Measures to minimise the risk to the marine environment

1. There is the potential for the works to impact on the marine environment without suitable mitigation. Therefore, the following mitigation measures will be implemented to prevent and/or minimise risk to the marine environment:

- Potential construction effects will be minimised by following construction best practice and;
- Implementing Guidance on Pollution Prevention (GPPs)1, 2 and 5, plus the Construction Industry Research and Information Association (CIRIA) C715 Environmental good practice on site handbook

https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/guidance-for-pollution-prevention-gpps-full-list/

- Development of an emergency response procedure for accidental pollution evens.
- All construction materials to be stored in accordance with the relevant regulations within the Site compound on existing hardstanding. This will minimise the risk of pollution from plant and materials stored within the compound.
- All gaps around scaffold tubes will be sealed prior to grit blasting to ensure dust is not released.
- The works to the piers and main structure, via scaffolding will take place behind a Monoflex polythene sheeting or similar to provide an impermeable barrier between the work activities and the watercourse below.
- Daily checks of the encapsulation will be undertaken to ensure it is intact, if not remedial action will be taken to reinstate the encapsulation.
- On completion of the works, all sheeting will be carefully removed from the scaffold and bagged up for safe disposal.
- Implement the recommendations as outlined in the Habitat Regulations Assessment and Preliminary Ecological Appraisal to minimise disturbance to flora and fauna from the works.
- Biosecurity control measures will be enforced for works on/near the watercourse.

2. Flooding risks will be minimised by the following approaches:

- Ensure all work is carried out above the 1-in-100 year flood event as per design.
- Additional protection to the water environment will be provided by encapsulation of the temporary scaffolding constructed around the bridge, above MHW.
- The site compound and working areas will be secured to prevent unauthorised access.
- Tidal water levels will be monitored daily.
- Site staff will register to receive flood warnings. Should flooding be expected, all site activities will be stopped. All equipment and material will be removed from the site and encapsulation sheeting will be removed, leaving the scaffold in place, but allowing water to move freely through the structure.

3. To minimise any undue interference to others, the following approaches will be taken:

- The Site compound and works areas will be fully secured to prevent unauthorised access.
- Vehicles will be confined to the site compound area (excluding delivery of materials by road rail vehicles from track)
- Majority of works will be undertaken during daylight hours minimising disturbance to local residents.

4. To maintain navigational safety, including marking and lighting of works; consultation was undertaken with the Marine and Coastguard Agency and Trinity House. These organisations were satisfied that the risk to river users is low. They have also recommended the following:

- Issue a Notice to any local users to give warning about the works to the few river users who may be affected.
- Bunding and/or storage facilities must be installed to contain and prevent the release substances/equipment into the marine environment.
- Measures should be implemented to prevent any material falling into the water, and that all equipment, temporary structures, access tracks, waste and/or debris associated with the works will be removed on completion of the works.
- Suitable warning and lighting will be required to advise recreational users of the temporary scaffold and any reduction in headroom under the bridge as a result of the scaffolding being constructed under it.

Data and information				Judgement			Action (by permitting)		
Receptor	**Source**	**Harm**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
What is at risk? What do I wish to protect?	**What is the agent or process with potential to cause harm?**	**What are the harmful consequences if things go wrong?**	**How might the receptor come into contact with the source?**	**How likely is this contact?**	**How severe will the consequences be if this occurs?**	**What is the overall magnitude of the risk?**	**On what did I base my judgement?**	**How can I best manage the risk to reduce the magnitude?**	**What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).**
Local population	Increased flood risk	Impact on local population and businesses, damage to property	Out of channel flow	Low	Medium	**Medium**	Working with equipment near and over watercourse could pose flood risk	The watercourse will not obstructed during the works; Position of Pontoon will still allow river flows and sitting on top of water displacement is minimised; Scaffolding ties into bridge structure only, with sufficient distance between bottom of scaffold and watercourse; Site compound area is located at sufficient distance from watercourse and above MHW; All equipment installed as per temporary works design; All equipment shall be maintained in accordance with the manufacturers instructions; A Permit to Work Within a Watercourse shall be completed daily; Site Agent shall sign up to Flood Alerts for the catchment & local weather forecasts monitored, if adverse weather is forecast, works to be reassessed.	Low
Habitat and species	Damage or disturbance of fauna on site from activities	Damage or loss of fauna	Direct or indirect damage from activities on site	Medium	Medium	**Medium**	Work activities and presence of people in a natural environment	Ecology survey conducted prior to works starting and all recommendations adhered to; If protected species are seen during the works they will remain undisturbed and an ecologist will be contacted; Biosecurity (check, clean, dry) will be implemented on site.	Low
Habitat and species	Non-native invasive species	Spread invasive plants/animals- damage local ecosystem, spread of diseases, harm to protected sites	In-channel movement, coming into contacted with invasive plants/seeds/berries	Low	Medium	**Low**	Working in the water/near invasive plants may cause the spread of species/seeds.	No identified invasive species on site, but will implement CHECK-CLEAN-DRY procedure on site for all staff and equipment as standard; If any non-native invasive plants found on site- Implement exclusions zones; Conduct toolbox talks prior to works to ensure all staff are aware of the risks.	Low
Water quality	Potentially polluting materials used near watercourse	Increase in sediment load, reduction in water quality	Direct run-off from site activities	Low	Medium	**Low**	Potential debris/spills effecting water quality	No refuelling of plant within 10m of the watercourse; Polluting materials will be stored at least 10m from the watercourse; No loose materials to be stored/left on floating pontoon; Full encapsulation and double board/terram sheeting of scaffolding during bridge refurbishment works; Grit blast activity will utilise contained vacuum system to remove arisings from scaffold; Suitable and sufficient spill kit materials available; Static plant will be stored on plant nappies Pollution prevention measures in place i.e. secondary containment measures to be in place at point of work during painting works; A Permit to Work Within a Watercourse will be completed daily.	Low
Water quality and preventing contamination	Activities associated with work activities and storage of materials	Water pollution and ground contamination	In-channel flow. Pollution from associated / support activities carried out.	Medium	Medium	**Medium**	Working near water/working with materials that are not normally present	Working areas will be kept clean and litter free; Any wastes generated will be stored securely; Different types of waste will not be mixed and stored separately and in correct receptacles; Waste Duty of Care checks carried out prior to works starting	Low