

Topic 6 Section 1

Site Establishment

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Possession of Site

To enable a contractor to commence work, the principal gives the contractor possession of site. The date of possession is stipulated in the contract documents. For example:

27.1 Possession of Site

The Principal shall on or before the expiration of the time stated in the Annexure give the Contractor possession of the Site or sufficient of the Site to enable the Contractor to commence work. If the Principal has not given the Contractor possession of the whole Site, the Principal shall from time to time give the Contractor possession of such further parts of the Site as may be necessary to enable the Contractor to execute the work under the Contract in accordance with the requirements of the Contract. The Principal shall advise the Contractor in writing of the date upon which the Site or any part thereof will be available.

Notwithstanding the provisions of Clause 27.1, if the Contractor is in breach of Clause 21.1, the Principal may refuse to give the Contractor possession of the Site or any part of the Site until the Contractor has complied with the requirements of Clause 21.1.

Possession of the Site shall confer on the Contractor a right to only such use and control as is necessary to enable the Contractor to execute the work under the Contract.

The contractor must then commence work on site within the specified period.

The contractor must, after being given possession of the site (clause 35.1 in AS 2124), give the superintendent seven days' notice of the proposed date of work commencement. However, the superintendent may extend the time of commencement. The contractor must then execute the work under the contract to practical completion by the date for practical completion.

Dates of taking possession of the site and of commencement of work are recorded in the job diary, along with other relevant information.

The following discussion covers the period between taking possession of the site and commencement of work. During this time, the contractor establishes a presence on the site. Depending on the location of the job and requirements of the contract, this may include:

- meeting accommodation needs
- establishing an on-site office
- stores, workshop, testing and laboratory areas
- site vehicle access and parking
- essential services
- other services
- site identification and security
- initial establishment of traffic control.

Meeting Accommodation Needs

Is a Camp Needed?

The first question is whether the site is located near to or remote from town facilities, as this determines whether a camp is required at all. In coastal areas, a local workforce is often available (i.e. at the nearest town), and large towns are generally within 1–1½ hours travel time. Most of the available workers will therefore be able to reach the job by daily commuting. If not resident in the area, workers will be able to use private accommodation, such as rental housing or caravan parks.

However, in many parts of Queensland, particularly west of the Dividing Range, towns are often scattered and the work is carried out at locations beyond the range of daily commuting. In such cases, camps are required to meet the needs of the job. The construction workers stay on site during the working week.



The cost of providing camp accommodation is substantial, especially in remote areas, and has to be factored into the costs of the job. The standard of camp accommodation is often prescribed in relevant industrial awards or workplace agreements.

Adequate forethought and careful planning are essential when designing camp layouts. The project manager should submit a plan of the proposed layout and submit it for approval, if the contract requires him to do so.

Planning a Camp

Five factors are considered when planning the establishment of a camp:

- Type of camp (mess system, communal kitchen or unit living)
- Size of camp
- Location of camp
- Layout of camp
- Provision of essential services.

Type of Camp

Since all three types of camp (mess system, communal kitchen or unit living) have advantages and disadvantages, it is necessary to assess the merits of each type in relation to anticipated job requirements.

Features which greatly affect the final choice are:

- Company policy
- Location of the camp site and period for which it will be occupied
- Types of accommodation units and equipment readily available (e.g. demountables).

All persons seeking employment must be made thoroughly aware of the type of camp and the rules and conditions that will apply.

Mess System

A mess system would only be considered where:

- A large percentage of employees camp full time, Monday to Friday
- Compulsory membership of the mess is a condition of employment
- Where mess dues are charged, they are an automatic deduction from wages
- The company subsidises the costs of the meals provided.

The mess system is best suited to a large job in an isolated location, and has the following advantages:

- The accommodation unit with the cheapest hire rate can be used and all services (such as refrigeration, and cooking and eating utensils) are centralised in the mess.
- If the mess system involves bulk buying at large centres, it can contribute a considerable saving in the cost of living in isolated areas.
- The mess hut itself can double as a recreation facility.

The mess system has a disadvantage at the start and finish of the job when gangs are small, making the unit cost of meals higher.

In addition, arranging hire of back-up mess huts and fittings (to allow for change of camp site) may be difficult. However, careful planning and co-ordination of the transfer can minimise the duration of the inconvenience, especially if reasonable interim arrangements are made.

Communal Kitchen

One possible solution is to use a sleeping unit or units with a shared kitchen attached. The advantages of this system are:

- Hire of larger sleeping units may be cheaper.
- Greater flexible when shifting camp (for example, several units may become vacant in the closing stages of a job, allowing kitchens to be dismantled and set up at the new location without disruption to job personnel).
- Back-up kitchens (as in the mess system) are not required.

The major disadvantages of the communal kitchen system are:

- Getting people to share a kitchen in harmony (e.g. due to clashes in favoured food preparation and eating times, or differences in habits and hygiene practices)
- The time lost in erecting and dismantling kitchen facilities.

Unit Living

The main advantage of a system of individual units is that it is more flexible, allowing self-contained accommodation to be easily shifted from gang to gang as requirements vary over the period of the job.

This provides for maximum usage of a minimum number of accommodation units, which are on a continuous hire charge.

The major disadvantage to the system is that the units attract the highest hire rate and, if used in a stable camp for a long period, are more expensive than other systems.

Size of Camp

The size of a camp will depend on factors such as the maximum number of people expected in a gang, and requirements specified in industrial awards.

Award requirements may be highly prescriptive; where they apply, construction supervisors must make themselves fully conversant with the provisions.

The final decision on the size of the camp will depend on the type of camp and estimates of the number of employees to be accommodated. In addition, numbers may change if individual employees choose to set up their own private caravans on site.

Location of Camp

Locating a suitable site for both the camp and on-site office is generally the first step taken when the contractor takes possession of the site. The selected site must be:

- available, either on site or through agreement with a private landholder
- suitable, in that it is level, can be readily reached from the job, and has access to required services such as power and water.

This means careful examination of a number of potential sites and their surroundings. On a single job, the camp and office should be as near as possible to the centre of the job. If there is to be a follow-on job, or another job in the vicinity, it may be better to locate them outside the job limits. This must be checked out with the contractor and superintendent. Good planning can reduce or remove the need to shift camp and office during the job.

The desirable features of a good site include:

- Reasonable road access.
- Separation from through traffic and actual construction work, so that dust and noise are minimised (i.e. consider the direction of the prevailing winds).
- A well drained position, above any flood level.
- Proximity to a water supply (if possible)
- Proximity to electric power and telephone lines, allowing easy connections.
- Shade and shelter, without exposing workers to the possibility of falling vegetation in the event of high winds (i.e. take care when choosing which trees to retain for shade within the camp area).
- Fire protection (i.e. make sure that there is a firebreak of sufficient width to protect against bush fires, and that the site is kept clear of accumulated rubbish, dried vegetation and leaves).

Where the camp (or site office) is situated on private property by agreement with the land owner, written permission should be obtained. One copy of the lease agreement should be sent to the office, and one copy should be kept on the job.

Typical Site Office



Layout of Camp

The camp layout must be based on considerations of safety, health, security, economy, and living comfort. The following elements are incorporated into the sketch plan of the camp layout:

- living quarters
- mess
- showers and toilets
- relationship of the above to other construction facilities, such as offices, laboratories, stores, workshops, parking areas and access roads.

Living Quarters

Single and multiple dwelling units are grouped separately.

If the camp site is on sloping ground, the units should be positioned across the slope (i.e. with their shortest dimension on the steepest slope). This simple but effective measure minimises excavation and filling, which are the factors that most often result in drainage problems.

Space the units to obtain a compact layout, consistent with adequate access (especially for fire fighting) and reasonable privacy for the residents.

Always provide adequate drainage around huts. Graveling of paths may be desirable in wet areas.

Some supervisors prefer a layout giving a dust-free service road around the perimeter of the accommodation area (i.e. on three sides), with rows of posts across the ends of the lanes between the huts.

Mess

The basic requirements for a mess are:

- Central location
- Convenient to quarters
- Clear of ablution areas
- Accessible by delivery vehicles.



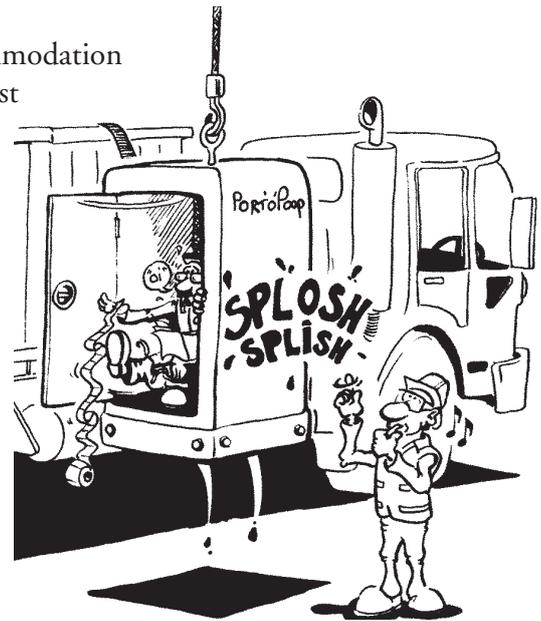
Shower and Toilet Units

These must be located near the office and accommodation areas, but should be downwind of them. There must be separate shower and toilet facilities for males and females.

Shower and toilet units must be positioned so that drainage systems run away from quarters.

Gravel or concrete paths are often necessary, to control mud and dust.

When drinking water is obtained from creek or bore, special care is required in setting out the drainage system so that the discharge from showers and toilets will not flow underground to the water supply source and pollute it.



Establishment of Site Office

The general considerations that must be taken into account when selecting a location for a site office are similar to those for locating a camp. The number of staff to be housed, proximity of services, central location and shade are important.

Crib rooms and ablutions blocks must be close to the office, and must meet requirements set down in the Workplace Health and Safety Regulation 1997. Part 21, Sections 216 to 222 of the regulation apply to construction workplaces, and include provisions for areas to eat meals, drinking water, toilets, and washing facilities. Where the toilet cannot be connected to either a sewerage system or a septic trench, it must be a portable unit.

Stores, Workshops, Testing and Laboratory Areas

The first requirement for these facilities is good access. In addition, security fencing is usually needed, especially where equipment or stores that may be attractive to thieves is involved. For example, laboratories may include computers, printers and analytical equipment; site workshops may include expensive tools or spare parts.

Fuel Tanks

Fuel storages are usually enclosed within security fencing, located adjacent to the site workshop, if one is established, and placed so that they are clearly visible from the site office.

Because of their flammability, such areas should have a well-cleared area around them as a firebreak, and be supplied with adequate, functional fire extinguishers. In addition, legislative requirements for storage of fuels must be met, e.g. minimum distances from office or other buildings, and bunding.

Site Vehicle Access and Parking

It is preferable to have not more than two accesses from the roadway to the office or camp, i.e. one to the office/camp area and one to the hard-stand area.

Parking areas will be required for company and visitors' vehicles, private vehicles and construction equipment.

Offices, stores, mess and quarters should be provided with adequate parking and suitable access. However, parking arrangements in camps should be designed to prevent vehicles from moving between accommodation units.

The hard-stand area used for parking of heavy equipment should be:

- Well clear of living areas
- Provided with separate access (i.e. not through camp areas)
- Adjacent to the fuel compound or workshop
- Signed as a restricted area, with entry by private vehicles strictly controlled.

Essential Services

Provision of the following essential services must be considered when planning a site layout:

- electricity
- water supply
- sewerage
- rubbish disposal
- telecommunications
- other.

The location of existing power, water, sewerage or telecommunications lines will influence the overall layout of the site.

As shown in the following discussion, each service has different requirements. The job of planning and providing essential services is usually left to specialists in each applicable area, and their advice should be followed.

Electricity

The electricity supplier will advise where poles are required to suit their requirements and satisfy the proposed layout. All 240 volt installations must be carried out by a qualified electrician.

The relevant electric power supplier will impose restrictions on the maximum length of power leads, e.g. from power poles to demountables. The actual requirements must be checked out, as they will determine the number and position of power outlets and poles.

In areas where no convenient overhead lines exist, it is necessary to procure a generating plant. It must be of the correct size, i.e. power generated is balanced against the peak load requirements.

Where on-site generating plants are used, they should be located so that noise to quarters and the number of distribution lines is minimised.

Water

Depending on the extent of facilities established on site, water may be required for some or all of the following: drinking, cooking, washing, bath and shower, and septic.

Water must be supplied to the site in adequate quantity (especially true in the tropics) and be of suitable quality (i.e. to meet health requirements).

Water may be obtained from one or more of the following sources:

- Existing town water supply, either by direct connection or by contractor delivery
- Rivers or creeks
- Upland surface runoff (small reservoirs)
- Collected rain water
- Deep wells (below an impermeable stratum)
- Shallow wells (above an impermeable stratum)
- Springs.

In general, water that may at any time be used for drinking must be tested for contamination, and be treated before the point of use or consumption. Samples for bacteriological testing must be collected in sterilised bottles and in such a way that no extra contamination is introduced by handling.



If there is any question about the quality or safety of the water available on site, usual practice is to buy water from a known, treated source — such as a municipal water treatment plant.

Standard practice in most areas is to provide a treated, reticulated water supply. When the water supply system is installed, the possibility of low pressure at the taps is reduced by placing the reservoir and water pressure unit near the high side of the site. In addition, pressure losses are minimised by keeping reticulation pipelines as short as possible.

Sewerage

The location of toilets is a compromise between convenience and the need to avoid creating a nuisance. Where camps are provided, toilets must be sited well away from mess areas. In most cases, toilets will feed septic trenches, and kitchen and laundry waste water from camps will run into sullage pits.

Detailed provisions for the layout of septic trenches and sullage pits must be adhered to, as they are drawn up to ensure compliance with the requirements of the local government and the Environment Protection Agency.

Rubbish Disposal

In the interest of both environment and health, it is essential to strictly control the disposal of waste food, food containers and rubbish. This may be done by:

- Providing adequate rubbish bins at convenient locations, and carrying out spot checks to ensure lids stay in place.
- Regular removal of rubbish to an approved disposal site.

Rubbish disposal systems and practices must meet requirements imposed by local governments and the environment protection legislation.

Telecommunications

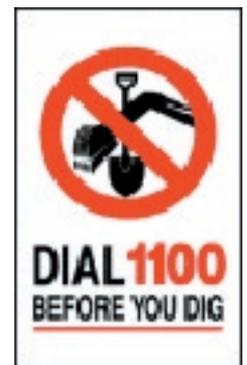
A tower may be needed to service the works site if two-way radios are used. Proximity to mobile phone towers may be a consideration where the site is near the limit of areas served by the mobile network.

However, many telecommunications services are still dependent on buried telephone lines.

If the phone line is cut, e.g. when digging to establish other services or during construction, the cost is inconvenience and disruption. This state exists until the lines can be restored— which may be a lengthy period in remote areas.

It is better to take a few minutes to seek information about the location of the lines in your area. This information is obtained from Dial Before You Dig (DBYD) on 1100.

The information provided by DBYD usually includes any special conditions imposed by the service provider. In most cases the minimum requirement, within a specified distance of the expected position of the service line, is for careful use of hand tools only.



Note!

Service providers do not guarantee that service lines will be present in the location shown on their maps. In addition, they accept no responsibility for damage to their networks, regardless of how it was caused. If you cut a service line, you are legally responsible for the damage and must advise the service provider without delay.

In cases where there is an on-site computer network, it may be necessary to protect the on-site data cabling, e.g. by using signs or stringing the cable well above traffic areas.

Other Services

Fire-fighting equipment should be located adjacent to quarters, in the mess, at the lighting plant, and in store rooms.

First aid facilities should be located at the office and the mess, if one is operational. They must meet requirements set down in the:

- Workplace Health and Safety Regulation 1997 (Part 21, Section 222 of the regulation applies to construction workplaces, and include provisions for first aid)
- Workplace Health and Safety Advisory Standard, First Aid 2000 (see www.whs.qld.gov.au/advisory/index.htm) this gives minimum acceptable contents for a first-aid kit, and additional minimum requirements for remote areas.

If liquefied petroleum gas (LPG) is supplied for heating and cooking, a licensed gas fitter must carry out all connections, e.g. from gas cylinder to reticulation lines and appliances.

Site Identification and Security

Once the site has been set up, appropriate signage must be added, i.e. to identify the company and the office location.

The risk of burglary or vandalism varies according to location. For example, it may be rated low in a small, western community, or very high in a major city location. Depending on the assessed level of risk, any or all of the following may be appropriate:

- security fencing
- lighting
- night-time patrols
- dogs.



Initial Establishment of Traffic Control

There is obvious potential for accident, injury and damage to property when motorists and construction machinery are sharing the same stretch of road at the same time.

The final step in establishing control of the site, before any road work actually commences, is therefore to set up traffic warning signs. These must be of the type specified in, and used in accordance with, the Manual of Uniform Traffic Control Devices.

Part 3 of the manual (which is available separately) specifies the traffic control devices used to warn, instruct and guide road users in the safe negotiation of work sites on roads. This includes the distance separating the warning device from the points where actual construction work begins and ends.

Site Traffic Control



Section 1 – Assessment Activities

For information on how these assessment activities may be used as part of the learning process, see the section on ‘Assessment’ in the ‘Topic Descriptor’ section at the front of this topic.

Theory Questions

The following questions allow you to assess your progress in understanding the material presented in Section 1. The questions may be of any of the following types:

- multiple choice (identify correct answer or answers)
- multiple choice (identify incorrect answer or answers)
- fill in the gaps in a sentence or statement
- identify a sentence or statement as TRUE or FALSE
- write a few sentences or a short paragraph.

Answers to the question are shown in the separate ‘Answer’ section.

Question 1

Name the two most important factors that, in most cases, will determine whether a camp will be needed at the works site?

Question 2

When establishing a new site camp, list five important factors that you would take into consideration in selecting the camp location.

Question 3

What facilities and services would normally be needed to establish an on-site laboratory?

Question 4

List three possible sources of water supplies for a site camp.

Question 5

The risk of vandalism or burglary or vandalism varies according to location. Describe two methods that you could employ to minimise the risk to security.

Question 6

What essential services must be considered when planning a site layout:

Practical Exercises

Practical Exercise 1

Discuss site possession with your supervisor. In the contract documents for the job you are working on, find out the date on which the principal was required to give the contractor possession of site. Did the principal give possession of the whole site or only part of it? Did the contractor commence work on the day on which possession was given?

Practical Exercise 2

Was a camp set up on the site you are currently working on? Discuss with your supervisor the reasons for placing the camp in its present location, or for deciding not to set up a camp for workers on the job.

Practical Exercise 3

Discuss with your supervisor the reasons for placing the site office in its existing location. What were the main factors in choosing this location? Are any security measures employed? Did the location depend on reaching agreement with nearby landholders? What arrangements are in place for water supply, electricity supply, removal of sewage and rubbish, and for telecommunications?