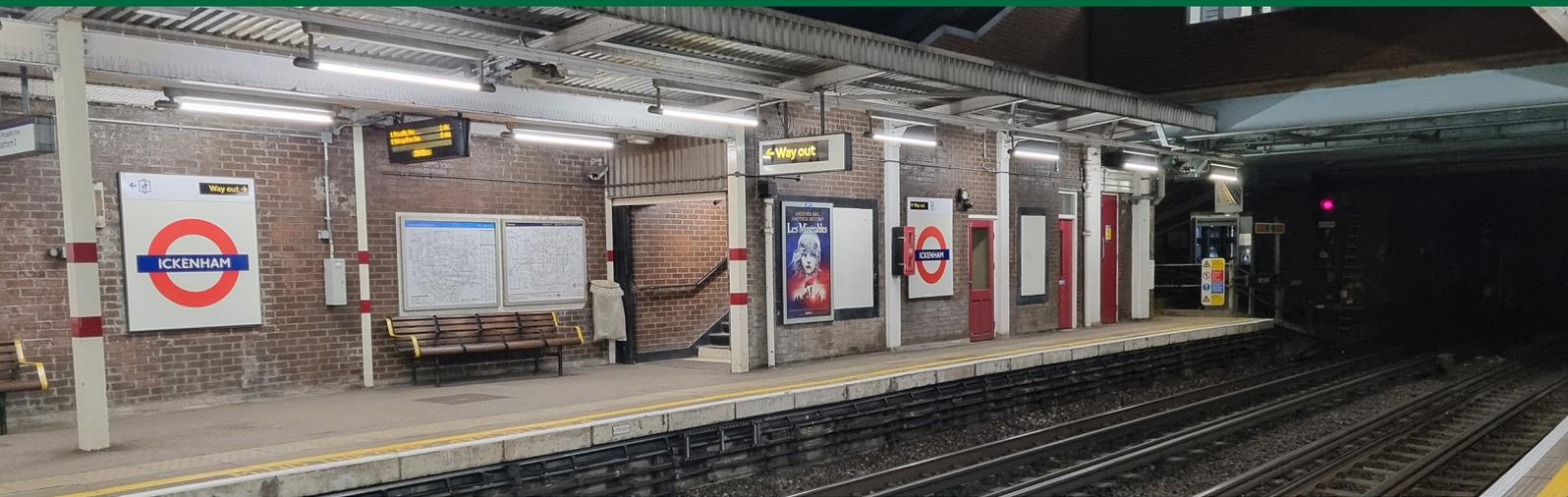




Rail Accident Investigation Branch

Rail Accident Report



Fatal accident at Ickenham London Underground station 28 March 2025

Report 02/2026
March 2026

This investigation was carried out in accordance with:

- the Railway Safety Directive 2004/49/EC
- the Railways and Transport Safety Act 2003
- the Railways (Accident Investigation and Reporting) Regulations 2005.

© Crown copyright 2026

You may reuse this document/publication (not including departmental or agency logos) free of charge in any format or medium. You must reuse it accurately and not in a misleading context. The material must be acknowledged as Crown copyright and you must give the title of the source publication. Where we have identified any third party copyright material you will need to obtain permission from the copyright holders concerned. This document/publication is also available at www.gov.uk/raib.

Any enquiries about this publication should be sent to:

RAIB
The Wharf
Stores Road
Derby UK
DE21 4BA

Email: enquiries@raib.gov.uk
Telephone: 01332 253 300
Website: www.raib.gov.uk

This report is published by the Rail Accident Investigation Branch, Department for Transport.

Preface

The purpose of a Rail Accident Investigation Branch (RAIB) investigation is to improve railway safety by preventing future railway accidents or by mitigating their consequences. It is not the purpose of such an investigation to establish blame or liability. Accordingly, it is inappropriate that RAIB reports should be used to assign fault or blame, or determine liability, since neither the investigation nor the reporting process has been undertaken for that purpose.

RAIB's findings are based on its own evaluation of the evidence that was available at the time of the investigation and are intended to explain what happened, and why, in a fair and unbiased manner.

Where RAIB has described a factor as being linked to cause and the term is unqualified, this means that RAIB has satisfied itself that the evidence supports both the presence of the factor and its direct relevance to the causation of the accident or incident that is being investigated. However, where RAIB is less confident about the existence of a factor, or its role in the causation of the accident or incident, RAIB will qualify its findings by use of words such as 'probable' or 'possible', as appropriate. Where there is more than one potential explanation RAIB may describe one factor as being 'more' or 'less' likely than the other.

In some cases factors are described as 'underlying'. Such factors are also relevant to the causation of the accident or incident but are associated with the underlying management arrangements or organisational issues (such as working culture). Where necessary, words such as 'probable' or 'possible' can also be used to qualify 'underlying factor'.

Use of the word 'probable' means that, although it is considered highly likely that the factor applied, some small element of uncertainty remains. Use of the word 'possible' means that, although there is some evidence that supports this factor, there remains a more significant degree of uncertainty.

An 'observation' is a safety issue discovered as part of the investigation that is not considered to be causal or underlying to the accident or incident being investigated, but does deserve scrutiny because of a perceived potential for safety learning.

The above terms are intended to assist readers' interpretation of the report, and to provide suitable explanations where uncertainty remains. The report should therefore be interpreted as the view of RAIB, expressed with the sole purpose of improving railway safety.

Any information about casualties is based on figures provided to RAIB from various sources. Considerations of personal privacy may mean that not all of the actual effects of the event are recorded in the report. RAIB recognises that sudden unexpected events can have both short- and long-term consequences for the physical and/or mental health of people who were involved, both directly and indirectly, in what happened.

RAIB's investigation (including its scope, methods, conclusions and recommendations) is independent of any inquest or fatal accident inquiry, and all other investigations, including those carried out by the safety authority, police or railway industry.

This page is intentionally left blank

Fatal accident at Ickenham London Underground station, 28 March 2025

Contents

Preface	3
Summary	7
Introduction	8
Definitions	8
The accident	9
Summary of the accident	9
Context	10
The sequence of events	16
Events preceding the accident	16
Events during the accident	16
Events following the accident	17
Background information	19
Analysis	24
Identification of the immediate cause	24
Identification of causal factors	24
Identification of underlying factors	37
Observations	42
The role of the safety authority	44
Previous occurrences of a similar character	45
Summary of conclusions	47
Immediate cause	47
Causal factors	47
Underlying factors	47
Additional observations	47
Previous RAIB recommendations relevant to this investigation	49
Recommendations that are currently being implemented	50
Actions reported as already taken or in progress relevant to this report	51
Recommendations and learning points	53
Recommendations	53
Learning points	55

Appendices	56
Appendix A - Glossary of abbreviations and acronyms	56
Appendix B - Investigation details	57

Summary

At around 22:30 on 28 March 2025, a passenger fell from the platform onto the track at Ickenham London Underground station. Unable to get to a position of safety, the passenger lay on the track undiscovered for around 2 minutes before being struck by an arriving train, which then stopped normally in the platform.

Following the stop, the train's brakes automatically applied as it left the station due to part of a safety system on the train coming into contact with the passenger. Subsequent investigations into the cause of this brake application led to the discovery of the passenger, around 14 metres from where they had fallen onto the track. The passenger was fatally injured.

RAIB's investigation concluded that the passenger lost their balance on the platform, causing them to fall onto the track. Staff on duty at the station were unaware that the passenger had entered the station in a vulnerable state, or that the passenger was on the track after they fell. This meant that there was no intervention that prevented trains entering and departing from the platform.

CCTV evidence suggests that the passenger was aware that a train was approaching and that they were probably attempting to move towards the platform face and out of the path of the train. However, the under-platform recess was occupied by communication cables and this meant that there was insufficient space to accommodate the passenger and to allow a train to pass without contacting them.

The train operator also did not see the passenger on the track. This may have been because they were focused on stopping their train at the correct location and monitoring the platform-train interface. The contrast between the brightly lit platform and dark track bed and the passenger's dark clothing may also have impacted the train operator's ability to see the passenger.

RAIB identified two underlying factors. The first, a probable underlying factor, is that London Underground's standards relating to under-platform recesses were not being complied with and were not consistent with each other. The second, a possible underlying factor, was that London Underground had not completed platform-specific risk assessments for most platforms on its network or identified the safety benefit of some measures intended to mitigate the risk of people falling from platforms and subsequently being struck by trains.

RAIB has made three recommendations, all addressed to London Underground. The first recommends that London Underground review its standards relating to under-platform recesses to ensure that they are effective and consistent. The second recommends site-specific risk assessments for all station platforms and the implementation of appropriate risk controls. The final recommendation relates to providing operational staff with the necessary guidance and training to safeguard people under the influence of alcohol on the London Underground network.

Two learning points have been identified. The first is how a thorough track check can be effective in preventing further train movements when a person has fallen onto the track, as was the case in this accident. The second highlights the importance of following company policy with regards to routine drug and alcohol testing following serious accidents.

Introduction

Definitions

- 1 Metric units are used in this report, except when it is normal railway practice to give speeds and locations in imperial units. Where appropriate the equivalent metric value is also given.
- 2 The report contains abbreviations and acronyms, which are explained in appendix A. Sources of evidence used in the investigation are listed in appendix B.

The accident

Summary of the accident

- 3 At 22:25 on 28 March 2025, a passenger entered Ickenham station on the London Underground network. The passenger took around 4 minutes to pass through the station, falling a number of times while walking down the staircase between the ticket hall and the platform. The passenger arrived on platform 2 at 22:29 and shortly afterwards fell from the platform onto the track.
- 4 A Metropolitan line train arrived in the platform around 2 minutes after the passenger fell onto the track. This train passed over the location where the passenger was lying.
- 5 Following a normal station stop, the train's emergency brakes automatically applied as it left the station. This was caused by the passenger coming into contact with safety equipment located underneath the last vehicle of the train (see paragraph 23). Subsequent investigations into the cause of the brake application led to the discovery of the passenger.
- 6 The passenger was fatally injured in the accident.



Figure 1: Extract from London Underground map showing location of the accident at Ickenham station (courtesy of Transport for London with RAIB annotations).

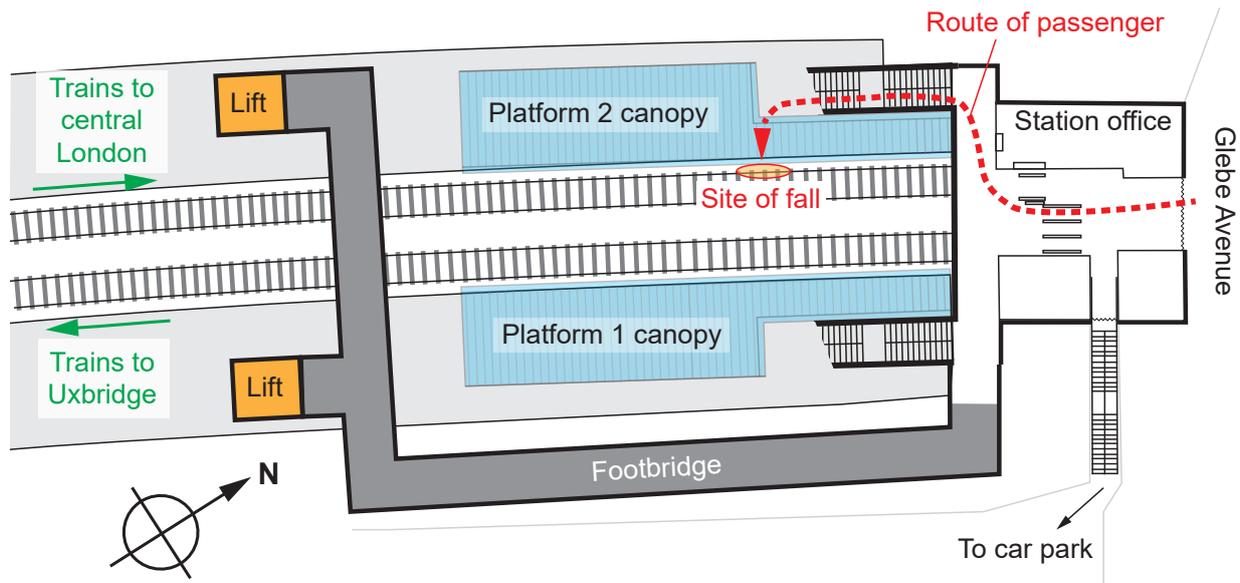


Figure 2: Plan view of Ickenham station (not to scale and not all features shown).

Context

Location

- 7 The accident occurred at Ickenham London Underground station, which is in northwest London (figure 1). Ickenham is an above-ground station on the Uxbridge branches of the Metropolitan and Piccadilly lines.
- 8 There are two platforms at Ickenham station, each accessed by separate staircases leading down from the ticket hall. There is also step-free access via a lift to each platform. Platform 2 serves eastbound Metropolitan and Piccadilly line trains, towards central London. Platform 1 serves westbound trains on both lines heading towards Uxbridge, the terminus station (figure 2). There is a recess underneath both platforms. The accident occurred on the track adjacent to platform 2.
- 9 The normal staffing arrangement at Ickenham is to have one customer service supervisor (CSS) managing the station per shift. Although a CSS is normally present at the station when it is open, London Underground does not require every station platform on its network to be staffed at all times and there was no requirement to have staff on the platforms at Ickenham.
- 10 A station control room is located within the ticket hall area. This control room includes a bank of CCTV monitors which display images from the cameras on the station. These monitors can simultaneously display the views from 8 of the 31 cameras located on the station (figure 14). The system will normally be set to cycle 4 of the 8 of the camera views, with 4 views remaining permanently displayed in the station office. The permanently displayed views typically show both staircases, the station entrance and the ticket hall. The cycling cameras typically show various views of the station's platforms. Staff would normally stop the automatic cycling of camera views in response to a specific need, such as a report of an incident. There is no requirement for station staff to continuously monitor CCTV images.

- 11 Staff located remotely from the station, such as those at the Railway Control Centre (RCC) (until recently called the London Underground control centre) or a line control room, can access a live stream from the CCTV cameras. Although some busy central London stations are monitored by the RCC during peak times to understand passenger flow, cameras at stations such as Ickenham would only normally be accessed remotely as part of incident response.
- 12 At the time of the accident, no manual or automated audio announcements were being made to platforms to inform passengers of the expected arrival of trains. Passenger information displays would have shown visual messages to this effect, although they would not have been visible to the passenger once they had fallen on to the track.

Organisations involved

- 13 London Underground is a wholly owned subsidiary of Transport for London (TfL), the operator of the Metropolitan and Piccadilly lines and owner and maintainer of the train, station and infrastructure. It employs all the staff involved in this accident.
- 14 London Underground and TfL freely co-operated with the investigation.

Train involved

- 15 The train involved was an S-Stock train, leading unit number 21056. The service was running as train 463 on London Underground's Metropolitan line. It was scheduled to depart Uxbridge at 22:27 and to arrive at Baker Street at 23:06.
- 16 S-Stock trains were introduced on the London Underground network from 2010. They are not fitted with forward or rear-facing CCTV but are fitted with on-train data recorders (OTDR). Among other things, the OTDR (sometimes known as a 'black box') records data such as train speed, and the operation of safety systems and driving controls, including brake demands.
- 17 Trains on this section of line are manually driven by train operators. In addition to driving the train, train operators undertake platform despatch duties with assistance from a CCTV system. This uses station-mounted cameras which provide a view of the platform edge and side of the train to a bank of monitors situated within the train's cab. Other sections of the Metropolitan line are fitted with automatic train operation (ATO), which normally controls train speed and the stopping point of the train without intervention from the train operator. When in ATO mode, train operators are still responsible for opening and closing the train's doors and carrying out train despatch duties.
- 18 There is no evidence that the condition of the train contributed to the accident.

Traction power supply

- 19 On the London Underground network power is supplied to trains through a fourth rail system (figure 3). This uses two conductor rails: a negative return rail, situated between the two running rails, and a positive supply rail, located outside the running rails. Shoe gear on the train connects to these conductor rails and powers the train. This section of the line is supplied with electricity at a nominal 630 volts DC (-210/+420 V relative to earth). The power supply arrangements at Ickenham follow the normal practice of the positive supply rail being situated on the side furthest from the platform to reduce the risk of a person accidentally contacting it.

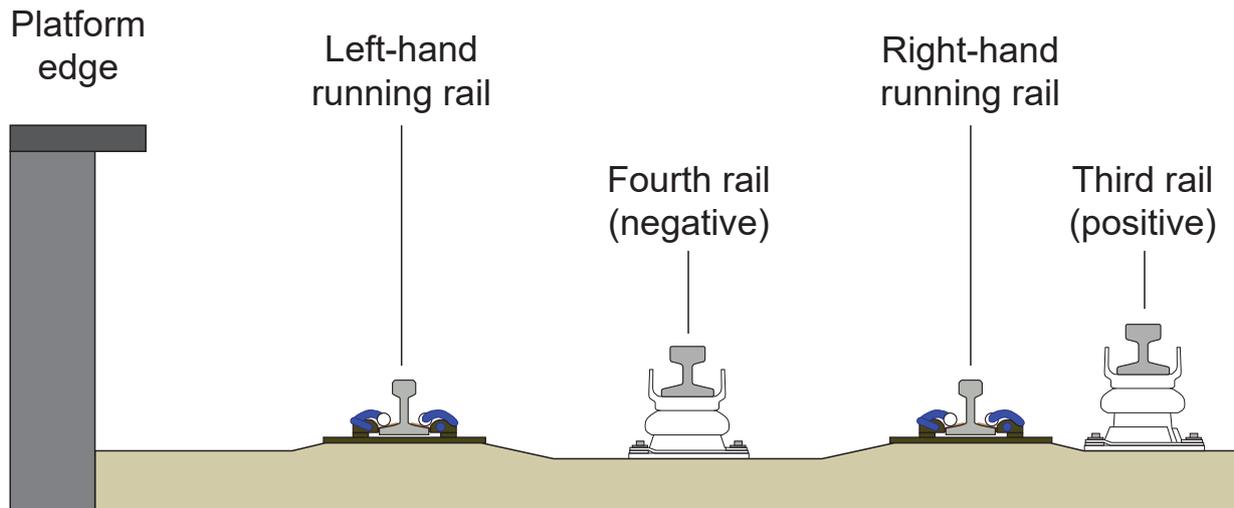


Figure 3: Diagram showing a typical fourth rail traction power supply arrangement.

Signalling

- 20 As trains operating through the section of railway running through Ickenham station are manually driven, colour light signals are provided to control train movements. Train operators are trained to respond to these signals. Signal MUX 743 gives trains authority to proceed eastbound beyond Ickenham. The 'X' indicates that it is the last automatic signal before entering a controlled area. Automatic signals normally automatically clear to allow the passage of trains, provided that the signalling system shows no train in the section ahead.
- 21 Signal MUX 743 is an approach released signal. This means that the signal will not automatically display a proceed aspect even if the section ahead is clear. This is because the signalling system interlocking also requires the train to have been detected within the platform limits by occupying a track circuit for 15 seconds. This time delay is designed to ensure that all trains reduce their speed to a near-stop before the signal is reached and means that train operators always approach this signal when it is displaying a red (stop) aspect.
- 22 When signal MUX 743 is displaying a red aspect, an on-track device known as a trainstop, has its arm raised (figure 4). If the signal is displaying a green (proceed) aspect, then this arm is maintained in a lowered position (figure 5).
- 23 If a train passes the trainstop arm in the raised position, then it will engage with a train-mounted device known as a tripcock (figure 6). If a tripcock is activated in this way, for example, if a red signal is passed, then the train will automatically make an emergency brake application. There is a tripcock under the train on the front right side (in the direction of travel). The tripcock for the rear driving cab is located at the rear of the train on the left side in the direction of travel. Only the front tripcock will contact a raised trainstop during normal operational service.



Figure 4: Trainstop associated with signal MUX 743 with its arm in the raised position.



Figure 5: Trainstop associated with signal MUX 743 with its arm in the lowered position.



Figure 6: A tripcock on an S-Stock train.

People involved

- 24 The passenger who was fatally injured in the accident had finished work at a nearby pub shortly before the accident and was taking their normal journey home (see paragraph 29).
- 25 The late shift CSS, who was on duty when the passenger entered the station, had worked for London Underground for 3 years. They had previously been a customer service assistant (CSA) at the Russell Square station group for 18 months. They started a secondment as a CSS on the Uxbridge station group, which includes Ickenham station, in July 2024. All the late shift CSS's relevant competence assessments were up to date.
- 26 The night shift CSS, who was on platform 1, but not booked on for duty at the time the passenger fell from the platform, had worked for London Underground for 18 years. They had been a CSA on five different station groups for 15 years before being promoted to CSS in 2022. All the night shift CSS's relevant competence assessments were up to date.
- 27 The operator of train 463 had worked for London Underground for 11 years. They had been a CSA with London Underground for a year, before becoming a train operator around 10 years before the accident. Although the train operator had moved depots during this time, the driving routes they covered always included passing through platform 2 of Ickenham station. All the train operator's relevant competence assessments were up to date.

External circumstances

28 At the time of the accident it was dark. At 22:00, a nearby weather station, located at RAF Northolt, approximately 1 mile south-east of Ickenham station, recorded that it was 6.7 degrees Celsius, with a light to gentle breeze. During site visits following the accident, RAIB noted low ambient noise levels outside the times when trains were arriving or departing the station. The darkness might have played a role in the accident (see paragraph 112).

The sequence of events

Events preceding the accident

- 29 The passenger finished work at a nearby pub at around 22:00, then, according to a witness account, drank a glass of wine following their shift. The passenger was captured on CCTV leaving the pub at 22:16, apparently steady on their feet.
- 30 The passenger was first captured on CCTV at Ickenham underground station at 22:25, indicating that it took the passenger around 9 minutes to complete the walk from their place of work to the station. Navigation applications and a reconstruction of the journey undertaken by RAIB indicate that a person can complete this walk in around 7 minutes at an average pace, which would indicate the passenger was not walking very slowly.
- 31 As the passenger arrived at the station entrance, CCTV shows that they appear to lose their balance and fall back against guard railings which separate the raised pavement and the road outside the station.
- 32 The passenger regained their balance and moved through the station ticket hall and through the ticket barriers, passing two station office windows at around 22:25:31. At this point the late shift CSS was in the ticket office, and the passenger does not appear to be behaving in a way that would have drawn any attention.
- 33 CCTV shows that the passenger reached the top of the stairs providing access to platform 2 at 22:25:47. As they reached the top of the stairs, they passed a member of the public who was coming up. The passenger fell on the stairs for the first time at 22:26:01. The passenger fell five more times and took nearly 4 minutes to descend the stairs, before arriving on the platform at 22:29:45.
- 34 During this time, the night shift CSS arrived on a westbound train, onto platform 1, at 22:29:17 and immediately started walking south along platform 1 away from the station stairs and lift (figure 2).
- 35 As the passenger reached the bottom of the staircase, a second member of the public arrived at the top and waited there for a short time before leaving the station.

Events during the accident

- 36 Almost immediately after arriving on the platform at 22:29:45, CCTV shows that the passenger staggered backwards towards the track. After an apparent attempt to regain their balance, the passenger fell backwards over the edge of the platform at 22:30:05. The passenger landed on the track perpendicular to the platform with their head close to the negative rail, and their feet close to the platform (see paragraph 93). Between 22:30:16 and 22:30:38, CCTV shows that the passenger reached up towards the platform edge.

- 37 By 22:30:16, CCTV shows that the night shift CSS walked back north along westbound platform 1. They were walking towards the station stairs and lift, and facing the passenger, who was at this time still on the track adjacent to the opposite platform (eastbound platform 2), although around 97 metres away.
- 38 At 22:31:09, CCTV images appear to show that the passenger looked towards the direction of approaching eastbound train 463. The passenger then moved themselves and their belongings towards the under-platform recess built into the platform face. At 22:31:39 the passenger disappeared from the view of the CCTV system, as they were close to the platform face.
- 39 The night shift CSS, unaware the passenger was on the track, reached the lobby of the platform 1 lift tower at 22:31:20 and was in the lift by 22:31:30.
- 40 CCTV shows that the train entered platform 2 at 22:31:39. The train passed the location where the passenger disappeared from the CCTV camera view at 22:31:50 while travelling at around 11 mph (18 km/h).

Events following the accident

- 41 The train came to a stand in the platform at 22:31:56 and the train operator completed normal platform duties, including checking that the train doors had correctly closed, and the signal ahead was showing a proceed aspect, before departing at 22:32:28. Nobody boarded or alighted from the train during the station stop.
- 42 At 22:32:55, the front of the train stopped around 190 metres outside of the station due to an activation of the train's rear tripcock (paragraph 23). The train operator reported this unexpected event to the line controller who gave the train operator permission to reset the tripcock and continue forward. Tripcocks are reset from the leading cab on S-Stock trains so there was no need for the driver to walk through to the rear of the train.
- 43 The night shift CSS arrived at the station office at 22:33:23 and started a handover with the late shift CSS. The booked handover time is 23:00 but there is a local agreement that staff can handover around 30 minutes early.
- 44 Having reset the tripcock, train 463 departed at 22:34:46. The full length of the train had already passed over where the passenger was lying by the time the tripcock brought the train to a stand. This means that the resetting of the tripcock and departure of the train had no bearing on the consequences of the accident.
- 45 During the departure of train 463, the passenger was moved to a position 14 metres from where they first fell, in an area of the track close to the conductor rail transition (where the positive conductor rail location changes to being located to the left of the running rails – paragraph 19). This was not alongside an area of the platform which is normally accessible to station staff.
- 46 At 22:36, the line controller instructed the train operator of the next eastbound service to arrive at Ickenham, train 471, to approach and depart from Ickenham station at a speed no greater than 10 mph (16 km/h) and to look for obstructions on the track.

- 47 The handover between the late shift CSS and the night shift CSS was interrupted by a phone call from the line controller requesting that they check the track following reports of a train's rear tripcock being activated. The two CSSs left the office together at 22:38:00, with the late shift CSS leaving the station to go home, and the night shift CSS going to platform 2 as requested. On arriving at the platform, the night shift CSS looked as far beyond the platform as was possible from a position of safety, leading them to discover the passenger on the track at 22:39:37.
- 48 Although carrying a radio, the night shift CSS did not use it. Witness evidence was that they forgot that they had a radio with them, and that they instead hurried back to the station office to call the line controller. CCTV shows that the CSS arrived at the door of the office at 22:40:01. The call to the line controller was logged by the communications system at 22:40:48. A 'code red', instructing train operators to stop their trains immediately, was issued by line control at 22:41:02, and at 22:41:47 a request was made to the electrical controller to switch off the power to the conductor rails, which included those at Ickenham station. In response to the code red instruction, the operator of train 471, approaching Ickenham platform 2, reported to the line controller that they stopped the train around 300 yards (274 metres) before reaching the platform.
- 49 Emergency services were called to Ickenham station by London Underground. The first responding service to arrive was the London Fire Brigade, which arrived at 22:54:26, followed by London Ambulance Service at 22:58:13, and British Transport Police at 22:59:29. The line reopened with train services non-stopping at Ickenham at 23:49, with the station reopening at 00:05 on 29 March 2025.

Time	Passenger	Late shift CSS	Night shift CSS
22:25:31	Moved through the ticket hall	In the station office	Not yet arrived at the station
22:26:01 to 22:29:45	In difficulty on the stairs	In the station office	Arrived platform 1 (22:29:17) then walking south along platform 1
22:30:05	Fell from platform 2	In the station office	Walking south along platform 1
22:30:05 to 22:31:50	On the track before arrival of the train	In the station office	Walking north along platform 1 (22:30:16 to 22:31:20) Waiting for lift (22:31:20 to 22:31:30)
22:31:50	Struck by arriving train	In the station office	Walking from the lift to station office
22:33:23	On the track	In the station office	Arrived station office
22:39:37	Discovered at track level	Finished duty and left the station	On platform 2

Table 1: Timeline of movements.

Background information

Construction and modifications to Ickenham station

- 50 Ickenham station first opened on 25 September 1905 as part of the Metropolitan Railway's extension from Harrow-on-the-Hill to Uxbridge. At the time of initial construction, the platforms were made of wood and built to accommodate 3-car trains (figure 7).

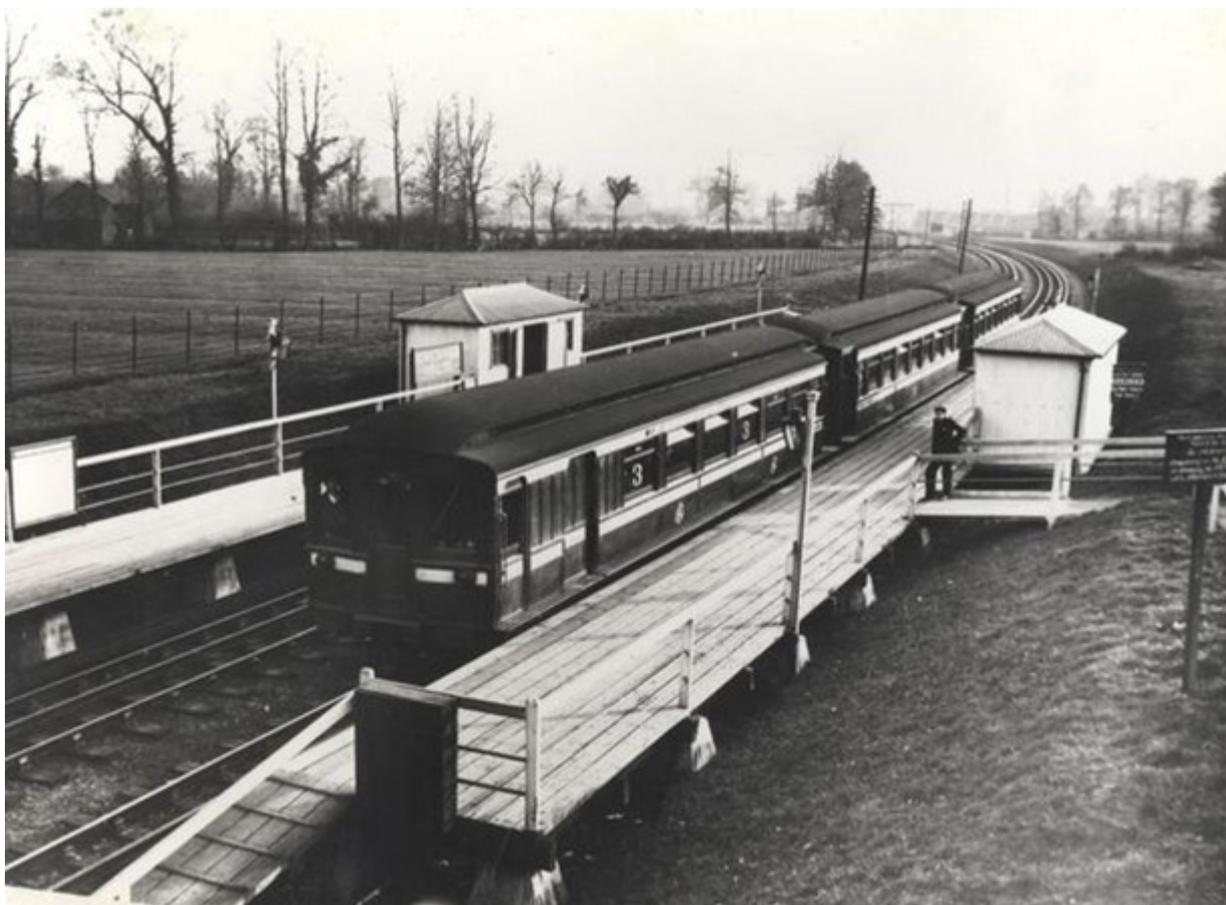
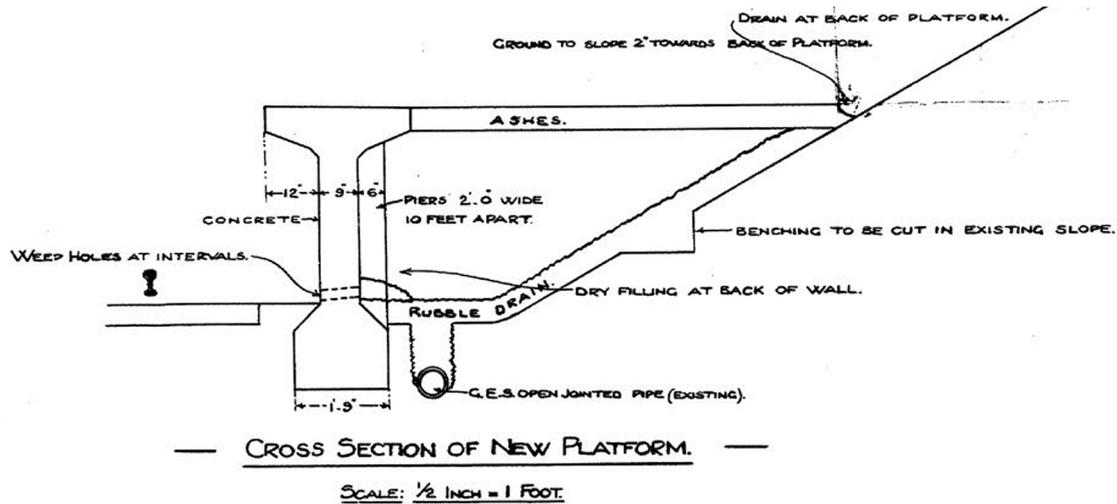


Figure 7: Ickenham station platforms in 1905 (courtesy of the London Transport Museum).

- 51 The platforms were rebuilt in July 1922 to accommodate longer trains. This work also created the basic platform profile which remained at the time of the accident. As part of the rebuild, a set of design drawings were produced which showed the platform being constructed with a 12-inch recess (figure 8). The 'as built' drawing filed in November 1924 showed that, as part of the construction, a single 'signal wire' had been fitted to the under-platform recess of platform 2 (figure 9). At this time, there was no specific restriction on fitting cables in under-platform recesses.



ENGINEER'S OFFICE,
METROPOLITAN RAILWAY,
BAKER ST. STATION, N.W.1
31. 5.22

Figure 8: Design drawing for platform 2 at Ickenham station (courtesy of TfL).

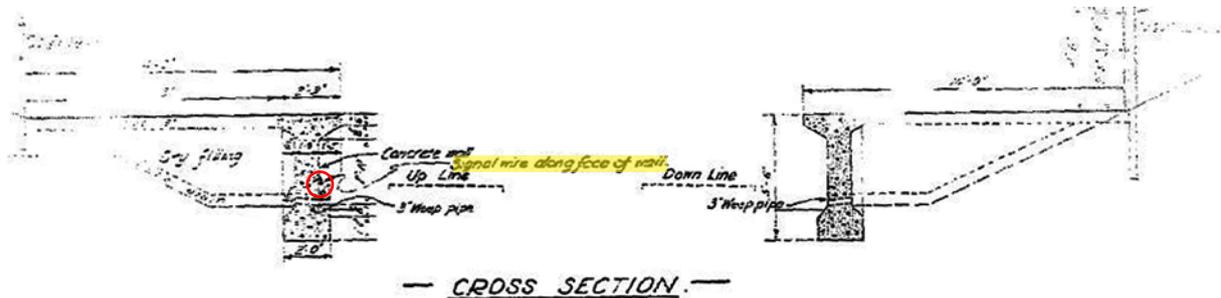


Figure 9: As-built drawing for platform 2 at Ickenham station (courtesy of TfL with RAIB annotations).

- 52 The first available photograph RAIB was able to locate of the rebuilt platform showed that, by April 1934, the signal wire shown on the 1922 drawing was not present and there were no cables in the under-platform recess of platform 2 (figure 10). This might have been in response to the change in guidance with regards to obstructions (see paragraph 57) or connected to the change in signalling system to electrically controlled colour light signals in the 1930s, which would have presented an opportunity to run the associated electric cables away from the recess.
- 53 By July 1958, a photograph of the station (figure 11) shows a substantial cable run had been installed in the under-platform recess of platform 2. Cable runs of a similar appearance can also be seen in a photograph from 2001 (figure 12). This is representative of the current status of the recess.
- 54 The construction of the station building between 1970-71 saw further cable runs being fitted at platform height behind the area of the platform accessible to passengers.



Figure 10: Ickenham station platforms in 1934 (courtesy of the London Transport Museum).



Figure 11: Ickenham station platforms in 1958 (courtesy of the London Transport Museum).



Figure 12: Ickenham station platforms in 2001 (courtesy of the London Transport Museum).

History of the requirements for under-platform recesses

- 55 In May 2015, the Rail Safety and Standards Board (RSSB), an organisation owned by the companies forming Britain's mainline rail industry,¹ published a report following a research project which looked at the purpose and origins of under-platform recesses. This report was titled 'T1062-01 Platform Recess - Review of Requirements' and sought to improve the understanding of the under-platform recess area, including design requirements to help inform the mainline railway platform-train interface strategy.
- 56 The earliest reference the project could find to an under-platform recess was contained within an annotated draft for the 1902 version of the requirements of The Board of Trade² in its publication 'The Opening of Railways'. This required '*The edges of platforms to overhang not less than 12 inches*' (305 mm).
- 57 This requirement was carried forward into the 1928 Ministry of Transport publication 'Railway Construction and Operation: Requirements for Passenger Lines and Recommendations for Goods Lines' (sometimes referred to as the Blue Book) which required:

'The edges of the platforms to overhang not less than 12 inches, and the recess so formed to be kept clear so far as possible of permanent obstruction. A special recess may be necessary for the accommodation of signal wires, cables, etc.'

This requirement for a 12 inch (300 mm) recess to be kept clear as far as possible was also present in the 1950 edition of the Blue Book, which contained specific requirements concerning underground railways. A 1977 partial update of the 1950 edition, which dealt with structural and electrical clearances, also repeated this requirement and allowed for a special recess for signal wires and cables.

¹ London Underground is an affiliate member of RSSB.

² The government department then responsible for railway transport. This subsequently moved to the Ministry of Transport.

- 58 The 1902 and 1928 requirements would have been applicable to the Metropolitan Railway (the predecessor to the London Underground on this section of the network) when Ickenham station was first built and then rebuilt (paragraphs 50 and 51). The 1950 edition of the Blue Book would have directly applied to London Underground.
- 59 In 1996 HM Railway Inspectorate (then the safety regulator for railways in Great Britain) replaced the Blue Book with 'Railway Safety Principles and Guidance'. Part 2B of this guidance stated with respect to platforms (including those on underground stations) that '*A 300 mm wide recess should be formed beneath the platform coping and should be kept clear of cables and other obstructions to provide an emergency refuge.*' Railway Safety Principles and Guidance remained in force until 2005.
- 60 London Underground and the mainline railway in Great Britain currently require a 300 mm under-platform recess, which is required to be kept free of obstructions. This equates to 12 inches, aligning with historic requirements and guidance (see paragraphs 95 and 113).

Analysis

Identification of the immediate cause

61 The passenger fell from the platform and was subsequently struck by train 463.

- 62 Station CCTV cameras captured the passenger falling from platform 2 and shortly afterwards moving towards the under-platform recess (paragraph 38). CCTV also captured the arrival and departure of train 463 while the passenger was at track level (paragraph 40).
- 63 Following the subsequent departure of train 463, the passenger was discovered on the track by the night shift CSS, having been moved around 14 metres from where they first fell (paragraph 47).

Identification of causal factors

- 64 The accident occurred due to a combination of the following causal factors:
- a. The passenger lost their balance and fell from the platform (paragraph 65).
 - b. There was no intervention that prevented trains entering and departing from the platform (paragraph 71).
 - c. The passenger was struck by the train (paragraph 88).

Each of these factors is now considered in turn.

Fall from the platform

65 The passenger lost their balance and fell from the platform.

- 66 CCTV captured the passenger's movements through the station, with their balance appearing to worsen from the ticket hall to the platform. CCTV also captured the passenger staggering once on the platform, and trying to regain their balance, before falling backwards off the platform and onto the track (paragraphs 36 and 62).

The passenger's loss of balance

- 67 Witness evidence was that the passenger was in generally good health and didn't suffer from any mobility problems, or sight or hearing impairments. While the possibility that the passenger suffered a medical episode which caused a loss of balance or consciousness, or which prevented them from standing up once on the track, cannot be discounted, the post-mortem examination report concluded there were no previous medical conditions of relevance.
- 68 The toxicology report produced as part of the post-mortem investigations recorded that the passenger had 282 mg/dL of ethanol in their urine and 265 mg/dl in their vitreous fluid (which is more reflective of blood alcohol content than urine). The toxicology report described the effect of this level of alcohol as being *'associated with confusion, grossly impaired motor function, reduced awareness and reduced reflexes' and demonstrates 'profound intoxication'*.

- 69 The toxicologist concluded that the difference between the levels of ethanol detected in the urine and the vitreous fluid indicated that the alcohol had been consumed shortly before the passenger died and that it had not all been absorbed into the bloodstream. There were no other substances detected in the toxicology report which may have affected the passenger's balance and co-ordination.
- 70 The level of alcohol reported, and the fact that it was still being absorbed, may explain why CCTV footage shows the passenger experiencing increasing difficulty with their balance and co-ordination between leaving work and falling from the station platform.

Opportunities to intervene

71 There was no intervention that prevented trains entering and departing from the platform.

- 72 London Underground does not require CSSs to constantly observe CCTV images displayed on monitors in station offices. This is because a CSS will be required in the course of their duties to undertake tasks which will take them away from the station office or which requires them to be looking elsewhere within the office. The cameras can be set up to the preference of a CSS and the way in which cameras are set up is not recorded. Witness evidence was that, at Ickenham, cameras were routinely set up in a standard way (paragraphs 10 and 84) and were set up in this way at the time of the accident.
- 73 CCTV shows that the passenger moved through the ticket hall and ticket barriers, passing the station office windows, at around 22:25:31 (paragraph 32). The passenger entered the stairs giving access to platform 2 at 22:25:47. Witness evidence indicates that the late shift CSS was in the ticket office preparing to handover to the night shift CSS at this time.
- 74 At Ickenham station office there are two windows providing views into the ticket hall. One window overlooks the gate line, and the other overlooks part of the route to the stairs giving access to platform 2 (figure 13). At the time the passenger moved through the ticket hall, CCTV images show the late shift CSS's hands are engaging with a touch screen monitor which controls opening and closing of the ticket gates (this monitor is shown in figure 13). Witness evidence was that the CSS did not notice the passenger at this point. However, CCTV shows that the passenger was not behaving in a way that was likely to draw the late shift CSS's attention had they been looking out of the control office at the time (paragraph 32).
- 75 As the passenger moved into the stairwell giving access to platform 2, CCTV images show that their ability to stand became significantly impaired. It took the passenger nearly 4 minutes to descend the flight of 28 stairs and they fell 6 times during this time (paragraph 33).
- 76 Images from the CCTV camera capturing the staircase that the passenger was struggling to navigate were fed back to the station office, as were images of platform 2 (figure 14 illustrates this). However it is not possible to say which images were being displayed on the monitors within the office (see paragraphs 10 and 84).



Figure 13: Inside Ickenham station office showing the window to the ticket hall (A) and the route to platform 2 (B).



Figure 14: Typical view available from the CCTV cameras at Ickenham station. Relevant staircase bottom right.

- 77 Between the time the passenger moved past the station office window until 22:27:46, CCTV images intermittently show the late shift CSS in the station office near to window A (figure 13), and therefore near the CCTV monitors. The passenger fell three times in this period. After this point, the late shift CSS is not seen again on CCTV before the night shift CSS arrives, by which point the accident had already occurred. Witness evidence is that the late shift CSS was still preparing to hand over to the night shift CSS and that they were tidying the office and writing a handover note around this time. Data from the personal mobile phone belonging to the late shift CSS shows it was not being used during the time the passenger was on the station.
- 78 As the passenger reached platform 2, a lift repair contractor was captured on CCTV walking through the ticket hall. The contractor had been working at the upper lobby of the lift to platform 2 (figure 2), from where it is not possible to see down onto the platform. The lift repair contractor is captured on CCTV waving to someone in the ticket office through the office door hatch between 22:29:45 and 22:29:48 while on route to their van. This occurred shortly before the passenger fell from the platform at 22:30:05. Since the hatch must be physically held open, RAIB has concluded that the late shift CSS must have been in the office doorway holding it open around the time of the fall. When positioned in the office doorway, it is not possible to see the CCTV monitors due to a privacy wall between the doorway and bank of monitors (figure 15).
- 79 Witness evidence was that when the night shift CSS arrived in the ticket hall (which CCTV images show was at 22:33:09), the late shift CSS had returned to the front office near to the windows and CCTV monitors.

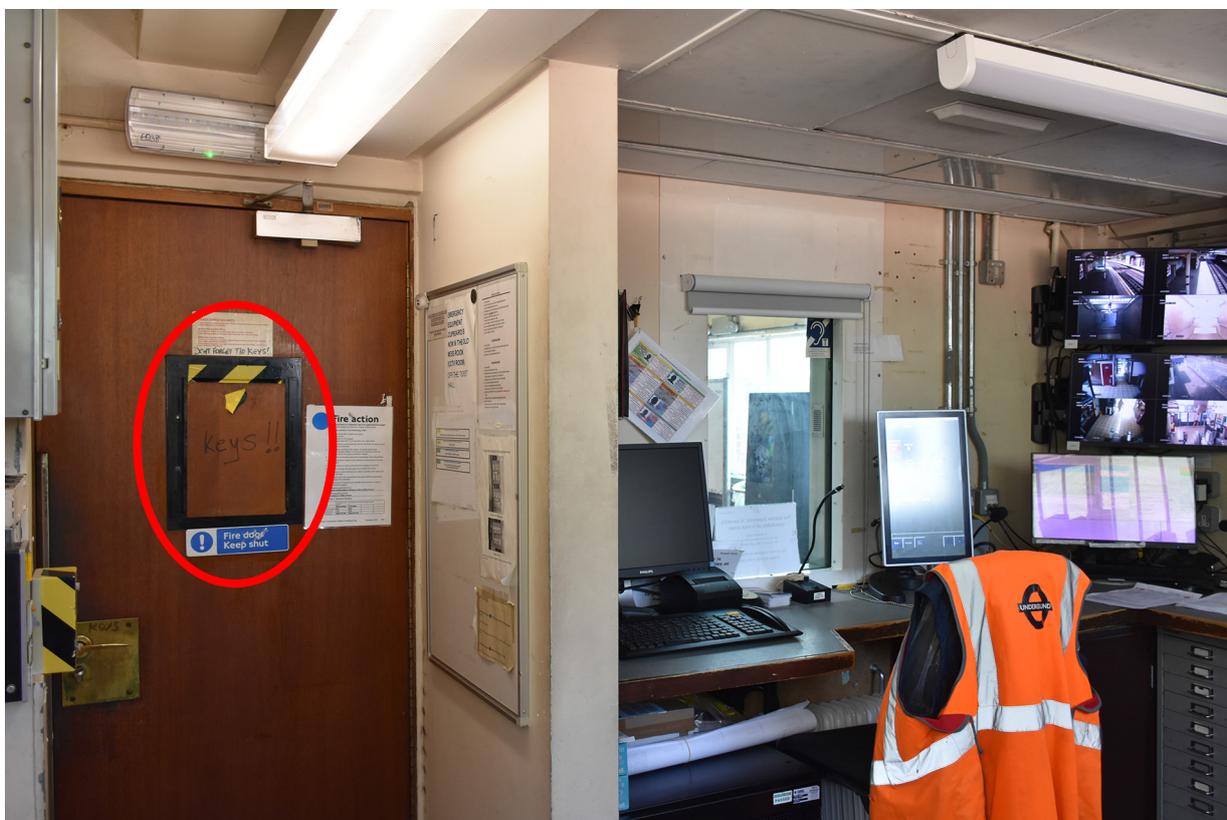


Figure 15: The door to the station office from the inside (hatch highlighted).

- 80 At the time the passenger was struggling to maintain their balance in the stairwell there were two members of the public who may have become aware of them (paragraphs 33 and 35). However, there was no evidence that any reports were made to London Underground staff about the passenger falling by these other passengers.
- 81 Station staff duties include a requirement to carry out a security check covering the platforms and ticket hall. The focus of these security checks is to look for issues such as insecure doors and unattended luggage. At the time the passenger fell from the platform, the night shift CSS was on platform 1 undertaking a security check. They were around 97 metres away from the passenger and were walking away with their back to them.
- 82 The night shift CSS was not booked on for duty at the time they undertook this check. This was because it was the night shift CSS's normal practice to arrive on a westbound train into platform 1 and to complete the check of that platform before going to the station office to book on for duty. CSSs are not permitted to use lifts while lone working due to the risk of becoming trapped, so undertaking the check at this point enabled the CSS to use the lift from platform 1, as was their preference, rather than take the stairs. The night shift CSS was on platform 1 at the time the passenger was on the track.
- 83 By 22:30:17, the night shift CSS is seen on CCTV walking north, back along the platform towards the passenger. The night shift CSS does not get closer than 30 metres to the passenger on the track before taking the lift to the ticket hall. At the place where the CSS was waiting for the lift, their view of passenger's position on the track adjacent to the opposite platform was hidden by the lift tower (figure 16). The night shift CSS was using earphones from the time they had arrived at Ickenham station and therefore would not have been able to hear any noise the passenger may have been making. CSSs are not permitted to use earphones while on duty, but at this time, the CSS had not booked on for duty (paragraph 82).

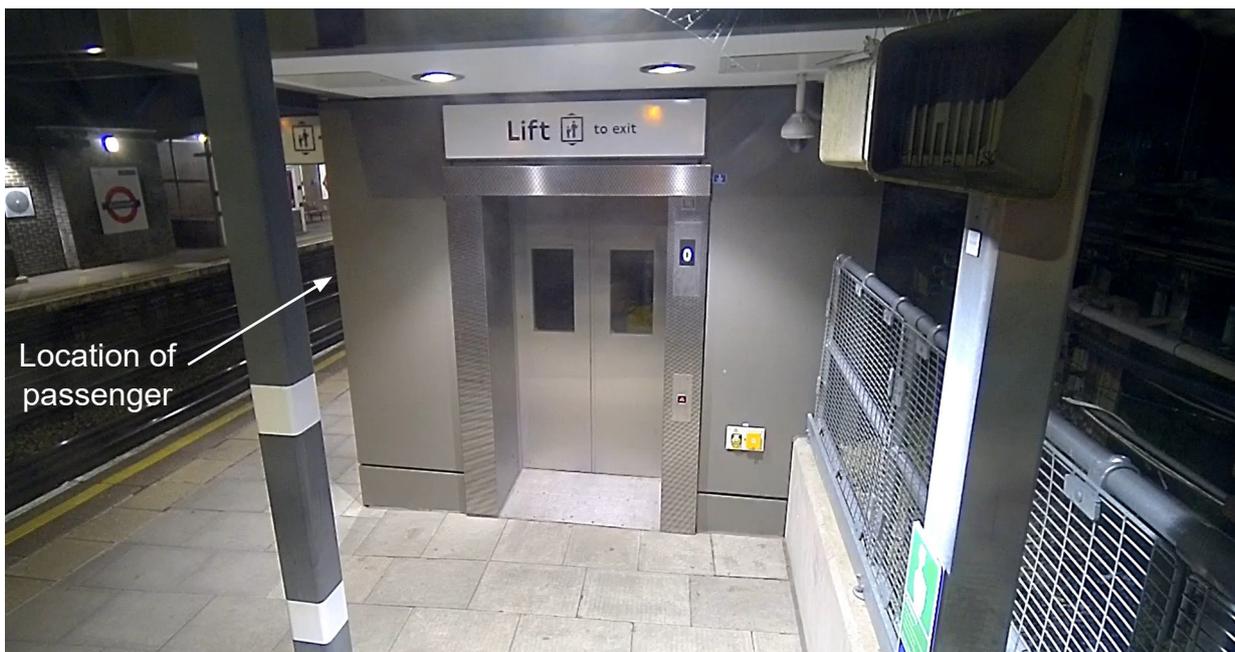


Figure 16: CCTV image showing the lift tower obstructing the view towards the area of the track where the passenger fell (courtesy of TfL with RAIB annotation).

Visibility of the passenger on CCTV

- 84 There are two CCTV cameras which cover the area of track next to platform 2 onto which the passenger fell. Only one of these shows a good quality image. Although there is no documented requirement to set up the station CCTV cameras in a particular way, at least one of these cameras was normally displayed on the monitor bank which is set to scroll (paragraphs 10 and 72). There is no record of the configuration of the CCTV monitor bank on the night of the accident and so it is not possible to say what images were being displayed, and which images were set to scroll.
- 85 While the passenger would have been visible in CCTV images for around 92 seconds, the images may have only been presented on the screen in the station office for half of that time if the CCTV views were configured to scroll. Once the passenger moved towards the under-platform recess, 11 seconds before the arrival of the train, they went out of view of the CCTV system.
- 86 When the passenger was at track level they would have been difficult to see on the CCTV images. This was because they were wearing dark clothes and were against the dark background of the track, both of which were also partly in shadow from platform area lighting. This meant the passenger on the track may not have contrasted sufficiently to draw the late shift CSS's attention to them on the CCTV monitor had the CSS been looking at the monitor at that time (figure 17).
- 87 Another factor affecting the visibility of the passenger on the CCTV images was that the size of each CCTV image presented on the monitors visible to the CSS was 190 mm x 145 mm. This means that the passenger would have been shown as no larger than 30 mm while at track level, further increasing the difficulty in identifying the passenger. If the CSS had seen the passenger on the track, it might have been possible for them to stop train movements depending on when the passenger was seen.

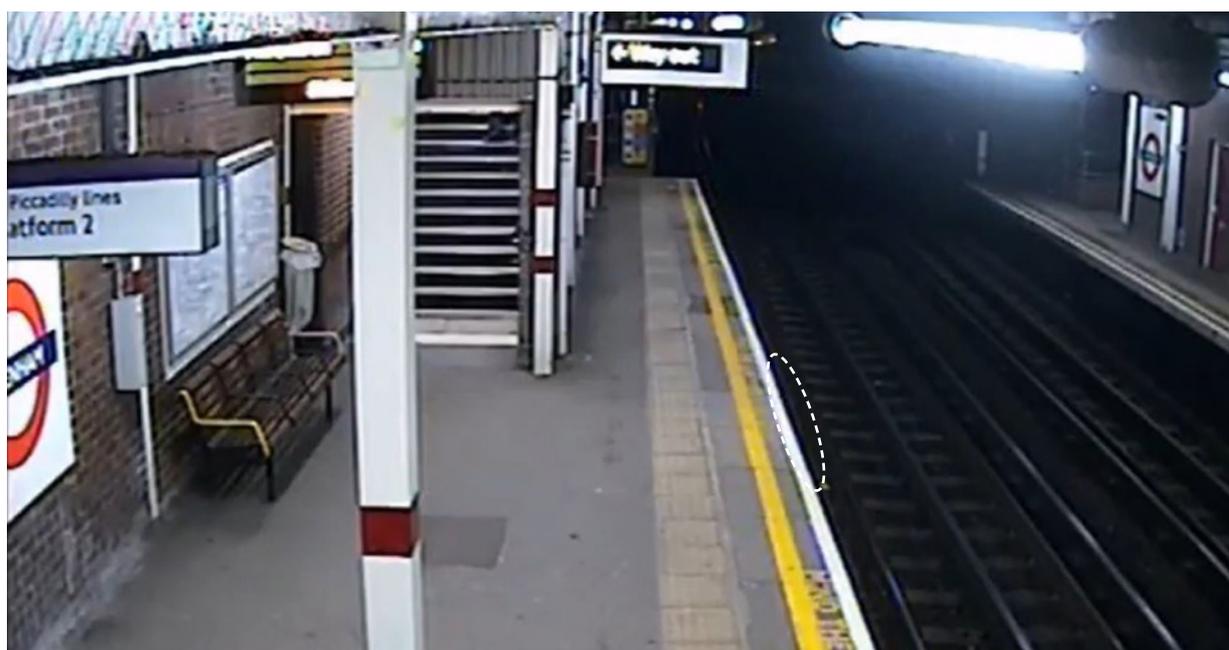


Figure 17: The better of the two camera views showing the track adjacent to the platform 2 staircase. Location of where the passenger fell marked by dotted white circle (courtesy of TfL with RAIB annotation).

The train striking the passenger

88 The passenger was struck by the train.

89 This causal factor arose due to a combination of the following:

- a. The passenger was unable to move out of the path of the train before it passed (paragraph 90).
- b. The train operator did not see the passenger on the track as they drove the train into the platform (paragraph 104).

Each of these factors is now considered in turn.

Positional options

90 The passenger was unable to move out of the path of the train before it passed.

91 At Ickenham, there are a number of different ways a person could move out of the way of an approaching train following a fall onto track from platform 2. These include:

- climbing back onto the platform
- moving across to the westbound line next to platform 1
- walking along the track and up the ramp at the end of platform 2
- moving into the under-platform recess.

92 CCTV images show that the passenger sat on the track for a short time after they fell and that they spent some time regaining their belongings. Although they placed their hand onto the platform (paragraph 36) they did not get to their feet and attempt to leave the track area.

93 It is not possible to say from evidence gathered after the accident, including the post-mortem examination, if the passenger was injured in the fall from the platform. However, it is possible that they were injured from the fall in such a way that it might have affected their ability to stand up once they were on the track. There was no evidence of electric shock recorded in the post-mortem records (paragraph 19). The passenger's ability to stand was likely to have been impaired due to the effects of alcohol (paragraph 68).

94 It is also possible that the passenger did not get to their feet and move off the track because they did not know about the platform end ramps or they were concerned that they could be in danger from another train if they crossed to the adjacent line next to platform 1.

95 At 22:31:09, CCTV images suggest that the passenger had become aware that there was a train approaching and was moving towards the platform face. By 22:31:39, 11 seconds before the train passed, the passenger had moved out of view of the station CCTV cameras and was therefore very close to the platform face. The passenger is not seen again on CCTV images. Although the exact position of the passenger and their actions during these 11 seconds cannot be determined, RAIB has concluded from their earlier movements and proximity to the platform that the passenger was probably attempting to move towards the platform face to avoid being struck by the approaching train.

96 There are multiple cables running in the recess under platform 2 which modelling indicates would have prevented the passenger from moving sufficiently far away from the track to avoid being struck by the approaching train (see paragraph 101). These cables run the length of the recess and then up and onto the platform close to signal MUX 743 (figure 18). Witness and site evidence obtained by RAIB indicates that all these cables are still in use and are predominantly phone lines and radio communication cables. There are some cables which need to be in the under-platform recess for other safety features to be effective (see paragraph 121), but this is not the case for the majority of the installed cables.



Figure 18: The cable run in the recess of platform 2 (left). The communications cabinet at the north end of platform 2 (right).

97 There are two standards relating to the management of cables on London Underground Infrastructure:

- S1131, 'Premises – station platforms', issue A7 dated March 2022
- S1156, 'Gauging and clearances', issue A11 dated August 2021.

These standards are owned by different London Underground departments, but both standards state that the under-platform recess should be '*clear of cables and other obstructions*'.

- 98 In July 2024, London Underground completed a human factors assessment generated in support of an application for the installation of co-axial cable in some recesses on the Piccadilly line. The aim of this assessment was to establish the minimum viable recess which could be used by a person to avoid being hit by a train. This assessment concluded that the smallest passenger to potentially use an under-platform recess would be a 6-year-old girl. In its analysis, London Underground concluded that the chest depth of a 1st percentile³ 6-year-old girl was 106 mm, so a recess of a depth 105 mm or smaller would have no practical use and therefore did not need to be maintained. Despite the under-platform recess at Ickenham being significantly more than 105 mm in depth it was not maintained clear of cables, and a coaxial cable was installed into the recess.
- 99 In July 2025, RAIB surveyed an S-Stock underground train using a laser scanner in order to produce a 3D model of the train's profile. RAIB used the same method to survey the relevant platform areas of Ickenham station, including the under-platform recess and cables. This allowed the data to be combined and produce a digital model to represent the space available between the platform area and train and the relationship between the passenger, the recess and the cables (figures 19 and 20).
- 100 There is conflicting evidence on the height of the passenger. Witness evidence was that the passenger was 1.7 metres tall, while the post-mortem recorded a height of 1.45 metres. RAIB obtained photographic evidence of the passenger standing next to a person of apparently the same height. The other person gave their height as 1.68 metres.
- 101 Based on an assumed height of 1.68 metres the passenger would be around the 5th percentile of male height.⁴ Although the relationship between height and breadth is not always directly correlated, a 5th percentile male in terms of breadth (shoulder to shoulder) would have a breadth of 439 mm.⁵ RAIB has rounded the breadth measurement up to 450 mm to allow for the effect of clothing. When the digital representation of the passenger based on these dimensions was placed into a digital model of the platform with the train in place, the result strongly suggested that a train could not have passed clear of the passenger with the cables in the under-platform recess (figure 19).
- 102 The same model was then used with the cables removed. In this instance, a train would be able to pass without striking the model passenger (figure 20). With the cables removed, it would also be possible for a larger male to avoid being struck by lying very close to the recessed platform face.
- 103 RAIB cannot say with certainty if the absence of cables would have prevented the passenger from being struck, as the exact position of the passenger and their bag is not visible on CCTV at the time of impact, and there is a chance that loose clothing or their belongings might have been snagged. However, the presence of the cables significantly reduced the available space in the under-platform recess and removed the opportunity for the passenger to avoid being struck. Had the cables not been installed then the recess would have been 370 mm deep, greater than the minimum required by the standard, but the presence of the cables reduced the available recess to 150 mm (figures 19 and 20).

³ Smaller than 99% of the relevant population.

⁴ Based on PeopleSize data for British males (2020 version).

⁵ Based on PeopleSize data for British males (2020 version).

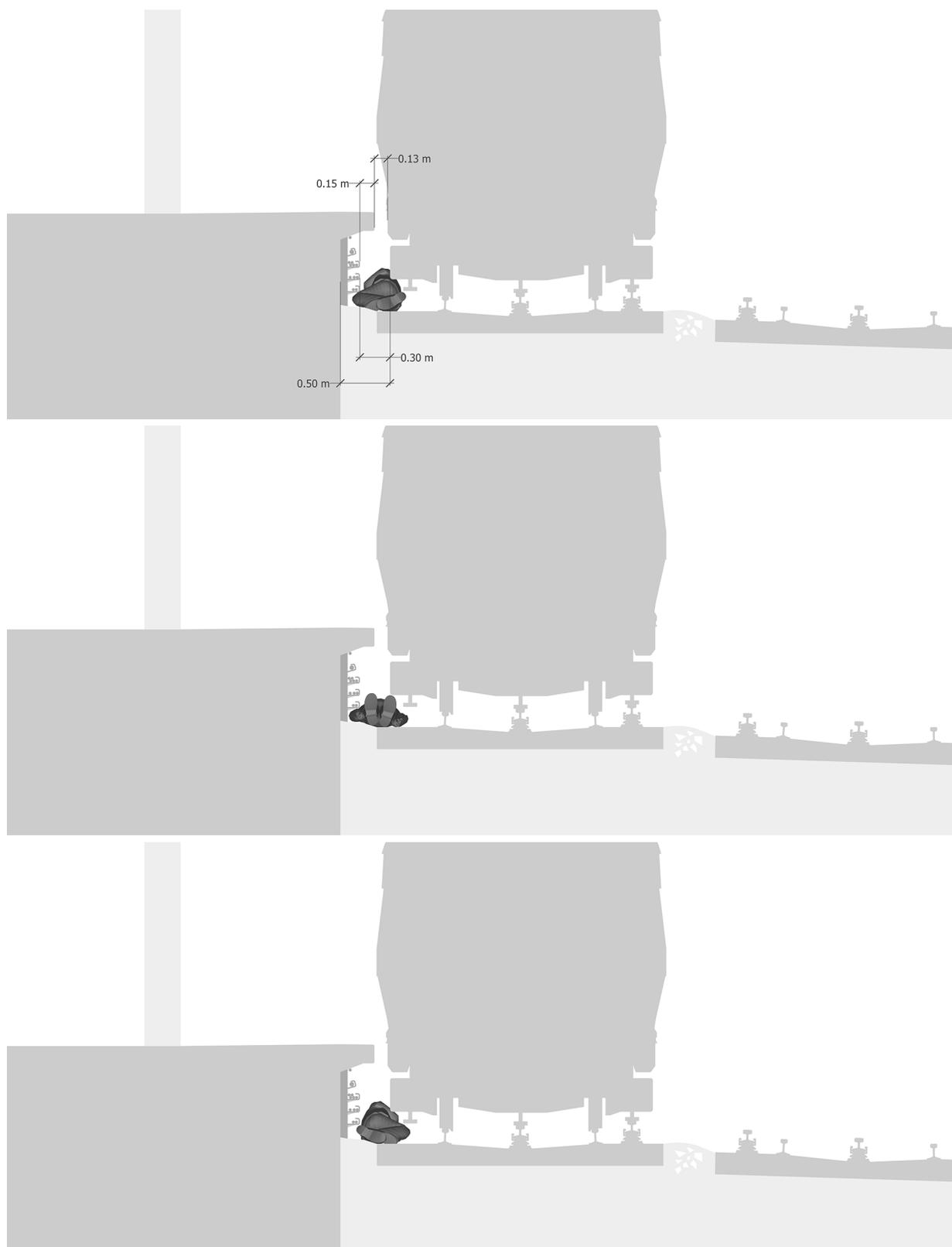


Figure 19: RAIB’s digital representation of the impact of the cables on the available survival space in the under-platform recess.

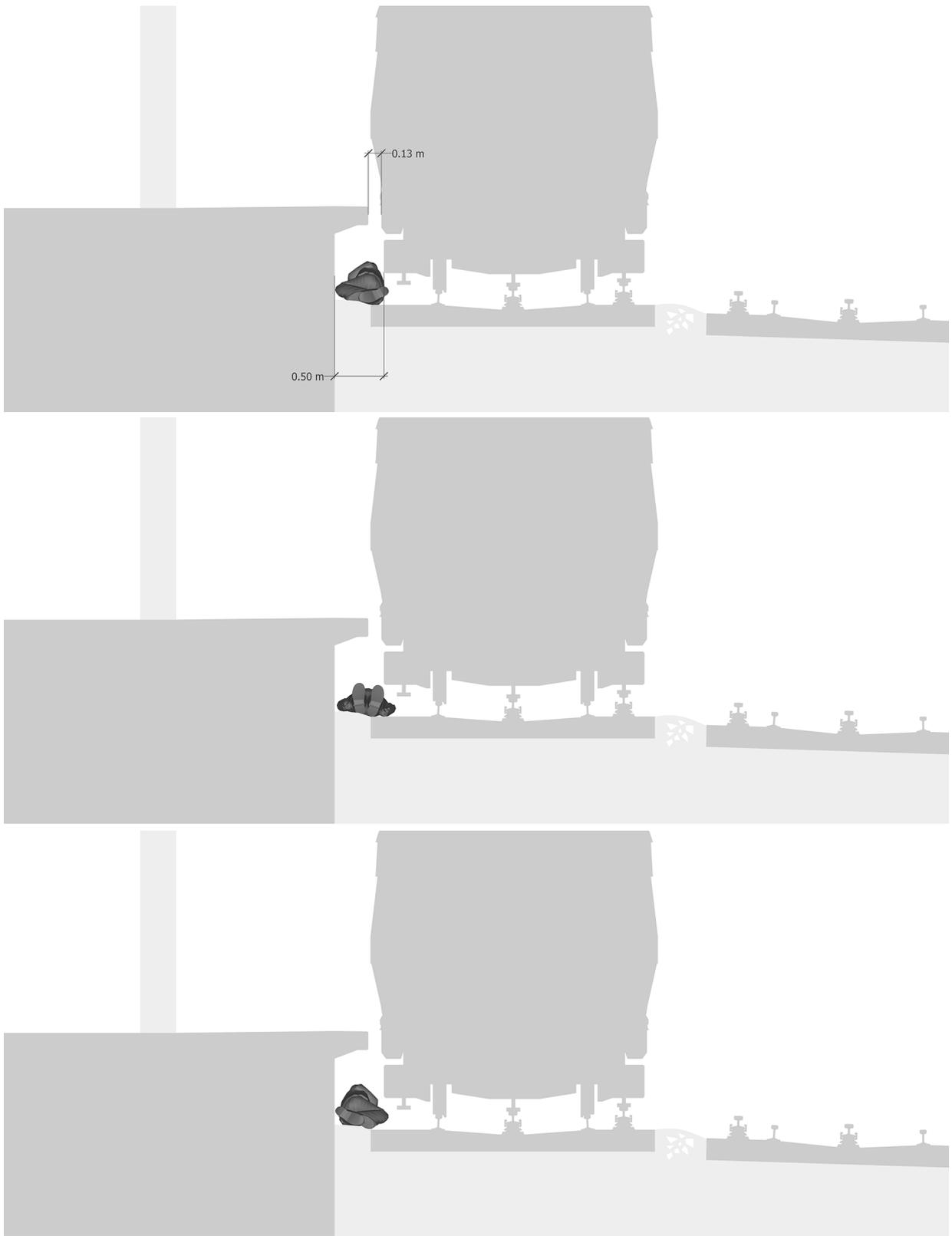


Figure 20: The same model as figure 19 but with the cable run digitally removed.

Ability of the train operator to see the passenger on the track

104 The train operator did not see the passenger on the track as they drove the train into the platform.

- 105 The train operator did not see the passenger on the track at any point during the accident. Analysis of the driving style of the train, captured on the train's OTDR, supports witness evidence that this was considered to be a normal station stop.
- 106 To understand how conspicuous the passenger would have been on the track, RAIB carried out a reconstruction of the accident at night in July 2025. During the reconstruction, a test object (a dark blue oblong object measuring approximately 1.85 x 0.5 x 0.2 metres) was used to represent the passenger. CCTV images of the accident were used to position the test object where the passenger was located after the fall. An out-of-service S stock train, the same type as that involved in the accident, was then operated inbound towards platform 2. The train operator was aware there was a test object placed on the track close to the under-platform recess. The train operator was asked to sound the train's whistle when they could first see it during the train's approach. The train was manually driven with a comparable speed and braking to the accident train as it approached platform 2 on the night of the accident.
- 107 As the train approached the station during the reconstruction, the train operator reported first seeing the test object from approximately 67 metres away. The RAIB inspector observing in the cab felt that the reference object remained difficult to see at this distance.
- 108 On the night of the accident, when the train's tripcock was activated, analysis of the train's OTDR shows that the train stopped in 9.5 seconds from 41.7 km/h. This represents an average deceleration of 1.22 m/s² from the point at which emergency braking was demanded. From the reconstruction, the earliest point the driver could have applied the emergency brake was 67 metres before the passenger, and at this point the incident train was travelling at approximately 41 km/h. Analysis shows that applying the emergency brake at this point would result in a train stopping in approximately 55 metres, around 12 metres short of the passenger's location.
- 109 Using the same emergency brake rate, the latest point the driver could have applied the brake to stop just before the passenger was calculated to be around 27 metres before them, and at this point the incident train was travelling at approximately 29 km/h. Analysis indicates that the driver would have had approximately 4 seconds between these earliest and latest points to apply the brake to avoid the collision.
- 110 RAIB has considered any sources of non-task related distraction which may have diverted the train operator's attention. RAIB obtained data relating to the train operator's mobile phone and this shows that it was not being used to call or to send text messages at the time of the accident. Witness evidence was that the train operator's mobile phone was not switched off but was in the pocket of a coat hung on a hook within the cab.

111 At Ickenham, there are some task-related factors which might have drawn the train operator's attention away from looking at the track as the train moved into the platform. These tasks are dynamic in nature and start from the train's approach to the platform until the train is stopped correctly and the train doors released:

- The train operator is always approaching a red signal when coming into platform 2, due to the signalling controls applied at this location (paragraph 21). In this situation, the train operator will likely be concentrating on the train's speed on approach to the signal so as not to pass it.
- The train operator only has a small window of tolerance to stop their train at the correct position to allow the doors to be opened normally.
- The train operator is required to monitor the platform-train interface as the train arrives. London Underground considers the main risk on approach to be people falling directly in front of a train. In this case the platform was empty, so this risk was not present, but this might not have changed the train operator's established approach method.

112 Environmental factors may also have contributed towards the train operator not detecting the passenger on the track. The track bed is dark in colour and not well lit in comparison to the surrounding environment, such as the platform. The brightly lit platform, combined with an unlit track bed, also causes a shadow to be cast around the area of the under-platform recess (figure 21). This may have combined with the passenger's dark clothing and their proximity to the platform face to reduce how conspicuous they were.

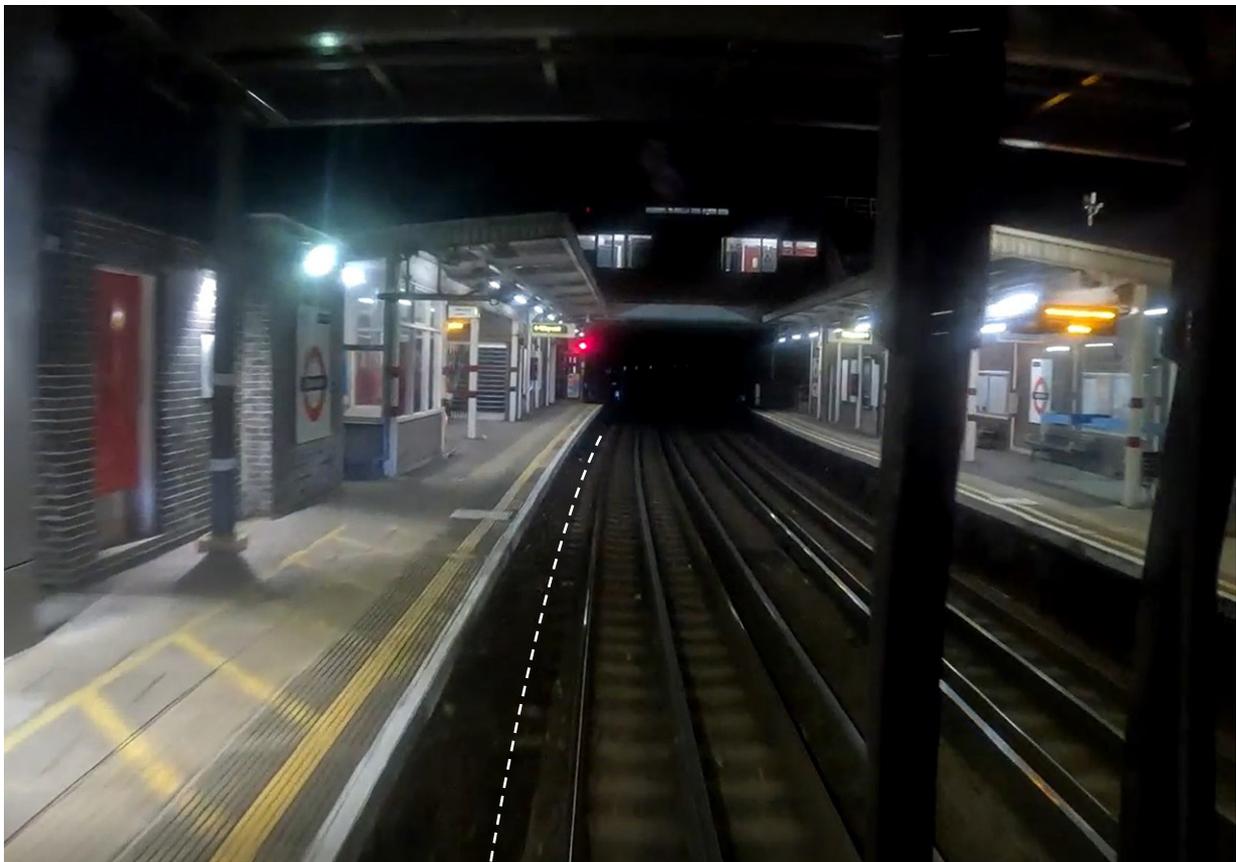


Figure 21: Image captured from the cab of the reconstruction train showing the edge of the shadow cast by the platform onto the track highlighted with a dashed white line.

Identification of underlying factors

Management of under-platform recesses

113 London Underground's standards relating to under-platform recesses were not being complied with and were not consistent with each other. This is a probable underlying factor.

- 114 London Underground has two standards that specify the required design of platforms and recesses. These are standard S1156, which falls under the responsibility of the track team (paragraph 97), and standard S1131, which falls under the responsibility of the built environment team (paragraph 97).
- 115 Standard S1156 was first issued in 2007 and replaced an earlier standard with the same technical contents (standard 2-01302-120). The scope of standard S1156 applies to all platforms on the London Underground network. Standard S1156 requires a refuge below the platform edge with a minimum depth of 300 mm and a minimum height of 495 mm (measured from sleeper level).
- 116 Standard S1156 further specifies that this recess shall be kept clear of cables and other obstructions. S1156 recognises that failure to conform to these requirements will *'prejudice the safety of train operations'* and may result in, among other adverse outcomes, *'injury to railway personnel through the inadequate provision of clearances and places of safety'*.
- 117 Although London Underground has stated that its standards do not apply retrospectively, it accepts that the requirements to have a refuge with a minimum depth of 300 mm, and the need to keep this recess clear of cables so far as possible, are longstanding. They are also consistent with the guidance for platforms issued by HM Railway Inspectorate in 1996, and historical government requirements going back many decades before this (paragraph 56).
- 118 Unlike S1156, the scope for standard S1131 states that it applies only to new or altered platforms and therefore not retrospectively. S1131 requires that, where platform edge doors are not fitted, a safety pit and an under-platform recess should be provided in all sub-surface, single track, non-ballasted tunnels. These criteria would not mandate the fitment of an under-platform recess to a station like Ickenham if it were newly built. However, where a recess is provided at any platform then S1131 requires the recess to be *'formed along the length of the platform, clear of cables and other obstructions, measuring at least 300 mm wide from the front edge of the nosing slabs and 480 mm high measured from rail level, to provide a refuge in an emergency'*.
- 119 The height of the under-platform recess through platform 2 at Ickenham was measured as being between 750 mm and 768 mm from sleeper level and therefore exceeds the measurements in both standards. London Underground stated to RAIB that it was aware of the discrepancy in the dimensions in the two standards.
- 120 Installation tags in the communications cabinet (figure 18) indicate that many of the cables under platform 2 at Ickenham were installed in the early 1990s. London Underground was unable to locate records pertaining to any risk assessment associated with fitting these cables in the under-platform recess when they were installed.

- 121 However, one of the cables was recently installed in the under-platform recess following an application in May 2023 for a derogation from standards S1156 and S1131. This cable was a 'leaky feeder' to allow CCTV images to be transmitted from station CCTV cameras to monitors inside the driving cabs of new trains due to arrive on the Piccadilly line. The cable needs to be in this position to interface with the train and in its installed location, tucked high under the platform lip, would probably not have significantly reduced the space available in the under-platform recess had it been the only cable present.
- 122 The misalignment between standards S1156 and S1131 regarding the under-platform recess height, and widespread non-compliance with these standards, was provided in the application for the derogation to fit the leaky feeder cable as justification for further non-compliance with London Underground's standards. The derogation application notes:
- 'It is recognised that many existing platforms on the Piccadilly line are currently not compliant with the requirement 5.3.1.5 [paragraph relating to size of recess and requirement to keep it free of cables] of S1156 and even more platforms are not compliant with the requirement 3.2.13 [paragraph relating to size of recess and requirement to keep it free of cables] of S1131.'*
- 123 The relevant standard for granting derogations from standards, S1641, 'Concessions to standards', issue A14 dated July 2021, requires responsible managers to consider and document safety risks. There is no evidence that this was done on a site-specific basis, and blanket approval was granted for installation of leaky feeder cables across the entire Piccadilly line.
- 124 London Underground could not tell RAIB exactly how many of its platforms were non-compliant with the requirements in its standards to keep under-platform recesses clear of cables, other than it was "very many".

Identification and management of risk

125 London Underground had not completed platform-specific risk assessments for most platforms on its network or identified the safety benefit of some measures intended to mitigate the risk of people falling from platforms and subsequently being struck by trains. This is a possible underlying factor.

Risk assessment

- 126 London Underground predicts risk at a network-wide and line level using the London Underground Quantified Risk Assessment (LUQRA). LUQRA is a series of mathematical models which uses previous accident data weighted by probability to predict the future risk to passengers from hazardous events. The model does not contain location-specific data.
- 127 The LUQRA model predicts that across the London Underground network there will be 2.2 probable lives lost (PLL) each year at the platform-train interface. Of this total, passengers falling from platforms make up 1.36 PLL, or 61% of the risk. The Metropolitan line scores 0.07 PLL, with the Piccadilly line contributing 0.17 PLL towards the risk of passengers falling from platforms. The latest available accident data for 2019/2020 to 2023/2024 shows that on average 1.8 people per year have been killed at the platform-train interface on London Underground's network.

128 In October 2024, TfL published a platform-train interface plan covering all its rail modes (London Underground, the Elizabeth line, Docklands Light Railway, London Trams and London Overground). This plan states:

‘By 2030, we aim to reduce the number of customers killed or seriously injured on the TfL network by half. By 2041 we aim to completely eliminate these deaths and serious injuries.’

The plan notes that, although passenger numbers have fluctuated between April 2018 to March 2024 (including COVID-19 years), across all TfL rail modes the frequency of platform-train interface incidents remained consistent at around 0.3 per million customer journeys.

129 At a local level, platform risk is evaluated from a trains and stations perspective using a customer risk assessment (CRA). London Underground stated that a CRA is a qualitative risk assessment which uses the experience and local knowledge of the assessor to inform the level of risk. If there is previous incident data, such as a higher number of platform train interface incidents, then this will also be noted in the CRA. The CRA form uses drop-down lists to assist assessors in identifying hazardous events and risk mitigations. However, neither the stations CRA nor trains CRA forms have a selectable hazardous event for a ‘passenger falling from a platform’, despite this making up 61% of overall platform-train interface fatality risk predicted by LUQRA. London Underground told RAIB it was aware of this and planned to rectify it in future versions of the CRA forms.

130 The relevant station CRA for Ickenham, dated 2 October 2023, is grouped with 11 other stations in the Uxbridge station group. This aggregation of risk makes understanding local hazards difficult. For example, the local hazards are different between platforms 1 and 2 at Ickenham station because the under-platform recess at platform 1 is not obstructed with cables. The station risk profiles will also be different for partially covered terminal stations, such as Uxbridge, compared with outdoor stations. London Underground stated to RAIB that its view was that it would not be reasonably practicable to list ‘unique asset features’ as part of its platform risk assessments.

131 The CRA does not consider if under-platform recesses comply with standards such as S1156 and S1131. London Underground stated that these assessments are undertaken by a local manager with support from the safety team who would not have the competence to identify whether cabling in the under-platform recess was an issue. RAIB was unable to identify any other process intended to establish the extent of such non-compliances to existing platforms. London Underground also stated that, if further cables were planned to be installed, an engineering assessment would be completed as part of the application process.

132 As part of the development of the platform-train interface plan, London Underground undertook some internal safety analysis. This analysis identified four types of high-risk platform-train interface incidents:

- fall on track
- dragging
- struck by train
- fall between train and platform.

The analysis identified that the first three types of high-risk events occur network wide, whereas in the 6 years before publication of the strategy, 57% of 'fall between train and platform' incidents occurred at just 12 stations. This led to the generation of a 'top 12' stations list for which London Underground carried out station-specific risk assessments (in addition to the CRA risk assessments). Following these risk assessments, improvements were identified as being necessary at 13 platforms across 8 stations. Ickenham station was not one of the top 12 stations identified in the analysis.

133 Had a site-specific risk assessment taken place at platform 2 at Ickenham, it is possible that consideration might have been given to mitigation measures which could have addressed the risks of a fall on to the track and subsequently being struck by a train.

134 In contrast to London Underground, on the mainline railway each platform is subject to a specific risk assessment. The relevant standard for the mainline railway, RIS-3703, 'Passenger Train Dispatch and Platform Safety Measures', issue 6 dated September 2025, provides guidance on how to safely manage and risk assess the platform-train interface. No similar document or standard has yet been developed for London Underground.

Additional risk mitigations

135 London Underground included a pictorial description of its platform-train interface framework within its 2024 strategy document. On the left-hand side of the framework is the 'prevent' element of the strategy. The hazardous event is presented in the middle, with 'alert' and 'respond' elements on the right-hand side (figure 22). London Underground has defined the accident as 'fall from platform' and not included the hazardous event 'struck by train following fall from platform'. This means that while London Underground's framework has considered the possible risk controls needed to prevent someone from falling onto the track, it has not considered how to prevent them from being struck following such a fall.

136 London Underground has already applied many of the mitigation measures available which may prevent someone falling from a platform. These include customer messaging, tactile paving, and yellow and white painted lines near platform edges. The remaining, and probably most effective, mitigations likely to prevent such a fall are probably limited to some form of platform screen door or barrier. These are assessed as having a high safety benefit in a London Underground report, 'London Underground PTI [platform-train interface] Holistic Review', dated July 15 2024, which was produced after a series of accidents (see paragraph 160).

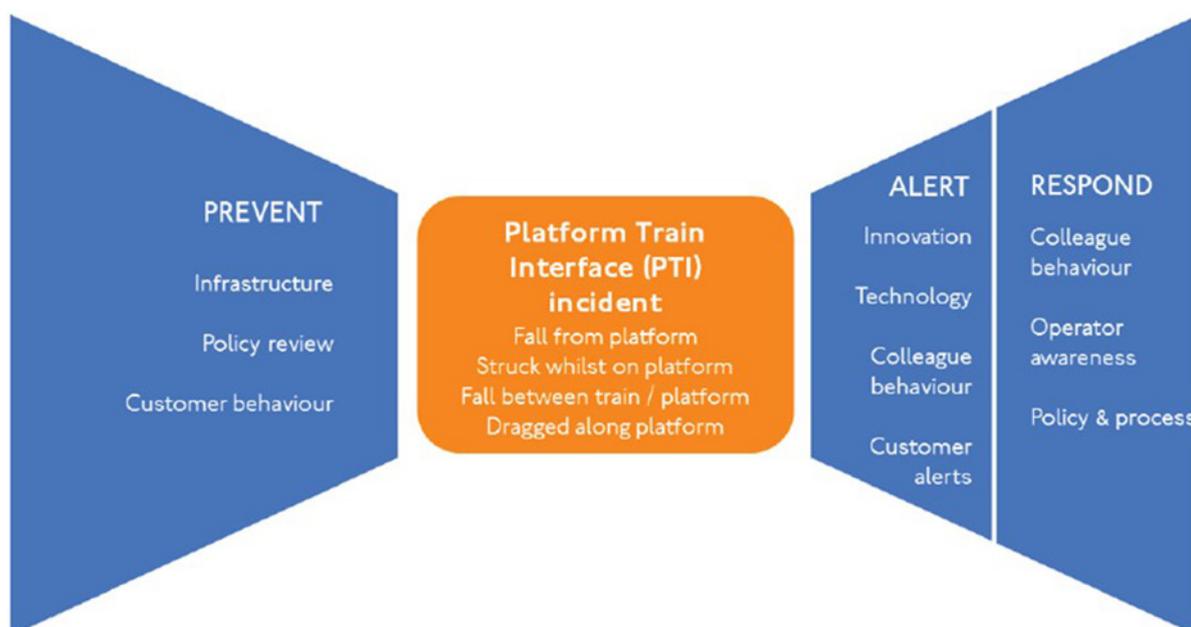


Figure 22: Passenger train interface framework published in TfL's passenger train interface plan (courtesy of TfL).

137 London Underground recognised the effectiveness of platform screen doors, and they were considered as part of what TfL described as ‘an aspirational, unfunded business plan’ that looked at rolling stock and signalling upgrades across the Piccadilly, Central, Bakerloo and Waterloo & City lines. The only part of this programme that has been funded is the upgrade of the Piccadilly line trains. The estimated cost for a platform screen door system for the Piccadilly, Central and Waterloo & City lines was £655 million. TfL also told RAIB that installation of such a system would need to be considered as part of a full-line signalling and train upgrade as well as platform works to manage curvature and ensure platforms can support the additional weight of any doors, which would come at additional cost.

138 Although not part of the passenger train interface framework, the 2024 holistic review considered some risk mitigations which could reduce the risk of a person who has fallen from a platform being struck by an approaching train. This included improving the performance of train headlights to allow a train operator to see obstructions ahead earlier.

139 London Underground concluded that its trains are controlled by a signalling system and are not driven on the ‘line of sight’ principle, so trains are not required to be able to stop within the area that their operator can see to be clear ahead. As such, the purpose of train headlights is primarily for staff on the track to see an approaching train and not for the train operator to see obstructions ahead. London Underground stated that they regarded this approach as being aligned with the rest of the rail industry.

140 Despite this, the general principle of using headlights to detect obstructions was discussed in the 2024 review. It concluded that improved headlights on trains would have a ‘low’ overall safety benefit because headlights:

‘Will not reduce the risk of a fall onto the track. Potential to reduce the severity, and consequence of the incident may be reduced if train headlights provide greater visibility of someone on the track to train operators’.

- 141 As part of the same work, London Underground considered the cost to upgrade all headlights on the trains in its fleet (apart from Piccadilly line trains due to their imminent replacement) and concluded that this would cost around £1 million. London Underground uses the industry standard value of preventing a fatality (VPF) figure of £2,308,000 when making investment decisions related to safety improvements (this value is determined by the Rail Safety and Standards Board). London Underground guidance document S1521 ‘Safety decision making’, issue A11 dated November 2023, suggests that the recommended fatality/cost ratio for mitigations relating to platform-train interface accidents is anything of 1.0 or above. This means that this upgrade would likely be deemed to be cost effective in terms of safety benefit in the event that the assessor believed it would prevent even one fatality. However, there is no evidence that the upgrade of the headlights was formally assessed in line with S1521 or that the potential safety benefit was calculated.
- 142 The 2024 holistic review also considered the installation of under-platform lighting. This type of lighting is used at some London Underground platforms to illuminate the gap between the train and platform to reduce the risk of passengers falling into it when boarding a train. The relevant standard (S1131) says that under-platform lighting should be installed where there is a stepping gap of more than 150 mm (the distance a person needs to step from the platform onto a train). The 2024 review concluded that the safety benefit of under-platform lighting would be low. It noted that:
- ‘Potentially consequences of incidents may be reduced if under platform lighting provides greater visibility of anyone that has fallen on the track or between the train and the platform.’*
- The report noted that the track bed in subsurface stations already receives a ‘reasonable’ level of light, but to install lighting on all surface station platforms, (such as Ickenham) would have an estimated cost of £96 million.
- 143 In total, 16 types of mitigation measure were considered as part of the 2024 review. Only one of these mitigations was regarded as ‘fully-funded’ by the time of the publication of the platform-train interface plan in October 2024. This plan briefed staff to look for the owner of lost property found on platforms and was expected to have no actual financial cost (figure 23).

Observations

Safeguarding of vulnerable people

144 London Underground did not have a clear policy on how to protect those who are travelling in a vulnerable state due to the effects of drink or drugs.

- 145 London Underground had a framework to protect those who were vulnerable due to mental health issues in place from 2018. However, at the time of the accident, London Underground did not have a documented policy as to what staff were expected to do in response to passengers who are exhibiting signs of being in a vulnerable state from the use of alcohol or drugs. There was some anecdotal evidence that station staff were informally trained or briefed on a location-specific basis on how they should respond to passengers in a vulnerable state, but RAIB found no evidence of a network-wide strategy or formal training on this topic.

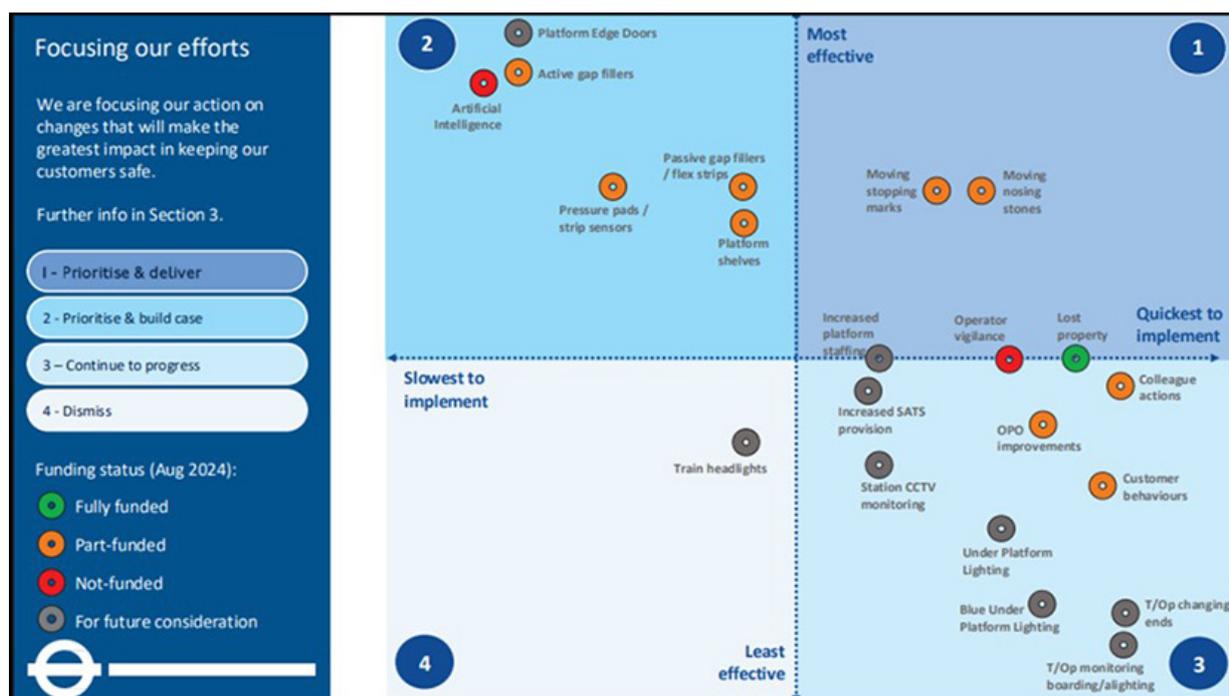


Figure 23: Extract from Transport for London's passenger train interface plan showing which mitigations have been funded (courtesy of Transport for London).

- 146 Witness evidence was that station staff tend to assess the likelihood of being assaulted by a person impaired through drink or drugs and respond accordingly. At outer-lying stations it is common for staff to lone work, including during the hours of darkness, which may increase their perception of the risk of assault. A 2025 national survey of 6,000 transport staff working in the rail sector by The National Union of Rail, Maritime and Transport Workers (RMT) found that 60% of staff assaulted were lone working. A separate RMT survey in 2019, specific to London Underground, found that 75% of surveyed staff (not just lone workers) had been verbally abused, and 18% physically assaulted.
- 147 The absence of a policy and the lack of training of staff were not directly causal to this accident because the passenger was not seen in a vulnerable state by London Underground staff. However, under different circumstances a clear policy and training in this area might help to protect vulnerable people travelling on the network, while helping staff to stay safe.

Anthropometric data

148 London Underground allowed derogations to its safety standards with regards to maintaining clear under-platform recesses based on an inaccurate interpretation of anthropometric data.

- 149 RAIB observes that London Underground's 2024 human factors report, which was used in support of an application for the installation of co-axial cable in some recesses on the Piccadilly line, was flawed in its analysis of the size the recess would need to be to accommodate a 1st percentile 6-year-old girl, the smallest size passenger London Underground believed could reasonably be expected to use a recess (paragraph 98).

150 Children do not share the same proportions as adults and chest depth is not the widest part of a child's body. The 2024 report concluded that the chest depth of a 1st percentile 6-year-old girl is 106 mm, so an under-platform recess of a depth of 105 mm or smaller would have no practical use and therefore did not need to be maintained. Anthropometric databases⁶ show that a 1st percentile 6-year-old girl's head length (brow to back of head) is 163 mm and head breadth 126 mm. Therefore, a 106 mm under-platform recess may accommodate a 1st percentile 6-year-old girl's torso, but not her head.

151 As the under-platform recess at Ickenham was more than 106 mm and the passenger involved was not a child, this was not a relevant factor in this accident.

Drugs and alcohol testing

152 While there is no evidence that the train operator was impaired by drugs or alcohol, RAIB observes that London Underground did not follow its own processes for testing staff following a serious accident.

153 There was no evidence that the train operator was impaired by drugs or alcohol at the time of the accident.

154 London Underground's policy states that post-incident drug and alcohol testing of staff should occur 'as soon as possible after a dangerous incident'. Although testers were called after the accident at Ickenham, they did not arrive until 01:05. While this is within the contracted two-hour response time, it was only one minute before the train operator's scheduled finish time of 01:06.

155 By the time the testers arrived, the train operator's manager had already arranged for a taxi to take the train operator home, at the end of their shift, in the interests of their welfare. They did not ask the train operator to remain on duty to meet the testers, as required by the policy. The policy also requires that in the event a train operator does not remain on duty for a test they should be tested before resuming work at their next shift. This test also did not take place.

156 RAIB's investigations into a passenger trapped and dragged at Notting Hill Gate underground station in January 2018 ([RAIB report 14/2018](#)) and two trap and drag accidents at Archway and Chalk Farm stations in February and April 2023 ([RAIB report 06/2024](#)) also found that London Underground did not follow its own processes for testing staff following serious incidents.

The role of the safety authority

157 The Office of Rail and Road (ORR) is the independent economic and safety regulator for Great Britain's railways, including the London Underground. Its role includes the monitoring of health and safety performance, carrying out assessments and taking action to enforce compliance with health and safety law. ORR is also tasked with ensuring that appropriate action is taken in response to RAIB recommendations.

⁶ PeopleSize (2020 version).

- 158 ORR plans its routine inspection work based on strategic risk priorities and its analysis of where it can secure the most significant improvements in safety management. ORR stated to RAIB that its inspections and assessments aim to draw systemic conclusions which will promote improved safety arrangements across a wide range of activities, rather than identifying specific shortcomings. However, if any shortcomings were to be identified during inspections and assessments, ORR would raise these with the duty holder concerned.
- 159 ORR started planning the remit for an inspection of the management of the platform-train interface at London Underground in January 2025. This inspection started in May 2025 and is due to conclude in May 2026. The purpose of this inspection is to determine if London Underground is appropriately managing the risk at the interface. Following completion of this inspection, ORR stated it will determine what, if any, improvements are needed.

Previous occurrences of a similar character

- 160 On 26 May 2020 at approximately 10:10, a passenger fell into the gap between the northbound Bakerloo line platform and the train from which they had just alighted at Waterloo station on the London Underground network. The passenger was unable to free themselves and the train departed with the passenger still in the gap, crushing them as it moved off. The passenger remained motionless on the track and was subsequently hit by a second train that entered the station. Bakerloo line trains are driven manually by train operators and do not have ATO equipment. RAIB's investigation ([RAIB report 05/2021](#)) found that the accident occurred when there were no staff or other members of public nearby to assist the fallen passenger. With only their head and arm above platform level, the passenger was difficult to detect on the despatch monitors and was not seen by the train operator. The train operator of the following train was unaware of the passenger because their attention was focused on the platform and the train's stopping point.
- 161 On 30 September 2022 at approximately 21:54, a passenger fell between the train they had just alighted and the platform at High Barnet station, on the London Underground network. The passenger was not discovered as they were hidden by the stationary train and were subsequently run over by it as it departed. The passenger remained undiscovered on the track for around 5 minutes. A second train passed over the passenger and stopped in the platform. The passenger suffered life-changing injuries. RAIB undertook a preliminary examination into this accident and reviewed London Underground's internal investigation report.

- 162 On 26 December 2023 at approximately 13:57, a passenger fell from the platform onto the track at Stratford London Underground station, the terminus of the Jubilee line. Before they fell, the passenger had been on a bench on the platform for around 48 minutes. Approximately 5 minutes after they fell, the passenger was struck by the next train to arrive in the platform. The driver of this train did not see the passenger so once the passengers had alighted and finished boarding the train departed the platform. A further three trains arrived in the platform, two of which also departed the platform before services were stopped. The passenger was fatally injured. RAIB's investigation ([RAIB report 01/2025](#)) found that ATO may have affected train operator attention, and that London Underground had not fully understood the risk of a passenger falling from the platform nor introduced effective risk controls.
- 163 On 29 September 2024 at approximately 04:15, a passenger fell from the platform onto the track at Clapham South station on London Underground's Northern line. The passenger fell very close to the headwall of the tunnel into an area of the track which was shadowed, making them difficult to see. Before they fell, the passenger had been on a bench on the platform for around 53 minutes. Approximately 5 minutes after they fell a train arrived in the platform. The train operator did not see the passenger lying on the track and as the train departed the passenger was struck by it. A second train arrived around 6 minutes later. The train operator of the second train saw the passenger on the track ahead of their train and reported this to the line control. The passenger suffered life-changing injuries in this accident. RAIB undertook a preliminary examination into this accident and reviewed London Underground's internal investigation report.

Summary of conclusions

Immediate cause

164 The passenger fell from the platform and was subsequently struck by train 463 (paragraph 61).

Causal factors

165 The causal factors were:

- a. The passenger lost their balance and fell from the platform (paragraph 65), **no recommendation**.
- b. There was no intervention that prevented trains entering and departing from the platform (paragraph 71), **no recommendation**.
- c. The passenger was struck by the train (paragraph 88).
 - i. The passenger was unable to move out of the path of the train before it passed (paragraph 90), **Recommendation 2**.
 - ii. The train operator did not see the passenger on the track as they drove the train into the platform (paragraph 104), **no recommendation**.

Underlying factors

166 The underlying factors were:

- a. London Underground's standards relating to under-platform recesses were not being complied with and were not consistent with each other. This is a probable underlying factor (paragraph 113), **Recommendation 1**.
- b. London Underground had not completed platform-specific risk assessments for most platforms on its network or identified the safety benefit of some measures intended to mitigate the risk of people falling from platforms and subsequently being struck by trains. This is a possible underlying factor (paragraph 125), **Recommendation 2**.

Additional observations

167 Although not linked to the accident on 28 March, RAIB observes that:

- a. London Underground did not have a clear policy on how to protect those who are travelling in a vulnerable state due to the effects of drink or drugs (paragraph 144), **Recommendation 3**.
- b. London Underground allowed derogations to its safety standards with regards to maintaining clear under-platform recesses based on an inaccurate interpretation of anthropometric data (paragraph 148), **Recommendation 1**.

- c. While there is no evidence that the train operator was impaired by drugs or alcohol, RAIB observes that London Underground did not follow its own processes for testing staff following a serious accident (paragraph 152), **Learning Point 2**.

Previous RAIB recommendations relevant to this investigation

168 The following recommendations, which were made by RAIB as a result of its previous investigations, have relevance to this investigation.

[Accident at Waterloo station, London, RAIB report 05/2021, Recommendation 2](#)

169 RAIB considers that more effective implementation of recommendation 2 in report 05/2021 could have addressed the lack of site-specific risk assessment which was a factor in this accident. This recommendation reads as follows:

Recommendation 2

The intent of this recommendation is to provide those who are responsible for managing risk with reliable risk assessment data that enables them to identify those locations on its network where the risk of harm is highest and to better inform their decisions on the need for additional risk mitigation measures.

London Underground Limited should review and update its quantified system risk model (LUQRA) to ensure that it is consistent with:

- current good practice in the rail industry;*
- achieving a better understanding of how risk is distributed across its rail network;*
- identifying potentially high-risk locations that warrant more detailed risk assessment;*
- providing useful risk information to those with the responsibility for the safety of individual lines and stations;*
- understanding the entire risk of harm, including that associated with non-fatal injuries; and*
- the systematic evaluation of whether additional safety measures are justified.*

In conjunction with any updates to its quantified system risk model, LUL should review and update its safety decision making standard to clarify how the model and other risk assessment processes should be applied in practice (paragraphs 101 and 102).

170 ORR reported to RAIB that in response to the recommendation London Underground reviewed LUQRA and benchmarked it against other industry risk models used for assessing passenger train interface risk, including the RSSB Safety Risk Model (SRM). Improvements to LUQRA including making it applicable to passenger train interface risk at station level (rather than for an entire line) were considered but not implemented.

171 After reviewing the information provided, ORR concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, London Underground Ltd had taken the recommendation into consideration and taken action to implement it.

172 The more granular application of LUQRA may have allowed a better understanding of risk, but to be fully effective this would likely need to be paired with site survey data, in the same way the mainline railway assesses platform risk.

Recommendations that are currently being implemented

Fatal accident at London Underground Stratford station, RAIB report 01/2025, Recommendation 1

173 The above recommendation addresses one of the factors in this accident, the detection of the passenger by station staff both while on the station and the track. So as to avoid duplication, it is not remade in this report. However, shown below is a recap of its wording and an account of its current status.

Recommendation 1

The intent of this recommendation is to reduce the risk of a person being struck by a London Underground train in circumstances where they have fallen, slipped, tripped or have otherwise inadvertently come to be on the track adjacent to a platform.

Considering the circumstances of the accidents discussed in this report at Stratford, Clapham South and High Barnet stations, and the accident which took place at London Waterloo (RAIB report 05/2021), London Underground Limited should identify the effectiveness of its current risk controls and evaluate possible measures to further reduce the risk of a passenger being struck by a train where they have inadvertently entered the track adjacent to a platform.

This review should specifically include considering the use of technology that can detect if a passenger is in a dangerous position and intervene or warn as is necessary to stop an approaching or departing train.

Following this review, London Underground Limited should determine what improved or further risk reduction measures may be required to ensure that risks of passengers being struck by trains in these circumstances are reduced (paragraphs 126a, 126b and 128b).

Actions reported as already taken or in progress relevant to this report

174 Between October 2022 and September 2023, London Underground undertook a trial of an artificial intelligence (AI) overlay onto its existing CCTV cameras at Willesden Green. The AI was monitoring the footage for a number of ‘use case’ problems to bring to the attention of station staff. These issues were wide ranging and included people collapsed on stairs and people falling on the track (figure 24). Through the trial period the system generated over 44,000 alerts. Of these, 25,000 were auto acknowledged and 19,000 were sent to station staff. This represented an average of 55 alerts per day being sent to station staff. Station staff in the trial period acknowledged 60% of the alerts sent.

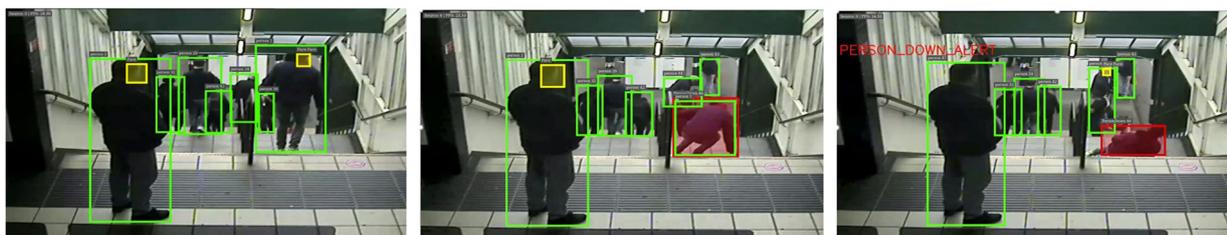


Figure 24: Example of the AI capability to detect a passenger fallen on the stairs and alert station staff.

175 Building on this work, and partially in response to RAIB’s recommendation following its investigation into the fatal accident at Stratford station (paragraph 173), London Underground has launched a second phase of this trial. This will assess the use of technology to detect people falling on to the track or falling into the gap between the train and the platform and on getting the right alert to the right person to generate a timely response, rather than directing all alerts to station staff, which may lead to them becoming overwhelmed. London Underground stated that if these trials are successful, then it will assess the effectiveness of directing an alert to the train operator. Dependant on findings, the first part of this trial is due to conclude in Spring 2026.

176 Following an inquest in April 2025, His Majesty’s Coroner for Inner North London raised a concern with TfL via a ‘Prevention of Future Deaths’ report that the risk to intoxicated individuals was not at the forefront of TfL’s corporate thinking. In response to this report TfL stated that it recognised that a significant step change was required in its approach to protecting customers who are vulnerable, for example through intoxication, from coming to harm when using its services.

177 From April 2026 London Underground will start training for its staff on how to support individuals under the influence of alcohol or drugs. This training will cover around 11,000 front-line staff primarily in station and train operations roles in 2026/27.

178 London Underground has funded research in order to better understand customers’ view of the risk of travelling on the rail network. Tied to the funding of the customer research London Underground will be funding a customer safety communications campaign.

179 London Underground will also be trialling:

- Passive gap fillers (to reduce the gap between the train and the platform edge) in 2026/2027.
- The use of additional station checks by station staff between 22:00 and 02:00, in addition to travel support & enforcement officer patrols during night tube across 20 stations on the Central line. This trial started in October 2025 and will complete in February 2026.
- The use of 2-hourly station checks during times stations are open. This trial is in development with an aimed launch of March 2026 and will run for three months.
- A revised process whereby station staff contact service control to monitor a person on their station as they go to investigate. This is in development with an aimed launch of March 2026 and will run for three months.

Recommendations and learning points

Recommendations

180 The following recommendations are made:⁷

- 1 *The intent of this recommendation is to ensure that there are effective standards for the construction and subsequent management of platform recesses on the London Underground network.*

London Underground should review standards 'S1131 Premises – Station Platforms' and 'S1156 Gauging and Clearances'. This review should in particular consider:

- if the guidance contained within both standards is consistent with regards to the expected size of platform recesses
- if the size of recesses is based on a correct understanding of anthropometric data
- how recesses can be appropriately maintained clear of cables
- how ongoing compliance with these standards can be more effectively monitored and managed
- the rationale of not requiring new platforms to be constructed with recesses, how this fits into the London Underground strategy of considering recesses as a safety feature, and how this compares with practice in other parts of the rail industry
- the risks associated with operating platforms without usable recesses and how these are documented.

London Underground should develop a timebound plan for the implementation of any appropriate changes to standards, infrastructure and processes identified by this review (paragraphs 156a and 157b).

⁷ Those identified in the recommendations have a general and ongoing obligation to comply with health and safety legislation, and need to take these recommendations into account in ensuring the safety of their employees and others.

Additionally, for the purposes of regulation 12(1) of the Railways (Accident Investigation and Reporting) Regulations 2005, these recommendations are addressed to the Office of Rail and Road (ORR) to enable it to carry out its duties under regulation 12(2) to:

- (a) ensure that recommendations are duly considered and where appropriate acted upon; and
- (b) report back to RAIB details of any implementation measures, or the reasons why no implementation measures are being taken.

Copies of both the regulations and the accompanying guidance notes (paragraphs 200 to 203) can be found on RAIB's website www.gov.uk/raib.

- 2 *The intent of this recommendation is to understand the risks and control measures required at individual platforms where people are at risk of being struck by trains having fallen from platforms.*

Building on the work already done in response to Recommendation 1 made by RAIB in its investigation into the fatal accident at Stratford London Underground station (RAIB report 01/2025), London Underground should:

- Survey all platforms on the London Underground network to ensure the site-specific risks of persons falling from platforms and being struck by trains, and any related non-compliances with standards, are understood and documented.
 - Use this information to generate an appropriate platform-specific risk assessment for each platform on the network.
 - Put in place a timebound and prioritised plan to manage the risk at each platform of persons falling from platforms and being struck by trains. In some cases, where interim risk controls may be required their implementation should not be delayed awaiting longer term solutions, such as changes to platform infrastructure (paragraphs 155c.i and 156b).
- 3 *The intent of this recommendation is to ensure operational staff have clear guidance regarding the safeguarding of passengers who are in a vulnerable state due to using alcohol or drugs.*

London Underground should undertake a risk-based review of the relevant rules, standards, procedures, and training material to check that they provide an effective framework for staff to safeguard passengers who may be vulnerable following the use of alcohol or drugs, while remaining safe themselves.

London Underground should develop a timebound programme for the implementation of any required changes which this review identifies and to train and brief its staff appropriately (paragraph 157a).

Learning points

181 RAIB has identified the following important learning points:⁸

- 1 This accident highlights the importance of station staff undertaking a thorough track check when requested by the railway control room. In this accident, the thorough check undertaken by the night shift CSS identified the person on the track and ensured actions were taken to stop any further train movements (paragraph 47).
- 2 This investigation highlights the importance of ensuring that company procedures for drug and alcohol testing are carried out following incidents and accidents (paragraph 152).

⁸ 'Learning points' are intended to disseminate safety learning that is not covered by a recommendation. They are included in a report when RAIB wishes to reinforce the importance of compliance with existing safety arrangements (where RAIB has not identified management issues that justify a recommendation) and the consequences of failing to do so. They also record good practice and actions already taken by industry bodies that may have a wider application.

Appendices

Appendix A - Glossary of abbreviations and acronyms

Abbreviation / acronym	Term in full
3D	Three dimensional
AI	Artificial intelligence
ATO	Automatic train operation
CRA	Customer risk assessment
CSA	Customer service assistant
CSS	Customer service supervisor
DC	Direct current
LUQRA	London Underground Quantitative Risk Assessment
ORR	Office of Rail and Road
OTDR	On-train data recorder
PLL	Probable lives lost
RAIB	Rail Accident Investigation Branch
RAF	Royal Air Force
RCC	Railway Control Centre
RMT	The National Union of Rail, Maritime and Transport Workers
RSSB	Rail Safety and Standards Board
SRM	Safety Risk Model
TfL	Transport for London
VPF	Value preventing fatalities

Appendix B - Investigation details

RAIB used the following sources of evidence in this investigation:

- information provided by witnesses
- information taken from the train's OTDR
- CCTV recordings taken from the station and the passenger's workplace
- recorded telephone calls
- mobile communications data
- the station logbook from Ickenham
- staff training and competence records
- post-mortem records for the passenger
- site photographs and measurements
- train photographs and measurements
- data obtained during an RAIB reconstruction at Ickenham
- weather reports and observations at the site
- a review of previous reported accidents
- historical data relating to the construction of platforms from the TfL archive
- London Underground standards, policies and internal reports
- a review of previous RAIB investigations that had relevance to this accident.

This report is published by the Rail Accident Investigation Branch,
Department for Transport.

© Crown copyright 2026

Any enquiries about this publication should be sent to:

RAIB
The Wharf
Stores Road
Derby UK
DE21 4BA

Email: enquiries@raib.gov.uk
Telephone: 01332 253 300
Website: www.raib.gov.uk