

# HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement 3 and  
Additional Provision 4 Environmental Statement  
Volume 1 | Glossary of terms and list of abbreviations

October 2015

SES3 and AP4 ES 3.1.2



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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.

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

**AECOM**

**ARUP**

**ATKINS**

**CAPITA**



**ineco**



**PARSONS  
BRINCKERHOFF**



High Speed Two (HS2) Limited,  
One Canada Square,  
London  
E14 5AB

Details of how to obtain further copies are available from HS2 Ltd.

Telephone: 020 7944 4908

General email enquiries: [HS2enquiries@hs2.org.uk](mailto:HS2enquiries@hs2.org.uk)

Website: [www.gov.uk/hs2](http://www.gov.uk/hs2)

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The terms and abbreviations contained within this document are those that can be found in the the Additional Provision Environmental Statement (known as AP<sub>1</sub> ES), Supplementary Environmental Statement (SES), AP<sub>2</sub> ES, SES<sub>2</sub>, AP<sub>3</sub> ES, SES<sub>3</sub> and AP<sub>4</sub> ES.

This document should be read in conjunction with the glossary of terms and list of abbreviations document published as part of the main ES in November 2013.

## 1 Glossary of terms

Term	Definition
accommodation bridge	A bridge over the route of the scheme that serves an area of land or residential property and is not considered a public highway.
Additional Provision (AP)	The High Speed Rail (London – West Midlands) Bill, deposited in Parliament on 25 November 2013, provides powers for the construction and operation of Phase One of High Speed Two (HS2) (the 'original scheme'). The Additional Provision covers changes which involve the acquisition or use of land outside the original limits of the Bill, additional access rights, or other extensions of the powers conferred by the Bill.
Additional Provision Environmental Statement (AP ES)	A report that describes whether and how the works associated with the Additional Provision give rise to significant environmental effects that are new or different from those already described in the main ES.
Additional Provision 2 (AP <sub>2</sub> )	The High Speed Rail (London – West Midlands) Bill deposited in Parliament on 25 November 2013 provides powers for the construction and operation of Phase One of High Speed Two (HS2) (the 'original scheme'). The Additional Provision 2 covers changes which involve the acquisition or use of land outside of the original limits of the Bill, additional access rights, or other extensions of the powers conferred by the Bill. This relates specifically to: amendments to the scheme design within community forum areas (CFAs) 4–7 and 9–26. It also relates to amendments within a number of off-route locations (i.e. locations outside a CFA), including Langley, where the Heathrow Express Depot is proposed to be relocated.
Additional Provision 2 Environmental Statement (AP <sub>2</sub> ES)	A set of reports that describe whether and how the works associated with the Additional Provision 2 give rise to new or different significant environmental effects to those already described in the main ES (November 2013) and the AP ES (September 2014).
Additional Provision 3 (AP <sub>3</sub> )	The High Speed Rail (London – West Midlands) Bill deposited in Parliament on 25 November 2013 provides powers for the construction and operation of Phase One of High Speed Two (HS2) (the 'original scheme'). The Additional Provision 3 covers changes which involve the acquisition or use of land outside of the original limits of the Bill, additional access rights, or other extensions of the powers conferred by the Bill. This relates specifically to amendments to the scheme design within community forum areas 1–5.
Additional Provision 3 Environmental Statement (AP <sub>3</sub> ES)	A set of reports that describe whether and how the works associated with the Additional Provision 3 give rise to new or different significant environmental effects to those already described in the main ES (November 2013), the AP <sub>1</sub> ES (September 2014) and the SES and the AP <sub>2</sub> ES (July 2015).
Additional Provision 4 (AP <sub>4</sub> )	The High Speed Rail (London – West Midlands) Bill deposited in Parliament on 25 November 2013 provides powers for the construction and operation of Phase One of High Speed Two (HS2) (the 'Proposed Scheme'). The Additional Provision 4 covers changes which involve the acquisition or use of land outside of the original limits of the Bill, additional access rights, or other extensions of the powers conferred by the Bill. This relates specifically to amendments to the scheme design

## SES<sub>3</sub> and AP<sub>4</sub> ES Glossary of terms and list of abbreviations

Term	Definition
	within community forum areas 4–26.
Additional Provision 4 Environmental Statement (AP <sub>4</sub> ES)	A set of reports that describe whether and how the works associated with the Additional Provision 4 give rise to new or different significant environmental effects to those already described in the main ES (November 2013), the AP <sub>1</sub> ES (September 2014), the SES and AP <sub>2</sub> ES (July 2015) and the SES <sub>2</sub> and AP <sub>3</sub> ES (September 2015).
ancillary works	Ancillary works is a generic description for site preparation works that might take place prior to work under the main construction contract. This could include: demolition, site clearance and the diversion and upgrade of utilities.
archaeological anomaly	A location identified during a geophysical survey that indicates the presence or possible presence of an archaeological feature or features.
archaeological potential	A location where the data collected and reviewed indicates that archaeological assets may be present.
assumed metapopulation	See 'metapopulation'.
attenuation tank	An attenuation tank is usually installed within a drainage system just prior to the point of discharge from a site to help control the rate of water flow during high flow conditions.
baseline	The current condition of the environment is known as the 'environmental baseline'. This is used as the basis to determine whether or not the scheme will result in significant environmental effects for each environmental topic area.
beam bridge	A beam bridge consists of structural sections spanning longitudinally between piers or abutments.
biodiversity opportunity area	Areas where conservation action, such as habitat creation, restoration or expansion, is likely to have the greatest benefit for biodiversity. They are centred on existing areas of biodiversity interest.
bipolar anomaly	An anomaly that is composed of both a positive response and a negative response identified during a geophysical survey. It can be made up of any number of positive responses and negative responses. For example a buried pipeline consisting of alternating positive and negative anomalies is said to be bipolar.
CLoHAM (Central London Highway Assessment Model)	Transport for London's transport model for central London. The model predicts the flow and routing of traffic to allow for the assessment of the traffic impacts of/on proposed developments.
combined two-way vehicle trips	A vehicle movement that comprises an outward journey and a return journey.
Crossrail 2	A proposed new rail line linking Surrey and Hertfordshire, via tunnels under central London.
diaphragm wall	A reinforced wall that is constructed in the ground to provide structural support and retain soil for underground structures. It can also be used as a barrier to prevent the movement of groundwater through soil.
dipolar anomaly	A single positive anomaly with an associated negative response identified during a geophysical survey. There should be no separation between the two polarities of response. These responses will be created by a single feature. A very strong anomaly is likely to be caused by a ferrous object.
dive under	A dive under is an underpass that allows trains to pass beneath other tracks. This maximises the number of platforms that can be accessed from an individual track without conflicting train movements.

## SES<sub>3</sub> and AP<sub>4</sub> ES Glossary of terms and list of abbreviations

Term	Definition
eDNA	eDNA, or environmental DNA, is DNA that is released into aquatic environments by plants and animals through shed skin cells, urine, faeces, saliva, hair, eggs and sperm or when they die.
eDNA survey	eDNA survey, or environmental DNA survey, is a technique used to help determine the presence or absence of species (including great crested newts) in water bodies. As eDNA can persist in water for several weeks, it can be collected and confirm if the species is present.
Euro VI engines	Engines certified to have substantially lower emissions of NO <sub>x</sub> and particulate matter than older engines. (Euro VI as defined by EU Directive 2007/46/EC, and amended by subsequent regulations).
European Protected Species Mitigation Licence	A licence that is required from Natural England if actions from proposed works will have impacts on European protected species that would otherwise be illegal, such as: <ul style="list-style-type: none"> <li>- capturing, killing, disturbing or injuring them (on purpose or by not taking enough care);</li> <li>- damaging or destroying their breeding or resting places (even accidentally); and</li> <li>- obstructing access to their resting or sheltering places (on purpose or by not taking enough care).</li> </ul>
ferrous anomaly	A response obtained from geophysical survey that indicates the presence of ferrous (iron-based) material that may result from items within the topsoil or larger buried objects such as pipes. Pylons or metal fences can also produce a similar response.
geophysical survey	The collection of information associated with subsurface features (e.g. buried archaeology) using various techniques (such as magnetometer – a survey technique used to detect and map changes in the earth's magnetic field caused by concentrations of ferrous-based minerals within soils and subsoil, and buried materials). They enable the identification and survey of subsurface features without having to excavate.
greenfield run off rate	Where rainfall over impermeable or saturated ground is such that excess water flows over the ground surface to a lower lying drainage point, this is known as 'run off'. The greenfield run off rate is the rate of run off that would occur from a site which has not been built upon.
ground anchors	A ground anchor is a device, usually a steel tube or rod, used in both permanent and temporary applications that is driven into the ground to provide additional support to a structure (such as a retaining wall or foundation), from lateral (sideways) or vertical forces.
grouting shaft	Constructed to allow the injection of grout from horizontal tubes to control ground settlement.
high-pressure gas distribution pipeline	A local area gas network which distributes gas at greater than 7bar (unit of pressure).
high-pressure gas transmission pipeline	A national network of large diameter pipelines used to transport gas around the network at greater than 7bar. This gas is pumped at high pressure through the use of compressor stations. The gas then leaves the transmission system and enters the distribution network. Within the distribution network, the gas is then transported through a number of reducing pressure tiers to the consumer.
hyperspectral survey	A survey that utilises sensors that detect wavelengths of the electromagnetic spectrum that are not visible to the human eye. They are used in archaeological surveys to detect features within the historic landscape (e.g. field systems) that

## SES<sub>3</sub> and AP<sub>4</sub> ES Glossary of terms and list of abbreviations

Term	Definition
	cannot be detected in visible wavelengths.
Intercity Express Programme	An initiative by the Department for Transport (DfT) to produce new trains to replace the InterCity 125 fleet on the East Coast Main Line and Great Western Main Line.
Line X	Line X is an existing dive under located on the approach to Euston station that facilitates the cross over of trains from the existing 'fast' lines on the western side of the tracks to the 'fast' platforms on the eastern side of Euston station.
main ES	This refers to the original HS2 Phase One Environmental Statement that was deposited along with the High Speed Rail (London – West Midlands) Bill in November 2013.
metapopulation	A group of spatially separated populations of the same species which interact at some level.
National Grid	A private company that owns and manages the national grid (electricity) and the national transmission system (gas) within the UK.
national grid	The high-voltage electricity transmission network in the UK.
negative anomaly	A response identified during a geophysical survey which is entirely negative in polarity. These can be caused by, for example, earthen banks where material with a lower magnetic magnitude relative to the background topsoil is built up.
on-network	Refers to the existing rail network. For example, where modifications are required to the West Coast Main Line, these are referred to as 'on-network' modifications.
original scheme	The Proposed Scheme within the main ES.
oversail	During works to overhead power lines, cranes will often be used. If part of the crane extends into the airspace above a surrounding property (e.g. the garden of a nearby dwelling), this is referred to as oversailing. Where overhead power lines overlap property or land, this is also referred to as oversailing. During normal operations in high winds, overhead power lines can sometimes be blown, such that they swing out from their normal alignment. When this covers a property, this is referred to as oversailing.
piezometric levels	The piezometric level is the level to which the water level will rise in wells penetrating an aquifer.
piled retaining wall	Constructed using long piles to allow a steeper overall slope gradient than would be naturally possible.
pipe-jacking	Pipe-jacking is a specialist tunnelling method for installing underground pipelines with the minimum surface disruption. Powerful hydraulic jacks are used to push specially designed pipes through the ground behind a shield at the same time as excavation is taking place.
polarity	Term used to describe the measurement of the magnetic response identified during a geophysical survey. An anomaly can have a positive or negative polarity.
pylon	A tall lattice-like structure (usually made of steel) which is used to support overhead power lines. Also known as an electricity transmission tower.
raking piles	Piles installed at an angle to the vertical. They are usually installed alongside regular vertical piles where additional support is required when ground conditions are likely to result in lateral (sideways) movement.
raking props	Props (posts to give support under a load) installed at an angle to laterally support the side walls of an open excavation or an internal or external wall when other

## SES<sub>3</sub> and AP<sub>4</sub> ES Glossary of terms and list of abbreviations

Term	Definition
	support structures have been removed.
reconductoring	The process of installing or replacing conductors (i.e. wires) on a stretch of overhead power line. This will be done through the use of winches.
refurbishment (overhead line)	Replacement of some or all of the components/materials (e.g. steelwork for pylons, wires, fittings) that make up overhead lines. The refurbishment can be full (i.e. replacing all of the components that make up the overhead line), or partial (e.g. replacing some fittings only).
reinstatement (overhead line)	Following a temporary diversion, overhead lines may be returned to their former position and alignment. This is known as reinstatement.
revised scheme	Aspects of the HS2 Phase One scheme outlined in the main ES that have been updated/alterd since the deposit of the hybrid Bill submitted in November 2013, and which form part of the Additional Provision.
'rolling' work site	A work site that moves over time across a geographic area as works are completed in one location to then facilitate works in an adjacent location.
Select Committee	See 'The High Speed Rail (London – West Midlands) Bill Select Committee'.
shear wall	A structural wall made up of braced panels to counter the effects of lateral (sideways) load acting on a structure.
shunting	Pushing or pulling (a train or part of a train) from the main line to a siding or from one line to another.
siding	A section of track forming a branch off the main railway line. A siding can be used to store a train, or to allow trains to reverse and enter the main railway line running in the opposite direction from which they entered the siding.
stockpile	An area where materials excavated during construction of the scheme will be stored temporarily before being reused, or where construction plant and machinery associated with the scheme is stored.
Supplementary Environmental Statement (SES)	<p>The Supplementary Environmental Statement provides additional information to that provided within the main ES (November 2013). This additional information relates to:</p> <ul style="list-style-type: none"> <li>- corrections to the main ES: deals with errors and omissions from the main ES (November 2013) that have the potential to result in new or different significant environmental effects from those reported in the main ES (November 2013);</li> <li>- new and updated environmental baseline information for some of the environmental topic areas (e.g. ecology), along with an assessment of whether the updated/new baseline has the potential to result in new or different environmental effects from those reported in the main ES (November 2013) and the AP<sub>1</sub> ES (September 2014);</li> <li>- changes to the scheme design that are within the limits of the Bill, but have the potential to give rise to new or different significant environmental effects from those reported within the main ES (November 2013) and the AP<sub>1</sub> ES (September 2014); and</li> <li>- updates to the traffic modelling that was used in the main ES (November 2013) and AP<sub>1</sub> ES (September 2014) and an assessment of whether this has the potential to give rise to new or different significant effects from those reported within the main ES (November 2013) and the AP<sub>1</sub> ES (September 2014).</li> </ul>
Supplementary Environmental Statement 2 (SES <sub>2</sub> )	The SES <sub>2</sub> reports any new or different likely significant environmental effects resulting from:



## SES<sub>3</sub> and AP<sub>4</sub> ES Glossary of terms and list of abbreviations

Term	Definition
	<ul style="list-style-type: none"> <li>- updated/new environmental baseline information;</li> <li>- design changes that can be made within the Bill powers and limits of the November 2013 submission, including a revised design for Euston Station and removal of the proposed HS<sub>1</sub>–HS<sub>2</sub> Link;</li> <li>- changes to construction assumptions from those in the main ES; and</li> <li>- corrections to the main ES.</li> </ul>
Supplementary Environmental Statement 3 (SES <sub>3</sub> )	<p>The SES<sub>3</sub> reports any new or different likely significant environmental effects resulting from:</p> <ul style="list-style-type: none"> <li>- updated/new environmental baseline information for the following environmental topics: ecology, traffic and transport and water resources and flood risk assessment;</li> <li>- design changes that can be made within the Bill powers and limits of the November 2013 submission;</li> <li>- changes to construction assumptions from those in the main ES; and</li> <li>- corrections to the main ES and the subsequent SESs and AP ESs.</li> </ul>
Technical Specifications for Interoperability	<p>Technical Specifications for Interoperability (TSI) define the technical and operational standards which must be met in order for the European railway system to allow the safe and uninterrupted movement of trains, whilst accomplishing the required levels of performance and satisfying the 'essential requirements' (safety, reliability and availability, health, environmental protection, technical compatibility and accessibility). The Technical Specifications for Interoperability are defined by EU Directive 2008/57/EC.</p>
tension piles	<p>A tension pile is installed to resist being pulled out of the ground instead of supporting a load.</p>
The High Speed Rail (London – West Midlands) Bill Select Committee ('the Select Committee')	<p>The Select Committee on the High Speed Rail (London – West Midlands) Bill was appointed by the House of Commons on 29 April 2014 after the Second Reading of the Bill on 28 April 2014.</p> <p>The committee provides individuals and bodies directly and specially affected by the Bill with the opportunity to object to the Bill's specific provisions and to seek its amendment, although not to object to the principle of the Bill.</p>
thrust bore technique	<p>A drilling method that is typically used to instal piping underground. A rotary cutting head is placed inside a steel pipe and then attached to the rotation shaft of a thrust boring machine. The thrust boring machine moves forward through the ground and the piping is positioned as it progresses.</p>
trenchless techniques	<p>Typically pipelines are installed in open trenches. Where the pipeline crosses a road, river or railway this is not usually practicable and instead, trenchless techniques are used. These typically require the pipe to be pushed through the ground beneath the obstacle from excavated areas in a main launch site, to what is normally a smaller reception site on the other side of the obstacle.</p>
turbidity	<p>A measure of the degree to which the water loses its transparency due to the presence of suspended particulates. The more total suspended solids in the water, the cloudier it appears and the higher the degree of turbidity. Turbidity is used as a measure of the quality of water.</p>
turnback	<p>A facility that allows a train to reverse. A turnback can be a crossover on the main railway line, or a reversing siding, which branches off the main railway line.</p>

## SES<sub>3</sub> and AP<sub>4</sub> ES Glossary of terms and list of abbreviations

Term	Definition
turning head	An area of road to allow vehicles to turn back where temporary and permanent road closures as part of the construction and operation of the scheme has created dead ends.
Up Empty Carriage Tunnel	A disused railway tunnel in the Euston area.
upgrade (overhead line)	Increasing the power flow along an overhead power line.
utility	A commodity or service, such as electricity, gas or fuel, that is provided by a public or private service provider. These are often delivered to customers via pipes, cables etc. under the ground. They can also be delivered above the ground, for example, via overhead power lines.
utility diversion	Where the current alignment of utilities, either above- or below-ground, would prevent the construction of certain components of the scheme, they may be rerouted, or the height or depth altered to facilitate construction. For example, raising the height of the existing pylons to provide clearance over the proposed HS <sub>2</sub> route.
Water Framework Directive surveys	A survey of surface water and groundwater bodies to establish their current condition or 'status or potential' as per the Water Framework Directive (as defined by EU Directive 2000/60/EC, and amended by subsequent regulations).
Western Rail Access to Heathrow	A proposed new rail link that will connect Heathrow Terminal 5 to the Great Western main line east of Langley near Slough. The new rail link will require approximately 4km of new tunnel between Langley and Heathrow Terminal 5.
WeLHAM (West London Highway Assignment Model)	Transport for London's transport model for west London. The model predicts the flow and routing of traffic to allow for the assessment of the traffic impacts of/on proposed developments.
winches	Mechanical devices that pull in, let out or adjust the tension of wires (conductors) during erection of overhead power lines.

## 2 List of abbreviations, acronyms and units of measurement

Abbreviation/acronym	Meaning
AMP	assumed metapopulation
AP	Additional Provision
AP ES	Additional Provision Environmental Statement
AP <sub>1</sub> ES	Additional Provision 1 Environmental Statement (previously known as the AP ES)
AP <sub>2</sub>	Additional Provision 2
AP <sub>2</sub> ES	Additional Provision 2 Environmental Statement
AP <sub>3</sub>	Additional Provision 3
AP <sub>3</sub> ES	Additional Provision 3 Environmental Statement
AP <sub>4</sub>	Additional Provision 4
AP <sub>4</sub> ES	Additional Provision 4 Environmental Statement
BOA	Biodiveristy Opportunity Area
CoPA	Control of Pollution Act 1974
CRE	Contract Requirements Environment
eDNA	Environmental DNA
EPSML	European Protected Species Mitigation Licence
HEOC	Heathrow Express Operating Company
LTS	London Transportation Study
MEP	mechanical and electrical plant
MDU	maintenance delivery unit
MUGA	multi-use games area
P/A	presence/absence
PLM	persons with limited mobility
PPMS	passengers per metre square
PFRA	Preliminary Flood Risk Assessment
PSC	population size class
SES	Supplementary Environmental Statement
SES <sub>2</sub>	Supplementary Environmental Statement 2
SES <sub>3</sub>	Supplementary Environmental Statement 3
SBC	Slough Borough Council
SBDC	South Bucks District Council

## SES<sub>3</sub> and AP<sub>4</sub> ES Glossary of terms and list of abbreviations

<b>Abbreviation/acronym</b>	<b>Meaning</b>
SNRHW	stable, non-reactive hazardous waste
t	tonnes
TSI	Technical Specifications for Interoperability
UCLH	University College London Hospital
UCZ	utilities construction zone
uFMfSW	Updated Flood Map for Surface Water
WRAtH	Western Rail Access to Heathrow



**High Speed Two (HS2) Limited**

One Canada Square  
London E14 5AB

**T** 020 7944 4908

**E** [hs2enquiries@hs2.org.uk](mailto:hs2enquiries@hs2.org.uk)