

Health and Safety Toolkit

Idea Suggestion Proforma

The Health and Safety Toolkit is intended to be a means of identifying the many good practices, innovations and ideas which contribute positively to health and safety. This includes all ideas already being put into practice on the Highways England network, as well as those which could potentially be transferred / implemented.

Submitted ideas should be original and supported by a relevant highways based case study displaying clear benefits (NOT just supplier marketing material)

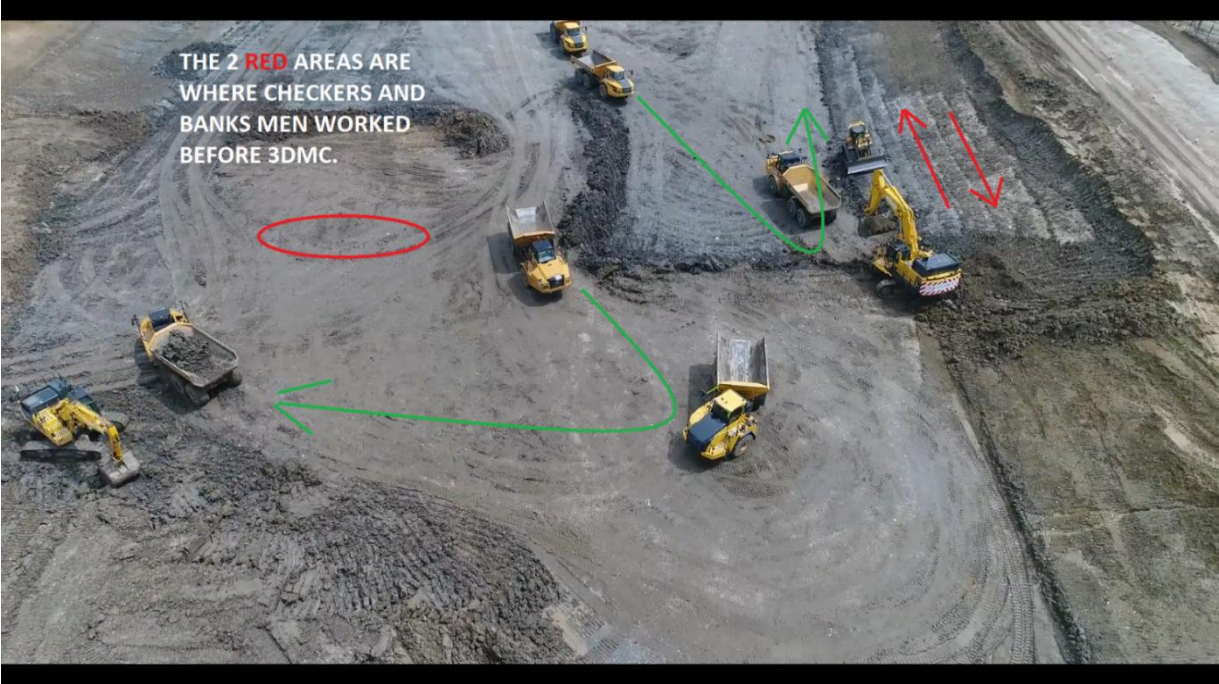
Should you wish to put forward an idea for potential inclusion in the toolkit, please complete this proforma and forward to the email address:

philip.farrar@highwaysengland.co.uk

Brief description of Idea	Raising the bar 3D Machine Control (3DMC) 3DMC has been increasing in deployment to drive efficiency and quality of the product for projects of many clients. There has always been a reduction in the People Plant Interface due to this technology. The industry is ready to take this to the next level, by having it operationally required unless a specific project reason is given.
To what activities can this idea be applied in practice?	All major earthmoving, pavement laying at drainage laying operations.
What are the benefits of this idea?	The idea will build on the existing ideas and solutions shared by other projects that made a “choice” to use 3DMC. Raising the bar will lift the industry to “business as usual” and ensure that what is best practice is a minimum starting point.
Are there any cost implications of implementing the idea? If yes, please quantify	See additional information for cost benefits.
How would you describe this idea?	Best practice starting point and a minimum standard.
Is this idea currently being used in practice? If yes, where?	This raising the bar idea is not used anywhere, however the forward thinking projects are deploying 3DMC technology on a case by case basis and not as a minimum standard. There a large number who are not using 3dmc and we must bring them on the journey with us.

<p>Are there any conflicts to potential implementation of which you are aware?</p>	<p>Only the adoption rate of subcontractors that have been awarded current work and have not been prepared to upskill or invest in the technology in the past. This could be recorded in what is described as a “specific business case” (from the statement below) and a future plan for adoption or reason why it is not required.</p>
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<p>Please provide your contact details</p>	<p>Name: Mark Lawton Company: Skanska Email: mark.lawton@skanska.co.uk Telephone: 07989359705</p>
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<p>Additional Information</p>	<p><i>Please provide any additional information which would support this idea – e.g. photographs, diagrams, sketches etc.</i></p> <p>3DMC in operation</p> <p>The image below shows that in the modern way of working using 3DMC, no people are in the area of operation on foot. People Plant Interface has been eliminated.</p> 
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Adhering or improving the existing raising the bar

3DMC will reduce the current method of using a work around related to the banning of “setting out pins”. A non conductive setting out pin is now used that costs around £6-7 each and can only be used twice. 3DMC does not require setting out of this kind. This would remove these pins from most earthworks methods.



Cost savings

A recent example on the A14 where the predicted cost of hiring 3DMC for paving machines was around £105k to remove the setting out of pins was obvious. Using conservative estimates showed over £114k+ of saving.

Cost of not using 3DMC using traditional methods	Unit	Quantity	rate	subtotals
Engineer	year	3	£ 35,000.00	£ 105,000.00
assistant	year	3	£ 25,000.00	£ 75,000.00
Van	year	3	£ 3,000.00	£ 9,000.00
Total station	number	1	£ 18,500.00	£ 18,500.00
Pins for	number	10km	£ 12,000.00	£ 12,000.00
				£ 219,500.00

Productivity gains

An extract from an old report shows that 3DMC is more productive than traditional methods. The full report is freely available here.


<http://sitechsul.com/wp-content/uploads/MALAGA-PRODUCTION-STUDY.pdf>

A more recent video here.

https://www.cat.com/en_GB/articles/solutions/construction/road-construction-production-study.html

4 -Results



			Conventional Way	New Way AccuGrade	Productivity Gain
	Staking		07:31	00:54	6:37 hours saved
	Bulk Earthmoving	D6N 330D	04:40 02:23	04:18 01:53	+ 9 % + 27 %
	Subgrade grading	D6N 330D	03:48 02:56	01:28 02:43	+ 159 % + 8 %
	Base Course grading	D6N	02:24	00:53	+ 172 %
	Base course fine grading	140H	01:49	00.32	+ 241%
Total			24:32	11:50	+ 101%

The raising the bar statement from 2011/2012, propelled the take up of 3DMC beyond the efficiency gains of the product/equipment and led to a large take up of 3DMC. Raising the bar works, and should be used to communicate the message at the end of this sheet.

LIFESAVER

CONDUCTIVE METAL SETTING OUT PINS ARE
BANNED ON ALL HIGHWAYS ENGLAND SITES

I believe that this type of statement is required to be added to maintain the reduction in People Plant Interface from best practice currently being used.

All Highways England sites must use 3D Machine Control (3DMC) for all earthworks operations, unless a specific business case is provided.