

An architectural rendering of the Old Oak Common Station, showing a large, modern railway station with a series of arched glass and steel roofs. The station is situated next to a river, with a bridge visible in the background. The rendering includes people walking on the platform and a train arriving. The text "Old Oak Common Station" and "GWML Level Boarding" is overlaid in large blue letters. Below this, "Presentation to PWI Thames Valley" is also in blue. The date "04/02/2026" is in the bottom right. In the bottom left corner, the "HS2" and "Network Rail" logos are displayed.

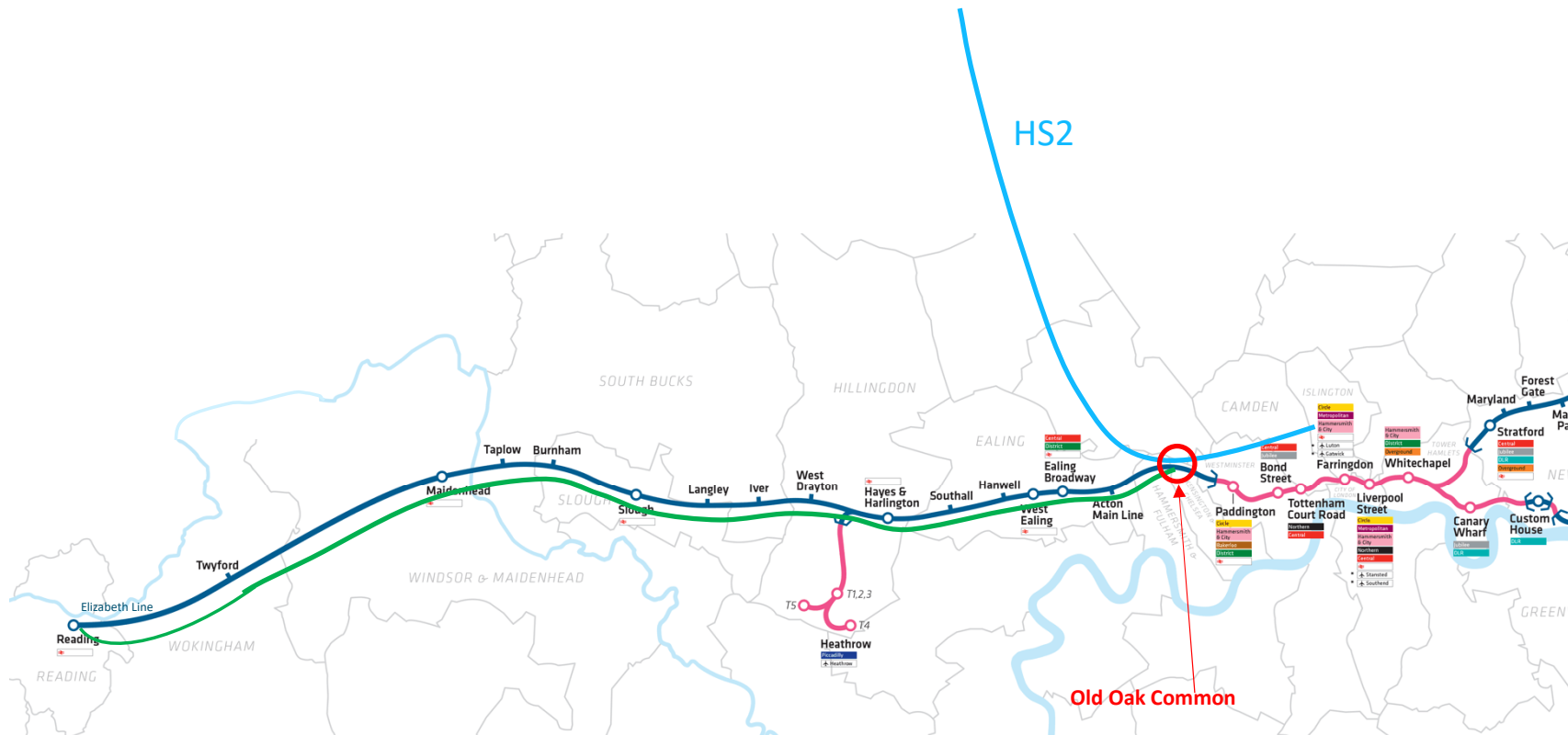
Old Oak Common Station GWML Level Boarding

Presentation to
PWI Thames Valley

04/02/2026

Where is Old Oak Common?

- North West London
- Approx 3 miles / just under 5km West of Paddington station



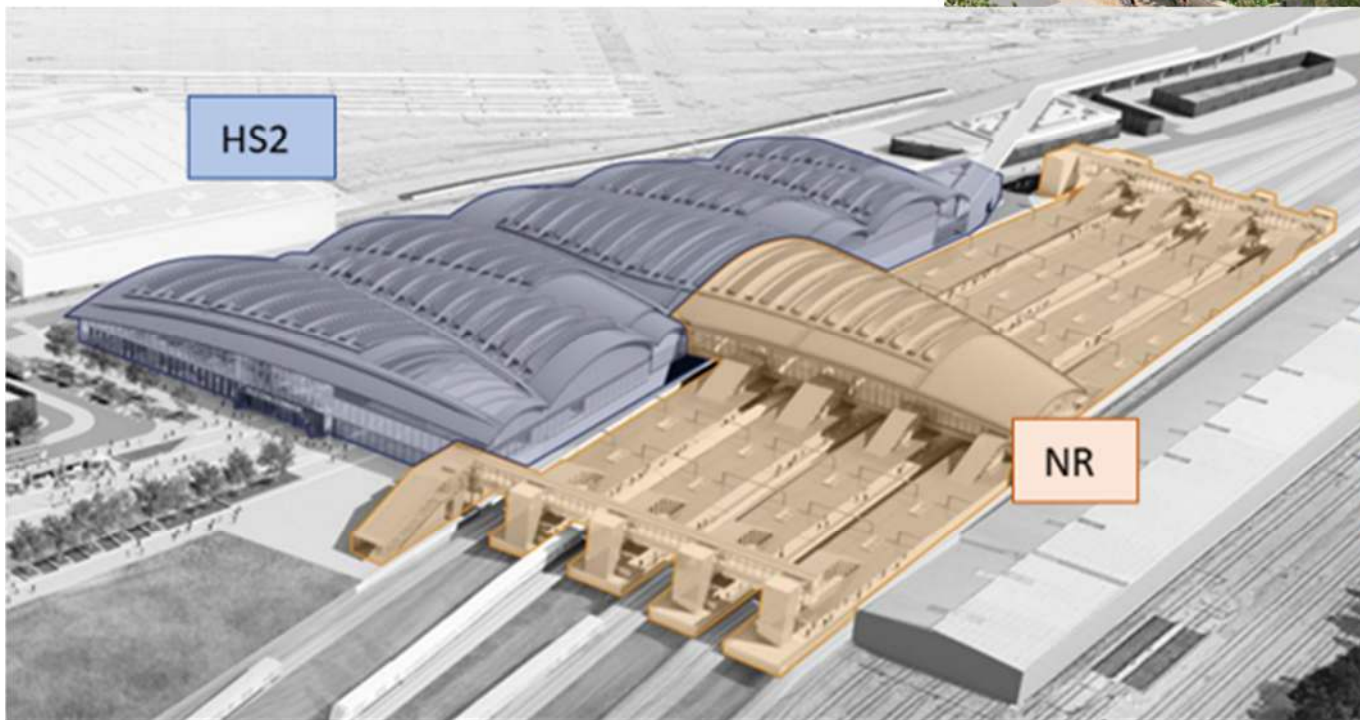
A vertical blue graphic on the left side of the slide, resembling a railway track with cross-ticks.

What is Old Oak Common?

- A brand new station on High Speed 2 (HS2) and the Great Western Main Line (GWML), opening in the 2030s
- It will have 14 platforms – 6 on HS2, and 8 on the Great Western Main Line (GWML).
- Major interchange between HS2 and the Elizabeth Line, GWR services, Heathrow Express, and Lumo.
- Interest / rights of access reserved for Chiltern Railways and Avanti West Coast.
- Various charter / heritage operators maintain rights of access.
- Freight services to Paddington New Yard pass through.
- Expected to become one of the busiest stations in the country.
- Construction started in 2022.

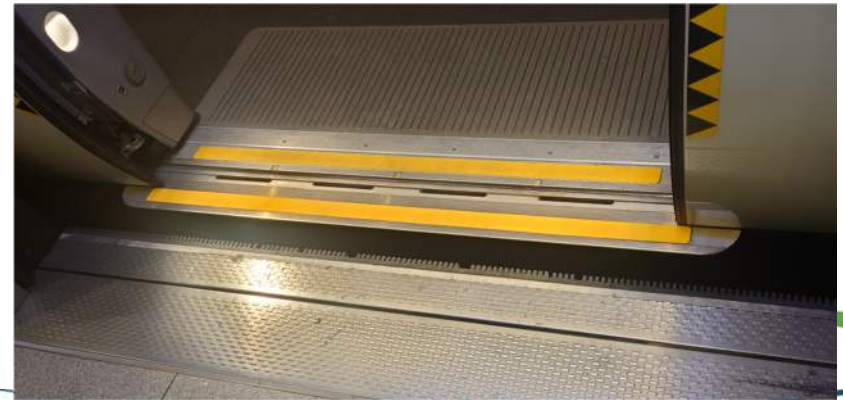
What is Old Oak Common?

- Large circulation spaces and green areas.
- Two distinct parts: HS2 and Network Rail



Project goals

- Is level boarding deliverable for platforms 5-8 (Elizabeth line platforms)? (No requirement for platforms 1-4).
- Existing plan:
 - All GWML platforms are standard height.
- TfL and DfT applying pressure to deliver level boarding. Network Rail and HS2 supportive.
 - So: DfT instructed work to explore level boarding feasibility on the relief lines (platforms 5-8).
 - **NB: This is an option development exercise, NOT a forgone conclusion.**
 - Full business case to be submitted to DfT.



Project benefits & requirements

- Potential benefits:
 - Dwell time reduction → Increased capacity
 - Improved safety for very busy service.
 - Accessibility for wide area.
 - HS2 will be step free to train.
 - Elizabeth Line in central section is step free to train.
- We are undertaking a detailed analysis of what is required to provide level boarding:
 - What impact it would have on the designs and the programme.
 - How it would affect passengers, especially those with accessibility needs.
 - How much it would cost.

So: Define “Level Boarding”

- The Accessibility NTSN defines “Level Access” as:
 - Max allowable horizontal gap: 75mm
 - Max allowable vertical step: 50mm
 - Ref National Technical Specification Notice - Accessibility (ACC), Issue 1, Section 2.3 ‘Other definitions’, ‘level access’.
- RVAR states that boarding devices are not required if this definition is met.
 - Ref The Rail Vehicle Accessibility (Non-Interoperable Rail System) Regulations 2010, Schedule 1, part 1, paragraph 1.

Using a recognised definition in the NTSN gives precedence and standardisation.

All sorted? Great!

So: Define “Level Boarding”...

But:

- A 50mm vertical step still presents a barrier to some passengers with accessibility needs.
- Compliant $\neq$ Safe
- Compliance not end of story...

What about:

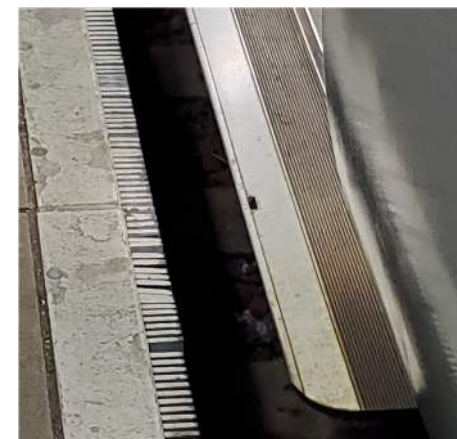
- Passenger expectations.
- Operator requirements.

Practicalities:

- Which doors?
- Which trains?
- What about other trains?

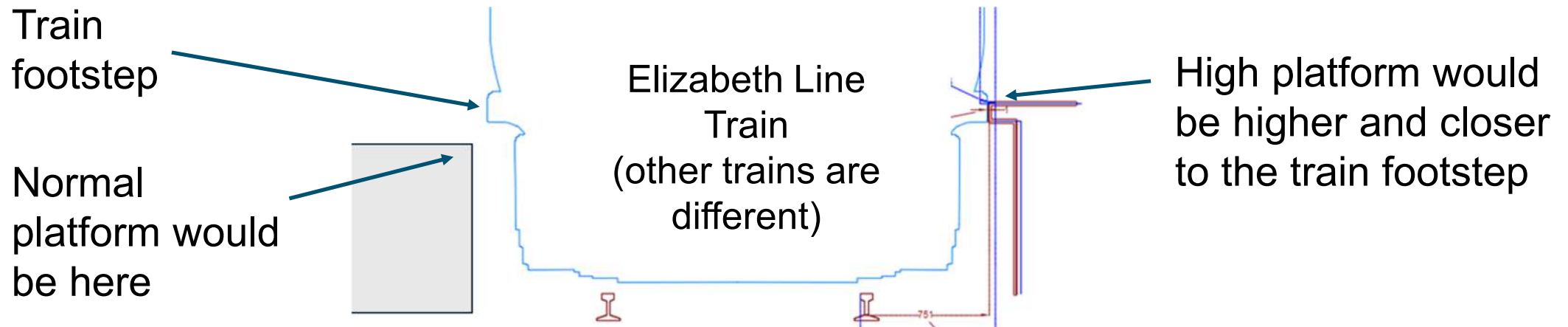
How have we defined 'level boarding'

- Level boarding will be provided to Elizabeth Line trains ONLY
- Same as Elizabeth Line central section except:
 - We will NOT provide platform edge doors.
- TfL use a more onerous definition for the Elizabeth Line:
 - Max horizontal gap: 70mm
 - Max vertical step: 25mm
- All doors desirable.
- Carriage 5 (the designated wheelchair space carriage) as a minimum.



Platform height / offset

- Platform height – Nominally 1100mm above rail (Normally 915mm).
- Platform offset – Range of 780-830mm (Normally 730mm)



- Note that trains are all slightly different shapes and sizes, and have footsteps and doors at different positions and heights.

What about non Elizabeth Line trains?

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- We are NOT providing level boarding to any other trains. Whilst we are likely to improve the situation for some, this is not a requirement of the scheme.
- Future low floor trains, designed for level boarding to standard platforms, will have a step up from train to platform.



Option selection

The designers (Aecom, Swindon) undertook option selection work.

- Options investigated:
 - Usage of mechanical gap filler as part of platform edge.
 - Usage of flexible gap fillers (Pipex/Nov and Delkor) with small negative clearances.
 - Ballasted vs slab track.

Discounted as part of process:

- Pipex/Nov flexible gap fillers
- Mechanical gap fillers

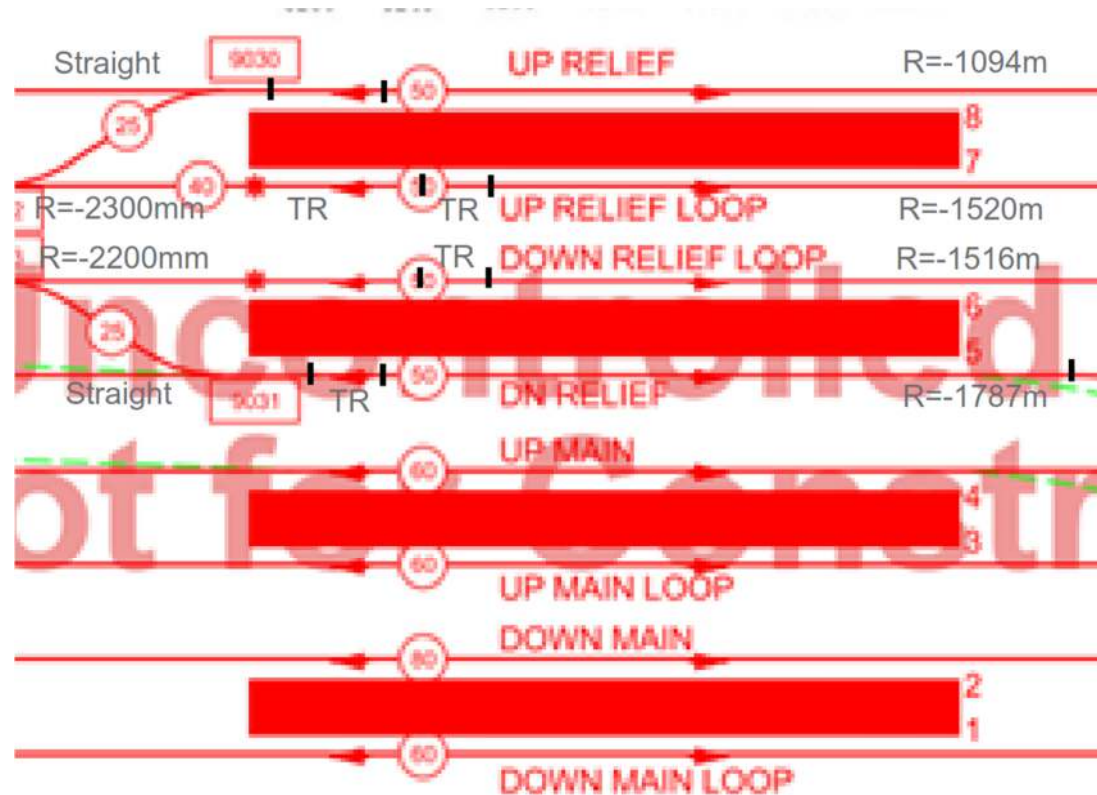


Flexible gap fillers

- Already in use at Heathrow.
- Already in use in Elizabeth Line central section
- Concerns:
 - Stepping up onto it from a low floor train
 - Maintenance / replacement requirements
 - Classification as per standards



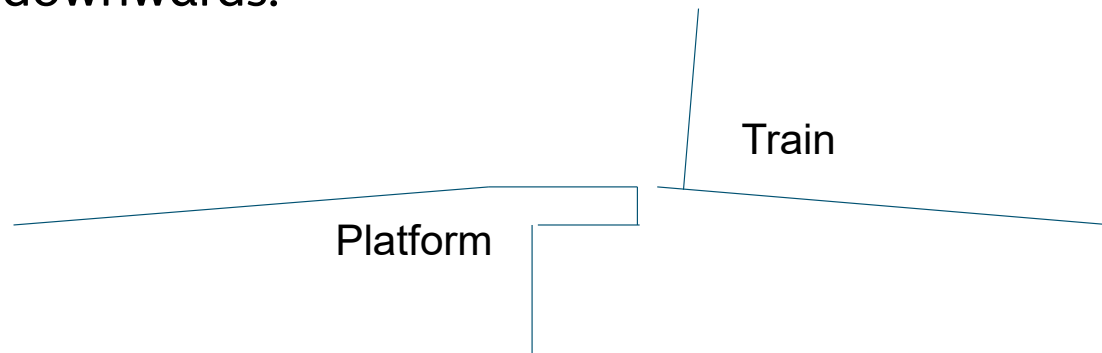
Track design



- Platforms 6 and 8 are zero cant.
- Two platforms have cant applied to assist with clearances, but still have issues with end throw.

Current solution - Gradients

- The current solution (subject to development at next stage) involves:
 - Two platforms will have their tracks fully level, and thus the train will be horizontal, with flat boarding to the horizontal platform edge.
 - Two tracks have cant applied, i.e. the track is angled such that train is tilted away from the platform.
 - The gradient of the floor in the train on one platform will be 1 in 41, and the other will be 1 in 32, both uphill towards the platform.
 - The platform will then have a flat platform edge coper stone (approx. 1m wide), and will then have a standard platform gradient of a maximum of 1 in 40, downwards.



Clearances presented in options

Train types	Ballasted (Medium fixity)	Slab (High fixity)
Elizabeth Line Class 345	Down to 0mm on P5 and 7	Min 11mm
Key current passenger services: 80x, 387, Night Riviera (GWR Sleeper, Mk 3 + 57)	Clear	Clear
Future passenger services: Low floor (GWR) Night Riviera (GWR Sleeper, Mk 5 + 91)	Clear	Clear
Standard Loco Gauge: LG1	Clear	Clear
Less frequent passenger services: 175, 180, 165/166	P5 fouls up to 5mm P7 fouls up to 8mm	Clear
Freight/Plant: W6 – W12 (Lower speed only)	P5 – 0mm P7 fouls up to 10mm	Can be cleared.

Excluded train: Class 360 (and 332)

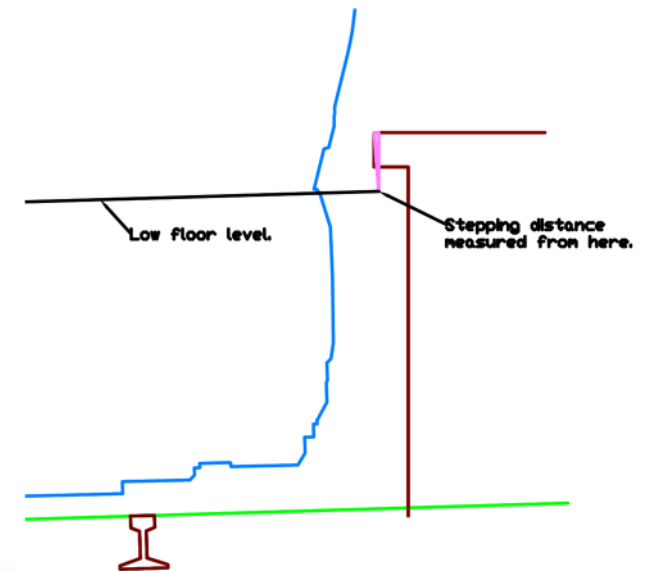
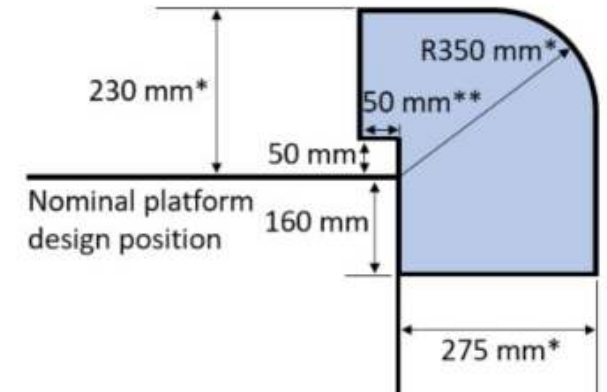
Clearances presented in options

Train types	Ballasted (Medium fixity)	Slab (High fixity)
GWR Battery train: 230	Significant fouls on P5 and P7	Significant fouls on P5 and P7
Key future Loco Gauge: LG2	P5 fouls up to 19mm P7 fouls up to 24mm	P5 fouls up to 5mm P7 fouls up to 13mm
Future Passenger Gauge: PG3	Fouls on all four platforms – 4mm to 23mm	P6&8 clear. P5 fouls up to 3mm P7 fouls up to 11mm
Mark 3 Plug Doors and Modified Footstep	P5 fouls up to 18mm P7 fouls up to 23mm	P5 fouls up to 7mm P7 fouls up to 11mm
Mark 4	P5 fouls up to 9mm P7 fouls up to 13mm	P5 fouls up to 3mm P7 fouls up to 11mm

Additional check: Will swing doors (e.g. Mk 3 carriage) hit the platform?

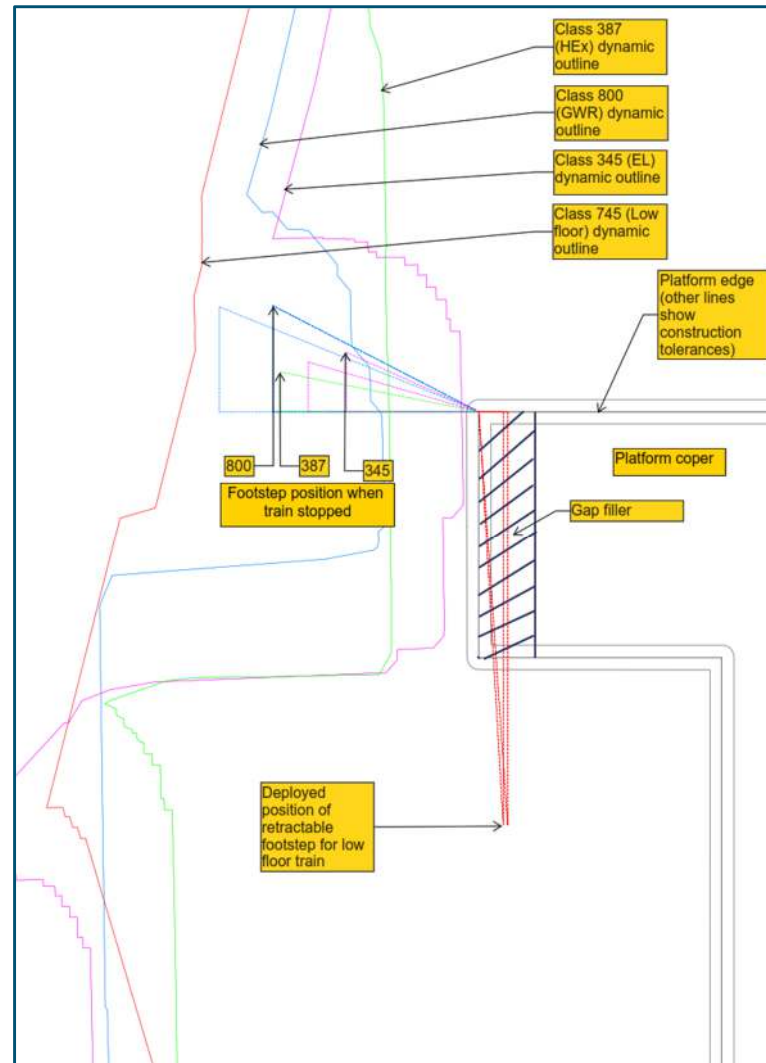
Low Floor Trains

- GWR is planning the introduction of a new fleet, using low-floor trains.
- Unusual step *down*. Approx 165-180mm.
- UK standards permit a maximum of 160mm down.
- Will form only 3-5 % of services at these platforms.



Visualisation of ballasted options – clearances and stepping

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Options evaluated

Option Headlines

	Ballasted track form (Enhanced track fixity) Lower cost, several foul clearances, lower confidence in clearance values over time	Slab track form (High track fixity) Higher cost, less foul clearances, higher confidence in clearance values over time.
Full provision of deformable gap filler to whole platform	<u>Option 1 - BF</u> ✓ Uniform platform edge – most of train has level boarding ✓ Lower cost to deliver. ✗ Low floor stock risk - step up onto gap filler ✗ Onerous maintenance requirements.	<u>Option 2 – SF</u> ✓ Uniform platform edge – most of train has level boarding ✓ Good maintainability. ✗ Low floor stock risk - step up onto gap filler ✗ Highest cost to deliver.
Partial provision of deformable gap filler – some carriages only	<u>Option 3 - BP</u> ✓ Partial level boarding achieved ✓ Low floor train risk partially mitigated, via SDO. ✓ Lowest cost to deliver. ✗ Onerous maintenance requirements.	<u>Option 4 - SP</u> ✓ Partial (but better than BP) level boarding achieved ✓ Low floor train risk partially mitigated, via SDO. ✗ Higher cost to deliver
No provision of deformable gap filler – Solid coper stone	Not a viable option. Discounted (see later slide)	<u>Option 5 - SN</u> ✓ Optimal level boarding ✓ Best for maintainability ✓ Best for confidence in longevity of clearances ✓ Low floor risk reduced - step up onto solid coper for all doors ✗ Higher cost to deliver

Outcome of option selection

- Partial gap filler to support low floor train – Not accepted.
- Ballasted track
 - Maintainer unsupportive due to very tight clearances.
 - Concerns regarding tight clearances being achieved in long term.
- Negative clearances to flexible gap filler – Not accepted.
- Selected option:
 - Slab track.
 - No gap filler.
 - Positive clearances to all required stock (via design and/or operational restriction).

Tight clearance management

- Two key questions:

1) How confident in the clearance results are we?

- Confidence in tolerances / settings
- Confidence in software itself

2) Are the tolerances used realistic?

- Installation – Track H/V/Cant (slab)
- Installation – Coper H/V
- Measurement accuracy (survey method) inc clearroute options
- Survey grid itself

Non-technical considerations

- Accessibility
 - 2-track operation – passenger expectations / over-carry
 - Mains being different height to Reliefs.
- Hazards
 - Tripping with small gaps/steps to other trains
 - Passengers used to level boarding then not having it.
- Operational
 - How to manage restrictions – Signs, timetable planning, Sectional Appendix information.

Accessibility

- Accessibility benefits are a stated aim – How do we provide it and what does this mean?
- For occasional full weekends, and frequent early/late trains, one set of tracks will be closed for maintenance. All trains will operate on one set of tracks.
 - Elizabeth Line trains will then call at standard height platforms, requiring boarding ramps.
 - Other trains will call at the high platforms, with variable stepping distances.
- Focus: Best for most users.
 - We expect approx. 95% of passengers on these platforms to be using Elizabeth Line services.
- The Accessible Transport Policy
 - Information given to passengers.
 - How operators (station / train) will manage accessibility.
 - How risks are managed.
 - How the facilities at the station are published - “Step free”

Hazard mitigations

- Different trains will have different stepping distances, and passengers may expect level boarding when not on an Elizabeth Line train.
- A variety of mitigations are being considered, but no decisions have been made at this stage. The potential mitigations being considered include:
 - On-train announcements (EL and non-EL)
 - Station announcements (Probably different between platforms and between trains)
 - On-train and on-station information posters, boards, and signage.
 - Decals on the platform surface showing where to stand for certain users, and/or warning of specific hazards in that area.
 - ‘Mind the gap’ markings.
 - Staff training,
 - Boarding ramps
 - Illumination from beneath.

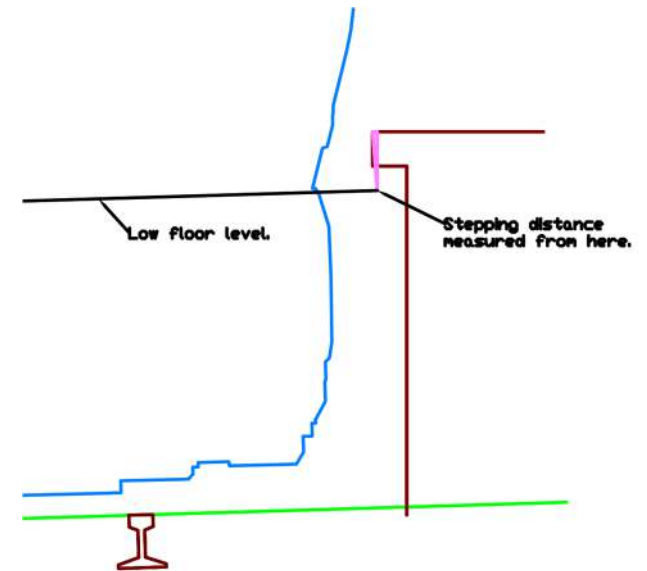


Consultation

- We have presented to and discussed with various accessibility groups:
 - NR, GWR, TfL, Elizabeth Line, Heathrow.
- We are consulting with various charities and non-railway user groups.
- We plan to reach out to other parties.

Next steps

- We are developing Approval In Principle designs for:
 - Track alignment
 - Slab track and transition arrangements
 - Revised platform arrangement
 - Retention structure between P4 and P5
 - Drainage
 - OLE
- We are assessing in detail the impact of the required revisions to:
 - Underbridges
 - UTXs/cable routes etc
 - Signalling
 - Leaky feeder cable
 - Other parts of the station etc



Questions?