



SILVERTOWN TUNNEL

DOCUMENT TITLE:

Emergency Preparedness and Response Plan (EPP)

DOCUMENT NUMBER:

ST150030-RLC-ZZZ-XX-ZX-PLN-EN-0003

Asite Task ID: STT-DCO-0ZZ.12.1.32

PURPOSE OF ISSUE	For Acceptance	DOCUMENT SUITABILITY	S3 - For Review & Comment	TOTAL PAGES (Including this page)	42
-------------------------	----------------	-----------------------------	---------------------------	--	----

Prepared by	Checked by	Approved by	Date	Revision
			28/04/2020	P03
CJV Health and Safety Manager	CJV Assurance Manager	CJV Project Director		

© Copyright: This document is the property of Riverlinx CJV and may not be reproduced, copied or transmitted without prior permission of the Project Director.

UNCONTROLLED WHEN PRINTED

ST150030-RLC-ZZZ-XX-ZX-PLN-EN-0003

Revision P03

28/04/2020

Issue and Revision Control

Distribution and revision control is managed through the Electronic Document Management System – ASITE, with the latest revision displayed.

Document uncontrolled when printed.

Revision History			
Rev No	Date	Summary of Changes	Section & Number
P01	11/02/2020	First Issue	
P02	20/02/2020	Revised to incorporate RiverLinx review comments	Emergency contacts (page 41)
P03	28/04/2020	Revised to incorporate TfL review comments of P01 & P02 Also updated to include: - change of Ferrovial SMS ISO certification	Section 1, page 6 Section 2, page 5 Section 9, page 35

Contents

1. Purpose	5
2. Scope	5
3. Reference Documents and Definitions	6
3.1 Reference documents	6
3.2 Definitions	6
4. Roles and Responsibilities	7
4.1 Incident Co-ordinator (IC)	7
4.2 Offsite Incident Co-ordinator (OIC)	7
5. Consultation with emergency services	8
6. Potential types of emergency scenarios	8
7. Evaluation of emergency risks	9
7.1 Assessment	9
7.2 Prevention	9
7.3 Preparation	9
7.4 Response	10
7.5 Recovery	11
8. Drill exercises	12
9. Training	12
10. First response (work sites)	13
10.1 Initial Action by the Incident Controller	13
11. Security	14
11.1 Site boundaries	14
11.2 Controlling access into Riverlinx CJV work sites and offices	14
12. Contingency equipment arrangements	16
12.1 Emergency alarms and testing	16
12.2 Communication Equipment	16
12.3 Lighting	16
12.4 Emergency equipment	17
13. Emergency scenario guidelines	18
13.1 Fire incidents and emergencies	18
13.2 Serious illness	19
13.3 Incidents involving serious injury or fatality	20
13.4 Escape of hazardous substances e.g. gas leak, oil/fuel spill, flammable / explosive gases etc	21
13.5 Structural instability, including face collapse	22
13.6 Ventilation failure	22
13.7 Unexploded ordnance (UXO)	22
13.8 Flood / inundation	23
13.9 Overturning of cranes or other catastrophic crane failure	24

13.10 River / marine incidents.....	24
13.10.1 Landside incidents (Person overboard).....	25
13.10.2 Collision with berth	26
13.10.3 Working over or near water controls	27
13.10.3a Personal buoyancy equipment and life jackets	27
13.10.3b Water safety management plans (WSMP).....	28
13.11 Training.....	29
Appendix 1 – Person in Water – Emergency Procedure	30
Appendix 2 – Life jacket pre-wear checks	31
Appendix 3 – Inspection and maintenance.....	32
Appendix 4 – Emergency Spill Response Plan	33

1. Purpose

This Emergency Preparedness and Response Plan (referred to as the EPP in this document) sets out the strategic approach for the emergency arrangements for the Silvertown Tunnels (STT) construction project, to identify the potential for emergency situations at Riverlinx CJV managed sites, and to develop arrangements to respond to such emergencies. To periodically test all emergency response situations and where applicable include all interested parties.

In accordance with Schedule 8 of the D&C Contract, Riverlinx CJV will submit to RiverLinx, for review, the proposed EPP and will only be implemented once it has been endorsed by RiverLinx as “received” or “received with comments” in accordance with the Review Procedure (Schedule 9). This requirement extends to any amendments to the Fire Plan throughout the duration of the STT project.

2. Scope

This EPP applies to all Riverlinx CJV operational work locations and is to be read in conjunction with the Riverlinx CJV Fire Plan.

This EPP provides a framework for the preparation of the emergency arrangements required by law, in particular Regulation 30 of the Construction (Design and management) Regulations 2015:

(1) Where necessary in the interests of the health or safety of a person on a construction site, suitable and sufficient arrangements for dealing with any foreseeable emergency must be made and, where necessary, implemented, and those arrangements must include procedures for any necessary evacuation of the site or any part of it.

(2) In making arrangements under paragraph (1), account must be taken of -

(a) the type of work for which the construction site is being used;

(b) the characteristics and size of the construction site and the number and location of places of work on that site;

(c) the work equipment being used;

(d) the number of persons likely to be present on the site at any one time; and

(e) the physical and chemical properties of any substances or materials on, or likely to be on, the site.

(3) Where arrangements are made under paragraph (1), suitable and sufficient steps must be taken to ensure that -

(a) each person to whom the arrangements extend is familiar with those arrangements; and

(b) the arrangements are tested by being put into effect at suitable intervals.

Note: Whilst Riverlinx CJV continue to work on developing the content, including supporting process procedures, forms and standards as described in the Riverlinx CJV OHS&W management system manual, the Riverlinx CJV senior management have agreed that the Ferrovial safety management system (SMS) will be adopted. The Ferrovial SMS is ISO 45001:2018 certified.

3. Reference Documents and Definitions

3.1 Reference documents

Construction (Design and management) Regulations 2015
Management of Health and Safety at Work Regulations 1999
PPG21 Pollution Incident Response Planning (Environment Agency)
D&C Schedule 8 – Management Systems

3.2 Definitions

Terminology	Definition
Incident	An occurrence or event that interrupts normal process or precipitates a crisis.
Emergency	A situation that poses an immediate risk to life, health, property or the environment and that, in most cases, require urgent intervention to prevent a worsening of the situation.
Hazard	A situation that, if left un-addressed, may result in an injury, loss or damage of some kind.
Risk	The combination of the likelihood and the consequences of a specified hazardous event (incident). A risk then always has two elements, 1) the likelihood that a hazard may occur and, 2) the consequences (severity) of the hazardous event
Structural instability	Any change in a structure resulting in it becoming unsafe.

4. Roles and Responsibilities

4.1 Incident Co-ordinator (IC)

The Riverlinx CJV Project Director or Construction Director appoints an Incident Coordinator (IC). In many circumstances there will be a requirement for a number of such appointments and delegated deputies. This is to ensure that large sites have IC's working within reach of any incident and to ensure that shift patterns, holiday cover and other eventualities are sufficiently covered. IC's will be receiving training in the content and requirements of this EPP in addition to being involved, where required, in the development of location and/or task specific emergency plans. IC's will also attend the RiverLinx CJV chaired 'blue lights' emergency working group where further specialist advice, guidance and, where available, training provided by the local emergency services 'blue lights' working group.

IC's are responsible for the control and co-ordination of the Riverlinx CJV response to the incident in particular they will;

- Input into the emergency planning process
- Be familiar with all of the emergency plans for the project, office or depot
- In the event of an emergency, respond by taking up their duties as the incident coordinator and assuming full charge of the response
- Obtains a full briefing on the situation from persons at the scene
- Ensure that the appropriate emergency plan is implemented without delay
- Confirm that the emergency services have been contacted
- Ensure that suitable arrangements are in place to receive the emergency services, to allow assess through any security or client access requirements and direct them to the correct location for the incident
- Hand over the site to the emergency services when required and confirm with the emergency services when they have handed to site back
- Ensure that Riverlinx CJV reporting requirements are being followed and that the appropriate people are aware of the incident as soon as practicable – this must include the Riverlinx CJV Project Health and Safety Manager, Construction Director and Project Director
- Arrange for the preservation of evidence and protection of areas were evidence exists until handing this over to an investigation team
- Arrange for a record of all personnel present at the location at the time and involved in the recovery to be taken and given to the investigation team
- Arrange for any additional onsite support if needed
- If appropriate, liaise with the Offsite Incident Coordinator

4.2 Offsite Incident Co-ordinator (OIC)

If it is identified that there is potential for a serious incident the Project Director nominates an Offsite Incident Coordinator and deputies (OIC) for the project, office or depot. The OIC may be nominated for several different Riverlinx CJV work locations using a risk-based approach. The OIC will also attend the RiverLinx CJV chaired 'blue lights' emergency working group where further specialist advice, guidance and, where available, training provided by the local emergency services 'blue lights' working group.

The OIC must be senior enough within the Riverlinx CJV project team to have the authority to co-ordinate resources and support as necessary.

The OIC will:

- Liaise with the deputy OIC to ensure at least one of them is available at all times in case of an incident requiring their assistance
- Ensure that they carry a means of emergency contact with them at all times at which they are on call
- In the event of notification of an incident by the Incident coordinator, decide whether or not a communication centre is required. If required, the OIC goes to that centre takes control of that centre.

- Liaises with the Incident coordinator throughout the event
- Liaises with the Riverlinx CJV Project Director regarding media contact and updates
- Liaise with client
- Liaise with Police / Regulatory bodies
- Liaise with the Riverlinx CJV Project Health and Safety Manager

5. Consultation with emergency services

Although the emergency services will carry out their own risk assessments on site before proceeding with any rescue/action, Riverlinx CJV will consult with the local emergency services as part of the emergency planning process for the purpose of:

- Making the local emergency services aware of the STT scope of works, locations and risk profile and to establish a collaborative working relationship between key contacts
- Benefiting from the specialist knowledge of the local emergency services in peer-reviewing the Riverlinx CJV emergency arrangements
- Where appropriate, involving the local emergency services when testing the Riverlinx CJV emergency protocols

Any emergency where the emergency services are involved on site, they will take the lead and the Riverlinx CJV incident response team will provide support as directed by the emergency services.

6. Potential types of emergency scenarios

The following is a list of potential emergency scenarios identified:

- Fire/Explosion
- Serious injury
- Persons falling into water
- Crane Collapse
- Structural instability or tunnel face collapse
- Breakdown of essential plant or loss of service supply (including loss of power supply, water supply or any mechanical / electrical breakdown causing a halt in production)
- Loss of Access to working area – including emergency notified to us by others
- Breach of security
- Escape of hazardous substances (Major gas leak, oil / fuel spillages etc.)
- Ventilation failure e.g. in tunnel
- Failure of safety critical mains electrical supply
- Bomb / terrorist threats
- Unexploded ordinance (UXO)
- Severe weather
- Transport disruption
- Flood / inundation
- Fuel, oil etc spill

7. Evaluation of emergency risks

The emergency plan is built around the concept of integrated emergency management. This seeks to integrate the various agencies and actions into a common process which is divided into five phases.

- Assessment
- Prevention
- Preparation
- Response
- Recovery

7.1 Assessment

Any construction site, depot or office will present a number of possible emergency scenarios. Some are common such as fire or injury and there are standard procedures in place in relation to these. There are however, other emergency situations which are unique or not always present such as flooding, explosion, fuel / chemical spills, pollution of watercourses and structural collapse (see Section 6.0 above). These various scenarios are identified at the planning stage and during regular design and safety reviews throughout the life of the project. Depending on the identified risks associated with a particular element of works, a bespoke or enhanced emergency plan may be required. Regardless, location specific emergency plans shall be developed for each designated work location.

7.2 Prevention

After the assessment, a plan is prepared which identifies how the risks are avoided or controlled. Where the risks cannot be entirely avoided, the measures needed to minimise the outcome or reduce the effects need to be stated.

7.3 Preparation

Having made an assessment and put in place preventive measures, the emergency plan can then be prepared to deal with the risks that cannot be avoided or controlled. The main elements of the plan are:

- **Communication:** call-out procedure for key personnel and subsequently all those affected by the emergency;
- **Co-ordination:** the reporting structures during the emergency period and ownership of the plan;
- **Control:** the leadership personnel, their roles, responsibilities and objectives at each phase of the emergency;
- **Resources:** where these are located or can be obtained – it may be necessary to pre-position these in readiness, particularly in remote or inaccessible locations;
- **Testing and training:** both the incident coordinator and those given key roles in emergency response. This can cover exercises, briefings, briefings, classroom sessions and simulation training.

7.4 Response

This covers the arrangements for reacting to the emergency. A simple but effective model is the five-point plan, providing a logical sequence to follow. This is the basis for information given to staff on actions arising from discovery of a fire. However, it is applicable to a wide range of emergencies:

- **Detection:** how the hazard will be detected at the earliest possible time in order to avoid or reduce the outcome;
- **Alarm:** how the emergency is communicated both within the organisation and without;
- **Evacuation:** this covers the routes and actions to be followed, assembly area, and means of ensuring that everyone is accounted for;
- **Containment:** the means to contain or extinguish the hazard;
- **Restoration:** actions needed to return the organisation to normality.

7.5 Recovery

In minor emergencies, the actions undertaken in the restoration phase may be sufficient for recovery. However, the emergency plan must consider recovery measures if the emergency should have a severe impact. These measures should focus on:

- clearing away and disposal of debris;
- cordoning off damaged areas and equipment;
- ensuring that any persons affected by the event receive proper support;
- investigating the cause and recording the findings;
- learning from the incident to avoid recurrence.

8. Drill exercises

The emergency plan needs testing or drilling to make sure that it works. Initially, a group discussion may prove the first version and then co-ordinating actions. Later, a regular series of simulated events or exercises are needed to provide reassurance and feedback.

Drills are also a training exercise, and the plan should incorporate any learning points that arise. A formal debriefing with all involved in the drill is useful for this purpose and should also include the Incident Coordinator and, where appropriate, the local emergency services.

The relevant Riverlinx CJV Project Manager ensures that all location / task specific emergency plans are drilled regularly at a frequency no less than every six months and ensures that all identified actions are closed-out in a timely manner. All tests or drills of emergency plans are recorded on the Riverlinx CJV Emergency procedure drill – feedback form.

9. Training

The essence of this EPP is communicated to during:

- The Riverlinx CJV project induction,
- Toolbox talks,
- Pre-start briefings,
- Task specific briefings,
- As identified by the Riverlinx CJV IC or other management team.

A copy of this EPP shall be made available to the Riverlinx CJV supply chain and other necessary parties whose operations could either be:

- Adversely affected by incidents occurring within the Riverlinx CJV controlled work sites, and / or,
- Incidents which occur within 3rd party work sites which could potentially have an adverse affect on Riverlinx CJV operations.

A copy of all location specific emergency plans will be shared with the local emergency services e.g. London Fire Brigade (LFB), and invited to review and comment on the suitability. Riverlinx CJV will also collaborate with the LFB and other local 'blue light' emergency by inviting them to attend, participate and contribute at a 'blue lights' emergency working group that Riverlinx CJV will seek to set up in time for the start of the main works.

10. First response (work sites)

An emergency situation must be dealt with in an efficient manner. As such, it is important that the IC is contacted immediately, or as soon as is practicable, by those who witness the incident. In most cases, this is likely to be the site supervisor / foreman will need to temporarily assume the role of Incident Controller (IC) until the IC arrives at the scene.

10.1 Initial Action by the Incident Controller

The important actions by the persons communicating details of any incident are:

1. Find out exact/precise details:
 - a. Location of incident
 - b. Nature of incident
 - c. Anyone injured or trapped.
2. Depending on the severity of the incident:
 - a. Call nearest first aider if injuries have occurred. First Response, immediate first aid,
 - b. Make the area safe, isolate any sources of energy,
 - c. Evacuate local area in a controlled manner.
3. Decide if emergency services are required and, if so, notify emergency services of where to access the site. (Familiarisation of the emergency services will continue during the project)
4. Nominate an individual to meet the Emergency services and direct as required.
5. Call for emergency assistance or other emergency response unit.
6. Announce emergency over radio.
7. Secure, cordon off and preserve the scene. Especially any unsafe areas that cannot be made safe.
8. Evacuate all other personnel not involved directly with the incident. If site wide evacuation is required, arrange for the site alarm to be sounded and direct personnel to the assembly point(s).
9. Clear the access for the emergency services. Traffic Marshall/designated person to communicate with emergency services.
10. Supply the Project Safety Manager with all the relevant information concerning the accident/incident.
11. Maintain communications at all times.
12. If injuries are sustained, ensure a competent person remains with the injured party to communicate with the emergency so long as it is safe to do so.

SUMMARY:

- TAKE CHARGE
 - MAKE SAFE
 - INVESTIGATE
 - RESPOND
 - COMMUNICATE & RECORD
 - KEEP IN TOUCH

11. Security

The Riverlinx CJV Security Manager is responsible for ensuring that the security strategy follows a risk-based approach for each Riverlinx CJV work location. The risk assessment should include, but not limited to, the following:

11.1 Site boundaries

The risk assessment should decide how the various work site perimeters will be defined, what type of perimeter will be needed to protect the public, secure the site and where it should be placed. Factors to consider will include:

- The nature and type of the construction work;
- How heavily populated is the area;
- Who will need to visit the site during the work;
- Whether the site may attract children; and
- Site characteristics.

Some of the more specific considerations to both protect the public and secure the site include:

- All site hoardings or any other perimeter fencing will need to be designed and approved by a competent temporary works engineer, including a regular inspection and monitoring regime;
- Ensure that there is temporary lighting securely fixed to the outside of the hoarding or perimeter fencing and that there is a protective mesh guard attached to house the lights;
- Securely fix informative signs and contact details to the outside of the hoardings / fence
- Consider providing designed viewing portals at carefully considered locations along any hoardings. This can help to safely manage any curiosity that the public and local communities may have with what is going on behind the hoardings;
- Design site hoarding or fencing to be high enough and constructed in such a way that it will be very difficult for unauthorised persons to climb up and over into our construction sites and that there are “construction site, keep out” and “no unauthorised access” warning signs fixed to the outside of the site hoarding;
- Ensure that there are no over-sailing structures such as, for example, scaffolding, Kelly blocks of other materials that people could climb up or on to and gain access into our sites;
- Ensure that all site access points are robustly controlled and monitored, all doors and gates around the site perimeter are securely locked at all times and that there is a security presence out of hours;
- Make sure that any plant and machinery left on site outside of working hours are isolated, locked and any keys removed.

11.2 Controlling access into Riverlinx CJV work sites and offices

Access into Riverlinx controlled work sites and offices will be controlled through:

- the use of biometric access controls,
- Riverlinx CJV site passes issued upon successful completing the Riverlinx CJV project induction
- Security industry Authority (SIA) licensed security guards at each access point to ensure that only Riverlinx CJV authorised persons enter Riverlinx CJV controlled work locations
- 24/7 SIA security presence
- CCTV
- Mandatory sign in / out protocols of Riverlinx CJV office / depot work locations

The relevant Riverlinx CJV Project Manager is responsible for ensuring that each new employee is given a specific briefing on the Emergency arrangements at the work site the individual is to be employed.

All those who have not undergone a full Riverlinx CJV project induction are treated as visitors and will be escorted at all times on site by an inducted person who is familiar with the site layout.

In the event that any unauthorised persons are discovered on site, or attempting to enter site, their presence and location must immediately be notified to site security, and potentially, the police.

Trespassers should be escorted from site to security – or British Transport Police – if thought to be safe to do so.

The IC will also take steps to establish the method of entry onto site, where they had been, and intentions of the trespasser. Should the IC consider there to be even a remote risk to persons/property they will instigate the evacuation procedure.

12. Contingency equipment arrangements

Fire points consisting of fire/emergency call points, fire extinguishers and air horns, where necessary, will be placed at various strategic locations around each work site. These locations will be shown on the Site Plans displayed at each works site.

As the works progress below ground surface level, emergency stations consisting of push button evacuation alarms which are placed at strategic locations throughout the various site areas, linked to local audible and visual alarms. As a back-up, air horns will also be located to aid evacuation.

12.1 Emergency alarms and testing

The following locational types of alarm may be given:

1. Local
2. Welfare/Stores
3. Site Wide
4. Site Offices

In the event of a local alarm being raised on site, the Site Supervisor / Foreman will evacuate their area and notify the Incident Controller of the nature of the Incident. The IC will then decide if it is necessary to evacuate any other areas or indeed the whole site.

If evacuation of the whole site is required, the IC will contact the site offices by radio/ mobile phone to sound the Site Emergency Alarm located which will be located within the main project site offices.

The site emergency alarm will be tested on a weekly basis to check functionality and audibility. Local and office alarms will also be tested on a weekly basis.

Emergency evacuations of the sites and offices will be undertaken on at least a six monthly basis.

12.2 Communication Equipment

The use of mobile phones on any of the Riverlinx CJV work sites is prohibited unless in a designated mobile use safe zone. However, in the event of an emergency, radios shall be used for communication purposes. An Emergency channel will be selected.

The Riverlinx CJV EPP for the tunnels / below surface works will detail how communications will be established between the below surface work teams and the surface teams, including with the emergency services.

All personnel should be made aware of the need to keep all non-emergency communications to a minimum during an emergency to allow effective communication of important information to be prioritised.

It should be noted that during major public emergencies, mobile phone networks often fail through overload or are closed down as a major incident response and contingencies will need to be allowed for in the various location / task specific EPP's.

12.3 Lighting

Location specific EPP's need to ensure that there is adequate general access, task lighting and emergency back-up lighting as necessary and that there are arrangements in place for the inspection, testing and maintenance of this equipment.

12.4 Emergency equipment

Emergency equipment is located strategically throughout the working areas specific to the likely emergency scenarios identified within location/ task specific EPP's. Emergency equipment locations are identified in site pinned to site notice boards and communicated during toolbox talks and task specific pre-start briefings. Equipment deployed or facilities provided include, but not limited to:-

- Fire Points.
- Spill Kits.
- Eye wash/First Aid kits.
- Gas monitors.
- Stretchers.
- Emergency man riding basket (for below ground works).
- Telephones.
- First Aid "Grab Bags" in the first aid room.
- Drench showers where required
- Any necessary construction equipment that will be required to stabilise a face/excavation/structure etc, as identified by location / task specific emergency plans must be made available.

All emergency equipment will be maintained, tested and calibrated in line with manufacturer guidance. For Riverlinx CJV provided equipment, a register of equipment complete with testing, calibration, and maintenance requirements will be implemented and jointly managed by the Riverlinx CJV stores person, H&S team, and Plant Manager. Subcontractors will be responsible for implementing a similar process that will be verified during site safety inspections/tours and audits.

13. Emergency scenario guidelines

13.1 Fire incidents and emergencies

The following provides a very brief summary of the more detailed content as described within the Riverlinx CJV Fire Plan.

If a fire is discovered:

- The person who discovers the fire should raise the alarm locally,
- Evacuate the local area and proceed to the assembly point,
- Contact the IC immediately if the fire cannot be contained safely,
- Call the fire emergency services.

Actions by the IC upon receiving reports of a fire are to Identify and record the following:

- Callers name
- Location of fire
- Source of fire, if known
- Smoke / fume situation
- Any action already taken e.g. administration of first aid, local firefighting attempts etc
- Details of those present locally
- Any residual risks e.g. locality of gas bottles, flammable/explosive substances, plant, equipment etc

Maintain contact with the person who has raised the alarm where practical.

Is the fire an incident or an emergency? – If any doubts exist, treat as an Emergency and ensure the Emergency Services have been called.

REMEMBER TO GIVE:

- Contractor's name and contact name.
- Emergency service required.
- Location of site and best entry point.
- Nature of emergency.
- Your name and contact number.

Ensure that you delegate someone to guide the Emergency Service(s) onto site and keep the access clear.

YOU MAY CONSIDER THE FOLLOWING:

- Has effective action been taken to locate and contain the fire?
- Has the local alarm been sounded in the area?
- What are the effects of the spread of smoke?
- What fire equipment is available / being used?
- Can communication be maintained without risk?

If the fire is an emergency and the works have to be evacuated:

- Arrange for the site wide evacuation alarm to be triggered
- Deploy fire marshals to systematically clear the site, if safe to do so.
- Deploy individuals to secure entrances/exits to ensure only authorised personnel entry to site.
- Are all persons accounted for?
- Ensure communications are used correctly, restrict use to essential personnel.
- Instigate the use of the control room, use site plans for information.

- Check status of the ventilation systems and the requirements of the same with regards to the emergency.
- Meet the Senior Brigade Officer, discuss the situation, options and assist in implementing any further actions/requirements. Provide hazard plan and COSHH risk assessment
- Mobilise Key Personnel, use the call out lists contained in the appendix of this document.

It is equally important that after the emergency the correct actions are taken, these will include the following:

- Firefighting equipment used must be replenished before any work is re-started.
- A fire watch must be maintained at the workplace for at least 1 hour after the emergency.
- Future work cannot proceed without the authorisation of the IC. This will only be given after a review of the incident and a check on the condition of the works site – depending on the cause & severity of the fire and ensure preventative measures have been re-established.

13.2 Serious illness

This procedure is to account for personnel being taken seriously ill and needing urgent medical attention and hospitalisation, for example: heart attack, shock etc.

If seriously ill, call for an ambulance immediately. Ensure the casualty is attended by a first aider and is stabilised for rescue where necessary e.g. if working below ground, at height etc. Inform the IC as quickly as possible.

Information required by the IC:

- Callers name and title.
- Name of the casualty.
- Location of the casualty.
- Nature of the illness.
- Is there a First Aider at the scene?

In the case of serious illness, time could be of the absolute essence, declare an emergency and contact the relevant personnel:

- First Aider (if not already there). AED's (Defibrillators) are to be strategically located on site and in project offices. Staff are to be trained on how to use AED's.
- Contact the emergency services asap
- Consider if any materials or chemicals being used could have contributed to the incident and advise emergency services as necessary.
- Try to ascertain if the person has any allergies or other medical conditions and share with the emergency services

Actions by the IC:

- Delegate someone to guide the Emergency Service(s) onto site and keep the access clear,
- Consult with the ambulance (or other emergency service agency) personnel upon arrival and support their requirements / instructions,
- Establish contact between the First Aider and the attendant ambulance to discuss immediate treatment,
- Make provision for transport to get the medical team to the casualty if needed,
- If necessary, and linked to the above, arrange for the ambulance personnel to be briefed as quickly as possible and escorted to the casualty.
- Review if the Fire Brigade are needed to assist with the transportation of the injured party.

13.3 Incidents involving serious injury or fatality

In addition to the requirements of 13.2 above, any accident involving severe or life-threatening injuries will require immediate treatment. Depending on the circumstances, the Fire Brigade may need to support the rescue or extraction of the injured person in either a lead capacity or to assist with any task specific rescue/evacuation method. Either way, the emergency services advice and instructions must take precedent.

This must be considered when contacting the emergency services and giving them the details of the emergency situation.

The following must be clarified / recorded:

- Number of persons likely to be involved,
- The nature of any injuries / number of fatalities,
- Location of the incident,
- Names of injured and any known / identified allergies and/or medical conditions
- Name and title of incident controller.

The IC directing the incident response team must:

- Maintain contact with the emergency services and their instructions at all times,
- Make the area safe by isolating any sources of energy that won't make the emergency situation worse and cordon-off any compromised structures, sources of energy,
- Make arrangements for notifying the injured persons next of kin as per the emergency contact details provided on their induction paperwork
- Notify the Riverlinx CJV Health and Safety Manager as soon as possible who will provide advice and support the subsequent investigation and contact with the Regulator e.g. the HSE.

13.4 Escape of hazardous substances e.g. gas leak, oil/fuel spill, flammable / explosive gases etc

To be read in conjunction with the Riverlinx CJV Emergency Spill Response Plan (see Appendix 4).

Any escape of hazardous substances must be reported to the IC immediately who will work with the person(s) reporting the incident to ensure the following details are identified and actions taken:

- Location of incident,
- Type of incident and the current status,
- Details of any injured persons, or persons at immediate risk,
- Has the situation been stabilised or otherwise made safe and, if so, how,
- If the source of hazardous substance, flammable, explosive etc cannot be safely isolated, make arrangements to contact the relevant asset owner for advice,
- Raise the site alarm and evacuate all those within the zone of influence,
- Contact the emergency services if necessary and follow their instructions regarding the need to evacuate part or all of the site and to establish a zone of influence cordon.

IC will refer to the relevant COSHH details to ascertain potential hazards, if not known, to help with assessing the associated risks. Considerations might include:

- Is there a health risk through inhalation?
- Could spread of vapours lead to an explosion?
- Is breathing apparatus needed to effect evacuation?
- Is there a risk to the general public and / or the LU railway?
- What action has already been taken?
- If the spill is an escape of bottled gas:-
 - Attempt to shut off gas at feed valve.
 - Control all potential ignition sources.
 - Control the area to prevent access.
 - Only use phones in a safe area.

Unless the IC is sure that the situation is completely under control, the Emergency Services should be called. When informing the Fire Brigade, precise details of the spill should be given over the phone.

Further actions and considerations may result in the evacuation of the workings:

- Should any ventilation system (e.g. in tunnels, shafts etc) be left running or isolated?
- Location: Would evacuating personnel place them in greater danger than remaining at their place of work? Does the location involve any third parties?
- Could water be used to dilute or disperse spills? And could it enter drainage systems.
- Could earth or sand be used to contain spills?
- Is there a danger of corrosive burning or splashing?
- Any containment measures should be undertaken when safe to do so.

13.5 Structural instability, including face collapse

In this emergency context, structural instability or collapse refers to those scenarios where failure or collapse is unplanned and presents an immediate risk to both to people and/or further structural destabilisation. Such scenarios may also be informed based on any pre-existing structural monitoring data that suggests an immediate or eminent risk. In such situations, the immediate priorities, as directed by the IC, must be to:

- Raise the alarm and evacuate anyone within the zone of influence and prevent anyone from entering the zone,
- Attend to any injured persons,
- Physically cordon-off the zone of influence and communicate to the wider project teams,
- Decide if the emergency services are needed or other specialists (e.g. to effect a rescue or help evacuate members of the public who may be within any zone of influence) and, if so, make contact with them as soon as possible and follow their instructions,
- What is the risk to the adjacent / surface structures, including neighbouring or 3rd party structures / assets?
- Is there a risk to members of the public?
- If there is a face or crown collapse below ground, evacuate everyone to the surface immediately and implement the tunnel-specific EPP

13.6 Ventilation failure

Ventilation failure within tunnels, shafts and other underground works can present a serious risk to the safety of those dependent on such ventilation. As such, the tunnels EPP will detail, but not limited to:

- Ventilation equipment testing, inspection and maintenance regime,
- What redundancies are designed into the primary ventilation system e.g. automatic and / or manual back-up ventilation system in the event of, for example, mains electrical power supply failure, malfunction / failure of critical components etc
- How the ventilation system is linked to the atmospheric monitoring and warning/alarm system such as Trolex, for example,
- Training requirements,
- Emergency evacuation arrangements, including the provision, training and use of emergency escape personal safety equipment e.g. breathing apparatus escape sets etc
- Details of the frequency of emergency evacuation drill scenarios and how the findings of each drill will be reported and used to ensure the ventilation arrangements are fit-for-purpose and fit-for-use

13.7 Unexploded ordnance (UXO)

Part of the ground investigation (GI) survey works, will include the surveying and mapping of UXO risks. The associated risks and risk mitigation measures will be detailed within the UXO report of findings such as, for example:

- Red, amber, green (R.A.G) mapping of the UXO risks across the STT footprint,
- Arrangements for UXO watching briefs,
- UXO awareness training requirements for project personnel,
- Arrangements for how to identify and respond to the identification of suspected UXO's, including in the event of having to evacuate the site and any neighbouring 3rd parties,
- Emergency contact details for the Riverlinx CJV appointed UXO specialist(s) for the STT project

13.8 Flood / inundation

Flooding of Riverlinx CJV controlled work sites could result from any of the following events, but not limited to:

- Water mains burst or other failure
- Drain/ sewer breach
- Drain Blockage
- Heavy rainfall or ice melt
- Storm surge
- High tide
- Site water pump failure, including pipe failure
- High river levels, including breaching its banks/walls
- Failure of cofferdams, caissons or outfalls etc, or otherwise becoming compromised by water inundation

The risks might include, but not limited to:

- Plant, equipment and plant becoming submerged and damaged
- Uncontrolled release and environmental contamination by oil, fuel and other hazardous substances
- Ecological (flora and fauna) harm
- Drowning or other harm to both STT personnel and members of the public
- Flooding of both below and above ground structures / working environments

Location or task specific EPP's and/or risk assessments must include arrangements for, but not limited to:

- Location or task specific flood risks,
- Flood defence / inundation mitigation measures,
- Arrangements for receiving and/or checking both flood and weather alerts before works start and throughout each day and necessary for making risk-based decisions,
- Arrangements for efficiently and safely removing plant and equipment in the event of an emergency,
- Arrangements for efficiently and safely evacuating personnel in the event of an emergency. Especially for those working in cofferdams, caissons, outfalls or other high risk environments where becoming inundated can result in catastrophic outcomes,
- Arrangements for raising the site-wide alarm and preventing others from inadvertently entering a dangerous environment,
- Emergency contact details,
- Arrangement for rescuing persons who may have been caught/trapped by inundation

13.9 Overturning of cranes or other catastrophic crane failure

In the event of a catastrophic crane failure, such as overturning or jib collapse, there is a high risk of harm, even fatal, to people both within the site and perhaps outside the hoardings and will therefore require immediate response, treatment/stabilisation of casualties, and to make the area safe. There are additional potential risks such as obstructing access, public highways and footpaths, structural instability, damage to other plant and equipment etc. Therefore, such incidents will almost certainly require the assistance of the emergency services (police, fire brigade, ambulance etc) and should be contacted as soon as possible.

If the failure results in events/injuries/damage outside the site boundary, the Police are likely to be required to divert/evacuate people or traffic from the area.

Once being made aware of an event, the IC should ascertain:

- Number of persons at risk,
- The nature of any injuries and the details of all injured parties,
- Location of the incident,
- If the incident wholly within the site boundaries,
- Details of any residual risks that might still present a risk to both people and assets,
- What contact, if any, has been made with the Emergency Services
- Emergency contact details of the crane hire company so that they can be informed to provide advice and assist with the safe recovery of the crane.

As with all emergency situations, the Riverlinx CJV reporting protocols must be followed so that all necessary personnel are informed and who can provide assistance, advice and support both during and after the incident.

13.10 River / marine incidents

All work over water is considered a high risk activity and, as such, require a separate risk assessment and activity plan. For the STT project, this will be by way of a Water Safety Management Plan.

The following is a list of some of the likely river / marine incidents, but not limited to:

- Collision with other vessel/bridge/barge/pontoon/other
- Man overboard
- Fire
- Unintentional grounding
- Personal injury/medical emergency
- Heavy weather damage
- Mooring/towing rope/wire parting

In the event of any of the above incidents taking place the master of the vessel shall refer to the procedures outlined in the vessels emergency response plan which is held on the vessel itself and is the responsibility of the boat master to implement.

Note: Riverlinx CJV are not in possession of the vessel emergency plans at this time.

The appropriate communications with London VTS shall be carried out as stated.

The master of the Vessel shall also report to the marine manager.

Any incidents on the river reported to the PLA will be reported to the MCA and the MAIB via the PLA if appropriate.

Given the additional, specialist resources required, a Water Safety Management Plan must be developed for each location or task that has a river/marine interface, and must describe the arrangements for the following:

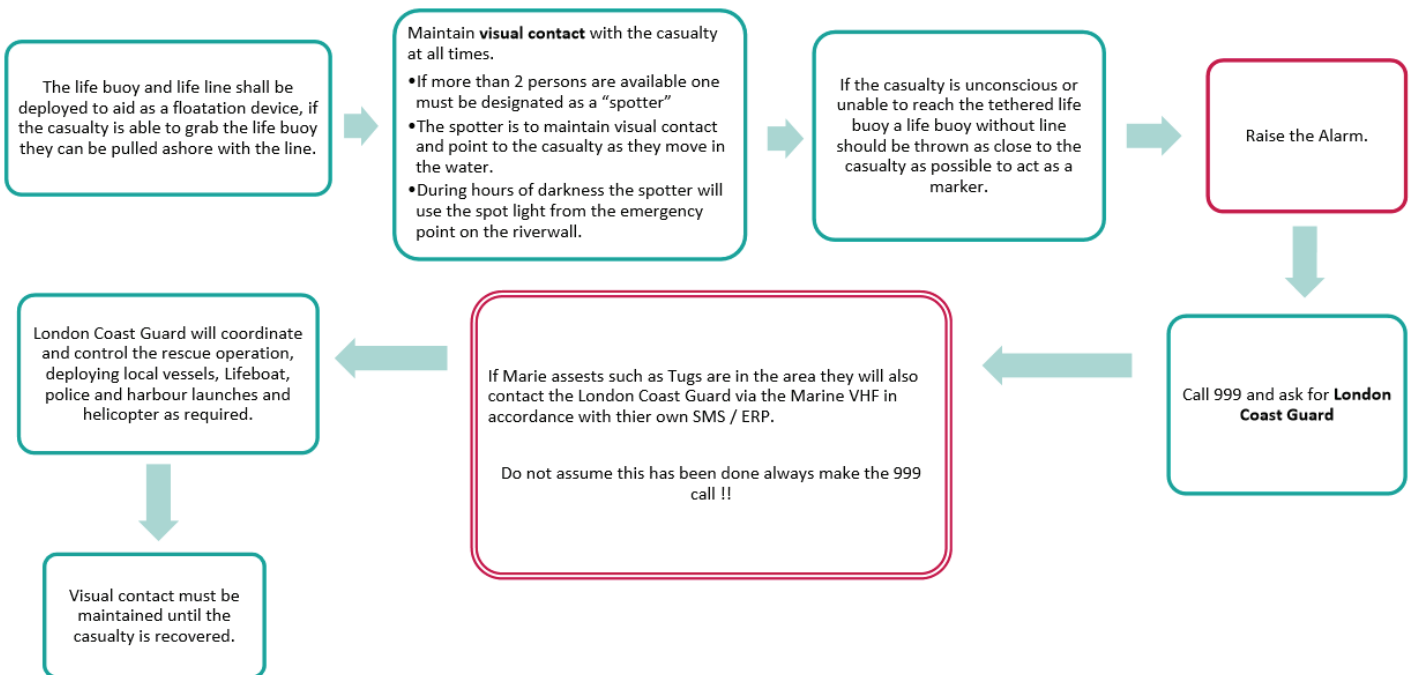
13.10.1 Landside incidents (Person overboard)

In the event of a man overboard incident on the river wall, a simultaneous series of actions are to be carried out:

- The life buoy and life line shall be deployed to aid as a floatation device, if the casualty is able to grab the life buoy they can be pulled ashore with the line.
- If there is a strong tide in or out the casualty can move more quickly than expected; it is therefore vital the visual contact be maintained with the casualty.
- If more than 2 persons are available one must be designated as a “spotter”. The spotter is to maintain visual contact and point to the casualty as they move in the water.
- If the casualty is unconscious or unable to reach the tethered life buoy a life buoy without line should be thrown as close to the casualty as possible to act as a marker.
- London coastguard must be alerted by calling 999 – Follow below
- Vessels can also send out an Emergency Call on using the VHF channels – Covered in vessels specific ERP

When calling 999:

- Call 999 and ask for London Coast Guard
- State the nature of the Emergency
- State the location
- London Coast Guard will coordinate and control the rescue operation, deploying local vessels, Lifeboat, police and harbour launches and helicopter as required.
- Visual contact must be maintained until the casualty is recovered.



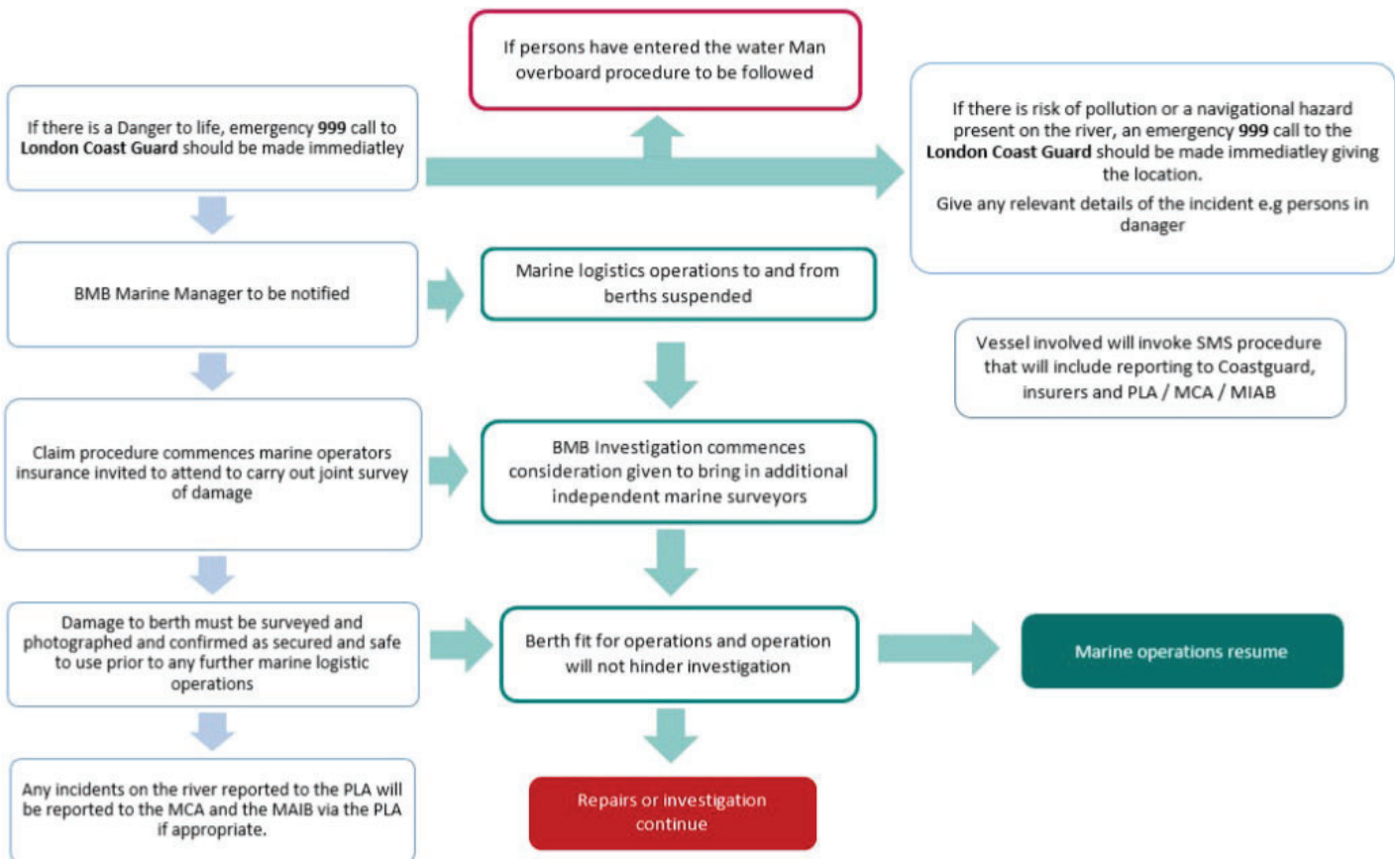
13.10.2 Collision with berth

In the event of a collision between a vessel and the jetty the master of the vessel will be responsible for the safety of his vessel and crew, instigating the shipboard emergency procedure, and making a mayday call if the situation constitutes an immediate danger to life.

- If persons have entered the water the Man Overboard procedure as above should be followed,
- Damage to the berth must be inspected and confirmed as secure to ensure continued safe operation of the facility and recorded/photographed for the incident report and claims management before further vessel movements.

Once these procedures have been completed, Riverlinx CJV shall investigate the incident in accordance with established procedures. Any incidents on the river reported to the PLA will be reported to the MCA and the MAIB via the PLA if appropriate.

In the event of a collision between a vessel and the jetty, the Master of the Vessel will be responsible for the safety of their vessel and crew, instigating the shipboard emergency procedure:



13.10.3 Working over or near water controls

The following controls are generally employed:

- working platforms / edge protection
- safety nets
- fall arrest equipment
- lifejackets
- rescue equipment such as lifebelts
- rescue boat provision

It is Riverlinx CJV policy that an inflatable lifejacket of the appropriate buoyancy is worn at all times when working on, over or near water.

The following steps should be considered when planning the measures to prevent drowning:

- platforms and guardrails erected, maintained and inspected,
- implementation of zonal working,
- boards on platforms and gangways secured so that they cannot be dislodged by rising water or high winds,
- warning notices displayed at all edges and boundaries near water,
- barges and pontoons properly constructed and stable,
- safety nets properly secured and suspended above high water level,
- site tidiness treated as a matter of special importance in order to minimise tripping hazards,
- slippery surfaces treated immediately,
- adequate illumination provided for night work and at all times in shafts, stairways and dark corners,
- a local weather forecast obtained and publicised at the start of each shift,
- all safety nets, fall arrest equipment, lifejackets and rescue equipment regularly inspected and the inspections recorded,
- from the outcomes of the risk assessment process, a Water Safety Management Plan is prepared

13.10.3a Personal buoyancy equipment and life jackets

Life jackets, similar to a safety harness, are PPE and must only be worn by appropriately trained workers and as an outcome of the risk assessment.

The selection of the correct personal buoyancy equipment depends on factors such as frequency of use, size / weight of the user, ability to swim, protective clothing being worn, use of tool belts or other loads, likely water / weather conditions at the site and availability of help. It is of particular importance that those using welding or burning equipment wear a life jacket that is protected from the sparks / heat from these processes. Also if a harness is being worn it is under any lifejacket and must not inhibit inflation. The following provides an aid to selection bearing in mind the factors listed above:

Buoyancy aids: 50 newton are not considered suitable for use in works of civil engineering construction

Lifejackets: 100 newton are not considered suitable for use in works of civil engineering construction

Lifejackets: 150 newton are intended for use in tidal waters or when foul weather clothing is being used; and where the wearers may not be capable of helping themselves due to injury or exhaustion

Lifejackets: 275 newton are intended for use in tidal waters in extreme conditions, when protective clothing is being worn or loads such as tool belts are being carried; and where the wearers may not be capable of helping themselves due to injury or exhaustion.

Automatically inflated lifejackets are suitable for those likely to fall into the water unexpectedly. Manually inflated lifejackets are used only if it is certain that the wearer will have enough time to produce full buoyancy before entering the water.

Where lifejackets are used regularly, they are issued to an individual user. The individual, having been adequately trained, is then responsible for carrying out pre and post-use checks, inspections and reporting defects. Inspections are recorded on the Riverlinx CJV safety form "Record of detailed inspection of lifejackets". A typical list of items to be checked is included in Appendix 2 but the relevant Project Manager must ensure that lifejackets are being inspected as per the requirements of the user's manual for the make and model of lifejacket being checked.

In addition to the pre-wear checks, a more thorough inspection and testing programme needs to be carried out by a competent person in accordance with the manufacturer's instructions. This should be carried at least three monthly however, where lifejackets are worn frequently of such checks must be increased. For example, if lifejackets are worn daily, the Project Manager should consider that the thorough examination is required monthly. A typical list of items to be checked is included in Appendix 3 however; the relevant Project Manager must ensure that lifejackets are being inspected and serviced as per the requirements of the user's manual for the make and model of lifejacket being checked. These checks must not be carried out by the user; a supervisor who has fully read and understood the manufacturer's instructions is competent to carry out these checks.

Where life jackets are not used regularly, for example by a visitor or occasional user, the relevant Project Manager ensures that the lifejacket is subject to regular and routine inspection by a competent person before recorded issue and briefing of the user. The life jacket is returned to storage at the end of the day and inspected again before re-issue. Each subsequent issue of a life jacket is also accompanied by a recorded lifejacket check and user briefing. To identify those lifejackets on site not issued to an individual a differently coloured cover is used.

All life jackets must be supplied with a crotch strap and these straps must be properly adjusted and worn by all lifejacket users.

Consideration must be given to the type and style of the other PPE issued to workers to ensure that lifejackets can be comfortably worn and correctly fitting whilst ensuring that their function and operation is not compromised by other equipment.

All lifejackets brought to site by others must comply with the above as a minimum and the user must be able to demonstrate both suitable training and inspection regimes to the Project Manager before use.

13.10.3b Water safety management plans (WSMP)

An assessment of the whole body of water to be used is required and the findings recorded in a Water Safety Management Plan (WSMP) for each location or element of work. In addition to the above, the WSMP identifies and records the following, but not limited to:

- The area of the waterway which site craft are permitted to navigate
- Navigation hazards in that area and control measures identified to mitigate risk
- Local navigation rules and speed restrictions
- Known tidal patterns or limitations
- Known hazardous areas, how these are defined / marked and the rules surrounding entry to this water
- Limitations of use for each vessel
- Detail of safe havens and other requirements in the event of weather related hazards
- The location of all mooring points and landing areas
- The location of all emergency equipment
- The location of emergency landing points, and alternatives, for casualties and the route to these locations for the land based emergency services
- Areas of interface with other users of the waterway and how these are controlled
- Details of how inter vessel transfers are carried out
- Details of overhead hazards and required exclusion zones

Emergency controls:

- Contact with the harbourmaster, Coastguard and RNLI
- a rescue boat provided whenever work is being undertaken over or adjacent to tidal waters or fast flowing rivers – it may also be necessary to provide a rescue boat in some areas of still water

- the number, type and size of craft used as a rescue boat must be identified through a thorough risk assessment and consultation with the plant department
- If provided the rescue boat is available at all times and contains, as a minimum, grab lines, an MCA approved lifebuoy, boathook, baler, anchor and suitable warp. In most cases it is power driven but if it is powered by oars then there should be at least three
- Crewing levels required in rescue boat dependant on tides, currents, river usage, operations being undertaken etc. and is identified in the risk assessment for the rescue boat
- The risk assessment considers the need for the rescue boat crew to be first aid trained and, if required, to what level of training
- The risk assessment also considers navigation lighting for the craft, the need for flood lights to search with and a suitable 2 way communication system that allows the rescue boat to communicate directly with the shore. A separate marine band radio may be considered necessary to communicate with others on the water.
- Lifebuoys or rescue lines set at intervals along the works, fitted with a 30m buoyant lifeline
- Buoyant grab lines attached to the working place or at other places downstream, fitted with a marker float at the free end
- Workers working in pairs so that there is always one person to raise the alarm
- A set routine for raising the alarm e.g. a Klaxon at lifebuoy stations
- A set procedure for rescue (see appendix 1 for typical person in water procedure)
- A set schedule of practice drills of the rescue procedure
- A set routine for getting persons to hospital

13.11 Training

- The responsible Project Manager must ensure that those persons developing a safe systems of work for works over, on or near water are suitably competent to do so and, where necessary, seek specialist advice,
- Riggers of safety nets must be trained and competent,
- Users of harnesses and lifejackets must be trained in their use, inspection and maintenance,
- Operators crewing the rescue boat must be trained to the Royal Yachting Association standard as given in course Powerboat Level 2, or as required by the relevant authority,
- Other forms of competence presented to site by any vessel operator must be approved by the training dept. prior to the individual commencing work,
- All persons on site are made aware of the rescue procedure at induction.

Appendix 1 – Person in Water – Emergency Procedure

In the event of a person in water emergency:

- Raise the alarm by shouting “person in water” or by sounding the Klaxon.
- Keep the person in view.
- Make your way to the nearest lifebuoy station. Throw the buoy to the person in the water, keeping hold of the end of the lifeline.
- Assess a convenient landing point and make your way there.
- Provide assistance by drawing in the lifeline until the person is at the landing point. If the landing point is difficult, do not attempt to pull the person out – wait for assistance.
- Once the person has been recovered from the water, keep them warm until transport is available to take them to the first aid station.
- Whilst priority must always be given to the rescue, a message should be sent to the main office as soon as possible to enable co-ordinated support.

Notify the office of:

- the person’s location
- likely injuries, if any

Employees are advised not to make a rescue attempt by diving into the water unless:

- they are trained in life-saving techniques, and
- the person in the water is unconscious, and
- the rescuer has a safety line attached, and
- someone else is in attendance

When it is not practicable to rescue the person in the water:

- The rescue boat and site management should be contacted and a spotter should be available to identify the location of the person in the water to the rescue boat,
- The relevant Project Manager will decide whether the harbourmaster, coastguard, ambulance or RNLI should be contacted,
- A previously identified place should be checked and cleared to ensure that the rescued person can be brought ashore as quickly as possible.

Appendix 2 – Life jacket pre-wear checks

A pre-wear check needs to be carried out each day the lifejacket is used and recorded. Such checks could be undertaken as part of each shifts daily briefing routine.

The checks should be carried out in accordance with manufacturers' instructions / user's manual and is specific to the make and type of life jacket supplied.

It will normally include visual checks to ensure:

- the firing mechanism has not been activated;
- the automatic firing capsule and gas cylinder are correctly screwed in place;
- there are no signs of corrosion, cracks or dents in the gas cylinder or automatic firing capsule;
- unwanted movement within the firing mechanism ('creepage') has not occurred. Some automatic inflation mechanisms have indicators to show when compression in the spring has been lost.
- Those that do not have such indicators will require careful inspection to judge whether the spring has lost any compression. Examination of the piston or other visible component may also show whether creepage has happened;
- the whistle (and light where fitted) is in position;
- the oral inflation tube is capped;
- the straps and main body of the jacket are not worn or damaged;
- the jacket is correctly packed in accordance with the manufacturer's instructions (ensuring that any Velcro is correctly fastened and the manual inflation lanyard is accessible).

If the user has any doubt about the result of any check they must refer it to their supervisor and the supervisor will advise regarding suitability to continue using or replace the lifejacket.

Appendix 3 – Inspection and maintenance

As well as pre-wear checks, a more thorough inspection and testing programme needs to be carried out in accordance with the specific manufacturers' instructions for the make and model lifejacket in use.

Where lifejackets are used heavily, the periods between inspections may need to be shorter than the quarterly inspection recommended by some manufacturers. As a general guide where lifejackets are used daily, inspections on at least a monthly basis may be necessary.

Inspection and testing needs to be carried out by personnel competent in recognising defects and the remedial action required to be taken. Records need to be kept of all inspections and repairs made.

Testing the air tightness of the lifejacket will involve manually inflating the lifejacket and leaving it overnight (or submerging it in water) to check for leaks. The automatic inflation mechanism will need to be dismantled to make a detailed examination of its condition. Make sure:

- all screw threads are examined for signs of rust. Rust can lead to problems in locating the cocking cap or the gas cylinder in the correct position;
- the gas cylinder is full (gross minimum weight);
- the gas cylinder is examined for corrosion, cracks, dents and other defects. Particular attention will need to be paid to the cylinder cap as any indentations found could mean that the automatic firing mechanism has fired but failed to pierce the cylinder. If this is the case, the reason for activation and the cause of failure needs to be identified;
- the cylinder fitting and groove of the firing pin are checked so that they are free from dirt;
- the automatic inflation mechanism is operated manually (with the gas cylinder removed) to ensure that it operates smoothly, and that there is no obstruction to the movement of the pin which prevents it from piercing the cylinder. The pin also needs to be checked to ensure that it is sharp;
- the 'salt' or 'paper ring' are inspected for any cracking, dissolving or tearing which has taken place since the last inspection;
- where fitted, the rubber 'O' ring is inspected for damage and that it is correctly seated;
- the mechanism is checked for signs of 'creepage'.

Appendix 4 – Emergency Spill Response Plan

Purpose

This Emergency Spill Response Plan details the approach to managing pollution incidents on the Silvertown Tunnel project. This plan provides specific guidelines and requirements for all staff in the event of a pollution incident.

Introduction

This Emergency Spill Response Plan details the practical measures that will be implemented to avoid pollution incidents and provides staff with guidelines and procedures that will be followed in the event of an environmental incident. The plan also includes details of the reporting and investigation procedures should an environmental incident occur on-site.

This Emergency Spill Response Plan includes:

- a. notification procedures for Emergency Services in the event of an incident;
- b. coordination procedures for TfL Customer Services and the Traffic Control Centre;
- c. flood risk emergency procedures;
- d. emergency spill response procedures;
- e. emergency phone numbers; and
- f. a flood warning and evacuation plan

The process for planning for a potential pollution incident is summarised as below:

- **Prepare-** Identify all pollution sources, pathways and receptors to enable planning to take place in the event of a spill. Ensure that a drainage plan is completed that identifies all surface drains, foul sewers and soakaways.
- **Plan-** Prepare an incident response plan and ensure that it accounts for all staff and responders.
- **Practice-** Train staff so they know what should and shouldn't be done in the event of an incident, where PPE and pollution control equipment is and where a copy of this pollution incident response plan is located.
- **Pollution control equipment-** Ensure that pollution control equipment is well stocked and readily available for use.

Roles and Responsibilities

Riverlinx CJV will provide the appropriate resources to deliver the requirements of this plan and ensure that the requirements are communicated and acted upon. Table 1 below provides details of the personnel working on the project with specific responsibilities in relation to pollution prevention and response.

Role	Responsibilities
Project Director	Provide adequate environmental resources and support to effectively deliver the requirements of this plan
Environmental Manager	Develop & implement an EMS and CEMP Identify and maintain compliance with contract conditions and legislation applicable to the project Inspections and monitoring the project for compliance with contractual requirements and legislation Identify, develop and provide environmental training Approve environmental sections of method statements Advise and instruct construction teams in the event of incidents and complaints Liaise/meet with external stakeholders
Environmental Advisors	Ensure environmental issues are discussed and communicated effectively to the project team Advise and guide project team in the implementation and maintenance of the environmental management system Develop and provide project environmental training Assist in incident investigations and reporting Encourage near miss reporting and identify trends Ensure compliance with environmental legislation and contractual requirements onsite Review method statements
Waste/Land Quality specialist	Deliver training as required Support site team with issues surrounding waste and contamination
Emergency spill response sub-contractor	Support with clean-up of pollution events as required
Site Managers	Ensure works are carried out in accordance with this plan Ensure staff are aware of the requirements of environmental plans and procedures Ensure site documentation (method statements and environmental risk assessments) include pollution prevention and control measures In conjunction with the environment team deliver regular training to the site workforce
All personnel	Carry out the works in accordance with agreed methods and briefings Report anything that deviates from agreed processes Report all incidents Attend environmental training

Table 1

Pollution incident response procedure

This section will detail the incident response procedure that will be implemented in the event of a spill or pollution incident. Table 2 below demonstrates the Environment Agency’s pollution control hierarchy as detailed in PPG 22.

Discovery of an incident
Take preventative actions to STOP the activity causing the Incident (as much as possible); this may require stopping work within the immediate vicinity of the Incident if necessary. Use the appropriate PPE if required.
↓
CONTAIN the incident as close to the source as possible e.g. use spill kits to contain an oil spillage. Be aware of any nearby drains or sensitive receptors that are at risk.
↓
NOTIFY your line manager. Provide the following details: <ul style="list-style-type: none"> • Type of incident • Incident location • Time occurred • Control measures that have been implemented.
↓
Raise incident with Site Manager and contact emergency numbers (including river regulators) if appropriate.

Table 2

Response Procedure


Preferred response  Least preferred response	1. Contain at source
	2. Contain close to source
	3. Contain on the surface
	4. Contain in the drainage system
	5. Contain on or in the watercourse

Table 3

Containing at source (1-2)

The most effective place to control a spillage is as close to the source as possible as doing so reduces the quantity of spilt material. There are a number of methods that can be adopted to contain a spill at its source.

- Sealing damaged containers or pipework. This option involves physically blocking the leak and prevents more material from escaping a container. This is only a temporary solution and the container will need to be adequately removed and replaced. Leak sealing putty can be used to block a hole. The putty is available ready mixed or as a powder that needs to be mixed with water. Leak sealing equipment is designed for use when a tank, storage drum or valve has been punctured or damaged. This could be a solid or inflatable ‘wedge’ that can be inserted into the damaged area and inflated.
- Turning a container- If possible, leaking oil drums should be turned so that the damaged part is to the top to prevent further material spilling from it.
- Putting a leaking container into another secure container - If possible, place a leaking container into a clean undamaged container to prevent any more leakage. It is imperative that the undamaged container is clean to prevent any reaction with the leaking material.
- Close any valves on pipework to stop material flow

Containing on the surface (3)

- Drain mats or surface drain seals cover the surface of a manhole cover or drainage gully by preventing liquid from entering the drainage system and helping to contain it on the surface.
- After a spill has been cleaned up it should be pumped into a temporary storage container or portable tank and disposed of adequately by a licensed contractor.

Containing in the drainage system (4)

- If the drainage system can be closed off the capacity could potentially be used to temporarily contain the spilt material. The spilt material should be safely removed by a licensed contractor.
- If the spill enters a watercourse and floats on water, it may be possible to contain the spill by placing a boom across the outfall from the site if safe to do so. The spill response contractor will be able to assist with this. The Environment Agency and Marine Management Organisation should be notified if this takes place.

Information to be collected in the event of an incident

In the event of a pollution incident, as much of the information below will be collected and communicated to the relevant stakeholder, agency or emergency service as appropriate.

- When, where and how the incident occurred
- Whether there are any casualties, injuries or evidence of environmental damage
- What substances have been spilt and whether there are hazards associated with them (e.g. corrosive fumes, flammable atmospheres etc.)
- How much pollutant was lost and where it went to
- Whether the pollutant has escaped beyond site boundaries and affected a watercourse, highway, navigational safety of the river etc.
- What action has been taken to control or mitigate the impact of the incident
- What the potential risks are if the incident continues.

Response to specific pollution events

Prevention of water pollution from fuel or oil spillage

- Alert those around you of the spill or escape of pollutant and notify the Site Incident Controller (SIC) immediately who will escalate the incident and notify emergency contacts if required
- Switch off plant if it is the source of the spillage (if possible). If the spill is a flammable liquid, turn off all sources of ignition if safe to do so
- Stop or contain the leakage using equipment from the spill kit stations or, in the absence of these by whatever safe means are available (e.g. by using earth bunds)
- Block up road gullies, drainage gullies at buildings, and manholes if appropriate
- Soak up spillage on surface by spreading absorbent granules or sand, then scraping up into polythene bags for disposal as hazardous waste
- Never hose down a spillage, as this will increase the volume of contaminated liquid.
- Dispose of hazardous waste appropriately (check with Site Manager or environmental manager if in doubt). Hazardous waste must only be disposed of by licensed contractors and a standard hazardous waste consignment note must be completed
- Report any spill response equipment used to the site foreman so the spill kit station can be replenished

Prevention of water pollution from concrete, bentonite, grout

- Alert those around you of the incident and notify the Site Incident Controller (SIC) immediately who will escalate the incident and notify emergency contacts if required
- If the material is being pumped, stop pumping. Do not attempt to wash away with water
- Stop or contain the spillage, by whatever safe means are available (possibilities include building earth bunds) obtain spill kit from spill kit station if required
- Block up or cover road gullies, drainage gullies at buildings, and manholes with a drain seal
- Liquid grout may be removed to shallow pits lined with polythene to dry out for future break up and disposal. Prevent any ingress into ground or surface water drainage systems.
- Remove wet concrete to a safe area by use of earthmoving plant, so that it cannot enter the surface water drainage system

Unexpected ground contamination

- Excavation works will be monitored to check for unexpected or unusual materials with a contaminative potential. This material could consist of buried drums, tanks or containers, soil, groundwater or liquids with an unusual colour or odour, or other evidence of contamination
- Stop work, alert those around you of the contamination and notify the Site Incident Controller (SIC) immediately who will escalate the incident if required.
- Protect water courses, damp down or sheet over the contamination to prevent suspension of fine material, covering with soils (or suitable medium) to reduce volatilisation of contaminants
- Methodology developed for sampling of the material;
 - Action plan prepared on dealing/handling the impacted soil/water;
 - Development of strategy for removal and consideration of either treatment or direct removal from site;
 - Liaison with TfL and relevant stakeholders as appropriate
- Material being removed from the site shall be identified, assessed and classified as either hazardous, non-hazardous or inert based on Environment Agency Guidance (WM3) (Ref 7).

Burst water main or minor flood

Emergency evacuation procedures detailed within the 'Emergency guidelines' section of Emergency Response and Incident Management Plan will be followed in the event of a major flood event.

- Alert those around you of the incident and notify the Site Incident Controller (SIC) immediately who will escalate the incident and notify emergency contacts if required.
- If the damage occurs in a trench being excavated, evacuate all personnel from the excavation.
- Ensure that any materials stored nearby do not contaminate the water. Move COSHH materials or bund any stockpiles that contain hazardous materials if safe to do so.
- Water may be pumped into surface water drains at a rate not exceeding consented discharge volumes to avoid overflow. Do not pump out water that has become contaminated with hazardous materials.
- Contact site management team to report incident
- Site management to contact Thames Water.
- Contact the police if the burst is overflowing on the surface and may affect traffic or is likely to cause flooding or subsidence to a road, or assistance is needed to protect or re-route the general public.

Breach of foul drainage system

- Stop all works in vicinity of breach
- Stop spread of contamination with pollution control equipment
- Contact site management team to report incident to Thames Water
- CJV utilities manager to be informed

Discovery of asbestos

- Stop work immediately. Alert those around you of the incident and notify the Site Incident Controller (SIC)
- Fence off the area and erect signage stating the presence of the asbestos
- SIC/Site Manager to contact CJV's asbestos specialist
- If required, employ a watching brief during works in the vicinity of the area
- Ensure that risk assessments are undertaken prior to work taking place

Prevention of pollution from fire water and run-off

- If safe to do so following a fire, contain the fire water run-off by blocking up road gullies, drainage gullies at buildings, manholes and other pollution pathways using the equipment listed in Table 4 or in the absence of such equipment use whatever safe means are available (e.g. by using earth bunds). If possible, contain run-off on an area of hardstanding
- Contact the Emergency Spill Response sub-contractor if appropriate
- Dependent upon the volume and composition of the run-off, soak up small volumes of fire water using absorbent spill kit products, granules or sand
- If possible, transfer the contained run-off into a clean, undamaged container (IBC, drum) to temporarily store the material
- Dispose of hazardous waste appropriately (check with Site Manager or Environmental Manager if in doubt). Hazardous waste must only be disposed of by licensed contractors and a standard hazardous waste consignment note must be completed
- Report any spill response equipment used to the site foreman so the spill kit station can be replenished

Prevention of pollution from boats or vessels (oil)

- Alert those around you of the incident and notify the Site Incident Controller (SIC) immediately who will escalate the incident and notify emergency contacts if required.
- Identify source of pollution and contain at source if possible
- Use absorbent pads and booms (from land or from a vessel) to contain and absorb oil floating on the surface of water if safe to do so
- Notify appropriate regulators as soon as possible
- Dispose of hazardous waste appropriately (check with Site Manager or Environmental Manager if in doubt). Hazardous waste must only be disposed of by licensed contractors and a standard hazardous waste consignment note must be completed
- Report any spill response equipment used to the site foreman so the spill kit station can be replenished

Pollution control equipment

Table 4 below outlines the types of pollution control equipment that can be used on site and its purpose. Pollution control equipment will be in fixed locations such as near COSHH storage areas, pollution pathways (drains, watercourses) and will move into accessible locations nearby active construction work.

Spill equipment	Pollutant type	Equipment purpose
Spill kits	Fuel, oil, hydrocarbons, contaminated run-off etc.	Spill kits will typically contain gloves, hazardous waste bags, heavy duty plastic bags and absorbent booms. They will be placed strategically around each site in areas where a pollution event has the potential to occur.
Pipe blockers	Silt, fuel, oil, hydrocarbons etc. or any pollutant that has potential to enter a watercourse.	Used in drainage systems that don't have shut-off valves or penstocks that can be closed in an emergency. They are purpose-made bags or tubes which are inflated with air. Alternative to a builder's drain bung. May enable the drains to be used as a retention system which may provide a significant volume of containment.
Gully socks	Fuel, oil, hydrocarbons etc.	Absorbs loose oils within drain chambers. They reduce the need for separator cleaning by ingesting up to 2kg of oil a week for a period of up to 6 months. The sock oxidises oil into carbon dioxide and water rendering it inert.
Clean & undamaged container (IBC, drum etc)	Any contaminated liquid material that has potential to pollute.	Clean containers should be used to temporarily store material from within a leaking container or spilt material as a temporary measure.
Drain seals/mats	Fuel, oil, hydrocarbons, silt, concrete wash-out water or any other liquid contaminant.	Used to seal a drainage grid by covering or blocking the drain.
Spill granules	Oils, paints and greases.	Fire resistant, absorbent granules often made of wood fibre. Should be used by covering the surface of a spill and swept up once the material has been absorbed.

Table 4

All used sorbents, spill response equipment and contaminated material will be disposed of according to Duty of Care and CoCP requirements and are likely to be classed as hazardous waste which will require the services of a licensed waste management contractor.

Emergency contacts and incident reporting

The steps detailed within this Pollution Incident Response Plan will comply with and be used in conjunction with procedures detailed within the Emergency Plan.

Emergency contact numbers			
Name	Contact number	Mobile / alternative	
Environment Agency (EA)	0800 807060		
Emergency services (inc Coastguard)	999		
Maritime and Coastguard Agency	999		
Marine Management Organisation (MMO)	dispersants@marinemanagement.org.uk	(office hours) 0300 200 2024 (out of hours) 0345 0518486 / 0845 0518486	
Port of London Authority	0203 2607711 (Thames Barrier Navigation Centre)	07711 640055 (emergency telephone number)	
Thames Water leak reporting	0800 714614		
TfL Incident Number	0343 222 1234		
Royal Borough of Greenwich	(Emergency) 0208 8548888		
London Borough of Newham	(Emergency) 0208 4302000		
Riverlinx CJV contact numbers			
Role	Name	Contact number	Mobile / alternative
Environmental Manager	██████████	██████████	
Incident Coordinator	██████████	██████████	
Greenwich Project Manager	██████████	██████████	
Silvertown Project Manager	██████████	██████████	
H&S Manager	██████████	██████████	
Construction Director	██████████	██████████	
Utilities Agent	██████████	██████████	

Table 5

Environment Agency (EA)

In the event of a pollution incident, the Contractor shall inform the Environment Agency as soon as practicably possible will comply in full with all of their requirements

Incidents involving watercourses (either ground and surface water); waste management or flood defences should be notified to the EA Incident hotline 0800 80 70 60 as soon as practicably possible

Marine Management Organisation (MMO)

Any oil, fuel or chemical spill within the marine environment must be reported to the MMO Marine Pollution Response Team within 24 hours (dispersants@marinemanagement.org.uk).

Within office hours: 0300 200 2024.

Outside office hours: 07770 977 825.

At all times if other numbers are unavailable: 0845 051 8486

Port of London Authority (PLA)

All level 1 and 2 incidents in, on or affecting the river (navigation safety, river regime, environment or PLA property) should be reported via the details below:

Thames Barrier Navigation Centre (TBNC)

0208 855 0315 (Duty Officer)

07711 640055 (emergency mobile phone)

Local Authority

Following major pollution incidents, relevant local authorities should be contacted through the emergency phone numbers in Table 10. The contaminated land specialist at the relevant local authority should be contacted regarding land contamination.