

OPUS 2

INTERNATIONAL

Inquests arising from the deaths in the Westminster Terror Attack of 22 March
2017

Day 14

October 1, 2018

Opus 2 International - Official Court Reporters

Phone: +44 (0)20 3008 5900

Email: transcripts@opus2.com

Website: <https://www.opus2.com>

1 Monday, 1 October 2018
2 (9.45 am)
3 (Proceedings delayed)
4 (9.50 am)
5 THE CHIEF CORONER: Good morning, Mr Hough.
6 MR HOUGH: Good morning, sir. Our witnesses today are, in
7 order, Ms Siwan Hayward, Detective Chief Superintendent
8 Holdcroft, PC Keen, PC Clark and Mr Fenne.
9 Also at some point before lunch we need to address
10 briefly the argument concerning the calling of Mr Marsh
11 tomorrow.
12 THE CHIEF CORONER: Yes.
13 MR HOUGH: Ms Stevens is not here at the moment, she is in
14 consultation with her clients and passes on her
15 apologies, but obviously that argument needs to involve
16 her.
17 THE CHIEF CORONER: Yes. I mean, I have seen the document
18 that's been put in, Mr Hough, or some documents. What
19 I would suggest we do, I mean, it might be convenient to
20 do it just before the lunch break, say at 12.45, or
21 something like that.
22 MR HOUGH: Yes. We will make sure the message is passed on
23 to Ms Stevens so she can be here.
24 THE CHIEF CORONER: Thank you.
25 MR HOUGH: Sir, the first witness is Siwan Hayward.

1

1 MS SIWAN HAYWARD (Affirmed)
2 THE CHIEF CORONER: Good morning. As with other witnesses,
3 if you wish to sit or stand, whichever you feel more
4 comfortable doing, please do so.
5 A. Thank you.
6 Examination by MR HOUGH QC
7 MR HOUGH: Could you give your full name to the court,
8 please?
9 A. My name is Siwan Lloyd Hayward.
10 Q. Ms Hayward, I think you understand I ask questions on
11 behalf of the Coroner and then you will be asked
12 questions by some other lawyers.
13 A. Yes, sir, I do.
14 Before we commence, may I take this opportunity on
15 behalf of Transport for London to express our deepest
16 sympathies and our condolences to the families and
17 friends and to everyone who has been affected by this
18 atrocious, appalling attack in Westminster
19 in March 2017.
20 Q. Thank you very much.
21 Ms Hayward, what is your current post?
22 A. I'm currently the Director of Compliance, Policing and
23 On-street Services.
24 Q. In a sentence or two, what are your duties and what's
25 your remit?

2

1 A. My duties and responsibilities are to manage TfL's
2 relationship with its policing and enforcement partners,
3 to reduce the risk of crime and anti-social behaviour on
4 the transport network and keep everyone safe and secure
5 while they're travelling. Those responsibilities
6 include a leading responsibility for operational
7 security across the transport network. I also manage
8 and lead a team of over 700 operational enforcement
9 staff within Transport for London.
10 Q. When did you take up that post?
11 A. I have recently been promoted to the position of
12 Director on 1 September of this year. However, prior to
13 that I was the Head of Transport Policing and Community
14 Safety within the same directorate.
15 Q. And when did you take up that post?
16 A. I took up that post in 2010.
17 Q. So is it right to say that for the entire period with
18 which we are concerned, both before and after early
19 2017, you have had responsibilities within TfL for
20 prevention of crime and anti-social behaviour across the
21 network?
22 A. Yes, for the prevention of crime and anti-social
23 behaviour across the network, however, in October 2017
24 I took an explicit responsibility and a more proactive
25 role in considering operational security across the

3

1 surface transport network.
2 Prior to that date there was not a single senior
3 lead for operational security, and that responsibility
4 sat with a number of different teams within TfL. So
5 it's only since October 2017 have we been proactively
6 considering protective security.
7 Q. Is this right in general terms: that you are here to
8 give evidence concerning TfL's role in providing
9 protective security, notably barriers on roadways for
10 which it has legal responsibility, including
11 Westminster Bridge?
12 A. Yes.
13 Q. You've made two witness statements. You have them,
14 I think, with you --
15 A. Yes.
16 Q. -- and you may refer to them as you wish.
17 May we begin with the responsibilities of various
18 public authorities for highways and roadways in London.
19 Now, that's a topic which is covered in great detail by
20 a statement of your colleague, Mr Sterritt, but without
21 dwelling on the statutory detail, can you tell me
22 whether the following is a fair summary.
23 First of all, responsibility for roads in Greater
24 London is shared between Highways England, the authority
25 which manages the national motorway network, Transport

4

1 for London, your organisation, and local authorities
 2 across London?
 3 A. Yes, that's correct, sir.
 4 Q. Is it also right that TfL is the highway and traffic
 5 authority for roads designated as GLA, or Greater London
 6 Authority roads?
 7 A. Yes.
 8 Q. Those are, I think, roads known as red routes, being
 9 marked with single or double red lines?
 10 A. Yes, that's correct.
 11 Q. They make up, I think, 5 per cent of London's roads, but
 12 30 per cent of its traffic?
 13 A. Yes, that's right.
 14 Q. Is this right, again without going into too much legal
 15 detail, as highway authority, TfL has a duty to maintain
 16 those GLA roads and has the power to effect appropriate
 17 improvements?
 18 A. Yes, that is correct.
 19 Q. And specifically it has the power to provide and
 20 maintain rails, fences, barriers and so on?
 21 A. Yes, that's correct.
 22 Q. And is it also right that as traffic authority, TfL has
 23 a duty to manage the network of roads for which it is
 24 responsible so as, in simple terms, to keep the traffic
 25 flowing?

5

1 A. Yes, that's correct.
 2 Q. Now, the roadway over Westminster Bridge is part of the
 3 A302 road; is that right?
 4 A. I believe so, sir.
 5 Q. That road, the road running over Westminster Bridge, is,
 6 in relevant part, a GLA road; is that right?
 7 A. Yes, TfL is the highway authority for
 8 Westminster Bridge.
 9 Q. And also the traffic authority for it?
 10 A. And also the traffic authority.
 11 Q. May we bring up on screen {WS5070/13}. Do we see here
 12 a map produced by TfL for our benefit showing marked in
 13 red GLA roads in the Westminster Bridge area?
 14 A. Yes, sir.
 15 Q. As we see on that map, is it right to say that the
 16 boundary between Westminster and Lambeth council areas
 17 runs down the middle of the Thames in this area, cutting
 18 across the middle of the bridge?
 19 A. Yes, that's correct.
 20 Q. Is it right to say that TfL doesn't require the consent
 21 of either authority to make changes to the roadway on
 22 the bridge?
 23 A. Transport for London is not a planning authority so we
 24 do not have planning powers. The planning powers will
 25 rest with local authorities, Westminster and Lambeth.

6

1 However, a further consideration is that
 2 Westminster Bridge is a listed monument, so particular
 3 consents around any changes to Westminster Bridge, we
 4 would be seeking the input of Westminster and Lambeth in
 5 any decision-making.
 6 Q. So you are the decision-maker but you would consult with
 7 the local authorities both on planning matters and also
 8 on listing matters?
 9 A. Yes. And it is a responsibility on a traffic authority
 10 to consult with the neighbouring traffic authorities for
 11 any decision it makes where there may be an impact on
 12 traffic flow.
 13 Q. And Westminster and Lambeth are the traffic authorities
 14 for a number of the other roads in their respective
 15 areas near here?
 16 A. Yes, that's correct.
 17 Q. Finally by way of general background, is it also right
 18 that TfL is the highway authority for a number of other
 19 bridges in the capital, including Tower, London,
 20 Blackfriars and Lambeth bridges?
 21 A. Yes, that is correct, sir.
 22 Q. We can take that map off screen now.

23 Can I now move on to general matters of protective
 24 security which you address from page 2 of your witness
 25 statement. We've heard from Chief Superintendent

7

1 Aldworth that the Home Office has a unit called the
 2 National Counter Terrorism Security Office, NaCTSO,
 3 which supports a network of counter terrorism security
 4 advisors or CTSAs, employed by police forces across the
 5 country; I think you are well aware of that?
 6 A. Yes, absolutely.
 7 Q. We've also heard that there are a number of such CTSAs
 8 in the Metropolitan Police?
 9 A. Yes, sir.
 10 Q. Is it right to say that Transport for London receives
 11 advice from those CTSAs?
 12 A. I will explain the situation: so as has already been
 13 outlined by Chief Superintendent Nick Aldworth, the
 14 network of counter terrorism security advisors in London
 15 are attached to the London boroughs, so therefore they
 16 have an active relationship with each of the local
 17 authorities. Transport for London does not fall within
 18 this category as we are not a local authority, so we do
 19 not have dedicated counter terrorism security advisors
 20 working alongside us from the Metropolitan Police.
 21 Since I have taken the remit of operational security
 22 in October 2017, I have sought, for the
 23 Metropolitan Police to active engage and dedicate CTSAs
 24 to work alongside us. So the situation now is that we
 25 have an active dialogue with those counter terrorism

8

1 security advisors. Prior to March 2017, in fact prior
 2 to October 2017, those advisors were working with local
 3 authorities so we would have -- if we had reason and
 4 cause we would have a conversation with them and we
 5 would engage with them, but there wasn't the same sort
 6 of active ongoing relationship that has been outlined
 7 for other local authorities.
 8 Q. So is this right: in March 2017 before, if a CTSA wanted
 9 to bring something to TfL's attention, he or she could
 10 do so?
 11 A. Yes.
 12 Q. If TfL wanted advice from a CTSA, they could ask for it?
 13 A. Yes.
 14 Q. And would sometimes do so?
 15 A. Yes, absolutely, and we would regularly speak to CTSA's
 16 about temporary events on the public highway where, as
 17 the traffic manager, we wanted to ensure the expedient
 18 movement of traffic but we also wanted to protect the
 19 public and keep them safe. So there was an active
 20 dialogue with regard to temporary and transient events.
 21 Q. But what you are telling us is that since October 2017,
 22 so after the attack, there's a more structured ongoing
 23 relationship between TfL and the CTSA's --
 24 A. Yes.
 25 Q. -- with regular meetings and discussions?

9

1 A. Yes, that is correct.
 2 Q. Now, you referred to TfL receiving advice about large
 3 events and protective security in that context. Before
 4 the attack, did the CTSA's engagement with TfL also
 5 extend to vulnerable places, so not transient events,
 6 but places that were regarded as particularly
 7 vulnerable?
 8 A. Yes. My understanding, accepting that I did not have
 9 direct responsibility for this area prior to autumn of
 10 2017, is that there was engagement about specific places
 11 where there was consideration of risk-mitigation
 12 measures, which abutted the highway or had an impact on
 13 the highway.
 14 Q. So that might include, might it, bollards and barriers
 15 in such areas?
 16 A. In such areas, yes, sir.
 17 Q. Now, looking at paragraph 9 of your witness statement,
 18 is it right that TfL has legal responsibilities which
 19 extend to taking all reasonable measures to reduce the
 20 risk of crime, including terrorism?
 21 A. So in the autumn of 2017 we took the decision to extend
 22 our interpretation of the legal duty under section 17 of
 23 the Crime and Disorder Act to include the prevention of
 24 terrorism. Section 17 of the Crime and Disorder Act
 25 was -- my understanding is the intention of the

10

1 legislation was very much focused on crime and
 2 anti-social behaviour, on problems of substance misuse
 3 in public areas and of problems of offending, and it
 4 appears to me that it was not the intention of the
 5 legislation to include terrorism, however, with our
 6 desire to be more proactive and systematic in the
 7 consideration of protective security, we extended that
 8 definition, which TfL is subject to, to include
 9 terrorism.
 10 Q. I see. So the Crime and Disorder Act 1998 puts a legal
 11 responsibility on TfL to take all reasonable measures to
 12 reduce the risk of crime?
 13 A. To prevent crime and disorder, yes.
 14 Q. In recent times, TfL has taken a positive approach of
 15 interpreting that as including anti-terrorist measures?
 16 A. That is correct, sir.
 17 Q. May we move, then, to the detail of the situation before
 18 the Westminster attack. Before the attack
 19 in March 2017, from TfL's perspective, were London
 20 bridges in general, or was Westminster Bridge in
 21 particular, the subject of any counter terrorism advice
 22 from the police or CTSA's?
 23 A. No, sir, to the best of my knowledge, TfL had received
 24 no advice, guidance or input from the police or any of
 25 the wider Home Office or security services to suggest

11

1 that there was a risk to the bridges, and in particular
 2 threats to the bridges, and that TfL should be taking
 3 steps to mitigate against those risks.
 4 Q. And to your knowledge, setting aside police advice, were
 5 bridges in general, or Westminster Bridge in particular,
 6 identified by TfL itself as being especially vulnerable
 7 to terrorist attack?
 8 A. No, sir, they were not.
 9 Q. Was there any intelligence or review work done to
 10 suggest that they were especially vulnerable?
 11 A. No, sir, not to the best of my knowledge.
 12 Q. And when you say in response to each of those questions,
 13 quite properly, "Not to the best of your knowledge",
 14 that is, I think, based upon you and your colleagues
 15 having made inquiries and made appropriate searches?
 16 A. That's right, so -- yes.
 17 Q. May we then deal with prior attacks, and do you recall
 18 that there were terrorist attacks in Nice, July 2016,
 19 and Berlin, December 2016?
 20 A. Yes, sir.
 21 Q. Those were, of course, before you became specifically
 22 responsible for operational security, but is it right
 23 that you have had discussions with colleagues who were
 24 in post at relevant times and you've commissioned
 25 searches about advice following those attacks?

12

1 A. Yes, sir, that's correct.
 2 Q. May we bring up {WS5072/17}. Do we see here police
 3 guidance issued following the Nice attack. You see
 4 that: "Incident Update – Nice, France, 14th July 2016"?
 5 A. Yes.
 6 Q. And do you recall that that attack involved a truck
 7 being driven into a crowd in Nice celebrating
 8 Bastille Day?
 9 A. Yes, sir.
 10 Q. And do we see that police guidance referred to reviewing
 11 security arrangements for events close to roads? So if
 12 you look at the third paragraph up from the bottom, it
 13 says:
 14 "We are reviewing the security arrangements for all
 15 events which have proximity to carriageways across the
 16 country or where there are large crowds likely to gather
 17 in the street."
 18 A. Yes, sir.
 19 Q. Now, following the Nice attack, was there any further or
 20 more specific guidance relating to, or which might be
 21 relevant to, protective security on bridges?
 22 A. Sir, my understanding is that this advice was
 23 interpreted to -- for there to be a thorough look and
 24 review into how large crowds at public events were
 25 protected, and an events team within Transport for

13

1 London was engaged with the Metropolitan Police and
 2 others in the decision—making around the protection of
 3 large-scale events, so events that happen on the streets
 4 of London, such as the marathon, such as Pride, such as
 5 Changing of the Guards.
 6 Q. So you've answered my next question: the response by
 7 Transport for London to this guidance was to work with
 8 the police through formal structures to look at the
 9 protection of events involving large crowds?
 10 A. That's right, sir.
 11 Q. May we move now to {WS5072/15}. Now this is guidance
 12 which followed the Berlin attack on 19 December 2016 in
 13 which a heavy goods vehicle was driven into a Christmas
 14 market thronged with people. Do you see in that
 15 guidance, towards the bottom of this first page, it
 16 suggests that:
 17 "Businesses that are responsible for or located in
 18 areas that could be considered crowded place, either due
 19 to an event, such as a Christmas market, or by the
 20 nature of the locations, such as a shopping centre or
 21 high street, are asked to review their current security
 22 and contingency plans."
 23 Do you see that?
 24 A. Yes, sir.
 25 Q. Then if we move to the next page {WS5072/16}, do we see

14

1 that at the top of a bullet point list in the lower half
 2 of this page, the guidance refers to additional measures
 3 that may be taken, including, at the second bullet
 4 point:
 5 "Use of pedestrian barriers or Herras fencing ... as
 6 a slowing mechanism."
 7 Now, pausing there for a moment, how did you
 8 understand this guidance to be relevant to TfL, if at
 9 all?
 10 A. So my understanding is that this guidance was taken into
 11 consideration by Transport for London in the planning
 12 and preparation for large-scale events on the public
 13 highway where there would be crowding such as
 14 a Christmas market. For example, there was a Winter
 15 Wonderland within Hyde Park where consideration was
 16 given to how people could be protected, and I believe
 17 some of these measures, including the first bullet
 18 point, was enacted.
 19 Q. Did TfL receive any further particular advice following
 20 the Berlin attack which was relevant to protection of
 21 crowds on bridges?
 22 A. Sir, not specifically with regard to crowds on bridges.
 23 Q. At the time, would TfL have regarded Westminster Bridge
 24 as a crowded place for the purpose of guidance such as
 25 this?

15

1 A. Sir, my understanding is that the designation of
 2 a crowded place is an assessment that's undertaken by
 3 the National Office for Counter Terrorism Security with
 4 the Home Office in collaboration with the police. It's
 5 a specific designation of a particular site or location
 6 which is vulnerable to terrorist attack. My
 7 understanding is that Westminster Bridge, nor any of the
 8 bridges, fall within a definition of a crowded place as
 9 defined by the Home Office and the wider security
 10 advisors.
 11 Q. So when you and your colleagues read the first page of
 12 this advice, which as we saw referred to crowded places,
 13 would you regard that as applying to Westminster Bridge?
 14 A. No, because we understood that the Home Office and the
 15 police had a very specific definition of the locations
 16 and sites which constituted a crowded place.
 17 Q. Can we move on to some further police guidance,
 18 {WS5104/18}. Now, do we see here a document which
 19 I think is annexed to your second witness statement,
 20 which is advice from NaCTSO concerning hostile vehicle
 21 mitigation, which I think you refer to TfL having
 22 received at the start of January 2017?
 23 A. Yes, sir, that is correct.
 24 Q. Once again, do we see reference, this time in the third
 25 paragraph, to public areas during the holiday period

16

1 becoming potentially attractive as crowded places, that
 2 including Christmas markets?
 3 A. Yes, sir, yes.
 4 Q. Do we see it records that there's no intelligence to
 5 suggest that such locations are being targeted, but then
 6 gives, essentially, the same advice about businesses
 7 responsible for or located in such areas reviewing their
 8 security and contingency plans?
 9 A. Yes, sir. My understanding is that this was advice and
 10 guidance to businesses. In as much as this was received
 11 and interpreted within Transport for London it was
 12 specifically with regard to particular events and public
 13 celebrations around the festive time, and our reading of
 14 the crowded places definition was in line with our
 15 understanding that there was a specific criteria and
 16 list that was being applied by the Home Office and the
 17 police.
 18 Q. Then next, please, {WS5104/20}. Do we see here further
 19 NaCTSO guidance from 2016, not specific to festive
 20 markets, but concerned with hostile vehicle mitigation?
 21 This is annexed to your second witness statement,
 22 I think.
 23 A. Yes. Yes.
 24 Q. Is this guidance also that was circulated to and within
 25 Transport for London in early January 2017?

17

1 A. Yes, sir.
 2 Q. I can show you the email attaching it, if it would help?
 3 A. Yes, I do recognise it, sir.
 4 Q. If we bring up on screen {WS5104/16}, do we see there
 5 an email from Mr Furlong of Transport for London
 6 attaching something called "Hostile vehicle mitigation"
 7 guidance from NaCTSO?
 8 A. Yes, sir.
 9 Q. And then back, please, to the same document,
 10 {WS5104/20}, that's one of the documents attached to the
 11 email, so this is another document circulating to and
 12 within Transport for London in early January 2017?
 13 A. Yes, it was, sir. Though I was not a recipient of the
 14 document, as you can see from the circulation list.
 15 Q. Absolutely. You are here to an extent representing the
 16 organisation.
 17 A. Absolutely.
 18 Q. Now, do we see that this makes broad observations about
 19 hostile vehicle mitigation measures being used to
 20 mitigate the threat from attacks using vehicles?
 21 A. Yes, sir.
 22 Q. Do we see that one of the attack methods it refers to is
 23 marauding terrorist firearms attack, MTFA?
 24 A. Yes, sir.
 25 Q. So at that stage, at any rate, NaCTSO was giving, as

18

1 well as its specific guidance about festive markets,
 2 general guidance about the possibility of vehicles being
 3 used in a variety of different types of terrorist
 4 attack?
 5 A. Yes, sir.
 6 Q. Following receipt of that guidance, did Transport for
 7 London undertake any particular measures to review
 8 hostile vehicle mitigation on roads and bridges for
 9 which it was responsible?
 10 A. Sir, to the best of my knowledge, we did not undertake
 11 any sort of systematic review of roads where TfL is the
 12 highway authority. In that circumstance we would have
 13 been dependent on advice and guidance from police and
 14 security services colleagues about potentially
 15 vulnerable locations so we could undertake
 16 a proportionate risk assessment, and there was no advice
 17 or guidance forthcoming about the vulnerability of TfL
 18 roads in general.
 19 Q. We can take that document down now. Following those
 20 attacks, Nice in July 2016 and Berlin in December 2016,
 21 was any specific guidance given in relation to erecting
 22 fixed barriers on roadways in general or bridges in
 23 particular?
 24 A. No, sir.
 25 Q. Prior to March 2017 there were pedestrian guardrails on

19

1 a number of bridges in the capital, as we've seen in
 2 photographs shown to the Inquest; is that right?
 3 A. Yes, sir.
 4 Q. In broad terms, what was the purpose of those pedestrian
 5 guardrails on bridges other than Westminster Bridge?
 6 A. The purpose of pedestrian guardrails is to — sorry, let
 7 me start again.
 8 The purpose of pedestrian guardrails is to prevent
 9 the incursion of pedestrians onto the carriageway. So
 10 they are there to stop pedestrians walking into the
 11 carriageway. They are not vehicle security barriers,
 12 and my understanding, from having consulted with
 13 colleagues, is that they would not provide protection
 14 against a vehicle that was deliberately driven at those
 15 barriers, because the force of the impact, even at
 16 relatively low speed, would mean that the barriers would
 17 provide no protection to the pedestrians on the other
 18 side.
 19 Q. So to your knowledge, were any of the guardrails
 20 installed as or considered as protective security
 21 against vehicle attacks?
 22 A. No. The guardrails were installed and considered only
 23 to prevent pedestrian incursion onto the carriageway.
 24 Q. Now, if I may, I would like to ask for your response to
 25 a point that may be made by those concerned with these

20

1 Inquests. First of all, it might be suggested that
 2 Westminster Bridge was in early 2017 and still is,
 3 a truly significant bridge in London, close to the
 4 Palace of Westminster and at the centre of the capital;
 5 would you accept that?
 6 A. Yes, sir.
 7 Q. It might also be said that Westminster Bridge, as much
 8 as any bridge, is often thronged with tourists, many of
 9 them stopping to take photographs?
 10 A. Yes, sir, it is a busy bridge.
 11 Q. Now, the suggestion may be made that those responsible
 12 for the safety of people on the bridge should have
 13 foreseen that it was possible an attack might take place
 14 targeting those tourists in that iconic location: what
 15 would be your response to that?
 16 A. Sir, at the time, prior to the attack on
 17 Westminster Bridge, there was not the appreciation of
 18 the change in nature of threat that this country is
 19 facing, and although vehicles had been seen — vehicles
 20 used as a weapon in attacks around the world, the
 21 consideration of that as a threat type being used by
 22 terrorists in this country was not at the forefront of
 23 our minds, and therefore the protection of pedestrians
 24 in locations across the capital, from vehicles being
 25 used as a weapon, was not considered.

21

1 At that time our consideration was more around the
 2 threat of a marauding terrorist attack, with the
 3 potential use of knives and other weapons by a single or
 4 coordinated group of marauding terrorists, and there was
 5 thought underway into how to protect people in public
 6 spaces from marauding terrorists.
 7 Q. So you were, to put this in summary form, concerned
 8 about the type of attack that had been seen in Mumbai?
 9 A. Yes.
 10 Q. And you had been learning, or attempting to learn from
 11 the types of attacks that had been seen in Nice and
 12 Berlin?
 13 A. Yes, the Harris Review into London's preparedness for a
 14 terrorist attack had highlighted that the most likely
 15 form of attack for London to experience was one of
 16 a marauding terrorist.
 17 Q. May we move on, then, to the situation since the
 18 Westminster attack and what has happened
 19 since March 2017, and you deal with this from page 5 of
 20 your first statement?
 21 A. Yes, sir.
 22 Q. Is it right to say that shortly after the Westminster
 23 attack, in fact two days later, NaCTSO produced updated
 24 guidance on the terrorist threat?
 25 A. Yes, sir.

22

1 Q. And did that guidance make reference to risks of
 2 vehicles being used as weapons and to hostile vehicle
 3 mitigation barriers as a form of protection?
 4 A. Yes, sir. But my understanding is that it stated that
 5 the nature and extent of mitigation would be dependent
 6 upon a risk assessment and the operational requirements
 7 specific to that site or event. So, again, the focus
 8 was very much on site-specific vulnerability, or
 9 event-specific vulnerability, and not the general
 10 vulnerability of highways.
 11 Q. I think in giving that reference you're actually quoting
 12 directly from the guidance?
 13 A. From the — yes.
 14 Q. Was any specific guidance given at that stage about the
 15 installation of barriers on bridges?
 16 A. No, sir.
 17 Q. Was any work done by TfL between late March and
 18 early June 2017 to consider or implement the
 19 installation of barriers on bridges, either temporary or
 20 permanent ones?
 21 A. So Transport for London had been engaged in
 22 a consultation about the installation of a segregated,
 23 what is called a cycle superhighway, so a segregated,
 24 designated lane for cycling, which would have separated
 25 the vehicles from a cycle lane and separated vehicles

23

1 from the pedestrian footway. Consultation on the
 2 creation of a cycle superhighway across
 3 Westminster Bridge had been undertaken in 2015, and the
 4 final designs and concepts were due for implementation
 5 from March of 2017.
 6 But then following the attacks on
 7 Westminster Bridge, further consideration had to be
 8 given to what the appropriate measures were. So we did
 9 have plans in place at that time to install additional
 10 kerbing along the carriageway, which would have
 11 restricted the width of the carriageway and provided
 12 a kerbing to protect cyclists from vehicles on the
 13 bridge.
 14 Q. So in plans that were being developed for the cycle
 15 superhighway before March 2017, there would have been
 16 some kerbing which would have provided, not as its
 17 original intention but as a collateral effect, some
 18 protection of pedestrians against vehicles intruding
 19 onto the kerb?
 20 A. My understanding is that the proposed design was one
 21 which, yes, segregated the vehicle carriageway from
 22 a cycle-specific carriageway, and then that was
 23 separated from the pavement.
 24 Q. So following March 2017, is this right, you went back to
 25 work on those designs, taking account of what had

24

1 happened in the attack?
 2 A. I -- my understanding is the designs were looked at
 3 again following the attack, and amendments made, and now
 4 you will see that what has been installed on
 5 Westminster Bridge is actually a mandatory cycle lane,
 6 so that is a cycle lane which is bound by a white line,
 7 but there is no physical segregation between the cycle
 8 lane and the carriageway.
 9 Q. But in the period between late March and
 10 early June 2017, did TfL engage in any systematic risk
 11 assessment of highways or bridges to take account of the
 12 risk of an attack like Masood's being repeated?
 13 A. No, sir.
 14 Q. Any specific reason why not?
 15 A. So between March and June is before the time I took
 16 responsibility for this area. I can say with confidence
 17 now, and having learned from those horrific attacks,
 18 that what we are now doing as Transport for London is
 19 that we are proactively considering every TfL highway,
 20 every location where TfL -- where the pedestrian area of
 21 the pavement is contiguous to a transport hub, and also
 22 all projects that we are funding and schemes and designs
 23 that we are developing in collaboration with local
 24 authorities, we are now proactively considering the
 25 potential threats, vulnerabilities and risks to those

25

1 locations to ensure that we are incorporating protective
 2 security measures into our thinking and into any
 3 emerging designs or plans for those areas.
 4 Q. Thank you. Now, on 3 June 2017, the London Bridge
 5 attack took place; yes?
 6 A. Yes, sir.
 7 Q. That involved a vehicle, once again, being driven from
 8 the highway onto a kerb on London Bridge this time,
 9 targeting pedestrians.
 10 A. Yes, sir.
 11 Q. Now, we have heard from witnesses already that on the
 12 day after that attack, work began which involved
 13 installing temporary barriers on Westminster Bridge,
 14 London Bridge and some other bridges; is that right?
 15 A. Yes, sir.
 16 Q. Was that work at the instigation of the police?
 17 A. Yes, sir.
 18 Q. Did TfL have any involvement in the decision to install
 19 those barriers?
 20 A. As the highway authority and asset owner for a number of
 21 the Central London bridges, the Metropolitan Police
 22 informed us of their intention and formally requested
 23 our support, and we absolutely gave our support for the
 24 installation of temporary barriers across the eight
 25 Central London bridges.

26

1 Q. Thank you. In the aftermath of that attack, in fact on
 2 8 June, did NaCTSO provide further guidance on
 3 protection of crowded places in the capital?
 4 A. Yes, sir.
 5 Q. Did that contain similar observations to those which had
 6 been made in the March 2017 guidance?
 7 A. Yes, sir. The focus of that guidance on crowded places
 8 remained on visitors' attractions, places of worship,
 9 commercial centres, and particular locations.
 10 Q. Now, following -- since the installation of the
 11 temporary barriers on these various bridges, has
 12 Transport for London been involved in further review and
 13 assessment work on the layout of those temporary
 14 barriers?
 15 A. Yes, sir. We've worked in collaboration with the
 16 Metropolitan Police to minimise the impact of those
 17 barriers on the free flow of buses and pedestrians and
 18 cyclists to ensure that the barriers do not impede
 19 movement and that they are safe in their use, but
 20 clearly to -- without actually moving those barriers, so
 21 there's been minor movement of the barriers, and the
 22 barges at the entrance and exits to the bridges to
 23 ensure that they facilitate safe movement of people --
 24 safe movement of people, cyclists and traffic.
 25 Q. So some modest changes to those barriers, but

27

1 essentially the barriers left in place since then?
 2 A. Absolutely, sir.
 3 Q. Has TfL also been working in recent times on more
 4 permanent physical security measures for those bridges?
 5 A. Yes, sir. We have taken the lead in trying to -- in
 6 determining potential design concepts for permanent
 7 measures for the bridges that are currently protected by
 8 the temporary measures. We are working in collaboration
 9 with the local authorities. For a number of those
 10 bridges, local authorities are the highway authority or
 11 the asset owner of those bridges.
 12 We are also working in collaboration with the
 13 Mayor's office, the police and others and what we are
 14 seeking to do is install permanent security measures on
 15 the bridges which are in keeping with the design and the
 16 attractive nature of those bridges, which encourage
 17 people to use the bridges, but are also within the
 18 structural limitations of the bridges. Those bridges,
 19 as you can imagine, pose a number of engineering
 20 challenges for the installation of deep-footed barriers
 21 or other vehicle security measures.
 22 Q. Looking beyond bridges, has work been done in recent
 23 times by NaCTSO and the CTAs to advise about other
 24 areas that might be vulnerable to vehicle attack and to
 25 give advice on protective security in those areas?

28

1 A. Yes, sir. In recent months there has been work done by
 2 NaCTSO to look again at the crowded places definition,
 3 and determine a potential list of vulnerable locations,
 4 and, likewise, each of the counter terrorism security
 5 advisors have worked with their local authority chief
 6 executive to determine a list of vulnerable locations
 7 within their borough boundaries, and we, as Transport
 8 for London, have been working with the
 9 Metropolitan Police counter terrorism security advisors
 10 on that list to ensure that we are taking a coordinated
 11 and consistent approach across London in the
 12 determination of proportionate measures to protect
 13 people as they move around the capital.
 14 Q. Have any structures been set up within TfL in order to
 15 pursue this task of reviewing vulnerable locations with
 16 a view to installing appropriate protective security?
 17 A. Yes, sir. We have established an internal working group
 18 called the Protective Security Steering Group, to which
 19 we invite both the Metropolitan Police counter terrorism
 20 security advisors, that we have now secured as being --
 21 supporting Transport for London in their endeavours, and
 22 also the technical standard experts from the CPNI, and
 23 they work with us on, as I said, systematically looking
 24 at all new developments, looking at requests for
 25 protective security that have come from businesses, and

29

1 looking across the TfL highway, and work to date has
 2 very much focused on finding permanent protective
 3 security measures for the London bridges.
 4 Q. And looking more generally still, has work been done to
 5 assist staff in risk assessment and, in particular, risk
 6 assessment for those involved in planning and designing
 7 new road and transport schemes?
 8 A. Yes, sir. We have embedded a stage in the development
 9 process for planners and sponsors of schemes on the
 10 highway to work with us and our colleagues in the
 11 Metropolitan Police, CTSA's and others, in undertaking
 12 a threat, vulnerability and risk assessment against the
 13 operational requirements of that highway, of that
 14 street, of that place, to determine what the appropriate
 15 and proportionate measures are against the wide range of
 16 threats that London is currently facing.
 17 MR HOUGH: Thank you very much, Ms Hayward. Those are my
 18 questions. As I say, there will probably be others.
 19 Examination by MR PATTERSON QC
 20 MR PATTERSON: Ms Hayward, I ask questions on behalf of the
 21 families of those who lost their lives on the bridge:
 22 two Londoners and two tourists, and the two tourists, we
 23 know from the evidence, were engaged in taking
 24 photographs on the bridge that day.
 25 Andreea Cristea, who had come from Romania, who was

30

1 taking a series of photographs as she left the Abbey and
 2 walked over the bridge; yes?
 3 A. Yes.
 4 Q. And Kurt Cochran, who was celebrating his 25th wedding
 5 anniversary with his wife, and we heard evidence from
 6 her that she was taking a photograph just moments before
 7 they were hit as they approached the south bank.
 8 I want to ask about the steps that have been taken
 9 in recent years by Transport for London to keep
 10 pedestrians safe. Have I understood your evidence
 11 correctly that there was no individual who had sole
 12 responsibility in the months leading up to this attack
 13 for protective security?
 14 A. Sir, if I may, within the rail and underground
 15 environment there is a comprehensive regime to protect
 16 people as they use the rail and underground environment,
 17 so there are dedicated experts within Transport for
 18 London looking specifically at how to mitigate risks
 19 within the rail and underground environment.
 20 There were also teams working on events, as I've
 21 already mentioned, so where there are public events on
 22 the highway there were teams working specifically to
 23 support the protection of the public as they participate
 24 in public events, but also to ensure the expeditious
 25 movement of traffic around those events.

31

1 Q. Who had responsibility for keeping pedestrians safe on
 2 Westminster Bridge?
 3 A. The broad responsibility for keeping pedestrians safe on
 4 Westminster Bridge falls to TfL, as we are the asset
 5 owner and the highway authority, and that responsibility
 6 would have sat with the head of highways.
 7 Q. And who was that?
 8 A. The head of -- okay, so the head of highways at the time
 9 was named Nick Aldworth. He is not the same
 10 Nick Aldworth who has given evidence to this Inquest.
 11 Q. Right. I'm just wondering if you are the right person
 12 to help us this morning with keeping pedestrians safe on
 13 Westminster Bridge. Are you saying that it wasn't you
 14 who had that specific responsibility but a different
 15 individual called Mr Aldworth?
 16 A. Sir, I have taken responsibility on behalf of Transport
 17 for London to think -- to consider far more broadly how
 18 we keep pedestrians secure when they travel across --
 19 when they use our highways, when they walk on our
 20 pavements, and when they cross the bridges that TfL
 21 owns.
 22 There is -- I would suggest, sir, that the
 23 interpretation of a highway authority's responsibility
 24 for safety has been one to date which has been about
 25 reducing the risk of trips, slips and falls, of

32

1 accidents and of collisions . However, since I have
 2 taken responsibility , we have broadened that definition
 3 and understanding to keeping pedestrians both safe and
 4 secure from the risk of terrorism and other crimes.
 5 Q. But as I understand your evidence earlier to Mr Hough,
 6 you were suggesting that responsibilities were shared
 7 between a number of individuals and a number of parts of
 8 TfL; is that right?
 9 A. At the time leading up to the attack in March 2017, yes,
 10 it was, but in response to your previous question about
 11 whether I'm the right person to be here, I'm confirming
 12 that I am in that this is now my overall responsibility ,
 13 and as I have stated previously, we have been proactive
 14 in our consideration about how we keep people secure as
 15 they travel round London.
 16 Q. But certainly I think you accept that at the time you
 17 had responsibility for community safety?
 18 A. Yes, sir .
 19 Q. And for surface transport as opposed to transport
 20 underground?
 21 A. Yes, sir .
 22 Q. I think you accept that Transport for London did have
 23 statutory obligations in relation to keeping pedestrians
 24 safe?
 25 A. Yes, sir .

33

1 Q. And it's dealt with in detail by the statement of
 2 Mr Sterritt , your colleague, and we can go through, if
 3 necessary, the Greater London Authority Act, and we can
 4 go through the Road Traffic Regulation Act, but I think
 5 you accept that Transport for London did have a duty to
 6 keep pedestrians safe on that bridge?
 7 A. Yes, sir .
 8 Q. You knew in the period leading up to the events
 9 of March 2017 that there was a definition that was
 10 applied to crowded places; yes?
 11 A. Yes, sir .
 12 Q. Could we see on screen, please, {DC8045/5}. This,
 13 Ms Hayward, is from the -- this is all part of a number
 14 of publications and instructions issued by the
 15 government under its CONTEST strategy, I think you're
 16 probably aware of that; yes?
 17 A. Yes, I am.
 18 Q. The CONTEST strategy. And an important feature of the
 19 CONTEST strategy for many years has been Protect, namely
 20 protecting the public from the risks of terrorism; yes?
 21 A. Yes, sir .
 22 Q. And you had specific responsibility yourself, did you
 23 not, for implementing Protect and protecting the public
 24 from the risks of terrorism?
 25 A. Not at the time of the run-up to -- not at the time

34

1 prior to the attack.
 2 Q. So if I was to suggest that TfL had a responsibility and
 3 that you in your specific position had that
 4 responsibility , would you accept those two propositions?
 5 A. Sorry, can you repeat the question?
 6 Q. Well, I think you accept that TfL had a responsibility ;
 7 yes?
 8 A. Had responsibility for?
 9 Q. For implementing Protect and following the Government's
 10 guidance on keeping the public safe from terrorism?
 11 A. Yes, sir .
 12 Q. And you've told us that you specifically had
 13 responsibilities for safety; yes?
 14 A. My responsibilities were for community safety, so for
 15 the prevention of crime and anti-social behaviour as
 16 they affected the transport system and people's journey
 17 around the capital .
 18 Q. Did you do anything to try and implement the Protect
 19 strand of CONTEST?
 20 A. So in the period prior to the March 2017 attacks?
 21 Q. Yes.
 22 A. In terms of the implementation of the Protect strand,
 23 the lead responsibility for the implementation of
 24 Protect sits with the Metropolitan Police . We would be
 25 working in collaboration with the Metropolitan Police

35

1 and for us the rail and underground network with British
 2 Transport Police , if there was any advice, guidance,
 3 suggestion as to how we as a transport authority and
 4 highway authority could contribute to the Protect
 5 strand, then clearly we would have implemented that.
 6 I am not aware of any suggestions or recommendations or
 7 requests forthcoming from the Metropolitan Police to
 8 support the implementation of the Protect strand prior
 9 to March 2017.
 10 Q. Yes, but TfL can't simply say: it's all down to the
 11 police and if the police don't guide us or advise us we
 12 don't have to do anything. You are not suggesting that,
 13 are you?
 14 A. I'm certainly not suggesting that.
 15 Q. Right.
 16 A. But I am suggesting that in terms of understanding the
 17 threat that faces the capital from terrorism, the nature
 18 of that threat, the particular vulnerabilities in the
 19 capital and what actions should be taken, we are
 20 dependent on insight, advice, and guidance from our
 21 colleagues in the police and in other government
 22 agencies.
 23 Q. Let's just look at this definition . We can see the
 24 wording there on the screen, that:
 25 "A crowded place is a location or environment to

36

1 which members of the public have access ..."
 2 Do you see that?
 3 A. Yes, sir.
 4 Q. "... that may be considered potentially liable to
 5 terrorist attack by virtue of its crowd density."
 6 Yes?
 7 A. Yes, sir.
 8 Q. Then it refers to a matter of judgment, and then it
 9 gives examples:
 10 "... including: sports stadia, pubs, clubs, bars,
 11 shopping centres, high streets, visitor attractions,
 12 cinemas, theatres and commercial centres."
 13 A. Yes, sir.
 14 Q. It can include public spaces such as park and squares,
 15 not necessarily crowded at all times, it may vary during
 16 the day or night. It may be temporary, but it certainly
 17 doesn't say that it's only transient locations, does it?
 18 A. No, sir.
 19 Q. "May be temporary", and it's a very wide-ranging
 20 definition, isn't it?
 21 A. Yes, it is, sir.
 22 Q. And to anyone reading that, whether it would be a member
 23 of the public seeking reassurance, or somebody within
 24 Transport for London making plans to protect the public
 25 of London, they would realise that a large part of

37

1 London will have to be considered when addressing safety
 2 issues; would you agree?
 3 A. Yes, sir.
 4 Q. So if I understand your evidence correctly, you're
 5 saying that at the time, however, despite that
 6 wide-ranging definition, TfL understood or believed that
 7 actually there was a much smaller number of places that
 8 were being treated as crowded places; is that right?
 9 A. Yes, sir. My understanding at that time was that the
 10 actual definition and designation of vulnerable
 11 locations was a systematic exercise undertaken by NaCTSO
 12 and the police, and that they determined what places
 13 constituted crowded places, and therefore were
 14 vulnerable to terrorist attack and required potentially
 15 further protective security measures.
 16 Q. Did you never ask yourself the question: why is it that
 17 it's a very wide-ranging definition but actually very
 18 few places are being treated as crowded places?
 19 A. It is something that we considered. It's the criteria
 20 to determine a crowded place is one -- my understanding
 21 is that it's one that's held at a higher security level.
 22 So we were not party to the methodology that is used by
 23 the Home Office, NaCTSO and others to define crowded
 24 places.
 25 Q. Were you aware that that was something that wasn't very

38

1 widely known to the public?
 2 A. On reflection, that's -- that appears self-evident, yes.
 3 Q. You see --
 4 A. There's a difference -- clearly there's a difference
 5 between what people consider crowded and what is
 6 designated by the Home Office, NaCTSO, the police, as
 7 a crowded place.
 8 Q. You see, it was only when a senior police officer gave
 9 evidence, the other Mr Aldworth --
 10 A. Yes.
 11 Q. -- that we learned that -- when he was asked: well, who
 12 are these decision-makers who decided Westminster Bridge
 13 isn't not a crowded place -- sir, this is Day 11 of the
 14 transcript, page 138, we were told that:
 15 "Answer: So the governance of crowded places sits
 16 within the Protective Security and Preparedness Steering
 17 Group, which is a function that is delivered through the
 18 Office for Security and Counter-Terrorism."
 19 Was that your understanding?
 20 A. Yes, sir.
 21 Q. Are you familiar with these different organisations
 22 and --
 23 A. Not intimately, sir.
 24 Q. Yes. So were TfL given a list of the crowded places for
 25 which they had responsibility?

39

1 A. No, sir.
 2 Q. Right, so if this steering group categorised or
 3 designated places, TfL weren't informed of that; is that
 4 right?
 5 A. Sir, as I highlighted previously, my understanding is
 6 that the structure which existed was that local counter
 7 terrorism security advisors would be engaged with their
 8 local authorities, the chief executives of those local
 9 authorities, on the list of crowded places that fell
 10 within their borough boundaries. Prior to the work that
 11 we've done recently, there was no dedicated counter
 12 terrorism security advisors working with TfL to
 13 distinguish the locations which were on the TfL highway
 14 for which we had ownership and responsibility.
 15 So no one was talking -- no one was engaging
 16 systematically with us about vulnerable locations which
 17 were part of TfL highway.
 18 Q. So TfL had statutory responsibilities to protect the
 19 public, but weren't even told that there were certain
 20 crowded places within their area of responsibility, that
 21 was never communicated to TfL; is that right?
 22 A. So there wasn't -- to the best of my knowledge there
 23 wasn't this active dialogue. We were engaged in
 24 specific projects around the protection of what's called
 25 the Westminster Ceremonial Streetscape where there is

40

1 work underway to provide protective security around
 2 Westminster, and that includes some of the roads which
 3 are both TfL roads but also where they abut TfL's roads.
 4 Q. If we look, please, once again at the Nice document,
 5 {WS5072/17}. So this was in the summer of 2016; yes?
 6 A. Yes.
 7 Q. July 2016. So we've looked at the definition of crowded
 8 places, which made it plain that it wasn't just
 9 transient areas, but here again if we look at this
 10 document, two-thirds of the way down "We are reviewing",
 11 do you see that sentence "We are reviewing the security
 12 arrangements"?
 13 A. Yes, sir.
 14 Q. The wording there is:
 15 "... for all events which have proximity to
 16 carriageways across the country or where there are large
 17 crowds likely to gather in the street."
 18 A. Yes, sir.
 19 Q. And, again, there's nothing there that made it clear
 20 that only transient places were being treated as crowded
 21 places; do you agree?
 22 A. Sir, my understanding of the interpretation of that
 23 sentence is that it was specifically looking at events
 24 which by their nature are transitory, and where large
 25 crowds are likely to gather in the street. That, again,

1 suggests to me a temporary occurrence.
 2 Q. But the word "or" separates these two, doesn't it? So
 3 if you are considering, for example, Westminster Bridge,
 4 where people gather to take photographs of Big Ben and
 5 the river and the Houses of Parliament, large crowds are
 6 gathering there, it's the sort of place where there
 7 could be multiple casualties from a terrorist attack,
 8 isn't that clearly within the definition that we looked
 9 at?
 10 A. Sir, my understanding from colleagues is that the
 11 interpretation of that was about large crowds gathering
 12 in the street, as in meaning in the carriageway, in
 13 celebration. So, for example, when it's New Year's Eve
 14 in London there is a -- there are crowds that gather in
 15 the streets to celebrate the coming of the New Year.
 16 Q. Even though the actual definition itself makes it plain
 17 that it goes beyond temporary events?
 18 A. Beyond temporary events, but still talks about crowds
 19 gathering in the street rather than crowds -- rather
 20 than people being on the pavement.
 21 Q. Yes, but we looked at the definition, we can return to
 22 it if you want to be reminded, it refers to high
 23 streets, for example.
 24 A. Yes, sir.
 25 Q. Shopping centres.

1 A. Yes, sir.
 2 Q. Then if we go to the Berlin document, which is at the
 3 same document but at {WS5072/15}, so this is some months
 4 later, towards the end of 2016, isn't it?
 5 A. Yes, sir.
 6 Q. And, again, if you look at the wording of this document
 7 towards the bottom of the page, there's a reference to:
 8 "Business that are responsible for or located in
 9 areas that could be considered crowded place ..."
 10 Do you see that?
 11 A. Yes, sir.
 12 Q. "... either due to an event, such as a Christmas
 13 market ..."
 14 Pausing there, so either that would be a transient
 15 or temporary event, yes?
 16 A. Yes, sir.
 17 Q. And then again we have that word "or", don't we?
 18 A. Yes, sir.
 19 Q. Then they deal, don't they, with a different
 20 categorisation:
 21 "... the nature of the locations, such as a shopping
 22 centre or high street ..."
 23 It's not just transient or temporary locations:
 24 crowded places were being treated as including places
 25 other than temporary events. That's right, isn't it?

1 A. Yes, sir, it's right, but the nature, in terms of how
 2 crowding is measured, clearly across London there are
 3 a number of streets, some of which TfL is the highway
 4 authority, which are densely crowded.
 5 Q. Yes. I'm suggesting that the definition did include
 6 places where there were crowds other than on temporary
 7 events, or gay pride marches or Winter Wonderlands or
 8 things of that sort. That was the definition?
 9 A. Yes, sir.
 10 Q. And we saw a document where you were taken by Mr Hough
 11 some minutes ago to remind us about barriers that can be
 12 installed; do you remember that document that we looked
 13 at?
 14 A. Yes, sir. Yes.
 15 Q. Again, there were references -- we can go to it again if
 16 you like, but there were reference there not only to
 17 temporary barriers but to permanent barriers, weren't
 18 there?
 19 A. Yes, sir.
 20 Q. And clearly if there is infrastructure going in, or
 21 protective barriers going in, there will be a degree of
 22 expenditure and to do the job properly there will be a
 23 degree of permanence required; would you accept that?
 24 A. Yes, sir.
 25 Q. And so is the truth that it's only after the event

1 that's being suggested that there was just a transient
 2 feature to "crowded places", but actually at the time
 3 everyone did regard "crowded places" as going beyond
 4 transient events?
 5 A. As I've stated, my understanding is that there was
 6 a clear definition of what constituted a crowded place.
 7 That definition and the measurements used in the
 8 assessment of that definition is one that is held by the
 9 Home Office, the Office for Security and
 10 Counter-Terrorism, through NaCTSO, and the
 11 Metropolitan Police, and that to the best of my
 12 knowledge, none of TfL's highways fell within that
 13 definition of crowded places.
 14 Q. You've agreed that this was an iconic location; yes?
 15 Westminster Bridge?
 16 A. I've agreed that the Houses of Parliament is an iconic
 17 location.
 18 Q. Yes.
 19 A. The bridge in itself, I think there may be some debate
 20 about whether it is iconic as a bridge in itself, for
 21 example, compared with Tower Bridge, which some may
 22 argue is more noticeable and known around the world.
 23 Q. Yes, but you will agree that Westminster Bridge is
 24 a very significant location in the centre of London;
 25 yes?

45

1 A. Yes, sir.
 2 Q. Huge numbers of tourists every year come onto the
 3 bridge, don't they?
 4 A. Yes. It is not the busiest bridge in London, and it is
 5 certainly not the busiest street in London, but there
 6 are a number of people who cross the bridge.
 7 Q. Yes. And having a duty, as you have already agreed, to
 8 keep the public and pedestrians safe, are you saying
 9 that TfL never specifically considered safety for
 10 pedestrians on that pavement, on the bridge?
 11 A. We absolutely considered the safety of pedestrians from
 12 the risks that they are facing, and those risks for us
 13 would include the risk of trips, slips and falls, and
 14 the risk of collisions. So the asset is maintained to
 15 keep people safe as they travel and walk across the
 16 bridge.
 17 Q. I mean, was there, for example, somewhere a map or
 18 a document, a list of the different places for which TfL
 19 had responsibility, and addressing risk issues for those
 20 various locations?
 21 A. My understanding is that that form of risk assessment is
 22 part and parcel of the asset maintenance. So each of
 23 our assets, there will be an inspection and maintenance
 24 regime which will be considering risks from the
 25 structure. So there is -- so understanding safety risks

46

1 is part and parcel of the work of colleagues who are
 2 responsible for highways maintenance.
 3 Q. But by the time we're dealing with, so the early months
 4 of 2007, presumably you were aware of the risk from
 5 terrorism in London?
 6 A. Yes, sir, the broad risk from terrorism. I would say
 7 that the threat of vehicles being used as a weapon was
 8 not widely understood and seen to be a significant
 9 threat to the capital, and therefore there was no advice
 10 or guidance or recommendations forthcoming to Transport
 11 for London to be mitigating against the threat of
 12 vehicles as a weapon, as opposed to the wide range of
 13 other threats from terrorism, and also the much wider
 14 range of risks that people face as they walk around the
 15 capital.
 16 Q. But the Lee Rigby murder had made it plain, hadn't it,
 17 that terrorists were using vehicles to drive at targets
 18 on the streets of this city; yes?
 19 A. Yes, sir. My understanding is that the view was that
 20 the Lee Rigby attack was a deliberate attack against
 21 a member of Her Majesty's armed services, and therefore
 22 there was work undertaken by the police to look
 23 specifically at the protection of barracks and the
 24 places where potential vulnerable targets may be. But
 25 it was not, to the best of my knowledge, interpreted as

47

1 a random attack against people who just happened to be
 2 in the street at the time.
 3 Q. And the propaganda coming from Isis for quite a few
 4 years leading up to the Westminster attack was
 5 encouraging people to launch attacks in their homeland,
 6 in this country, and that that included targeting
 7 "civilians".
 8 A. Yes, sir.
 9 Q. Did TfL pay any attention to this, to these extortions
 10 or instructions that were coming from Adnani and people
 11 like that, from magazines like Inspire or Dabiq,
 12 encouraging terror attacks in the West?
 13 A. We would have been reliant on our colleagues in the
 14 police and security services to share that terrorist
 15 propaganda with us. TfL does not routinely read
 16 terrorist propaganda --
 17 Q. This is all in the public domain, this is all on the
 18 internet. You don't need police intelligence for this.
 19 It's there for us all to see in the media.
 20 A. Sir, as I have stated, the -- in hindsight, and it's
 21 very difficult to be saying this in hindsight, that as
 22 Transport for London, we were concerned with protection
 23 and we absolutely take our duties seriously in terms of
 24 protection of people as they use public transport and
 25 the rail and underground network, but there is a gap in

48

1 policy in terms of what is the expectation on highway
2 authorities for it to be actively considering how they
3 should be protecting people as they walk around the
4 capital and use our streets from the threat of
5 terrorism. What we understand now in terms of the
6 enduring nature of the terror threat and the broad range
7 of that threat, I think raises some significant
8 questions for policy in terms of how we best protect
9 people as they use our streets, as they use our public
10 places, and how we continue to make London feel a safe
11 and open and welcoming place to be.

12 Q. In November 2016, four months before Westminster,
13 a jihadist in America drove a vehicle into members of
14 the public on a university campus. Did that not cause
15 TfL to start assessing the dangers on the various
16 streets or bridges for which it had responsibility?

17 A. No, sir, it -- at that time it did not. We have now
18 absolutely committed to that exercise and we are
19 proactively, thoroughly and systematically understanding
20 the risks that people face as they use our capital, and
21 what is the right level of protection and measures that
22 we should be taking as a highway authority and others
23 should be taking so that everyone remains safe and
24 secure as they travel in the capital.

25 Q. So that failure by TfL prior to March 2017 to do

49

1 an assessment of the various areas for which they have
2 responsibility, that was a systematic failure to
3 discharge its duty; would you accept that?

4 A. No, sir, I don't think it was being -- it has not been
5 expectation or requirement on any highway authority to
6 systematically assess the vulnerability of their
7 highways to the threat from terrorism. That has not
8 existed.

9 We are now proactively doing that. That is a step
10 that we are taking that I don't believe that highway
11 authorities nationally are taking, but it was
12 a systematic failure, at that time there was no
13 expectation or understanding that that constituted
14 a highway authority's duty.

15 Q. Even in the weeks that followed 22 March you've told us
16 again there was no specific assessment carried out by
17 TfL on the bridge?

18 A. Sir, to the best of my knowledge, I'm not aware of
19 a specific assessment. However, I will need to check
20 that with colleagues.

21 Q. {DC8049/1}, please. This is a document where we have
22 consideration of a number of bridges within Central
23 London where there were railings or barriers in place
24 separating the pavements from the roadways prior to the
25 Westminster attack; do you see that?

50

1 A. Yes, sir.

2 Q. On Tower Bridge, on Battersea Bridge, Chelsea Bridge,
3 Southwark Bridge, Hammersmith Bridge. I want to take
4 this in stages, please: there were certainly a number of
5 Central London bridges where there was a degree of
6 protection in place separating the pavements from
7 the roadways; do you accept that?

8 A. Sir, what you can see on those photos, for Tower Bridge
9 and Battersea Bridge, where Transport for London is the
10 highway authority, are pedestrian guardrails. Those
11 pedestrian guardrails are not designed to withstand
12 vehicles being used for attack. They would not
13 withstand the impact of being hit by a vehicle being
14 deliberately driven with the intention of attacking
15 pedestrians.

16 Q. And whatever they were first installed for, whatever the
17 purpose of the installation, they would have provided
18 a degree of protection, I would suggest. Would you
19 accept that?

20 A. I would not accept that they provide a degree of
21 protection from vehicles being used as a weapon.
22 I accept that they are designed for the purpose of
23 preventing pedestrian incursion onto the carriageway, so
24 therefore they provide -- they are designed to protect
25 people from walking into the carriageway. Nevertheless,

51

1 there are a number of risks associated with pedestrian
2 guardrail. There is some evidence that they increase
3 the risk of collisions between cyclists and other
4 vehicles using the carriageway, as cyclists become
5 squashed between the guardrail and the carriageway, and
6 there's also some evidence that pedestrian guardrail
7 increases risks for people as they crowd at junctions
8 and therefore walk across -- try to cross the
9 carriageway, and DfT I believe has done an assessment
10 which suggests that pedestrian guardrail actually has no
11 safety benefits.

12 Q. So if they are dangerous, why are they still there?

13 A. TfL has been undertaking a programme, which is referred
14 to as a decluttering programme, and where we are
15 actively removing pedestrian guardrail from TfL's
16 highways because they have limited safety benefit and
17 potentially increase risks.

18 Q. So the public are going to see some of the pavements on
19 bridges exposed to an even greater extent than they are
20 at present; is that the intention?

21 A. No, sir. As I have already outlined, we are undertaking
22 an exercise to consider how do we protect people on
23 bridges from the specific threat of terrorism. The
24 solution would not be a pedestrian guardrail, and we are
25 working with colleagues to determine the solution to

52

1 prevent the threat and risk of vehicles being used as
 2 a weapon.
 3 Q. Because there are still some bridges in this city which
 4 are completely without barriers separating the roads
 5 from the pavements, aren't there?
 6 A. There are bridges outside the Central London area which
 7 have no protection. TfL is not the highway authority
 8 for Chelsea Bridge or Hammersmith Bridge.
 9 Q. And those railings and forms of protection, such as they
 10 were, I suggest that in addition to providing some
 11 degree of protection, they also would have had a very
 12 clear deterrent effect, and they would have deterred any
 13 terrorist considering possibly launching an attack along
 14 the pavement; would you accept that?
 15 A. Sir, it is not for me to know what is in the mind of
 16 a terrorist. I cannot say whether a terrorist would be
 17 visually deterred by the images that you are showing on
 18 screen. I categorically have no insight into the minds
 19 of people who are determined to slaughter people on our
 20 streets.
 21 There is a very live discussion as we consider what
 22 is the right level -- how we do best protect London and
 23 the whole streetscape and public spaces in London.
 24 There is a very live debate about the potential
 25 combination of visual deterrent from other physical

53

1 measures so that we do create a streetscape which
 2 protects people from what we now understand is the
 3 enduring threat of terrorism, and the likely use of
 4 vehicles, knives and easy to access objects by lone
 5 actor terrorists.
 6 So we are now considering how best to protect, and
 7 the suite of physical protection measures to put in
 8 place across the capital.
 9 Q. Do you agree that the attack on Westminster Bridge
 10 showed that TfL's policy on protecting people in public
 11 places was failing?
 12 A. Sorry, sir, can you expand which policy you're referring
 13 to?
 14 Q. Well, the absence of any assessment of areas to consider
 15 whether they were safe or whether they needed protective
 16 measures? That that failure even to carry out
 17 a systematic assessment showed a failure in TfL's
 18 policy?
 19 A. So we were, as is required and undertaken by all highway
 20 authorities, systematically assessing the safety of the
 21 highway from the common risks of collision, from trips,
 22 slips and falls and from other safety concerns. At the
 23 time -- and I appreciate now we are looking at this from
 24 a position of hindsight -- but at the time the threat of
 25 vehicles being used as a weapon randomly against people

54

1 in the street was not one -- was not a risk that was
 2 being -- that was being considered by any highway
 3 authority, but we were systematically assessing safety
 4 risks.
 5 Q. But not systematically ever analysing is there any risk
 6 at all to the public on the pavements of
 7 Westminster Bridge?
 8 A. We would be looking at risks, but at that time there was
 9 nothing to suggest that the threat from terrorist use of
 10 vehicles as a weapon was posing risk to people on
 11 Westminster Bridge.
 12 Q. Since then you yourself have had a widening of your own
 13 personal responsibility; is that right? Or an increase
 14 in your area of personal responsibility?
 15 A. Yes, sir. Yes, sir.
 16 Q. And so, for example, this summer at this court,
 17 Lewis Ludlow, who pleaded guilty to preparing an act of
 18 terrorism on the streets of this city, is that the sort
 19 of thing that Transport for London has been considering?
 20 A. We have been working -- we are now actively engaged with
 21 our colleagues in the Metropolitan Police, in the
 22 Mayor's office and elsewhere, to understand the wide
 23 range of different threats that the capital faces, and
 24 what are the proportionate measures that we should be
 25 taking to protect the public against those threats.

55

1 Q. That particular plot, have you considered it?
 2 A. I have not considered the detail of that particular
 3 plot.
 4 Q. Right. Or even the generality of where he was
 5 targeting?
 6 A. No, sir.
 7 Q. Right. So this August, the Times newspaper reported
 8 that "a Muslim convert" pleaded guilty at this court to
 9 planning to drive a van into pedestrians on Oxford
 10 Street and that he hoped to kill 100 people.
 11 A. Yes, sir, and at the time you will be aware that there
 12 were plans underway to pedestrianise Oxford Street and
 13 we were playing a very active role as Transport for
 14 London, working with the police and others, around the
 15 consideration of hostile vehicle mitigation measures and
 16 other protective security measures to protect Oxford
 17 Street once pedestrianised.
 18 Q. To this day are there still crowded places -- never mind
 19 the definition, just crowded places, areas where there
 20 are large numbers of members of the public in this city
 21 where the public remain vulnerable; would you accept
 22 that?
 23 A. Yes, sir, there are a number of very crowded streets
 24 across London, and clearly the nature of the threat that
 25 we are now facing is one that I think -- I believe it

56

1 was quoted in this court -- that the incitement from the
2 religious leaders and the propagandists is: any vehicle,
3 any weapon, any time, any place, anywhere, or something
4 along those lines, I'm not sure if that's quoting.

5 So I think it presents enormous challenges to public
6 authorities and, broadly, nationally about how we best
7 protect people on the streets with that nature of threat
8 facing us.

9 Q. Transport for London needs to raise its game, I would
10 suggest, to meet this wide-ranging threat more
11 effectively?

12 A. Sir, I would argue that we have and, as I've already
13 outlined to this court, significantly raised our game in
14 terms of appreciating now the enduring and wide-ranging
15 nature of threats that the capital is facing, and that
16 we are now proactively, and to some extent leading the
17 way in the consideration of protective security across
18 predictably crowded spaces and across the public realm.

19 Q. A different topic, please. The bridge was opened,
20 I think, over 150 years ago, wasn't it?

21 A. Yes, sir, that is my understanding.

22 Q. In 1862?

23 A. Yes, sir.

24 Q. And you would agree that the average height of members
25 of the public has risen over those 150 years?

57

1 A. I don't -- I will take your word for it, sir.

2 Q. Well, it's well recognised, isn't it: with improvements
3 in healthcare and nutrition, the average male height has
4 risen from 5 foot 5 in those days to something like
5 5 foot 10 these days; would you accept that?

6 A. I will take your word for it, sir.

7 Q. And so if we could have a look, please, on the screen at
8 {DC8051/1}, I think you've been provided with some
9 research that's been carried out into the height of the
10 walls or parapets on many of the Central London bridges?

11 A. Yes, I believe this information was posted --

12 Q. I think you've seen this, is that right?

13 A. Yes, but only this very morning. I believe it was
14 posted last night.

15 Q. If you turn, please, to {DC8051/2}, there's a comparison
16 of the heights of the walls or parapets at the edge of
17 these bridges, so if somebody were to go over the wall
18 or the parapet into the river below or onto a pathway
19 below, this is the height, and Westminster Bridge is
20 only 99 centimetres in height, the shortest of all of
21 those on that list; do you see the list?

22 A. Yes, sir, I do. My understanding, and from measurements
23 that we have taken, is that the height of the parapet on
24 Westminster Bridge varies slightly along its length from
25 98.5/99 centimetres to 102 centimetres.

58

1 Q. And if we go, please, to page 9 {DC8051/9}, a male
2 model, 6 foot 2 in height, standing there next to the
3 wall at a parapet in the middle of the bridge. We can
4 see just how exposed or vulnerable that person would be
5 if they lost their balance near that wall; do you see
6 that?

7 A. I see the photograph, sir.

8 Q. And the next shortest height or wall is Blackfriars
9 Bridge. If we go, please, to {DC8051/12}, only
10 100 centimetres. No railings, no netting at the side,
11 anything of the sort, and indeed, there are footholds
12 that could be used if somebody, for example, was
13 considering jumping. Do you see that?

14 A. I see the photographs, sir.

15 Q. And if we go back to page 2, please, and the comparison
16 of all of these bridges. Hungerford is
17 a pedestrian-only bridge, isn't it?

18 A. The Jubilee?

19 Q. Hungerford Bridge --

20 THE CHIEF CORONER: I think it was renamed ...

21 A. It's been renamed, sorry, it's now the Jubilee bridges.

22 Q. We can go to the photograph if necessary, but there are
23 two in Central London: Hungerford and Millennium?

24 A. That are foot bridges, yes.

25 Q. Yes, the rest have traffic as well as pedestrian

59

1 pavements; that's right, isn't it?

2 A. Yes, to the best of my knowledge, sir, yes.

3 Q. So whoever made the decisions when these various bridges
4 were built at different times over the years, clearly it
5 was felt that Lambeth Bridge needed to have a parapet as
6 high as 127 centimetres.

7 A. Sir, my understanding from -- and, as I've already
8 stated, I'm not a highways engineer or expert, but my
9 understanding is that the standards specified for
10 parapets on bridges, for vehicular bridges is that the
11 height should be 100 centimetres, 1,000 millimetres, and
12 that's set out in the design manual for roads and
13 bridges, and that on particular bridges, for example
14 Westminster Bridge, because of its -- it is grade II
15 listed, so because of its historic nature there is
16 a level of tolerance for the parapets designed to be in
17 keeping with its historic nature, and therefore for it
18 to be on or around the height of 100 centimetres.

19 Q. Yes, but you are not suggesting that aesthetics should
20 trump public safety, are you?

21 A. No, I'm just quoting from the design manual which
22 provides the guidance on the parapets of bridges, and
23 that manual is clear in stating that design
24 considerations should be a significant factor in the
25 determination of the height of a parapet within the

60

1 broad guidelines specifying 100 centimetres.
 2 Q. If we go, for example, to Lambeth Bridge, and {DC8051/8}
 3 of the document, it was decided that that should be
 4 127 centimetres high, and we can see a member of the
 5 public walking along, and we can see the degree of
 6 additional protection that is given by a wall or
 7 a parapet that's significantly higher than Westminster
 8 or Blackfriars bridges; would you agree?
 9 A. Sir, protection from --
 10 Q. From going over the bridge?
 11 A. From falling over the parapet?
 12 Q. Absolutely. Absolutely.
 13 The majority of those bridges in that table are
 14 higher than Westminster, aren't they? Westminster is
 15 the bottom of the list in terms of height?
 16 A. Yes, sir.
 17 Q. So if there's a scuffle on the pavement between people
 18 or somebody loses their balance for whatever reason,
 19 they're more exposed and vulnerable on Westminster or
 20 Blackfriars Bridge than all those others; would you
 21 agree?
 22 A. It's -- yes, potentially, sir.
 23 Q. If we go to London Bridge at page 15 {DC8051/15},
 24 there's a railing that's been added above it, isn't
 25 there? Whether it was added originally or not perhaps

1 isn't clear, but it's perfectly possible, isn't it, to
 2 raise the heights of parapets by having a degree of
 3 added railing, or something of that sort, above it; do
 4 you agree?
 5 A. I can see what you're indicating from the photos of
 6 London Bridge. As I have stated, my understanding is
 7 that because Westminster Bridge is grade II listed as
 8 a historic monument, therefore there is considerations
 9 given to maintaining the design in keeping with the
 10 original bridge. My understanding for
 11 Westminster Bridge is that it was refurbished by
 12 Westminster City Council in 1996 and there was
 13 consideration by the City Council given at that time to
 14 the design of the parapets and it was deemed that the
 15 parapets should be kept at the height in line with the
 16 original design of the bridge.
 17 Q. Are you aware of the evidence as to what happened to
 18 Kurt Cochran?
 19 A. I am aware of the evidence that has been presented to
 20 this court, yes, sir.
 21 Q. He went over the parapet towards the south bank where
 22 there was a wall aspect, so rather than the parapet that
 23 we looked at in the photograph, a slightly high area of
 24 wall. But the evidence of Detective Constable Osland,
 25 and the evidence we'll hear later today from a police

1 road traffic investigator, is that he wouldn't have gone
 2 over the wall and suffered that fatal head injury when
 3 he fell head-first onto the pavement down below,
 4 something like six or more metres below, if there had
 5 been some sort of railing that would have prevented him
 6 from going over; do you understand?
 7 A. Yes, I do, although I understand he was hit by the
 8 vehicle, which propelled him.
 9 Q. Exactly, and the lower part of his body was caught by
 10 the wall, but there was a sufficient upper part of the
 11 body to pivot him over the wall and down below; do you
 12 agree that the issue of railings or heights on these
 13 bridge walls needs to be looked at again, with a view to
 14 considering safety of the public?
 15 A. Yes, sir. As I've already stated, we are actively
 16 considering how we protect the bridges for future from
 17 the threats faced by terrorism, and as part of that
 18 consideration we will be looking at the parapet height
 19 as we now know, the nature of this threat and the
 20 particular risks it poses with people being flung at
 21 force over the parapets. So that is part and parcel of
 22 the work we are currently undertaking.
 23 MR PATTERSON: Yes. That's all I ask. Thank you.
 24 A. Thank you.
 25 Examination by MR ADAMSON

1 MR ADAMSON: My name is Dominic Adamson, I ask questions on
 2 behalf of the widow of Kurt Cochran.
 3 In your statement you refer at paragraph 10 to the
 4 Mayor's Transport Strategy, that's your first statement.
 5 A. Yes, sir.
 6 Q. And you quote from the transport strategy in March 2018,
 7 so a year after the events that we are concerned with?
 8 A. Yes.
 9 Q. And proposal 14 of that transport strategy states that:
 10 "The Mayor, through TfL, will work with Government,
 11 the boroughs, law enforcement and security agencies,
 12 transport providers and other relevant organisations, to
 13 respond to and counter current and future terrorist
 14 threats to London."
 15 A. Yes, sir.
 16 Q. The Mayor's Transport Strategy is a document, or
 17 a strategy, produced pursuant to a statutory obligation;
 18 that's correct, isn't it?
 19 A. That's right, sir.
 20 Q. Yes, and there's a requirement, I think, under
 21 section 142 of the Greater London Authority Act to
 22 produce such a document; is that right?
 23 A. Yes, sir.
 24 Q. You have cited a transport strategy which occurred
 25 a year after the events that we're concerned with. Had

1 any earlier transport strategy contained a proposal
 2 relating to TfL's role to counter current and future
 3 terrorist threats?
 4 A. Sir, the previous mayor's transport strategy made
 5 reference to the broad — sorry — made reference to the
 6 terror threat in London and the role of Transport for
 7 London and the police in keeping the transport system
 8 safe, and the details of the text that accompanied that
 9 proposal talked specifically around the keeping people
 10 as they used public transport, so the rail, the
 11 underground and bus network, safe from the threat of
 12 terrorism, so reduce the risk from the threat of
 13 terrorism.
 14 Q. Right. So was there a particular reason why you cited
 15 a post-event review rather than an earlier one in your
 16 witness statement?
 17 A. Sorry?
 18 Q. You've quoted a strategy which was implemented after
 19 these attacks, as opposed to one which was in existence
 20 at the time?
 21 A. Yes, sir, but you will appreciate that the production of
 22 a Mayor's Transport Strategy takes some months, because
 23 of the public consultation required, so we were — it
 24 felt it is absolutely relevant and pertinent, as we were
 25 working underneath a new mayor for London, and working

65

1 to his broad aims and objectives that he had set out in
 2 his manifesto, and a document called "A City for [all
 3 Londoners]", which set out his broad transport
 4 aspirations. So, therefore, the Mayor's Transport
 5 Strategy is the detailed set of proposals that was
 6 published in 2008 to fulfil this Mayor's aspirations,
 7 but we would not necessarily be working to details of
 8 the previous mayor's transport strategy once a new mayor
 9 is elected. Sorry, I've explained that really badly.
 10 Q. I think I follow. The point that I'm driving at is that
 11 we are concerned with the events of March 2017.
 12 A. Yes, sir.
 13 Q. Yes. And what I'm trying to understand is whether or
 14 not the Mayor's Transport Strategy at that time had
 15 regard to current and future terrorist threats?
 16 A. It had regard to — my recall of it is that it did —
 17 and we can, obviously, provide the previous transport
 18 strategy details to this Inquest, but my recall of it is
 19 that it did make reference to terror threats, but the
 20 reference was more narrow and with regard to the steps
 21 that TfL takes with police and others to reduce the risk
 22 on public transport.
 23 Q. Right. So the strategy at the time wasn't really
 24 focusing on threats to pedestrians; is that fair to say?
 25 A. Absolutely, sir.

66

1 Q. That is a significant omission, would you agree, in the
 2 strategy, that a risk to a very substantial number of
 3 people was not being considered in strategic decisions
 4 about their safety; do you accept that?
 5 A. So the omission of highways and the protection of people
 6 on the streets was absent from the previous mayor's
 7 transport strategy. I have already made reference here
 8 in this Inquest to my perspective, which is that there
 9 has been a gap in policy around the responsibilities and
 10 requirements and the expectations on highway authorities
 11 around the protection of people on the streets.
 12 Q. Yes. Paragraph 22 of your statement I think make that
 13 point, you say this:
 14 "The terror attacks on Westminster and London
 15 Bridges which used vehicles as weapons highlighted a gap
 16 in national and London policy on the protection of
 17 people in public spaces."
 18 A. Yes, sir.
 19 Q. So just to crystallise what you are saying in relation
 20 to that, there was a lack of consideration of the risk
 21 to pedestrians in public spaces by Transport for London
 22 prior to this incident?
 23 A. I would say there was a lack of consideration at
 24 a national level. As Transport for London, we are
 25 regulated by the Department of Transport and required to

67

1 put in place comprehensive measures to mitigate against
 2 of risk of terrorism on the rail and underground
 3 network, and those measures are ones which we do
 4 willingly and absolutely, and they are — they
 5 provide — and the purpose of them is to protect people
 6 in a crowded, open access public transport environment
 7 at a national level. No similar requirements are put on
 8 highway authorities in terms of protection of people,
 9 pedestrians as they use the highways, and protection of
 10 people in public spaces.
 11 Q. So are you saying this: that you are the only authority
 12 which is considering risks to pedestrians in the way
 13 that you now are?
 14 A. To the best of my knowledge, we are at the forefront of
 15 that thinking. I understand — the reason I believe we
 16 are at the forefront of that thinking is because the
 17 policy that we adopted as Transport for London in terms
 18 of proactive consideration and protective security
 19 across both predictably crowded spaces and those places
 20 where we are highway authority or have wider
 21 responsibilities, that policy has been cited by the CPNI
 22 as national good practice and is now being shared with
 23 other highway authorities and local authorities up and
 24 down the country.
 25 Q. But these are only policies and procedures implemented

68

1 after the Westminster attack?
 2 A. Yes, sir, that's correct.
 3 Q. So far as what was in place at the time of the attacks,
 4 you've been taken to the NaCTSO publications which were
 5 produced in the aftermath of Nice and Berlin. Can we
 6 just turn up the Berlin document first? I think it's
 7 {WS5072/15}. Now, this is a page that you will
 8 recognise, you've been taken to it both by Mr Hough and
 9 Mr Patterson. Can I ask you to look at the bottom
 10 paragraph on that page, please. It says:
 11 "Business that are responsible for or located in
 12 areas that could be considered crowded place, either due
 13 to an event such as a Christmas market, or by the nature
 14 of the locations, such as a shopping centre or high
 15 street, are asked to review their current security and
 16 contingency plans."
 17 Just so I'm clear, did Transport for London have any
 18 plan in relation to Westminster Bridge?
 19 A. At that time, no, sir.
 20 Q. Did it have a plan in relation to any bridge?
 21 A. In terms of a protective security plan?
 22 Q. Yes.
 23 A. No, sir, not to the best of my knowledge.
 24 Q. So on not one of the eight bridges for which you had
 25 responsibility was there a single plan to consider the

69

1 security arrangements?
 2 A. To the best of my knowledge there was not specific plans
 3 for those bridges. There clearly were plans when those
 4 bridges were being used for events. There are plans
 5 around the evacuation -- there is plans and testings for
 6 if events would happen in London about evacuation
 7 procedures, about how bridges would be used, but there
 8 were not specific plans for the bridge and the
 9 protection of pedestrians on that bridge.
 10 Q. I see. How seriously does Transport for London treat
 11 documents like this?
 12 A. Sir, I can give you confidence that now any guidance or
 13 information or advice that we receive from our
 14 colleagues within counter terrorism policing we would
 15 absolutely treat very seriously. I am aware that the --
 16 I believe it's this document, that the email that
 17 accompanied this document when it first arrived in TfL,
 18 it was shared as a matter of "for information only", and
 19 there is no evidence that anyone took specific action as
 20 a result of this advice coming.
 21 Q. So this sort of update from NaCTSO was not being treated
 22 seriously at the time of these attacks; do you accept
 23 that?
 24 A. I would suggest, sir, it's not a matter of it not being
 25 treated seriously, it's a matter of not fully seeing the

70

1 relevance to our role as a highway authority, and our
 2 role in transport in London.
 3 If you look at this counter terrorism update, it is
 4 specifically aimed at businesses, so it's not aimed at
 5 us as a highway authority, I appreciate that that feels
 6 slightly picky at that point, but it was aimed at
 7 businesses and it was about businesses reviewing their
 8 security contingency plans. It wasn't read as advice or
 9 guidance to highway authorities.
 10 Q. Yes. You were allocated the unenviable task of
 11 explaining Transport for London's response to this
 12 particular update, were you not, in the form of your
 13 second witness statement?
 14 A. Yes, sir.
 15 Q. And that was specifically to respond to three questions
 16 which were raised at a pre-inquest review hearing; are
 17 you aware of that?
 18 A. Yes, sir.
 19 Q. And just so that we have them in mind, the questions
 20 followed quotation of that passage of text that we've
 21 just looked at, and the questions were: Who at TfL
 22 considered that advice? What steps, if any, were taken
 23 in respect of it prior to 22 March 2017; and third,
 24 whether there was any liaison between the various
 25 stakeholders concerning the implementation of hostile

71

1 vehicle mitigation measures in and around the Palace of
 2 Westminster, including Westminster Bridge. Those were
 3 the questions that were posed; you are aware of that,
 4 yes?
 5 A. Yes, sir.
 6 Q. And you, I'm quite sure, diligently searched all of the
 7 relevant information within Transport for London's
 8 possession?
 9 A. Yes, sir.
 10 Q. And all that you could find was the email from
 11 Mr Furlong dated 5 January 2017. Can we have it up on
 12 screen, please? It's {WS5104/16}. Is this the
 13 culmination of Transport for London's thoughts on
 14 NaCTSO's guidance in relation to the Berlin attack?
 15 A. From the research that we have undertaken to those who
 16 were more involved at the time, this is the -- this is
 17 what we have drawn out. I am not clear, as you will see
 18 in the email it does say that there is a follow-up flag
 19 on it, and a completed status, but I wasn't able to find
 20 detailed evidence of what the follow-up nature, whether
 21 it's a conversation, whether it's a meeting,
 22 I anticipate a further conversation on the basis of that
 23 advice.
 24 Q. So you found no minutes of a meeting where there's been
 25 proactive consideration of events at Berlin?

72

1 A. There was, and I believe we may have made reference to
 2 it, that there is evidence of consideration being given
 3 to hostile vehicle mitigation as part of temporary
 4 events and there was specific reference to hostile
 5 vehicle mitigation considerations as part of Changing of
 6 the Guard, but with the explicit statement that that was
 7 not because of the Berlin incident but more broadly
 8 because of the terror threat.

9 Q. Yes, that's exactly right. You say that in your
 10 statement, that there's consideration of HVM in relation
 11 to Changing of the Guard, but that was not something
 12 that was a reaction to Berlin, that was being done
 13 independently of those events.

14 So does it come to this: that Transport for London
 15 in effect took no action after Berlin to proactively
 16 consider its responsibilities for pedestrian safety in
 17 the aftermath of the Berlin attack?

18 A. Sir, for that -- at that time it would appear that there
 19 was not the proactive consideration of pedestrian
 20 security and protective security for pedestrians
 21 following the Berlin attack.

22 As we have stated, the interpretation of the Berlin
 23 attack was one that it was focused on a specific event,
 24 a crowded market, and there was a team within TFL who
 25 were looking at working with colleagues to protect

1 people as they attended specific events.

2 I can now give you confidence and reassurance that
 3 we are proactively considering all of our highways and
 4 how we best work with others to protect the public as
 5 they use London's streets and highways.

6 Q. Yes. That email, I suggest to you, is alarming because
 7 it says that:

8 "The attached may be of interest to you."

9 Surely it will be of interest to those with
 10 responsibility for safety of pedestrians on the streets
 11 of London; do you accept that?

12 A. It's not an email I wrote.

13 THE CHIEF CORONER: There is an earlier email as well,

14 Mr Adamson, which was 20 December, {WS5104/11}, which I
 15 think, again, is not one that came from you, but it puts
 16 it in a slightly different term.

17 MR ADAMSON: Yes, sir.

18 Can I ask that you --

19 THE CHIEF CORONER: Mr Adamson, I was going to take a break,
 20 because I'm conscious we've been going for two hours.

21 Would that be a good point to take a short break?

22 MR ADAMSON: It will. I'm not going to be much longer but
 23 it's probably a convenient moment.

24 THE CHIEF CORONER: Right.

25 (11.45 am)

1 (A short break)

2 (11.59 am)

3 THE CHIEF CORONER: Yes.

4 MR ADAMSON: Ms Hayward, before the short break, the learned
 5 Chief Coroner had drawn my attention to the email sent
 6 by Nigel Furlong on 20 December 2016, and it's
 7 {WS5104/11}, and just so I am not being unfair and the
 8 chronology is correct, is it right that that email
 9 related to the Berlin update that we've looked at
 10 before?

11 A. Yes. Yes, sir, I believe that's correct.

12 Q. Yes. And then the email that we were looking at, the
 13 one that said "The attached may be of interest to you",
 14 referred NaCTSO guidance note 19 and 20?

15 A. Yes, sir, on hostile vehicle mitigations, yes.

16 Q. Yes. Can we pull up that guidance, just so we can
 17 consider NaCTSO guidance note 19, {WS5104/18}, and this
 18 is a document, if we look to the bottom, it appears to
 19 be a December 2016 issue, the very bottom of the page.

20 A. Yes, sir.

21 Q. At least -- I'm not sure you can see it on the screen,
 22 certainly on the big screen, but for those of us with
 23 the longer screens we can see it, there is the
 24 date December 2016 at the bottom?

25 A. Yes, sir.

1 Q. And then one can move slightly further up the page, if
 2 we can, there's a section headed "Festive markets", and
 3 the wording there in the second half of that main
 4 paragraph is similar in terms, is it not, to the
 5 specific Berlin update that we have just previously
 6 looked at:

7 "Businesses that are responsible for or located in
 8 areas that could be considered crowded place eg markets,
 9 festivals et cetera either due to an event or by the
 10 nature of the location, such as a shopping centre or
 11 high street, are asked to review their current security
 12 and contingency plans."

13 A. Yes, sir.

14 Q. Yes. So insofar as I might have given the impression
 15 that there had been only one email, the reality is that
 16 there were two emails.

17 A. That's right.

18 Q. But neither of them resulted in any positive action
 19 being taken?

20 A. Not that we found evidence of in terms of minutes of
 21 meetings. I believe that one of the recipients of the
 22 email was from our Freight and Fleet Team, so there was,
 23 as Chief Superintendent Nick Aldworth has already
 24 highlighted, some specific discussions around the
 25 security of heavy goods vehicles and large vehicles in

1 the capital, which they may have been party to.
 2 Q. Right. And so was that in connection with Berlin
 3 specifically or Nice or both?
 4 A. I believe yes, in connection to both.
 5 Q. The other NaCTSO guidance note attached to that email of
 6 5 January is the one which can be found at {WS5104/20}.
 7 Can I ask you just to focus on the first two paragraphs
 8 of that guidance note:
 9 "Vehicles can be used in a variety of attack types
 10 including, ramming to clear a path for other potential
 11 attack methods (MTFA, PBIEDs et cetera), as a weapon in
 12 and of itself and as a delivery mechanism for a large
 13 explosive device."
 14 So this is guidance note, December 2016. Is it
 15 Transport for London's position that prior to
 16 22 March 2017 it was not aware of the possibility of
 17 a vehicle-based attack where the vehicle in and of
 18 itself was being used as the weapon?
 19 A. We were aware of vehicle-based attacks, but in terms of
 20 understanding how that threat relates to our
 21 responsibilities and our highways, there was no specific
 22 advice or guidance or information forthcoming to suggest
 23 that hostile vehicle mitigation needed to be considered
 24 in general across our streetscape.
 25 Q. Can I ask to have up on screen, please, a passage from

1 Chief Superintendent Nick Aldworth's report that he
 2 prepared for the purposes of these Inquests. It's
 3 {WS5073/5}. And I'm focusing, if I may, on paragraph 14
 4 at the bottom of that page:
 5 "The MPS works on the premise that the delivery of
 6 protective security, in accordance with legislative
 7 considerations, is a collective responsibility with each
 8 authority playing a role relevant to its function and
 9 its ownership of space or infrastructure. Importantly,
 10 I do not believe that the police are, nor should they
 11 be, the commissioning body for permanent measures, but
 12 would respond to requests for advice, alongside other
 13 partners such as CPNI."
 14 You've explained that there was, in effect, a gap in
 15 policy. You as an organisation weren't proactively
 16 considering the risks to pedestrians on bridges such as
 17 Westminster Bridge, nor was advice being provided to you
 18 by the police as to the risk to pedestrians on the
 19 bridge?
 20 A. No.
 21 Q. Do you accept that that was a systemic failing in the
 22 arrangements that were in place as between the
 23 Metropolitan Police Service and Transport for London for
 24 consideration of such issues?
 25 A. Sir, as I have stated, there is a broad issue which is

1 around the responsibilities and expectations on highway
 2 authorities, which is a national question, that's not
 3 specific to Transport for London, but in terms of
 4 highway authorities' responsibilities.
 5 Secondly, I would raise that there was now, with
 6 hindsight, there was a structural failure in that there
 7 was not dedicated counter terrorism security advisors
 8 working with Transport for London to assist us in
 9 understanding the potential threats and the risks that
 10 we faced as a highway authority in the capital, which is
 11 distinct and different from the relationship that was
 12 outlined by Chief Superintendent Aldworth with regard to
 13 the relationship between counter terrorism security
 14 advisors and local authority chief executives.
 15 So there was a structural problem in that we didn't
 16 have that active dialogue in place. We were engaged on
 17 specific -- in specific places such as the Westminster
 18 Ceremonial Streetscape, and specific events, such as, as
 19 we've already described, public events on the highway,
 20 but we did not have dedicated counter terrorism security
 21 advisors working specifically with Transport for London.
 22 Q. Because there is a legitimate concern, isn't there, when
 23 one looks at the documentation that we have, that when
 24 events happen either in this country or across the
 25 globe, there was a very narrow focus on the specific

1 events that occurred rather than a broader consideration
 2 of whether or not areas under your control might be at
 3 risk.
 4 So, for example, after Berlin a guidance note is
 5 issued which refers to Christmas markets, and there
 6 isn't then a broader analysis of areas under your
 7 control as to the risks that might exist in those
 8 places; do you accept that failure?
 9 A. Sir, we would be -- we would be looking to our
 10 colleagues in the police, the Counter Terrorism Command,
 11 security services and Home Office who are far better
 12 placed than we are to understand, analyse and interpret
 13 the actions of terrorists around the world and what that
 14 means in terms of the likely threats that are posed to
 15 London, and we would be looking to them for exactly the
 16 kind of interpretation of global events and how they
 17 relate to our area of responsibility as a transport
 18 authority and as a highway authority.
 19 MR ADAMSON: Thank you very much.
 20 THE CHIEF CORONER: Yes.
 21 Examination by MS CANBY
 22 MS CANBY: Ms Hayward, as you know, I'm Fiona Canby and
 23 I'm asking questions on behalf of Transport for London.
 24 We have, understandably, focused this morning on
 25 Westminster Bridge, but is it correct that Transport for

1 London is highway authority for approximately
2 600 kilometres of roads?
3 A. Yes, that's right, the Transport for London Road
4 Network.
5 Q. Can we start, please, by looking at the structure of
6 Westminster Bridge itself, and some photographs that
7 have been provided to us by Hogan Lovells, and
8 I understand that this morning was the first time that
9 you had had an opportunity to look at those photographs,
10 and that is document {DC8051/1}. If we could go to the
11 next page, please {DC8051/2}. Here we have a comparison
12 of bridge parapet heights and you have been able to
13 confirm that Westminster Bridge, in accordance with
14 measurements that have been carried out for the purposes
15 of these Inquests ranges between 980 millimetres and
16 1,020 millimetres; is that correct?
17 A. That is correct, yes.
18 Q. But in relation to the other measurements that we see on
19 that table, you are not in a position to confirm the
20 accuracy of those measurements?
21 A. No, I'm not.
22 Q. And is it right that in relation to the bridges referred
23 to on that page, TfL is neither the owner nor the
24 highway authority for the following: Hammersmith Bridge,
25 Waterloo Bridge, Chelsea Bridge, Southwark Bridge,

81

1 Wandsworth Bridge and Albert Bridge?
2 A. Of the vehicle bridges, yes, that's right, and I believe
3 we're not responsible for what's referred to here as
4 Hungerford or Millennium either.
5 Q. And would you agree that all that we can take from this
6 comparison is that the height of parapets on London
7 bridges vary significantly, and that may be well due to
8 the wide range of historic styles that are maintained?
9 A. Yes, that is my understanding. Sorry, I should add that
10 although TfL is the highway authority for Tower Bridge,
11 London Bridge and Blackfriars Bridge, we are not the
12 asset owner of the bridges, the bridges belong to the
13 Bridge House Estates, so there is an added complexity in
14 terms of responsibility for the bridges.
15 Q. Yes. And in summary that complexity being that
16 a highway authority may be able to recommend that
17 certain steps are taken in relation to those bridges,
18 but the ultimate decision would rest with the owner of
19 them.
20 A. With the asset owner. That is my understanding, yes.
21 Q. Can we again, just to deal with this point, look at
22 document {DC8044/1}, please. Now, Ms Hayward,
23 I appreciate that you are not employed in asset
24 management within TfL --
25 A. No, I'm not.

82

1 Q. -- but in light of some of the questions that have been
2 asked, TfL have provided this document, and this
3 document is an extract from the design manual for roads
4 and bridges; is that correct?
5 A. To the best of my understanding, yes, that is correct.
6 It is not a document I am familiar with, not being
7 a highway engineer.
8 Q. No, but what it provides for is the recommended heights
9 of various parts of structures when such structures are
10 being designed and built from new; is that correct?
11 A. Yes, that's right.
12 Q. And we can see here on page 1 at paragraph 4.21, that
13 parapets on historic monuments and bridges, they have to
14 be provided and treated in sympathy with the
15 environment, they will be subject to local planning laws
16 and the requirements of the national planning
17 authorities, and as they are unique, they fall outside
18 the testing requirements of BS EN 1317. Is it your
19 understanding that as a grade II listed bridge,
20 section 4.21 applied?
21 A. Yes, that is my understanding.
22 Q. Could we look at the following page of this extract,
23 please. What is provided here at 4.23 is the
24 recommendations in relation to the height of parapets,
25 and although a range is given, is it correct that for

83

1 Westminster Bridge, the recommended height of the
2 parapets in the design manual is 1,000 millimetres?
3 A. Yes, that is correct.
4 Q. We've heard that prior to the formation of TfL, major
5 refurbishment works were carried out on
6 Westminster Bridge, but that was by the then owner,
7 Westminster City Council; is that correct?
8 A. Yes, that's correct. I believe in the mid-1990s, 1996.
9 Q. Yes. And is it also correct that the works retained
10 a height of 1,000 millimetres due to the heritage of the
11 bridge?
12 A. Yes, that's my understanding.
13 Q. I understand that you have also asked your asset
14 management colleagues to have a look at when the bridge
15 was last inspected prior to the atrocious attacks
16 in March 2017, and is it right that it was last
17 inspected on 4 March 2016?
18 A. It was -- so prior to the attacks that would have been
19 its last inspection, yes.
20 Q. Yes. And that the bridge is required to be inspected
21 every two years?
22 A. My understanding from my colleagues is that there is
23 a visual inspection on a more regular basis, and a more
24 thorough inspection every two years, which is in line
25 with all the guidance that exists.

84

1 Q. Yes, and that's national guidance, not just London
2 guidance?
3 A. That's right.
4 Q. And that the height of 980 millimetres would not have
5 triggered any intervention?
6 A. Yes, that's correct. That difference in height would
7 not have triggered any remedial action.
8 Q. But nevertheless, consideration of parapet height is
9 something that is going to be considered by TfL as part
10 of the overall consideration of permanent HVM solutions
11 on bridges?
12 A. Of permanent protective security arrangements across the
13 eight central London bridges, yes.
14 Q. Can I move on, now, please, to barriers, and the
15 photographs that we've been provided with by
16 Hogan Lovells, which are {DC8049/1}. The first point,
17 please, Ms Hayward, it's misleading, isn't it, to title
18 this "Security Barriers in London"; we understand both
19 your evidence and that of Chief Superintendent Aldworth
20 to be that these are not security barriers?
21 A. Yes, that's correct, they're not security barriers.
22 Q. And can we have, not on the screen, but you will be
23 aware, Ms Hayward, of photographs on the second page of
24 this in relation to a number of bridges outside
25 Central London where there are no protective security

85

1 measures, even after the London Bridge attack; is it
2 right that none of those bridges are owned or occupied
3 by TfL?
4 A. That's correct.
5 Q. Can I move, then, please, to the very complex area of
6 duties held by TfL, and I appreciate Ms Hayward that you
7 are not a lawyer.
8 A. Yes.
9 Q. But is it right that Transport for London's duties as
10 a highway authority, the statutory duties, are those
11 that are defined by the Highways Act 1980?
12 A. Yes, that is correct.
13 Q. And of course when the Highways Act 1980 was being
14 drafted, no one had reason to consider the use of
15 vehicles as weapons against pedestrians?
16 A. I would certainly agree with that.
17 Q. The general duties imposed on TfL under that Act are
18 numerous, but there is a general duty to protect the
19 enjoyment of the highway by the public?
20 A. Yes, that's correct.
21 Q. There is, however, no duty under the Highways Act, or
22 even under any other statute, that specifically requires
23 a highway authority, including Transport for London, to
24 consider the installation of permanent protective
25 security measures on its highway?

86

1 A. Yes, there is no requirement to consider security.
2 Q. And did you understand that your interpretation of the
3 Highways Act and, indeed, your duties as a highway
4 authority, was the same as every other highway authority
5 prior to March 2017 in relation to that aspect?
6 A. Yes, absolutely.
7 Q. Could we have on screen, please, {WS5096/3}. Now, just
8 to give the context of this, Ms Hayward, this is
9 a witness statement from Kevin Goad, that was provided
10 to the Inquest team as part of its investigation. He is
11 the Director for City Highways at Westminster City
12 Council, and you will see there at paragraph 7 that he
13 says, the council, who, of course, are a local authority
14 and a highways authority --
15 A. That's right, yes.
16 Q. -- although not the highways authority for
17 Westminster Bridge?
18 A. No, but for places like Oxford Street.
19 Q. They say this:
20 "The council is not an intelligence gathering
21 agency. The Council is not responsible for providing,
22 reviewing or assessing intelligence to inform
23 an assessment of the threat level or risk or for making
24 recommendations regarding physical counter terrorism
25 measures or protective measures. This is the

87

1 responsibility of the police and other relevant security
2 services."
3 A. Yes, as I've already outlined, yes, that's exactly my
4 understanding too.
5 Q. And that was your understanding and the approach of TfL
6 prior to March of 2017?
7 A. Yes, that's right.
8 Q. And can we have for completeness, please, {WS5102/1} on
9 the screen. This is a letter that's been provided to
10 the Inquest team from Lambeth Council, so again, not the
11 highway authority for the bridge, but a highway
12 authority in other respects, and it's asked about,
13 question one:
14 "The responsibilities of Lambeth Council concerning
15 protection of pedestrians in prominent locations, in
16 particular protection from terror attacks."
17 So very much the questions you've been asked this
18 morning, Ms Hayward?
19 A. Yes.
20 Q. And the answer is this:
21 "In its capacity as a local highway authority,
22 Lambeth Council's ... statutory responsibility relating
23 to the protection of pedestrians is as defined in
24 various sections of the Highways Act ... this duty
25 relates to the need to protect all highway users across

88

1 all our network and no particular reference is made to
 2 the risk to pedestrians posed by terror attacks.”
 3 Just pausing there, that’s your understanding as
 4 well?
 5 A. Yes, absolutely.
 6 Q. “For this reason, LBL [Lambeth Council] has no specific
 7 programme of works to address this threat, but highway
 8 improvement schemes being carried out at locations
 9 identified by the counter terrorism security officer
 10 (CTSO) as being high risk from hostile vehicles are
 11 designed to incorporate passive measures to resist
 12 attack.”
 13 So, again, entirely in accordance with your
 14 understanding as to what TfL and how TfL were
 15 approaching their duties as a highways authority —
 16 A. That’s correct.
 17 Q. — prior to March 2017. Thank you, that can be taken
 18 off the screen.
 19 There is one other statute that has relevance,
 20 though, isn’t there, Ms Hayward, and that is section 17
 21 of the Crime and Disorder Act 1998. Now, that does
 22 place responsibility on responsible authorities, which
 23 includes TfL.
 24 A. So TfL elected to become responsible under the Act, and
 25 that was a decision that was made, I believe in 2004.

89

1 So we were not named in the Act when it was first
 2 conceived and drafted, or when the GLA Act came into
 3 formation.
 4 Q. But you elected to act in accordance with those
 5 responsibilities?
 6 A. Yes, because crime and disorder is a matter that TfL
 7 takes seriously.
 8 Q. And other responsibilities would also include within
 9 this arena the Metropolitan Police and local authorities
 10 that we’ve been talking about: Westminster City
 11 Council —
 12 A. Yes, they are named in the original Act, yes.
 13 Q. And the responsibility there is for such responsible
 14 authorities to do all they reasonably can to prevent
 15 crime and disorder?
 16 A. That’s correct, yes.
 17 Q. And you have taken that to mean to include terrorism?
 18 A. We have expanded the definition to include terrorism as
 19 a major and significant crime.
 20 Q. And so in summary is the position this, Ms Hayward: that
 21 prior to March 2017 you, as in line with other highways
 22 authorities nationwide, did not consider it part of your
 23 obligation as a highways authority to consider the
 24 installation of permanent protective security measures
 25 on its highway?

90

1 A. That’s correct.
 2 Q. But that under section 17, you would agree with Chief
 3 Superintendent Aldworth’s analysis that protective
 4 security was a collective responsibility for each
 5 authority, and the role it had to play depended on each
 6 authority’s function?
 7 A. That’s right. Thank you.
 8 Q. And if that statutory framework is thought to be
 9 a matter that needs to be considered further, then
 10 that’s an issue that needs to be considered at
 11 a national level; is that right, Ms Hayward?
 12 A. Absolutely.
 13 Q. Because, of course, these matters are not matters that
 14 just impact on London alone?
 15 A. Yes, that is absolutely my position.
 16 Q. But your view is that in light, sadly, of its
 17 experiences in Westminster, following Westminster Bridge
 18 and London Bridge, TfL is now at the forefront of
 19 thinking in relation to a highway authority’s
 20 responsibilities in this regard?
 21 A. Yes, that is my perspective. Yes.
 22 Q. Can I move on, please, to crowded places, and you’ve
 23 been asked a number of questions about crowded places.
 24 Is the position this, please, Ms Hayward: your
 25 understanding is that “crowded places” does not mean

91

1 places that are busy?
 2 A. That’s right, yes.
 3 Q. It has a specific meaning?
 4 A. Yes.
 5 Q. And in particular the Office for Security and
 6 Counter-Terrorism, the OSCT, which we understand is part
 7 of the Home Office, establishes the crowded places list?
 8 A. That’s my understanding, yes.
 9 Q. It’s not just transient places or events. That’s not
 10 what you’re saying?
 11 A. That’s certainly not what I’m saying.
 12 Q. But you’re saying that the OSCT, you understand in
 13 conjunction with NaCTSO and the CTASAs, has a criteria,
 14 a specific criteria, as to what — which it applies
 15 against places in order to decide whether or not they
 16 are a crowded place?
 17 A. Yes, that’s my understanding, but I’m not party to what
 18 that criteria is.
 19 Q. No, because as we learned last week, that criteria sits
 20 at a high security classification?
 21 A. That’s right.
 22 Q. Can we have on screen, please, the 2012 guidance that
 23 you were referred to by Mr Patterson, and that’s
 24 {DC8045/1}. Just so that we can understand what this
 25 document actually is, this is a document that you will

92

1 see is headed "Crowded Places: The Planning System and
 2 Counter-Terrorism"; is that correct, Ms Hayward?
 3 A. Yes, that is correct.
 4 Q. And if we then move to the next page, please,
 5 {DC8045/2}, we will see that it was produced in 2012 by
 6 the Home Office in partnership with the then Department
 7 for Communities and Local Government?
 8 A. Yes, that's correct.
 9 Q. And could we have a look, please, at the next page
 10 {DC8045/3}, and then over the page again {DC8045/4}.
 11 Sorry, next one {DC8045/5}. If we look at
 12 paragraph 1.03, is it right that this was guidance that
 13 was principally directed to local authorities?
 14 A. Yes, that is correct.
 15 Q. Which, of course, Transport for London is not?
 16 A. Not with regard to planning, no, it's not.
 17 Q. No. Well, that was my other point. Is it also right
 18 that this guidance was principally prepared in relation
 19 to the consideration of crowded places and structures,
 20 physical structures, physical buildings and the planning
 21 process?
 22 A. Yes, that's my understanding.
 23 Q. Nowhere in here is there any specific reference to it
 24 being applied to a highway authority or, indeed, to
 25 a highway; is that correct?

1 A. That is correct.
 2 Q. And although we see at paragraph 1.04 what appears, as
 3 Mr Patterson and Mr Adamson have said, to be a wide
 4 definition of crowded places, you'll see there that what
 5 counts as a crowded place is said to be a matter of
 6 judgment?
 7 A. Yes.
 8 Q. And if we move forward, please, to --
 9 THE CHIEF CORONER: Just before we leave that page,
 10 Ms Canby.
 11 MS CANBY: Yes.
 12 THE CHIEF CORONER: If we read paragraph 1.02, we have heard
 13 from this witness about TfL taking it upon themselves to
 14 expand the definition of section 17 to include
 15 terrorism.
 16 MS CANBY: Yes.
 17 THE CHIEF CORONER: If one reads the last three lines of
 18 paragraph 1.02, it says there:
 19 "Crime for these purposes includes terrorism, and
 20 good counter-terrorism protective security is also good
 21 crime prevention."
 22 MS CANBY: Yes.
 23 THE CHIEF CORONER: So it would seem that even if TfL were
 24 adopting it for themselves in 2017, this document in
 25 2012 is making it clear that terrorism is included

1 anyway?
 2 MS CANBY: It certainly is as a good practice, sir, yes.
 3 In relation to a crowded place and the assessment
 4 that will be carried out in relation to it, could we go
 5 a little bit further, please, in this document to page 7
 6 {DC8045/7} and here we have a paragraph in relation to
 7 assessing the risk at paragraph 2.04; do you see that,
 8 Ms Hayward?
 9 A. Yes, I do.
 10 Q. Where it says:
 11 "Assessments of risk are based on the threat of
 12 a terrorist attack, vulnerability to it and the impact
 13 if it should occur. A local police Counter Terrorism
 14 Security Advisor (CTSA) makes this assessment in their
 15 area using guidance issued jointly by the Home Office
 16 and NaCTSO. This ensures a standard approach is taken
 17 across the UK."
 18 So is this what you were referring to earlier in
 19 relation to your understanding of assessments being
 20 carried out as to whether or not something amounted to
 21 a crowded place in accordance with specific Home Office
 22 criteria?
 23 A. Yes, and the overall assessment of the risk from
 24 terrorism?
 25 Q. Yes.

1 A. Yes.
 2 Q. And this suggests that the assessment is not to be
 3 carried out by the local authorities or, indeed, owners
 4 of structures, but by the local police CTSA?
 5 A. Yes, that's correct.
 6 Q. And that was your understanding, was it, prior
 7 to March 2017?
 8 A. Yes.
 9 Q. That it was for the local CTSA to be making
 10 an assessment as against criteria fixed by the home
 11 office in relation to whether or not a specific location
 12 amounted to a crowded place?
 13 A. Yes.
 14 Q. And although Transport for London didn't have
 15 a particular CTSA because it was not a local authority,
 16 presumably if the CTSA for Westminster had reached the
 17 conclusion that Westminster Bridge did amount to
 18 a crowded place in relation to the criteria, that's
 19 something that Transport for London would have been made
 20 aware of?
 21 A. Absolutely, yes. I would -- yes.
 22 Q. Can we move on, now, please, to some different guidance,
 23 and it's the guidance at {WS5072/15}. Now, this is the
 24 guidance that was given after the Berlin incident, which
 25 Mr Adamson and Mr Patterson took you to, and can we

1 look, please, at the final paragraph on that page, which
2 refers to:
3 "Business[es] that are responsible for or located in
4 areas that could be considered crowded place, either due
5 to an event, such as a Christmas market, or by the
6 nature of the locations, such as a shopping centre or
7 high street ..."

8 Now, the recommendation that was being given was
9 that such businesses should review their current
10 security and contingency plans?

11 A. Yes.

12 Q. Can you help us, please, Ms Hayward, with what security
13 and contingency plans are?

14 A. So my understanding of this recommendation would be that
15 businesses who would know whether they were located in
16 crowded places or not would be asked to look at both any
17 kind of personnel security, protective security they may
18 have in place, but, more importantly what to do in the
19 event of a terror attack, so procedures such as
20 evacuation, business continuity and wider contingency
21 plans and how they collaborate and cooperate with others
22 in the local area.

23 Q. And Transport for London did hold security and
24 contingency plans, didn't it?

25 A. Yes, it does. Yes.

97

1 Q. But for specific locations where you have been told
2 there were specific risks. So, for example, underground
3 stations?

4 A. Yes, absolutely.

5 Q. So just in summary, even if TfL had had responsibility
6 for assessing its own locations to establish whether or
7 not they were crowded places, are you able to assist the
8 Coroner with what the conclusion is likely to have been,
9 because I know that you are aware of, for example,
10 statistics in relation to crowd density on the bridge?

11 A. So I don't know what measurement system the Home Office
12 and their partners use in defining crowding, but clearly
13 as the highway authority and transport authority for
14 London, we do our own measurements, both of pedestrian
15 flow and pedestrian density. Looking at the
16 measurements that we take of pedestrian density for
17 purposes and functions, there will be a number of places
18 across London with very high levels of pedestrian
19 density, levels which are four or five times higher than
20 we would see on Westminster Bridge, for example.

21 Q. And in answer to some questions, I think you also said
22 that Westminster Bridge is -- even using that
23 measurement, so the crowd density measurement -- is not
24 the most dense bridge?

25 A. No, it's not.

98

1 Q. Finally, please, Ms Hayward, you were asked questions
2 about what happened between March and June 2017, so
3 between the Westminster Bridge attack and the London
4 Bridge attack. Was any advice received from CTSA via
5 the local authorities that their assessment of locations
6 amounting to crowded places had changed in any respect?

7 A. To the best of my knowledge, no such advice was given.

8 Q. And was any further guidance received that suggested
9 bridges were at a specific risk?

10 A. There was no guidance received saying that bridges
11 should be considered differently.

12 MS CANBY: Thank you very much, Ms Hayward.

13 MR HOUGH: Nothing further from me. Thank you very much for
14 your evidence, Ms Hayward.

15 THE CHIEF CORONER: Thank you very much for coming.

16 MR HOUGH: Sir, the next witness is Detective Chief
17 Superintendent Holdcroft.

18 THE CHIEF CORONER: Yes.

19 Mr Hough, I mentioned at the beginning perhaps we
20 would deal with the issue that concerned Ms Stevens at
21 12.45. I am just wondering because we have taken,
22 I suspect, rather longer with that witness than we
23 anticipated, whether the sensible thing would be to do
24 that at 1.45, so we will rise at 1 o'clock for lunch but
25 we will sit a little earlier to deal with it at 1.45.

99

1 I notice Ms Stevens' junior is in court. I hope that
2 will fit in fine with your plans.

3 MR COKE-SMYTH: Yes, it does. Thank you sir.

4 THE CHIEF CORONER: Thank you.

5 DETECTIVE CHIEF SUPERINTENDENT PETER HOLDCROFT (Sworn)

6 THE CHIEF CORONER: Chief Superintendent, please sit or
7 stand, whichever you would prefer, make yourself
8 comfortable.

9 A. Many thanks. Thank you.

10 Examination by MR HOUGH QC

11 MR HOUGH: Would you please give your name and rank for the
12 court.

13 A. My name is Peter Holdcroft, I am a detective chief
14 superintendent currently part of the National Counter
15 Terrorism Policing Headquarters.

16 Q. Mr Holdcroft, as I think you know, I'm asking you
17 questions first on behalf of the Coroner and then you
18 may be asked questions by other lawyers.

19 You've told us that your current role is in the
20 National Counter Terrorism Police Headquarters; is that
21 a secondment role?

22 A. Yes, sir, I'm seconded there. At the time of this
23 incident I was a detective superintendent, Head of
24 Operations, part of SO15.

25 Q. We've heard from Detective Superintendent Crossley at

100

1 the start of this hearing that after the attack, one
 2 strand of the SO15 response to the attack of 22 March
 3 was a proactive response to the potential threat to
 4 national security?
 5 A. That's correct.
 6 Q. Did you head that response or were you involved in it in
 7 a senior capacity?
 8 A. Yes. So I led the proactive response of SO15 units.
 9 Q. Now, I think you are aware that the purpose of your
 10 evidence is to summarise what you did and the essential
 11 conclusions you reached, and you've made a statement
 12 about your work and you may refer to that as you wish.
 13 A. Thank you.
 14 Q. In a sentence or two, what were the objectives of the
 15 proactive response to the attack?
 16 A. Yes, well primarily the objectives were to see if there
 17 was any wider threat from other suspects that were
 18 linked to Khalid Masood, to see if there was anybody
 19 else involved in the commission, preparation or
 20 instigation of the attack that had happened, and take
 21 steps in order to mitigate any further threat and arrest
 22 identified suspects as necessary.
 23 Q. Now, I'm going now to address those you arrested.
 24 Mr Holdcroft, I'm going to name those who are being
 25 named in this process, and I'm going to make clear where

101

1 names are not being mentioned because they are
 2 irrelevant. May I ask you, please, not to mention any
 3 names I don't mention.
 4 A. Sir.
 5 Q. Is it right to say in general that your arrest
 6 procedures and the periods for which subjects were in
 7 custody were reviewed in a report by Max Hill QC?
 8 A. That's correct.
 9 Q. And that, I think, is available publicly?
 10 A. Yes, it is.
 11 Q. Dealing first, then, with Rohey Hydera, the wife of
 12 Khalid Masood, who we are naming. Did you quickly
 13 establish that she had been in contact with Masood in
 14 the days preceding the attack?
 15 A. We did, yes.
 16 Q. In those early hours, did you know whether or not she
 17 had been involved in the attack in any way?
 18 A. No, we didn't.
 19 Q. Did you therefore, for that reason, arrest her on the
 20 evening of the attack and interview her?
 21 A. That is correct, yes.
 22 Q. And what did you ultimately establish about whether
 23 there was any evidence that she was linked to the
 24 attack?
 25 A. We established that there was no evidence to implicate

102

1 her as being involved in any part of the attack.
 2 Q. And that, despite all the extensive investigation of
 3 witnesses and documents which the SO15 team carried out?
 4 A. That's correct.
 5 Q. Did you also proceed to arrest seven individuals, whom
 6 I am not going to name, who resided at addresses linked
 7 to Masood or the details given for the hire vehicle?
 8 A. It was six individuals --
 9 Q. Thank you.
 10 A. -- but yes.
 11 Q. Did you establish whether any of those individuals had
 12 any substantial connection with Masood?
 13 A. We established that they had no connection.
 14 Q. Therefore, as a result of that, no involvement in the
 15 attack?
 16 A. No involvement in the attack, and the case against them
 17 was -- no further action was taken.
 18 Q. So they had essentially been arrested and interviewed
 19 simply because of their addresses?
 20 A. There was a little bit more to it than that, that the
 21 arresting officers made the decision. My decision was
 22 for us to execute search warrants at those addresses,
 23 and then there were some facts that were established at
 24 the time, and the arresting officers made the decision
 25 to arrest.

103

1 But following our investigation into all of them, we
 2 found out that there was no evidence to implicate them
 3 in any part of the attack.
 4 Q. Thank you.
 5 Next, Ahmed El Farsi. Now, we've heard his name
 6 mentioned in DCI Brown's evidence as a man who had
 7 a house in Morocco whom Masood had met in February 2017.
 8 Did you find that there was evidence of communications
 9 between him and Masood in the period before the attack?
 10 A. Yes, we did.
 11 Q. And was it on that basis that you arrested and
 12 interviewed him?
 13 A. Yes, it was.
 14 Q. Having interviewed him and carried out further
 15 investigations, did you establish whether his
 16 communications with Masood were innocuous and whether he
 17 had any involvement with the attack?
 18 A. Again, in relation to this suspect, we found no evidence
 19 that implicated him as being involved in the attack.
 20 Q. Next, the partner of Masood's eldest daughter, who
 21 I don't think has been named in these Inquests, is it
 22 right that you arrested him because he had had some
 23 communication with Masood in the period before the
 24 attack?
 25 A. Yes, there was some communication with Masood before and

104

1 after the attack, which is the main reason why he was
 2 arrested.
 3 Q. He too was interviewed, I think?
 4 A. He was, yes.
 5 Q. And did you establish whether there was any evidence or
 6 information to implicate him in either the
 7 attack—planning or prior knowledge of the attack?
 8 A. We found no evidence of his involvement in either of
 9 those.
 10 Q. Next, a postgraduate student and his wife, who haven't
 11 been named in these Inquests, referred to in the
 12 Max Hill report as subjects J and K. Is it right to say
 13 that you arrested and interviewed them because of
 14 payments they'd made to Masood in the period before the
 15 attack?
 16 A. That's correct, yes.
 17 Q. Is it right to say that you interviewed both of them?
 18 A. That's correct, yes.
 19 Q. Did you establish whether the payments were for genuine
 20 work on a postgraduate thesis?
 21 A. We were able to establish that.
 22 Q. That they were?
 23 A. That they were in relation to that postgraduate work.
 24 Q. Did you therefore effectively exonerate those
 25 individuals and release them?

105

1 A. They were exonerated and released.
 2 Q. And then finally in relation to people arrested, did you
 3 arrest somebody called Yusuf Kumar, a friend of
 4 Khalid Masood?
 5 A. Yes, we did.
 6 Q. Is he somebody who had been mentored by Masood in the
 7 last period of Masood's life?
 8 A. Yes.
 9 Q. Did you receive information or evidence to suggest that
 10 he had become more religious or more doctrinaire in his
 11 approach to Islam in those previous months?
 12 A. Yes, we did.
 13 Q. Having interviewed him, did you establish whether there
 14 was any evidence that he had had any prior knowledge of
 15 or involvement in the attack?
 16 A. We found no evidence to implicate him as being involved
 17 in the attack or planning the attack.
 18 Q. So following all these arrests and interviews, and all
 19 the other work done in the SO15 investigation, did you
 20 establish whether or not anyone else had been involved
 21 in the planning, preparation or execution of the attack?
 22 A. No, quite to the contrary. Our investigation appeared
 23 to show that Khalid Masood acted alone on this occasion.
 24 Q. And did you establish, based on the evidence, whether
 25 there was any evidence that anyone else had known in

106

1 advance that the attack was to be perpetrated?
 2 A. We found no evidence of that.
 3 Q. May I ask you a few specific questions about an AA road
 4 atlas that was recovered from the car used in the
 5 attack. We can bring that on screen, it's [DC7989/101].
 6 Are you familiar with this as the page of a map book
 7 which was found in the vehicle after it was crashed into
 8 the perimeter of the Houses of Parliament?
 9 A. It's been some time since I've seen it, but yes.
 10 Q. Are you aware that it's been established through
 11 handwriting analysis that the notes were in Masood's
 12 hand?
 13 A. Yes.
 14 Q. We've received a witness statement from a DI Eastwood,
 15 providing interpretation of some of these comments, and
 16 I'm just going to ask you to confirm his conclusions in
 17 relation to them.
 18 First of all, the top of the page, "Andie —— Acer
 19 receipts". Is it right to say that Andi was the name of
 20 Masood's eldest daughter?
 21 A. That's correct.
 22 Q. Is it also right to say that Masood had an Acer laptop
 23 and that a receipt for it was at his daughter's house?
 24 A. He did.
 25 Q. "Enterprise extra day". Is it the case that Masood had

107

1 to extend the period of the hire of the Hyundai by
 2 additional days?
 3 A. That's right, yes.
 4 Q. "Birm Council —— cancel".
 5 Is it right to say that Masood had been in receipt
 6 of housing benefit which he cancelled in the period
 7 before the attack?
 8 A. I don't recall, sir. I can't confirm either way.
 9 Q. We'll address that with Mr Crossley in his evidence
 10 tomorrow.
 11 A. Sure.
 12 Q. "Check Lloyds Balance". Were you aware that
 13 Khalid Masood had a Lloyds account?
 14 A. Yes, I was.
 15 Q. We heard evidence from his wife that for religious
 16 reasons he may have wanted to avoid leaving any debts or
 17 arrears on his accounts.
 18 "Yusuf", as you've told us, was one of the people
 19 you arrested and interviewed, a friend of Masood's
 20 called Yusuf Kumar?
 21 A. That's correct, yes.
 22 Q. "Mum". You're aware, I think, that Masood visited his
 23 mother in the period before the attack?
 24 A. That's right, he did.
 25 Q. "Previous examples. This life. Right time. All

108

1 outcomes are good." Mr Eastwood said in his statement
 2 that these might be indicative of Masood's mindset. Are
 3 you able to cast any further light on that?
 4 A. I would agree with Mr Eastwood's evidence in this case.
 5 Q. Immediately below the box, outlined "All outcomes are
 6 good", there's a word which Mr Eastwood has identified
 7 as possibly being "tawbah", "repentance", or "tawakkul",
 8 "trust in god"?
 9 A. I am afraid I can't add anything additional.
 10 Q. Then the words next to it "Sheikh", and "Exciting
 11 opportunity". Are you able to cast any light on those
 12 words?
 13 A. No.
 14 Q. Then there's a postcode and "Claim closed". Mr Eastwood
 15 indicates that that may be a further reference to
 16 cancellation of housing benefit.
 17 A. That's correct.
 18 Q. Then "Drive mode" and "Sport mode", are you aware of
 19 Masood having carried out web searches on the
 20 performance of the Hyundai in the period running up to
 21 the attack?
 22 A. Yes, I am.
 23 Q. "Between seats". Mr Eastwood suggests that that may
 24 have been a reference to a potential location to place
 25 the knives in the period before the attack. Any

109

1 additional light you can shed on that?
 2 A. Potentially that could be the case.
 3 Q. "Lock doors". Mr Eastwood suggests possibly a decision
 4 taken to lock the doors of the car during the attack.
 5 Again, any further light you can shed from your
 6 knowledge?
 7 A. Nothing additional.
 8 Q. And then finally "Hatred motivation", rather a cryptic
 9 comment, but anything you can say to explain that?
 10 A. No.
 11 MR HOUGH: Thank you very much, detective chief
 12 superintendent, if you will wait there, there may be
 13 some more questions.
 14 In fact, there aren't any further questions.
 15 THE CHIEF CORONER: Thank you very much.
 16 A. Thank you.
 17 THE CHIEF CORONER: Shall we --
 18 MR HOUGH: I'm loath to start a new witness at this stage.
 19 THE CHIEF CORONER: Yes. I think the sensible thing is we
 20 break there and say we will deal with the issue that
 21 Ms Stevens wishes to raise at 1.45, and then we've got,
 22 I think, three witnesses that we will endeavour to get
 23 through this afternoon.
 24 MR HOUGH: Yes, the first two, I think, Mr Keen and
 25 Mr Clark, should be relatively brief.

110

1 THE CHIEF CORONER: Yes. I'll rise.
 2 (12.52 pm)
 3 (The Luncheon Adjournment)
 4 (1.48 pm)
 5 MR HOUGH: Sir, you are sitting a little early to deal with
 6 any oral submissions on the application of the siblings
 7 and parents of PC Palmer for Mr Marsh to be called.
 8 THE CHIEF CORONER: Yes.
 9 MR HOUGH: So you should have a note on the subject from
 10 Ms Stevens and Mr Coke—Smyth dated 27 September 2018.
 11 THE CHIEF CORONER: Yes.
 12 MR HOUGH: And I'll let them expand on that, to the extent
 13 they want to.
 14 THE CHIEF CORONER: Thank you.
 15 MS STEVENS: Sir, yes, in fact there's nothing that we would
 16 wish to add unless you have any questions that arise
 17 from the note?
 18 THE CHIEF CORONER: No, I mean, as I indicated, it seemed to
 19 me I should give you an opportunity to address me if
 20 there were any additional points you wanted to make, or
 21 having seen what the response was, anything that you
 22 further wish to add.
 23 Ms Stevens, I can quite understand why the
 24 application is made and the points that I need to
 25 consider in relation to it.

111

1 MS STEVENS: Thank you. There was nothing we wish to add.
 2 THE CHIEF CORONER: Thank you very much.
 3 MS STEVENS: Thank you very much.
 4 MR HOUGH: Sir, would it assist if I just generally set out
 5 our position?
 6 THE CHIEF CORONER: It might. I was simply looking in the
 7 direction of Mr Adamson. I'm not inviting him to say
 8 anything if he doesn't wish to, but I just felt as it
 9 does potentially concern points you've been raising too,
 10 I just wanted to give you the opportunity, Mr Adamson,
 11 if there's anything you wish to say one way or the
 12 other, or simply to remain entirely neutral?
 13 MR ADAMSON: Sir, we set out in writing our position and
 14 then, subsequent to that, there was the indication that
 15 one of the two witness who we had identified would be
 16 called, I hear what my learned friend has said and have
 17 read what she says and we support them but add nothing
 18 further.
 19 THE CHIEF CORONER: Thank you very much. Yes, Mr Hough.
 20 Submissions by MR HOUGH QC
 21 MR HOUGH: Yes, sir, I will give our reasons so that they
 22 are understood publicly, although they are set out in
 23 an email from Ms Jones, dated 28 September.
 24 Sir, the first point is that, as we understand it,
 25 the reason for the request for Mr Marsh to give evidence

112

1 is that he may be able to shed light on what officers at
2 the gates perceived from the moment of the crash until
3 the time Masood entered the gates. Of course, the
4 actual sequence of events is now well attested by
5 a number of witnesses, and so the focus of the
6 submissions has really been upon their perceptions, and
7 in particular, their perceptions of time.

8 So that subject has been addressed by two of the
9 officers who were on duty at the gates, PCs Ross and
10 Glaze, who were in the area of the south gates, and is
11 to be addressed tomorrow by a third, PC Carlisle, who
12 was in the area of the north gates.

13 In addition, the sequence of events and the
14 perceived timings has been addressed by civilian
15 onlookers, and we have the CCTV evidence from a number
16 of cameras, which provides an objective source of
17 information about timings, at least to some extent.

18 Sir, given that the actual events are now well
19 attested, and that we shall have had evidence from
20 police officers at all the range of positions, really,
21 in front of the gates, we're not persuaded that Mr Marsh
22 adds any valuable insights.

23 It's mentioned in my learned friend's submissions
24 that Mr Marsh describes having seen through the railings
25 people running in the direction of Parliament Square.

113

1 That's a matter that's attested to by PC Carlisle,
2 you'll hear from him about that tomorrow.

3 THE CHIEF CORONER: Yes.

4 MR HOUGH: It's mentioned in the submissions that PC Marsh
5 heard those running past referring to a man stabbing
6 people. That, again, is something that will be dealt
7 with by PC Carlisle, and I think you've already had
8 evidence of those shouts.

9 THE CHIEF CORONER: We have.

10 MR HOUGH: There's a reference in Mr Marsh's notes, to which
11 attention is drawn, of a short period of observation
12 where Masood was seen to be bearing down on PC Palmer.
13 Once again, that's a period of observation, whatever its
14 length, which was attested to by a number of other
15 witnesses, and the location of Mr Marsh from PC Palmer
16 is, of course, demonstrated on the CCTV and on the
17 various maps which DC Overall produced.

18 Then finally there is a reference to Mr Marsh
19 feeling exposed and shouting "firearms", and once again
20 you have heard evidence, and will hear more evidence
21 tomorrow, about officers shouting for firearms support.

22 THE CHIEF CORONER: Yes.

23 MR HOUGH: So, sir, in our submission, there's nothing in
24 Mr Marsh's evidence in particular that provides unique
25 information or a unique insight into what could be

114

1 perceived by the officers at the gates.

2 It is inevitable in a case of this kind that there
3 must be some degree of selection of witnesses if
4 a number saw the same set of events in the same area,
5 otherwise, we would simply be hearing duplicative
6 evidence with witnesses describing the same set of
7 events, perhaps in slightly differently nuanced
8 language, and being taxed with the same propositions or
9 used as sounding boards for the same propositions
10 repeatedly.

11 The final point is that Mr Marsh, unlike the other
12 officers from whom we've been hearing, has not been
13 prepared emotionally and mentally for the task of giving
14 evidence.

15 THE CHIEF CORONER: And it seems to me, Mr Hough, that
16 that's not an insignificant consideration in a situation
17 like this.

18 MR HOUGH: It is not insignificant. This is an officer who
19 is now retired, who lives some distance from London, who
20 could be brought to court but would face the task of
21 reliving these events without ever having been told that
22 this would be happening, and without having had the
23 opportunity, as, for example, other officers did, to
24 watch the CCTV in preparation specifically for giving
25 evidence.

115

1 So, for all those reasons we don't support calling
2 Mr Marsh. We did support calling the other witness, who
3 was requested by Mr Adamson and Ms Stevens, namely
4 PC Carlisle.

5 THE CHIEF CORONER: Yes.

6 MR HOUGH: I should say, in making these submissions we do
7 not give any particular weight to timetabling. The
8 principal countervailing factor is bringing a witness to
9 court who is not prepared for giving evidence and whose
10 evidence we do not at present see to be necessary.

11 THE CHIEF CORONER: Yes.

12 MR HOUGH: Sir, is there anything else on which I can
13 assist?

14 THE CHIEF CORONER: No, that is extremely helpful, thank you
15 very much, Mr Hough.

Ruling

17 THE CHIEF CORONER: I am not going to require him to be
18 called, Mr Hough. I'm quite satisfied, really for the
19 reasons that you have set out, but it seems to me that
20 the two guiding principles are, first of all, as to
21 whether there is anything particularly unique that he
22 would be able to say to assist me, and the second is, as
23 I indicated in the course of your submissions to me, the
24 not inconsiderable impact it would have on somebody who
25 has not been through the process that all the other

116

1 witnesses have. For all those reasons, he needn't be
 2 called .
 3 MR HOUGH: Thank you, sir.
 4 One final matter before we get into this afternoon's
 5 evidence. At present we are scheduled to sit today,
 6 tomorrow and Wednesday to complete these Inquests.
 7 THE CHIEF CORONER: Yes.
 8 MR HOUGH: I raise it only because I understood that there
 9 was some uncertainty on the point from the press, but
 10 that's the present scheduling.
 11 THE CHIEF CORONER: Thank you.
 12 MR HOUGH: So, sir, if we can now move to --
 13 THE CHIEF CORONER: I wasn't sure if Ms Stevens was about
 14 to ...
 15 MS STEVENS: Sorry, it was just simply to say that my
 16 learned friend was good enough to raise that with me
 17 just before you came into court, sir --
 18 THE CHIEF CORONER: Yes.
 19 MS STEVENS: -- and I indicated that I would take
 20 instructions on the matter. Thank you.
 21 THE CHIEF CORONER: Thank you.
 22 MR HOUGH: In that case, PC Keen, please.
 23 THE CHIEF CORONER: Thank you.
 24 PC DAVID KEEN (Sworn)
 25 THE CHIEF CORONER: Officer, as with anyone else, if you

117

1 wish to sit or stand or alternate between the two,
 2 that's fine, just make yourself comfortable.
 3 A. Thank you, sir .
 4 Examination by MR HOUGH QC
 5 MR HOUGH: Would you please give your name and rank to the
 6 court?
 7 A. Sir, my name is David Keen. I am PC 1186T of the
 8 Metropolitan Police .
 9 Q. Mr Keen, you understand I ask questions on behalf of the
 10 Coroner first of all, and then you may be asked
 11 questions by others?
 12 A. Yes, sir .
 13 Q. By way of background, I think you've been a police
 14 officer since 1997; is that right?
 15 A. Yes, sir, that's correct .
 16 Q. And that you presently work for the police as a forensic
 17 collision investigator?
 18 A. Yes, sir, I do .
 19 Q. As such, do you specialise in the investigation of
 20 collisions which are fatal or result in serious
 21 injuries?
 22 A. Yes, sir .
 23 Q. We have at appendix 1 to your report details of your
 24 qualifications, could you summarise in a sentence or two
 25 your relevant qualifications?

118

1 A. The most relevant a UCPD from De Montfort University in
 2 forensic collision investigation, advanced vehicle
 3 examiner, and also trained in forensic automotive
 4 examination.
 5 Q. In this case, were you tasked to investigate the
 6 movement of the Hyundai car driven by Khalid Masood?
 7 A. Yes, sir, I was .
 8 Q. For that purpose, did you attend the scene of the attack
 9 on the day of the incident?
 10 A. Yes, sir, I did .
 11 Q. I think you say in your report at 4.1.1 that you arrived
 12 there at 4.20 that afternoon?
 13 A. Yes, sir .
 14 Q. Did you, on attendance at the scene, proceed to identify
 15 relevant marks on the road which had apparently been
 16 left by the Hyundai?
 17 A. Yes, I did .
 18 Q. And also signs of where the vehicle had struck those who
 19 died?
 20 A. Yes, that's correct .
 21 Q. Did you place cones to help you mark out the approximate
 22 path of the vehicle?
 23 A. I did, yes .
 24 Q. If we can bring up on screen {WS1203A/14}, do we see
 25 here an example of cones, or markers, which you laid out

119

1 to help you trace the marks on the road and thereby plot
 2 the movement of the vehicle?
 3 A. Yes, these were placed by myself, sir, yes .
 4 Q. Did you, while you were at the scene, take photographs
 5 to help provide an overview and record relevant marks on
 6 the road?
 7 A. Yes, I did .
 8 Q. Did you carry out 3D laser scanning of the area?
 9 A. Yes .
 10 Q. Did you make use of photographs, in addition, which had
 11 been taken by other officers?
 12 A. Yes, I have done sir, yes .
 13 Q. And during the course of your work since the time of the
 14 collisions, have you also made use of the Computer Aided
 15 Modelling Bureau reconstruction of the scene which we
 16 saw at the start of the hearing?
 17 A. I wasn't present at the start of the hearing. We've
 18 used each other's work, I understand, in various parts
 19 of our own work .
 20 Q. May we move on, then, to reconstruction and what you
 21 deal with in section 7 of your main report, the 34-page
 22 report, which is the final version, I think.
 23 We know that the incident was captured on many CCTV
 24 systems. Did you use those to help assess the movements
 25 and speed of the vehicle?

120

1 A. It was a colleague of mine that's used the CCTV material
2 to make speed calculations.

3 Q. Did you yourself though use those forms of evidence to
4 help assess the movements of the vehicle?

5 A. I have incorporated that in my report, sir, yes.

6 Q. And your colleague's speed calculations, which we'll
7 hear about from him shortly, were also, I think, brought
8 into your report?

9 A. Yes, sir, they were.

10 Q. The reconstruction I think also took account of distinct
11 marks which were attributable to the vehicle which you
12 found on the road?

13 A. Yes.

14 Q. May we then begin with the start of the attack. We know
15 that the vehicle was first parked up at the start of
16 a bus lane near the south bank?

17 A. Yes, sir, that's correct.

18 Q. If we can bring up on screen {DC7989/4}. Do we see here
19 a plan prepared which shows the vehicle at the starting
20 point of the journey?

21 A. Yes, that is the plan drawn by me with the vehicle
22 location as observed in the CCTV footage.

23 Q. May we now move to the collision with Kurt Cochran, and
24 for this purpose {DC7960/57}. Does this plan show the
25 start of the attack and the movements of the vehicle at

121

1 the start of the attack?

2 A. Yes, sir, it does.

3 Q. Using your report, can you describe your reconstruction
4 of this part of the attack, please?

5 A. Mr Cochran was with his wife, Melissa, on the south of
6 Westminster Bridge. They were in the vicinity of
7 a flight of steps which lead down towards a walkway
8 alongside the River Thames. At the top of these steps,
9 set back from the main footway, was a stall selling
10 London souvenirs and postcards. Mr and Mrs Cochran were
11 adjacent to the kerb and moving towards the souvenir
12 vendor with Mrs Cochran slightly ahead of her husband.

13 Travelling west, opposite the London Marriott County
14 Hall Hotel, the collision vehicle has passed the front
15 of a stationary bus and moved from lane two of two
16 across lane one, which is a bus lane, and onto the
17 footway.

18 The vehicle then swerved right to bring its
19 direction of travel along the footway, parallel to the
20 road. As the vehicle swerved right, it struck Kurt and
21 Melissa Cochran, and this was at about 2.40 pm.

22 Speed calculations on the CCTV analysis provided
23 a speed for the collision vehicle at this point as being
24 between 32 and 36 miles per hour.

25 Q. And we'll ask Mr Clark how he came to that calculation.

122

1 A. Yes. Mrs Cochran was struck by the nearside front
2 corner of the vehicle which then passed her. She was
3 projected away from the direction of the road towards
4 the wall opposite the souvenir vendor. This wall is
5 aligned north to south.

6 Mr Cochran was struck more centrally by the front of
7 the vehicle. He was projected only a few feet away from
8 Mrs Cochran, but toward the east to west orientated wall
9 of Westminster Bridge. He was projected further
10 horizontally than Mrs Cochran and enough of his mass was
11 higher than the top of the wall to mean that after
12 striking the wall he continued over the top of it before
13 falling onto the stone walkway below. Mr Cochran landed
14 on the stone walkway alongside the River Thames, having
15 received a fatal head injury.

16 Q. Are you able to say whether Mr Cochran would have gone
17 over the wall had it been 10, 20 or 30 centimetres
18 higher?

19 A. I don't have that information, sir, I am afraid.

20 Q. May we move on to the next part of the reconstruction,
21 the part of the journey in which Leslie Rhodes was
22 struck. May we bring up on screen {DC7960/59}. Does
23 this plan that we're looking at on screen now show the
24 next part of the vehicle's route?

25 A. Yes, sir, it does.

123

1 Q. Are you able to set out your conclusions about the
2 movement over the next part of its journey and the
3 further people it hit?

4 A. Within about 20 to 25 metres after striking Mr and
5 Mrs Cochran, the collision vehicle has struck a series
6 of pedestrians. Amongst these was Mr Leslie Rhodes. As
7 Mr Rhodes was struck, the vehicle began steering back
8 onto the road, seemingly to avoid a temporary sign,
9 which was giving advance notice of roadworks.

10 Q. Just pause there. I think we see the temporary sign
11 marked there on the plan.

12 A. It is on the plan, sir, on the footway.

13 Q. Just to the left of the first of the right-hand side
14 marker bearing Mr Rhodes' name?

15 A. Yes.

16 Q. Carry on, please.

17 A. Having been struck, Mr Rhodes fell to the ground and as
18 the vehicle is driven back onto the road, the nearside
19 wheels have passed over Mr Rhodes who has rolled or
20 dragged under the vehicle for a short distance.

21 On the road surface in this vicinity were blue scuff
22 marks from clothing being abraded against the road
23 surface and a patch of blood surrounded by medical
24 paraphernalia. The speed of the vehicle during this
25 collision was calculated as being between 29 and

124

1 36 miles an hour.
 2 Q. Again, we'll deal with the speed collision with your
 3 colleague.
 4 A. Mr Rhodes was subsequently conveyed to hospital where
 5 later during 22 March he died due to his injuries .
 6 Q. May we bring up {WS1203A/14}, and then {WS1203A/15} as
 7 well, please. Do we see there in those two photographs
 8 the markers you used to mark out the path of the vehicle
 9 on this part of its route?
 10 A. These are the markers, yes, sir, placed on the outside
 11 of the tyre marks, just almost visible at the top in the
 12 centre of the image is the temporary sign weighted down
 13 with sand bags.
 14 Q. Thank you very much. We can take that off the screen.
 15 May we now move to the part of the vehicle's movement in
 16 which it collided with Aysha Frade, and {DC7960/60}.
 17 Now, looking at this plan and having reference to your
 18 report, are you able to give details of the movement of
 19 the vehicle over this part of its journey as you
 20 reconstructed it?
 21 A. After negotiating the temporary sign, the collision
 22 vehicle drove back onto the footway, fully onto the
 23 footway, approximately in the centre of the bridge, as
 24 Aysha Frade was walking west, with the collision vehicle
 25 approaching her from behind.

125

1 Ms Frade was struck from behind by the collision
 2 vehicle in the area of its offside headlights. Having
 3 been struck to her legs, her torso and head pivoted
 4 towards the bonnet and windscreen and as the vehicle
 5 continued, Ms Frade somersaulted upwards while being
 6 accelerated west. She was projected from the footway
 7 and landed in lane 1, which is a bus lane. Ms Frade has
 8 landed in such a way that her head and shoulders were
 9 underneath the nearside of a slowly moving double decker
 10 bus, registration YX16 OHB and in between its front and
 11 rear wheels.
 12 The bus was passed to its nearside by the collision
 13 vehicle as it struck a further series of pedestrians.
 14 While Ms Frade may now have been available to be seen in
 15 the nearside mirror, the bus driver is likely to have
 16 had his attention drawn to the incident unfolding along
 17 the footway. The bus was slowing, but from viewing the
 18 CCTV I believe it could have halted more abruptly had
 19 the driver been aware of Ms Frade's position --
 20 Q. Can you pause there a second.
 21 A. Sir.
 22 Q. Is it right to say that in the period before the bus
 23 came to a halt, its rear wheels caused the fatal injury?
 24 A. They did, sir, yes.
 25 Q. Please go on with your reconstruction as you set it out

126

1 from paragraph 7.4.7.
 2 A. CCTV shows there was by now substantial damage to the
 3 windscreen and bodywork at the front of the collision
 4 vehicle. Damage to the windscreen was most significant
 5 immediately in front of the driver which would have
 6 greatly restricted his view directly ahead.
 7 It is likely he would have been more reliant on the
 8 remaining view through the nearside part of the
 9 windscreen and the available view through the front door
 10 windows. Greater effort would have been required by the
 11 driver to continue his progress across the bridge.
 12 Q. May we have on screen {WS1203A/26}. And do we see here
 13 that you have identified and marked out with your
 14 markers the tracks of the vehicle along the pavement on
 15 the approach to where the bus was?
 16 A. Yes, sir, this is on the approach to and where
 17 Ms Aysha Frade was struck by the car on the footway.
 18 Q. We can take that off the screen now.
 19 May we now move to the part of your reconstruction
 20 taking account of the collision with Andreea Cristea.
 21 And for this purpose may we have, please, on screen
 22 {DC7960/64}. This, I think, is a plan which shows the
 23 area where Andreea was struck marked in yellow?
 24 A. Yes, sir, that's correct.
 25 Q. Referring to section 7.5 of your report, are you able to

127

1 explain your conclusions in relation to the movement of
 2 the vehicle over this period?
 3 A. CCTV footage of this part of the incident is only
 4 available with low fidelity and from a distance. My
 5 colleague will deal with the speeds through this
 6 section.
 7 Ms Andreea Cristea was on the third span from the
 8 western end of the bridge and walking east towards the
 9 centre of this span on the south footway. She was near
 10 the centre of this bridge span and part of a group
 11 struck almost simultaneously. She was struck in such
 12 a way as to be projected against the balustrade along
 13 which she slid for a short distance before falling into
 14 the River Thames below.
 15 She was retrieved from the river with serious
 16 injuries from which she did not recover and passed away
 17 in hospital in April.
 18 Q. May we now deal with the movement to the vehicle after
 19 it had struck Andreea, and may we bring up on screen
 20 {DC7960/66}. Looking at paragraph 7.6.1 of your report,
 21 are you able to trace the movement of the vehicle after
 22 it had struck Andreea?
 23 A. At the western end of the bridge the collision vehicle
 24 drove from the footway onto the cycle lane to continue
 25 west. It was then driven onto the footway again at a

128

1 traffic light –controlled pedestrian crossing where
 2 further persons were struck.
 3 Q. Just pause there. Can we see that pedestrian crossing
 4 at the far left of the plan on the screen?
 5 A. Yes, sir, that’s correct.
 6 Q. What happened after the vehicle had been driven onto the
 7 pavement in that area?
 8 A. The nearside front wheel of the collision vehicle has
 9 struck the kerb, mounting the pavement here in such
 10 a way as to damage the tyre and cause a rapid deflation
 11 of it. The effect of this would be to cause the
 12 steering to feel heavier. With the more air that
 13 escaped progressively more effort would be required to
 14 steer the car as a result.
 15 A scuff mark was left on the wall on the south side
 16 of this pedestrian crossing where the vehicle has made
 17 contact with the wall. This impact was only minor. The
 18 substantial damage caused to the collision vehicle up to
 19 this point was due to impacts with pedestrians. These
 20 were sufficient to cause airbags to deploy, the body
 21 panels to be deformed, and vehicle components broken
 22 off.
 23 Q. Just pause there, please. May we have on screen
 24 {WS1203A/34}. Now, can we see there some signs of parts
 25 having come off the vehicle in the course of its

129

1 movement?
 2 A. Yes, sir, in the cycle lane there is part of a body
 3 panel from the collision vehicle.
 4 Q. And then page 35, please {WS1203A/35}, a more close-up
 5 image of the body panel.
 6 A. Yes, the same component, from a different angle.
 7 Q. Are you able to say when in the course of its journey
 8 the airbags would have deployed?
 9 A. That information isn’t readily discernible, sir, I am
 10 afraid, no.
 11 Q. Are you able to say what effect the deployment of the
 12 airbags would or might have had on the driving of the
 13 vehicle?
 14 A. An air bag deploying would have an immediate distracting
 15 effect as it occupies the space directly in front of the
 16 driver with a sudden bang. The air bag will deflate
 17 over time, enabling a person to be able to continue
 18 driving even though the air bag has deployed, but it
 19 will be immediately distracting, at the very least, when
 20 it goes off.
 21 Q. May we now move to a plan at {DC7960/67}. This is
 22 a plan which shows the final part of the vehicle’s
 23 route. Referring to this and to paragraph 7.6.4 of your
 24 report, are you able to set out for us your
 25 reconstruction of the vehicle’s movement over this final

130

1 phase?
 2 A. The collision vehicle rejoined the cycle lane and
 3 continued west. There’s a permanently installed
 4 security barrier which obstructs vehicular access to the
 5 footway and continues separating the footway and the
 6 cycle lane adjacent to an entrance to the Elizabeth
 7 Tower.
 8 The collision vehicle continued west alongside this
 9 barrier with the nearside front tyre leaving a mark
 10 which changed in nature. The outer shoulder of that
 11 tyre now leaving a narrow black mark which was visibly
 12 different to the tyre marks left previously.
 13 Q. Can you just pause there. May we have on screen
 14 {DC7960/68}. We now have a copy of this plan with the
 15 photographs and your markers superimposed; is that
 16 right?
 17 A. Yes, sir, that’s correct.
 18 Q. And have you set out in the markers which we see in the
 19 right-hand photographs the traces of the movement of the
 20 vehicle alongside the hostile vehicle mitigation
 21 barriers?
 22 A. Yes, the numbered cones are adjacent to the tyre mark
 23 I’ve just described.
 24 Q. What did you deduce from the black tyre mark that you
 25 saw?

131

1 A. It makes it apparent that the vehicle has been driven
 2 without air in that tyre. It’s more difficult to drive
 3 a vehicle with one flat tyre, indicating effort required
 4 by the driver to continue driving a vehicle that’s in
 5 that condition.
 6 Q. May we have on screen {WS1203A/38}. This is a clearer
 7 copy of one of the photographs you had superimposed on
 8 the last plan. This, again, shows the cones marking out
 9 the marks of the vehicle, as you’ve indicated; is that
 10 right?
 11 A. Yes, sir.
 12 Q. And then {WS1203A/43}, what are we looking at now?
 13 A. Cone number 1, adjacent to a kerb strike with more
 14 significant damage to the granite kerb because the tyre
 15 is flat and not cushioning the blow, so it’s the metal
 16 wheel rim which is striking the kerb causing that
 17 damage, and the thinner line continuing beyond cone
 18 number 2, indicating the edge of that tyre, which has
 19 lost its air earlier on during the journey.
 20 Q. So is that an example of the type of narrow black mark
 21 which the tyre is leaving now that the air has escaped
 22 from that tyre?
 23 A. Yes, sir, it’s more easy to see on the slab surface than
 24 it was on the tarmac.
 25 Q. You can take that down now.

132

1 What was the speed of the vehicle over this last
2 stretch of its journey?
3 A. The speed I've been given during the latter part of the
4 driving in the cycle lane was described as being in the
5 low to mid-20s.
6 Q. Were you able to give a reason for the speed being lower
7 over this part of the journey?
8 A. A deflated tyre would cause the steering to feel heavier
9 and slow the vehicle down to some degree.
10 Q. We can then return to the plan showing the last phase of
11 the journey, {DC7960/67}. Can you describe the very
12 final stages of the vehicle's journey once it had passed
13 the hostile vehicle mitigation barriers?
14 A. Having passed the end of the security barrier and about
15 halfway between it and the next traffic light junction
16 at Parliament Square, the collision vehicle drove back
17 onto the footway, struck more pedestrians there, and
18 then made contact with the edge of a stone pillar
19 forming part of the perimeter of the
20 Palace of Westminster estate.
21 This has abruptly stopped the vehicle which rotated
22 slightly anti-clockwise and rebounded back from the
23 wall.
24 Q. Pause there, please. May we have {PH0421/1}. We've
25 seen some of these images already. Does this show the

133

1 location of the vehicle after it had come to a halt and
2 the pillar, which you've indicated it struck?
3 A. Yes, sir, it does.
4 Q. And then {DC7989/47}, please. Can we see from this
5 slightly different perspective the extent of the frontal
6 damage which the vehicle had suffered by this point?
7 A. That is as I recall observing the vehicle at the time,
8 sir, yes.
9 Q. And then {DC7989/48}, please. Can we see there, visibly
10 deflated that nearside front tyre you were describing
11 earlier?
12 A. Yes, sir.
13 Q. We can take that off screen now.
14 So moving on to your essential conclusions, did you
15 and your colleagues have the Hyundai inspected to see if
16 it had any faults or defects prior to the attack?
17 A. The vehicle was examined by colleagues of mine, sir,
18 yes.
19 Q. And was it established whether the vehicle had any
20 faults or defects which might have influenced its
21 handling or contributed in any way to its movement?
22 A. The report I received were that there were found to be
23 no pre-collision defects or issues likely to have caused
24 any adverse effects on the steering or handling of the
25 vehicle.

134

1 Q. From your work, was there anything that interfered with
2 the driver's ability to control the vehicle, at least
3 before it suffered damage through striking pedestrians
4 and being driven on and off the kerb?
5 A. No, sir, there wasn't.
6 Q. From your assessment, do you consider that the vehicle
7 was being steered deliberately at each stage?
8 A. Yes, sir.
9 Q. From your assessment, do you consider that the vehicle
10 was accelerated deliberately during the course of its
11 journey?
12 A. Yes, sir.
13 Q. From your assessment, do you consider that the
14 collisions with the various pedestrians who were hit,
15 both those who died and those who didn't die, were the
16 result of the vehicle being driven intentionally at
17 them?
18 A. Yes, sir, I do.
19 MR HOUGH: Thank you very much. Those are my questions. As
20 I say, there may be some more.
21 Examination by MR PATTERSON QC
22 MR PATTERSON: Constable, just one or two matters, please,
23 by way of clarification.
24 First of all, Kurt Cochran, and I should say that
25 I ask questions on behalf of the families of those four

135

1 who were killed on the bridge. You dealt with
2 Kurt Cochran at paragraph 7.2.6 of your report. And
3 we've had evidence from a colleague who spent many days,
4 if not months, analysing the footage,
5 Detective Constable Osland. His evidence was that when
6 on the footage we see Kurt Cochran colliding with the
7 wall of the bridge, that he essentially pivoted over the
8 bridge and then went head-first down onto the pavement
9 below.
10 A. Sir.
11 Q. And his evidence was that if there had been a railing or
12 some obstacle on top of the wall, obviously he wouldn't
13 have gone over. My question for you is, have you done
14 any analysis, and I think it's implicit from your answer
15 earlier to Mr Hough that you haven't, any analysis as
16 who how many centimetres or inches higher it would have
17 needed to be to prevent him from going over it?
18 A. Sir, we haven't completed such an analysis.
19 Q. Secondly, Mrs Aysha Frade. We know from the footage
20 that we have in particular a view down the nearside of
21 the bus in a small segment of footage taken from the bus
22 itself.
23 A. Yes, sir.
24 Q. And we know that there comes a moment when the word
25 "brake" appears on the footage, obviously something that

136

1 has been initiated by the system within the bus. We
 2 dealt with this through the pathologist and we analysed
 3 the actual number of seconds that had passed from the
 4 start of the impact until the bus comes to a standstill.
 5 The evidence given by the pathologist was that within
 6 a second the driver pressed brake. Does that accord
 7 with your understanding of the footage that was
 8 recovered for that part of the incident?
 9 A. Sir, I do recall that there is telemetry information
 10 shown on CCTV footage from buses. I've no reason to
 11 doubt that what's been suggested is correct.
 12 Q. Yes. And you make the point, which is a fair point,
 13 I would suggest, in relation to the driver, that his
 14 attention would have been directed to what was
 15 thereafter happening ahead of him and on his left as the
 16 car raced along the pavement up his inside?
 17 A. I would completely understand that, sir, as an account
 18 given by a driver in those circumstances faced with the
 19 nature of the incident overall.
 20 Q. So that although he had that to contend with,
 21 nonetheless he still seems to have pressed brake very
 22 quickly?
 23 A. He does, indeed, yes.
 24 Q. And finally, in relation to Andreea Cristea, I just want
 25 to ask you something about your analysis of the footage,

137

1 because you used the word "sliding" in relation to the
 2 wall, at the point where she goes over. Can we just
 3 deal with that, please. We know, and you've made
 4 reference to this already, that the footage there is
 5 quite poor quality, isn't it?
 6 A. Very poor quality, sir, yes.
 7 THE CHIEF CORONER: And there's not very much of it either,
 8 Mr Patterson. Some of the others we see a number of
 9 different angles.
 10 MR PATTERSON: We had very little to work with.
 11 THE CHIEF CORONER: We have very little to work with,
 12 absolutely.
 13 MR PATTERSON: Absolutely, and in particular we have a
 14 distant view from a St Thomas' Hospital camera, I think.
 15 A. Yes.
 16 Q. I just want to ask you about that suggestion that there
 17 was sliding along the wall, because I don't know if you
 18 are aware, there has been live evidence from a member of
 19 the public, Michael Brown, who was in a white van which
 20 he stopped and got out, and he told us that before he
 21 got out of the van he looked through his driver's side
 22 window and estimated that she went something like
 23 10 feet, at least, into the air?
 24 A. As I've said, the video, sir, is of very low quality.
 25 I think the sliding was referred to, in some ways

138

1 an approximation to fill in a gap of what we felt was
 2 available. I haven't heard any of the other live
 3 evidence that's been given or seen any accounts from
 4 witnesses to the incident. Going just by the CCTV
 5 available, it appeared that she was struck in one area,
 6 as viewed from a vehicle on the road, and landed in the
 7 river slightly further west, as viewed from CCTV from
 8 a different angle, and that reference was used to fill
 9 a gap.
 10 Q. Yes. I make it plain, constable, I'm not making
 11 a criticism; it's simply that the evidence of the
 12 pathologist suggested no contact with the wall of the
 13 bridge. The evidence of Detective Constable Osland, who
 14 analysed the footage in great detail, was that there was
 15 no evidence of actual contact with the wall of the
 16 bridge, and thirdly, we had that member of the public
 17 who appeared to suggest up and over was the movement
 18 after impact.
 19 So you're not suggesting, are you, that there's any
 20 positive evidence of contact with the bridge?
 21 A. No, sir, I can't dispute the other accounts given.
 22 That's information that wasn't available to me while we
 23 were putting this together.
 24 Q. Thank you very much. Then finally this: towards the end
 25 you describe the occasion where he mounted the pavement

139

1 to get round a traffic light, or a pedestrian crossing,
 2 I think you said.
 3 A. It was at a pedestrian crossing, sir, yes.
 4 Q. A pedestrian crossing. And at that point there was no
 5 obstacle in his way; the movement up onto the pavement
 6 was a movement that Masood appears to have deliberately
 7 taken, whereas he could have just continued on the road
 8 and not remounted the pavement?
 9 A. He could have done sir. I believe all his steering
 10 input was deliberate from reviewing the CCTV afterwards.
 11 It would appear there was a concentration of persons in
 12 the vicinity of that pedestrian crossing.
 13 Q. And he actually went right up and there was a scuff mark
 14 that you described finding on the wall itself at that
 15 point, where he went right up onto the pavement?
 16 A. There was a glance, sir, between the vehicle and the
 17 wall, yes.
 18 Q. Consistent with somebody deliberately targeting
 19 pedestrians?
 20 A. Well, the scuff on the wall I think was incidental, but
 21 the swerving from the road onto the footway would appear
 22 to be directed at a greater concentration of pedestrians
 23 than were elsewhere.
 24 MR PATTERSON: Constable, thank you very much. That's all
 25 I ask.

140

1 MR HOUGH: Thank you very much, constable, that's all the
 2 questions we have for you. If you would wait while your
 3 colleague gives evidence in case we require you during
 4 that evidence.
 5 A. Thank you, sir.
 6 MR HOUGH: So PC Clark, please.
 7 PC RICHARD CLARK (Sworn)
 8 A. Police Constable Richard Clark 2369T currently attached
 9 to the Serious Collision Investigation Unit at Merton
 10 Traffic Garage, sir.
 11 THE CHIEF CORONER: And, officer, the same applies to you:
 12 make yourself comfortable, whether that's sitting or
 13 standing or a mixture of the two.
 14 A. Thank you, sir.
 15 Examination by MR HOUGH QC
 16 MR HOUGH: Officer, again, you are aware that I ask
 17 questions on behalf of the Coroner first.
 18 A. I am, yes.
 19 Q. And you may then be asked questions by some other
 20 lawyers.
 21 Are you, too, a police forensic collision
 22 investigator?
 23 A. I am, yes.
 24 Q. I think you have been a police officer since 1995; is
 25 that right?

141

1 A. Yes.
 2 Q. Once again, without going through the full host of
 3 qualifications in your appendix 1, can you tell us the
 4 critical qualifications for the exercise you are going
 5 to be giving evidence about?
 6 A. Yes, I have a City & Guilds certificate in forensic
 7 collision reconstruction, I am a licentiate of the
 8 City & Guilds Institute, a full member of the Institute
 9 of Traffic Accident Investigators. I have higher
 10 education certificates in mathematics and physics, and
 11 I'm also a vehicle examiner.
 12 Q. Thank you. Were you tasked to view the CCTV in this
 13 case to prepare an analysis of the speed of the Hyundai
 14 driven by Masood at various stages of its journey across
 15 Westminster Bridge?
 16 A. I was, sir, yes.
 17 Q. Now, may I deal first with the method you adopted, which
 18 you deal with at section 2 of your report. Let me take
 19 this in stages. First of all, did you count the frames
 20 in sample seconds within particular CCTV footage to
 21 determine for each particular camera's footage how many
 22 frames per second there were?
 23 A. That's correct, yes.
 24 Q. Now, that's the first stage?
 25 A. Yes.

142

1 Q. Find out how many frames per second in a piece of
 2 footage.
 3 Secondly, did you then estimate the position of the
 4 car in images and relate it to features of the road
 5 surface?
 6 A. That's correct, yes.
 7 Q. Did you then use the scene survey data that we've seen,
 8 all the plans that were prepared by your colleagues, to
 9 measure distances between positions?
 10 A. I did.
 11 Q. So you were able, I think, to identify on the plans the
 12 distances between certain positions which you could see
 13 on the footage?
 14 A. That's correct, yes.
 15 Q. Did you then painstakingly count the elapsed frames on
 16 a piece of CCTV footage to estimate the time taken to
 17 travel between different positions?
 18 A. That's correct.
 19 Q. And is that the way, in summary, that you calculated the
 20 speed of the vehicle over different parts?
 21 A. It is.
 22 Q. And as we'll see, is it right that because of
 23 imprecision in precise positioning of the vehicle in
 24 parts, in aspects of the CCTV footage, that there are
 25 ranges of accuracy in your calculations?

143

1 A. There is, yes.
 2 Q. Do those ranges of accuracy vary necessarily over the
 3 course of your exercise, depending on the footage you've
 4 been using?
 5 A. That's exactly right, sir, yes.
 6 Q. May we then begin with the speed up to the collision
 7 with Kurt Cochran, and may we bring on screen
 8 {WS1202A/22}. Now, these are on the page that we're
 9 looking at on the screen, two still images showing the
 10 Hyundai vehicle first of all on the approach to the
 11 collision with Kurt Cochran, and at approximately the
 12 point that it struck him?
 13 A. That's correct, yes.
 14 Q. Did you calculate, using the method that you've
 15 described, the speed of the vehicle over that distance
 16 from the distance covered?
 17 A. I did, yes.
 18 Q. What were your conclusions?
 19 A. That it was -- the average speed of the vehicle was
 20 between 32 and 36 miles per hour.
 21 Q. And I think, looking at your calculations, you
 22 calculated that the distance covered was 43 metres,
 23 subject to an uncertainty range of 3 metres either side?
 24 A. That's correct, plus or minus three metres in total.
 25 Q. Yes. And you worked out from the method that we've

144

1 described that it covered that distance in 2.84 seconds;
 2 is that right?
 3 A. It did, yes.
 4 Q. So that's the distance over which you made the
 5 calculation and that's the calculation you reached, 32
 6 to 36 miles per hour?
 7 A. So 43 metres in 2.84 seconds.
 8 Q. Yes. May we now move to the calculation of speed up to
 9 the collision with Leslie Rhodes, and did you here use
 10 the still at the bottom of the page we're looking at at
 11 the moment, 401B, as the starting point of the distance
 12 over which you were going to estimate speed?
 13 A. That's correct, sir, yes.
 14 Q. And then the next page, please, {WS1202A/23}, did you
 15 use this still as the end point of the calculation?
 16 A. That's correct, yes.
 17 Q. And did you calculate the vehicle over this period had
 18 covered a distance of 51 metres?
 19 A. Yes.
 20 Q. What was your uncertainty range there?
 21 A. Plus or minus 5 metres.
 22 Q. And what period of time -- in what period of time did
 23 the vehicle cover that distance?
 24 A. 3.52 seconds.
 25 Q. And what average speed over that period then did you

145

1 calculate the vehicle was travelling?
 2 A. Between 29 and 36 miles per hour.
 3 Q. We can take that down now. Moving to the point at which
 4 the vehicle collided with Aysha Frade, and looking at
 5 paragraph 5.1.5 of your report, were you able to
 6 calculate the speed during the collision with
 7 Aysha Frade with meaningful accuracy?
 8 A. No.
 9 Q. Why not?
 10 A. Because the bus was moving and when you have -- so the
 11 camera from the bus was the best and only really usable
 12 footage for this method, and the movement of the bus
 13 added a level of complexity that made speed
 14 calculations -- the uncertainty would have been such
 15 a large range that it would have been meaningless.
 16 Q. However were you able to calculate the speed of the
 17 vehicle a little after its impact with her?
 18 A. Yes. 13.5 metres after the impact with Mrs Frade the
 19 vehicle was driving at an average speed of between 31
 20 and 42 miles per hour.
 21 THE CHIEF CORONER: 31 and 42?
 22 A. Yes, sir.
 23 MR HOUGH: If we look at {WS1202A/24}, were these images
 24 which you used in the calculation of speed over that
 25 period?

146

1 A. They were, yes.
 2 Q. So image 702A at the top of the page, the start of that
 3 distance; yes?
 4 A. Yes.
 5 Q. Image 702B, the point of the vehicle at the end of that
 6 distance of 13.5 metres?
 7 A. That's correct, sir, yes.
 8 Q. And then if we look at {DC7960/72}, do we see in the
 9 left-hand side of this page that you plotted the
 10 distance between those two images, 702A and B, and you
 11 marked your speed calculation 31 to 42 miles per hour at
 12 the bottom of this plan?
 13 A. That's correct. The vertical lines at the end of the
 14 horizontal red lines denote that distance.
 15 Q. Thank you very much.
 16 Moving on to the speed during the collision with
 17 Andreea Cristea, were you again required to use
 18 long-view footage for this calculation?
 19 A. That's correct, sir, yes.
 20 Q. If we bring up {WS1202A/24} again, please, did you use
 21 the image at the bottom of the page, 702B, as the
 22 starting point for the distance/speed calculation?
 23 A. I did.
 24 Q. Then to the next page, please {WS1202/25}, did you use
 25 702C, the image at the top of the page, for the end of

147

1 the distance?
 2 A. I did, sir, yes.
 3 Q. And then may we see the plan at {DC7960/73}. Using this
 4 plan, can you explain what conclusions you reached in
 5 relation to speed over this period?
 6 A. Yes. So where it says 28 to 36 miles per hour, that's
 7 the speed, again, between the two vertical -- the
 8 average speed between the two vertical lines at the end
 9 of each of the red lines, and it was during that period
 10 that the car made contact with Andreea Cristea. So the
 11 average speed of the vehicle during that impact was
 12 between 28 and 36 miles per hour.
 13 Q. We can take that off screen now. Did you also make
 14 an assessment of the average speed of the vehicle driven
 15 over the bridge as a whole?
 16 A. I did, yes, sir.
 17 Q. What was that average speed?
 18 A. Between 30 and 32 miles per hour.
 19 Q. When we saw the reconstruction at the very start of this
 20 hearing, from the driver's eye point of view, the
 21 opening screen indicated that it was shown at a speed of
 22 31 miles per hour consistently. That, I think, was
 23 based upon your average speed?
 24 A. I'm sure it was, yes.
 25 Q. But, of course, as we've heard from you, the vehicle

148

1 speed varied over the course of its journey over the
 2 bridge?
 3 A. It did.
 4 Q. Which would have required acceleration input from the
 5 driver?
 6 A. Yes.
 7 MR HOUGH: Thank you very much. Those are all my questions.
 8 Examination by MR PATTERSON QC
 9 MR PATTERSON: Mr Clark. Just one matter.
 10 We know that it set off from a standing start, and
 11 it quickly got up onto the pavement, and we had the
 12 impact with Mr and Mrs Cochran; yes?
 13 A. Yes.
 14 Q. And at that stage, 32 to 36 is the average, is the
 15 range?
 16 A. Yes.
 17 Q. And so from that standing start, it quickly got up to
 18 an average of 30 miles per hour at that stage; is that
 19 right?
 20 A. Yes.
 21 Q. And then at each of the stages that you have analysed
 22 thereafter, it's above 30 miles per hour; is that right?
 23 A. Yes.
 24 Q. Despite swerving round the signpost and onto the roadway
 25 and then back up onto the pavement again?

149

1 A. Yes.
 2 Q. And despite the multiple impacts all the way across the
 3 bridge?
 4 A. Indeed.
 5 MR PATTERSON: Thank you.
 6 MR HOUGH: Thank you very much, officer. Those are all the
 7 questions we have for you and your colleague. Thank you
 8 for your evidence.
 9 THE CHIEF CORONER: Thank you both.
 10 MR HOUGH: Sir, our next witness is Mr Fenne, but may I ask
 11 for the mid-afternoon break a little early so that
 12 he can bring in necessary equipment.
 13 THE CHIEF CORONER: Yes, I know that he has various models
 14 or mannequins that he wants to use, that will be fine,
 15 we will take that break now. What I'm going to suggest,
 16 Mr Hough, is we will sit again in ten minutes' time and
 17 we'll take his evidence then.
 18 (2.45 pm)
 19 (A short break)
 20 (2.58 pm)
 21 MR HOUGH: Mr Fenne, please.
 22 MR PAUL FENNE (Sworn)
 23 THE CHIEF CORONER: Officer, I expect you will be moving
 24 around quite a bit, but when you are not, if you would
 25 prefer to sit, that's fine, just make yourself

150

1 comfortable.
 2 A. Okay, thanks, sir.
 3 Examination by MR HOUGH QC
 4 MR HOUGH: Would you please give your full name for the
 5 court?
 6 A. Paul Michael Fenne.
 7 Q. Mr Fenne, I think you understand I ask questions first
 8 on behalf of the Coroner and then you will be asked
 9 questions by other lawyers.
 10 A. Thank you, yes.
 11 Q. What's your current job, Mr Fenne?
 12 A. My current job, I'm the principal engineer in Physical
 13 Protection Group, Metropolitan Police.
 14 Q. Can you summarise in a sentence or two your main
 15 engineering qualifications relevant to that job and the
 16 evidence you're going to give?
 17 A. I'm a Bachelor of Science in mechanical engineering, and
 18 a chartered engineer and a fellow of the Institute of
 19 Mechanical Engineering, and I've done a lifetime of work
 20 in the field of protection and armour. The first half
 21 was in the Ministry of Defence, working on military
 22 vehicles, and the second half in the Met Police working
 23 on armour.
 24 Q. What are the main responsibilities of the Physical
 25 Protection Group of the Metropolitan Police?

151

1 A. The responsibilities are to provide technical support,
 2 research and development, and to develop procedures for
 3 the purchase and the tendering of armour-related
 4 products, to understand what the threat is at any one
 5 time, and for that to guide the standards and the
 6 performance of armour that's required.
 7 Q. Does the Physical Protection Group therefore play a part
 8 in the assurance process for the procurement of body
 9 armour?
 10 A. Yes.
 11 Q. Does the group also participate in policy groups within
 12 the Metropolitan Police and the Home Office about body
 13 armour?
 14 A. Yes. Yes.
 15 Q. For the SO15 investigation into the attack, and for the
 16 Coroner, you've been asked to prepare a number of
 17 reports concerning the body armour worn by
 18 PC Keith Palmer; is that right?
 19 A. Correct.
 20 Q. You may refer to those reports as you wish, I think you
 21 have them in front of you.
 22 A. Thank you.
 23 Q. Mr Fenne, it's inevitable that your evidence will go
 24 into detail about the injuries inflicted on the officer,
 25 so I raise that point in case anyone not wishing to hear

152

1 that detail wishes to leave. It's also right, I think,
 2 that some of the images we'll look at include the body
 3 armour and its panels, some of which have bloodstaining
 4 on; is that right?
 5 A. Correct.
 6 Q. May we move, then, to your examination of what PC Palmer
 7 was wearing at the time of the attack. Is it right to
 8 say that on his upper body, PC Palmer was wearing, first
 9 of all, a white uniform shirt?
 10 A. Yes.
 11 Q. Then on top of that body armour known as the Met Vest?
 12 A. Correct.
 13 Q. And then on top of that, a hi-vis jacket?
 14 A. Correct.
 15 Q. Did you examine the damage and the signs on all three
 16 layers?
 17 A. Yes, I did.
 18 Q. May we begin with the outer layer, the hi-vis jacket.
 19 Did you examine that to see damage which might reflect
 20 or represent knife impacts?
 21 A. Yes, I did.
 22 Q. May we put on screen {DC5019/3} and if we can focus on
 23 the image at the bottom of the page, please, this is
 24 a part of your report, Mr Fenne, could you identify the
 25 areas of damage you found?

153

1 A. The areas of damage on the drawing are marked up with
 2 numbers 1, 2, 3, 4 and 5, and there were other areas
 3 which were damaged, but from experience I believe that
 4 they were simply wear and tear and possibly abrasion
 5 with the ground during the incident.
 6 Q. So five; areas of damage which you associated with knife
 7 impact. Were you able to say how many of those would or
 8 might have been over areas corresponding to the body
 9 armour panels?
 10 A. Yes. I believed that impact point number 1 and impact
 11 point number 2 on the diagram were corresponding to
 12 where the protective panel of the body armour was.
 13 Q. What about impact points 3, 4 and 5?
 14 A. 3, 4 and 5, I knew that 3 was in the arm and 5 was under
 15 the arm and 4 was on the front of the shoulder.
 16 Q. Areas where --
 17 A. That's where I believed they wouldn't -- those areas
 18 would not be covered by the panels of the body armour.
 19 Q. Thank you very much. May we now move to the next page,
 20 {DC5019/4}, and focus on the image at the top of the
 21 screen first of all. Do we see here a photograph from
 22 your report showing the rear of the hi-vis jacket?
 23 A. Yes. Correct.
 24 Q. Again, can you help us by identifying the areas of
 25 damage which you associated with knife impact?

154

1 A. All of those six areas I believe were knife impacts.
 2 Number 3 corresponded with number 3 in the previous
 3 picture, because it extended over the front to rear
 4 portion of the garment, but points 8 and 9 corresponded
 5 with an area that's covered by the body armour panel.
 6 Q. So is this right: that impact point 5 is one which we
 7 saw a corresponding point on the front of the jacket?
 8 A. That's right, and numbers 3 and 5 match between the
 9 front and the rear pictures.
 10 Q. Then which of the other impact points on the rear did
 11 not correspond to an area covered by body armour?
 12 A. Point number 7 I believe is just about at the top of
 13 the -- where the panel is located, and point number 6 is
 14 not in an area covered by a body armour panel.
 15 Q. Then if we look to the bottom of the page, magnified
 16 area of strike number 6, does this show a close-up of
 17 one of the areas of damage?
 18 A. Correct. Yes, it does.
 19 Q. And is there any particular reason why you have singled
 20 this one out to be the subject of a magnified
 21 photograph?
 22 A. Yes, because there was a corresponding cut in the shirt
 23 at that point.
 24 Q. Okay. May we now move to the impacts on the body armour
 25 itself and the examination that you carried out of that,

155

1 and for this purpose may we move to the next page,
 2 {DC5019/5}. The lower half of this page do we see the
 3 front of the body armour which PC Palmer was wearing at
 4 the time of the attack?
 5 A. That's correct.
 6 Q. Using that, can you identify the impact damage you
 7 identified to this?
 8 A. The impact points numbered 1 and 2 correspond with the
 9 impact points 1 and 2 on the initial picture of the
 10 front of the hi-vis jacket.
 11 Q. If we look at the next page, please, page 6 {DC5019/6},
 12 in the upper half of the page can we see an image with
 13 those impact points shown in close focus?
 14 A. That's correct. That's a close up, a magnified image.
 15 Q. And then if we look at the lower half of that page, can
 16 we see an image of the rear of the body armour which
 17 PC Palmer was wearing, and your examination of impact
 18 damage there?
 19 A. Yes, that's correct, and the -- that particular
 20 illustration has one point marked, number 8, and that
 21 corresponds to number 8 on the rear of the hi-vis
 22 jacket.
 23 Q. Did you extract panels from the body armour waistcoat,
 24 the actual armour panels, and examine those?
 25 A. Yes, I did.

156

1 Q. We're now going to look at some images which show
 2 bloodstaining, and I just give that warning. May we now
 3 move to {DC5019/9} of that document.
 4 Looking at the lower image first of all, does this
 5 show the outer side of the front body armour panel?
 6 A. Correct, this is the outer side.
 7 Q. Which would have been within the jacket at the front?
 8 A. Yes, that's in the canvas outside cover of the body
 9 armour.
 10 Q. And what damage or areas of knife impact signs did you
 11 find on this panel?
 12 A. Cuts in the outer cover, named there as numbers 1 and 2,
 13 and I could see with a microscope that the knife had cut
 14 open the layers and I could see damage underneath.
 15 Q. Focusing on those what, if anything, could you deduce
 16 from them and your examination there about the effects
 17 of the knife on those parts of the body armour?
 18 A. What we did at this stage was to take the body armour
 19 panels, both of them, to our x-ray facility, and we took
 20 x-ray photographs, which are illustrated on pages 11 and
 21 12 of the report.
 22 Q. If we can go to page 11 first of all, please
 23 {DC5019/11}. Carry on, please, Mr Fenne.
 24 A. This is an x-ray illustrating the knife-resistant
 25 element of body armour. Body armour is a dual purpose

157

1 body armour, which means it has ballistic protection, to
 2 give protection against bullets, and also knife
 3 protection against sharp implements, and both of those
 4 elements are different designs, and the element to
 5 resist knives is a stainless steel chain mail. So the
 6 illustration you see on page 11 is the x-ray photograph
 7 of the chain mail, and what we're looking for in that
 8 picture is an area where the chain mail link may be
 9 distorted, and from that distortion we can predict the
 10 sort of energy that was delivered to the body armour.
 11 Q. Now, you've shown us that you identified two damage
 12 marks on the front of the body armour panel, on the
 13 fabric front of the body armour panel.
 14 A. Yes, that's correct.
 15 Q. Did either of those have a corresponding impact damage
 16 point on the chain mail itself?
 17 A. Yes, on the lower picture on page 11, there's a pointer
 18 which is actually a pair of tweezers, which we put in
 19 the approximate position of where we can see on the
 20 outside that the knife has come in contact with the
 21 panel, but just to the top left of the point of that
 22 pointer, and to the left of the pointer, there's a link
 23 which is distorted and a link which is made slightly
 24 oval.
 25 THE CHIEF CORONER: I think if we could ask the operator

158

1 perhaps, Mr Hough, just to --
 2 MR HOUGH: If we could put over a cursor or some yellow
 3 shading to the immediate left and to the upper left of
 4 the pointer end, please.
 5 THE CHIEF CORONER: Yes, and I think we use the bigger
 6 image.
 7 MR HOUGH: Yes, the lower image, please.
 8 THE CHIEF CORONER: Just to the right of that, if I have
 9 understood. Just to the right of the first mark,
 10 between that and the tip of the tweezers, I think we can
 11 see ...
 12 A. That's it.
 13 THE CHIEF CORONER: That's the distortion you were talking
 14 about with making it oval?
 15 A. Yes, and the one just at 2 o'clock to that one.
 16 Slightly to the left.
 17 THE CHIEF CORONER: That's it.
 18 MR HOUGH: So if we look, effectively, at the left-hand side
 19 of the oval shape that's been created, that covers the
 20 two links you were talking about?
 21 A. Yes, correct.
 22 Q. So those two links you identified some distortion
 23 suggesting impact from the knife?
 24 A. Yes, the knife has gone through the cover of the
 25 protective panel and it's gone into the chain mail. The

159

1 chain mail link diameter is 7 millimetres, and it's
 2 slightly bent the link and that amount of distortion to
 3 the link we can relate that in our experience to
 4 a certain level of energy dissipated in the impact.
 5 Q. And what was that level of energy?
 6 A. It will be something between 15 and 25 joules of energy.
 7 Q. We'll come to more precise estimates of the forces used
 8 in the attack.
 9 A. Yes.
 10 Q. Does that area of distortion which you pointed out
 11 correspond to impact point 1 which you marked on
 12 a number of the earlier photographs?
 13 A. Yes, correct. Number 1, yes.
 14 Q. Was there any similar sign of damage at impact point 2
 15 which you identified on the fabric outer part of that
 16 panel?
 17 A. No, not in the body armour panel. I believe what
 18 happened there was the point of the knife hit the very
 19 edge of the panel and it had to pass through the woven
 20 edge of the ballistic element of the body armour, which
 21 is not so efficient at resisting knives, but it still
 22 does play a part, and it lost a lot of its energy in
 23 that manner.
 24 Q. So if we look at page 9 again of your report,
 25 {DC5019/9}, impact point 2 is at the upper hem, and you

160

1 have said that that, the knife will have been stopped to
 2 an extent by the ballistic armour which would have been
 3 present there?
 4 A. Correct.
 5 Q. May we now look at the — we're about to look at the
 6 rear panel which also has bloodstaining, page 10, please
 7 {DC5019/10}, and focusing again on the lower image,
 8 which shows the rear panel and the side facing out, so
 9 the side facing the rear. Did you find any areas of
 10 damage from the knife impact here?
 11 A. Yes, on the lower picture of the outer side, yes,
 12 I found another cut marked there at point 3, and in the
 13 same manner as before, I have identified that on the
 14 x-ray as a distorted ring.
 15 Q. So page 12, please. {DC5019/12}, looking at the lower
 16 image here, is this the x-ray you're talking about?
 17 A. Yes, that's correct, the lower one, and so from the
 18 point of the marker, just slightly to the right and
 19 slightly up.
 20 Q. So if we could put some yellow shading on the circle
 21 which is ...
 22 A. That's it. Perfect.
 23 Q. So that was another link you found to be slightly
 24 distorted, corresponding to damage on the outside of the
 25 rear body armour panel fabric coating?

161

1 A. Correct.
 2 Q. So was this, like impact point 1, an impact point where
 3 the knife engaged with the chain mail but did not
 4 penetrate it?
 5 A. That's correct.
 6 Q. May we now move to the examination of the shirt, again,
 7 which shows bloodstaining, {DC5019/13}. Now, is it
 8 right that you found multiple cuts in the shirt, some of
 9 which were attributable to the medical care?
 10 A. Yes, this was quite difficult because it was damaged in
 11 a lot of areas, but I've picked those areas which are
 12 typical of a knife cut which tends to leave less frayed
 13 edges of threads.
 14 Q. Were you able to find a number of areas of penetration
 15 by that means?
 16 A. Yes, I did, quite a number, but I've just numbered
 17 significant ones, number 2 and number 3.
 18 Q. So that's numbers 2 and 3 on the front, and then
 19 page 16, please. {DC5019/16}. And then you marked,
 20 I think, points 6 and 7 on the back?
 21 A. 6 and 7, that's correct. 7 corresponds with 7 on the
 22 hi-vis jacket, as does 6.
 23 Q. Is this right: whenever we've looked at a particular
 24 number on any of the different pictures, that number
 25 corresponds to the same number on a picture of

162

1 a different item of clothing; if you see what I mean?
 2 A. Not in every place. I think because I did these at
 3 different times, I didn't — some of them, but they are
 4 ones that are less significant for me from a forensic
 5 point of view.
 6 Q. I see. So you've identified what these correspond with
 7 anyway?
 8 A. Yes.
 9 Q. Thank you. Now, {DC5019/14}, please. This is
 10 an example of one cut in close-up, and {DC5019/15},
 11 an example of cut 3 in close-up, and cut 3, I think, was
 12 one of the cuts to the underarm area, was it?
 13 A. Yes, correct.
 14 Q. We can take that off the screen now, please.
 15 Were there any penetrations of the shirt in areas
 16 which would have been covered by body armour panels?
 17 A. No.
 18 Q. May we now move on to the examination of the weapons
 19 used in the attack, which you deal with from page 19 of
 20 your report.
 21 First of all, may we have on screen {DC7960/98}.
 22 We've heard that two knives were used in the attack.
 23 Was the first of these the Sabatier kitchen knife we see
 24 on the upper left two photographs on this slide?
 25 A. Correct.

163

1 Q. A knife, I think, 8 inches in length?
 2 A. Correct, yes, 8 inches.
 3 Q. And in the left-hand upper image, we see that the knife
 4 blade has been deformed or bent; was that its condition
 5 after the attack?
 6 A. Yes, it was.
 7 Q. Was that permanent or temporary deformation?
 8 A. That was permanent.
 9 Q. If we can go, please, to {DC7960/99}, the next page, and
 10 if we look, please, at an image of the point of knife 1,
 11 which is the bottom left image on this slide, what can
 12 we see there based on your examination?
 13 A. The background of the photograph is a piece of graph
 14 paper, and each of those squares is 1 millimetre, so
 15 it's evident what degree of magnification you've got
 16 there. The tip is not deformed or burred, and it's
 17 interesting that along the ground edge, the sharp edge,
 18 around about 4 millimetres, or four squares along that
 19 sharp edge, you'll see a little bit of damage there to
 20 the edge, and that is what I believe was the damage made
 21 by the chain mail when it went into the armour.
 22 Q. In your experience, is that type of damage consistent
 23 with or typical of damage when a knife impacts on
 24 chain mail?
 25 A. Correct, yes.

164

1 Q. Did you examine the edge of this knife using a device
 2 called a goniometer?
 3 A. Yes, I did.
 4 Q. What is a goniometer?
 5 A. A Goniometer is a measuring tool to measure the angle
 6 between the ground flanks of the knife. It's a measure
 7 of the slenderness of the cutting edge.
 8 Q. So its sharpness?
 9 A. Yes.
 10 Q. Looking at page 23 of your report, how was the sharpness
 11 of the knife edge classified?
 12 A. It was classified as sharp, and one very easy way of
 13 testing for a sharp knife, as opposed to an average or
 14 a dull or a blunt blade, is to take -- to be able to
 15 take the knife and to grasp a piece of A4 paper and just
 16 cut it down gently and you can slice cleanly a piece of
 17 paper in two. That makes it sharp.
 18 Q. Did you also test the sharpness of the knife using
 19 something called an edge sharpness measurement rig,
 20 which had been built by your group?
 21 A. That's right. We've built this -- designed this bit of
 22 equipment in the branch, and the way this works is that
 23 the knife is applied to four layers of A4 paper,
 24 80 grams per square metre, and an increasing mass is
 25 laid on the knife, so the pressure of the knife on the

165

1 four layers of paper, is adjusted until it just cuts
 2 through one piece and not the second, and that's
 3 a measure of the sharpness of the edge.
 4 Q. If we go to the preceding page, {DC7960/98}, do we see
 5 in the bottom left image a picture of that rig?
 6 A. Yes, that's correct.
 7 Q. Looking at page 24 of your report, did you get
 8 a numerical rating of the sharpness of the knife by that
 9 means?
 10 A. We did, and that numerical value came out at 1,195.
 11 Q. What did that signify?
 12 A. And because that -- that signified the mass in grams
 13 that had to be applied to the knife to make that cut,
 14 and in the table of definitions of what extremely sharp,
 15 sharp, average, dull and blunt mean in terms of those
 16 numbers, because it was between 1,000 and 2,000, it was
 17 rated as average.
 18 Q. However, was that representative, in your view, of the
 19 sharpness of the knife during the attack?
 20 A. That was the real knife. That was a test on knife 1.
 21 Q. I appreciate that.
 22 A. And we tested a brand new knife and found that to be
 23 extremely sharp, because it got a figure of 326 in
 24 a bracket of 0 to 400, and so when I took possession of
 25 the knife to examine it, it had deteriorated from

166

1 extremely sharp, as a brand new blade, to average.
 2 Q. And did you form a view as to what had happened to cause
 3 that?
 4 A. Well, I did notice that on one of the press photographs
 5 that an officer had his foot on the knife in the
 6 photograph, presumably to stop it moving, and with that
 7 and the -- all the incident that had happened seconds
 8 before, I drew the conclusion that its sharpness will
 9 have deteriorated during that period.
 10 Q. So overall, did you form a view of how sharp the knife
 11 was when it was used in the attack?
 12 A. At a guess I would say it was sharp because I think the
 13 abrasion on the ground will have blunted it, but whether
 14 it was -- and it had been used on several other stabbing
 15 incidents previous to the final one, so I can't really
 16 say whether -- how sharp it was at any particular
 17 stabbing incident.
 18 Q. Looking at page 25 of your report, is it right that you
 19 tested both this knife and a new equivalent on rubber
 20 and foam which had been brought to replicate the
 21 resistance provided by the human body?
 22 A. Correct. We used a simulation for body tissue developed
 23 in Leicester University for forensic use. It's
 24 recognised in the industry. 2 millimetres of silicon
 25 rubber to represent the skin, and 100 millimetres of

167

1 a medium density foam, and then apply the knife to it
 2 and, yes, we did that test, and we tested knife 1, the
 3 actual knife, and we found that under quasi-static
 4 conditions, which is a slow test rather than a dynamic
 5 test, this is a slow test because we need to do that to
 6 make the measurements, 1,340 grams' load was required to
 7 pierce the skin, and 151 grams per centimetre load to
 8 continue the penetration of body tissue. Now, that may
 9 not mean much to anybody, but it's a measure of how
 10 sharp it is in that particular material.
 11 Q. Did you make a comparison between that performance of
 12 the knife against simulated tissue, and the performance
 13 of a new equivalent knife?
 14 A. We did. We used a brand new knife and in that test it
 15 required 989 grams as opposed to 1,340, and it required
 16 113 grams as opposed to 151 grams before. So putting
 17 those together, it means that the knife was less than
 18 perfect at the time I received it.
 19 Q. In your report you say that it had almost the same
 20 performance as a brand new blade and would not require
 21 much effort to penetrate unprotected body tissue; is
 22 that right?
 23 A. That is true. The effort required to penetrate body
 24 tissue wasn't diminished very much.
 25 Q. Now, using two new knives of the same kind, did you

168

1 carry out tests called blade buckling tests?
 2 A. Yes. When we saw that the blade was bent, we realised
 3 there was a possibility that we might be able to predict
 4 how much load was required to bend the knife, and we
 5 were successful in that, so we used brand new
 6 alternatives and we bent the knife on a piece of
 7 instrumentation that measures the load required to bend
 8 it.
 9 Q. And we see that instrumentation in the bottom right two
 10 photographs on the page we're looking at?
 11 A. That's correct, yes. So now the right-hand picture is
 12 a picture of the knife being bent without any restraint
 13 on the handle, and that gives us readings of load and
 14 deformation, and we can draw a graph of those readings
 15 and the area under the graph is a measurement of the
 16 energy required to make that bend in the knife.
 17 Then because we know that when a knife is used, the
 18 hand that's controlling the handle of the knife is
 19 offering some restraint to the knife, we did the
 20 alternative test, which is pictured on the left-hand
 21 side of those two, and there we restrained the knife
 22 handle completely and bent the blade and we did the same
 23 thing again, drew a graph of load against deflection,
 24 and measured the area under the curve and the
 25 conclusions of that test were that we believed it

169

1 required 20 joules of energy to bend it restrained,
 2 and -- 25 joules to bend it unrestrained and 10 joules to
 3 bend it unrestrained, and we believe the actual load
 4 applied to the knife to make that bend was something in
 5 between, and I would guess at 20.
 6 Q. Can you give us an indication of what sort of force is
 7 represented by 20 joules of energy?
 8 A. 20 joules is roughly the energy of dropping a brick,
 9 an ordinary house brick from a metre, so dropping it
 10 from the edge of a table onto the floor is roughly
 11 20 joules.
 12 Q. Did you also perform, using this knife, another test
 13 called the stab drop tower test?
 14 A. Yes.
 15 Q. What was the purpose of that test?
 16 A. The stab drop tower test is a test that's used in the
 17 body armour standard to measure the protection level of
 18 a stab-resistant body armour. It has to meet
 19 a particular level on that test to pass the standard,
 20 and the test is undertaken like this, there's what's
 21 called a sabot, which is a steel element in which a test
 22 knife blade is clamped, and then that's dropped down
 23 a drop tower, a tubular drop tower, and at a certain
 24 height that develops a certain velocity, and that's
 25 related to a certain energy level, which is measured in

170

1 joules.
 2 So we did that test and the first time we were able
 3 to penetrate the armour was at 47.72 joules, and it went
 4 through the armour and the knife went through
 5 7 millimetres beyond the rear face.
 6 Q. So your test indicated that the force required to drive
 7 this knife through chain mail of the kind used in the
 8 Met Vest would be 47.72 joules or more?
 9 A. Correct, yes.
 10 Q. If your blade buckling test then was representative of
 11 the force used in the attack, say 20 joules, does that
 12 help to explain why driving this knife in at that force
 13 didn't penetrate the armour panels?
 14 A. Yes, that's correct. Yes.
 15 Q. Did you also examine a second knife, a hunting-type
 16 knife, which we see on the next page, {DC7960/99}, in
 17 the upper two photographs?
 18 A. Yes, I did. Correct, I looked at those.
 19 Q. This was the other knife used in the attack by
 20 Khalid Masood; is that right?
 21 A. Correct, yes.
 22 Q. And did you look at the knife point under magnification
 23 as we see in the bottom middle image?
 24 A. Yes, that's a magnified view and I think you might
 25 notice there that the very tip of the blade is burred.

171

1 It's -- at some stage it has hit something and the very
 2 tip is turned up towards the view of the camera.
 3 THE CHIEF CORONER: I think we see that in what is image 4
 4 in the lower three?
 5 A. Yes, correct sir.
 6 MR HOUGH: Now, this hunting-type knife, did you examine its
 7 edge using the goniometer?
 8 A. Yes, I did.
 9 Q. And looking at page 31 of your report, what was your
 10 conclusion as to its sharpness?
 11 A. The included angle was 35 and the knife edge sharpness
 12 was sharp.
 13 Q. Did you again use your bespoke testing rig to test its
 14 sharpness with that instrument?
 15 A. Yes, we did, and the value there was 1,040, which made
 16 it average on our scale of knife sharpness from
 17 extremely sharp to sharp to average to dull to blunt,
 18 however, it only just went over into that bracket.
 19 That's 1,000 to 2,000, and it went over to 1,040.
 20 So it was in average, but quite near sharp.
 21 Q. And is it right to say that you didn't carry out the
 22 stab drop tower test on this knife because it wouldn't
 23 be useful because you didn't have the blade buckling
 24 test to compare it with?
 25 A. Yes, that's correct.

172

1 Q. Can we move, then, to the conclusions you reached in
2 your first report from pages 32 and following? First of
3 all, did you conclude, as we have seen, that there were
4 some knife impacts which hit the body armour?
5 A. Yes, there were some knife impacts that hit the body
6 armour panel.
7 Q. Did any --
8 A. And they did not penetrate.
9 Q. So none of those penetrated it?
10 A. No.
11 Q. Was there, however, from your examination of the
12 clothing and armour, damage showing a deep cut to the
13 rear left underarm area?
14 A. Yes, sadly we found that, yes.
15 Q. What were the principal conclusions you reached from
16 your examination of the knives?
17 A. Knife 1 did show more damage to it than knife 2, and
18 I made the assumption that knife 2 wasn't used
19 significantly in the incident.
20 Q. You also say that your testing on knife 1 suggested that
21 considerable force had been required to bend the blade
22 and that that was consistent with the distorting damage
23 we saw in the chain mail.
24 A. Correct.
25 Q. Did you also view CCTV footage of the attack itself?

173

1 A. Yes. I looked through that and I timed it and
2 discovered that after PC Palmer had fallen, there were
3 seven seconds of attack time, and in that time, at least
4 six significant impacts were made.
5 Q. May we have on screen next, please, {AV0089/2}, it's one
6 of the body map images. Now, this image was used by the
7 pathologist to depict the wounds to PC Palmer's body.
8 Did you yourself look at the original post mortem
9 photographs?
10 A. Yes.
11 Q. Using this body map, are you able to tell us whether or
12 not there were any knife wounds in areas overlain by
13 body armour panels?
14 A. No, the -- there aren't any wounds there that correspond
15 with the area covered by body armour panels, no.
16 Q. {AV0089/5}, please. Now, we have heard that the fatal
17 stab wound to PC Palmer was to the left side of the
18 chest entering into the left armpit area in the area
19 shown on this image. Was this in an area covered by the
20 Met Vest?
21 A. No, this is -- this is about 2 inches away,
22 50 millimetres away from the edge of the rear panel.
23 Q. If we look, please, at {DC7960/97}.
24 If we look at the middle image do we see the area
25 under the left arm where, first of all, this wound was

174

1 inflicted and, secondly, where the Met Vest does not
2 provide coverage?
3 A. Yes, that's correct. And with a marker we could --
4 I could guide you to put --
5 Q. Could we have the cursor, please, and place the cursor
6 under the left arm.
7 A. A little bit to the left, a little bit up. A little bit
8 up further, around about there. Around about there,
9 yes, that would be about correct.
10 Q. So you've identified a point under the left arm rear
11 aspect very close to the arm itself?
12 A. Yes.
13 Q. Thank you very much. We can take that off the screen.
14 May we now move to your second report, which
15 concerns the development of the Met Vest, alternatives
16 to the Met Vest, and body coverage, and may we bring on
17 screen {DC7960/96}. Can we see on the left side of this
18 image two photographs showing front and rear, the
19 standard Metropolitan Police Met Vest?
20 A. Yes, that's correct. That's a body armour which is
21 fitted to that particular mannequin. It's very
22 important that officers wear body armour that's to their
23 size, that's most important. So this is not the same
24 size as PC Palmer, but it is the correct size for the
25 mannequin.

175

1 Q. When was this form of body armour first introduced?
2 A. This particular one was introduced about seven years
3 ago.
4 Q. Is it right to say that the original variant of Met Vest
5 was introduced in 1995?
6 A. That's correct, the first one came out in 1995, then the
7 second one, around about six years later than that, and
8 the current one about six or seven years ago.
9 Q. Thank you. Now, has that armour been issued to officers
10 on operational duties generally?
11 A. Yes, it's issued to officers when they are doing their
12 initial training.
13 Q. Is it right that some officers with specialised duties
14 are issued additional, slightly different types of body
15 armour?
16 A. That's correct.
17 Q. For example, do AFOs, authorised firearms officers, have
18 specialist armour issued to them?
19 A. They do. There's AFO armour for firearms officers,
20 there's concealable armour for people who have to be
21 very covert about what they're doing, and there's CTSFO
22 armour for officers involved in that particular duty,
23 and a special armour for the Marine Support Unit.
24 Q. Is it right, for example, that firearms officer armour
25 may include upgrade plates for rifle fire?

176

1 A. Yes, that's correct.
 2 Q. Now we move to the next page in the same document,
 3 {DC7960/97}, and if we look at the far left —hand image,
 4 can we see there a document showing a proposal for the
 5 Met Vest armour depicting what it covers of the human
 6 body and its organs?
 7 A. That's correct. This illustration goes back to 1995,
 8 when the development was taking place for Met Vest.
 9 There had been a string of fatalities, both ballistic
 10 and knife—wound injuries and fatalities and this was
 11 part of the decision—making process on areas that we
 12 could appropriately cover with body armour.
 13 Q. Can you explain briefly what the main principles are
 14 governing the design of this form of body armour which
 15 leaves, as we've seen, the underarm areas, the shoulders
 16 and the arms, unprotected?
 17 A. Body armour is a balance between protection and the
 18 wearability requirements. The five main organs, areas
 19 of the body which are vital, are in our torso, and so
 20 it's important that from a front direction and a rear
 21 direction the ribcage is protected, and so we start with
 22 that.
 23 However, the body has requirements to maintain its
 24 body temperature and that means that as much of the body
 25 has to be exposed as possible for the body to be able to

177

1 do that. Also, for police officers, there's
 2 a fundamental requirement for arm articulation, and
 3 whether it be officer safety tactics or using a baton,
 4 using gas, using your radio, or driving or climbing or
 5 running, there's all sorts of activities that mean that
 6 the arm articulation has to be maintained.
 7 Q. If we bring up the right—hand side of this slide that
 8 we're looking at at the moment, I think you'll see some
 9 images showing the principal arm movements with which
 10 you're concerned?
 11 A. Yes, and in that drawing number 3, the pale yellow areas
 12 are areas that are recognised by surgeons and others as
 13 reasonable areas of movement for ordinary, everyday
 14 activities.
 15 Q. Now, with that in mind, those arm movements which need
 16 to be taken into account, how commonplace
 17 internationally is it for body armour to have the form
 18 of the Met Vest, which leaves the arms and shoulder and
 19 underarm areas relatively unprotected?
 20 A. Well, it's universal and it's across the world. The
 21 current design for body armour is used for military
 22 purposes and it's used across the world because of those
 23 design restraints of having to maintain body temperature
 24 and allowing the arms to operate.
 25 Q. And I think in your second report you've set out in

178

1 detail quotations from books on design of police and
 2 military body armour, which refer to the difficulty of
 3 armouring the shoulders and arms while allowing for arm
 4 movement; is that right?
 5 A. Correct, yes.
 6 Q. You talked a moment ago about body temperature and heat
 7 management. Why is that a concern?
 8 A. If a person's core temperature, body core temperature,
 9 goes up only two or three degrees, it has significant
 10 effects on their concentration, or maybe even on their
 11 physical ability to do activities. If it gets up to
 12 four degrees, then a person is close to getting
 13 heatstroke. So it's very important to maintain body
 14 temperature, and we've done quite a lot of research into
 15 this, because it's a major problem for any policing
 16 activity, policing activity where public order equipment
 17 is worn, it's very easy on a hot day for an officer to
 18 have a rise in body core temperature, and we have to
 19 protect against that because it's a serious medical
 20 concern.
 21 Q. Is there any particular significance to the arm and
 22 underarm area in that context?
 23 A. That is an area that's — that's where a lot of the heat
 24 is — a lot of heat is generated in our heads and in our
 25 torso, and that is the only part of the torso that is

179

1 available to radiate heat at that point.
 2 Body armour is by nature of its materials
 3 an insulating material. People are familiar with the
 4 use of tog measurement for duvets and body
 5 armour generally is around about five or six tog, which
 6 means something like a couple of fleeces. So it's like
 7 wearing two fleeces at the same time. So that's why any
 8 of the torso area is a benefit as far as getting rid of
 9 heat is concerned.
 10 Q. May we now have on screen {DC7960/103}. Now, we all
 11 recall the fatal strike position, as identified from the
 12 post mortem examination, and which is marked on the
 13 upper two images of this slide; is that right?
 14 A. The ... yes. The upper right, did you say?
 15 Q. The upper two images on the slide.
 16 A. The upper two, yes.
 17 Q. What do the bottom two diagrams depict?
 18 A. Oh right. I'm trying there to illustrate how near the
 19 panel the fatal strike was. It's difficult to do, but
 20 these bottom two drawings are in two dimensions, of
 21 course, because they're flat and we're talking here
 22 about a three dimensional shape, and so when — these
 23 are half a body armour panel each, and the three lines
 24 are the area used by the three manufacturers of body
 25 armour that's available to UK police, Cooneen, Mehler

180

1 and Aegis, so will see the lines are fairly similar,
2 they are different a bit at the top there but they're
3 generally the same size and shape.

4 The left-hand one is the rear, and the small circle
5 is what I believe is the most likely position of the
6 strike compared to where the body armour is, and the
7 larger circle is because I acknowledge that there's some
8 uncertainty because a human body is more flexible than
9 a body armour, and so in the sad occasion that took
10 place where PC Palmer was struggling after his fall,
11 it's impossible to predict exactly where the body armour
12 is on his body.

13 But it's certainly there within a few centimetres
14 because it's fixed in that position, within those
15 constraints. So the larger circle is my uncertainty as
16 to where the strike might have taken place, but the
17 important thing to realise is that, as I say, this is
18 2D, flat, and when this armour is placed on the person,
19 the top of the picture, which is the shoulder area,
20 will, of course, bend over towards -- into the picture
21 to meet the front one that's coming towards it. So it
22 will be coming up to the shoulder and coming over here
23 (indicates) and the top of the right-hand picture, which
24 is the front of it, will be coming up to meet it there.

25 So those two circles in one sense look a little bit

181

1 out in the air a bit, but that is how it can be
2 expressed in 2D.

3 Q. Do we then take from the bottom left image the point
4 that the fatal strike would have been clearly out of the
5 range of coverage provided by any of the panels used in
6 body armour by UK police forces?

7 A. Yes, correct.

8 Q. Do those different designs reflect the design principles
9 you've been telling us about over the last five or ten
10 minutes?

11 A. Yes.

12 Q. Now, if we can look at that sheet as a whole, please, do
13 we see, therefore, that there is no UK body armour that
14 would have protected PC Palmer effectively against the
15 fatal strike?

16 A. No, that's correct.

17 Q. And then {DC7960/96}, please, I would like to ask you
18 about some other designs of body armour that we see on
19 the right-hand side of the page. First of all, what is
20 the body armour at the top right of this slide?

21 A. Right, now that body armour is called Kestrel. It's
22 a British Army design. It's designed for a specific
23 purpose. It's designed for a sentry who is travelling
24 on a Mastiff armoured vehicle in Afghanistan. It's
25 a massive vehicle, a big six-wheeler, and quite tall.

182

1 The sentry is very exposed and he is standing out of
2 a hatch cover, a circular hatch cover in the roof of the
3 vehicle, and he has a pintle-mounted machine gun to
4 operate, and he is wearing a helmet. The threat against
5 him is bomb fragments, and so Kestrel has been designed
6 for him and it gives very, very good coverage over the
7 arms. So it's really like a very big T-shirt and covers
8 all round in every angle.

9 It's only appropriate, though, for that activity
10 because the soldier who is wearing it doesn't need to
11 raise his arms at all, use his arms for anything other
12 than operating the pintle-mounted gun in front of him.

13 So in a typical Afghan situation, all the other
14 infantrymen who will be round about him, all the
15 infantrymen in the vehicle itself will be wearing
16 a different armour, which is called Osprey, and that is
17 generally back to what we are talking about in terms of
18 coverage as Met Vest.

19 Q. We'll look at Osprey in a moment in relation to your
20 third report.

21 A. Okay.

22 Q. Bottom right-hand image is plainly a form of police body
23 armour; what does that show?

24 A. This shows an alternative that has been developed, and
25 this is intended to be worn on top of a body armour. So

183

1 the intention would be you put your Met Vest body armour
2 on first, and then you put this shoulder cover over your
3 head and it gives you protection in the areas that you
4 can see: neck and round the shoulder. We bought one of
5 these, and in fact we've got one here to exhibit, if
6 that's required, and the conclusion of that armour is
7 that as soon as you raise your arms more than a few
8 degrees, you immediately open up the same vulnerability
9 that you had before you started.

10 So it's good as long as you keep your arms down.

11 Q. We'll look at that phenomenon in a few moments. Is that
12 a form of body armour, or supplementary body armour,
13 that's used by any UK police forces?

14 A. No.

15 Q. May we now move to your third report and some arm
16 articulation tests that you carried out. Is it right to
17 say that you undertook tests to consider the arm
18 movement allowed by various different types of armour?

19 A. That's correct.

20 Q. May we bring on screen {DC7434/4}. (Pause).

21 I think we can probably do this by reference to the
22 mannequins, then. Do you have a mannequin showing the
23 police supplementary body armour that you were just
24 showing us on screen?

25 We've now got it on screen. So simultaneously on

184

1 screen and on the mannequin next to you, we're seeing
 2 the basic Met Vest but with, on top of it, the Mehler
 3 Vario Systems' supplementary armour which covers the
 4 shoulder and neck area?
 5 A. Yes, correct.
 6 Q. Then at the bottom of the screen do we see that Kestrel
 7 body armour which you pointed us to earlier?
 8 A. Yes, correct.
 9 Q. Then next page, please {DC7434/5} can we now see the
 10 Osprey body armour which you were saying some members of
 11 the British Army would wear who didn't require that very
 12 specialist Kestrel armour?
 13 A. That's correct, and I've got an example of the Osprey.
 14 Q. You can show that as well if it's available.
 15 So that's the Osprey, which provides over the
 16 shoulder protection, but we see that the underarm area
 17 is left not fully protected.
 18 A. When the Osprey — this is called a brassard, this bit
 19 here, and when that's raised, that does expose the lower
 20 part of under the arm. So that's the point that the
 21 Kestrel is the only armour that we're aware of that has
 22 that all-round protection. The Osprey is all right, as
 23 long as you've got your arms down.
 24 THE CHIEF CORONER: I think we've got some photographs up.
 25 MR HOUGH: We're going to come to them a little bit later,

185

1 we can come to them now, sir, certainly.
 2 THE CHIEF CORONER: {DC7434/10}.
 3 MR HOUGH: Going down the page do we see the top row the
 4 image of an officer wearing the Met Vest plus the Mehler
 5 Vario Systems shoulder and neck protection; yes?
 6 A. Correct, that's right.
 7 Q. And we see what happens to the underarm area when he
 8 raises his arms?
 9 A. Yes.
 10 Q. Leaving it relatively unprotected. Then, similarly, the
 11 Osprey in the middle row, middle and right images, and
 12 in the lower row showing how the underarm area there can
 13 be left unprotected?
 14 A. Yes, correct.
 15 Q. Then as you've said, the Kestrel, middle row, left
 16 image, provides good coverage at all times but obviously
 17 very bulky?
 18 A. Yes, and that's why we've only got one picture of the
 19 Kestrel is because you can't raise your arms so there's
 20 no point for an alternative photograph.
 21 Q. Did you, looking at page 7 of your third report, carry
 22 out tests with the assistance of two officers to
 23 determine the effects of different body armour on arm
 24 movement?
 25 A. Yes, we did.

186

1 Q. By what percentage did the Met Vest restrict arm
 2 movements on average?
 3 A. 17 per cent.
 4 Q. By what percentage did the Met Vest supplemented with
 5 the yoke protection, like the Mehler armour, restrict
 6 arm movement?
 7 A. 35 per cent.
 8 Q. And the restriction imposed by the Kestrel?
 9 A. Was 51 per cent.
 10 Q. Effectively reflecting an inability to move the arms
 11 above shoulder level?
 12 A. Yes.
 13 Q. Then the Osprey, finally?
 14 A. It was 35.
 15 Q. So, in summary, is this the position: that the only form
 16 of body armour which would provide effective underarm
 17 protection of which you are aware, is the Kestrel?
 18 A. Yes.
 19 Q. Which for a police officer would prevent him moving his
 20 arms for much of their range of movement?
 21 A. Yes, it would be completely inappropriate and extremely
 22 heavy, and it would have heat retention problems.
 23 Q. Whereas the other two forms of armour which you looked
 24 at, both the Osprey and the combined Met Vest and Mehler
 25 armour, would restrict arm movement very much more than

187

1 the Met Vest alone?
 2 A. Yes, correct.
 3 Q. But would also leave the vulnerable underarm area
 4 unprotected as soon as the arms were moved up?
 5 A. Correct, yes.
 6 MR HOUGH: Thank you very much. Those are my questions.
 7 There may be others.
 8 Examination by MR ADAMSON
 9 MR ADAMSON: Good afternoon, Mr Fenne, my name is
 10 Dominic Adamson and I ask questions on behalf of the
 11 widow of PC Palmer.
 12 Mr Fenne, you've explained that the design of vests
 13 is influenced by two competing factors: on the one hand,
 14 the need for arm articulation, on the other hand, the
 15 need to not expose the wearer to problems so far as
 16 thermal heat regulation is concerned; is that right?
 17 A. Correct.
 18 Q. Yes. In relation to officers performing duties such as
 19 unarmed officers at the gates of the
 20 Palace of Westminster, is thermal heat regulation likely
 21 to be a significant concern?
 22 A. Yes, certainly on a hot day, and in fact on static
 23 duties it may seem that static duties, it would be less
 24 of a problem, but interestingly enough, although on
 25 static duties the officer is not developing so much heat

188

1 in his body because of action, because he's not moving,
 2 there's still the tendency to heat up, simply because
 3 you're still. So if you're still and in the sun you can
 4 overheat, and even if you do a lot of activity, the fact
 5 that you are moving and air is blowing past you,
 6 overrides that difference.
 7 So, yes, on a static post, heat control is just as
 8 important and just as likely to happen in those
 9 circumstances.
 10 Q. Yes. You comment from a piece of research in your
 11 second report on the question of heat strain, and can
 12 I ask you to look at your second report, page 8.
 13 A. Yes.
 14 Q. And you are referring, just for your recollection, to
 15 a piece of research carried out by Dr Jim House. He
 16 wrote a paper on "Advice on Thermoregulation/Heat Stress
 17 and Body Armour Coverage"; yes?
 18 A. Yes.
 19 Q. And can I ask you to look towards the end of the quote
 20 that you have provided from that piece, page 9 of your
 21 report:
 22 "Covering the underarms would therefore have only
 23 little impact on overall heat strain, even when working
 24 hard, but may reduce thermal comfort during normal
 25 activities."

189

1 A. Yes.
 2 Q. Do I understand him to be saying that providing
 3 protection in the area where the fatal blow was struck
 4 would not, therefore, have any significant impact in
 5 terms of heat strain on the wearer of a vest?
 6 A. Not significant, however heat strain and area of the
 7 body covered is a cumulative thing, and so yes, compared
 8 to other areas of the body, it's not terribly
 9 significant. The most significant parts of the body are
 10 the inside of the back, and when you're wearing
 11 a rucksack on a hot day, that's where you'll feel hot,
 12 and in the centre -- the front of your chest. These are
 13 the most red-hot areas.
 14 Yes, this area is not so hot as that, but it is
 15 still there as an area that can cause -- that can bring
 16 cooling.
 17 Q. I appreciate it's an area that can bring cooling. What
 18 I'm just trying to ascertain is whether, in reality,
 19 heat strain is a significant issue in relation to the
 20 area where the fatal blow was struck, and I had
 21 interpreted what Dr House was saying as really that it
 22 doesn't have a significant impact at that location?
 23 A. No. No. It doesn't have a significant effect as
 24 against any other area.
 25 Q. Yes. So just so I'm clear, what Dr House appears to be

190

1 saying is that there is the capability to provide
 2 greater protection in that area than is presently
 3 provided?
 4 A. I would say he's saying if it could be, it would be good
 5 from a protection point of view. However, in the next
 6 section in the report you're referring to, is really the
 7 reason why it's not possible, and because of the
 8 nature -- in paragraph 3.3, engineering design, that
 9 details the reasons why the nature of body armour
 10 material and the fact that it's generally a flat
 11 material, and it doesn't easily drape round in two
 12 directions, to be able to cover the shoulder and under
 13 the arm is such an engineering challenge that despite
 14 heat or any other reason, there's not been any solution
 15 yet for getting protection under the arm. Another
 16 reason is because it's very soft tissue here
 17 (indicates), it's difficult to wear anything close to
 18 very soft tissue.
 19 So paragraph 3.3 is giving you the details as to why
 20 you couldn't cover that area anyway, with typical body
 21 armour materials.
 22 Q. Forgive me, I hadn't understood paragraph 3.3 of your
 23 report to be a continuation of Dr House's analysis?
 24 A. No, it's not a continuation.
 25 Q. Right. I think, therefore, you are agreeing with me,

191

1 therefore, that heat strain isn't a significant issue so
 2 far as providing additional protection in the area of
 3 the fatal blow. You are saying, however, on the other
 4 hand, that providing a design which actually physically
 5 covers the area is more of an issue; is that right?
 6 A. Yes.
 7 Q. Right. So far as the current design of the Met Vest is
 8 concerned, you showed us a diagram from 1995 which
 9 related to the original proposal for the introduction of
 10 the Met Vest?
 11 A. Yes.
 12 Q. Do I assume correctly that in reality, the nature of the
 13 shape of the Met Vest has not changed significantly over
 14 that time?
 15 A. Correct, it hasn't changed at all.
 16 Q. So the vest that was introduced in 1995 is pretty much
 17 the same vest as is being used today?
 18 A. Yes.
 19 Q. That vest was introduced on the recommendation of your
 20 group, was it, the Physical Protection Group?
 21 A. Yes, correct.
 22 Q. And since the tragic events of 22 March 2017, has there
 23 been any consideration by the PPG in consultation with
 24 manufacturers about ways in which the area that we are
 25 presently concerned with might be provided with better

192

1 protection?
 2 A. Yes. We've been looking at that. We have developed, in
 3 fact, an armour for officers who are doing taser
 4 training, and so a member of my team has developed
 5 a taser trainer's jacket, so that during training, taser
 6 barbs can be fired at the officer and he won't get
 7 injured.

8 The only problem with that is -- and that does
 9 extend all over the arm -- but it is a very big, bulky
 10 item again. It's like a Kestrel, with long arms, and
 11 longer in its length as well. It's still not
 12 appropriate for a routine patrolling officer.

13 THE CHIEF CORONER: Mr Adamson, I ought to just tell you one
 14 thing: when I wasn't here on Friday one of the things
 15 I was doing, actually, was having a demonstration of
 16 a taser, so I have seen the sort of suit that is worn in
 17 that training.

18 MR ADAMSON: I see.

19 THE CHIEF CORONER: And it would be very difficult,
 20 I suspect, for anyone to walk very far and certainly be
 21 in any spot for any length of time wearing that
 22 equipment. I just thought I would let you know just so
 23 that you weren't taken by surprise by my degree of
 24 knowledge should you ask any other questions.

25 MR ADAMSON: Understood, sir.

193

1 Mr Fenne, I wasn't particularly concerned with risks
 2 posed to those who have the task of participating in
 3 taser training. I'm more concerned with the threat from
 4 knife attack and whether or not it's actually possible
 5 to provide a greater degree of protection than is
 6 presently provided by the Met Vest. Has there been any
 7 discussion with manufacturers by the PPG, or
 8 consideration independently itself by the PPG, as to
 9 whether or not there might be a better solution?

10 A. We are looking at proposals to try and make the
 11 manufacture of any area of body armour materials in 3D,
 12 in curves like shoulders, with a view to having shoulder
 13 protection.

14 However, because the protection level and the
 15 coverage and the comfort, the wearability, is such
 16 a fine balance to achieve, that were we to increase the
 17 area, we would then reduce the wearability, and, for
 18 instance, our arrest rates would probably go down
 19 because officers can't run fast enough.

20 So there's always payback for any of these things.
 21 At the moment it's a very fine balance, and so we would
 22 have to think carefully before we disrupt that balance.
 23 But the other side of that statement is: yes, we are
 24 keen to look at industry, to look at manufacturing
 25 methods and processes to make these things, these

194

1 improvements -- and there are other improvements --
 2 there are other improvements like reducing the tog value
 3 of a body armour. Now, we are looking at that as well
 4 because that is, in a sense, the same question, and yes,
 5 we are doing that.

6 Q. Yes, because there is a fear, isn't there, that it's
 7 very easy to say: well, different armour wouldn't have
 8 made a difference, and just to rely on the procedures of
 9 the last 22-odd years since they were implemented,
 10 rather than to explore alternative solutions to a very
 11 serious problem; do you accept that?

12 A. Oh, I do accept that, and that's a key part of our
 13 branch's work, new developments, yes.

14 Q. One must guard against complacency?

15 A. No, we wouldn't like to be thought of as complacent in
 16 that area.

17 Q. Yes. Is any thought given to the type of vest supplied
 18 when considering the security arrangements at
 19 a particular location that an officer might be deployed?

20 A. Sorry, can you repeat that?

21 Q. In terms of the type of vest issued, is any thought
 22 given to the location that the officer will be utilising
 23 that vest, where they're to be stationed, in determining
 24 the type of vest that they are supplied?

25 A. Yes, the process we go through, we look at the threat,

195

1 we do a user requirement analysis, and the user
 2 requirement details out all the requirements, there's
 3 general requirements, but then there's usage
 4 requirements.

5 So, yes, all the particular tasks that are required
 6 for armour will be logged down and in this particular
 7 example of routine patrolling, the list will be the
 8 longest. The list for, for instance, the Marine Support
 9 Unit is much shorter than the one for routine
 10 patrolling. So there's a number of different
 11 requirements there, and the armour design has to be
 12 a compromise between suitability for all of those
 13 different tasks. If not, we would have to have a large
 14 number of differently designed armours, and that would
 15 be difficult to manage.

16 Q. Would the duties of an officer at Carriage Gates
 17 constitute routine patrol for these purposes?

18 A. It is in the user requirement for that particular
 19 armour.

20 MR ADAMSON: Thank you very much, Mr Fenne.

21 A. Thank you.

22 MR HOUGH: Thank you for your evidence, Mr Fenne. That's
 23 all the questioning we have for you.

24 A. Okay, thank you very much.

25 THE CHIEF CORONER: Thank you very much, and also

196

1	I appreciate one of your colleagues has been standing up	1	(The court adjourned until 9.45 am on
2	there all the time, but thank you for bringing the	2	Tuesday, 2 October 2018)
3	various mannequins with the equipment on. Thank you.	3	
4	A. Thank you.	4	
5	Would you like to see the Kestrel? I think that's	5	
6	the only one you haven't seen.	6	
7	MR HOUGH: For completeness, yes, if you bring the Kestrel	7	
8	out so that we can see what it looks like .	8	
9	THE CHIEF CORONER: As it's here.	9	
10	A. Just to make clear, that is Kestrel, and coming back to	10	
11	that last point, yes, the British Army only have two	11	
12	armours for all the activities they do, and our British	12	
13	Army has got a lot of different activities , and yet they	13	
14	only have very few Kestrels , but a very large number of	14	
15	Ospreys.	15	
16	MR HOUGH: Thank you very much.	16	
17	A. Thank you very much.	17	
18	THE CHIEF CORONER: Thank you.	18	
19	Mr Hough, we have managed to, I think, get through	19	
20	without needing to sit too late --	20	
21	MR HOUGH: Indeed.	21	
22	THE CHIEF CORONER: -- so we have made good progress.	22	
23	I know we started a little bit early this morning.	23	
24	In terms of tomorrow?	24	
25	MR HOUGH: We have three witnesses: we have PC Carlisle.	25	

197

199

1	THE CHIEF CORONER: Yes.
2	MR HOUGH: We have Inspector Rose, and finally we have
3	Detective Superintendent Crossley.
4	THE CHIEF CORONER: Yes.
5	MR HOUGH: May I make one point in relation to Mr Crossley's
6	evidence. He will be giving evidence to deal with any
7	remaining points of clarification about his
8	investigation . If any interested person wishes to use
9	him, effectively , as a vehicle to adduce some
10	information gleaned from the investigation in the vast
11	body of material on Opus, it would be helpful if we were
12	told what they proposed to adduce so that Mr Crossley
13	can be prepared and can give the most useful evidence.
14	THE CHIEF CORONER: I'm sure that's extremely helpful, that
15	everyone knows that, Mr Hough, and I'm sure they will do
16	so.
17	In terms of what time we should start tomorrow
18	morning, I was going to suggest that again we start at
19	9.45. That gives us a degree of flexibility . I suspect
20	until we get to the evidence no one quite knows how long
21	certainly Mr Crossley may or may not be.
22	MR HOUGH: Then tomorrow afternoon, sir, you will be hearing
23	legal submissions.
24	THE CHIEF CORONER: Yes. I'll rise .
25	(4.30 pm)

198

1	INDEX	
2		PAGE
3	MS SIWAN HAYWARD (Affirmed)	2
4	Examination by MR HOUGH QC	2
5	Examination by MR PATTERSON QC	30
6	Examination by MR ADAMSON	63
7	Examination by MS CANBY	80
8	DETECTIVE CHIEF SUPERINTENDENT PETER	100
	HOLDCROFT (Sworn)	
9		
	Examination by MR HOUGH QC	100
10		
	Submissions by MR HOUGH QC	112
11		
	Ruling	116
12		
	PC DAVID KEEN (Sworn)	117
13		
	Examination by MR HOUGH QC	118
14		
	Examination by MR PATTERSON QC	135
15		
	PC RICHARD CLARK (Sworn)	141
16		
	Examination by MR HOUGH QC	141
17		
	Examination by MR PATTERSON QC	149
18		
	MR PAUL FENNE (Sworn)	150
19		
	Examination by MR HOUGH QC	151
20		
	Examination by MR ADAMSON	188
21		
22		
23		
24		
25		
		200
		201

<p>A</p> <p>a302 (1) 6:3</p> <p>a4 (2) 165:15,23</p> <p>aa (1) 107:3</p> <p>abbey (1) 31:1</p> <p>ability (2) 135:2 179:11</p> <p>able (30) 72:19 81:12 82:16 98:7 105:21 109:3,11 113:1 116:22 123:16 124:1 125:18 127:25 128:21 130:7,11,17,24 133:6 143:11 146:5,16 154:7 162:14 165:14 169:3 171:2 174:11 177:25 191:12</p> <p>above (4) 61:24 62:3 149:22 187:11</p> <p>abraded (1) 124:22</p> <p>abrasion (2) 154:4 167:13</p> <p>abruptly (2) 126:18 133:21</p> <p>absence (1) 54:14</p> <p>absent (1) 67:6</p> <p>absolutely (23) 8:6 9:15 18:15,17 26:23 28:2 46:11 48:23 49:18 61:12,12 65:24 66:25 68:4 70:15 87:6 89:5 91:12,15 96:21 98:4 138:12,13</p> <p>abut (1) 41:3</p> <p>abutted (1) 10:12</p> <p>accelerated (2) 126:6 135:10</p> <p>acceleration (1) 149:4</p> <p>accept (22) 21:5 33:16,22 34:5 35:4,6 44:23 50:3 51:7,19,20,22 53:14 56:21 58:5 67:4 70:22 74:11 78:21 80:8 195:11,12</p> <p>accepting (1) 10:8</p> <p>access (4) 37:1 54:4 68:6 131:4</p> <p>accident (1) 142:9</p> <p>accidents (1) 33:1</p> <p>accompanied (2) 65:8 70:17</p> <p>accord (1) 137:6</p> <p>accordance (5) 78:6 81:13 89:13 90:4 95:21</p> <p>account (7) 24:25 25:11 108:13 121:10 127:20 137:17 178:16</p> <p>accounts (3) 108:17 139:3,21</p> <p>accuracy (4) 81:20 143:25 144:2 146:7</p> <p>acer (2) 107:18,22</p> <p>achieve (1) 194:16</p> <p>acknowledge (1) 181:7</p> <p>across (35) 3:7,20,23,25 5:2 6:18 8:4 13:15 21:24 24:2 26:24 29:11 30:1 32:18 41:16 44:2 46:15 52:8 54:8 56:24 57:17,18 68:19 77:24 79:24</p>	<p>85:12 88:25 95:17 98:18 122:16 127:11 142:14 150:2 178:20,22</p> <p>acted (1) 106:23</p> <p>action (6) 70:19 73:15 76:18 85:7 103:17 189:1</p> <p>actions (2) 36:19 80:13 8:16,23,25 9:6,19 40:23 56:13 79:16</p> <p>actively (4) 49:2 52:15 55:20 63:15</p> <p>activities (6) 178:5,14 179:11 189:25 197:12,13</p> <p>activity (4) 179:16,16 183:9 189:4</p> <p>actor (1) 54:5</p> <p>actual (9) 38:10 42:16 113:4,18 137:3 139:15 156:24 168:3 170:3</p> <p>actually (13) 23:11 25:5 27:20 38:7,17 45:2 52:10 92:25 140:13 158:18 192:4 193:15 194:4</p> <p>adamson (24) 63:25 64:1,1 74:14,17,19,22 75:4 80:19 94:3 96:25 112:7,10,13 116:3 188:8,9,10 193:13,18,25 196:20 200:6,20</p> <p>add (6) 82:9 109:9 111:16,22 112:1,17</p> <p>added (5) 61:24,25 62:3 82:13 146:13</p> <p>addition (3) 53:10 113:13 120:10</p> <p>additional (10) 15:2 24:9 61:6 108:2 109:9 110:1,7 111:20 176:14 192:2</p> <p>address (6) 1:9 7:24 89:7 101:23 108:9 111:19</p> <p>addressed (3) 113:8,11,14</p> <p>addresses (3) 103:6,19,22</p> <p>addressing (2) 38:1 46:19</p> <p>adds (1) 113:22</p> <p>adduce (2) 198:9,12</p> <p>adjacent (4) 122:11 131:6,22 132:13</p> <p>adjourned (1) 199:1</p> <p>adjournment (1) 111:3</p> <p>adjusted (1) 166:1</p> <p>adnani (1) 48:10</p> <p>adopted (2) 68:17 142:17</p> <p>adopting (1) 94:24</p> <p>advance (2) 107:1 124:9</p> <p>advanced (1) 119:2</p> <p>adverse (1) 134:24</p> <p>advice (30) 8:11 9:12 10:2 11:21,24 12:4,25 13:22 15:19 16:12,20 17:6,9 19:13,16 28:25 36:2,20 47:9 70:13,20</p>	<p>71:8,22 72:23 77:22 78:12,17 99:4,7 189:16</p> <p>advise (2) 28:23 36:11</p> <p>advisor (1) 95:14</p> <p>advisors (14) 8:4,14,19 9:1,2 16:10 29:5,9,20 40:7,12 79:7,14,21</p> <p>aegis (1) 181:1</p> <p>aesthetics (1) 60:19</p> <p>affected (2) 2:17 35:16</p> <p>affirmed (2) 2:1 200:3</p> <p>afghan (1) 183:13</p> <p>afghanistan (1) 182:24</p> <p>afo (1) 176:19</p> <p>afos (1) 176:17</p> <p>afraid (3) 109:9 123:19 130:10</p> <p>after (29) 3:18 9:22 22:22 26:12 44:25 64:7,25 65:18 69:1 73:15 80:4 86:1 96:24 101:1 105:1 107:7 123:11 124:4 125:21 128:18,21 129:6 134:1 139:18 146:17,18 164:5 174:2 181:10</p> <p>aftermath (3) 27:1 69:5 73:17</p> <p>afternoon (4) 110:23 119:12 188:9 198:22</p> <p>afternoons (1) 117:4</p> <p>afterwards (1) 140:10</p> <p>again (45) 5:14 16:24 20:7 23:7 25:3 26:7 29:2 41:4,9,19,25 43:6,17 44:15,15 50:16 63:13 74:15 82:21 88:10 89:13 93:10 104:18 110:5 114:6,13,19 125:2 128:25 132:8 141:16 142:2 147:17,20 148:7 149:25 150:16 154:24 160:24 161:7 162:6 169:23 172:13 193:10 198:18</p> <p>against (27) 12:3 20:14,21 24:18 30:12,15 47:11,20 48:1 54:25 55:25 68:1 86:15 92:15 96:10 103:16 124:22 128:12 158:2,3 168:12 169:23 179:19 182:14 183:4 190:24 195:14</p> <p>agencies (2) 36:22 64:11</p> <p>agency (1) 87:21</p> <p>ago (5) 44:11 57:20 176:3,8 179:6</p> <p>agree (14) 38:2 41:21 45:23 54:9 57:24 61:8,21 62:4 63:12 67:1 82:5 86:16 91:2 109:4</p> <p>agreed (3) 45:14,16 46:7</p> <p>agreeing (1) 191:25</p> <p>ahead (3) 122:12 127:6 137:15</p> <p>ahmed (1) 104:5</p> <p>aided (1) 120:14</p>	<p>aimed (3) 71:4,4,6</p> <p>aims (1) 66:1</p> <p>air (10) 129:12 130:14,16,18 132:2,19,21 138:23 182:1 189:5</p> <p>airbags (3) 129:20 130:8,12</p> <p>alarming (1) 74:6</p> <p>albert (1) 82:1</p> <p>aldworth (9) 8:1,13 32:9,10,15 39:9 76:23 79:12 85:19</p> <p>aldworths (2) 78:1 91:3</p> <p>aligned (1) 123:5</p> <p>allocated (1) 71:10</p> <p>allowed (1) 184:18</p> <p>allowing (2) 178:24 179:3</p> <p>allround (1) 185:22</p> <p>almost (3) 125:11 128:11 168:19</p> <p>alone (3) 91:14 106:23 188:1</p> <p>along (13) 24:10 53:13 57:4 58:24 61:5 122:19 126:16 127:14 128:12 137:16 138:17 164:17,18</p> <p>alongside (7) 8:20,24 78:12 122:8 123:14 131:8,20</p> <p>already (15) 8:12 26:11 31:21 46:7 52:21 57:12 60:7 63:15 67:7 76:23 79:19 88:3 114:7 133:25 138:4</p> <p>also (51) 1:9 3:7 5:4,22 6:9,10 7:7,17 8:7 9:18 10:4 17:24 21:7 25:21 28:3,12,17 29:22 31:20,24 41:3 47:13 52:6 53:11 84:9,13 90:8 93:17 94:20 98:21 103:5 107:22 119:3,18 120:14 121:7,10 142:11 148:13 152:11 153:1 158:2 161:6 165:18 170:12 171:15 173:20,25 178:1 188:3 196:25</p> <p>alternate (1) 118:1</p> <p>alternative (4) 169:20 183:24 186:20 195:10</p> <p>alternatives (2) 169:6 175:15</p> <p>although (10) 21:19 63:7 82:10 83:25 87:16 94:2 96:14 112:22 137:20 188:24</p> <p>always (1) 194:20</p> <p>amendments (1) 25:3</p> <p>america (1) 49:13</p> <p>amongst (1) 124:6</p> <p>amount (2) 96:17 160:2</p> <p>amounted (2) 95:20 96:12</p> <p>amounting (1) 99:6</p> <p>analyse (1) 80:12</p> <p>analysed (3) 137:2 139:14 149:21</p> <p>analysing (2) 55:5 136:4</p>	<p>analysis (11) 80:6 91:3 107:11 122:22 136:14,15,18 137:25 142:13 191:23 196:1</p> <p>andi (1) 107:19</p> <p>andie (1) 107:18</p> <p>andrea (9) 30:25 127:20,23 128:7,19,22 137:24 147:17 148:10</p> <p>angle (5) 130:6 139:8 165:5 172:11 183:8</p> <p>angles (1) 138:9</p> <p>annexed (2) 16:19 17:21</p> <p>anniversary (1) 31:5</p> <p>another (5) 18:11 161:12,23 170:12 191:15</p> <p>answer (4) 39:15 88:20 98:21 136:14</p> <p>answered (1) 14:6</p> <p>anticipate (1) 72:22</p> <p>anticipated (1) 99:23</p> <p>anticlockwise (1) 133:22</p> <p>antisocial (5) 3:3,20,22 11:2 35:15</p> <p>antiterrorist (1) 11:15</p> <p>anybody (2) 101:18 168:9</p> <p>anyone (7) 37:22 70:19 106:20,25 117:25 152:25 193:20</p> <p>anything (14) 35:18 36:12 59:11 109:9 110:9 111:21 112:8,11 116:12,21 135:1 157:15 183:11 191:17</p> <p>anyway (3) 95:1 163:7 191:20</p> <p>anywhere (1) 57:3</p> <p>apologies (1) 1:15</p> <p>appalling (1) 2:18</p> <p>apparent (1) 132:1</p> <p>apparently (1) 119:15</p> <p>appear (3) 73:18 140:11,21</p> <p>appeared (3) 106:22 139:5,17</p> <p>appears (7) 11:4 39:2 75:18 94:2 136:25 140:6 190:25</p> <p>appendix (2) 118:23 142:3</p> <p>application (2) 111:6,24</p> <p>applied (7) 17:16 34:10 83:20 93:24 165:23 166:13 170:4</p> <p>applies (2) 92:14 141:11</p> <p>apply (1) 168:1</p> <p>applying (1) 16:13</p> <p>appreciate (8) 54:23 65:21 71:5 82:23 86:6 166:21 190:17 197:1</p> <p>appreciating (1) 57:14</p> <p>appreciation (1) 21:17</p> <p>approach (8) 11:14 29:11 88:5 95:16 106:11 127:15,16 144:10</p> <p>approached (1) 31:7</p> <p>approaching (2) 89:15 125:25</p>	<p>appropriate (7) 5:16 12:15 24:8 29:16 30:14 183:9 193:12 177:12</p> <p>appropriately (1) 158:19</p> <p>approximate (2) 119:21 158:19</p> <p>approximately (3) 81:1 125:23 144:11</p> <p>approximation (1) 139:1</p> <p>april (1) 128:17</p> <p>area (61) 6:13,17 10:9 25:16,20 40:20 53:6 55:14 62:23 80:17 86:5 95:15 97:22 113:10,12 115:4 120:8 126:2 127:23 129:7 139:5 155:5,11,14,16 158:8 160:10 163:12 169:15,24 173:13 174:15,18,18,19,24 179:22,23 180:8,24 181:19 185:4,16 186:7,12 188:3 190:3,6,14,15,17,20,24 191:2,20 192:2,5,24 194:11,17 195:16</p> <p>areas (48) 6:16 7:15 10:15,16 11:3 14:18 16:25 17:7 26:3 28:24,25 41:9 43:9 50:1 54:14 56:19 69:12 76:8 80:2,6 97:4 153:25 154:1,2,6,8,16,17,24 155:1,17 157:10 161:9 162:11,11,14 163:15 174:12 177:11,15,18 178:11,12,13,19 184:3 190:8,13</p> <p>arena (1) 90:9</p> <p>arent (4) 53:5 61:14 110:14 174:14</p> <p>argue (2) 45:22 57:12</p> <p>argument (2) 1:10,15</p> <p>arise (1) 111:16</p> <p>arm (23) 154:14,15 174:25 175:6,10,11 178:2,6,9,15 179:3,21 184:15,17 185:20 186:23 187:1,6,25 188:14 191:13,15 193:9</p> <p>armed (1) 47:21</p> <p>armour (105) 151:20,23 152:6,9,13,17 153:3,11 154:9,12,18 155:5,11,14,24 156:3,16,23,24 157:5,9,17,18,25,25 158:1,10,12,13 160:17,20 161:2,25 163:16 164:21 170:17,18 171:3,4,13 173:4,6,12 174:13,15 175:20,22 176:1,9,15,18,19,20,22,23 177:5,12,14,17 178:17,21 179:2 180:2,5,23,25 181:6,9,11,18 182:6,13,18,20,21</p>	<p>183:16,23,25 184:1,6,12,12,18,23 185:3,7,10,12,21 186:23 187:5,16,23,25 189:17 191:9,21 193:3 194:11 195:3,7 196:6,11,19</p> <p>armoured (1) 182:24</p> <p>armouring (1) 179:3</p> <p>armourrelated (1) 152:3</p> <p>armours (2) 196:14 197:12</p> <p>armpit (1) 174:18</p> <p>arms (16) 177:16 178:18,24 179:3 183:7,11,11 184:7,10 185:23 186:8,19 187:10,20 188:4 193:10</p> <p>army (4) 182:22 185:11 197:11,13</p> <p>around (29) 7:3 14:2 17:13 21:20 22:1 29:13 31:25 35:17 40:24 41:1 45:22 47:14 49:3 56:14 60:18 65:9 67:9,11 70:5 72:1 76:24 79:1 80:13 150:24 164:18 175:8,8 176:7 180:5</p> <p>arrangements (7) 13:11,14 41:12 70:1 78:22 85:12 195:18</p> <p>arrears (1) 108:17</p> <p>arrest (7) 101:21 102:5,19 103:5,25 106:3 194:18</p> <p>arrested (8) 101:23 103:18 104:11,22 105:2,13 106:2 108:19</p> <p>arresting (2) 103:21,24</p> <p>arrests (1) 106:18</p> <p>arrived (2) 70:17 119:11</p> <p>articulation (4) 178:2,6 184:16 188:14</p> <p>ascertain (1) 190:18</p> <p>aside (1) 12:4</p> <p>ask (30) 2:10 9:12 20:24 30:20 31:8 38:16 63:23 64:1 69:9 74:18 77:25 102:2 107:3,16 118:9 122:25 135:25 137:25 138:16 140:25 141:16 150:10 151:7 158:25 182:17 188:10 189:12,19 193:24</p> <p>asked (16) 2:11 14:21 69:15 76:11 83:2 84:13 88:12,17 91:23 97:16 99:1 100:18 118:10 141:19 151:8 152:16</p> <p>askedwell (1) 39:11</p> <p>asking (2) 80:23 100:16</p> <p>aspect (3) 62:22 87:5 175:11</p> <p>aspects (1) 143:24</p> <p>aspirations (2) 66:4,6</p> <p>assess (3) 50:6 120:24 121:4</p> <p>assessing (6) 49:15 54:20 55:3 87:22 95:7</p>
--	---	---	--	---	--	--

<p>98:6 assessment (27) 16:2 19:16 23:6 25:11 27:13 30:5,6,12 45:8 46:21 50:1,16,19 52:9 54:14,17 87:23 95:3,14,23 96:2,10 99:5 135:6,9,13 148:14 assessments (2) 95:11,19 asset (9) 26:20 28:11 32:4 46:14,22 82:12,20,23 84:13 assets (1) 46:23 assist (6) 30:5 79:8 98:7 112:4 116:13,22 assistance (1) 186:22 associated (3) 52:1 154:6,25 assume (1) 192:12 assumption (1) 173:18 assurance (1) 152:8 atlas (1) 107:4 atrocious (2) 2:18 84:15 attached (6) 8:15 18:10 74:8 75:13 77:5 141:8 attaching (2) 18:2,6 attack (108) 2:18 9:22 10:4 11:18,18 12:7 13:3,6,19 14:12 15:20 16:6 18:22,23 19:4 21:13,16 22:2,8,14,15,18,23 25:1,3,12 26:5,12 27:1 28:24 31:12 33:9 35:1 37:5 38:14 42:7 47:20,20 48:1,4 50:25 51:12 53:13 54:9 69:1 72:14 73:17,21,23 77:9,11,17 86:1 89:12 95:12 97:19 99:3,4 101:1,2,15,20 102:14,17,20,24 103:1,15,16 104:3,9,17,19,24 105:1,7,15 106:15,17,17,21 107:1,5 108:7,23 109:21,25 110:4 119:8 121:14,25 122:1,4 134:16 152:15 153:7 156:4 160:8 163:19,22 164:5 166:19 167:11 171:11,19 173:25 174:3 194:4 attacking (1) 51:14 attackplanning (1) 105:7 attacks (22) 12:17,18,25 18:20 19:20 20:21 21:20 22:11 24:6 25:17 35:20 48:5,12 65:19 67:14 69:3 70:22 77:19 84:15,18 88:16 89:2 attempting (1) 22:10 attend (1) 119:8 attendance (1) 119:14 attended (1) 74:1 attention (6) 9:9 48:9 75:5 114:11 126:16</p>	<p>137:14 attested (4) 113:4,19 114:1,14 attractions (2) 27:8 37:11 attractive (2) 17:1 28:16 attributable (2) 121:11 162:9 august (1) 56:7 authorised (1) 176:17 authorities (33) 4:18 5:1 6:25 7:7,10,13 8:17 9:3,7 25:24 28:9,10 40:8,9 49:2 50:11 54:20 57:6 67:10 68:8,23,23 71:9 79:2,4 83:17 89:22 90:9,14,22 93:13 96:3 99:5 authority (58) 4:24 5:5,6,15,22 6:7,9,10,21,23 7:9,18 8:18 19:12 26:20 28:10 29:5 32:5 34:3 36:3,4 44:4 49:22 50:5 51:10 53:7 55:3 64:21 68:11,20 71:1,5 78:8 79:10,14 80:18,18 81:1,24 82:10,16 86:10,23 87:4,4,13,14,16 88:11,12,21 89:15 90:23 91:5 93:24 96:15 98:13,13 authorities (4) 32:23 50:14 91:6,19 automotive (1) 119:3 autumn (2) 10:9,21 av00892 (1) 174:5 av00895 (1) 174:16 available (10) 102:9 126:14 127:9 128:4 139:2,5,22 180:1,25 185:14 average (20) 57:24 58:3 144:19 145:25 146:19 148:8,11,14,17,23 149:14,18 165:13 166:15,17 167:1 172:16,17,20 187:2 avoid (2) 108:16 124:8 aware (27) 8:5 34:16 36:6 38:25 47:4 50:18 56:11 62:17,19 70:15 71:17 72:3 77:16,19 85:23 96:20 98:9 101:9 107:10 108:12,22 109:18 126:19 138:18 141:16 185:21 187:17 away (5) 123:3,7 128:16 174:21,22 aysha (6) 125:16,24 127:17 136:19 146:4,7</p>	<p>149:25 162:20 177:7 183:17 190:10 197:10 background (3) 7:17 118:13 164:13 badly (1) 66:9 bag (3) 130:14,16,18 bags (1) 125:13 balance (7) 59:5 61:18 108:12 177:17 194:16,21,22 ballistic (4) 158:1 160:20 161:2 177:9 balustrade (1) 128:12 bang (1) 130:16 bank (3) 31:7 62:21 121:16 barbs (1) 193:6 barges (1) 27:22 barracks (1) 47:23 barrier (3) 131:4,9 133:14 barriers (35) 4:9 5:20 10:14 15:5 19:22 20:11,15,16 23:3,15,19 26:13,19,24 27:11,14,17,18,20,21,25 28:1,20 44:11,17,17,21 50:23 53:4 85:14,18,20,21 131:21 133:13 bars (1) 37:10 based (5) 12:14 95:11 106:24 148:23 164:12 basic (1) 185:2 basis (3) 72:22 84:23 104:11 bastille (1) 13:8 baton (1) 178:3 battersea (2) 51:2,9 bearing (2) 114:12 124:14 became (1) 12:21 become (3) 52:4 89:24 106:10 becoming (1) 17:1 before (35) 1:9,20 2:14 3:18 9:8 10:3 11:17,18 12:21 24:15 25:15 31:6 49:12 75:4,10 94:9 104:9,23,25 105:14 108:7,23 109:25 117:4,17 123:12 126:22 128:13 135:3 138:20 161:13 167:8 168:16 184:9 194:22 began (2) 26:12 124:7 begin (4) 4:17 121:14 144:6 153:18 beginning (1) 99:19 behalf (12) 2:11,15 30:20 32:16 64:2 80:23 100:17 118:9 135:25 141:17 151:8 188:10 behaviour (5) 3:3,20,23 11:2 35:15 behind (2) 125:25 126:1 being (69) 5:8 12:6 13:7 17:5,16 18:19 19:2 21:21,24 23:2 24:14 25:12 26:7 29:20</p>	<p>38:8,18 41:20 42:20 43:24 45:1 47:7 50:4 51:12,13,13,21 53:1 54:25 55:2,2 63:20 67:3 68:22 70:4,21,24 73:2,12 75:7 76:19 77:18 78:17 82:15 83:6,10 86:13 89:8,10 93:24 95:19 97:8 101:24 102:1 103:1 104:19 106:16 109:7 115:8 122:23 124:22,25 126:5 133:4,6 135:4,7,16 169:12 192:17 believe (26) 6:4 15:16 50:10 52:9 56:25 58:11,13 68:15 70:16 73:1 75:11 76:21 77:4 78:10 82:2 84:8 89:25 126:18 140:9 154:3 155:1,12 160:17 164:20 170:3 181:5 believed (4) 38:6 154:10,17 169:25 belong (1) 82:12 below (9) 58:18,19 63:3,4,11 109:5 123:13 128:14 136:9 ben (1) 42:4 bend (9) 169:4,7,16 170:1,2,3,4 173:21 181:20 benefit (5) 6:12 52:16 108:6 109:16 180:8 benefits (1) 52:11 bent (6) 160:2 164:4 169:2,6,12,22 berlin (21) 12:19 14:12 15:20 19:20 22:12 43:2 69:5,6 72:14,25 73:7,12,15,17,21,22 75:9 76:5 77:2 80:4 96:24 bespoke (1) 172:13 best (20) 11:23 12:11,13 19:10 40:22 45:11 47:25 49:8 50:18 53:22 54:6 57:6 60:2 68:14 69:23 70:2 74:4 83:5 99:7 146:11 better (3) 80:11 192:25 194:9 between (46) 4:24 6:16 9:23 23:17 25:7,9,15 33:7 39:5 52:3,5 61:17 71:24 78:22 79:13 81:15 99:2,3 104:9 109:23 118:1 122:24 124:25 126:10 133:15 140:16 143:9,12,17 144:20 146:2,19 147:10 148:7,8,12,18 155:8 159:10 160:6 165:6 166:16 168:11 170:5 177:17 196:12 beyond (6) 28:22 42:17,18 45:3 132:17 171:5 big (5) 42:4 75:22 182:25 183:7 193:9 bigger (1) 159:5 birch (1) 108:4</p>	<p>bit (14) 95:5 103:20 150:24 164:19 165:21 175:7,7,7 181:2,25 182:1 185:18,25 197:23 black (3) 131:11,24 132:20 blackfriars (5) 7:20 59:8 61:8,20 82:11 blade (12) 164:4 165:14 167:1 168:20 169:1,2,22 170:22 171:10,25 172:23 173:21 blood (1) 124:23 bloodstaining (4) 153:3 157:2 161:6 162:7 blow (4) 132:15 190:3,20 192:3 blowing (1) 189:5 blue (1) 124:21 blunt (3) 165:14 166:15 172:17 blunted (1) 167:13 boards (1) 115:9 body (106) 63:9,11 78:11 129:20 130:2,5 152:8,12,17 153:2,8,11 154:8,12,18 155:5,11,14,24 156:3,16,23 157:5,8,17,18,25,25 158:1,10,12,13 160:17,20 161:25 163:16 167:21,22 168:8,21,23 170:17,18 173:4,5 174:6,7,11,13,15 175:16,20,22 176:1,14 177:6,12,14,17,19,23,24,24,28,28 178:17,21,23 179:2,6,8,13,18 180:2,4,23,24 181:6,8,9,11,12 182:6,13,18,20,21 183:22,25 184:1,12,12,23 185:7,10 186:23 187:16 189:1,17 190:7,8,9 191:9,20 194:11 195:3 198:11 bodywork (1) 127:3 bollards (1) 10:14 bomb (1) 183:5 bonnet (1) 126:4 book (1) 107:6 books (1) 179:1 borough (2) 29:7 40:10 boroughs (2) 8:15 64:11 both (20) 3:18 7:7 29:19 33:3 41:3 68:19 69:8 77:3,4 85:18 97:16 98:14 105:17 135:15 150:9 157:19 158:3 167:19 177:9 187:24 bottom (23) 13:12 14:15 43:7 61:15 69:9 75:18,19,24 78:4 145:10 147:12,21 153:23 155:15 164:11 166:5 169:9 171:23</p>	<p>180:17,20 182:3 183:22 185:6 bought (1) 184:4 bound (1) 25:6 boundaries (2) 29:7 40:10 boundary (1) 6:16 box (1) 109:5 bracket (2) 166:24 172:18 brake (3) 136:25 137:6,21 branch (1) 165:22 branches (1) 195:13 brand (5) 166:22 167:1 168:14,20 169:5 brassard (1) 185:18 break (9) 1:20 74:19,21 75:1,4 110:20 150:11,15,19 brick (2) 170:8,9 bridge (137) 4:11 6:2,5,8,13,18,22 7:2,3 11:20 12:5 15:23 16:7,13 20:5 21:2,3,7,8,10,12,17 24:3,7,13 25:5 26:4,8,13,14 30:21,24 31:2 32:2,4,13 34:6 39:12 42:3 45:15,19,20,21,23 46:3,4,6,10,16 50:17 51:2,2,2,3,3,8,9 53:8,8 54:9 55:7,11 57:19 58:19,24 59:3,9,17,19 60:5,14 61:2,10,20,23 62:6,7,10,11,16 63:13 69:18,20 70:8,9 72:2 78:17,19 80:25 81:6,12,13,24,25,25,25 82:1,1,10,11,11,13 83:19 84:1,6,11,14,20 86:1 87:17 88:11 91:17,18 96:17 98:10,20,22,24 99:3,4 122:6 123:9 125:23 127:11 128:8,10,23 136:1,7,8 139:13,16,20 142:15 148:15 149:2 150:3 bridges (7) 7:19,20 11:20 12:1,2,5 13:21 15:21,22 16:8 19:8,22 20:1,5 23:15,19 25:11 26:14,21,25 27:11,22 28:4,7,10,11,15,16,17,18,18,18 30:3 32:20 49:16 50:22 51:5 52:19,23 53:3,6 58:10,17 59:16,21,24 60:3,10,10,13,13,22 61:8,13 63:16 67:15 69:24 70:3,4,7 78:16 81:22 82:2,7,12,12,14,17 83:4,13 85:11,13,24 86:2 99:9,10 brief (1) 110:25 briefly (2) 1:10 177:13 bring (20) 6:11 9:9 13:2 18:4 107:5 119:24 121:18 122:18 123:22 125:6 128:19 144:7</p>	<p>147:20 150:12 175:16 178:7 184:20 190:15,17 197:7 bringing (2) 116:8 197:2 british (5) 36:1 182:22 185:11 197:11,12 broad (10) 18:18 20:4 32:3 47:6 49:6 61:1 65:5 66:1,3 78:25 broadened (1) 33:2 broader (2) 80:1,6 broadly (3) 32:17 57:6 73:7 broken (1) 129:21 brought (3) 115:20 121:7 167:20 brown (1) 138:19 browns (1) 104:6 bs (1) 83:18 buckling (3) 169:1 171:10 172:23 buildings (1) 93:20 built (4) 60:4 83:10 165:20,21 bulky (2) 186:17 193:9 bullet (3) 15:1,3,17 bullets (1) 158:2 bureau (1) 120:15 burred (2) 164:16 171:25 bus (18) 65:11 121:16 122:15,16 126:7,10,12,15,17,22 127:15 136:21,21 137:1,4 146:10,11,12 buses (2) 27:17 137:10 busiest (2) 46:4,5 business (3) 43:8 69:11 97:20 businesses (11) 14:17 17:6,10 29:25 71:4,7,7 76:7 97:3,9,15 busy (2) 21:10 92:1</p>				
<hr/>					C	<hr/>				
					<p>calculate (5) 144:14 145:17 146:1,6,16 calculated (3) 124:25 143:19 144:22 calculation (9) 122:25 145:5,8,15 146:24 147:11,18,22 calculations (6) 121:2,6 122:22 143:25 144:21 146:14 called (21) 8:1 18:6 23:23 29:18 32:15 40:24 66:2 106:3 108:20 111:7 112:16 116:18 117:2 165:2,19 169:1 170:13,21 182:21 183:16 185:18 calling (3) 1:10 116:1,2 came (7) 74:15 90:2 117:17 122:25 126:23 166:10 176:6 camera (3) 138:14 146:11 172:2 cameras (2) 113:16 142:21 campus (1) 49:14 canby (10) 80:21,22,22 94:10,11,16,22 95:2 99:12 200:7</p>					

cancel (1) 108:4	central (9) 26:21,25	cited (3) 64:24 65:14	131:2,8 133:16	concealable (1) 176:20	195:18	118:10 138:7,11
cancellation (1) 109:16	50:22 51:5 53:6 58:10	68:21	141:9,21 142:7	conceived (1) 90:2	consistent (4) 29:11	141:11,17 146:21
cancelled (1) 108:6	59:23 85:13,25	city (13) 47:18 53:3	144:6,11 145:9 146:6	concentration (3)	140:18 164:22 173:22	150:9,13,23 151:8
cannot (1) 53:16	centrally (1) 123:6	55:18 56:20 62:12,13	147:16	140:11,22 179:10	consistently (1) 148:22	152:16 158:25
cant (7) 36:10 108:8	centre (12) 14:20 21:4	66:2 84:7 87:11,11	collisions (6) 33:1 46:14	concepts (2) 24:4 28:6	constable (8) 62:24	159:5,8,13,17 172:3
109:9 139:21 167:15	43:22 45:24 69:14	90:10 142:6,8	52:3 118:20 120:14	concern (5) 79:22 112:9	135:22 136:5	185:24 186:2
186:19 194:19	76:10 97:6 125:12,23	civilian (1) 113:14	135:14	179:7,20 188:21	139:10,13 140:24	193:13,19 196:25
canvas (1) 157:8	128:9,10 190:12	civilians (1) 48:7	combination (1) 53:25	concerned (16) 3:18	141:1,8	197:9,18,22
capability (1) 191:1	centres (4) 27:9	clamped (1) 170:22	combined (1) 187:24	17:20 20:25 22:7	constitute (1) 196:17	198:1,4,14,24
capacity (2) 88:21	37:11,12 42:25	clarification (2) 135:23	come (10) 29:25 30:25	48:22 64:7,25 66:11	constituted (4) 16:16	correct (123)
101:7	ceremonial (2) 40:25	198:7	46:2 73:14 129:25	99:20 178:10 180:9	38:13 45:6 50:13	5:3,10,18,21 6:1,19
capital (19) 7:19 20:1	79:18	clark (8) 1:8 110:25	134:1 158:20 160:7	188:16 192:8,25	constraints (1) 181:15	7:16,21 10:1 11:16
21:4,24 27:3 29:13	certain (7) 40:19 82:17	122:25 141:6,7,8	185:25 186:1	194:1,3	consult (2) 7:6,10	13:1 16:23 64:18 69:2
35:17 36:17,19	143:12 160:4	149:9 200:15	comes (2) 136:24 137:4	16:20 71:25 88:14	consultation (5) 1:14	75:8,11 80:25
47:9,15 49:4,20,24	170:23,24,25	classification (1) 92:20	comfort (2) 189:24	152:17	23:22 24:1 65:23	81:16,17 83:4,5,10,25
54:8 55:23 57:15 77:1	certificate (1) 142:6	classified (2) 165:11,12	194:15	concerns (2) 54:22	192:23	84:3,7,8,9 85:6,21
79:10	certificates (1) 142:10	cleanly (1) 165:16	comfortable (5) 2:4	175:15	consulted (1) 20:12	86:4,12,20 89:16
captured (1) 120:23	cetera (2) 76:9 77:11	clear (12) 41:19 45:6	100:8 118:2 141:12	conclude (1) 173:3	contact (8) 102:13	90:16 91:1
car (8) 107:4 110:4	chain (11) 158:5,7,8,16	53:12 60:23 62:1	151:1	conclusion (5) 96:17	129:17 133:18	93:2,3,8,14,25 94:1
119:6 127:17 129:14	159:25 160:1 162:3	69:17 72:17 77:10	coming (10) 42:15	98:8 167:8 172:10	139:12,15,20 148:10	96:5 101:5 102:8,21
137:16 143:4 148:10	164:21,24 171:7	94:25 101:25 190:25	48:3,10 70:20 99:15	184:6	158:20	103:4 105:16,18
care (1) 162:9	173:23	197:10	181:21,22,22,24	conclusions (10) 101:11	contain (1) 27:5	107:21 108:21 109:17
carefully (1) 194:22	challenge (1) 191:13	clearer (1) 132:6	197:10	107:16 124:1 128:1	contained (1) 65:1	118:15 119:20 121:17
carlisle (5) 113:11	challenges (2) 28:20	clearly (11) 27:20 36:5	command (1) 80:10	134:14 144:18 148:4	tend (1) 137:20	127:24 129:5 131:17
114:1,7 116:4 197:25	57:5	39:4 42:8 44:2,20	commence (1) 2:14	169:25 173:1,15	contest (4) 34:15,18,19	137:11 142:23
carriage (1) 196:16	change (1) 21:18	56:24 60:4 70:3 98:12	comment (2) 110:9	189:10	35:19	143:6,14,18 144:13,24
carriageway (14)	changed (4) 99:6	182:4	189:10	comments (1) 107:15	context (3) 10:3 87:8	145:13,16 147:7,13,19
20:9,11,23	131:10 192:13,15	clients (1) 1:14	commercial (2) 27:9	37:12	179:22	152:19 153:5,12,14
24:10,11,21,22 25:8	changes (3) 6:21 7:3	climbing (1) 178:4	commission (1) 101:19	commissioned (1) 12:24	contiguous (1) 25:21	154:23 155:18
42:12 51:23,25	27:25	close (7) 13:11 21:3	commissioning (1)	78:11	contingency (9) 14:22	156:5,14,19 157:6
52:4,5,9	changing (3) 14:5	156:13,14 175:11	78:11	cones (4) 119:21,25	17:8 69:16 71:8 76:12	158:14 159:21 160:13
carriageways (2) 13:15	73:5,11	179:12 191:17	committed (1) 49:18	131:22 132:8	97:10,13,20,24	161:4,17 162:1,5,21
41:16	chartered (1) 151:18	closed (1) 109:14	common (1) 54:21	confidence (3) 25:16	continuation (2)	163:13,25 164:2,25
carried (14) 50:16 58:9	check (2) 50:19 108:12	closeup (4) 130:4	commonplace (1)	70:12 74:2	191:23,24	166:6 167:22 169:11
81:14 84:5 89:8	chelsea (3) 51:2 53:8	155:16 163:10,11	178:16	confirm (4) 81:13,19	continue (6) 49:10	171:9,14,18,21
95:4,20 96:3 103:3	81:25	clothing (3) 124:22	communicated (1)	107:16 108:8	127:11 128:24 130:17	172:5,25 173:24
104:14 109:19 155:25	chest (2) 174:18 190:12	163:1 173:12	40:21	confirming (1) 33:11	132:4 168:8	175:3,9,20,24
184:16 189:15	chief (88)	clubs (1) 37:10	communication (2)	conjunction (1) 92:13	confirming (1) 33:11	176:6,16 177:1,7
carry (7) 54:16 120:8	1:5,7,12,17,24 2:2	coating (1) 161:25	104:23,25	connection (4) 77:2,4	126:5 131:3,8 140:7	179:5 182:7,16 184:19
124:16 157:23 169:1	7:25 8:13 29:5 40:8	cochran (21) 31:4 62:18	104:23,25	103:12,13	continues (1) 131:5	185:5,8,13 186:6,14
172:21 186:21	59:20 74:13,19,24	64:2 121:23	communications (2)	conscious (1) 74:20	continuing (1) 132:17	188:2,5,17 192:15,21
cast (2) 109:3,11	75:3,5 76:23 78:1	122:5,10,12,21	104:8,16	consent (1) 6:20	continuity (1) 97:20	189:2
casualties (1) 42:7	79:12,14 80:20 85:19	123:1,6,8,10,13,16	communities (1) 93:7	consents (1) 7:3	contrary (1) 106:22	192:12
categorically (1) 53:18	91:2 94:9,12,17,23	124:5 135:24 136:2,6	community (3) 3:13	consider (19) 23:18	contribute (1) 36:4	correspond (5) 155:11
categorisation (1) 43:20	99:15,16,18	144:7,11 149:12	33:17 35:14	32:17 39:5 52:22	contributed (1) 134:21	156:8 160:11 163:6
categorised (1) 40:2	100:4,5,6,6,13	111:10	compare (1) 172:24	53:21 54:14 69:25	control (4) 80:2,7 135:2	174:14
category (1) 8:18	110:11,15,17,19	collaborate (1) 97:21	compared (3) 45:21	73:16 75:17 86:14,24	189:7	corresponded (2)
caught (1) 63:9	111:1,8,11,14,18	collaboration (6) 16:4	181:6 190:7	87:1 90:22,23 111:25	controlling (1) 169:18	155:2,4
cause (8) 9:4 49:14	112:2,6,19 114:3,9,22	25:23 27:15 28:8,12	comparison (5) 58:15	135:6,9,13 184:17	convenient (2) 1:19	corresponding (6)
129:10,11,20 133:8	115:15 116:5,11,14,17	35:25	59:15 81:11 82:6	considerable (1) 173:21	74:23	154:8,11 155:7,22
167:2 190:15	117:7,11,13,18,21,23,25	collateral (1) 24:17	168:11	consideration (29) 7:1	conversation (3) 9:4	158:15 161:24
caused (3) 126:23	138:7,11 141:11	colleague (8) 4:20 34:2	competing (1) 188:13	10:11 11:7 15:11,15	72:21,22	corresponds (3) 156:21
129:18 134:23	146:21 150:9,13,23	121:1 125:3 128:5	complacency (1) 195:14	21:21 22:1 24:7 33:14	convert (1) 56:8	162:21,25
causing (1) 132:16	158:25 159:5,8,13,17	136:3 141:3 150:7	complacent (1) 195:15	50:22 56:15 57:17	conveyed (1) 125:4	couldn't (1) 191:20
cctv (19) 113:15 114:16	172:3 185:24 186:2	colleagues (23)	complete (1) 117:6	62:13 63:18 67:20,23	cooling (2) 190:16,17	council (13) 6:16
115:24 120:23	193:13,19 196:25	12:14,23 16:11 19:14	completed (2) 72:19	68:18 72:25	cooneen (1) 180:25	62:12,13 84:7
121:1,22 122:22	198:1,4,14,24 200:8	42:10 47:1 48:13	136:18	73:2,10,19 78:24 80:1	cooperate (1) 97:21	87:12,13,20,21
126:18 127:2 128:3	christmas (8) 14:13,19	50:20 52:25 55:21	completely (4) 53:4	85:8,10 93:19 115:16	coordinated (2) 22:4	88:10,14 89:6 90:11
137:10 139:4,7 140:10	15:14 17:2 43:12	70:14 73:25 80:10	137:17 169:22 187:21	192:23 194:8	29:10	108:4
142:12,20 143:16,24	69:13 80:5 97:5	84:14,22 121:6	completeness (2) 88:8	considerations (4)	copy (2) 131:14 132:7	councils (1) 88:22
173:25	chronology (1) 75:8	134:15,17 143:8 197:1	197:7	60:24 62:8 73:5 78:7	core (3) 179:8,8,18	count (2) 142:19 143:15
celebrate (1) 42:15	cinemas (1) 37:12	collective (2) 78:7 91:4	complex (1) 86:5	considered (23) 14:18	corner (1) 123:2	counter (25)
celebrating (2) 13:7	circle (4) 161:20	collided (2) 125:16	complexity (3) 82:13,15	20:20,22 21:25 37:4	coroner (78)	8:2,3,14,19,25 11:21
31:4	181:4,7,15	146:4	146:13	38:1,19 43:9 46:9,11	1:5,12,17,24 2:2,11	16:3 29:4,9,19 40:6,11
celebration (1) 42:13	circles (1) 181:25	colliding (1) 136:6	compliance (1) 2:22	55:2 56:1,2 67:3 69:12	59:20 74:13,19,24	64:13 65:2 70:14 71:3
celebrations (1) 17:13	circular (1) 183:2	collision (30) 54:21	component (1) 130:6	71:22 76:8 77:23 85:9	75:3,5 80:20	79:7,13,20 80:10
cent (5) 5:11,12	circulated (1) 17:24	118:17 119:2 121:23	components (1) 129:21	91:9,10 97:4 99:11	94:9,12,17,23 98:8	87:24 89:9 95:13
187:3,7,9	circulating (1) 18:11	122:14,23 124:5,25	comprehensive (2)	considering (17) 3:25	99:15,18 100:4,6,17	100:14,20
centimetre (1) 168:7	circulation (1) 18:14	125:2,21,24 126:1,12	31:15 68:1	4:6 25:19,24 42:3	110:15,17,19	counterterrorism (5)
centimetres (12)	circumstance (1) 19:12	127:3,20 128:23	compromise (1) 196:12	46:24 49:2 53:13 54:6	111:1,8,11,14,18	39:18 45:10 92:6 93:2
58:20,25,25 59:10	circumstances (2)	129:8,18 130:3	computer (1) 120:14	55:19 59:13 63:14,16	112:2,6,19 114:3,9,22	94:20
60:6,11,18 61:1,4	137:18 189:9			68:12 74:3 78:16	115:15 116:5,11,14,17	countervailing (1) 116:8
123:17 136:16 181:13					117:7,11,13,18,21,23,25	country (8) 8:5 13:16

21:18,22 41:16 48:6
 68:24 79:24
counts (1) 94:5
county (1) 122:13
couple (1) 180:6
course (17) 12:21 86:13
 87:13 91:13 93:15
 113:3 114:16 116:23
 120:13 129:25 130:7
 135:10 144:3 148:25
 149:1 180:21 181:20
cover (10) 145:23
 157:8,12 159:24
 177:12 183:2,2 184:2
 191:12,20
coverage (8) 175:2,16
 182:5 183:6,18 186:16
 189:17 194:15
covered (13) 4:19
 144:16,22 145:1,18
 154:18 155:5,11,14
 163:16 174:15,19
 190:7
covering (1) 189:22
covers (5) 159:19 177:5
 183:7 185:3 192:5
covert (1) 176:21
cpni (3) 29:22 68:21
 78:13
crash (1) 113:2
crashed (1) 107:7
create (1) 54:1
created (1) 159:19
creation (1) 24:2
crime (17) 3:3,20,22
 10:20,23,24
 11:1,10,12,13 35:15
 89:21 90:6,15,19
 94:19,21
crimes (1) 33:4
cristea (6) 30:25 127:20
 128:7 137:24 147:17
 148:10
criteria (9) 17:15 38:19
 92:13,14,18,19 95:22
 96:10,18
critical (1) 142:4
criticism (1) 139:11
cross (3) 32:20 46:6
 52:8
crossing (7) 129:1,3,16
 140:1,3,4,12
crossley (5) 100:25
 108:9 198:3,12,21
crossleys (1) 198:5
crowd (5) 13:7 37:5
 52:7 98:10,23
crowded (61) 14:18
 15:24 16:2,8,12,16
 17:1,14 27:3,7 29:2
 34:10 36:25 37:15
 38:8,13,18,20,23
 39:5,7,13,15,24
 40:9,20 41:7,20
 43:9,24 44:4
 45:2,3,6,13
 56:18,19,23 57:18
 68:6,19 69:12 73:24
 76:8 91:22,23,25
 92:7,16 93:1,19 94:4,5
 95:3,21 96:12,18
 97:4,16 98:7 99:6
crowding (3) 15:13 44:2

98:12
crowds (13) 13:16,24
 14:9 15:21,22
 41:17,25
 42:5,11,14,18,19 44:6
cryptic (1) 110:8
crystallise (1) 67:19
ctsa (7) 9:8,12 95:14
 96:4,9,15,16
ctsas (12) 8:4,7,11,23
 9:15,23 10:4 11:22
 28:23 30:11 92:13
 99:4
ctsfo (1) 176:21
ctso (1) 89:10
culmination (1) 72:13
cumulative (1) 190:7
current (14) 2:21 14:21
 64:13 65:2 66:15
 69:15 76:11 97:9
 100:19 151:11,12
 176:8 178:21 192:7
currently (6) 2:22 28:7
 30:16 63:22 100:14
 141:8
cursor (3) 159:2 175:5,5
curve (1) 169:24
curves (1) 194:12
cushioning (1) 132:15
custody (1) 102:7
cut (10) 155:22 157:13
 161:12 162:12
 163:10,11,11 165:16
 166:13 173:12
cuts (4) 157:12 162:8
 163:12 166:1
cutting (2) 6:17 165:7
cycle (12) 23:23,25
 24:2,14 25:5,6,7
 128:24 130:2 131:2,6
 133:4
cyclespecific (1) 24:22
cycling (1) 23:24
cyclists (5) 24:12
 27:18,24 52:3,4

D

dabiq (1) 48:11
damage (31) 127:2,4
 129:10,18 132:14,17
 134:6 135:3
 153:15,19,25
 154:1,6,25 155:17
 156:6,18 157:10,14
 158:11,15 160:14
 161:10,24
 164:19,20,22,23
 173:12,17,22
damaged (2) 154:3
 162:10
dangerous (1) 52:12
dangers (1) 49:15
data (1) 143:7
date (4) 4:2 30:1 32:24
 75:24
 43:19 82:21 99:20,25
 110:20 111:5 120:21
 125:2 128:5,18 138:3
 142:17,18 163:19
 198:6
dealing (2) 47:3 102:11
dealt (4) 34:1 114:6

day (11) 13:8 26:12
 30:24 37:16 39:13
 56:18 107:25 119:9
 179:17 188:22 190:11
days (6) 22:23 58:4,5
 102:14 108:2 136:3
dc (1) 114:17
dc501910 (1) 161:7
dc501911 (1) 157:23
dc501912 (1) 161:15
dc501913 (1) 162:7
dc501914 (1) 163:9
dc501915 (1) 163:10
dc501916 (1) 162:19
dc50193 (1) 153:22
dc50194 (1) 154:20
dc50195 (1) 156:2
dc50196 (1) 156:11
dc50199 (2) 157:3
 160:25
dc743410 (1) 186:2
dc74344 (1) 184:20
dc74345 (1) 185:9
dc7960103 (1) 180:10
dc796057 (1) 121:24
dc796059 (1) 123:22
dc796060 (1) 125:16
dc796064 (1) 127:22
dc796066 (1) 128:20
dc796067 (2) 130:21
 133:11
dc796068 (1) 131:14
dc796072 (1) 147:8
dc796073 (1) 148:3
dc796096 (2) 175:17
 182:17
dc796097 (2) 174:23
 177:3
dc796098 (2) 163:21
 166:4
dc796099 (2) 164:9
 171:16
dc7989101 (1) 107:5
dc79894 (1) 121:18
dc798947 (1) 134:4
dc798948 (1) 134:9
dc80441 (1) 82:22
dc80451 (1) 92:24
dc80452 (1) 93:5
dc80453 (1) 93:10
dc80454 (1) 93:10
dc80455 (2) 34:12
 93:11
dc80457 (1) 95:6
dc80491 (2) 50:21
 85:16
dc80511 (2) 58:8 81:10
dc805112 (1) 59:9
dc805115 (1) 61:23
dc80512 (2) 58:15
 81:11
dc80518 (1) 61:2
dc80519 (1) 59:1
dci (1) 104:6
de (1) 119:1
deal (17) 12:17 22:19
 43:19 82:21 99:20,25
 110:20 111:5 120:21
 125:2 128:5,18 138:3
 142:17,18 163:19
 198:6
dealing (2) 47:3 102:11
dealt (4) 34:1 114:6

136:1 137:2
debate (2) 45:19 53:24
debts (1) 108:16
december (8) 12:19
 14:12 19:20 74:14
 75:6,19,24 77:14
decide (1) 92:15
decided (2) 39:12 61:3
decision (9) 7:11 10:21
 26:18 82:18 89:25
 103:21,21,24 110:3
decisionmaker (1) 7:6
decisionmakers (1)
 39:12
decisionmaking (3) 7:5
 14:2 177:11
decisions (2) 60:3 67:3
decker (1) 126:9
decluttering (1) 52:14
dedicate (1) 8:23
dedicated (5) 8:19
 31:17 40:11 79:7,20
deduce (2) 131:24
 157:15
deemed (1) 62:14
deep (1) 173:12
deepest (1) 2:15
deepfooted (1) 28:20
defects (3)
 134:16,20,23
define (1) 38:23
defined (3) 16:9 86:11
 88:23
defining (1) 98:12
definition (26) 11:8
 16:8,15 17:14 29:2
 33:2 34:9 36:23 37:20
 38:6,10,17 41:7
 42:8,16,21 44:5,8
 45:6,7,8,13 56:19
 90:18 94:4,14
definitions (1) 166:14
deflate (1) 130:16
deflated (2) 133:8
 134:10
deflation (1) 129:10
deflection (1) 169:23
deformation (2) 164:7
 169:14
deformed (3) 129:21
 164:4,16
degree (14) 44:21,23
 51:5,18,20 53:11 61:5
 62:2 115:3 133:9
 164:15 193:23 194:5
 198:19
degrees (3) 179:9,12
 184:8
delayed (1) 1:3
deliberate (2) 47:20
 140:10
deliberately (6) 20:14
 51:14 135:7,10
 140:6,18
delivered (2) 39:17
 158:10
delivery (2) 77:12 78:5
demonstrated (1)
 114:16
demonstration (1)
 193:15
denote (1) 147:14
dense (1) 98:24

densely (1) 44:4
density (7) 37:5
 98:10,15,16,19,23
 168:1
department (2) 67:25
 93:6
depended (1) 91:5
dependent (3) 19:13
 23:5 36:20
depending (1) 144:3
depict (2) 174:7 180:17
depicting (1) 177:5
deploy (1) 129:20
deployed (3) 130:8,18
 195:19
deploying (1) 130:14
deployment (1) 130:11
describe (3) 122:3
 133:11 139:25
described (6) 79:19
 131:23 133:4 140:14
 144:15 145:1
describes (1) 113:24
describing (2) 115:6
 134:10
design (22) 24:20
 28:6,15 60:12,21,23
 62:9,14,16 83:3 84:2
 177:14 178:21,23
 179:1 182:8,22 188:12
 191:8 192:4,7 196:11
designated (4) 5:5
 23:24 39:6 40:3
designation (3) 16:1,5
 38:10
designed (11)
 51:11,22,24 60:16
 83:10 89:11 165:21
 182:22,23 183:5
 196:14
designing (1) 30:6
designs (8) 24:4,25
 25:2,22 26:3 158:4
 182:8,18
desire (1) 11:6
despite (5) 38:5 103:2
 149:24 150:2 191:13
detail (10) 4:19,21 5:15
 11:17 34:1 56:2
 139:14 152:24 153:1
 179:1
detailed (2) 66:5 72:20
details (9) 65:8 66:7,18
 103:7 118:23 125:18
 191:9,19 196:2
detective (12) 1:7 62:24
 99:16 100:5,13,23,25
 110:11 136:5 139:13
 198:3 200:8
deteriorated (2) 166:25
 167:9
determination (2) 29:12
 60:25
determine (7) 29:3,6
 30:14 38:20 52:25
 142:21 186:23
determined (2) 38:12
 53:19
determining (2) 28:6
 195:23
deterred (2) 53:12,17
deterrent (2) 53:12,25
develop (1) 152:2

developed (5) 24:14
 167:22 183:24 193:2,4
developing (2) 25:23
 188:25
development (4) 30:8
 152:2 175:15 177:8
developments (2) 29:24
 195:13
develops (1) 170:24
device (2) 77:13 165:1
dft (1) 52:9
di (1) 107:14
diagram (2) 154:11
 192:8
diagrams (1) 180:17
dialogue (4) 8:25 9:20
 40:23 79:16
diameter (1) 160:1
didit (10) 79:15 96:14
 97:24 102:18 135:15
 163:3 171:13
 172:21,23 185:11
die (1) 135:15
died (3) 119:19 125:5
 135:15
difference (5) 39:4,4
 85:6 189:6 195:8
different (33) 4:4 19:3
 32:14 39:21 43:19
 46:18 55:23 57:19
 60:4 74:16 79:11
 96:22 130:6 131:12
 134:5 138:9 139:8
 143:17,20 158:4
 162:24 163:1,3 176:14
 181:2 182:8 183:16
 184:18 186:23 195:7
 196:10,13 197:13
differently (3) 99:11
 115:7 196:14
difficult (7) 48:21 132:2
 162:10 180:19 191:17
 193:19 196:15
difficulty (1) 179:2
diligently (1) 72:6
dimensional (1) 180:22
dimensions (1) 180:20
diminished (1) 168:24
direct (1) 10:9
directed (3) 93:13
 137:14 140:22
direction (6) 112:7
 113:25 122:19 123:3
 177:20,21
directions (1) 191:12
directly (3) 23:12 127:6
 130:15
director (3) 2:22 3:12
 87:11
discern (1) 3:14
discernible (1) 130:9
discharge (1) 50:3
discovered (1) 174:2
discussion (2) 53:21
 194:7
discussions (3) 9:25
 12:23 76:24
disorder (7) 10:23,24
 11:10,13 89:21
 90:6,15
dispute (1) 139:21
disrupt (1) 194:22
dissipated (1) 160:4

distance (17) 115:19
 124:20 128:4,13
 144:15,16,22
 145:1,4,11,18,23
 147:3,6,10,14 148:1
distances (2) 143:9,12
distancespeed (1)
 147:22
distant (1) 138:14
distinct (2) 79:11
 121:10
distinguish (1) 40:13
distorted (4) 158:9,23
 161:14,24
distorting (1) 173:22
distortion (5) 158:9
 159:13,22 160:2,10
distracting (2)
 130:14,19
doctrine (1) 106:10
document (35) 1:17
 16:18 18:9,11,14
 19:19 41:4,10 43:2,3,6
 44:10,12 46:18 50:21
 61:3 64:16,22 66:2
 69:6 70:16,17 75:18
 81:10 82:22 83:2,3,6
 92:25,25 94:24 95:5
 157:3 177:2,4
documentation (1)
 79:23
documents (4) 1:18
 18:10 70:11 103:3
does (32) 8:17 37:17
 48:15 70:10 72:18
 73:14 89:21 91:25
 97:25 100:3 112:9
 121:24 122:2
 123:22,25 133:25
 134:3 137:6,23
 152:7,11 155:16,18
 157:4 160:10,22
 162:22 171:11 175:1
 183:23 185:19 193:8
doesn't (8) 6:20 37:17
 42:2 112:8 183:10
 190:22,23 191:11
doing (8) 2:4 25:18
 50:9 176:11,21
 193:3,15 195:5
domain (1) 48:17
dominic (2) 64:1 188:10
done (14) 12:9 23:17
 28:22 29:1 30:4 40:11
 52:9 73:12 106:19
 120:12 136:13 140:9
 151:19 179:14
dont (16) 36:11,12
 43:17,19 46:3 48:18
 50:4,10 58:1 98:11
 102:3 104:21 108:8
 116:1 123:19 138:17
door (1) 127:9
doors (2) 110:3,4
double (2) 5:9 126:9
doubt (1) 137:11
down (22) 6:17 19:19
 36:10 41:10 63:3,11
 68:24 114:12 122:7
 125:12 132:25 133:9
 136:8,20 146:3 165:16
 170:22 184:10 185:23
 186:3 194:18 196:6

dr (4) 189:15 190:21,25 191:23
 drafted (2) 86:14 90:2
 dragged (1) 124:20
 drape (1) 191:11
 draw (1) 169:14
 drawing (2) 154:1 178:11
 drawings (1) 180:20
 drawn (5) 72:17 75:5 114:11 121:21 126:16
 drew (2) 167:8 169:23
 drive (5) 47:17 56:9 109:18 132:2 171:6
 driven (14) 13:7 14:13 20:14 26:7 51:14 119:6 124:18 128:25 129:6 132:1 135:4,16 142:14 148:14
 driver (10) 126:15,19 127:5,11 130:16 132:4 137:6,13,18 149:5
 drivers (3) 135:2 138:21 148:20
 driving (8) 66:10 130:12,18 132:4 133:4 146:19 171:12 178:4
 drop (5) 170:13,16,23,23 172:22
 dropped (1) 170:22
 dropping (2) 170:8,9
 drove (4) 49:13 125:22 128:24 133:16
 dual (1) 157:25
 due (10) 14:18 24:4 43:12 69:12 76:9 82:7 84:10 97:4 125:5 129:19
 dull (3) 165:14 166:15 172:17
 duplicative (1) 115:5
 during (19) 16:25 37:15 110:4 120:13 124:24 125:5 132:19 133:3 135:10 141:3 146:6 147:16 148:9,11 154:5 166:19 167:9 189:24 193:5
 duties (16) 2:24 3:1 48:23 86:6,9,10,17 87:3 89:15 176:10,13 188:18,23,23,25 196:16
 duty (12) 5:15,23 10:22 34:5 46:7 50:3,14 86:18,21 88:24 113:9 176:22
 duvets (1) 180:4
 dwelling (1) 4:21
 dynamic (1) 168:4

E

earlier (11) 33:5 65:1,15 74:13 95:18 99:25 132:19 134:11 136:15 160:12 185:7
 early (11) 3:18 17:25 18:12 21:2 23:18 25:10 47:3 102:16 111:5 150:11 197:23
 easily (1) 191:11
 east (2) 123:8 128:8

eastwood (6) 107:14 109:1,6,14,23 110:3
 eastwoods (1) 109:4
 easy (5) 54:4 132:23 165:12 179:17 195:7
 edge (18) 58:16 132:18 133:18 160:19,20 164:17,17,19,20 165:1,7,11,19 166:3 170:10 172:7,11 174:22
 edges (1) 162:13
 education (1) 142:10
 effect (9) 5:16 24:17 53:12 73:15 78:14 129:11 130:11,15 190:23
 effective (1) 187:16
 effectively (6) 57:11 105:24 159:18 182:14 187:10 198:9
 effects (4) 134:24 157:16 179:10 186:23
 efficient (1) 160:21
 effort (5) 127:10 129:13 132:3 168:21,23
 eg (1) 76:8
 eight (3) 26:24 69:24 85:13
 either (16) 6:21 14:18 23:19 43:12,14 69:12 76:9 79:24 82:4 97:4 105:6,8 108:8 138:7 144:23 158:15
 el (1) 104:5
 elapsed (1) 143:15
 eldest (2) 104:20 107:20
 elected (3) 66:9 89:24 90:4
 element (4) 157:25 158:4 160:20 170:21
 elements (1) 158:4
 elizabeth (1) 131:6
 else (5) 101:19 106:20,25 116:12 117:25
 elsewhere (2) 55:22 140:23
 email (16) 18:2,5,11 70:16 72:10,18 74:6,12,13 75:5,8,12 76:15,22 77:5 112:23
 emails (1) 76:16
 embedded (1) 30:8
 emerging (1) 26:3
 emotionally (1) 115:13
 employed (2) 8:4 82:23
 en (1) 83:18
 enabling (1) 130:17
 enacted (1) 15:18
 encourage (1) 28:16
 encouraging (2) 48:5,12
 end (12) 43:4 128:8,23 133:14 139:24 145:15 147:5,13,25 148:8 159:4 189:19
 endeavour (1) 110:22
 endeavours (1) 29:21
 enduring (3) 49:6 54:3 57:14
 energy (10) 158:10 160:4,5,6,22 169:16

170:1,7,8,25
 enforcement (3) 3:2,8 64:11
 engage (3) 8:23 9:5 25:10
 engaged (8) 14:1 23:21 30:23 40:7,23 55:20 79:16 162:3
 engagement (2) 10:4,10
 engaging (1) 40:15
 engineer (4) 60:8 83:7 151:12,18
 engineering (6) 28:19 151:15,17,19 191:8,13
 england (1) 4:24
 enjoyment (1) 86:19
 enormous (1) 57:5
 enough (4) 117:16 123:10 188:24 194:19
 ensure (6) 9:17 26:1 27:18,23 29:10 31:24
 ensures (1) 95:16
 entered (1) 113:3
 entering (1) 174:18
 enterprise (1) 107:25
 entire (1) 3:17
 entirely (2) 89:13 112:12
 entrance (2) 27:22 131:6
 environment (6) 31:15,16,19 36:25 68:6 83:15
 equipment (5) 150:12 165:22 179:16 193:22 197:3
 equivalent (2) 167:19 168:13
 erecting (1) 19:21
 escaped (2) 129:13 132:21
 especially (2) 12:6,10
 essential (2) 101:10 134:14
 essentially (4) 17:6 28:1 103:18 136:7
 establish (11) 98:6 102:13,22 103:11 104:15 105:5,19,21 106:13,20,24
 established (6) 29:17 102:25 103:13,23 107:10 134:19
 establishes (1) 92:7
 estate (1) 133:20
 estates (1) 82:13
 estimate (3) 143:3,16 145:12
 estimated (1) 138:22
 estimates (1) 160:7
 et (2) 76:9 77:11
 evacuation (3) 70:5,6 97:20
 eve (1) 42:13
 even (16) 20:15 40:19 42:16 50:15 52:19 54:16 56:4 86:1,22 94:23 98:5,22 130:18 179:10 189:4,23
 evening (1) 102:20
 event (10) 14:19 23:7 43:12,15 44:25 69:13 73:23 76:9 97:5,19

events (47) 9:16,20 10:3,5 13:11,15,24,25 14:3,3,9 15:12 17:12 31:20,21,24,25 34:8 41:15,23 42:17,18 43:25 44:7 45:4 64:7,25 66:11 70:4,6 72:25 73:4,13 74:1 79:18,19,24 80:1,16 92:9 113:4,13,18 115:4,7,21 192:22
 eventspecific (1) 23:9
 ever (2) 55:5 115:21
 every (8) 25:19,20 46:2 84:21,24 87:4 163:2 183:8
 everyday (1) 178:13
 everyone (5) 2:17 3:4 45:3 49:23 198:15
 evidence (74) 4:8 30:23 31:5,10 32:10 33:5 38:4 39:9 52:2,6 62:17,19,24,25 70:19 72:20 73:2 76:20 85:19 99:14 101:10 102:23,25 104:2,6,8,18 105:5,8 106:9,14,16,24,25 107:2 108:9,15 109:4 112:25 113:15,19 114:8,20,20,24 115:6,14,25 116:9,10 117:5 121:3 136:3,5,11 137:5 138:18 139:3,11,13,15,20 141:3,4 142:5 150:8,17 151:16 152:23 196:22 198:6,6,13,20
 evident (1) 164:15
 exactly (6) 63:9 73:9 80:15 88:3 144:5 181:11
 examination (33) 2:6 30:19 63:25 80:21 100:10 118:4 119:4 135:21 141:15 149:8 151:3 153:6 155:25 156:17 157:16 162:6 163:18 164:12 173:11,16 180:12 188:8 200:4,5,6,7,9,13,14,16,17,18,20
 examine (7) 153:15,19 156:24 165:1 166:25 171:15 172:6
 examined (1) 134:17
 examiner (2) 119:3 142:11
 example (23) 15:14 42:3,13,23 45:21 46:17 55:16 59:12 60:13 61:2 80:4 98:2,9,20 115:23 119:25 132:20 163:10,11 176:17,24 185:13 196:7
 examples (2) 37:9 108:25
 exciting (1) 109:10
 execute (1) 103:22
 execution (1) 106:21

executive (1) 29:6
 executives (2) 40:8 79:14
 exercise (5) 38:11 49:18 52:22 142:4 144:3
 exhibit (1) 184:5
 exist (1) 80:7
 existed (2) 40:6 50:8
 existence (1) 65:19
 exists (1) 84:25
 exits (1) 27:22
 exonerate (1) 105:24
 exonerated (1) 106:1
 expand (3) 54:12 94:14 111:12
 expanded (1) 90:18
 expect (1) 150:23
 expectation (3) 49:1 50:5,13
 expectations (2) 67:10 79:1
 expedient (1) 9:17
 expeditious (1) 31:24
 expenditure (1) 44:22
 experience (4) 22:15 154:3 160:3 164:22
 experiences (1) 91:17
 expert (1) 60:8
 experts (2) 29:22 31:17
 explain (6) 8:12 110:9 128:1 148:4 171:12 177:13
 explained (3) 66:9 78:14 188:12
 explaining (1) 71:11
 explicit (2) 3:24 73:6
 explore (1) 195:10
 explosive (1) 77:13
 expose (2) 185:19 188:15
 exposed (6) 52:19 59:4 61:19 114:19 177:25 183:1
 express (1) 2:15
 expressed (1) 182:2
 extend (5) 10:5,19,21 108:1 193:9
 extended (2) 11:7 155:3
 extensive (1) 103:2
 extent (8) 18:15 23:5 52:19 57:16 111:12 113:17 134:5 161:2
 extortions (1) 48:9
 extract (1) 107:25
 extract (3) 83:3,22 156:23
 extremely (7) 116:14 166:14,23 167:1 172:17 187:21 198:14
 eye (1) 148:20

F

fabric (3) 158:13 160:15 161:25
 face (4) 47:14 49:20 115:20 171:5
 faced (3) 63:17 79:10 137:18
 faces (2) 36:17 55:23
 facilitate (1) 27:23
 facility (1) 157:19
 facing (8) 21:19 30:16 46:12 56:25 57:8,15 161:8,9

factor (2) 60:24 116:8
 factors (1) 188:13
 failing (2) 54:11 78:21
 failure (7) 49:25 50:2,12 54:16,17 79:6 80:8
 fair (3) 4:22 66:24 137:12
 fairly (1) 181:1
 fall (4) 8:17 16:8 83:17 181:10
 fallen (1) 174:2
 falling (3) 61:11 123:13 128:13
 falls (4) 32:4,25 46:13 54:22
 familiar (4) 39:21 83:6 107:6 180:3
 families (3) 2:16 30:21 135:25
 far (10) 32:17 69:3 80:11 129:4 177:3 180:8 188:15 192:2,7 193:20
 farsi (1) 104:5
 fast (1) 194:19
 fatal (12) 63:2 118:20 123:15 126:23 174:16 180:11,19 182:4,15 190:3,20 192:3
 fatalities (2) 177:9,10
 faults (2) 134:16,20
 fear (1) 195:6
 feature (2) 34:18 45:2
 features (1) 143:4
 february (1) 104:7
 feel (5) 2:3 49:10 129:12 133:8 190:11
 feeling (1) 114:19
 feels (1) 71:5
 feet (2) 123:7 138:23
 fell (4) 40:9 45:12 63:3 124:17
 fellow (1) 151:18
 felt (4) 60:5 65:24 112:8 139:1
 fences (1) 5:20
 fencing (1) 15:5
 fenne (16) 1:8 150:10,21,22 151:6,7,11 152:23 153:24 157:23 188:9,12 194:1 196:20,22 200:18
 festivals (1) 76:9
 festive (4) 17:13,19 19:1 76:2
 few (8) 38:18 48:3 107:3 123:7 181:13 184:7,11 197:14
 fidelity (1) 128:4
 field (1) 151:20
 figure (1) 166:23
 fill (2) 139:1,8
 final (9) 24:4 97:1 115:11 117:4 120:22 130:22,25 133:12 167:15
 finally (9) 7:17 99:1 106:2 110:8 114:18 137:24 139:24 187:13 198:2
 find (7) 72:10,19 104:8 143:1 157:11 161:9

162:14
 finding (2) 30:2 140:14
 fine (6) 100:2 118:2 150:14,25 194:16,21
 fiona (1) 80:22
 fire (1) 176:25
 firearms (6) 18:23 114:19,21 176:17,19,24
 fired (1) 193:6
 first (47) 1:25 4:23 14:15 15:17 16:11 21:1 22:20 51:16 64:4 69:6 70:17 77:7 81:8 85:16 90:1 100:17 102:11 107:18 110:24 112:24 116:20 118:10 121:15 124:13 135:24 141:17 142:17,19,24 144:10 151:7,20 153:8 154:21 157:4,22 159:9 163:21,23 171:2 173:2,2 184:25 176:1,6 182:19 184:2
 fit (1) 100:2
 fitted (1) 175:21
 five (5) 98:19 154:6 177:18 180:5 182:9
 fixed (3) 19:22 96:10 181:14
 flag (1) 72:18
 flanks (1) 165:6
 flat (5) 132:3,15 180:21 181:18 191:10
 fleeces (2) 180:6,7
 fleet (1) 76:22
 flexibility (1) 198:19
 flexible (1) 181:8
 flight (1) 122:7
 floor (1) 170:10
 flow (3) 7:12 27:17 98:15
 flowing (1) 5:25
 flung (1) 63:20
 foam (2) 167:20 168:1
 focus (8) 23:7 27:7 77:7 79:25 113:5 153:22 154:20 156:13
 focused (4) 11:1 30:2 73:23 80:24
 focusing (4) 66:24 78:3 157:15 161:7
 follow (1) 66:10
 followed (3) 14:12 50:15 71:20
 following (19) 4:22 12:25 13:3,19 15:19 19:6,19 24:6,24 25:3 27:10 35:9 73:21 81:24 83:22 91:17 104:1 106:18 173:2
 followup (2) 72:18,20
 foot (5) 58:4,5 59:2,24 167:5
 footage (22) 121:22 128:3 136:4,6,19,21,25 137:7,10,25 138:4 139:14 142:20,21 143:2,13,16,24 144:3 146:12 147:18 173:25
 footholds (1) 59:11
 footway (17) 24:1

122:9,17,19 124:12	furlong (3) 18:5 72:11	global (1) 80:16	84:25 85:1,2 92:22	100:25 104:5 108:15	highways (29) 4:18,24	houses (4) 42:5 45:16
125:22,23 126:6,17	75:6	globe (1) 79:25	93:12,18 95:15	114:5,20 139:2 148:25	23:10 25:11 32:6,8,19	107:8 191:23
127:17 128:9,24,25	further (30) 7:1 13:19	goad (1) 87:9	96:22,23,24 99:8,10	163:22 174:16	45:12 47:2 50:7 52:16	housing (2) 108:6
131:5,5 133:17 140:21	15:19 16:17 17:18	god (1) 109:8	guide (3) 36:11 152:5	hearing (8) 71:16 101:1	60:8 67:5 68:9 74:3,5	109:16
force (7) 20:15 63:21	24:7 27:2,12 38:15	goes (5) 42:17 130:20	175:4	115:5,12 120:16,17	77:21 86:11,13,21,23	however (17) 3:12,23
170:6 171:6,11,12	72:22 76:1 91:9 95:5	138:2 177:7 179:9	guidelines (1) 61:1	148:20 198:22	87:3,11,14,16 88:24	7:1 11:5 33:1 38:5
173:21	99:8,13 101:21 103:17	going (28) 5:14	guiding (1) 116:20	heat (18) 179:6,23,24	89:15 90:21,23	50:19 86:21 146:16
forces (4) 8:4 160:7	104:14 109:3,15	44:20,21 45:3 52:18	guilds (2) 142:6,8	180:1,9 187:22	hill (2) 102:7 105:12	166:18 172:18 173:11
182:6 184:13	110:5,14 111:22	61:10 63:6	guilty (2) 55:17 56:8	188:16,20,25	hindsight (4) 48:20,21	177:23 190:6 191:5
forefront (4) 21:22	112:18 123:9 124:3	74:19,20,22 85:9	gun (2) 183:3,12	189:2,7,11,23	54:24 79:6	192:3 194:14
68:14,16 91:18	126:13 129:2 139:7	101:23,24,25 103:6		190:5,6,19 191:14	hire (2) 103:7 108:1	hub (1) 25:21
forensic (7) 118:16	175:8	107:16 116:17 136:17	H	192:1	historic (5) 60:15,17	huge (1) 46:2
119:2,3 141:21 142:6	future (4) 63:16 64:13	139:4 142:2,4 145:12	hadnt (2) 47:16 191:22	heatstroke (1) 179:13	62:8 82:8 83:13	human (3) 167:21 177:5
163:4 167:23	65:2 66:15	150:15 151:16 157:1	half (8) 15:1 76:3	heavier (2) 129:12	hit (9) 31:7 51:13 63:7	181:8
foreseen (1) 21:13	G	185:25 186:3 198:18	151:20,22 156:2,12,15	133:8	124:3 135:14 160:18	hungerford (4)
forgive (1) 191:22		189:9 191:4 197:22	180:23	heavy (3) 14:13 76:25	172:1 173:4,5	59:16,19,23 82:4
form (13) 22:7,15 23:3	game (2) 57:9,13	gone (5) 63:1 123:16	halfway (1) 133:15	187:22	hivis (6) 153:13,18	huntingtype (2) 171:15
46:21 71:12 167:2,10	gap (6) 48:25 67:9,15	136:13 159:24,25	hall (1) 122:14	height (22) 57:24	154:22 156:10,21	172:6
176:1 177:14 178:17	78:14 139:1,9	goniometer (4)	halt (1) 122:14	58:3,9,19,20,23 59:2,8	162:22	husband (1) 122:12
183:22 184:12 187:15	garage (1) 141:10	165:2,4,5 172:7	halt (2) 126:23 134:1	60:11,18,25 61:15	hogan (2) 81:7 85:16	hvm (2) 73:10 85:10
formal (1) 14:8	garment (1) 155:4	68:22 74:21 94:20,20	halted (1) 126:18	62:15 63:18 82:6	hold (1) 97:23	hydarra (1) 102:11
formally (1) 26:22	gas (1) 178:4	95:2 109:1,6 117:16	hammersmith (3) 51:3	83:24 84:1,10 85:4,6,8	holdcroft (7) 1:8 99:17	hyde (1) 15:15
formation (2) 84:4 90:3	gates (9)	183:6 184:10 186:16	53:8 81:24	170:24	100:5,13,16 101:24	hyundai (7) 108:1
forming (1) 133:19	113:2,3,9,10,12,21	188:9 191:4 197:22	hand (5) 107:12 169:18	heights (5) 58:16 62:2	200:8	109:20 119:6,16
forms (3) 53:9 121:3	115:1 188:19 196:16	goods (2) 14:13 76:25	188:13,14 192:4	63:12 81:12 83:8	holiday (1) 16:25	134:15 142:13 144:10
187:23	gather (5) 13:16	governance (1) 39:15	handle (3) 169:13,18,22	held (3) 38:21 45:8 86:6	home (17) 8:1 11:25	I
forthcoming (4) 19:17	41:17,25 42:4,14	governing (1) 177:14	handling (2) 134:21,24	helmet (1) 183:4	16:4,9,14 17:16 38:23	iconic (4) 21:14
36:7 47:10 77:22	gathering (4)	government (4) 34:15	handwriting (1) 107:11	help (10) 18:2 32:12	39:6 45:9 80:11 92:7	45:14,16,20
forward (1) 94:8	42:6,11,19 87:20	36:21 64:10 93:7	happen (4) 14:3 70:6	97:12 119:21	93:6 95:15,21 96:10	identified (14) 12:6
found (18) 72:24 76:20	gave (2) 26:23 39:8	governments (1) 35:9	79:24 189:8	120:1,5,24 121:4	98:11 152:12	89:9 101:22 109:6
77:6 104:2,18 105:8	gay (1) 44:7	grade (3) 60:14 62:7	happened (10) 22:18	154:24 171:12	homeland (1) 48:5	112:15 127:13 156:7
106:16 107:2,7 121:12	general (14) 4:7 7:17,23	83:19	25:1 48:1 62:17 99:2	helpful (3) 116:14	hope (1) 100:1	158:11 159:22 160:15
134:22 153:25	11:20 12:5 19:2,18,22	grams (7) 165:24	101:20 129:6 160:18	198:11,14	hoped (1) 56:10	161:13 163:6 175:10
161:12,23 162:8	23:9 77:24 86:17,18	166:12	167:2,7	hem (1) 160:25	horizontal (1) 147:14	180:11
166:22 168:3 173:14	102:5 196:3	168:6,7,15,16,16	happening (2) 115:22	here (33) 1:13,23 4:7	horizontally (1) 123:10	identify (4) 119:14
four (7) 49:12 98:19	generality (1) 56:4	granite (1) 132:14	137:15	6:11 7:15 13:2 16:18	horrible (1) 25:17	143:11 153:24 156:6
135:25 164:18 165:23	generally (7) 30:4 112:4	graph (4) 164:13	happens (1) 186:7	17:18 18:15 33:11	hospital (3) 125:4	identifying (1) 154:24
166:1 179:12	176:10 180:5 181:3	169:14,15,23	hard (1) 189:24	41:9 67:7 81:11 82:3	128:17 138:14	ii (3) 60:14 62:7 83:19
frade (11) 125:16,24	183:17 191:10	grasp (1) 165:15	harris (1) 22:13	83:12,23 93:23 95:6	host (1) 142:2	ill (3) 111:1,12 198:24
126:1,5,7,14 127:17	generated (1) 179:24	great (2) 4:19 139:14	hasnt (1) 192:15	119:25 121:18 127:12	hostile (15) 16:20 17:20	illustrate (1) 180:18
136:19 146:4,7,18	gently (1) 165:16	greater (9) 4:23 5:5	hatch (2) 183:2,2	129:9 145:9 154:21	18:6,19 19:8 23:2	illustrated (1) 157:20
frades (1) 126:19	genuine (1) 105:19	34:3 52:19 64:21	hated (1) 110:8	161:10,16 180:21	56:15 71:25 73:3,4	illustration (1) 157:24
fragments (1) 183:5	get (7) 110:22 117:4	127:10 140:22 191:2	havent (5) 105:10	181:22 184:5 185:19	75:15 77:23 89:10	illustration (1) 157:24
frames (4) 142:19,22	140:1 166:7 193:6	194:5	136:15,18 139:2 197:6	191:16 193:14 197:9	131:20 133:13	illustration (1) 157:24
143:1,15	197:19 198:20	greatly (1) 127:6	having (22) 12:15 16:21	heritage (1) 84:10	hotel (1) 122:14	illustration (1) 157:24
framework (1) 91:8	gets (1) 179:11	ground (5) 124:17 154:5	20:12 25:17 46:7 62:2	herras (1) 15:5	158:6 177:7	im (45) 2:22 32:11
france (1) 13:4	getting (3) 179:12	164:17 165:6 167:13	104:14 106:13 109:19	hes (2) 189:1 191:4	1:5,6,13,18,22,25	33:11,11 36:14 44:5
frayed (1) 162:12	180:8 191:15	group (13) 22:4	111:21 113:24	high (13) 14:21 37:11	2:6,7 30:17 33:5 44:10	50:18 57:4 60:8,21
free (1) 27:17	give (21) 2:7 4:8 28:25	29:17,18 39:17 40:2	115:21,22 123:14	42:22 43:22 60:6 61:4	69:8 99:13,16,19	66:10,13 69:17 72:6
freight (1) 76:22	70:12 74:2 87:8	128:10 151:13,25	124:17 125:17 126:2	62:23 69:14 76:11	100:10,11	74:20,22 75:21 78:3
friday (1) 193:14	152:7,11 165:20	152:7,11 165:20	129:25 133:14 178:23	89:10 92:20 97:7	110:11,18,24	80:22,23 81:21 82:25
friends (2) 2:17 113:23	192:20,20	groups (1) 152:11	193:15 194:12	98:18	111:5,9,12	92:11,17 100:16,22
front (30) 113:21	112:10,21,25 116:7	guard (3) 73:6,11	hayward (28) 1:7,25	higher (8) 38:21 61:7,14	112:4,19,20,21	101:23,24,25 107:16
122:14 123:1,6 126:10	118:5 125:18 133:6	195:14	2:1,9,10,21 30:17,20	98:19 123:11,18	114:4,10,23 115:15,18	110:18 112:7 116:18
127:3,5,9 129:8	151:4,16 157:2 158:2	guardrail (6)	34:13 75:4 80:22	136:16 142:9	116:6,12,15,18	139:10 142:11 148:24
130:15 131:9 134:10	170:6 198:13	52:2,5,6,10,15,24	82:22 85:17,23 86:6	highlighted (4) 22:14	117:3,8,12,22 118:4,5	150:15 151:12,17
152:21 154:15	given (24) 15:16 19:21	guardrails (8) 19:25	87:8 88:18 89:20	40:5 67:15 76:24	135:19 136:15	180:18 190:18,25
155:3,7,9 156:3,10	23:14 24:8 32:10	20:5,6,8,19,22	90:20 91:11,24 93:2	highway (65) 5:4,15 6:7	141:1,6,15,16 146:23	194:3 198:14,15
157:5,7 158:12,13	39:24 61:6 62:9,13	51:10,11	95:8 97:12 99:1,12,14	7:18 9:16 10:12,13	149:7 150:6,10,16,21	180:18 190:18,25
162:18 175:18 177:20	73:2 76:14 83:25	guards (1) 14:5	200:3	15:13 19:12 25:19	151:3,4 159:1,2,7,18	139:10 142:11 148:24
181:21,24 183:12	96:24 97:8 99:7 103:7	guess (2) 167:12 170:5	head (11) 3:13 32:6,8,8	26:8,20 28:10	172:6 185:25 186:3	150:15 151:12,17
190:12	113:18 133:3 137:5,18	guidance (57) 11:24	63:2 100:23 101:6	30:1,10,13 31:22	188:6 196:22	180:18 190:18,25
frontal (1) 134:5	139:3,21 195:17,22	13:3,10,20 14:7,11,15	123:15 126:3,8 184:3	32:5,23 36:4 40:13,17	197:7,16,19,21,25	194:3 198:14,15
fulfil (1) 66:6	gives (7) 17:6 37:9	15:2,8,10,24 16:17	headed (2) 76:2 93:1	44:3 49:1,22	198:2,5,15,22	156:12,14,16 157:4
full (4) 2:7 142:2,8	141:3 169:13 183:6	17:10,19,24 18:7	headfirst (2) 63:3 136:8	50:5,10,14 51:10 53:7	200:4,9,10,13,16,19	159:6,7 161:7,16
151:4	184:3 198:19	19:1,2,6,13,17,21	headlights (1) 126:2	54:19,21 55:2 67:10	hour (13) 122:24 125:1	164:3,10,11 166:5
fully (3) 70:25 125:22	giving (9) 18:25 23:11	22:24 23:1,12,14	headquarters (2)	68:8,20,23 71:1,5,9	144:20 145:6 146:2,20	171:23 172:3
185:17	115:13,24 116:9 124:9	27:2,6,7 35:10 36:2,20	100:15,20	79:1,4,10,19 80:18	147:11 148:6,12,18,22	174:6,19,24 175:18
function (3) 39:17 78:8	142:5 191:19 198:6	47:10 60:22 70:12	heads (1) 179:24	81:1,24 82:10,16 83:7	149:7 150:6,10,16,21	177:3 182:3 183:22
91:6	gla (5) 5:5,16 6:6,13	71:9 72:14	healthcare (1) 58:3	86:10,19,25 87:3,4	149:18,22	186:4,16
functions (1) 98:17	90:2	75:14,16,17	hear (6) 62:25 112:16	88:11,11,21,25 89:7	hours (2) 74:20 102:16	images (13) 53:17
fundamental (1) 178:2	glance (1) 140:16	77:5,8,14,22 80:4	114:2,20 121:7 152:25	90:25 91:19 93:24,25	house (7) 82:13 104:7	133:25 143:4 144:9
funding (1) 25:22	glaze (1) 113:10		heard (15) 7:25 8:7	98:13	107:23 170:9 189:15	146:23 147:10 153:2
	gleaned (1) 198:10		26:11 31:5 84:4 94:12		190:21,25	157:1 174:6 178:9
						180:13,15 186:11

<p>imagine (1) 28:19</p> <p>immediate (2) 130:14 159:3</p> <p>immediately (4) 109:5 127:5 130:19 184:8</p> <p>impact (40) 7:11 10:12 20:15 27:16 51:13 91:14 95:12 116:24 129:17 137:4 139:18 146:17,18 148:11 149:12 154:7,10,10,13,25 155:6,10 156:6,8,9,13,17 157:10 158:15 159:23 160:4,11,14,25 161:10 162:2,2 189:23 190:4,22</p> <p>impacts (9) 129:19 150:2 153:20 155:1,24 164:23 173:4,5 174:4</p> <p>impede (1) 27:18</p> <p>implement (2) 23:18 35:18</p> <p>implementation (5) 24:4 35:22,23 36:8 71:25</p> <p>implemented (4) 36:5 65:18 68:25 195:9</p> <p>implementing (2) 34:23 35:9</p> <p>implements (1) 158:3</p> <p>implicate (4) 102:25 104:2 105:6 106:16</p> <p>implicated (1) 104:19</p> <p>implicit (1) 136:14</p> <p>important (7) 34:18 175:22,23 177:20 179:13 181:17 189:8</p> <p>importantly (2) 78:9 97:18</p> <p>imposed (2) 86:17 187:8</p> <p>impossible (1) 181:11</p> <p>imprecision (1) 143:23</p> <p>impression (1) 76:14</p> <p>improvement (1) 89:8</p> <p>improvements (5) 5:17 58:2 195:1,1,2</p> <p>inability (1) 187:10</p> <p>inappropriate (1) 187:21</p> <p>inches (4) 136:16 164:1,2 174:21</p> <p>incident (15) 67:22 73:7 96:24 100:23 119:9 120:23 126:16 128:3 137:8,19 139:4 154:5 167:7,17 173:19</p> <p>incidental (1) 140:20</p> <p>incidents (1) 167:15</p> <p>incitement (1) 57:1</p> <p>include (14) 3:6 10:14,23 11:5,8 37:14 44:5 46:13 90:8,17,18 94:14 153:2 176:25</p> <p>included (3) 48:6 94:25 172:11</p> <p>includes (3) 41:2 89:23 94:19</p> <p>including (12) 4:10 7:19 10:20 11:15 15:3,17 17:2 37:10 43:24 72:2</p>	<p>77:10 86:23</p> <p>inconsiderable (1) 116:24</p> <p>incorporate (1) 89:11</p> <p>incorporated (1) 121:5</p> <p>incorporating (1) 26:1</p> <p>increase (4) 52:2,17 55:13 194:16</p> <p>increases (1) 52:7</p> <p>increasing (1) 165:24</p> <p>incursion (3) 20:9,23 51:23</p> <p>independently (2) 73:13 194:8</p> <p>index (1) 200:1</p> <p>indicated (7) 111:18 116:23 117:19 132:9 134:2 148:21 171:6</p> <p>indicates (3) 109:15 181:23 191:17</p> <p>indicating (3) 62:5 132:3,18</p> <p>indication (2) 112:14 170:6</p> <p>indicative (1) 109:2</p> <p>individual (2) 31:11 32:15</p> <p>individuals (5) 33:7 103:5,8,11 105:25</p> <p>industry (2) 167:24 194:24</p> <p>inevitable (2) 115:2 152:23</p> <p>infantrymen (2) 183:14,15</p> <p>inflicted (2) 152:24 175:1</p> <p>influenced (2) 134:20 188:13</p> <p>inform (1) 87:22</p> <p>information (14) 58:11 70:13,18 72:7 77:22 105:6 106:9 113:17 114:25 123:19 130:9 137:9 139:22 198:10</p> <p>informed (2) 26:22 40:3</p> <p>infrastructure (2) 44:20 78:9</p> <p>initial (2) 156:9 176:12</p> <p>initiated (1) 137:1</p> <p>injured (1) 193:7</p> <p>injuries (5) 118:21 125:5 128:16 152:24 177:10</p> <p>injury (3) 63:2 123:15 126:23</p> <p>innocuous (1) 104:16</p> <p>input (4) 7:4 11:24 140:10 149:4</p> <p>inquest (6) 20:2 32:10 66:18 67:8 87:10 88:10</p> <p>inquests (6) 21:1 78:2 81:15 104:21 105:11 117:6</p> <p>inquiries (1) 12:15</p> <p>inside (2) 137:16 190:10</p> <p>insight (3) 36:20 53:18 114:25</p> <p>insights (1) 113:22</p> <p>insignificant (2) 115:16,18</p> <p>insofar (1) 76:14</p>	<p>inspected (4) 84:15,17,20 134:15</p> <p>inspection (4) 46:23 84:19,23,24</p> <p>inspector (1) 198:2</p> <p>inspire (1) 48:11</p> <p>install (3) 24:9 26:18 28:14</p> <p>installation (9) 23:15,19,22 26:24 27:10 28:20 51:17 86:24 90:24</p> <p>installed (6) 20:20,22 25:4 44:12 51:16 131:3</p> <p>installing (2) 26:13 29:16</p> <p>instance (2) 194:18 196:8</p> <p>instigation (2) 26:16 101:20</p> <p>institute (3) 142:8,8 151:18</p> <p>instructions (3) 34:14 48:10 117:20</p> <p>instrument (1) 172:14</p> <p>instrumentation (2) 169:7,9</p> <p>insulating (1) 180:3</p> <p>intelligence (5) 12:9 17:4 48:18 87:20,22</p> <p>intended (1) 183:25</p> <p>intention (7) 10:25 11:4 24:17 26:22 51:14 52:20 184:1</p> <p>intentionally (1) 135:16</p> <p>interest (3) 74:8,9 75:13</p> <p>interested (1) 198:8</p> <p>interesting (1) 164:17</p> <p>interestingly (1) 188:24</p> <p>interfered (1) 135:1</p> <p>internal (1) 29:17</p> <p>internationally (1) 178:17</p> <p>internet (1) 48:18</p> <p>interpret (1) 80:12</p> <p>interpretation (8) 10:22 32:23 41:22 42:11 73:22 80:16 87:2 107:15</p> <p>interpreted (4) 13:23 17:11 47:25 190:21</p> <p>interpreting (1) 11:15</p> <p>intervention (1) 85:5</p> <p>interview (1) 102:20</p> <p>interviewed (8) 103:18 104:12,14 105:3,13,17 106:13 108:19</p> <p>interviews (1) 106:18</p> <p>intimately (1) 39:23</p> <p>into (34) 5:14 13:7,24 14:13 15:10 20:10 22:5,13 26:2,2 49:13 51:25 53:18 56:9 58:9,18 90:2 104:1 107:7 114:25 117:4,17 121:8 128:13 138:23 152:15,24 159:25 164:21 172:18 174:18 178:16 179:14 181:20</p> <p>introduced (5) 176:1,2,5 192:16,19</p>	<p>introduction (1) 192:9</p> <p>intruding (1) 24:18</p> <p>investigate (1) 119:5</p> <p>investigation (11) 87:10 103:2 104:1 106:19,22 118:19 119:2 141:9 152:15 198:8,10</p> <p>investigations (1) 104:15</p> <p>investigator (3) 63:1 118:17 141:22</p> <p>investigators (1) 142:9</p> <p>invite (1) 29:19</p> <p>inviting (1) 112:7</p> <p>involve (1) 1:15</p> <p>involved (14) 13:6 26:7,12 27:12 30:6 72:16 101:6,19 102:17 103:1 104:19 106:16,20 176:22</p> <p>involvement (6) 26:18 103:14,16 104:17 105:8 106:15</p> <p>involving (1) 14:9</p> <p>irrelevant (1) 102:2</p> <p>isis (1) 48:3</p> <p>islam (1) 106:11</p> <p>isnt (20) 37:20 39:13 42:8 43:4,25 58:2 59:17 60:1 61:24 62:1,1 64:18 79:22 80:6 85:17 89:20 130:9 138:5 192:1 195:6</p> <p>issued (9) 13:3 34:14 80:5 95:15 176:9,11,14,18 195:21</p> <p>issues (4) 38:2 46:19 78:24 134:23</p> <p>item (2) 163:1 193:10</p> <p>its (150) 3:2 4:5 5:12 16:4 19:1 24:16 34:1,15 36:10 37:5,17,19 38:17,19,21 42:6,13 43:23 44:1,25 48:19,20 50:3 57:9 58:2,24 59:21,21 60:14,15,17 61:22 62:1 69:6 70:16,24,25 71:4 72:12,21,21 73:16 74:12,23 75:6 78:2,8,9 84:19 85:17 86:25 87:10 88:12,21 90:25 91:16 92:9 93:16 96:23 98:6,25 107:5,9,10 113:23 114:4,13 122:18 124:2 125:9,19 126:2,10,12,23 129:25 130:7 132:2,15,19,23 133:2 134:20,21 135:10 136:14 139:11 142:14 146:17 149:1,22 152:23 153:1,3 159:25 160:1,22 164:4,15,16 165:6,8 167:8,23 168:9 172:1,6,10,13 174:5 175:21 176:11 177:6,20,23 178:20,20,22 179:13,15,17,19</p>	<p>180:2,6,19 181:11,13,14 182:21,22,23,24 183:7,9 184:10 185:14 190:8,17 191:7,10,16,17,24 193:10,11,11 194:4,21 195:6 197:9</p> <p>itself (15) 12:6 42:16 45:19,20 77:12,18 81:6 136:22 140:14 155:25 158:16 173:25 175:11 183:15 194:8</p> <p>ive (17) 31:20 45:5,16 57:12 60:7 63:15 66:9 88:3 107:9 131:23 133:3 137:10 138:24 151:19 162:11,16 185:13</p>	<p>kestrel (13) 182:21 183:5 185:6,12,21 186:15,19 187:8,17 193:10 197:5,7,10</p> <p>kestrels (1) 197:14</p> <p>kevin (1) 87:9</p> <p>key (1) 195:12</p> <p>khalid (7) 101:18 102:12 106:4,23 108:13 119:6 171:20</p> <p>kill (1) 56:10</p> <p>killed (1) 136:1</p> <p>kilometres (1) 81:2</p> <p>kind (5) 80:16 97:17 115:2 168:25 171:7</p> <p>kitchen (1) 163:23</p> <p>knew (2) 34:8 154:14</p> <p>knife (77) 153:20 154:6,25 155:1 157:10,13,17 158:2,20 159:23,24 160:18 161:1,10 162:3,12 163:23 164:1,3,10,23 165:1,6,11,13,15,18,23,25 166:8,13,19,20,20,22,25 167:5,10,19 168:1,2,3,12,13,14,17 169:4,6,12,16,17,18,19,21 170:4,12,22 171:4,7,12,15,16,19,22 172:6,11,16,22 173:4,5,17,17,18,20 174:12 194:4</p> <p>kniferesistant (1) 157:24</p> <p>knifewound (1) 177:10</p> <p>knives (8) 22:3 54:4 109:25 158:8 160:21 163:22 168:25 173:16</p> <p>know (20) 30:23 53:15 63:19 80:22 97:15 98:9,11 100:16 102:16 120:23 121:14 136:19,24 138:3,17 149:10 150:13 169:17 193:22 197:23</p> <p>knowledge (19) 11:23 12:4,11,13 19:10 20:19 40:22 45:12 47:25 50:18 60:2 68:14 69:23 70:2 99:7 105:7 106:14 110:6 193:24</p> <p>known (5) 5:8 39:1 45:22 106:25 153:11</p> <p>knows (2) 198:15,20</p> <p>kumar (2) 106:3 108:20</p> <p>kurt (10) 31:4 62:18 64:2 121:23 122:20 135:24 136:2,6 144:7,11</p>	<p>128:24 130:2 131:2,6 133:4</p> <p>language (1) 115:8</p> <p>laptop (1) 107:22</p> <p>large (15) 10:2 13:16,24 14:9 37:25 41:16,24 42:5,11 56:20 76:25 77:12 146:15 196:13 197:14</p> <p>larger (2) 181:7,15</p> <p>largescale (2) 14:3 15:12</p> <p>laser (1) 120:8</p> <p>last (13) 58:14 84:15,16,19 92:19 94:17 106:7 132:8 133:1,10 182:9 195:9 197:11</p> <p>late (3) 23:17 25:9 197:20</p> <p>later (6) 22:23 43:4 62:25 125:5 176:7 185:25</p> <p>later (1) 133:3</p> <p>launch (1) 48:5</p> <p>launching (1) 53:13</p> <p>lawyer (1) 86:7</p> <p>lawyers (4) 2:12 100:18 141:20 151:9</p> <p>layer (1) 153:18</p> <p>layers (4) 153:16 157:14 165:23 166:1</p> <p>layout (1) 27:13</p> <p>lbi (1) 89:6</p> <p>lead (5) 3:8 4:3 28:5 35:23 122:7</p> <p>leaders (1) 57:2</p> <p>leading (6) 3:6 31:12 33:9 34:8 48:4 57:16</p> <p>learn (1) 22:10</p> <p>learned (7) 25:17 39:11 75:4 92:19 112:16 113:23 117:16</p> <p>learning (1) 22:10</p> <p>least (6) 75:21 113:17 130:19 135:2 138:23 174:3</p> <p>leave (4) 94:9 153:1 162:12 188:3</p> <p>leaves (2) 177:15 78:18</p> <p>leaving (5) 108:16 131:9,11 132:21 186:10</p> <p>led (1) 101:8</p> <p>lee (2) 47:16,20</p> <p>left (28) 28:1 31:1 119:16 124:13 129:4,15 131:12 137:15 158:21,22 159:3,3,16 163:24 164:11 166:5 173:13 174:17,18,25 175:6,7,10,17 182:3 185:17 186:13,15</p> <p>lefthand (6) 147:9 159:18 164:3 169:20 177:3 181:4</p> <p>legal (6) 4:10 5:14 10:18,22 11:10 198:23</p> <p>legislation (2) 11:1,5</p> <p>legislative (1) 78:6</p> <p>legitimate (1) 79:22</p>
J						
<p>j (1) 105:12</p> <p>jacket (9) 153:13,18 154:22 155:7 156:10,22 157:7 162:22 193:5</p> <p>january (5) 16:22 17:25 18:12 72:11 77:6</p> <p>jihadist (1) 49:13</p> <p>jim (1) 189:15</p> <p>job (4) 44:22 151:11,12,15</p> <p>jointly (1) 95:15</p> <p>jones (1) 112:23</p> <p>joules (11) 160:6 170:1,2,2,7,8,11 171:1,3,8,11</p> <p>journey (14) 35:16 121:20 123:21 124:2 125:19 130:7 132:19 133:2,7,11,12 135:11 142:14 149:1</p> <p>jubilee (2) 59:18,21</p> <p>judgment (2) 37:8 94:6</p> <p>july (4) 12:18 13:4 19:20 41:7</p> <p>jumping (1) 59:13</p> <p>junction (1) 133:15</p> <p>junctions (1) 52:7</p> <p>june (6) 23:18 25:10,15 26:4 27:2 99:2</p> <p>junior (1) 100:1</p>						
K						
<p>k (1) 105:12</p> <p>keen (8) 1:8 110:24 117:22,24 118:7,9 194:24 200:12</p> <p>keep (10) 3:4 5:24 9:19 31:9 32:18 33:14 34:6 46:8,15 184:10</p> <p>keeping (11) 28:15 32:1,3,12 33:3,23 35:10 60:17 62:9 65:7,9</p> <p>keith (1) 152:18</p> <p>kept (1) 62:15</p> <p>kerb (8) 24:19 26:8 122:11 129:9 132:13,14,16 135:4</p> <p>kerbing (3) 24:10,12,16</p>						
L						
<p>lack (2) 67:20,23</p> <p>laid (2) 119:25 165:25</p> <p>lambeth (11) 6:16,25 7:4,13,20 60:5 61:2 88:10,14,22 89:6</p> <p>landed (4) 123:13 126:7,8 139:6</p> <p>lane (16) 23:24,25 25:5,6,8 121:16 122:15,16,16 126:7,7</p>						

legs (1) 126:3
leicester (1) 167:23
length (5) 58:24 114:14
164:1 193:11,21
leslie (3) 123:21 124:6
145:9
less (4) 162:12 163:4
168:17 188:23
let (4) 20:6 111:12
142:18 193:22
lets (1) 36:23
letter (1) 88:9
level (16) 38:21 49:21
53:22 60:16 67:24
68:7 87:23 91:11
146:13 160:4,5
170:17,19,25 187:11
194:14
levels (2) 98:18,19
lewis (1) 55:17
liable (1) 37:4
liaison (1) 71:24
licentiatehip (1) 142:7
life (2) 106:7 108:25
lifetime (1) 151:19
light (9) 83:1 91:16
109:3,11 110:1,5
113:1 133:15 140:1
lightcontrolled (1)
129:1
like (25) 1:21 20:24
25:12 44:16 48:11,11
58:4 63:4 70:11 87:18
115:17 138:22 162:2
170:20 180:6,6 182:17
183:7 187:5 193:10
194:12 195:2,15
197:5,8
likely (13) 13:16 22:14
41:17,25 54:3 80:14
98:8 126:15 127:7
134:23 181:5 188:20
189:8
likewise (1) 29:4
limitations (1) 28:18
limited (1) 52:16
line (6) 17:14 25:6
62:15 84:24 90:21
132:17
lines (9) 5:9 57:4 94:17
147:13,14 148:8,9
180:23 181:1
link (7) 158:8,22,23
160:1,2,3 161:23
linked (3) 101:18
102:23 103:6
links (2) 159:20,22
list (15) 15:1 17:16
18:14 29:3 6:10 39:24
40:9 46:18 58:21,21
61:15 92:7 196:7,8
listed (4) 7:2 60:15 62:7
83:19
listing (1) 7:8
little (16) 95:5 99:25
103:20 111:5
138:10,11 146:17
150:11 164:19
175:7,7,7 181:25
185:25 189:23 197:23
live (4) 53:21,24 138:18
139:2
lives (2) 30:21 115:19

lloyd (1) 2:9
lloyds (2) 108:12,13
load (7) 168:6,7
169:4,7,13,23 170:3
loath (1) 110:18
local (29) 5:1 6:25 7:7
8:16,18 9:2,7 25:23
28:9,10 29:5 40:6,8,8
68:23 79:14 83:15
142:18 193:22
93:7,13 95:13
96:3,4,9,15 97:22 99:5
located (8) 14:17 17:7
43:8 69:11 76:7
97:3,15 155:13
location (16) 16:5
21:14 25:20 36:25
45:14,17,24 76:10
96:11 109:24 114:15
121:22 134:1 190:22
195:19,22
locations (24) 14:20
16:15 17:5 19:15
21:24 26:1 27:9
29:3,6,15 37:17 38:11
40:13,16 43:21,23
46:20 69:14 88:15
89:8 97:6 98:1,6 99:5
lock (2) 110:3,4
logged (1) 196:6
london (115) 2:15 3:9
4:18,24 5:1,2,5 6:23
7:19 8:10,14,15,17
11:19 14:1,4,7 15:11
17:11,25 18:5,12 19:7
21:3 22:15 23:21
25:18 26:4,8,14,21,25
27:12 29:8,11,21
30:3,16 31:9,18 32:17
33:15,22 34:3,5
37:24,25 38:1 42:14
44:2 45:24 46:4,5
47:5,11 48:22 49:10
50:23 51:5,9
53:6,22,23 55:19
56:14,24 57:9 58:10
59:23 61:23 62:6
64:14,21 65:6,7,25
67:14,16,21,24 68:17
69:17 70:6,10 71:2
73:14 74:11 78:23
79:3,8,21 80:15,23
81:1,3 82:6,11
85:1,13,18,25 86:1,23
91:14,18 93:15
96:14,19 97:23
98:14,18 99:3 115:19
122:10,13
londoners (2) 30:22
66:3
london (8) 5:11 22:13
71:11 72:7,13 74:5
77:15 86:9
lone (1) 54:4
long (4) 184:10 185:23
193:10 198:20
longer (4) 74:22 75:23
99:22 193:11
longest (1) 196:8
longview (1) 147:18
look (47) 13:12,23 14:8
29:2 36:23 41:4,9 43:6
47:22 58:7 69:9 71:3

75:18 81:9 82:21
83:22 84:14 93:9,11
97:1,16 146:23 147:8
153:2 155:15
156:11,15 157:1
159:18 160:24 161:5,5
164:10 171:22
174:8,23,24 177:3
181:25 182:12 183:19
184:11 189:12,19
194:24,24 195:25
looked (15) 25:2 41:7
42:8,21 44:12 62:23
63:13 71:21 75:9 76:6
138:21 162:23 171:18
174:1 187:23
looking (39) 10:17
28:22 29:23,24 30:1,4
31:18 41:23 54:23
55:8 63:18 73:25
75:12 80:9,15 81:5
98:15 112:6 123:23
125:17 128:20 132:12
144:9,21 145:10 146:4
157:4 158:7 161:15
165:10 166:7 167:18
169:10 172:9 178:8
186:21 193:2 194:10
195:3
looks (2) 79:23 197:8
loses (1) 61:18
lost (4) 30:21 59:5
132:19 160:22
lot (7) 160:22 162:11
179:14,23,24 189:4
197:13
lovells (2) 81:7 85:16
low (4) 20:16 128:4
133:5 138:24
lower (15) 15:1 63:9
133:6 156:2,15 157:4
158:17 159:7
161:7,11,15,17 172:4
185:19 186:12
ludlow (1) 55:17
lunch (3) 1:9,20 99:24
luncheon (1) 111:3

M

machine (1) 183:3
magazines (1) 48:11
magnification (2)
164:15 171:22
magnified (4) 155:15,20
156:14 171:24
mail (11) 158:5,7,8,16
159:25 160:1 162:3
164:21,24 171:7
173:23
main (8) 76:3 105:1
120:21 122:9
151:14,24 177:13,18
maintain (5) 5:15,20
177:23 178:23 179:13
maintained (3) 46:14
82:8 178:6
maintaining (1) 62:9
maintenance (3)
46:22,23 47:2
majestys (1) 47:21
major (3) 84:4 90:19
179:15
majority (1) 61:13

makes (6) 7:11 18:18
42:16 95:14 132:1
165:17
making (7) 37:24 87:23
94:25 96:9 116:6
139:10 159:14
male (2) 58:3 59:1
man (2) 104:6 114:5
manage (4) 3:1,7 5:23
196:15
managed (1) 197:19
management (3) 82:24
84:14 179:7
manager (1) 9:17
manages (1) 4:25
mandatory (1) 25:5
manifesto (1) 66:2
mannequin (4)
175:21,25 184:22
185:1
mannequins (3) 150:14
184:22 197:3
manner (2) 160:23
161:13
manual (5) 60:12,21,23
83:3 84:2
manufacture (1) 194:11
manufacturers (3)
180:24 192:24 194:7
manufacturing (1)
194:24
many (10) 21:8 34:19
58:10 100:9 120:23
136:3,16 142:21 143:1
154:7
map (7) 6:12,15 7:22
46:17 107:6 174:6,11
maps (1) 114:17
marathon (1) 14:4
marauding (5) 18:23
22:2,4,6,16
march (34) 2:19 9:1,8
11:19 19:25 22:19
23:17 24:5,15,24
25:9,15 27:6 33:9 34:9
35:20 36:9 49:25
50:15 64:6 66:11
71:23 77:16 84:16,17
87:5 88:6 89:17 90:21
96:7 99:2 101:2 125:5
192:22
marches (1) 44:7
marine (2) 176:23 196:8
mark (10) 119:21 125:8
129:15 131:9,11,22,24
132:20 140:13 159:9
marked (12) 5:9 6:12
124:11 127:13,23
147:11 154:1 156:20
160:11 161:12 162:19
180:12
marker (3) 124:14
161:18 175:3
markers (6) 119:25
125:8,10 127:14
131:15,18
market (7) 14:14,19
15:14 43:13 69:13
73:24 97:5
markets (6) 17:2,20
19:1 76:2,8 80:5
marking (1) 132:8
marks (9) 119:15

120:1,5 121:11 124:22
125:11 131:12 132:9
158:12
marriott (1) 122:13
marsh (10) 1:10 111:7
112:25 113:21,24
114:4,15,18 115:11
116:2
marshs (2) 114:10,24
masood (26) 101:18
102:12,13 103:7,12
104:7,9,16,23,25
105:14 106:4,6,23
107:22,25 108:5,13,22
109:19 113:3 114:12
119:6 140:6 142:14
171:20
masoods (7) 25:12
104:20 106:7
107:11,20 108:19
109:2
mass (3) 123:10 165:24
166:12
massive (1) 182:25
mastiff (1) 182:24
match (1) 155:8
material (6) 121:1
168:10 180:3
191:10,11 198:11
materials (3) 180:2
191:21 194:11
mathematics (1) 142:10
matter (11) 37:8
70:18,24,25 90:6 91:9
94:5 114:1 117:4,20
149:9
matters (6) 7:7,8,23
91:13,13 135:22
max (2) 102:7 105:12
maybe (1) 179:10
mayor (3) 64:10 65:25
66:8
mayors (11) 28:13
55:22 64:4,16 65:4,22
66:4,6,8,14 67:6
mean (12) 1:17,19
20:16 46:17 90:17
91:25 111:18 123:11
163:1 166:15 168:9
178:5
meaning (2) 42:12 92:3
meaningful (1) 146:7
meaningless (1) 146:15
means (7) 80:14 158:1
162:15 166:9 168:17
177:24 180:6
measure (6) 143:9
165:5,6 166:3 168:9
170:17
measured (3) 44:2
169:24 170:25
measurement (6)
98:11,23,23 165:19
169:15 180:4
measurements (8) 45:7
58:22 81:14,18,20
98:14,16 168:6
measures (37) 10:12,19
11:11,15 15:2,17
18:19 19:7 24:8 26:2
28:4,7,8,14,21 29:12
30:3,15 38:15 49:21
54:1,7,16 55:24

56:15,16 68:1,3 72:1
78:11 86:1,25
87:25,25 89:11 90:24
169:7
measuring (1) 165:5
mechanical (2)
151:17,19
mechanism (2) 15:6
77:12
media (1) 48:19
medical (3) 124:23
162:9 179:19
medium (1) 168:1
meet (4) 57:10 170:18
181:21,24
meeting (2) 72:21,24
meetings (2) 9:25 76:21
mehler (5) 180:25 185:2
186:4 187:5,24
melissa (2) 122:5,21
member (7) 37:22
47:21 61:4 138:18
139:16 142:8 193:4
members (5) 37:1 49:13
56:20 57:24 185:10
mentally (1) 115:13
mention (2) 102:2,3
mentioned (6) 31:21
99:19 102:1 104:6
113:23 114:4
mentored (1) 106:6
merton (1) 141:9
message (1) 1:22
met (25) 104:7 151:22
153:11 171:8 174:20
175:1,15,16,19 176:4
177:5,8 178:18 183:18
184:1 185:2 186:4
187:1,4,24 188:1
192:7,10,13 194:6
metal (1) 132:15
method (4) 142:17
144:14,25 146:12
methodology (1) 38:22
methods (3) 18:22
77:11 194:25
metre (2) 165:24 170:9
metres (10) 63:4 124:4
144:22,23,24
145:7,18,21 146:18
147:6
metropolitan (21)
8:8,20,23 14:1 26:21
27:16 29:9,19 30:11
35:24,25 36:7 45:11
55:21 78:23 90:9
118:8 151:13,25
152:12 175:19
michael (2) 138:19
151:6
microscope (1) 157:13
mid1990s (1) 84:8
mid20s (1) 133:5
midafternoon (1)
150:11
middle (8) 6:17,18 59:3
171:23 174:24
186:11,11,15
might (23) 1:19
10:14,14 13:20
21:1,7,13 28:24 76:14
80:2,7 109:2 112:6
130:12 134:20 153:19

154:8 169:3 171:24
181:16 192:25 194:9
195:19
miles (13) 122:24 125:1
144:20 145:6 146:2,20
147:11 148:6,12,18,22
149:18,22
military (3) 151:21
178:21 179:2
millennium (2) 59:23
82:4
millimetre (1) 164:14
millimetres (12) 60:11
81:15,16 84:2,10 85:4
160:1 164:18
167:24,25 171:5
174:22
mind (4) 53:15 56:18
71:19 178:15
minds (2) 21:23 53:18
mindset (1) 109:2
mine (2) 121:1 134:17
minimise (1) 27:16
ministry (1) 151:21
minor (2) 27:21 129:17
minus (2) 144:24
145:21
minutes (5) 44:11 72:24
76:20 150:16 182:10
mirror (1) 126:15
misleading (1) 85:17
misuse (1) 11:2
mitigate (5) 12:3 18:20
31:18 68:1 101:21
mitigating (1) 47:11
mitigation (14) 16:21
17:20 18:6,19 19:8
23:3,5 56:15 72:1
73:3,5 77:23 131:20
133:13
mitigations (1) 75:15
mixture (1) 141:13
mode (2) 109:18,18
model (1) 59:2
modelling (1) 120:15
models (1) 150:13
modest (1) 27:25
moment (10) 1:13 15:7
74:23 113:2 136:24
145:11 178:8 179:6
183:19 194:21
moments (2) 31:6
184:11
monday (1) 1:1
monfort (1) 119:1
months (8) 29:1 31:12
43:3 47:3 49:12 65:22
106:11 136:4
monument (2) 7:2 62:8
monuments (1) 83:13
more (43) 2:3 3:24 9:22
11:6 13:20 22:1 28:3
30:4 32:17 45:22
57:10 61:19 63:4
66:20 72:16 73:7
84:23,23 97:18 103:20
106:10,10 110:13
114:20 123:6 126:18
127:7 129:12,13 130:4
132:2,13,23 133:17
135:20 160:7 171:8
173:17 181:8 184:7
187:25 192:5 194:3

morning (10) 1:5,6 2:2
32:12 58:13 80:24
81:8 88:18 197:23
198:18
morocco (1) 104:7
mortem (2) 174:8
180:12
most (9) 22:14 98:24
119:1 127:4 175:23
181:5 190:9,13 198:13
mother (1) 108:23
motivation (1) 110:8
motorway (1) 4:25
mounted (1) 139:25
mounting (1) 129:9
move (34) 7:23 11:17
14:11,25 16:17 22:17
29:13 76:1 85:14 86:5
91:22 93:4 94:8 96:22
117:12 120:20 121:23
123:20 125:15 127:19
130:21 145:8 153:6
154:19 155:24 156:1
157:3 162:6 163:18
173:1 175:14 177:2
184:15 187:10
moved (2) 122:15 188:4
movement (29) 9:18
27:19,21,23,24 31:25
119:6 120:2 124:2
125:15,18 128:1,18,21
130:1,25 131:19
134:21 139:17 140:5,6
146:12 178:13 179:4
184:18 186:24
187:6,20,25
movements (6) 120:24
121:4,25 178:9,15
187:2
moving (12) 27:20
122:11 126:9 134:14
146:3,10 147:16
150:23 167:6 187:19
189:1,5
mps (1) 78:5
ms (57) 1:7,13,23
2:1,10,21 30:17,20
34:13 75:4
80:21,22,22 82:22
85:17,23 86:6 87:8
88:18 89:20 90:20
91:11,24 93:2
94:10,11,16,22 95:2,8
97:12
99:1,12,12,14,20
100:1 110:21
111:10,15,23
112:1,3,23 116:3
117:13,15,19
126:1,5,7,14,19
127:17 128:7 200:3,7
mtfa (2) 18:23 77:11
much (49) 2:20 5:14
11:1 17:10 21:7 23:8
30:2,17 38:7 47:13
74:22 80:19 88:17
99:12,13,15 110:11,15
112:2,3,19 116:15
125:14 135:19 138:7
139:24 140:24 141:1
147:15 149:7 150:6
154:19 168:9,21,24
169:4 175:13 177:24

187:20,25 188:6,25
192:16 196:9,20,24,25
197:16,17
multiple (3) 42:7 150:2
162:8
mum (1) 108:22
mumbai (1) 22:8
murder (1) 47:16
muslim (1) 56:8
must (2) 115:3 195:14
myself (1) 120:3

N
nactso (20) 8:2 16:20
17:19 18:7,25 22:23
27:2 28:23 29:2
38:11,23 39:6 45:10
69:4 70:21 75:14,17
77:5 92:13 95:16
nactsos (1) 72:14
name (14) 2:7,9 64:1
100:11,13 101:24
103:6 104:5 107:19
118:5,7 124:14 151:4
188:9
named (7) 32:9 90:1,12
101:25 104:21 105:11
157:12
namely (2) 34:19 116:3
names (2) 102:1,3
naming (1) 102:12
narrow (4) 66:20 79:25
131:11 132:20
national (14) 4:25 8:2
16:3 67:16,24 68:7,22
79:2 83:16 85:1 91:11
100:14,20 101:4
nationally (2) 50:11
57:6
nationwide (1) 90:22
nature (25) 14:20 21:18
23:5 28:16 36:17
41:24 43:21 44:1 49:6
56:24 57:7,15
60:15,17 63:19 69:13
72:20 76:10 97:6
131:10 137:19 180:2
191:8,9 192:12
near (6) 7:15 59:5
121:16 128:9 172:20
180:18
nearside (10) 123:1
124:18 126:9,12,15
127:8 129:8 131:9
134:10 136:20
necessarily (3) 37:15
66:7 144:2
necessary (5) 34:3
59:22 101:22 116:10
150:12
neck (3) 184:4 185:4
186:5
need (10) 1:9 48:18
50:19 88:25 111:24
168:5 178:15 183:10
188:14,15
needed (4) 54:15 60:5
77:23 136:17
needing (1) 197:20
neednt (1) 117:1
needs (5) 1:15 57:9
63:13 91:9,10
negotiating (1) 125:21

neighbouring (1) 7:10
neither (2) 76:18 81:23
netting (1) 59:10
network (15)
3:4,7,21,23 4:1,25
5:23 8:3,14 36:1 48:25
65:11 68:3 81:4 89:1
neutral (1) 112:12
never (4) 38:16 40:21
46:9 56:18
nevertheless (2) 51:25
85:8
newspaper (1) 56:7
next (31) 14:6,25 17:18
59:2,8 81:11 93:4,9,11
99:16 104:5,20 105:10
109:10 123:20,24
124:2 133:15 145:14
147:24 150:10 154:19
156:1,11 164:9 171:16
174:5 177:2 185:1,9
191:5
nice (10) 12:18
13:3,4,7,19 19:20
22:11 41:4 69:5 77:3
nick (5) 8:13 32:9,10
76:23 78:1
nigel (1) 75:6
night (2) 37:16 58:14
none (3) 45:12 86:2
173:9
nonetheless (1) 137:21
nor (4) 16:7 78:10,17
81:23
normal (1) 189:24
north (2) 113:12 123:5
notably (1) 4:9
note (8) 75:14,17
77:5,8,14 80:4
111:9,17
notes (2) 107:11 114:10
nothing (8) 41:19 55:9
99:13 110:7 111:15
112:1,17 114:23
notice (4) 100:1 124:9
167:4 171:25
noticeable (1) 45:22
november (1) 49:12
nowhere (1) 93:23
nuanced (1) 115:7
number (53) 4:4
7:14,18 8:7 20:1 26:20
28:9,19 33:7,7 34:13
38:7 44:3 46:6 50:22
51:4 52:1 56:23 67:2
85:24 91:23 98:17
113:5,15 114:14 115:4
132:13,18 137:3 138:8
152:16 154:10,11
155:2,2,12,13,16
156:20,21 160:12,13
162:14,16,17,17,24,24,25
178:11 196:10,14
197:14
numbered (3) 131:22
156:8 162:16
numbers (7) 46:2 56:20
154:2 155:8 157:12
162:18 166:16
numerical (2) 166:8,10
numerous (1) 86:18
nutrition (1) 58:3

O

objective (1) 113:16
objectives (3) 66:1
101:14,16
objects (1) 54:4
obligation (2) 64:17
90:23
obligations (1) 33:23
observation (2)
114:11,13
observations (2) 18:18
27:5
observed (1) 121:22
observing (1) 134:7
obstacle (2) 136:12
140:5
obstructs (1) 131:4
obviously (5) 1:15 66:17
136:12,25 186:16
occasion (3) 106:23
139:25 181:9
occupied (1) 86:2
occupies (1) 130:15
occur (1) 95:13
occurred (2) 64:24 80:1
occurrence (1) 42:1
oclock (2) 99:24 159:15
october (7) 1:1 3:23 4:5
8:22 9:2,21 199:2
offending (1) 11:3
offering (1) 169:19
office (24) 8:1,2 11:25
16:3,4,9,14 17:16
28:13 38:23 39:6,18
45:9,9 55:22 80:11
92:5,7 93:6 95:15,21
96:11 98:11 152:12
115:18 117:25 118:14
141:11,16,24 150:6,23
152:24 167:5 176:24
178:3 179:17 186:4
187:19 188:25
193:6,12 195:19,22
196:16
officers (23) 103:21,24
113:1,9,20 114:21
115:1,12,23 120:11
175:22
176:9,11,13,17,19,22
178:1 186:22
188:18,19 193:3
194:19
offside (1) 126:2
often (1) 21:8
oh (2) 180:18 195:12
okay (5) 32:8 151:2
155:24 183:21 196:24
omission (2) 67:1,5
once (9) 16:24 26:7
41:4 56:17 66:8
114:13,19 133:12
142:2
ones (4) 23:20 68:3
162:17 163:4
ongoing (2) 9:6,22
onlookers (1) 113:15
onstreet (1) 2:23
onto (26) 20:9,23 24:19
26:8 46:2 51:23 58:18
63:3 122:16 123:13
124:8,18 125:22,22
128:24,25 129:6
133:17 136:8

140:5,15,21
149:11,24,25 170:10
open (4) 49:11 68:6
157:14 184:8
opened (1) 57:19
opening (1) 148:21
operate (2) 178:24
183:4
operating (1) 183:12
operational (9) 3:6,8,25
4:3 8:21 12:22 23:6
30:13 176:10
operations (1) 100:24
operator (1) 158:25
opportunity (6) 2:14
81:9 109:11 111:19
112:10 115:23
opposed (6) 33:19
47:12 65:19 165:13
168:15,16
opposite (2) 122:13
123:4
opus (1) 198:11
oral (1) 111:6
order (5) 1:7 29:14
92:15 101:21 179:16
ordinary (2) 170:9
178:13
organisation (3) 5:1
18:16 78:15
organisations (2) 39:21
64:12
organs (2) 177:6,18
orientated (1) 123:8
original (7) 24:17
62:10,16 90:12 174:8
176:4 192:9
originally (1) 61:25
osct (2) 92:6,12
osland (3) 62:24 136:5
139:13
osprey (10) 183:16,19
185:10,13,15,18,22
186:11 187:13,24
ospreys (1) 197:15
others (16) 14:2 28:13
30:11,18 38:23 49:22
56:14 61:20 66:21
74:4 97:21 118:11
120:18 138:8 178:12
188:7
otherwise (1) 115:5
ought (1) 193:13
outcomes (2) 109:1,5
outer (7) 131:10 153:18
157:5,6,12 160:15
161:11
outlined (7) 8:13 9:6
52:21 57:13 79:12
88:3 109:5
outside (7) 53:6 83:17
85:24 125:10 157:8
158:20 161:24
oval (3) 158:24
159:14,19
over (56) 3:8 6:2,5 31:2
57:20,25 58:17 60:4
61:10,11 62:21
63:2,6,11,21 93:10
123:12,17 124:2,19
125:19 128:2
130:17,25 133:1,7
136:7,13,17 138:2

139:17 143:20
144:2,15
145:4,12,17,25 146:24
148:5,15 149:1,1
154:8 155:3 159:2
172:18,19 181:20,22
182:9 183:6 184:2
185:15 192:13 193:9
overall (7) 33:12 85:10
95:23 114:17 137:19
167:10 189:23
overheat (1) 189:4
overlain (1) 174:12
overrides (1) 189:6
overview (1) 120:5
own (4) 55:12 98:6,14
120:19
owned (1) 86:2
owner (8) 26:20 28:11
32:5 81:23
82:12,18,20 84:6
owners (1) 96:3
ownership (2) 40:14
78:9
owns (1) 32:21
oxford (4) 56:9,12,16
87:18

P
pages (2) 157:20 173:2
painstakingly (1)
143:15
pair (1) 158:18
palace (4) 21:4 72:1
133:20 188:20
pale (1) 178:11
palmer (14) 111:7
114:12,15 152:18
153:6,8 156:3,17
174:2,17 175:24
181:10 182:14 188:11
palmers (1) 174:7
panel (22) 130:3,5
154:12 155:5,13,14
157:5,11 158:12,13,21
159:25 160:16,17,19
161:6,8,25 173:6
174:22 180:19,23
panels (12) 129:21
153:3 154:9,18
156:23,24 157:19
163:16 171:13
174:13,15 182:5
paper (6) 164:14
165:15,17,23 166:1
189:16
paragraph (25) 10:17
13:12 16:25 64:3
67:12 69:10 76:4 78:3
83:12 87:12 93:12
94:2,12,18 95:6,7 97:1
127:1 128:20 130:23
136:2 146:5
191:8,19,22
paragraphs (1) 77:7
parallel (1) 122:19
parapet (12) 58:18,23
59:3 60:5,25 61:7,11
62:21,22 63:18 81:12
85:8
parapets (13) 58:10,16
60:10,16,22
62:2,14,15 63:21 82:6
83:13,24 84:2

paraphernalia (1)
124:24
parcel (3) 46:22 47:1
63:21
parents (1) 111:7
park (2) 15:15 37:14
parked (1) 121:15
parliament (5) 42:5
45:16 107:8 113:25
133:16
part (47) 6:2,6 34:13
37:25 40:17 46:22
47:1 63:9,10,17,21
73:3,5 85:9 87:10
90:22 92:6 100:14,24
103:1 104:3 122:4
123:20,21,24 124:2
125:9,15,19 127:8,19
128:3,10 130:2,22
133:3,7,19 137:8
152:7 153:24
160:15,22 177:11
179:25 185:20 195:12
participate (2) 31:23
152:11
participating (1) 194:2
particular (43) 7:2
11:21 12:1,5 15:19
16:5 17:12 19:7,23
27:9 30:5 36:18 56:1,2
60:13 63:20 65:14
71:12 88:16 89:1 92:5
96:15 113:7 114:24
116:7 136:20 138:13
142:20,21 155:19
156:19 162:23 167:16
168:10 170:19 175:21
176:2,22 179:21
195:19 196:5,6,18
particularly (3) 10:6
116:21 194:1
partner (1) 104:20
partners (3) 3:2 78:13
98:12
partnership (1) 93:6
parts (8) 33:7 83:9
120:18 129:24
143:20,24 157:17
190:9
party (3) 38:22 77:1
92:17
pass (2) 160:19 170:19
passage (2) 71:20 77:25
passed (9) 1:22 122:14
123:2 124:19 126:12
128:16 133:12,14
137:3
passes (1) 1:14
passive (1) 89:11
past (2) 114:5 189:5
patch (1) 124:23
path (3) 77:10 119:22
125:8
pathologist (4) 137:2,5
139:12 174:7
pathway (1) 58:18
patrol (1) 196:17
patrolling (3) 193:12
196:7,10
patterson (19) 30:19,20
63:23 69:9 92:23 94:3
96:25 135:21,22
138:8,10,13 140:24

149:8,9 150:5	61:17 63:20 65:9	53:25 54:7 87:24	100:2 143:8,11	poses (1) 63:20	presumably (3) 47:4	48:3,15,16
200:5,14,17	67:3,5,11,17 68:5,8,10	93:20,20 151:12,24	plates (1) 176:25	posing (1) 55:10	96:16 167:6	propagandists (1) 57:2
paul (3) 150:22 151:6	74:1 106:2 108:18	152:7 179:11 192:20	play (3) 91:5 152:7	position (17) 3:11 35:3	pretty (1) 192:16	propelled (1) 63:8
200:18	113:25 114:6 124:3	physically (1) 192:4	160:22	54:24 77:15 81:19	prevent (7) 11:13	properly (2) 12:13 44:22
pause (7) 124:10	176:20 180:3	physics (1) 142:10	playing (2) 56:13 78:8	90:20 91:15,24	20:8,23 53:1 90:14	proportionate (4) 19:16
126:20 129:3,23	peoples (1) 35:16	picked (1) 162:11	pleaded (2) 55:17 56:8	112:5,13 126:19 143:3	136:17 187:19	29:12 30:15 55:24
131:13 133:24 184:20	per (21) 5:11,12 122:24	picture (13) 155:3	please (80) 2:4,8 17:18	158:19 180:11	prevented (1) 63:5	proposal (5) 64:9 65:1,9
pausing (3) 15:7 43:14	142:22 143:1 144:20	156:9 158:8,17 161:11	18:9 34:12 41:4 50:21	181:5,14 187:15	preventing (1) 51:23	177:4 192:9
89:3	145:6 146:2,20 147:11	162:25 166:5	51:4 57:19 58:7,15	positioning (1) 143:23	prevention (5) 3:20,22	proposals (2) 66:5
pavement (18) 24:23	148:6,12,18,22	169:11,12	59:1,9,15 69:10 72:12	positions (4) 113:20	10:23 35:15 94:21	194:10
25:21 42:20 46:10	149:18,22 165:24	181:19,20,23 186:18	77:25 81:5,11 82:22	143:9,12,17	previous (9) 33:10 65:4	proposed (2) 24:20
53:14 61:17 63:3	168:7 187:3,7,9	pictured (1) 169:20	83:23 85:14,17 86:5	positive (3) 11:14 76:18	66:8,17 67:6 106:11	198:12
127:14 129:7,9 136:8	perceived (3) 113:2,14	pictures (2) 155:9	87:7 88:8 91:22,24	139:20	108:25 155:2 167:15	propositions (3) 35:4
137:16 139:25	115:1	piece (10) 143:1,16	92:22 93:4,9 94:8 95:5	possession (2) 72:8	previously (4) 33:13	115:8,9
140:5,8,15 149:11,25	percentage (2) 187:1,4	164:13 165:15,16	96:22 97:1,12 99:1	166:24	40:5 76:5 131:12	protect (30) 9:18 22:5
pavements (7) 32:20	perceptions (2) 113:6,7	166:2 169:6	100:6,11 102:2 117:22	possibility (3) 19:2	pride (2) 14:4 44:7	24:12 29:12 31:15
50:24 51:6 52:18 53:5	perfect (2) 161:22	189:10,15,20	118:5 122:4 124:16	77:16 169:3	primarily (1) 101:16	34:19,23
55:6 60:1	168:18	pierce (1) 168:7	125:7 126:25 127:21	possible (5) 21:13 62:1	principal (4) 116:8	35:9,18,22,24 36:4,8
pay (1) 48:9	perfectly (1) 62:1	pillar (2) 133:18 134:2	129:23 130:4 133:24	177:25 191:7 194:4	151:12 173:15 178:9	37:24 40:18 49:8
payback (1) 194:20	perform (1) 170:12	pintle mounted (2)	134:4,9 135:22 138:3	possibly (4) 53:13 109:7	principally (2) 93:13,18	51:24 52:22 53:22
payments (2) 105:14,19	performance (5) 109:20	183:3,12	141:6 145:14	110:3 154:4	principles (3) 116:20	54:6 55:25 56:16 57:7
pbieds (1) 77:11	152:6 168:11,12,20	pivot (1) 63:11	147:20,24 150:21	post (8) 2:21 3:10,15,16	117:13 182:8	63:16 68:5 73:25 74:4
pc (30) 1:8,8 111:7	performing (1) 188:18	pivoted (2) 126:3 136:7	151:4 153:23 156:11	12:24 174:8 180:12	prior (28) 3:12 4:2 9:1,1	86:18 88:25 179:19
113:11	perhaps (4) 61:25 99:19	157:22,23 159:4,7	157:22,23 159:4,7	189:7	10:9 12:17 19:25	protected (6) 13:25
114:1,4,7,12,15 116:4	115:7 159:1	161:6,15 162:19	163:9,14 164:9,10	postcards (1) 122:10	21:16 35:1,20 36:8	15:16 28:7 177:21
117:22,24 118:7	perimeter (2) 107:8	174:5,16,23 175:5	182:12,17 185:9	postcode (1) 109:14	40:10 49:25 50:24	182:14 185:17
141:6,7 152:18	133:19	182:12,17 185:9	plot (3) 56:1,3 120:1	posted (2) 58:11,14	67:22 71:23 77:15	protecting (4) 34:20,23
153:6,8 156:3,17	period (26) 3:17 16:25	plot (3) 56:1,3 120:1	plotted (1) 147:9	postevent (1) 65:15	84:4,15,18 87:5 88:6	49:3 54:10
174:2,7,17 175:24	25:9 34:8 35:20	plotted (1) 147:9	plus (3) 144:24 145:21	postgraduate (3)	89:17 90:21 96:6	protection (58) 14:2,9
181:10 182:14 188:11	104:9,23 105:14 106:7	plus (3) 144:24 145:21	186:4	105:10,20,23	105:7 106:14 134:16	15:20 20:13,17 21:23
197:25 200:12,15	108:1,6,23 109:20,25	pm (6) 111:2,4 122:21	186:4	potential (10) 22:3	proactive (9) 3:24 11:6	23:3 24:18 27:3 31:23
pcs (1) 113:9	114:11,13 126:22	150:18,20 198:25	186:4	25:25 28:6 29:3 47:24	33:13 68:18 72:25	40:24 47:23 48:22,24
pedestrian (30) 15:5	128:2 145:17,22,22,25	163:2 175:5 177:8	186:4	53:24 77:10 79:9	73:19 101:3,8,15	49:21 51:6,18,21
19:25 20:4,6,8,23 24:1	146:25 148:5,9 167:9	181:10,16	186:4	101:3 109:24	proactively (9) 4:5	53:7,9,11 54:7 61:6,9
25:20 51:10,11,23	periods (1) 102:6	placed (4) 80:12 120:3	186:4	potentially (8) 17:1	25:19,24 49:19 50:9	67:5,11,16 68:8,9 70:9
52:1,6,10,15,24 59:25	permanence (1) 44:23	125:10 181:18	186:4	19:14 37:4 38:14	57:16 73:15 74:3	88:15,16,23
73:16,19	permanent (13) 23:20	places (56) 10:5,6,10	186:4	19:17 61:22 110:2	78:15	151:13,20,25 152:7
98:14,15,16,18	28:4,6,14 30:2 44:17	16:12 17:1,14 27:3,7,8	186:4	112:9	34:16 74:23 184:21	158:1,2,3 170:17
129:1,3,16	78:11 85:10,12 86:24	29:2 34:10	186:4	power (2) 5:16,19	194:18	177:17 184:3
140:1,3,4,12	90:24 164:7,8	38:7,8,12,13,18,18,24	186:4	powers (2) 6:24,24	194:18	185:16,22 186:5
pedestrianise (1) 56:12	permanently (1) 131:3	39:15,24 40:3,9,20	186:4	ppg (3) 192:23 194:7,8	problem (5) 79:15	187:5,17 190:3
pedestrianised (1)	pernickety (1) 71:6	41:8,20,21 43:24,24	186:4	practice (2) 68:22 95:2	179:15 188:24 193:8	191:2,5,15 192:2,20
56:17	perpetrated (1) 107:1	44:6 45:2,3,13 46:18	186:4	preceding (2) 102:14	195:11	193:1 194:5,13,14
pedestrianonly (1)	person (7) 32:11 33:11	47:24 49:10 54:11	186:4	166:4	problems (4) 11:2,3	protective (35) 4:6,9
59:17	59:4 130:17 179:12	56:18,19 68:19 79:17	186:4	precise (2) 143:23 160:7	187:22 188:15	7:23 10:3 11:7 13:21
pedestrians (41)	181:18 198:8	80:8 87:18	186:4	precollision (1) 134:23	procedures (6) 68:25	20:20 26:1 28:25
20:9,10,17 21:23	personal (2) 55:13,14	91:22,23,25	186:4	predict (3) 158:9 169:3	70:7 97:19 102:6	29:16,18,25 30:2
24:18 26:9 27:17	personnel (1) 97:17	92:1,7,9,15 93:1,19	186:4	181:11	152:2 195:8	31:13 38:15 39:16
31:10 32:1,3,12,18	persons (3) 129:2	94:4 97:16 98:7,17	186:4	predictably (2) 57:18	proceed (2) 103:5	41:1 44:21 54:15
33:3,23 34:6	140:11 179:8	99:6	186:4	68:19	119:14	56:16 57:17 68:18
46:8,10,11 51:15 56:9	perspective (4) 11:19	plain (4) 41:8 42:16	186:4	prefer (2) 100:7 150:25	proceedings (1) 1:3	69:21 73:20 78:6
66:24 67:21 68:9,12	67:8 91:21 134:5	47:16 139:10	186:4	preinquest (1) 71:16	process (7) 30:9 93:21	85:12,25 86:24 87:25
70:9 73:20 74:10	persuaded (1) 113:21	127:22 129:4	186:4	premise (1) 78:5	101:25 116:25 152:8	90:24 91:3 94:20
78:16,18 86:15	pertinent (1) 65:24	130:21,22 131:14	186:4	preparation (4) 15:12	177:11 195:25	97:17 154:12 159:25
88:15,23 89:2 124:6	peter (3) 100:5,13	132:8 133:10 147:12	186:4	101:19 106:21 115:24	processes (1) 194:25	protects (1) 54:2
126:13 129:19 133:17	200:8	148:3,4	186:4	prepare (2) 142:13	procurement (1) 152:8	provide (15) 5:19
135:3,14 140:19,22	ph04211 (1) 133:24	69:18,20,21,25	186:4	152:16	produce (1) 64:22	20:13,17 27:2 41:1
penetrate (6) 162:4	phase (2) 131:1 133:10	121:19,21,24 123:23	186:4	prepared (7) 78:2 93:18	produced (6) 6:12	51:20,24 66:17 68:5
168:21,23 171:3,13	phenomenon (1) 184:11	124:11,12 125:17	186:4	115:13 116:9 121:19	22:23 64:17 69:5 93:5	120:5 152:1 175:2
173:8	photograph (10) 31:6	127:22 129:4	186:4	143:8 198:13	114:17	187:16 191:1 194:5
penetrated (1) 173:9	59:7,22 62:23 154:21	130:21,22 131:14	186:4	preparedness (2) 22:13	production (1) 65:21	provided (19) 24:11,16
penetration (2) 162:14	155:21 158:6 164:13	132:8 133:10 147:12	186:4	39:16	products (1) 152:4	51:17 58:8 78:17 81:7
168:8	167:6 186:20	148:3,4	186:4	preparing (1) 55:17	programme (3)	83:2,14,23 85:15 87:9
penetrations (1) 163:15	photographs (25) 20:2	planners (1) 30:9	186:4	present (6) 52:20	52:13,14 89:7	88:9 122:22 167:21
people (52) 14:14 15:16	21:9 30:24 31:1 42:4	planning (14)	186:4	116:10 117:5,10	progress (2) 127:11	182:5 189:20 191:3
21:12 22:5 27:23,24	59:14 81:6,9 85:15,23	6:23,24,24 7:7 15:11	186:4	120:17 161:3	197:22	192:25 194:6
28:17 29:13 31:16	120:4,10 125:7	30:6 56:9 83:15,16	186:4	presented (1) 62:19	progressively (1) 129:13	providers (1) 64:12
33:14 39:5 42:4,20	131:15,19 132:7	93:1,16,20 106:17,21	186:4	presently (4) 118:16	projected (5) 123:3,7,9	provides (6) 60:22 83:8
46:6,15 47:14	157:20 160:12 163:24	24:9,14 26:3 37:24	186:4	191:2 192:25 194:6	126:6 128:12	113:16 114:24 185:15
48:1,5,10,24 49:3,9,20	167:4 169:10 171:17	56:12 69:16	186:4	presents (1) 57:5	projects (2) 25:22 40:24	186:16
51:25 52:7,22	174:9 175:18 185:24	70:2,3,4,5,8 71:8	186:4	press (2) 117:9 167:4	prominent (1) 88:15	providing (7) 4:8 53:10
53:19,19 54:2,10,25	photos (2) 51:8 62:5	76:12 97:10,13,21,24	186:4	pressed (2) 137:6,21	promoted (1) 3:11	87:21 107:15 190:2
55:10 56:10 57:7	physical (12) 25:7 28:4		186:4	pressure (1) 165:25	propaganda (3)	192:2,4

proximity (2) 13:15
41:15
public (52) 4:18 9:16,19
11:3 13:24 15:12
16:25 17:12 22:5
31:21,23,24 34:20,23
35:10 37:1,14,23,24
39:1 40:19 46:8
48:17,24 49:9,14
52:18 53:23 54:10
55:6,25 56:20,21
57:5,18,25 60:20 61:5
63:14 65:10,23 66:22
67:17,21 68:6,10 74:4
79:19 86:19 138:19
139:16 179:16
publications (2) 34:14
69:4
publicly (2) 102:9
112:22
published (1) 66:6
pubs (1) 37:10
pull (1) 75:16
purchase (1) 152:3
purpose (15) 15:24
20:4,6,8 51:17,22 68:5
101:9 119:8 121:24
127:21 156:1 157:25
170:15 182:23
purposes (6) 78:2 81:14
94:19 98:17 178:22
196:17
pursuant (1) 64:17
pursue (1) 29:15
puts (2) 11:10 74:15
putting (2) 139:23
168:16

Q

q (655) 2:10,20,24
3:10,15,17 4:7,13,16
5:4,8,11,14,19,22
6:2,5,9,11,15,20
7:6,13,17,22 8:7,10
9:8,12,14,21,25
10:2,14,17
11:10,14,17
12:4,9,12,17,21
13:2,6,10,19
14:6,11,25 15:19,23
16:11,17,24
17:4,18,24
18:2,4,9,15,18,22,25
19:6,19,25 20:4,19,24
21:7,11 22:7,10,17,22
23:1,11,14,17
24:14,24 25:9,14
26:4,7,11,16,18
27:1,5,10,25 28:3,22
29:14 30:4 31:4
32:1,7,11
33:5,16,19,22
34:1,8,12,18,22
35:2,6,9,12,18,21
36:10,15,23
37:4,8,14,19,22
38:4,16,25
39:3,8,11,21,24
40:2,18 41:4,7,14,19
42:2,16,21,25
43:2,6,12,17,19
44:5,10,15,20,25
45:14,18,23 46:2,7,17

47:3,16 48:3,9,17
49:12,25 50:15,21
51:2,16 52:12,18
53:3,9 54:9,14
55:5,12,16 56:1,4,7,18
57:9,19,22,24
58:2,7,12,15
59:1,8,15,19,22,25
60:3,19
61:2,10,12,17,23
62:17,21 63:9
64:6,9,16,20,24
65:14,18 66:10,13,23
67:1,12,19 68:11,25
69:3,20,22,24
70:10,21 71:10,15,19
72:6,10,24 73:9 74:6
75:12,16,21
76:1,14,18 77:2,5,25
78:21 79:22
81:5,18,22 82:5,15,21
83:1,8,12,22
84:4,9,13,20
85:1,4,8,14,22
86:5,9,13,17,21
87:2,7,16,19 88:5,8,20
89:6,17
90:4,8,13,17,20
91:2,8,13,16,22
92:3,5,9,12,19,22
93:4,9,15,17,23 94:2,8
95:10,25
96:2,6,9,14,22
97:12,23 98:1,5,21
99:1,8 100:16,25
101:6,9,14,23
102:5,9,11,16,19,22
103:2,5,9,11,14,18
104:4,11,14,20
105:3,5,10,17,19,22,24
106:2,6,9,13,18,24
107:3,10,14,22,25
108:4,9,12,15,22,25
109:5,10,14,18,23
110:3,8
118:9,13,16,19,23
119:5,8,11,14,18,21,24
120:4,8,10,13,20
121:3,6,10,14,18,23
122:3,25 123:16,20
124:1,10,13,16
125:2,6,14
126:20,22,25
127:12,18,25 128:18
129:3,6,23
130:4,7,11,21
131:13,18,24
132:6,12,20,25
133:6,10,24
134:4,9,13,19
135:1,6,9,13
136:11,19,24
137:12,20,24 138:16
139:10,24 140:4,13,18
141:19,24
142:2,12,17,24
143:1,7,11,15,19,22
144:2,6,14,18,21,25
145:4,8,14,17,20,22,25
146:3,9,16
147:2,5,8,15,20,24
148:3,13,17,19,25
149:4,14,17,21,24

150:2 151:7,11,14,24
152:7,11,15,20,23
153:6,11,13,15,18,22
154:6,13,16,19,24
155:6,10,15,19,24
156:6,11,15,23
157:1,7,10,15,22
158:11,15 159:22
160:5,7,10,14,24
161:5,15,20,23
162:2,6,14,18,23
163:6,9,14,18
164:1,3,7,9,22
165:1,4,8,10,18
166:4,7,11,18,21
167:2,10,18
168:11,19,25 169:9
170:6,12,15
171:6,10,15,19,22
172:9,13,21
173:1,7,9,11,15,20,25
174:5,11,16,23
175:5,10,13
176:1,4,9,13,17,24
177:2,13 178:7,15,25
179:6,21 180:10,15,17
182:3,8,12,17
183:19,22
184:11,15,20
185:6,9,14
186:7,10,15,21
187:1,4,8,10,13,15,19,23
188:3,18 189:10,14,19
190:2,17,25 191:22,25
192:7,12,16,19,22
195:6,14,17,21 196:16
qc (19) 2:6 30:19
100:10 102:7 112:20
118:4 135:21 141:15
149:8 151:3
200:4,5,9,10,13,14,16,17
qualifications (5)
118:24,25 142:3,4
151:15
quality (3) 138:5,6,24
quasistatic (1) 168:3
question (9) 14:6 33:10
35:5 38:16 79:2 88:13
136:13 189:11 195:4
questioning (1) 196:23
questions (37) 2:10,12
12:12 30:18,20 49:8
64:1 71:15,19,21 72:3
80:23 83:1 88:17
91:23 98:21 99:1
100:17,18 107:3
110:13,14 111:16
118:9,11 135:19,25
141:2,17,19 149:7
150:7 151:7,9
188:6,10 193:24
quickly (4) 102:12
137:22 149:11,17
quite (14) 12:13 48:3
72:6 106:22 111:23
116:18 138:5 150:24
162:10,16 172:20
179:14 182:25 198:20
quotation (1) 71:20
quotations (1) 179:1
quote (2) 64:6 189:19
quoted (2) 57:1 65:18
quoting (3) 23:11 57:4

60:21
R
raced (1) 137:16
radiate (1) 180:1
radio (1) 178:4
rail (7) 31:14,16,19 36:1
48:25 65:10 68:2
railing (4) 61:24 62:3
63:5 136:11
railings (5) 50:23 53:9
59:10 63:12 113:24
rails (1) 5:20
raise (10) 57:9 62:2
79:5 110:21 117:8,16
152:25 183:11 184:7
186:19
raised (3) 57:13 71:16
185:19
raises (2) 49:7 186:8
raising (1) 112:9
ramming (1) 77:10
random (1) 48:1
randomly (1) 54:25
range (14) 30:15
47:12,14 49:6 55:23
82:8 83:25 113:20
144:23 145:20 146:15
149:15 182:5 187:20
ranges (3) 81:15 143:25
144:2
rank (2) 100:11 118:5
rapid (1) 129:10
rate (1) 18:25
rated (1) 166:17
rates (1) 194:18
rather (9) 42:19,19
62:22 65:15 80:1
99:22 110:8 168:4
195:10
rattling (1) 166:8
reached (6) 96:16
101:11 145:5 148:4
173:1,15
reaction (1) 73:12
read (5) 16:11 48:15
71:8 94:12 112:17
readily (1) 130:9
reading (2) 17:13 37:22
readings (2) 169:13,14
reads (1) 94:17
real (1) 166:20
realise (2) 37:25 181:17
realised (1) 169:2
reality (3) 76:15 190:18
192:12
really (10) 66:9,23
113:6,20 116:18
146:11 167:15 183:7
190:21 191:6
realm (1) 57:18
rear (19) 126:11,23
154:22 155:3,9,10
156:16,21
161:6,8,9,25 171:5
173:13 174:22
175:10,18 177:20
181:4
reason (16) 9:3 25:14
61:18 65:14 68:15
86:14 89:6 102:19
105:1 112:25 133:6
137:10 155:19
191:7,14,16

reasonable (3) 10:19
11:11 178:13
reasonably (1) 90:14
reasons (6) 108:16
112:21 116:1,19 117:1
191:9
reassurance (2) 37:23
74:2
rebounded (1) 133:22
recalled (8) 12:17 13:6
66:16,18 108:8 134:7
137:9 180:11
receipt (3) 19:6 107:23
108:5
receipts (1) 107:19
receive (3) 15:19 70:13
106:9
received (10) 11:23
16:22 17:10 99:4,8,10
107:14 123:15 134:22
168:18
receives (1) 8:10
receiving (1) 10:2
recent (5) 11:14
28:3,22 29:1 31:9
recently (2) 3:11 40:11
recipient (1) 18:13
recipients (1) 76:21
recognise (2) 18:3 69:8
recognised (3) 58:2
167:24 178:12
recollection (1) 189:14
recommend (1) 82:16
recommendation (3)
97:8,14 192:19
recommendations (4)
36:6 47:10 83:24
87:24
recommended (2) 83:8
84:1
reconstructed (1)
125:20
reconstruction (10)
120:15,20 121:10
122:3 123:20 126:25
127:19 130:25 142:7
148:19
record (1) 120:5
records (1) 17:4
recover (1) 128:16
recovered (2) 107:4
137:8
red (5) 5:8,9 6:13
147:14 148:9
redhot (1) 190:13
reduce (7) 3:3 10:19
11:12 65:12 66:21
189:24 194:17
reducing (2) 32:25
195:2
refer (6) 4:16 16:21
64:3 101:12 152:20
179:2
reference (22) 16:24
23:1,11 43:7 44:16
65:5,5 66:19,20 67:7
73:1,4 89:1 93:23
109:15,24 114:10,18
125:17 138:4 139:8
184:21
references (1) 44:15
referred (10) 10:2 13:10
16:12 52:13 75:14

81:22 82:3 92:23
105:11 138:25
referring (7) 54:12
95:18 114:5 127:25
130:23 189:14 191:6
refers (6) 15:2 18:22
37:8 42:22 80:5 97:2
reflect (2) 153:19 182:8
reflecting (1) 187:10
reflection (1) 39:2
refurbished (1) 62:11
refurbishment (1) 84:5
regard (11) 9:20 15:22
16:13 17:12 45:3
66:15,16,20 79:12
91:20 93:16
regarded (2) 10:6 15:23
regarding (1) 87:24
regime (2) 31:15 46:24
registration (1) 126:10
regular (2) 9:25 84:23
regularly (1) 9:15
regulated (1) 67:25
regulation (3) 34:4
188:16,20
rejoined (1) 131:2
relate (3) 80:17 143:4
160:3
related (3) 75:9 170:25
192:9
relates (2) 77:20 88:25
relating (3) 13:20 65:2
88:22
relation (36) 19:21
33:23 67:19 69:18,20
72:14 73:10 81:18,22
82:17 83:24 85:24
87:5 91:19 93:18
95:3,4,6,19 96:11,18
98:10 104:18 105:23
106:2 107:17 111:25
128:1 137:13,24 138:1
148:5 183:19 188:18
190:19 198:5
relationship (6) 3:2
8:16 9:6,23 79:11,13
relatively (4) 20:16
110:25 178:19 186:10
release (1) 105:25
released (1) 106:1
relevance (2) 71:1
89:19
relevant (15) 6:6 12:24
13:21 15:8,20 64:12
65:24 72:7 78:8 88:1
118:25 119:1,15 120:5
151:15
reliant (2) 48:13 127:7
religious (3) 57:2
106:10 108:15
reliving (1) 115:21
rely (1) 195:8
remain (2) 56:21 112:12
remained (1) 27:8
remaining (2) 127:8
198:7
remains (1) 49:23
remedial (1) 85:7
remember (1) 44:12
remind (1) 44:11
reminded (1) 42:22
remit (2) 2:25 8:21
remounted (1) 140:8

removing (1) 52:15
renamed (2) 59:20,21
repeat (2) 35:5 195:20
repeated (1) 25:12
repeatedly (1) 115:10
repentance (1) 109:7
replicate (1) 167:20
report (39) 78:1 102:7
105:12 118:23 119:11
120:21,22 121:5,8
122:3 125:18 127:25
128:20 130:24 134:22
136:2 142:18 146:5
153:24 154:22 157:21
160:24 163:20 165:10
166:7 167:18 168:19
172:9 173:2 175:14
178:25 183:20 184:15
186:21 189:11,12,21
191:6,23
reported (1) 56:7
reports (2) 152:17,20
represent (2) 153:20
167:25
representative (2)
166:18 171:10
represented (1) 170:7
representing (1) 18:15
request (1) 112:25
requested (2) 26:22
116:3
requests (3) 29:24 36:7
78:12
require (5) 6:20 116:17
141:3 168:20 185:11
required (24) 38:14
44:23 54:19 65:23
67:25 84:20 127:10
129:13 132:3 147:17
149:4 152:6
168:6,15,15,23
169:4,7,16 170:1
171:6 173:21 184:6
196:5
requirement (7) 50:5
64:20 87:1 178:2
196:1,2,18
requirements (12) 23:6
30:13 67:10 68:7
83:16,18 177:18,23
196:2,3,4,11
requires (1) 86:22
research (6) 58:9 72:15
152:2 179:14
189:10,15
resided (1) 103:6
resist (2) 89:11 158:5
resistance (1) 167:21
resisting (1) 160:21
respect (2) 71:23 99:6
respective (1) 7:14
respects (1) 88:12
respond (3) 64:13 71:15
78:12
response (12) 12:12
14:6 20:24 21:15
33:10 71:11
101:2,3,6,8,15 111:21
responsibilities (21)
3:1,5,19 4:17 10:18
33:6 35:13,14 40:18
67:9 68:21 73:16
77:21 79:1,4 88:14

90:5,8 91:20 151:24
152:1
responsibility (44)
3:6,24 4:3,10,23 7:9
10:9 11:11 25:16
31:12
32:1,3,5,14,16,23
33:2,12,17 34:22
35:2,4,6,8,23 39:25
40:14,20 46:19 49:16
50:2 55:13,14 69:25
74:10 78:7 80:17
82:14 88:1,22 89:22
90:13 91:4 98:5
responsible (16) 5:24
12:22 14:17 17:7 19:9
21:11 43:8 47:2 69:11
76:7 82:3 87:21
89:22,24 90:13 97:3
rest (3) 6:25 59:25
82:18
restrained (3) 169:21
170:1,2
restraint (2) 169:12,19
restraints (1) 178:23
restricted (3) 187:1,5,25
restricted (2) 24:11
127:6
restriction (1) 187:8
result (5) 70:20 103:14
118:20 129:14 135:16
resulted (1) 76:18
retained (1) 84:9
retention (1) 187:22
retired (1) 115:19
retrieved (1) 128:15
return (2) 42:21 133:10
review (12) 12:9 13:24
14:21 19:7,11 22:13
27:12 65:15 69:15
71:16 76:11 97:9
reviewed (1) 102:7
reviewing (9) 13:10,14
17:7 29:15 41:10,11
71:7 87:22 140:10
rhodes (8) 123:21
124:6,7,14,17,19
125:4 145:9
ribcage (1) 177:21
richard (3) 141:7,8
200:15
rid (1) 180:8
rifle (1) 176:25
rig (3) 165:19 166:5
172:13
rigby (2) 47:16,20
righthand (7) 124:13
131:19 169:11 178:7
181:23 182:19 183:22
rim (1) 132:16
ring (1) 161:14
rise (4) 99:24 111:1
179:18 198:24
risen (2) 57:25 58:4
risk (38) 3:3 10:20
11:12 12:1 19:16 23:6
25:10,12 30:5,12
32:25 33:4
46:13,14,19,21 47:4,6
52:3 53:1 55:1,5,10
65:12 66:21 67:2,20
68:2 78:18 80:3 87:23
89:2,10 95:7,11,23

99:9
riskmitigation (1) 10:11
risks (25) 12:3 23:1
25:25 31:18 34:20,24
46:12,12,24,25 47:14
49:20 52:1,7,17 54:21
55:4,8 63:20 68:12
78:16 79:9 80:7 98:2
194:1
river (7) 42:5 58:18
122:8 123:14
128:14,15 139:7
road (23) 6:3,5,5,6 30:7
34:4 63:1 81:3 107:3
119:15 120:1,6 121:12
122:20 123:3
124:8,18,21,22 139:6
140:7,21 143:4
roads (20) 4:23
5:5,6,8,11,16,23 6:13
7:14 13:11 19:8,11,18
41:2,3,3 53:4 60:12
81:2 83:3
roadway (3) 6:2,21
149:24
roadways (5) 4:9,18
19:22 50:24 51:7
roadworks (1) 124:9
rohey (1) 102:11
role (11) 3:25 4:8 56:13
65:2,6 71:1,2 78:8
91:5 100:19,21
rolled (1) 124:19
romania (1) 30:25
roof (1) 183:2
rose (1) 198:2
ross (1) 113:9
rotated (1) 133:21
roughly (2) 170:8,10
round (7) 33:15 140:1
149:24 183:8,14 184:4
191:11
route (3) 123:24 125:9
130:23
routes (1) 5:8
routine (4) 193:12
196:7,9,17
routinely (1) 48:15
row (4) 186:3,11,12,15
rubber (2) 167:19,25
rucksack (1) 190:11
ruling (2) 116:16 200:11
run (1) 194:19
running (5) 6:5 109:20
113:25 114:5 178:5
runs (1) 6:17
runup (1) 34:25

S

sabatier (1) 163:23
sabot (1) 170:21
sad (1) 181:9
sadly (2) 91:16 173:14
safe (20) 3:3 9:19
27:19,23,24 31:10
32:1,3,12 33:3,24 34:6
35:10 46:8,15
49:10,23 54:15
65:8,11
safety (21) 3:14 21:12
32:24 33:17 35:13,14
38:1 46:9,11,25
52:11,16 54:20,22

55:3 60:20 63:14 67:4
73:16 74:10 178:3
same (26) 3:14 9:5 17:6
18:9 32:9 43:3 87:4
115:4,4,6,8,9 130:6
141:11 161:13 162:25
168:19,25 169:22
175:23 177:2 180:7
181:3 184:8 192:17
195:4
sample (1) 142:20
sand (1) 125:13
sat (2) 4:4 32:6
satisfied (1) 116:18
saw (9) 16:12 44:10
115:4 120:16 131:25
148:19 155:7 169:2
173:23
saying (16) 32:13 38:5
46:8 48:21 67:19
68:11 92:10,11,12
99:10 185:10 190:2,21
191:1,4 192:3
scale (1) 172:16
scanning (1) 120:8
scene (5) 119:8,14
120:4,15 143:7
scheduled (1) 117:5
scheduling (1) 117:10
schemes (4) 25:22
30:7,9 89:8
science (1) 151:17
screen (48) 6:11 7:22
18:4 34:12 36:24
53:18 58:7 72:12
75:21,22 77:25 85:22
87:7 88:9 89:18 92:22
107:5 119:24 121:18
123:22,23 125:14
127:12,18,21 128:19
129:4,23 131:13 132:6
134:13 144:7,9
148:13,21 153:22
154:21 163:14,21
174:5 175:13,17
180:10 184:20,24,25
185:1,6
screens (1) 75:23
scuff (4) 124:21 129:15
140:13,20
scuffle (1) 61:17
search (1) 103:22
searched (1) 72:6
searches (3) 12:15,25
109:19
seats (1) 109:23
second (19) 15:3 16:19
17:21 71:13 76:3
85:23 116:22 126:20
137:6 142:22 143:1
151:22 166:2 171:15
175:14 176:7 178:25
189:11,12
seconded (1) 100:22
secondly (4) 79:5
136:19 143:3 175:1
secondment (1) 100:21
seconds (7) 137:3
142:20 145:1,7,24
167:7 174:3
section (13) 10:22,24
64:21 76:2 83:20
89:20 91:2 94:14

120:21 127:25 128:6
142:18 191:6
sections (1) 88:24
secure (5) 3:4 32:18
33:4,14 49:24
secured (1) 29:20
security (90) 3:7,25
4:3,6,9 7:24
8:2,3,14,19,21 9:1
10:3 11:7,25 12:22
13:11,14,21 14:21
16:3,9 17:8 19:14
20:11,20 26:2
28:4,14,21,25
29:4,9,16,18,20,25
30:3 31:13 38:15,21
39:16,18 40:7,12
41:1,11 45:9 48:14
56:16 57:17 64:11
68:18 69:15,21 70:1
71:8 73:20,20
76:11,25 78:6
79:7,13,20 80:11
85:12,18,20,21,25
86:25 87:1 88:1 89:9
90:24 91:4 92:5,20
94:20 95:14
97:10,12,17,17,23
101:4 131:4 133:14
195:18
see (109) 6:11,15 11:10
13:2,3,10 14:14,23,25
16:18,24 17:4,18
18:4,14,18,22 25:4
34:12 36:23 37:2
39:3,8 41:11 43:10
48:19 50:25 51:8
52:18 58:21
59:4,5,7,13,14 61:4,5
62:5 70:10 72:17
75:21,23 81:18 83:12
87:12 93:1,5 94:2,4
95:7 98:20 101:16,18
116:10 119:24 121:18
124:10 125:7 127:12
129:3,24 131:18
132:23 134:4,9,15
136:6 138:8 143:12,22
147:8 148:3 153:19
154:21 156:2,12,16
157:13,14 158:6,19
159:11 163:1,6,23
164:3,12,19 166:4
169:9 171:16,23 172:3
174:24 175:17 177:4
178:8 181:1 182:13,18
184:4 185:6,9,16
186:3,7 193:18
197:5,8
seeing (2) 70:25 185:1
seeking (3) 7:4 28:14
37:23
seem (2) 94:23 188:23
seemed (1) 111:18
seemingly (1) 124:8
seems (3) 115:15
116:19 137:21
seen (19) 1:17 20:1
21:19 22:8,11 47:8
58:12 107:9 111:21
113:24 114:12 126:14
133:25 139:3 143:7
173:3 177:15 193:16

197:6
segment (1) 136:21
segregated (3) 23:22,23
24:21
segregation (1) 25:7
selection (1) 115:3
selfevident (1) 39:2
selling (1) 122:9
senior (3) 4:2 39:8
101:7
sense (2) 181:25 195:4
sensible (2) 99:23
110:19
sent (1) 75:5
sentence (6) 2:24
41:11,23 101:14
118:24 151:14
senry (2) 182:23 183:1
separated (3) 23:24,25
24:23
separates (1) 42:2
separating (4) 50:24
51:6 53:4 131:5
september (3) 3:12
111:10 112:23
sequence (2) 113:4,13
series (3) 31:1 124:5
126:13
serious (5) 118:20
128:15 141:9 179:19
195:11
seriously (6) 48:23
70:10,15,22,25 90:7
service (1) 78:23
services (7) 2:23 11:25
19:14 47:21 48:14
80:11 88:2
set (18) 29:14 60:12
66:1,3,5 112:4,13,22
115:4,6 116:19 122:9
124:1 126:25 130:24
131:18 149:10 178:25
setting (1) 12:4
seven (4) 103:5 174:3
176:2,8
several (1) 167:14
shading (2) 159:3
161:20
shall (2) 110:17 113:19
shape (4) 159:19
180:22 181:3 192:13
share (1) 48:14
shared (4) 4:24 33:6
68:22 70:18
sharp (18) 158:3
164:17,19
165:12,13,17
166:14,15,23
167:1,10,12,16 168:10
172:12,17,17,20
sharpness (12)
165:8,10,18,19
166:3,8,19 167:8
172:10,11,14,16
shed (3) 110:1,5 113:1
sheet (1) 182:12
sheikh (1) 109:10
shirt (5) 153:9 155:22
162:6,8 163:15
shopping (7) 14:20
37:11 42:25 43:21
69:14 76:10 97:6
short (7) 74:21 75:1,4

114:11 124:20 128:13
150:19
shorter (1) 196:9
shortest (2) 58:20 59:8
shortly (2) 22:22 121:7
should (24) 12:2 21:12
36:19 49:3,22,23
55:24 60:11,19,24
61:3 62:15 78:10 82:9
95:13 97:9 99:11
110:25 111:9,19 116:6
135:24 193:24 198:17
shoulder (13) 131:10
154:15 178:18
181:19,22 184:2,4
185:4,16 186:5 187:11
191:12 194:12
shoulders (4) 126:8
177:15 179:3 194:12
shouting (2) 114:19,21
shouts (1) 114:8
show (11) 18:2 106:23
121:24 123:23 133:25
155:16 157:1,5 173:17
183:23 185:14
showed (3) 54:10,17
192:8
showing (12) 6:12
53:17 133:10 144:9
154:22 173:12 175:18
177:4 178:9 184:22,24
186:12
shown (6) 20:2 137:10
148:21 156:13 158:11
174:19
shows (8) 121:19
127:2,22 130:22 132:8
161:8 162:7 183:24
siblings (1) 111:6
side (19) 20:18 59:10
124:13 129:15 138:21
144:23 147:9 157:5,6
159:18 161:8,9,11
169:21 174:17 175:17
178:7 182:19 194:23
sign (5) 124:8,10
125:12,21 160:14
significance (1) 179:21
significant (22) 21:3
45:24 47:8 49:7 60:24
67:1 90:19 127:4
132:14 162:17 163:4
174:4 179:9 188:21
190:4,6,9,9,19,22,23
192:1
significantly (5) 57:13
61:7 82:7 173:19
192:13
signed (1) 166:12
signify (1) 166:11
signpost (1) 149:24
signs (4) 119:18 129:24
153:15 157:10
silicon (1) 167:24
similar (5) 27:5 68:7
76:4 160:14 181:1
similarly (1) 186:10
simple (1) 5:24
simulated (1) 168:12
simulation (1) 167:22
simultaneously (2)
128:11 184:25
since (15) 4:5 8:21 9:21

22:17,19 27:10 28:1
33:1 55:12 107:9
118:14 120:13 141:24
192:22 195:9
single (4) 4:2 5:9 22:3
69:25
singled (1) 155:19
sir (235) 1:6,25 2:13 5:3
6:4,14 7:21 8:9 10:16
11:16,23 12:8,11,20
13:1,9,18,22 14:10,24
15:22 16:1,23 17:3,9
18:1,3,8,13,21,24
19:5,10,24 20:3
29:1,17 30:8 31:14
32:16,22 33:18,21,25
34:7,11,21 35:11
37:3,7,13,18,21 38:3,9
39:13,20,23 40:1,5
41:13,18,22 42:10,24
43:1,5,11,16,18
44:1,9,14,19,24 46:1
47:6,19 48:8,20 49:17
50:4,18 51:1,8 52:21
53:15 54:12 55:15,15
56:6,11,23
57:12,21,23 58:1,6,22
59:7,14 60:2,7
61:9,16,22 62:20
63:15 64:5,15,19,23
65:4,21 66:12,25
67:18 69:2,19,23
70:12,24 71:14,18
72:5,9 73:18 74:17
75:11,15,20,25 76:13
78:25 80:9 95:2 99:16
100:3,22 102:4 108:8
111:5,15
112:4,13,21,24 113:18
114:23 116:12
117:3,12,17
118:3,7,12,15,18,22
119:7,10,13 120:3,12
121:5,9,17 122:2
123:19,25 124:12
125:10 126:21,24
127:16,24 129:5
130:2,9 131:17
132:11,23
134:3,8,12,17
135:5,8,12,18
136:10,18,23 137:9,17
138:6,24 139:21
140:3,9,16
141:5,10,14 142:16
144:5 145:13 146:22
147:7,19 148:2,16
150:10 151:2 172:5
186:1 193:25 198:22
sit (8) 2:3 99:25 100:6
117:5 118:1 150:16,25
197:20
site (2) 16:5 23:7
sites (1) 16:16
sitespecific (1) 23:8
sits (3) 35:24 39:15
92:19
sitting (2) 111:5 141:12
situation (6) 8:12,24

11:17 22:17 115:16 183:13 siwan (5) 1:7,25 2:1,9 200:3 six (7) 63:4 103:8 155:1 174:4 176:7,8 180:5 sixwheeler (1) 182:25 size (4) 175:23,24,24 181:3 skin (2) 167:25 168:7 slab (1) 132:23 slaughter (1) 53:19 slenderness (1) 165:7 slice (1) 165:16 slid (1) 128:13 slide (6) 163:24 164:11 178:7 180:13,15 182:20 sliding (3) 138:1,17,25 slightly (17) 58:24 62:23 71:6 74:16 76:1 115:7 122:12 133:22 134:5 139:7 158:23 159:16 160:2 161:18,19,23 176:14 slips (3) 32:25 46:13 54:22 slow (3) 133:9 168:4,5 slowing (2) 15:6 126:17 slowly (1) 126:9 small (2) 136:21 181:4 smaller (1) 38:7 so15 (6) 100:24 101:2,8 103:3 106:19 152:15 soft (2) 191:16,18 soldier (1) 183:10 sole (1) 31:11 solution (4) 52:24,25 191:14 194:9 solutions (2) 85:10 195:10 somebody (8) 37:23 58:17 59:12 61:18 106:3,6 116:24 140:18 somersaulted (1) 126:5 something (22) 1:21 9:9 18:6 38:19,25 57:3 58:4 62:3 63:4 73:11 85:9 95:20 96:19 114:6 136:25 137:25 138:22 160:6 165:19 170:4 172:1 180:6 sometimes (1) 9:14 somewhere (1) 46:17 soon (2) 184:7 188:4 sort (12) 9:5 19:11 42:6 44:8 55:18 59:11 62:3 63:5 70:21 158:10 170:6 193:16 sorts (1) 178:5 sought (1) 8:22 sounding (1) 115:9 source (1) 113:16 south (8) 31:7 62:21 113:10 121:16 122:5 123:5 128:9 129:15 southwark (2) 51:3 81:25 souvenir (2) 122:11 123:4 souvenirs (1) 122:10 space (2) 78:9 130:15 spaces (8) 22:6 37:14	53:23 57:18 67:17,21 68:10,19 span (3) 128:7,9,10 speak (1) 9:15 special (1) 176:23 specialise (1) 118:19 specialised (1) 176:13 specialist (2) 176:18 185:12 specific (43) 10:10 13:20 16:5,15 17:15,19 19:1,21 23:7,14 25:14 32:14 34:22 35:3 40:24 50:16,19 52:23 70:2,8,19 73:4,23 74:1 76:5,24 77:21 79:3,17,17,18,25 89:6 92:3,14 93:23 95:21 96:11 98:1,2 99:9 107:3 182:22 specifically (17) 5:19 12:21 15:22 17:12 31:18,22 35:12 41:23 46:9 47:23 65:9 71:4,15 77:3 79:21 86:22 115:24 specified (1) 60:9 specifying (1) 61:1 speed (35) 20:16 120:25 121:2,6 122:22,23 124:24 125:2 133:1,3,6 142:13 143:20 144:6,15,19 145:8,12,25 146:6,13,16,19,24 147:11,16 148:5,7,8,11,14,17,21,23 149:1 speeds (1) 128:5 spent (1) 136:3 sponsors (1) 30:9 sport (1) 109:18 sports (1) 37:10 spot (1) 193:21 square (3) 113:25 133:16 165:24 squares (3) 37:14 164:14,18 squashed (1) 52:5 st (1) 138:14 stab (4) 170:13,16 172:22 174:17 stabbing (3) 114:5 167:14,17 stabresistant (1) 170:18 stadia (1) 37:10 staff (2) 3:9 30:5 stage (10) 18:25 23:14 30:8 110:18 135:7 142:24 149:14,18 157:18 172:1 stages (5) 51:4 133:12 142:14,19 149:21 stainless (1) 158:5 stakeholders (1) 71:25 stall (1) 122:9 stand (3) 2:3 100:7 118:1 standard (5) 29:22 95:16 170:17,19 175:19 standards (2) 60:9	152:5 standing (6) 59:2 141:13 149:10,17 183:1 197:1 standstill (1) 137:4 start (20) 16:22 20:7 49:15 81:5 101:1 110:18 120:16,17 121:14,15,25 122:1 137:4 147:2 148:19 149:10,17 177:21 198:17,18 started (2) 184:9 197:23 starting (3) 121:19 145:11 147:22 stated (9) 23:4 33:13 63:15 73:22 78:25 149:10,17 177:21 198:17,18 started (2) 184:9 197:23 starting (3) 121:19 145:11 147:22 stated (9) 23:4 33:13 63:15 73:22 78:25 statement (19) 4:20 7:25 10:17 16:19 17:21 22:20 34:1 64:3,4 65:16 67:12 71:13 73:6,10 87:9 101:11 107:14 109:1 194:23 statements (1) 4:13 states (1) 64:9 static (4) 188:22,23,25 189:7 stating (1) 60:23 stationary (1) 122:15 stationed (1) 195:23 stations (1) 98:3 statistics (1) 98:10 status (1) 72:19 statute (2) 86:22 89:19 statutory (7) 4:21 33:23 40:18 64:17 86:10 88:22 91:8 steel (2) 158:5 170:21 steer (1) 129:14 steered (1) 135:7 steering (8) 29:18 39:16 40:2 124:7 129:12 133:8 134:24 140:9 step (1) 50:9 steps (8) 12:3 31:8 66:20 71:22 82:17 101:21 122:7,8 sterritt (2) 4:20 34:2 stevens (14) 1:13,23 99:20 100:1 110:21 111:10,15,23 112:1,3 116:3 117:13,15,19 still (16) 21:2 30:4 42:18 52:12 53:3 56:18 137:21 144:9 145:10,15 160:21 189:2,3,3 190:15 193:11 stone (3) 123:13,14 133:18 stop (2) 20:10 167:6 stopped (3) 133:21 138:20 161:1 stopping (1) 21:9 strain (6) 189:11,23 190:5,6,19 192:1 strand (5) 35:19,22 36:5,8 101:2 strategic (1) 67:3 strategy (20)	34:15,18,19 64:4,6,9,16,17,24 65:1,4,18,22 66:5,8,14,18,23 67:2,7 street (18) 13:17 14:21 30:14 41:17,25 42:12,19 43:22 46:5 48:2 55:1 56:10,12,17 69:15 76:11 87:18 97:7 streets (17) 14:3 37:11 42:15,23 44:3 47:18 49:4,9,16 53:20 55:18 56:23 57:7 67:6,11 74:5,10 streetscape (5) 40:25 53:23 54:1 77:24 79:18 stress (1) 189:16 stretch (1) 133:2 strike (8) 132:13 155:16 180:11,19 181:6,16 182:4,15 striking (4) 123:12 124:4 132:16 135:3 string (1) 177:9 struck (25) 119:18 122:20 123:1,6,22 124:5,7,17 126:1,3,13 127:17,23 128:11,11,19,22 129:2,9 133:17 134:2 139:5 144:12 190:3,20 structural (3) 28:18 79:6,15 structure (3) 40:6 46:25 81:5 structured (1) 9:22 structures (7) 14:8 29:14 83:9,9 93:19,20 96:4 struggling (1) 181:10 student (1) 105:10 styles (1) 82:8 subject (7) 11:8,21 83:15 111:9 113:8 144:23 155:20 subjects (2) 102:6 105:12 subsequent (1) 112:14 subsequently (1) 125:4 substance (1) 11:2 substantial (4) 67:2 103:12 127:2 129:18 successful (1) 169:5 sudden (1) 130:16 suffered (3) 63:2 134:6 135:3 sufficient (2) 63:10 129:20 suggest (18) 1:19 11:25 12:10 17:5 32:22 35:2 51:18 53:10 55:9 57:10 70:24 74:6 77:22 106:9 137:13 139:17 150:15 198:18 suggested (6) 21:1 45:1 99:8 137:11 139:12 173:20 suggesting (8) 33:6 36:12,14,16 44:5 60:19 139:19 159:23 suggestion (3) 21:11	36:3 138:16 suggestions (1) 36:6 suggests (6) 14:16 42:1 52:10 96:2 109:23 110:3 suit (1) 193:16 suitability (1) 196:12 suite (1) 54:7 summarise (3) 101:10 118:24 151:14 summary (7) 4:22 22:7 82:15 90:20 98:5 143:19 187:15 summer (2) 41:5 55:16 sun (1) 189:3 superhighway (3) 23:23 24:2,15 superimposed (2) 131:15 132:7 superintendent (17) 1:7 7:25 8:13 76:23 78:1 79:12 85:19 91:3 99:17 100:5,6,14,23,25 110:12 198:3 200:8 supplementary (3) 184:12,23 185:3 supplemented (1) 187:4 supplied (2) 195:17,24 support (11) 26:23,23 31:23 36:8 112:17 114:21 116:1,2 152:1 176:23 196:8 supporting (1) 29:21 supports (1) 8:3 sure (9) 1:22 57:4 72:6 75:21 108:11 117:13 148:24 198:14,15 surely (1) 74:9 surface (6) 4:1 33:19 124:21,23 132:23 143:5 surgeons (1) 178:12 surprise (1) 193:23 surrounded (1) 124:23 survey (1) 143:7 suspect (4) 99:22 104:18 193:20 198:19 suspects (2) 101:17,22 swerved (2) 122:18,20 swerving (2) 140:21 149:24 sworn (8) 100:5 117:24 141:7 150:22 200:8,12,15,18 sympathies (1) 2:16 sympathy (1) 83:14 system (5) 35:16 65:7 93:1 98:11 137:1 systematic (7) 11:6 19:11 25:10 38:11 50:2,12 54:17 systematically (7) 29:23 40:16 49:19 50:6 54:20 55:3,5 systemic (1) 78:21 systems (3) 120:24 185:3 186:5	taken (29) 8:21 11:14 15:3,10 28:5 31:8 32:16 33:2 36:19 44:10 58:23 69:4,8 71:22 76:19 82:17 89:17 90:17 95:16 99:21 103:17 110:4 120:11 136:21 140:7 143:16 178:16 181:16 193:23 takes (3) 65:22 66:21 90:7 taking (15) 10:19 12:2 24:25 29:10 30:23 31:1,6 49:22,23 50:10,11 55:25 94:13 127:20 177:8 talked (2) 65:9 179:6 talking (7) 40:15 90:10 159:13,20 161:16 180:21 183:17 talks (1) 42:18 tall (1) 182:25 targeted (1) 17:5 targeting (5) 21:14 26:9 48:6 56:5 140:18 targets (2) 47:17,24 tarmac (1) 132:24 taser (5) 193:3,5,5,16 194:3 task (5) 29:15 71:10 115:13,20 194:2 tasked (2) 119:5 142:12 tasks (2) 196:5,13 tawakkul (1) 109:7 tawbah (1) 109:7 taxed (1) 115:8 team (8) 3:8 13:25 73:24 76:22 87:10 88:10 103:3 193:4 teams (3) 4:4 31:20,22 tear (1) 154:4 technical (2) 29:22 152:1 telemetry (1) 137:9 telling (2) 9:21 182:9 temperature (7) 177:24 178:23 179:6,8,8,14,18 temporary (24) 9:16,20 23:19 26:13,24 27:11,13 28:8 37:16,19 42:1,17,18 43:15,23,25 44:6,17 73:3 124:8,10 125:12,21 164:7 ten (2) 150:16 182:9 tendency (1) 189:2 tendering (1) 152:3 tends (1) 162:12 term (1) 74:16 terms (27) 4:7 5:24 20:4 35:22 36:16 44:1 48:23 49:1,5,8 57:14 61:15 68:8,17 69:21 76:4,20 77:19 79:3 80:14 82:14 166:15 183:17 190:5 195:21 197:24 198:17 terribly (1) 190:8 terror (9) 48:12 49:6 65:6 66:19 67:14 73:8 88:16 89:2 97:19	terrorism (50) 8:2,3,14,19,25 10:20,24 11:5,9,21 16:3 29:4,9,19 33:4 34:20,24 35:10 36:17 40:7,12 47:5,6,13 49:5 50:7 52:23 54:3 55:18 63:17 65:12,13 68:2 70:14 71:3 79:7,13,20 80:10 87:24 89:9 90:17,18 94:15,19,25 95:13,24 100:15,20 terrorist (22) 12:7,18 16:6 18:23 29:3 22:2,14,16,24 37:5 38:14 42:7 48:14,16 53:13,16,16 55:9 64:13 65:3 66:15 95:12 terrorists (6) 21:22 22:4,6 47:17 54:5 80:13 test (23) 165:18 166:20 168:2,4,5,5,14 169:20,25 170:12,13,15,16,16,19,20,21 171:2,6,10 172:13,22,24 tested (3) 166:22 167:19 168:2 testing (4) 83:18 165:13 172:13 173:20 testings (1) 70:5 tests (5) 169:1,1 184:16,17 186:22 text (2) 65:8 71:20 tff (83) 3:19 4:4 5:4,15,22 6:7,12,20 7:18 9:12,23 10:2,4,18 11:8,11,14,23 12:2,6 15:8,19,23 16:21 19:11,17 23:17 25:10,19,20 26:18 28:3 29:14 30:1 32:4,20 33:8 35:2,6 36:10 38:6 39:24 40:3,12,13,17,18,21 41:3 44:3 46:9,18 48:9,15 49:15,25 50:17 52:13 53:7 64:10 66:21 70:17 71:21 73:24 81:23 82:10,24 83:2 84:4 85:9 86:3,6,17 88:5 89:14,14,23,24 90:6 91:18 94:13,23 98:5 tfls (10) 3:1 4:8 9:9 11:19 41:3 45:12 52:15 54:10 17 65:2 thames (4) 6:17 122:8 123:14 128:14 thank (67) 1:24 2:5,20 26:4 27:1 30:17 63:23,24 80:19 89:17 91:7 99:12,13,15 100:3,4,9 101:13 103:9 104:4 110:11,15,16 111:14 112:1,2,3,19 116:14 117:3,11,20,21,23 118:3 125:14 135:19 139:24 140:24 141:1,5,14 142:12
--	--	--	---	--	--	---

T

147:15 149:7	170:20 176:19,20,21	69:3,19 70:22 72:16	193:4,5,17 194:3	ultimate (1) 82:18	unrestrained (1) 170:3	122:14,18,20,23
150:5,6,7,9 151:10	178:1,5 181:7 186:19	73:18 81:8 100:22	transcript (1) 39:14	ultimately (1) 102:22	until (5) 113:2 137:4	123:2,7
152:22 154:19 163:9	189:2 191:14 194:20	103:24 107:9 108:25	transient (10) 9:20 10:5	unarmed (1) 188:19	166:1 198:20 199:1	124:5,7,18,20,24
175:13 176:9 188:6	196:2,3,10	113:3,7 120:13 130:17	37:17 41:9,20	uncertainty (6) 117:9	update (6) 13:4 70:21	125:8,19,22,24
196:20,21,22,24,25	thermal (3) 188:16,20	134:7 143:16	43:14,23 45:1,4 92:9	144:23 145:20 146:14	71:3,12 75:9 76:5	126:2,4,13 127:4,14
197:2,3,4,16,17,18	189:24	145:22,22 150:16	transitory (1) 41:24	181:8,15	updated (1) 22:23	128:2,18,21,23
thanks (2) 100:9 151:2	thermoregulationheat (1) 189:16	152:5 153:7 156:4	transport (90) 2:15	underarm (10) 163:12	upgrade (1) 176:25	129:6,8,16,18,21,25
thatincident (1) 13:4	thesis (1) 105:20	168:18 171:2 174:3,3	3:4,7,9,13 4:1,25 6:23	173:13 177:15 178:19	upon (5) 12:14 23:6	130:3,13
thats (171) 1:18 4:19	theyd (1) 105:14	180:7 192:14 193:21	8:10,17 13:25 14:7	179:22 185:16	94:13 113:6 148:23	131:2,8,20,20
5:3,10,13,21 6:1,19	theyre (7) 3:5 61:19	197:2 198:17	15:11 17:11,25	186:7,12 187:16 188:3	upper (12) 63:10 153:8	132:1,3,4,9
7:16 12:16 13:1 14:10	85:21 176:21 180:21	timed (1) 174:1	18:5,12 19:6 23:21	underarms (1) 189:22	156:12 159:3 160:25	133:1,9,13,16,21
16:2 18:10 38:21 39:2	181:2 195:23	times (11) 11:14 12:24	25:18,21 27:12	underground (9)	163:24 164:3 171:17	134:1,6,7,17,19,25
43:25 45:1 57:4 58:9	thing (7) 55:19 99:23	28:3,23 37:15 56:7	29:7,21 30:7 31:9,17	31:14,16,19 33:20	180:13,14,15,16	135:2,6,9,16 139:6
60:1,12 61:7,24 63:23	110:19 169:23 181:17	60:4 98:19 163:3	32:16 33:19,19,22	36:1 48:25 65:11 68:2	upwards (1) 126:5	140:16 142:11
64:4,18,19 69:2 73:9	190:7 193:14	184:18 186:16	34:5 35:16 36:2,3	98:2	usable (1) 146:11	143:20,23
75:11 76:17 79:2 81:3	thinking (4) 26:2	timetabling (1) 116:7	37:24 47:10 48:22,24	underneath (3) 65:25	usage (1) 196:3	144:10,15,19
82:2 83:11 84:8,12	68:15,16 91:19	timings (2) 113:14,17	51:9 55:19 56:13 57:9	126:9 157:14	used (49) 18:19 19:3	145:17,23
85:1,3,6,21 86:4,20	thinner (1) 132:17	tip (4) 159:10 164:16	64:4,6,9,12,16,24	understand (27) 2:10	21:20,21,25 23:2	146:1,4,17,19 147:5
87:15 88:3,7,9 89:3,16	third (8) 13:12 16:24	171:25 172:2	65:1,4,6,7,10,22	15:8 33:5 38:4 49:5	38:22 45:7 47:7	148:11,14,25
90:16 91:1,7,10	71:23 113:11 128:7	tissue (7) 167:22	66:3,4,8,14,17,22	54:2 55:22 63:6,7	51:12,21 53:1 54:25	182:24,25 183:3,15
92:2,8,9,11,17,21,23	183:20 184:15 186:21	168:8,12,21,24	67:7,21,24,25 68:6,17	66:13 68:15 80:12	59:12 65:10 67:15	198:9
93:8,22 96:5,18 101:5	thirdly (1) 139:16	191:16,18	69:17 70:10 71:2,11	81:8 84:13 85:18 87:2	70:4,7 77:9,18 107:4	vehiclebased (2)
102:8 103:4 105:16,18	thomas (1) 138:14	title (1) 85:17	72:7,13 73:14 77:15	92:6,12,24 111:23	115:9 120:18 121:1	77:17,19
107:21 108:3,21,24	thorough (2) 13:23	today (4) 1:6 62:25	78:23 79:3,8,21	112:24 118:9 120:18	125:8 138:1 139:8	vehicles (32) 18:20 19:2
109:17 114:1,1,13	84:24	117:5 192:17	80:17,23,25 81:3	137:17 151:7 152:4	146:24 160:7	21:19,19,24
115:16 117:10	thoroughly (1) 49:19	tog (3) 180:4,5 195:2	86:9,23 93:15	190:2	163:19,22	23:2,25,25 24:12,18
118:2,15 119:20	though (6) 18:13 42:16	together (2) 139:23	96:14,19 97:23 98:13	understandably (1)	167:11,14,22 168:14	47:7,12,17 51:12,21
121:1,17 127:24 129:5	89:20 121:3 130:18	168:17	travel (6) 32:18 33:15	80:24	169:5,17 170:16	52:4 53:1 54:4,25
131:17 132:4 139:3,22	183:9	told (10) 35:12 39:14	46:15 49:24 122:19	understanding (53)	171:7,11,19 173:18	55:10 67:15 76:25,25
140:24 141:1,12	thought (6) 22:5 91:8	40:19 50:15 98:1	143:17	10:8,25 13:22 15:10	174:6 178:21,22	77:9 86:15 89:10
142:23,24 143:6,14,18	193:22 195:15,17,21	100:19 108:18 115:21	travelling (4) 3:5	16:1,7 17:9,15 20:12	180:24 182:5 184:13	123:24 125:15
144:5,13,24	thoughts (1) 72:13	138:20 198:12	122:13 146:1 182:23	23:4 24:20 25:2 33:3	192:17	130:22,25 133:12
145:4,5,13,16	threads (1) 56:24	tolerance (1) 60:16	treat (2) 70:10,15	36:16 38:9,20 39:19	useful (2) 172:23	151:22
147:7,13,19 148:6	threat (38) 18:20	tomorrow (9) 1:11	treated (7) 38:8,18	40:5 41:22 42:10 45:5	198:13	vehicular (2) 60:10
150:25 152:6 154:17	21:18,21 22:2,24	108:10 113:11	41:20 43:24 70:21,25	46:21,25 47:19 49:19	user (3) 196:1,1,18	131:4
155:5,8	30:12 36:17,18	114:2,21 117:6 197:24	83:14	50:13 57:21 58:22	users (1) 88:25	velocity (1) 170:24
156:5,14,14,19 157:8	47:7,9,11 49:4,6,7	198:17,22	triggered (2) 85:5,7	60:7,9 62:6,10 77:20	using (19) 18:20 47:17	vendor (2) 122:12 123:4
158:14	50:7 52:23 53:1	too (6) 5:14 88:4 105:3	trips (3) 32:25 46:13	79:9 82:9,20	52:4 95:15 98:22	version (1) 120:22
159:12,13,17,19	54:3,24 55:9 57:7,10	112:9 141:21 197:20	54:21	83:5,19,21 84:12,22	122:3 144:4,14 148:3	vertical (3) 147:13
161:17,22 162:5,18,21	63:19 65:6,11,12 73:8	25:15 26:5 70:19	truck (1) 13:6	88:4,5 89:3,14 91:25	156:6 165:1,18 168:25	148:7,8
165:21 166:2,6	77:20 87:23 89:7	73:15 96:25 121:10	true (1) 168:23	92:8,17 93:22 95:19	170:12 172:7 174:11	vest (31) 153:11 171:8
169:11,18	95:11 101:3,17,21	157:19 166:24 181:9	truly (1) 21:3	96:6 97:14 137:7	178:3,4,4	174:20 175:1,15,16,19
170:16,22,24	152:4 183:4 194:3	tool (1) 165:5	trump (1) 60:20	understood (9) 16:14	utilising (1) 195:22	176:4 177:5,8 178:18
171:14,24 172:19,25	195:25	topic (2) 4:19 57:19	trust (1) 109:8	31:10 38:6 47:8	V	183:18 184:1 185:2
175:3,20,20,22,23	threats (15) 12:2 25:25	179:25,25 180:8	truth (1) 44:25	112:22 117:8 159:9	valuable (1) 113:22	186:4 187:1,4,24
176:6,16 177:1,7	30:16 47:13 55:23,25	torso (5) 126:3 177:19	try (3) 35:18 52:8	191:22 193:25	value (3) 166:10 172:15	188:1 190:5
179:23,23 180:7,25	57:15 63:17 64:14	179:25,25 180:8	194:10	undertake (3)	195:2	192:7,10,13,16,17,19
181:21 182:16	65:3 66:15,19,24 79:9	total (1) 144:24	trying (4) 28:5 66:13	19:7,10,15	van (3) 56:9 138:19,21	194:6 195:17,21,23,24
184:6,13,19	80:14	tourists (5) 21:8,14	180:18 190:18	undertaken (7) 16:2	variant (1) 176:4	vests (1) 188:12
185:13,15,19,20	three (11) 71:15 94:17	30:22,22 46:2	tshirt (1) 183:7	24:3 38:11 47:22	varied (1) 149:1	via (1) 99:4
186:6,18 190:11	110:22 144:24 153:15	toward (1) 123:8	tubular (1) 170:23	54:19 72:15 170:20	varies (1) 58:24	vicinity (3) 122:6
195:12 196:22 197:5	172:4 179:9	towards (14) 14:15	tuesday (1) 199:2	52:13,21 63:22	variety (2) 19:3 77:9	124:21 140:12
198:14	180:22,23,24 197:25	43:4,7 62:21 122:7,11	turn (2) 58:15 69:6	undertook (1) 184:17	vario (2) 185:3 186:5	video (1) 138:24
theatres (1) 37:12	thronged (2) 14:14 21:8	123:3 126:4 128:8	turned (1) 172:2	underway (3) 22:5 41:1	various (16) 4:17 27:11	viewed (2) 139:6,7
themselves (2) 94:13,24	through (26) 14:8	139:24 172:2	tweezers (2) 158:18	56:12	46:20 49:15 50:1 60:3	viewing (1) 126:17
thereafter (2) 137:15	34:2,4 39:17 45:10	181:20,21 189:19	159:10	unenviable (1) 71:10	71:24 83:9 88:24	virtue (1) 37:5
149:22	64:10 107:10 110:23	tower (11) 7:19 45:21	twothirds (1) 41:10	unfair (1) 75:7	114:17 120:18 135:14	visible (1) 125:11
thereby (1) 120:1	128:5 135:3 137:2	51:2,8 82:10 131:7	type (7) 21:21 22:8	unfolding (1) 126:16	142:14 150:13 184:18	visibly (2) 131:11 134:9
therefore (19) 8:15	138:21 142:2 159:24	170:13,16,23,23	132:20 164:22	uniform (1) 153:9	197:3	visited (1) 108:22
21:23 38:13 40:9,21	160:19 166:2	172:22	195:17,21,24	unique (4) 83:17	vary (3) 37:15 82:7	visitor (1) 37:11
51:24 52:8 67:17 62:8	171:4,4,7 174:1	trace (2) 120:1 128:21	types (4) 19:3 22:11	114:24,25 116:21	144:2	visitors (1) 27:8
66:4 102:19 103:14	195:25 197:19	traces (1) 131:19	77:9 176:14	176:23 196:9	vast (1) 198:10	visual (2) 53:25 84:23
105:24 152:7 182:13	time (60) 15:23 16:24	tracks (1) 127:14	typical (4) 162:12	units (1) 101:8	19:8 20:11,14,21 23:2	visually (1) 53:17
189:22 190:4 191:25	17:13 21:16 22:1 24:9	traffic (22) 5:4,12,22,24	164:23 183:13 191:20	unprotected (6) 168:21	24:21 26:7 28:21,24	vital (1) 177:19
192:1	25:15 26:8 32:8	6:9,10 7:9,10,12,13	tyre (15) 125:11 129:10	177:16 178:19	49:13 51:13 56:15	vulnerabilities (2) 25:25
theres (40) 9:22 17:4	33:9,16 34:25,25	9:17,18 27:24 31:25	131:9,11,12,22,24	186:10,13 188:4	57:2 63:8 72:1 73:3,5	36:18
27:21 39:4,4 41:19	38:5,9 45:2 47:3 48:2	34:4 59:25 63:1 129:1	132:2,3,14,18,21,22	universal (1) 178:20	75:15 77:17,23 82:2	vulnerability (8) 19:17
43:7 52:6 58:15	49:17 50:12 54:23,24	133:15 140:1 141:10	133:8 134:10	university (3) 49:14	103:7 107:7	23:8,9,10 30:12 50:6
61:17,24 64:20 72:24	55:8 56:11 57:3 62:13	142:9	ucpd (1) 119:1	119:1 167:23	119:2,18,22 120:2,25	95:12 184:8
73:10 76:2 109:6,14	65:20 66:14,23	tragic (1) 192:22	uk (5) 95:17 180:25	unless (1) 111:16	121:4,11,15,19,21,25	vulnerable (18) 10:5,7
111:15 112:11		trained (1) 119:3	182:6,13 184:13	unlike (1) 115:11		12:6,10 16:6 19:15
114:10,23 131:3 138:7		trainers (1) 193:5		unprotected (6) 168:21		28:24 29:3,6,15
139:19 158:17,22		training (5) 176:12				38:10,14 40:16 47:24

56:21 59:4 61:19
188:3

W

waistcoat (1) 156:23
wait (2) 110:12 141:2
walk (6) 32:19 46:15
47:14 49:3 52:8
193:20
walked (1) 31:2
walking (5) 20:10 51:25
61:5 125:24 128:8
walkway (3) 122:7
123:13,14
wall (28) 58:17 59:3,5,8
61:6 62:22,24
63:2,10,11
123:4,4,8,11,12,17
129:15,17 133:23
136:7,12 138:2,17
139:12,15
140:14,17,20
walls (3) 58:10,16 63:13
wandsworth (1) 82:1
wants (1) 150:14
warning (1) 157:2
warrants (1) 103:22
wasnt (18) 9:5 32:13
38:25 40:22,23 41:8
57:20 66:23 71:8
72:19 117:13 120:17
135:5 139:22 168:24
173:18 193:14 194:1
watch (1) 115:24
waterloo (1) 81:25
way (18) 7:17 41:10
57:17 68:12 102:17
108:8 112:11 118:13
126:8 128:12 129:10
134:21 135:23 140:5
143:19 150:2
165:12,22
ways (2) 138:25 192:24
weapon (11) 21:20,25
47:7,12 51:21 53:2
54:25 55:10 57:3
77:11,18
weapons (5) 22:3 23:2
67:15 86:15 163:18
wear (4) 154:4 175:22
185:11 191:17
wearability (3) 177:18
194:15,17
wearer (2) 188:15 190:5
wearing (11) 153:7,8
156:3,17 180:7
183:4,10,15 186:4
190:10 193:21
web (1) 109:19
wedding (1) 31:4
wednesday (1) 117:6
week (1) 92:19
weeks (1) 50:15
weight (1) 116:7
weighted (1) 125:12
welcoming (1) 49:11
went (11) 24:24 62:21
136:8 138:22
140:13,15 164:21
171:3,4 172:18,19
werent (5) 40:3,19
44:17 78:15 193:23

west (9) 48:12 122:13
123:8 125:24 126:6
128:25 131:3,8 139:7
western (2) 128:8,23
westminster (82) 2:18
4:11 6:2,5,8,13,16,25
7:2,3,4,13 11:18,20
12:5 15:23 16:7,13
20:5 21:2,4,7,17
22:18,22 24:3,7 25:5
26:13 32:2,4,13 39:12
40:25 41:2 42:3
45:15,23 48:4 49:12
50:25 54:9 55:7,11
58:19,24 60:14
61:7,14,14,19
62:7,11,12 67:14
69:1,18 72:2,2 78:17
79:17 80:25 81:6,13
84:1,6,7 87:11,17
90:10 91:17,17
96:16,17 98:20,22
99:3 122:6 123:9
133:20 142:15 188:20
weve (34) 7:25 8:7 20:1
27:15 40:11 41:7
71:20 74:20 75:9
79:19 84:4 85:15
90:10 100:25 104:5
107:14 110:21 115:12
120:17 133:24 136:3
143:7 144:25 148:25
162:23 163:22 165:21
177:15 179:14
184:5,25 185:24
186:18 193:2
whatever (4) 51:16,16
61:18 114:13
whats (6) 2:24 40:24
82:3 137:11 151:11
170:20
wheel (2) 129:8 132:16
wheels (3) 124:19
126:11,23
whenever (1) 162:23
whereas (2) 140:7
187:23
whichever (2) 2:3 100:7
white (3) 25:6 138:19
153:9
whoever (1) 60:3
whole (3) 53:23 148:15
182:12
whom (3) 103:5 104:7
115:12
whose (1) 116:9
wide (5) 30:15 47:12
55:22 82:8 94:3
widely (2) 39:1 47:8
widening (1) 55:12
wider (6) 11:25 16:9
47:13 68:20 97:20
101:17
wideranging (5) 37:19
38:6,17 57:10,14
widow (2) 64:2 188:11
width (1) 24:11
wife (5) 31:5 102:11
105:10 108:15 122:5
willingly (1) 68:4
window (1) 138:22
windows (1) 127:10
windscreen (4) 126:4

127:3,4,9
winter (2) 15:14 44:7
wish (10) 2:3 4:16
101:12 111:16,22
112:1,8,11 118:1
152:20
wishes (3) 110:21 153:1
198:8
wishing (1) 152:25
withstand (2) 51:11,13
witness (18) 1:25 4:13
7:24 10:17 16:19
17:21 65:16 71:13
87:9 94:13 99:16,22
107:14 110:18 112:15
116:2,8 150:10
witnesses (12) 1:6 2:2
26:11 103:3 110:22
113:5 114:15 115:3,6
117:1 139:4 197:25
wondering (2) 32:11
99:21
wonderland (1) 15:15
wonderlands (1) 44:7
wont (1) 193:6
wording (4) 36:24 41:14
43:6 76:3
work (34) 8:24 12:9
14:7 23:17 24:25
26:12,16 27:13 28:22
29:1,23 30:1,4,10
40:10 41:1 47:1,22
63:22 64:10 74:4
101:12 105:20,23
106:19 118:16
120:13,18,19 135:1
138:10,11 151:19
195:13
worked (3) 27:15 29:5
144:25
working (23) 8:20 9:2
28:3,8,12 29:8,17
31:20,22 35:25 40:12
52:25 55:20 56:14
65:25,25 66:7 73:25
79:8,21 151:21,22
189:23
works (5) 78:5 84:5,9
89:7 165:22
world (5) 21:20 45:22
80:13 178:20,22
worn (4) 152:17 179:17
183:25 193:16
worship (1) 27:8
wouldnt (6) 63:1 136:12
154:17 172:22
195:7,15
wound (2) 174:17,25
wounds (3) 174:7,12,14
woven (1) 160:19
writing (1) 112:13
wrote (2) 74:12 189:16
ws120225 (1) 147:24
ws1202a22 (1) 144:8
ws1202a23 (1) 145:14
ws1202a24 (2) 146:23
147:20
ws1203a14 (2) 119:24
125:6
ws1203a15 (1) 125:6
ws1203a26 (1) 127:12
ws1203a34 (1) 129:24
ws1203a35 (1) 130:4

ws1203a38 (1) 132:6
ws1203a43 (1) 132:12
ws507013 (1) 6:11
ws507215 (4) 14:11
43:3 69:7 96:23
ws507216 (1) 14:25
ws507217 (2) 13:2 41:5
ws50735 (1) 78:3
ws50963 (1) 87:7
ws51021 (1) 88:8
ws510411 (2) 74:14
75:7
ws510416 (2) 18:4
72:12
ws510418 (2) 16:18
75:17
ws510420 (3) 17:18
18:10 77:6

X

xray (6) 157:19,20,24
158:6 161:14,16

Y

year (5) 3:12 42:15 46:2
64:7,25
years (13) 31:9 34:19
42:13 48:4 57:20,25
60:4 84:21,24
176:2,7,8 195:9
yellow (4) 127:23 159:2
161:20 178:11
yet (2) 191:15 197:13
yoke (1) 187:5
youll (5) 94:4 114:2
164:19 178:8 190:11
youre (16) 23:11 34:15
38:4 54:12 62:5
92:10,12 108:22
139:19 151:16 161:16
178:10 189:3,3 190:10
191:6
yourself (9) 34:22 38:16
55:12 100:7 118:2
121:3 141:12 150:25
174:8
youve (35) 4:13 12:24
14:6 35:12 45:14
50:15 58:8,12 65:18
69:4,8 78:14 88:17
91:22 100:19 101:11
108:18 112:9 114:7
118:13 132:9 134:2
138:3 144:3,14 152:16
158:11 163:6 164:15
175:10 178:25 182:9
185:23 186:15 188:12
yusuf (3) 106:3
108:18,20
yx16 (1) 126:10

0

0 (1) 166:24
0hb (1) 126:10

1

1 (22) 1:1 3:12 83:12
99:24 118:23 126:7
132:13 142:3 154:2,10
156:8,9 157:12

160:11,13 162:2
164:10,14 166:20
168:2 173:17,20
10 (6) 58:5 64:3 123:17
138:23 161:6 170:2
100 (8) 56:10 59:10
60:11,18 61:1 167:25
200:8,9
1000 (5) 60:11 84:2,10
166:16 172:19
102 (3) 58:25 94:12,18
1020 (1) 81:16
103 (1) 93:12
104 (1) 94:2
1040 (2) 172:15,19
11 (5) 39:13 157:20,22
158:6,17
112 (1) 200:10
113 (1) 168:16
1145 (1) 74:25
1159 (1) 75:2
116 (1) 200:11
117 (1) 200:12
118 (1) 200:13
1186t (1) 118:7
1195 (1) 166:10
12 (2) 157:21 161:15
1245 (2) 1:20 99:21
1252 (1) 111:2
127 (2) 60:6 61:4
1317 (1) 83:18
1340 (2) 168:6,15
135 (3) 146:18 147:6
200:14
138 (1) 39:14
14 (2) 64:9 78:3
141 (2) 200:15,16
142 (1) 64:21
145 (3) 99:24,25 110:21
148 (1) 111:4
149 (1) 200:17
14th (1) 13:4
15 (2) 61:23 160:6
150 (3) 57:20,25 200:18
151 (3) 168:7,16 200:19
16 (1) 162:19
17 (6) 10:22,24 89:20
91:2 94:14 187:3
1862 (1) 57:22
188 (1) 200:20
19 (4) 14:12 75:14,17
163:19
1980 (2) 86:11,13
1995 (6) 141:24 176:5,6
177:7 192:8,16
1996 (2) 62:12 84:8
1997 (1) 118:14
1998 (2) 11:10 89:21

2

2 (22) 7:24 59:2,15
132:18 142:18
154:2,11 156:8,9
157:12 159:15
160:14,25 162:17,18
167:24 173:17,18
174:21 199:2 200:3,4
20 (11) 74:14 75:6,14
123:17 124:4
170:1,5,7,8,11 171:11
2000 (2) 166:16 172:19
2004 (1) 89:25
2007 (1) 47:4

2008 (1) 66:6
2010 (1) 3:16
2012 (3) 92:22 93:5
94:25
2015 (1) 24:3
2016 (16) 12:18,19 13:4
14:12 17:19 19:20,20
41:5,7 43:4 49:12
75:6,19,24 77:14
84:17
2017 (44) 2:19 3:19,23
4:5 8:22 9:1,2,8,21
10:10,21 11:19 16:22
17:25 18:12 19:25
21:2 22:19 23:18
24:5,15,24 25:10 26:4
27:6 33:9 34:9 35:20
36:9 49:25 66:11
71:23 72:11 77:16
84:16 87:5 88:6 89:17
90:21 94:24 96:7 99:2
104:7 192:22
2018 (4) 1:1 64:6
111:10 199:2
204 (1) 95:7
22 (7) 50:15 67:12
71:23 77:16 101:2
125:5 192:22
22odd (1) 195:9
23 (1) 165:10
2369t (1) 141:8
24 (1) 166:7
240 (1) 122:21
245 (1) 150:18
25 (4) 124:4 160:6
167:18 170:2
258 (1) 150:20
25th (1) 31:4
27 (1) 111:10
28 (3) 112:23 148:6,12
284 (2) 145:1,7
29 (2) 124:25 146:2
2d (2) 181:18 182:2

3

3 (15) 26:4 144:23
154:2,13,14,14
155:2,2,8 161:12
162:17,18 163:11,11
178:11
30 (6) 5:12 123:17
148:18 149:18,22
200:5
31 (5) 146:19,21 147:11
148:22 172:9
32 (6) 122:24 144:20
145:5 148:18 149:14
173:2
326 (1) 166:23
33 (3) 191:8,19,22
34page (1) 120:21
35 (4) 130:4 172:11
187:7,14
352 (1) 145:24
36 (8) 122:24 125:1
144:20 145:6 146:2
148:6,12 149:14
3d (2) 120:8 194:11

4

4 (7) 84:17
154:2,13,14,15 164:18
172:3

400 (1) 166:24
401b (1) 145:11
411 (1) 119:11
42 (3) 146:20,21 147:11
420 (1) 119:12
421 (2) 83:12,20
423 (1) 83:23
43 (2) 144:22 145:7
430 (1) 198:25
4772 (2) 171:3,8

5

5 (14) 5:11 22:19
58:4,4,5 72:11 77:6
145:21 154:2,13,14,14
155:6,8
50 (1) 174:22
51 (2) 145:18 187:9
515 (1) 146:5

6

6 (7) 59:2 155:13,16
156:11 162:20,21,22
600 (1) 81:2
63 (1) 200:6

7

7 (11) 87:12 95:5
120:21 155:12 160:1
162:20,21,21,21 171:5
186:21
700 (1) 3:8
702a (2) 147:2,10
702b (2) 147:5,21
702c (1) 147:25
726 (1) 136:2
747 (1) 127:1
75 (1) 127:25
761 (1) 128:20
764 (1) 130:23

8

8 (7) 27:2 155:4
156:20,21 164:1,2
189:12
80 (2) 165:24 200:7

9

9 (5) 10:17 59:1 155:4
160:24 189:20
945 (3) 1:2 198:19
199:1
950 (1) 1:4
980 (2) 81:15 85:4
98599 (1) 58:25
989 (1) 168:15
99 (1) 58:20