



Association of
Land
Development
Engineers

VISITOR OR ENGINEER'S SITE SAFETY BOOKLET 2022/23

for Land Development
Works





Association of
Land
Development
Engineers

The old adage of “Whatever it takes to get the job done” has changed to “Whatever it takes to do the job safely.”

We, as the peak body representing land development consultancies in Victoria, refuse to accept that safety in our industry is anything less than the highest priority.

Our members will not walk past, disregard or treat with indifference any instances that are unsafe for the people in our industry. We will have the courage to intervene to improve the wellbeing and safety of everyone, whether on our sites or the sites of third parties.

This booklet is a safety guide for engineers and visitors to sites where land development works are in progress.

It is an introduction to onsite safety for engineers and site visitors who are not familiar with land development. This booklet is also designed as a refresher or reference guide for those who may have substantial experience in land development.

HOW TO USE THIS BOOKLET

Land development sites can pose serious risks, with potential hazards created by deep trenches or holes and slippery surfaces that can cause serious injury or even death. These sites are typically of a large scale and contain powerful vehicles and equipment.

The risk exposure on these sites may increase when individuals do not have substantial experience operating in or visiting land development locations.

This booklet addresses the following questions faced by engineers and other visitors:

- What do I need to do before visiting the site?
- What do I do when I enter the site?
- What hazards do I need to address?
- Do I understand the wide variety of works that take place in land development?

And Most Importantly:

- What do I do about these hazards?



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The Association of Land Development Engineers (ALDE) would like to acknowledge the valuable contribution of our sponsors in the development and printing of this Site Safety Booklet.



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PRE-REQUISITES FOR SITE ENTRY

Engineers and site visitors who intend to perform work on land development sites must comply with the following criteria prior to entry:

- Possess a Construction Industry Induction card
- Have the Personal Protective Equipment (PPE) required for the project
- Obtain the name and contact number of the supervisor or manager of the contractor controlling the site
- Obtain Instructions from the contractor regarding the correct site entry location and any other requirements that apply to engineers or site visitors, e.g. parking
- Make arrangements prior to the visit to confirm who will be on site to meet you at the entry point.

Please confirm these arrangements by email before arriving on site.



ENTERING A SITE

Enter the site via the entry point and drive to the site office as instructed. Then make contact with the contractor's representative, as previously arranged.

If the path to the site office is currently in use, with operating earthmoving equipment or trucks, **DO NOT** proceed. Stay at the entry point and call the contractor's representative.

During road construction, some pavements may be out of bounds for vehicles, **DO NOT** drive on these pavements. If in doubt, ask the contractor.

WORKING ALONE

You should not be alone at any site. If you arrive on site late and personnel are either leaving or have already left, **DO NOT** enter the site. Contact the contractor's representative to reschedule your site access.



SITE INDUCTION

The contractor controlling the site must induct you in to the site.
DO NOT enter a site without undergoing a site induction.

The induction process aims to make you aware of what hazards are present at the time of your visit and what rules you must follow. This applies even if you were at the site the day before.

Every site is different, and each site is changing constantly.
DO NOT assume that you know a specific site's hazards – looks can be deceiving!

The Site Induction is not a 'mere formality'. It is important that you listen carefully and ask questions if you are not sure, e.g., "Can I drive to the location where the sewer contractors are working?" or "What areas are No Go Zones?"



Information regarding the environmental aspects of any site should be part of the Site Induction. Environmental issues could include:

- Information on Tree Protection Zones
- Information on conservation, cultural heritage and other no-go zones
- Site specific rules in relation to spread of weeds and mud e.g., enter and exit via wheel wash down bays and rumble grids
- Bushfire prevention practices e.g., **DO NOT** drive over tall grass





SITE ESTABLISHMENT

When setting up a site, fencing will be erected, environmental controls will be implemented, sheds and amenities will be positioned, and the site will undergo preparations to receive personnel, materials and equipment deliveries.

It is the duty of the principal contractor to establish the site.

Activities that occur during this phase include the delivery of sheds, which may require a crane, connection of electricity to any sheds or amenities, and the arrival and unloading of earthmoving equipment.

Unless specifically required to be present during site establishment, you should not be within the site set up area. If your presence is required, ensure you have approval from the contractor's representative.



BULK EARTHWORKS

Bulk earthworks involve the use of large earthmoving equipment, which have large blind spots. Site visitors should keep well away from any area where bulk earthworks are taking place unless you have the guidance of the contractor's representative. You must follow the instructions of this representative, who will use a two-way radio to instruct you to follow a safe pathway through earthworks operations.





EARTHMOVING EQUIPMENT

If you need to approach a plant operator or be close to machinery, it is important that you are seen by the operator at all times, as you approach the equipment.

As a rule of thumb, ensure you make eye contact with the operator from a position in front of the machinery. Ensure they can see you clearly at a distance, of no less than 30 metres. Radio and or signal to them that you wish to approach the equipment and only do so when they have stopped the machine.

Never approach or remain close to any earthmoving equipment if the operator cannot clearly see you and ensure the operator is aware of your location at all times.

Always avoid haul roads, used by dump trucks. These large vehicles move quickly, have a large blind spot and require a significant braking distance; more than double that of a car.



Keep well away from any area where Skid Steers are operating. Skid Steers are smaller than most earthmoving equipment, however they move fast and can turn on their own axis, enabling the vehicle to change direction quickly. These vehicles also have a large blind spot, which makes for a dangerous machine. If these vehicles approach you, immediately signal to the operator to alert them of your presence and ask if you need to move.





SEWER

Sewer construction creates a specific range of hazards and is one of the most dangerous activities on a land development site.

Most sewers require the excavation of a deep trench and must be approached under the guidance and control of the site supervisor. You are not to enter a trench. **NO EXCEPTIONS!**

If you need to approach a trench, keep at least one metre away from the edge. This applies even if there are shields in place. Do not approach a trench if the site conditions are wet.

It is good practice to avoid being in areas with high noise levels. However, if your presence is required in these areas, ensure you are wearing good quality hearing protection.



Generally, the contractor will have spoil on one side of the trench and parawebbing on the other. Do not enter the work zone from the spoil side. There is a risk that the operator won't see you approaching and place spoil material on or near you. Walking over spoil material increases the risks of slips and trips which can be fatal if they occur near deep trenches.

Only enter the work zone with the supervisor or after contacting the machine operator and only use gaps in parawebbing to access the works zone. Only use walkways to view the trench, never lean over the edge of a live trench.



DRAINAGE

Drainage trenches generally follow the kerb or easements and are constructed after the sewers are in place. Drainage work can vary from small roadside drains to large structures for main drains.

The typical pipe used for drainage is concrete and, due to its weight, these pipes need to be lifted into position mechanically. Stay away from areas where lifting is taking place. Under no circumstances walk under a pipe while it is being lifted into place.

Observe from a distance and inspect the work from outside the trench, after the pipes are in place. Drainage pipes can roll, even after placement in a trench so **DO NOT** go near a trench before the pipes have been secured.

The exact same procedures that are used to approach sewer trenches should be used when approaching drainage trenches.



OTHER RISKS

You should not approach any pits. A pit should be covered at all times, unless there is pit work taking place. Never assume that a pit cover is safe to walk over. It may not be. Walk around it, not over it.

At times, sewer, drainage and other land development works mentioned in this booklet, generate noise above 85dB, e.g., rock breaking or grinding. Based on the length of exposure, this level of noise damages the human ear, with the injury level increasing exponentially as the noise gets louder. This form of ear injury results in loss of hearing and is irreversible.

It is good practice to avoid being in areas with high noise levels. However, if your presence is required in these areas, ensure you are wearing good quality hearing protection.

Rock breaking also generates dust which can be harmful to your lungs. Avoid being present around these activities unless the breaking is getting wet down or you are wearing an appropriate mask.



WATER RETICULATION

Water reticulation works require much shallower trenches than sewers, however, earthmoving equipment and other tools are still used. Hazards are present and the safety requirements for operating around earthmoving equipment (pages 13-19) apply.

At times sections of a water reticulation pipe are welded together using poly welds or electro-fusion. **DO NOT** touch pipes during welding or before the pipe cools sufficiently, to prevent burn injuries.

If steel pipes require welding, you must not make eye contact with the light emitted during welding. It can cause permanent eye damage. This applies to all welding of steel or metals, not only steel pipes for water reticulation.



ROAD PAVEMENT CONSTRUCTION

Road pavement construction involves several pieces of equipment such as pavers, rollers and Skid Steers. It's a busy site! There are trucks reversing to empty crushed rock and bitumen, graders and rollers moving up and down; a lot of heavy equipment in motion and plenty of reversing occurring.

The possibility of being run over by a machine is real and you must stay well outside the work zone. **DO NOT** walk or drive over newly laid bitumen without the approval of the site supervisor.



ASPHALTING

Be aware that bitumen is hot, when laid and will burn your skin. There is no reason for you to come into contact with hot bitumen. If you do, please be aware that there are special burn's practices to manage these injuries. This process is well known by asphalt crews and first aiders. Get their help!

Historically accidents have occurred during road construction when machinery hits site personnel. The high level of reversing machinery on site is a contributing factor. Stay well away from any operating equipment, **DO NOT** approach and never remain in machinery blind spots.



SERVICES CONSTRUCTION

The remaining services that are installed include electrical, gas and communications infrastructure.

Civil works for electrical networks in greenfield land development will generally not contain live electricity. However, the use of excavators and other equipment presents the same site hazards mentioned previously in this booklet.

When working on electrical networks, the hazard of electrocution becomes a possibility when the network is joined to a live cable. This work is carried out by specialised crews under strictly controlled conditions after construction works are completed. You must stay well clear of these work zones.



Gas reticulation and communications infrastructure are also constructed using excavators and other equipment. The same site hazards that have been mentioned previously in this booklet apply and the relevant safety precautions should be taken.

Gas connections are done after the works are completed and involve purging of gas from the live main in order to make the connection. These purges are completed by specialised crews who will put up signage up, indicating they are purging live gas and that there should not be open flames within their vicinity.



CONCRETE WORKS

Concrete is generally delivered by mixer trucks that reverse into position to pour the concrete. Be aware of when a mixer truck is in operation and stay well clear. Never place yourself in a vehicle's blind spot.

Ensure steel star pegs are always capped. This protects site workers from becoming impaled if they fall.

When concrete is mixed on site, dust may be present. This dust contains silica, which is a known cause of lung disease. Stay well away from mixing areas and from this dust; it is hazardous. If this dust gets on your clothing, **DO NOT** brush it off. To prevent inhaling, clean any dust from clothing with a damp cloth.

Do not touch freshly poured concrete until it has cured.





PRESSURE TESTING

Water works and sewer construction will always be tested for leaks. These tests involve pressurising a section of the works. Some tests will use water and others use air. Stay clear of the area during testing, the cover that holds the pressure may blow off during testing and hit you.

Stand clear of swab stacks during watermain swabbing as the sponges can be shot out at a high velocity.





TOPSOILING

Keep well away from any area where Skid Steers are operating.

Skid Steers are smaller than most earthmoving equipment however they move fast and can turn on their own axis, enabling the vehicle to change direction quickly. These vehicles also have a large blind spot, which makes for a dangerous machine. If these vehicles approach you, immediately signal to the operator to alert them of your presence and ask if you need to move.

Avoid driving across topsoiled areas as there is an increased risk of tracking mud onto completed works.





LIVE TRAFFIC

It is sometimes necessary to conduct land development work on or adjacent to roads with live traffic running on them. Only enter these areas if you must and remain behind the barrier or traffic management controls at all times. Avoid getting close to the barrier or the live traffic.

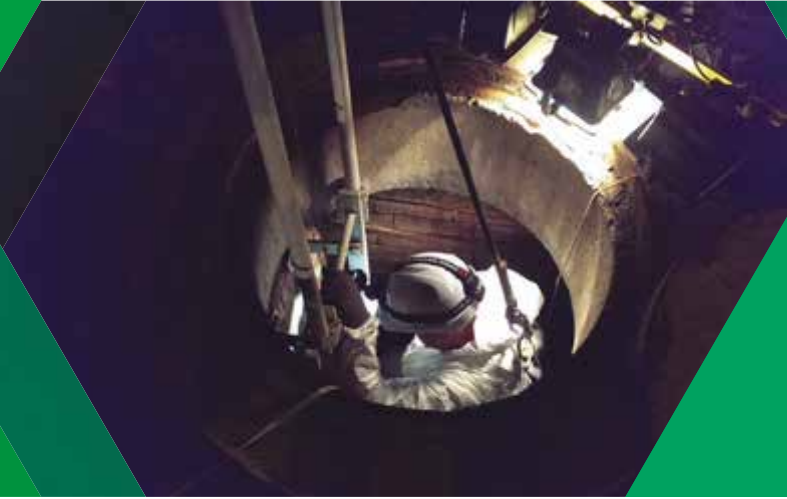
Always ensure your vehicle is parked in a safe position that is away from any live traffic.



LIVE SERVICES

There are often existing live services that need to be worked around on land development sites. Contractors will take great care identifying and proving live services prior to works commencing. All live services should be highlighted on site with some form of protection. However, accidents do happen, and live services are hit on occasion.

Stay away from live electrical, gas or sewer and never touch a service that is considered to be live.



CONFINED SPACES

A confined space is an enclosed or partially enclosed space with restricted entry or exit that may contain harmful contaminants, low oxygen or any stored substance that may result in engulfment. Entry into a confined space occurs when a part of the body enters the space and there is a risk the person may be overcome or incapacitated by the conditions within the space.

Live sewer is considered a confined space and in some cases drainage pits may be considered a confined space.

NEVER ENTER A CONFINED SPACE OR SOMETHING YOU SUSPECT TO BE A CONFINED SPACE. ENTRY IS ONLY ALLOWED VIA A PERMIT SYSTEM.

It is highly recommended that you have a confined space awareness training if you are regularly inspecting sewer activities.



FALL FROM HEIGHTS

Sheer edges greater than 1.5m present a fall from height risks. Live edges should be avoided or viewed from the low side if there are not fall protection measures in place.

Similarly, live edges can be difficult to identify whilst driving in a vehicle if they are not flagged or protected. Do not drive across anything you cannot see and if in doubt exit the vehicle and inspect the area before proceeding.



CONTAMINANTS

Land Development sites may have soils that contain harmful contaminants such as heavy metals, pesticides, petroleum products and asbestos. These areas should not be traversed and will be cordoned off during remediation activities. There is no reason to enter these zones especially while remediation is happening.

Old asbestos pipes are still found on Land Development sites and only present a risk if they have been exposed or damaged.





TRAVERSING SITE

Always be aware of your surroundings on site. Stay clear of machinery unless you have made positive contact with the operator.

Watch where you are walking as there are often open pits and holes. Be careful traversing site as during construction the ground is littered with rocks, divots and other risks. Avoid walking and looking at your phone as you may not be aware of the risks around. Do not walk through long grass especially during the warmer months as there is a risk of snakes being present. Do not walk through waterways or flooded areas. Never jump across trenches or from a height to avoid walking around a trench or obstruction. Always take the time to walk around the obstruction.

If in doubt, ask for a supervisor to help you access the areas that you require.



DUST

Dust is generated from earth moving activities such as earthworks, trenching and topsoiling. However, it can be generated when there are limited activities on site due to poor stockpile management, limited erosion controls, high winds or just vehicles accessing the site. Stay on defined crushed rock haul roads where possible and keep vehicles speeds low to avoid generating excessive dust. Do not continue to drive if visibility is low. Works may be stopped if the level of dust generated is unacceptable.

Some activities on site may create dust which can have long term health effects (rock breaking can create silica dust, demolition may involve asbestos, etc.), avoid being present in these areas without appropriate protection.



CONCLUSION

This booklet has outlined the typical hazards associated with the most common works in land development.

Naturally, there may be other works that occur on land development sites and these works may present hazards not mentioned in this booklet. It is recommended that you follow strict protocols when attending a site. Contact the contractor and undergo a site induction, always use clear judgement, and when in doubt – ask! Be aware of your surroundings and all site activities to keep yourself safe.

REMEMBER

A major cause of injury or death in this industry is complacency. **DO NOT** become complacent about a vehicle's reversing alerts, site activities, moving equipment, depth of trenches or any other site hazard.

Fight back against complacency by being alert at all times.



This safety booklet has been prepared using information available to ALDE via its members and should be used for general use only. ALDE cannot be held responsible and extends no warranties as to the suitability of the information for your specific circumstances; or actions taken by third parties as a result of information contained in the safety booklet. Any information about legislative obligations or responsibilities included in this safety booklet is only applicable to the circumstances described.

You should always check the legislation referred to in this safety booklet and make your own judgement about what action you may need to take to ensure you have complied with the law.



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