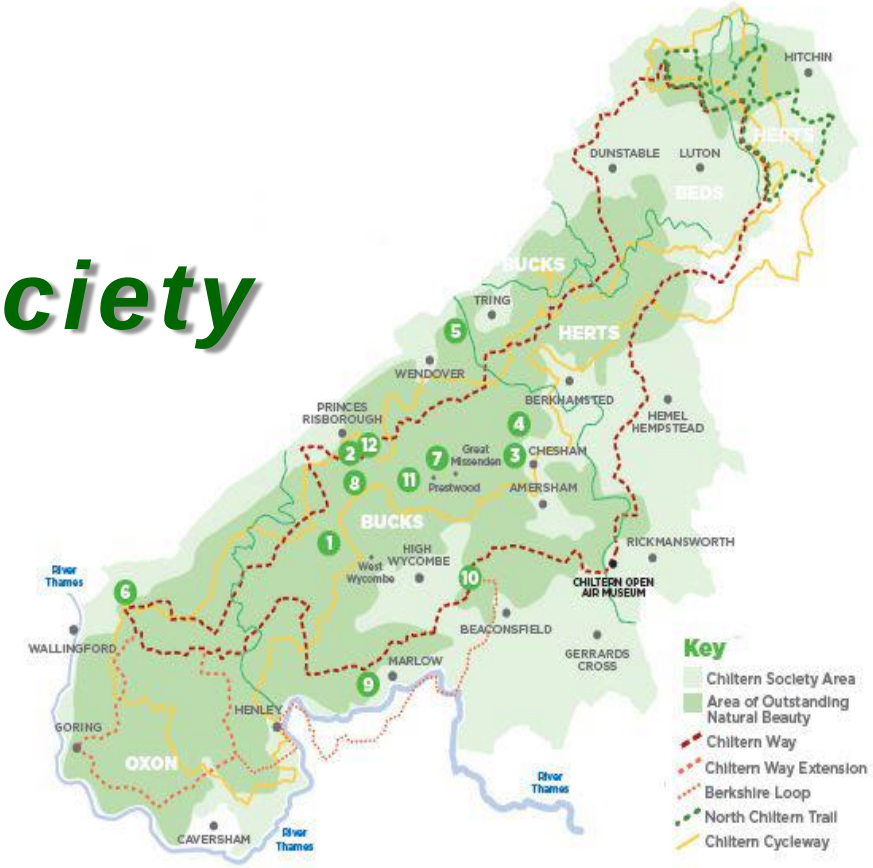
HOUSE OF COMMONS SELECT COMMITTEE
HS2 (LONDON – WEST MIDLANDS) BILL
14 July 2015

Petitioner –

The Chiltern Society

No. 0761



Chiltern Society Presentation

1. About the Chiltern Society
2. AONB & Countryside issues
3. Water related issues
4. AONB Planning Policy
5. Three Bore Tunnel Option
6. Mitigation Hierarchy
7. Chiltern Society's Conclusion

1. About the Chiltern Society

- Founded 50 years ago
  - to conserve and enhance the Chiltern Hills
  - to campaign for the AONB to be confirmed
  - to campaign against the M40 cutting
  - to reinstate footpaths post-WWII
- Registered charity
- 7,000 members

500 volunteers – the largest group in any AONB

A1194 (4)

HOC/00761/0006

Chiltern Society - interest groups

- Rights of Way
- Site management
- Walking
- Cycling
- Rivers & wetlands
- Planning
- Heritage
- Photographic

Chiltern Society - what we do

- Maintain rights of way
- Manage 13 nature reserves and heritage sites
- Participate at all levels of the UK planning system
- Work with a wide range of national, regional and local environmental organisations
- Work on chalk streams and wetlands
- Provide opportunities to volunteer and learn new skills
- Support local community groups

Chiltern Society – some notable achievements

- Founded Chiltern Open Air Museum
- Restored Lacey Green Windmill and Ewelme Watercress Beds
- Created the Chiltern Way long distance circular footpath

A1194 (7)

HOC/00761/0009

Chiltern Society – more achievements

- Organises annual Chilterns Building Design Awards jointly with Chiltern Conservation Board
- Co-created Chiltern Cycle Way with Chiltern Conservation Board
- Organises 150 cycling trips and more than 100 walks each year
- Donate-a-Gate - currently over 600 easy access gates funded and installed

Chiltern Society - key partners

- Forestry Commission
- Chiltern Conservation Board *
- Chilterns Open Air Museum
- Chilterns Chalk Streams Project *
- Chilterns Woodlands Project *
- Colne Valley Park Community Interest Company *
- Woodland Trust
- Ridgeway Trail Partnership
- Local authorities

* Partners to which the Society contributes funding annually

Why is the Chiltern Society petitioning?

- Irreversible damage to the Chilterns AONB
- Severance of the Chilterns
- Risk to the Chilterns Aquifer and River Misbourne
- Serious harm to the Colne Valley Park
- Impact on wildlife
- Impact on countryside recreation and tourism
- Impact on communities
- Disregard of long-standing AONB national planning principles
- Failure to apply higher standards within the AONB

2. AONB & Countryside Issues

- Irreversible damage to Chilterns AONB
- Harm to ancient countryside
- Impact on communities
- Impact on recreation & tourism
- Threat to the Misbourne chalk stream

Chiltern Hills AONB –

- Designated in 1965
- Only AONB on HS2 route
- Closest AONB to London
- Unique ancient countryside

A1194 (12)

HOC/00761/0014

Severance of the Chilterns

HS2 cuts through the AONB at its widest point

A1194 (13)

0761 / 13

Chiltern Society 50 YEARS 1965-2015

HOC/00761/0015

Damage to the Chilterns AONB

- Irreversible damage to unique ancient English landscape
- Adverse impact on the Chilterns' footpath network
- Loss of wildlife habitat -
  - 41km (25 miles) of hedgerows
  - animal migration routes
  - 14 ha (35 acres) of ancient woodland
- Potential adverse impact on over 550 listed buildings
- Loss of part of Grim's Ditch - a scheduled ancient monument
- Permanent loss of 212 ha (530 acres) of farmland

Damage to the Chilterns AONB

Construction of –

4 vent shafts

2 cut and cover tunnels

2 viaducts, high embankments

30 metre deep cuttings

27 balancing ponds

Security fencing and signage

Catenary towers

Dumping of millions of cubic metres of spoil at Hunts Green Farm

Introduction of noise and light pollution

Ancient landscape

with very little change over hundreds of years

- Chequers estate map of 1620
- The Ridgeway National Trail
- 19 Hill forts
- Romano-British villas every 2 - 3 km
- Living heritage for future generations

Footpaths

- Over 2000km of footpaths in the Chilterns
- HS2 route crossed by 36 paths
- 29 footpaths closed temporarily
- One bridleway will be closed permanently
- 16 footpaths diverted permanently
- Impact on the integrity of the footpath network
- Impact on views from the Ridgeway and Icknield Way

Environmental Statement

- Only 40% of land surveyed
- Geological surveys not made
- Traffic assessments inadequate and incorrect
- Definition of rush '*hour* ' inadequate
- Landscape assessment
- Code of Construction Practice

Permanent impact on communities

- Additional noise – impact on tranquillity
- Light pollution
- Impact of overnight maintenance work
- Permanent change to local landscapes
- Traditional access routes diverted
- Harm to local businesses (eg tourism and farming)

Construction impact on communities

- Up to an additional 2800 LGV, 1100 HGV movements per day causing -
  - Disruption of children's education
  - Delayed emergency service response
  - Commuter and traffic delays
- Severance of hill villages from services
- Impact on local businesses
- Disconnection of rights of way and amenity areas
- Loss of tranquillity

Colne Valley Regional Park

- An important buffer between the Chilterns and West London
- Provides valuable countryside ‘green lung’ for North West London
- Provides key recreational activities for Londoners (eg. Hillingdon Outdoor Activity Centre - HOAC)
- Important SSSI for transitory waterfowl
- HS2 will severely damage these assets - permanently

3. Water related issues

- Threat to the River Misbourne
- Risk to the public water supply
- Environmental risks
- Risk reduction

Threat to the River Misbourne

- A globally rare chalk stream
- One of nine main Chiltern chalk streams
- Key feature of the Misbourne Valley
- Feeds Shardeloes Lake
- Highly vulnerable to changes in the chalk aquifer

Risks to public water supply

Pollution of the aquifer

- The construction proposed in the Colne Valley presents a risk to water quality in the Colne Catchment Area
- 22% of London's water supply comes from the Colne Catchment area
- Could lead to loss of water supplied by the Great Missenden, Amersham and Chalfont St Giles pumping stations

Environmental risks

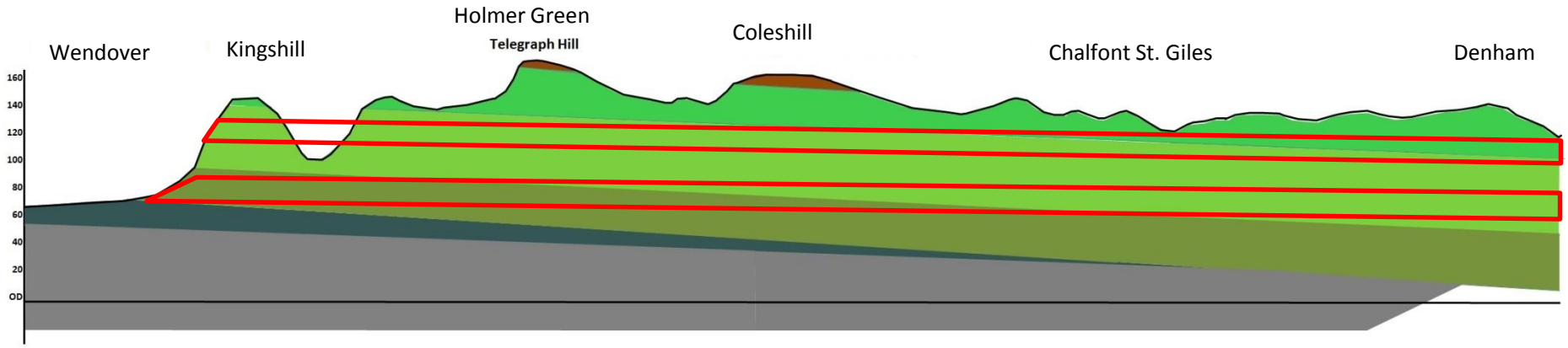
- Loss of the Misbourne, and Shardeloes Lake
- Water being diverted away from the Colne Valley & Weston Turville SSSIs
- Settlement along proposed route, particularly Chalfont St Giles

Risk reduction

- The upper levels of the Chiltern aquifer have a number of fractures through which the water flows. The deeper one goes into the aquifer the chalk is more clay rich and less permeable.
- Drilling deeper in the aquifer reduces the risk of
  - Settlement along proposed route
  - Diverting the water away from the River Misbourne
  - Damage to the aquifer
  - Affecting the public water supply

Witness
Dr Haydon W. Bailey

- Chartered Geologist
- PhD in Chalk Stratigraphy
- Consultant micropalaeontologist - oil and gas industry for over 35 years
- Specialises in Upper Cretaceous Chalk stratigraphy
- Honorary lecturer, MSc course in Applied and Petroleum Micropalaeontology, University of Birmingham
- President - Geologists' Association
- Chairman - Hertfordshire Geological Society
- Past Chairman - The Micropalaeontology Society
- Written over 25 peer reviewed articles, mainly about Cretaceous chalks



Clay with flints

Upper Chalk
Middle Chalk
- White Chalk

Lower Chalk - Grey Chalk

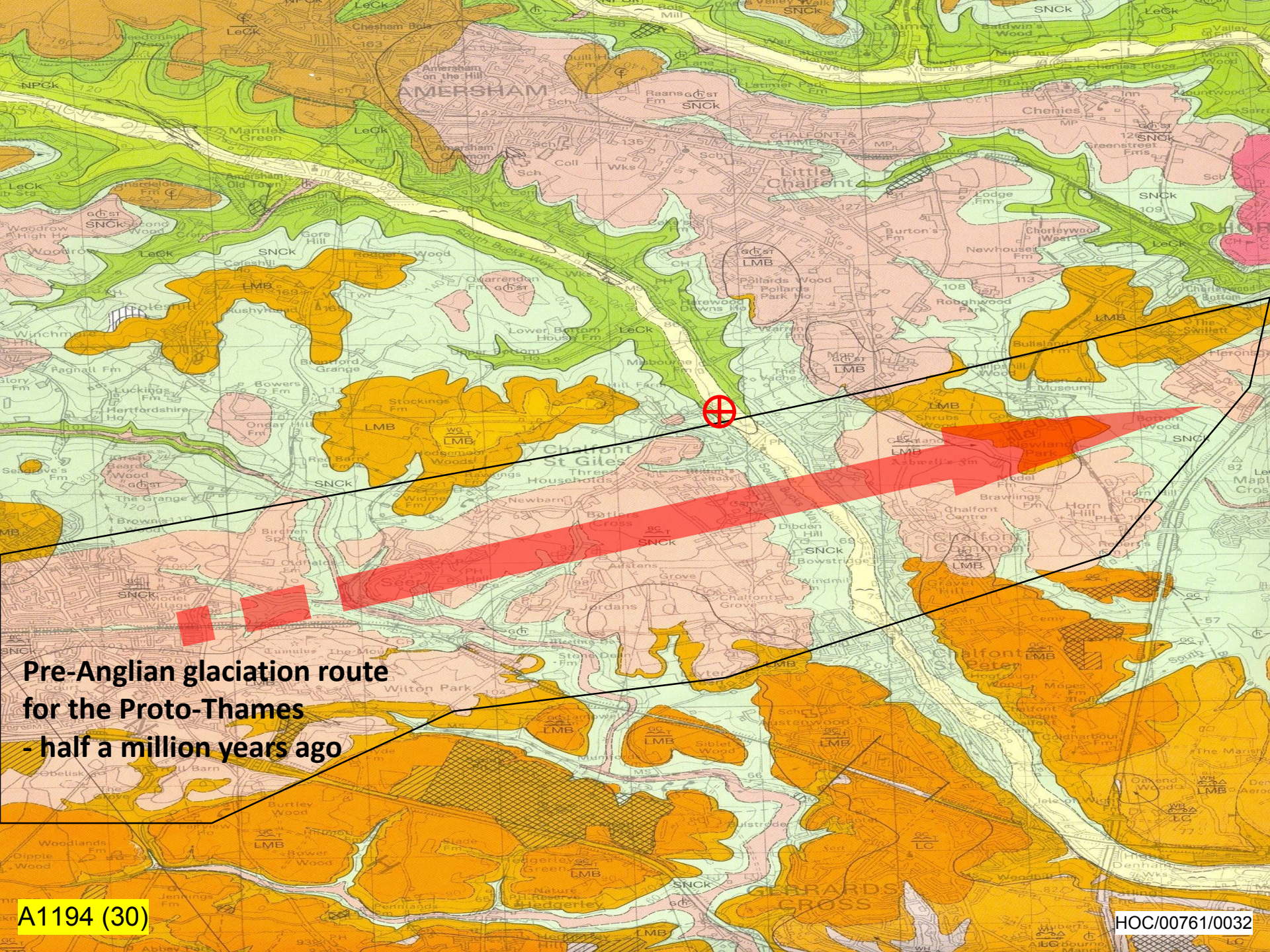
Gault Clay

Jurassic (undifferentiated)

Good aquifer: Flints common – difficult to tunnel

Moderate aquifer: Few flints – easier to tunnel

Poor aquifer: No flints – easiest to tunnel


Pre-Anglian glaciation route
for the Proto-Thames
- half a million years ago
A1194 (30)
HOC/00761/0032

Chalfont Borehole - Original drillers log

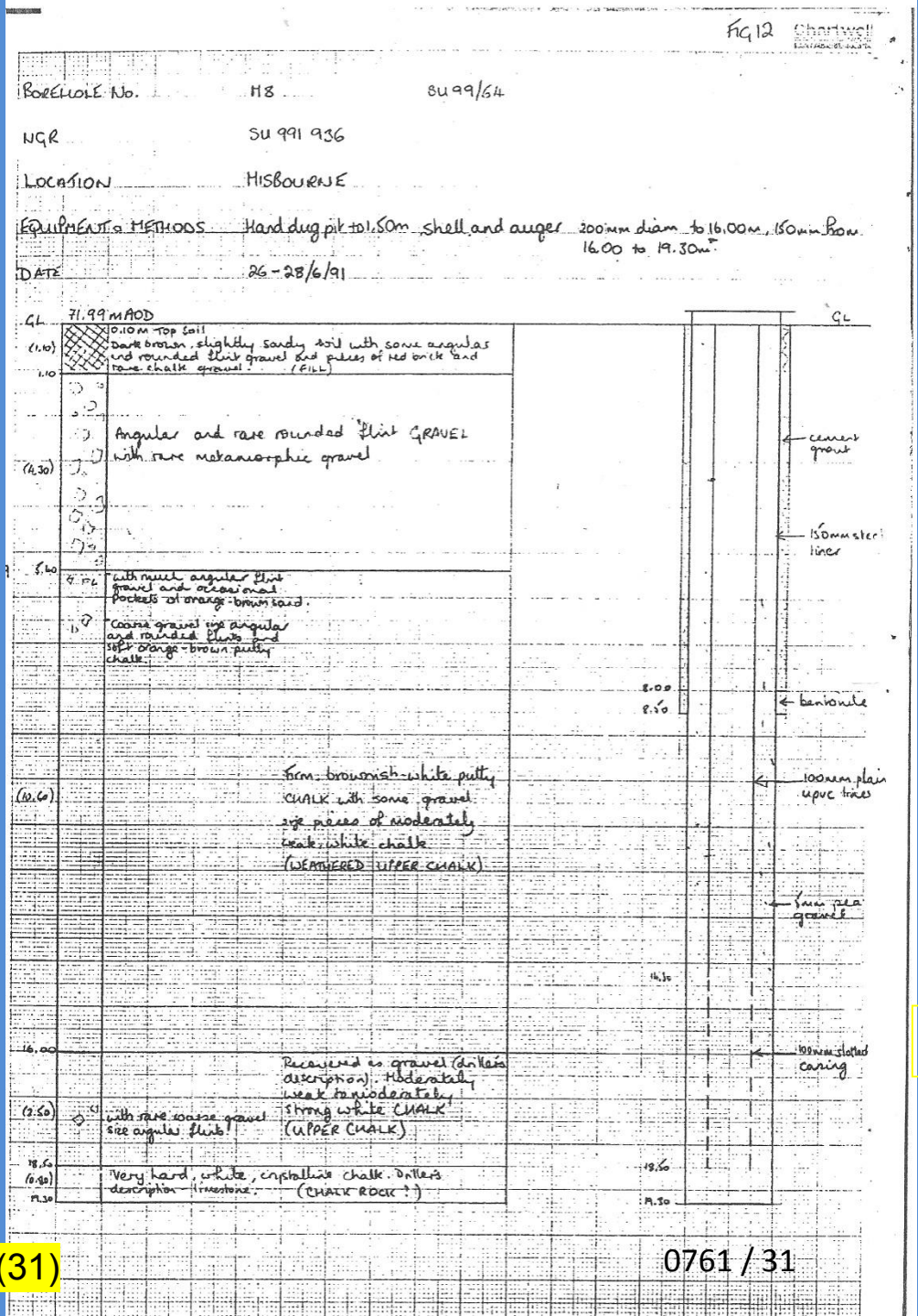


FIG 12 Chartwell

BOREHOLE No. H8 SU 99/64

NGR SU 991 936

LOCATION HISBOURNE

EQUIPMENT & METHODS Hand dug pit to 1.50m, shell and auger 200mm diam to 16.00m, 150mm from 16.00 to 19.30m

DATE 26-28/6/91

GL 71.99 mAOD

(1.10) 1.10 0.10m Top soil. Dark brown, slightly sandy soil with some angular and rounded flint gravel and pieces of red brick and some chalk gravel. (FILL)

(4.30) 5.40 Angular and rare rounded flint GRAVEL with rare metamorphic gravel

with much angular flint gravel and occasional pockets of orange-brown sand.

Coarse gravel size angular and rounded flints and soft orange-brown putty chalk.

(10.60) From: brownish-white putty CHALK with some gravel size pieces of moderately weak white chalk (WEATHERED UPPER CHALK)

16.00 Recovered as gravel (drillers description). Moderately weak to moderately strong white CHALK (UPPER CHALK)

(2.50) with rare coarse gravel size angular flint

18.50 (0.80) 19.30 Very hard, white, crystalline chalk. Drillers description - limestone. (CHALK ROCK ?)

GL

8.00 8.50 bentonite

14.30

19.50 19.30

cement grout

150mm steel liner

100mm plain upvc tube

5mm pea gravel

100mm slotted casing

0761 / 31

A1194 (31)

Surface

Top soil

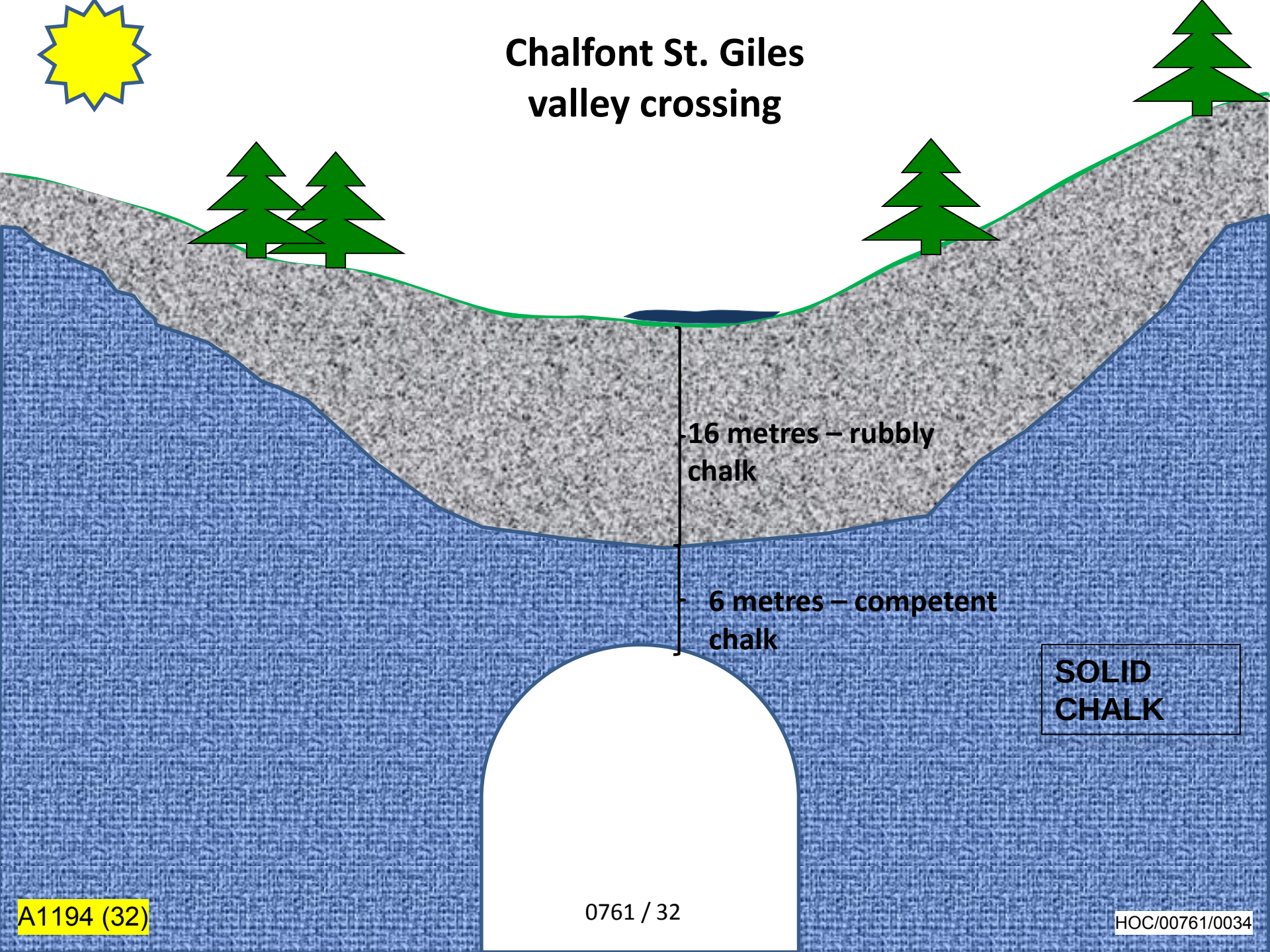
Flint gravel

Weathered Upper Chalk

16 metres Top Solid chalk

Chalk Rock

HOC/00761/0033


Chalfont St. Giles
valley crossing
16 metres – rubbly chalk
6 metres – competent chalk
SOLID CHALK
A1194 (32)
0761 / 32
HOC/00761/0034

4. AONB Planning Policy

- Long established principles
- Major developments in AONBs
- Failure to satisfy the key tests

Long established principles

- AONB designation recognises the highest quality of English landscape (same as for the National Parks)

National Planning Policy Framework 2014 requires that –

- Great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and AONBs

Consistent with long standing principles to protect natural beauty, established by –

- National Parks and Access to the Countryside Act 1949
- Countryside and Rights of Way Act 2000

Major developments in AONBs –

The thrust of public policy

Successive planning guidance & policy identified four key tests in AONBs –

- Major developments, including those that raise issues of national significance, should not take place in AONBs except in '***exceptional circumstances'***
- They should be subject to the '***most rigorous examination***'
- The cost and scope for '***developing elsewhere outside of the designated area'*** should be assessed
- They should be demonstrated to be in the '***national interest'*** before being allowed to proceed

Failure to satisfy the key tests

The **'rigorous examination'** test has not been met because HS2 Ltd has not adequately assessed a route that does not cross the Chilterns AONB – i.e. a **'non - AONB alternative'**

As a consequence, Parliament *cannot assess* whether **'exceptional circumstances'** exist

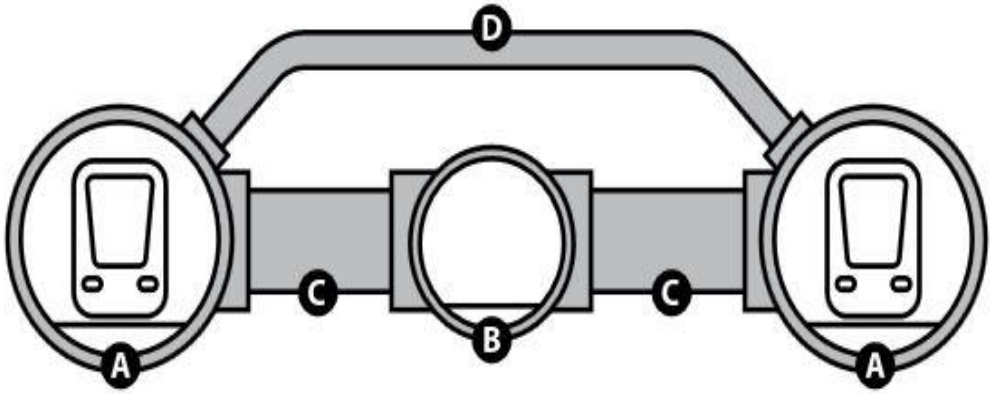
Parliament cannot therefore be satisfied that –

- A **'national interest'** test has been properly applied
- The Government's obligation to **'conserve and enhance the natural beauty'** of the Chilterns AONB has been met

5. A three bore tunnel under the Chilterns AONB

- Key factors
- Advantages
- Safety - risk management
- Safety - assessment
- Estimated costings

A three bore tunnel – key factors



- Same design concept as Channel Tunnel
- Central tunnel as passenger safety refuge
- No need for intervention gap (fire fighting area)
- No vent shafts
- No need to construct surface evacuation facilities within the AONB

Three bore tunnel - advantages

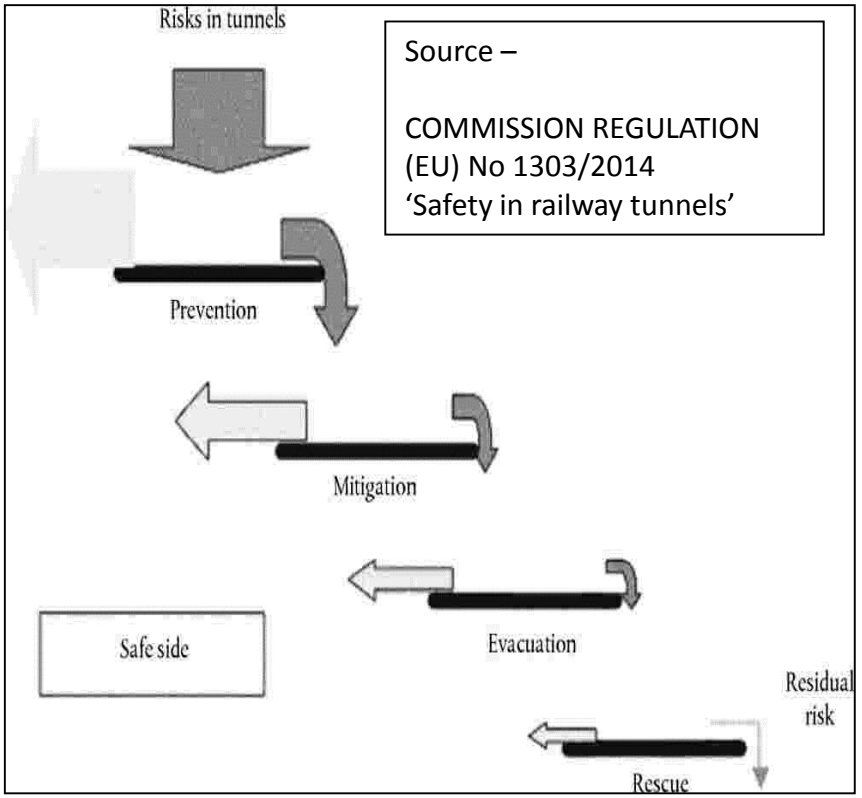
- Only option which eliminates damage to the AONB
- Greatly reduces risk to the aquifer
- Substantially reduces impacts on local communities
- Removes property blight
- Enables
  - Deeper tunnelling
  - Operational benefits with virtually no incline on the track
  - Development of an alignment avoiding the need to tunnel under the Misbourne
- Reduces public safety risk by providing a sealed safety area independent of the other operational tunnel

Tunnel safety - risk management

Best practice safety management requires -

- Highest priority to be given to risk ‘avoidance’, as the best means of ‘prevention’
- Rigorous safety assessment of alternatives

EU regulations require a special safety investigation of any long tunnel



Tunnel safety assessment

- It is in the public interest that any higher safety benefits of a three bore tunnel are not rejected in order to achieve lower costs
- This could be assured by requiring all main tunnelling options to be subjected to rigorous comparative safety assessment by independent specialists
- Key issue for Select Committee –

  Can the prospect of a higher level of public safety provided by a three bore tunnel be discounted?

Three bore tunnel – estimated costings

Additional Construction Cost

Estimated at £800m by HS2

Offsets

Transport	£25m
Tourism	£174m
Property blight	£120m
No landscape impacts	£206m
Sub total	£525m

Value of land and property no longer required

Most of the spoil will be chalk which could be sold for cement manufacturing

5. The Mitigation Hierarchy

- Lowest level mitigation
- Moderate level mitigation
- Highest level mitigation

Lowest level mitigation

Minimum expectation (must include) –

- Lower the current line, so that it is mainly in cutting
- Remove spoil from AONB
- Reconnect all footpaths, rights of way and animal migration trails, using green bridges at least 100 metre wide or passages through embankments
- Restore lost hedgerows
- Remove right for main undertaker to raise the line
- Provide air ambulance cover

Moderate level mitigation

A long two-bore tunnel –

- Saves 95% of ancient woodlands threatened
- Substantially reduces impact on
  - landscape
  - footpaths and rights of way
  - spoil dump in AONB
  - noise and light pollution
  - commuters and communities

However there are negatives –

- Needs six vent shafts
- Needs an intervention gap

High level mitigation

A three-bore tunnel –

- Eliminates adverse impacts on
  - Landscape
  - Aquifers
  - Footpaths and rights of way
  - Construction in the AONB
  - Ancient Woodland
  - Hunts Green Farm (spoil dump)
  - Loss of good quality agricultural land
  - Noise, light and dust pollution
- Eliminates vent shafts and an intervention gap
- **Enables Parliament to fulfil its obligations to conserve and enhance the natural beauty of the Chilterns AONB**

6. Chiltern Society's Conclusion

If HS2 has to cross the Chilterns AONB - the only acceptable mitigation in the national interest is a three bore tunnel