

High Speed Rail (West Midlands - Crewe) Supplementary Environmental Statement 2 and Additional Provision 2 Environmental Statement

Volume 5: Technical appendices map book

Air quality (AQ-01)

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Supplementary Environmental Statement 2 and
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Air quality (AQ-01)



Department
for Transport

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.

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

ARUP



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

Contents

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Data dictionary and definitions

Map series name	AQ-01 - Air Quality Monitoring Locations and Receptors
Map series description	<i>These maps show the location of local air quality monitoring locations, management areas and receptors used in the construction/operational traffic assessments in relation to the proposed scheme.</i>
Community Area name	
CA1 Fradley to Colton	✓
CA2 Colwich to Yarlet	✓
CA3 Stone and Sywnnerton	✓
CA4 Whitmore Heath to Madeley	✓
CA5 South Cheshire	✓

Mapping explanatory notes

Structure of the HS2 Phase 2a Supplementary Environmental Statement 2 and the Additional Provision 2 Environmental Statement

This map book is part of the suite of documents that make up the Supplementary Environmental Statement 2 (SES2) and the Additional Provision Environmental Statement 2 (AP2 ES) for Phase 2a of the proposed High Speed Two (HS2) rail network between the West Midlands and Crewe.

The SES2 and the AP2 ES are separate documents. However, they are bound together and presented in a number of volumes as described below:

- Non-technical summary (NTS). This provides a summary in non-technical language of the SES2 (Part 1) and the AP2 ES (Part 2). It presents a summary of any likely residual significant environmental effects (i.e. effects that are likely to remain after mitigation measures are put in place), both beneficial and adverse, which are new or different to those reported in the Environmental Statement (ES) submitted to Parliament in July 2017 in support of the hybrid Bill for Phase 2a of HS2 ('the main ES'), as amended by SES1 and, where relevant, AP1 ES;
- Glossary of terms and list of abbreviations. This contains any new or different terms and abbreviations used throughout the SES2 and the AP2 ES, which are not already explained in the main ES or SES1 and AP1 ES;
- Volume 1: Introduction to the SES2 and the AP2 ES. This introduces the supplementary environmental information and changes to the design and construction assumptions included within the SES2 and amendments within the AP2 ES. The report explains the environmental impact assessment (EIA) process that has been applied;
- Volume 2: Community area reports and map books. These report the supplementary environmental information and changes to the design and construction assumptions included within the SES2 (Part 1), amendments within the AP2 ES (Part 2) and any new or different likely significant environmental effects arising from these changes or assumptions and amendments in each community area. These effects are compared to those reported in the main ES, as amended by SES1 (and by SES2 for AP2). The AP1 amendments are also taken into account where relevant. The maps relevant to each community area are provided in separate Volume 2 map books and should be read in conjunction with the relevant community area report;
- Volume 3: Route-wide effects. This describes any new or different likely significant environmental effects arising at a route-wide level from the supplementary environmental information and changes to the design and construction assumptions included within the SES2 (Part 1) and the amendments within the AP2 ES (Part 2) compared to those reported in the main ES, as amended by SES1 (and by SES2 for the AP2 amendments). The AP1 amendments are also taken into account where relevant; and
- Volume 5: Appendices and map books. These contain supporting environmental information and associated maps.

A Volume 4: Off-route effects report was produced as part of the main ES. A separate Volume 4 has not been produced as part of the SES2 and AP2 ES. Any new or different significant effects arising from the AP2 amendments are reported in the most relevant Volume 2 community area report.

Certain reports and maps containing background information and data (BID) have been produced, which do not form part of the SES2 and AP2 ES. These documents are available online at www.gov.uk/hs2. The BID documents and maps present background survey information and other relevant background material.

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 SES2 and the AP2 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.

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Chainage

Most of the maps presented as part of the SES2 and the AP2 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 sheet layout

Each map in Volume 2 is presented twice, with the main ES map (published July 2017) on the left hand page, where relevant, and the SES2 and the AP2 ES map on the right. For the maps which show the amendment to the Handsacre Junction connection the map from the relevant Phase One Additional Provision Environmental Statement (e.g. AP2 or AP4) is on the left hand page. For the CT-05 and CT-06 map series, the SES2 and the AP2 ES map is annotated with different coloured clouds which highlight the areas of change. The coloured text box provides a brief description of the design change and amendment, and gives the SES2 and the AP2 ES reference number. Only maps which have been amended as a result of the SES2 and the AP2 ES are included within the map books. Other design changes which are within the existing limits of the Bill and do not result in new or different likely significant effects are also shown on the maps, but are not indicated by a cloud. The below table highlights the coloured clouds used, and their description.

Cloud / text box colour	Description
Blue	Design changes relating to the SES2 (Part 1 of each Volume 2 report).
Red	Proposed amendments relating to the AP2 ES (Part 2 of each Volume 2 report).
Grey	Proposed design changes and amendments relating to SES1 changes and AP1 amendments, provided for reference.

SES changes and AP amendments (now referred to as SES1 changes and AP1 amendments) were denoted in the SES and AP ES documents and maps as follows: SES-00X-00X or AP-00X-00X. In order to clearly distinguish between SES1 and SES2 changes and AP1 and AP2 amendments, references in the SES2 and AP2 ES documents and maps relating to SES1 changes and AP1 amendments are now denoted as follows: SES1-00X-00X or AP1-00X-00X.

Each Volume 5 map is annotated to describe the change to a receptor or significant effect, and to give the SES2 and the AP2 ES reference number. For more detailed information about the SES2 and the AP2 ES annotation, refer to the map series legend. Only maps which have been amended as a result of the SES2 and the AP2 ES are included within the map book. Changes to receptors or significant effects relating to SES1 or AP1 ES are also provided for reference. Where this is the case they are shown in a faded box.

Further details on the approach to mapping is set out in Section 6 of Volume 1 of the SES2 and AP2 ES.

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 right hand side of the page, and Crewe to the left.

The exception to this, are map series 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 Crewe to the top.

Map books

In total there are 16 map books which make up the SES2 and the AP2 ES, spread across volumes 2 and 5. A list of the titles is provided below for reference.

Name
Volume 2: Map book – CA1: Fradley to Colton
Volume 2: Map book – CA2: Colwich to Yarlet
Volume 2: Map book – CA3: Stone and Swynnerton
Volume 2: Map book – CA4: Whitmore Heath to Madeley
Volume 2: Map book – CA5: South Cheshire
Volume 5: Map book – Agriculture, forestry and soils (AG-01, AG-02, AG-04)
Volume 5: Map book – Air quality (AQ-01)
Volume 5: Map book – Community (CM-01)
Volume 5: Map book – Committed developments (CT-13)
Volume 5: Map book – Cultural heritage (CH-01, CH-02, CH-03)
Volume 5: Map book – Ecology - designated sites (EC-01)
Volume 5: Map book – Landscape and visual (LV-00, LV-02, LV-07, LV-08)
Volume 5: Map book – Socio-economics (SE-01)
Volume 5: Map book – Sound, noise and vibration (SV-01, SV-02, SV-03, SV-04)
Volume 5: Map book – Traffic and transport (TR-03, TR-04, TR-08)
Volume 5: Map book – Water resources (WR-05, WR-06)

High Speed Rail (West Midlands - Crewe)

**Supplementary Environmental Statement 2 and
Additional Provision 2 Environmental Statement**

Data dictionary and definitions

Data dictionary and definitions

Legend features	Definition	Source	Copyright
Air quality modelling receptors	Air quality modelled receptors.	High Speed Two (HS2) Ltd	
Air Quality monitoring sites (Passive)	A full explanation of a Passive (Diffusion tube) monitoring location type is provided in the main ES Glossary & Abbreviations document.	High Speed Two (HS2) Ltd	
Community area boundary	The Environmental Statement has been split into 5 sections called Community Areas.	High Speed Two (HS2) Ltd	© 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.
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.
Defra Air Quality Management Areas 2018 (AQMA)	Since December 1997 each Local Authority in the UK has been carrying out a review and assessment of air quality in their area. This involves measuring air pollution and trying to predict how it will change in the next few years. The aim of the review is to make sure that the national air quality objectives will be achieved throughout the UK by the relevant deadlines. These objectives have been put in place to protect people's health and the environment. If a Local Authority finds any places where the objectives are not likely to be achieved, it must declare the location as an Air Quality Management Area. This area may extend for one or two streets, or it could be a much wider area.	Department Environment Food and Rural Affairs (Defra)	© Crown 2018 copyright Defra via uk-air.defra.gov.uk, licenced under the Open Government Licence (OGL).
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.
Existing rail line	Existing railway stations derived from Ordnance Survey Vector map 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.
Existing railway station	Existing railway stations derived from Ordnance Survey Vector map 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.

Legend features	Definition	Source	Copyright
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	
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	© Environment Agency copyright and/or database right 2018. All rights reserved.
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.

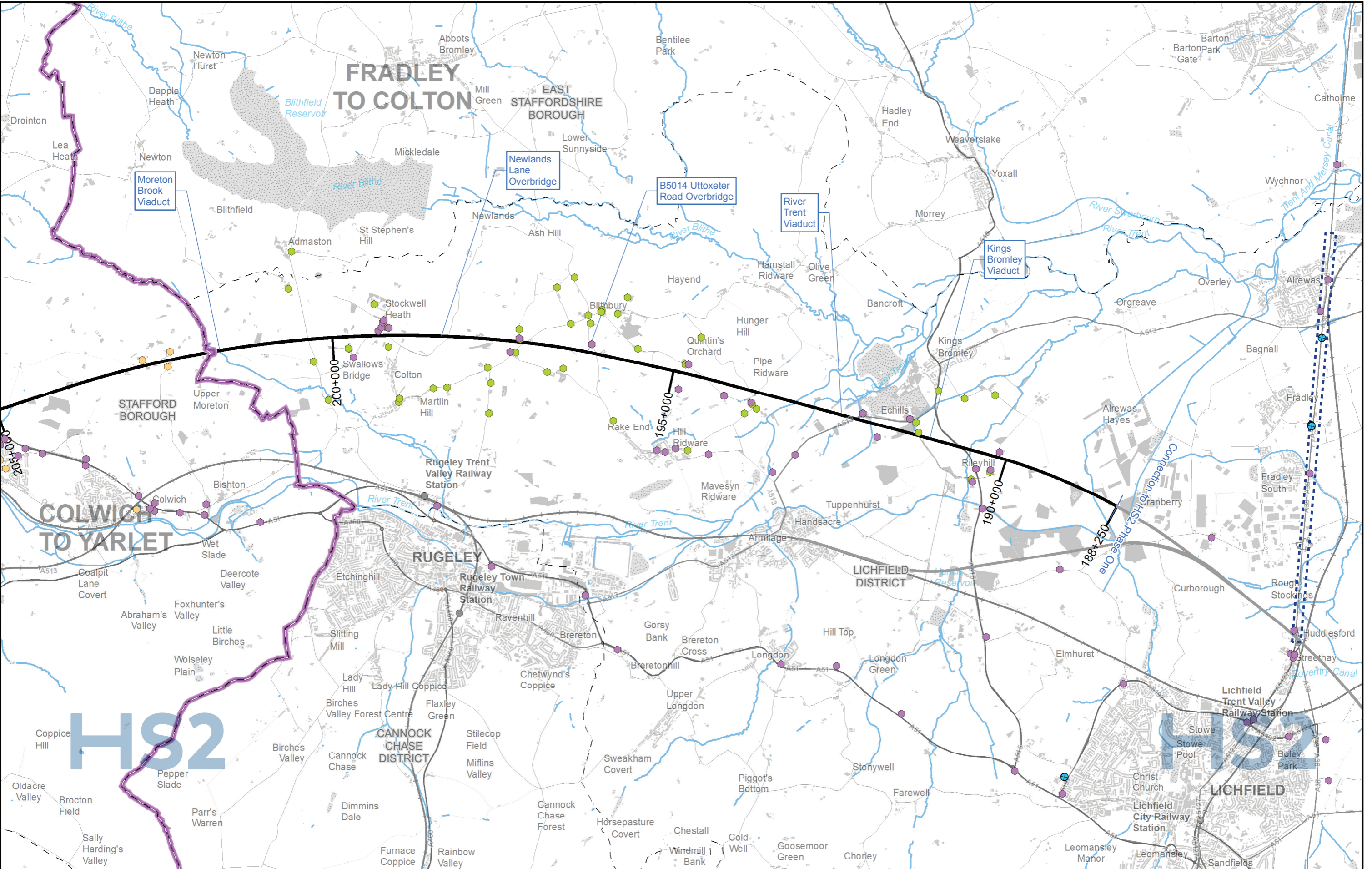
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High Speed Rail (West Midlands - Crewe)

**Supplementary Environmental Statement 2 and
Additional Provision 2 Environmental Statement**

CA1 Fradley to Colton

AQ-01 - Air Quality Monitoring Locations and Receptors



Legend	
	Route in Tunnel
	Route on Surface
	Depot, Station, Headhouse or Portal Building
	Community Area Boundary
	County Boundary
	District/Borough Boundary
	Watercourse
	Water Body
	Woodland
	Existing Railway Station
	Existing Rail Line
	Defra Air Quality Management Areas 2018 (AQMA)
	Air Quality Monitoring Sites (Passive)
	Air Quality Modelling Receptors (construction) (main ES)
	Air Quality Modelling Receptors (construction) (SES2 and AP2 ES)
	Air Quality Modelling Receptors (operation) (main ES)

AQ-01-101

Map Name
**Air Quality Monitoring Locations and Receptors
 SES2 and AP2 ES**

Community Area 1:
 Fradley to Colton

HS2

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Date: 11/01/19

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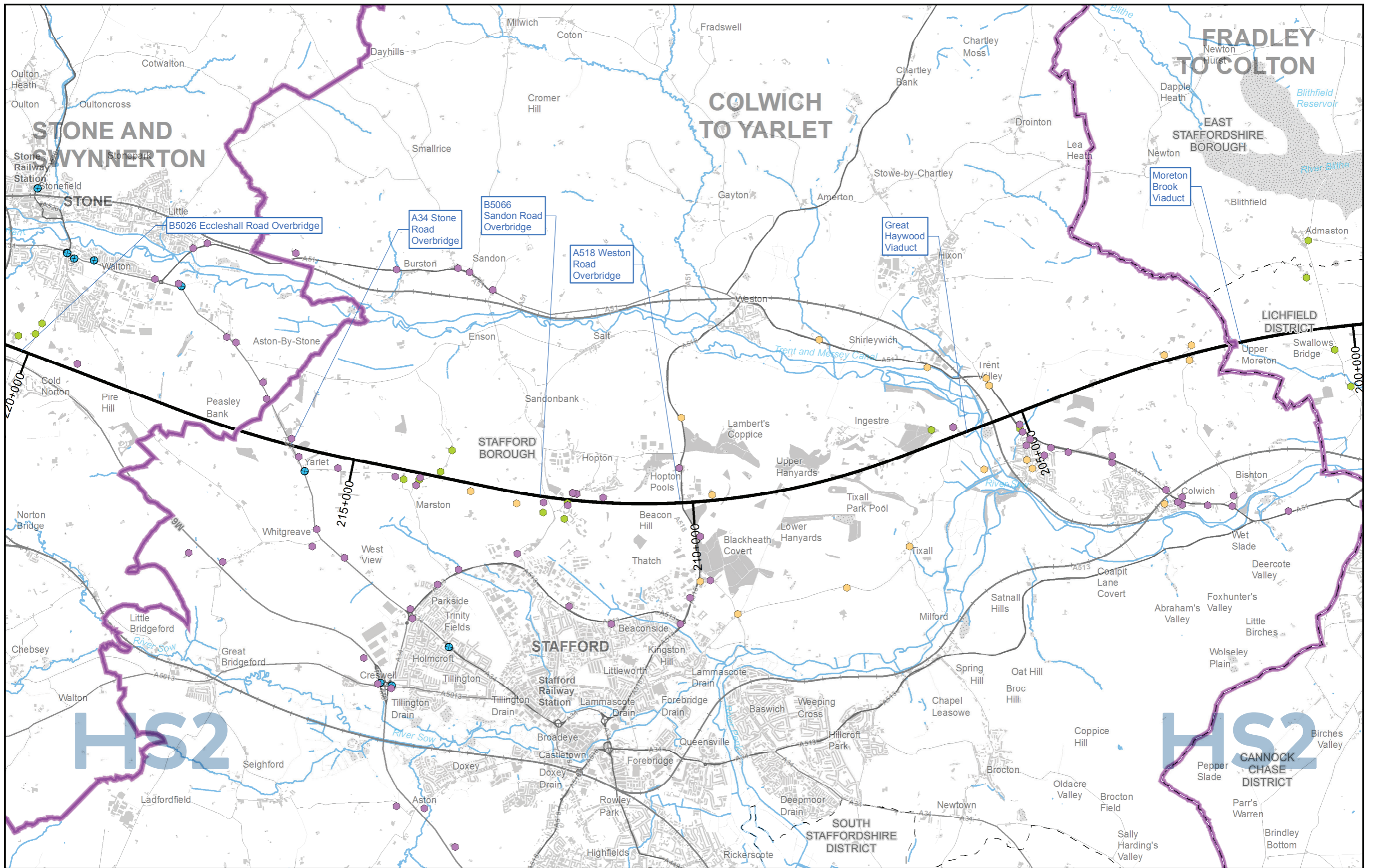
0 500 1,000 1,500 2,000 Metres

High Speed Rail (West Midlands - Crewe)

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Additional Provision 2 Environmental Statement**

CA2 Colwich to Yarlet

AQ-01 - Air Quality Monitoring Locations and Receptors



Legend		
Route in Tunnel	Watercourse	Air Quality Monitoring Sites (Passive)
Route on Surface	Water Body	Air Quality Modelling Receptors (construction) (main ES)
Depot, Station, Headhouse or Portal Building	Woodland	Air Quality Modelling Receptors (construction) (SES2 and AP2 ES)
Community Area Boundary	Existing Railway Station	Air Quality Modelling Receptors (operation) (main ES)
County Boundary	Existing Rail Line	
District/Borough Boundary	Defra Air Quality Management Areas 2018 (AQMA)	

AQ-01-102

Map Name
**Air Quality Monitoring Locations and Receptors
SES2 and AP2 ES**

Community Area 2:
Colwich to Yarlet

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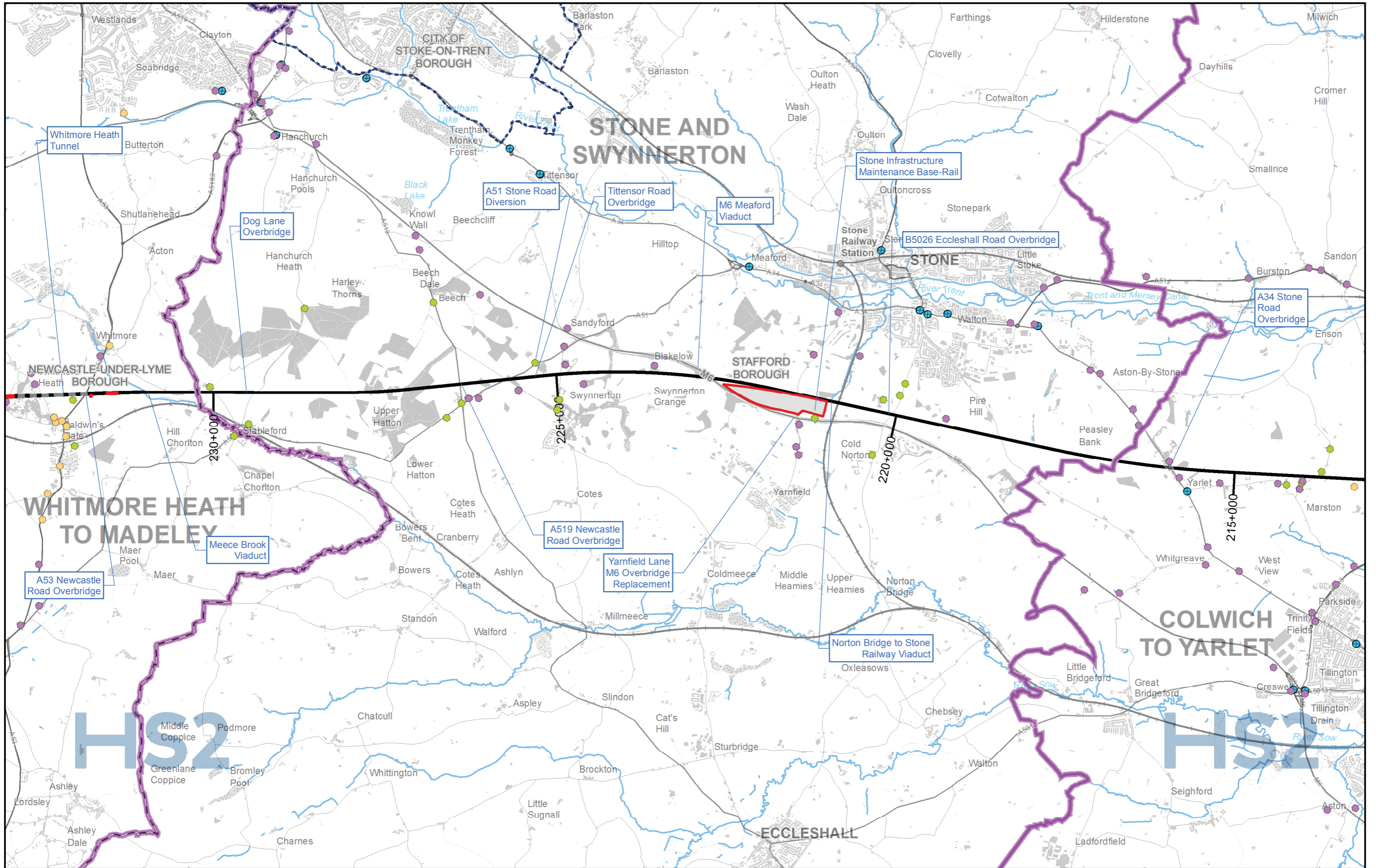
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High Speed Rail (West Midlands - Crewe)

**Supplementary Environmental Statement 2 and
Additional Provision 2 Environmental Statement**

CA3 Stone and Sywnnerton

AQ-01 - Air Quality Monitoring Locations and Receptors



Legend

- Route in Tunnel
- Route on Surface
- Depot, Station, Headhouse or Portal Building
- Community Area Boundary
- County Boundary
- District/Borough Boundary
- Watercourse
- Water Body
- Woodland
- Existing Railway Station
- Existing Rail Line
- Defra Air Quality Management Areas 2018 (AQMA)
- Air Quality Monitoring Sites (Passive)
- Air Quality Modelling Receptors (construction) (main ES)
- Air Quality Modelling Receptors (construction) (SES2 and AP2 ES)
- Air Quality Modelling Receptors (operation) (main ES)

AQ-01-103

Map Name
**Air Quality Monitoring Locations and Receptors
 SES2 and AP2 ES**

Community Area 3:
 Stone and Swynnerton

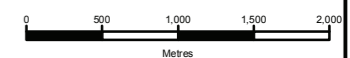


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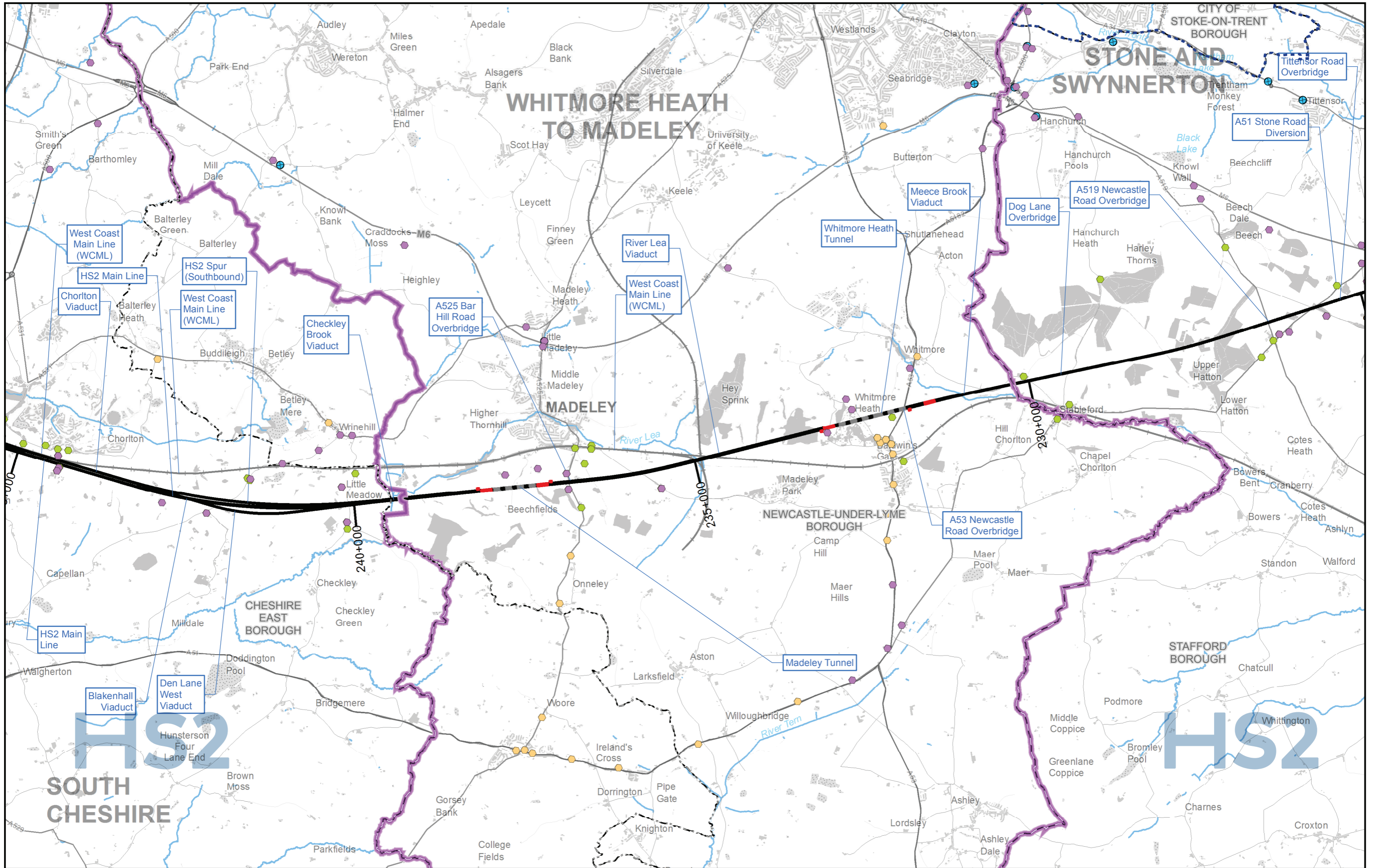
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High Speed Rail (West Midlands - Crewe)

**Supplementary Environmental Statement 2 and
Additional Provision 2 Environmental Statement**

CA4 Whitmore Heath to Madeley

AQ-01 - Air Quality Monitoring Locations and Receptors



Legend		Air Quality Monitoring Sites (Passive)	
Route in Tunnel	Watercourse	Air Quality Monitoring Sites (Passive)	Air Quality Modelling Receptors (construction) (main ES)
Route on Surface	Water Body	Air Quality Modelling Receptors (construction) (SES2 and AP2 ES)	Air Quality Modelling Receptors (operation) (main ES)
Depot, Station, Headhouse or Portal Building	Woodland		
Community Area Boundary	Existing Railway Station		
County Boundary	Existing Rail Line		
District/Borough Boundary	Defra Air Quality Management Areas 2018 (AQMA)		

AQ-01-104

Map Name
**Air Quality Monitoring Locations and Receptors
 SES2 and AP2 ES**

Community Area 4:
 Whitmore Heath to Madeley

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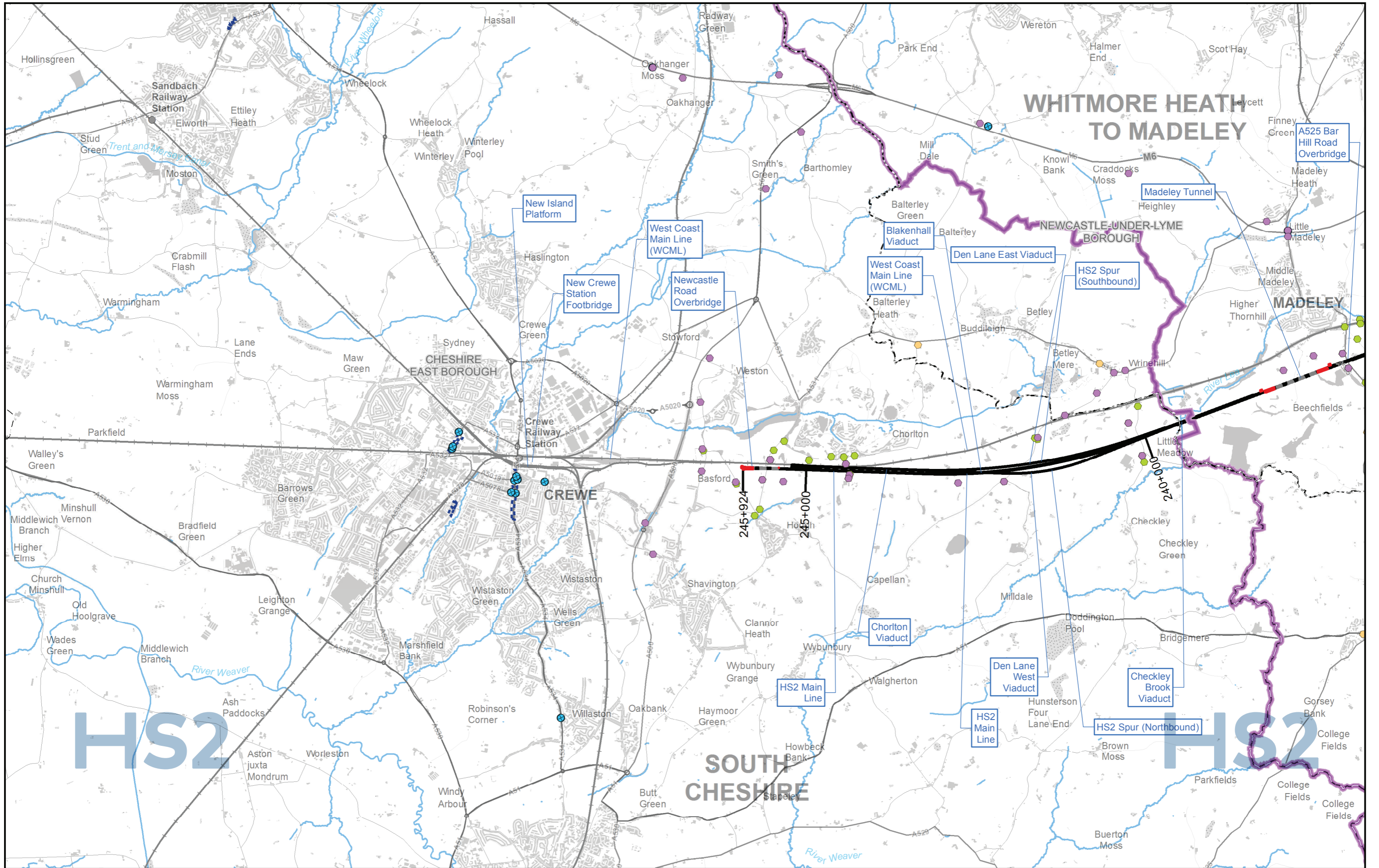
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High Speed Rail (West Midlands - Crewe)

**Supplementary Environmental Statement 2 and
Additional Provision 2 Environmental Statement**

CA5 South Cheshire

AQ-01 - Air Quality Monitoring Locations and Receptors



WHITMORE HEATH TO MADELEY

- Legend**
- Route in Tunnel
 - Route on Surface
 - Depot, Station, Headhouse or Portal Building
 - Community Area Boundary
 - County Boundary
 - District/Borough Boundary
 - Watercourse
 - Water Body
 - Woodland
 - Existing Railway Station
 - Existing Rail Line
 - Defra Air Quality Management Areas 2018 (AQMA)

- Air Quality Monitoring Sites (Passive)
- Air Quality Modelling Receptors (construction) (main ES)
- Air Quality Modelling Receptors (construction) (SES2 and AP2 ES)
- Air Quality Modelling Receptors (operation) (main ES)

AQ-01-105

Map Name
**Air Quality Monitoring Locations and Receptors
 SES2 and AP2 ES**

Community Area 5:
 South Cheshire

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