Sydney
WATER

Safety Minimum Requirements

Acknowledgement of Country

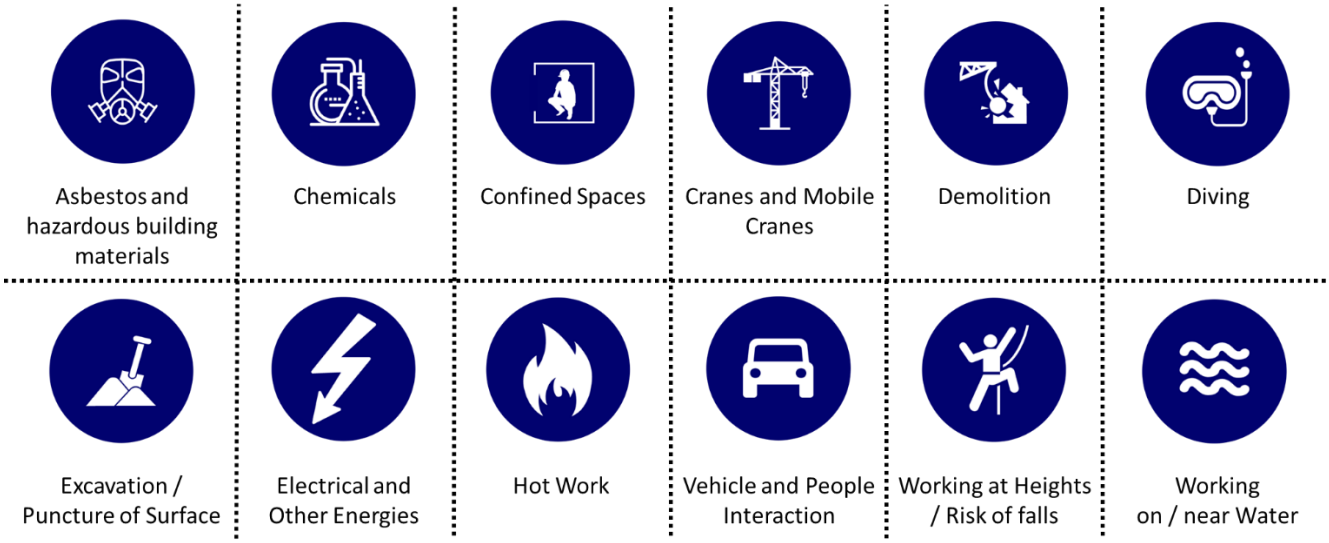
We respectfully acknowledge the people of the Dharug, Gundungurra, Tharawal, Kuring-gai and Eora Nations as the Traditional Custodians of the land and waters on which we operate today, and we extend our respect to their Elders past and present.

Through the development and implementation of these Safety Minimum Requirements, we acknowledge and pay homage to the Aboriginal and Torres Strait Islander peoples' rich history of keeping themselves and each other safe. We also acknowledge that whenever we talk about and practice workplace health and safety, there is no greater example than the one set by the world's oldest living culture.

Contents

Preface

Sydney Water's Safety Minimum Requirements (SMRs) have been developed to keep our people and our contractors safe when undertaking high risk work. There are 12 applicable high risk work activities covered by the SMRs.



The Safety Minimum Requirements will:

- Give our people and partners clear direction on those controls that must be in place before work commences to ensure they are not injured while undertaking high risk work
- Support our leaders to confidently provide guidance and coaching while on site, focused on the controls that will ensure their people stay safe
- Support leaders to competently understand if their people are working safely, and address this in a positive and constructive way which will increase trust and foster psychological safety
- Demonstrate Sydney Water's commitment to the health and safety of our people and partners
- Bring together legislative requirements, best practice, and our Sydney Water safety management system requirements within a single medium that can be easily referenced and used on the worksite.

By ensuring that the Safety Minimum Requirements are in place, we will bring to life our safety vision that:

- Our people are trusted to do their best work.
- We value learning from what goes right, wrong, and from others.
- We give our people the right systems, knowledge, equipment, support and environment to get their work done safely.

The SMRs do not replace the requirement for Safe Work Method Statements (SWMS) and high-risk work permits (such as an excavation permit or working at height permit) that describe the work methodology and controls to be implemented for the high-risk work.

Extensive consultation on these requirements has been undertaken with Sydney Water's most important asset – our people.

Asbestos and hazardous building materials

The minimum requirements

A copy of the Hazardous Building Materials register, where applicable, is available to relevant workers before surfaces are disturbed

The disturbance of, or potential exposure to asbestos or hazardous building materials is minimised, and controls in place to prevent inhalation, absorption, or ingestion

Removal of hazardous building materials is notified to the Contaminated Lands and Hazardous Materials Team

Where required, asbestos removal work is undertaken by an appropriately licensed asbestos removalist

A clearance certificate is issued by an independent asbestos assessor at the completion of friable asbestos removal

Asbestos and hazardous building material wastes are appropriately managed and disposed of

The detail

A copy of the Hazardous Building Materials register, where applicable, is available to relevant workers before surfaces are disturbed

A Hazardous Building Materials (HBM) register lists where HBM (such as asbestos, lead paints, etc.) are located, their condition, and what controls are required when working in their vicinity. The register is communicated to applicable workers to limit the risk of uncontrolled disturbance of HBM, which would pose a health risk to workers.

Sydney Water's HBM Registers are stored in *HazCentral*, accessible through iConnect or by contacting your Sydney Water site representative.

The disturbance of, or potential exposure to asbestos or hazardous building materials is minimised, and controls in place to prevent inhalation, absorption, or ingestion

When the work undertaken is in the vicinity of hazardous building materials and is likely to disturb them, workers implement controls such as barricades, signage, etc to prevent uncontrolled disturbance. When disturbance is required as part of the work (e.g. drilling), additional controls such as adequate personal protective equipment (PPE), air monitoring, and decontamination facilities are used in accordance with the HBM or Asbestos Management Plan. If asbestos is identified in excavation spoil, appropriate controls as defined by a person competent in asbestos management, are implemented to prevent inhalation.

Removal of hazardous building materials is notified to the Contaminated Lands and Hazardous Materials Team

The Contaminated Lands and Hazardous Materials Team manages the HBM registers for Sydney Water sites. It is important to let them know of any changes so that registers can be updated to remain current.

propertyenvironmental@sydneywater.com.au

Where required, asbestos removal work is undertaken by an appropriately licensed asbestos removalist

The removalist is appropriately licensed.

- Class A License – Any amount of asbestos that is friable (ie. can easily become airborne), or
- Class B License – Asbestos that is bonded and more than $10m^2$ is being removed.

Note. For bonded asbestos removal less than $10m^2$, the worker removing the asbestos has completed asbestos awareness training and demonstrate they are competent.

A clearance certificate is issued by an independent asbestos assessor at the completion of friable asbestos removal

A clearance certificate is required at the end of friable asbestos removal work and is provided by an independent assessor that is not employed by the removal company and not involved in the removal work. The clearance certificate is issued before the site can be reoccupied.

Asbestos and hazardous building material wastes are appropriately managed and disposed of

Due to their hazardous nature, asbestos and other hazardous building material wastes are appropriately bagged, stored, and transported to prevent any contamination. Only licensed waste facilities can accept and process those wastes.

Chemicals

The minimum requirements

- Access to the site chemical register is available to relevant workers
- Access to current Safety Data Sheets is available to relevant workers
- Workers, including first aiders, understand first aid and emergency requirements as per the Safety Data Sheet
- Safety Data Sheets are available for hazardous chemicals introduced by contractors
- Hazardous chemicals are used safely, as per Safety Data Sheet requirements, to reduce exposure through inhalation, absorption, ingestion, or injection
- Hazardous chemicals are correctly stored and clearly labelled

The detail

Access to the site chemical register is available to relevant workers

A chemical register lists the chemicals on a site, their locations, and quantities. The register is available to workers to check if their scope of work is in the vicinity and/or may interact with chemicals on the site.

Access to current Safety Data Sheets is available to relevant workers

A Safety Data Sheet is a document prepared by the chemical manufacturer, importer or supplier. It describes the properties and uses, first aid treatment, emergency requirements and precautions for storage, use and safe handling of the chemical. Workers using chemicals onsite know where the Safety Data Sheets are located and can access them quickly if required. Safety Data Sheets are valid for five years from the date they are published.

Workers, including first aiders, understand first aid and emergency requirements as per the Safety Data Sheet

Workers and first aiders know where emergency equipment (such as safety showers, eye wash stations, firefighting equipment, first aid kits) are located and the equipment is operational and sufficient to provide first aid in accordance with the requirements in the Safety Data Sheet.

Safety Data Sheets are available for hazardous chemicals introduced by contractors

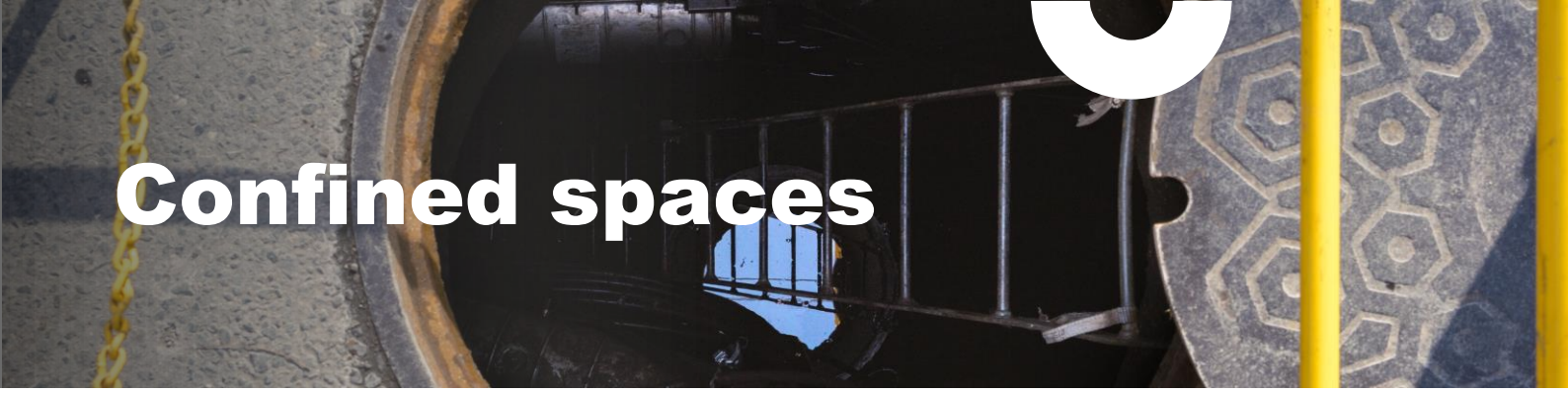
When chemicals are introduced to site by a contractor, it is important that the Safety Data Sheets are made available by the contractor to anyone that might need them (e.g. to provide appropriate first aid). The contractors and other workers at the site know where the Safety Data Sheets are located and can access them quickly if required. Safety Data Sheets are valid for five years from the date they are published.

Hazardous chemicals are used safely, as per Safety Data Sheet requirements, to reduce exposure through inhalation, absorption, ingestion, or injection

Each Safety Data Sheet covers safe handling, type of PPE required, storage and transport requirements of the chemical it relates to. Workers need to store, use and/or transport the chemical in accordance with the requirements in the Safety Data Sheet.

Hazardous chemicals are correctly stored and clearly labelled

Chemicals are stored in line with the Safety Data Sheet requirements, in clearly labelled containers so that they can be identified quickly to prevent potential risk of misuse and segregated from incompatible chemicals. If the label includes an expiry date, the chemical is not used past its expiry date.



Confined spaces

The minimum requirements

Workers involved in confined space work are trained and competent
Confined space register, including specific hazards, connected services and other relevant information, is available to those involved in the work
Confined spaces are labelled and recorded on a confined space register (excluding network linear assets)
Atmospheric testing is completed for O_2, CO, H_2S, LEL and VOC before entering and during confined space work. Where trade waste is involved, gas detectors also test for ammonia (NH_3)
A standby person is always present during confined spaces work
Workers entering and exiting a confined space are recorded on the confined space entry permit
Rescue resources are available in case of an emergency
Exclusion Zones are established above and/or below work with a risk of fall
Flow Isolation Flow Management (FIFM) is implemented where required, and authorised by applicable Sydney Water personnel
Lock Out Tag Out (LOTO) is implemented where required, and authorised by applicable Sydney Water or delivery partner personnel

The detail

Workers involved in confined space work are trained and competent

Training is to be provided by a Registered Training Organisation (RTO) and be current. Each worker is able to present a verification of competency, such as on a card carried by them.

Confined space register, including specific hazards, connected services and other relevant information, is available to those involved in the work

A confined space register is a list of identified confined spaces on a site and covers specific hazard information for each space. The register is available to workers so that the work can be planned in consideration of those specific hazards.

Confined spaces are labelled and recorded on a confined space register (excluding network linear assets)

Network linear assets mean Sydney Water network of pipelines for drinking water distribution or wastewater collection. It is not realistic for all access points to these assets to be labelled. All other confined spaces have fixed signage installed at each entry point clearly indicating that they are a confined space and are recorded on the confined space register.

Atmospheric testing is completed for O_2, CO, H_2S, LEL and VOC before entering and during confined space work. Where trade waste is involved, gas detectors also test for ammonia (NH_3)

The air inside the confined space is tested prior to entry and is continually monitored during work inside the confined space. As a minimum, the testing covers:

- Oxygen (O_2) level
- Carbon Monoxide (CO) level
- Hydrogen Sulphide (H_2S) level
- Lower Explosive Limit (LEL)
- Volatile Organic Compounds (VOC) level

9 Confined spaces

When trade waste is involved (ie. waste generated from industrial activities) in the confined space, additional atmospheric testing may need to be conducted for additional chemicals such as ammonia (NH_3).

A stand-by person is always present during confined spaces work

The stand-by person is there to monitor gas levels and the wellbeing of workers inside the confined space by observing the work where possible and keeping in communication with the workers inside. The stand-by person is trained in confined spaces by a registered training organisation (RTO) and able to present evidence to demonstrate their competency.

A designated stand-by person cannot enter the confined space.

Workers entering and exiting a confined space are recorded on the confined space entry permit

A confined space entry permit is a document used to control access to the confined space. The confined space entry permit:

- Is specific to the confined space entered and the work conducted
- Records the results of atmospheric testing
- Captures the names and times related to workers entering and exiting the confined space
- Sets out the control measures for safe entry to the confined space
- Details the emergency rescue plan and rescue equipment required
- Contains space to acknowledge that work in the confined space has been completed and that all workers have left the confined space.

Rescue resources are available in case of an emergency

Rescue resources include equipment such as tripods, harnesses and winches used to rescue workers from the confined space in an emergency. It is also important that a first aid kit and trained first aider (usually the stand-by person) are readily available.

Exclusion Zones are established above and/or below work with a risk of fall

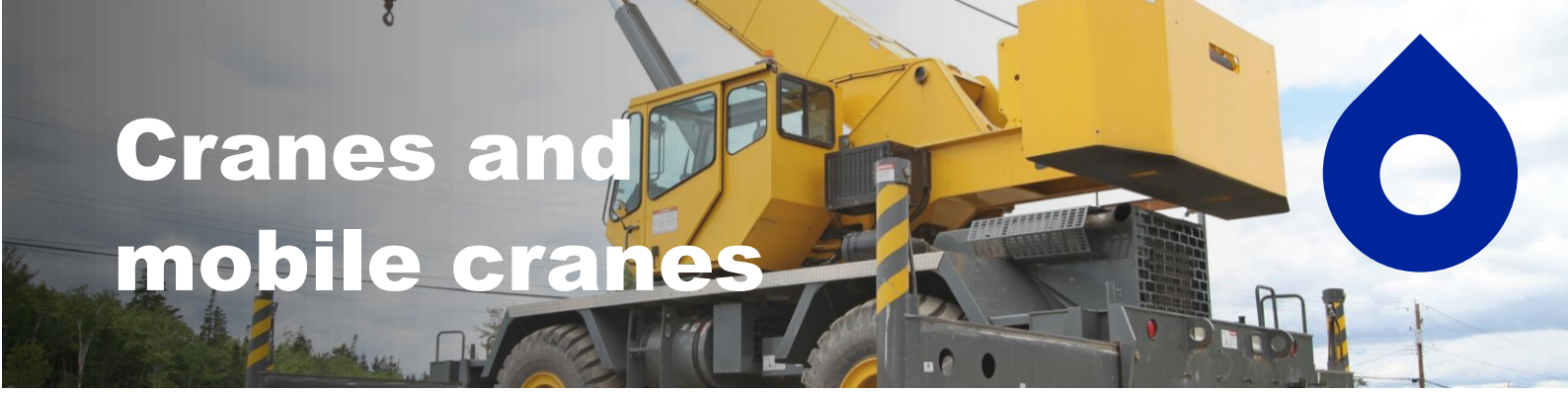
An exclusion zone is setup to prevent unauthorised access anywhere there is a potential for a person or object to fall or for a person to be struck by a falling object in a confined space.

Flow Isolation Flow Management (FIFM) is implemented where required, and authorised by applicable Sydney Water personnel

Flow Isolation Flow Management (FIFM) is the process used by Sydney Water to control the flow of liquids entering the confined space. The FIFM process is documented in a FIFM plan and followed during the confined space work. The FIFM plan is to guarantee that the flow of liquids is stopped (isolation) or reduced to a safe rate of flow when isolation is not possible. The FIFM plan is authorised only by a Sydney Water person who has completed *FIFM – Planning and Approval* training.

Lock Out Tag Out (LOTO) is implemented where required, and authorised by applicable Sydney Water or delivery partner personnel

Lock Out Tag Out (LOTO) is the process used by Sydney Water to control sources of energy (e.g. electrical, mechanical, pressure, hydraulic, chemical). LOTO is required whenever there is a risk from hazardous energy sources or hazardous process fluids. The LOTO process is documented in an Isolation Permit and followed during the confined space work. The aim of the Isolation Permit is to guarantee that all identified energy sources that represent a risk to the confined space work have been physically locked and tagged prior to work commencing so that they cannot accidentally be reactivated. The Isolation Permit is authorised by applicable Sydney Water or delivery partner personnel who have completed *Authorised Isolator* training.



Cranes and mobile cranes

The minimum requirements

- Pre-start checks are completed each shift, prior to crane operation
- A crane lift plan is required for all crane lifts. For routine lifts, this may be the work instruction
- Loads are within the crane safe working limit
- Crane operators always keep the load in sight unless a dogger/rigger is being used and two-way communication is maintained
- Exclusion zones are established around cranes and loads being lifted
- Crane operator ceases all operations and provides permission before anyone can enter the exclusion zone
- Suspended loads are not lifted over any person or body part, including people in a vehicle
- Workers use taglines to control suspended loads and only approach a load when it is within 300mm of its resting position
- Mobile cranes are operated to meet stability, road and weather conditions and within the manufacturer's specification
- Crane operator wears a seat belt where one is fitted
- Cranes are not operated within the safe approach distances of overhead powerlines without approval and an authorised, formally trained safety observer/spotter

The detail

Pre-start checks are completed each shift, prior to crane operation

Workers conduct a pre-start check at the beginning of their shift to validate that the crane or mobile crane is in a satisfactory working condition prior to operating it. The pre-start check is documented either in hard copy or electronically. If a defect is identified, then corrective actions are undertaken, or the defect is reported to the relevant person.

A crane lift plan is required for all crane lifts. For routine lifts, this may be the work instruction

A crane lift plan defines how the load will be slung, lifted and moved safely. Where a regular lifting task under consistent conditions (ie. load weight, lifting points and sling selection) is covered by a documented work instruction, the work instruction likely suffices as the crane lift plan.

Loads are within the crane safe working limit

A crane has defined safe working limits in terms of the weight it can safely lift and the reach at which the load can be lifted. These limits are found on the boom or on the crane compliance plate. Loads are only lifted within these defined limits.

Crane operators always keep the load in sight unless a dogger/rigger is being used and two-way communication is maintained

The crane operator always keeps the load in sight to be able to quickly react to any change during the lift. In the case that a lift requires the load to be moved and placed out of sight of the crane operator, a licensed Dogman or Rigger is required to assist the lift by directing the crane operator using continuous two-way communication.

Exclusion zones are established around cranes and loads being lifted

Visible exclusion zones are established around cranes using high-visibility markers, barriers and signage to clearly delineate the exclusion zones' boundaries. These exclusion zones are maintained whilst cranes are in operation.

Crane operator ceases all operations and provides permission before anyone can enter the exclusion zone

Where access to an exclusion zone is required, the crane operator makes the load safe by placing it on the ground, ceases operation of the crane and provides confirmation to the relevant person that they can access the exclusion zone. The lifting activity can only resume once it is confirmed that everyone has left the exclusion zone.

Suspended loads are not lifted over any person or body part, including people in a vehicle

Crane operators are not to shift a suspended load over any person, even where the person is in a vehicle. People do not place their hands or any other part of their body beneath a suspended load at any time.

It should also be considered during the work planning stage that cranes should be set up so that they are not required to lift loads over critical assets.

Workers use taglines to control suspended loads and only approach a load when it is within 300mm of its resting position

Taglines are usually ropes, cables or rigid poles used to guide and stabilise a suspended load from a safe distance. The load can only be approached by workers when it is close to its resting position, and this will usually be below shoulder height.

Mobile cranes are operated to meet stability, road and weather conditions and within the manufacturer's specification

Mobile cranes are setup on a flat surface, sufficiently firm and stable to support the weight of the mobile crane and the loads being lifted. The outriggers or stabilisers are not used to compensate for inappropriate ground condition as their sole purpose is to control the risk of potential rollover. Outriggers are not to be placed over or near known underground structures such as pits, trenches or access chambers.

When a crane is on an incline or uneven ground the Safe Working Limit (SWL) of the crane is greatly reduced. The lift plan provides information on the SWL and the limits of the crane's movement. The lift plan also addresses the weather conditions and if it is safe to proceed with the lift.

Crane operator wears a seat belt where one is fitted

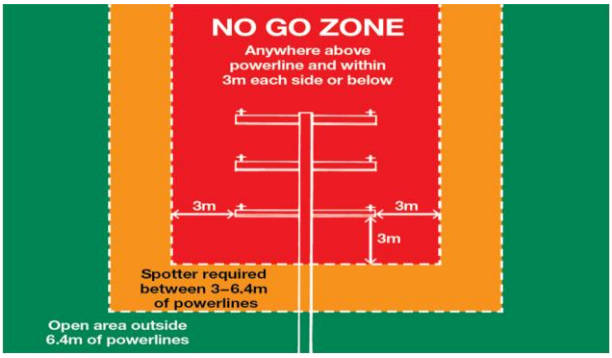
Cranes have the potential to roll over if overloaded or if the crane or load becomes unstable. Where a seat belt is fitted and available, the crane operator wears the seatbelt as it significantly reduces the risk of being crushed during a rollover. It also prevents the instinctive response of jumping out of a vehicle during a rollover.

Cranes are not operated within the safe approach distances of overhead powerlines without approval and an authorised, formally trained safety observer/spotter

The crane operator maintains the crane and the loads being lifted at a safe distance from any overhead powerlines. This can be achieved either using mechanical limiters on the crane, by positioning a crane in a way that it cannot reach the powerlines, or by having a dedicated safety observer/spotter, whose sole responsibility is to monitor that the lifting activity does not get too close to the powerlines. The safety observer is able to communicate quickly and effectively with the crane operator using a 2-way radio or similar.

The safety observer/spotter is trained and competent (training equivalent to the national unit of competency for *Work as a safety observer*). The safety observer should have operational knowledge of the type of equipment they are observing.

The no-go zone for overhead powerlines is anywhere above, or within 3m each side or below. A safety observer is required for distances from 6.4m to 3m on approach from each side and below.



Demolition

The minimum requirements

Demolition work is notified to the Property Asset Management Team
A copy of the Hazardous Building Materials Register, where applicable, is available to relevant workers with hazardous building materials identified before demolition commences
Demolition work is undertaken by a demolition license holder
All services in or around the demolition site are identified, relevant utilities notified, and services ceased/made safe before demolition commences
The demolition area is secured against unauthorised or inadvertent access by others
A demolition plan is prepared and communicated to relevant workers
An emergency plan is prepared, tested and communicated to relevant workers
Asbestos and hazardous building material wastes are appropriately managed and disposed of
Explosive demolition work is notified to the Sydney Water Safety, Health and Wellbeing Team

The detail

Demolition work is notified to the Property Asset Management Team

Demolition work means work to demolish or dismantle a structure or part of a structure that is load bearing or otherwise related to the physical integrity of the structure. A structure is anything that is constructed, whether fixed or moveable, temporary or permanent, and includes buildings, sheds, towers, chimney stacks, silos, storage tanks.

The Property Asset Management Team manages all Sydney Water properties and are required to be notified before any demolition work takes place.

propertymanagement@sydneywater.com.au

A copy of the Hazardous Building Materials Register, where applicable, is available to relevant workers with hazardous building materials identified before demolition commences

A Hazardous Building Materials (HBM) register lists where HBM (such as asbestos, lead paints, etc.) are located, their condition and what controls are required when working in their vicinity. The register is communicated to applicable workers to limit the risk of uncontrolled disturbance of HBM during demolition work, which would pose a health risk to workers.

Demolition work is undertaken by a demolition license holder

The following work needs to be undertaken by a demolition license holder:

- Demolition of a structure, or a part of a structure that is load bearing or otherwise related to the physical integrity of the structure, that is at least six metres in height
- Demolition work involving load shifting machinery on a suspended floor
- Demolition work involving explosives
- Demolition work on a chemical installation

All services in or around the demolition site are identified, relevant utilities notified, and services ceased/made safe before demolition commences

The services to identify include gas, water, sewerage, telecommunications, electricity, chemicals, fuel, and refrigerant in pipes or lines. If the identified services are not required in the demolition process, they are shut off, capped, or otherwise controlled before the demolition work can commence.

The demolition area is secured against unauthorised or inadvertent access by others

Securing the work area usually involves installing security fencing, overhead protective structure where relevant, and setting up specified exclusion zones while the demolition work is under way.

A demolition plan is prepared and communicated to relevant workers

The purpose of a demolition plan is to collate all the relevant information into a single document. The demolition plan needs to be specific for the structure that is being demolished and contain:

- structural details
- the proposed method of demolition
- how to handle and dispose of demolition material (especially if hazardous)
- details about the location and condition of services (both underground and overhead)
- details about adjoining properties or structures.

An emergency plan is prepared, tested and communicated to relevant workers

An emergency plan is a written instruction outlining what workers and others at the workplace should do in the case of an emergency. The emergency plan covers a range of potential emergency incidents, for example ground slip, engulfment, flooding, gas leaks, and the rescue of workers from a demolition site. The emergency plan includes details on the frequency of testing of the emergency response. Workers on site are aware of the emergency plan in relation to the evacuation procedure (usually during the site induction). Workers involved in the emergency response are instructed in more detail on how to implement the plan.

The emergency plan may be incorporated into the demolition plan.

Asbestos and hazardous building material wastes are appropriately managed and disposed of

Due to their hazardous nature, asbestos and other hazardous building material wastes are appropriately bagged, stored, and transported to prevent any contamination. Only licensed waste facilities can accept and process those wastes.

Explosive demolition work is notified to the Sydney Water Safety, Health and Wellbeing Team

Due to the increased risk involved with the use of explosives for demolition work, the Sydney Water Safety Health and Wellbeing Team is engaged to complete a more detailed review of the proposed demolition work methodology and associated controls.

Diving

The minimum requirements

- Divers are certified and maintain a current certificate of medical fitness
- A certified dive supervisor is appointed to supervise the diving work
- A certified diver's attendant is appointed for each dive
- A standby diver is present whenever a diver is diving in water depths of more than 1.5 meters
- A dive plan, including rescue procedures, is prepared by the certified dive supervisor and communicated to relevant workers before the dive commences
- Dive details are recorded in a dive safety log
- Flow Isolation Flow Management (FIFM) is implemented where required, and authorised by applicable Sydney Water personnel
- Lock Out Tag Out (LOTO) is implemented where required, and authorised by applicable Sydney Water or delivery partner personnel

The detail

Divers are certified and maintain a current certificate of medical fitness

Divers hold a certificate for general diving work. Divers also have a current certificate of medical fitness (valid for 12 months) to undertake diving work. The certificate is issued by a doctor who has been trained in underwater medicine.

A certified dive supervisor is appointed to supervise the diving work

A certified dive supervisor is a professional diving team member who is directly responsible for the diving operation's safety and management of any incidents that may occur during the operation. The dive supervisor holds a certificate for general diving work and is experienced in the type of diving work to be supervised. The dive supervisor remains present while a diver is in the water to ensure the safe conduct of the diving operation. A dive supervisor may be appointed for a team of divers and may supervise from a boat or on land.

A certified diver's attendant is appointed for each dive

Whenever a diver goes underwater or is subjected to pressure, the diver is attended by a diver's attendant. The certified diver's attendant is trained in first aid and has working knowledge of decompression procedures and the diving plant and equipment in use.

The dive supervisor may act as a diver's attendant for simple dives.

A standby diver is present whenever a diver is diving in water depths of more than 1.5 meters

A standby diver is present whenever a diver is underwater. The purpose of a standby diver is to provide help to a diver in need of assistance with the minimum of delay after receiving an instruction to do so from the dive supervisor. If located on the surface, the standby diver is dressed and equipped to enable immediate entry into the water.

A dive plan, including rescue procedures, is prepared by the certified dive supervisor and communicated to relevant workers before the dive commences

A dive plan is prepared before the diving work can take place and is followed by workers involved in the diving work. A dive plan contains details regarding the work method, the tasks and duties of everyone involved, the diving equipment to be used, hazards and controls relating to the dive, and emergency procedures. All people involved in the diving work understand the content of the diving plan.

Dive details are recorded in a dive safety log

A dive safety log is a document used to record:

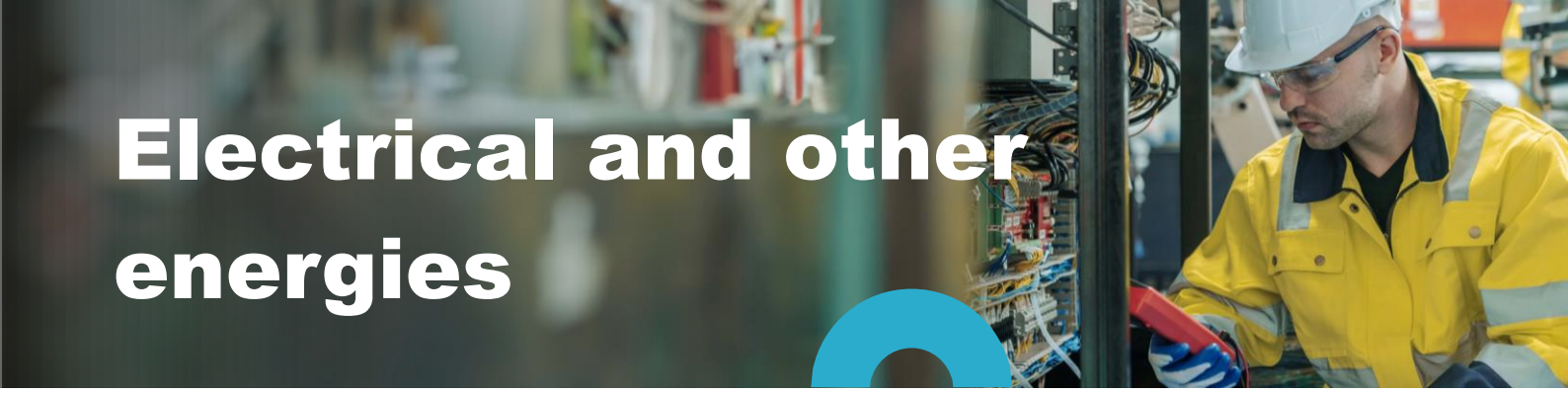
- the details of the worker who is diving
- the date and location of the dive
- the time each diver enters and leaves the water
- the maximum depth of the dive
- whether any difficulty or incident occurred during the dive
- the signature (or unique identifier if the log is electronic) of the diver and the supervisor

Flow Isolation Flow Management (FIFM) is implemented where required, and authorised by applicable Sydney Water personnel

Where the flow of water or wastewater is a risk for the diving work, the Flow Isolation Flow Management (FIFM) process is implemented. FIFM is the process used by Sydney Water to control the flow of liquids. The FIFM process is documented in a FIFM plan and followed during the diving work. The FIFM plan is to guarantee that the flow of liquids is stopped (isolation) or reduced to a safe rate of flow when isolation is not possible. The FIFM Plan is authorised only by a Sydney Water person that has completed *FIFM – Planning and Approval* training.

Lock Out Tag Out (LOTO) is implemented where required, and authorised by applicable Sydney Water or delivery partner personnel

Lock Out Tag Out (LOTO) is the process used by Sydney Water to control sources of energy (e.g. electrical, mechanical, pressure, hydraulic, chemical). LOTO is required whenever there is a risk from hazardous energy sources or hazardous process fluids. The LOTO process is documented in an Isolation Permit and followed during the diving work. The aim of the Isolation Permit is to guarantee that all identified energy sources that represent a risk to the diving work have been physically locked and tagged prior to work commencing so that they cannot accidentally be reactivated. The Isolation Permit is authorised by applicable Sydney Water or delivery partner personnel who have completed *Authorised Isolator* training.



Electrical and other energies

The minimum requirements

- A portable residual current device (RCD) is used whenever a fixed RCD cannot be located
- Electrical panels, motor control centres and substations are appropriately locked with access only by competent electrical personnel
- Stored energy is released and verified before work can commence
- Electrical equipment is assumed 'live' until proven otherwise (Test before you touch)
- High voltage switching instructions are authorised by Sydney Water's High Voltage Operations Team
- Work on energised equipment is only permitted for fault finding or testing and is approved by an authorised Sydney Water electrical competent person
- Plumber's voltmeter (PVM), bridging cables and insulated gloves are used before and during work on metallic water pipes
- Flow Isolation Flow Management (FIFM) is implemented where required, and authorised by applicable Sydney Water personnel
- Lock Out Tag Out (LOTO) is implemented where required, and authorised by applicable Sydney Water or delivery partner personnel
- Isolation points are physically locked, and each worker applies a personal isolation (RED) lock
- The removal of a personal isolation (RED) lock can only be done by the worker who installed it unless an Authority to Remove Personal Lock form has been approved

The detail

A portable residual current device (RCD) is used whenever a fixed RCD cannot be located

A residual current device (RCD) is a safety device used in electrical circuits to detect and prevent electrocution. It immediately shuts off the power supply to an electrical circuit when it detects an imbalance in the current flowing through the circuit. When plug-in equipment is used and if it is unknown whether a fixed RCD is present, a portable RCD is used to reduce the risk of shock from electricity passing through the body to the earth (the most frequent cause of electrocution).

Electrical panels, motor control centres and substations are appropriately locked with access only by competent electrical personnel

Electrical panels, motor control centres and substations are secured to prevent unauthorised access due to the safety risk as well as potential operational impact. This usually involves the use of locks to physically prevent uncontrolled access.

A competent electrical person is someone that has obtained their electrical trade qualification and been inducted to the site they are working on.

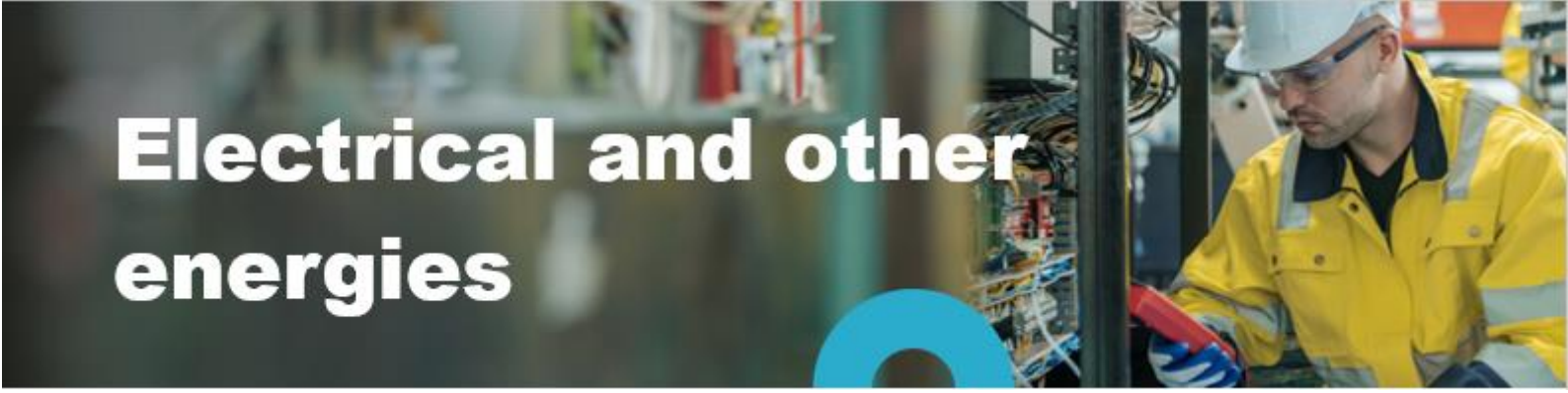
Stored energy is released and verified before work can commence

Even though the isolation points have been locked, there could be stored energy remaining in the system (e.g. charge in capacitors, compressed air in a pipe, spring loaded equipment, chemicals in pipes). It is vital that any stored energy is released (e.g. bleeding a valve to remove pressure in a pipe, purging of chemicals in a pipe) to prevent an uncontrolled release of energy.

Electrical equipment is assumed 'live' until proven otherwise (Test before you touch)

Electrical equipment is tested to confirm it has been de-energised before electrical work is carried out on the electrical equipment. This includes Alternating Current (AC) and Direct Current (DC) circuits for high voltage, low voltage and extra-low voltage systems. *Test before you touch* consists of the following steps:

- Test the tester (usually a voltmeter or multimeter) on a known live source
- Test the equipment to be worked on to prove absence of electricity



- Retest the tester on a known live source to confirm the tester is still functional

High voltage switching instructions are authorised by Sydney Water's High Voltage Operations Team

High voltage is defined as voltages greater than 1000 volts for Alternating Current (AC) or greater than 1500 volts for Direct Current (DC). Sydney Water's High Voltage Operations Team is responsible for authorising high voltage switching instructions to ensure that the as-found status of each switch, and the sequence of switching are both safe and sound to implement.

Work on energised equipment is only permitted for fault finding or testing and is approved by an authorised Sydney Water electrical competent person

Work on live electrical equipment is only permitted as an absolute last resort option and is pre-approved by the Sydney Water Electrical Services Leader.

Fault finding and testing is only approved after a risk assessment is completed and appropriate risk mitigation measures are implemented. Energised fault finding and testing work is only carried out by personnel who hold a current and valid electrical license (except for extra-low voltage).

Plumber's voltmeter (PVM), bridging cables and insulated gloves are used before and during work on metallic water pipes

A Plumber's voltmeter (PVM) is a portable device connected to the metallic water pipework being worked on that detects and provides early warning of potentially hazardous voltage being present in the metallic water pipework. Work ceases if the PVM alarms and the relevant electricity supplier is notified.

A bridging cable is an insulated electrical cable with clamps on each end, used to maintain electrical continuity across breaks on metallic water pipe by clamping it on each side of the break in the pipe.

The PVM, bridging cable and 500 volt rated insulated gloves are critical in managing the risk of electricity while working on metallic water pipework and are to be used at all times.

Flow Isolation Flow Management (FIFM) is implemented where required, and authorised by applicable Sydney Water personnel

Flow Isolation Flow Management (FIFM) is the process used by Sydney Water to control the flow of liquids. Where the flow of water or wastewater is a risk to workers, the FIFM process is implemented. FIFM process is documented in a FIFM plan and followed during the work. The FIFM plan is to guarantee that the flow of liquids is stopped (isolation) or reduced to a safe rate of flow when isolation is not possible. The FIFM Plan is authorised only by a Sydney Water person who has completed *FIFM – Planning and Approval* training.

Lock Out Tag Out (LOTO) is implemented where required, and authorised by applicable Sydney Water or delivery partner personnel

Lock Out Tag Out (LOTO) is the process used by Sydney Water to control sources of energy (e.g. electrical, mechanical, pressure, hydraulic, chemical). LOTO is required whenever there is a risk from hazardous energy sources or hazardous process fluids. The LOTO process is documented in an Isolation Permit and followed during the work. The aim of the Isolation Permit is to guarantee that all identified energy sources that represent a risk to the work have been physically locked and tagged prior to work commencing so that they cannot accidentally be reactivated. The Isolation Permit is authorised by applicable Sydney Water or delivery partner personnel who have completed *Authorised Isolator* training.

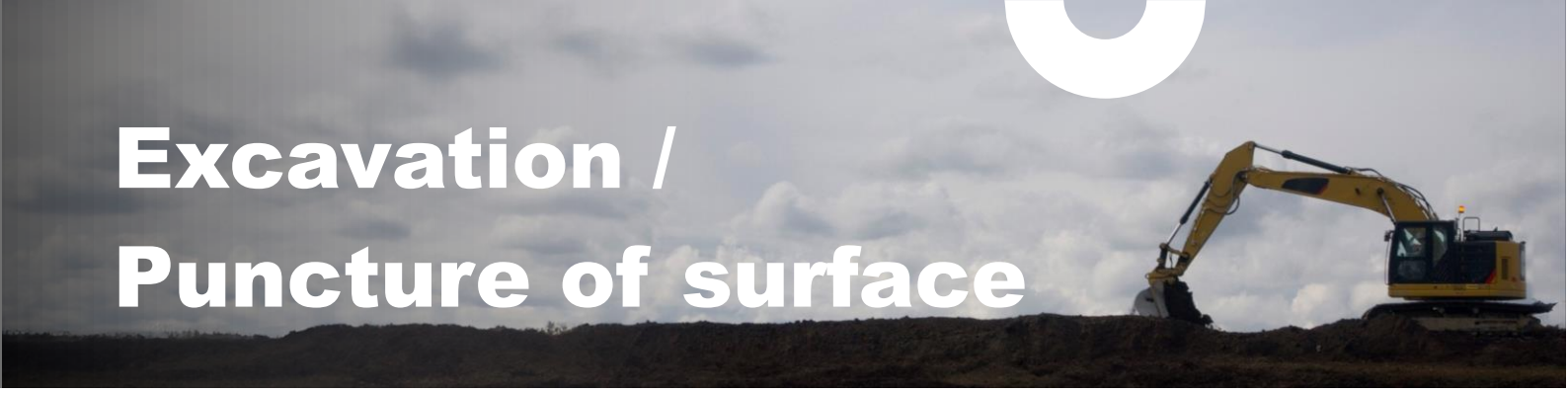
Isolation points are physically locked, and each worker applies a personal isolation (RED) lock

Physically locking isolation point(s) is crucial to prevent accidental reactivation of the isolated source of energy. Where a lock or hasp cannot be directly applied to the isolation point, additional lock out equipment is required to be used (eg ball valve lockout cover or circuit breaker lockout device).

Each worker working under the Isolation Permit is required to apply their personal isolation (RED) lock to provide certainty that the isolation cannot be removed without their consent. The personal isolation lock is applied on the isolation point or alternatively on a lock box.

A personal isolation (RED) lock can only be removed by the worker who installed it unless an Authority to Remove Personal Lock form has been approved

A personal isolation (RED) lock can only be removed by the worker who installed it (ie. the person who it is protecting). In the event where a worker is not able to remove a personal isolation lock, an *Authority to Remove Personal Lock* form is used and signed off to confirm that no one remains working under the Isolation Permit prior to removing the lock.



5 Excavation / Puncture of surface

The minimum requirements

- A copy of the Hazardous Building Materials Register or any drawings detailing services, where applicable, are available to relevant workers with hazardous building materials identified before surfaces are punctured
- Hazardous building materials are identified before puncturing manmade structures/substances
- The disturbance of, or potential exposure to asbestos or hazardous building materials is minimised, and controls are in place to prevent inhalation, absorption, or ingestion
- Workers do not cut, crush, drill, polish or grind products that generate dust containing silica without controls to reduce potential inhalation
- Underground services are identified through Before You Dig Australia (BYDA) before excavating
- Underground services are identified through the use of locators, potholing, and 100m walk each way, and marked out before excavation commences
- Excavation is not undertaken within the zone of influence of a building or structure without approval. For example, approval by energy network for service poles, or by a structural engineer for a building
- Non-destructive digging is used to positively identify and expose high pressure / high voltage services in the presence of an authorised spotter from the asset owner
- Excavations deeper than 1.5 metres require engineering controls such as benching, battering or shoring, unless approved by a geotechnical engineer
- For excavations deeper than 1.5 metres, atmospheric testing is completed for O_2, CO, H_2S, LEL and VOC.
- Excavation material and all equipment is stored outside of the zone of influence
- Excavations have physical barriers and signage in place when left unattended
- Exclusion zones are established around operating excavators. Excavator operations cease immediately if a person enters the exclusion zone
- Equipment is not operated within the safe approach distances of overhead powerlines without approval and an authorised, formally trained safety observer/spotter
- Flow Isolation Flow Management (FIFM) is implemented where required, and authorised by applicable Sydney Water personnel
- Lock Out Tag Out (LOTO) is implemented where required, and authorised by applicable Sydney Water or delivery partner personnel

The detail

A copy of the Hazardous Building Materials Register or any drawings detailing services, where applicable, are available to relevant workers with hazardous building materials identified before surfaces are punctured

A Hazardous Building Materials (HBM) register lists where HBM (such as asbestos, lead paints, etc.) are located, their condition and what controls are required when working in their vicinity. Drawings of the work area detail the location of services within the structure or site where work will be conducted. The register and any available drawings are communicated to applicable workers to limit the risk of uncontrolled disturbance of HBM, which would pose a health risk to workers.

Excavation / Puncture of surface

Hazardous building materials are identified before puncturing manmade structures/substances

Identification of hazardous building materials is required before puncturing manmade structures/substances. The identification at a minimum relies on reviewing the information available in the Hazardous Building Materials Register and a visual inspection of the surface to be punctured. If hazardous building materials are identified, workers on site are aware of its presence, and of the applicable controls required to eliminate risks to their health.

The disturbance of, or potential exposure to asbestos or hazardous building materials is minimised, and controls are in place to prevent inhalation, absorption, or ingestion

When the work undertaken is in the vicinity of hazardous building materials and is likely to disturb them, workers implement controls such as barricades, signage, etc to prevent uncontrolled disturbance. When disturbance is required as part of the work (e.g. drilling), additional controls such as adequate personal protective equipment (PPE), air monitoring and decontamination facilities are used in accordance with the HBM or Asbestos Management Plan. If asbestos is identified in excavation spoil, appropriate controls as defined by a person competent in asbestos management, are implemented to prevent inhalation.

Workers do not cut, crush, drill, polish or grind products that generate dust containing silica without controls to reduce potential inhalation

Crystalline silica is found in materials such as sand, stone, concrete, mortar and other engineered stone products. When workers cut, crush, drill, polish or grind products that contain crystalline silica, dust particles are generated that are small enough to lodge deep in the lungs and cause serious illness or disease, including silicosis.

Control measures should begin with elimination of cutting, crushing, drilling, polishing or grinding where possible. If elimination is not possible, controls usually consist of containing the airborne particles or wetting the material being cut and using respiratory protection equipment such as dust masks.

Underground services are identified through Before You Dig Australia (BYDA) before excavating

Before You Dig Australia (BYDA) provides plans and safety information from underground asset owners to review prior to conducting excavation work. All service locations are to be verified prior to digging or puncturing a surface.

Underground services are identified through the use of locators, potholing, and 100m walk each way, and marked out before excavation commences

The available information about existing underground essential services is not always accurate. Services are identified to confirm their exact location on the work site and marked on the ground before an excavation can commence. The positive identification of services is done using an underground locator (e.g. electromagnetic cable locator for electrical services), walking 100m each way from the work site to locate signs of underground services (e.g. a pit cover, plates, markers, signs), potholing to expose a section of the underground service, and/or tracing.

Excavation is not undertaken within the zone of influence of a building or structure without approval. For example, approval by energy network for service poles, or by a structural engineer for a building

The zone of influence refers to the area in or around an asset which, if disturbed, can affect the structural integrity of that asset. If the asset is an electrical pole, the energy network provider defines the controls that are required to excavate within the zone of influence, which is at least one metre around the pole. If the excavation is conducted in proximity of a building, a structural engineer is consulted to determine the controls required so that the excavation work does not affect the structural integrity of the building.

Non-destructive digging is used to positively identify and expose high pressure / high voltage services in the presence of an authorised spotter from the asset owner

Following notification to the asset owner, non-destructive digging is completed using a high-pressure water hose and a vacuum truck to conduct a dig. This technique is used to locate dangerous underground services such as high-pressure gas pipes and high voltage cables under the supervision of an authorised spotter from the asset owner. Non-destructive digging is the only safe option to expose such services safely without risk of damaging them.

Excavation / Puncture of surface

Excavations deeper than 1.5 metres require engineering controls such as benching, battering or shoring, unless approved by a geotechnical engineer

There is a risk of ground collapse when an excavation reaches a depth of greater than 1.5 metres unless a geotechnical engineer confirms that there is no risk of collapse based on the ground condition. Engineering controls used to manage the risk of collapse are:

- Benching, which is the creation of a series of steps in the vertical wall to stabilise the excavation
- Battering, which is where the wall of an excavation is sloped back to a predetermined angle to ensure its stability
- Shoring, which is the provision of physical support for excavated faces (e.g. shoring boxes) to prevent the movement of soil

It is possible to combine the techniques of benching and battering to stabilise an excavation. Shoring is a common method of ground support in trench excavation.

Controls should be reviewed following adverse weather conditions, such as significant rain, to ensure they remain effective to prevent collapse.

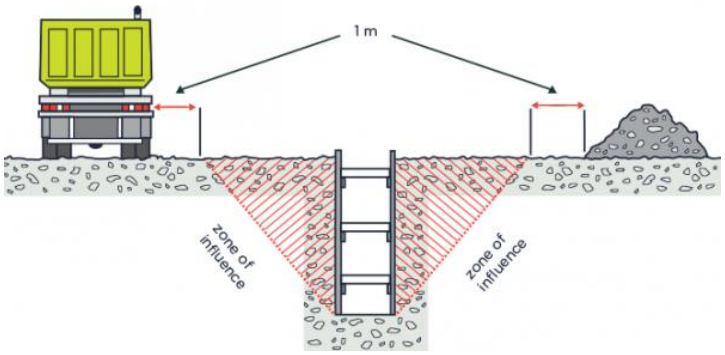
For excavations deeper than 1.5 metres, atmospheric testing is completed for O_2, CO, H_2S, LEL and VOC.

There is a risk of gases accumulating in an excavation when it reaches a depth of greater than 1.5 meters due to the limited natural ventilation that can reach the bottom of the excavation. For that reason, the air in the excavation needs to be tested prior to entry and continuously monitored while working inside the excavation. As a minimum, the testing covers:

- Oxygen (O_2) level
- Carbon Monoxide (CO) level
- Hydrogen Sulphide (H_2S) level
- Lower Explosive Limit (LEL)
- Volatile Organic Compounds (VOC) level

Excavation material and all equipment is stored outside of the zone of influence

There is a risk of collapse when spoil and equipment is stored close to the edge of an excavation (ie. within the zone of influence). In excavation, the zone of influence is the distance from the edge of the excavation equal to the depth plus one metre (see below).



Excavations have physical barriers and signage in place when left unattended

Each time an excavation is left unattended, physical barriers are used to prevent unauthorised access, and by extension, injury to members of the public. Depending on the excavation and its location, the physical barriers usually consist of fencing with signage alerting to the presence of an excavation or covering the excavation with materials such as road plates.

Exclusion zones are established around operating excavators. Excavator operations cease immediately if a person enters the exclusion zone

Exclusion zones are established around operating excavators to prevent people from being struck by the excavator while it is operating (ie. digging or traversing the site). The exclusion zone is large enough to cater for the reach of the outstretched boom and arm in all directions from the base. Exclusion zones remain free of people any time the excavator is operating. Operation of the excavator ceases each time a person is required to enter the exclusion zone.

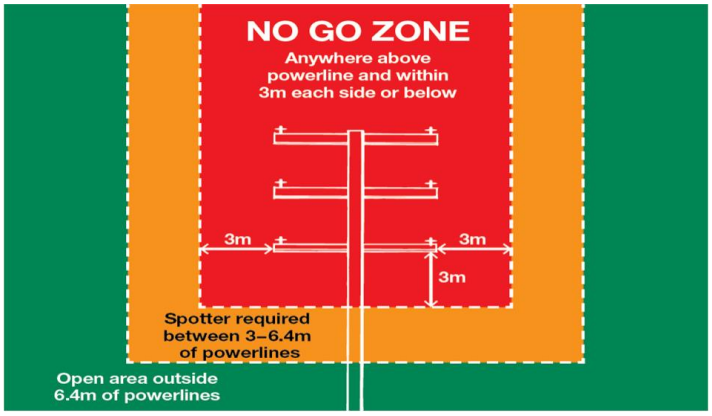
Excavation / Puncture of surface

Equipment is not operated within the safe approach distances of overhead powerlines without approval and an authorised, formally trained safety observer/spotter

The excavation equipment needs to maintain a safe distance from any overhead powerlines. For an excavator, this can be achieved by using a height limiter (which limits the height that the excavator arm can reach) or a slew limiter (which limits the range the excavator can spin). A dedicated safety observer (spotter) is allocated whose sole responsibility is to monitor that the excavation equipment does not get too close to the powerlines. The safety observer is able to communicate quickly and effectively with the equipment operator using a 2-way radio or similar.

The safety observer/spotter is trained and competent (training equivalent to the national unit of competency for *Work as a safety observer*). The safety observer should have operational knowledge of the type of equipment they are observing.

The no-go zone for overhead powerlines is anywhere above, or within 3 metres each side or below. A safety observer is required for distances from 6.4 metres to 3 metres on approach from each side and below.



Flow Isolation Flow Management (FIFM) is implemented where required, and authorised by applicable Sydney Water personnel

Flow Isolation Flow Management (FIFM) is the process used by Sydney Water to control the flow of liquids. For an excavation, this is relevant when excavating around a broken or leaking pipe. The FIFM process is documented in a FIFM plan and followed during the excavation work. The FIFM plan is to guarantee that the flow of liquids is stopped (isolation) or reduced to a safe rate of flow when isolation is not possible. The FIFM Plan is authorised only by a Sydney Water person that has completed *FIFM – Planning and Approval* training.

Lock Out Tag Out (LOTO) is implemented where required, and authorised by applicable Sydney Water or delivery partner personnel

Lock Out Tag Out (LOTO) is the process used by Sydney Water to control sources of energy (e.g. electrical, mechanical, pressure, hydraulic, chemical). LOTO is required whenever there is a risk from hazardous energy sources or hazardous process fluids. The LOTO process is documented in an Isolation Permit and followed during the excavation or puncture of surface work. The aim of the Isolation Permit is to guarantee that all identified energy sources that represent a risk to the excavation or puncture of surface work have been physically locked and tagged prior to work commencing so that they cannot accidentally be reactivated. The Isolation Permit is authorised by applicable Sydney Water or delivery partner personnel who have completed *Authorised Isolator* training.

Hot work

The minimum requirements

Controls as per the hot work permit are implemented. Additional controls are required during high fire danger periods

Controls are in place to manage risk to workers from heat, fumes or arc flash

Hot work equipment has the following safety devices fitted:

- guard, second handle, and 'Deadman' switch for grinders
- flashback arrestors for oxy/acetylene
- voltage reduction devices and appropriate earthing for welders.

No hot work during Total Fire Bans (TOBAN) in open areas, without exemption by Sydney Water and Rural Fire Service

The detail

Controls as per the hot work permit are implemented. Additional controls are required during high fire danger periods

Hot work consists of any activity that generates a source of ignition (heat, flames or sparks) such as welding, thermal cutting, or grinding metal.

A hot work permit identifies the hot work to be done, the hazards involved, and the controls or precautions to be taken. The identified controls from the permit are implemented by the workers conducting the work to prevent the risk of fire or explosion.

During the bushfire season as declared by the Rural Fire Services (usually from October to May), additional controls are required such as placing shields or guards to prevent the emission of sparks outside of the work area and having a hose connected to the water supply ready for use close to the work area.

Controls are in place to manage risk to workers from heat, fumes or arc flash

Fumes and concentrated heated areas are caused by hot works and pose greater risk to workers conducting the work. Adequate ventilation and specific personal protective equipment (PPE) are to be utilised by workers taking part in the activity. Controls are implemented to reduce the risk of any flammable or combustible material that is unable to be removed, such as appropriate firefighting equipment, screening, artificial ventilation (if required), and PPE as appropriate.

Hot work equipment has the following safety devices fitted:

- ***guard, second handle, and 'Deadman' switch for grinders***
- ***flashback arrestors for oxy/acetylene***
- ***voltage reduction devices and appropriate earthing for welders***

As a minimum, angle grinders are fitted with a guard (to control the direction of the sparks), a second handle (to ensure both hands have control of the grinder and are away from the rotating disc), and a 'Deadman' switch (a switch designed to turn off the grinder as soon as the operator stops holding the grinder).

An oxy/acetylene torch is a common tool used to heat, weld, solder, and cut metal. It uses oxygen and acetylene gas from cylinders. One of the risks when working with an oxy/acetylene torch is that flashbacks can occur. A flashback is when the flame unexpectedly travels back into the torch's gas supply tank, which can lead to an explosion. For this reason, oxy/acetylene equipment have flashback arrestors, preferably on both ends of the hoses.

Voltage reduction devices reduce the voltage of the welding machine when it is on but not being used to weld (ie. the open-circuit voltage). Combined with appropriate earthing, these controls reduce the risk of an electric shock (e.g. inadvertently touching the electrode).

No hot work during Total Fire Bans (TOBAN) in open areas, without exemption by Sydney Water and Rural Fire Service

Sydney Water and our delivery partners have a general exemption granted by the Rural Fire Service for the essential repairs or maintenance required for continuance or restoration of water and sewage services during Total Fire Ban (TOBAN) periods. All other maintenance and construction hot work activities do not proceed in open areas during TOBAN days without a task-specific exemption being approved by Sydney Water and the Rural Fire Service.

Vehicle and people interaction

The minimum requirements

- Traffic management plans are developed for sites and communicated to relevant workers
- Traffic controls are used where road users are deviated from a traffic regulation, such as crossing marked lines or changing a sign posted speed limit
- Exclusion zones are maintained around moving vehicles and mobile plant. Vehicle or mobile plant operations cease immediately if a person enters an exclusion zone
- A minimum two metre exclusion zone is established around vehicles being loaded or unloaded
- Driver/mobile plant operator ceases all operations and provides permission before anyone can enter the exclusion zone
- Loading or unloading ceases if the truck driver's whereabouts are unknown
- A pedestrian exclusion zone, as long as the vehicle, is established behind and beside tippers when tipping
- Do not access the back of a truck without fall prevention controls
- Heavy vehicles have at least two wheels chocked when parked

The detail

Traffic management plans are developed for sites and communicated to relevant workers

A Traffic Management Plan (TMP) is a set of instructions, standards and rules for the flow of vehicles, mobile plant, and pedestrians on a work site. The purpose of a TMP is to reduce the risk of vehicles and mobile plant colliding with people, plant or work. TMPs are communicated to workers on site, usually as part of a site induction.

Traffic controls are used where road users are deviated from a traffic regulation, such as crossing marked lines or changing a sign posted speed limit

Other road users pose a considerable collision risk to workers working on or near roads. Traffic controls are used to safely direct other road users around the work area when normal lanes or speed limits are modified due to the location of the work area. Traffic controls usually consist of traffic cones, barriers, and clear signage to indicate the presence of road work and the speed limits to be followed.

Exclusion zones are maintained around moving vehicles and mobile plant. Vehicle or mobile plant operations cease immediately if a person enters an exclusion zone

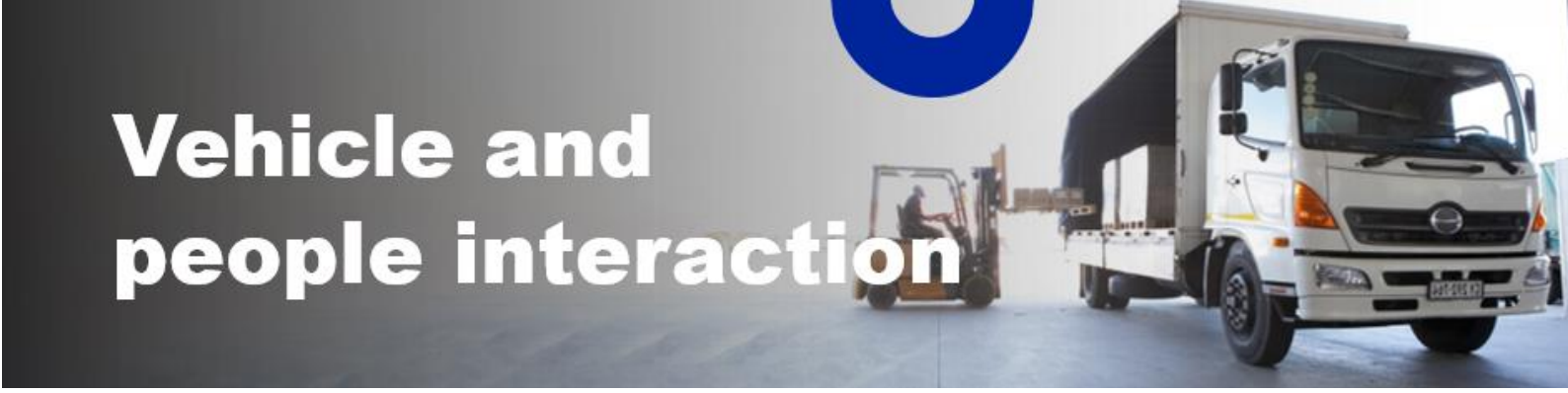
Exclusion zones are established around moving vehicles and mobile plant to prevent people being struck. To maintain a safe distance from moving plant and vehicles, an exclusion zone of 3 metres should be established on each side of moving vehicles. The areas in front and behind the moving vehicle or mobile plant remains free of people anytime the vehicle or mobile plant is operating. Operation of the vehicle or mobile plant ceases each time a person enters the exclusion zone.

A minimum two metre exclusion zone is established around vehicles being loaded or unloaded

Exclusions zones are established during loading and unloading to prevent people being struck by a load in the event it falls from the vehicle. A minimum of two metres exclusion zone is established on the sides and the back of the vehicle being loaded or unloaded. The exclusion zone is extended further to take into consideration the potential distance the load could possibly travel if dropped (e.g. a falling pipe rolling will require a significantly larger exclusion zone).

Driver/mobile plant operator ceases all operations and provides permission before anyone can enter the exclusion zone

Communication is established with the driver/operator when entry into the exclusion zone is required. The communication method is such that it does not allow for possible misinterpretation (e.g. a head nod is not sufficient). The driver/operator ceases all operations and makes the vehicle/mobile plant safe prior to anyone entering the exclusion zone.



Loading or unloading ceases if the truck driver's whereabouts are unknown

The loader/unloader establishes with the truck driver, an area where it is safe for the driver to be located during the loading/unloading activity (note, staying in the truck cabin is not considered safe from crane load shifting activities). If at any time the loader/unloader is unsure of the location of the truck driver, loading/unloading activity is stopped until the whereabouts of the truck driver is confirmed.

A pedestrian exclusion zone, as long as the vehicle, is established behind and beside tippers when tipping

A tipper can roll over during tipping activities due to instability of the truck, uneven load distribution or being positioned on uneven or unstable ground. An exclusion zone is established to cover an area at least the size of the maximum reach of the fully extended tipper tray in the event of a rollover to prevent the possibility of a person being crushed. As an example, if the length of the tipper truck from the front of the cabin to the tailgate is 15 metres, an exclusion zone of 15 metres on both sides and behind the vehicle is established.

Do not access the back of a truck without fall prevention controls

The height and the limited area on the back of a truck puts workers at risk of falling onto the ground or other hard surfaces. Fall prevention controls such as railings, mobile access platforms, harnesses and lanyards are used if work on the back of the truck is required. Best practice is to eliminate the requirement for a person to get on the back of the truck at all.

Heavy vehicles have at least two wheels chocked when parked

Wheel chocks are large wedges which are placed against the wheels of heavy vehicles to prevent roll aways. The chocks are placed either on the downhill direction of the vehicle or if the truck is parked on level ground, they are placed in the directions that the vehicle may travel.

6 Working at heights / Risk of falls

The minimum requirements

- Do not go within two metres of an unprotected edge where there is a potential fall of more than two metres, without fall protection
- Anchor points are suitable for the load and have been inspected within 12 months before use
- Exclusion Zones are established above and/or below work with a risk of fall
- Rescue plans are in place where there is a risk of fall of more than two metres (including when using an EWP)
- Where fall arrest is used, rescue plans are tested with the aim of recovery within five minutes
- Scaffolding has a Scaff tag attached and dated within the last 30 days
- A handover certificate is issued when scaffolding is erected, altered or repaired
- Do not exit an Elevated Work Platform (EWP) at height without fall controls in place
- Equipment is not operated within the safe approach distances of overhead powerlines without approval and an authorised, formally trained safety observer/spotter
- A-frame ladders are not to be used
- Do not access the back of a truck without fall prevention controls

The detail

Do not go within two metres of an unprotected edge where there is a potential fall of more than two metres, without fall protection

An unprotected edge is an edge that does not have any fall prevention control (such as handrails for example) to prevent someone from inadvertently falling. Controls such as warning barricades and signage should be implemented to physically stop anyone from getting within 2 meters of an unprotected edge. If the work requires people to be within two meters of an unprotected edge, fall prevention devices such as perimeter guardrails or a harness and lanyard attached to an anchor point are implemented.

Anchor points are suitable for the load and have been inspected within 12 months before use

If the work at heights relies on the use of anchor points to manage the risk of fall (ie. a worker is using a harness and lanyard attached to the anchor point), it is essential that the anchor points are in good condition to sustain the force that may be exerted on them. For this reason, anchor points are inspected at least every 12 months. This is usually verified by checking the date on the inspection tag attached to the anchor point. If the anchor point has not been inspected within the last 12 months, the anchor is not to be used until it has been tested.

Exclusion Zones are established above and/or below work with a risk of fall

An exclusion zone is setup to prevent unauthorised access anywhere there is a potential for a person or object to fall or for a person to be struck by a falling object.

Rescue plans are in place where there is a risk of fall of more than two metres (including when using an EWP)

A rescue plan is a documented set of instructions outlining what workers and others at the workplace should do in the event of a fall requiring a rescue. The rescue plan includes information about the type and location of equipment needed to conduct the rescue. Workers responsible to conduct the rescue are instructed on how to implement the rescue plan and are readily available to conduct a rescue as documented in the rescue plan.

6 Working at heights / Risk of falls

Where fall arrest is used, rescue plans are tested with the aim of recovery within five minutes

A fall arrest system does not prevent a fall. It is equipment designed to arrest a fall in a safe manner so that the person that fell is not injured by the fall. The use of such a system means that the fallen person can end up being suspended in an upright, vertical position. This position negatively impacts blood circulation and is dangerous for the health of the worker, especially if sustained over time (suspension intolerance). For this reason, the rescue plan for the recovery of a fallen worker is tested with the aim to provide a recovery within five minutes. Where the rescue is likely to take more than five minutes, the harness and connection point used should allow the suspended worker to raise their legs to near horizontal or alternatively the worker should carry straps to provide footholds.

Scaffolding has a Scaff tag attached and dated within the last 30 days

Scaffolds and supporting structures are inspected at least every 30 days to ensure they are free of damage or unapproved modification and remain safe for use. When a scaffold is inspected, a tag (called a Scaff tag) is attached near the entry point of the scaffold, capturing the date, the scaffold details, and the details of the person who conducted the inspection.

A handover certificate is issued when scaffolding is erected, altered or repaired

A handover certificate is issued by the scaffolding company to any other company using the scaffold after it is erected or each time after it is altered or repaired. The handover certificate contains the name of the scaffolding company, the name of the company it is handed over to and specific details of the scaffold such as its location, its safe load limits and its intended use.

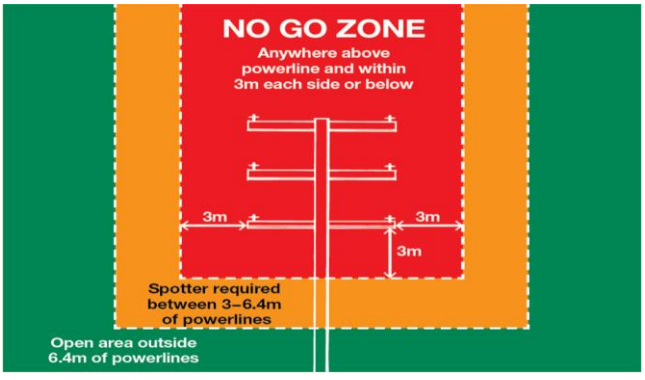
Do not exit an Elevated Work Platform (EWP) at height without fall controls in place

When an Elevated Work Platform (EWP) is used to access a work area at height (e.g. access to a roof), the worker has fall controls in place (such as wearing a harness and a lanyard attached to anchor points) prior to exiting the EWP.

Equipment is not operated within the safe approach distances of overhead powerlines without approval and an authorised, formally trained safety observer/spotter

The equipment used for work at height needs to remain at a safe distance from any overhead powerlines. This can be achieved either by planning the work at height in a way that it cannot reach the powerlines or alternatively by having a dedicated safety observer (spotter) whose sole responsibility is to monitor that the working at height activity does not get too close to the powerlines. The safety observer is able to communicate quickly and effectively with the equipment operator using a 2-way radio or similar.

The safety observer/spotter is trained and competent (training equivalent to the national unit of competency for *Work as a safety observer*). The safety observer should have operational knowledge of the type of equipment they are observing.



The no-go zone for overhead powerlines is anywhere above, or within 3 metres each side or below. A safety observer is required for distances from 6.4 metres to 3 metres on approach from each side and below.

A-frame ladders are not to be used

An A-frame ladder is a type of ladder that has two legs and come together at the peak, shaped like the letter A. A-frame ladders are self-supporting and somewhat unstable as they are not able to be secured to other structures. For this reason, they are not to be used in Sydney Water.

Do not access the back of a truck without fall prevention controls

The height and the limited area on the back of a truck puts workers at risk of falling onto the ground or other hard surfaces. Fall prevention controls such as railings, mobile access platforms, harnesses and lanyards are used if work on the back of the truck is required. Best practice is to eliminate the requirement for a person to get on the back of the truck at all.

Work on / near water

The minimum requirements

- Where there is a high risk of drowning, a minimum of two controls are implemented
- An emergency plan is prepared, tested and communicated to relevant workers
- For boating, the vessel is approved for the work and the location of the work
- Flow Isolation Flow Management (FIFM) is implemented where required, and authorised by applicable Sydney Water personnel
- Lock Out Tag Out (LOTO) is implemented where required, and authorised by applicable Sydney Water or delivery partner personnel

The detail

Where there is a high risk of drowning, a minimum of two controls are implemented.

The most prominent risk from working on or near water is drowning from falling into the water. When the risk of drowning is elevated (e.g. inside a tank with no egress), workers implement two controls with the primary being a personal floatation device (PFD) and the secondary being controls such as a buoyancy aid, a retrieval device (eg a rope or davit arm), a standby person or a boat (depending on the body of water).

An emergency plan is prepared, tested and communicated to relevant workers

An emergency plan is a written instruction outlining what workers and others at the workplace should do in the case of an emergency. The emergency plan covers a range of potential emergency incidents, for example slips, engulfment, submersion, fall into water and the rescue of workers from water. The emergency plan includes details on the frequency of testing of the emergency response. Workers are aware of the emergency plan, and workers involved in the emergency response are instructed on how to implement the plan.

For boating, the vessel is approved for the work and the location of the work

Boats or vessels used by Sydney water have a current certificate of survey, which states the conditions that the vessel can operate in, the type of work, number of passengers, the validity period of the certificate of review, and the safety requirements of the vessel. The certificate of survey may be in an electronic or physical format and produced when requested from the owner or designated person of the vessel.

Flow Isolation Flow Management (FIFM) is implemented where required, and authorised by applicable Sydney Water personnel

Flow Isolation Flow Management (FIFM) is the process used by Sydney Water to control the flow of liquids. Where the flow of water or wastewater is a risk to workers working above or near a tank, the FIFM process is implemented. FIFM process is documented in a FIFM plan and followed during the work. The FIFM plan is to guarantee that the flow of liquids is stopped (isolation) or reduced to a safe rate of flow when isolation is not possible. The FIFM Plan is authorised only by a Sydney Water person who has completed *FIFM – Planning and Approval* training.

Lock Out Tag Out (LOTO) is implemented where required, and authorised by applicable Sydney Water or delivery partner personnel

Lock Out Tag Out (LOTO) is the process used by Sydney Water to control sources of energy (e.g. electrical, mechanical, pressure, hydraulic, chemical). LOTO is required whenever there is a risk from hazardous energy sources or hazardous process fluids. The LOTO process is documented in an Isolation Permit and followed during the work on/near water. The aim of the Isolation Permit is to guarantee that all identified energy sources that represent a risk to the work on/near water have been physically locked and tagged prior to work commencing so that they cannot accidentally be reactivated. As an example, when working above/near an aerated tank where there is a risk of fall into the tank the aeration is isolated and locked out to prevent reactivation while the work is underway. The Isolation Permit is authorised by applicable Sydney Water or delivery partner personnel who have completed *Authorised Isolator* training.