

# Dagnell End

Southern Region layouts are increasing in popularity and Redditch Model Railway Club has spent years building this fascinating urban layout set in the transition era, as **GUY CRADDOCK** reveals. *Photography, Mike Wild.*



**D**agnell End was born out of the desire by members of the Redditch Model Railway Club to build a totally new exhibition layout that was based in an urban rather than rural setting. We wanted to get away from green fields and create the challenge of filling the layout with scratch built buildings. Construction of the layout started in February 1998 and was planned to take three years: little did we know it would actually take eleven and a half!

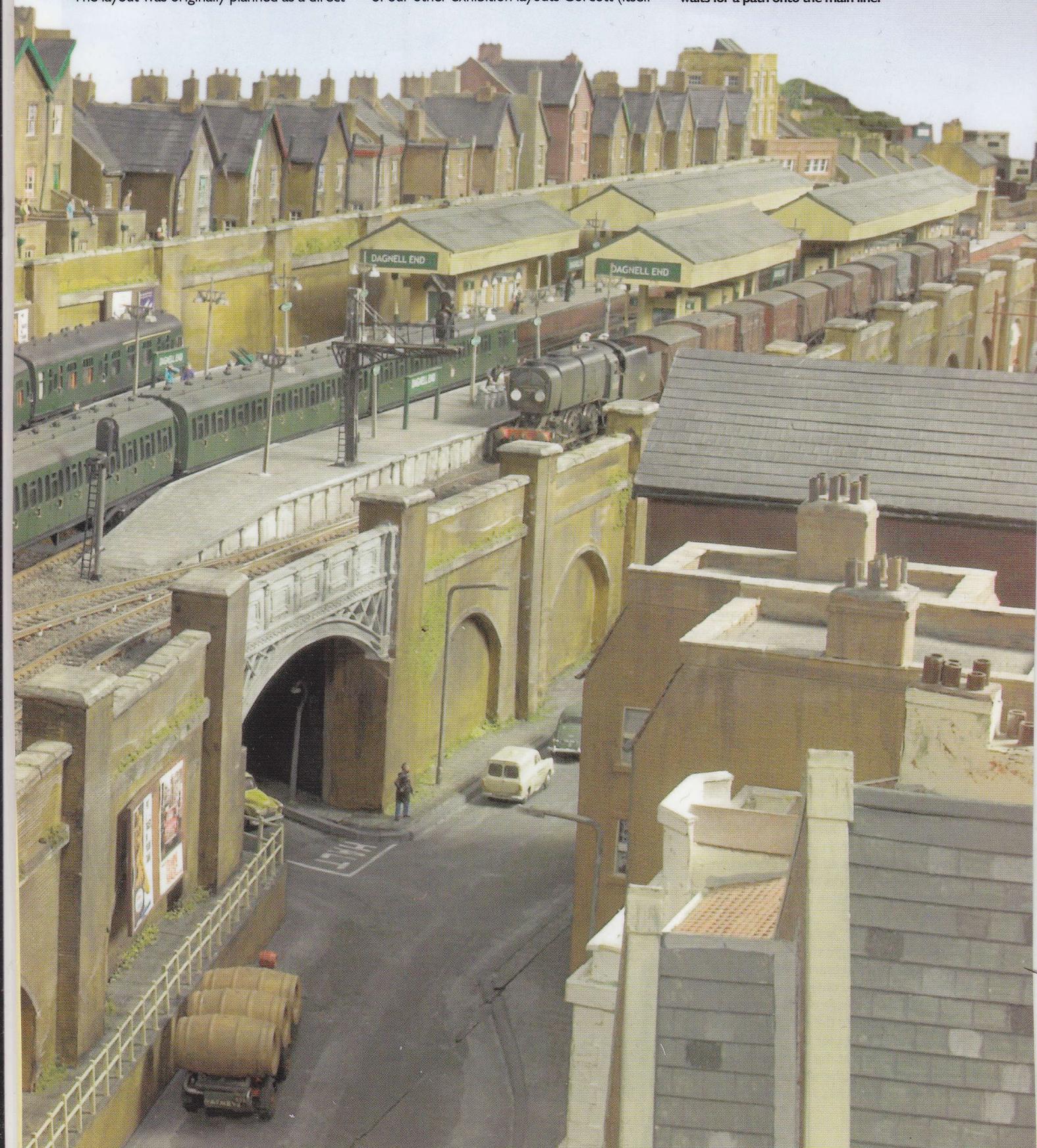
The layout was originally planned as a direct

replacement for Arrowmouth which featured in HM3. The intention was to strip the scenery from the baseboards and use them as the basis of a new layout. The only part of the original plan to survive in the layout we have constructed, however, is the self contained underground section running along the front. When it came to the crunch we couldn't bring ourselves to dismantle Arrowmouth and so a revised layout plan was designed around a set of totally new baseboards that fits onto the front of the fiddle yard we also use for two of our other exhibition layouts Gorcott (itself

## STATISTICS

- **Owner:** Redditch MRC
- **Scale:** 'OO'
- **Length:** 18ft
- **Width:** 11ft
- **Track:** Peco code 100
- **Period:** 1960s, BR Southern Region

 **Below:** Capturing the spirit of Southern suburban operations a 4-EPB departs Dagnell End as a 4-CIG arrives. In the loop a 'Q1' waits for a path onto the main line.





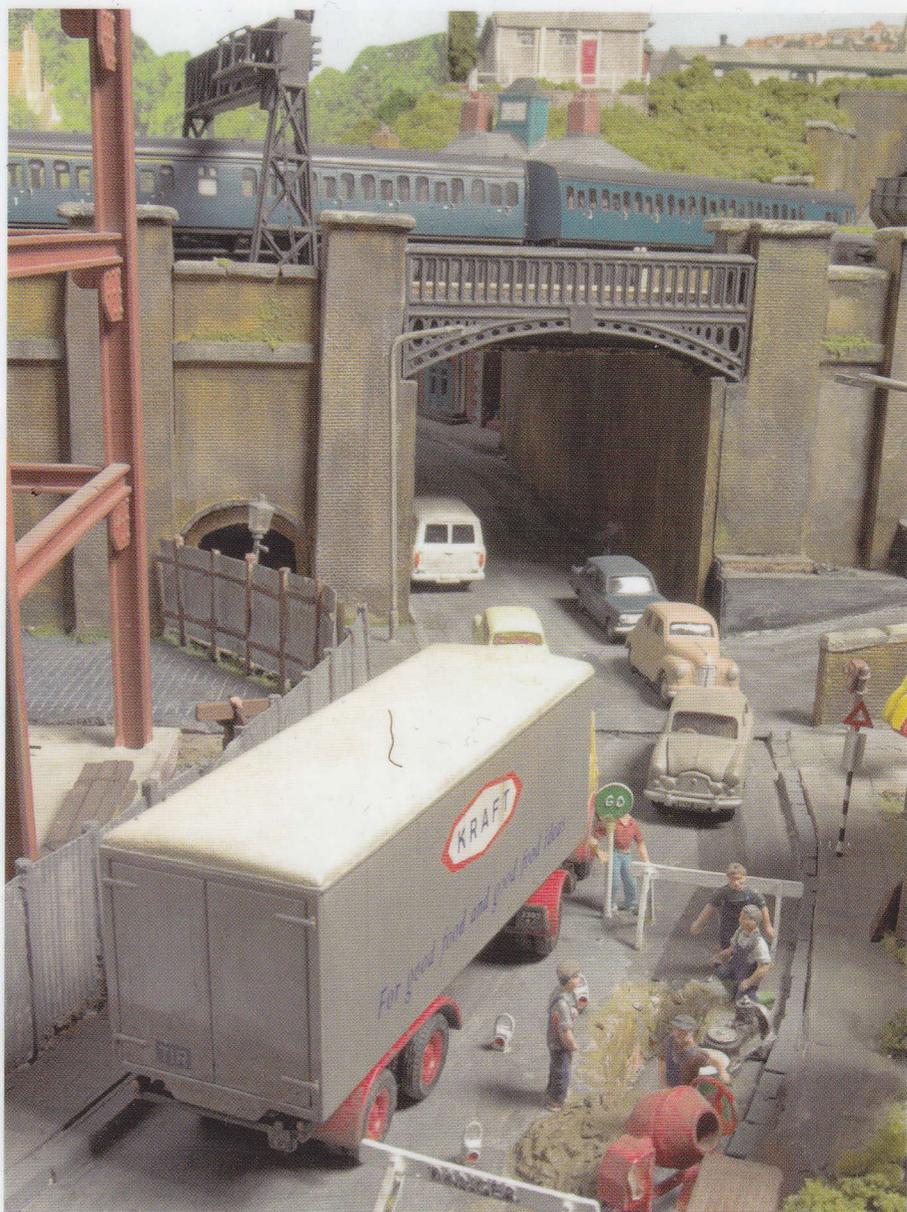
now being dismantled as part of our new project (called Oakenshaw) and Chilcompton (HM8).

Dagnell End is a fictitious suburb of South West London somewhere close to where the real town of Brentford is situated, set in the 1960s. We have used modeller's licence in that the London Underground Piccadilly line to Heathrow Airport is on the surface at the real location but we wanted it to look, well, underground. We have used some of the buildings in the real location as the basis of our models including the local library and a number of the houses.

Originally we planned to wire the layout for conventional control, but as virtually all of the locomotives and electric multiple units will only ever run on Dagnell End we decided to go for DCC. It was a big step to take and we had a very steep learning curve to find out what it was all about as only a couple of our members had ever dabbled in it before.

As with any layout project you need targets or goals and thanks to Paul Jones, the exhibition manager of the Warley show at the National Exhibition Centre, he agreed to allow us to make the layout's exhibition debut at the 2009 show. The booking was made a number of years before the event, but at the time much of the layout had yet to be built including all of the main layout baseboards. In the end, despite a couple of glitches we know the layout works and can carry on improving the operation as we get more confident with DCC.

We opted for 'OO' scale because being a club layout we thought the use of any of the finer scales would present problems with members having to convert any existing stock. The key to the package we have created with Dagnell End are the correctly formed and weathered trains for the era portrayed – you'd be surprised at the number of layouts with beautifully weathered locomotives hauling pristine coaches and wagons!





**Below:** A London Transport RT stands in the shadow of Jenkins chimney as a Class 33 ambles through the station above with a parcels working.



**Left:** A 'Q1' pauses in the loop with its van train.



**Below left:** Street scenes have been modelled with stunning detail including this road works scene.



## Baseboards and track

The baseboards are of a conventional solid top construction of plywood and chipboard. A sub base which carries the track has been added 3 1/2in above this and is made of chipboard. The result is very firm and solid base for the railway. The boards are joined together using pattern maker's dowels for alignment, which are incorporated in a metal rectangular plate. There are two of these in the ends of each board. The dowels allow the layout to be assembled quickly at shows with the track correctly aligned every time.

On previous layouts we had used separate trestles to support the layout and whilst this has the advantage that they can be used on more than one layout we were keen to find a more stable method of support. We have fitted aluminium pockets into each baseboard and the legs simply push into the sockets making assembly very quick. We had the advantage that we got the aluminium box section that makes the pockets for nothing

and it even came pre cut and drilled for us to use.

All track on the layout is Peco code 100 laid on cork and then ballasted with fine granite chippings which have been stuck in place using diluted PVA glue, in the conventional manner. Once the track was laid the rail sides were painted a rust colour and the whole formation has since been toned down using a variety of watered down acrylic colours.

Being based on an electrified section of the Southern Region we had to add a third-rail to all of the main running lines. This has been done using the Peco system but getting the right profile of rail proved difficult as the system uses code 60 rail which Peco produces for its 'Z' gauge track.

As many retailers don't stock this scale we had to specially order the rail, which delayed progress. It took over 80ft of the rail to do the whole layout, but a team of six members managed to lay all of the third-rail over three evenings.

## Preparing for DCC

There are many myths about DCC usually spread by those who do not understand the principles. Basically the DCC system puts a constant alternating current though the whole layout making all of the track live and then uses this current to send command signals to locomotives and other electrically powered items such as signals or points.

We have wired the layout on a bus bar principle except that our bar is either a red or black wire and we have spliced dropper wires from each track section using tap splice connectors which are designed for electrical wiring in cars available from suppliers such as Maplins.

This system means the wires can be joined without the need to solder the joints. We haven't done anything fancy like splitting the layout up into control sections to isolate any potential short circuit to one area of the layout but what we have done appears to work well on the layouts first outings.



We looked at the various options to control the trains. There are three main manufacturers which we considered - Lenz, Digitrax and NCE - which make a suitable system for what we needed. All are priced within pounds of each other meaning there is not much between them in terms of cost. Following some advice and evaluation of the systems through Digtains from Lincoln we went for the NCE system which has a large control throttle with mainly single shortcut buttons such as locomotive whistles when using DCC sound locomotives. It may not suit everyone's requirements, but an interesting feature is that following a short circuit the system restores back to what it was doing before the system cut out whereas some other systems totally reset. The front of the layout does not have a control panel, with all control coming from the hand held controllers. We have used Lenz 150 units to control the points. These basic units have six outputs and are ideal to produce the burst of power needed to operate a point

motor. We installed Peco point motors on the layout but they are not proving to be reliable so we are currently replacing these motors with trusty H&M motors which are reliable when overhauled and the microswitch removed.

The signals (which are colour lights based on Eckon kits) are powered by E-Z Point Accessory Decoder units which are more expensive and only have four outputs. However the cheaper Lenz units can only power points and do not give the continual output required for colour light signals. Each output to signals and the points has a unique address number and using the macro function on the NCE system we have been able to link these together to create route setting to make running the trains easier for the operators.

### Buildings

All the buildings on the layout are scratch built and being an urban setting these play an important part in setting the scene for the layout. We undertook a number of field visits

## WHERE TO SEE

**Dagnell End is booked to appear at the following exhibitions:**

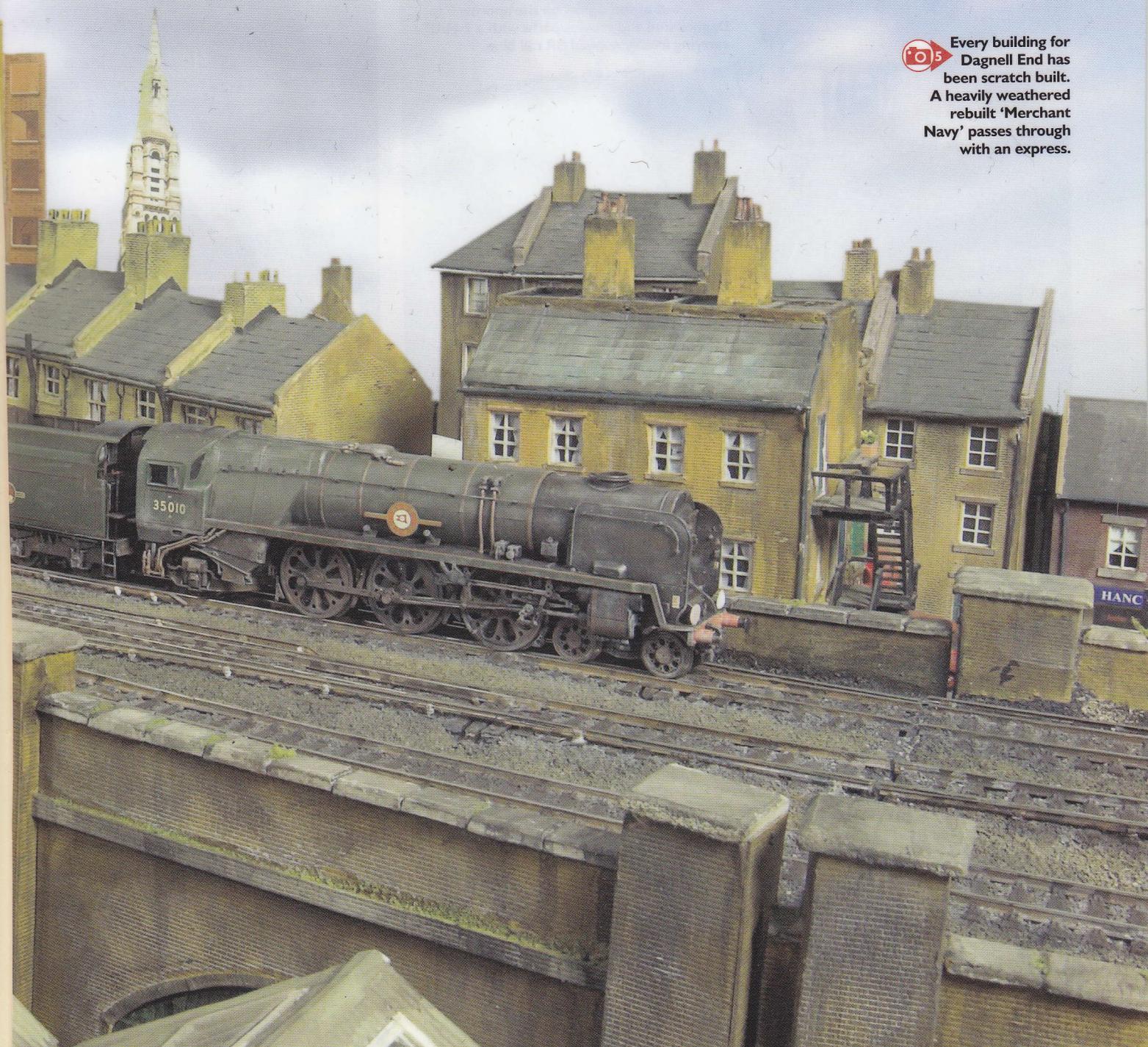
- September 18-19 2010 - Redditch Model Railway Exhibition
- April 16-17 2011 - Sutton Coldfield Model Railway Exhibition
- November 25-27 2011 - 49th Annual Wakefield Model Railway Exhibition,
- February 5-6 2012 - Stafford Railway Circle Exhibition

to London to gain information on potential buildings for the layout.

There are over 60 buildings on the layout though a building does in some cases consist of more than one house because some houses are in blocks of four properties. Every building is scratchbuilt, mainly using thick card for the basic structure for all but the larger buildings



Every building for Dagnell End has been scratch built. A heavily weathered rebuilt 'Merchant Navy' passes through with an express.



office facilities. The design and the building that fronts the street outside are based on the current station at Putney Bridge which whilst now part of the Underground system was originally built by the London and South Western Railway.

The station is controlled by a 1930s art deco style signalbox. Like everything else the building is scratch built and was actually started for a much earlier layout project called Portsea. The signalbox has a full interior with a miniature lever frame complete with correctly painted levers.

### Scenery

The scenery has been built around the track formation to create the illusion of the railway being built through it rather than the other way round. As mentioned earlier, the track formation has been laid on sub bases above the main boards so, whilst the actual track remains level, the changes in scenery levels creates the illusion of an undulating track formation. This has been helped by canting the track on the corners at each end of the layout.

Whilst much of the layout is covered in either buildings or railway we were keen to have some greenery too. This scenery is supported on expanded polystyrene covered with plaster bandage with additional Polyfilla. When this is

dry, the ground is painted using mixtures of green and brown poster paints. The scenic ground cover is then built up using chopped foam compounds or scenic foliage, to give the ground cover some depth.

### The trains

One of the key reasons why we constructed Dagnell End was that club member Ken Bridger had constructed a number of Southern Region Electric Multiple Units (EMUs). When the layout was planned there was little prospect of the mainstream manufacturers making ready-to-run Southern Region models so we thought we would create a unique layout... little did we know how much Southern Region prototype stock would be available when the layout was ready for its first exhibition appearance!

The core units - all scratch built by Ken Bridger - are a 4-TC, 4-EPB, 2-BIL, 2-HAP, 4-BEP, 4-LAV, 4-CIG, 4-BIG, 4-COR and 4-BUF. All are based around Lima Mk1 coaches with scratch built sides and ends made from plasticard. All except the 4-TC were powered by old Triang Hymek motor bogies as the layout they were originally built for had steel track.

For Dagnell End we have re-motored the units with the current Hornby traction tyred

Class 73 motor bogies which have each been fitted with either Bachmann or Lenz basic two-function chips. We use the four-figure set number as the address for the chip.

For the other stock we have taken advantage of the relevant model produced by Hornby, Bachmann and Heljan so we have 'West Countrys', 'Battle of Britain', and 'Merchant Navy' 'Pacifics' together with BR 'Standard Four' 2-6-4Ts and other tender locomotives on the steam front. They run alongside diesel classes 25, 33 and 47 as well as Class 73 electro diesels. Since producing the scratch built trains Ken Bridger has gone on to kit manufacturing as Genesis Kits. A number of his kits and prototype kits have found their way onto our layouts and Dagnell End will be no exception as we plan to introduce classes 70 (the original version and not the current Freightliner diesel), 71 and 74 from the Genesis range in the near future.

All locomotives are fitted with DCC chips to allow them to operate on the layout. These are a mixture of Lenz, Bachmann and increasingly the Train Control Systems Chip DP2X-UK which is very compact, comes without a wire harness and fits straight into the 8-pin socket in the locomotive. These chips appear to perform better than some others in DCC mode and locomotives also run well in standard DC mode.

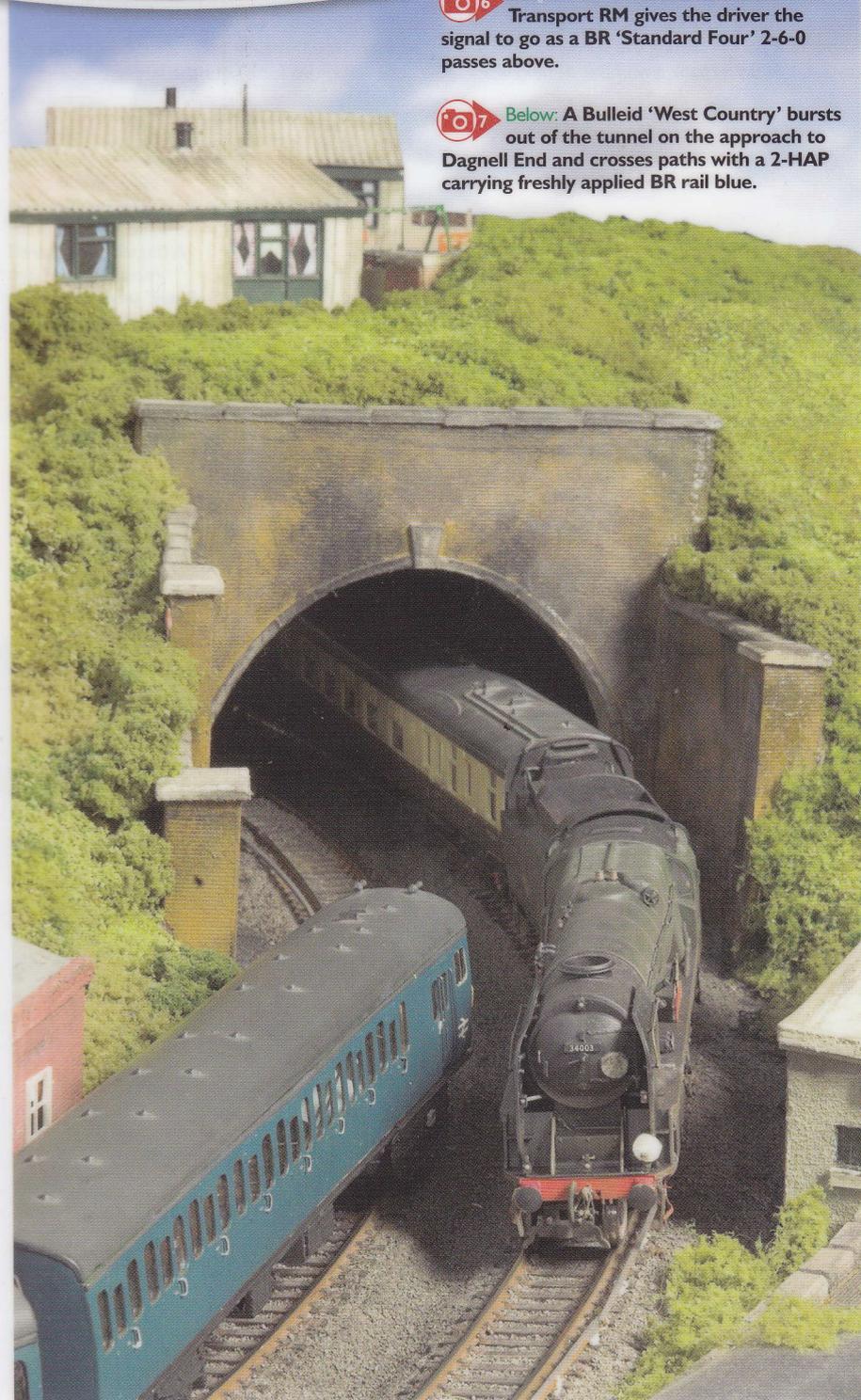


Street life continues undisturbed as a 2-BIL EMU draws to a halt in the station. The building on the extreme right is the underground station entrance.



**06** Above: The conductor of the London Transport RM gives the driver the signal to go as a BR 'Standard Four' 2-6-0 passes above.

**07** Below: A Bulleid 'West Country' bursts out of the tunnel on the approach to Dagnell End and crosses paths with a 2-HAP carrying freshly applied BR rail blue.

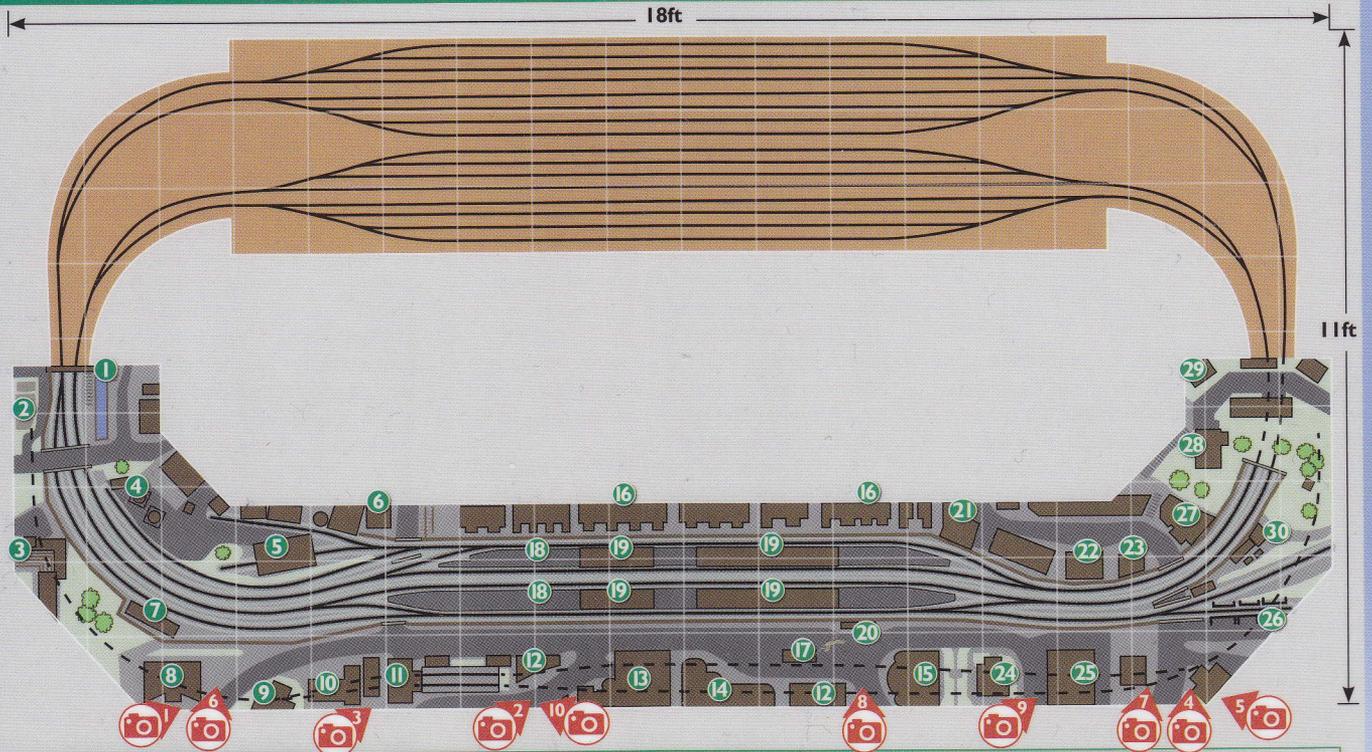


where other methods have been used. For example the large brick-built tower block that dominates one end of the layout is based around an MDF structure with card used to make the floors and walls. The modern office block is actually based around a Perspex shell and the Underground station started life as a plastic paint can!

The prefabs over the tunnel always create interest and again have been totally scratch built even down to making the correct profile of sheeting for roofs out of aluminium pie dishes purchased from one of the many discount shops. We made a jig and rolled our own sheeting. In making these buildings we were fortunate in obtaining a full set of drawings from the Avoncroft Museum of Historic Buildings in Bromsgrove which has a real prefab on display which for the technically minded is an Arcon Mark V design. The platforms are constructed from MDF topped with Slaters paving stones. The platform edging is made from Peco platform sides and is a mixture of concrete sections and brick facing. Passengers cross from one platform to another at the station via a subway instead of the usual footbridge. Below ground the subway contains all of the station booking



# DAGNELL END TRACK DIAGRAM (Not to scale)



## KEY

- |                   |               |                        |                     |                 |
|-------------------|---------------|------------------------|---------------------|-----------------|
| 1 Canal           | 7 Signalbox   | 13 Factory             | 19 Station building | 25 Bus depot    |
| 2 Allotments      | 8 Tower block | 14 Cinema              | 20 Station entrance | 26 Coal depot   |
| 3 Football ground | 9 Chapel      | 15 Underground station | 21 Factory          | 27 Library      |
| 4 Cement terminal | 10 Flats      | 16 Terraced houses     | 22 Public house     | 28 Meeting hall |
| 5 Parcels depot   | 11 Brewery    | 17 Bus station         | 23 Garage           | 29 Prefabs      |
| 6 Demolition area | 12 Shops      | 18 Platform            | 24 Offices          | 30 Sub station  |



## The future

A layout is never finished and whilst Dagnell End is complete enough to exhibit we plan to continue to add detail to the layout. Current projects include lighting in the Underground station and the replacement of the point motors. We also need to continue to perfect the layout operation using the DCC system.

Not wanting to lose momentum in getting the layout ready for the Warley show we have already started on our next project which is something totally different. The new layout is called Oakenshaw and is based on the former Midland Railway set in West Yorkshire in the 1960s.

Like Dagnell End, Oakenshaw will feature an urban setting with lots of scratch built buildings and a railway station based in a former mill town. [View](#)

## CONTACT

Contacting Redditch Model Railway Club

**Website:** [www.redditch-mrc.com](http://www.redditch-mrc.com)

**General e-mail:** [guy@redditch-mrc.com](mailto:guy@redditch-mrc.com)

**Club Secretary and Exhibition**

**Manager:** Guy Craddock



Below: A BR 'Standard

Five' 4-6-0 rumbles into the station with a rake of box vans and container flats.

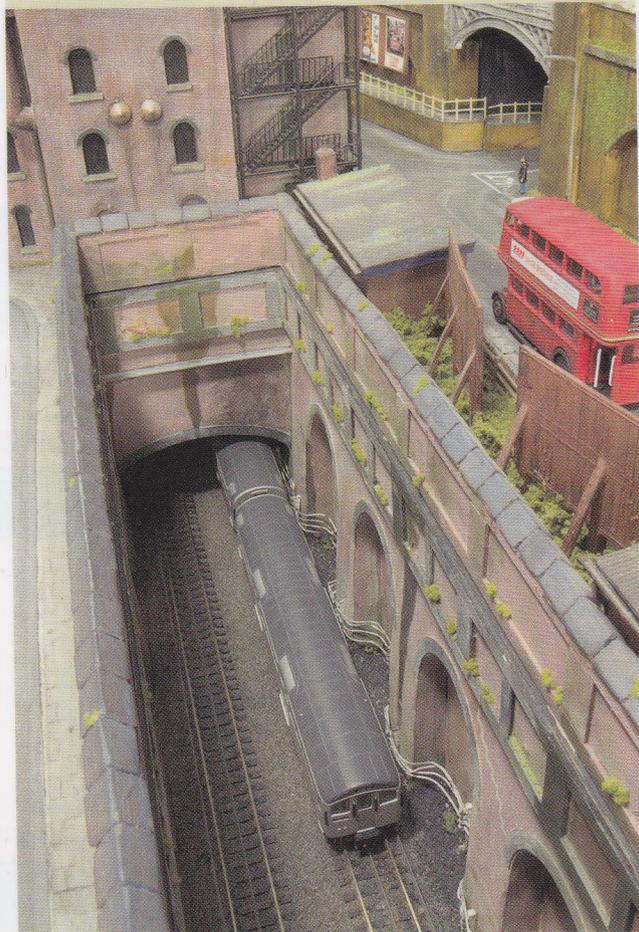
## The Underground

An unusual feature of Dagnell End is the large working underground line. This is a self contained fully automatic layout in itself. It runs the full length of the front of the layout giving a run of around 22ft and is in reality a single line with a large passing loop running virtually the whole of the layout front. This gives the impression of a double track line as the single line parts are hidden from view.

When we started the project we planned to scratch build a number of 1938 tube stock units from a mixture of white metal castings specially made for us by Genesis Kits and plasticard. As the project progressed EFE announced it would produce static models of 1938 and the similar 1959 Underground stock so these have been used instead. We run two four-car units on the layout. Both units have got replacement white metal bogies made for us by Ken Bridger of Genesis Kits running with Romford wheels with bearings to make them run as freely as possible. There are two motor bogies in each unit, which are Tenshodo units that have been wired together. It has taken a lot of experimenting to get the units to run mainly because of the fine wheel standards on the motor units.

This part of the layout is not DCC operated and the trains operate via a bespoke set of electronics made up of a series of cam timers to supply and reverse the power to the track at the right time to make the trains operate automatically.

The Underground runs across the front of the layout at child height and it is designed to attract their attention. In terms of scenery in the Underground we have modelled a mixture of tunnel types from a single track tube, through double track tube to cut and cover tunnels. Centre stage is a station with an island platform based on Clapham Common. The platforms are accessed by a staircase from the station building, which is based on the one at Earls Court.



The underground line features modified and motorised EFE 1938 and 1959 tube stock and is fully automatic.