REINSTATEMENT

Soil Stabiliser: Perma-Soil

15 February 2018

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WONDERFUL ON TAP

SEVERN TRENT

INTRODUCTION

- Severn Trent Water acknowledge that we need to deliver better quality of work and service to the general public, our Local Authorities and our customers
- Our work in the highways has been a key focus for us, and we've been looking at ways with which we can learn from other utilities and explore better ways of working
- Key to this is how we can get better at creating a method of delivering work in the highways where we are not leaving excavations open for longer than is necessary, not inconveniencing the general public whilst we ensure we reduce the number of defects and S74's (TMA fines)
- Through the use of soil stabiliser (in this case, the product Perma-Soil), and through the feedback we've received from Instarmac, Amey and Dee Valley, we believe this will help support the above
- An A9 certificate is already in place but we'd like to work with you, the WM HAUC and the Local Authorities collaboratively, via engagement and consultation to implement an improved way of working and delivering better services on the highways
- This slot is for STW to provide an update on what we are planning over the next few months with regards to the use of Perma-Soil

PERMA-SOIL SOIL STABILISER

What is Perma-soil?

- A powder type product originally developed by the US Military to speed up stabilisation of soil to form emergency airstrips in remote areas
- Benefits identified for use as a soil stabiliser which, when mixed with excavated material is ideal for use as sub base in utility excavations
- The end product forms an SMF suitable for use in Footways, cycle paths and Type 3 / 4 carriageway meeting the requirements of the 'Specification for the Reinstatement of Openings in Highways (SROH)' as an Alternative Reinstatement Material (ARM)

How does Perma-soil work?

- When mixed with excavated material, Perma-Soil uses the free moisture in the soil to start a reaction which results in a high quality sub-base material being created.
- To achieve this Perma-Soil does 3 things:

I. Dries up any excess moisture present for optimum compaction
II. Bonds the soil particles together making the soil much denser. This bonding action also forms a tie to the walls of the excavation, and the surfacing material
III. Strengthens the excavated material

HOW IS IT USED?

MIXING AND APPLICATION

- The work area is saw cut and excavation commences to expose the utility apparatus
- As the material is removed, a field identification test is carried out to determine the material classification and moisture content to determine it's suitability for re-use
- All bituminous materials (tarmac) are removed at this stage and the material graded, all unsuitable material are removed from site for disposal to a licenced waste facility
- The Perma-Soil is added and mixed with the excavated material, the mix ratio is determined by the volume of material excavated and the moisture content identified by the field identification test
- Following installation of a fine fill surround to the utility apparatus, Perma-Soil is applied to the base / sides of the excavation to bind in to the adjacent highway structure
- The mixed material is then applied in layers and compacted in accordance with the compaction requirements detailed within the SROH to the correct depth leaving the work area ready for reinstatement

SEVERN DEE (DEE VALLEY)

- Dee Valley Water, now part of Severn Trent Water have been using soil stabilisers since 2003
- Following extensive trials in the Welsh Counties, Perma-Soil was identified as the preferred product: the pigmentation of the soil stabiliser assists the field teams to ensure that excavated material is thoroughly mixed

Benefits

- Use of Perma-Soil is now embedded in work practices whereby field teams assess each job and carry out backfill using stabilised excavated material, this has resulted in:
  - Up to 38% of all excavations carried out in footway, cycle path and Type 3 and 4 carriageway backfilled by the field team using stabilised excavated material
  - 80% reduction in customer contacts associated with open excavations
  - Reduction in use of quarried aggregates effectively reducing the carbon footprint associated with supplier production and transport
  - Reduced material taken to landfill and associated transport effectively reducing the carbon footprint of the Company
  - Reduced disruption to residents and the travelling public, work sites are excavated and backfilled in a single visit, excavations in footway can be plated and the footway maintained reducing the duration of footway closures and carriageway incursion for walkways
  - Increased level of performance for completed reinstatements, again minimising disruption associated with return visits

AMEY – STW METERING CONTRACT

- Perma-Soil has been used within the metering framework by Amey across the STW region since 2003
- Amey Metering complete on average, 10,000 excavations annually, using Perma-Soil as the soil stabiliser for back fill and reinstate material (first time perm)

Benefits

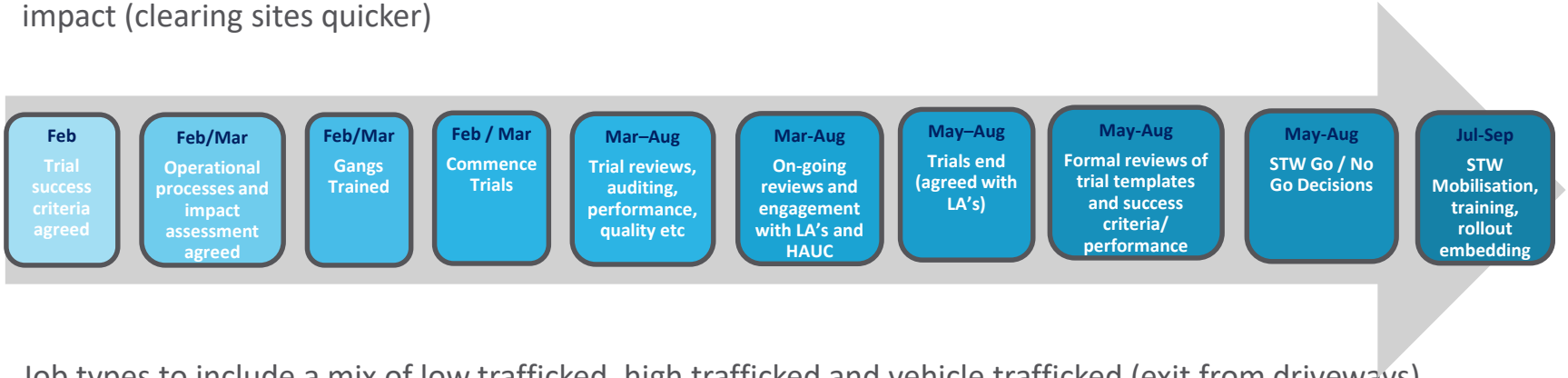
- Short duration works completed on a one visit basis
- Reduction on impact to pedestrian, motorists, customer
- Less waste material returned to landfill (improved waste management), costs associated
- Defect reduction, cost of failure saving and improved service

Support

- Initial on site training, to ensure the correct application is vital. Both from material manufacturer and Amey. Change is not always accepted by operatives/gangs etc

STW PERMA-SOIL TRIALS

- Using Perma-Soil Soil Stabiliser – as currently used by Amey on STW Metering contract and by Severn Dee
- Training to be provided to gangs by Instarmac in conjunction (overview) with specialist as Severn Dee (best practice)
- Use of Perma-Soil to commence in 2 of our Local Authority areas, Shropshire and Staffordshire. Implementation will be in accordance with the methodology agreed during engagement with each area
- Success criteria to be established working on specific metrics against quality, performance and highways impact (clearing sites quicker)



- Job types to include a mix of low trafficked, high trafficked and vehicle trafficked (exit from driveways) footway
- Trial may also include type 3 and 4 carriageways (TBD)
- Hot lay tarmac and possibly coldlay will be used to reinstate the excavations (if so, info will be clear for each)
- Regular auditing and monitoring will be undertaken by STW in conjunction with local authority representatives with information, updates and results shared with the councils and WM HAUC

STW AND PERMA-SOIL – POST TRIALS

- Severn Trent Water's intention is to introduce the use of soil stabilisers in to our daily work practices across our full area of operation in a phased and controlled manner

- Post trials, this is how we expect to introduce this:

  - Engagement with all local Authorities in our areas in relation to requirements for the use of soil stabilisers as an Alternative Reinstatement Material

  - Transparency and sharing of all internally sourced performance metrics

  - Supplier engagement and training to ensure use of the product and methodology for application is fully understood by all STW staff involved in the management, planning, application and auditing of this process

  - Staff engagement through supplier training, in-house training using the knowledge gained through historical use by Dee Valley and our metering contractor, AMEY allowing for a seamless transition in to the wider Company

  - Applying the lessons learnt from historical trials in relation to deployment and use of suitable tools / equipment

  - Implementation of a robust auditing system consisting of site based audits at point of application and periodic visual audits of completed reinstatements

  - Use of data to track outputs and performance

BENEFITS

- Reduced disruption to residents, pedestrians and the travelling public, work sites are excavated and backfilled in a shorter duration and within a single visit
- Excavations in footway can be plated (foot boards) and the footway maintained reducing the duration of footway closures and carriageway incursion for walkways
- Reduction in customer contacts associated with open excavations, stockpiled spoil and accessibility to properties (plated excavations in front of private driveways etc)
- Reduction in use of quarried aggregates effectively reducing the carbon footprint associated with supplier production and transport
- Reduction in material taken to landfill and associated transport effectively reducing the carbon footprint of the Company
- Increased level of performance for completed reinstatements, again minimising disruption associated with return visits

DO YOU HAVE ANY QUESTIONS?