LESSARD WELDING

RESOURCE ACCESS BRIDGES
Single Lane - Modular Type

- **Designed for Low Volume Roads**
  CL-625 Ontario Truck Design - CHBDC CAN / CSA-S6-14
- **Design meets the 2008 MNRF Crown Land Bridge Management Guidelines**
- **Certified compatibility with all MNRF Standard Bridge Substructures**
- **Bridge Post Pockets meet the requirements of the MTO TL-1 barrier system**

INFORMATION GUIDE

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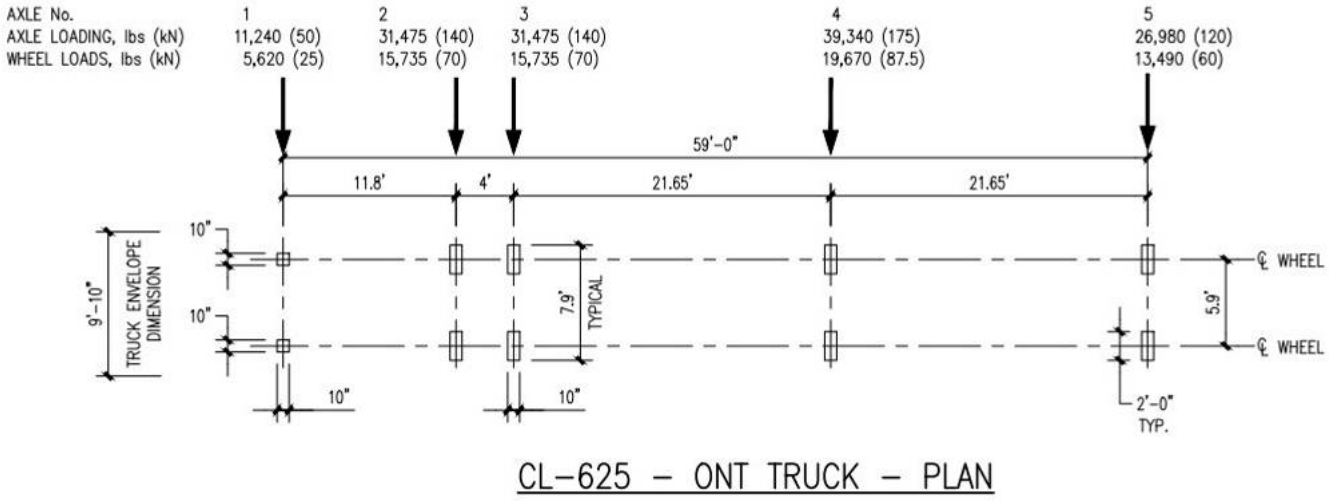
What are these bridge superstructures designed and certified for?

Lessard's New Forestry Modular Bridge Superstructures are designed and certified for the **Ontario CL-625 vehicle wheel loading as required by the Canadian Highway Bridge Design Code (CHBDC) CAN/CSA-S6-14.** In accordance with code, the design is sealed by two professional engineers, verifying compliance with the CHBDC.

Lessard Modular Bridges are also certified to meet the standards identified in the Ministry of Natural Resources and Forestry (MNRF) "2008 Crown Land Bridge Management Guidelines". These modular portable bridge superstructures are designed for ease of installation and use on low volume roads.



CL-625 – ONT TRUCK – PLAN

Can Lessard bridge superstructures be used for temporary and/or permanent applications?

Our bridges comply with both the Canadian Highway Bridge Design Code (CAN/CSA-S14) and the Ministry of Natural Resources and Forestry 2008 "Crown Land Bridge Management Guidelines" and can be used for as either a temporary or permanent bridge crossing.

What do I need to know about the bridge substructure (abutments/cribbing)?

Lessard Portable Bridges are compatible for use with all MNRF standard bearing pads and crib substructures. In the case of a new Lessard bridge product being installed on an existing MNRF substructure, a condition evaluation of the existing substructure by a Professional Engineer may be required.

All bridge substructures must provide 12" (300 mm) of continuous support under the bridge at each end of the bridge. Typical substructures include:

Lessard Modular Bridge Products and Compatible MNRF Substructures

Ministry of Natural Resources and Forestry - Standard Crib Designs				Lessard Modular Bridge Span				
Width	*Substructure*	*Date*	*Consultant*	20	30	40	50	60
4.877 m	Bearing Pads	*12/5/2012*	*EXP SERVICES*	Yes	Yes	Yes	Yes	Yes
4.877 m	Crib Abutment	*8/19/2016*	*C2S ENGINEERING*	Yes	Yes	Yes	No	No
6.096 m	Crib Abutment	*8/19/2016*	*C2S ENGINEERING*	Yes	Yes	Yes	Yes	Yes
7.315 m	Crib Abutment	*2/11/2008*	*COOK ENGINEERING (WSP)*	Yes[1]	Yes[1]	Yes[1]	Yes[2]	Yes[2]
9.754 m	Crib Abutment	*2/11/2008*	*COOK ENGINEERING (WSP)*	Yes[1]	Yes[1]	Yes[1]	Yes[2]	Yes[2]

Yes[1] - Requires 3/4" x 12" Bearing Plate

Yes[2] - Requires 1" x 12" Bearing Plate

Lessard Welding offers custom fit solutions to fit the Lessard Portable Bridges between **existing abutments**, however, the existing abutment must be inspected by a Professional Engineer and approved for installation. Exact measurements are required and must be submitted at the time of order.

How does the Lessard Bridge Superstructure's design make life easier?

a) SAFE AND DURABLE DESIGN

The Lessard Bridge Superstructures are professionally designed with safety in mind. Our heavy-duty design consists of 2 separate sections; each having four girders for a total of eight girders per bridge superstructure. The inside of the girders is reinforced with diaphragms that provide lateral support to steel stringer beams during loading. Bridge decking consists of a 3/8" (10 mm) thick steel checker plate that is supported across all steel stringers by structural channels at 12" (300 mm) centers. The reinforcing prevents checker plate deformation and distributes vehicle loads across each steel stringer. All structural steel used in Lessard Welding bridges is certified to be NEW.

b) SIZE AVAILABILITY AND LOW PROFILE

We offer multiple bridge lengths together with a low structure profile that are easier to transport, handle and install. Each section measures 7’ 8” wide. Once installed, the bridge offers a total running surface width of 15’ 4”.

Superstructure	20 ft.	30 ft.	40 ft.	50 ft.	60 ft.
Height	18"	20"	22"	25"	28"
Actual Length (tip to tip)	20’ 8”	30’ 8”	40’ 8”	50’ 8”	60’ 8”

We are also able to offer custom lengths up to 60 ft. In this case, there are different approaches for the drawings:

For example, a customer requires a bridge to be 34 ft. long, we can provide the following:

1. A standard 40 ft. general arrangement drawing for your custom bridge – no extra cost.
2. A sealed letter from a Professional Engineer certifying bridge capacity and that the 34 ft. bridge was fabricated using the 40 ft. standard bridge design – there would be an additional cost for this option.
3. A new general arrangement drawing reflecting the exact measurement of the new bridge – there would be an additional cost for this option.

c) TAPERED OR SQUARE ENDS

Our bridges are manufactured with either a tapered or square end at no additional cost.

Tapered Ends

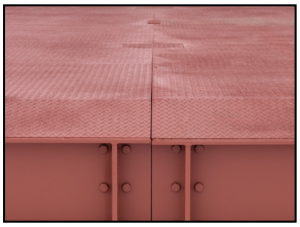
Tapered end bridges are excellent for use in temporary installations where gravel can be tapered up and onto the bridge and prevents exposed ends that could be damaged during snow plowing operations**.**

Square end bridges are best suited for use on permanent installations at sites with existing wooden cribs with decks where an exact elevation match is required. They are also well suited for municipal and urban settings where roads are currently paved.

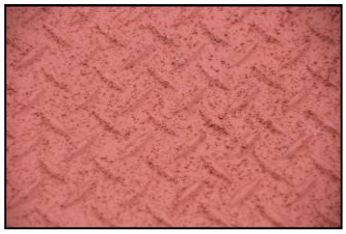
Square

d) STEEL CHECKER PLATE DECKING

Lessard Bridge Superstructures are shipped complete with a 3/8" pre-welded steel checker plate deck. Compared to a timber deck, a steel deck offers significant maintenance (labor and wood) savings over the lifecycle of the bridge.



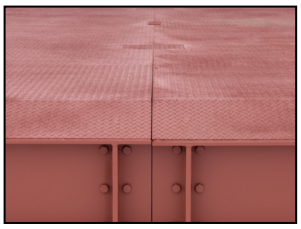
e) HIGH PERFORMANCE COATING AND ANTI-SLIP SURFACE



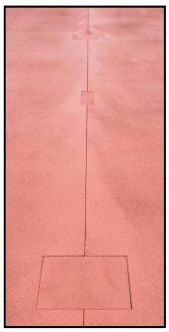
To ensure proper adhesion of paint and non-slip coatings, all main stringer beams are cleaned and shot blasted in accordance with SSPC-SP 6 industry standard. We also apply a high-performance red oxide primer to the entire structure including underneath the bridge. In addition, as part of the painting process, a dense grit product is added that helps prevent workers from slipping and falling during construction and provides additional tire traction after installation.

If the bridge is to be installed in a corrosive (mining, mineral processing) environment other additional protective coating options should be considered. We are prepared to work with clients on a one-on-one basis to determine the coating options available to meet their needs.

f) DECKING

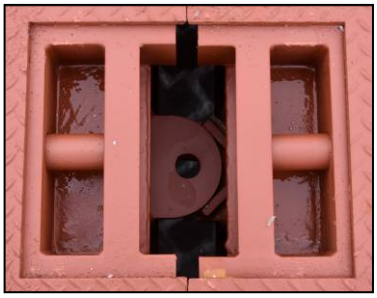


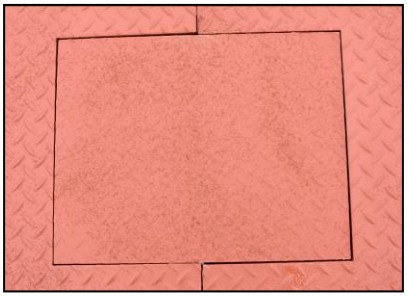
Our modular bridge decking is designed to ensure a level and uniform surface between bridge sections. With proper substructure planning, heavy traffic moves smoothly across the structure. Impact loading caused by uneven surfaces can significantly reduce the lifespan of bridge stringers. An even surface will also minimize or eliminate damage caused by plowing and grading operations. Since the sections are fabricated with precision, the gap in between the two sections is very small (+- 1/8”) and will reduce or eliminate road materials from entering the water body below or collecting on lower flanges of the center beams.



g) DECKING ACCESS POINTS AND WEIGHTED COVER PLATES

There are access points or "cut outs" in the surface of the decking to allow installers to bolt the two sections together. Weighted Cover Plates are provided to ensure all openings are well covered and that the deck surface remains level and flush. We recommend using high strength construction adhesive to secure the cover plates. Cover plates and cutouts are uniform in size and are interchangeable.





h) PULLING LUGS

There are (8) Pulling Lugs pre-welded to each end of each section for a total of (16). These lugs are reinforced to provide safe lifting and pulling locations for easy bridge installation.

i) LIFTING LUGS

There are (4) recessed Lifting Lugs welded within the deck surface. We also provide (4) Load Rated Lifting Slings for your convenience. These lifting locations are ideal for loading, offloading and bridge installation. Cover caps are provided to cover the lifting lug openings for a safe walking surface.

j) TIE DOWNS AND TIE DOWN GUIDES

The Tie Downs are used to align and connect each bridge sections together. The Tie Down Guides are small pieces of angle iron welded to the top of the Tie Downs of section #1 (as shown in photo) to ensure quick and easy alignment of section #2. When aligning both sections together, we recommend using a larger steel pull/crow bar to align the holes perfectly and to keep hands away from the connection while moving bridges. Once all Tie Downs are aligned, simply insert a bolt into the hole.

k) NUT LOCKING BARS

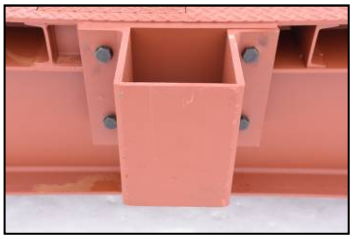
Once the bolts are inserted into the holes of the tie downs, simply position the nut underneath the tie down and carefully hold it in between the two Nut Locking Bars. You are now able to torque the bolt into place from the top of the deck.

l) STRUCTURAL GRADE BOLTS

These are included with every bridge. Light oil or a product like “Never Seize” should be applied to the bolts during installation to ensure long term maintenance.

m) BOLTED POST POCKETS – Field Installation Required

Our guard rail post pockets are bolted to the superstructure to provide better performance and maintenance (replacement). They also meet the anchoring requirements of the TL1 Barrier standard identified in the 2016 "Exceptions To The Canadian Highway Bridge Design Code CSA S6-14, For Ontario". The pockets are spaced in accordance with OPSD requirements for posts for curbs and/or guiderail (if required). The Occupational Health and Safety Act identifies (R.R.O. 1990 Regulation 851, Section 118) requires the installation of a curb on all haul roads with a minimum height of not less than 15cm.



n) EASY TO INSTALL OR REMOVE

Installation of a Lessard Portable Bridge is simple. Each bridge section is clearly identified as either “Section 1” or “Section 2”. Bridge sections are typically delivered to the site one on top of each other with guard rail pockets on each section on different sides of the trailer. This small loading detail allows the installer to offload the superstructures and assemble them without having to rotate them 180^{o} into position.

Shorter span structures (20ft to 30ft) can be easily lifted into position one at a time with either a small crane or medium sized track excavator. After the first section is placed, the second section is lined up with the first and nudged into position until the bolt holes from the Tie Downs line up. Supplied connection bolts are then used to join both sections. After connections have been made, the bridge can be adjusted slightly to ensure correct orientation and square with substructure bearing.

Bridge Specifications

One bridge consists of two (2) sections. Please find specifications of each section for each standard bridge available.

Bridge Span	Dimensions and Weight per Section			
	Actual Length (from tip to tip)	Width	Height	Weight
20 ft.	20’ 8”	7' 8"	18"	7,000 lbs
30 ft.	30’ 8”	7' 8"	20"	11,000 lbs
40 ft.	40’ 8”	7' 8"	22"	16,750 lbs
50 ft.	50’ 8”	7' 8"	25"	22,250 lbs
60 ft.	60’ 8”	7' 8"	28"	32,000 lbs

o) PRE-ASSEMBLED IN SHOP

As part of the fabrication process and quality control, our modular bridges are shop assembled before shipping to ensure each section is an exact match and that assembly in the field is hassle free.

p) PRE-DRILLED ANCHOR HOLES

Each bridge section has pre-drilled anchor holes at each corner of the end beams. One end has round (fixed) holes and one end has slotted holes that allow for the expansion and contraction of the bridge superstructure caused by heat and cold temperatures. All four corners are to be fastened to the abutment. Anchor bolts are NOT provided as it depends on the engineered abutment design required.

q) UNIQUE IDENTIFICATION NUMBER

Every Lessard Modular bridge has its own unique identification number for easy record keeping purposes (required by the 2008 OMNRF Crown Land Bridge Management Guidelines). During fabrication, an identification plate is welded to the outside stringers of each bridge section. The ID plate provides a unique bridge identification number, the section no. and the weight of the bridge section. We maintain an up to date database for all fabricated bridges and can provide owners and customers of fabrication dates, original purchaser, date of purchase and other related information.

r) INTERNAL QUALITY CONTROL INSPECTION

In accordance with our high-quality control standards, every bridge fabricated by Lessard Welding is thoroughly inspected to ensure completeness and adequacy of fabrication in accordance with the sealed drawings.

s) BRIDGE DOCUMENTATION

Customers receive bridge documentation for each individual bridge.

1. *Sealed General Arrangement Drawing*
   All customers receive sealed general arrangement drawings that provides basic measurements and assembly information for the product purchased.

2. *Certificate of Conformance*
   All customers receive a certificate of conformance for their specific bridge. An engineer performs a certified inspection to ensure completeness and adequacy of fabrication in accordance with the detailed drawing as designed and approved by the bridge designer.

What do I need to know about a Bridge Re-certification?

We value all customers – both present and past. There may be instances where the MNRF requires a Lessard Resource Access Bridge (that has been used at multiple locations in the past) to be recertified by a Professional Engineer before it can be re-used.

These instances could include the following:

- If the bridge was damaged during the installation or removal process
- If the bridge was fabricated prior to 1995

As part of our ongoing commitment to our customers, we can provide contact information for Professional Engineers in your geographic location who are familiar with our products and can perform the re-certification for a nominal fee. Please contact our office by email or phone for more information.

Does Lessard Welding offer Bridge Rehabilitation services?

We are pleased to inform you that we offer low-cost bridge rehabilitation services in our facility for bridges that have minor damage or defects. These services may include minor repairs, deck and exterior cleaning or sandblasting (if required), repainting as well as bridge re-certification for installation by a Professional Engineer. For a free estimate, mail or email photos of your bridge to steve@lessardwelding.com

What are the upgrades or options available to purchase with the bridges?

All the following upgrades or options come at an extra cost, we would be more than happy to provide you with a cost estimate upon your request.

a) EXPANSION JOINTS

Our bridge superstructures can be fabricated to accommodate standard MTO expansion joints. Contact us with your specific requirements for more information on this option.

b) SPECIALTY COATINGS

Mining, mineral production and chemical processing customers may require a different (additional corrosive protection) type of coating than our high performance red oxide primer. In this case, customers must provide specifications of the coating product they require - so that we may confirm whether we can provide the coating product and what the extra cost would be.

c) MNRF STANDARD TIMBER BEARING PADS

Standard Bearing pads are available for purchase from Lessard Welding at extra cost. The bearing pads are custom built in accordance with MNRF standard drawing entitled "STANDARD TIMBER BEARING PAD FOR PORTABLE BRIDGES" dated December 5, 2012. Pricing for this option can be provided as part of our quotation to customers.

d) BRIDGE DELIVERY

Shipping costs are NOT included in the price of our bridges, but delivery is available for an additional cost. Special MTO permits may be required depending on the bridge dimensions.

If you are PICKING UP your bridge…

- You will need to inform us ahead of time of the date and time you plan on picking up your bridge as we may need to make special lifting arrangements to load the bridges.
- Flatbed trailers are the preferred type of trailer for us to load your bridges. If you don't plan on using a flatbed trailer, we will likely encounter loading challenges and therefore you must communicate with us prior to the shipping date to discuss your plan, otherwise you may risk the possibility of NOT getting loaded at all or having to wait for a crane to come on site which could lead to a loading charge of approximately 1000$.
- Uneven deck type trailers such as goose necks are acceptable but must be equipped with blocks to level off the loaded bridge.

- Logging trailers with pickets are acceptable, however, please note, that pickets will need to be removed by the driver on the one side. Please note that you may not be able to put the pickets back into place afterwards due to where the bridge pockets line up on the trailer.
- Please know that it is possible to ship more than one bridge on one truck depending on the quantity and spans ordered.

If WE ARE SHIPPING your bridge…

- You will need to inform us ahead of time of the date and time delivery is required.
- You will need to send us by email a site address, map or driving instructions as well as a site contact.
- Please know that it is possible to ship more than one bridge on one truck depending on the quantity and spans ordered.

What are the maintenance requirements?

Simple maintenance can dramatically extend the lifespan of a Lessard Portable Bridge. Recommended maintenance activities include the following:

- Routine visual inspections to confirm that the bridge is fully supported at each end by a level and sound substructure.
- Removing gravel buildup on the steel deck and bearing seats. Gravel by itself is abrasive to painted surfaces and in larger volumes can retain water that will accelerate surface rust.
- Store portable bridges horizontally and elevate them on blocks. The blocking will ensure that the bridge stringers do not come in direct contact with standing water.
- Use only the lifting locations identified to move a portable bridge. Lifting at other locations may damage flanges, decking and guard rail pockets.
- Power wash bridges in storage to remove accumulated soil materials.
- Store smaller bridge parts (bolts, washers, nuts and plates) in an interior location.
- Greasing or oiling all bolts, washers and nuts is advisable.
- Periodic sandblasting and painting of bridges in storage is also advisable.
- Maintain a bridge file with original bridge drawings and update with maintenance records.

What is the design life of this type of bridge?

Our single lane - Resource Access modular superstructure is designed for a 75 year service life, however poor site design, installation, mishandling, overloading and lack of maintenance may impact it's service life. As well, re-coating of the bridge and/or touch-ups may be required during its service life due to normal wear and tear, excessive use by track based equipment, vehicles with chains, corrosive environments and frequency of flood (overtopping) events. Good record keeping, annual inspections, minor maintenance (removal of loose gravel from deck, replacing signage, repair of curbs or barriers) are all recommended.

What kind of experience does Lessard Welding have?

Established in 1974, Lessard Welding has **over 45 years of experience,** the expertise and the resources to deliver a wide range of high quality welding products - including bridges. There are over 600 Lessard Bridges currently in service in North America. We also provide custom welding services and products to the mining industry.

We are family owned and operated with a reputation that matches our experience. We also offer bilingual services - from ordering products to continued technical support.

What certifications does Lessard Welding have?

Premier Fabrication Standards and Quality Control are built into every Lessard Portable Bridge Superstructure. Lessard Welding is certified to CSA Standard W47.1 in Division 2 by the Canadian Welding Bureau and maintains a superior Quality Management System which complies with the requirements of the ISO 9001:2015 standards.

CWB cwbcertification CSA W47.1

Certified System ™ ISO 9001 QMI-SAI Global # 001723

Contact Information

If you have any other questions, please feel free to communicate with us at any time!

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