# Topic 6

# Case Studies

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# Case Study No. 1

The city of Greenwood, close to the coast and on the Middleton River, is one of the more rapidly developing parts of Queensland.

A new residential subdivision had been approved for development next to the golf course, across the Middleton River from the centre of town. Following consultation with local Aboriginal representatives, the company responsible for design of the new development had revised its plans in several locations to avoid disturbing sites that local Aboriginal people regarded as sacred. Likewise, in a conscious act of co-operation and conciliation, Aboriginal custodians had accepted compromises in the delineation of those traditional sites.

The road between the new development and the east bank of the Middleton River, known as Kevin Drive, was earmarked for upgrading by the Department of Main Roads. Between the road and the river bank was a rocky formation known as Injalka. This, together with a stand of eucalypts across the road formed part of the Snake Dreaming Track, and constituted a site of some significance to local Aboriginal people. The trees in question were also some of the largest trees in Greenwood.

A consultant to the Greenwood Aboriginal Land Council informed the Department, which was to oversee the road construction, that discussions with the traditional owners had yet to be held. The Department replied that the design for the work was already 90 per cent completed. Tenders were called in May 2003, and it appeared that the Department sought to expedite the project.

As the time approached for works to commence on the upgrading of Kevin Drive, the Department began negotiations with the Johnson, Evans and Cooper families, the traditional custodians of the Injalka sites.

Original plans called for the road to run straight through the outcrop. Several alternative options were under consideration, including a minor diversion of the road or the construction of a bridge over the outcrop. In proposing the slight curve in the road, the custodians indicated that they were prepared to sacrifice some of the trees which comprised the site. The Department regarded any deviation of the road as unacceptable.

Negotiations proceeded slowly, and the developer and the Principal Contractor, Wrongway Constructions grew increasingly impatient about the delays. Nevertheless, the Department reassured the Land Council that:

"Reconstruction of Kevin Drive will not proceed until the Department has resolved the sacred sites issue" (correspondence, Department of Main Roads to Greenwood Land Council, 9 September 2003).

Earlier, the Department had advised the Land Council that until there was a clearance from the traditional owners, the Department would not let contracts for the project.

The reassurances proved to be unwarranted. In early December 2003, the Injalka outcrop was blasted by a company in receivership and levelled by bulldozers of Dustoff Constructions Pty Ltd of Greenwood, under a subcontract to the principal contractor. Two days later, the stand of eucalypts was also destroyed.

According to a senior official of the Department, the destruction of the Injalka site was authorised by the principal contractor, Wrongway Constructions, on the basis of a misunderstanding of a communication from the Department. (The letter had advised Wrongway of the status on discussions and negotiations with the Land Council).

Following the destruction of the Injalka site, the Aboriginal custodians protested to the Land Council. At a meeting with the Land Council on 22 April 2004, the thirty-six custodians of the Injalka site unanimously recommended that those who desecrated the site be prosecuted. At the request of the custodians, the Land Council formally instructed the Director of the Land Council to lay a complaint under the Aboriginal Cultural Heritage Act.

On 31 May 2004 a summons was issued in Greenwood alleging that Dustoff Constructions committed three offences under the Act, including entering and remaining on a site, carrying out works on a site without written permission, and knowingly desecrating a site.

An additional summons was issued against the principal contractor, on the basis that they had aided and abetted Dustoff in the commission of the alleged offences.

Under the Act the maximum penalties for a breach of duty of care or damage to Aboriginal cultural heritage are $750 000 for corporations and $75 000 for individuals.

The problems faced by the Land Council in assembling the evidence were substantial.

Among the evidentiary burdens confronting the Land Council in its prosecution was proof that the area in question was indeed a sacred site, since it had not been formally declared as such. This involved obtaining detailed statements from local Aboriginal custodians, supported by anthropological evidence. This was difficult, not because such information was not available but because the site in question had different levels of significance, some of which could only be discussed in particular situations and with particular people present. Full disclosure of the significance of the site could not occur in open court.

In addition, successful prosecution of the company would require either eye-witness testimony, or admissions made by the company and its employees that they engaged in the acts alleged. It was also incumbent upon the prosecution to rebut the defence that the contractor was unaware of the significance of the site. (A sign identifying the site had been removed by an unknown person a few days before the contractor was to begin work).

Successful prosecution of the principal contractor would require evidence that they personally aided and abetted the offences in question, by directly communicating instructions to the subcontractors or explicitly to the subcontractors through members of their staff.

On 14 November 2004, the prosecutions proceeded in the Greenwood Magistrates Court.

The magistrate found the charges against the bulldozer operator were proven, and that the operator was well aware of the situation and had not exercised his duty of care under the Act. The operator was fined $25 000.

The Magistrate found Wrongway Constructions guilty under the Act for failure to:

- exercise its duty of care under the Act; and
- meet their mandatory requirements to have a Cultural Heritage Management Plan in place.

The company was highly criticised by the Magistrate for their actions and fined the maximum penalty of $750 000.

The Department of Main Roads was also highly criticised by the Magistrate for their communications failure and were ordered to review their management systems for aboriginal heritage issues. However, no conviction was recorded.

# Case Study No. 2 — Kerb-Forming Machine

A local government in a rapidly developing, coastal area found that developers of residential estates often failed to construct kerbs to the standard specified by council in the development approval documents. As a result, the council decided to buy its own kerb-forming machine and carry out this work using council labour, with the developer to pay the cost.

To put this plan into effect, the council's works department bought a machine that formed kerbs by extrusion. One man operated the machine, while another fed in the special concrete mix at the top. The machine incorporates moulds that form the kerbing to the required profile, leaving a smooth, compacted surface. As the profiled mix is laid, other members of the gang finish the kerb and use trowels to remove any minor defects.

The machine operator is a trained person who is accredited to operate the particular machine. The council spent many thousands of dollars in training hours to achieve the operator's accreditation.

After some years on the job, however, the trained operator left the council to take up employment elsewhere.

This caused an immediate problem, as an on-going, high level of subdivisional activity meant that there as a continued requirement for kerbing.

The short-term solution was to hire contractors who could guarantee a kerb built to the required profile. In the longer term, the council decided that the expense of training and accreditation of all members of the gang was a better investment than the cost of training a replacement person on an ad-hoc basis.

All remaining members of the gang were therefore trained and accredited to operate the kerb-forming machine.

# Case Study No. 3

The Department of Main Roads, as principal, awarded a contract for widening and realignment of a road in a high-rainfall coastal area to JKL Pty Ltd as principal contractor. The contract included a requirement to install numerous culverts, to provide drainage at small streams and swampy areas that intersected the road.

JKL Pty Ltd employed a specialist drainage subcontractor, LMN Pty Ltd, to perform this work. LMN Pty Ltd was 'back-to-back' with the principal contractor in parts of the subcontractor agreement, including the need to complete the overall project in the contract time of 220 calendar days.

As part of the subcontract agreement, JKL provided the subcontractor with all drawings and drainage specifications related to the job, as supplied by Main Roads.

While making an excavation for the location of a culvert at a point approximately at the centre of the road under construction, the subcontractor came upon a water main. Careful digging showed that it was located almost exactly at the point where the RCP culvert was due to be installed.

The subcontractor immediately brought the matter to the notice of the principal contractor. All plans and drawings supplied by the principal were checked and double-checked, but were found to contain no indication or mention of the water main.

It soon became obvious that the location of the water main would mean significant delays to the project. There would be a need to fill in the excavation already made and to make a new one so that the culvert could be installed in an alternative position.

JKL then brought the matter to the notice of Main Roads, making a claim for extra time to complete the contract.

The terms and conditions of the subcontract included a provision for daily penalties if the subcontract drainage work was not finished by a specified date. The subcontractor became extremely anxious about the outcome of this claim. He began to make repeated representations to the principal contractor about the progress of the claim, and did not desist from doing so until the Main Roads district engineer made a determination.

However, the determination was that the location of the water main was not sufficiently disruptive to cause delays to the project completion date.

JKL disputed the finding, and the matter went to an independent arbitrator.

Finally, the arbitrator determined that failure to show the location of the water main on the drawings was a principal-caused delay, and no penalties were payable.

# Case Study No. 4 — Managing Bridge Construction Works

The coastal city of Lindfield has undergone rapid urban expansion over the past 25 years. The built-up area is mainly a series of urban nodes, with internodal strip development following the main coastal road. In the last 10 years, the coastal road has become clogged with traffic and, as a result, a two-lane motorway was constructed west of the coastal road, with the aim of capturing through traffic and freeing up the coastal road to handle local traffic.

However, further urban expansion has resulted in daytime traffic congestion along one section of the motorway, between the exits for the urban nodes of Bellman and Almora. Because of this, a decision was made to upgrade this section of the motorway to four lanes.

After exiting the motorway, traffic for Almora passes under the motorway along Talawanta Road. A new bridge on the motorway over Talawanta Road was therefore a major part of the contract.


The Department of Main Roads supplied some of the materials for the bridge work and employed subcontractors to perform various tasks associated with bridge installation.

Subcontracts were let for:

- Clearing
- Piling
- Supply of pre-cast deck units
- Bridge construction

Management of the various subcontracts was complicated by a number of factors:

- Constant heavy traffic in daylight hours on both the motorway and Talawanta Road
- Pedestrian footpaths passing under the location where the spans for the new bridge would be built
- Presence of underground power in the area
- Proximity to both business premises and residential housing
- Construction of a retirement village nearby
- A change in embankment design mid-way through the construction, to accommodate a planned new road.

The clearing subcontractor had to co-ordinate his work with the piling subcontractor, by giving first priority to clearing of temporary access tracks. These enabled access by pile-driving machinery and concrete trucks to the pile-driving site.

Noise and vibration were issues during the pile-driving operation. Because the works site was so close to business premises that were occupied during the day, the site engineer made some changes to the pile-driving operation, including:

- Starting the pile-driving on the side of the bridge that was furthest from buildings
- Changing the size of the pile-driving hammer, to reduce the amount of vibration generated
- Restricting the hours during which pile-driving was permitted
- Constant monitoring of noise and vibration levels.

Full information about the location of underground power in the area of the bridge footings was obtained from DBYD before work began on the pile footings. A spotter was employed during pile-driving to ensure that piling work remained at a safe distance from all buried plant. The piling subcontractor worked closely with CoastPower, the local retail electricity supplier, to ensure this.

To ensure continued pedestrian access during this period, water-filled plastic barriers and barricade mesh were installed to define a walk way between the work and the carriage-way of Talawanta Road.

The bridge girders weighed 28 tonnes each and had to be lifted into place at night. The supplier of pre-cast decking units had to co-ordinate with the bridge construction subcontractor, to ensure that adequate units were delivered to site in time for the actual times of lift (generally between 10 p.m. and 6 a.m.).

The original plan was to use one large crane. However, the change in the embankment design beside Talawanta Road meant that this was no longer feasible during to lack of adequate space to position the crane. Instead, each girder was lifted by two smaller cranes, one at each end.

Portable floodlights were installed during the lifting operation. Traffic controllers were employed to regulate vehicular traffic between 10 p.m. and 6 a.m. They also warned pedestrians to stay clear while individual girders were suspended.

Once the bridge girders were in place, several other issues had to be managed.

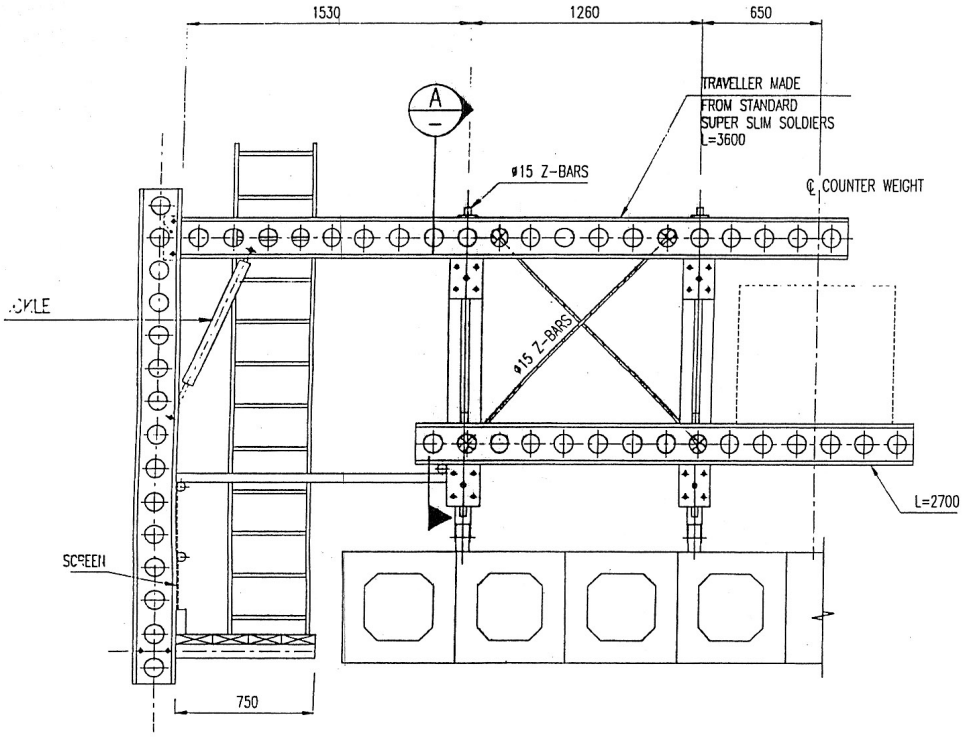
When organising the construction of the bridge parapet, the site engineer had to consider:

The possibility that tools or lumps of concrete would fall from the work and hit vehicles or motorists passing below

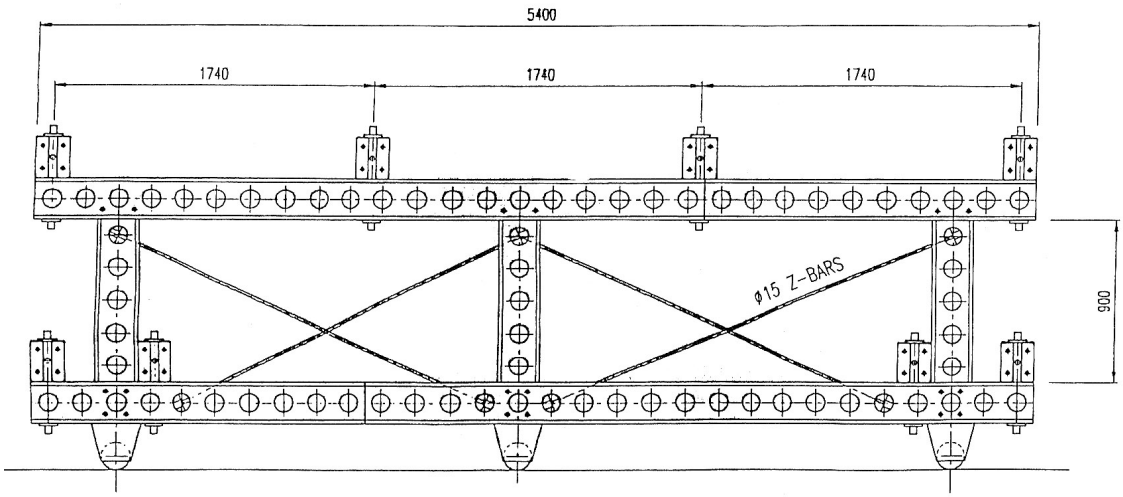
Workplace health and safety aspects, as the height of the parapet construction work would be more than 2.4 m above ground.

There was a high probability of such an occurrence, because of heavy traffic under the bridge during the day.

This problem was addressed by using a traveller, as shown below, around the parapet construction area.




**End Elevation of Traveller**




**Traveller - Section A**

This device gave the bridge workers safe access to the sides of the bridge where the parapet was built, allowing them to construct formwork and cast the parapet in situ. Wire mesh and shade cloth placed around the frame of the traveller and the guardrails, ensuring that tools or concrete could not be dropped on to passing traffic during construction. The parapet was built in six-metre lengths with two-metre ends. This work was carried out in daylight hours only.

Main Roads employed a quality representative on site to handle quality control and quality assurance aspects of the job. His role included both materials supplied by the principal and those supplied by the various subcontractors.