

# ***Colchester – Package 1*** ***Share with Pride***



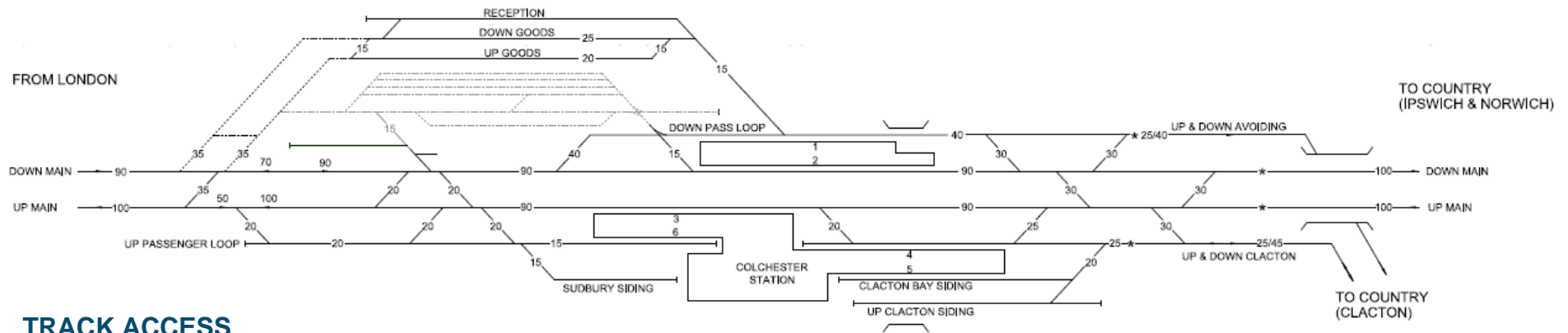
# Colchester Station – Project and Planning History



## PROJECT SCOPE

Colchester Station is a key interchange on the Great Eastern Mainline (LTN1) and is historically difficult to block for engineering access. The route through Colchester carries mixed traffic, with large commuter numbers, the single point of access for Electric Freight to Felixstowe Port and a growing leisure market at weekends.

The original scope was to deliver 36 Point Ends in Modern Equivalent Form and circa 4100 Linear Metres of Plain Line. The primary driver for the renewal was poor ballast condition leading to Track Quality issues and the associated performance issues.



## TRACK ACCESS

The renewal work for the S&C and PL at Colchester was originally proposed to be delivered a number of years earlier (some elements as long ago as 2008/9).

The original planning workshops with the Route, National Express and the Freight Operating Companies explored different vehicles for delivery:

- 2x 8 Day Blockades – to complete all works.
- 1x 16 Day Blockade – to complete all works.
- A series of “conventional” 28 and 52 hour Possessions – totalling 26x 52 hour weekends spread over 2 years.

These options were discussed in detail with the TOCs and FOCs. There were a number of caveats concerning a blockade strategy. The FOCs would still have had to pass trains through Colchester due to a lack of capacity on the non electrified diversionary route and the TOCs requested to run a service in from both Country and London through the midweek elements of the blockade due to the physical number of passengers they needed to move. We had looked at the feasibility of temporary platforms and the logistics of moving the number of passengers by bus and it was considered by all parties at the time to complete the work in conventional 52 hour possessions.

## Colchester Station – Project and Planning History continued...



When Anglia became a devolved route and a new Franchise was awarded the 2013 TTY plan was analysed and dismissed as being too disruptive and was seen as providing a major blocker to Greater Anglia being able to grow their weekend business (Track were utilising 27 weekend possessions on the LTN1).

As a result all LTN1 possessions were removed from the plan and the 8 weekend possessions in the 1st quarter of each timetable year were given as a challenge to all the assets to deliver their work.

This change resulted in the deferral of the complete package of work at Colchester for both Plain Line and S&C, with a view to reworking the plan and trying to deliver in 14/15 and 15/16.

### THE SOLUTION

NR and GA decided to look at the option of a stop start service at each end of Colchester station, this would mean running in to the Country end of the station, passengers exiting from the train, walking down the platform and then getting on a different train at the London end so that they could carry on their journey. This gave us significant benefits including GA not considering this to be disruptive and therefore not in the 8 weekend possessions available to us.

The stumbling block to the successful implementation of this was the limitations to the flexibility of the station layout that would prevent us being able to get to various parts of the station to undertake the work required. We decided as a solution to propose the movement of an existing crossover to allow the country end service to access Platform 5 and open out the layout for us to complete the work.

The Track Team and the RAM undertook a workshop with the Greater Anglia, FOCs and Operations Manager to understand if the proposal for the remodel was tenable but to also understand what extra functionality could be incorporated to add flexibility into the rest of the layout whilst we carry out the renewal.

As a result of these discussions the following improvements were requested to be considered in the design:

- Linespeed increases across all plain line and S+C
- Extensions to 2 platforms to allow 12 car rolling stock
- Remodel of the Goods lines and Platform 1 to allow 8 car passenger services via the Goods in times of Main Line possessions and perturbation.
- Remodel of the Up Main to facilitate moves into Platform 5 from Norwich.

# Colchester Station – Revised Project Scope



As a result of the discussions with all parties the Track team undertook GRIP 1-3 development to look at the feasibility of providing the required extra functionality and where practical increased line speeds over all junctions and plain line.

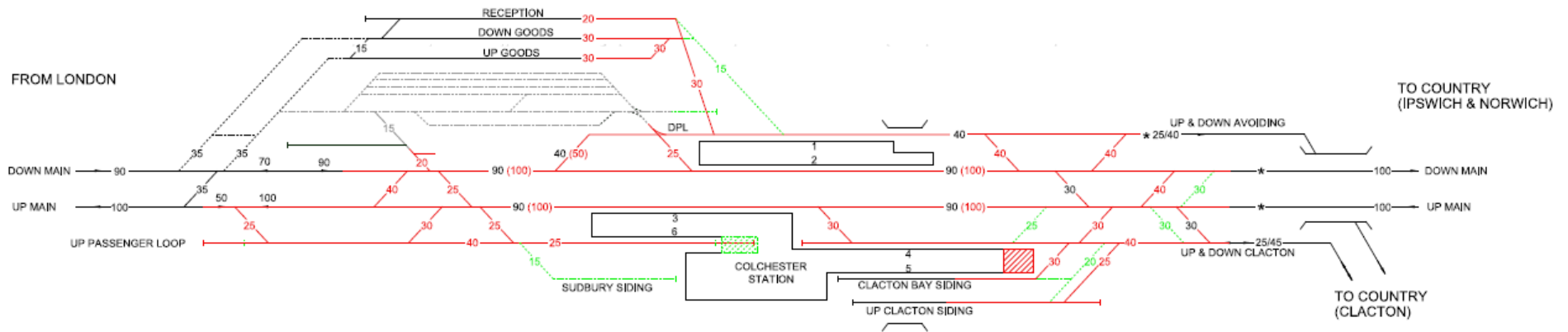
The GRIP 1-3 work resulted in a change from the original scope encompassing the requirements derived from the workshops where possible.

The revised scope encompasses the renewal of 42 Point Ends of S&C and the installation of circa 4200 Linear metres of Plain Line. Of the 42 Point Ends only 6 will not have a line speed improvement as a result of the work and the speeds on the Goods Lines and Up Passenger will benefit from an increase in speed.

The scheme will also deliver an extension to Platforms 5 and 6 to facilitate 12 car trains and the turnout from Platform 1 will be relocated to enable 8 car passenger trains to run from/to the Goods Lines in times of perturbation or when the mains are under possession.

As a result of the modifications to the Track and station layout there is also significant Overhead Line changes and civils work to be undertaken throughout the project.

## AGREED SCOPE



# Colchester Station – Agreed Access Plan



## **PACKAGE 1** Wk 8 -15 2014/15 (17th May – 6th July)

- Utilising 8 stop/start possessions in 2nd quarter of 2014TTY to remodel Platform 1, this will allow services to run into Platform 1 from London and Platform 4 from Country, we can then deliver all works to the South including the remodel of Platform 6 in Package 3.
- 11 Units of S&C, 1400 metres of PL of the Up and Down Goods (this was varied in after the PRS sign off, and could be delivered in existing access).

## **PACKAGE 2** Wk 45 – 52 2014/15 (31st Jan – 22nd March)

- Undertake the remodel of the Country end in 8 disruptive possessions in the 1st quarter of 2015TTY, this would facilitate access to Platform 5 from Country.
- 19 Units of S&C, 250 metres of PL.

## **PACKAGE 3** Wk 8-15 2015/16 (16th May – 5th July)

- Complete the remaining PL and S+C in the summer of 2015TTY under the stop/start scenario.
- 12 Units of S&C, 2500 metres of PL.

## **BENEFITS**

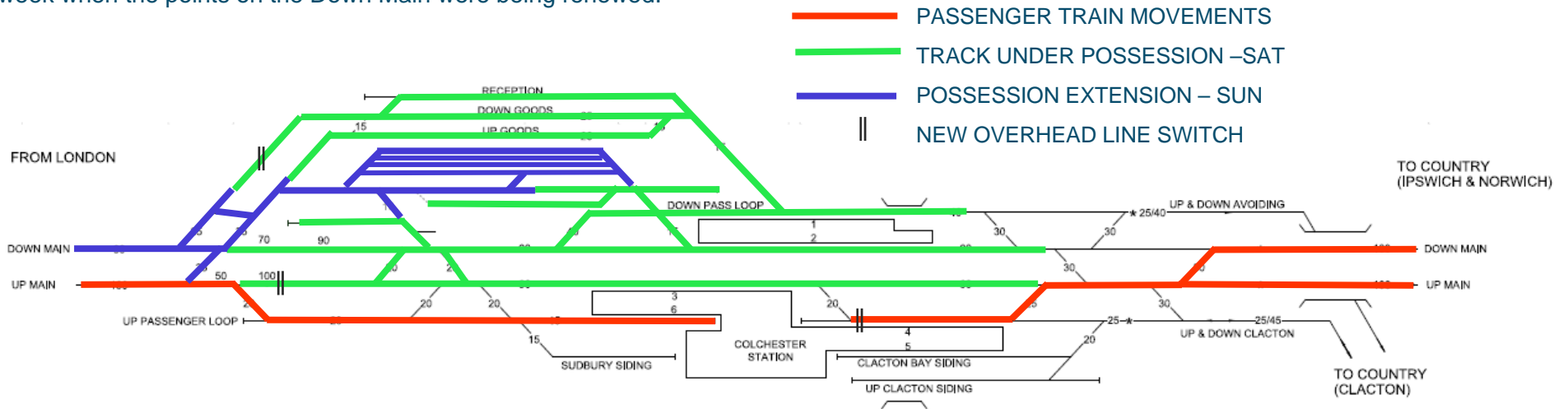
- Once completed this layout will give the maintainer the ability to tamp and maintain the layout without preventing GA running a service and GA will have the flexibility to run 12 cars into all platforms when required.
- The FOCs will lose no operational functionality as a result of the change but will benefit from higher linespeed on the Goods Loops.
- This plan allows for the considered removal and cascade of a number of units of S&C to facilitate the Norwich-Yarmouth-Lowestoft Re-signalling scheme.
- This work will remove historic ESRs due to condition of track providing benefits to Route performance.

# Colchester Stop Start Possession regime – Package 1



## POSSESSION CONSIDERATIONS/RESTRICTIONS

- To undertake the possession regime it was required to install 3 new Overhead Line Switches to allow Electric Trains to run.
- GA needed to access the Carriage Sidings on the Saturday of each weekend, these were kept live electrically.
- The worksite we had on the main lines was only 1600m long which required a complicated engineering train plan, particularly in the first week when the points on the Down Main were being renewed.



- GA needed to be able to get train drivers to/from the carriage sidings to sign on/off, the usual path for this was across a foot crossing on the Goods Lines. This crossing could not be used due to being in the construction site. We worked with GA and the Drivers Unions on a solution utilising an underpass that ran from one side of the track to the other with access steps into the carriage siding. This solution required us to provide 24 hour minibus cover to transit drivers from the station to an access point we made in a fence to allow access to the underpass. We undertook timed walks with GA and the unions to make sure that this solution was acceptable prior to the weekend.

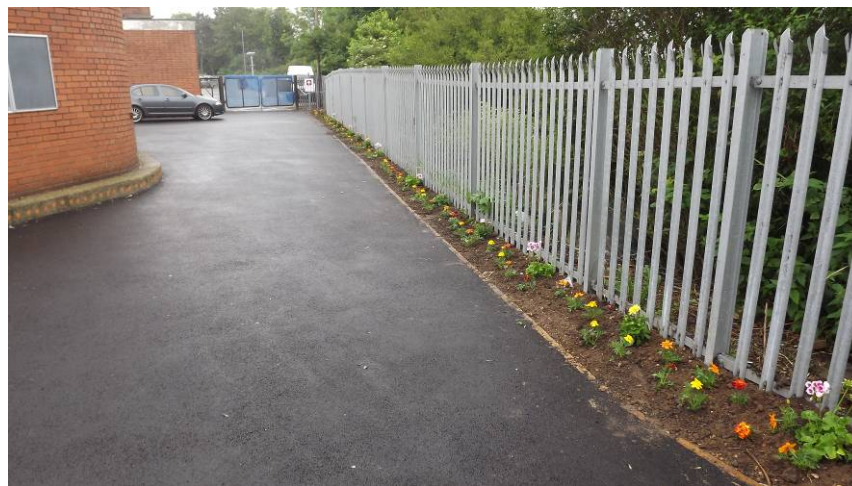


Underpass utilised for Train Driver access.

## Colchester Stop Start Possession regime - PREP



-GA were concerned about passenger flows particularly from Platform 6 and a pinch point at the station building, this was further exacerbated by the requirement for a Heras fence to protect the public which reduced the width of the platform that could be used for passengers. We worked with GA to develop a solution to provide a contra-flow around the back of the station to ensure passenger flow could be controlled. As a result of this solution we agreed to re-tarmac the road behind the station to provide a smooth service for passengers to walk on.



Left above: Road behind station before.

Left: Road behind station after.

Above: Heras fencing providing segregation of Passengers and works

## Colchester Stop Start Possession regime - PREP



As a result of moving 3024 points in Platform 1 towards London we had to relocate a brick chamber UTX positioned between the Goods Roads and Down Passenger Loop, along with the removal of a light, the shortening of a spur and removal of a buffer stop.

Due to legacy projects not recovering obsolete cable man of the troughing routes were full and it was very difficult to identify what each cable did and where it was going. This was particularly prevalent as trains would be running when we were undertaking excavation and if we struck a cable we would need to quickly understand what the cable was for. As a Project we decided to recover as much of the obsolete cable as practical to allow a thorough cable survey and management plan to be created. This also assisted with the relocation of the brick chamber which was full of cables many redundant.



Above: Existing Brick Chamber UTX, light and buffer stop.



Above right: Legacy cables recovered.



Right: UTX in construction and complete.





## Colchester Stop Start Possession regime - PREP



To improve access direct to the site we removed an abandoned cabin from the NCP car park, this had previously been used by NCP as an office for car park wardens but hadn't been used for this purpose for sometime. There was also evidence that the cabin had been broken into so was an ideal opportunity to remove this for security purposes and clear this area.



## Colchester Stop Start Possession regime - PREP



It was noted as part of the planning phase and subsequent maintenance dilapidation walk that the condition of the Reception Road adjacent to the Up and Down Goods lines was not in good enough condition to allow the Kirow to pick panels from the area we had identified to build a number of the S&C units. This was not in the scope of works, but by working closely with the maintainer who supplied the materials we relayed approximately 220 metres of the Reception Road. This provided the project with a suitable road to which to run the Kirow and has reduced future maintenance requirements. This was delivered ALO in midweek days before the Core possessions.



Reception Road

The picture on left shows the Reception Road, and the Up and Down Goods Road prior to renewal. The picture on the right shows the same roads post renewal. We undertook significant scrap clearance on behalf of the maintainer to leave a safe and tidy site. The Up and Down Goods were relayed in modular lengths throughout the Core Weekends.

# Colchester– Renewal of 3015A and 3019B



# Colchester– Renewal of 3015B, 3019A and Fixed Diamond



## Replacing Ballast using the Railcare Railvac system



We decided to utilise the Railvac to allow us to separate the different components of the renewal, we had to relay 5 Point Ends all in close proximity to each other and to excavate, re-ballast and relay in a single 52 hour possession was not achievable. By undertaking the excavation and re-ballast separately we were able to relay the S&C in a following week.



# Colchester– Renewal of 3048A/B, 3049B, 3047, Remodelling of 3024 and re-use of existing 3024 as Trap point – 3049A



We utilised the previously relayed Reception Road to act as a service road to both scrap out and install with a Kirow. We scrapped out in large panels and took them to the far end of the site to break them down. This allowed us to start the next activities quicker than if we had taken out in 3 bearer sections. It also allowed us to re-use the 3024 points as a trap point -3049A.



# Colchester– Renewal of 3048A/B, 3049B, 3047, Remodelling of 3024 and re-use of existing 3024 as Trap point – 3049A



# Colchester– Renewal of Plain Line on the Up and Down Goods Lines.

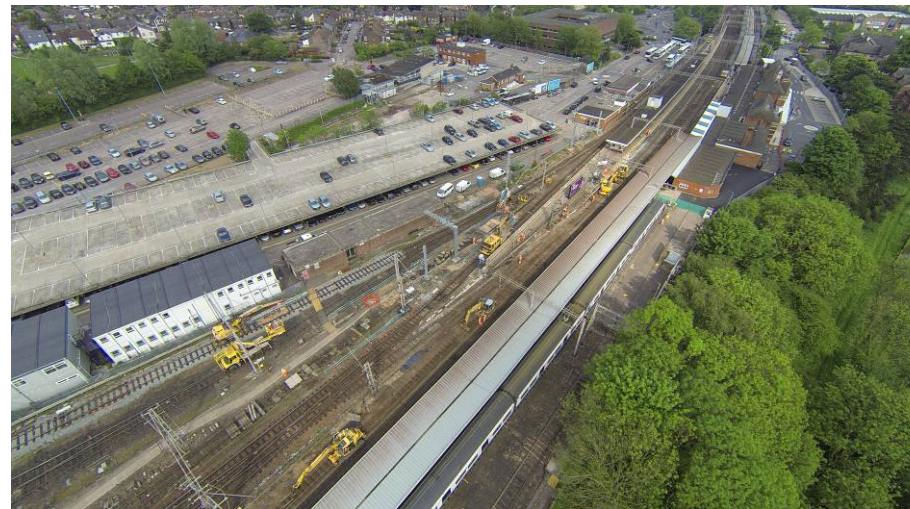


We took possession of the Goods Lines midweek to allow us to complete the plain line elements of the scheme. Although the possession limits were sufficient the DEP didn't allow us to use conventional digging methods, we used a small Bobcat digger to overcome the issue.





# Colchester Stop Start Possession regime – CORE work



Above: We utilised bagged ballast in between re-ballasting and relaying to reduce the amount of stone we had to doze.

Above right: An image from a drone of the worksite with trains picking passengers up in the platforms.

Right: A Copy with Pride from Southampton; signage utilised in the station car park relaying messages to our staff. This was in direct response to issues encountered with speeding in the car park and PPE compliance.



# Colchester Station – Package 1 Final Work Summary



## PREP WORK:

1. Modification and movement of existing UTX.
2. Installation of 3 New Overhead Line Switches to facilitate possession configuration.
3. Temporary jumping of Overhead Line Sectioning to allow Carriage Sidings to remain live whilst Possession is taken.
4. Installation of 6 Overhead Line structures to facilitate new Track position.
5. Relay of 220m Reception Road to allow Kirow to pick panels from delivery area.
6. Removal of Cabin to facilitate access and relocation of fence line to suit.
7. Removal of headshunt and walkway light to facilitate new track position.
8. Re-tarmacing of station concourse to facilitate passenger flow.
9. Extensive removal of redundant cabling from troughing routes.

## CORE WORK:

1. Installation of 11 units of S&C and 1400 Metres of Plain Line.
2. Coping Stone adjustment to Platform 1 and 2 to suit new alignment (this was reduced to a minimum due to GA planning to renew all coping stones on 2015).
3. Installation of 3 new Morris-in-Line switches due to track movements.
4. Overhead Line Wire run to facilitate new track position of 3024
5. Modification of drivers walkway to suit new track alignment.
6. Filled in redundant inspection pit.
7. Cropped and welded solid jointed track and installed breather switches to allow new S&C to be fully stressed.
8. Re-used the switches from 3024 points, after conversion to be used as a trap point in 3049A.