PO246/7
00/H0 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 or Speed Bond, see right.
4. A cutting surface - a sheet of card or a cutting mat.
5. Fine point tweezers to hold the smaller components.
6. 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.

2 MAKE YOUR 'BUILDERS YARD'.

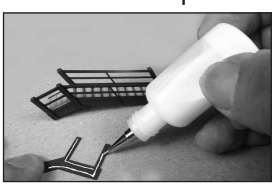
This is an area kept away from your working surface, where you store ALL components extracted from the base sheets until needed.
Use a piece of thick card or a tray to make your builders yard then cut out all the components and place them in neat piles ready for use.

Your **WORKING** area should have a clean flat surface, and should only contain the kit parts you are actually working on.

EVERYTHING ELSE SHOULD BE KEPT NEATLY ARRANGED IN THE BUILDERS YARD, UNTIL NEEDED.

PLEASE NOTE: Don't throw anything away. Keep all offcuts and waste card in a box until the kit is finished, just in case you can't find anything. The chances are that it will be there.

The METCALFE Ultra Fine Tip Glue Bottles are useful 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.

INSTRUCTION SHEET 1

CHECK LIST

This kit pack should contain the following:

2 x SHEET A - All printed bridge walls.
2 x PLAIN GREY CARDS (Sheet 1) - Bridge formers etc.
2 x PLAIN GREY CARDS (Sheet 2) - Wing wall formers etc.
1 x SHEET B - Double track inner arch brickwork.
1 x SHEET C - Single track inner arch brickwork.
1 x Small Laser cut grey card with wall topstone strips.
1 x SHEET of Tarmac strips .
1 x INSTRUCTION SHEETS.

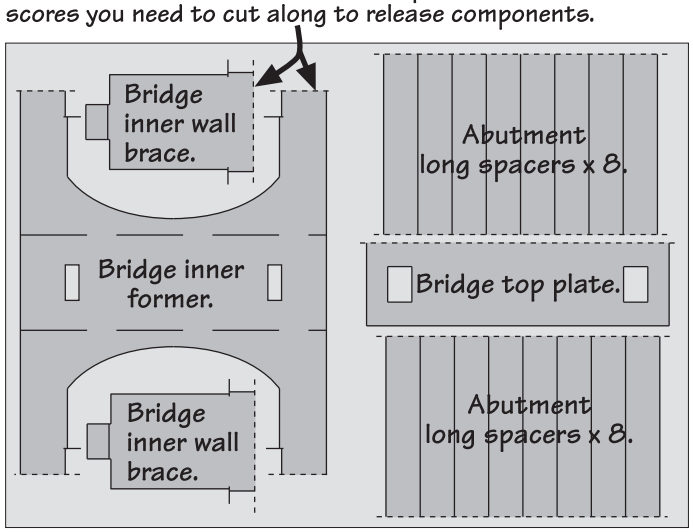
UHU All Purpose Adhesive Glue
Is available in standard and solvent free. Both types are fine for use in our glue bottles, contrary to the warning on the back of the pack.

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**

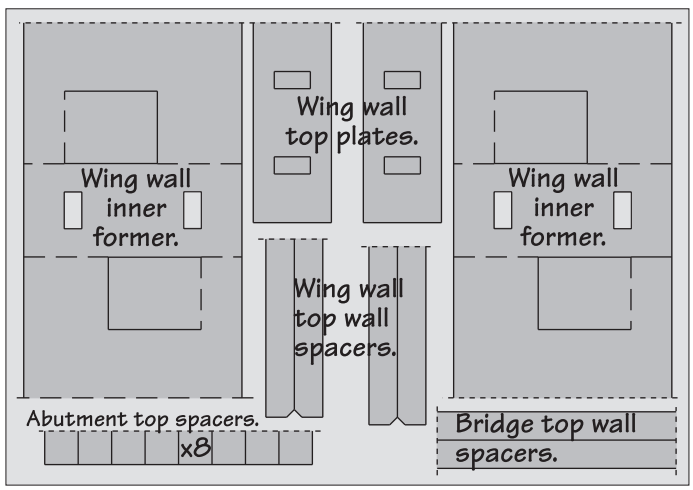
GREY CARD STRENGTHENERS.

These sheets contains all the un-printed components that fit inside the walls to make them thicker and stronger. There are two of these sheets in this kit.

Note: The dotted lines shown here represent the scores you need to cut along to release components.



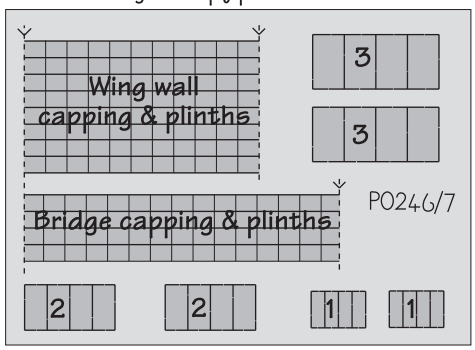
SHEET 1.



SHEET 2.

LASER CUT CARD COMPONENTS

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



This sheet contains the wall top capping stone and plinth* strips.

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

The rectangles numbered 1,2 & 3. are the capping stones for the eight abutments. The smallest 1. fits centred on to no. 2. which then sits onto the largest size 3. These are best left in the sheet until needed.

PAINTING CORNERS & EDGES.

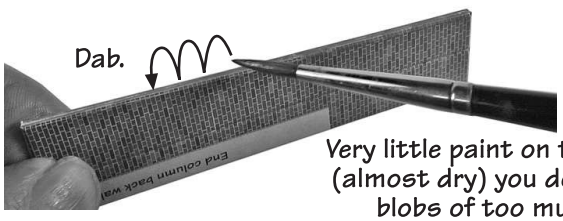
Before you start any construction, you may want to paint over the exposed corners where the plain card shows through. This is not a hard job and only takes a few moments, and is much easier than trying to paint the edges after the kit has been built.

NOTE: the **stone** structures PO245, 247 and 249 should not need edges painting as the base card is of a very similar colour. Painting can make it look worse.

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 5 parts water, maybe more. TEST ON WASTE CARD FIRST UNTIL YOU HAVE THE CORRECT SHADE AND COLOUR, AND HAVE PERFECTED THE TECHNIQUE FOR APPLYING TO BEST EFFECT.

Fold the edges of the card back fully and gently dab your brush along the exposed card to give a dappled effect.

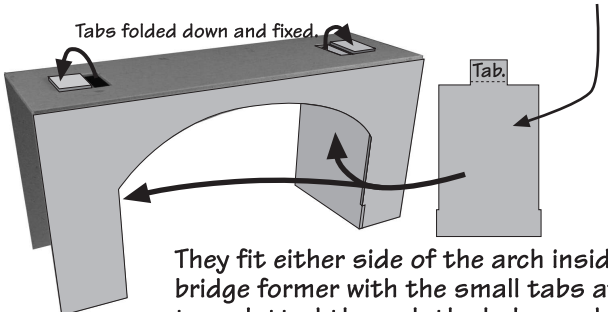


Very little paint on the brush (almost dry) you don't want blobs of too much paint.

Remember, you only need to just slightly tint the card with a little colour, DON'T paint a thick solid line down the edges, you will only make it look worse.

Fig.1. BRIDGE INNER FORMERS.

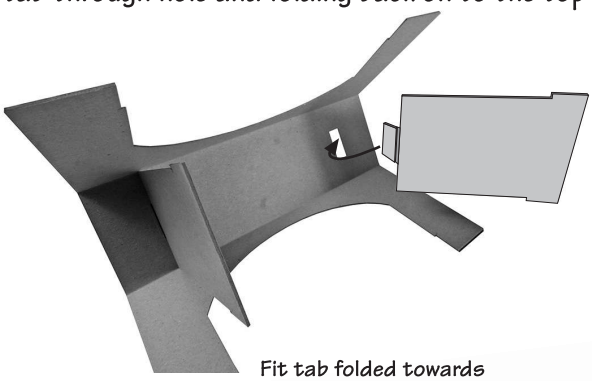
There are two identical grey card formers that are each held to the correct shape with two inner wall braces

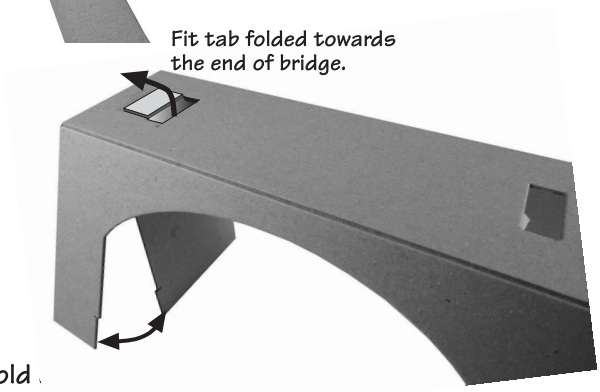


They fit either side of the arch inside the bridge former with the small tabs at the top, slotted through the holes and folded down and attached to the top.

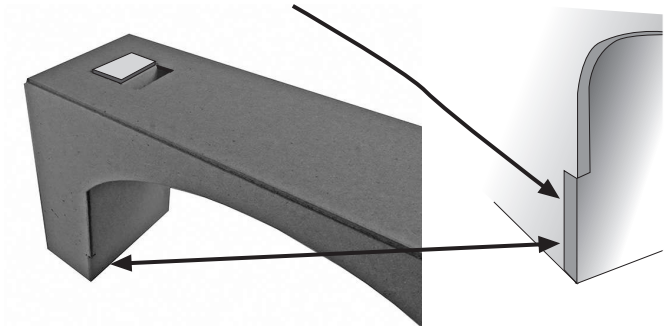
Fig.1. Continued.

Attach the brace walls from underneath fitting the tab through hole and folding back on to the top deck





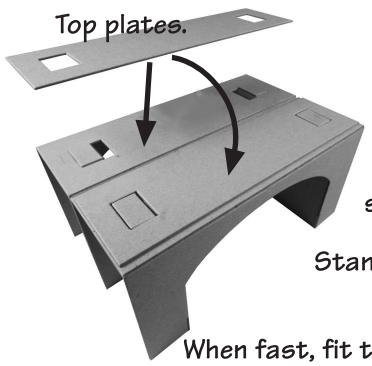
Next, fold
to the edg
walls.
Pay attention to the small cut away sections that slot into one another



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

Fig.2. DOUBLE or SINGLE TRACK ?

The upper part of the bridge can be built at double track or single. Now is the time to decide.



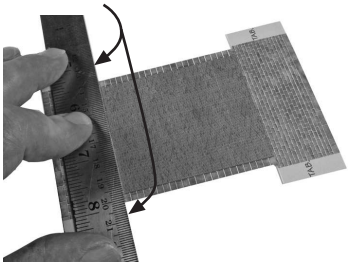
If you want single track just discard one of the inner formers. If double track width, the glue the two formers together side by side. Making sure ALL edges are flush.

Stand on a flat surface when lining the two halves up.

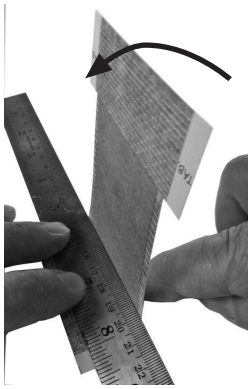
When fast, fit the two bridge top plates on to the upper deck of the formers. These level up the surface around the tabs and also act as guides later when attaching the top walls.

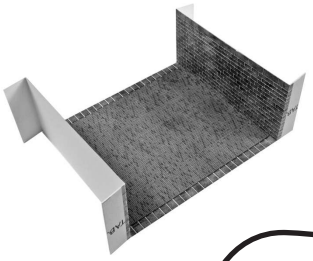
Fig.3. FITTING THE INNER ARCHES

Single and double track fit exactly the same way. Start by following the instructions for extracting the inner arches from the base sheets, then out lay flat 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.

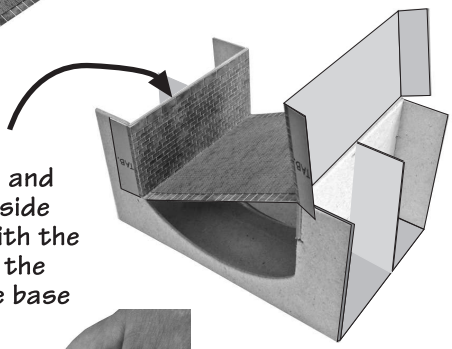


Fold the card up against your rule and press in to form a score. Repeat with the other side.

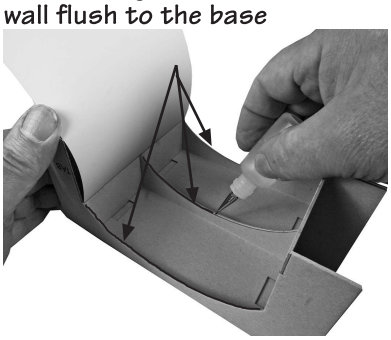




Fold the four tabs back and your arch is ready to be fitted into the bridge inner former.

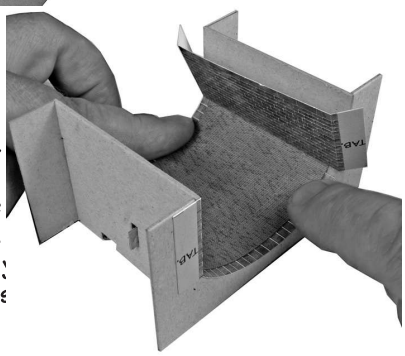


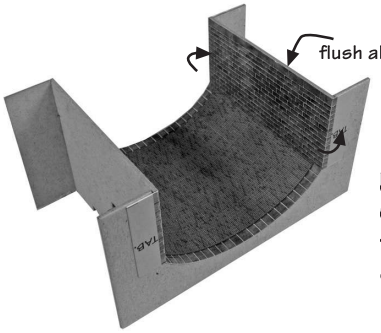
Fix one side wall and the tabs either side to the former with the bottom edge of the wall flush to the base



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.

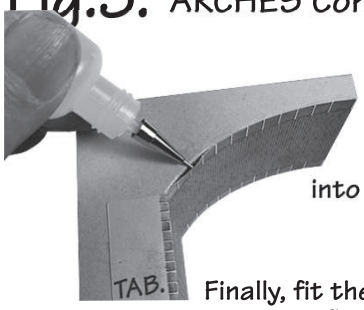
Now press the brick card down into the arch working it in with fingers all the way along making sure that every bit of the brick arch is fastened to the underside of each arch. Depending on how fast ... dries, you may need to ... little time on this bit.





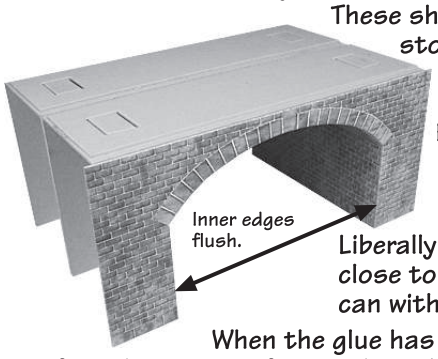
...low glue the other side ...all and two tabs in place ...aking sure the bottom ...dges line up flush.

Fig.3. ARCHES Continued.



If any parts of the inner arch are not properly stuck to the grey former, just spot glue them back into place before you proceed.

Finally, fit the side walls one at a time. These should be fitted whilst stood on a flat surface so that the base edges all line up. Fit so that the inner edges of the walls line up flush.



Liberally spread the glue as close to the edges as you can without it oozing out.

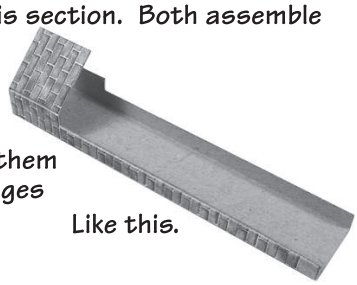
When the glue has started to set, turn it face down on surface and weight down or hold down all areas until the glue has set. The card can be a little curly and this will ensure that the card doesn't peel away from the grey card inner former and warp.

Repeat with the other side. Remember, take your time and always ensure that all surfaces are fully glued and dry before you proceed. It's very easy to rush and end up with a warped and wonky bridge.

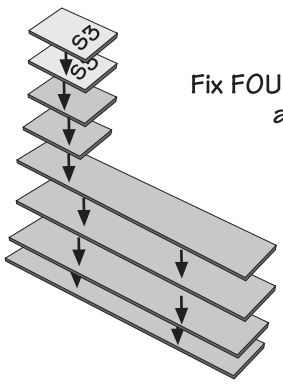
Fig.4. THE ABUTMENTS.

There are two types of abutments which will become apparent at the end of this section. Both assemble in exactly the same way.

Start by folding the three scorelines on each abutment fully to loosen them up, so it will sit with all edges standing at right angles.

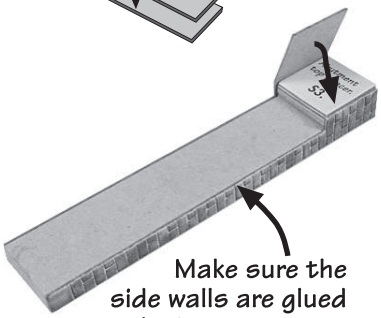


Like this.



Fix FOUR long and TWO short plain grey abutment spacers together plus TWO BLUE 'S3' spacers to form a solid block.

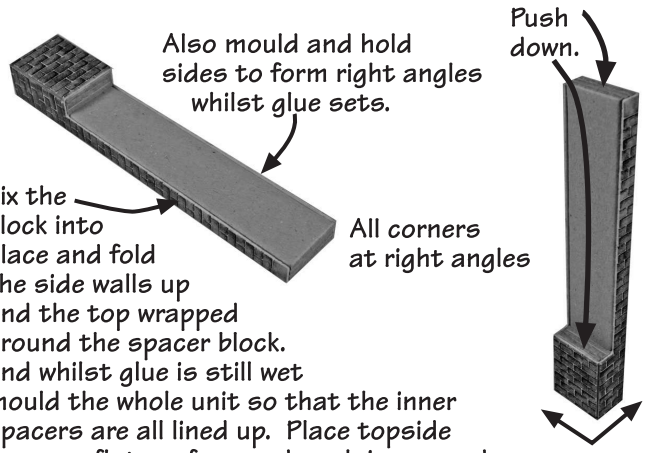
BEFORE THE GLUE DRIES place the block into the wall section. Glue and fold the outer walls around the spacers.



Make sure the side walls are glued to the inner spacers.

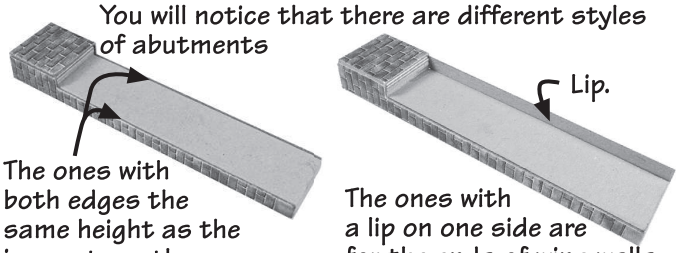
Quickly go to Fig.5. before the glue dries - hurry!

Fig.5. SQUARING UP THE ABUTMENTS.



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.
BUILD ALL THE ABUTMENTS and place back in builders yard until needed.

You will notice that there are different styles of abutments

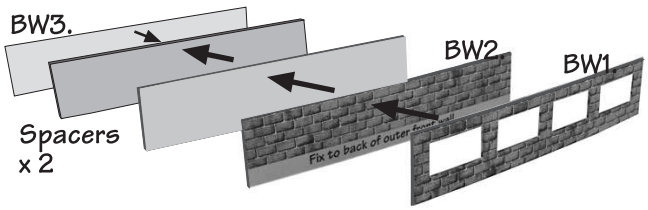


The ones with both edges the same height as the inner strengtheners are for the bridge side walls

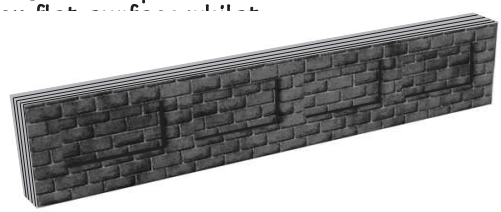
The ones with a lip on one side are for the ends of wing walls. NOTE: There are two right hand and two left hand.

Fig.6. TOP WALL SECTIONS.

The top wall is made up by laminating 5 layers of card as shown here, with BW1. at the front and BW3. at the back.

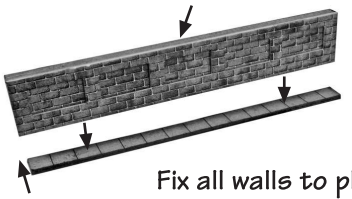


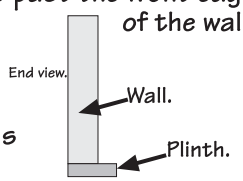
Make sure all edges line up flush. Stand on flat surface whilst glue is still wet from the top inwards from both sides to align all layers of card.



The shorter 'SW' walls fit together in the same way.

Fix a strip of the laser cut plinths to the underside of each wall with the back edges flush so that the front edge of the plinth sticks out past the front edge of the wall.





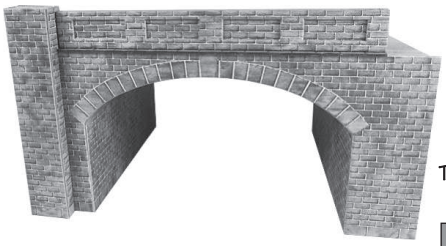
Fix all walls to plinths and leave to dry.

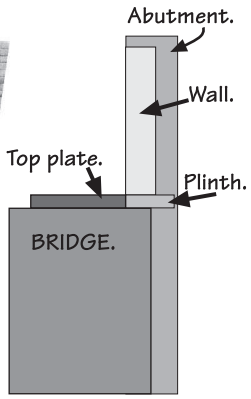
Fig.7. FIT THE FIRST ABUTMENT.

To start with, just fit one abutment on to the side wall of the bridge with this edge flush to the edge of the side wall. The wider top section sitting down on the top of the bridge.

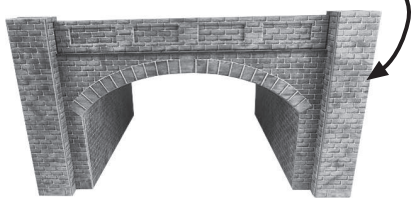
Fig.8. FIT BRIDGE WALLS.

Sit the wall on the top of the bridge so it fits up against the abutment and is seated on top of the bridge with its back edge up against the top plate.





Next, fit the other abutment.

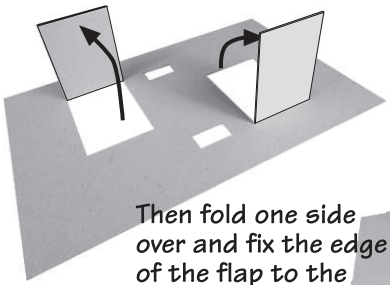


Wait for them the dry fast before repeating the whole thing on the opposite side of the bridge.

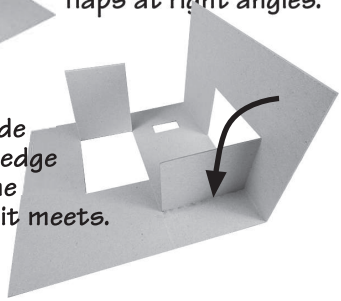
Fig.9. THE WING WALLS.

These are the bits that fit either side of the bridge where it runs into the embankments.
You may or may not need to use these, depending on the design of your layout.

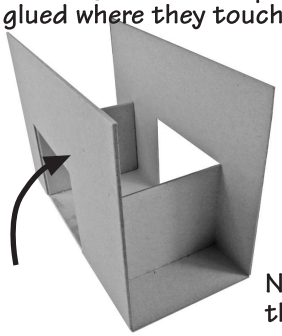
Starting with the inner former, lay flat and fold up the two flaps at right angles.



Then fold one side over and fix the edge of the flap to the grey card where it meets.



Fold the other side up with edges of the flap glued where they touch.



Hold firm until glue sets and there you have it!

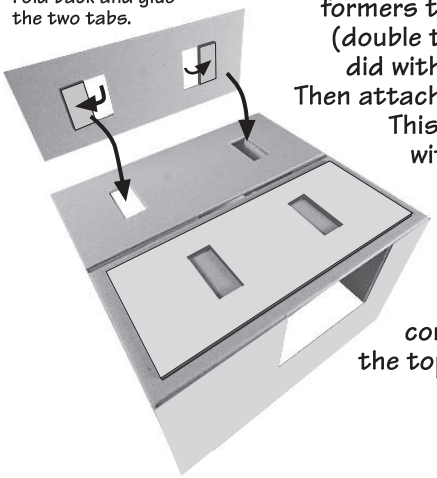
Now make the rest up.

CONTINUED ON SHEET 2

PO246/7
00/HO RAILWAY BRIDGE

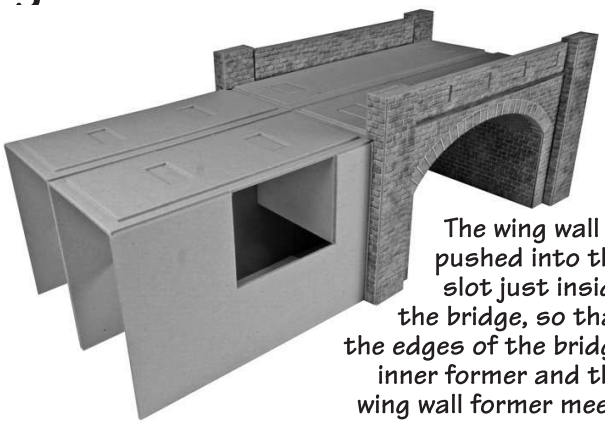
Fig.10. THE WING WALLS Continued.

Start by gluing two wing wall formers together side by side (double track version) as you did with the bridge formers. Then attach the two top plates. This brings the top, level with the bridge height.



The tabs in the top plates are located into the corresponding holes in the tops of the wing walls.

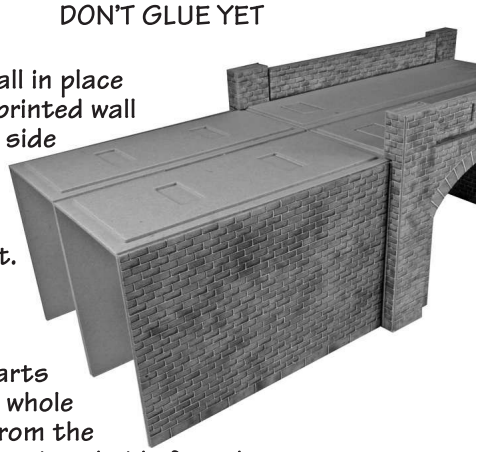
Fig.11. FIX WING WALL TO BRIDGE.



The wing wall is pushed into the slot just inside the bridge, so that the edges of the bridge inner former and the wing wall former meet.

DON'T GLUE YET

With the wing wall in place glue one of the printed wall cards on to one side of the former pushed up against the bridge abutment.



Just as glue starts to set, take the whole wing wall away from the bridge and place printed side face down and hold flat against work surface until the glue has fully set. This will avoid the printed sheet bending away from the inner former, keeping the surface nice and flat.

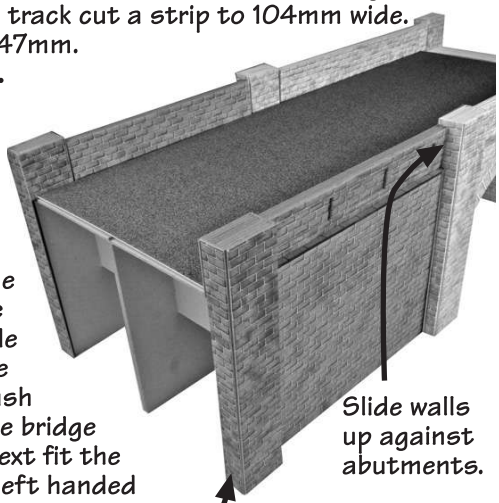
Now repeat the with the other side of the wing wall.

Once all is set and dry, fit the wing wall structure back into the end of the bridge ready for the upper walls.

INSTRUCTION SHEET 2

Fig.12. WALLS and ABUTMENTS.

Start by laying a strip of tarmac sheet across the bridge and over the wing wall, there is no need to glue it down just yet. This acts as a guide when fitting the side walls. You will need to cut it to fit though.
If using double track cut a strip to 104mm wide.
If single track 47mm.
But check first.



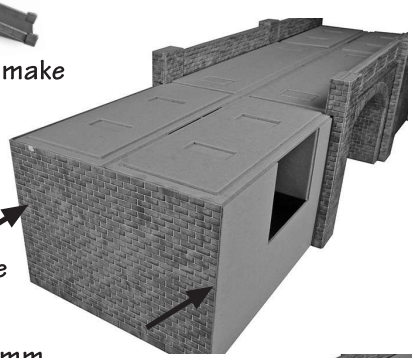
Fit the two side walls on to the ledge along side the edge of the tarmac and push the against the bridge abutments. Next fit the two right and left handed wall end abutments, note how the end of the abutments wrap around the end of the wing walls

Slide walls up against abutments.

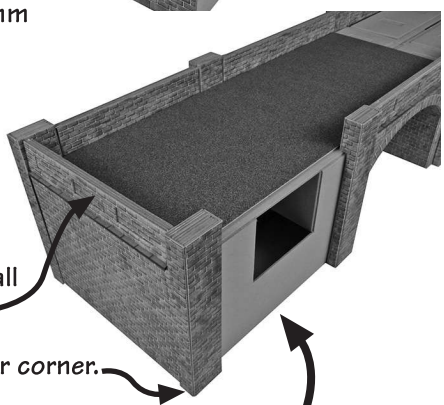
Fig.13. ADDING THE RAMP KIT at 90°

If you are using our Tapered Retaining Walls kit to run a ramp up to the bridge at angles like this.

Then you will need to make a few alterations to the wing walls.



Attach the side wall, that would normally be where the ramp is about to go, on to the end of the wing wall (trim to 114mm wide for an exact fit).

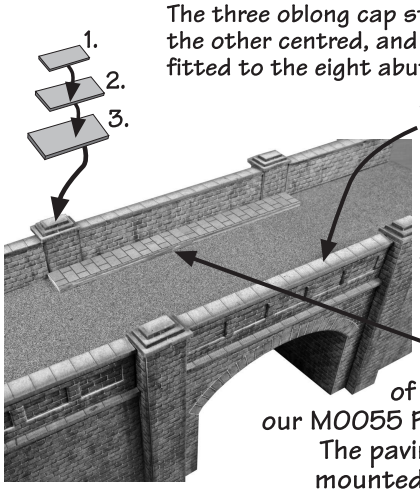


Then fit the top side wall (drop tarmac in place as described in Fig.12) followed by the end abutment then the other side wall sits crossways here with the second abutment on the other corner.

The gap here is now just the right size for our PO248 brick or PO249 Stone ramps to fit up against it.

Fig.14. THE CAPPING STONES.

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



The top stone strips sit on top of each wall with edges overhanging equally. Fit these first, before the abutment capping.

If you are putting a roadway over the top of the bridge, try fitting our M0055 Paving cut down to fit. The paving looks better if it is mounted on to thick grey card offcuts (left over from the grey strengtheners) to give them a bit of extra height.

OTHER KITS TO DESIGNED TO FIT ALONG SIDE YOUR BRIDGE KIT

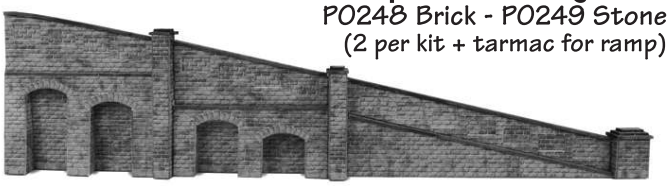
Retaining Wall

P0244 Brick - P0245 Stone

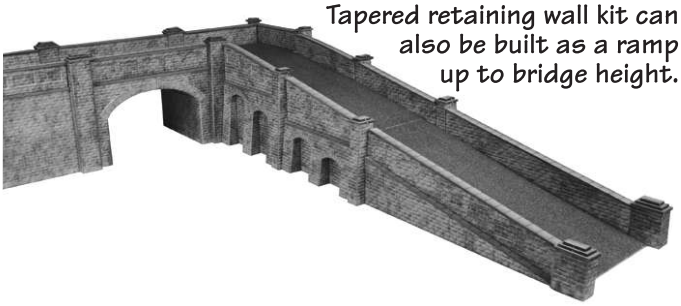
Designed to stand with our Bridge kit P0246 Brick or P0247 Stone.

Tapered Retaining Walls

P0248 Brick - P0249 Stone
(2 per kit + tarmac for ramp)



Tapered retaining wall kit can also be built as a ramp up to bridge height.



EXTRA NOTE:

GETTING THE STONES THE RIGHT WAY UP.

There is a right way and a wrong way!

If you are building P0247 Stone Bridge
Look carefully at the stone work as you build
The bottom edges of the stones are slightly more shaded than the tops. But don't worry too much, if you get it wrong, you have to look very hard to spot the difference.