



Appendix A
Designer's Risk
Assessment



DESIGNER'S ASSESSMENT OF RISK
Bus Connects - Ballymun/Finglas to City Centre CBC
PRELIMINARY DESIGN STAGE

19.117



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 EFD / SMG

Notes:

- 1 This Design Risk Assessment has been prepared on the basis of the Preliminary Design developed by ROD-TYPSA so that construction and operational risks can be reduced where possible and best managed.
- 2 A Preliminary Safety & Health Plan (PSHP) shall be prepared by the Designer and issued to the Contractor to assist in the preparation of the Construction Safety & Health Plan (CSHP).

The Contractor will provide safety induction for all personnel and carry out site specific health & safety risk assessments for each works element.
- 3 All necessary PPE should be provided.

Identified Hazard or Risk. (P) indicates a Particular Risk listed in Schedule 1 of the Regulations	Exposed Party				Evaluation, Design Decisions and / or Alternative Actions Description of risk or hazardous activity Describe the design decisions, assumed construction methods and / or alternative actions	Is the risk of a substantial or unusual nature such that information should be provided to the PSDP?
	Contractor	Public	End User	Maintainer		
Work which puts persons at work at risk of falling from a height (P)	✓	✓			At all excavations. Construction of bridges over the railway lines will require measures to protect workers and pedestrian falling from the street level to the railway below. Suitable protective measures shall be provided by the Contractor.	Yes
Work which puts persons at work at risk of burial under earthfalls (P)	✓				Limit depths of trenches required for drainage pipes and utility duct as much as possible. All trenches and excavations greater than 1.2m in depth shall be suitably supported. Suitable protective measures shall be provided by the Contractor.	No
Work which puts persons at work at risk of engulfment in swampland (P)					N/A	N/A
Work which puts persons at work at risk from chemical or biological substances (P)	✓	✓			The design requires excavations in unknown ground conditions that will vary according to location. Towards the City Centre the streets were previously widened and buildings demolished with potential for remnant materials below ground. The design requires connections to existing combined sewers. The design may require the use of chemical sprays, paints or thinners. The design requires handling of in-situ concrete. Work with Hot Mix Asphalt anticipated. Sufficient ground investigation and testing will be carried out to determine the chemical make-up of the ground. All ground investigation testing information is to be provided to the Contractor. Combined sewers should be adequately vented prior to personnel entering. Confined spaces training shall be provided to all personnel entering combined sewers. Personnel shall be provided with adequate breathing apparatus. Personnel shall be provided with suitable special PPE including breathing apparatus while using chemical sprays, paints and thinners, and such works areas will be suitably screened from the public. Personnel handling in-situ concrete shall be provided with appropriate PPE. Chemicals that are hazardous to health shall be stored in a suitable secure location.	No
Work with ionising radiation (P)					n/a	N/A
Work near high voltage power lines (P)	✓				The design requires works in the vicinity of high voltage cables. All existing utility information will be provided to the Contractor. The Contractor shall contact utility providers and satisfy themselves to the location of high voltage cables prior to commencing works.	No
Work exposing persons at work to the risk of drowning (P)	✓	✓			The design requires works for bridges over the Royal Canal and adjacent to the River Tolka. The detailed design will make provision for adequate pedestrian restraint systems to ensure members of the public do not inadvertently fall into watercourses and entrances to culverts. The Contractor shall carry out site specific health & safety risk assessments for construction works adjacent to all watercourses and provide safety induction for all personnel. All necessary PPE should be provided including buoyancy aids as appropriate. The Contractor shall erect suitable edge protection adjacent to ensure workers do not inadvertently fall into a watercourse.	No
Work involving the use of explosives (P)					n/a	N/A
Work involving the assembly or dismantling of heavy prefabricated components (P)	✓	✓			The design requires works involving handling of heavy components for construction of bridges, retaining walls, drainage pipes, manholes and erection of traffic signal poles and signs and public lighting columns. Specific mention to construction of Royal Canal footbridge with assembly of steel deck and arches Heavy components shall have adequate lifting rings or secure attachment points, etc. The Contractor shall employ a safe system of work and adequate ropes/chains for the erection of poles and columns.	No

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	Contractor	Public	End User	Maintainer		
Confined Spaces	✓				<p>The design requires works in existing and proposed manholes and culverts, and potentially cellars.</p> <p>Personnel undertaking these elements of work shall have adequate confined spaces training.</p>	No
Construction Traffic	✓	✓			<p>The design requires access and movement by construction machinery and vehicles for works along existing roads and streets that require to cater for public access to properties at all times. Entries and egresses from site to busy streets anticipated.</p> <p>The Contractor shall plan for each works zone with provision for safe movement of machinery and traffic.</p> <p>Construction traffic shall use designated entry/egress points to enter public spaces and along designated access routes to the site, with suitable barriers around work zones and associated warning signs and active traffic management.</p> <p>Construction vehicles and machinery shall be in good working order, with flashing beacons and reversing warning alarms.</p>	No
Railway	✓			✓	<p>The design will require 2 bridges to be constructed over live railway lines.</p> <p>The Contractor will arrange suitable edge protections and railway possessions for bridge erection works in agreement with Iarnród Éireann.</p>	Yes
Tram Line	✓			✓	<p>The design will require minor works close to tram lines at 3 locations.</p> <p>The Contractor will arrange suitable edge protections adjacent to tram lines for adjoining works in agreement with the tram operator.</p>	Yes
Demolition, including removal of trees	✓	✓			<p>The design requires the demolition of existing structures and street furniture and some tree removal.</p> <p>Demolition of existing retaining walls near populated streets will require adequate pedestrian traffic diversions and protection of uncontrolled material falls to nearby traffic lanes.</p> <p>Demolition of walls near railway tracks require adequate measures to avoid falls to railway</p> <p>Public Safety shall be ensured through provision of suitable buffer zones around all demolition works.</p> <p>The Contractor shall provide safety induction for all personnel and carry out site specific health& safety risk assessments for each demolition process.</p> <p>The Contractor shall develop a safe system of work and provide temporary support where required.</p>	No
Dust	✓	✓			<p>Dust may be generated as part of the Works.</p> <p>It is not possible to eliminate the risk of generation of dust as this is inherent in construction activity. The contractor shall implement suitable site control measures to minimise disturbance and dispersal of dust and dirt. All works are to be undertaken in accordance with National Guidelines for the Prevention of Nosocomial Invasive Aspergillosis During Construction Activities" issued by the National Disease Surveillance Centre. All operatives should be provided with suitable PPE and undertake a site specific safety induction and regular tool box talks.</p>	No
Excavations	✓	✓			<p>The design requires excavations for structures, drainage and utilities, which may be located close to public movements along the road or street.</p> <p>Ground Investigation Reports will be provided to the Contractor.</p> <p>The Contractor shall provide temporary support to all excavations.</p>	No
Flooding	✓	✓	✓	✓	<p>There is a risk of flooding along the River Tolka, and in the existing drainage systems. Royal Canal is also crossed by the project</p> <p>A Flood Risk Assessment shall be undertaken in the design process to inform the provision of suitable watercourse and drainage capacity to reduce flood risks as much as practicable during the works and operations stages.</p> <p>A flood warning and monitoring system shall be provided upstream of the works areas in conjunction with the local authority and Office of Public Works as appropriate.</p> <p>Sufficient flow capacity shall be provided in all temporary watercourse diversions and temporary drainage systems to minimise the risk of flooding being caused by the works.</p> <p>Protective measures shall be provided to minimise the risk of flood waters encroaching on public areas and private properties.</p>	Yes

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	Contractor	Public	End User	Maintainer		
Live Traffic	✓	✓	✓	✓	<p>The design requires works in a live road including provision of replacement and new utilities that will require future access for maintenance.</p> <p>Severe Affection to busy road North Circular Road during construction of underpass</p> <p>All utilities shall be located where possible in the footpath or near the road edges to limit interactions with live traffic during construction and maintenance.</p> <p>The Contractor will plan the arrangements for each works zone to provide suitable protection from and for live traffic.</p> <p>The Contractor will agree TTM (in accordance TSM) with the local authority and relevant stakeholders.</p>	No
Presence of Asbestos	✓	✓			<p>Unknown and to be determined in the Design Process through Ground Investigation and Utility Records for watermains.</p> <p>In the event that any asbestos material is encountered on site, best practice guidelines in relation to the removal, storage and transportation shall be followed.</p>	No
Slips & Trips	✓	✓			<p>Slips, trips and falls are a risk on uneven ground or where the construction works require an existing public route to be diverted.</p> <p>Works areas shall be managed in a tidy manner to minimise slip and trip hazards for site operatives.</p> <p>Footway diversions shall be constructed to a high quality to avoid risk to the general public of slips, trips or falls.</p>	No
Unauthorised Access		✓			<p>The site is located adjacent to residential and commercial properties along public roads.</p> <p>The Contractor shall secure the works areas to prevent unauthorised access at all times.</p>	No
Vibration	✓				<p>White Finger or other occupational hazards associated with pneumatic tools.</p> <p>The Contractor shall take measures such as limiting exposure durations for operatives.</p>	No
Welfare	✓				<p>The Contractor shall provide adequate welfare facilities for all site personnel.</p>	No
Weils Disease and other mammal borne diseases	✓				<p>The Contractor shall provide safety induction for all personnel about this risk and to adopt safe working practices including use of gloves and washing of exposed skin and potentially contaminated clothing.</p>	No
Work involving exposure of people to excessive noise	✓	✓			<p>Large plant and machinery will be required for the works in close proximity to homes and work locations. Construction vehicles and demolition works may cause puntual noise increase. Additional noise on piling works needs to be mitigated and the work reduced to morning hours</p> <p>The Contractor shall use the most quiet suitable machinery available and silencers/mufflers or alternative construction methods.</p>	No
Contamination of watercourses or groundwater	✓	✓			<p>The design requires works adjacent to the watercourses that are vulnerable to pollution. Construction of abutments of the Royal Canal footbridge will require special measures to avoid canal water pollution</p> <p>The Contractor shall undertake the Works in such a manner as to avoid degradation of water quality either by pollution from oil spills or contamination by chemical substances or silt.</p>	No
Additional Risk: Personal Security	✓				<p>The Site is located in an an urban area potentially at risk of anti social behaviour</p> <p>The Contractor's personnel should not be present alone on site in hours of darkness or in secluded locations away from public surveillance. Threatening behaviour directed at the Contractors Personnel should be notified to An Garda Síochana.</p> <p>It is assumed the Contractor will not leave equipment unattended or unsecured outside working hours.</p>	No

Other parties please take note: These are the designer's risk evaluations of the design carried out for the purpose of complying with the designers' duties under the Safety, Health and Welfare at Work (Construction) Regulations 2013. The evaluations relate only to those aspects/elements of the project which the Designer is responsible under the terms of appointment by the Employer. Other parties should not rely on these evaluations for their own purposes; in particular, contractors, who must deal with and control all risks arising during construction, must carry out their own definitive risk assessments *ab initio* for that purpose.