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Edinburgh Tram Project
Full Progress Report No. 7
24th March to 28th April 2012
FINAL

CONFIDENTIAL – LEGALLY PRIVILEGED AND FOI(S)A EXEMPT

May 12



1 Executive Summary

This report covers progress made during the period from 24th March to 28th April 2012. It incorporates progress reported within Infraco and CAF Progress Reports No. 4-14 to 31st March 2012.

There were 22 incidents recorded during the period. Five incidents were identified as Serious / Significant and 17 reported as either Member of the Public, Service Damage, Minor Injury or Near Miss/ Unsafe Condition. These included two Lower voltage cable strikes, two members of the public falling and one Scottish water compliance issue.

A number of Health & Safety concerns have been identified in relation to the working and management practices of McNicholas. Remedial actions have been identified and are being implemented. A "Think Before You Act" health & safety review is to be held with the project's contractors on 10th of May.

Discussions continue between Infraco and SEPA in relation to soil removed from Baird Drive. Further information is to be provided by Infraco to enable conclusion.

Twelve days of the 22 week cost engineering saving have been confirmed as being eroded. Further erosion has occurred during the reporting period but this has yet to be reported by Infraco and therefore has not yet been agreed.

The On Street drainage has now been re-designed to meet Scottish Water's approval requirements. The scope of On Street works undertaken by Infraco and McNicholas has been reviewed as a result, with McNicholas completing drainage works as well as track slab excavation where this results in overall programme improvement.

Significant progress has been made with the detailed planning of the York Place works. Preparation works for Cathedral Lane substation and York Place utilities diversions will commence during the coming period. A CEC instruction on the overall approach to York Place is anticipated.

Good progress is being made in relation to the identification and scoping of Scottish Water legacy works within the On Street Section although a number of items remain for which a solution has yet to be determined. The scope of legacy works is significantly greater than previously envisaged. The tender for the Leith Walk legacy works has been produced and submitted to CEC for comment prior to tender issue. Close out works have now commenced at Tower Place Bridge and Lindsey Road.

Infraco have commenced track slab works within Shandwick Place and St Andrew Street. Princes Street remedial works are progressing ahead of programme and the remaining areas of Princes Street, previously occupied by McNicholas, were handed back to Infraco on the 30th of April 2012.

Retaining wall works adjacent to the Gogar Burn at the airport remain marginally behind programme however it is anticipated that this slippage will be recovered.

The works to the Eastfield Avenue Crossing and the A8 Roundabout have been completed during this period. The SGN works to the gas main at New Ingliston remain on programme for completion by the 18th of May 2012.

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The progressions of works through the Off Street rail corridor have been impacted by localised ground movements during sheet piling operations. This has resulted in the need to re-sequence sheet piling operations and change construction methods in order to allow works to progress.

Twelve trams have now been delivered to the depot with three vested with CEC. Nine trams have been issued with Interim Tram Routine Test Certificates.

Submissions have been made to the Independent Certifier (IC) regarding Infraco's entitlement to a Pricing Assumption Variation (PAV) for the revised drainage design. The IC has advised that in his opinion, a PAV has occurred and this will be confirmed. Meetings have been held with Infraco to confirm the basis of the omission to the contract sum and the additions based upon the drainage works Infraco are to complete. (Note: McNicholas are undertaking some drainage works to expedite the programme). A further meeting will be held when the drainage design is substantially complete to agree measure and financial evaluation. These principles will be agreed and distributed to enable clarity on the approach.

A Quantative Schedule Risk and Cost Risk Analysis review will be held on the 3rd of May and a Cost Report Review will be held on the 9th of May 2012. The purpose of these meetings is to confirm alignment between the Master Schedule, the cost savings from the 22 week programme saving and reporting of risk, opportunity and contingency.

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6.3.2 Haymarket 2-5

Turner & Townsend took possession of this site on the 28th of March 2012. It had been agreed with Infraco that the utility conflict works through the area would take in the region of 10 weeks. Despite increasing the scope of works to include the drainage works and track box excavation the site is due to be handed back early in mid May ahead of programme.



- Haymarket

6.3.3 Shandwick Place

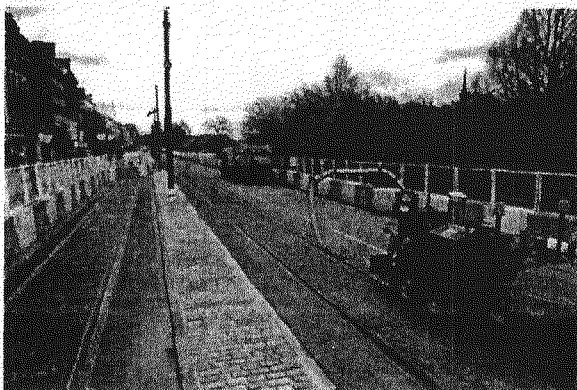
It is anticipated that Shandwick Place will be handed back to Infraco on the 14th of May 2012. The drainage has delayed works in this area but it is not anticipated that the overall completion of these works will be delayed.



- Shandwick Place

6.3.4 Princes Street

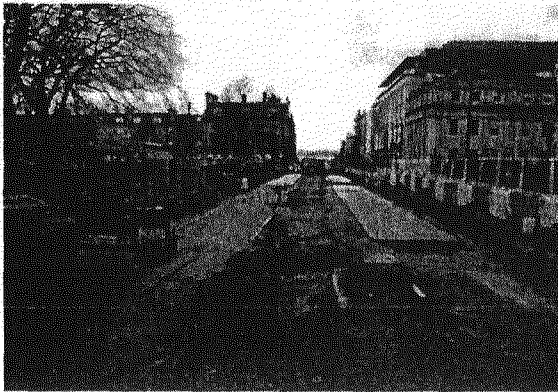
Track remedial works by Infraco will continue in Princes Street.



- Princes Street

6.3.5 St Andrew Square including Waverley Junction

In order to complete drainage works in the area Turner & Townsend took back a large proportion of the site through St Andrew Street. This was handed back to Infraco on the 30th of April 2012 with some areas handed back earlier to allow Infraco works on the outbound track slab to commence. As reported previously this area is on the tram project critical path and the closure of York Place is dependent on St Andrew Street and the east end of Princes Street being completed. Early indications suggest that the delays through this area as a consequence of drainage can be mitigated to a large extent although Infraco is reporting a two week delay to completion and anticipates commencing in York Place at the beginning of November. Turner & Townsend will be working with Infraco and CEC over the coming weeks to explore ways of improving on this date.



- St Andrew Square

6.3.6 York Place

Planning is well underway and the target is to commence some ducting work at Cathedral Lane in May.

7 Off Street Works

7.1 Progress in Period

7.1.1 Airport

The retaining wall construction has commenced along the Gogar Burn following the line of the secant wall. The secant piling has been affected by operative absence however the parallel working of these two activities should minimise any further delay to the programme.

Eastfield Avenue crossing works have been completed, the airport have highlighted that issues may exist with the gradients between the two tram lines. The works on site shall be checked against the design tabled and agreed to the Airport the design process shall ensure that the road conforms to the relevant design standards for a 30mph road. A stage 3 road safety audit shall also be conducted when the junction construction is finished in its entirety; this is programmed for the last quarter in 2012.

Daily coordination and weekly meetings are being held with the airport in line with the agreed protocol. The weekly meetings are recorded by the use of an Issues Log.

The remaining scope following deletion of the kiosk and canopy has been defined by CEC. Marked up drawings and an instruction shall be submitted to Infraco to allow the continuation of these works.

7.1.2 Edinburgh Gateway

Infraco have produced a draft design for the slope option; this consists of a gabion basket solution in place of the permanent retaining structure that had been proposed. This solution negates the need for temporary works in relation to the 33kV electrical cable. A programme for the works is due from Infraco on the 8th of May 2012.

CEC are responsible for achieving the approvals related to the design and this has been discussed with CEC and Turner & Townsend. Any changes to planning shall be addressed through a letter advising the planning department of the temporary situation. CEC have an action to speak to the Building department to discuss any affect that leaving the project in a temporary state would have on the building warrant.

Infraco have agreed that they shall submit the design for CEC technical approval. The Scottish Water temporary build-over agreement is being progressed by CEC however this needs to be enabled by the agreement from Transport Scotland to Scottish Water via Network Rail to a permanent diversion being undertaken. A meeting was held with Scottish Power and Turner & Townsend as the works are adjacent to their 33kV cable and they have agreed that no formal approval is required however the project should keep them informed of the design.

A meeting shall be arranged with the Network Rail project team to define scope. A further meeting shall then be required to define the boundary of their site and the timeline by which Network Rail and Scottish Water can access the area.

CEC have requested that equipment and materials are procured to allow the completion of the Gateway stop to tie in with the other stops on the route. Turner & Townsend have produced a list of materials to assist CEC and Transport Scotland to decide the items that are to be purchased in advance.

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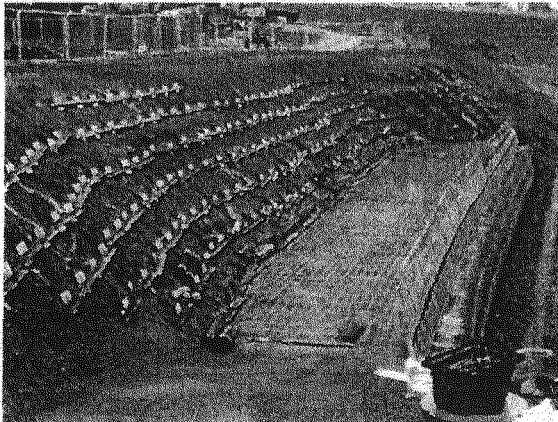
A letter has been received from Infracore stating that due to the delay to Edinburgh Gateway a temporary radio mast would be required for Section B completion. Through discussions with Siemens the aerial that currently exists within the depot could be used by increasing the wattage to it. Siemens require to undertake tests to this aerial to ensure that this would provide the necessary coverage. Siemens stated that these tests could be undertaken prior to the need for instruction for the temporary mast.

7.1.3 Scottish Gas Network Diversion

The works to divert the gas pipeline at Ingliston are progressing well, with the specialist subcontractor due to arrive on the 5th of May 2012 to tie the diversion into the live pipeline. Works are being undertaken to meet the original completion date of the 18th of May 2012.

7.1.4 Other items of progress:

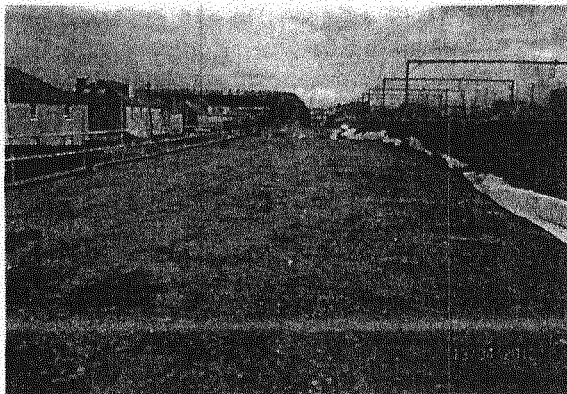
- Scottish Power completed the High Voltage connection to the Ingliston Park and Ride substation.
- Ingliston substation fit out completed.
- Soil reinforcement is being installed at the Gogar Landfill; progress is slower than anticipated however; growing familiarity with the method of work should see an increase in the rate of work.



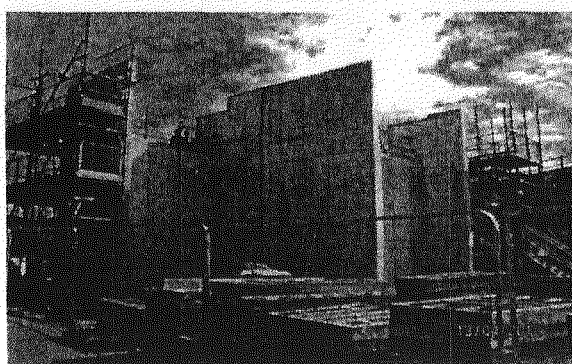
- Soil Reinforcement – Gogar Landfill Site

- The A8 was reopened to two lanes of traffic in both directions on the 25th of April 2012 following the successful excavation and formation of the underpass.
- Progression of the Gyle Broadway crossing.
- Overhead Line Mast foundations have commenced along Edinburgh Park Corridor.
- Baird Drive soil reinforced wall continuing.

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- Baird Drive – reinforced earth embankment



- West Abutment S504

- Interface issues between the sewer and piling location at Carricknowe has been agreed with Scottish Water and the sewer diversion now underway. This allows track laying to progress.
- Crew Relief wall construction and Scottish Power cable diversion costs are now agreed with Network Rail, these works have been instructed to Infracore for construction shall be undertaken by Infracore.
- Russell Road earth retaining structures are being installed around the junction at the Roseburn Corridor.
- The laying of track from Haymarket Yards to Balbirnie continues.

7.2 Key Issues

7.2.1 Railway Corridor

Sheet piling works commenced along the Murrayfield corridor adjacent to Network Rail infrastructure. This is to enable access for the ground improvement methodology. As the sheet piling operations have advanced, movement of a Network Rail overhead line mast (shunt line and Fife lines) were recorded by the monitoring team. Works ceased adjacent to the area where movement has occurred while an alternative methodology for the area was established. An alternative system of work utilising a hydraulic ram which pushes the piles into the ground has been proposed and accepted by Network Rail. This reduces the amount of vibration induced into the embankment. Works may re-commence following the completion of a survey of the overhead line height and stagger by Infracore.

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Movement has also occurred within the ScotRail depot adjacent to the construction of wall structure 4 (W4). ScotRail has reported signs of movement between concrete slabs within the depot on the crest of where sheet piling and soil nailing operations are taking place. Further monitoring was installed in the area and further movement was recorded. Operations were stopped and the methodology reviewed and similarly to the Murrayfield works a hydraulic ram method proposed.

Both sites shall be carefully monitored during the start of the alternative methods of work.

The ScotRail interface remains an area of sensitivity with construction works taking place on all sides of their Depot. The recent movements that have occurred within the depot have caused ScotRail concern. Turner & Townsend have daily communications with the ScotRail staff to ensure they are aware of the measures put in place to mitigate against any further movement.

7.2.2 Edinburgh Gateway

A boundary and timeline needs to be established with Infracore to allow access for the purposes of the permanent sewer diversion. Scottish Water may use the non instruction of the permanent diversion as a reason not to issue a temporary build over for the tram alignment.

7.3 Look Ahead

- Secant and retaining wall construction continuing along the Gogar Burn
- Completion of the SGN/NIL diversion
- Continuation of Gogar Landfill earthwork reinforcement
- Continuation of Gyle Broadway crossing and Edinburgh Park Corridor
- Bankhead Drive earthworks and drainage continuing
- Water of Leith centre pier construction continuing with west abutment excavation
- Ground Improvements being undertaken on Murrayfield Corridor S21B and S21C
- Track continuing to be laid at Balbirnie and Carrick Knowe



- Carrick Knowe to Balgreen Bridge

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- Murrayfield Tram Stop Light weight Aggregate Fill

- Continuation of construction for the Roseburn Structures and Murrayfield Tram Stop
- Continuation of the Russell Road Retaining wall (W4)
- Equipment to Haymarket substation being installed early May
- Continuation of the cladding works on Haymarket Viaduct

8 Trams

8.1 Progress in Period

Twelve trams have now been delivered, with three having been vested with CEC. Nine trams have been issued with Interim Tram Routine Test Certificates, having successfully completed the required level of testing on the Mini Test Track.

8.2 Key Issues

The process for the valuation of Milestone Payment requirements has been agreed with CAF; however there are still some difficulties with the collection of evidence to support this valuation. Evidence requirements will now be agreed monthly in advance, such that no further misunderstanding of requirements occurs.

Two technical concerns were identified during the period;

- The incorrect placement of pedals in the cabs of all trams.
- The detachment of a roof panel on tram 252.

Action has been taken to address the immediate risks, with both issues currently being investigated further by CAF.

An initial proposal to modify the Tram Wash Plant to allow all areas of tram to be washed has been accepted by all stakeholders and is due to be closed in May.

8.3 Look Ahead

Tram Delivery, Test & Commissioning:

A workshop has been arranged with all parties; Lothian Bus, CAF and Turner & Townsend to develop an Engineering Change Control process. This is to allow technical issues identified during the initial operation of trams to be recorded and managed to completion.

There is one tram due to be delivered to Gogar Depot in the next period (tram 257 – due the 4th of May 2012), with three trams scheduled to complete Routine Testing on the Mini Test Track.

