Infrastructure News

May 2019

260 yards of track replaced in one day!

On Monday 20th May the infrastructure team under the management of Matt Crawford replaced thirteen sixty-foot panels of track and reconnected the line in just one day. The work was planned to be carried out at an earlier date, straight after the point nose replacement at east Grinstead but was delayed several times because the required ballast had not been delivered. The work was finally carried out on the last possible opportunity before summer when no trains were running.

The relay, the third this year, continued the replacement of old track on Freshfield Bank. Only another 13 panels are now required to reach the curve at the bottom of the bank and complete the entire straight top to bottom. Due to the replacement being straight, the panels were made up in advance at Horsted Keynes and transported to site in preparation for the replacement.

Normally, when track is replaced, the old track is scrapped, apart for odd bits used for other purposes such as rail-built signal posts. This time, as with the track removed in the overnight track replacement two years ago, the track will be reused in the new carriage shed, OP4. This is because the rail is not as badly worn as in other places on the line and it is on concrete sleepers which last for a much longer time than wooden ones. However the old bullhead track is of a lot less sturdy design than flat bottom rail design that is being put in its place.

New panels placed beside the existing track.

Preparation was started several weeks beforehand with posts being knocked into the ground every 10 yards with a reference nail in them exactly two meters from the running face of the west rail. This was to provide a reference to aid alignment when putting the new track in place. 26 new rails (one complete lorry load) 364 good second hand concrete sleepers with 728 rubber pads and 1456 clips were fully assembled into the 13 panels in Horsted yard. All the rail ends drilled ready for the fish plates before transportation to site on the truck behind a road-railer. In addition, as the track was to be reused, each 60 foot panel to be removed was labelled, cut in half drilled and temporally fish plated together again in situ so that they could be quickly and easily removed on the day.

Loading up for the "engineering train".

First thing Monday morning, a train was made up with everything needed for the job including the laser bull dozer, a big road-railer, two trollies, one with the big 22-ton digger which only just

fitted under the bridges, and one with all the tools, a man-cage with the men inside, tea, coffee and a Portaloo!

On site, the first thing (after putting on the kettle) was to undo all the fishplates, lift the panels out and stack them out of the way. With the laser set up to the correct gradient, the bulldozer could then doze the existing ballast to the correct gradient and levels, removing a known dip in the track bed in the process. This was followed by the Triple Wacker which flattened the old ballast to a smooth compacted bed ready for the new track.


Track removal viewed from the signal post and from John Harwood's drone.

Putting in the new panels was like clipping Lego together. Eight of the pre-prepared panels went in in just one hour. The road-railer picked up one end and the 22-ton caterpillar-tracked digger lifted the other. The road-railer lifted the end up to the existing track which was then bolted on with the heavy-duty fish plates and the other end was lowered onto the line marked in from the reference posts. The road-railer could then move onto the panel and repeat the process for the next panel.


First panel being bolted in place. *Next panel being lifted in.*

For the last panel, the gap was purposely left a little short of 60 feet so that it could be cut to length exactly allowing for the gaps in the joints. The rail is exactly 60 feet long 18,288 mm but measured 18,291mm on our tape. (Few tapes are that accurate or very expensive.) This is why the 260 yard was removed one sleeper bed short so that the last panel can be measured and cut in exactly including allowing for all the joints over the whole length of the job.

Measuring and cutting in the last panel.

It fits!

Bolting up the last panel ended the first day's work. With no ballast added or tamping done trains could not pass over the formation but the road-railer passing over it demonstrated that a train could do so safely if necessary.

Day two saw over 200 tons of fresh ballast dropped onto the new track and ploughed evenly to beyond the ends of the sleepers.

The ends of the job were lifted level on jacks and then tamped with a tamping bank on the road-railer. It is at the job ends where voids can appear under the sleepers because the bulldozer cannot doze right up to the very end cleanly. This then ensured that the track was safe to run trains over it at reduced speed until the full tamp is carried out although it was actually smooth enough for full line speed. However the temporary speed limit (TSR) will stay in place until the track is fully tamped about two weeks later.

Diesel hauled ballast hoppers.

The last thing to be done was to correct the alignment. The track followed the original line within 2-3 inches over the whole length despite only being dropped in by the digger road-railer combination. Final correction was done by the big digger standing beside the track with the jib on the rail pushing or pulling it sideways as instructed by a person visually siting along the rail and calling out which way to push it around. A very good alignment was achieved with clever operation of the digger all set for the service trains the following morning.

Tamping the ends of the job.

Standing back and admiring the finished job

Jon Goff