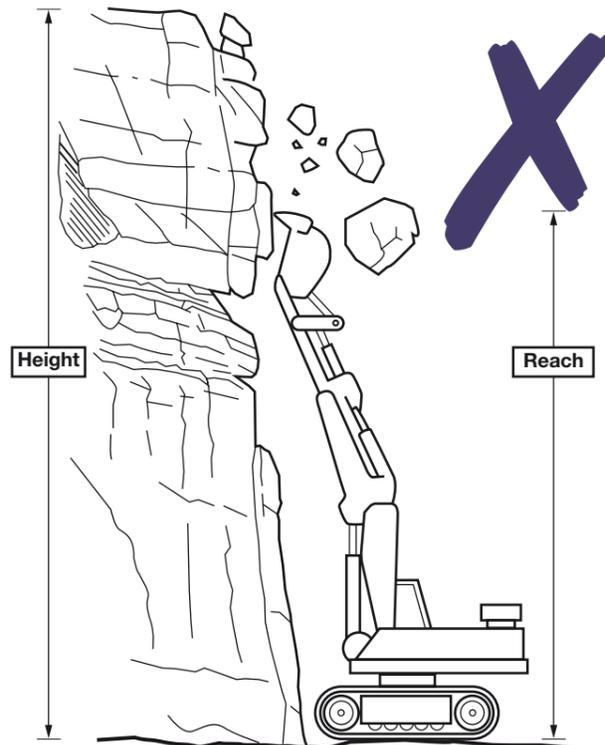
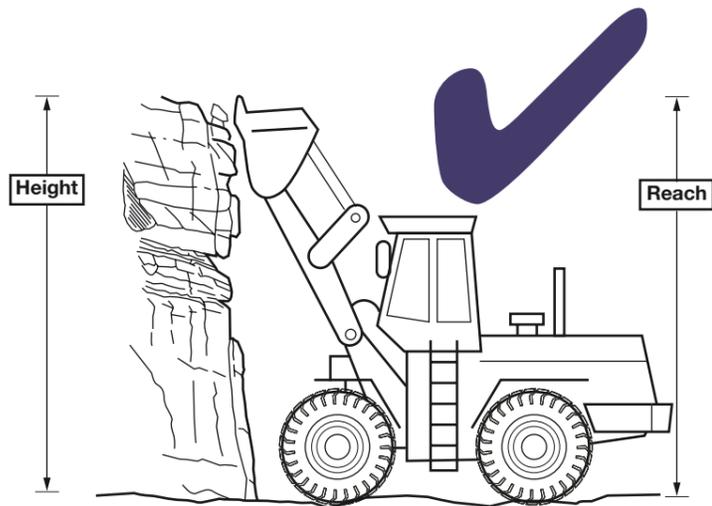
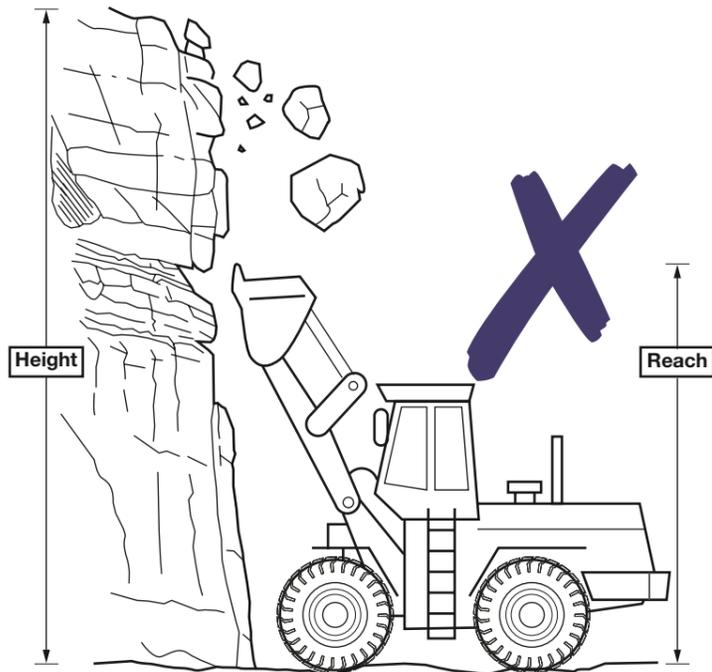


FACE THE FACTS: FACES

When considering the design of the quarry face you have to take account of jointing, bedding planes, faults, water pressure, clay and soft rock seams, weathering and voids.

You also need to think about damage you are doing through excavation with undercutting, stress relief and blast damage, the excavation system and the size of the equipment you have on site. In many cases the quarry faces are too high for the equipment used, and too high to minimise fly rock and the risk from falls of ground and personnel.

Some of the essential items you should address when selecting machinery are shown below. Faces that have potential for instability should be worked within the reach height of the equipment used, whether they are working in sand or hard rock. Typically, wheel loaders can reach 6-8 m and excavators 9-12 m. Larger mining shovels (120 tonne or more) are capable of reaching 18-20 m depending on how they are used.



ARE TOO HIGH FOR SAFETY!

Checklist for designing quarry faces

- Does the geotechnical assessment identify planar, wedge, toppling, rotational or any other type in bench failure mechanism or rock fall?
- Do you need a rock/sand trap? (If so, incorporate into design and rules.)
- Can the excavator/loader reach and capture material to the top of the face?
- Is the cab outside of rockfall/engulfment range? (It will need FOPs/ROPs.)
- Is the bucket sized to capture the largest rock?
- Is the loader/excavator and standing material stable?
- Is the bench wide enough for loading and long-term maintenance operations including access, drainage, scaling, stand-offs, edge protection and (where needed) rock/sand traps?
- Design faces, benches and stand-offs stipulating widths, heights and angles and size and type of loader/excavator. Write tip and excavation rules.

If you can't answer any of the questions above, ask your geotechnical specialist for further advice. Use the information from the geotechnical assessment to ensure that you are operating according to the quarry design, and act upon any requirements for safety of faces or tips within the necessary timescale.

