

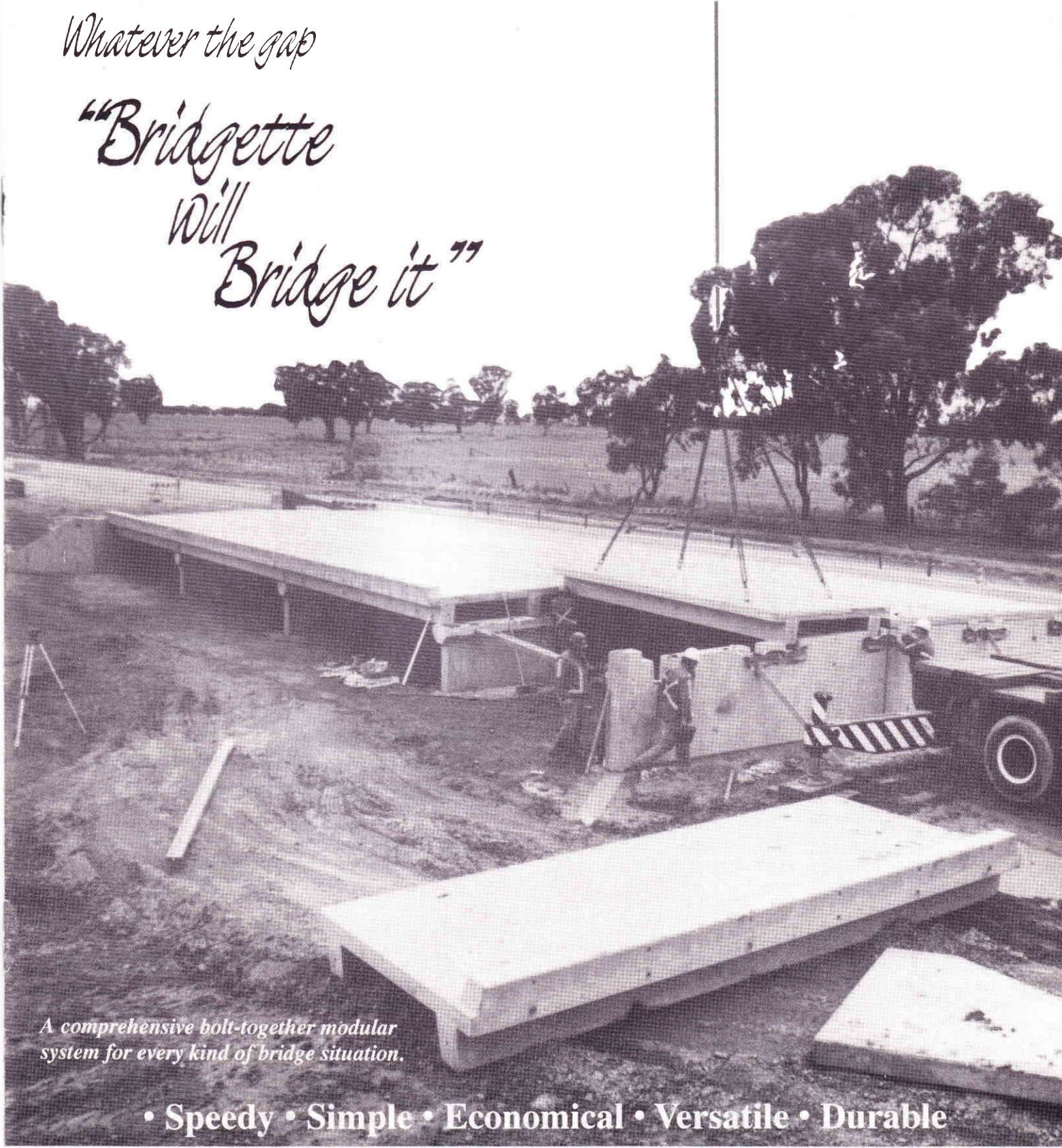
Bridgette

*Pre-cast Reinforced Concrete
Bridge System*

PATENT APPLIED FOR

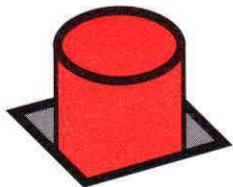
Whatever the gap

*"Bridgette
will
Bridge it"*



*A comprehensive bolt-together modular
system for every kind of bridge situation.*

• Speedy • Simple • Economical • Versatile • Durable



R. J. WALLACE Pty. Ltd. A.C.N. 005 592 576 Trading as

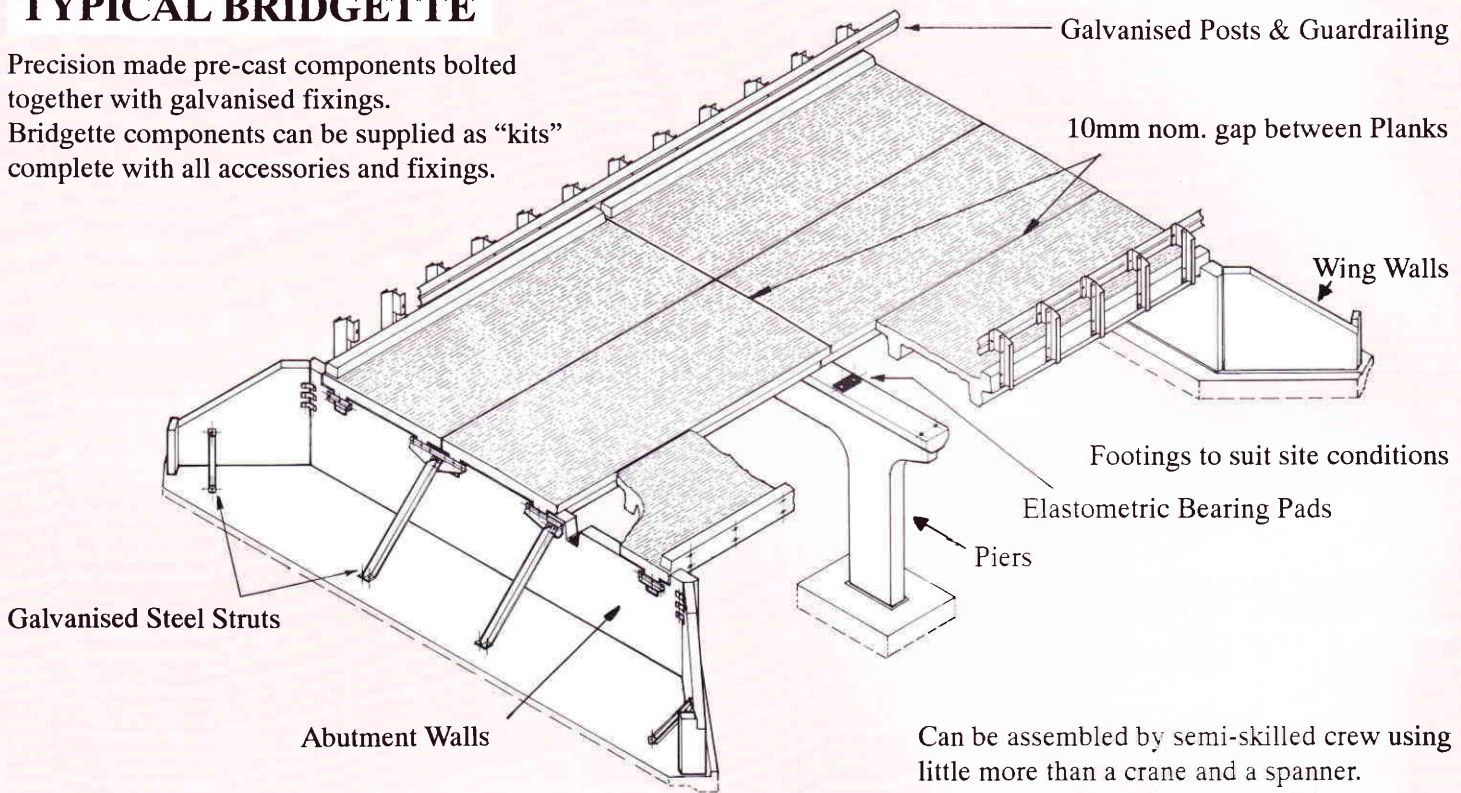
Waldren Bridges

"Quikdek"

"Bridgette"

TYPICAL BRIDGETTE

Precision made pre-cast components bolted together with galvanised fixings. Bridgette components can be supplied as "kits" complete with all accessories and fixings.



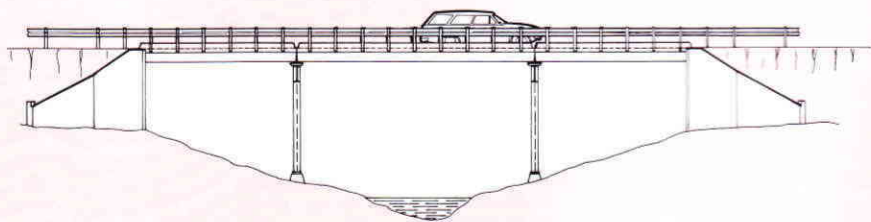
Can be assembled by semi-skilled crew using little more than a crane and a spanner. A span a day is readily accomplished.

Components are made in sizes that are convenient to transport and erect with ordinary trucks and cranes.

APPLICATIONS

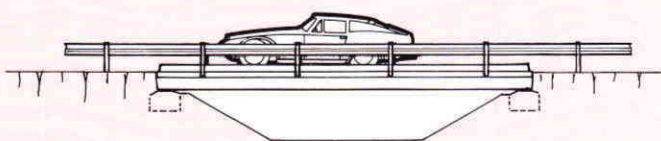
A wide range of bridges and culverts can be constructed using standard designs of Planks, Piers, Abutment and Wing Walls on appropriate footings.

Select appropriate components from those illustrated on the following pages.



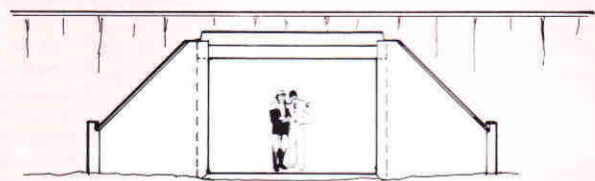
Multi-Span Bridge

A large central span provides clear waterway area - ideal for replacement of old timber bridges.

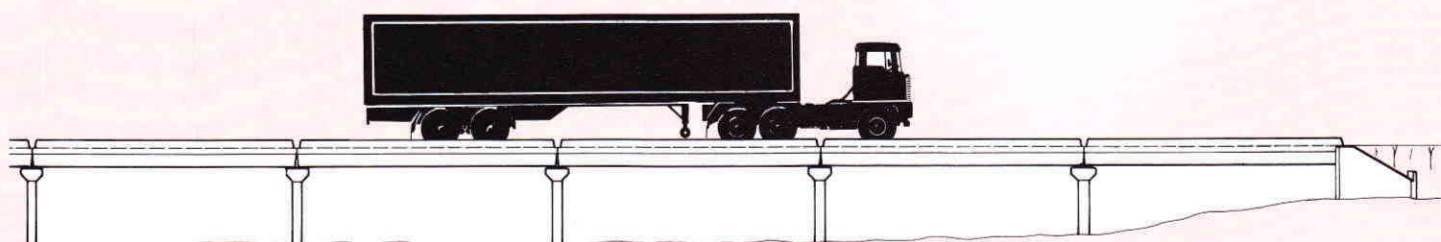


Channel or Creek Crossing

Simplicity itself - a pair of planks placed on bedlogs or bank seats.



Short Culvert or Underpass

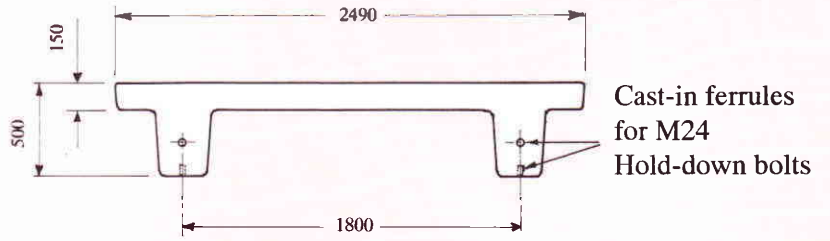


Long Low Culvert - Shallow depth maximises waterway area.
- Spans are much longer than conventional culvert and less prone to debris accumulation

PLANKS

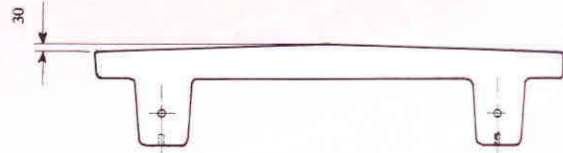
High quality reinforced concrete produced in steel moulds.

- * Modular width 2.5m, nominal.
- * Maximum length = 9m.
- * Mass = 600 kg/m² approx.
eg. 12 tonnes for 8m long plank
- * Neat rough texture trafficable surface includes 5mm wear allowance
- * Complies with Austroads Bridge Design Code
- * T44 Load capacity

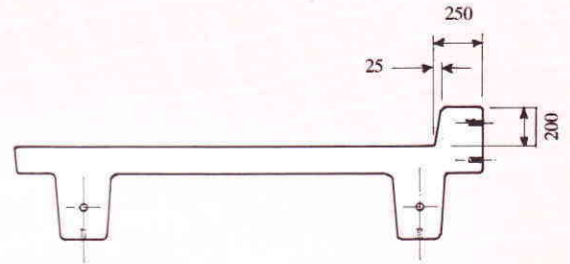


Cast-in ferrules for M24 Hold-down bolts

Plain

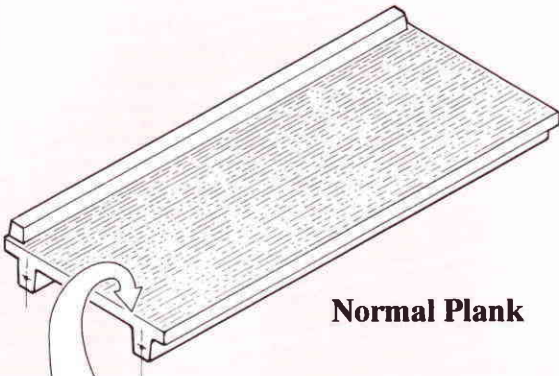


Crowned

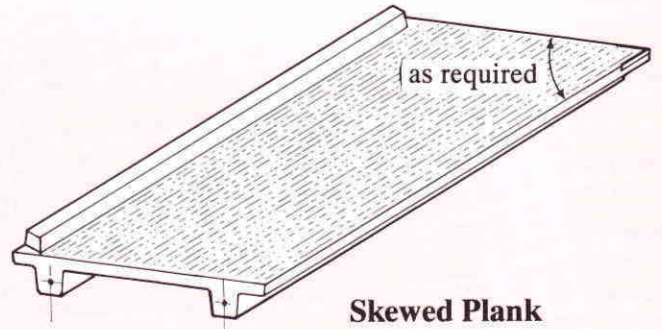


Kerb

OPTIONAL FEATURES

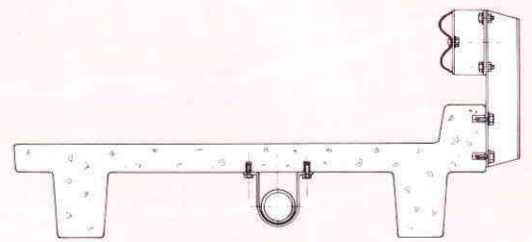


Normal Plank



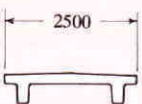
Skewed Plank

Galvanised Steel Edge Protection Bar

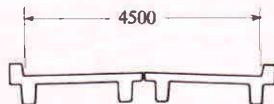


Cast-in galvanised ferrules for posts, pipe supports, etc.

CONFIGURATIONS



Footbridge

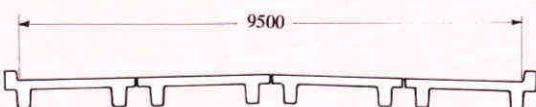


Single Lane

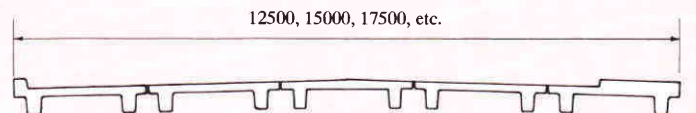


Double Lane

Standard slope 2.5% to kerb



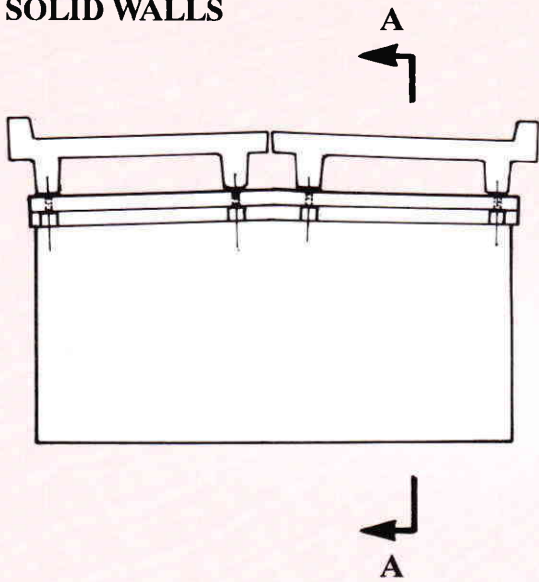
Wide Double Lane



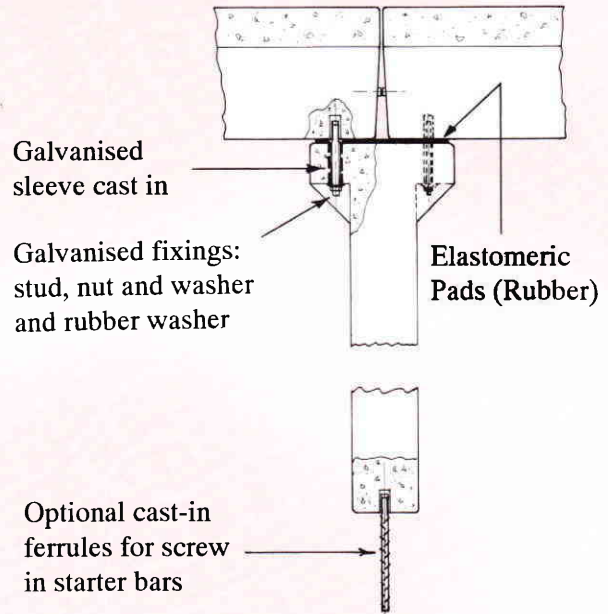
Road with Footpath

PIERS

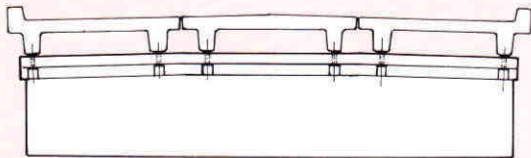
SOLID WALLS



Pre-cast reinforced (both faces) concrete with cast in steel moulds. Headstocks have accurately located holes for fixings, to match planks.
A wide range of sizes and styles is available – common examples only are shown.

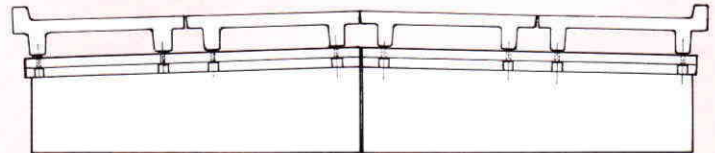


Section AA



Low Wall

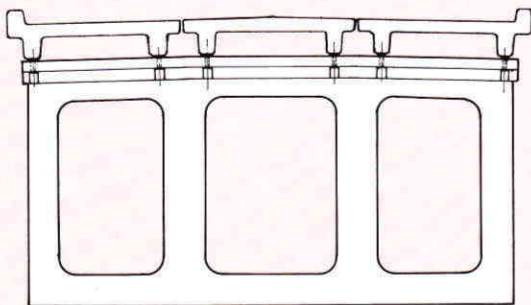
Typical low height culvert.



Wide Wall

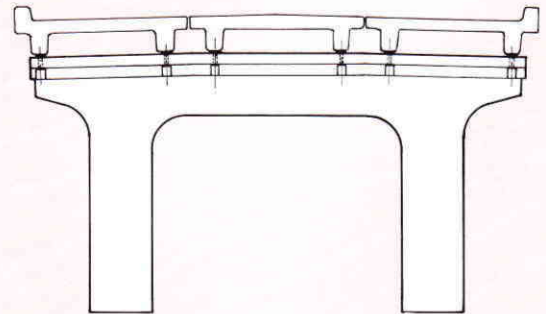
Made in 2 identical halves for ease of transport and handling.

OPEN WALLS



Apertures

Apertures reduce weight for ease of transport and handling. The more open substructure also enhances the appearance.

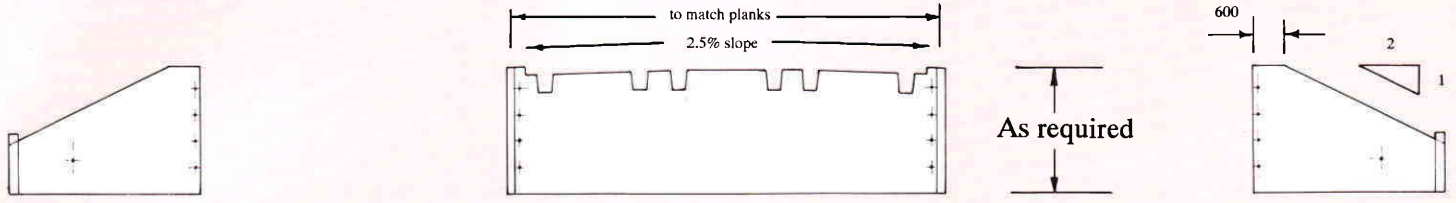


Blade Columns

More suitable for pad footings. Provides a simple, less cluttered appearance.

ABUTMENTS

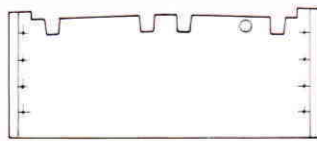
Pre-cast reinforced (both faces) concrete walls to accurately match planks. As with piers they can be made to a wide range of sizes – typical examples only are shown.



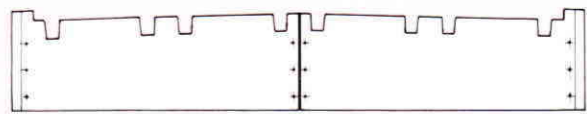
LH Wing Wall

Abutment Wall
3 plank width

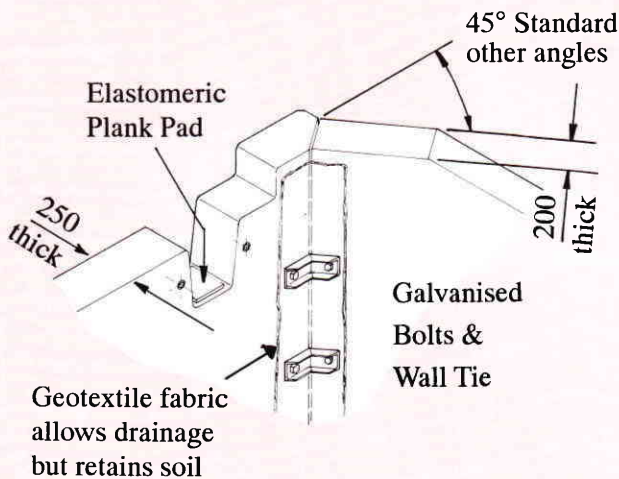
RH Wing Wall



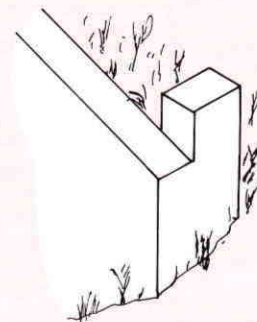
2 plank width. Features such as the hole for water pipe can be included.



4 plank width made as two halves for easier transport & handling



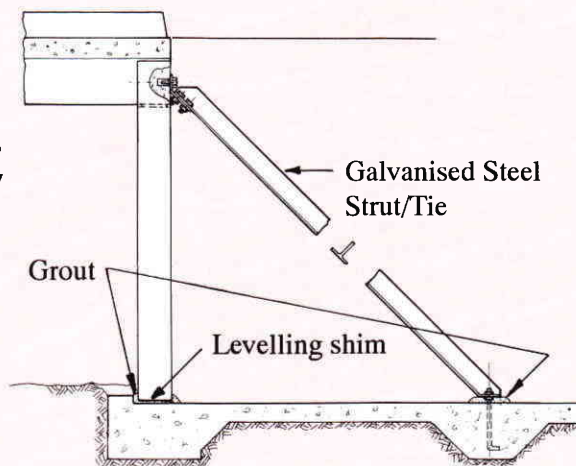
Details



Nib
Retains fill at end of Wing Wall

STABILITY

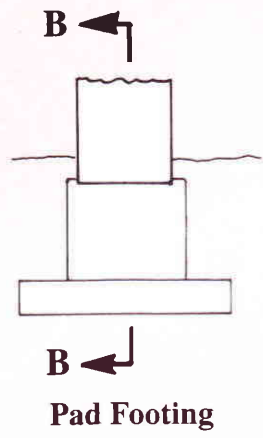
Galvanised tees or angles bolt to ferrules accurately cast in planks and walls. They act as props during erection, as ties to resist earth pressure, and struts to resist longitudinal traffic forces.



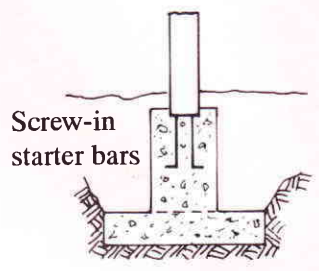
Resistance to corrosion can be enhanced by surrounding the galvanised parts with cement rich sand during backfilling. This is a simple but effective way of providing alkaline protection.

FOOTINGS

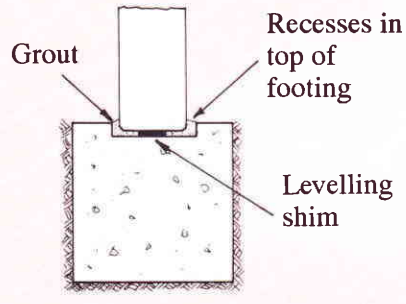
Footing design depends on the site conditions, but all types can be used with the Bridgette System. Typical examples are shown.



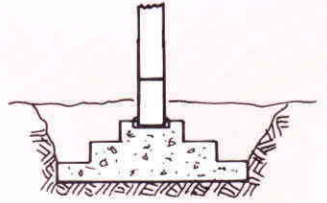
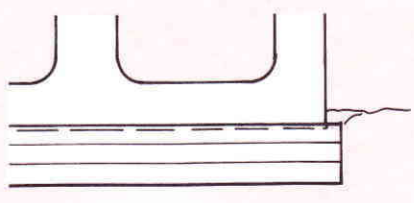
Pad Footing



Section BB

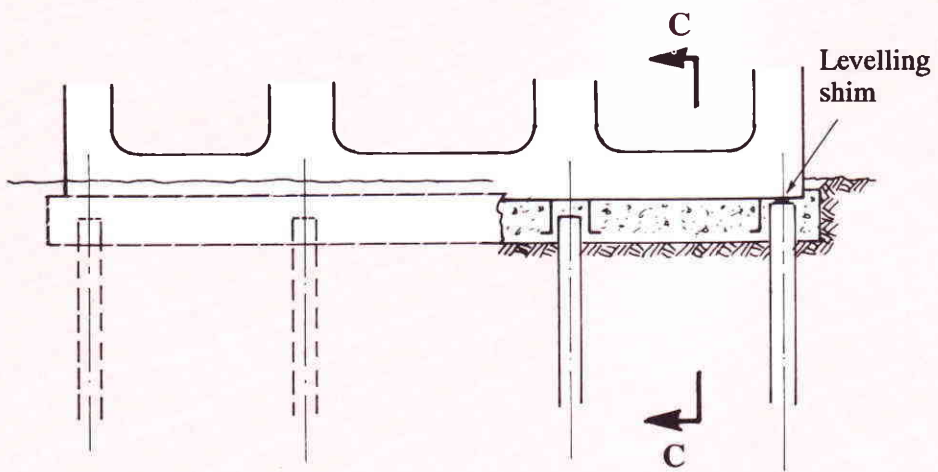


Detail
Showing how correct level and position can be readily achieved on footings.



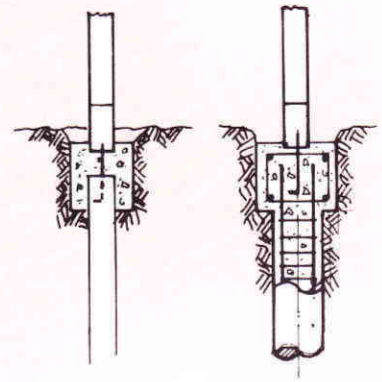
Strip Footing

"Staircase" design reduces costs. Prefabricated formwork and reinforcement cages enable rapid construction.

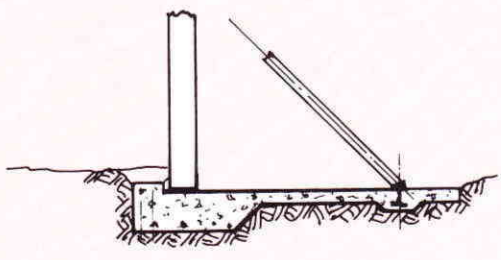


Pile Cap

Piles may be timber, steel or concrete – pre-cast or bored, cast-in-place. Illustration shows cast-in-situ pile cap; pre-cast pile caps incorporating apertures for piles can be supplied to order.

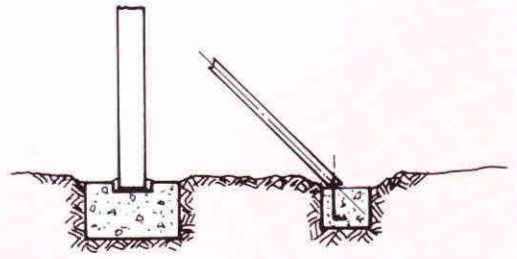


Driven Pile Bored Pier
Section CC



Spread Footing

Base slab is suitable for abutments, easy to construct.



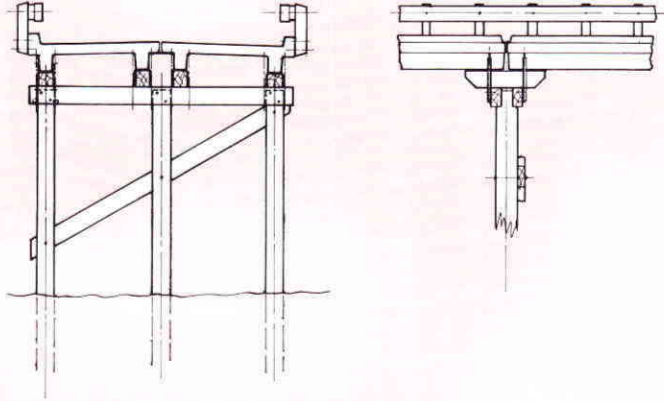
Strip Footing & Deadman

A very simple, easy to construct design for abutments.

ALTERNATIVE CONSTRUCTION

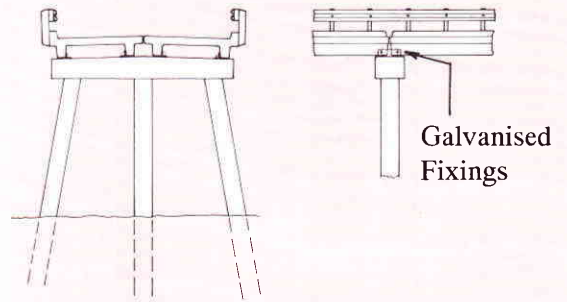
PIERS

Bridgette planks can also be used in conjunction with conventional methods of construction. Typical examples are shown.



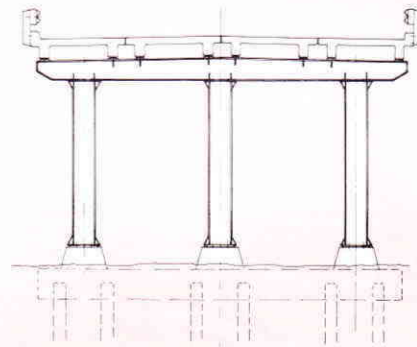
Timber

Traditional design – driven timber piles, capwales and corbels. Bridgette planks are clamped in place with galvanised fixings. Well protected from above and well ventilated below, maximum life for the timber is assured.



Concrete

Orthodox design comprising driven concrete piles and cast-in-place headstock.

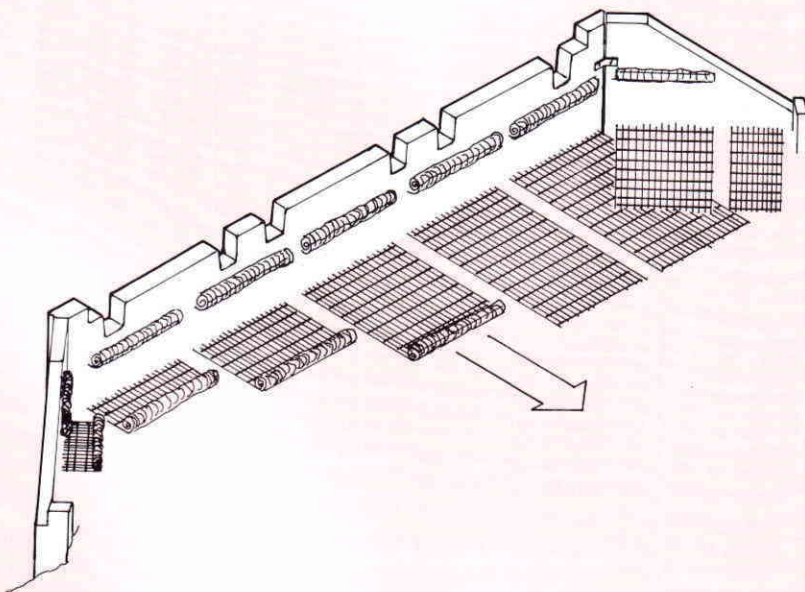


Steel

Bolted design is comparatively light, easy to transport and erect on footings. Galvanised steel provides excellent resistance to both corrosion and abrasion from floating debris.

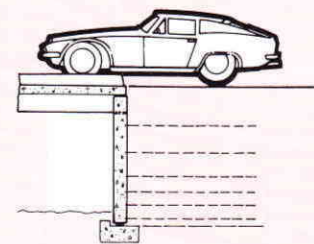
ABUTMENTS

Reinforced, soil construction using precast walls with cast-in polymer geogrids offers advantages in some situations.



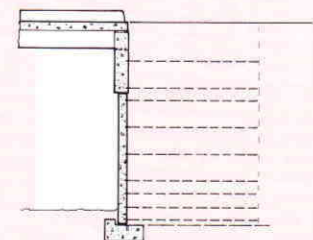
Reinforced Earth

After placing and temporarily propping the walls, the geogrid strips are unrolled, pulled taut, and covered with back fill, compacted in the normal way. This method of reinforced soil construct has been used on several Waldren Bridges' projects, proving to be remarkably effective.



Normal Wall

Soil reinforcement stabilises the wall, allowing simpler footings.



High Wall

2 pieces, with horizontal joint facilitates transport and handling, and enables abutments to be constructed in 2 stages.

PREVIOUS PROJECTS



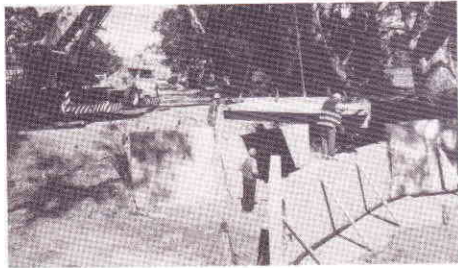
Stone beaching neatly laid by Lockhart Shire Council provided a functional and attractive finish on this Bridgette abutment.



Access to a recreation reserve near Traralgon was constructed quickly and cheaply with 3 Bridgette planks 8.8m long, resting on simple footings.



Bridgette planks have a shallow depth, similar to a conventional culvert, but the clear span is far greater. Waterway area is maximised, obstruction by debris is minimised.



Replacement of an old timber bridge needing an improved alignment near Daylesford was accomplished by the Bridgette system which incorporated a 37.5 degree skew angle.

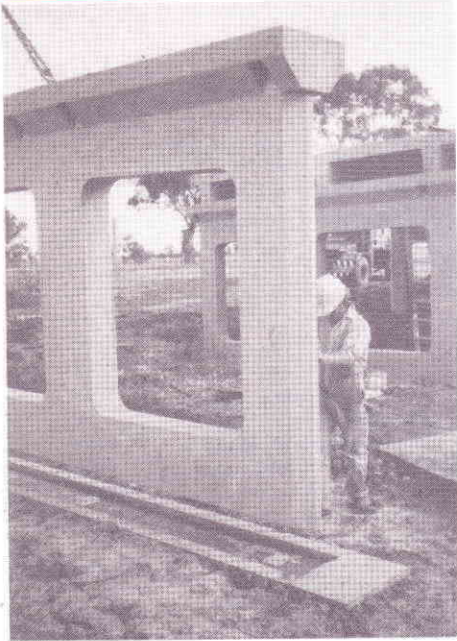


A double-lane Bridgette near Lockhart comprising 10 spans x 6m with abutment walls 3.3m high. Simple spread footings were constructed in less than two weeks, followed by erection of the superstructure which took about the same time.

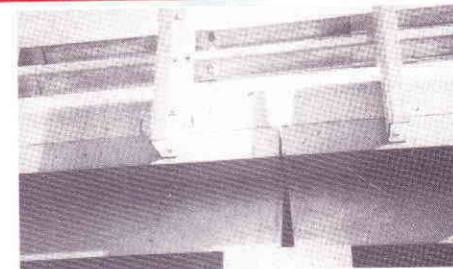


Underneath view showing the neat uncluttered appearance of the double-Tee section Bridgette planks.

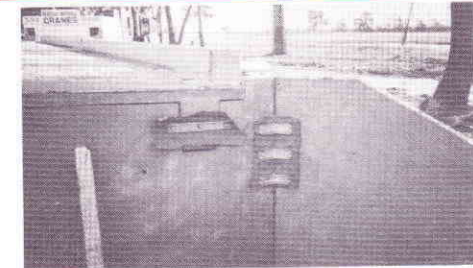
CONSTRUCTION TECHNIQUES



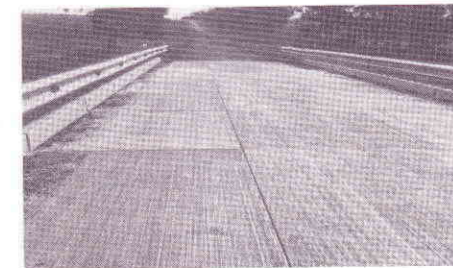
A large pier is being lowered carefully onto its footing. Accuracy in level and position is achieved with comparative ease by means of shims and simple levering with a "Burke Bar". Recesses formed in the top of the footing facilitate grouting.



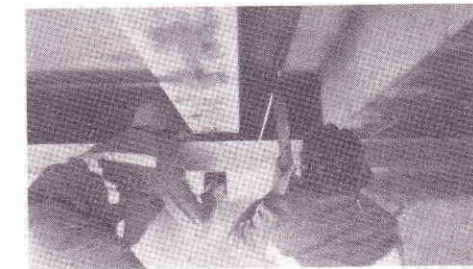
Kerbs stop just short of the plank ends to provide drainage - less likely to clog than scuppers. Guardrail posts bolt to galvanised ferrules cast into the sides of the planks.



Components fit together neatly: joint lines are covered with geotextile fabric, overlapping the "gaskets" of geotextile sandwiched between the walls and galvanised bolted connections.



Deck surfaces have a neat roughened texture ready for use by traffic. A 10mm nominal gap between the planks provides working clearance for erection, and accommodates thermal expansion and live load deflections.



A "tweak" with Burke Bar brings the holes into alignment to allow the fixing studs to be inserted. Precision in manufacture ensures that components match exactly.



A Bridgette Plank is about to be placed on its rubber pads. Piers are held precisely in position by temporary struts, and small steel protection angles guide the slab gently into place.

COSTS

Until now, the only choices available to engineers have been the traditional designs of bridges or culverts - a short-span bridging system has not been available. The Bridgette system takes advantage of the inherently low cost of short spans, together with the efficiency of factory manufacture. Short spans do involve additional piers, but for most situations, the cost of these is less than the cost of the larger girders and bigger piers necessary for longer spans. Indirect costs are also much less. Standardised components result in much lower engineering costs, i.e. design and supervision. Because projects are completed speedily, far less time is taken up by clients' staff with supervision on site and administration in the office. Short construction time also allows potential for significant cost savings in construction and maintenance of temporary sidetracks or detours, especially where they can be eliminated altogether. Other benefits are improved safety and less inconvenience to the public.

CONVENIENCE

The Bridgette system takes most of the hassles out of bridge and culvert construction. No longer is there any need to struggle with reinforcement, formwork, etc. under adverse conditions. Bridgette components are finished, ready-to-use, with simple bolted connections.

Practical and user-friendly, many of the features have been incorporated in response to customer comments. For example, the size

and weight of the components are such that they can be handled by ordinary trucks and cranes, with the techniques and equipment commonly used in the tilt-up industry.

MANUFACTURE

Bridgette components are conservatively designed reinforced concrete, manufactured under factory conditions in steel moulds, using standardised procedures together with jigs to ensure quality and accuracy. High-strength low slump concrete, moist cured, ensures maximum durability. Bridgette components, along with other Waldren Bridges' products are manufactured at Campbellfield, Vic. Manufacture at other locations using Waldren Bridges' moulds and know-how can be arranged where appropriate.

INSTALLATION

With every Bridgette, all accessories - bolts, connection pieces, struts, elastomeric pads, are provided, together with tools and lifting tackle. Erection is straight-forward and can usually be carried out by client's staff or sub-contractor. If preferred, Waldren Bridges can arrange for construction to be undertaken by an experienced crew.

TECHNICAL ASSISTANCE

With experience gained from well over 100 different bridge projects Waldren Bridges is able to provide practical technical advice on applications. If required, engineering design, supervision, or project management services can be provided on a fee basis.

Enquiries should be directed to:

Rob Wallace F.I.E. Aust.
Waldren Bridges

P.O. Box 112
Yackandandah, Vic., 3749

1 Oswald Street
Maldon, Vic. 3463

Ph: (03) 5475 1116
Fax: (03) 5475 1126

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