

Stirling Bridge

Card Model Kit



On September 11, 1297, a Scottish Army led by William Wallace and Andrew de Moray defeated the English at the Battle of Stirling Bridge. In the briefest of descriptions, the Scots attacked the English army as it attempted to make the crossing. As the lead elements of the English Army stalled on the far side of the bridge, the main body of heavy horse bunched up behind. Unfortunately for the English, the bridge was built primarily for foot and light wagon traffic and not for massed heavy horse. Consequently, sections of the bridge collapsed turning the battle into a disastrous rout for the English, and a great victory for the Scots and Wallace.



I'm a big fan of Ebob Miniatures' Rebellion line of 28mm Scottish Rebellion miniatures. In an email exchange with Ebob, I explained to him that I created card models, and he suggested I try making a replica of Stirling Bridge. I thought it was a great idea.

It is difficult to know exactly what Stirling Bridge looked like in 1297. There are a number of artists' renditions that depict various types of wooden construction, but I have been unable to find a definitive image or specific description. So, I chose to replicate the design depicted in the engraving below, both because it looks right, and because I felt it would translate into a paper model that would be easy to construct, and durable enough to actually use on the wargame table.



I also wanted the bridge to be modular so it could be built to a variety of lengths, and to have the ability to break down for storage and transportation. I think I have come up with a reasonable enough solution.

Thank you for purchasing *Stirling Bridge*. I hope you enjoy building and fighting over it as much as I did creating it. I would love to see your comments, and any tips, feedback, or other information concerning *Stirling Bridge* that you might be able to provide. Please leave your post in the Ebob Forums.

Thank you.

Toshach

Instructions

Tools & Materials

To build Stirling Bridge, you will need the following tools and materials.

- **Card Stock** - 80# card stock minimum; 100# is better.
- **X-Acto or Utility Knife**
- **Cutting Surface**
- **Metal Straight-edge or Ruler**
- **Scribe** - this can be any pointed tool that will crease, but not cut through the cardstock. Some like to use a fine-point ball point pen that has run out of ink.
- **Burnisher** - Smooth plastic or wooden tool for creasing your folds to make them sharp and crisp. You should be able to purchase these at any art supply store. The barrel of a Sharpie works pretty well too.
- **Glue stick, and Liquid Glue** – I prefer a glue stick for surfaces that can be easily pressed together. For surfaces where pressure can not be applied I use a liquid glue like Uhu Office Pen, or Elmer's Glue Pen. Both dry quickly and if used properly do not wrinkle the paper.
- **Crayons, colored pencils, markers, or paint** for "edging."

General Instructions

Printing

I have access to two HP inkjet printers, and find that I get the best results by printing on the default (normal) quality, and plain paper settings.

Basic Assembly Guidelines and Advice

1. Start by scoring along the dashed fold lines. I generally prefer to score the back, non-printed side of the paper.
2. Cut out each component along the solid cut-lines using your straight-edge and knife.
3. Fold along your score lines.
4. Color the edges of the component.
5. Glue as indicated.
6. Apply pressure and allow the glue to dry thoroughly before moving on.

Bridge Components

Road Surface

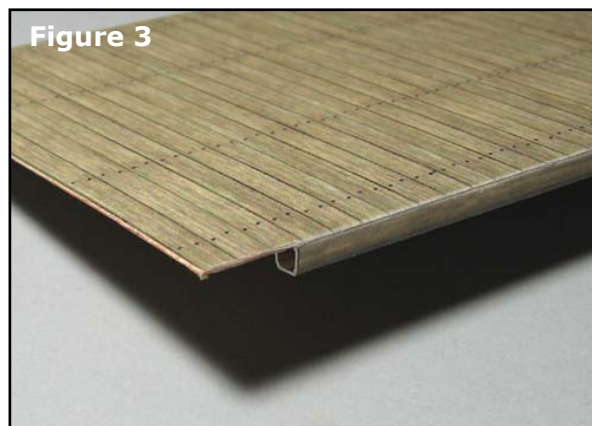
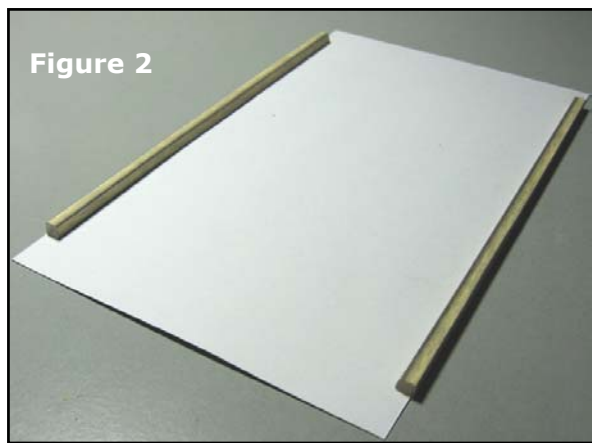
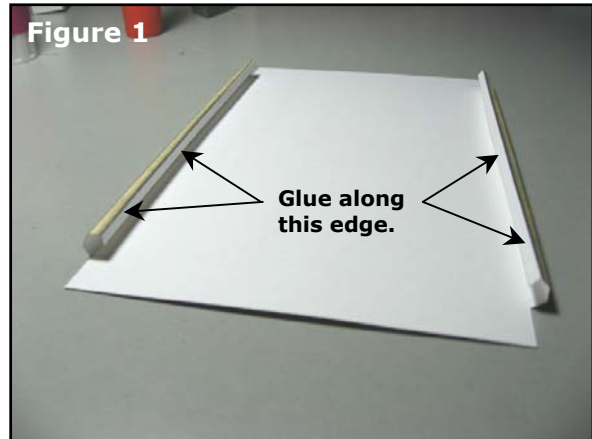
This is probably the easiest of the components to assemble, so we will begin here.

1. Fold along the dotted lines/scores and burnish to create a sharp crease.
2. Run a line of glue along the non-printed area as shown here (Figure 1).
3. Press the glued area to the bottom of the road surface as shown, forming a square tube support beam along the edges of the road surface. Press together and allow it to dry (Figure 2).

Be careful that the outside of the support beam is perpendicular to the road surface (Figure 3).

Each Road Surface component is a single span of the bridge. Print as many of these as you need to make your bridge as long as you like.

Important Note: If you are using cardstock that is 80# or lighter, you will want to reinforce your Road Surface. Otherwise once you place your heavy horse on your bridge you run the risk of replicating the actual disaster. To prevent this, you can use the Road Surface Reinforcement piece provided, pieces of Balsa wood, or ice cream sticks to make your road surfaces more rigid.



Railings

You will need two Railings for each road surface component.

1. Cut the railings out and fold along the dotted line. Apply glue to the narrower of the two sides and press together. Allow time for the glue to dry (Figure 4).
2. If you wish, cut out the spaces between the rails.
3. Apply glue to the overlapping side of the railing, and press against the side of the support beam on the Road Surface.
4. Align the bottom of the railing with the bottom of the support beam (Figure 5).

The Road Surface is complete.

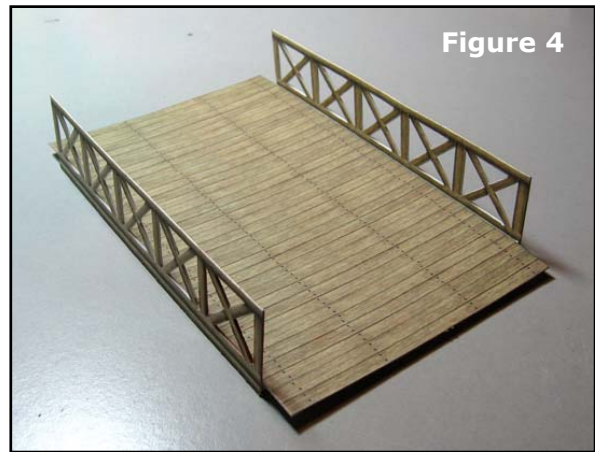


Figure 4

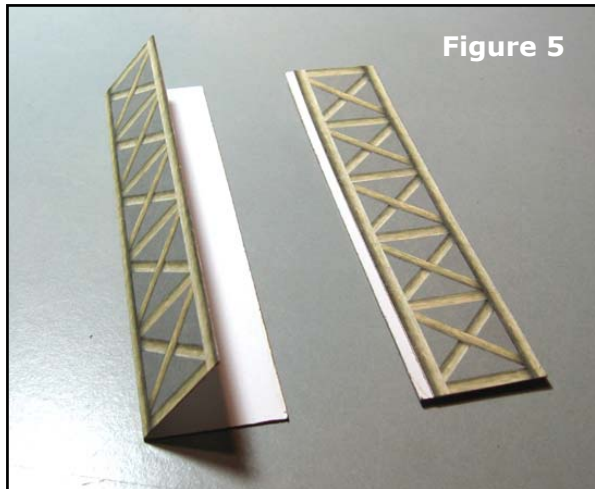


Figure 5

Trestle Base

The Trestle Base forms the core of the Trestle. This is the component that will support your road surface Spans.

The Trestle Base is constructed like a box.

1. Fold along the dotted lines/scores and burnish to create a sharp crease (Figure 6).
2. Glue the long tab to the inside of the opposite edge of the Trestle Base, and allow it to dry (Figure 7).
3. Apply liquid glue to the tabs on the end-pieces as shown and close the ends like the lid of a box (Figure 8).

The Trestle Base is complete.

Figure 6

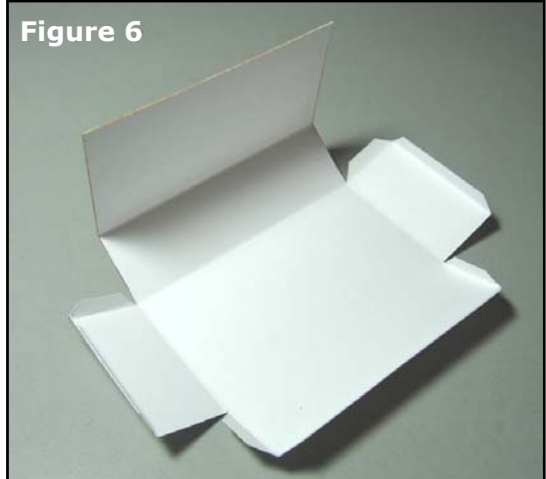


Figure 7

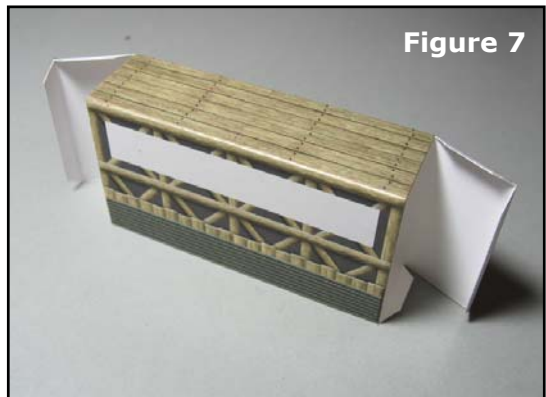
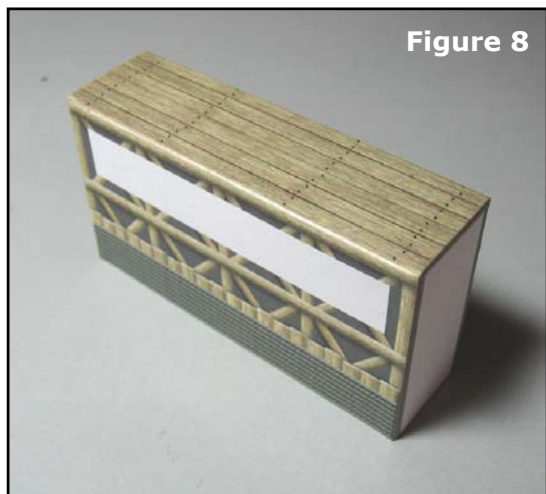


Figure 8



Buttress

You will need two Buttresses for each Trestle Base.

The Buttress is constructed like a box.

1. Fold along the dotted lines/scores and burnish to create a sharp crease (Figure 9).
2. Glue the long tab to the inside of the opposite edge, and allow it to dry (Figure 10).
3. Apply liquid glue to the tabs on the end-pieces as shown and close the ends like the lid of a box (Figure 11).

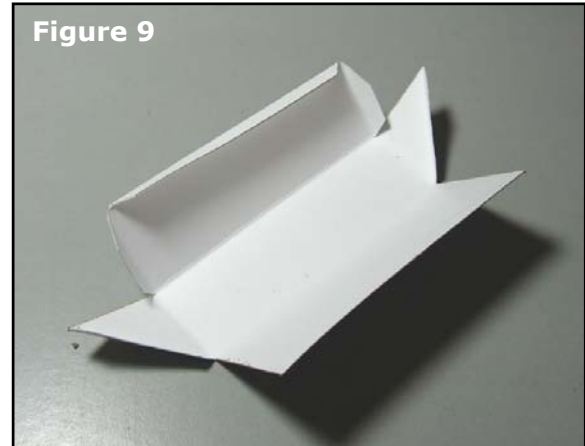


Figure 9

The Buttress is complete.

Ramp Buttress

The Ramp Buttress is constructed in exactly the same fashion as the Buttress.

You will need two Ramp Buttresses for your bridge.

The Ramp buttress forms a slightly slanting road surface to accommodate the slope of the ramp.

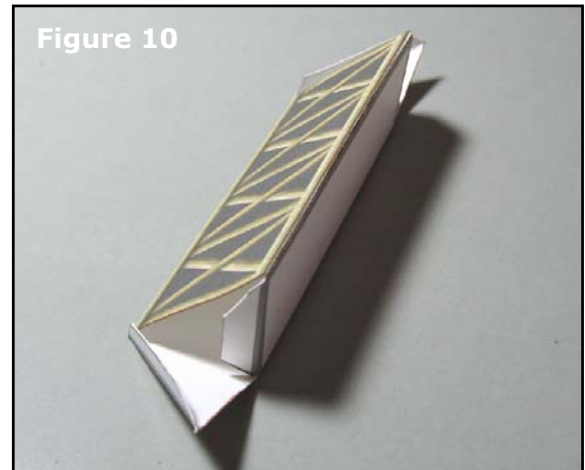


Figure 10

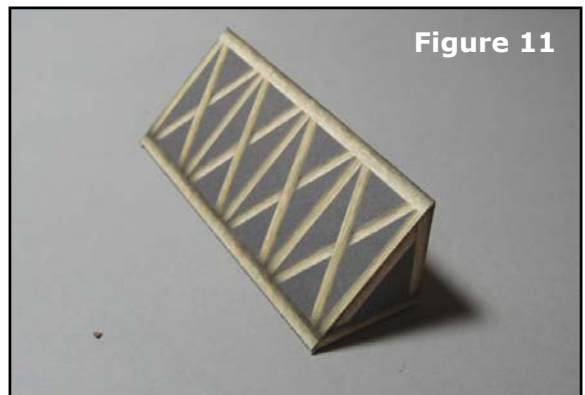


Figure 11

Trestle End-piece

You will need two Trestle End-pieces for each Trestle Base.

The Trestle End-piece is constructed like a box.

1. Fold along the dotted lines/scores and burnish to create a sharp crease (Figure 12).
2. Glue the long tab to the inside of the opposite edge as shown, and allow it to dry (Figure 13).
3. Apply liquid glue to the tabs on the end-pieces as shown and close the ends like the lid of a box (Figure 14).

The Trestle End-piece is complete.

Figure 12

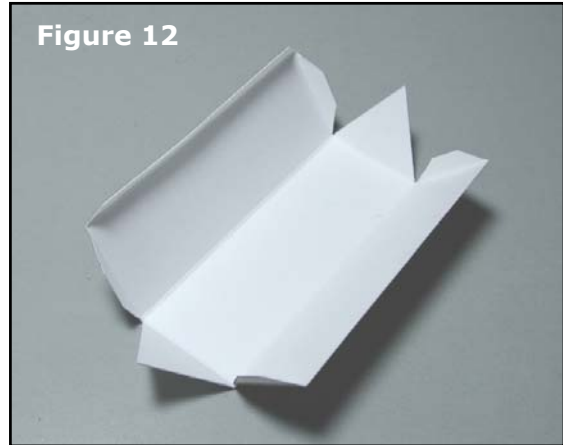


Figure 13

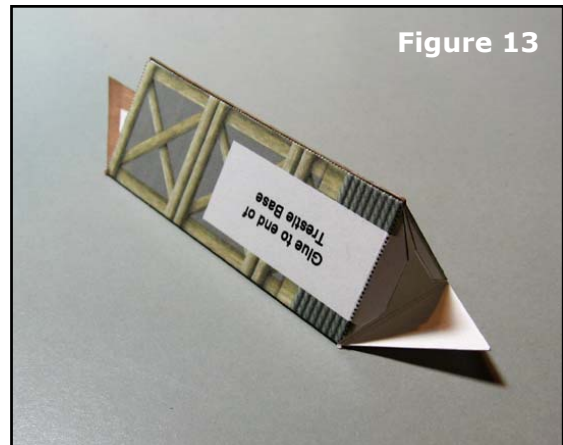


Figure 14



Ramp

You will need two Ramps for your bridge. If you only wish to replicate fighting at one end of the bridge, one Ramp is sufficient.

1. The first three steps for construction of the Ramp, as shown in Figure 15, are identical to those of the Road Surface.
2. Make a slight fold across the Road Surface at the end of the ramp, as indicated in Figure 16. This will compensate for the slope of the Ramp when it is attached to the Trestle.

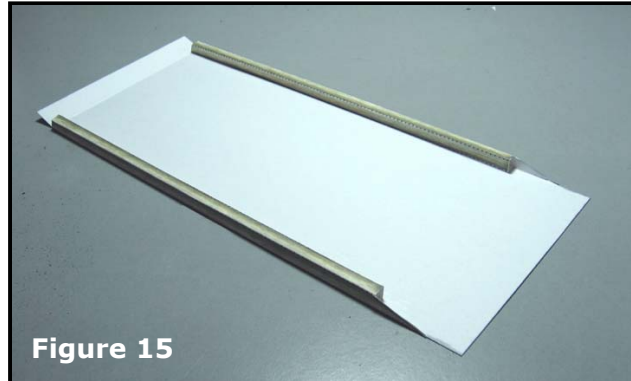


Figure 15



Figure 16

Ramp Support Piling Assembly

1. Carefully cut out two long and two short Ramp Support Pilings. Roll them around a pencil or similar object to give them a cylindrical shape.
2. Glue the tab to the opposite edge and let dry.
3. Glue the end of the Piling over the tabs to form the top. (Figure 17).
4. Now cut out two Piling

Connectors, one large, and one short.

5. Cut out one large, and one small Piling Connector and fold each along the dotted line (Figure 18). Apply glue to one of the two sides and press together (Figure 19). Allow time for the glue to dry.
Note: Be sure that the end tabs are not glued together and remain folded open as shown in the figure.
6. Now glue a long Piling to each end of the Piling Connector as shown in Figure 20. The notches on the Piling connector should be oriented up. The Pilings should be attached so that the bottom of the Piling is flush with the bottom of the Piling Connector.
7. Now assemble the short Pilings and small Piling Connector in exactly the same manner.

Figure 17

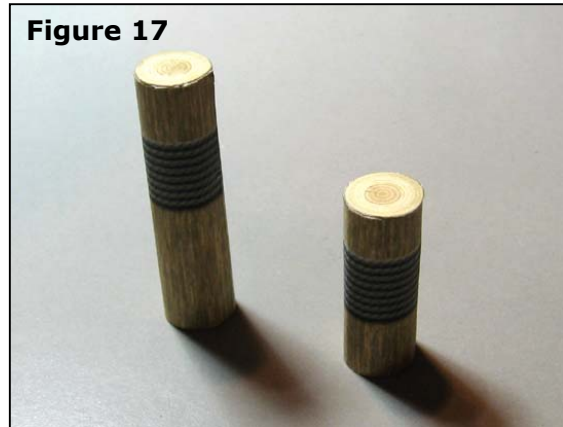


Figure 18



Figure 19



Figure 20



Constructing the Bridge Components

To build a complete bridge you will need a minimum of the following components: two Ramps, two Ramp Trestles and one Road Surface. You can vary the length of your bridge by constructing additional Road Surfaces, and Trestles.

Assembling the Trestle

1. Apply glue to the non-printed areas on the long sides of the Trestle Base. Fit a Buttress to either surface, being careful to align the center-marks. Be certain that the road surfaces of the Buttresses are flush with the road surface of the Trestle Base. Also take care that the entire assembly is as level as you can make it. This will insure a flat, even join with the Road Surface component (Figure 21).
2. Allow to dry thoroughly.
3. Apply glue to the ends of the Trestle Base. Fit the Trestle End-pieces to the glued area being certain that the bottoms of both components are flush (Figure 22).

The Trestle is complete

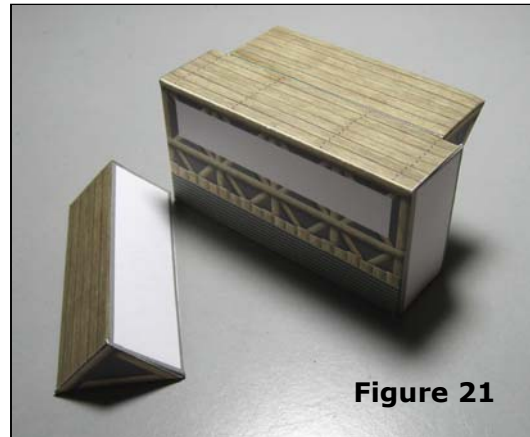


Figure 21

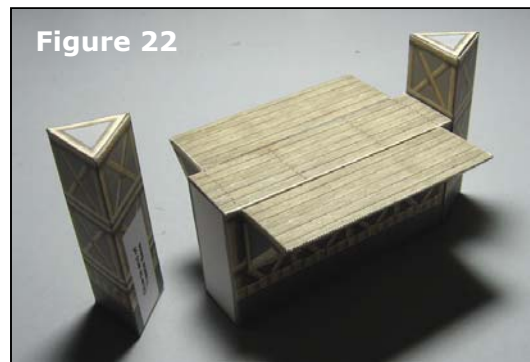


Figure 22

Assembling the Ramp Trestle

The Ramp Trestle is assembled in the same fashion as a normal Trestle except that one of the Buttresses is a *Ramp* Buttress. Note the slight downward angle of the right-hand (Ramp) Buttress in Figure 23. This is to accommodate the slope of the Ramp.

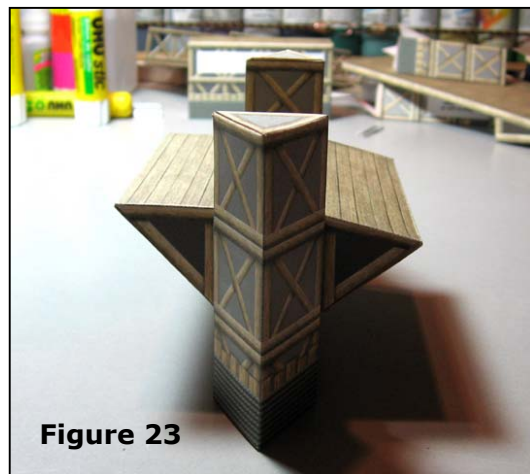
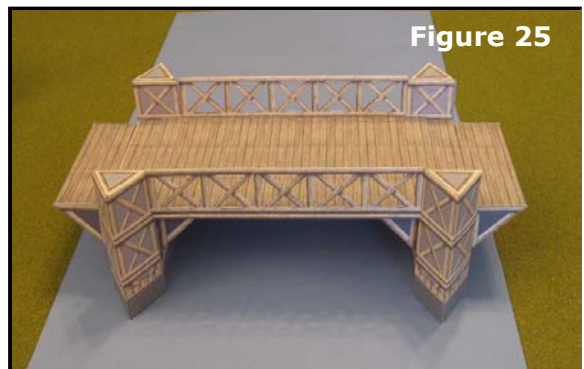
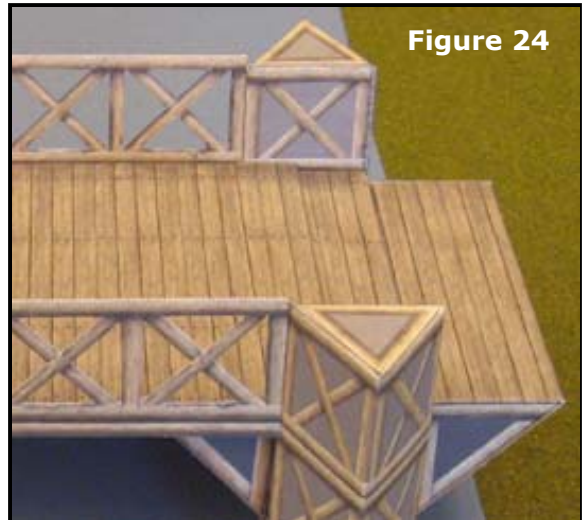


Figure 23

Assembling a Span

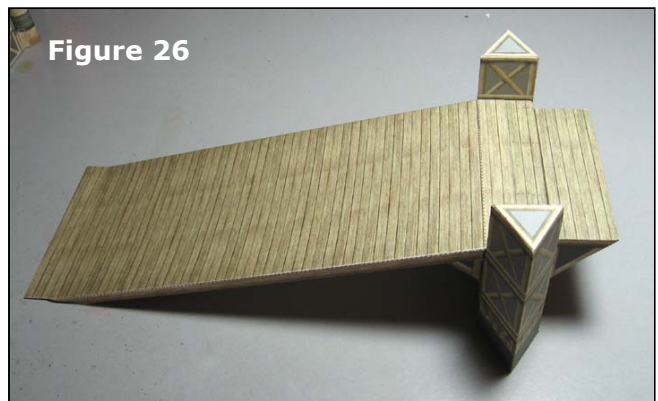
1. Attach your Road Surface to a Trestle (Figure 24). Notice how the road Surface extends between the Trestle End-pieces, and how the support beams of the road surface fit on either side of the Trestle Buttress.
2. Connecting a Road Surface to two Trestles in this manner creates a Span (Figure 25). If you wish your bridge to be extra stable and secure, it is a good idea to permanently attach the Road Surface to the Trestles of each Span.



Assembling the Ramp

Exactly how your Ramps are constructed depends on how your terrain is depicted on your battle board. The Ramp assembly is designed to accommodate a variation in height between the land and the river.

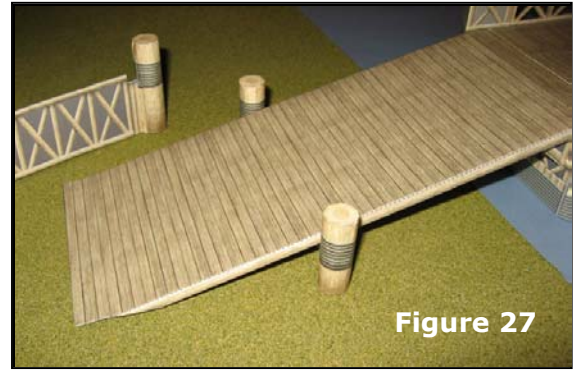
1. Attach your Ramp to the Trestle (Figure 26).
2. Put your Ramp/Trestle in place on your battleboard. The Ramp Trestle should be in the river, just off riverbank (see Figure 25).
3. You might need to fold the lower end of the Ramp a little so that it meets flush to the ground.
4. Now carefully fit the small Piling Assembly under the Ramp. The Ramp's side support beams should fit snugly into the notches of the Piling Assembly. Adjust the position of



the assembly by sliding it up or down the Ramp until it supports the Ramp without lifting it off the ground (see Figure 27).

5. Now do the same with the large Piling Assembly (Figure 28).

If you intend to use your Stirling Bridge on the same battleboard all of the time, you might want to glue the Piling Assemblies to the Ramp in order to save yourself some time and hassle. It will also make your bridge sturdier.



Building Your Bridge

Each Span of the bridge consists of a Road Surface, and its supporting Trestles. You can change the length of your bridge by adding or taking away Spans. Figure 29 illustrates the shortest, complete bridge that you can build—it has only one Span. Figure 30 shows a two-span bridge, created by inserting an additional Trestle and Road Surface. Your bridge can be easily lengthened by adding Spans, and connecting them with Road Surfaces.

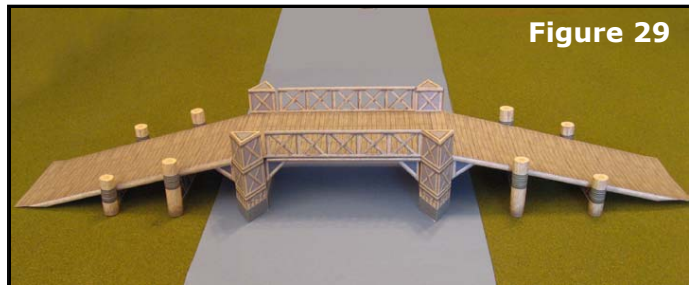


Figure 29

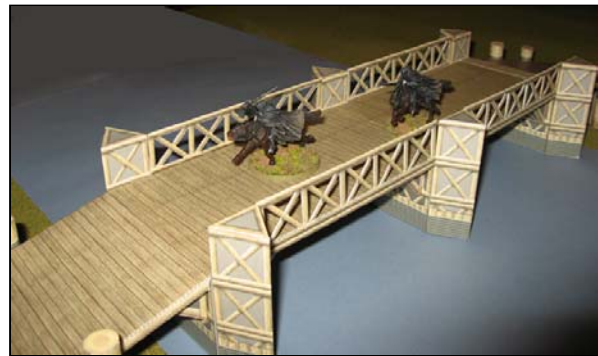


Figure 30

Though I designed Stirling Bridge so that it could be broken into pieces for storage and transportation, it is sturdiest when the components are glued together. This is especially so if you want a longer, multi-span bridge. One way to do this and still retain some of the modular flexibility is to build a number of Spans and then connect these on the gaming table with unglued Road Surface spans. In this way, your bridge sections will be sturdy, but can still be broken down into manageable parts for storage or transport.



The 28mm figures in this photo are from Ebob Miniatures, and are not included.



The 28mm figures in this photo are from Games Workshop, and are not included.

Purchasing downloadable pdf files from ToshachMiniatures.com entitles you to print or copy them as often as you want for your own personal use, only. Please do not share or resell copies of these items. Aside from being dishonest, it is illegal. Your cooperation in this matter is appreciated, and will help to insure that we can continue to bring you quality products at a reasonable price. Thank you.

 **TOSHACH**
MINIATURES

© 2008 Toshach Miniatures