Workforce Skills Series

SOLOMON ISLANDS INFRASTRUCTURE PROGRAM

Developing a Traffic Management Plan

Presentation slides

7 September 2023

Agenda

Time	Activity
8.45 – 9:00	Welcome and House Keeping
9:00 – 9:15	Introduction to Traffic Management Plan- what it is and why it is important
9:15 – 9:30	Presentation by RSIPF Director of Traffic - Legislative Requirements
9:30 – 10:00	What is a Traffic Management Plan Purpose of Traffic Management Plan & Elements; Hazard Exercise 1
10:00 – 10:30	Communication; Marine; Vehicle movements management Exercise 2
10:30 – 11:00	Morning Tea & Group Photo
11:00 – 11:30	Role of Traffic Controller, Pedestrian Barriers, Signages, Role of the Spotter
11:30 – 12:30	Safe Site Design
12:30 – 1:30pm	Lunch
1:30pm – 2:15pm	Machinery Safety – ROPS, FOPS, CPD, SIPS
2:15pm – 2:30pm	Wrap up and Feedback forms

Learning objectives

By the end of this Traffic Management training, you should be able to:

- understand legislative requirements and your responsibilities
- identify traffic management issues, risks in and around worksites, and how to control them
- develop a traffic management plan for a worksite
- implement a traffic management plan.

What is traffic management planning and why is it important

- Ensures all workers and visitors on your site are safe
- Considers flow of vehicles around site to reduce accident risk
- More than just the building site – also considers surrounding area, with the aim of minimising disruption to both road and pedestrian traffic through the area and preventing accidents and injury.
- Requirements under the Solomon Islands ***Traffic Act.***

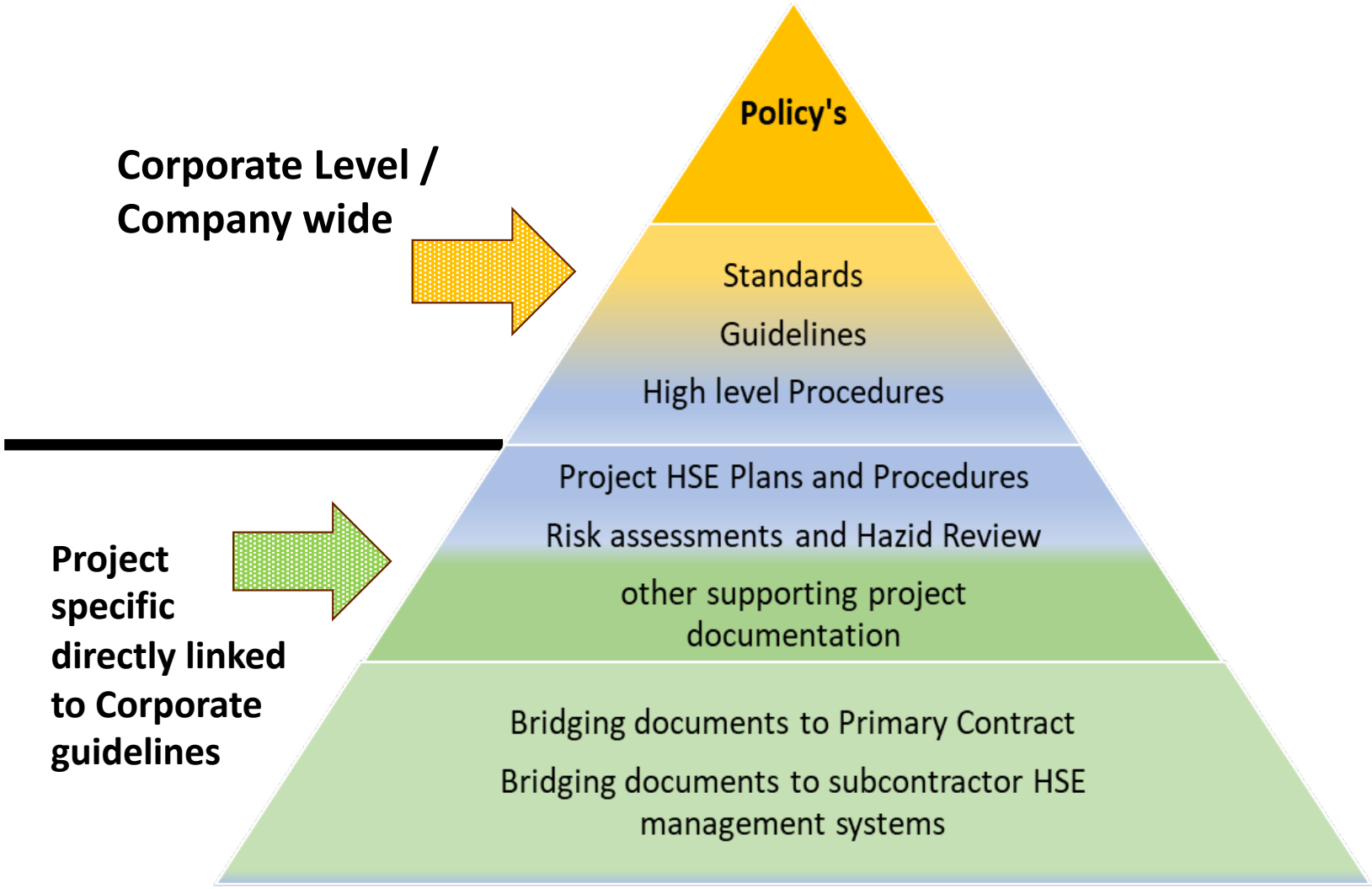
Presentation by the Director of National Traffic Centre

William Foufaka

Traffic Management Plan

James Hogan, HSE Manager, SIIP Hub

Safety Management System Structure



All polices, plans and procedures etc., must be reviewed, approved and issued for use in a controlled manner – so that the company is always in control of what is being done

What is the purpose of a plan?

"Planning is deciding in advance what to do, how to do it, when to do it, and who is to do it. It bridges the gap between where we are and where we want to go. It makes it possible for things to occur which would not otherwise happen."

Koontz and O'Donnel, Principles of Management

A tool for effective communication

Planning is important to:

- ✓ Provide clear and defined directions
- ✓ Reduce uncertainty by giving clear instructions
- ✓ Minimize waste and redundancy
- ✓ Set the standards to make control effective
- ✓ Manage by objectives, set goals to achieve
- ✓ Help in co-ordination of people and tasked
- ✓ Secure economy in operation by eliminating waste or lost time
- ✓ Increase organizational effectiveness
- ✓ From the plan establish what procedures will be needed to support the plan.

What is the purpose of a Traffic Management Plan?

The primary purpose of the TMP is to separate or segregate people from vehicles and mobile machinery, or develop methods to reduce risk by controlling people's actions *and* moving vehicles.

Creating a Traffic Management Plan helps outline the way activities on the project roadways will be managed so they ensure that both workers and road users are safe from potential risks and danger.

To ensure safety, efficiency, and proper implementation for traffic control, a basic traffic management plan should include a comprehensive review of the following items:

Traffic Management Plan elements

- General information about the project, such as description, speed limit, traffic conditions, and project representatives
- Advance warning signs, traffic or people channeling devices, pavement markings, flagging, and roadside safety to guide and control the traffic
- Internal traffic control to coordinate the movements of mobile plant and vehicles within the worksite
- Identification of collision points and safest routes for pedestrians, mobile plant, and vehicles
- Provision for access to properties and temporary roadways and detours
- Installation of temporary signs, road markings, lighting and safety barriers
- Provision of traffic controllers and their roles and responsibilities
- Roadside safety provisions
- Other project-specific items relevant or that may impact Traffic Management.

Identify potential hazards

With your workers, identify potential hazards at your work site. Potential hazards include those that can cause acute injuries and those that can harm people's long-term health. The following suggestions can help you identify potential traffic-related hazards:

- Are there areas where people and vehicles are in close proximity to each other?
- Look at your floor plan or work site: Are there blind spots, areas where sunstrike might occur, tight corners, low light or poor visibility areas?
- Look for areas that restrict the maneuverability of vehicles.
- Are there steep slopes or uneven terrain, bodies or water or steep drop-offs?
- Are there hazardous substances stored near vehicle operating areas?
- Are there vehicles (including visiting vehicles) that have driver blind spots?
- Are there vehicles (including visiting vehicles) that produce excessive fumes, vibration, or noise?
- Is there tall racking or goods stacked high near vehicle operating areas?
- Could workers/drivers be affected by drugs, alcohol or fatigue?
- Could vehicles be used outside their limits or capabilities or be operated at potentially unsafe speeds?

Consider the working area

When identifying hazards with traffic management, it is essential to consider the layout of the workplace and how people and vehicles interact. This includes:

Looking at the floor plan layout and determining where there are overhead structures

Consider whether work is close to public areas

Consider high traffic volumes, which can impact traffic flow and create hazards

Check for blind spots, as these can be areas where accidents are more likely to occur

Check if there are areas of poor visibility, as this can also impact safety.

When designing and managing traffic flow, it is necessary to consider the vehicles using the space and height for other objects.
Loading and unloading areas should be marked, and vehicles should be directed to park in designated areas that provide the appropriate road surface and allow for easy entry and exit.

Methods of control

Consider the following measures to keep pedestrians and vehicles apart at the construction site and vehicles entry and exit:

- Keeping pedestrians and vehicles apart
- Providing separate traffic routes for pedestrians and vehicles, where possible.
- Providing separate clearly marked pedestrian walkways that take a direct route.
- Creating pedestrian exclusion zones where powered mobile plant is operating.
- Creating vehicle exclusion zones for pedestrian-only areas, for example around amenities and pedestrian entrances.
- Securing areas where vehicles and powered mobile plant operate by installing pedestrian barriers, traffic control barricades, chains, tape or bollards.
- Where needed ensure a competent person with the necessary training or qualifications directs powered mobile plant when it operates near workers.
- Designating specific parking areas for workers' and visitors' vehicles outside the construction area.
- Providing clearly signed and lit crossing points where walkways cross roadways, so drivers and pedestrians can see each other clearly.
- Using traffic controllers, mirrors, stop signs or warning devices at site exits to make sure drivers can see or are aware of pedestrians before driving out onto public roads.
- Avoiding blocking walkways so pedestrians do not have to step onto the vehicle route.
- Scheduling work so vehicles, powered mobile plant and pedestrians are not in the same area at the same time.

Exercise 1

20 Mins

Look at the handout and in small working groups list down

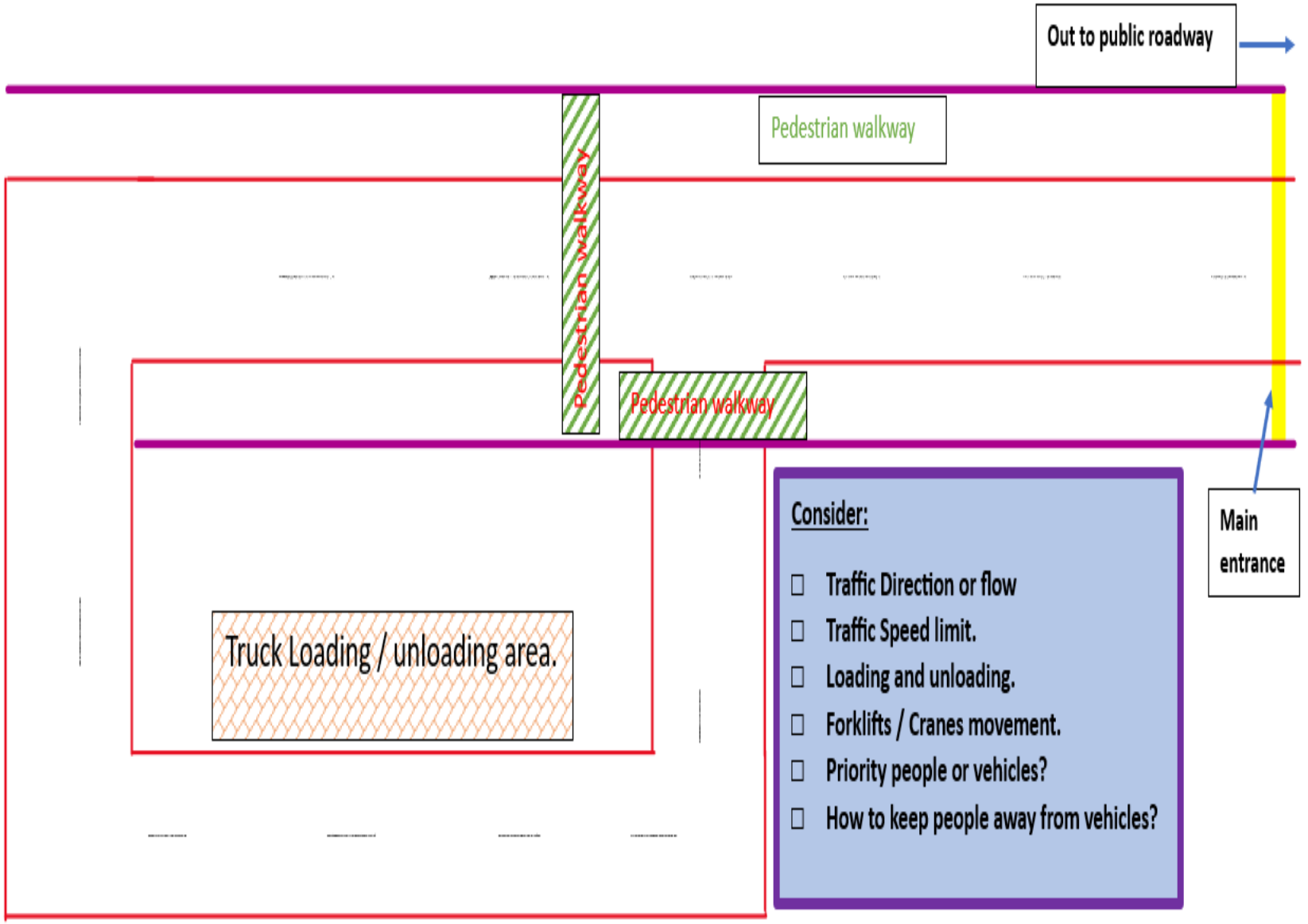
5 hazards and

5 methods to control the hazards.

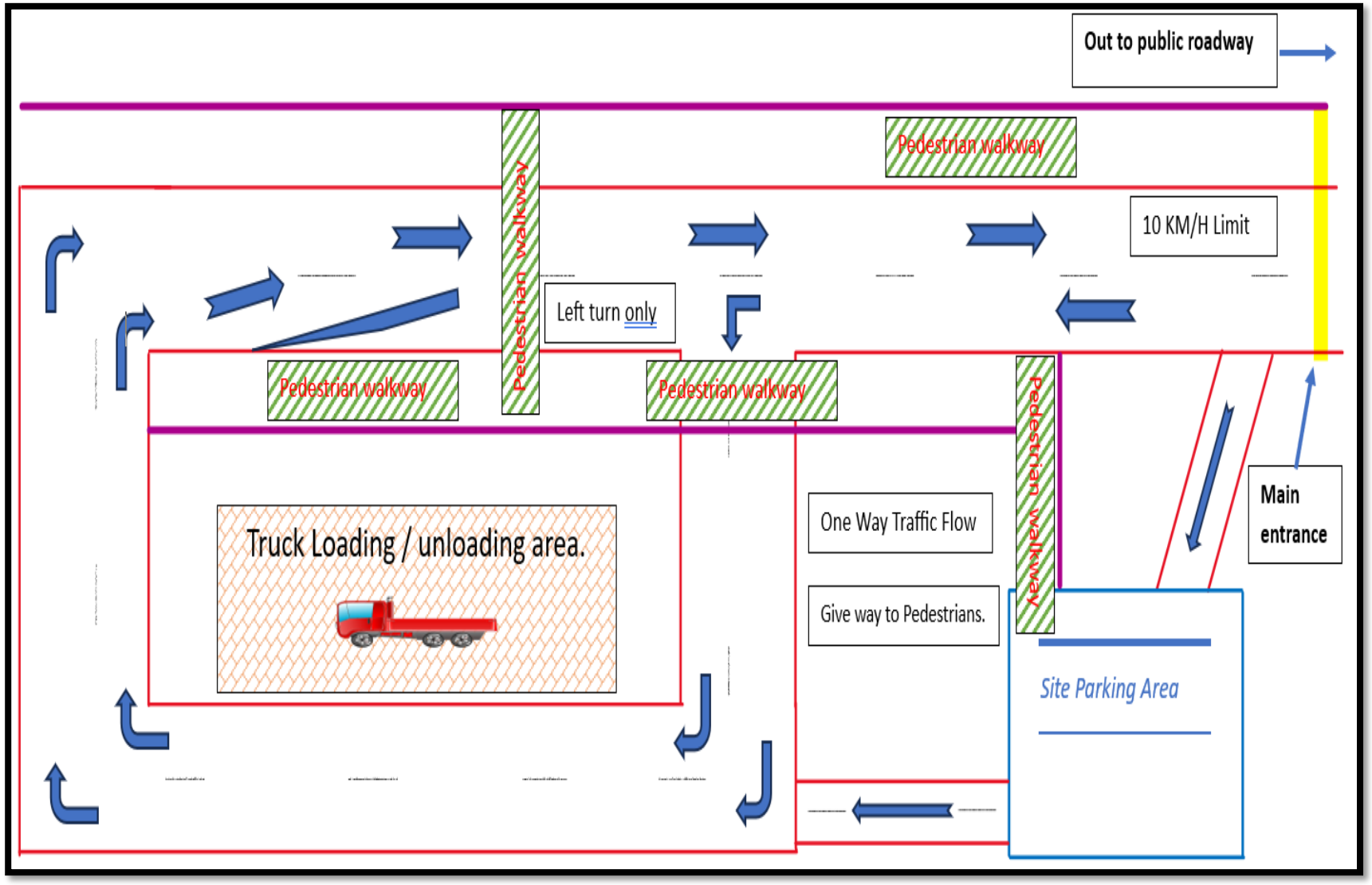
How would you organise the traffic flow on this project worksite? (You can draw on the map.) Why?

Handout

(You can draw you plan on the page provided)



Exercise 1


Out to public roadway
Pedestrian walkway
Pedestrian walkway
10 KM/H Limit
Left turn only
Pedestrian walkway
Pedestrian walkway
Pedestrian walkway
Truck Loading / unloading area.
One Way Traffic Flow
Give way to Pedestrians.
Main entrance
Site Parking Area

Methods of communication

Use communication methods like:	Radio – however ensure a back-up communication process is in place if it fails
	Line of sight communication e.g. hand signals or flag signals.
	The person receiving the message should acknowledge the message has been received and understood,
	Verbal commands and confirmation of warnings and signals
	Roadway signage and barriers

Morning Tea Break

Marine

- For some projects you may have to also include Marine vessel movements and coordination within you traffic management plan.
- For piling operations, you may have a piling barge, support boat and supply barge in the field all requiring to work in close to each other
- Lifting operations between shoreline and vessels or vessel to vessel.
- As well as crew change vessels and refueling vessels (bunkers)
- Public watercraft and Police / Coast guard vessels
- Diving Operations.

Training

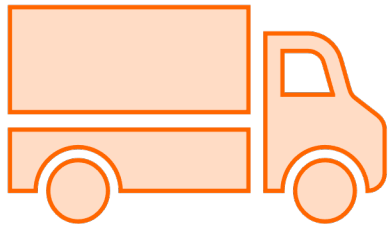
For the TMP to be effective it is important that all people who are going to be impacted by the TMP be trained in the requirements, this could be **included in your site safety induction**.

Machinery operators and drivers should have a more detailed and specific training on what their role and expectations are.

Staff with specific responsibilities will require training to ensure they understand and have the necessary skills to undertake their role in maintaining a safe work environment,

Minimizing vehicle movements

- Planning can help minimize vehicle movement around a workplace. To limit the number of vehicles at a workplace consider: Planning storage or laydown areas so delivery vehicles do not have to cross the worksite
- Providing vehicle parking for workers and visitors away from the work area and dedicated walking paths
- Controlling entry to the work area e.g. by using boom gates or security walk through areas for larger sites.
- Scheduling and prioritizing work or deliveries to minimize the number of vehicles operating in the same area at the same time.



Reversing vehicles

- Where possible, avoid the need for vehicles to reverse as this is a major cause of fatal incidents
- One-way road systems and turning circles can minimize risks, especially in storage areas
- Where this is not possible other control measures should be considered including: using mirrors, reversing warning alarms, sensors and cameras
- Ensuring a signal person wearing high visibility clothing assists the driver who cannot see clearly behind their vehicle Note: The driver should always be able to see the signaler
- Ensuring workers and other people are familiar with reversing areas and these areas are clearly marked
- Ensuring plant operators are aware of workers who may be in the vicinity of the swing radius, articulation points and overhead load movement of their vehicle
- Mandatory Reverse Parking on site, it is safer to reverse into a parking bay than reverse out of one.

Reverse Parking....Its Safer!!

It's safer.

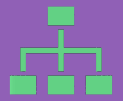
When you reverse into a space you are going into a designated space with no vehicle and pedestrian traffic. By reverse parking, you avoid backing out blindly into oncoming traffic or into the path of pedestrians. You can see your surroundings more clearly.

Managing the risks of reversing vehicles

Managing the risks of reversing vehicles

Eliminate the need for vehicles to reverse

The best control measure is to eliminate the need for vehicles to reverse. This can be achieved through good site design such as creating a one-way system, dedicated turning area, or by using multi-directional vehicles or vehicles with rotating cabins.



However, historical site layouts, smaller sites, and other factors, may not allow for this.

Where elimination is not reasonably practicable, you should consider:

Managing the risks of reversing vehicles

Designate a dedicated reversing area

A dedicated reversing areas should have the following features:

1. **Barriers around the area to prevent people from entering the area. Barriers can be either fixed or temporary depending on the type of site**
2. **Be clearly marked and signposted where reversing is allowed, and that anyone not directly involved in the reversing activity should stay away**
3. **Be well lit**
4. **Be on firm level ground.**

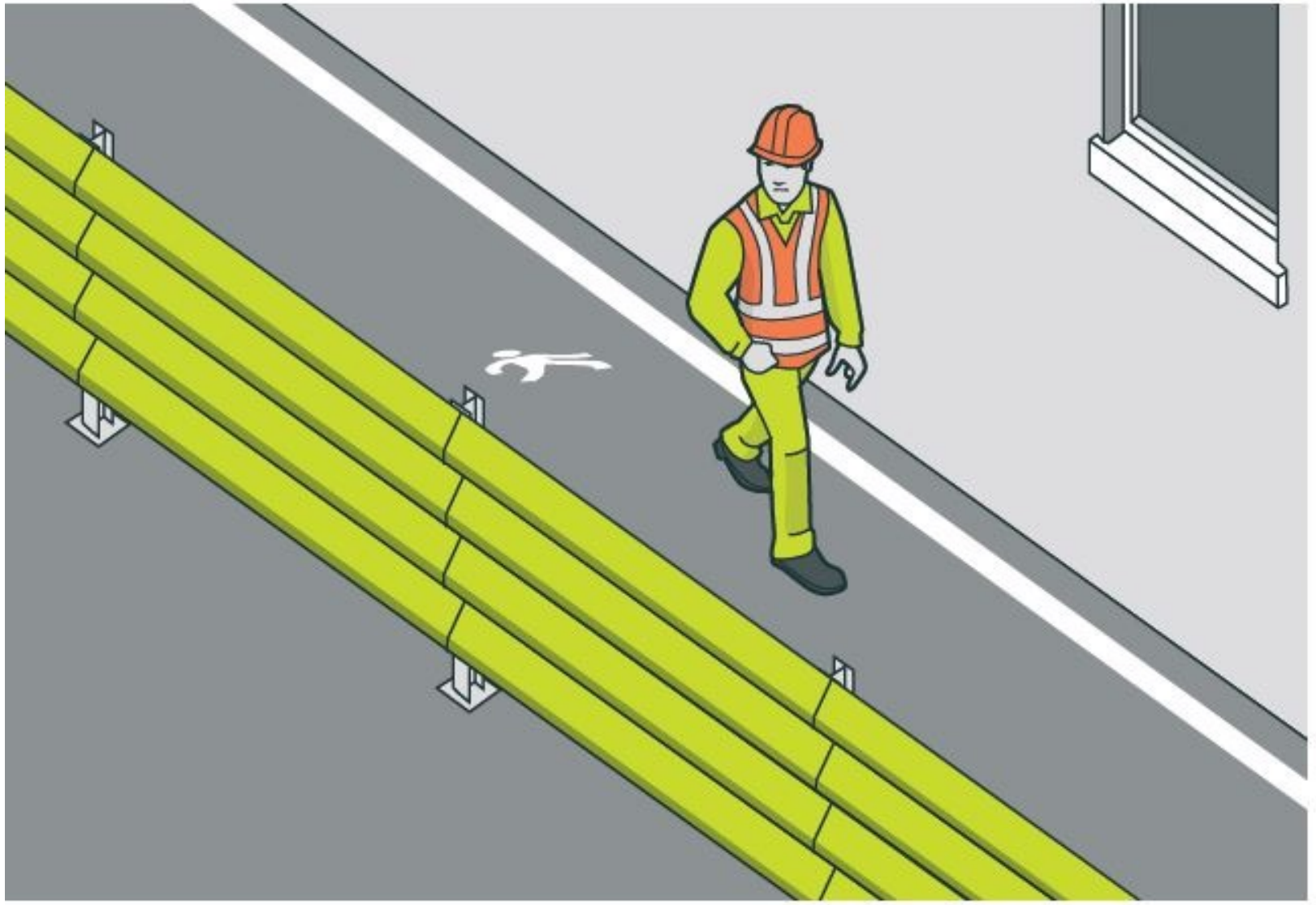
Keeping people and vehicles apart

The best way to protect people is to make sure people and vehicles cannot interact.

Consider implementing the following control measures to keep people and vehicles apart at the construction workplace and when vehicles enter or exit the workplace:

- Providing separate traffic routes for pedestrians and vehicles.
- Providing separate clearly marked pedestrian walkways that take a direct route.
- Creating vehicle exclusion zones for pedestrian-only areas, for example around tearooms, amenities and pedestrian entrances.
- Installing barriers, traffic control barricades, chains, tape or bollards to create exclusion zones for pedestrians
- Designating specific parking areas for workers' and visitors' vehicles outside the construction area.
- Using traffic controllers, mirrors, stop signs or warning devices at site exits to make sure drivers can see or are aware of people before driving out onto public roads.
- Avoiding blocking walkways so people do not have to step onto the vehicle route.

Dedicated Pedestrian walkways



Exercise 2

(30 mins)

Working on a public roadway.

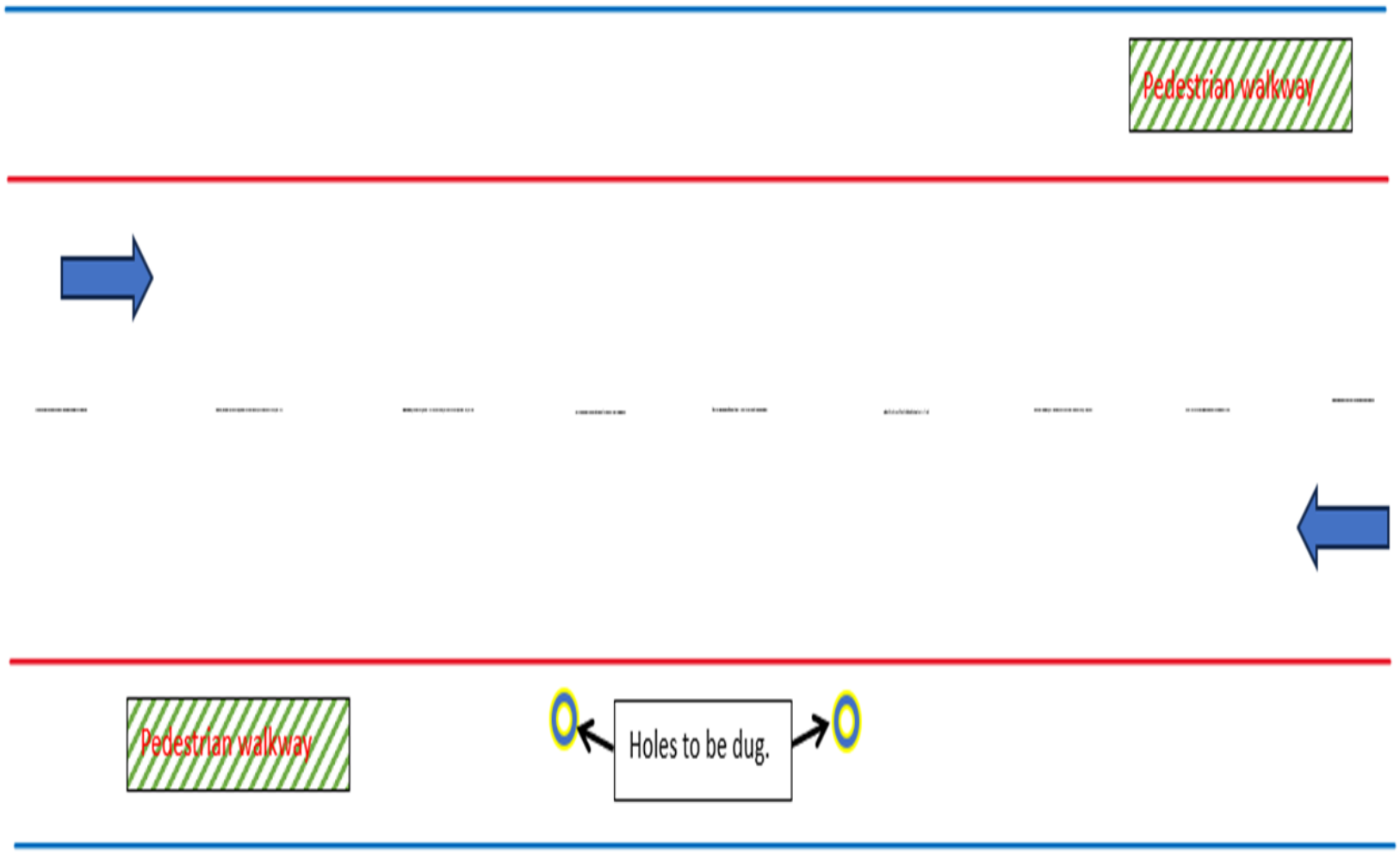
You are required to excavate and install new lighting poles. The traffic flow cannot be affected during 8:00 am – 10:00 am and 3:30 till 6:00 pm when there is high traffic.

On the plan provided show how, **you would manage the traffic** to provide a safe working environment to road and foot traffic as well as the workers, also consider the following;

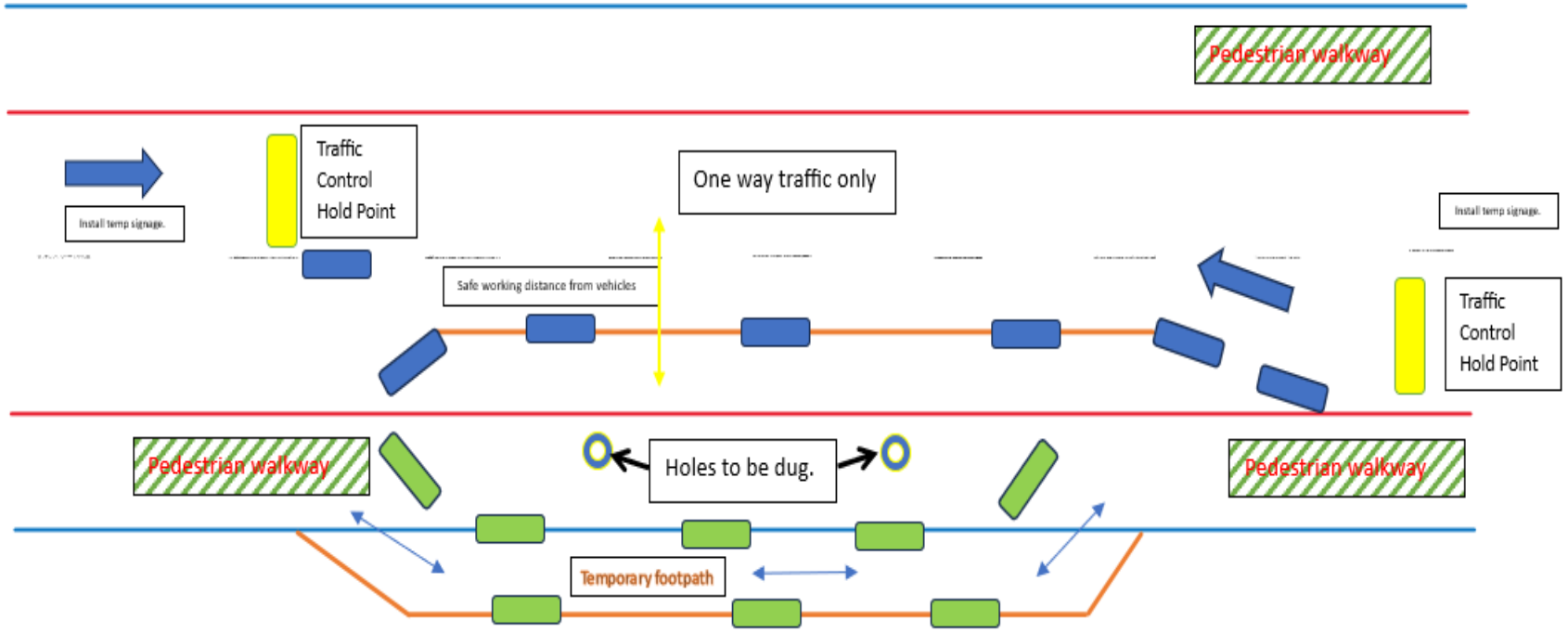
- What time of the day to do the work, day, evening, night?
- Lighting?
- Unloading equipment?
- Temporary pedestrian walkway
- Traffic control
- It will take 2 hours to install light poll once the excavation is completed.
- It will take 4 hours to excavate the holes with machinery and hand tools.
- Select small machine vs large machine, consider work area footprint.

Exercise 2

(You can draw you plan on the page provided)



Exercise 2



- ✓ Traffic controllers with radios to control flow when only one lane.
- ✓ Approval from police traffic enforcement dept
- ✓ Work carried out over Three days, make allowance for cleaning up at end of job.
- ✓ Set up time required for pedestrian walkway before job starts.
- ✓ Time to set up vehicle traffic control.
- ✓ Start work early before 6 am and then stop and wait or consider night works but will then need light towers for illumination and higher risk work.

Lunch Break

Role of the Traffic Controller

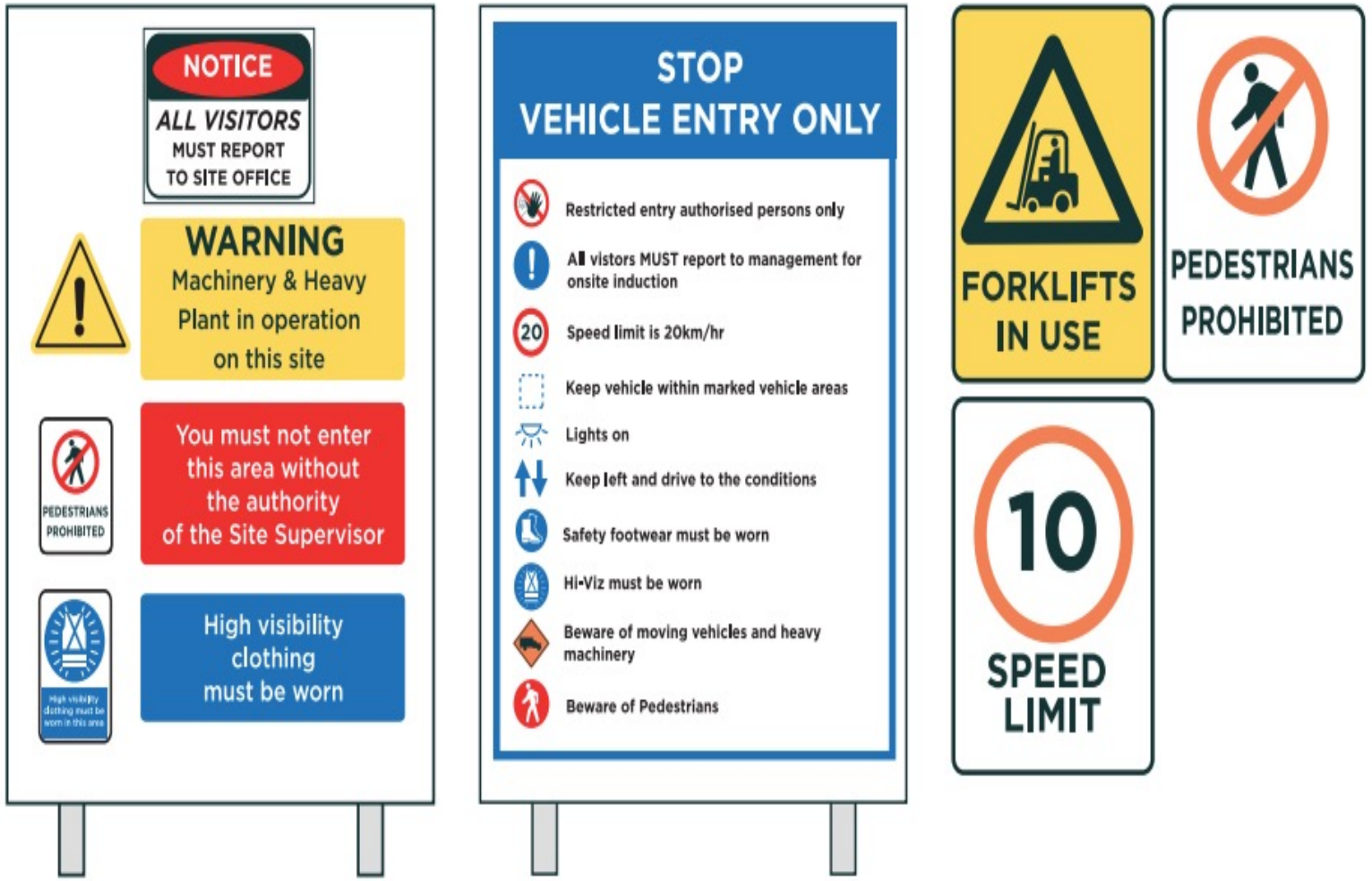
1. Traffic controllers keep debris off the roads and ensure that vehicles are parked where they are supposed to be.
2. They must ensure there are appropriate signs where needed, for example, "Men at Work.“ “Keep Left” “ No Entry”
3. Traffic controllers ensure that everyone is safe and wearing the proper safety equipment whenever work is ongoing. Depending on the work type, these can be High Viz vests, Hard Hat or other site PPE.
4. At construction sites, they guide pedestrians and vehicles to maneuver around the location carefully.
5. They also keep pedestrians clear of any interference with work that is going on, and this means ensuring they follow the correct safety procedures.
6. Traffic controllers ensure that vehicles near construction sites, whether coming in or going out, adhere to the speed limit and don't damage anything else.
7. They prevent vehicles from obstructing or blocking paths meant for other cars or pedestrians.

Pedestrian barriers

Signage


RESERVED PARKING
KEEP RIGHT
SPEED LIMIT 50
YIELD
STOP
DO NOT ENTER
NO PARKING ANY TIME
WRONG WAY
ROAD CLOSED
ONE WAY
SLOW
R R
TOW-AWAY ZONE
ALL WAY

Signage


NOTICE
ALL VISITORS
MUST REPORT
TO SITE OFFICE
WARNING
Machinery & Heavy
Plant in operation
on this site
PEDESTRIANS
PROHIBITED
You must not enter
this area without
the authority
of the Site Supervisor
High visibility
clothing
must be worn
STOP
VEHICLE ENTRY ONLY
Restricted entry authorised persons only
All vistors MUST report to management for onsite induction
20
Speed limit is 20km/hr
Keep vehicle within marked vehicle areas
Lights on
Keep left and drive to the conditions
Safety footwear must be worn
Hi-Viz must be worn
Beware of moving vehicles and heavy machinery
Beware of Pedestrians
FORKLIFTS
IN USE
PEDESTRIANS
PROHIBITED
10
SPEED
LIMIT

The role of the spotter

Vehicle blind spots

Vehicle Blind Spots

Tools/Attachments on vehicles can create greater blind spots, reduce visibility, or swings that increases the risk to workers being struck or pinned.

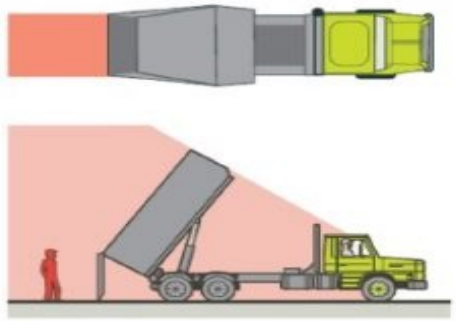
Know equipment swing radius
(how far can it reach, move or rotate)

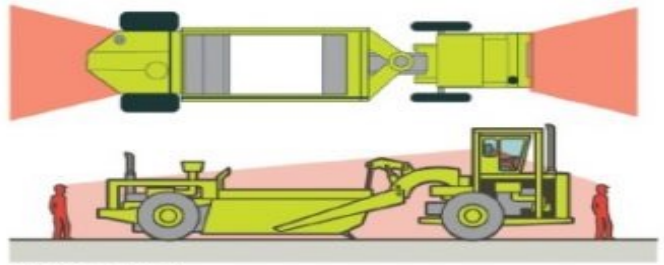
Watch out for heavy equipment moving with raised bucket

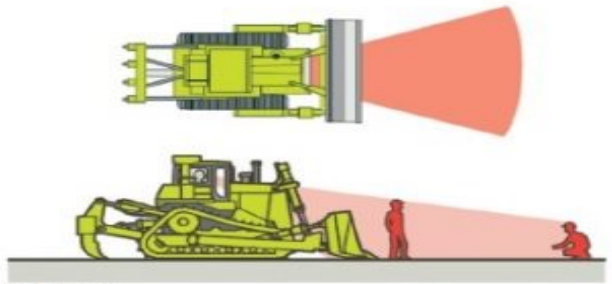
Be ready for possible sudden movements of booms or changes in direction of equipment operation

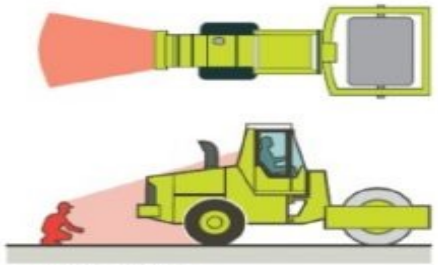
The role of the spotter

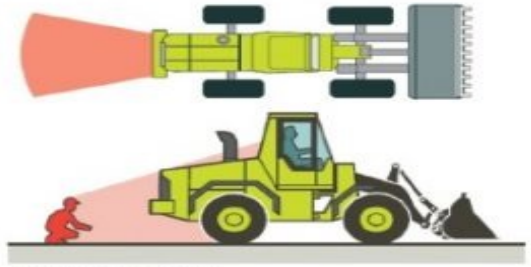
Vehicle blind spots

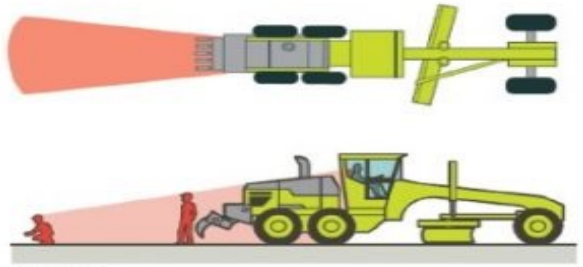

Dump truck


Tractor scraper


Bulldozer

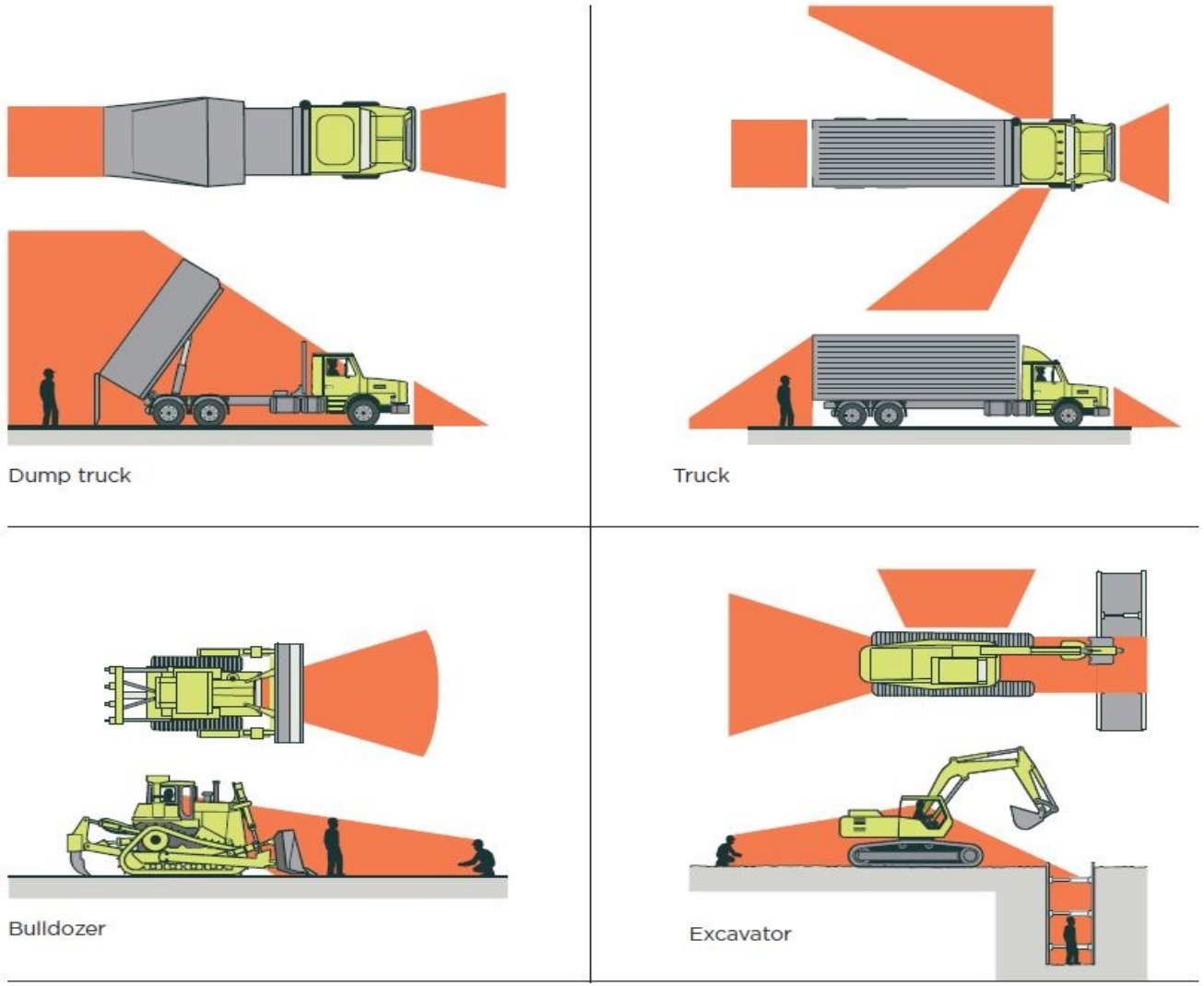

Articulated roller


Articulated loader


Grader

The role of the spotter

Vehicle blind spots

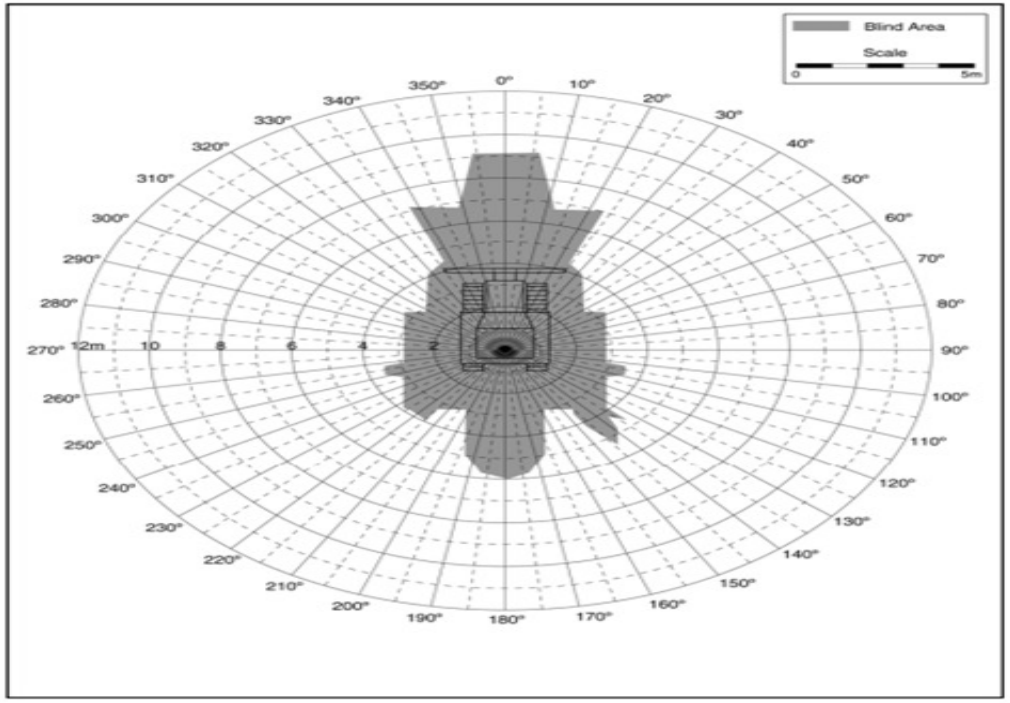


The role of the spotter

Vehicle blind spots

Blind Area Diagram for Construction Machine – Ground Plane

Dozer (Manufacturer and Model)	John Deere 700H
GVW	25,800 lb
Serial #	T0700HX906617
Machine Dimensions	10' wide (blade) 14' 11" long
Operator Enclosure	Closed ROPS
Attachments	10' wide, 3'11" high Power Angle & Tilt Blade
Other Information	None
Measurement Technique	Physical

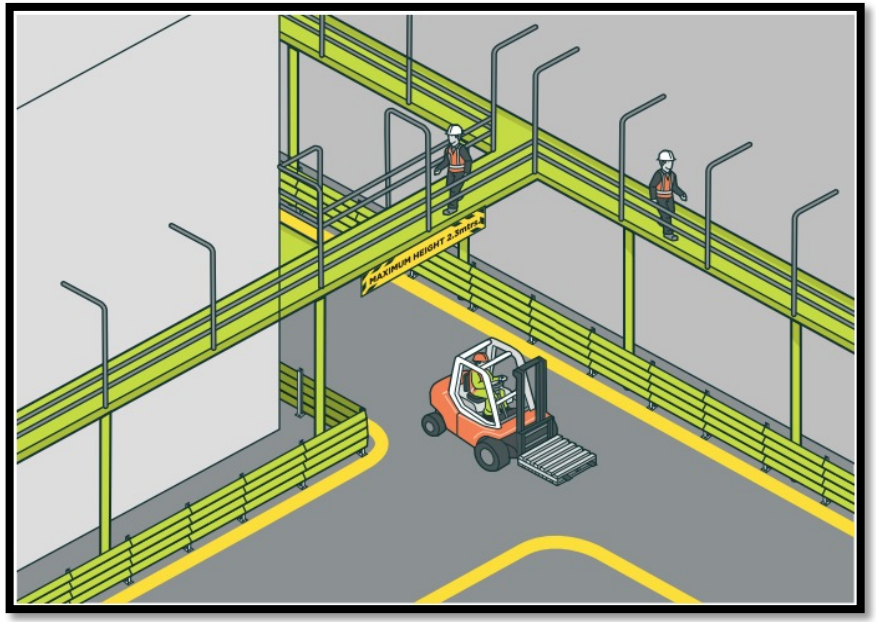


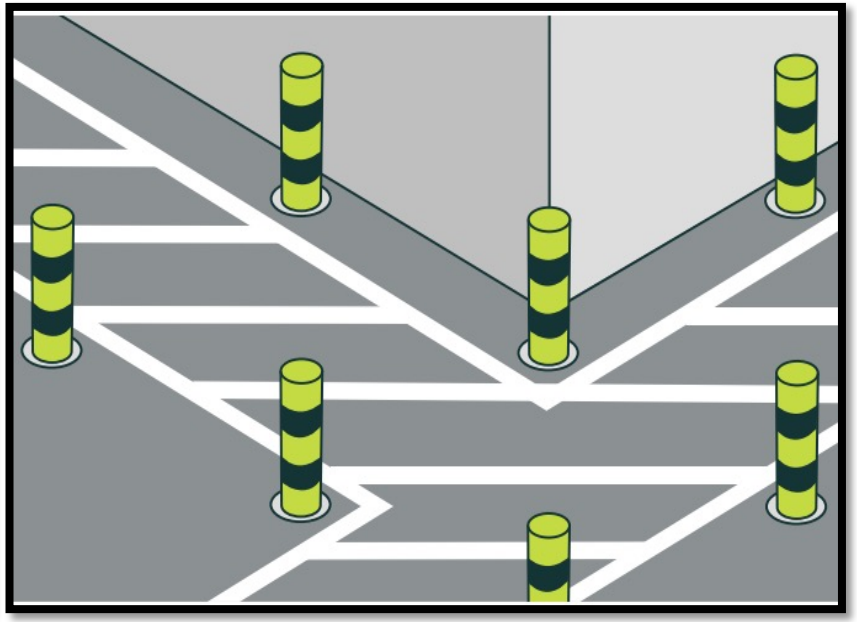
https://www.cdc.gov/niosh/topics/highwayworkzones/bad/pdfs/catreport2.pdf

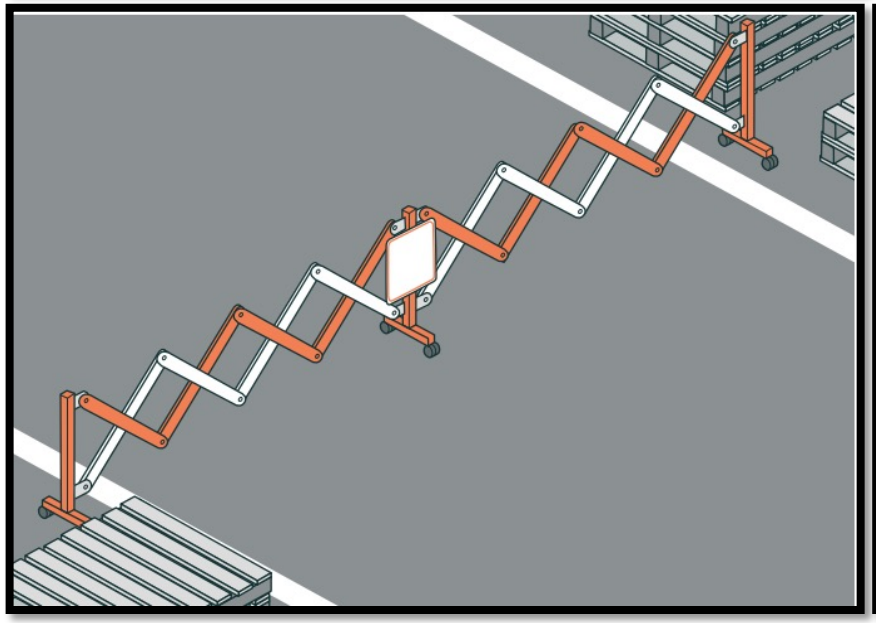
Safe work site – design

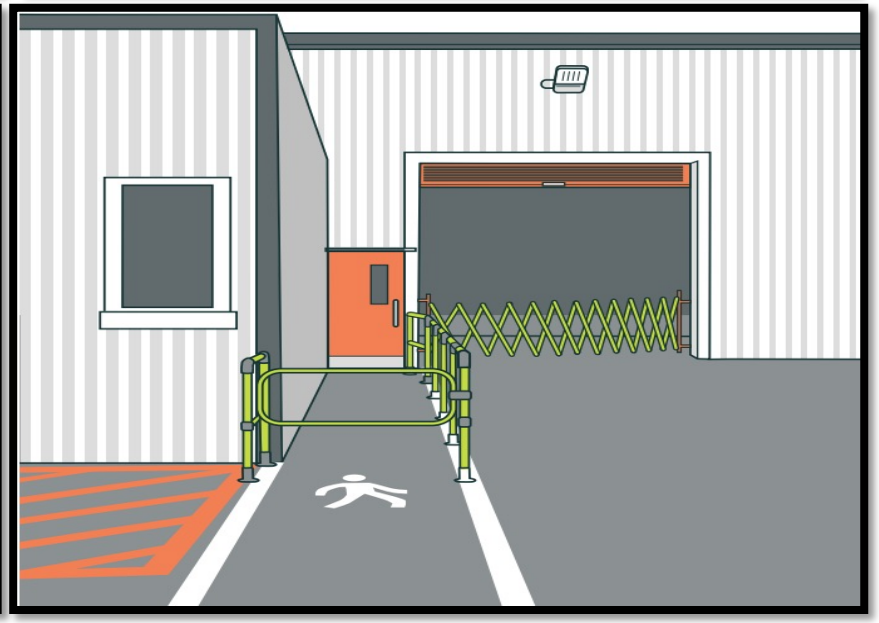
- A well planned and designed work site can reduce the risks to people working near work site traffic.
- Keep pedestrians and vehicles apart, the most effective way of making sure pedestrians and vehicles can move safely around a work site is to provide separate pedestrian and vehicle traffic routes.

Safe design examples









Machinery Safety

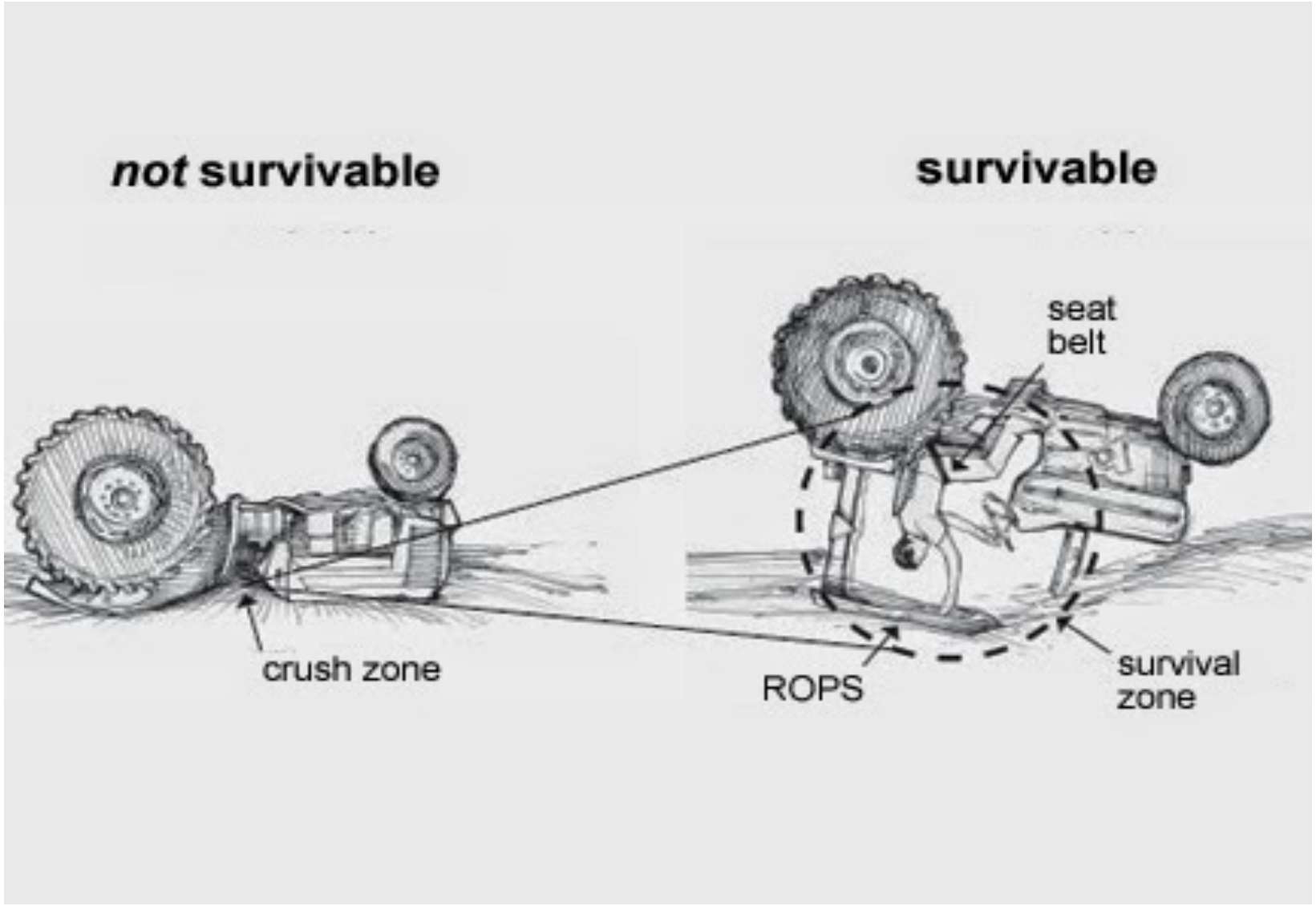
Operator Protective Structure

A structure attached to, or part of, mobile plant. Designed to protect the operator from being harmed. There are many specific types of OPS, for example:

- Roll Over-protective Structure (ROPS) / Tip Over-protective Structure (TOPS).
- Falling Object Protective Structure (FOPS)
- Crush Protection Device (CPD)
- Side Impact Protection System (SIPS)

ROPS
(or TOPS)

Roll Over Protective Structure



FOPS

Falling Object Protective Structure

CPD

Crush Protection Device

SIPS

Side Impact Protection System

Every Site Is Different.

Remember every construction site or location is different, that is why we need to develop site specific plans that have been developed to suit the actual location and activities of the site.

Example of a Table of Contents for a TMP

Contents

Zero Harm.

Every Job
Every Day

Safety is a shared responsibility.

We are all responsible for our own safety as well as everyone we work with.

"Our Goal is to always conduct our business in a way that protects people, clients, visitors and members of the public from harm…"

(Extract from DT Global HSE Policy)

Together we all go home every day, Safe.

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Tagio Tumas
Questions?