

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

Project Title:	M4 J15-16 EB MP125.9	Kier Highways Job No.:	HE570127L
Project Description:	Technical surveys including drainage asset condition survey, geotechnical ground investigation and topographic survey		
Design Discipline:	Geotechnical		
Project Type as determined by GG104 (if applicable)	n/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,*
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.	'Workers'
Population 2 – People in a contractual relationship with the client.	
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			✓	Working on Motorway. Split level carriageways. TM required both for verge and central reservation surveys. Defective hardshoulder closed. Concrete barrier at central reserve.
1.4	Railways	✓			
1.5	Watercourse			✓	Ditch at toe of slope
1.6	Ground conditions:				
	• Contamination			✓	Embankment fill of unknown nature. Classify site as yellow.
	• Groundwater		✓		Groundwater collected by subsoil drainage for which there is little detail. No source protections zones or local abstractions
	• Instability			✓	Crest of embankment is soft at places but slope does not show significant defects. Cracking and subsidence confined to hardshoulder. Debris accumulation at outfall may indicate washout of embankment fill.
	• Mineral / mine workings	✓			
1.7	Access restrictions			✓	Access/egress to site from M4 mainline. Restrictions on timing of TM
1.8	Adjacent properties		✓		Burderop Wood and pasture land to the west with possible livestock present. Boundary fence in place.
1.9	Concurrent site activities		✓		Other surveys may be programmed to take place at same time to maximise use of TM
1.10	Interface with the public		✓		No public access except in the event of a vehicle breakdown or emergency
1.11	Occupied premises	✓			
1.12	Structural instability	✓			
1.13	Fragile materials	✓			
1.14	Hazardous materials			✓	Potential for asbestos in drains but intrusive works not required
1.15	Land use	✓			
1.16	Traffic			✓	High speed traffic – unlikely to be able to get a speed limit in place for the surveys

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
1.17	Protected species/soft estate		✓		Habitat suitable for nesting birds, reptiles and amphibians. Vegetation clearance in winter months to be undertaken under ecological supervision for hibernating reptiles/amphibians.
1.18	Outdoor working			✓	Welfare facilities to be provided as part of the works.
1.19	Steep slopes			✓	Maximum of 31° batter. Alternative access to toe of embankment available.
1.20	Noise			✓	Traffic noise – works will be undertaken at night when traffic flows are less
1.21	Night working			✓	Required due to TM restrictions
1.22	Infections such as Leptospirosis / Weils disease, Hepatitis B and Tetanus			✓	Working near watercourse, livestock in adjacent field and wire fences
1.23	COVID-19			✓	Particular attention required in terms of welfare facilities
2.	Existing Services				
2.1	Underground				
	• Electrical	✓			
	• Gas	✓			
	• Water	✓			
	• Telecommunications			✓	Underground motorway comms cables
	• Highway Drainage			✓	Condition of drainage estimated poor, with indication of washout of materials.; risk for carriageway from jetting of central reservation or cross carriageway assets. Risk of damage during drilling as some may be deeper than hand dug trial pits can be excavated
2.2	• Overhead Services	✓			
3.	Ground Investigation				
3.1	Unsupported excavations		✓		Hand digs -max depth 1.2 Boreholes – small diameter (<150mm)
3.2	Slope / ground stability			✓	Borehole set up on verge
3.3	Groundwater		✓		See 1.6
3.4	Watercourses			✓	Risk of pollution from borehole flush
3.5	Plant movements			✓	See 1.3, 1.7 and 1.16
3.6	Interface with services (refer 2)			✓	See 2.1
3.7	Confined spaces	✓			No man access to trial pits required
3.8	Noisy operations			✓	SPTs and percussive sampling is noisy

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
3.10	Manual Handling		✓		Vehicle access so carrying of bulk samples/heavy tools for long distances not required
3.11	Lifting operations	✓			
3.12	Mud/debris			✓	Mud on road and or debris from drilling
4.	Foundations	✓			
5.	Services Installation	✓			
6.	Drainage Survey				
6.1	Excavations			✓	Locating buried covers in vicinity of stats
6.2	Groundwater		✓		See 1.6
6.3	Ground conditions		✓		See 1.6
6.4	Confined spaces			✓	Access to chambers/manholes
6.6	Existing services (asbestos pipes?)			✓	Nature of pipework is unconfirmed. Purpose of survey is to locate and survey pipes without damaging them.
6.7	Manual handling			✓	Covers to catchpits/manholes may not have been removed for some time
6.8	Lifting operations	✓			
6.9	Maintenance	✓			
6.10	Sewage	✓			
6.11	Traffic			✓	See 1.16
6.12	Contamination (ground / water)		✓		See 1.6
7.	Highways	✓			
8.	Steelwork Construction	✓			
9.	Concrete Construction	✓			
10.	Masonry Construction	✓			
11.	Timber Construction	✓			
12.	Cladding	✓			
13.	Glazing	✓			
14.	Mechanical/Electrical Systems	✓			
15.	Railway Activities	✓			
16.	Demolition of Existing Structures	✓			
17.	Future Demolition / decommissioning of new structure/installation	✓			
18.	Maintenance and Operation of Facility / Structure etc.	✓			

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

FOR INFORMATION ONLY

Part B: Hazard Elimination Checklist

Project Title:	M4 J15-16 EB MP125.9		Kier Highways Job No.:	570127L
Project Description:	Technical surveys including drainage asset condition survey and geotechnical ground investigation			
Design Discipline:	Geotechnical	Prepared By:	Checked By:	

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

Reviewed

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Action by:

Principal Designer
Designer
Principal Contractor
Other designer
Client

- Include within the H&S file
- include in the pre-construction information
- manage risk during the construction phase
- take into consideration when preparing their designs
- pass information to designers / Principal designer

(2) Users

(3) Other parties

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, 1.7, 1.16, 3.5, 6.11	All surveys	Working adjacent to live traffic/ accessing site	1, 2	Works to be undertaken within TM	ALARP	No further comment.	Client/ Principal Contractor
1.5, 3.4	Ground Investigation & Drainage Survey	Pollution from drilling flush or jetting of drains	3	GI framework requires all flush to be re-circulated/treated before entering drains.	ALARP	No further comment.	Principal Contractor/ Contractor
1.6	Ground Investigation	Possible contaminated fill	1	Class site as yellow in accordance with SISG 4.	ALARP	No further comment.	Principal Contractor/ Contractor
1.6, 1.19, 3.2, 6.3	All surveys	Working on unstable ground and steep/uneven slopes	1	Unavoidable - Surveys required of assets at crest and toe of embankment.	ALARP	No further comment.	Principal Contractor/ Contractor
1.14, 6.6	Ground Investigation & Drainage Survey	Potential for drains to contain Asbestos	1	AAP reviewed. Risk highlighted herein	If drains are inadvertently damaged, then asbestos should be encapsulated.	No further comment.	Principal Contractor/ Contractor
1.18	All surveys	Outdoor working	1	Ensure welfare facilities are included in works specification with provision of heating, drying and drinks	ALARP	No further comment.	Principal Contractor/ Contractor
1.20	All surveys	Noise	1	Unavoidable	Hearing protection required as advised by PC	No further comment.	Principal Contractor/ Contractor

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: **
1.21	All surveys	Night working	1	Unavoidable due to TM restrictions	Tiredness as a result of changing from day to night shifts. PC to ensure adequate breaks taken between shifts and changes from day to night shift and vice versa	No further comment.	Principal Contractor/ Contractor
1.22	All surveys	Contact with potentially contaminated highway sediments, run off and organic materials in existing system. Blood borne viruses (BBVs) and leptospirosis. Livestock/Rats	1	Unavoidable due to site location	Unable to avoid complete contact with potentially contaminated highway sediments, run off or organic materials. Contractor to ensure that all site personnel have appropriate PPE including suitable eye protection and waterproof gloves and that welfare with hand washing facilities is present	No further comment.	Principal Contractor/ Contractor
1.23	All surveys	COVID 19	1	None – Govt advice is construction should continue unless social distancing cannot be practiced	Highest risk is use of welfare facilities, so provision of appropriate cleaning materials and a toolbox talk is required	No further comment.	Principal Contractor/ Contractor
2.1, 3.6, 6.1	All Surveys	Underground services	1, 2	C2 stats returns obtained before works start and included with tender package. As built and historical information obtained to guide drainage assets inventory and condition survey.	Deep drainage present which is deeper than hand dug pits or ground probing radar is likely to find	No further comment.	Principal Contractor/ Contractor
3.12	Ground Investigation	Mud on road	1,2	GI framework requires all flush to be re-circulated/treated before entering drains. Specification to include sweeping/washing all roads before TM removed	ALARP	No further comment.	Principal Contractor/ Contractor

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: **
6.4	Drainage Survey	Confined spaces – access to deeper pipe runs from chambers	1	Unavoidable	Trained personnel required	No further comment.	Principal Contractor/ Contractor
6.7	Drainage Survey	Manual handling – manhole covers seized	1	Unavoidable	Mechanical lifting aids to be used.	No further comment.	Principal Contractor/ Contractor