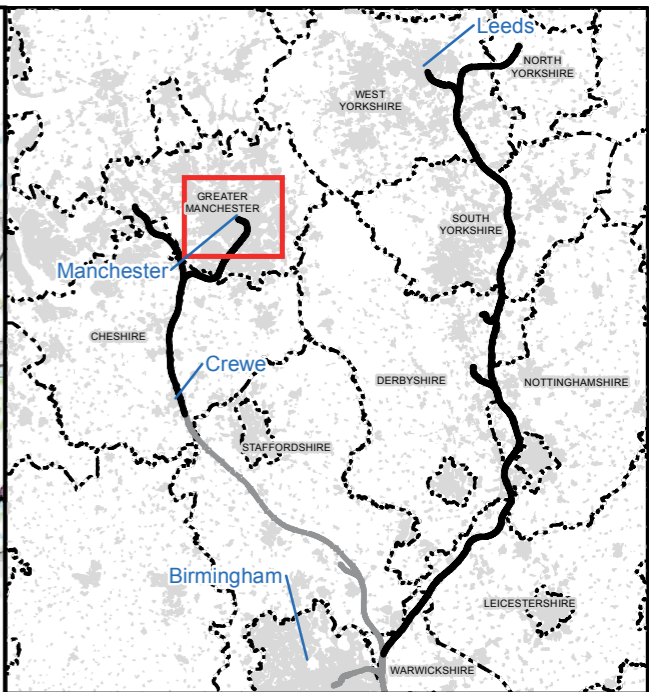
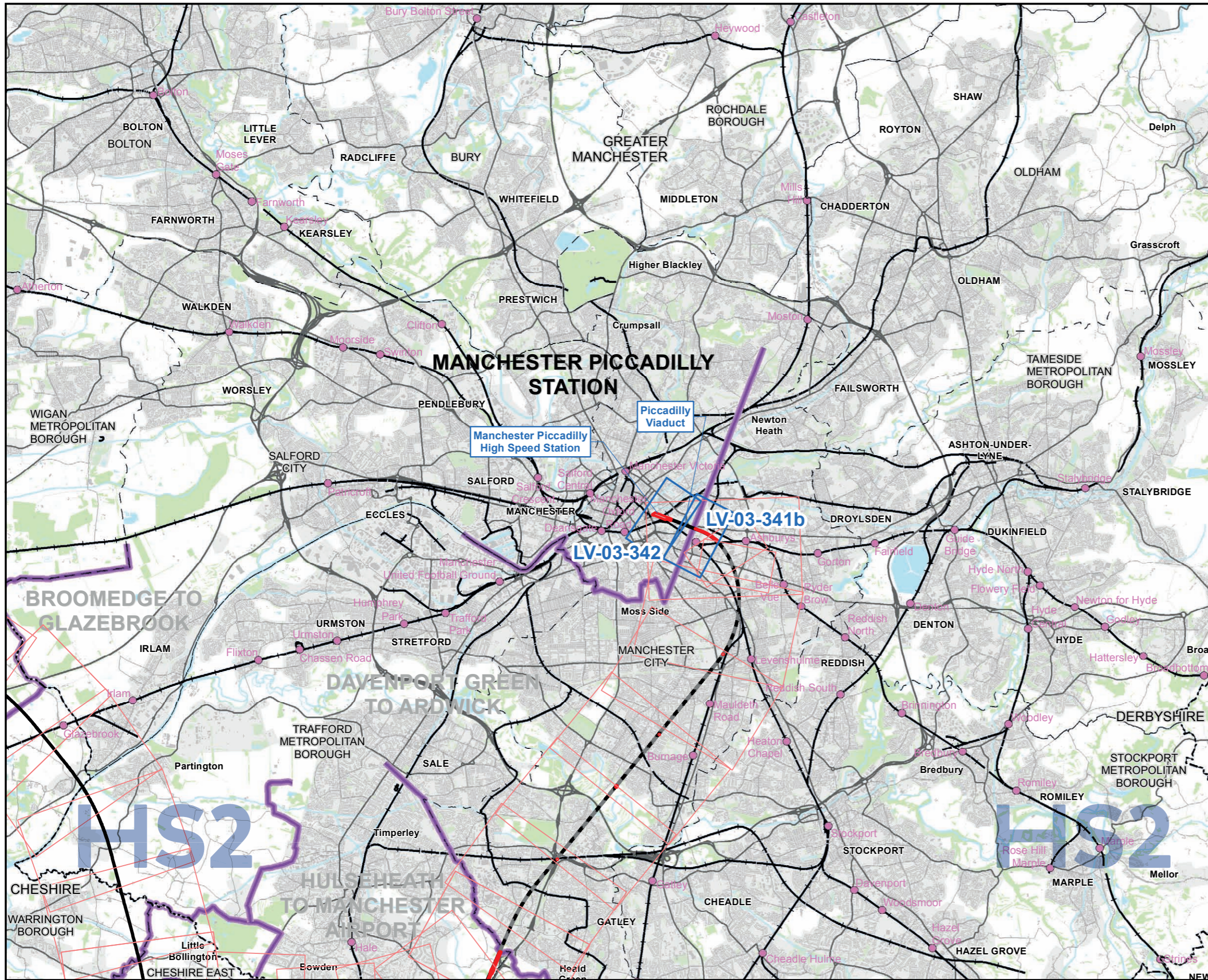
HS2

High Speed Rail (Crewe to Manchester and West Midlands to Leeds)

Working Draft Environmental Statement

LV-03 – Operation Phase Significantly Affected Viewpoints

LV-04 – Construction Phase Significantly Affected Viewpoints



Map Series Information:

Maps showing the viewpoint locations from which the Proposed Scheme has been assessed to give rise to significant effects during the construction phase. (All significant and non-significant photomontage locations are shown).

- Main Map Legend**
- Route in tunnel
 - Route on surface
 - Depot, station, headhouse or portal building
 - Community area boundary
 - Existing railway station
 - County boundary
 - District/Borough boundary
 - Map sheets included in this community area
 - Map sheets not included in this community area

Map Number LV-03-INDEX-MA08

Map Name Index Map of:
Construction Phase Significantly Affected Viewpoints WDES

Community Area MA08:
Manchester Piccadilly Station

HS2

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

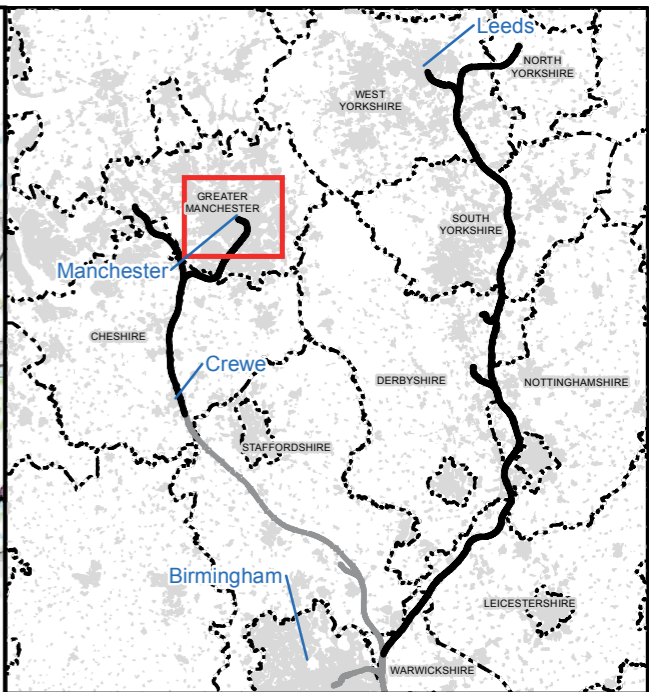
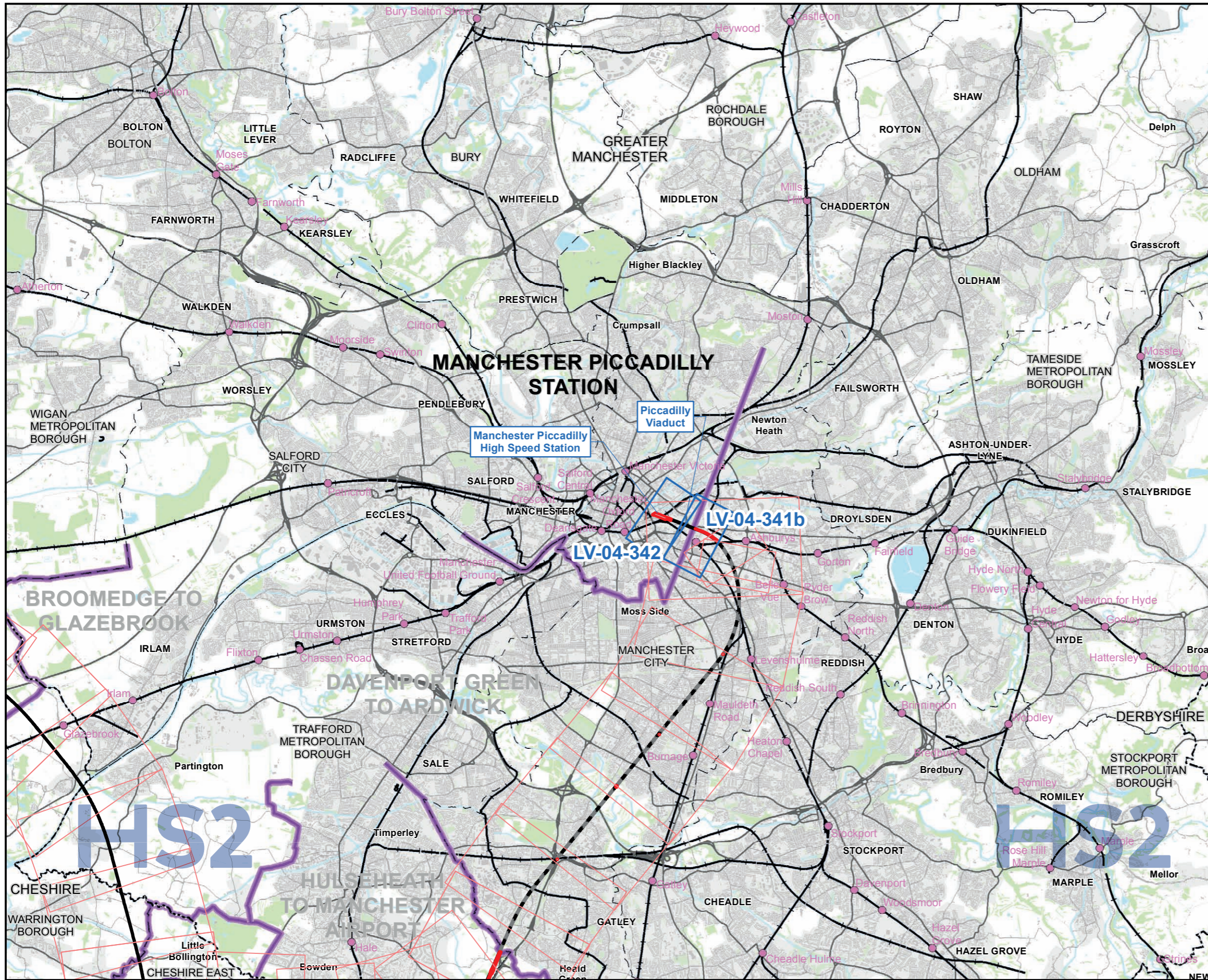
Scale at A3: 1:100,000

0 1,000 2,000 3,000 4,000 Metres

© Crown copyright and database rights 2017 OS 100049190

Doc Number: 2DE01-MWJ-EV-MAP-M000-000079-P04 Date: 26/07/18

Note: Not all data layers in the legend are represented on every map.



Map Series Information:

Maps showing the viewpoint locations from which the Proposed Scheme has been assessed to give rise to significant effects during the operational phase. (All significant and non-significant photomontage locations are shown).

- Main Map Legend**
- Route in tunnel
 - Route on surface
 - Depot, station, headhouse or portal building
 - Community area boundary
 - Existing railway station
 - County boundary
 - District/Borough boundary
 - Map sheets included in this community area
 - Map sheets not included in this community area

Map Number LV-04-INDEX-MA08

Map Name Index Map of:
Operational Phase Significantly Affected Viewpoints WDES

Community Area MA08:
Manchester Piccadilly Station

HS2

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

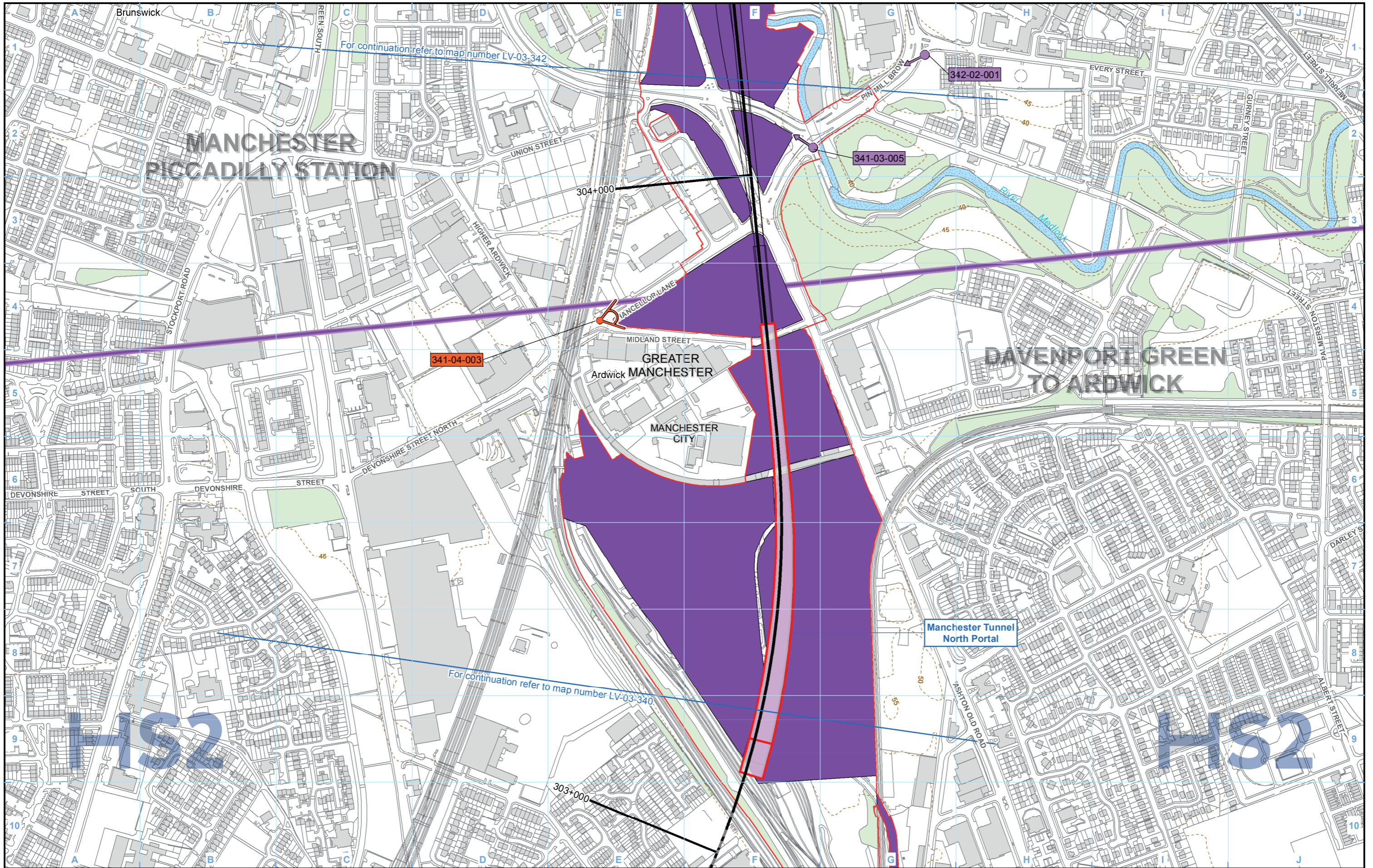
Scale at A3: 1:100,000

0 1,000 2,000 3,000 4,000 Metres

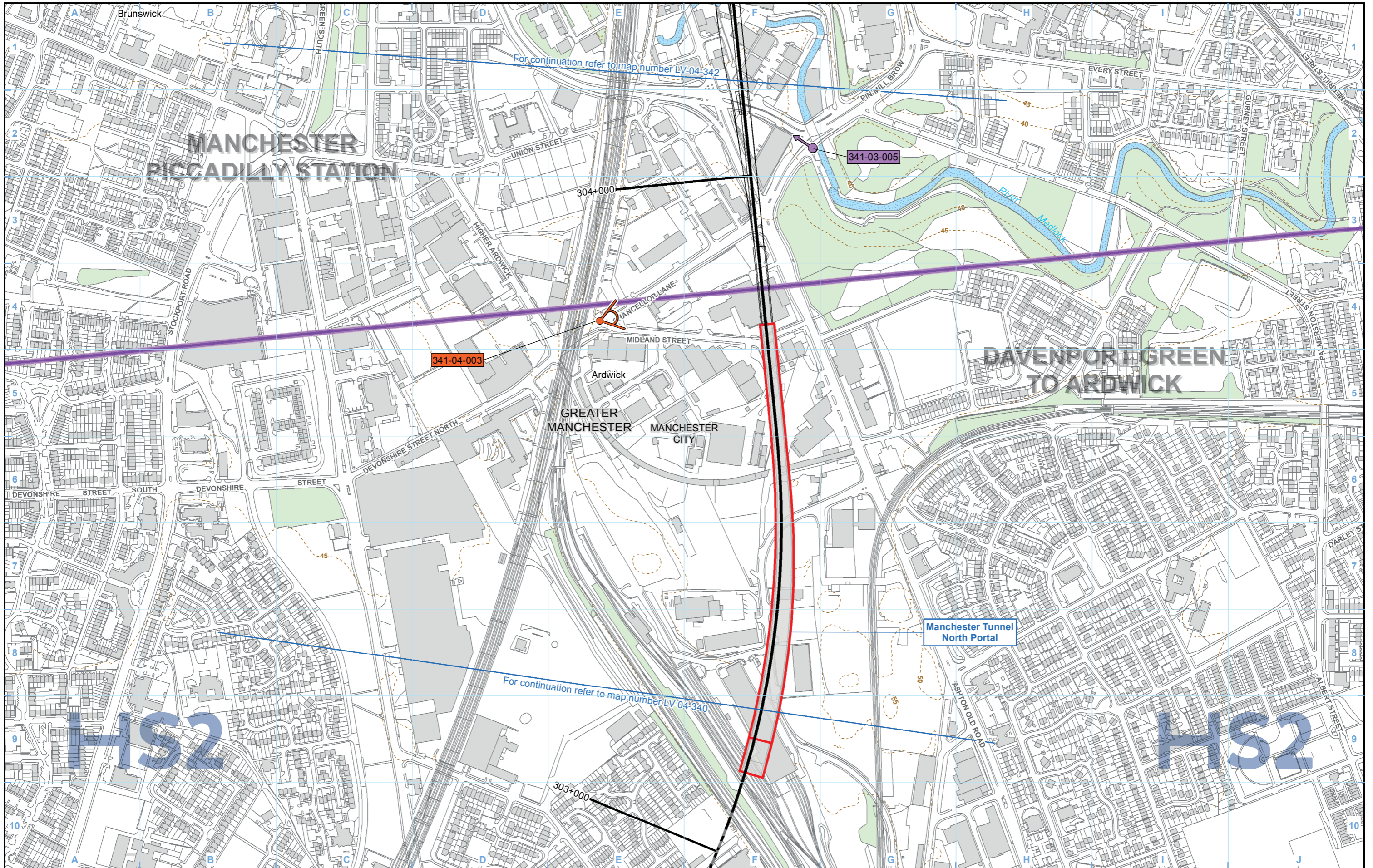
© Crown copyright and database rights 2017 OS 100049190

Doc Number: 2DE01-MWJ-EV-MAP-M000-000133-P04 Date: 26/07/18

Note: Not all data layers in the legend are represented on every map.



<p>Legend</p> <ul style="list-style-type: none"> Route in tunnel Route on surface Depot, station, headhouse or portal building Land potentially required during construction Community area boundary County boundary District/Borough boundary 	<ul style="list-style-type: none"> Public Rights of Way (PRow) 5m contours Water body Construction compounds 	<ul style="list-style-type: none"> Significantly affected viewpoint Photomontage location 001-01-001 Significantly affected viewpoint number 001-01-001 Photomontage viewpoint number 	<p>Engineering earthworks:</p> <ul style="list-style-type: none"> Embankment Cutting <p>Non engineering earthworks:</p> <ul style="list-style-type: none"> Embankment Cutting 	<p>Map Number: LV-03-341b</p> <p>Map Name: Construction Phase Significantly Affected Viewpoints WDES</p> <p>Community Area MA08: Manchester Piccadilly Station</p>	<p>HS2</p> <p>Registered in England. Registration number 06791686. Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.</p> <p>© Crown copyright and database rights 2018 OS 100049190</p> <p>Doc Number: 2DE01-MWJ-EV-MAP-M000-000336-P04</p> <p>Date: 26/07/18</p> <p>Scale at A3: 1:5,000</p> <p>0 50 100 150 200 Metres</p>
--	--	---	---	--	--



Legend	
	Route in tunnel
	Depot, station, headhouse or portal building
	Community area boundary
	County boundary
	District/Borough boundary
	Public Rights of Way (PRoW)
	5m contours
	Water body
	Proposed tree planting
	Significantly affected viewpoint
	Photomontage location
	001-1-001 Significantly affected viewpoint number
	001-1-001 Photomontage viewpoint number
	Engineering earthworks: Embankment
	Cutting
	Non engineering earthworks: Embankment
	Cutting

Map Number	LV-04-341b
Map Name	Operational Phase Significantly Affected Viewpoints WDES
	Community Area MA08: Manchester Piccadilly Station

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

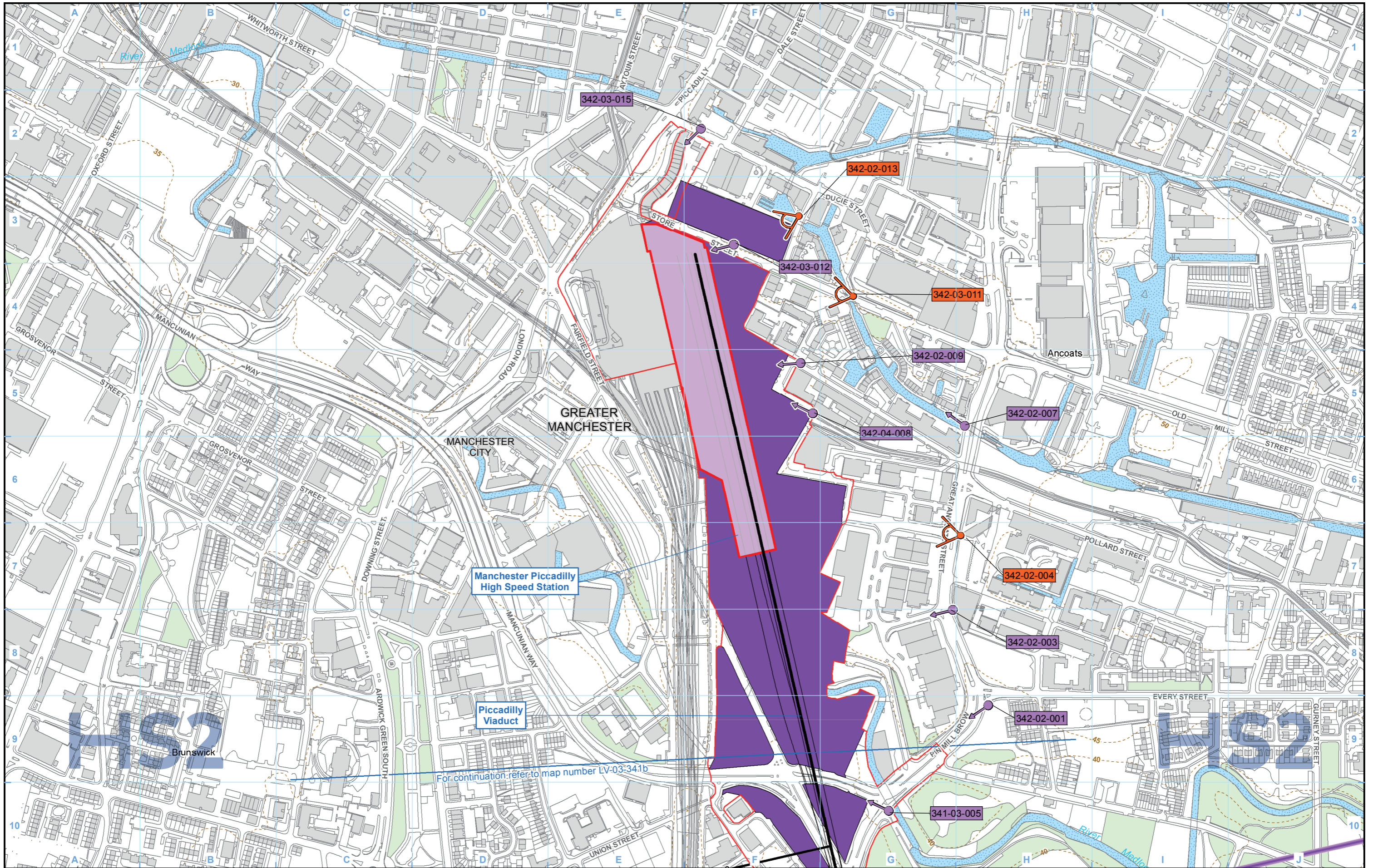
© Crown copyright and database rights 2018
OS 100049190

Doc Number: 2DE01-MWJ-EV-MAP-M000-000341-P04

Scale at A3: 1:5,000

Metres

Date: 26/07/18



- Legend**
- Route in tunnel
 - Route on surface
 - Depot, station, headhouse or portal building
 - Land potentially required during construction
 - Community area boundary
 - County boundary
 - District/Borough boundary
 - Public Rights of Way (PRoW)
 - 5m contours
 - Water body
 - Construction compounds
 - Significantly affected viewpoint
 - Photomontage location
 - 001-01-001 Significantly affected viewpoint number
 - 001-01-001 Photomontage viewpoint number

- Engineering earthworks:**
- Embankment
 - Cutting
- Non engineering earthworks:**
- Embankment
 - Cutting

Manchester Piccadilly High Speed Station

Piccadilly Viaduct

For continuation refer to map number LV-03-341b

Map Number LV-03-342

Map Name Construction Phase Significantly Affected Viewpoints WDES

Community Area MA08: Manchester Piccadilly Station

HS2

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

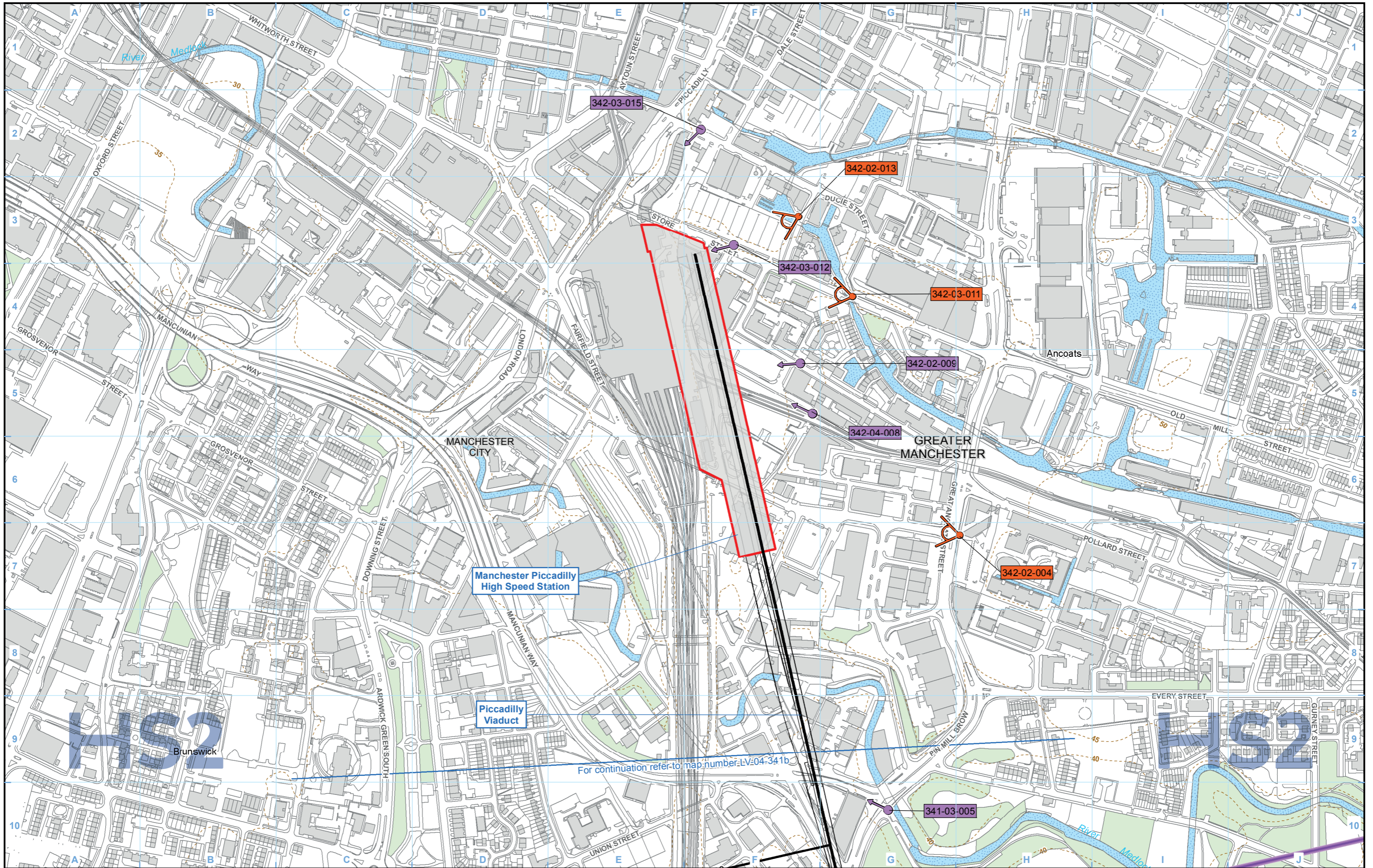
© Crown copyright and database rights 2018
OS 100049190

Doc Number: 2DE01-MWJ-EV-MAP-M000-000337-P04

Scale at A3: 1:5,000

Metres

Date: 26/07/18



Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- County boundary
- District/Borough boundary
- Public Rights of Way (PRoW)
- 5m contours
- Water body
- Proposed tree planting
- Significantly affected viewpoint
- Photomontage location
- Significantly affected viewpoint number
- Photomontage viewpoint number

Engineering earthworks:

- Embankment
- Cutting

Non engineering earthworks:

- Embankment
- Cutting

Map Number: LV-04-342

Map Name: Operational Phase Significantly Affected Viewpoints WDES

Community Area MA08: Manchester Piccadilly Station

HS2

Registered in England. Registration number 06791686. Registered office: 2 Snowhill, Queensway, Birmingham B4 6QA.

© Crown copyright and database rights 2018 OS 100049190

Doc Number: 2DE01-MWJ-EV-MAP-M000-000342-P04

Date: 26/07/18

Scale at A3: 1:5,000

0 50 100 150 200 Metres

HS2

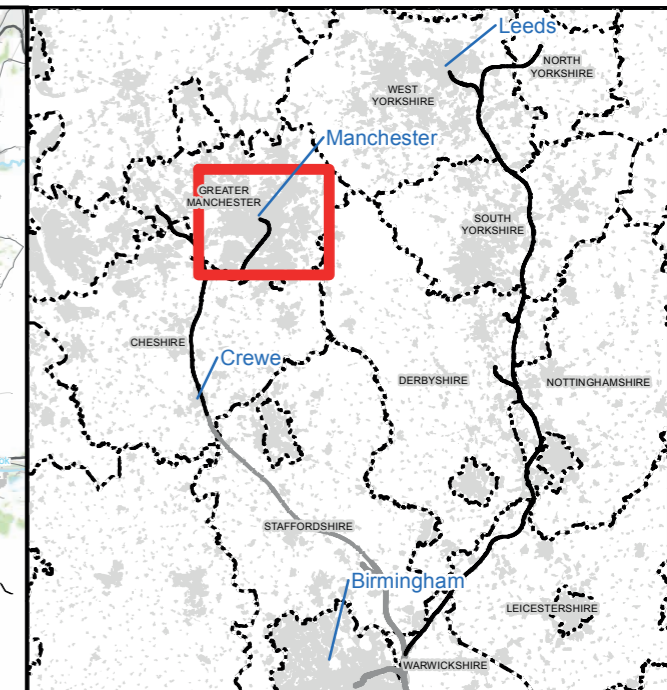
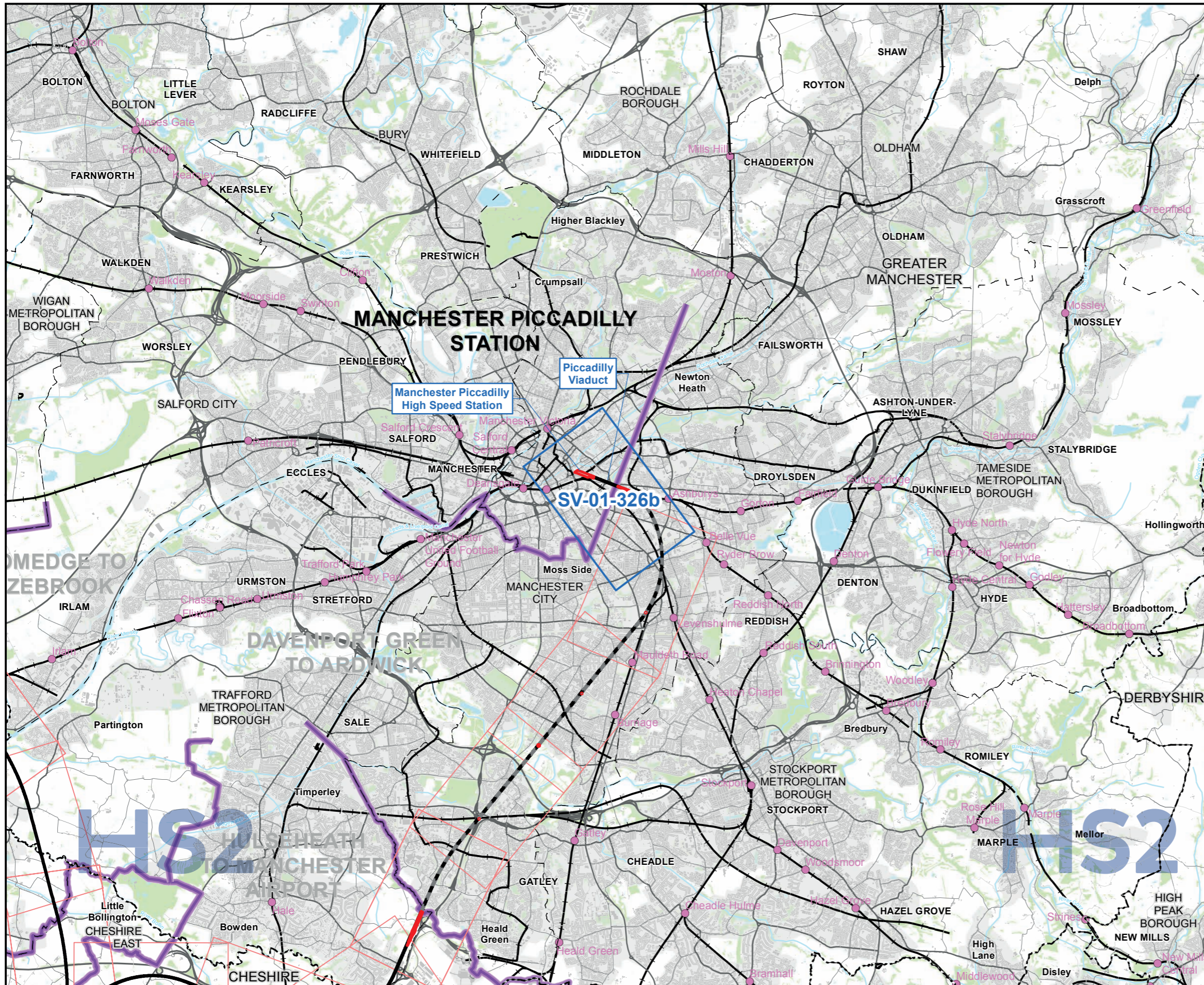
This page is intentionally blank

HS2

High Speed Rail (Crewe to Manchester and West Midlands to Leeds)

Working Draft Environmental Statement

SV-01 – Operational Sound Contour Maps and
Likely Significant Effects



Map Series Information:

SV-01 presents the predicted operational noise from the new railway.

The noise levels from the new railway (expressed as $L_{pAeq,T}$) are presented in typical noise mapping colours in 5 dB steps. There is a panel at the top right of the figure; the left-hand section of this panel contains a key communicating the night-time and daytime noise levels represented by the various colours. The right-hand part of the same panel contains text explaining how the noise levels presented on the figure inform the assessment of likely significant effects.

Also presented on SV-01 are the following:

- a representation of the Proposed Scheme, including the railway alignment (indicating whether it is on the surface or in tunnel), any new and altered roads and all associated engineering and environmental mitigation earthworks;
- blue and green lines representing the wayside airborne noise mitigation measures included in the Proposed Scheme;
- star symbols representing where buildings would potentially qualify for noise insulation;
- labels identifying the residual likely significant noise effects of the Proposed Scheme, and
- the extent of the study area within which the direct impacts and effects of the scheme have been assessed.
- an indication of the key non-residential receptors which will be assessed further in the formal ES.

A more detailed explanation of each legend item included on the figures can be found in the data dictionary.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies which will be reported as part of the formal ES.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

Route in tunnel	Map sheets included in this community area
Route on surface	Map sheets not included in this community area
Depot, station, headhouse or portal building	
Community area boundary	
Existing railway station	
County boundary	
District/Borough boundary	

Map Number **SV-01-INDEX-MA08**

Map Name **Index Map of:
Operational Noise Contour Maps and
Likely Significant Effects
WDES**

**Community Area MA08:
Manchester Piccadilly Station**

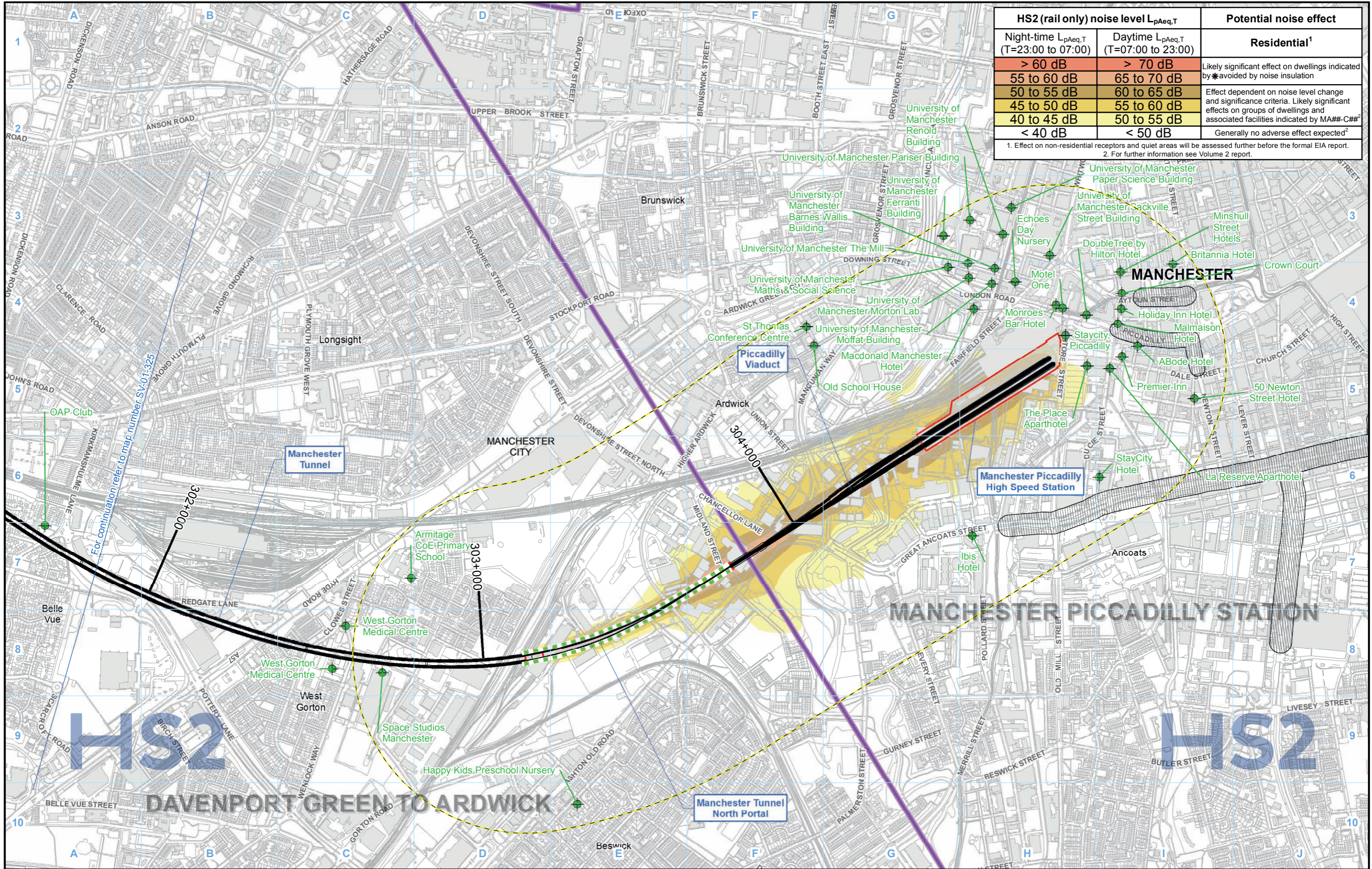
HS2 HS2 Ltd accept no responsibility for any circumstances, which arise from the reproduction of this map after alteration, amendment or abbreviation or if it is issued in part or issued incomplete in any way.

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6QA.

Scale at A3: 1:100,000

© Crown copyright and database rights 2017
OS 100049190

Doc Number: 2DE01-MWJ-EV-MAP-M000-000271-P04 **Date: 26/07/18**



HS2 (rail only) noise level L _{pAeq,T}		Potential noise effect
Night-time L _{pAeq,T} (T=23:00 to 07:00)	Daytime L _{pAeq,T} (T=07:00 to 23:00)	Residential ¹
> 60 dB	> 70 dB	Likely significant effect on dwellings indicated by * avoided by noise insulation
55 to 60 dB	65 to 70 dB	Effect dependent on noise level change and significance criteria. Likely significant effects on groups of dwellings and associated facilities indicated by MA##-C## ²
50 to 55 dB	60 to 65 dB	
45 to 50 dB	55 to 60 dB	
40 to 45 dB	50 to 55 dB	Generally no adverse effect expected ²
< 40 dB	< 50 dB	

1. Effect on non-residential receptors and quiet areas will be assessed further before the formal EIA report.
2. For further information see Volume 2 report.

- Legend - General features**
- Route in bored tunnel
 - Route in green tunnel
 - Route on surface
 - Depot, station, headhouse or portal building
 - Community area boundary
 - County boundary
 - District/Borough boundary

- Legend - Noise related features**
- Engineering earthworks:
- Embankment
 - Cutting
- Non engineering earthworks:
- Embankment
 - Cutting

- Legend - Noise related features**
- Envisaged mitigation to avoid / reduce significant noise effects:
- Landscaping and/or fence barriers*
 - Engineering e.g. cuttings (green tunnels separately marked)
- Envisaged features further reducing noise effects:
- Other environmental e.g. landscaping
 - Engineering e.g. cuttings

- Airborne noise study area
- Potential noise insulation qualifier
- Key non-residential receptors identified for assessment
- Noise Important Areas defined in national noise action plans (Defra 2014)

* Labelled with total barrier height above rail level

Map Number: SV-01-326b

Map Name: Operational Noise Contour Maps and Likely Significant Effects WDES

Community Area MA08: Manchester Piccadilly Station

HS2

Registered in England. Registration number 06791686. Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:10,000

© Crown copyright and database rights 2018. OS 100049190.

Doc Number: 2DE01-MWJ-EV-MAP-M000-000293-P04

Date: 10/07/18

HS2

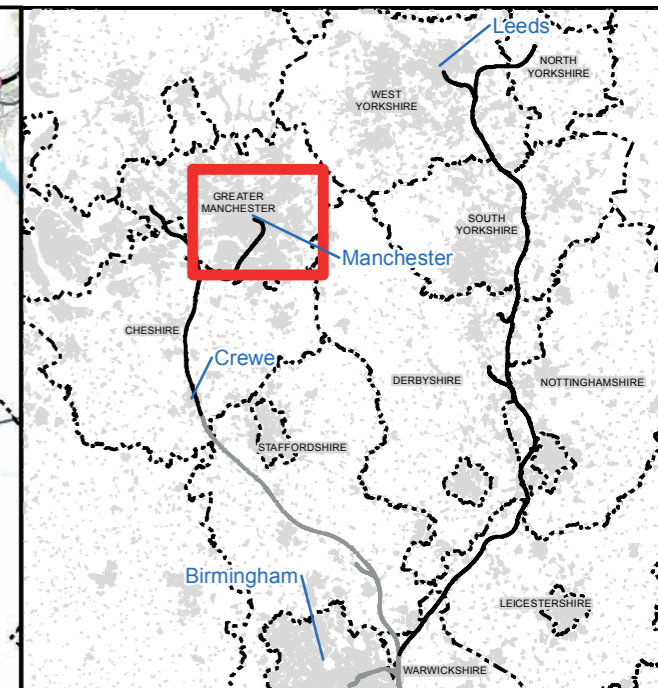
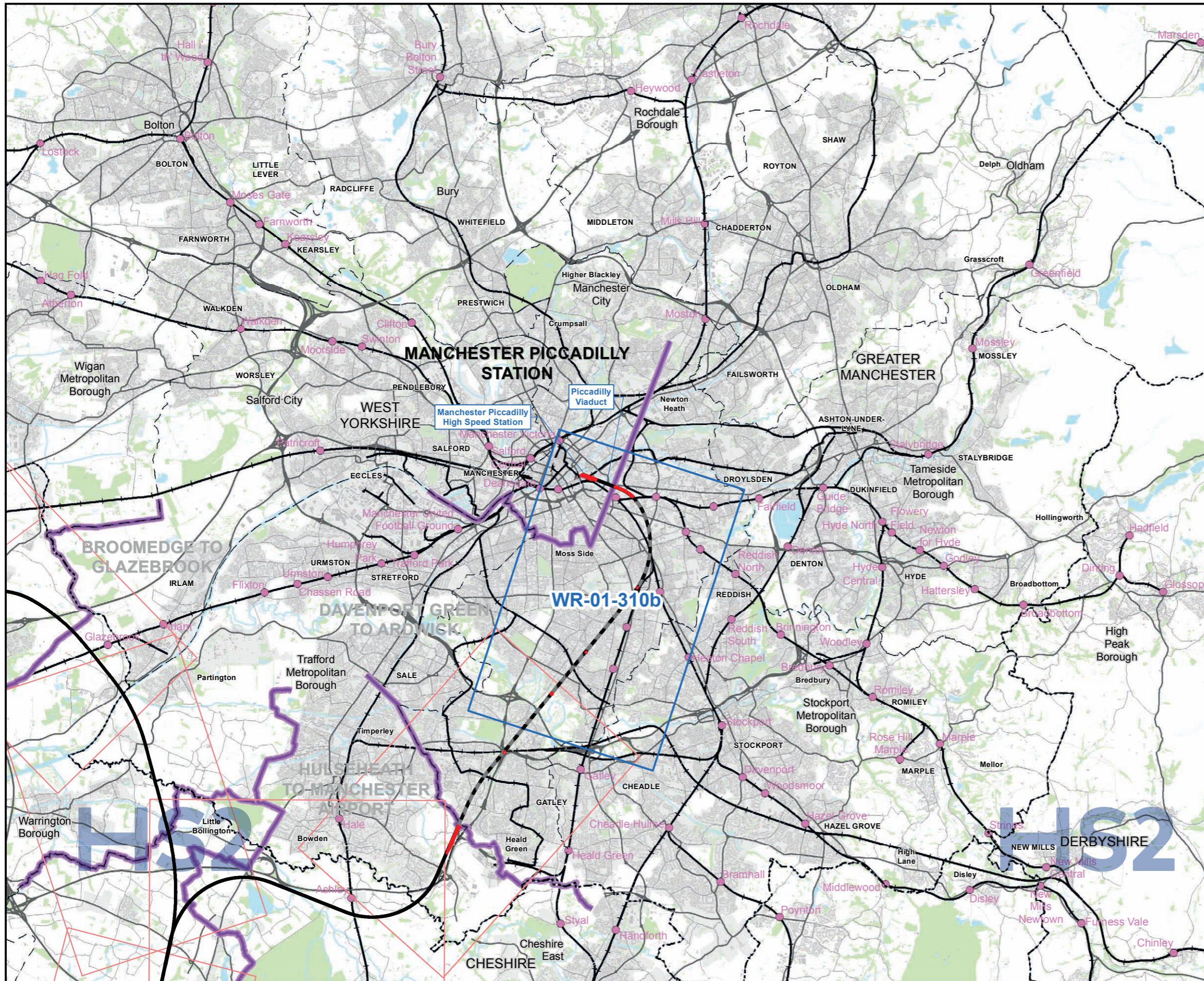
This page is intentionally blank

HS2

High Speed Rail (Crewe to Manchester and West Midlands to Leeds)

Working Draft Environmental Statement

WR-01 – Surface Water Baseline



Map Series Information:

This map series shows surface water features such as rivers, streams, ponds, canals and reservoirs, flood zones, and surface water abstractions as referred to in the ES.

The design of the Proposed Scheme will be informed through stakeholder engagement and further engineering and environmental studies

Main Map Legend	
	Route in tunnel
	Route on surface
	Depot, station, headhouse or portal building
	Community area boundary
	Existing railway station
	County boundary
	District/Borough boundary
	Map sheets included in this community area
	Map sheets not included in this community area

Map Number	WR-01-INDEX-MA08
Map Name	Index Map of: Surface Water Baseline WDES
	Community Area MA08: Manchester Piccadilly Station

HS2 HS2 Ltd accept no responsibility for any circumstances, which arise from the reproduction of this map after alteration, amendment or abbreviation or if it is issued in part or issued incomplete in any way.

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6QA.

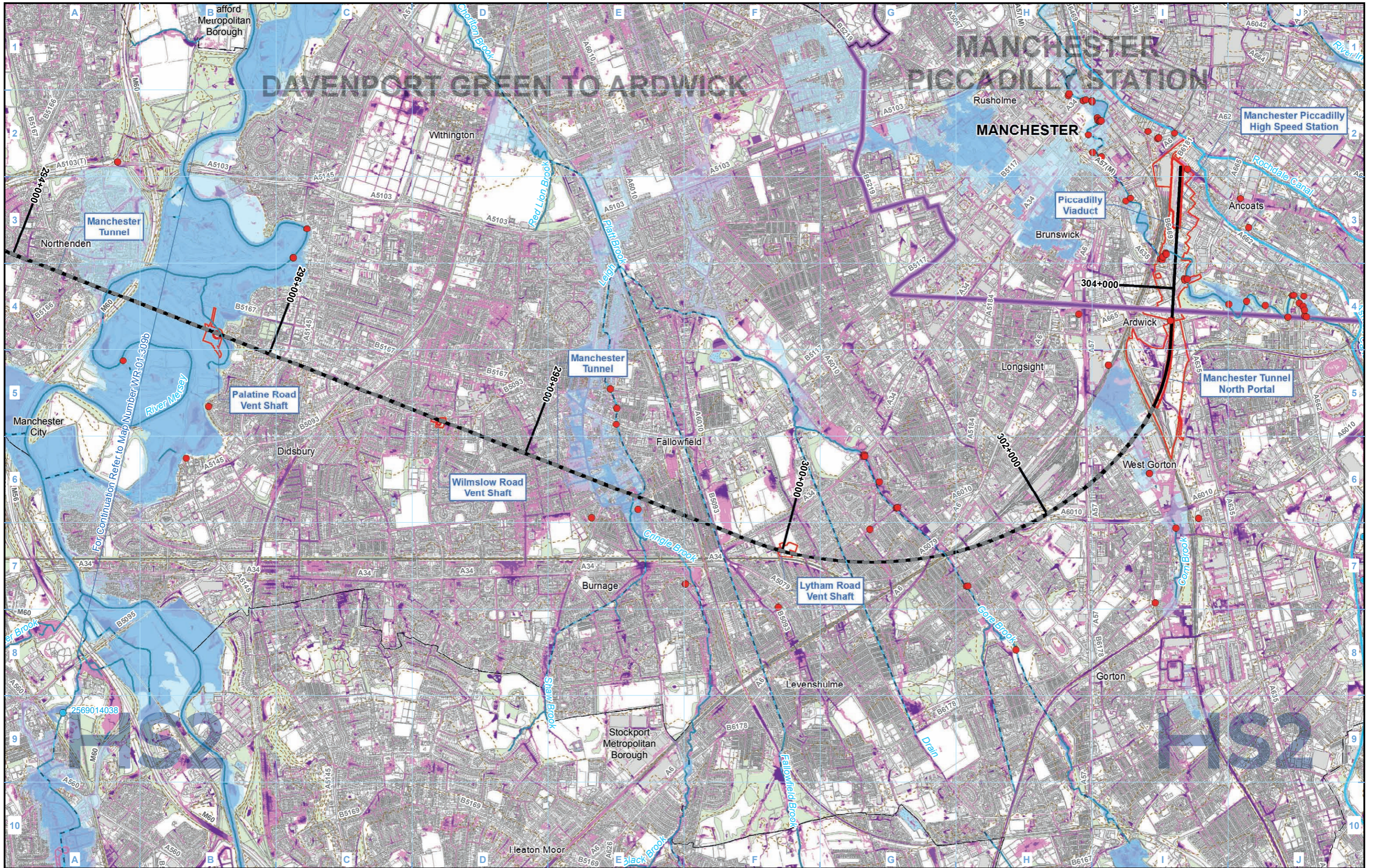
Scale at A3: 1:125,000

© Crown copyright and database rights 2017
OS 100049190

Doc Number: 2DE01-MWJ-EV-MAP-M000-000311-P04 Date: 11/07/18

DAVENPORT GREEN TO ARDWICK

PICCADILLY STATION



Legend

Route in tunnel	District/Borough boundary	Canal	Fluvial flood risk Flood Zone 2	Risk of Flooding from Surface Water High - chance of flooding greater than 1 in 30 (3.33%)
Route on surface	Licensed surface water abstraction (excluding public water supplies)	Canal tunnel	Flood Zone 3	Medium - chance of flooding between 1 in 100 (1%) and 1 in 30 (3.33%)
Depot, station, headhouse or portal building	Unlicensed private surface water abstraction	Lakes & Reservoirs	Historic flooding area	Low - chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%)
Land potentially required during construction	Consented discharge to surface water	Watercourse		
Community area boundary	Culverted watercourse; Culvert			
County boundary				

Map Number: **WR-01-310b**

Map Name: **Surface Water Baseline WDES**

Community Area MA08:
Manchester Piccadilly Station

HS2

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway,
Birmingham B4 6GA

Scale at A3: 1:25,000

© Crown copyright and database rights 2018
OS 100049190

Doc Number: 2DE01-MWJ-EV-MAP-M000-000305-P04

Date: 11/07/18

HS2

High Speed Rail (Crewe to Manchester and West Midlands to Leeds)

Working Draft Environmental Statement

WR-02 – Groundwater Baseline

Bedrock Geology

BNT-MDLM	BARNSTONE MEMBER - MUDSTONE AND LIMESTONE, INTERBEDDED	HA-SDST	HALESOWEN FORMATION - SANDSTONE (Secondary A aquifer)	TRBR-SDST	TRENCHERBONE ROCK - SANDSTONE (Secondary A aquifer)
CTM-MDST	COTHAM MEMBER - MUDSTONE (Secondary Undifferentiated aquifer)	HANS-SDST	HANCHURCH SANDSTONE BED - SANDSTONE (Secondary A aquifer)	TUPR-SDST	TUPTON ROCK - SANDSTONE (Secondary A aquifer)
WBY-MDSI	WESTBURY FORMATION - MUDSTONE AND SILTSTONE (Secondary B aquifer)	HTS-SDST	HOLT TOWN SANDSTONE BED - SANDSTONE (Secondary A aquifer)	WGF-SDST	WINGFIELD FLAGS - SANDSTONE (Secondary A aquifer)
WBY-MDST	WESTBURY FORMATION - MUDSTONE (Secondary Undifferentiated aquifer)	SPPS-SDST	SPRINGPOOL SANDSTONE BED - SANDSTONE (Secondary A aquifer)	WH-SDST	WOODHEAD HILL ROCK - SANDSTONE (Secondary A aquifer)
BAN-MDST	BLUE ANCHOR FORMATION - MUDSTONE (Secondary B aquifer)	WIT-LMST	WHITACRE MEMBER - LIMESTONE (Principal aquifer)	ETM-MDSC	ETRURIA FORMATION - MUDSTONE, SANDSTONE AND CONGLOMERATE (Secondary A aquifer)
BCMU-DLSLT	BRANSCOMBE MUDSTONE FORMATION - SILTSTONE, DOLOMITIC (Secondary B aquifer)	WIT-MDSD	WHITACRE MEMBER - MUDSTONE AND SANDSTONE (Principal aquifer)	ETM-SDST	ETRURIA FORMATION - SANDSTONE (Secondary A aquifer)
BCMU-MDST	BRANSCOMBE MUDSTONE FORMATION - MUDSTONE (Secondary B aquifer)	WIT-SDST	WHITACRE MEMBER - SANDSTONE (Principal aquifer)	ETM-STM	ETRURIA FORMATION - SANDSTONE AND MUDSTONE (Secondary A aquifer)
AS-SDSM	ARDEN SANDSTONE FORMATION - SANDSTONE, SILTSTONE AND MUDSTONE (Principal Aquifer)	ACR-SDST	ACKTON ROCK - SANDSTONE (Secondary A aquifer)	MGCY-SDST	UNNAMED SANDSTONE OF YEADONIAN AGE (IN MILLSTONE GRIT GROUP) - SANDSTONE
AS-SDST	ARDEN SANDSTONE FORMATION - SANDSTONE (Secondary A aquifer)	AR-SDST	ACKWORTH ROCK - SANDSTONE (Secondary A aquifer)	RF-SDST	ROUGH ROCK FLAGS - SANDSTONE
COT-SDST	COTGRAVE SANDSTONE MEMBER - SANDSTONE (Secondary A aquifer)	BADR-SDST	BADSWORTH ROCK - SANDSTONE (Secondary A aquifer)	ROSSE-MDSI	ROSSENDALE FORMATION - MUDSTONE AND SILTSTONE (Secondary A aquifer)
EDW-DLSLT	EDWALTON MEMBER - SILTSTONE, DOLOMITIC (Secondary B aquifer)	BYR-SDST	BRIERLEY ROCK - SANDSTONE (Secondary A aquifer)	ROSSE-SDST	ROSSENDALE FORMATION - SANDSTONE (Secondary A aquifer)
EDW-MDST	EDWALTON MEMBER - MUDSTONE (Secondary B aquifer)	DLT-SDST	DALTON ROCK - SANDSTONE (Secondary A aquifer)	RY-SDST	ROUGH ROCK - SANDSTONE (Secondary A aquifer)
WHT-HAMD	WILKESLEY HALITE MEMBER - HALITE-STONE AND MUDSTONE (Unproductive)	GH-SDST	GLASS HOUGHTON ROCK - SANDSTONE (Secondary A aquifer)	ASG-SDST	ASHOVER GRIT - SANDSTONE (Secondary A aquifer)
DIS-SDST	DISEWORTH SANDSTONE - SANDSTONE (Secondary B aquifer)	MXR-SDST	MEXBOROUGH ROCK - SANDSTONE (Secondary A aquifer)	CHG-SDST	CHATSWORTH GRIT - SANDSTONE (Secondary A aquifer)
BOM-MDST	BOLLIN MUDSTONE MEMBER - MUDSTONE (Secondary B aquifer)	NEWR-SDST	NEWSTEAD ROCK - SANDSTONE (Secondary A aquifer)	EC-SDST	EAST CARLTON GRIT - SANDSTONE
BREE-BREC	BREEDON BRECCIA - BRECCIA (Secondary B aquifer)	NHSS-SDST	NEWTON HEATH SANDSTONE - SANDSTONE (Secondary A aquifer)	GSYG-SDST	GUISELEY GRIT - SANDSTONE
GUN-DLSLT	GUNTHORPE MEMBER - SILTSTONE, DOLOMITIC (Secondary B aquifer)	NR-SDST	NOB END ROCK - SANDSTONE (Secondary A aquifer)	HDW-SDST	HUDDERSFIELD WHITE ROCK - SANDSTONE
GUN-MDST	GUNTHORPE MEMBER - MUDSTONE (Secondary B aquifer)	OPS-SDST	OPENSRAW SANDSTONE - SANDSTONE (Secondary A aquifer)	MARSD-MDSI	MARSDEN FORMATION - MUDSTONE AND SILTSTONE (Secondary A aquifer)
GUN-SDST	GUNTHORPE MEMBER - SANDSTONE (Secondary B aquifer)	PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE (Secondary A aquifer)	MGCZ-SDST	UNNAMED SANDSTONE OF MARSDENIAN AGE (IN MILLSTONE GRIT GROUP) - SANDSTONE (Secondary A aquifer)
GUN-SLST	GUNTHORPE MEMBER - SILTSTONE (Secondary B aquifer)	PUCM-SDST	PENNINE UPPER COAL MEASURES FORMATION - SANDSTONE (Secondary A aquifer)	MGG-SDST	MIDGLEY GRIT - SANDSTONE
HEY-MDST	HELSEY SANDSTONE FORMATION - MUDSTONE (Principal aquifer)	RVR-SDST	RAVENFIELD ROCK - SANDSTONE (Secondary A aquifer)	RE-SDST	REDMIRE FLAGS - SANDSTONE
HEY-PESST	HELSEY SANDSTONE FORMATION - SANDSTONE, PEBBLY (GRAVELLY) (Principal aquifer)	WDR-SDST	WORSLEY DELF ROCK - SANDSTONE (Secondary A aquifer)	AD-SDST	ADDELETHORPE GRIT - SANDSTONE
HEY-SDST	HELSEY SANDSTONE FORMATION - SANDSTONE (Principal aquifer)	WYR-SDST	WICKERSLEY ROCK - SANDSTONE (Secondary A aquifer)	AE-SDST	ADDINGHAM EDGE GRIT - SANDSTONE
NWHF-HAMD	NORTHWICH HALITE MEMBER - HALITE-STONE AND MUDSTONE (Unproductive)	ABR-SDST	ABDY ROCK - SANDSTONE (Secondary A aquifer)	DSS-SDST	DOUBLER STONES SANDSTONE - SANDSTONE
RDCF-MDSI	RADCLIFFE MEMBER - MUDSTONE AND SILTSTONE (Secondary B aquifer)	BAR-SDST	BARDSLEY ROCK - SANDSTONE (Secondary A aquifer)	HMSA-SDST	HIGH MOOR SANDSTONE - SANDSTONE
RDCF-MDST	RADCLIFFE MEMBER - MUDSTONE (Secondary Undifferentiated aquifer)	BNR-SDST	BARNESLEY ROCK - SANDSTONE	LPG-SDST	LOWER PLOMPTON GRIT - SANDSTONE
RDCF-SLST	RADCLIFFE MEMBER - SILTSTONE (Secondary B aquifer)	CRRO-SDST	CRIGGESTONE ROCK - SANDSTONE (Secondary A aquifer)	LRSS-SDST	LONG RIDGE SANDSTONE - SANDSTONE
SHSA-MDST	SHEPshed SANDSTONE MEMBER - MUDSTONE (Principal aquifer)	HMR-SDST	HAIGH MOOR ROCK - SANDSTONE (Secondary A aquifer)	MGCK-SDST	UNNAMED SANDSTONE OF KINDERSCOUTIAN AGE (IN MILLSTONE GRIT GROUP) - SANDSTONE (Secondary A aquifer)
SHSA-SDST	SHEPshed SANDSTONE MEMBER - SANDSTONE (Principal aquifer)	HNC-SDST	HUNCLIFFE ROCK - SANDSTONE (Secondary A aquifer)	UPG-SDST	UPPER PLOMPTON GRIT - SANDSTONE
CHES-MDST	CHESTER FORMATION - MUDSTONE (Principal Aquifer)	HRR-SDST	HORBURY ROCK - SANDSTONE (Secondary A aquifer)	UF-SDST	UPPER FOLLIFOOT GRIT - SANDSTONE
CHES-PESST	CHESTER FORMATION - SANDSTONE, PEBBLY (GRAVELLY) (Principal Aquifer)	KNR-SDST	KENT'S ROCK - SANDSTONE	MORRI-MDSS	MORRIDGE FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE (Secondary A aquifer)
CHES-SCON	CHESTER FORMATION - SANDSTONE AND CONGLOMERATE, INTERBEDDED (Principal aquifer)	OR-SDST	OAKS ROCK - SANDSTONE (Secondary A aquifer)	MG-MDSS	MILLSTONE GRIT GROUP [SEE ALSO MIGR] - MUDSTONE, SILTSTONE AND SANDSTONE (Secondary A aquifer)
CHES-SDST	CHESTER FORMATION - SANDSTONE (Principal aquifer)	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE (Secondary A aquifer)	MG-SDST	MILLSTONE GRIT GROUP [SEE ALSO MIGR] - SANDSTONE (Secondary A aquifer)
SIM-DLSLT	SIDMOUTH MUDSTONE FORMATION - SILTSTONE, DOLOMITIC (Secondary Undifferentiated aquifer)	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE (Secondary A aquifer)	EYL-LMST	EYAM LIMESTONE FORMATION - LIMESTONE (Principal aquifer)
SIM-MDST	SIDMOUTH MUDSTONE FORMATION - MUDSTONE (Secondary B aquifer)	PMR-SDST	PEMBERTON ROCK - SANDSTONE (Secondary A aquifer)	EYLK-LMST	EYAM LIMESTONES FORMATION (KNOLL-REEF) - LIMESTONE
TPSF-MDSI	TARPORLEY SILTSTONE FORMATION - MUDSTONE AND SILTSTONE (Secondary Undifferentiated aquifer)	PR-SDST	PEEL HALL ROCK - SANDSTONE (Secondary A aquifer)	MO-LMST	MONSAL DALE LIMESTONE FORMATION - LIMESTONE
TPSF-MDSS	TARPORLEY SILTSTONE FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE (Secondary B aquifer)	THR-SDST	TOP HARD ROCK - SANDSTONE (Secondary A aquifer)	TIL-LMST	TICKNALL LIMESTONE FORMATION - LIMESTONE (Principal aquifer)
TPSF-MDST	TARPORLEY SILTSTONE FORMATION - MUDSTONE (Secondary B aquifer)	TR-SDST	THORNHILL ROCK - SANDSTONE (Secondary A aquifer)	BSG-MDSS	BOWLAND SHALE FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE (Secondary A aquifer)
TPSF-SDST	TARPORLEY SILTSTONE FORMATION - SANDSTONE (Secondary A aquifer)	WE-SDST	WOOLLEY EDGE ROCK - SANDSTONE (Secondary A aquifer)	FV-TUF	FALLGATE VOLCANIC FORMATION - TUFF (Secondary B aquifer)
TPSF-SIMS	TARPORLEY SILTSTONE FORMATION - SILTSTONE, MUDSTONE AND SANDSTONE (Secondary B aquifer)	BLR-SDST	BLENFIRE ROCK - SANDSTONE (Secondary A aquifer)	WDF-LSMD	WIDMERPOOL FORMATION - LIMESTONE AND MUDSTONE, INTERBEDDED (Secondary A aquifer)
TPSF-SISD	TARPORLEY SILTSTONE FORMATION - SILTSTONE AND SANDSTONE (Secondary B aquifer)	BRSR-SDST	BIRSTALL ROCK - SANDSTONE	WDF-MDST	WIDMERPOOL FORMATION - MUDSTONE (Secondary Undifferentiated aquifer)
KNSF-SDST	KINNERTON SANDSTONE FORMATION - SANDSTONE (Principal aquifer)	CAR-SDST	CANNEL ROCK (SOUTH LANCASHIRE) - SANDSTONE (Secondary A aquifer)	CLHD-DLMDM	CLOUD HILL DOLOSTONE FORMATION - DOLOSTONE (Principal aquifer)
MMG-MDST	MERCIA MUDSTONE GROUP - MUDSTONE (Secondary B aquifer)	CHBR-SDST	CHAMBER ROCK - SANDSTONE (Secondary A aquifer)	CLHD-DOLO	CLOUD HILL DOLOSTONE FORMATION - DOLOSTONE (Principal aquifer)
WLSF-SDST	WILMSLOW SANDSTONE FORMATION - SANDSTONE (Principal aquifer)	CLRK-SDST	CLIFTON ROCK - SANDSTONE (Secondary A aquifer)	MI-DOLO	MILLDALE LIMESTONE FORMATION - DOLOSTONE (Principal aquifer)
WRS-SDST	WILDMOOR SANDSTONE MEMBER - SANDSTONE (Principal aquifer)	CRS-SDST	CRAWSHAW SANDSTONE - SANDSTONE (Secondary A aquifer)	MI-LMST	MILLDALE LIMESTONE FORMATION - LIMESTONE (Principal aquifer)
BTH-DOLMST	BROTHERTON FORMATION - LIMESTONE, DOLOMITIC (Principal Aquifer)	DHR-SDST	DEEP HARD ROCK - SANDSTONE (Secondary A aquifer)	MMI-LMPY	MIDLANDS MINOR INTRUSIVE SUITE - LAMPROPHYRES (Secondary B aquifer)
CDF-CAMDST	CADEBY FORMATION - MUDSTONE, CALCAREOUS (Principal aquifer)	EF-SDST	ELLAND FLAGS - SANDSTONE (Secondary A aquifer)	MPSH-MDST	MONKS PARK SHALE FORMATION - MUDSTONE (Secondary B aquifer)
CDF-DOLO	CADEBY FORMATION - DOLOSTONE (Principal Aquifer)	ER-SDST	EMLEY ROCK - SANDSTONE (Secondary A aquifer)	MVSH-MDST	MEREVALE SHALE FORMATION - MUDSTONE (Secondary B aquifer)
CDF-MDST	CADEBY FORMATION - MUDSTONE (Principal aquifer)	GM-SDST	GREENMOOR ROCK - SANDSTONE (Secondary A aquifer)	BLK-VCBR	BLACKBROOK RESERVOIR FORMATION - VOLCANIC-BRECCIA (Secondary B aquifer)
EDT-CAMDST	EDLINGTON FORMATION - MUDSTONE, CALCAREOUS (Secondary B aquifer)	GR-SDST	GRENSIDE SANDSTONE - SANDSTONE (Secondary A aquifer)	BLK-VCSST	BLACKBROOK RESERVOIR FORMATION - VOLCANIC-BRECCIA (Secondary B aquifer)
EDT-MDSD	EDLINGTON FORMATION - MUDSTONE AND SANDSTONE (Secondary B aquifer)	KKBS-SDST	KIRKBURTON SANDSTONE - SANDSTONE (Secondary A aquifer)	BLK-VLSS	BLACKBROOK RESERVOIR FORMATION - VOLCANIC-BRECCIA (Secondary B aquifer)
LNS-SDST	LENTON SANDSTONE FORMATION - SANDSTONE (Secondary B aquifer)	LER-SDST	LOXLEY EDGE ROCK - SANDSTONE (Secondary A aquifer)	CMBT-VCVSLST	BRADGATE FORMATION - VOLCANIC-BRECCIA (Secondary B aquifer)
MM-MDST	MANCHESTER MARLS FORMATION - MUDSTONE (Secondary B aquifer)	MBR-SDST	MIDDLE BAND ROCK - SANDSTONE	CMCL-PYRBR	CHARNWOOD LODGE VOLCANIC FORMATION - PYROCLASTIC-BRECCIA (Secondary B aquifer)
MOI-BREC	MOIRA FORMATION - BRECCIA (Principal aquifer)	OL-SDST	OLD LAWRENCE ROCK - SANDSTONE (Secondary A aquifer)	CMCL-VCBR	CHARNWOOD LODGE VOLCANIC FORMATION - VOLCANIC-BRECCIA (Secondary B aquifer)
MOI-MDST	MOIRA FORMATION - MUDSTONE (Principal aquifer)	PKR-SDST	PARKGATE ROCK - SANDSTONE (Secondary A aquifer)	CVB-PYRBR	CADEMAN VOLCANIC BRECCIA MEMBER - PYROCLASTIC-BRECCIA (Secondary B aquifer)
ROX-CAMDST	ROXBY FORMATION - MUDSTONE, CALCAREOUS (Secondary B aquifer)	PLCM-MDSI	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE AND SILTSTONE (Secondary A aquifer)	GYA-AND	GRIMLEY ANDESITE - ANDESITE (Secondary B aquifer)
SSG-SDST	SHERWOOD SANDSTONE GROUP - SANDSTONE (Principal Aquifer)	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE (Secondary A aquifer)	IVH-TFASST	IVES HEAD FORMATION - TUFFACEOUS-SANDSTONE (Secondary B aquifer)
CS-SDST	COLLYHURST SANDSTONE FORMATION - SANDSTONE (Principal aquifer)	PLCM-MDST	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE (Secondary A aquifer)	IVH-VCSST	IVES HEAD FORMATION - VOLCANIC-BRECCIA (Secondary B aquifer)
HPBR-BREC	HOPWAS BRECCIA FORMATION - BRECCIA (Principal aquifer)	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE (Secondary A aquifer)	KHT-PYRBR	KITE HILL TUFF MEMBER - PYROCLASTIC-BRECCIA (Secondary B aquifer)
HPBR-BRSS	HOPWAS BRECCIA FORMATION - BRECCIA AND SANDSTONE, INTERBEDDED (Principal aquifer)	RHR-SDST	RAVENHEAD ROCK - SANDSTONE (Secondary A aquifer)	PLD-VCBR	PELDAR DACITE BRECCIA - VOLCANIC-BRECCIA (Secondary B aquifer)
YWS-SDST	YELLOW SANDS FORMATION - SANDSTONE (Principal Aquifer)	SBF-SDST	SOFT BED FLAGS - SANDSTONE (Secondary A aquifer)	SQBR-VCBR	SOUTH QUARRY BRECCIA MEMBER - VOLCANIC-BRECCIA (Secondary B aquifer)
ALY-MDSD	ALVELEY MEMBER - MUDSTONE AND SANDSTONE (Secondary A aquifer)	SBR-SDST	SLACK BANK ROCK - SANDSTONE (Secondary A aquifer)	RY-VCBR	SWANNYMOTE BRECCIA MEMBER - VOLCANIC-BRECCIA (Secondary B aquifer)
ALY-SDST	ALVELEY MEMBER - SANDSTONE (Secondary A aquifer)	SR-SDST	SILKSTONE ROCK - SANDSTONE (Secondary A aquifer)	SYP-DA	SHARPLEY PORPHYRITIC DACITE - DACITE (Secondary B aquifer)
GML-LMST	GREAT MINE LIMESTONE - LIMESTONE (Secondary A aquifer)	STNR-SDST	STANNINGLEY ROCK - SANDSTONE (Secondary A aquifer)		
HA-LMST	HALESOWEN FORMATION - LIMESTONE (Principal aquifer)	TKS-SDST	THICK STONE - SANDSTONE (Secondary A aquifer)		
HA-MDSS	HALESOWEN FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE (Secondary A aquifer)				

Map Number

WR-02 - Legend

Map Name

WR-02 - Full Geological Legend with Rock Unit Names and Aquifer Status

HS2

HS2 Ltd accept no responsibility for any circumstances, which arise from the reproduction of this map after alteration, amendment or abbreviation or if it is issued in part or issued incomplete in any way.

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway,
Birmingham B4 6GA.

© Crown copyright and database rights 2017
OS 100049190

Doc Number: 2E01-ARP-GI-MAP-000-000253-P03

Date: 13/07/18

Superficial Deposits

ALV-XCZ	ALLUVIUM - CLAY AND SILT (Secondary A aquifer)
ALV-XCZSV	ALLUVIUM - CLAY, SILT, SAND AND GRAVEL (Secondary A aquifer)
ALV-XVZSC	ALLUVIUM - GRAVEL, SAND, SILT AND CLAY (Secondary A aquifer)
LABD-XSV	LACUSTRINE BEACH DEPOSITS - SAND AND GRAVEL (Secondary A aquifer)
TFD-XCZS	TIDAL FLAT DEPOSITS - CLAY, SILT AND SAND (Secondary Undifferentiated aquifer)
BREI-S	BREIGHTON SAND FORMATION - SAND (Secondary A aquifer)
ESKRM-CSV	ESCRICK MORaine MEMBER - CLAY, SANDY, GRAVELLY (Secondary Undifferentiated aquifer)
GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN - SAND AND GRAVEL (Secondary A aquifer)
GFICD-XSV	GLACIOFLUVIAL ICE CONTACT DEPOSITS, DEVENSIAN - SAND AND GRAVEL (Secondary A aquifer)
GFSDD-XSV	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN - SAND AND GRAVEL (Secondary A aquifer)
GFTDD-XSV	GLACIOFLUVIAL TERRACE DEPOSITS, DEVENSIAN - SAND AND GRAVEL (Secondary A aquifer)
GLLDD-C	GLACIOLACUSTRINE DEPOSITS, DEVENSIAN - CLAY (Secondary A aquifer)
GLLDD-S	GLACIOLACUSTRINE DEPOSITS, DEVENSIAN - SAND (Secondary A aquifer)
GLLDD-XCZ	GLACIOLACUSTRINE DEPOSITS, DEVENSIAN - CLAY AND SILT (Unproductive)
HEM-CZ	HEMINGBROUGH GLACIOLACUSTRINE FORMATION - CLAY, SILTY (Unproductive)
HMGDD-DMTN	HUMMOCKY (MOUNDY) GLACIAL DEPOSITS, DEVENSIAN - DIAMICTON (Secondary Undifferentiated aquifer)
HMGDD-XSV	HUMMOCKY (MOUNDY) GLACIAL DEPOSITS, DEVENSIAN - SAND AND GRAVEL (Secondary A aquifer)
SSA-S	SHIRDLEY HILL SAND FORMATION - SAND (Secondary A aquifer)
SYSG-XSV	SYSTON MEMBER - SAND AND GRAVEL (Secondary A aquifer)
TILDI-DMTN	TILL, DEVENSIAN (IRISH SEA ICE) - DIAMICTON (Secondary Undifferentiated aquifer)
TILLD-CSVZ	TILL, DEVENSIAN - CLAY, SANDY, GRAVELLY, SILTY (Secondary Undifferentiated aquifer)
TILLD-DMTN	TILL, DEVENSIAN - DIAMICTON (Secondary Undifferentiated aquifer)
TILLD-XCS	TILL, DEVENSIAN - CLAY AND SAND (Secondary A aquifer)
TILLD-XCSV	TILL, DEVENSIAN - CLAY, SAND AND GRAVEL (Secondary B aquifer)
TILLD-XDSV	TILL, DEVENSIAN - DIAMICTON, SAND AND GRAVEL (Secondary Undifferentiated aquifer)
VYORK-CSV	VALE OF YORK FORMATION - CLAY, SANDY, GRAVELLY (Secondary Undifferentiated aquifer)
VYORK-SV	VALE OF YORK FORMATION - SAND, GRAVELLY
WASG-XSV	WANLIP MEMBER - SAND AND GRAVEL (Secondary A aquifer)
YORKM-SV	YORK MORaine MEMBER - SAND, GRAVELLY
BISG-XSV	BIRSTALL MEMBER - SAND AND GRAVEL (Secondary A aquifer)
BOSG-XSV	BORROWWASH SAND AND GRAVEL - SAND AND GRAVEL (Secondary A aquifer)
OKSG-XSV	OCKBROOK SAND AND GRAVEL - SAND AND GRAVEL (Secondary A aquifer)
BOSW-XCZ	BOSWORTH CLAY MEMBER - CLAY AND SILT (Secondary Undifferentiated aquifer)
HRT-CSV	HARROGATE TILL FORMATION - CLAY, SANDY, GRAVELLY (Secondary Undifferentiated aquifer)
ODT-DMTN	OADBY MEMBER - DIAMICTON (Secondary Undifferentiated aquifer)
THT-DMTN	THRUSSINGTON MEMBER - DIAMICTON (Secondary Undifferentiated aquifer)
GFDMP-XSV	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE - SAND AND GRAVEL (Secondary A aquifer)
GLLMP-XCZS	GLACIOLACUSTRINE DEPOSITS, MID PLEISTOCENE - CLAY, SILT AND SAND (Unproductive)
GLLMP-XSV	GLACIOLACUSTRINE DEPOSITS, MID PLEISTOCENE - SAND AND GRAVEL (Secondary A aquifer)
TILMP-DMTN	TILL, MID PLEISTOCENE - DIAMICTON (Secondary Undifferentiated aquifer)
BSSG-XSV	BEESTON SAND AND GRAVEL MEMBER - SAND AND GRAVEL (Secondary A aquifer)
EGSG-XSV	EGGINTON COMMON SAND AND GRAVEL MEMBER - SAND AND GRAVEL (Secondary A aquifer)
EMSG-XSV	EAGLE MOOR SAND AND GRAVEL MEMBER - SAND AND GRAVEL (Secondary A aquifer)
ETSG-XSV	ETWALL SAND AND GRAVEL MEMBER - SAND AND GRAVEL (Secondary Undifferentiated aquifer)
GDU-XCZS	GLACIAL DEPOSITS - CLAY, SILT AND SAND (Secondary Undifferentiated aquifer)
GLDD-XCZS	GLACIOLACUSTRINE DELTAIC DEPOSITS - CLAY, SILT AND SAND (Secondary B aquifer)
GLLD-XCZ	GLACIOLACUSTRINE DEPOSITS - CLAY AND SILT (Unproductive)
GLLD-XSV	GLACIOLACUSTRINE DEPOSITS - SAND AND GRAVEL (Secondary A aquifer)
HETD-XSV	HEMINGTON MEMBER - SAND AND GRAVEL (Secondary A aquifer)
HETD-XZV	HEMINGTON MEMBER - SILT AND GRAVEL (Secondary A aquifer)
HPSG-XSV	HOLME PIERREPONT SAND AND GRAVEL MEMBER - SAND AND GRAVEL (Secondary A aquifer)
ALF-XCZS	ALLUVIAL FAN DEPOSITS - CLAY, SILT AND SAND (Secondary A aquifer)
ALF-XCZSV	ALLUVIAL FAN DEPOSITS - CLAY, SILT, SAND AND GRAVEL
ALF-XSV	ALLUVIAL FAN DEPOSITS - SAND AND GRAVEL (Secondary A aquifer)
ALF-XSZ	ALLUVIAL FAN DEPOSITS - SAND AND SILT (Secondary A aquifer)
ALTD-XSV	ALLENTON TERRACE DEPOSITS - SAND AND GRAVEL (Secondary A aquifer)
ANSG-XSV	ANKER SAND AND GRAVEL - SAND AND GRAVEL (Secondary A aquifer)
GFDU-XSV	GLACIOFLUVIAL DEPOSITS - SAND AND GRAVEL (Secondary A aquifer)
HEAD-B	HEAD - BOULDERS (Secondary Undifferentiated aquifer)
HEAD-DMTN	HEAD - DIAMICTON (Secondary B aquifer)
HEAD-XCSV	HEAD - CLAY, SAND AND GRAVEL (Secondary A aquifer)
HEAD-XCZSV	HEAD - CLAY, SILT, SAND AND GRAVEL (Secondary Undifferentiated aquifer)
LDE-XCZ	LACUSTRINE DEPOSITS - CLAY AND SILT (Secondary Undifferentiated aquifer)
LDE-XCZS	LACUSTRINE DEPOSITS - CLAY, SILT AND SAND (Secondary Undifferentiated aquifer)
LDE-XSV	LACUSTRINE DEPOSITS - SAND AND GRAVEL (Secondary A aquifer)
LNSG-XSV	LEEN SAND AND GRAVEL - SAND AND GRAVEL (Secondary A aquifer)
PEAT-P	PEAT - PEAT (Unproductive)
RTD1-XSV	RIVER TERRACE DEPOSITS, 1 - SAND AND GRAVEL (Secondary A aquifer)
RTD2-XSV	RIVER TERRACE DEPOSITS, 2 - SAND AND GRAVEL (Secondary A aquifer)
RTD3-XSV	RIVER TERRACE DEPOSITS, 3 - SAND AND GRAVEL (Secondary A aquifer)
RTDU-XSV	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED) - SAND AND GRAVEL (Secondary A aquifer)
TUFA-CATUFA	TUFA - TUFA, CALCAREOUS (Secondary A aquifer)

Map Number **WR-02 - Legend**

Map Name
**WR-02 - Full Geological
Legend with Rock Unit
Names and Aquifer Status**



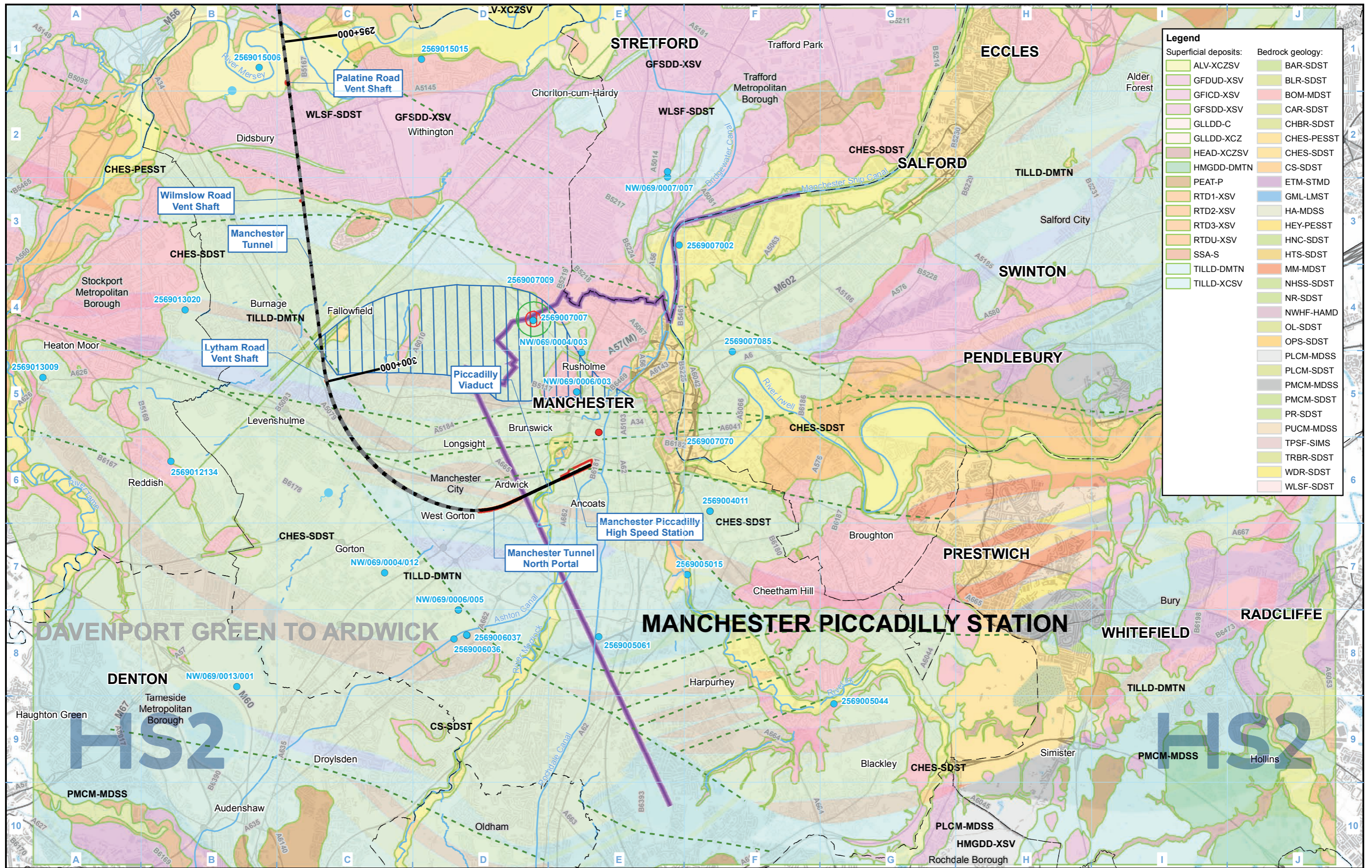
HS2 Ltd accept no responsibility for any circumstances, which arise from the reproduction of this map after alteration, amendment or abbreviation or if it is issued in part or issued incomplete in any way.

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway,
Birmingham B4 6GA.

© Crown copyright and database rights 2017
OS 100049190

Doc Number: 2EV01-ARP-GI-MAP-000-000252-P03

Date: 13/07/18



Legend	
Superficial deposits:	Bedrock geology:
ALV-XCZSV	BAR-SDST
GFDUD-XSV	BLR-SDST
GFICD-XSV	BOM-MDST
GFSDD-XSV	CAR-SDST
GLLDD-C	CHBR-SDST
GLLDD-XCZ	CHES-PESST
HEAD-XCZSV	CHES-SDST
HMGDD-DMTN	CS-SDST
PEAT-P	ETM-STMD
RTD1-XSV	GML-LMST
RTD2-XSV	HA-MDSS
RTD3-XSV	HEY-PESST
RTDU-XSV	HNC-SDST
SSA-S	HTS-SDST
TILLD-DMTN	MM-MDST
TILLD-XCSV	NHSS-SDST
	NR-SDST
	NWHF-HAMD
	OL-SDST
	OPS-SDST
	PLCM-MDSS
	PLCM-SDST
	PMCM-MDSS
	PMCM-SDST
	PR-SDST
	PUCM-MDSS
	TPSF-SIMS
	TRBR-SDST
	WDR-SDST
	WLSF-SDST

Legend	
	Route in tunnel
	Route on surface
	Depot, station, headhouse or portal building
	Community area boundary
	County boundary
	District/Borough boundary
	Lakes & Reservoirs
	Geological fault line
	Licensed groundwater abstraction (excluding public water supplies)
	Unlicensed private groundwater abstraction
	Consented discharge to groundwater
	Spring
	Groundwater source protection zone:
	Zone 1
	Zone 2
	Zone 3

For full geological legend including strata names and aquifer status please refer to WR-02 - Legend

Map Number: WR-02-308

Map Name: Groundwater Baseline WDES

Community Area MA08: Manchester Piccadilly Station

HS2

Registered in England. Registration number 06791686. Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:50,000

© Crown copyright and database rights 2017 OS 100049190

Doc Number: 2DE01-MWJ-EV-MAP-M000-000317-P04

Date: 11/07/18

HS2

This page is intentionally blank

