

# HS2 – Cutting the Coombe Hill Aquifer and Flooding Aylesbury

Buckinghamshire Council Briefing – October 13<sup>th</sup> 2020

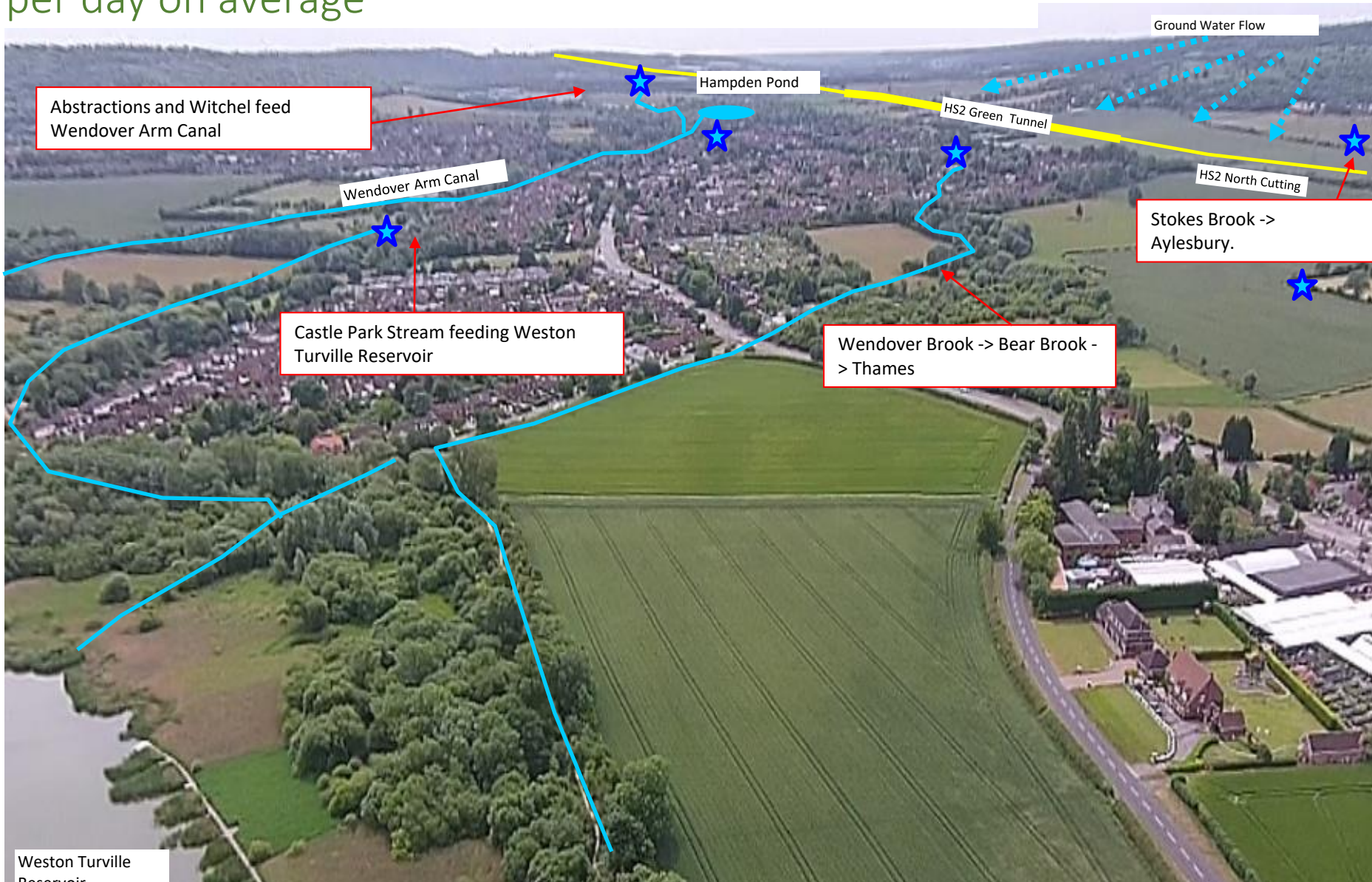
# Overview of Hydrogeology issue

- The Cutting and Green Tunnel at Wendover is expected to cause severe damage to the aquifer;
- Without mitigation it will irretrievably affect Weston Turville SSSI, Wendover Arm Canal and increase flood risk in Aylesbury;
- HS2/EKFB have no design mitigations despite community pressure;
- BC are obligated to scrutinise the design under Schedule 17/33;

*An urgent intervention is needed to secure mitigations  
before schedule 17 and 33 submissions*

# Five springs that deliver the equivalent of 10 Olympic swimming pools of water per day on average

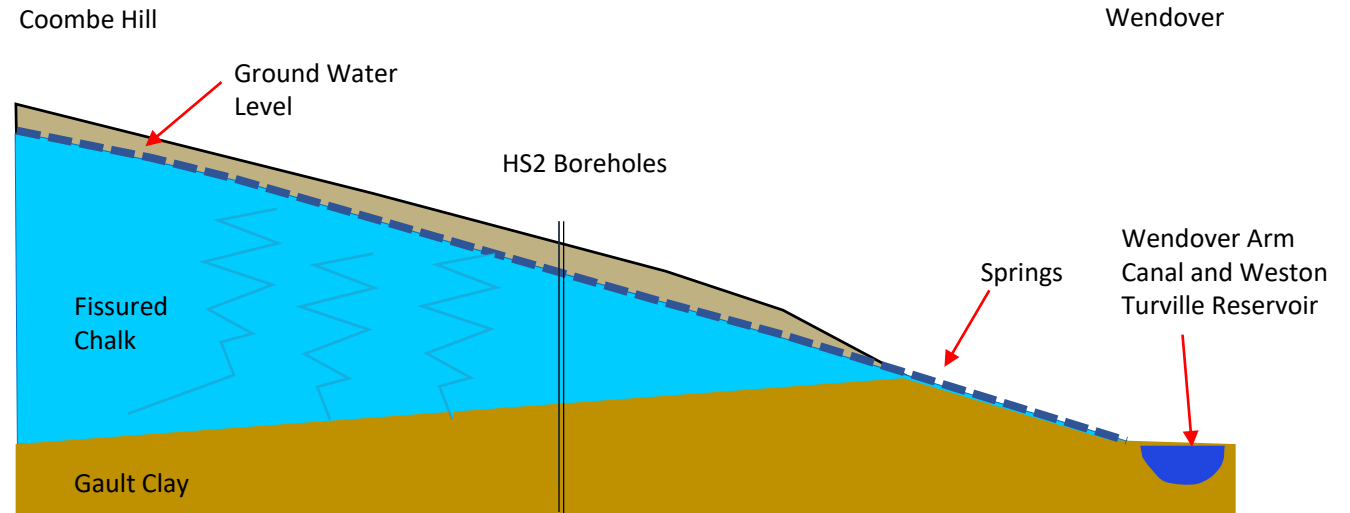
Total amount diverted down Stokes Brook estimated at 30 MI/d



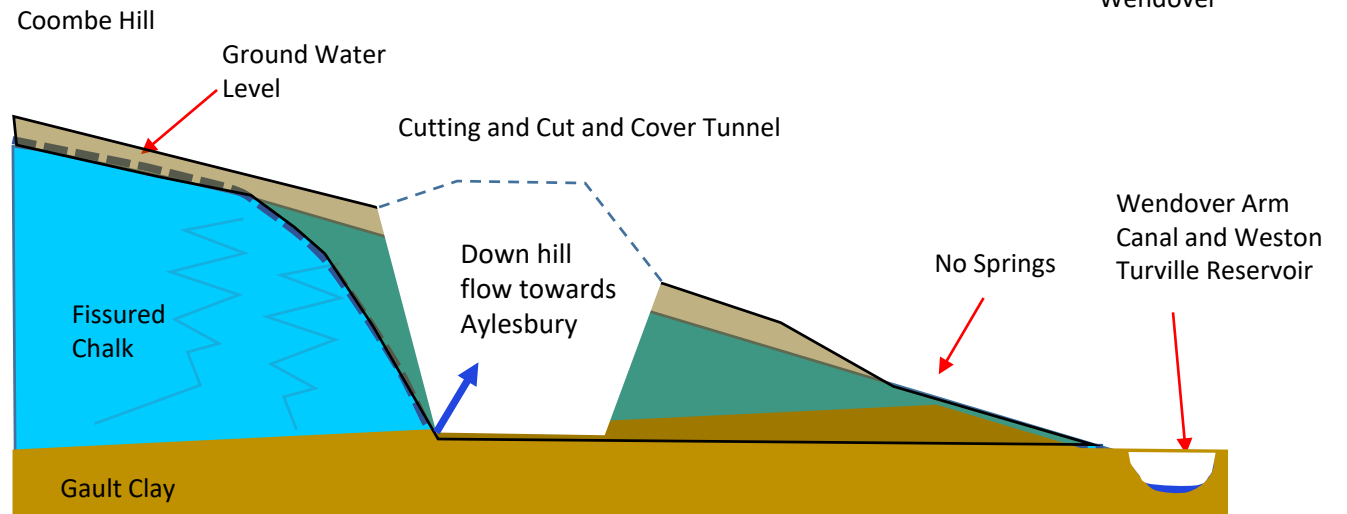
Wendover Area showing HS2 route, affected springs and surface water features they support (view looking South)

# Ground Water Will be Permanently Drained by Cutting

Cross section through the route showing the geology looking North and inferred normal ground water levels

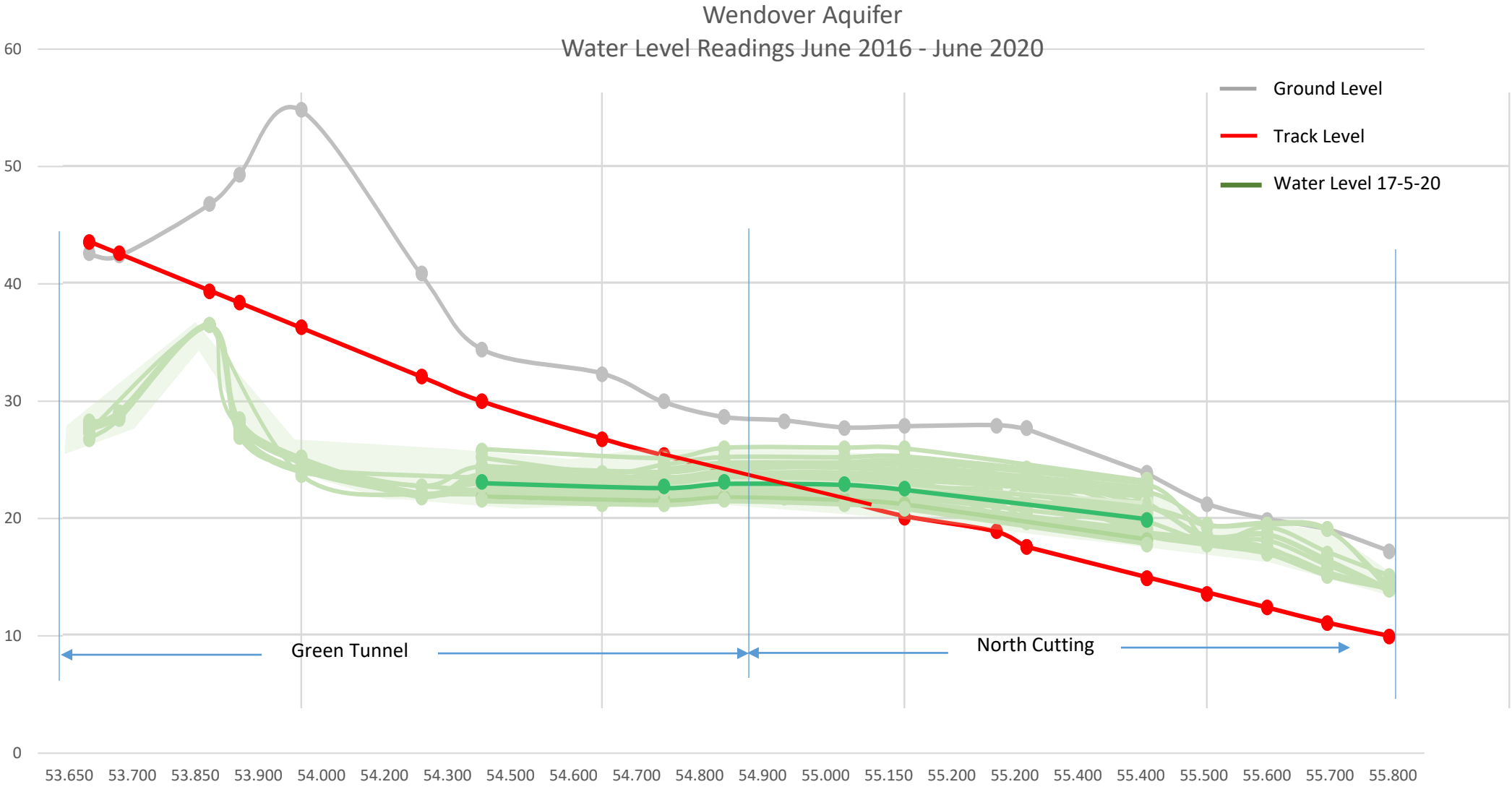


Cross section through the route showing the geology looking North and affected ground water levels



For Cut and Cover Section (Green Tunnel) porosity of backfill material will not prevent water flow, equivalent to a "French Drain"

# Actual Water Levels above Track Level



Notes:  
 Elevation from C222-ATK-CV-DPP-020-000005 Rev P01 26/2/16  
 Track level (not excavation level shown)  
 Track level and ground level meet at KP 56.7



What HS2  
have  
admitted

Project Id: 1G064 - ACB

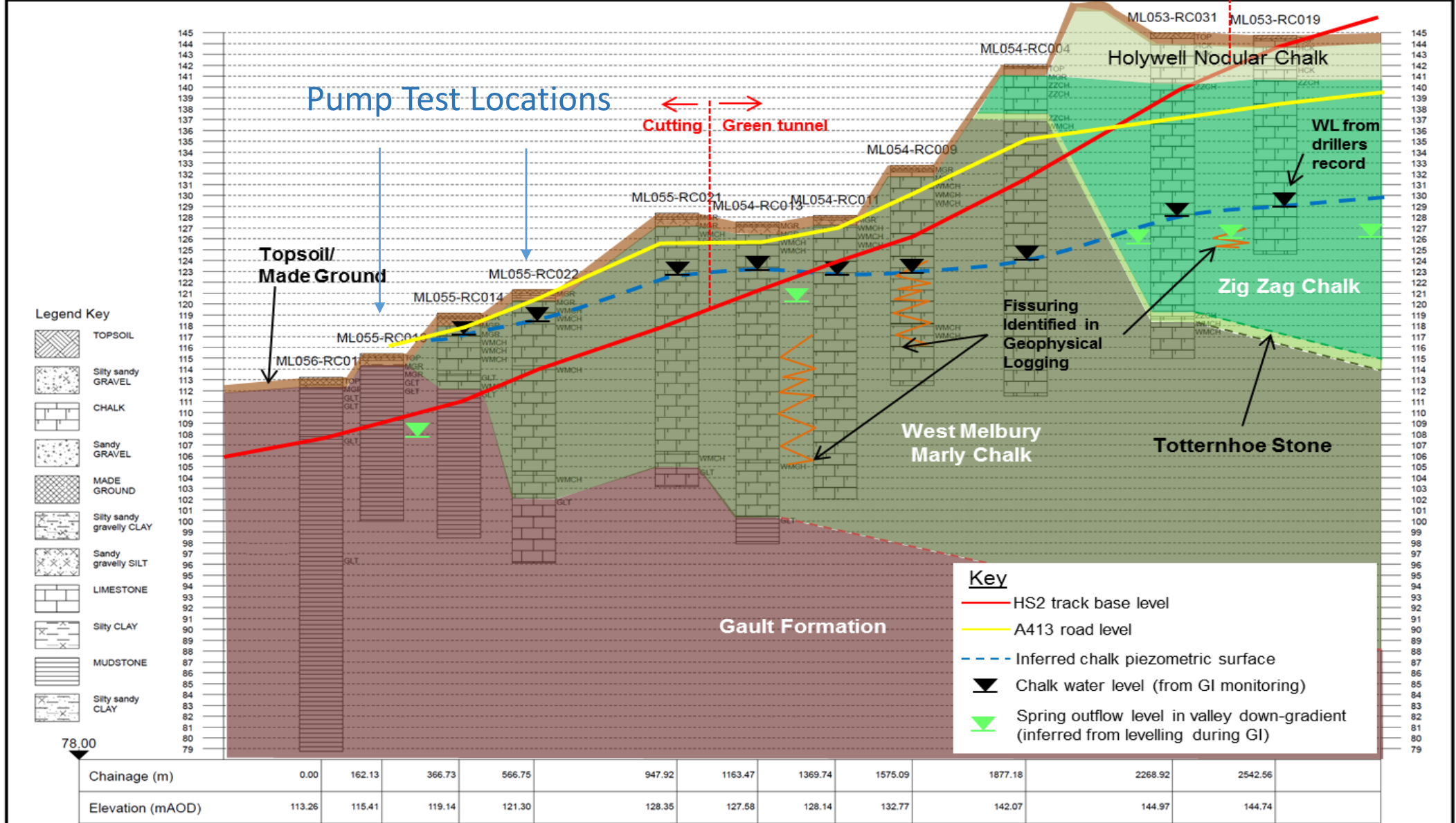
Project Title: Amersham to Calvert Area B

Location: Buckinghamshire

Client: High Speed Two (HS2) Limited

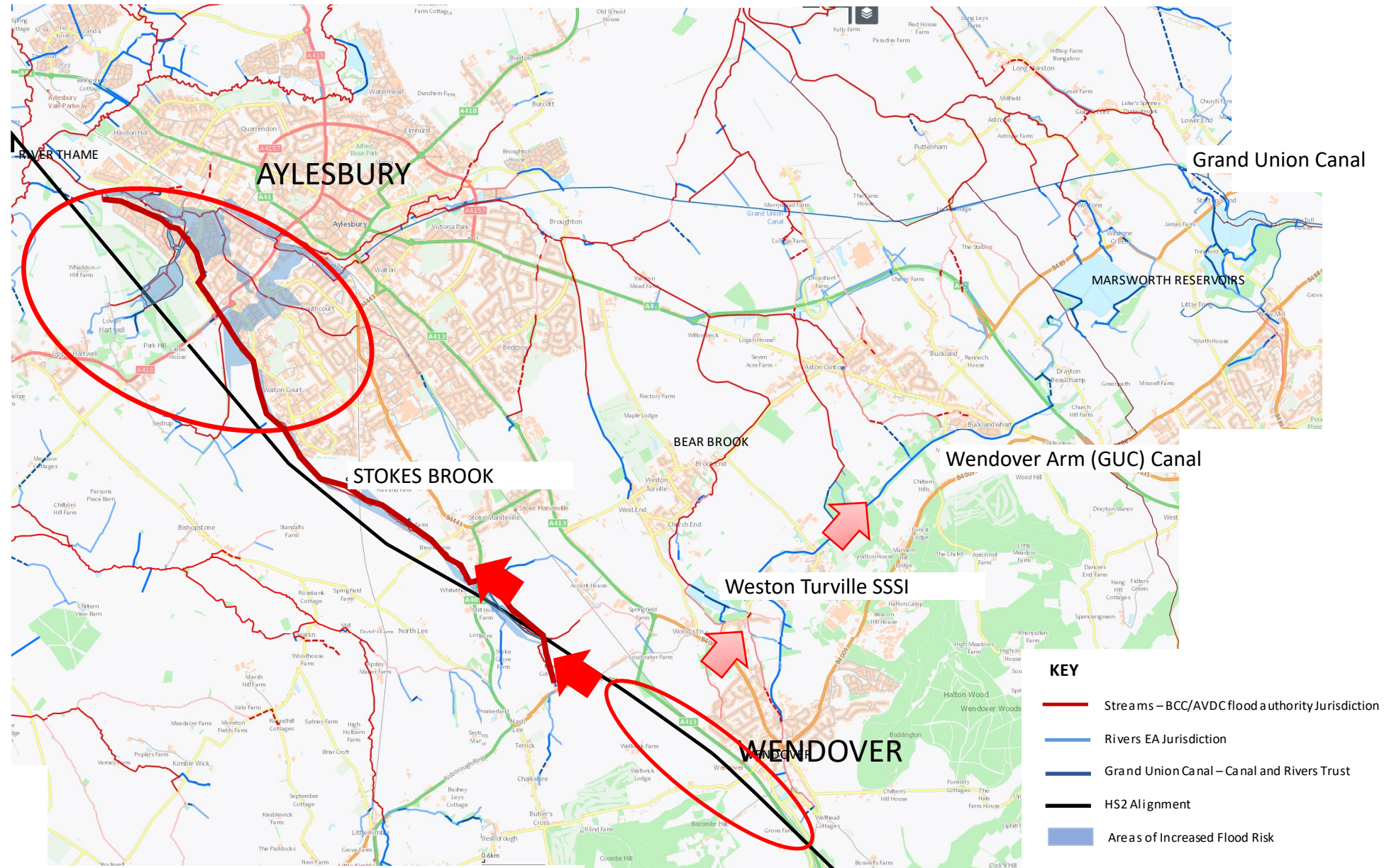
NOT TO SCALE

Engineer: High Speed Two (HS2) Limited



# Impact = Diversion of Water

Total amount diverted down Stoke Brook estimated at 30 MI/d





# At Risk: Weston Turville Reservoir SSSI

- Designated SSSI in 1976 due to nationally rare habitats;
- Local sailing and fishing amenity;
- Relies on water levels to be maintained all year round;
- Habitat sensitive to water quality;
- Report commissioned by WPC indicates a potential 90% reduction in water flow into the reservoir;

*“If changes are the sort of level Mr Johnson (Hydrogeologist engaged by Wendover PC) suggests they could have a dramatic effect on the fen at Weston Turville ..” Berks Bucks & Oxon Wildlife Trust*



Two views of Weston Turville Reservoir SSSI



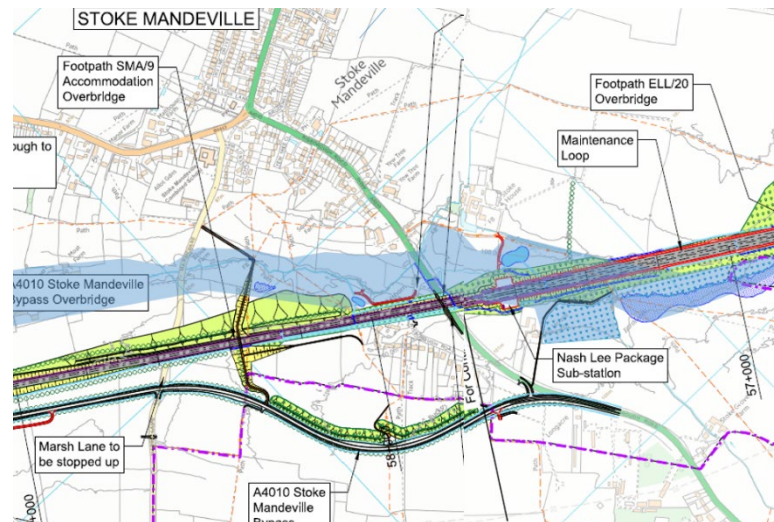


# At Risk: The Willows, Fairford Leys and New Town development at Stoke Mandeville

- Potential 10-20 MI/d water flows diverted down Stoke Brook;
- Intercepted surface water will also require disposal;
- Intercept lakes required;
- Wider Upper Thames catchment modelling necessary;



The Willows Aylesbury, Feb 2014

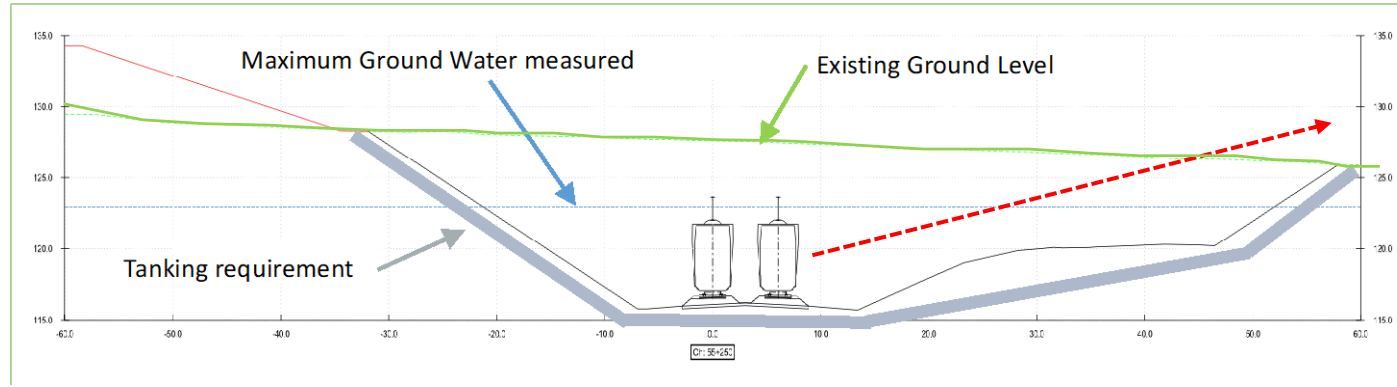


Ground water modelling showing overspill

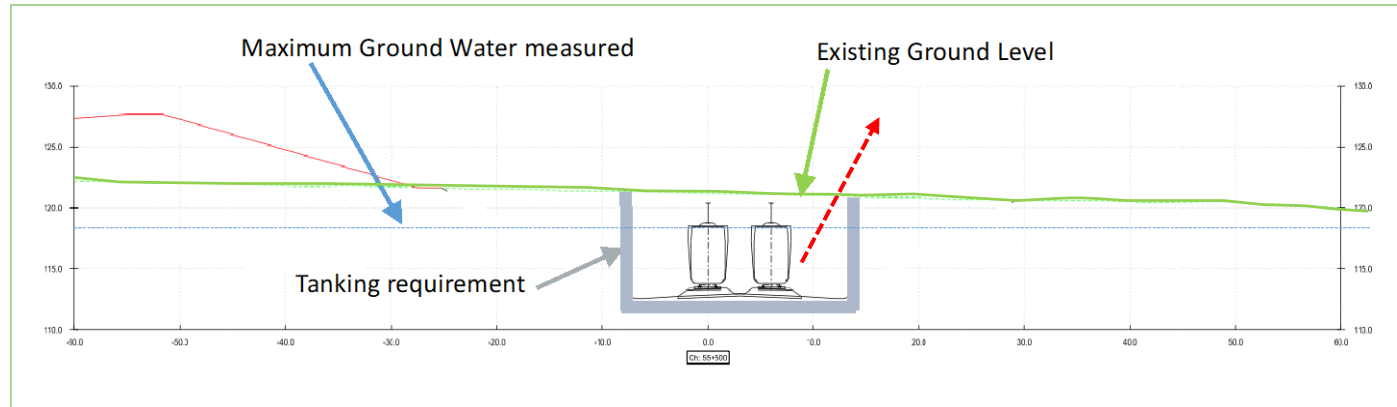


Aylesbury, Oct 2020

# Two problems solved with one solution



HS2 design



Retaining cutting

- Tanking will mitigate Aquifer disruption
- Retaining walls act as high noise barriers, hidden in the cutting
- Cost effective by means of reduced excavation and tanking requirement

- Dft Undertakings
  - U&A 49 Impact of Groundwater flows will be mitigated and drainage designed to recharge groundwater bodies;
  - U&A 50 Design aim is no increase in flood risk for vulnerable receptors including residential property
  - U&A 1001 Implement groundwater monitoring
  - U&A 2783 In consultation with EA establish monitoring before and during construction
  - U&A 51 Consultation with BC regarding baseline ground water monitoring, any required mitigation if increase in groundwater flood risk identified and an undertaking to share data with BC ;

*BC need to check undertakings incorporated into the EKFB design*



# Understanding BC Obligations for Schedule 17/33

- **Flooding**
  - Act in a manner that is consistent with .....local flood risk management strategies
  - Flood Authority must make sure that any developments/projects drain off run-off water in a way which does not increase the risk of flooding anywhere else
- **Amenities**
  - Responsible for discharging planning obligations in accordance with Town and County planning act in favour of the community;
  - Uphold local plans ?
- **Environment**
  - Responsible for taking reasonable steps to conserve and enhance special features of SSSIs
  - CROW Act : must make sure that all decisions have regard for the purpose of conserving and enhancing the natural beauty of the AONB ..decisions must consider the potential effect it will have within the AONB and land outside its boundary.
  - Biodiversity 2020: Duty to conserve bio-diversity including protection of habitats;

*BC: Who, How, What and When ?*

# Recap of Hydrogeology issue

- The Cutting and Green Tunnel at Wendover is expected to cause severe damage to the aquifer;
- Without mitigation it will irretrievably affect Weston Turville SSSI, Wendover Arm Canal and increase flood risk in Aylesbury;
- HS2/EKFB have no design mitigations despite community pressure;
- BC are obligated to scrutinise the design under Schedule 17/33;

*An urgent intervention is needed to secure mitigations  
before schedule 17 and 33 submissions*

# What We Want from BC

- Hold HS2 to their U&A responsibilities
  - Provide adequate baseline monitoring;
  - Demonstrate design reasonably mitigates damage to aquifer and minimise noise;
  - Ensure flood prevention and Environmental mitigations are built into design;
- Support Wendover formal request for advanced aquifer and noise mitigation design information;
- Request pre-schedule 17/33 technical design review with EKFB, HS2 and EA utilising Wendover, Cold Harbour and Stoke Mandeville PCs expertise;
- Assess what further design information is required in order BC can be satisfied obligations are discharged;



# Discussion

Before  
HS2



*Aylesbury Vale Deserves Better.....*

After  
HS2

