PN146/7 N Scale RAILWAY BRIDGE

READ THROUGH ALL THE INSTRUCTIONS BEFORE YOU START.

To construct this kit you will need the following:

1. A Modellers knife.
2. A steel ruler.
3. Glue - UHU Clear Adhesive is our favourite.
4. Ultra Fine Tip Glue Applicator, see right.
5. A cutting surface - a sheet of card or a cutting mat.
6. Fine point tweezers to hold the smaller components.
7. Water colour paints and a very fine brush, for painting the edges and corners.

GETTING STARTED

1 EXTRACTING COMPONENTS FROM SHEETS.

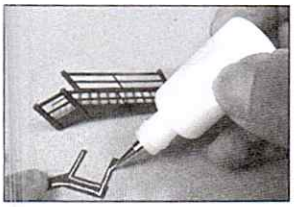
To stop the components from falling off the sheets, they are held secure with scorelines. These are cuts that only go about 75% of the way through the card.
To release them simply run the point of your knife along the scorelines and they will come seamlessly away.
These scorelines are indicated with blue arrows: →
WARNING, Cut with care using a knife that is not too sharp, this will reduce the risk of the blade running out of the score and cutting the kit components.

ONLY CUT THE COMPONENTS OFF THE BACKING SHEETS AS YOU NEED THEM.

Have a separate area away from your working area where you can cut out and store the kit sheets.

2 GLUES & APPLICATORS

The METCALFE Ultra Fine Tip Glue Bottles are essential for gluing the smaller components in this kit.



Tiny strips or spots of glue can be Accurately laid down with precision.

Always replace the pin after use and store the bottles upside down to keep the glue moist.

UHU All Purpose Adhesive Glue

Is available in standard and solvent free. Both types are fine for use in our glue bottles, even though the instructions on the back of the packs warn against solvent based glues, we have tested the UHU solvent based glue and it works fine. The solvent free glue doesn't string as much, but can be a little harder to clean off if it drips onto unwanted areas.

Speed Bond by Deluxe Materials

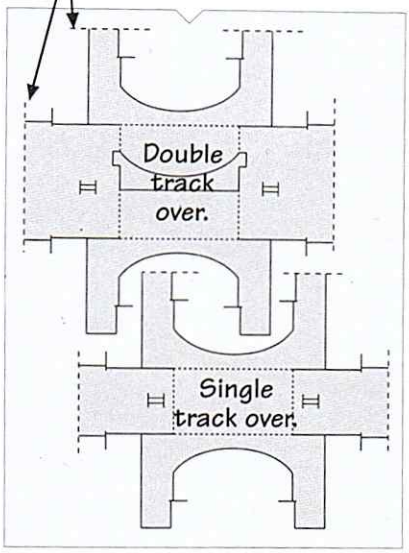
This is an excellent PVA. based glue that dries quickly, but also allows time to get parts into position. It has the added advantage that it dries clear leaving little evidence if it oozes out of joints etc. Used in our fine glue applicator bottles a 112g bottle lasts for ages. **www.deluxematerials.com**

INSTRUCTION SHEET 1

CHECK LIST
This kit pack should contain the following:
1 x SHEET A - Bridge outer walls.
1 x SHEET B - Smaller side walls and tarmac road surface.
1 x SHEET C - Brick arches and inner walls.
4 x PLAIN GREY CARDS - Strengthening parts.
1 x Small Laser cut grey card with wall top strips.
2 x INSTRUCTION SHEETS.

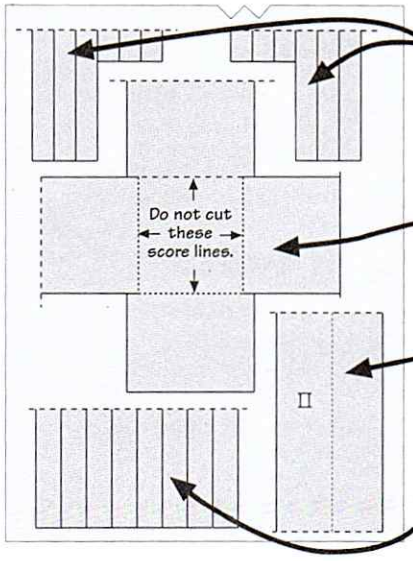
GREY CARD STRENGTHENERS

These sheets contains all the un-printed components that fit inside the bridge to hold it together and make it stronger.
There are four of these sheets in this kit.
Note: The dotted lines shown here represent the scores you need to cut along to release components.



GREY SHEET 1.
This sheet contains the inner formers for the main bridge.

You only need one of these depending on whether you want your bridge double track or single over the top.



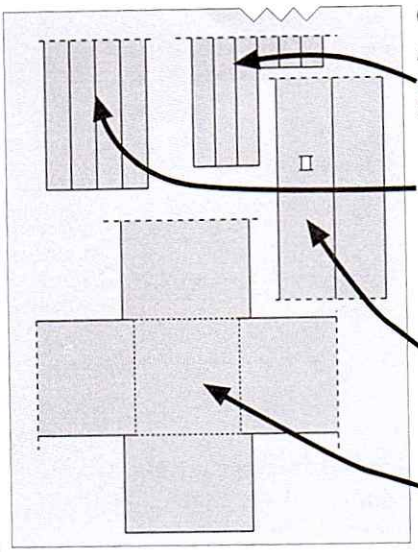
GREY SHEET 2
Abutment inner spacers 3 long and 3 short per set.

Wing wall former for double track bridge.

Bridge deck.

Inner spacers for the shorter walls marked W1. W2. & W3.
There are 8 in total giving 2 per wall.

NOTE:
The grey sheets have notches cut in the top edge for identification.
One notch - sheet 1. Two notches - sheet 2. and so on.



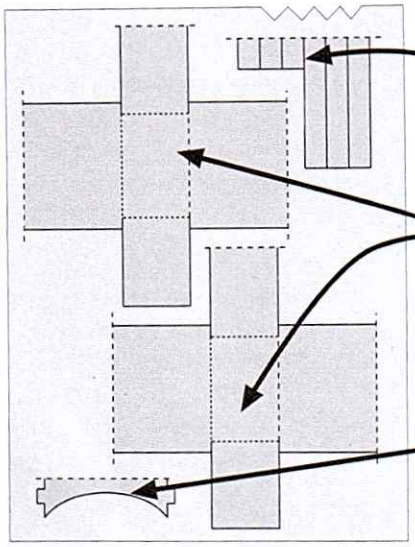
GREY SHEET 3

Abutment inner spacers 3 long and 3 short per set.

Inner spacers for the longer walls marked BW1. BW2. & BW3. There are 4 in total giving 2 per wall.

Bridge deck see Fig 7.

Wing wall former for double track bridge.



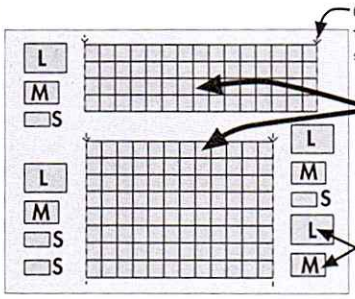
GREY SHEET 4

Abutment inner spacers 3 long and 3 short per set.

Wing wall formers for single track bridge.

Inner beam for single track former.

LASER CUT CARD COMPONENTS



Cut down the dotted lines to release the strips, smaller squares simply push out.

Wall top strips, plinths*

*Plinths & wall tops are identical it's just an architectural term used to differentiate their uses.

There are 4 sets of capstones for the abutments. Each set has 3 stones Large, Medium & Small that sit on top of each other centred.

PAINTING CORNERS & EDGES.

Because the kit is printed on white card, there are one or two corners and edges that just need touching up with a little paint the cover the exposed backing card.

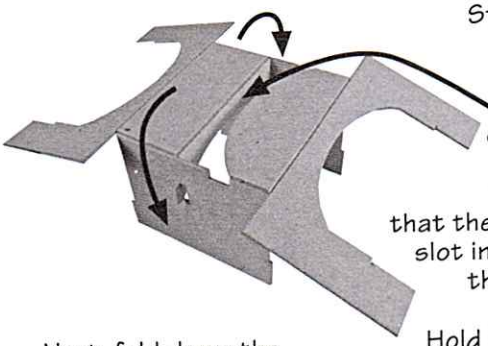
A set of very simple child's water colour paints is all you need and a fine paint brush.

Mix your colour with lots and lots of water, apx. 1 part paint to 8 parts water, maybe more. TEST ON WASTE CARD FIRST UNTIL YOU HAVE THE CORRECT SHADE AND COLOUR.

Fold the edges of the card back fully and gently run the point of your brush along the exposed white card. Rub the paint into the corner with tissue and wipe off any paint that has run onto the printed card. You will be shown which parts to paint as you build.

Fig.1. BRIDGE INNER FORMER

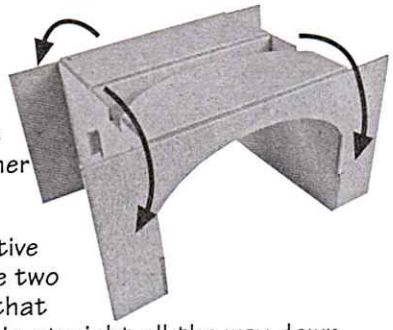
Whether you are building a single track or double track over bridge (The under part of both styles is double track) They both assemble in exactly the same way, so we are showing the double track version.

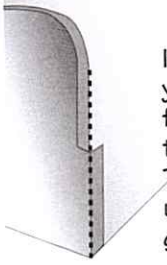


Start with the plain grey inner former.

Fold down the central inner beam then fold down the two side walls that the ends of the beam slot into, and fix so that the walls are held at right angles. Hold firm until fully set.

Next, fold down the two side walls and fix to the edges of the inner walls. Pay attention to the small cut away sections that slot into one another

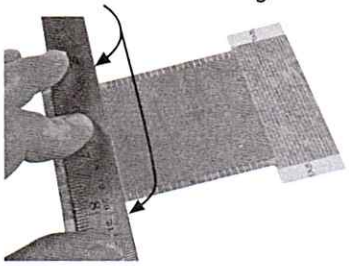




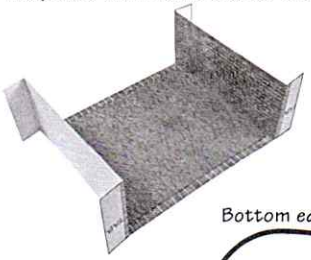
It's imperative you get the two fitting so that the corner is straight all the way down. Test without glue first so that you understand which edges to place your glue on.

Fig.2. FITTING THE ARCH.

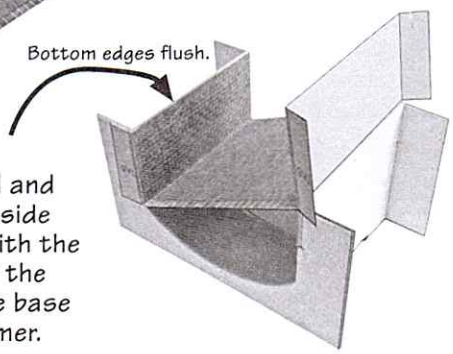
Lay the arch on a flat surface, and place a ruler across the top of the inner wall so that its edge lines up EXACTLY with the edges of the tabs on either side.



Fold the card up against your rule and press in to form a score. Repeat with the other side.

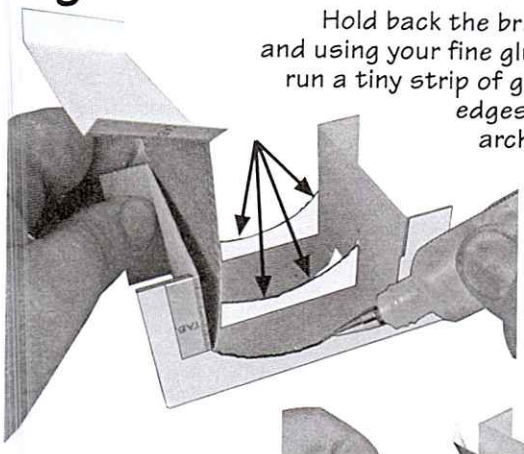


Fold the four tabs back and your arch is ready to be fitted into the bridge inner former.

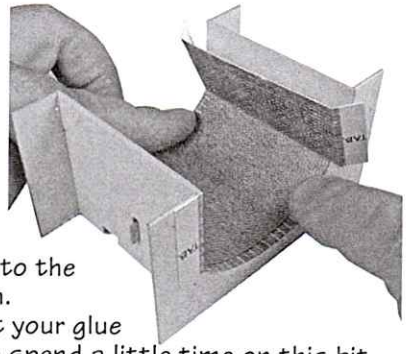


Fix one side wall and the tabs either side to the former with the bottom edge of the wall flush to the base of the inner former.

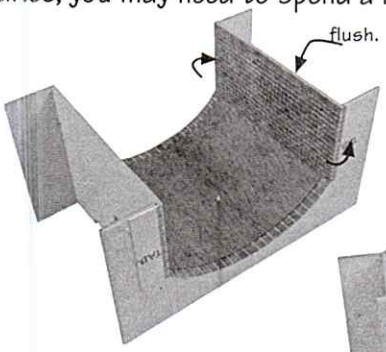
Fig.2. Continued.



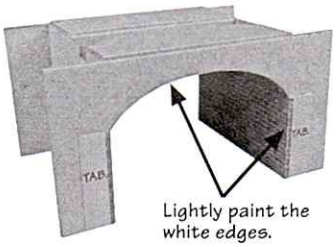
Hold back the bricked section and using your fine glue applicator run a tiny strip of glue along the edges of the three arched sections.



Now press the brick card down into the arch working it in with fingers all the way along making sure that every bit of the brick arch is fastened to the underside of each arch. Depending on how fast your glue dries, you may need to spend a little time on this bit.



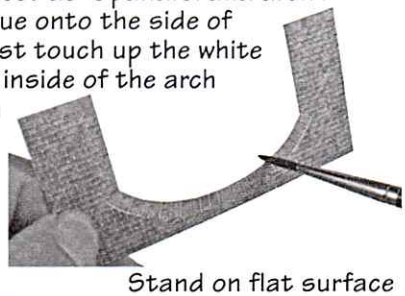
Now glue the other side wall and two tabs in place making sure the bottom edges line up flush.



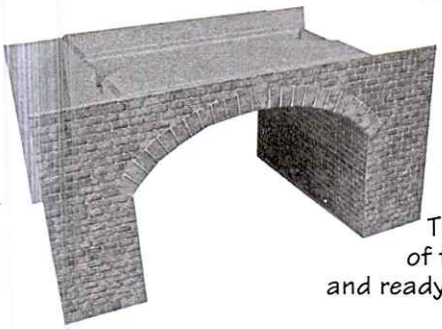
And there you have it, a perfectly formed bridge ready for the next stage.

Fig.3. OUTER BRIDGE WALLS.

Described on the kit sheet as 'Spandrel and arch'. These two bit simply glue onto the side of the bridge, but first, just touch up the white card edges around the inside of the arch with very watered down paint as described earlier. Also touch up the edges of the inner walls shown above



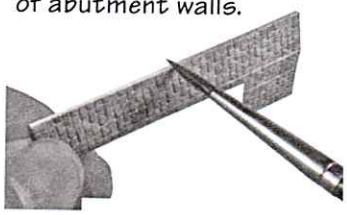
Stand on flat surface and fix the walls so they line up with the inner side walls.



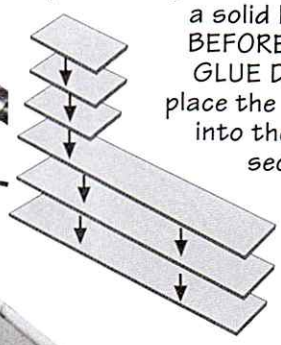
That's the main body of the bridge complete and ready for the next stage.

Fig.4. ABUTMENTS.

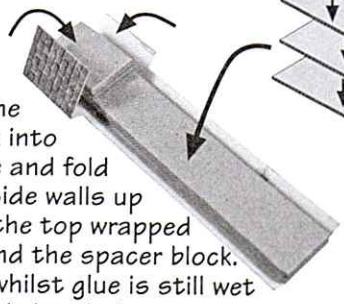
Start by painting the corners of abutment walls.



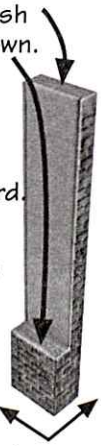
Fix three long and three short abutment inner spacers together to form a solid block. BEFORE THE GLUE DRIES place the block into the wall section.



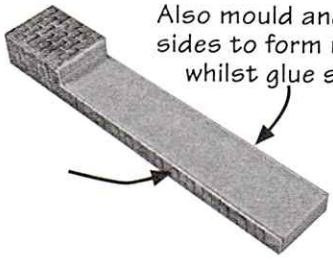
Fix the block into place and fold the side walls up and the top wrapped around the spacer block. and whilst glue is still wet mould the whole unit so that the inner spacers are all lined up. Place topside down on flat surface and push inner card down so they all line up with the outer card.



Push down.

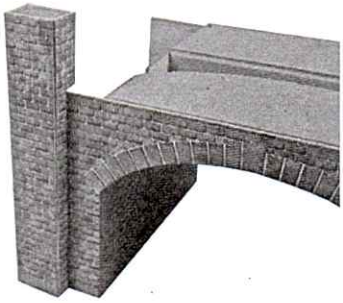


Also mould and hold sides to form right angles whilst glue sets.



All corners at right angles

Fix to the bridge wall FLUSH up to the end of the wall. The best way to ensure this is to stand bridge on end when fitting push all edges down on work surface



It should look like this.

Now assemble the other three abutments. But don't fit to bridge yet.

Fig.5. BRIDGE TOP WALL.

Glue all five layers of wall together. Stand on flat surface whilst glue is still wet and press all edges together so they are all flush all the way around.

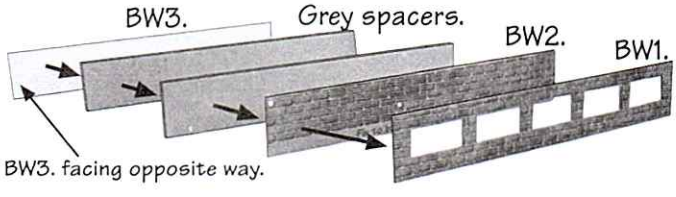
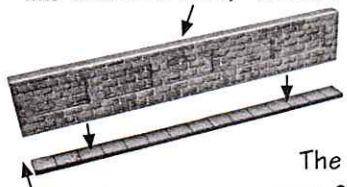


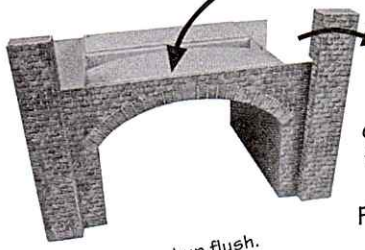
Fig.5. Continued.

Once you are happy that the wall is nicely squared up like this one here, attach it to one of the four longer laser cut wall top/plinth strips. Sit the wall on top with back edges both lined up flush.



Line back edge up to rear of wall.

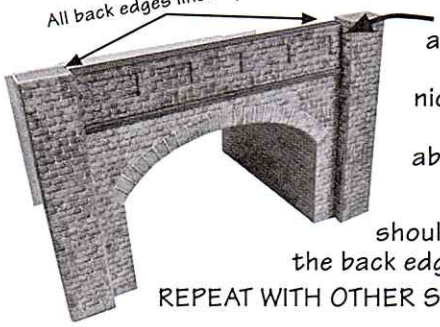
The wall now sits over the arch of the bridge in between the abutments.



Start by loosely fitting the second abutment so that the top is leaning outwards slightly to allow the wall to sit in between.

Fit the wall up against the first abutment and then push the second abutment up against it, making sure the wall is nicely glued to the bridge along it base and both abutments at either end.

All back edges lined up flush.

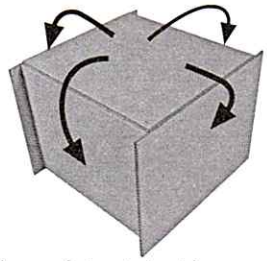


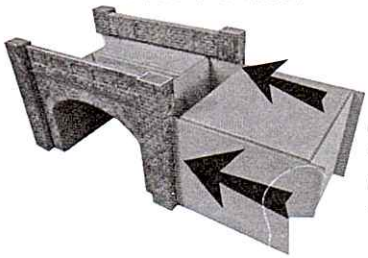
The back of the wall should be lined up flush with the back edges of both abutments.

REPEAT WITH OTHER SIDE OF BRIDGE.

Fig.6. WING WALLS & FORMERS

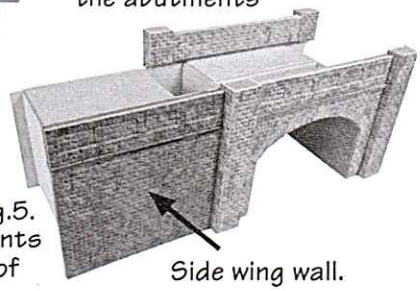
The two wing wall inner formers have sides that fold down to form a box structure. Glue together and hold firm until the sides are fast.





It then slots into the ends of the bridge fixed to the small strips of white card just behind the abutments

Fit the side wing wall, then assemble the four shorter upper walls in exactly the same way as you did with the bridge upper walls in Fig.5. but using wall components W1. W2. & W3. and two of the shorter spacers on gray sheet 2.

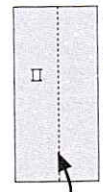


Side wing wall.

BEFORE FITTING TOP WALLS see Fig.7. The decking described there can act as a good template to keep the walls aligned when fitting.

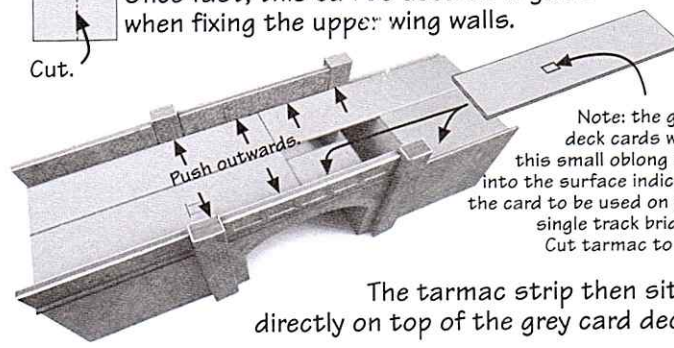
The rest of the bridge assembles in the same way, but you will need to make adjustments depending on how you are fitting it into your layout. For instance if you are using our PN148/9 tapered walls kit to make a ramp up to the bridge, as shown to your right, you will need to make various adjustments.

Fig.7. THE DECK



Cut the long scoreline on each grey deck card and lay on top of the bridge and wing walls. Then push each card outwards so the edges press up against the side walls of the bridge. Once fast, this can be used as a guide when fixing the upper wing walls.

Cut.

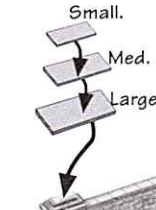


Push outwards.

Note: the grey deck cards with this small oblong cut into the surface indicate the card to be used on the single track bridge. Cut tarmac to fit.

The tarmac strip then sits directly on top of the grey card deck

Fig.8. THE CAPPING STONES

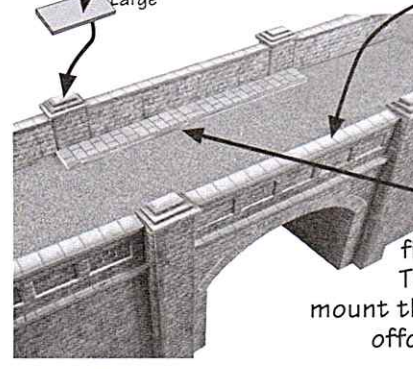


Small.

Med.

Large

The three oblong cap stones fit one on top of the other centred, and when fast are then fitted to the four abutments.

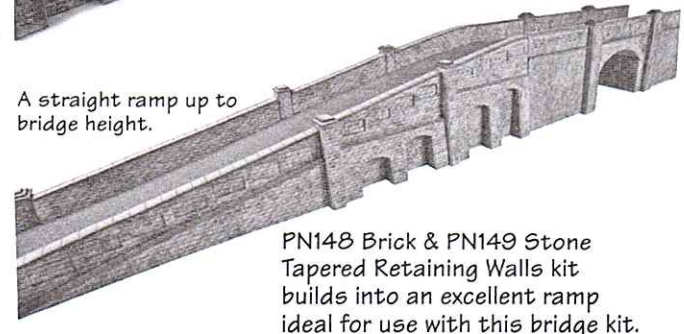


The top stone strips sit on top of each wall with edges overhanging equally.

If you are putting a roadway over the top of the bridge, cut out the paving strips and fit along the wall sides. These look better if you mount them on thick grey card offcuts to give them a bit of extra height.

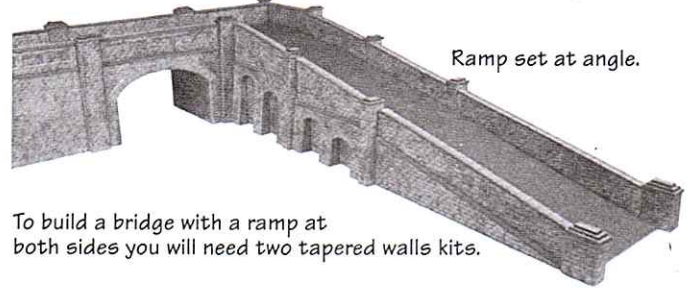
This bridge kit is designed to stand with our retaining walls kits shown below, helping you build a whole variety of structures at different levels.

Used here with retaining walls kit, PN144 Stone & PN145 Brick.



A straight ramp up to bridge height.

PN148 Brick & PN149 Stone Tapered Retaining Walls kit builds into an excellent ramp ideal for use with this bridge kit.



Ramp set at angle.

To build a bridge with a ramp at both sides you will need two tapered walls kits.