



# **EDINBURGH TRAM PROJECT**

## **On-Street Construction Methodology**



**Construction Methodology and proposals Based on Design  
Available to December 2007 and to be confirmed by Detailed  
Design**

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## Introduction

This document has been prepared to provide a summary view of the documentation that has been used and decisions that have been made to agree the construction methodology primarily for Edinburgh Tram Infraco Construction Works that are to take place in the City Centre (Haymarket to Newhaven) but also for two recognised areas outwith the city centre being the interface between the A8 Underpass construction at the Gogar Roundabout and the construction activities to the existing guided busway.

This document refers to many separate sketches and drawings that have been reviewed and discussed in some detail by not only **tie** and the Infraco Constructor (**BBS**) but also with major stakeholders such as CEC, TEL and Lothian and Borders Police.

All referenced drawings and sketches are available under separate cover.

## General

1. Queen Street – George Street – Princes Street have to be recognised as the “cornerstone” of any traffic management proposals and should be used as the foundation to build traffic management solutions from.
2. CEC advised that as there are only 3 recognised North – South routes through the city being :
  - a. Princes St. – Lothian Rd.
  - b. Through Mound junction
  - c. Picardy place – Leith St. North Bridgeand that only one of these thoroughfares can be closed at any given time and this constraint must be recognised during INFRACO programme development.
3. **tie** advised that any temporary traffic management deemed necessary will be input to the traffic modelling software by JRC.
4. Identification required by INFRACO of other works off the tram route that may be required to facilitate Traffic management i.e. removal of existing traffic calming measures, tree lopping, parking restrictions, signage etc.
5. Colour coded route map for on-street section referred to during discussions has been scanned and made available to all. (Attachment 1)
6. The constraints matrix (issued previously) is also colour coded to match map. The route map if reproduced for 3<sup>rd</sup> parties are not to be issued greater than A3 size. (Attached)- This has been superseded by the ‘relaxation’ of city centre constraints as detailed in the following pages. (Attachment 2)
7. BBS to consider in all proposals the requirement to service both business and private premises and required access to bus stops. BBS initial response is that servicing or business premises may have to be done outwith construction hours.

8. All proposals discussed are utilising CoCP hours only.
9. There are three areas have been recognised as full closure, due to considerable reduction on programme duration. (Shandwick place, Princess street and Constitution street)

## Code of Construction Practice

The agreed Code of Construction Practice (CoCP) limits the working hours available as follows

Monday to Friday 7am-7pm  
Saturday 8am-1pm

Any requirement to work outside of the COCP will have to be identified and an application made to CEC well in advance of the requirement.

## Site Specific CoCP

Site Specific Code of Construction Practices exist for the area's listed below which have to be recognised and adhered to during Infracore Construction works.

1. Porth Ports
2. Ocean Terminal
3. Royal Yacht Britannia
4. BAA
5. SRU
6. Edinburgh Park
7. Network Rail
8. Others

{ XE "Code of Construction Practice" }



## Embargo's

### August Festival

August festival restriction period will run annually from the 1st Sunday in August to the 1st Sunday in September inclusive.

### Christmas

From the Thursday preceding the first Sunday in December until the first working day of the New Year annually

### Limits

Haymarket to Picardy Place



## ON-STREET CONSTRUCTION METHODOLOGIES

## **Haymarket Junction**

### Limits

Frontage of Caley Ale House with Haymarket Station to West side of Palmerston Place (includes left turn into Palmerston Place)

### Agreement

#### Phase 1 Drawing SK-TM-001

1. BBS confirmed that subject to being able to maintain acceptable pedestrian crossings that the 2 lane flow of traffic exiting Dalry Road into West Maitland Street would be maintained by “skewing” across the junction into West Maitland Street by building-up the east end of the existing pedestrian Island to the north of Ryries public house. BBS to confirm what works will be required to accommodate this and to update their proposals / drawings.
2. BBS confirmed that the Storage area 1b proposed for the north side of Morrison Street could be relocated to the south side of West Maitland Street to assist with traffic flows in Morrison street.
3. BBS confirmed that the fence line designating the working area around the existing East Island outside the Haymarket Bar would reduce traffic flow from Morrison Street into West Maitland Street to one lane.

#### Phase 2 Drawing SK-TM-002

1. BBS confirmed that with the East Island removed in Phase 1a that a 2 lane flow will be re-instated from Morrison Street into West Maitland Street.

#### Phase 3 Drawing SK-TM-003

1. BBS proposal to relocate bus stop from outside Ryries Bar to West End of Haymarket Terrace and build-up in the West end of the Scotrail Carpark adjacent to existing Air Quality Monitoring station to provide a standing area for bus passengers is agreed.
2. BBS proposal to relocate bus stop from outside Haymarket Station forecourt to West End of Haymarket Terrace and build-up in the West end of the Scotrail Carpark adjacent to existing Air Quality Monitoring station to provide a standing area for bus passengers agreed.
3. CEC to advise on situation with relocation of taxi rank from Haymarket Station carpark.
4. BBS to submit proposals for enabling works in Station forecourt
5. Caley Ale House - Demolition re-programmed from August 2008 to April 2008 following re-sequencing of programme to work from Haymarket into city centre. (Licence to vacate expires 31/3/8).



6. Junction Construction - Westbound traffic from Morrison Street to Haymarket Terrace will be reduced to one lane along the front of Ryries Bar / Haymarket Station.
7. Junction Construction - BBS to submit Traffic Management proposals for diverting general eastbound traffic from Haymarket Terrace into the surrounding streets (Coates Gardens or Rosebery Crescent) and exiting further up West Maitland Street, whilst maintaining a single bus lane eastbound through Haymarket junction and having a single westbound lane on Haymarket Station (South) side. (Applies to Phases 5 & 6 also)

#### Phase 4A Drawing SK-TM-004

1. Bus stop outside Haymarket station will be relocated during Phase 3 above
2. Taxi rank in station forecourt will be moved during Phase 3 above

#### Phase 4B Drawing SK-TM-005

1. Bus stop outside Haymarket station will be relocated during Phase 3 above
2. Taxi rank in station forecourt will be moved during Phase 3 above

#### Phase 5 Drawing SK-TM-006

1. BBS to submit Traffic Management proposals for diverting general eastbound traffic from Haymarket Terrace into the surrounding streets (Coates Gardens or Rosebery Crescent) and exiting further up West Maitland Street, whilst maintaining a single bus lane eastbound through Haymarket junction and having a single westbound lane on Haymarket Station (South) side (As per Phase 3)
2. Proposed diversion route for Westbound traffic through existing Haymarket station forecourt will require enabling works. (As per phase 3)
3. This phase requires Caley Ale House to have been demolished and would assist the construction to have continued junction section off-road and build the first part of Haymarket Viaduct through the Caley footprint. BBS to programme accordingly.
4. Programme logic to be checked to interface with Haymarket Terrace sub-station.

#### Phase 6A/6B Drawing SK-TM-007

1. BBS to submit Traffic Management proposals for diverting general eastbound traffic from Haymarket Terrace into the surrounding streets (Coates Gardens or Rosebery Crescent) and exiting further up West Maitland Street, whilst maintaining a single bus lane eastbound through Haymarket junction and having a single westbound lane on Haymarket Station (South) side (As per Phase 3)
2. TEL raised concerns on the temporary reduction of Dalry Road northbound to one lane and the impact of stationary buses. BBS requested to review potential to have 2 lanes running northbound on Dalry Rd towards West Maitland Street with the existing 2 lanes from Morrison Street southbound to Dalry Road reduced to one. BBS to update proposal.



3. BBS to advise on proposals for maintaining safe pedestrian access to the frontage of Haymarket Station.



## **General**

1. BBS to advise proposals for ensuring pedestrian access and safety across Haymarket junction during construction period as central islands will be removed.
2. BBS to consider options during Programme Development and submit proposals for diverting traffic away from the A8/Haymarket and on to other approach routes into the city to ease congestion prior to Haymarket area construction.
3. Temporary Traffic Management design is responsibility of BBS and must consider such items as servicing of premises and through-routes for emergency vehicles etc

## ***Palmerston Place / Torphichen Junction to Manor Place***

### Limits

West Maitland Street (West Side of Palmerston Place (excluding left turn into Palmerston Place) to West side of Manor Place (includes left turn in Manor Place)

West Maitland Street to Torphichen Place/Manor Place

### Agreements

#### Inc 81 Layout Drawing Phase's 1-2-3

1. BBS proposal is to reduce existing 4 lanes to 2 only eastbound to allow for a sufficient working area. Diversion strategy is a continuation of that adopted for Haymarket junction i.e. divert general eastbound traffic from Haymarket Terrace into the surrounding streets (Coates Gardens or Rosebery Crescent) and exiting further up West Maitland Street.
2. BBS confirmed that the right turn is retained from West Maitland into Torphichen Place.  
Proposal agreed in principal with BBS-CEC-TEL-L&BP subject to confirmed design dimensions and agreement of further detailed traffic management. See attached layout drawings.
3. CEC advised that Torphichen Street becomes 2 way in the final scheme with 2 lanes heading south and 1 lane heading north across the junction and into Palmerston place. BBS unaware of this design and the associated kerb re-alignments.
4. A north/south flow from Palmerston place to Torphichen street to be maintained during the construction of section 1d. This junction will be re-visited at the completion of the rest of section 1d to complete the construction of this section.

## **West Maitland Street Junction with Palmerston Place/Torphicen Street**

### Limits

West Side of Palmerston Place Junction on West Maitland Street to East side of Junction with Torphicen Street

### Agreements

Shandwick Place (East side of Manor Place to West Side of Queensferry Street)

East Side of Manor Place to entrance to Coates / Atholl Crescents

Inc 79 & 80 Layout Drawing Phase's 1-2-3

1. Following lengthy discussion it was agreed to merge Phase's 2 and 3 as shown to close the junction between Manor Place and West Maitland Street with traffic diverted down Palmerston Place.
2. Proposal agreed in principal with BBS-CEC-TEL-L&BP subject to confirmed design dimensions and agreement of further detailed traffic management. See attached layout drawings.
3. Existing road width is proving challenging to fit in a construction zone, a safety zone and maintain a traffic flow. BBS requested a x-section of the road.
4. Noted that if the revised Haymarket junction is constructed first then that would reduce Traffic Management challenges on Shandwick Place. BBS to consider in programme development.
5. Identified that the permanent measure could prove problematic as in the example of Shandwick Place there would be a centre island tram stop constructed whilst still maintaining two-way traffic flow prior to the permanent TRO approval, and that a further TTRO may be required to divert traffic away from this area. Needs to be considered for all areas.

## ***Shandwick Place (Full Closure)***

### Limits

East side of Manor Place to West Side of Queensferry Street ,Entrance to Coates / Atholl Crescents to Lothian Road Junction

### Agreements

No Construction methodology drawings yet developed for this section

1. Noted that if the revised Haymarket junction is constructed first then that would reduce Traffic Management challenges on Shandwick Place. BBS to consider in programme development.
2. Proposal is to close Shandwick Place and divert all traffic in both directions through Coates and Atholl crescents. Proposal agreed in principal with BBS-CEC-TEL-L&BP subject to submitted drawings, confirmed design dimensions and agreement of further detailed traffic management.
3. Identified that the permanent measure could prove problematic as in the example of Shandwick Place there would be a centre island tram stop constructed whilst still maintaining two-way traffic flow prior to the permanent TRO approval, and that a further TTRO may be required to divert traffic away from this area. Needs to be considered for all areas.

## **Lothian Road Junction**

### Limits

Junction between Lothian Road / South Queensferry Street/ Hope Street / Princess Street to east side of South Charlotte Street junction

### Agreements

#### Lothian Road Junction

#### Inc 72 & 70 Layout Drawing Phase's 1-2-3-3a-4

1. Proposal agreed in principal with BBS-CEC-TEL-L&BP subject to confirmed design dimensions and agreement of further detailed traffic management. See attached layout drawings. Enabling works required
  - a. Opening the junction between Shandwick place / Queensferry Street/Hope Street (Fraser's Corner) and creating a gyratory in a clockwise direction. Will be done to some extent by MUDFA.
  - b. The pedestrian flow across the Fraser's corner junction must be accommodated.
2. L&BP raised a concern with the potential for traffic performing a U-turn on the east side of Charlotte Square to access George Street.
3. Initial discussions took place around traffic management at Princes St, South Charlotte St, Charlotte Sq, Hope St. with the intention of introducing a virtual roundabout situation with traffic on Princes St running on the north side of Princes Street only between South Charlotte Street and Lothian Road junction. This would need enabling works to open the junction between Shandwick place / Queensferry Street/Hope street (Fraser's Corner)

#### Lothian Road junction to Princes St/South Charlotte St.

1. CEC advised that road alignment has changed from that shown on the drawings with BBS.
2. CEC advised that the pedestrian flow across the Fraser's corner junction in both east/west and north/south directions must be accommodated.
3. Issue whether or not re-profiling is required to Princes Street road surface and to what extent. Current design required.
4. Noted that once left turn is incorporated from South Charlotte St. to Princes St. eastbound that this will be for buses and taxis only.
5. 3 lanes running south in South Charlotte Street to be configured so that 2 lanes turn right into Princes Street for Lothian Road/Shandwick Place / Queensferry Street and 1 lane turns left into Princes Street for bus/taxi traffic only-Post construction
6. Phase 3 as shown on attached drawings can only be completed if existing road dimensions are sufficient. Await design details.

## ***Princess Street (East – Central – West combined)***

### Limits

East Side of South Charlotte Street to the mid point of the Waverley bridge / Princes Street junction

### Princes St. West Agreements

East side of South Charlotte Street to West Side of The Mound  
East Side of South Charlotte Street to mid Fredrick Street Junction

### **Options Discussed:**

#### Layout Drawing Phase's 1-2-3-4

1. Fredrick Street scheduled to be re-opened by MUDFA under St.Andrew Square programme by mid February 2008.
2. Princes Street Central Reservation may be removed by MUDFA prior to BBS requiring site.
3. A single phase between South Charlotte Street and Fredrick Street would remove up to 4 bus stops. TEL requested that this section be reviewed to terminate at the mid point of the Fredrick Street junction thus enabling a 2-way flow to be retained during both this and the following phase.
4. BBS were requested to submit proposals to split Princes St. into 3 phase's being
  - a. East Side of South Charlotte Street to the mid point of Fredrick Street junction.
  - b. Mid point of Fredrick Street junction to Mid point of the Mound Junction.
  - c. Mid point of the Mound Junction to Waverley Bridge / South St.Andrew Street junction
5. BBS to be able to demonstrate the benefits to programme of this logic.
6. BBS proposal to split Princess Street into only 2 phase's
  - a. East Side of South Charlotte Street to the mid point of Mound junction.
  - b. Mid point of Mound junction to Waverley Bridge / South St.Andrew Street junction.
7. BBS to submit proposals with examples of how this would benefit programme and costs.
8. TEL have requested that if possible 2 lanes are retained in a westerly direction. BBS advised that the required width incorporating 2 lanes of traffic, working zone and safety zone may not be available. To be confirmed.



9. BBS indicated that complete closure had not been considered in their programme submission and that significant programme duration reduction would be expected in this area. Programme to be updated.

10. BBS requested that design x-sections of the road construction be made available.

### **Princes Street Agreement**

Due to significant programme duration reduction made after the complete closure option exercise, it has been reprogrammed with complete closure of Princes street (from the east side of South Charlotte Street to the mid point of the Waverley bridge / Princes Street junction) whilst maintaining a single lane north-south flow across the Mount Junction under traffic light control.

### ***Princess Street (Mount Junction)***

#### Limits

Mound Junction

#### Mound Junction Agreements

Jnc 67 Layout Drawing Phase's 1-2-3-4-5-6-7-8

1. Current Proposal is to re-open Fredrick Street and move north/south traffic from Hanover Street to Fredrick Street. Construction will reduce traffic lanes to 1 lane westbound and 2 lanes eastbound. (This proposal assumes bus traffic remains on Princes St.)
2. Fredrick Street requires to be re-opened to traffic sooner rather than later to facilitate both MUDFA and INFRACO works. (Post mtg note – this requires to be done by end January 2008 to facilitate MUDFA works in St. Andrew Square

### ***Waverley Bridge Junction***

#### Limits

East end Princes Street at Junction with South St Andrew Street and Waverley Bridge

Jnc 49-50-53-63-66 Layout Drawing Phase's 1-2-3-4-5-6-7-8

1. Concern on amount of time in construction programme to construct this junction curve (37 days) due to complexity of traffic management issues. This has been resolved with the proposal of 3 phase construction discussed at meeting 6<sup>th</sup> Nov. and included in Construction methodology drawing pack received 12<sup>th</sup> Nov. under which the junction is now closed to all traffic thus providing a secure construction environment.

## **St. Andrew Square**

### Limits

North St Andrew Street to South St Andrew Street excluding junction York Place / North St Andrew Street and junction Princes Street / South St Andrew Street

### Agreement:

1. East side of the Square will be closed to traffic by the time BBS require to construct in this area. BBS need to consider servicing of premises during construction.
2. If the re-profiling of road surface on South St. David Street currently being done as part of MUDFA works was continued through the left turn junction onto Princes St. (eastbound) then this would greatly assist traffic management proposals for Infracore. To be considered in MUDFA programme.

### North St. Andrew Street to York Place Junction

### Limits

Junction York Place / North St Andrew Street

### Agreements

1. BBS unaware of any design associated with build-up of road levels at junction and require understanding of current design for this area. No information can be found in the data room indicating that this junction has to be built-up by around 500-600mm.
2. BBS were advised that this is an area where utilities may be left for Infracore.
3. BBS advised that to construct this junction the westbound left turn from York Place into North St. Andrew St would have to be banned. This will already have been done under MUDFA works.
4. BBS suggested diverting traffic through Herriot Row / Abercromby Place but after some discussion this was deemed unworkable.
5. Princes Street could be used as a diversion route to take traffic of York Place if Princes St construction programme could be completed first. BBS to consider in programme development.
6. Previous proposal to divert southbound traffic from Leith Walk to Leith Street and Princes Street was deemed unworkable by both TEL and L&BP as Leith Street already operating at capacity.

7. Issue is that major engineering works are required at this junction and traffic will have to be thinned-out by other diversions prior to reaching this location. Wider area diversion strategy required as mentioned above.

## **York Place**

### Limits

York Place from junction with North St Andrew Street to junction with Picardy Place/Broughton Street but excluding both of these junctions

### Agreements

1. Access to Bus station at Elder street junction will require access to be maintained at all times. To be included in proposals.
2. Preferred option is two retain 2 lanes of traffic in one direction with the opposite flow diverted to a location yet to be decided.

## **Picardy Place**

### Limits

Between Picardy Place roundabout at its junctions with Broughton Street and Leith Street and London Road roundabout

1. CEC advised that the T-Junction proposal is being taken forward. SDS are currently working-up TSS initial design so that a “fixed” conceptual design will be available in December to allow BBS to programme and cost.
2. tie (D.Sharp) provided a draft of the final design and talked through with BBS. A copy of the draft layout plus a copy of the original layout incorporating Utilities was provided to BBS for information only. See attached. Formal issue expected later this week. Dwgs. B13703/SK/27 and B13703/SK/28

## **London Road Junction**

### Limits

London Road with its junctions to Leith Walk south and Leith Street

### Agreement

1. CEC advised that this is now a T-junction design and has been for some time. Current design to be confirmed to BBS.

2. Understood that under MUDFA that the existing roundabout and clock would be removed this year. To be confirmed. (Post meeting note – removal of roundabout underway and clock to be removed to CEC storage w/c 19<sup>th</sup> Nov.2007)

## ***Leith Walk (South)***

### Limits

Leith Walk (South) – Junction at London Road to Balfour Street

### Agreement

1. Dalmeny Street and Iona Street cannot be closed together as each is a diversionary route for the other.
2. Pilrig Street and MacDonald Road cannot be closed together as each is a diversionary route for the other.
3. Bus movements between Elm Row and Annandale Street are critical. Provided MacDonald Road and Hopetoun Street are accessible then diversions northbound only could be accommodated between the hours of 08:00 and 18:00.
4. Southbound from Annandale Street to Elm Row is needed at all times.
5. Potential for TRO impact on permanent measures to be considered during programme development.
6. Proposal agreed in principal with BBS-CEC-TEL-L&BP subject to confirmed design dimensions, submitted drawings and agreement of further detailed traffic management. BBS to submit drawings to support proposal.

## ***Leith Walk (North)***

### Limits

Leith Walk (North) – Junction Balfour Street to just South of Foot of the Walk junction with Great Junction Street

### Agreements

Potential for TRO impact on permanent measures to be considered during programme development.

Proposal agreed in principal with BBS-CEC-TEL-L&BP subject to confirmed design dimensions, submitted drawings and agreement of further detailed traffic management. BBS to submit drawings to support proposal

## ***Foot of the Walk***

### Limits

Foot of the Walk / Great Junction Street / Constitution Street / Duke Street Junctions

### Agreement

1. Existing pedestrian crossings and associated signalling moved back into Duke Street, Great Junction Street, Leith Walk, Constitution St away from the junction.
2. Construction at south end of constitution street is extended as far south into Great Junction St junction as practically possible.
3. Traffic management in a East/West direction is reduced to one lane over the already built section in 2 above south of constitution st and a L-shape construction is done incorporating remaining 2/3rds of Great Junction Street and ½ of Leith Walk.
4. Traffic management in a East/West direction is reduced to one lane over the already built section in 2 above south of constitution st and a L-shape construction is done incorporating remaining 2/3rds of Duke Street and ½ of Leith Walk.
5. Proposal agreed in principal with BBS-CEC-TEL-L&BP subject to confirmed design dimensions, submitted drawings and agreement of further detailed traffic management. BBS to submit drawings to support proposal.

## ***Constitution Street (South)- Closure***

### Limits

Constitution Street north of junction with Great Junction St/Duke Street to North side of Queen Charlotte Street (includes junction)

### Agreement

Due to permanent TRO constraints the works in constitution street should be programmed so that they are not completed until after the TRO is in place. BBS to consider during development of programme

## ***Constitution Street- Closure***

### Limits

Constitution Street north of junction with Queen Charlotte Street to south side of junction with Baltic Street / Bernard Street

### Agreement

Due to permanent TRO constraints the works in constitution street should be programmed so that they are not completed until after the TRO is in place. BBS to consider during development of programme.

## ***Constitution Street (North)-Closure***

### Limits

Constitution Street north of junction with Baltic Street / Bernard Street to roundabout at Casino Square

### Agreement

Due to permanent TRO constraints the works in constitution street should be programmed so that they are not completed until after the TRO is in place. BBS to consider during development of programme.

## ***Ocean Drive***

### Limits

Ocean Drive from roundabout at Casino Square to Junction with Lindsay Road including Victoria Quay Roundabout

### Agreement

### Casino Square

Roundabout is removed and essentially becomes a T-junction.

### Ocean Drive

1. Tower Place Bridge – Clarity required on whether or not an additional footway is required. Bridge is to be widened.
2. CEC advised that their understanding is that the CoCP will be agreed with Forth Ports w/e 16<sup>th</sup> November and that CEC will be adopting the road therefore becoming the owners.

3. Casino Square to Ocean Terminal – BBS understood that the alignment in this section was in the verge only moving into the roadway to cross Tower Place and Victoria Dock bridges. CEC advised that the alignment in this section is in the centre of the road.
4. CEC also adopting the section in front of Ocean Terminal upto Ocean Drive West
5. Temporary road to be built through existing blaes carpark incorporating part of existing road. BBS to incorporate in programme logic.
6. Access must be maintained to carpark at North end of Ocean Terminal at all times. BBS to incorporate in programme logic.
7. Constraints expected outside of Ocean Terminal to be advised

### ***Victoria Quay Roundabout***

Becomes a T-junction in the permanent measure with controlled pedestrian crossing. This conflicts with the design BBS currently have. Data room to be checked for correct design.

### ***Lindsay Road to Newhaven***

#### Limits

Lindsay Road at junction with Ocean Drive to Newhaven Road

#### Agreement

This section is currently under re-design as there is an expected change to the alignment. This is also a section where MUDFA and INFRACO may work in parallel as the road levels may be changed by up to 2m.

## **A8 Underpass**

### Agreement

- BBS used AIP report as a basis as was a very detailed report on design, construction methodology and associated traffic management.

The change to design criteria around the A8 retained wall (soil nailing rather than contiguous piles) now means that the wing walls are now stand-alone structures rather than as previously when they were part of the A8 contiguous piled wall.

- Phase 1 (North Side)

The traffic management associated with this will see the closure of the near-side lane (eastbound) on the Gogar roundabout and one lane of the current eastbound (city bound) slip road from the Gogar roundabout closed-off using a physical TVCB (temporary vehicle control barrier).

Once the traffic management is in place construction will commence on the North side with a top down dig to allow enough spoil to be removed to allow the construction of the first part of the tunnel roof soffit. A base layer will be put in place and timbered over which will allow the first section of the tunnel roof to be cast.

2 rows of piles have to be driven in a north-south direction leading into the north access to the tunnel. This will be supported by east-west sheet piling to ensure integrity between the worksite and the traffic lane.

Following completion, the road surface will be re-instated.

- TEL commented that the need for cross-over flows from the slip road to city bound lanes and from the A8 under the roundabout to Leith bound lanes needs to be maintained as well as considering the impact of stacking in the slip lane onto the roundabout itself.
- tie proposed the use of temporary traffic lights to control the merge across lanes with temporary stop lines painted on the road both at the east end of the slip road and the east end of the A8 exiting from under the roundabout. The location of these lights would enable integration with the existing controllers for the lights on the roundabout thus keeping them in sequence.
- It was agreed by all present that physical separation of traffic, however difficult, i.e prohibit city bound access from Gogar roundabout slip road, should be considered during traffic modelling



- Phase 2

Following the completion of phase 1 a temporary running lane will be built in the verge to the north of the existing slip-road. The traffic management will then switch to the inside lane of the slip road although by the use of the temporary road 2 lanes of traffic will then be retained on the slip road city bound.

Traffic management to the lanes under the roundabout will see the eastbound (city bound) lanes closed to public traffic with a contra-flow in place to allow east and west bound traffic to run on the westbound (towards airport) lanes only.

- Phase 3

The eastbound slip road is fully re-opened in original configuration.

The contra-flow on the lanes under the roundabout will be switched from the westbound lanes to the eastbound lanes i.e. 2 directional traffic flows on eastbound (city bound) lanes only with the westbound lanes closed to public traffic.

The west-bound slip-road from the A8 to the Gogar roundabout will be reduced to one lane at the point of the sub-way but will open out again to three lanes prior to meeting the roundabout. This ensures that traffic can set itself for exits to the Gyle or City bypass.

- Phase 4 (South Side)

This will see the westbound slip road from the A8 into the Gyle centre closed completely with Gyle bound traffic directed up to the Gogar roundabout then back into the Gyle.

Note that sheet piling required for phases 1 and 4 is very close to the running lanes and will therefore have to be installed either overnight or in periods where the road can be closed to traffic.

Hammer noise and vibration radius will also have to be considered with residential properties situated just to the north-east of the worksite.

- Phases 1 & 2 will provide the most challenging in terms of traffic management with the part closure of slip roads.
- Tie requested BBS to consider the implications of re-programming the A8 underpass from its current north-south to south-north i.e phases 1-4 changed to 4-1.  
Both TEL and L&BP requested that the construction sequencing be maintained as programmed i.e North-South as this completes the most difficult phase 1 in terms of traffic management at the most suitable period.
- Tie confirmed that the sewer diversion would be carried out under the MUDFA contract and should have no impact on the underpass construction as the subway construction is currently programmed to complete in June 2009 with the next activities for drainage and

trackwork not programmed to commence until November 2009 as the logic is dependant on the completion of structure S32 Depot Access bridge.

- If the depot access bridge has been re-located in the current design, further north then this can be started earlier as there will be no impact on underpass construction and associated traffic management.

### ***A8 Underpass / Guided Busway Interface***

- As design changes have evolved and the location of the Gogar Depot has moved north, the requirement for a contiguous piled wall along the north side of the A8 has been reduced to a requirement for a soil nailed wall only.

This should reduce the construction duration required for the A8 wall and thus make it possible to commence the A8 Underpass earlier.

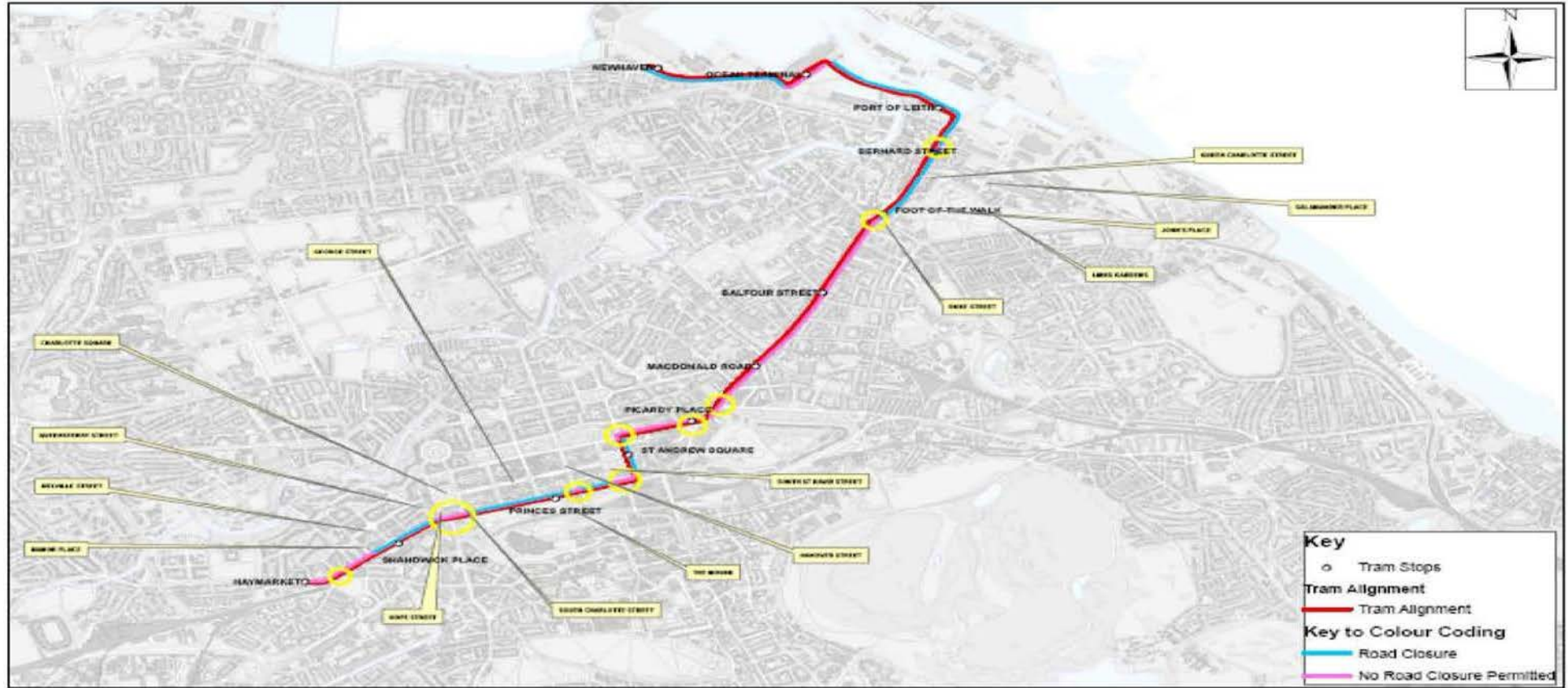
- This has to be managed to avoid the Royal Highland Show at Ingliston Showground in June 2008 as this will put immense pressure on any traffic management in place prior to the show.

CEC events team to confirm dates for Royal Highland Show (TC)

- BBS to re-programme A8 Underpass to commence in late June 2008, (following completion of Highland Show) which will see completion approx end of 3<sup>rd</sup> week of April 2009 resulting in a 7-8 week overlap with the guided busway construction commencing in February 2009.



# Attachment 1



<b>Trams For Edinburgh: Haymarket to Newhaven</b>		Date: Nov 07	
		Sheet No: 1	
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USB00000082\_0027



Track	Location / Area	Line / Area	Context	Key Elements	Other Constraints	Precedence	Additional Notes	Comments
18	18/19/20/21/22	18/19/20/21/22	18/19/20/21/22	18/19/20/21/22	18/19/20/21/22	18/19/20/21/22	18/19/20/21/22	18/19/20/21/22
19	19/20/21/22	19/20/21/22	19/20/21/22	19/20/21/22	19/20/21/22	19/20/21/22	19/20/21/22	19/20/21/22
20	20/21/22	20/21/22	20/21/22	20/21/22	20/21/22	20/21/22	20/21/22	20/21/22
21	21/22	21/22	21/22	21/22	21/22	21/22	21/22	21/22
22	22	22	22	22	22	22	22	22
23	23	23	23	23	23	23	23	23
24	24	24	24	24	24	24	24	24
25	25	25	25	25	25	25	25	25
26	26	26	26	26	26	26	26	26
27	27	27	27	27	27	27	27	27
<b>GENERAL</b>								
28	28	28	28	28	28	28	28	28
29	29	29	29	29	29	29	29	29
30	30	30	30	30	30	30	30	30
31	31	31	31	31	31	31	31	31
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49	49	49	49	49	49	49	49	49
50	50	50	50	50	50	50	50	50