EFFC - European Federation of Foundation Contractors

Working Together to Manage our Major Health & Safety Risks

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EFFC

1. **Introduction**
    - Mission and objective of the H&S working group

2. **The real world: our "Reality Check"**
    - A video with the "good side" and the "bad side" of the business in terms of safety practices.
3. **On-site Safety Co-ordination**
    - Collaboration between clients, main contractors and foundations specialists

4. **Our major risks & our control measures**
    - Describing our major risks and good practices to reduce risk

5. **Conclusion and Q/A session**

1. Introduction
Mission and objective of the EFFC H&S working group

"*The EFFC's Health & Safety Working Group exchanges and disseminates information and guidance contributing to the improvement of H&S practices and culture during the execution of foundation and geotechnical works*"

Improve **Safety Culture**

Plant & Equipment Safety

Training

Safety **Alerts**

Good **Practices**

2.The real world: our “Reality Check”

3. On site Safety Coordination

Safety co-ordination on site is the responsibility of the client under the EU Mobile Site Safety Directive *(92/57/EEC - Temporary or Mobile Construction Sites)*. This applies to both the design and the execution phase.

Design phase: the H&S co-ordination is carried out by the Client or by a third party engaged by him

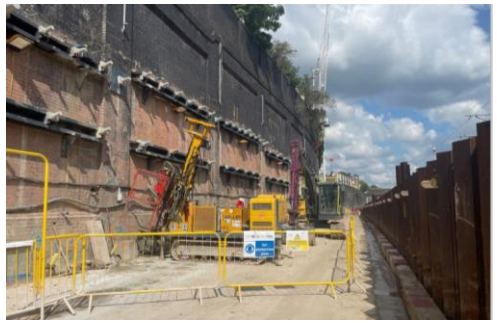
Execution phase: the H&S co-ordination is often assigned to the main contractor.
The health and safety coordinator should deliver a safe design and ensure a safe and healthy working conditions during construction on site.

Clients, main contractors and foundation specialists must join forces to ensure a safe working environment.

On Site Safety Coordination: Clients

- Be risk aware
- Check the main contractor has prepared for the foundation work
- Consider the workforce and welfare provisions
- Review the project delivery plan
- Challenge and ask open questions to make sure all parties understand and have considered the hazards
- Know your site – above and below ground, contamination, UXO, utility services – AND Share that information

On Site Safety Coordination: Main contractors



- Share the site information with the Foundations specialist
- Ask questions to the foundations specialist
  - who and what are they bringing to site,
  - what do they need from you in attendance to support the works,
  - why do they need it,
  - how long do they need it for
  - What are the greatest hazards and how can you help mitigate the risks
- Space requirements and Segregation
- Construct and test the working platform
- Welfare – we're always early, and always bring people
- Access arrangements – we're big, heavy and need supporting deliveries

On Site Safety Coordination: Foundations specialists

- Clearly set out your requirements and the impact of your works – even if they say they know
  - Space
  - Attendances
  - Access requirements, loads, heights
  - Working hours
  - Noise
  - Mess
  - Welfare
- Segregation – keep others out of your area
- Platform – if it is submerged or doesn't look right, stop work

4. Our major risks & our control measures

"Safely First On Site"

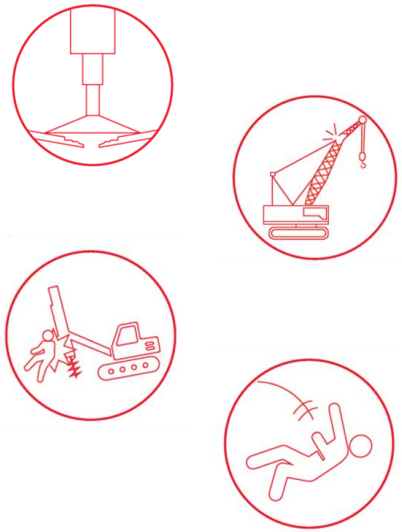
We are the first to work on a construction site: our daily challenges

VIDEO:FPS General Safety (The Federation of Piling Specialists) - YouTube

4. Our major risks & our control measures

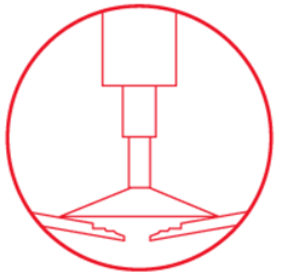
The EFFC has identified the most common major risks we are facing on the job sites:

- Working platforms
- Lifting operations
- People-Plant Interactions
- Work at height



We will present the above risks by showing good and dangerous practices.

Working platforms



What is a Working Platform

It is a ground supported platform designed, installed and tested to safely support heavy equipment for the purpose of geotechnical works"

This is the good definition….but in reality…

Many near misses and accidents in our industry are related to working platforms. Every incident and every near miss involving the platform is a potential fatality.

What is a Working Platform

VIDEO FPS Platform Safety (The Federation of Piling Specialists) - YouTube

An unsafe working platform is a hazard for:

- Operators and their equipment*
- Workers on the jobsite*
- Members of the public**

* working
or
** being in
The Line of Fire

Some examples of our risk areas:

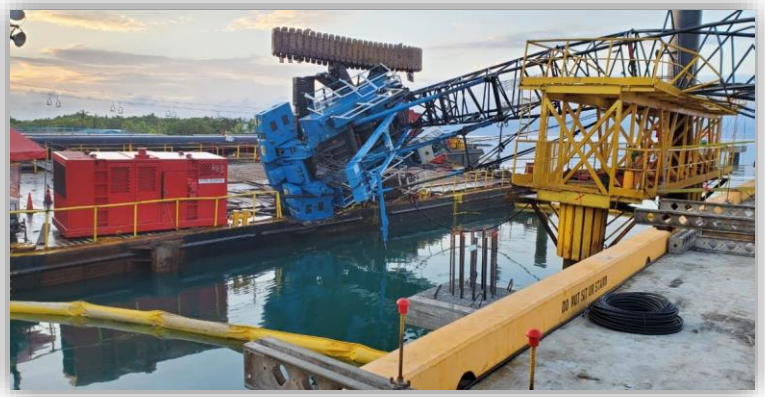
- Trenches and pile shafts are not properly backfilled
- Flooded working platforms
- Displacement of rigs/cranes on steep slopes

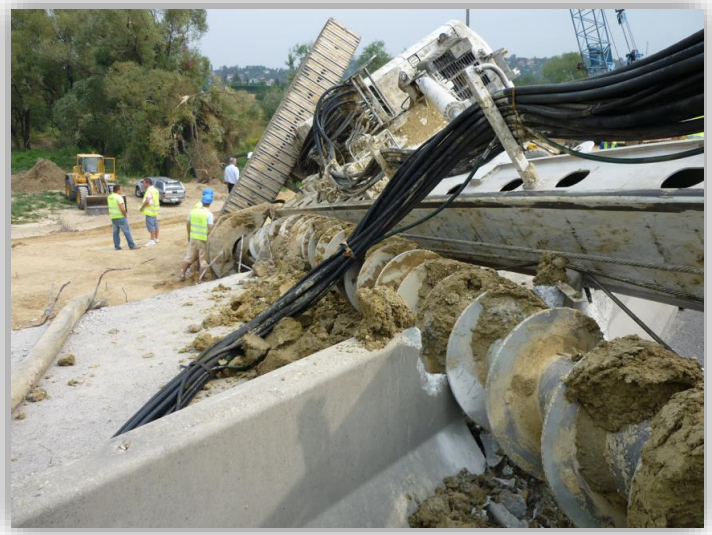
Some examples of our risk areas:

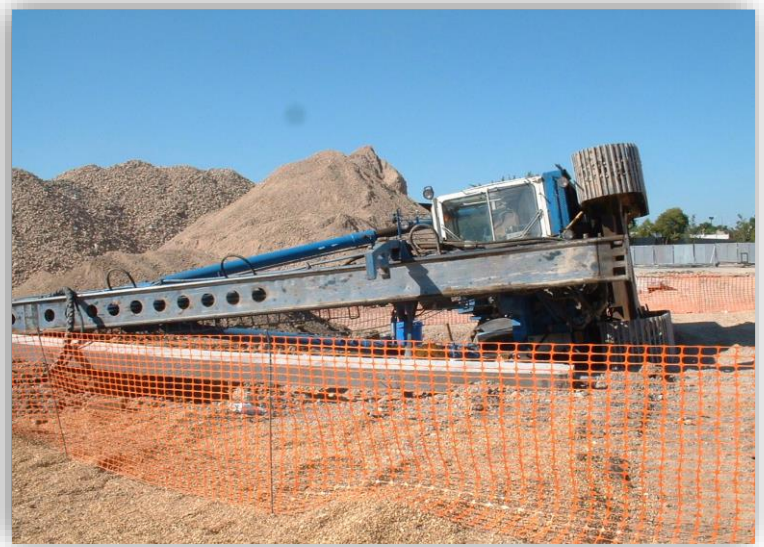
- Unprotected excavations
- Uneven/unleveled ground
- Heavy equipment in congested areas

What creates accidents involving the working platform?

- Lack of adequate platform design for the loads to be supported
- Inadequate construction and leveling of the platform
- Errors in space requirements (congested areas)
- Lack of operators training
- Personnel displacement in the vicinity of reversing/moving plant or equipment



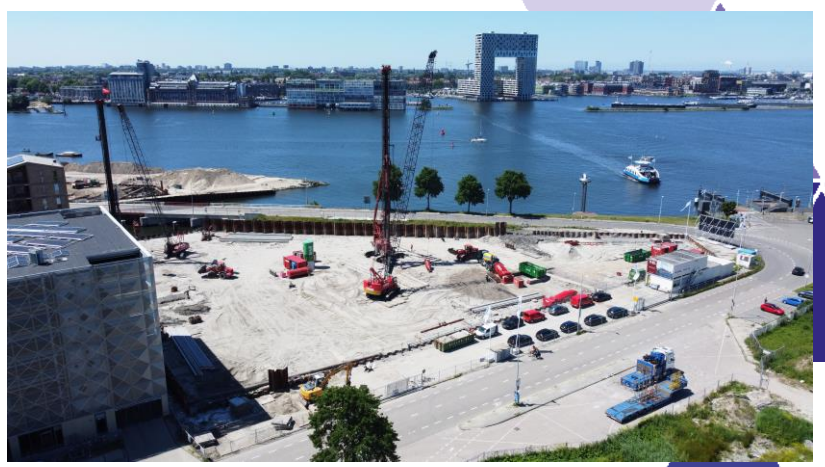




What creates accidents involving the working platform?

- Presence of cavities, geological anomalies and sinkholes

How to control the working platform hazards



- Ensure Working Platforms are designed, properly constructed, regularly inspected and maintained for the plant which will use them.
- Ensure the commitment of the main contractor/client in delivering a safe working platform (Working Platform Certificate, where applicable).
- Establish exclusion zones around revolving equipment. Always have a signalman guiding equipment on site.
- Ensure equipment operators are competent and trained.
- Protect and backfill any shaft, open hole, trench or excavation.

Our major risks & our control measures

Lifting Operations

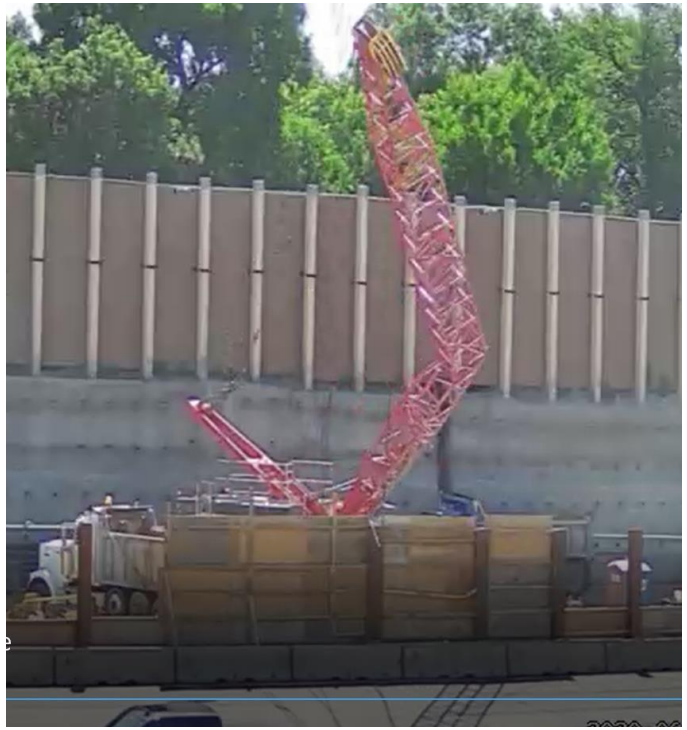
What are Lifting Operations?

Lifting Operation are recognized as one high risk activity within construction. In our sector we have had several serious accidents and fatalities due also to the significant numbers of lifts carried out on our sites

Crane failure or overturning

A lifting failure is likely to cause a serious accident

Boom failure, lifting accessories or load failure



Accidents and Near Misses

Failing Hoisting material

Accidents and Near Misses

Being in The Line of Fire

Lifting Operations

Our Risk Areas:

- Lifting equipment, tools, steel cages on site
- Lifting and moving equipment on site
- Site ground stability
- Being in the Line of Fire

Lifting Operations

Our Risk Areas:

- Overhead power lines
- Workshop - yards

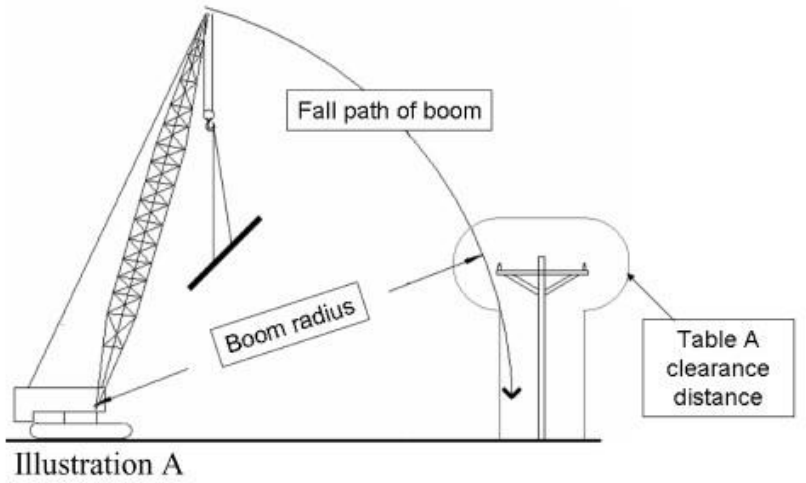


Illustration A

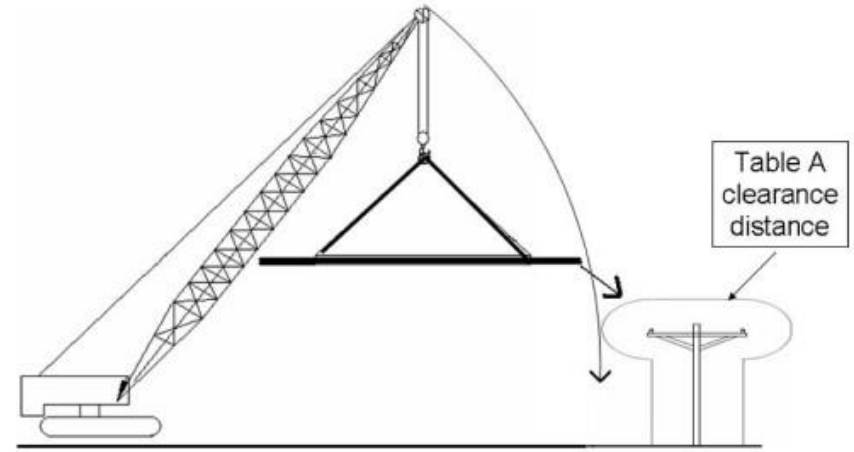


Illustration B

Lifting Operations

Our Risk Areas:

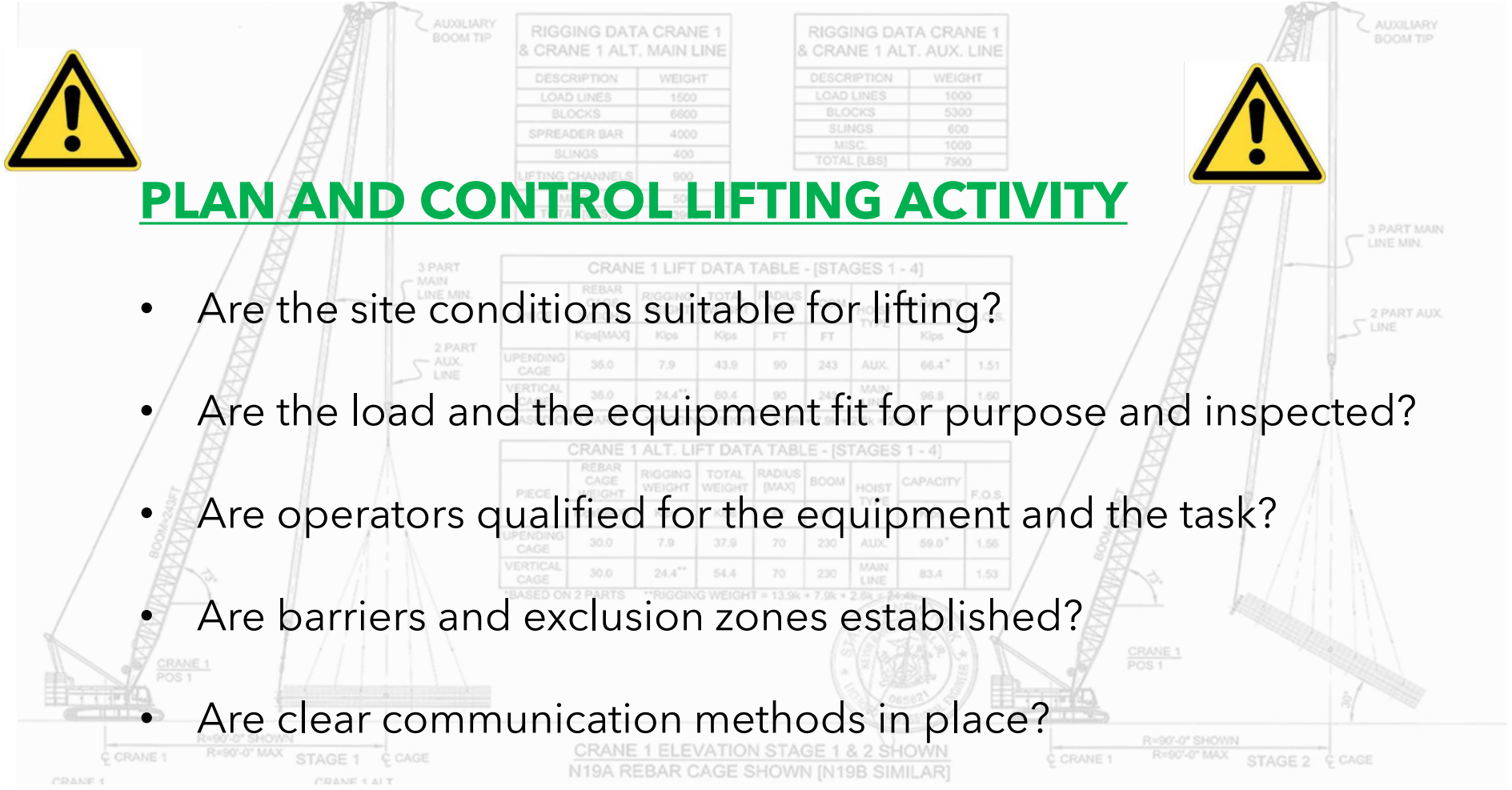
- Lifting personnel

Lifting Operations

Why accidents happen?

- Lack of lift planning (design, equipment, method)
- Complacency in routine lifts
- Lack of communication, visibility/blind spots
- Lack of definition of restricted zones
- Equipment maintenance
- Lack of operators training

How can we prevent accidents?

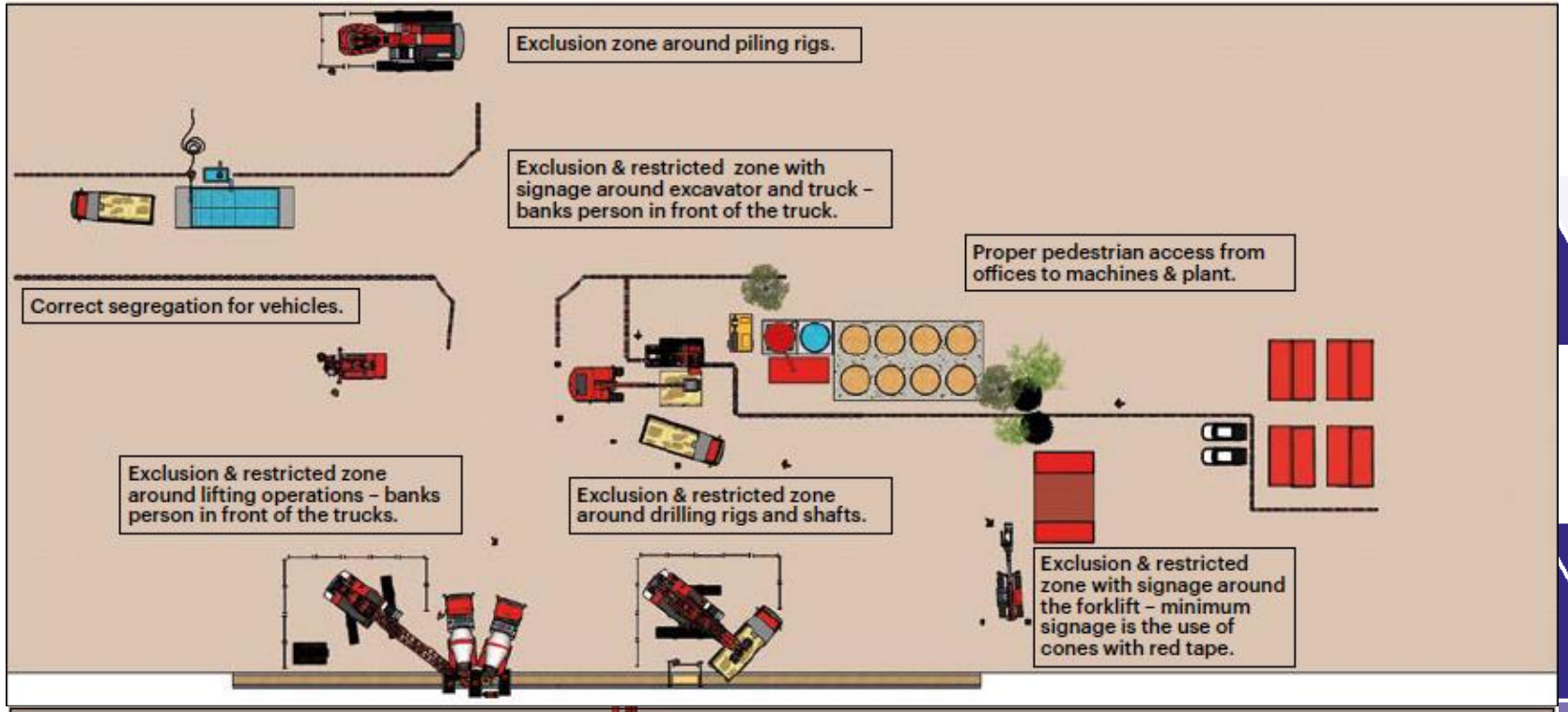


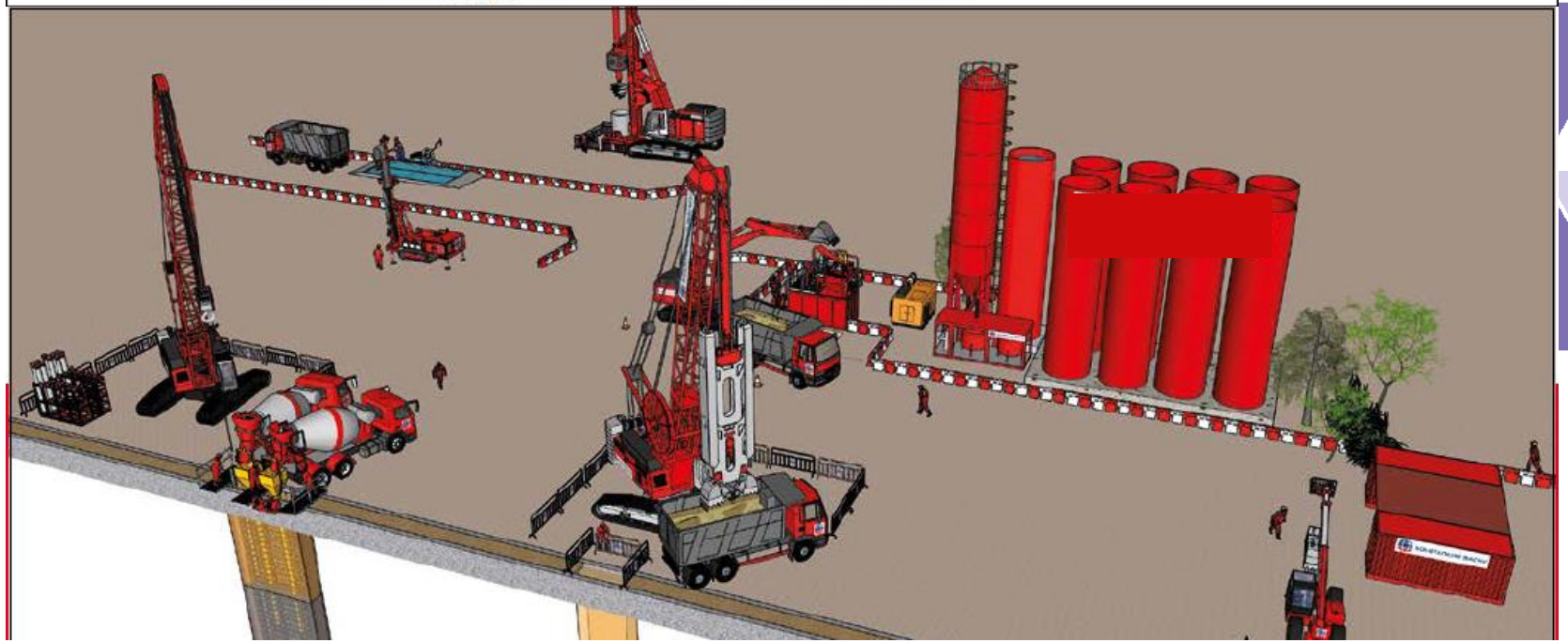
PLAN AND CONTROL LIFTING ACTIVITY

- Are the site conditions suitable for lifting?
- Are the load and the equipment fit for purpose and inspected?
- Are operators qualified for the equipment and the task?
- Are barriers and exclusion zones established?
- Are clear communication methods in place?

How can we prevent accidents?

Ensure a safe jobsite layout and manage co-activity





How can we prevent accidents?

Thorough Examination of Lifting Equipment

You must have lifting equipment and accessories thoroughly examined:

- Before using it for the first time –
  unless the equipment has an EC or equivalent Declaration of Conformity less than one year old;

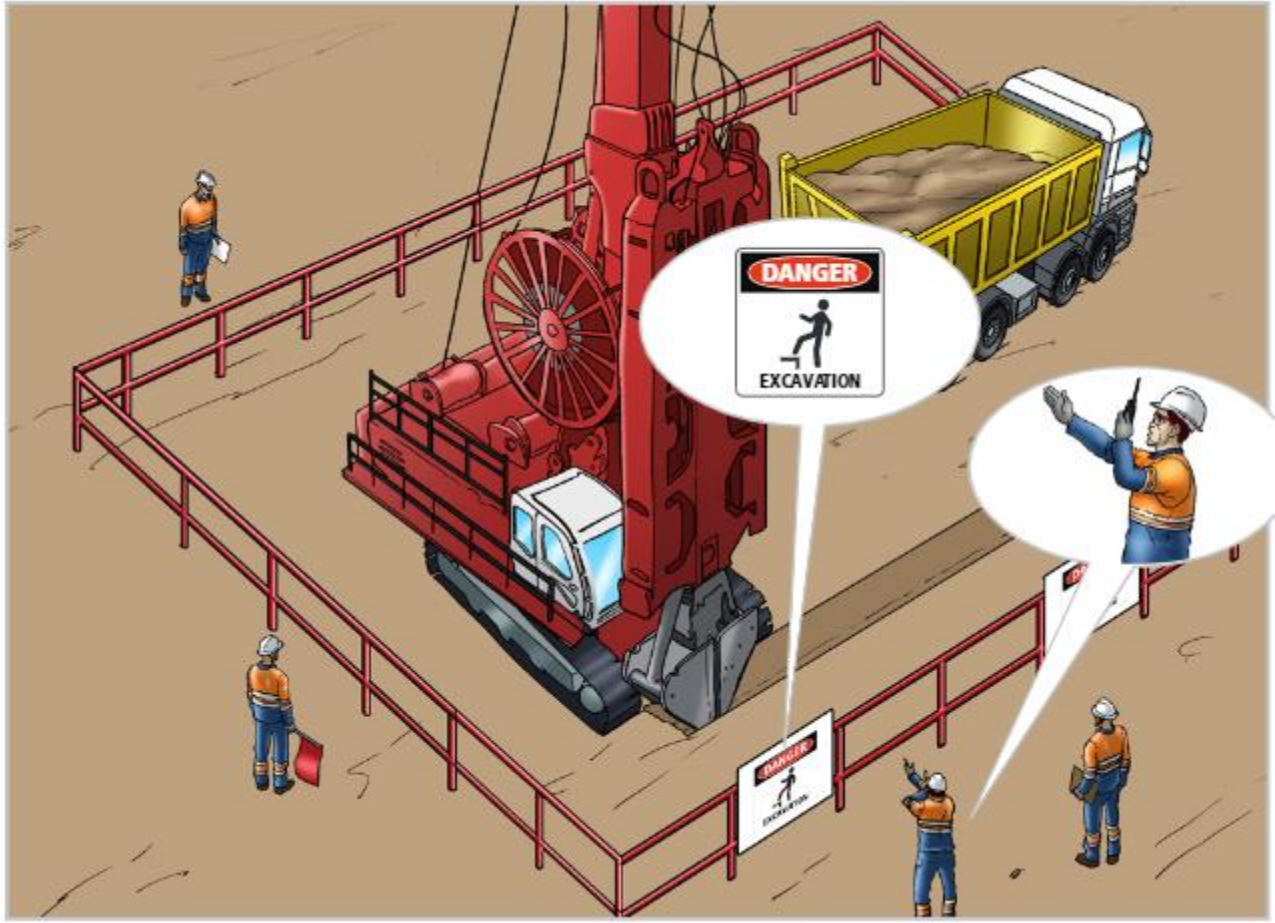
- After assembly and before use at each location for equipment that requires assembly or installation before use (e.g. dismantling and reassembling the boom of a service crane will require an examination before use);

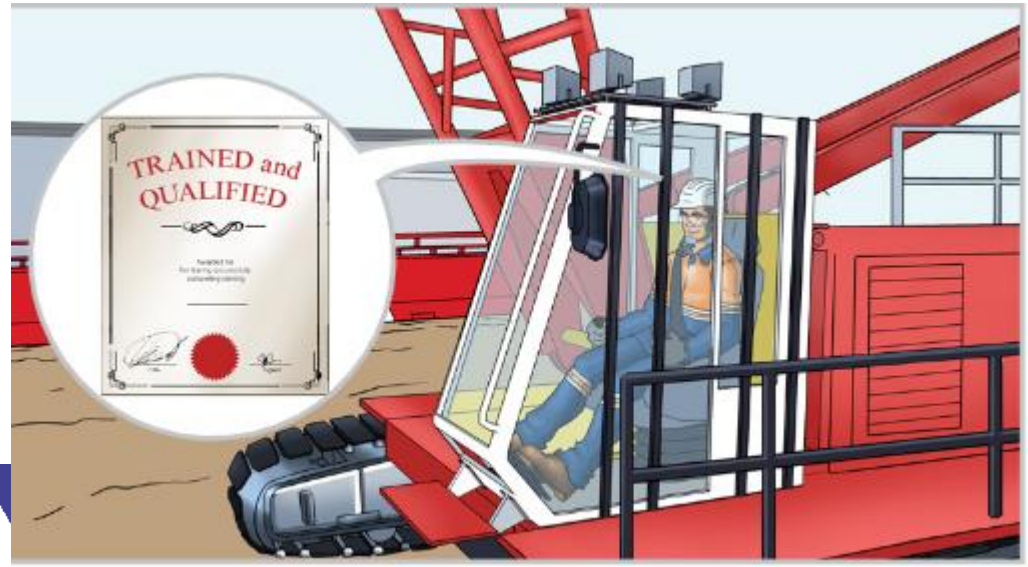
- Regularly during equipment service as per the table below;

Type of equipment	6 Months	12 Months	Examination Scheme
Accessory for lifting	✓		✓
Equipment used to lift people	✓		✓
All other lifting equipment		✓	✓

How can we prevent accidents?

Ensure operators and signalmen are competent and trained

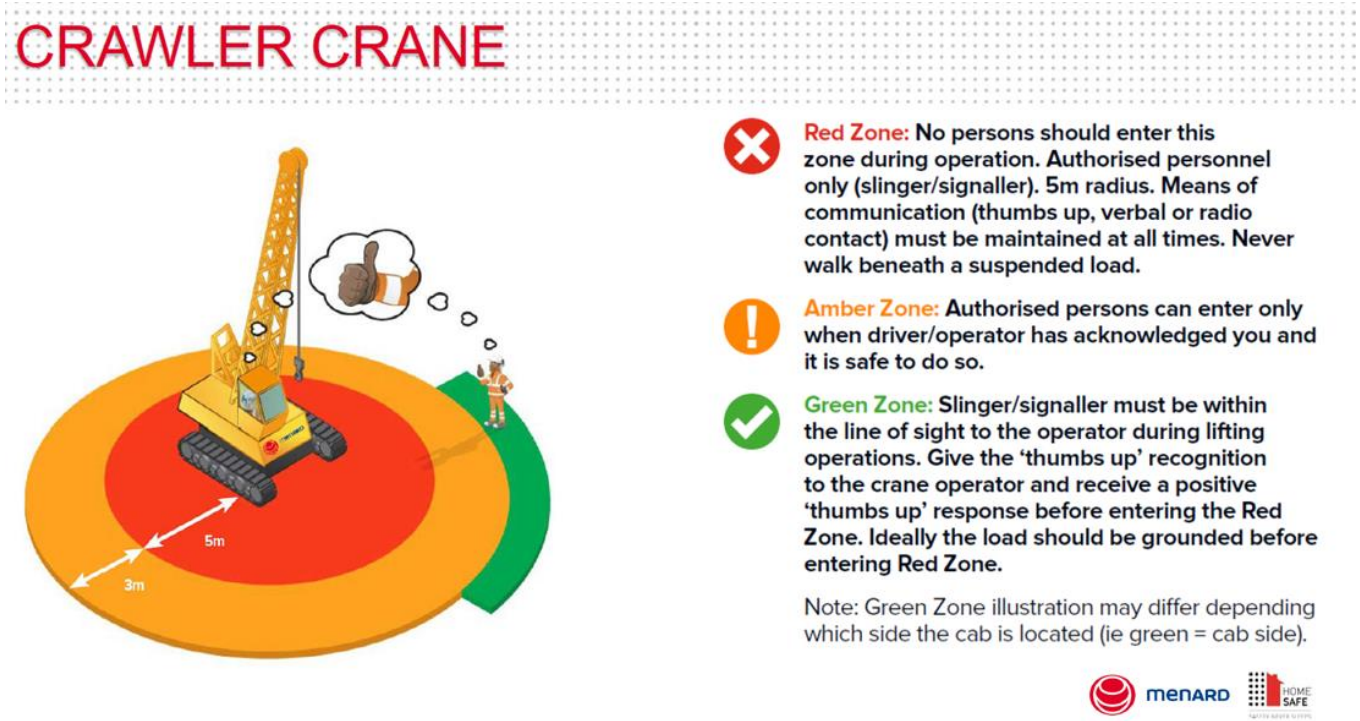




EFFC

How can we prevent accidents?

Establish exclusion and restricted zones around cranes



- Define restricted/ exclusion/safe access zones
- Make it site specific (traffic /co-activity)
- Train and communicate

How can we prevent accidents?

Exclusion zones, tag lines

FOCUS 1 – Lifting Plan

Establish a specific Lifting Plan

- Stability of ground area
- Load Calculations
- Crane information
- Lifting arrangements
- Rigging
- Crane Placement

Provide brief details in the boxes below for each lift where you have acted as the Appointed Person or Lift Supervisor. This will help you build your level of experience and competence from standard lifts to more complex lifts.	
Role for this job (AP or Lift Supervisor)	
Job Number or Reference	
Date & Time	
Location	
Crane Supplier	
Crane Type & Description	
• Load • Weight • Description • Size	
• Working Radius • Working Height	
Manpower used	
Other Details	

Signature of Register Holder:.....

Signature of Manager:
.....Name:.....

Date:.....

FOCUS 1 – Lifting Plan

Establish a specific Lifting Plan

- Appointment of a Lifting Supervisor on each job site where lifting operations are performed;
- Requirements for thorough examination and certification of lifting equipment and accessories;
- Requirements for safe crane operation;
- Requirements for lifting personnel;
- Requirements for preparation and implementation of lifting plans prior to perform lifting operations.

FOCUS 2 - Shackles

Screw Pin Shackles must be used only in “Pick and Place” applications (Pick a load and place as required. Tighten screw pin before each pick).

Bolt-Type Shackles can be used in any application where round pin or screw pin shackles are used.
In addition, they are recommended for permanent or long term installations (e.g. shackles fitted to a “Man Basket”) and where the load may slide on the shackle pin causing the pin to rotate (e.g. concreting operations).
The bolt-type shackle’s secondary securement system, utilizing a nut and cotter, eliminates the requirement to tighten pin before each lift or movement of load

FOCUS 3 - Visibility AID

Visibility aids eliminate blind spots and ensure the plant / vehicle has 360° visibility.
To enhance a plant / vehicles all round visibility there are several aids on the market from addition mirrors to sophisticated cameras with 360° view and sensory detectors

Visibility aid can be an additional preventive measure however they cannot replace operator's judgement and attention

HoistCam™ Netarus

wireless camera system

People – Plant Interface

What is People – Plant Interface?

People - Plant interface is recognized as one of the key fatal risks within construction.
In our sector we have had a number of serious accidents and fatalities.
On our sites, people are most often struck by:

Heavy equipment and vehicles

Falling or flying objects, like tools and particles

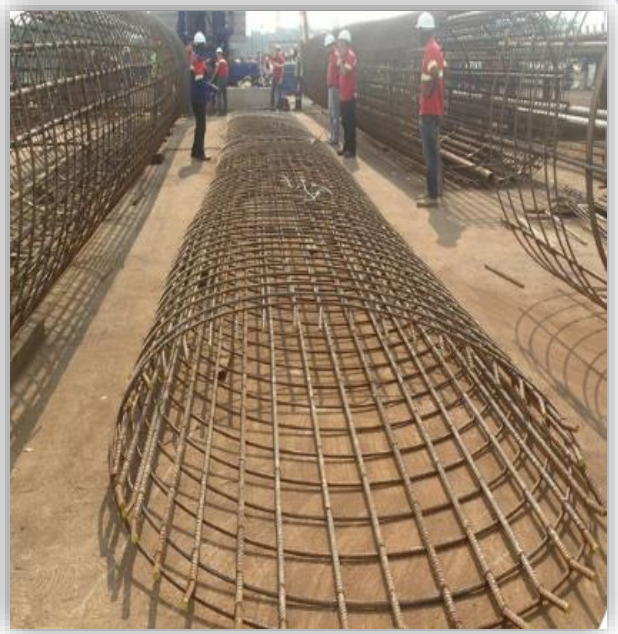
An injury involving being struck by plant is likely to be serious

People – Plant Interface

Our Risk Areas

- Revolving Machines: Cranes, Backhoes, Drilling/piling rigs
- Moving trucks and vehicles on site

People – Plant Interface



Our Risk Areas

- Storage of heavy materials (cages, casings, containers)
- Workshop - yards

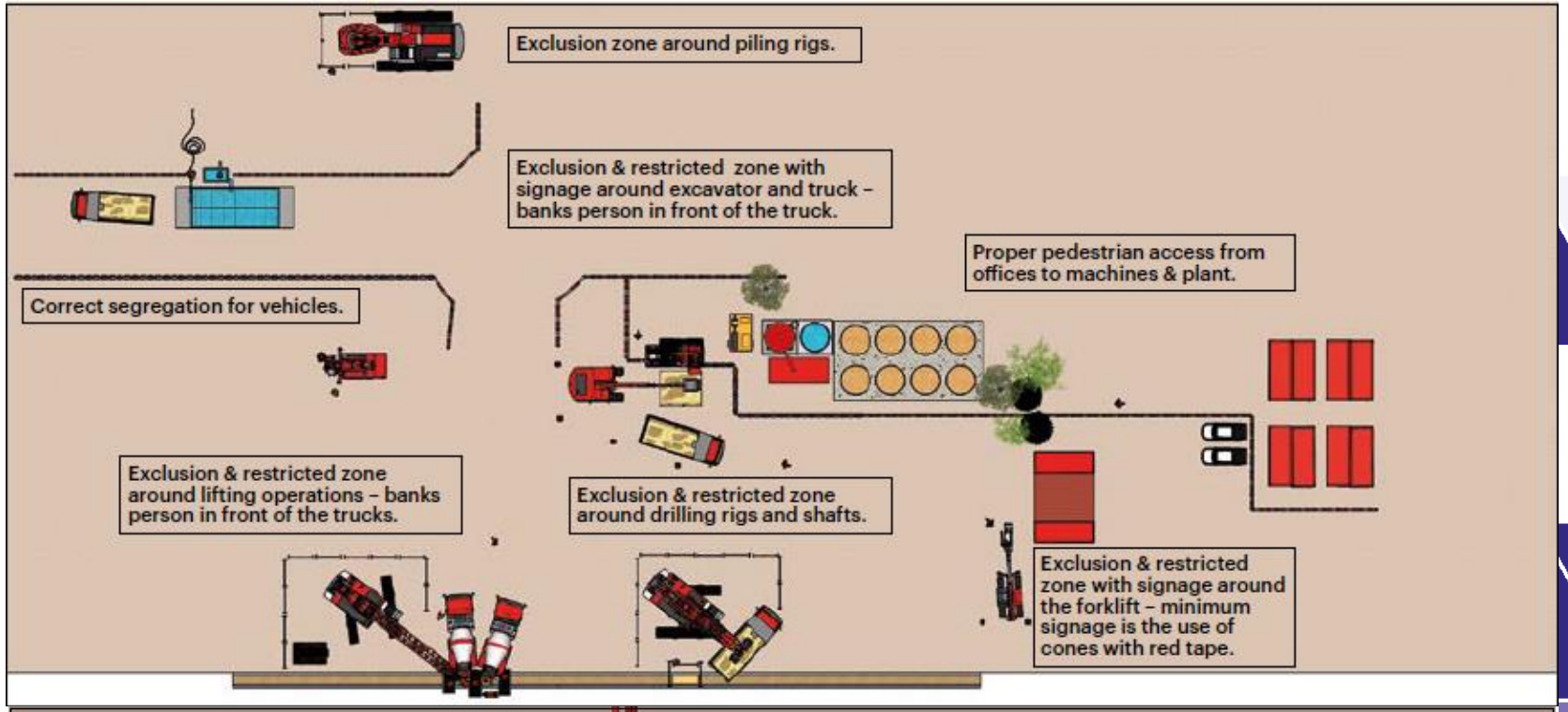
People – Plant Interface

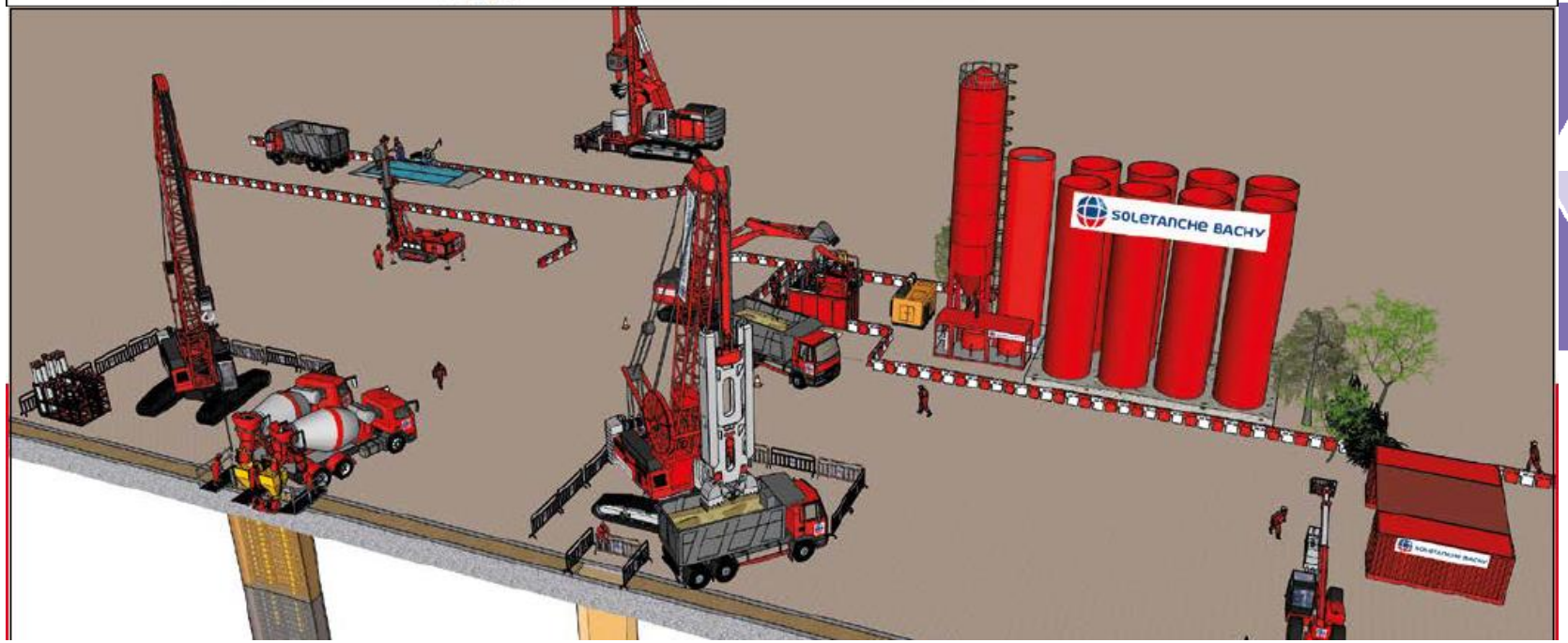
Main causes of our accidents

- Lack of communication, visibility/blind spots
- Lack of guards on machines and restricted zones
- Poor traffic management and signaling, Errors in space requirements
- Failure to identify or lack of risk assessment
- Lack of operators training

How to control the hazards

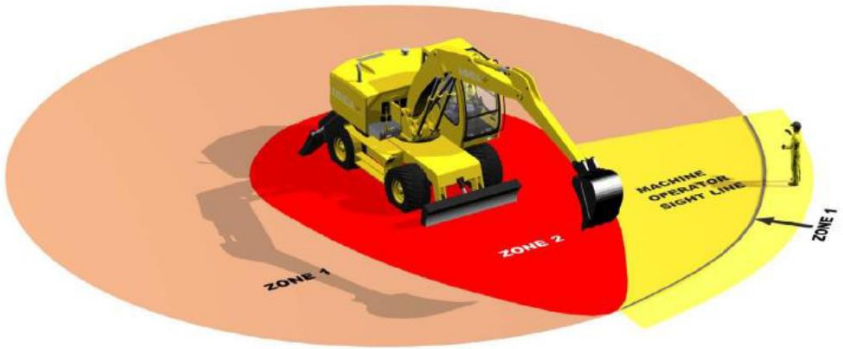
Ensure a safe jobsite layout and manage co-activity





How to control the hazards

Establish exclusion and restricted zones around



Note: Banksman must be within the line of sight to the operator as per the yellow area

The slew radius of the machines will vary dependant on the machine type and size.

Zone 1	Always signal the plant operator and receive a positive response before entering Zone 1
Zone 2	Keep out of at all times

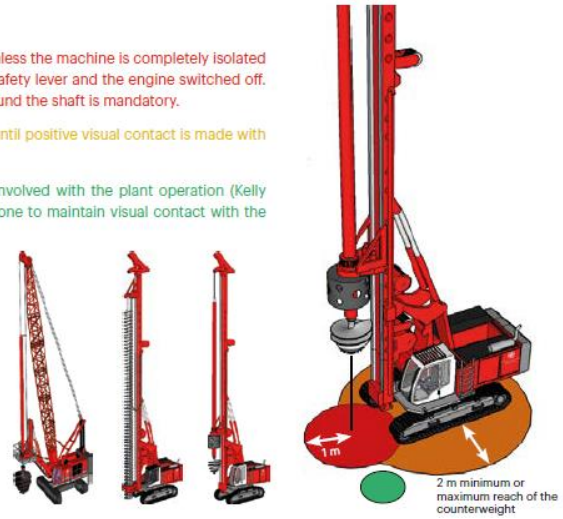
- Define restricted/ exclusion/safe access zones
- Make it site specific (traffic /co-activity)
- Train and communicate

Exclusion Zones Around Piling Rigs in Operation

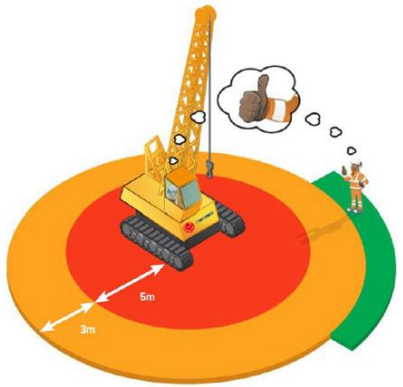
Exclusion Zone: Entry prohibited unless the machine is completely isolated with the drilling tools grounded using the safety lever and the engine switched off. Hard exclusion zone (protective barrier) around the shaft is mandatory.

Restricted Zone: Entry prohibited until positive visual contact is made with the plant operator.

Safe Access Zone: All personnel involved with the plant operation (Kelly man a/o helpers) must remain within this zone to maintain visual contact with the plant operator.



CRAWLER CRANE



Red Zone: No persons should enter this zone during operation. Authorised personnel only (slinger/signaller). 5m radius. Means of communication (thumbs up, verbal or radio contact) must be maintained at all times. Never walk beneath a suspended load.

Amber Zone: Authorised persons can enter only when driver/operator has acknowledged you and it is safe to do so.

Green Zone: Slinger/signaller must be within the line of sight to the operator during lifting operations. Give the 'thumbs up' recognition to the crane operator and receive a positive 'thumbs up' response before entering the Red Zone. Ideally the load should be grounded before entering Red Zone.

Note: Green Zone illustration may differ depending which side the cab is located (ie green = cab side).

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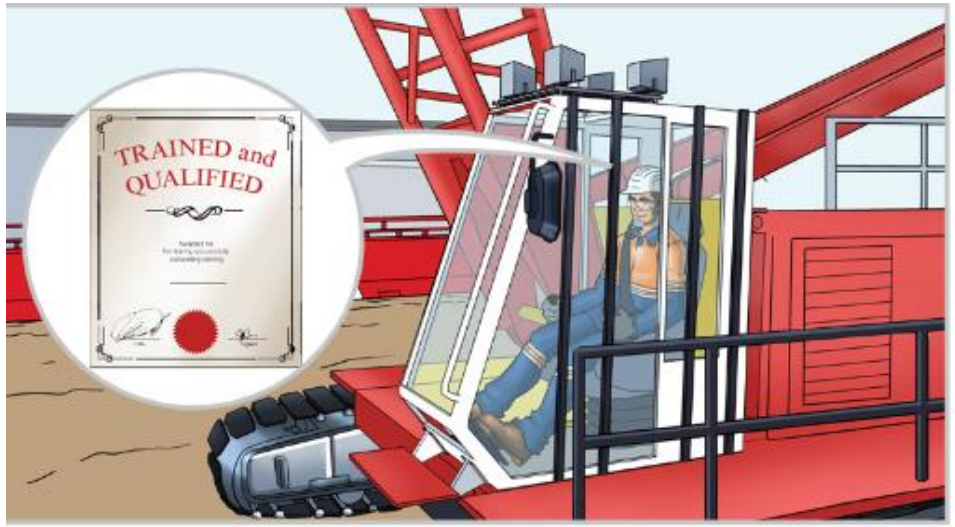
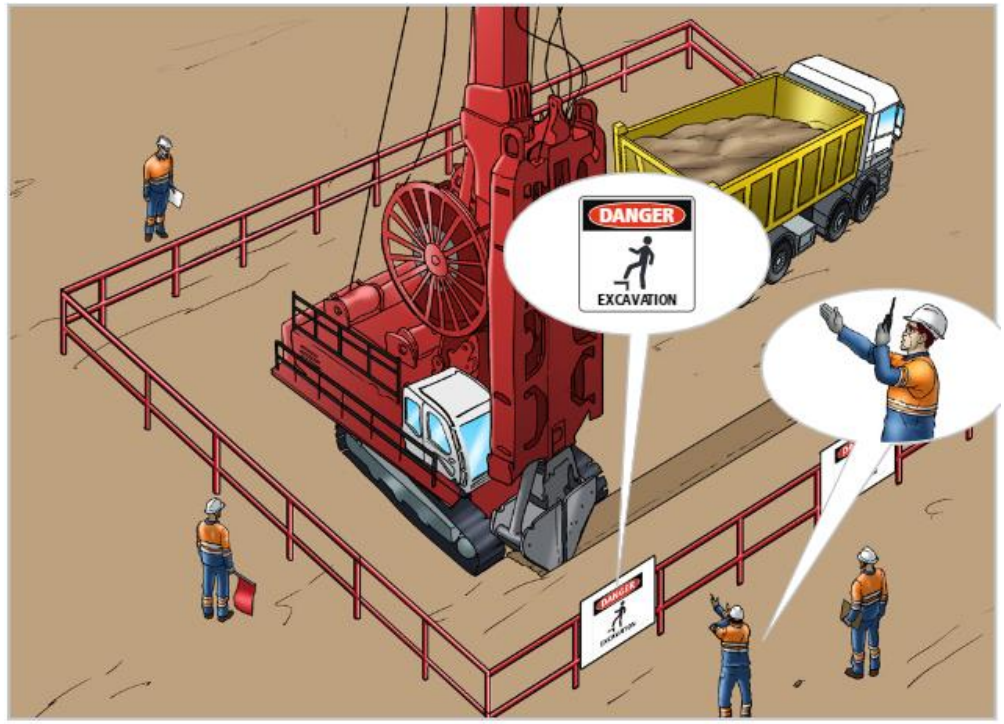
How to control the hazards

Ensure operators and signalmen are competent and trained





How to control the hazards

Some good practices: rigid exclusion zones

How can I PERSONALLY prevent accidents?

Speak up!

- Institute “Stop Work Authority” if there is any doubt about safety.
- Report any unsafe condition you see on the jobsite
- Never walk behind plant and equipment
- Do not touch equipment if it is in operating mode.
- Watch for heavy equipment, cages, tools, casings, heavy material storage: if you feel it is unsafe, probably it is!!

Blind Spots

"An area that cannot be seen by a machine operator while looking at rearview or side mirrors"

Plant & Equipment manufacturers can provide you **Blind Area Diagrams** for your specific equipment

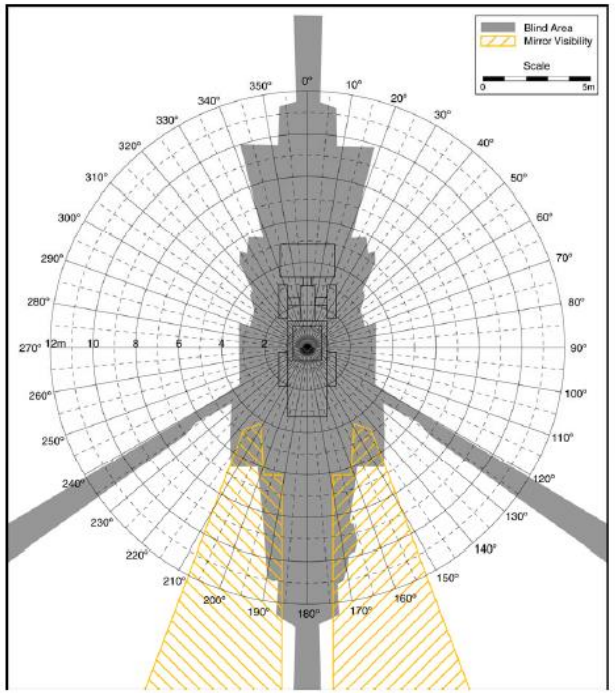
Remember that limited visibility might applies to both the front and back of plant (cranes, piling rigs)

Caterpillar Inc.
PO Box 1875
Peoria, Illinois 61656-1875

Contract # 200-2002-00563

Blind Area Diagram for Construction Vehicle – Ground Plane

Loader (Manufacturer and Model)	Volvo L110E
GVW	40,000 lbs
Serial #	L110EV60054
Machine Dimensions	9' 5" wide (bucket) 26' 3" long
Operator Enclosure	Closed ROPS
Attachments	None
Other Information	None
Measurement Technique	Physical



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Visibility AID

Visibility aids eliminate blind spots and ensure the plant / vehicle has 360° visibility.
To enhance a plant / vehicles all round visibility there are several aids on the market from addition mirrors to sophisticated cameras with 360° view and sensory detectors

Visibility aid can be an additional preventive measure however they cannot replace operator's judgement and attention

HoistCam™ wireless camera system

Visibility AID

Visibility aid can be an additional preventive measure however they cannot replace operator's judgement and attention

Our major risks & our control measures

Work at Height

What is Work at Height?

Work at height means work in any place where, if precautions were not taken, a person could fall a distance liable to cause personal injury (work above ground/floor level)

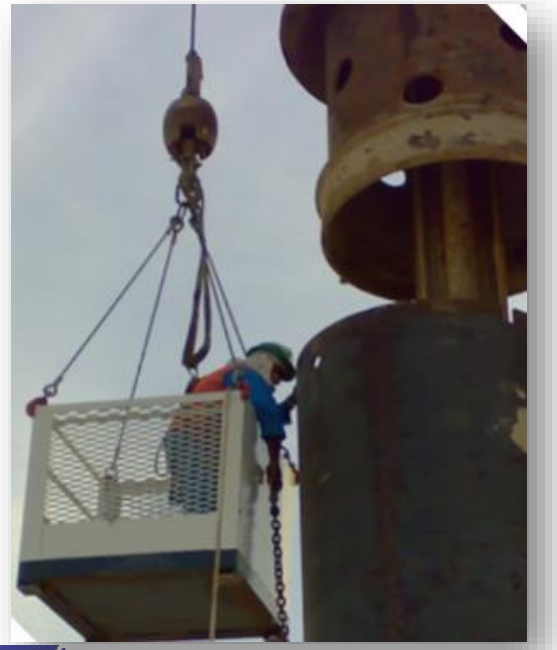
Most common fatal falls from height in our industry:

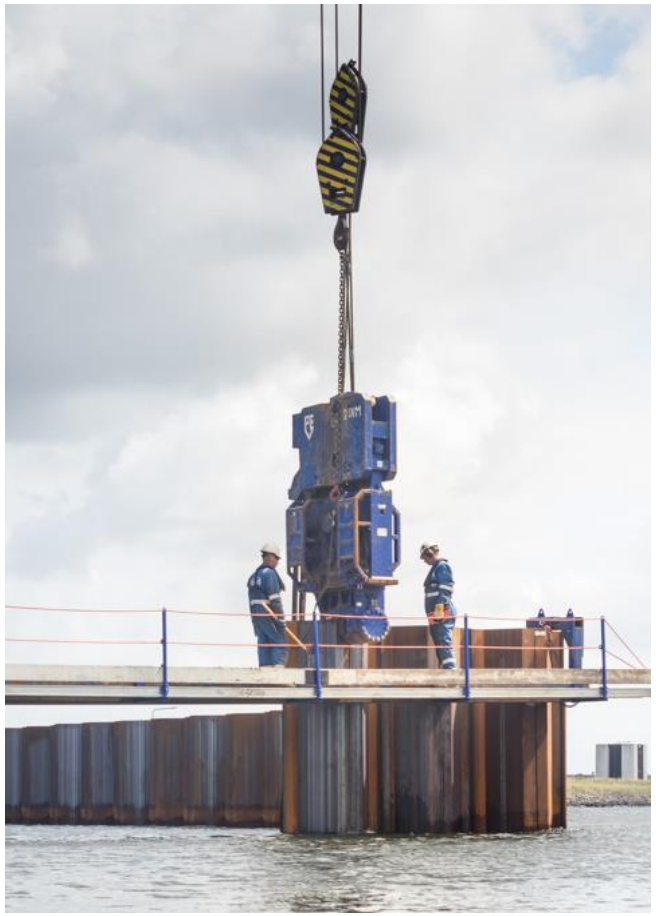
- Falls from access ladders or scaffolds
- Falls from elevating platforms
- Falls into excavations

Work at Height

Our risk areas:

- Maintenance activities
- Loading/unloading materials
- Work over water

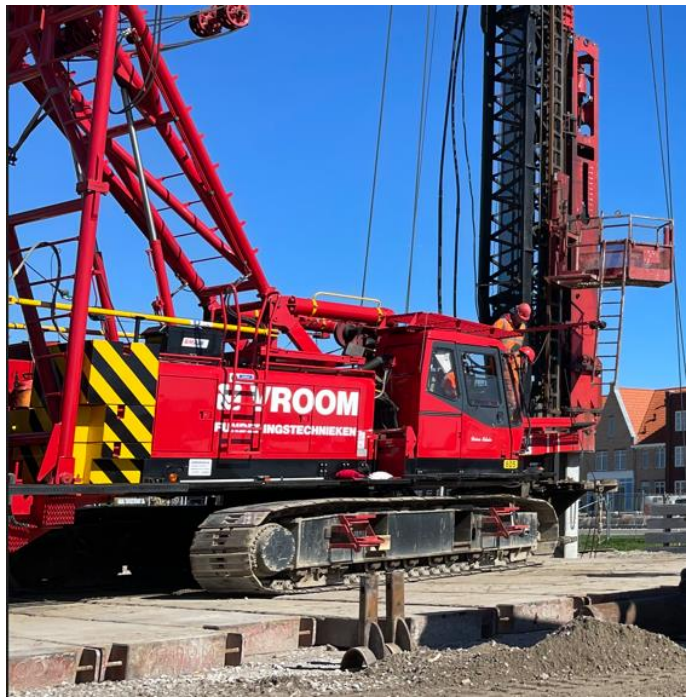




Work at Height

Our risk areas:

- Excavations/shafts
- Plant & equipment access



Work at Height

How to prevent incidents:

- Ensure you have a safe means of access/egress
- Check if the platform you are standing on is stable and secured

Work at Height

How to prevent incidents:

- Ensure there is always a supervisor to assist you
- Ensure you have all necessary fall protection and wear it correctly

5. Conclusion and Q/A session