COASTAL WORKS
PRECAST
INVESTED IN INFRASTRUCTURE

BRIDGE SOLUTIONS CATALOGUE

For further information please contact Coastal Works

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60 Marcia Street
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Hartleys Bridge construction T44 rated – 66m x 3.6m – 6 span

Coastal Works offer a range of bridge solutions to meet the needs of a variety of parameters for bridge projects. All solutions have been designed to cater for the needs of the local government environment. In developing a variety of bridge systems Coastal Works can provide turnkey solutions to meet the site specific objectives for any project. Some of the constraints considered are limited funds, service levels, community expectations, load restrictions, availability of conforming concrete, access and other site constraints.

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Coastal Works is a business unit of Coffs Harbour City Council and understands the constraints, objectives and expectations of Local Government infrastructure projects. Section 55 of the Local Government Act permits an LGA to directly engage another LGA to undertake infrastructure works. This form of procurement has been successfully employed by Councils such as Richmond Valley, Armidale Regional, Port Macquarie Hastings and Clarence Valley in engaging Coastal Works under this arrangement

Coastal Works is able to offer a turnkey solution to your bridge needs. We have the required resources and an experienced team of professionals ready to commence your next project.

COASTAL WORKS PRECAST

Local Governments on the north coast and tablelands regions of New South Wales still have a large number of timber bridges on their local road network. Most of these bridges have reached or are reaching the end of their life and there needs to be a solution to replace them that address the associated constraints and objectives of the project

- The need to cross weight limited bridges to access the replacement bridge
- The location may be too far away from a concrete batch plant to supply a conforming concrete mix
- The inability to grant over mass permits for component transport
- It may be impractical to engage 100 tonne plus cranes
- The location may be on a minor local road with very low traffic volumes.
- The bridge may be subject to inundation during flood events

Coastal Works Precast have a design life of 100 years and meet the Australian Standard 5100 and SM1600 loading. A 12 metre beam weighs approximately 15 tonnes and can be loaded onto a standard flat deck semi-trailer as a legal load. The common bridge widths, assuming a lane is minimum 3.2 metres as per AS5100 are from 4.2 metres to 12 metres and over. Precast abutments, headstocks and wingwalls are also available.

Once placed, the internal beams have a stitch pour connection which provides structural integrity for the transfer of load to adjacent beams while the edge beam has a flush edge surface to accommodate side mounted barriers. The precast system can also cater for castellated kerb for bridges which are subject to inundation. The beams ends have a protection angle embedded into the end during manufacture. To aid construction safety, side mounted barriers may be attached to the beams prior to delivery to site, enhancing site safety, lessening construction time and eliminating the need for temporary edge protection.

The beams sit on individual elastomeric bearings, 57mm thick and are supplied as part of the beam inclusions. Bearing strips are placed to all other surfaces that may come into direct contact with the abutments.

Coastal Works precast abutment during manufacture awaiting delivery to Hosts Bridge construction

COASTAL WORKS PRECAST BRIDGES ARE AVAILABLE IN THE FOLLOWING SIZES

Length	**8 to 12 metre spans**
Width	**4.2 metres with 3 beams to 12 metres with 10 beams. Bridge widths are available in 100mm increments**
Weight	**10 tonne for a 8 metre beam to 14.9 tonnes for a 12 metre**

Coastal Works Precast have been designed for installation in restricted access locations, enabling a smaller crane than usual for precast installation to be used. Depending on the location a smaller crane will often mean less impact on the surrounding vegetation and mitigate logistical issues

FOUNDATION TREATMENTS

Coastal Works Precast, modular, hybrid and timber bridge options have been designed to be constructed using a variety of foundation types. At the recommendation of the geotechnical investigation and the bridge design, options include

- Bored concrete piles
- Driven steel universal columns
- Driven concrete piles
- Driven timber piles
- Structural screw piles
- Rock anchors
- Mass concrete footings

COASTAL WORKS PRECAST BRIDGE OPTIONS

The following items are able to be included with the precast beams;

- W beam or Thrie beam railing (as per AS5100 assessment)
- Kerb with or without scuppers
- Castellated kerb
- No kerb
- One way or crown fall to design requirements
- Shared path options
- Bearings and hold down fittings

Reinforcement placement for the stitch of the beams for the Hosts Bridge construction.

The finished stitch pour producing a stable running surface not requiring any additional treatment

ADDITIONAL BRIDGE SOLUTIONS

MODULAR BRIDGE

Coastal Works have developed a modular bridge solution incorporating steel girders with transverse concrete deck panels. These bridges are typically suited for low volume roads / one lane bridge where the new bridge is similar to a ‘Like for Like’ replacement except that the new bridge generally replaces a timber bridge. Coastal Works Modular bridges are available up to 22 metres in length with the transverse planks available in either 1 or 2 metre.

All components required for a modular bridge may be loaded onto a semi-trailer as a legal load, transit most bridges and not require over mass permits. These bridges have the additional advantage of not requiring a slew crane for their construction as they have been designed to be constructed with a 20 tonne excavator. An alternate deck option is lightweight ply sheeting which can accommodate barriers.

HYBRID BRIDGE

Coastal Works have developed a solution to stage the full replacement of a timber bridge – “The Hybrid”. The new bridge sub structure has a 100 year design life with the designed piling completed and then a concrete abutment placed. The girders and deck consist of timber. This may be from the previous bridge where the super structure has been recently replaced, new quality grade timber girders and deck planks or engineered timber girders and plywood decking. Both kerb log and barriers can be accommodated

The advantage of the Hybrid is the reduced construction cost through the reuse of materials. At a later date, the timber super structure may be replaced with the girders and planks of a Modular bridge or the beam of Coastal Works Precast

Typical foundation arrangement for a hybrid bridge

ADDITIONAL BRIDGE SOLUTIONS

TIMBER BRIDGE CONSTRUCTION AND MAINTENANCE

Coastal Works has specialist bridge carpenters who are able to reconstruct and repair timber bridge assets including level 1 and level 2 inspections. All replacement timber is CCA treated hardwood. The repairs range from simple deck plank or kerb log replacement to complex girder, corbel and wales renewal

To support any bridgeworks involving the closure of a bridge for replacement or repair, Coastal Works has two temporary bridges available. One 18 metres and one 12 metres, both rated at T44

CERTIFICATE OF APPROVAL

No. 005-98593-S

This is to certify that the Occupational Health & Safety Management System at

Coffs Harbour City Council t/a Coastal Works

of

60 Marcia Street, Coffs Harbour, NSW 2450

Has been examined by assessors of QMS Certification Services
and found to be conforming to the requirements of:

AS/NZS 4801:2001
OH&S Management Systems

In respect of the following activities:

The provision of Civil Construction services.

This certificate is valid from: 04/06/2020 to 04/06/2023
Original certification date: 04/06/2020

Gerry Bonner, CPEng, BEng, FIE Aust, Chairman – QMSCS Pty Ltd
To verify the validity of this certificate please visit www.jas-anz.org/register

CERTIFICATE OF APPROVAL

No. 005-98593-Q

This is to certify that the Quality Management System at

Coffs Harbour City Council t/a Coastal Works

of

60 Marcia Street, Coffs Harbour, NSW 2450

Has been examined by assessors of QMS Certification Services
and found to be conforming to the requirements of:

ISO 9001:2015
Quality Management Systems

In respect of the following activities:

The provision of Civil Construction services.

This certificate is valid from: 04/06/2020 to 04/06/2023
Original certification date: 04/06/2020

Gerry Bonner, CPEng, BEng, FIE Aust, Chairman – QMSCS Pty Ltd
To verify the validity of this certificate please visit www.jas-anz.org/register

CERTIFICATE OF APPROVAL

No. 005-98593-E

This is to certify that the Environmental Management System at

Coffs Harbour City Council t/a Coastal Works

of

60 Marcia Street, Coffs Harbour, NSW 2450

Has been examined by assessors of QMS Certification Services
and found to be conforming to the requirements of:

ISO 14001:2015
Environmental Management Systems

In respect of the following activities:

The provision of Civil Construction services.

This certificate is valid from: 04/06/2020 to 04/06/2023
Original certification date: 04/06/2020

Gerry Bonner, CPEng, BEng, FIE Aust, Chairman – QMSCS Pty Ltd
To verify the validity of this certificate please visit www.jas-anz.org/register

CERTIFICATE OF APPROVAL

No. 005-98593-OHS

This is to certify that the Occupational Health & Safety Management System at

Coffs Harbour City Council t/a Coastal Works

of

60 Marcia Street, Coffs Harbour, NSW 2450

Has been examined by assessors of QMS Certification Services
and found to be conforming to the requirements of:

ISO 45001:2018
Occupational Health & Safety Management Systems

In respect of the following activities:

The provision of Civil Construction services.

This certificate is valid from: 04/06/2020 to 04/06/2023
Original certification date: 04/06/2020

Gerry Bonner, CPEng, BEng, FIE Aust, Chairman – QMSCS Pty Ltd
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