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, were 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

Project Title:	**M5 J22-21 Incl Exit Slip To Services NB MP177.9-175.4 RS**	**Kier Highways Job No.:**	**1050443**
Project Description:	**PDS Stage: 2 possible options; 1: Resurfacing, deep inlays, partial reconstruction in some areas (will require disposal of tar bound materials if present); 2: Cold in-situ recycling –disposal of tar bound materials if found not required**		
Design Discipline:	**Pavement – Feasibility Stage – Cores/DCP**		
Project Type as determined by GG104 (if applicable)	**A**	**Prepared By:**	[redacted]

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 -

Population 1 – People directly employed by the Client and who work on the site e.g. Traffic Officers. **Population 2** – People in a contractual relationship with the client.	**'Workers'**
Population 3 – 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.	**'Users'**
Population 4 – 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.	**'Other Parties'**

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
1.	**Existing Environment**				
1.1	Existing buildings	✓			
1.2	Previous/existing land/ structures	✓			
1.3	Roadways			✓	
1.4	Railways	✓			
1.5	Water course	✓			
1.6	Ground conditions:	✓			
	• Contamination				
	• Ground water				
	• Instability				
	• Mineral / mine workings				
1.7	Access restrictions	✓			
1.8	Adjacent properties	✓			
1.9	Concurrent site activities	✓			
1.10	Interface with the public			✓	
1.11	Occupied premises	✓			
1.12	Structural instability	✓			
1.13	Fragile materials	✓			
1.14	Hazardous materials		✓		
1.15	Land use	✓			
1.16	Traffic			✓	
1.17	Others (insert as necessary)				
2.	**Existing Services**				Stats returns to be included in handover package.
2.1	Underground				
	• Electrical			✓	UG services crossing the carriageway in several locations. See plans
	• Gas	✓			
	• Water (Asbestos pipes?)			✓	UG services crossing the carriageway in several locations. See plans
	• Telecommunications			✓	BT and highway communications crossings. See plans
	• 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	
2.2	Overhead Services				
	• Electrical			✓	33 kV OH @ MP176.5. See plans.
	• Telecommunications	✓			
	• Others (insert as necessary)				
3.	**Earthworks**	✓			
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)				
4.	**Foundations**	✓			
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:				
	• Noise				
	• Vibration				
	• Contamination				
	• Plant				
4.9	Grouting:				
	• Drilling work				
	• Dust				
	• Pollution				
4.10	Stability of structure				
4.11	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	
5.	**Services Installation**	✓			
5.1	Excavations				
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)				
6.	**Drainage Works**	✓			
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)				
7.	**Highways**				
7.1	Traffic management			✓	
7.2	Adjacent traffic			✓	
7.3	Construction materials			✓	
7.4	Structural works	✓			
7.5	Adjacent structures	✓			
7.6	Noise			✓	
7.7	Vibration			✓	

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
7.8	Coal TAR in pavement		✓		Tar presence to be determined by cores
7.9	Others (insert as necessary)			✓	Coring operation
8.	**Steelwork Construction**	✓			
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				
8.7	Consideration of future maintenance				
8.8	Others (insert as necessary)				
9.	**Concrete Construction**	✓			
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)				
10.	**Masonry Construction**	✓			
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)				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
11.	**Timber Construction**	✓			
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)				
12.	**Cladding**	✓			
12.1	Lifting operations				
12.2	Manual handling				
12.3	Maintenance / cleaning				
12.4	Others (insert as necessary)				
13.	**Glazing**	✓			
13.1	Manual handling				
13.2	Lifting operations				
13.3	Cleaning / maintenance				
13.4	Others (insert as necessary)				
14.	**Mechanical/Electrical Systems**	✓			
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)				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
15.	**Railway Activities**	✓			
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)				
16.	**Demolition of Existing Structures**	✓			
16.1	Services				
16.2	Adjacent / adjoining structures				
16.3	Materials:				
	• Hazardous i.e. asbestos in permanent shuttering, waterproofing to bridge decks, joints etc.				
	• fragile				
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)				
17.	**Future Demolition / decommissioning of new structure/installation**	✓			
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)				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		**Not Applicable**	**Low- NO Action Required**	**High – Action NEEDED**	
18.	**Maintenance and Operation of Facility / Structure etc.**	✓			
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)				
19.	**Use of the structure as a workplace**	✓			
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				
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				

Part B: Hazard Elimination Checklist

Project Title:	**M5 J22-21 Incl Exit Slip To Services NB MP177.9-175.4 RS**			**Kier Highways Job No.:**	**1050443**
Project Description:	**PDS Stage: 2 possible options; 1: Resurfacing, deep inlays, partial reconstruction in some areas (will require disposal of tar bound materials if present); 2: Cold in-situ recycling –disposal of tar bound materials if found not required**				
Design Discipline:	**Pavement – Feasibility Stage – Cores/DCP**	**Prepared By:**	**Vitali Losjuk**	**Checked By:**	**Qasir Hussain**

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

Reviewed and appro [redacted] **ove.**

* **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: **
	Existing Services						
2.1	Coring - Extraction	Underground Services: Electrical, water, telecommunications, etc.	Workers, Users, Other parties	Prior to any intrusive investigation being undertaken, locations will be checked (in accordance with the	Statutory Undertaker's information may not include privately owned	No further comment	PC

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: **
		Electrocution or explosion: Possibility of fatal injuries		contractor's methodology), for underground services. 'Permit to dig' must be issued for all intrusive works. Utility drawings must be on site at all times during intrusive works. All locations must be scanned using Radio Detection Cable Avoidance equipment.	supplies or connections. Controlled risk acceptable.		
2.2	Coring - Extraction	Overhead Services: Electrical lines - Severe injury or death	Workers, Users, Other parties	No equipment to come within 2.7m of Overhead Services. Overhead Services to be considered as live at all times. Utility drawings must be on site at all times during intrusive works.	Statutory Undertaker's information may not include privately owned supplies or connections. Controlled risk acceptable	No further comment	PC
	Highways						
1.3 1.10 7.1	Working within Traffic Management	Collision with traffic or causing traffic to collide with each other, site personnel or pedestrians: Possibility of severe/ fatal injury.	Workers, Users, Other parties	All TM to be designed and established in accordance with TSM Chapter 8. Choice of core locations to take into account TM required and rationalised where appropriate. Installation, maintenance and removal to be undertaken by trained operatives and in accordance with approved RAMS.	Controlled risk acceptable.	No further comment	PC
1.16 7.2	Traffic Working within Traffic Management	Traffic/ plant and machinery on the live carriageway and manoeuvring around the site - Collision with traffic or causing traffic to collide with each other with each	Workers, Users, Other parties	All TM to be designed and established in accordance with TSM Chapter 8. Installation, maintenance and removal to be undertaken by trained operatives and in accordance with approved RAMS.	Controlled risk acceptable.	No further comment	PC

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: **
		other, site personnel or pedestrians: Possibility of severe/ fatal injury.					
7.3	Pavement – Core hole reinstatement	Construction materials: Cement-based products – when mixed with water or when a strong alkaline solution is produced causing irritation to the skin, damage to nerve endings and resulting in chemical burns. Risk of burning when in contact to the eyes. Bituminous macadam products – risk irritation when in contact with the skin and eyes. Risk of discomfort during inhalation when exposed to product for long periods of time.	Workers	Activities shall be controlled by the PC's RAMS.	Controlled risk acceptable.	No further comment	PC
7.6 7.7 7.8 7.9	Pavement - Core Drilling	Noise, Vibration, manual handling, equipment failures. Tar-containing materials within bituminous layers	Workers, Other parties	Activities shall be controlled by the PC's RAMS. COSHH measures to be in place	Controlled risk acceptable.	No further comment	PC
7.9	Coring - Handling cores	Manual handling – potential for injury	Workers	Activities shall be controlled by the PC's RAMS.	Controlled risk acceptable.	No further comment	PC