Option	Description	Methodology	No.	Consequences	Decision
DEFCON0	Complete RED/ORANGE/YELLOW Disruptive WE only Undertake works in 52hr windows delivering 2 pairs per window.	Mark up Continuous check rail to as near as possible 18m lengths aligned with wheel timber ends Cut Continuous Guard & Running rail into 60' [18m] lengths and joint to facilitate removal Install Expansion Switch at each end of bridge structures to manage thermal expansion Assume an average length of 9m per pair this allows for 2 pairs per 52hrs to be replaced Assume completing 84 pairs, therefore 24 weekends @ 52hrs from week 21 to 45	1	We would have timbers that passed the forecast deadline (6 months) in situ	Disregarded as far to onerous an option and is non compliant with external stakeholder (AE and NE) guidelines driving out the completion to Year 5, importing clear risk of asset failure and total RoU over extended period if asset were to fail. Whist the works could be approached in this manner it would be highly disruptive in the first instance over a prolonged period of time but moreover Network Rail would be managing the real risk of passing the Engineering timeline of 0-6 months specifically in the wet period. Additional or increased water absorption makes rotten wood more malleable and likely to rotate. Holding down arrangements rely on the timber and steel work being in a condition that manages an element of flex as traffic passes over, this ability is eroded and the 0-6 month timeframe is an indicator that that flexure becomes excessive removing the ability of the wheel rail interface to provide an adequate guideway. As seen in numerous ORR reports (Soton, Gospel Oak etc) for derailment at Wheel Timber locations rotation of the rail is a contributing factor to the cause of derailment.
			2	We would disrupt freight services from Friday night through Saturday and Monday morning throughout	
			3	We would need further access between weeks 45 and 08 (2021) to rerail and restress to avoid Heat related speeds for joint and thermal expansion.	
			4	We would be non compliant with the EA and NE restrictions of working in sensitive seasons between weeks 31 and 08.	
			5	We run the risk of overrun every Monday we work on bridge 1813 due to the unknown top flange works required.	
DEFCON1	Complete RED 1 x 14 day 2 line block 2 x disruptive follow up.	Splay guard and running rails to enable access to Wheel Timber area Assume completing 20 pairs, therefore 18 x 52 hrs = 39 days / 3 teams = 14 days Stress through all bridge structures on completion	1	Does not address the orange class 6 - 12 months and on completion these would be 8 weeks away from requiring intervention at worst case.	Disregarded in informal consultation as prohibitive to externals and requires access in Y3 and 4 when others degrade, based on degradation rates. Does not treat the root cause completely. Aids to further spoil the ongoing external stakeholder relationships
			2	We run the risk of introducing a new request for Orange Wheel Timbers which have deteriorated in early 2021 thereby disillusioning our external stakeholders by disrupting service again.	
			3	We run the risk of further non compliant disruptive requests due to deterioration of the Yellow Wheel Timbers 12 - 24 months.	
DEFCON2	Complete RED & ORANGE 2 x 52hr prep 14 day 2 line block 1 x 27hr and 1 x 12hr disruptive follow up.	Splay guard and running rails to enable access to Wheel Timber area Assume completing 36 pairs, therefore 20 x 52 hrs = 43 days / 3 teams = 20 days (prep / core / follow up) Stress through all bridge structures on completion	1	Only achieves a 18 month breathing window at worst case as the yellow timbers will be four months into their live span at completion of works (12 to 24 months)	Disregarded in informal consultation thought prohibitive to externals as does not guarantee more access will not be required. Gives a short term fix without removing the root cause. Aids to further spoil the ongoing external stakeholder relationships.
			2	Totally disrupts service for 14 days throughout the blockade period as no passenger or freight can run for the blockade to enable the works be completed.	
			3	Disrupts Network Trips for 14 days impacting national programmes as the trips used to place equipment around the country and Whitemoor has a strategic North / South role between Toton / Doncaster and Hoo / Eastleigh	
			4	Run the risk of further interventions required in Yr3 2020/21 and a repeat of DEFCON2 to complete the forecasted works.	
DEFCON3	Completes RED / ORANGE / YELLOW 1 x 27hr Prep / 1 x 12hr Prep / 1 x 10hr Maintenance Prep 2 x 14 day 2 line blockades (split by one week for restocking) 1 x 52hr Core (one week after the 2nd 2 Line Blockade 1 x 27hr and 1 x 12hr Follow Up	Splay guard and running rails to enable access to Wheel Timber area Assume completing 84 pairs, therefore 20 x 52 hrs = 182 days / 6 teams = 33 days (prep / core / follow up) Stress through all bridge structures on completion	1	6 teams working with RRV support do not have enough space to work as unable to feed worksites with materials. Materials have to be fed from both north and south of the works as the worksite is a combination of bridges and embankments surrounded by the SSSI sites on both sides of the boundaries.	Disregarded due to the volume of skilled resources required to deliver works being prohibitive. The disruption to commercial freight is more than likely to have a wider knock on to the national supply chain as it creates the potential for a black swan event as the forecasted freight timetables are aligned to shipping timings. The disruption to National Trips could be unrecoverable as it creates a rippled risk to haulage putting critical logistics in the wrong depot geographically at the wrong time and projects requirements could not be met. In order to properly define this the capacity planning would need to look some 12 weeks in advance for trip moves.
			2	Totally disrupts service for 2 x 14 days throughout the blockade period as no passenger or freight can run for the blockade to enable the works be completed. Even though a 7 day restocking window is assumed this would have a significant national impact given the COVID situation.	
			3	Disrupts Network Trips for 2 x 14 days impacting national programmes as the trips used to place equipment around the country and Whitemoor has a strategic North / South role between Toton / Doncaster and Hoo / Eastleigh. This would have a national delivery impact.	
DEFCON4	Completes RED / ORANGE / YELLOW 1 x 12hr Prep, 1 x 10hr Maintenance Prep, 1 x 52hr Prep (2 Line Blocks) 1 x 28 day block with SLW on Weekdays and 4 x 31hr 2 line Weekend blocks, 2 x 52hr 2 Line blocks 1 x 27hr Follow Up	Splay guard and running rails to enable access to Wheel Timber area Assume completing 84 pairs, therefore 20 x 52 hrs = 182 days / 6 teams = 33 days (prep / core / follow up) Stress through all bridge structures on completion	1	Timings for train paths will be critical to confirming success of plan, any delay to the 6hr 2 line block on any day will result in shortfall of work	We currently have deconflicted using SLW to ensure as best as practicable that we serve the freight timetables. Weeks 23 & 24 SX: 58 trains asked to go through the SLW, but no path could be found for 17. 41 paths found.(30% deficit) Weeks 25 & 26 SX: 58 trains asked to go through the SLW, but no path could be found for 21. 37 paths found (36% deficit) We are exploring options around cancelling planned works to improve the numbers above however are weighing the sunk cost against risk and commercial timetable loss to make an informed decision.
			2	Little contingency in output rates as MW timings are reliant on an unknown freight timetable capacity.	
			3	SLW disrupts the work flow as machines are required to "ground" the jib arm with the load before passage of train utilising ATWS (Automatic Train Warning Systems).	