

EDINBURGH TRAM NETWORK

ON STREET WORKS

Prolongation Statement - 13 October 2012 (Original and Current Critical path)

The on-street critical path to achieve Section Completion C (and subsequently Section Completion D) as shown in Programme Revision 5 runs through the construction works at South St Andrews Street / Waverley Junction (construction phases SAS1 to SAS4) and then York Place (construction phases YP1 to YP3).

The construction works at South St Andrews / Waverley Junction Ch. 1150 to 1370 was Programmed to commence on 7 February 2012. Following initial milling works to the carriageway surfacing this Designated Working Area was handed back to Turner Townsend in early January 2012 to undertake utility diversions. Although some excavation work was possible on 27 March 2012, possession of the site was not returned to Bilfinger Berger Siemens until 27 April 2012 to allow the construction works to progress. Since the 27 April the works have been further delayed and disrupted through conflicts between the existing utilities and the proposed design.

The chart below tracks the recent impacts of Departures from the Pricing Assumptions and progress achieved against the Revision 5 Programme for Sectional Completion D and its current critical path through Intermediate Section 1C.

Construction Element	Activity ID	Revision 5	Agreed Cumulative CEC delay to 23/06/2012		Progress to 21/07/2012			Progress to 18/08/2012			Progress to 15/09/2012			Current Progress to 13/10/2012			Total CEC Delay
			Completion	Rev 5 Var.	Add. CEC Delay	Completion	Rev 5 Var.	Add. CEC Delay	Completion	Rev 5 Var.	Add. CEC Delay	Completion	Rev 5 Var.	Add. CEC Delay			
Section Completion D	335	08-Jul-14	09-Oct-14	89	24-Sep-14	78	0	23-Sep-14	77	0	06-Oct-14	90	13	12-Oct-14	96	6	108
York Place	1C-17-YP3.3-278	18-Nov-13	21-Feb-14	95	07-Mar-14	109	0	06-Mar-14	108	0	19-Mar-14	121	0	25-Mar-14	127	6	101
St Andrews Square	1C-16-SAS2.262	18-Oct-12	01-Mar-13	153	14-Jan-13	88	0	21-Jan-13	95	0	03-Dec-12	46	0	28-Jan-13	102	22	175
Waverley	1C-16-SAS-323	16-Oct-12	18-Jan-13	94	01-Feb-13	108	14	31-Jan-13	107	0	13-Feb-13	120	13	19-Feb-13	126	6	127

The table above shows that Section Completion D, following the initial critical diversions of utilities in Intermediate Section 1C & 1D had been delayed by 89 calendar days up to the period end 23 June 2012. In the subsequent two periods (up to 18 August 2012) Infracore has progressed the works by working in more Designated Working Areas (DWAs) and with more resources than Programme Revision 5 envisaged. The result was that the 89 days delay to Section Completion D had been reduced by 12 days to 77 days.

However in the periods ending 15 September 2012 & 13 October 2012 the residual utility conflicts between Ch 1090 and 1205 (which span the St Andrews Square and Waverley DWAs) and outside "Topshop" (at the junction of Princes Street and St Andrews Street South) are preventing the completion of the works in these DWAs. Section Completion D has therefore been again delayed by a further 19 days in these two periods, making a total of 108 days delay.

Method of Analysis (Intermediate Section 1C)

A milestone activity in Programme Revision 5 (Activity ID 1C-16-A16840) for completion of utility diversions in St Andrews Square to Princes Street West was shown to be achieved on 31 August 2011. This milestone formed a pre-condition (predecessor) for the construction works at South St Andrews / Waverley Junction. Progressing of Programme Revision 5 for the on street works now shows this milestone to be actually completed on 27 April 2012. The movement of this milestone drives the analysis of the initial delay

The on-going nature of the conflict between the existing utilities and the proposed permanent works prevents a calculation of the final impact upon the Programme Revision 5 of these departures from the pricing assumptions. This analysis is therefore an interim measure that assesses the impact up to 13 October 2012.

To assist with this analysis, a new work break-down structure has been added to the Programme Revision 5 for each of the activities in St Andrews Square / Princes Street that have been affected by the departures from the pricing assumptions in the period. This allows the cause of each departure to be grouped with the corresponding programmed construction activity. Once the full effect of each departure is known it will be logically linked into the activities in Programme Revision 5 to demonstrate the full impact.

Late access and delayed progress to the, initially non critical, construction works in Designated Working Area St Andrews Square Ch. 1027 to 1171 is also detailed in the enclosed analysis.

Prolongation Statement (Currently non critical works)

Access to the works in Shandwick Place had been achieved on a date ahead of Programme Revision 5. However the works have been subject to delay and disruption as a result of encountering utility works (see attached analysis).

The works at Haymarket have been severely disrupted by utility conflicts since their commencement on programme in October 2011 (see attached analysis).

The chart below tracks the impact of Departures from the Pricing Assumptions and progress achieved against the Revision 5 Programme for Sectional Completion D and the currently non critical path through Intermediate Section 1D.

Construction Element	Activity ID	Revision 5	Agreed Cumulative CEC delay to 23/06/2012 Completion: Rev 5 Var	Progress to 21/07/2012			Progress to 18/08/2012			Progress to 15/09/2012			Current Progress to 13/10/2012			Total CEC Delay	
				Completion	Rev 5 Var.	Add. CEC Delay	Completion	Rev 5 Var.	Add. CEC Delay	Completion	Rev 5 Var.	Add. CEC Delay	Completion	Rev 5 Var.	Add. CEC Delay		
Shandwick Place	1D-14-SP7-775	15-Nov-13	20-Mar-14	125	03-Dec-13	18	0	10-Jan-14	56	0	19-Nov-13	4	0	06-Jan-14	52	14	139
Haymarket	1D-15M-JNCS-60	25-Jul-13	23-Oct-13	141	20-Aug-13	26	0	04-Oct-13	71	0	12-Aug-13	18	0	08-Oct-13	75	57	198

The table above shows that the Construction Elements of Shandwick Place & Haymarket, following the initial critical diversions of utilities in Intermediate Section 1C & 1D had been delayed by 125 and 141 calendar days respectively up to the period end 23 June 2012. In the subsequent three periods Infracore has progressed the works by working in more Designated Working Areas (DWAs) and with more resources than Programme Revision 5 envisaged. The result has been that these slippages to the Programme Revision 5 completion dates had been greatly reduced. However in the period ending 13 October 2012 the residual utility conflicts are preventing the completion of the works in these DWAs.

Method of Analysis (Intermediate Section 1D)

The construction works at Haymarket in construction Phases H1 to H6 and Shandwick Place in construction Phases SP1 to SP7 has been delayed by a number of deviations from the pricing assumptions (please see attached delay schedule). The principal delay is caused by the discovery of utilities that conflict with the proposed permanent works.

The on-going nature of the conflict between the existing utilities and the proposed permanent works prevents a calculation of the final impact upon the Programme Revision 5 of these departures from the pricing assumptions. This analysis is therefore an interim measure that assesses the impact up to 13 October 2012.

To assist with this analysis, a new work break down structure has been added to the Programme Revision 5 for each of the activities that have been affected by the departures from the pricing assumptions in the period. This allows the cause of each departure to be grouped with the corresponding programmed construction activity. Once the full effect of each departure is known it will be logically linked into the activities in Programme Revision 5 to demonstrate the full impact.

The progress that has been possible in phase H1 to H3 and SP1 to SP6 up to 13 October 2012 is reflected in the attached analysis. For this interim assessment the actual progress that has been achieved in the period has been used to calculate the revised planned completion of the Shandwick and Haymarket construction elements.

Changes to Programme Logic

In addition to the traffic management constraints, the on-street works were planned and programmed to be built with separate consecutive phases for inbound and outbound track with their associated adjacent carriageway & footpath reconstruction. This was to maintain access through the site for emergency and construction vehicles etc.

During the utility location and diversion works undertaken by CEC in advance of the Infraco works both inbound and outbound track boxes have been excavated, but not the adjacent sections of intended road and footpath reconstruction. The extent of the road and footpath re-construction is affected by the results of a cost engineering exercise undertaken by CEC.

The Infraco works have now proceeded having to take account of the above additional constraints.

To analyse the impact of the Departures to the Pricing Assumptions in the period the following changes have been made to the Programme Revision 5 logic

Shandwick Place

- 1D 14O SP1 820 (Make good formation with type 1) remove predecessor 1D 14O SP1 497 (remove existing kerbs).
- 1D 14O SP1 497 (Remove existing kerbs) add successor 1D 14O SP1 1003 (Sub base).
- 1D 14V SP2 544 (Access for track laying) remove predecessor 1D 14V SP2 564 (225 base)

Waverley

- 1C 16C SAS2 207 (Access for tracklaying) remove predecessors 1C 16C SAS2 194 (traction ducts) and 1C 16C SAS2 195 (comms ducts)

St Andrews Square

- 1C 16 SAS1 196 (Remove existing kerbs) remove successor 1C 16 SAS1 259 (Make good formation with type 1) and replace with 1C 16 SAS1 198 (sub base)

Please note: the above changes in logic correspond to the agreed alterations to the Programme Revision 5c made in previous periods.