

Havant Thicket Reservoir

Drowning Risk Review and Control Measures – Condition 26

Main Reservoir Works Phase

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1 Introduction

1.1 Purpose of this Document

- 1.1.1 This Drowning Risk Review and Control measures document has been developed and prepared for submission to Havant Borough Council (HBC) and East Hampshire District Council (EHDC) to secure the discharge of planning condition 26 to the Havant Thicket Reservoir planning permissions references HBC APP/20/00990 and EHDC 51680/009 as follows:

“Prior to construction of the Embankment phase of development approved under Condition 4 above, a scheme indicating the measures to reduce the risk of drowning shall be submitted to and approved by the Local Planning Authority. The development shall be carried out in accordance with the approved details and retained thereafter”.

1.2 Scope of this Document

- 1.2.1 This document has been prepared to satisfy the discharge of planning condition 26 as above. The document aims to comprehensively detail the risks that have been identified around public & staff safety pertaining only to drowning and safety measures attributed to an open body of water, in this case, the Havant Thicket Reservoir. The document details risks identified from inception to operation and provides sufficient detail on control measures implemented therein, and any residual risks and how they are managed.
- 1.2.2 The document will draw together risk reduction and control measures that have been established through ‘safety in design’ as directed under the guidance of The Construction (Design and Management) Regulations 2015.
- 1.2.3 From herein, Future Water (MJJV) shall be known as the contractor, and Portsmouth Water shall be known as the operator.

1.3 Document Structure

- 1.3.1 Section 2 of this document aims to identify and establish risks that have been identified across the project specifically around the drowning and water safety.
- 1.3.2 Section 3 of this document identifies and detailed control measures that will be established on the reservoir, and how these are to be implemented and managed.
- 1.3.3 Section 4 of this document shall review and outline any residual risks that would remain after control measures are established, and how these shall be managed throughout the reservoir’s life span.

1.4 Consulted Documents, Standards and Legislation

- 1.4.1 The following non-project specific documents, standard and legislation have been consulted and referred to in the production of this discharge document:
- I. Public Health Act 1936
 - II. Construction (Design and Management) Regulations 2015
 - III. Management of Health and Safety at Work Regulations 1999
 - IV. Health and Safety Guidance publication 151
 - V. ROSPA Managing... Safety at Inland Waters 2018
 - VI. Occupiers’ Liability Acts 1957 & 1984
 - VII. Mines and Quarries Act 1954
 - VIII. Flood and Water Management Act 2010
 - IX. The UK Drowning Prevention Strategy 2016-2026

1.5 Construction Phase

- 1.5.1 During the construction phase of the Reservoir, control measures shall be established at a site level by Future Water as principal contractor. Many of the risks identified in this document are not realised until filling has commenced per paragraph 1.5.2. Some of the control measures to be established by Future Water during construction are as follows, this list is non-exhaustive and subject to change on site to meet requirements & demand:
- i. All Basins & Small bodies of water are to be protected with a small bund of soil & and warning tape/bunting around the perimeter, along with deep water signage.
 - ii. Perimeter Heras fencing established around the entire site.
 - iii. Life vests being worn by staff who operate near any water.
 - iv. Fences and other deterrents (such as bunds) being established along the leading edge of any channels, swales & ditches.
 - v. A comprehensive lone working procedure, along with lone working devices being deployed.
- 1.5.2 Once construction has been completed the reservoir shall commence filling upon receipt of a signed and valid copy of “the preliminary certificate” in accordance with Section 7 of The Reservoirs Act 1975. To enable this preliminary certificate to be issued, all measures within this conditions document shall be fully discharged and implemented on site.

2 Review of Risk to Drowning

2.1.1 The risk of drowning comes about via several differing situations; each of which has differing likelihood & severity and as such, differing control measures. The design of the reservoir has identified the following risk and hazards and each risk has been scored in Appendix A – [Risk Assessment Matrix](#) per Appendix B – [Risk Assessment Scoring](#) and in accordance with the Construction (Design and Management) Regulations 2007, Management of Health and Safety at Work Regulations 1999 & Health and Safety Guidance publication 151:

- 1) **Public risk of falling into water** – there is a **High** level of risk for members of public falling into a body of water, this risk is most apparent should public leave designated walkways/access tracks.
- 2) **Operations & maintenance staff falling into water** – there is a **High** level of risk to operation and maintenance staff when operating and maintaining pipes & pipe control points of retention structures.
- 3) **Vehicle Veering off Embankment crest track** – there is a **Moderate** level of risk to vehicles veering off the embankment create and entering the water.
- 4) **Persons being swept away by large flows during emergency discharge** – there is a **Moderate** level of risk of persons being swept away by large flows during an emergency discharge scenario.
- 5) **Unauthorised access to emergency discharge culvert from open channel** – there is a **Moderate** level of risk unauthorised access to emergency discharge culverts from open channel.
- 6) **Drowning in open water, unauthorised access to water body** – there is a **High** level of risk of persons entering the body of open water and drowning.
- 7) **Drowning in open water, small children, and animals** – there is a **High** level of risk of small children and animals entering the body of open water and drowning.
- 8) **Rescue difficulties due to distance from access points** - there is a **Moderate** level of risk for access to reservoir site by emergency services due to the distance from access points.

3 Control Measures

- 3.1.1 To reduce or mitigate risks, the following sections detail control measures that shall be implemented during the design, construction, and operation of the reservoir. The control measures do not always completely mitigate the risk and as such residual risks are usually low, but still present and have been detailed in Section 0.

3.2 Hostile Architecture & Landscaping

- 3.2.1.1 Hostile architecture is an urban-design strategy that is deployed using elements of built environment to purposefully guide behaviour. The use of Hostile architecture and landscape shall be deployed on the project in an attempt to coerce and guide the general public. The project is deploying two methods of hostile architecture.

3.2.2 Riprap & Erosion Protection

- 3.2.2.1 Riprap is being deployed at the top of slopes & embankments on the main reservoir. Riprap is an aggregate in Cobble category, ranging from 64mm to 256mm in diameter. The riprap primarily provides erosion protection against wave action by dissipating wave action; however, the large stoney surface provided by the riprap makes walking over the area difficult. The riprap is to be installed from a max water level to a minimum water level, meaning that the riprap erosion protection shall be sufficiently wide that in the event of a drawdown, there shall always be a deterrent provided using the riprap.



Figure 1 - Example RipRap on an Riverbank [1]

- 3.2.2.2 Further to the riprap erosion protection, the Reservoir has been designed with sufficient freeboard to ensure that during light wave action there is a low risk over wave overtopping. Using Hostile Architecture allows risks **One, Six & Seven** to be assessed as having a **Low** residual risk Appendix A – Risk Assessment Matrix.

3.2.3 Landscaping & Marginal Planting

- 3.2.3.1 To further deter public from entering any bodies of water around the reservoir, defensive landscaping shall be established in the form of perimeter planting and marginal planting at select locations on the reservoir downstream slopes. Marginal planting is at, or just below the water level, and perimeter planting will be in areas around dry freeboard of the reservoir. Used in conjunction with other deterrents the landscaping will aid with prohibiting and deterring access for people, thus

allowing risks **One, Six & Seven** to be assess as having a **Low** residual risk Appendix A – Risk Assessment Matrix.

3.3 Fencing & Edge Protection

- 3.3.1 Further to deterrents, physical measures shall be established in the form of a 1.10m high livestock-proof fencing continuously around the southern perimeter of the reservoir where there is a higher risk of persons falling into a deep body of water. The fence installed shall be livestock-proof to ensure that children, pets & other wildlife cannot entry the water. The fence shall be a constructed of 100x100mm timber posts at no greater than 3.0m centres.



Figure 2 - Typical Livestock Proof Post & Rail Fence [2]

- 3.3.2 The area to the north of the main embankment shall not be fenced around the perimeter where there is engagement with the Wetlands embankment, the Wetlands is to be fenced and gated at each access point, this is to protect the environment. The gates can be accessed by authorised operational & maintenance individuals, refer to section 4.7 for management of risks posed to O&M personal.
- 3.3.3 Further to this, fencing/railings shall also be deployed around any structures that are present on the site, as detailed here – note: not all these areas are publicly accessible:
- a) Valve Tower – the top of the valve tower shall be fitted with a continuous steel railing system that has a top and mid rail mounted at a minimum 1.10m and 0.47m respectively and in accordance with Approved Document K of The Building Regulations 2010 & Section E2.36 of Sewage Sector Guidance Appendix C.
 - b) Discharge Channel – per specifications in (a), the same guard railing system shall be established at any drops around the discharge channel.
 - c) Wetlands Flow Control/Penstocks – per specifications in (a), the same guard railing system shall be established around penstocks on Wetlands flow control structures – around the removable steel decking. The Penstock Railing shall also incorporate a gate which shall be self-closing and lockable with a padlock.

3.3.4 The fencing to be installed contributes to allowing risk **One, Two, Five, Six & Seven** to be assessed as having a **Low** residual risk per Appendix A – [Risk Assessment Matrix](#).

3.4 Warning Signage

3.4.1 Warning signage shall be affixed to the fencing and other, permanent structures. The signage shall provide warning to the deep water & the risk of drowning. Signs shall be produced in accordance The Health and Safety (Safety Signs and Signals) Regulations 1996 and BS ISO 7010:2019. The project shall install signage to contribute to the reduction of risk of drowning to **Low** for risks **One, Two, Five, Six & Seven**, per Appendix A – [Risk Assessment Matrix](#). Table 1, below provides examples of signage to be provided:

Table 1 - Example Schedule of Signs

ID	Sign Details	Typical Location	Reference Image/Example
1	Prohibition No Swimming	Mounted to fence or posts at 100m intervals around open bodies of water per guidance [3]	 No swimming
2	Hazard Danger Deep Water	Mounted to fence or posts at 100m intervals around open bodies of water (with Sign ID:1) and near structures and inlets per guidance [3]	 Beware – deep water
3	Information Lifesaving device	Mounted to fence or posts at 200m intervals around open bodies of water (to match lifebuoy spacing per section 4.2) per guidance [3] These information signs shall also be supplemented with a location reference sign to accelerate being found by Emergency Services.	

4	Hazard Hazard Warning	Mounted on fence or posts near structures, inlets or outlets per guidance [3]	 Beware – strong currents
5	Hazard General Information Sign	Mounted on posts at every access/entry point to the reservoir site, sighted to ensure good visibility. Similar to shown example sign from [3]. This sign shall detail the overall hazards to the site, such as, but not limited to: • Deep water • No swimming • No fishing • No Boating	
6	Hazard General Information Sign	Mounted on posts near every structure i.e. outlet, spillway, inlet/valve tower. Similar to shown example sign from [3]. This sign shall detail the specific hazards around a structure, such as, but not limited to: • Deep water • No swimming • No fishing • Strong currents • Sudden Discharge • Emergency contact details • Cold water	
7	Hazard Claxon Alarm Sign	Mounted near discharge locations to notify that 3-short bursts on a claxon means discharge is about to commence.	No Reference Image

3.5 Design Control Measures

3.5.1 Access Road Kerbing

- 3.5.1.1 In order to assess risk **Three** as having a **Low** residual risk per Appendix A, the access track atop the reservoir embankment shall be kerbed using BS EN 1340 Conservation Kerbs with a 125mm upstand. This upstand shall prevent most accidental overrun by containing the vehicle within the access track boundary i.e. between the kerbs. The kerbs will be sufficient to contain a rolling vehicle or a vehicle with gear engaged and moving less than 10mph. However, the kerbs will not be sufficient to contain anything moving with purpose or faster than 10mph. Vehicular access, per section 3.5.2, is to be limited to Maintenance & Operational staff only, and a strict 10mph speed limit shall be enforced.

3.5.2 Site Access & Layout

- 3.5.2.1 The site is predominantly accessed via the Northern Access point, and the Southern Access point, both of which shall be publicly accessible, and both shall lead to the proposed visitor centre, shown as red stars on Figure 3.
- 3.5.2.2 The site will be secure from unauthorised vehicle access via the use of vehicle gates. To enable access by emergency vehicles, these gates are to be secured with a combination lock and a 24/7 manned contact number provided on nearby signage to enable gate combination to be shared with emergency services without delay. Furthermore, the site contains two main points of access to speed up the time taken for emergency services to access the site.
- 3.5.2.3 In the event of a serious or catastrophic incident, access could be obtained via Forestry England track to the north of the site, via a small private road opposite Whichers Gate Rd or via Staunton Country Park, shown as yellow stars on Figure 3. Note: Some access points are via Private land and will only be used in the most serious of situations and via forced access i.e. cutting locks and/or barriers.
- 3.5.2.4 Per section 4.8.3 local emergency planners will be briefed and given opportunity to review and plan for emergency situations that may occur at the reservoir site; it is expected that this will include a review and identification of access points.
- 3.5.2.5 These measures allow risk Eight to have a **Low** residual.



Figure 3 - Site Access Points

3.5.3 Inlet & Outlet Gratings

- 3.5.3.1 Should someone enter the water and attempt to enter the inlet or outlet structures; any possible access or egress point shall be guarded by a suitable grating irrespective of depth below water, grating design & assessment shall be in accordance with Flood and Coastal Erosion Risk Management (FCERM): Culvert, screens and outfall manual; and, Design and operation of trash screens - phase 3; furthermore, the main inlet and outlets, where possible are to be minimum 5m below water level, making swimming down to, and entering undesirable. This control measure contributes to risks Four, Five, Six & Seven as being assess as a **Low** residual risk per Appendix A.

4 Residual Risk Review & Management

4.1.1 Despite the introduction of comprehensive control measures, it is not always possible to fully prevent and stop purposeful entry into the water; and prevent accidents during unauthorised access to the water. Therefore, measures to manage the residual risk shall be implemented across the reservoir site and beyond. Each additional measure has been assessed based on the residual risk posed, and in line with relevant guidance.

4.2 Life Rings, Flotation Devices & Rescue Lines

4.2.1 General

4.2.1.1 To manage the residual risk of entry in the body of water and subsequent risk of drowning, a number of marine safety equipment shall be provided at suitable spacing around the perimeter of the open body of water, see section 4.2.3 for assessment of spacing. The life saving devices shall be installed in accordance with manufacturers instruction & signed per section 3.4.

4.2.1.2 The life-saving devices shall be:

- i. Life buoys (or rings) with affixed rescue lines; and,
- ii. Supplementary rescue lines.

4.2.1.3 Both rescue devices shall comply (where applicable) with the Merchant Shipping (Life Saving Appliances and Arrangements) Regulations 2020, amendment 1, Schedule. Part 1, Part 2, Part 3 & Part 6. Furthermore, shall be capable of providing 100N of buoyancy (where applicable) and be MCA approved and manufactured in accordance with BS EN ISO 12402-4:2020, BS EN 14144:2003 and BS 14145:2003.

4.2.1.4 An example of products to be installed:

- i. <https://icbrindle.com/set-3d-lifebuoy-line-housing-base-plate-poles.html>
- ii. <https://icbrindle.com/25m-throwline-bag.html>

4.2.2 Life Saving Device Location

4.2.2.1 It has been established that life saving devices shall be located around the perimeter of the body of water; these shall be installed in areas that can be easily accessed by members of the public and shall be sited on the 'public facing' side of the boundary fence. While this would mean access to the water body would be slightly hindered by the fence, access would not and should not be totally impossible for someone of fair able body – as discussed in section 3.3, the 1.1m high perimeter fence is directed more towards preventing children and animals from entering the water body.

4.2.2.2 Further to life buoys/rings around the perimeter of the reservoir, additional rescue lines are proposed near structures or other higher-risk areas, these would include:

- Discharge Pipe outlet*.
- Discharge Pipe inlet (below water level).
- Spillway.
- Streams/open channels that could be subject to high or deep flows*.

* Throw line to be provided to both sides of the hazard

4.2.3 Spacing between Life Saving Devices

4.2.3.1 A typical and average running pace is 4mph (1.8m/s). On average an adult can hold their breath between 60 and 180 seconds; thus, a median of 120 seconds has been selected. In 120 seconds, a human could cover 216m while running. To make an out a return trip for someone to collect a lifesaving device, they shall be at no greater than 200m centres around the perimeter of the

reservoir – thus, a passer-by or other onlooker is never more than 100m from said device and it can be comfortably recovered for use within 120 seconds.

4.2.4 Security, Maintenance & Inspection of Life Saving Devices

- 4.2.4.1 In accordance with MCA MSIS27 Chapter 10, life saving devices shall be inspected monthly and recorded by the operator. Maintenance on any issues raised from the inspection shall be actioned immediately without delay should the inspection deem that the issue substantially impairs the use of the device. The lifesaving device shall be protected by anti-tamper snap toggles, and NVSS situated around the reservoir site, as detailed in section **Error! Reference source not found.**, shall further act as deterrent against damage & vandalism.

4.3 Slope Design

- 4.3.1 In the event that a person does enter the water, purposefully or accidentally, the slope angles of the embankment are shallow, typically no greater than a 1:7 slope, and while the slopes are lined with riprap erosion protection rocks as detailed in section 3.2.2, exiting or rescue from the reservoir is made easier by the shallower slope angles.

4.4 High Flow in Emergency Discharge Situation

- 4.4.1 In the event of an emergency discharge (also known as drawdown) situation, the local authority will be contacted following the processes outlined in the On-site emergency flood plan (HTR-FUW-XX-00-PL-W-0541). In the case of unplanned draw down, notification to the local resilience forum would be undertaken.
- 4.4.2 When a flood warning is received, the local resilience forum would activate the emergency response team and initiate evacuation procedures, coordinate with local authorities to assist with evacuation efforts and provide information to nearby communities.

4.5 Networked Video Surveillance System (NVSS)

- 4.5.1 A networked video surveillance system shall be established to mostly aid with security and deterrent towards vandalism and other crimes. The NVSS shall be comprehensive and capable of remote control from a remotely monitored control centre that is manned 24/7. The NVSS shall also comply with all other relevant requirements in the main contract scope, namely correctly signed and operated in accordance with Data Protection Act and other relevant legislation.

4.6 School Education

- 4.6.1 School visits are another measure to be implemented with mitigating risk Seven. Undertaking school visits allows the operator to educate and inform young people to the hazards associated with water infrastructure and open bodies of water. These are expected to be a short 15-min discussion and presentation with a short activity to increase engagement if deemed suitable. It would be the responsibility of the operator to implement and operate a school education programme.

4.7 Management of Operational & Maintenance Drowning Risks

- 4.7.1 The contractor shall make aware to the operator during the O&M hand-over in accordance with CDM 2015 regulations any residual risk and subsequent control measures that the contractor deems as being suitable.
- 4.7.2 It is expected that the operator implements the following procedures to manage the risk of drowning per up-to-date Health & Safety Executive guidance and relevant legislation prior to hand over, list is non-exhaustive:
- i. Emergency preparedness and action procedures
 - ii. Task Specific RAMs
 - iii. Drowning and working near water procedure

- iv. Provision of self-recovery personal buoyancy equipment
- v. Lone working procedures
- vi. Confined spaces training, procedure & permitting system.

- 4.7.3 In general, the operator needs to consider the following: how to prevent a fall, how to raise the alarm, how to keep person(s) afloat, and how to recover. Documents in section (i) to (v) in 4.7.2 should sufficiently cover this.
- 4.7.4 The risks shall be reviewed by someone trained, competent & qualified to do so. And shall be periodically reviewed throughout operation.

4.8 Review of Rescue Options

- 4.8.1 In the eventuality that a person, staff, or member of public does enter the water, emergency services shall be deployed by dialling 999.
- 4.8.2 It is expected that under the Civil Contingencies Act 2004 the Reservoirs' emergency preparedness risks will be reviewed and assessed per the statute.
- 4.8.3 Prior to the commencement of filling per 1.5.2, Future Water shall consult and invite local emergency planners and Hampshire and Isle of Wights' Local Resilience Forum team to review risks present at the reservoir site, and develop emergency preparation plans; this is in accordance with Flooding Risk Assessment document where it is detailed further.
- 4.8.4 Section 3.5.2 details access points to the site and how they have been risk assessed, and measures that have been implemented to prevent hinderance for access.
- 4.8.5 At the time of this documents publication and submission to planning, Hampshire and Isle of Wight Fire and Rescue services have published the following capabilities that could be deployed to the reservoir site in the event of a downing emergency:
- i. Cosham Fire Station can deploy a Response Support Vehicle, with water rescue capabilities [4].
 - ii. Fareham Fire Station are a DEFRA National Resource Station and able to deploy advance water rescue teams nationwide [5].
 - iii. Hampshire have a Volunteer Urban Search & Rescue team with Flood & Water Rescue capabilities [6].
 - iv. HM Coastguard has stations at: Hayling Island, Portsmouth, Southampton & Daedalus [7].
- 4.8.6 The above section, 4.8.5, is beyond the scope of this condition and the project, but local resource and capability has been considered in the risk assessment and subsequent control measures, for example more emphasis has been placed on Emergency access via the Southern Access Road as typically, resources would be approaching from the South.

4.9 Other Points of Relevance

- 4.9.1 Two Automated External Defibrillators (AEDs) are proposed to be located on the reservoir site, one at the Visitor Centre, the other at the control house. These AEDs shall be locked and secured and shall be accessible by dialling 999 and asking the operator for the code. The AEDs shall be established with support of the local authorities via the British Heart Foundations "The Circuit" system [8]. The AEDs shall be installed and maintained by the operator in accordance with Manufacturer's instructions & British Heart foundation "The Circuit" requirements.

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6 Appendix A – Risk Assessment Matrix

Risk ID	Person(s) at Risk	Location of Risk	Hazards	Risk Assessment			Control & Management Measures	Residual Risk Assessment		
				Severity	Likelihood	Risk Rating		Severity	Likelihood	Risk Rating
1	Public & Visitors	Close to body of Water or channel	Drowning in open body of water	5	3	15	Installation of Hostile Architecture & Landscaping to deter access by foot to the water. Installation of Timber post & rail fencing with stock-proof fencing. Installation of Warning Signs. Provision of life saving devices. Provision of additional measures: - NVSS - Education	5	1	5
2							Installation of Timber post & rail fencing with stock-proof fencing Installation of Warning Signs Provision of life saving devices			

	Operational and maintenance staff	Close to body of Water or channel	Drowning in open body of water	5	3	15	Installation of fences & railings to prevent people falling water Site Specific measures employer by Portsmouth Water: • Staff working near water to employ active or passive buoyancy aid. • Implementation of lone working procedure • Implementation of emergency action plan • Implementation of Task Specific RAMs • Drowning & working near water procedure. Implementation of robust rescue plan in conjunction with local authorities Audible claxon alarms to warn of high-flow discharge sufficiently early to allow evacuation	5	1	5
3	Operational and maintenance staff	Vehicle veering of embankment crest	Crash injury Drowning	4	3	12	Implementation and enforcement of 10mph speed limit Installation of kerb along road Management of access to authorised persons only – prohibition of all public motor vehicles	4	1	4

4	Public, Visitors, Operational and Maintenance Staff	Unauthorised access to emergency discharge culvert from open channel	Drowning Injury or Death	5	2	10	Claxon Alarm to be sounded a predetermined time prior to discharge to allow person(s) to exit immediate area. With signs explaining meaning of Claxon alarm. Remote Discharge is not an option Operator to provide minimum three personal to inspect site prior to discharge – secondary inspection via CCTV Implementation of robust rescue plan in conjunction with local authorities Staff working near water to employ active or passive buoyancy aid Implementation of lone working procedure for operator staff Gratings to be installed on access points to confined spaces such an inlet or outlet pipe/channels	5	1	5
5	Public, Visitors, Operational and Maintenance Staff	Unauthorised access to emergency discharge culvert from open channel	Drowning Injury or Death	5	2	10	Gratings to be installed on access points to confined spaces such an inlet or outlet pipe/channels Implementation of robust rescue plan in conjunction with local authorities Implementation of CCTV to deter misbehaviour	5	1	5

							Robust confined spaced training, procedure & permitting system implemented by operator			
6	Public, Visitors, Operational and Maintenance Staff	Drowning in open water, unauthorised access to water body	Drowning Injury or Death	5	4	20	Installation of Hostile Architecture & Landscaping to deter access by foot to the water. Installation of Timber post & rail fencing with stock-proof fencing. Installation of Warning Signs. Provision of life saving devices. Installation of CCTV system as deterrent	5	1	5
7	Public, Visitors (Children & Animals)	Drowning in open water, small children, and animals	Drowning Injury or Death	5	4	20	Installation of Hostile Architecture & Landscaping to deter access by foot to the water. Installation of Timber post & rail fencing with stock-proof fencing. Installation of Warning Signs. Provision of life saving devices. Installation of CCTV system as deterrent Educational programme to neighbourhoods and near-by schools	5	1	5

8	Public, Visitors, Operational and Maintenance Staff	Rescue difficulties due to distance from access points	Delay in response times Physical access difficulties Location identification and referencing Resource preparedness	5	2	10	Liaison and communication with local rescue services to ensure preparedness Signs around reservoir to provide location reference ID – such as What Three Words. Manned 24/7 control centre that can provide gate access codes in emergency AEDs provided at key locations on site	5	1	5
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7 Appendix B – Risk Assessment Scoring

Risk Matrix:

Risk Ratings are calculated by determining the Likelihood of the identified hazard and undesired event happening and the Impact this would then have on the persons identified at risk or the environment. Both Likelihood and Impact are rated 1-5 using the risk matrix below. The Risk Rating is the Likelihood x the Impact, 1 being the lowest and 25 the highest.

		Impact				
		Negligible (1)	Minor (2)	Moderate (3)	Major (4)	Extreme (5)
Likelihood	Almost Certain (5)	5	10	15	20	25
	Likely (4)	4	8	12	16	20
	Possible (3)	3	6	9	12	15
	Unlikely (2)	2	4	6	8	10
	Rare/Remote (1)	1	2	3	4	5

Key:

Risk Rating 1-5 Risk is deemed safe, and no further action or measures need to be implemented

Risk Rating 6-12 Risk is deemed mostly safe, but requires additional or regular control measures

Risk Rating 15-25 Risk is deemed not safe and will require enhanced control measures to reduce the risk