Contact Information

Contract/Scheme name: A611 Rolls Royce Access Date: 31/08/16

Practitioners Name: Jamie Missenden

Practitioners email and mob number: Jamie.Missenden@gallifordtry.co.uk

Recognise

The scheme is to create a new access, including a road bridge, for the existing Rolls Royce business park.

During the planning stage of the works it was noted that the critical path for the works ran through the mainline drainage operation. As such the site team looked at options to increase outputs for the works and save time on the programme. One of the options realised was use of plastic pipe work in lieu of concrete or clay pipe work.

Define

Quad of Aims	
Purpose	Stakeholder Benefits
• Improved efficiency • Cost savings (Not in purchase, but overall) • Reduction in SHE related risks • Increased productivity • Quality improvements • Reduction in environmental impact	• Nottinghamshire County Council • Groundwork's contractor • Galliford Try • Polypipe civils
Deliverables	Success Criteria
•Savings •Efficiency improvements •Increased performance •Programme savings •Safer working practices	• All expected deliverables and associated savings realised, including: • Cost (end product) • Time • Quality • Safety • Sustainability

Project Title: Use of Plastic Pipe Work against Concrete/ Clay Pipe

Concrete rocker and stub – required for every manhole using concrete

Plastic pipework making use of off cuts and bespoke gully tails

T •Transport – Longer pipe lengths delivered on one wagon. Safer unloading due to weight reductions & quicker to unload

I •Inventories – Reduce wastage as plastic pipe can be used mid run. Not possible using concrete pipe work generally

M •Movements – Plastic pipe lengths are generally longer than concrete, less plant movements per metre of pipe laid

W •Waiting – Faster to make connections/ cuts. Less time spent waiting for one person to complete their task

O •Over Production – Able to procure pipes to more precise lengths rather than over ordering to cover pipe run lengths

O •Over Processing – Lighter construction = pipes installed quicker (Plus longer lengths generally) = less fencing etc.

D •Defects – Reduce the risk of pipe damage whilst handling due to weight difference. Concrete breaks easier than plastic

S • Skills – Completion of pipe runs releases follow on trades quicker

Stakeholders:

GallifordTry

challenging beliefs, affecting behaviour EXCELLENCE IN SAFETY

Nottinghamshire County Council

Polypipe

J & T Mcafferty's LTD

Control

Control measures implemented to promote the initiative were and are:-

- The use of plastic pipework and the benefits from using them was communicated back to the tender and bid teams.
- Cost, safety and productivity savings were communicated to the client for future schemes
- The site team were made aware of the programme, safety and material cost savings for future schemes
- Formal design approval was achieved to ensure that the use of plastic pipework and similar products would not compromise the specification
- The commercial team were made aware of the initiative to ensure future tenders included an allowance for use of plastic pipework when engaging with the supply chain (Sub Contractors)

Transfer

- Detail and summarise initiative and upload onto the knowledge bank internally
- The initiative will communicated to other project managers through the GT PM forum
- The improvement project will be disseminated to other stakeholders such as Highways England and key clients. The tender teams will also be made aware of the benefits for future work winning

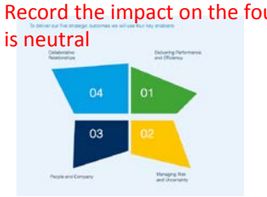
Analysis

Overall plastic pipework is slightly more expensive to procure than concrete. However the improved outputs of installation, the reduction in wastage and longer pipe lengths meant sectional completion was achieved efficiently and saved time on programme.

Suppliers of such plastic pipework also offer bespoke and off the shelf accessories such as junctions, gully connections and other adaptors all designed to suit the plastic pipework. This also offered time savings

Benefits – Four Key Enablers + Safety

Record the impact on the four key enablers + safety where yes is positive and no is negative and N/A is neutral



Safety	Collaborative Relationships	Delivering Performance & Efficiency	Managing Risk & Uncertainty	People & Company
Yes	Yes	Yes	Yes	Yes

Measure

Upon identifying the potential use of twin wall plastic pipe in lieu of concrete and/ or clay pipework it was noted that there is a significant weight difference between the two types of material. This in theory would result in quicker handling of the material and safer unloading of materials. As a result the speed at which pipes could be installed could measured against previous outputs using concrete pipe work specifically.

Wastage – using plastic pipe work removes the need for rockers and stubs procured individually per manhole inlet and outlet. As such plastic pipework could be cut to suit in theory reducing the wastage to zero. Any wastage encountered would in theory be small off cuts which could be either be used elsewhere with a coupler or disposed of. With concrete pipe work a cut or excess pipe, rocker or stub would potentially be unusable anywhere else in the works.

Improve

With the time savings noted during construction, the knowledge was passed on to the tender team for another nearby project. As the critical path for the tender project was running through extensive drainage works the use of plastic pipework offered an opportunity to maximize outputs and save time on the programme.

The initiative has also brought forward other plastic product opportunities such as plastic gullies in lieu of concrete gullies with the same benefits and plastic duct chambers in lieu of brick built duct chambers.

All of which offers environmental and sustainable savings across the board. Defects with plastic products are also easier and safer to repair as they remove the risk of silicosis during cutting operations. Finally, it is noted that plastic pipework is available in storm and foul grade

Benefit Summary

Although plastic pipework is generally more expensive to procure, when considering the outputs achieved, the longer lengths of pipe, the need for rockers and stubs being omitted and the reduced wastage the site team were able to demonstrate an average of 15% saving on the final installed product.

Whilst financially viable, the safety benefits are also significant. When unloading concrete pipework if dropped it is more than likely that the pipe will break and be beyond repair. Whilst not desirable, if a plastic pipe is dropped whilst unloading the likelihood of breakage is less than that of concrete pipe. The main point noted is that although a large diameter pipe being dropped whilst unloaded of manoeuvred does present a significant health and safety risk, it is less likely to cause a major injury than that of concrete pipe.

As the weight of concrete pipe is much more than that of plastic wagons delivering the pipework are maximised in terms of weight to metreage when compared to concrete pipe.

In summary, the extra over cost of using plastic pipework, whilst significant, the commercial, environmental and safety benefits it brings at end product are a viable opportunity.