

**General Note:**

During the design stages of a project, designers are required to maintain a “**Hazard Elimination Checklist**” (part B of this document). The ‘checklist’ records the various significant (high risk) hazards identified by the designer(s) and, where they have been able, details of how they have been eliminated.

It is recognised that not every hazard can be ‘designed out’ and therefore the checklist will also be used to record the residual risks of which the designer(s) are aware.

The checklist provides an audit trail of the design process and may also be used as evidence in the event that a designer is required to defend his or her actions in any HSE investigation.

Copies of parts A and B should be passed to all members of the project team, especially the Principal Designer. Reference must also be made to GG104 Requirements for safety risk assessment.

**Part A: Designer's Hazard Checklist**

<b>Project Title:</b>	181 M4 J19-18 EB MP 181.1 - 177.8 RS	<b>Kier Highways Job No.:</b>	1050443
<b>Project Description:</b>	Taking pavement samples by coring at stated locations.		
<b>Design Discipline:</b>	Highways		
<b>Project Type as determined by GG104 (if applicable)</b>	A	<b>Prepared By:</b>	██████████

**Notes:**

1. This section of the document includes a list of potential hazards pertaining to a wide range of situations which may occur across Kier Highways’ activities. *Where particular categories do not ordinarily affect the scheme, **Part A should be edited/sections deleted to more accurately reflect the work carried out.***
2. An individual item or a whole section (by ticking the heading) can be noted as not applicable showing you have considered the hazard area and judged it to be not applicable.
3. The list of potential hazards is not exhaustive, and all sections can be added to, or additional sections added, as required. Reference to the Approved Code of Practice may be helpful.
4. All items considered by the designer as having a potential high risk must be addressed on the ‘Hazard Elimination Management Schedule’. Low risk activities can also be included if considered appropriate.
5. Consideration must be given to all populations that may be affected as follows -

<b>Population 1</b> – People directly employed by the Client and who work on the site e.g. Traffic Officers.	<b>‘Workers’</b>
<b>Population 2</b> – People in a contractual relationship with the client.	
<b>Population 3</b> – Other parties, including road users, the police and emergency services and non-motorised ‘Users’ such as equestrians, cyclists and pedestrians, as well as those others not in a contractual relationship with the client, such as privately contracted vehicle recovery and vehicle repair providers.	<b>‘Users’</b>
<b>Population 4</b> – Third parties includes any person or persons who could be affected by the works, but who are neither using it, nor working on it, i.e. living or working adjacent to the site.	<b>‘Other Parties’</b>



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Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
1.	<b>Existing Environment</b>				
1.1	Existing buildings	X			
1.2	Previous/existing land/ structures	X			
1.3	Roadways			X	Site access must be strictly through designated access and egress points from the main carriageway. Where required trained and competent gatemen to ensure there is no unauthorised access to the closed roads. Gated Airlock System to be used.
1.4	Railways	X			
1.5	Water course			X	Multiple watercourses run adjacent and traverse the site. Correct PPE to be worn including suitable footwear. Risk assessment and method statement to be produced.
1.6	Ground conditions:	X			
	• Contamination				
	• Ground water				
	• Instability				
	• Mineral / mine workings				
1.7	Access restrictions	X			
1.8	Adjacent properties			X	Some housing in the proximity area close to works – noise/air quality considerations. Timing of noisy operation and good communication required.
1.9	Concurrent site activities	X			
1.10	Interface with the public	X			
1.11	Occupied premises	X			
1.12	Structural instability	X			
1.13	Fragile materials	X			

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
1.14	Hazardous materials		X		Construction materials to be used in accordance with method statements, Risk Assessments & COSHH Assessments.
1.15	Land use	X			
1.16	Traffic			X	Works undertaken will require lane closure to be taken place. TM will be installed in accordance with TSM Chapter 8.
1.17	Others (insert as necessary)	X			
<b>2.</b>	<b>Existing Services</b>				
2.1	Underground				
	<ul style="list-style-type: none"> <li>Electrical</li> </ul>			X	11kV, Low Voltage and Unknown Electricity cables present within the scheme extents.
	<ul style="list-style-type: none"> <li>Gas</li> </ul>			X	Medium-Pressure and Low-Pressure Mains Gas present nearby within the scheme extents.
	<ul style="list-style-type: none"> <li>Water (Asbestos pipes?)</li> </ul>			X	Bristol Water, Wessex Water, Culverts and Pipework present within the scheme extents.
	<ul style="list-style-type: none"> <li>Telecommunications</li> </ul>			X	BT, Cityfibre, Colt, Virgin Media, Vodafone, SSE & Zayo Group UK Ltd cables present within the scheme extents.
	<ul style="list-style-type: none"> <li>Others (insert as necessary)</li> </ul>				
2.2	Overhead Services				
	<ul style="list-style-type: none"> <li>Electrical</li> </ul>			X	11kV and Low Voltage Electricity cables present within the scheme extents.
	<ul style="list-style-type: none"> <li>Gas</li> </ul>	X			

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
	<ul style="list-style-type: none"> <li>Telecommunications</li> </ul>			X	BT within the scheme extents.
	<ul style="list-style-type: none"> <li>Others (insert as necessary)</li> </ul>	X			
<b>3.</b>	<b>Earthworks</b>	X			
3.1	Deep excavations				
3.2	Slope / ground stability				
3.3	Ground water / water courses				
3.4	Plant movements				
3.5	Interface with services (refer 2)				
3.6	Contamination (ground / water) (refer 1.6)				
3.7	Adjacent structures (refer 1.8)				
3.8	Others (insert as necessary)				
<b>4.</b>	<b>Foundations</b>	X			
4.1	Adjacent buildings/structures				
4.2	Deep excavations				
4.3	Plant movements				
4.4	Interface with services				
4.5	Contamination (ground / water)				
4.6	Ground water				
4.7	Confined spaces				
4.8	Piling:				
	<ul style="list-style-type: none"> <li>Noise</li> <li>Vibration</li> <li>Contamination</li> <li>Plant</li> </ul>				
4.9	Grouting:				
	<ul style="list-style-type: none"> <li>Drilling work</li> <li>Dust</li> <li>Pollution</li> </ul>				
4.10	Stability of structure				
4.11	Others (insert as necessary)				
<b>5.</b>	<b>Services Installation</b>	X			
5.1	Excavations				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
5.2	Ground water				
5.3	Ground conditions				
5.4	Existing services				
5.5	Testing operations				
5.6	Lifting operations				
5.7	Adjacent structures / activities				
5.8	Maintenance				
5.9	Contamination				
5.10	Others (insert as necessary)				
<b>6.</b>	<b>Drainage Works</b>	<b>X</b>			
6.1	Excavations				
6.2	Ground water				
6.3	Ground conditions				
6.4	Confined spaces				
6.5	Leptospirosis / Weils disease				
6.6	Existing services (asbestos pipes?)				
6.7	Manual handling				
6.8	Lifting operations				
6.9	Maintenance				
6.10	Sewage				
6.11	Traffic				
6.12	Contamination (ground / water)				
6.13	Hepatitis B / Tetanus				
6.14	Others (insert as necessary)				
<b>7.</b>	<b>Highways</b>				
7.1	Traffic management			<b>X</b>	Works to be undertaken by applying lane closure. TM will be installed in accordance with TSM chapter 8.
7.2	Adjacent traffic			<b>X</b>	TM will be installed in accordance with TSM Chapter 8.
7.3	Construction materials			<b>X</b>	Construction materials to be used in accordance with Method Statements, Risk Assessments &



Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
					COSHH Assessments.
7.4	Structural works	X			
7.5	Adjacent structures		X		No.10 under-bridges/overbridges structure has been noted within the area. However, this is low risk as core locations are not in the within the vicinity. (no core to be taken over underbridge structure)
7.6	Noise		X		Noise to be kept to a minimum. Idling machinery and vehicles to be kept to a minimum or switched off when not in use. Operatives should receive training to effectively employ techniques to reduce noise. Unnecessary noise should be avoided when carrying out manual operations and when operating plant and equipment
7.7	Vibration		X		Ensure that the vibrating equipment is fit for use and is regularly maintained. Vibrating equipment to be only used by the trained and competent personnel.
7.8	Coal TAR in pavement		X		
7.9	Others (insert as necessary)	X			
<b>8.</b>	<b>Steelwork Construction</b>	X			
8.1	Working at height				
8.2	Lifting operations				
8.3	Temporary stability				
8.4	Connections				
8.5	Unusual sequence				
8.6	Materials, e.g. paints				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
8.7	Consideration of future maintenance				
8.8	Others (insert as necessary)				
<b>9.</b>	<b>Concrete Construction</b>	<b>X</b>			
9.1	Working at height				
9.2	Plant restrictions				
9.3	Lifting operations				
9.4	Noise				
9.5	Vibration				
9.6	Temporary instability				
9.7	Pre/post tensioning				
9.8	Materials				
9.9	Maintenance				
9.10	Joints (scabbling should not be undertaken)				
9.11	Others (insert as necessary)				
<b>10.</b>	<b>Masonry Construction</b>	<b>X</b>			
10.1	Manual handling				
10.2	Lifting operations				
10.3	Materials				
10.4	Temporary stability				
10.5	Working at height				
10.6	Dust				
10.7	Durability				
10.8	Catastrophic collapse				
10.9	Others (insert as necessary)				
<b>11.</b>	<b>Timber Construction</b>	<b>X</b>			
11.1	Materials				
11.2	Working at height				
11.3	Temporary stability				
11.4	Lifting operations				
11.5	Manual handling				
11.6	Fire				
11.7	Dust				
11.8	Others (insert as necessary)				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
<b>12.</b>	<b>Cladding</b>				
12.1	Lifting operations				
12.2	Manual handling				
12.3	Maintenance / cleaning				
12.4	Others (insert as necessary)				
<b>13.</b>	<b>Glazing</b>	<b>X</b>			
13.1	Manual handling				
13.2	Lifting operations				
13.3	Cleaning / maintenance				
13.4	Others (insert as necessary)				
<b>14.</b>	<b>Mechanical/Electrical Systems</b>	<b>X</b>			
14.1	Access				
14.2	Existing services (asbestos?)				
14.3	Manual handling				
14.4	Materials / substances				
14.5	Confined spaces				
14.6	Pressure systems				
14.7	Testing operations				
14.8	Fixings				
14.9	Working at height				
14.10	Maintenance				
14.11	Others (insert as necessary)				
<b>15.</b>	<b>Railway Activities</b>	<b>X</b>			
15.1	Train movements				
15.2	Overhead lines				
15.3	Electrified track				
15.4	Underground services				
15.5	Adjacent structures				
15.6	Ground stability				
15.7	Contamination				
15.8	Others (insert as necessary)				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
<b>16.</b>	<b>Demolition of Existing Structures</b>	<b>X</b>			
16.1	Services				
16.2	Adjacent / adjoining structures				
16.3	Materials:				
	<ul style="list-style-type: none"> <li>Hazardous i.e. asbestos in permanent shuttering, waterproofing to bridge decks, joints etc.</li> </ul>				
	<ul style="list-style-type: none"> <li>fragile</li> </ul>				
16.4	Working at height				
16.5	Temporary stability				
16.6	Pre/post tensioning				
16.7	Noise				
16.8	Vibration				
16.9	Dust				
16.10	Effect on usage of demolition materials				
16.11	Others (insert as necessary)				
<b>17.</b>	<b>Future Demolition / decommissioning of new structure/installation</b>	<b>X</b>			
17.1	Unusual sequence				
17.2	Pre/post tensioned element				
17.3	Materials				
17.4	Adjacent/adjoining structure				
17.5	Temporary stability				
17.6	Contamination during usage of demolition material.				
17.7	Others (insert as necessary)				
<b>18.</b>	<b>Maintenance and Operation of Facility / Structure etc.</b>	<b>X</b>			
18.1	Access				
18.2	Safety equipment				
18.3	Testing / inspection				
18.4	Procedure				
18.5	Contamination during usage of demolition material.				
18.6	Others (insert as necessary)				
<b>19.</b>	<b>Use of the structure as a workplace</b>	<b>X</b>			
19.1	Does the proposed use of the structure / premises include the intention for it to be made available to any person as a place of work				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
19.2	If yes; the design and materials used must take in to account the provisions of the Workplace (Health, Safety and Welfare) Regulations 1992				

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**Part B: Hazard Elimination Checklist**

<b>Project Title:</b>	181 M4 J19-18 EB MP 181.1 - 177.8 RS	<b>Kier Highways Job No.:</b>	1050443
<b>Project Description:</b>	Taking pavement samples by coring at stated locations.		
<b>Design Discipline:</b>	Highways	<b>Prepared By:</b>	██████████
		<b>Checked By:</b>	██████████

**Note: If GG104 applies to your contract, the checklist must be approved by an appropriate person: For a Type A project the Scheme PD must approve, for a Type B projects the Senior Manager must approve and for a Type C project the Kier Highways Service Director must approve.**

Reviewed and approved by:


- \* **Persons at Risk:** (1) Workers                      (2) Users                      (3) Other parties
- \*\* **Action by:**
  - Principal Designer                      – Include within the H&S file
  - Designer                                      – include in the pre-construction information
  - Principal Contractor                      – manage risk during the construction phase
  - Other designer                              – take into consideration when preparing their designs
  - Client    – pass information to designers / Principal designer

Ref.	Activity	Hazard	Persons at Risk *	Design Measures taken, or being taken to eliminate or reduce the hazard	Information on the Residual Risk	Principal Designer Review	Action Req'd by: **
1.3, 1.16, 7.1, 7.2	Site access Traffic Traffic Management Adjacent Traffic	Collisions between site traffic and road users. Unauthorised access. Conflicting TM set ups.	1 & 2	Site access must be strictly through designated access and egress points from the main carriageway. Suitable traffic management to be provided in accordance with TSM Chapter 8. PC to determine whether full closure may be more suitable to	Risk remains reduced to lowest possible- Principal contractor to check TM is suitable and sufficient for the proposed works. Where required, trained and competent gatemen to ensure that no unauthorised access is	No further comment.	PC



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Ref.	Activity	Hazard	Persons at Risk *	Design Measures taken, or being taken to eliminate or reduce the hazard	Information on the Residual Risk	Principal Designer Review	Action Req'd by: **
				avoid potential conflict between TM setups	granted/permitted to the closed section of roads.		
1.5	Working adjacent to Water Course/Pond	Potential for ground to be soft, wet and flooded.	1 & 2	All staff to be briefed on potential boggy ground conditions & informed/supplied with Environment Agency Flood Alert System App. No work to occur while ground is flooded. Correct PPE to be worn.	The Principal contractor to employ safe system of work. Trained and competent operatives to carry out the task.	No further comment.	PC
7.3	Construction Materials	Working with concrete and bituminous reinstatement materials.	1 & 2	Not possible to design out working with reinstatement materials. Appropriate control measures are to be implemented and materials are to be used in accordance with Method Statements, Risk Assessments and COSHH Assessments.	The Principal contractor to employ safe system of work. Trained and competent operatives to wear appropriate PPE for the tasks carried out.	No further comment.	PC
2.1, 2.2	Underground Services Overhead Services	Service strike causing injury, death, burns, explosions and damage.	1, 2 & 3	Location of underground services within the extents of the works to be identified and protected in accordance with HSG47 and GS6 Contractor to use Statutory Undertakers information in addition to CAT scanning.	Risk remains – details to be provided in PCIP. Principal contractor to employ safe system of work for dealing services	No further comment.	PC