

**FEDERATION
OF PILING
SPECIALISTS**

PLANT RESTRICTED ZONE



RESTRICTED ZONE

The design, layout and operation of working areas are key to ensuring that people are segregated from the risk of:

- Collision or entrapment from mobile plant or equipment;
- And, the risk of falling objects striking an individual working within the working area.

This booklet has been produced as a guide for all FPS member companies to assist them in setting up and managing effective working areas and restricted zones that may have people and various items of plant and equipment working in and around them.

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PLANNING:

When planning the work, restricted zones must be considered to ensure our staff as well as others are kept out of harm's way. A restricted zone is an area where only authorised persons can enter or stand during normal operations. It is important to remember there is a serious risk of injury or death from being struck by falling objects or from moving plant and equipment within a restricted zone.



These are identified in metres (m) and by the red zones within this booklet and can only be entered by authorised persons, and only once the plant or equipment is isolated and in a safe condition. The person who wants entry can only enter from the "green zone" and following a "Thumbs up" see below.



Depending on the ground engineering technique, spoil may be produced and will need to be stored nearby pending removal or loaded directly into tippers etc. These areas are still classed as restricted zones and still pose a serious risk of injury. These are identified by a black and white hatched zone within this booklet.



On occasions, authorised personnel will need to enter a restricted zone to carry out

various tasks that are involved in our works. Depending on the site layout there may be other hazards to consider such as overhead structures or attendant equipment such as cranes or excavators or working nearby. These areas are identified in metres (m) and by amber zones within the workbook. The person who wants entry can only enter from the "green zone" and following a "Thumbs up" see below.



There may also be a requirement for authorised personnel to stand close to piling equipment, so they can assist in the connection of tooling or casings etc. These areas are identified in metres (m) and by a hatched amber and red zone in the workbook. The person who wants entry can only enter from the "green zone" and following a "Thumbs up" see below.



As a reminder, before entering any of the areas above the authorised person must always approach and stand in an area with optimum visibility and receive a "thumbs up" off the plant operator before entering. These areas are identified as green within this book.

GENERAL GUIDANCE:

The pictures depicted within this guidance booklet have been produced by the Federation of Piling Specialists (FPS) with the intention of highlighting the minimum standards for managing plant restricted zones around plant and equipment generally used within a normal piling worksite.

It is the responsibility of the geotechnical contractor working in collaboration with the client to ensure that appropriate measures are in place, that consider the site-specific logistics, site layout and the impact of other operations being undertaken on a worksite that may have an impact on the piling works.

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KEY ROLES AND RESPONSIBILITIES

Rig Operator:

Responsible for operation of the rig, the isolation (Isolation means – the rig is in a safe condition and cannot be moved, operated or slewed) and giving the “thumbs up” to the front man (FM) / banksman (BM) / authorised person (AP) thus allowing safe access into the restricted zone. Under no circumstances should the operator attempt to move or operate the rig when people are stood in the restricted zone unless they are under the direct control of the FM/BM.

Plant Operator:

Responsible for operation of the plant equipment, the isolation (Isolation means – the plant equipment is in a safe condition and cannot be moved or slewed) and giving the “thumbs up” to the front man (FM) / banksman (BM) / authorised person (AP) thus allowing safe access into the restricted zone. Under no circumstances should the operator attempt to move or operate the plant when people are stood in the restricted zone unless they are under the direct control of the FM/BM.

Front Man/Banksman:

Is the person in control of all rig and plant movements within the piling areas. Before entering the restricted zone, the FM/BM/AP must receive a “thumbs up” acknowledgement from the rig or plant operator that it is safe to enter.

Authorised Person:

An authorised person is a member of the piling crew who has been authorised to work within the piling works area.

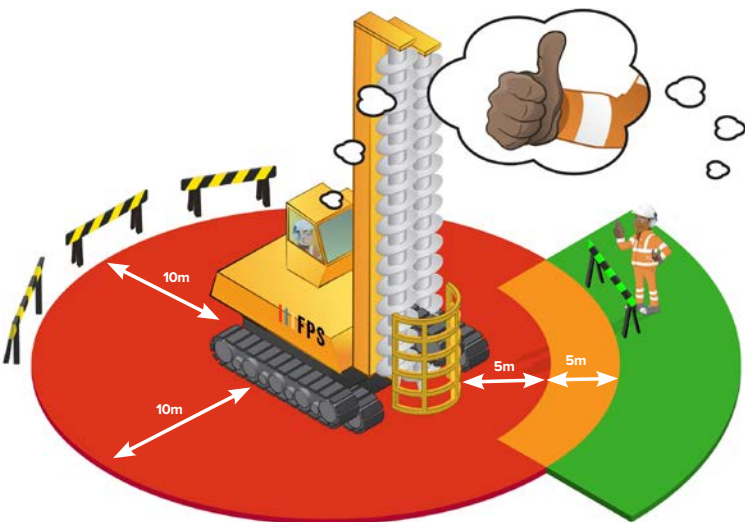
THUMBS UP FOR SAFE ACCESS INTO RESTRICTED ZONE



1. CFA/Rigid Inclusions
2. Driven Piling Rigs
3. LDA
4. Mini Rig
5. D Wall
6. 180° Excavator
7. 360° Excavator
8. Wheeled Loading Shovel
9. Crawler Crane
10. Lorry Mounted Crane
11. Overhead Gantry Crane
12. MEWP Boom
13. MEWP Scissor Lift
14. Forward Tipping Dumper
15. Rear Tipping Dumper
16. Concrete Pump
17. Telehandler
18. Rough Terrain/Industrial Fork Lift Truck

CFA/RIGID INCLUSIONS

RESTRICTED ZONE



Red Zone: The rig must be isolated (isolated means the rig cannot slew or track and the hydraulics are not able to operate) to prevent movement or rotation before entering this area. Authorised personnel only (rig attendant).



Amber Zone: 5-10m piling exclusion zone. Authorised personnel only (rig attendant). Authorised persons can enter only when driver/operator has acknowledged you and it is safe to do so. Do not enter the Red Zone from this area.

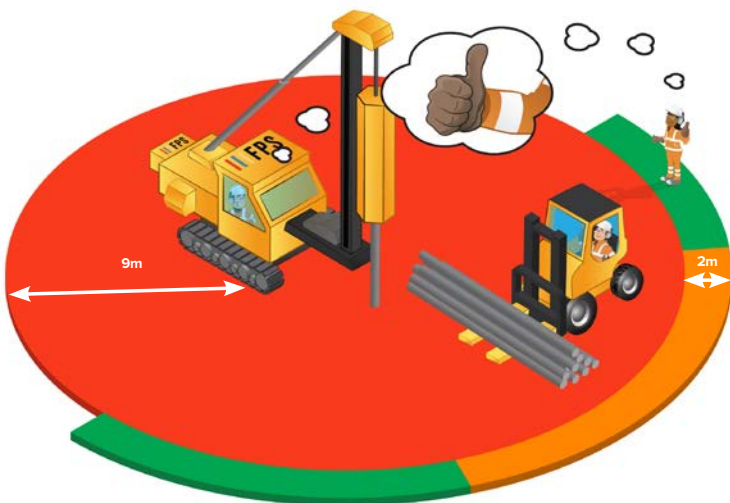


Green Zone: Drivers sight line (safe approach) optimum rig attendant position.

Note: The measurement for the Red Zone starts from the widest part of the machine-auger/tracks.

DRIVEN PILING RIGS

RESTRICTED ZONE



Red Zone: The rig must be isolated (isolated means the rig cannot slew or track and the hydraulics are not able to operate) to prevent movement or rotation before entering this area. Authorised personnel only (rig attendant).



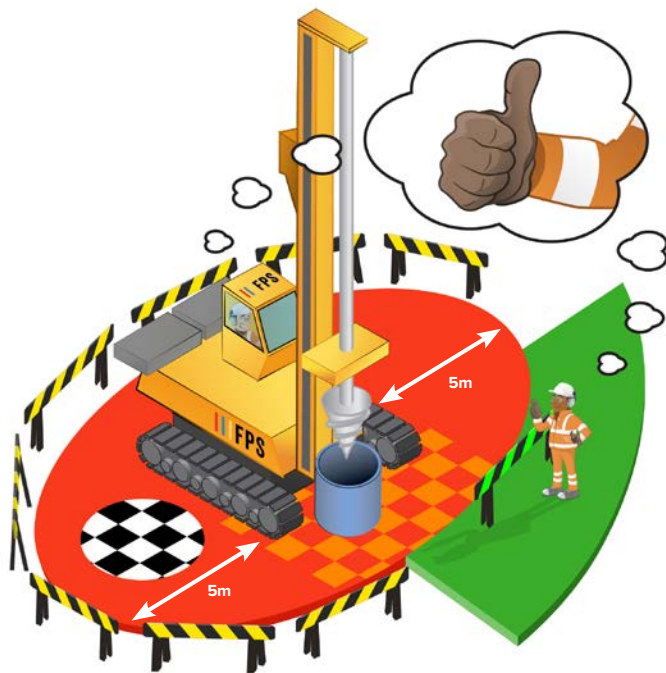
Amber Zone: 9m piling exclusion zone. Authorised personnel only (rig attendant). Authorised persons can enter only when driver/operator has acknowledged you and it is safe to do so. Do not enter the Red Zone from this area.







Green Zone: Drivers sight line (safe approach) optimum rig attendant position.

Note: The measurement for the Red Zone starts from the widest part of the machine-auger/tracks.

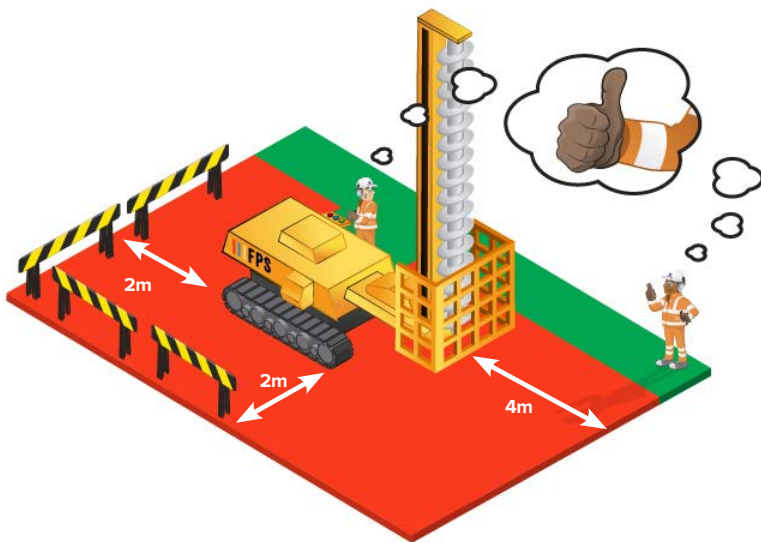
LDA RESTRICTED ZONE



-  **Red Zone:** The rig must be isolated to prevent movement or rotation before entering this area. Authorised personnel only (rig attendant).
-  **Working Amber Zone:** If the operation includes the use of segmental casing **ONLY** authorised personnel are permitted to enter this area.
-  **Green Zone:** Drivers sight line (safe approach). Always signal 'thumbs up' to the plant operator and receive a positive 'thumbs up' response before entering Amber or Red Zone.
-  **Black and White:** Auger spin off area/Tipper loading area.

Note: Consideration should be made to barrier off the plant spin off area.

MINI RIG RESTRICTED ZONE



Red Zone: Keep out of this area at all times. 2m to the sides and rear of the rig for all personnel apart from authorised persons (second/spanner man) and 4m to the front of the mast (increase the distance around the rig to at least height of mast plus 1.5m when tracking to new position).



Green Zone: Always signal 'thumbs up' response before entering. Operator to make safe prior to allowing personnel to enter the area.

D WALL RESTRICTED ZONE



Red Zone: No persons should enter this zone during operation. Authorised personnel only (rig attendant). 5m radius.



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



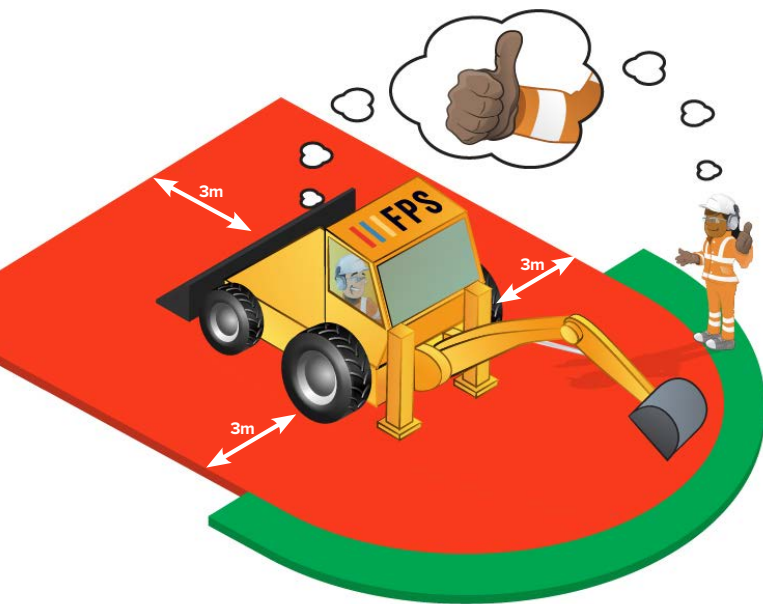
Green Zone: Rig attendant must be within the line of sight to the operator at all times. Give the 'thumbs up' recognition to the rig operator and receive a positive 'thumbs up' response before entering the Red Zone. Ideally the grab should be grounded before entering Red Zone.



Black and White: Auger spin off area/Tipper loading area.

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

180° EXCAVATOR RESTRICTED ZONE

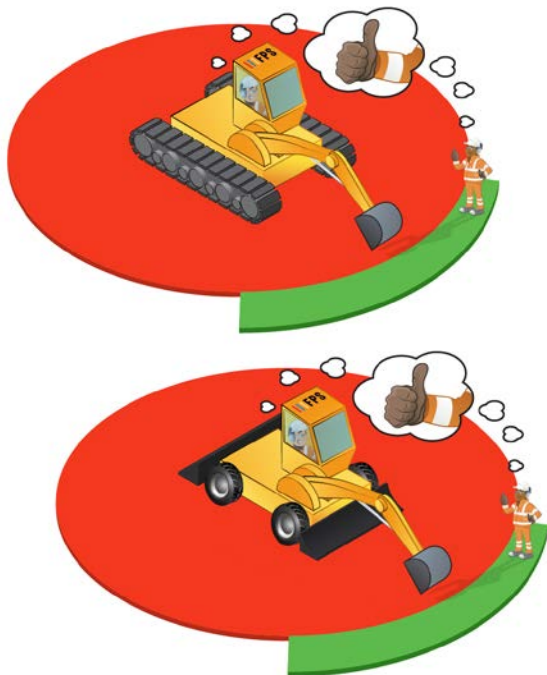


Red Zone: No personnel to enter area, length to be determined by the boom length and slew radius.



Green Zone: Safe area - machine operators line of sight. Always signal 'thumb up' to the plant operator and receive a positive 'thumbs up' response before entering Red Zone.

360° EXCAVATOR (TRACKED OR WHEELED) RESTRICTED ZONE



Red Zone: To be determined by the boom length and slew radius. No personnel to enter area unless the attachment is on the ground and the machine is isolated.

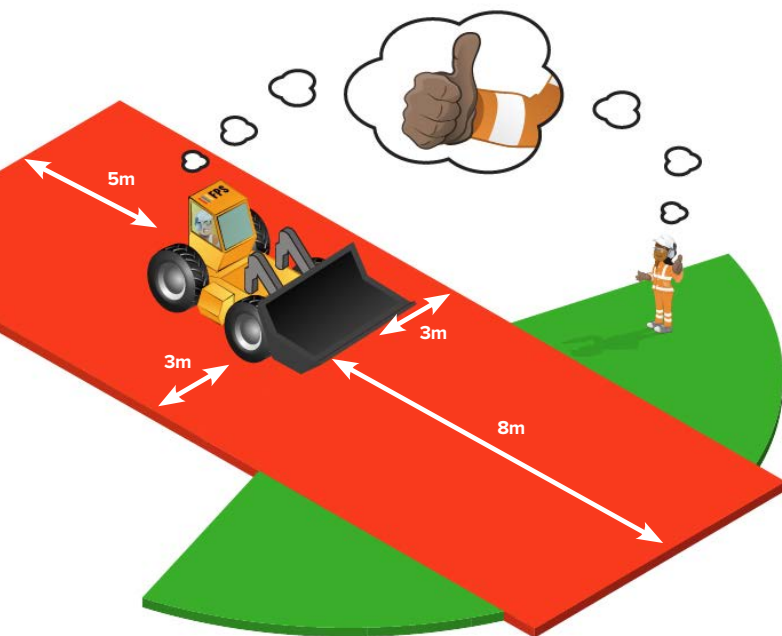


Green Zone: Safe area - machine operators line of sight. Always signal 'thumb up' to the plant operator and receive a positive 'thumbs up' response before entering Red Zone.

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

WHEELED LOADING SHOVEL RESTRICTED ZONE

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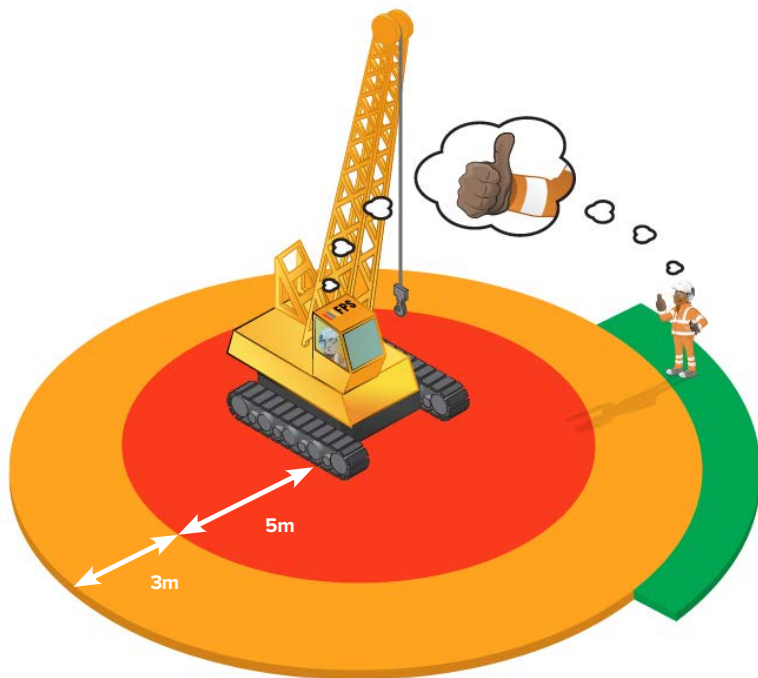


Red Zone: Keep out of this area at all times. 8m
- No personnel to enter area unless the bucket is on the ground and the machine isolated.



Green Zone: Always signal 'thumbs up' to the plant operator and receive a positive 'thumbs up' response before entering Red Zone. Vehicle Marshaller must be within the line of sight of the operator.

CRAWLER CRANE RESTRICTED ZONE



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).

LORRY MOUNTED CRANE (HIAB) RESTRICTED ZONE

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Red Zone: Keep out of this area at all times. Authorised personnel only (slinger/signaller) This should be determined by the working radius of the lorry mounted crane plus 2m (factor load size - ie piling cages length).



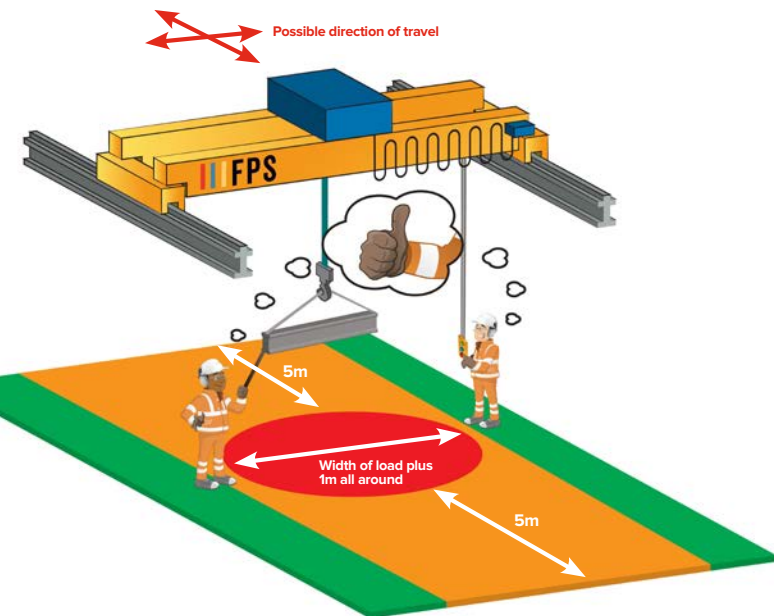
Green Zone: Always signal 'thumb up' to the plant operator and receive a positive 'thumbs up' response before entering Red Zone, this may vary dependant on operating position (some may have remotes).

Note: Red & Green Zone illustrated may differ depending which side the load is being lifted.

Do not walk beneath elevated loads.

OVERHEAD GANTRY CRANE RESTRICTED ZONE

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Red Zone: This zone is directly below the hook and the length of the load. The crane operator, slinger/signaller must not stand in this area (ideal standing position is width of load plus 1m as this will account for any load swing).



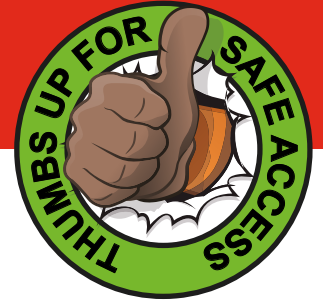
Amber Zone: Authorised persons can enter only when driver/operator has acknowledged you and it is safe to do so.



Green Zone: Always signal 'thumbs up' to the operator and receive a positive 'thumbs up' response before entering, ideally the load should be grounded before entering Red Zone.

Note: No persons should be under suspended load irrespective of travel direction.

MEWP (BOOM) RESTRICTED ZONE



Red Zone: Keep out of this area at all times. 5m Restricted Zone, except in emergency situations.



Green Zone: Always signal 'thumbs up' to the plant operator and receive a positive 'thumbs up' response before entering Red Zone.

Note: Consideration should be made to barrier off the area beneath the boom and basket.

Overhead obstructions must be considered when platform is raised.

MEWP (SCISSOR LIFTS) RESTRICTED ZONE



Red Zone: Keep out of this area at all times. Except in emergency situations.

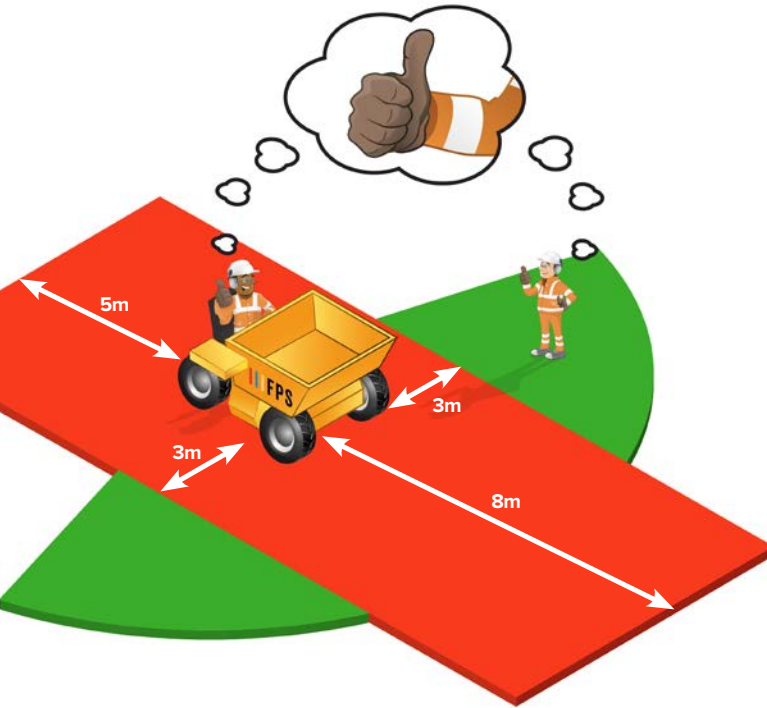


Green Zone: Always signal a 'thumbs up' to the operator and receive a positive 'thumbs up' response before entering Red Zone.

Note: Always consider overhead obstructions when raising the platform as these could also be classed as Restricted Zones.

FORWARD TIPPING DUMPER RESTRICTED ZONE

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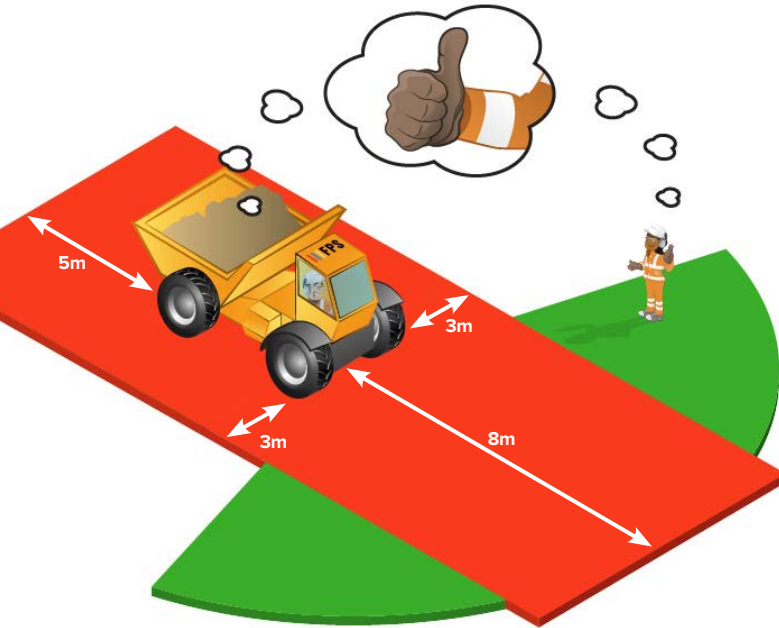
Red Zone: Keep out of this area at all times - 8m to front, 3m to each side, 5m to rear.





Green Zone: Always signal 'thumbs up' to the plant operator and receive a positive 'thumbs up' response before entering Red Zone. Keep in machine operators line of site.

Note: Larger dumpers such as a 9 ton, may require an extended Red Zone.



REAR TIPPING DUMPER RESTRICTED ZONE



TRAVEL

-  **Red Zone:** Keep out of this area at all times - 8m to front, 3m to each side, 5m to rear.
-  **Green Zone:** Always signal 'thumbs up' to the plant operator and receive a positive 'thumbs up' response before entering Red Zone. Keep in machine operators line of site.

LOADING

-  **Red Zone:** Keep out of this area at all times.
-  **Green Zone:** Always signal 'thumbs up' to the operator and receive a positive 'thumbs up' response before entering Red Zone. Keep in machine operators line of site.

CONCRETE PUMP RESTRICTED ZONE



Red Zone: Keep out of this area at all times. Authorised personnel only (pump operator) - this zone must include barriers to demarcate the area. 2m controlled zone from the outer edge of the concrete vehicle when reversing.

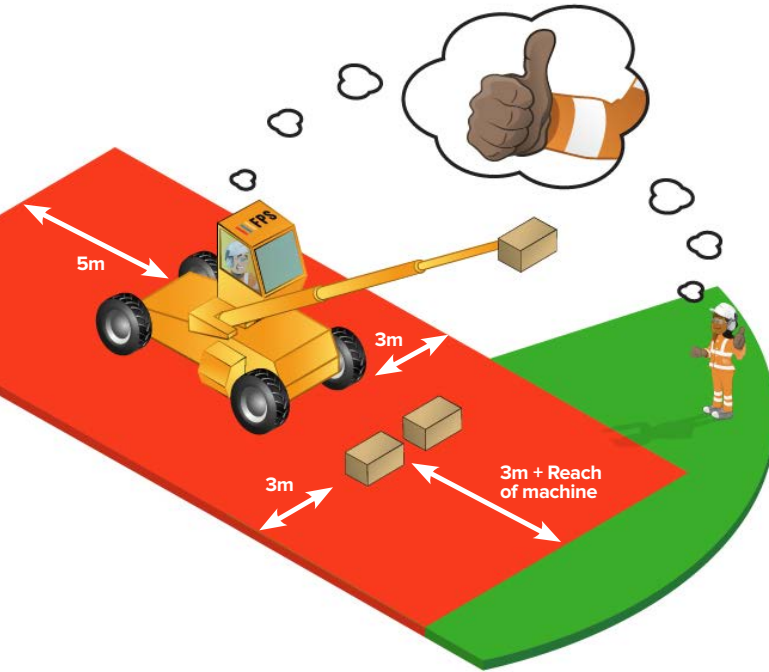


Amber Zone: Authorised persons only.



Green Zone: Always signal 'thumbs up' to the pump operator and or concrete delivery driver and receive a positive 'thumbs up' response before entering. Keep in driver's line of site when reversing the truck, always get the 'thumbs up' before entering Red Zone.

TELEHANDLER RESTRICTED ZONE

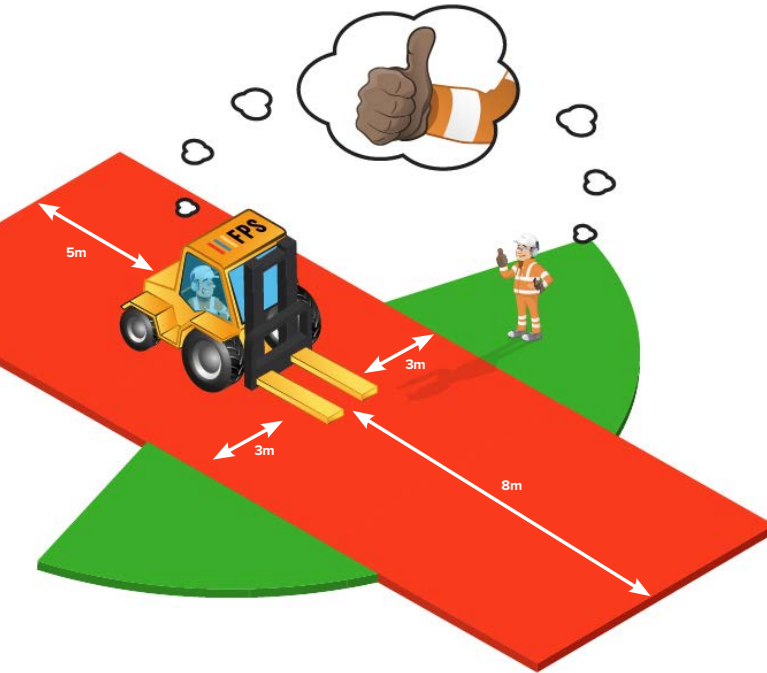


Red Zone: Keep out of this area at all times. 5m - No personnel to enter area unless the attachment is on the ground and the machine isolated.



Green Zone: Vehicle Marshaller must be within the line of sight to the operator at all times and give thumbs up recognition before entering Red Zone.

ROUGH TERRAIN / INDUSTRIAL FORK LIFT TRUCK RESTRICTED ZONE



Red Zone: Keep out of this area at all times - 8m to front, 3m to each side, 5m to rear.



Green Zone: Always signal 'thumbs up' to the operator and receive a positive 'thumbs up' response before entering Red Zone. Keep in machine operators line of site. Ideally the load should be grounded before approach.

