

2 The Proposed Scheme

2.1 Need for the Scheme

The RAP and FSR established the existing traffic conditions along the A68 and identified local constraints to traffic flow. It then defined priorities for localised improvements and increased overtaking opportunities. This was completed by taking traffic modelling, engineering, environmental and economic conditions into consideration. The findings of the RAP stated that this particular scheme was required to improve the operational performance, level of service and safety on the A68. Northbound overtaking opportunities are provided at the Soutra climbing lane and also at the DAL between Carfraemill Roundabout and the Oxton Junction however, an accident involving a southbound travelling vehicle on the section of road between the Soutra northbound climbing lane and the Carfraemill Roundabout along with poor visibility for overtaking has indicated a need for a southbound road improvement scheme. By developing a WS2+1 scheme, it would be possible to increase overtaking opportunity travelling southwards from Soutra Hill, provide additional length of DAL at Carfrae Roundabout, while rationalising side road access and improving safety.

Southbound overtaking between the bottom of the Soutra South climbing lane and the Oxton junction would provide overtaking at the bottom of the Soutra South climbing lane for vehicles, which have been constrained in the long downhill single lane. It would also provide overtaking in advance of the A697 and the A68 south of Carfraemill Roundabout, both of which provide limited overtaking opportunity.

The northbound overtaking section between Carfraemill Roundabout and Oxton junction would extend the existing DAL from Carfraemill Roundabout and would make it more effective.

The changeover section at the C84 junction would provide refuge for right-turning vehicles where none exist at present.

A direct access onto the two-lane side of the southbound overtaking section would accommodate the D47/5, which is to be realigned to join the A68 south of Annfield Bridge.

The existing Carfrae (D47/5) and Kirktonhill (C83) junctions would be stopped-up and access onto the A68 from the minor road network on the west side of the trunk road would be via a new side road, which would link the existing C83 and C84 side roads, and the C84 junction.

Improvement of the A68 is identified as having the ability to provide benefits and opportunities in terms of the SE's five transport objectives (environment, safety, economics, accessibility and integration).

2.2 Scheme Objectives

The objectives of the proposed scheme are:

- To improve the operational performance and level of service on the A68 by reducing the effect on driver stress and journey times by constructing dedicated overtaking sections designed to break up convoys/platoons;
- To improve and increase the number of overtaking opportunities to reduce the conflicts between long distance users, local and agricultural traffic;
- Wherever practicable, incorporate measures for non-motorised users. In particular cycling proposals shall be designed in accordance with the 'Trunk Road Cycling Initiative';
- Maintain the asset value of the A68;
- Mitigate the environmental impact of the new works where possible; and
- Achieve good value for money for both taxpayers and road users.

In addition to the main objectives, any local objectives, as set out within SBC's Structure Plan and Local Plans, will be identified and incorporated into the proposed route options where possible.

2.3 Alternative Scheme Options

As mentioned in Chapter 1, a total of five route options (and their variations) were initially developed at Stage 1, with the result of two schemes (both WS2+1) then being taken forward to Stage 2 after a workshop was held in July 2004. The decision to take forward these two options to Stage 2 was based upon consideration of the information gathered and recommendations made at Stage 1 relating to environmental, engineering, traffic and economic criteria along with general scheme feasibility. Outline descriptions of the two schemes are provided below followed by a summary explanation of why the preferred scheme was chosen. Both proposed schemes comprised an alternating WS2+1 scheme where the carriageway configuration consisted of a wide single carriageway with two lanes in one direction (providing dedicated overtaking opportunities) and one lane in the opposite direction (with overtaking prohibited).

2.3.1 Option 1 (C84 Junction Retained, C83 Stopped Up, D47/5 Junction Relocated)

Option 1 covered an overall length of 1905m and comprised both southbound overtaking (of approximately 1000m in length) and additional northbound overtaking (of approximately 240m in length). This option also provided a non-critical changeover section of 310m long (Annfield changeover section), which incorporated a T-junction to Carfrae (D47/5). A new junction was to be provided approximately 360m further north

than the existing Carfrae junction, with the existing Carfrae junction being permanently stopped-up. The existing Kirktonhill (C83) junction was also to be permanently stopped-up and consequently, access onto the trunk road from the minor road network on the west side of the trunk road would have been via Oxton and the Oxton (C84) junction. A critical changeover section of approximately 450m in length (Oxton changeover section), incorporating a T-junction at the junction to Oxton (C84) was also planned. The southbound overtaking priority was proposed between the Annfield changeover section and the Oxton changeover section with the northbound overtaking section continuing from the existing DAL at Carfraemill Roundabout to the Oxton changeover section. The WS2+1 cross-section was shown as 13.01m wide comprising three lanes (3.5m wide each), a 1.0m wide hatched strip separating the overtaking direction from the non-overtaking and 1.0m wide hard strips either side of the carriageway.

The new WS2+1 carriageway was to be constructed on the existing alignment. The existing carriageway is currently 7.3m wide (S2 without hard strips), except for the tie-in with the Soutra South climbing lane at the north end, which is 10.0m wide (WS2+1 without hard strips and 1.0m hatched strip) and the DAL at the south end, which is 12.0m wide (WS2+1 with hard strips but without 1.0m hatched strip). The carriageway widening requirements would therefore be 5.71m, 3.01m and 1.01m respectively. The actual road widening would, however, vary from this to take account of differences between new and existing verge widths, variations in existing verge widths, changes in height of embankments and depths of cut and allowance for set-back of boundary fences.

Widening was limited to one side of the road to minimise the environmental impact of the scheme and minimise the cost of diverting public utilities. Widening was planned for the east side from the northern start of the scheme to just north of the existing D47/5 and C83 junction and from 200m north of the Riggsyde private access to just north of the C84 junction (to avoid the residential property at Riggsyde) and on the west side for the remainder of the scheme.

It was proposed that the existing Annfield Bridge on the A68, over the Headshaw Burn would be extended to accommodate the widening on the west side of the road. The Headshaw Burn would also be diverted for a distance of 130m to accommodate this widening on the west side of the road.

A link between the new D47/5 junction with the A68 and the existing D47/5 road would have to be constructed. This would be on embankment and would require a new bridging of the Headshaw Burn.

An underpass was to be provided for pedestrians and cyclists crossing the trunk road. This was to be located at the existing C83 junction. This required that the existing bridge over the Headshaw Burn on the D47/5 was retained.

The existing private access to Riggsyde exiting off the trunk road was to be stopped up

and a new means of access provided onto the C84 minor road. All of the ten existing local field accesses off the trunk road were to be stopped up.

The lay-by located on the southbound side of the carriageway approximately 250m south of the C83 junction was to be upgraded at the same location. The non-standard lay-by located on the northbound side of the carriageway approximately 50m south of Riggsyde was to be stopped up and a new lay-by constructed on the northbound side of the carriageway approximately 150m south of the C83 junction.

The two bus lay-bys located on the southbound and northbound sides of the carriageway approximately 30m and 150m south of the C84 Oxton junction respectively were to be relocated.

The emergency lay-by, which is located on the DAL approximately 470m south of the C84 Oxton junction on the southbound side of the carriageway was to be retained.

2.3.2 Option 2 (C83/D47/5 Junction Stopped Up, C84 Junction Retained)

It was proposed that the overall length of Option 2 would be 1805m and that this option would provide a non-critical, non-event changeover section approximately 210m long at the bottom of Soutra South climbing lane. Both the existing Carfrae (D47/5) and Kirktonhill (C83) junctions were to be stopped-up. Access onto the trunk road from the minor road network on the east side of the trunk road was to be via the D47/5 loop and the Carfraemill junction onto the A697 and the Carfraemill Roundabout. Access onto the trunk road from the minor road network on the west side of the trunk road was to be via Oxton and the Oxton (C84) junction. Overtaking priority would be 1000m long in the southbound direction between the Annfield changeover section and the Oxton changeover section and 490m long northbound between the Carfraemill Roundabout and the Oxton changeover section.

The new WS2+1 carriageway was to be constructed on the existing alignment. The carriageway and road widening requirements were to be the same as Option 1.

Similar to Option 1, widening was in general to be limited to one side of the road to limit the environmental impact of the scheme and to minimise the cost of diverting public utilities. Widening was proposed on the east side from the northern end of this proposed scheme to just north of the C84 junction (in order to avoid the residential property at Riggsyde) and on the west side stretching from the private access at Riggsyde to the tie-in with DAL at the south end.

The existing Annfield Bridge over the Headshaw Burn was to be extended to accommodate the widening on the east side of the road. The Headshaw Burn was then to be diverted locally to accommodate this bridge extension.

In addition, a bypass of Hillhouse Farm was proposed to improve the D47/5 loop. Three new passing places were to be constructed on the section of road to the south of Hillhouse Farm.

Similarly to Option 1, an underpass was to be provided for pedestrians and cyclists crossing the trunk road. This was located at the existing C83 junction and required the existing bridge over the Headshaw Burn to be retained.

The existing private access to Riggsyde off the trunk road was to be stopped up and a new means of access provided onto the C84 minor road. All of the ten existing field accesses off the trunk road were to be stopped up.

All lay-bys would either be retained, upgraded or relocated as described for Option 1.

2.4 Selection of the Preferred Scheme

The Stage 2 Environmental Assessment Report identified Option 2 as the preferred scheme on the following grounds:

- The key environmental issues were identified as ecology and nature conservation, landscape and visual, water quality and drainage and local vehicle journey times / reduction in driver stress. For all of these assessments except vehicle journey times and driver stress, Option 2 had the least significant impact and was determined as the preferred route.

In terms of the Stage 2 Engineering, Traffic and Economic Assessment, Option 2 was also determined as the preferred route based on the following factors:

- It provided the most guaranteed overtaking opportunity in both directions (slightly longer overtaking facilities heading northbound) and therefore the greatest TTC (Time Travel Cost) savings for road users;
- There would be slightly less land take resulting from Option 2;
- It was the most economically viable option. In terms of traffic and economic assessment, the cost / benefit ratio for Option 2 was favoured over Option 1. Option 2 provided better value for money for taxpayers and transport users than Option 1;
- In terms of engineering the cost estimate for Option 2 was lower than Option 1 due to the new alignment of the D47/5 to tie in with the north changeover section; and
- Option 2 was preferable in safety terms. It assisted with the reduction of accidents by removing accident hotspots.

However during the early stages of Stage 3 process and through consultation with landowners, it became clear that the preferred scheme, with the inclusion of a proposal to stop up of the D47/5 side road, was untenable, as the alternative access was considered, by the design team, as being unreasonable. This coupled with the fact that a direct access onto the two lane side of WS2+1 had been considered acceptable to

TS on other trunk road schemes, led to the design team investigating incorporating a D47/5 direct access into the preferred scheme.

A possible option incorporating the D47/5 direct access was issued to TS's Standards Branch on 20th December 2005. Confirmation that the arrangement was acceptable in principle was received on 4th January 2006. This acceptance was given with a request to investigate the need for a 4th lane incorporating a dedicated right turn facility. A short report was produced recommending that there was no need for an additional lane due to the low traffic flows involved. This recommendation was accepted by TS's Standards Branch on 24th January 2006 and as a result the preferred scheme now includes the D47/5 direct access.

In addition to the above alteration, the preferred scheme was extended north towards the end of the Stage 3 process to provide the safest location for the north tie-in changeover section. The changeover is now located primarily on a straight and is therefore considered to provide the safest solution. Confirmation that the improved arrangement was acceptable to TS was given in their Departure Determination dated 17th July 2006.

An ES and Draft Orders for the A68 Soutra South to Oxton Improvement were published on 24th November 2006. However following publication, TS received a number of objections to the published scheme and in response to these objections TS commissioned some further preliminary assessment work to assess the feasibility of incorporating an additional side road into the scheme.

The outcome of this preliminary assessment was that the inclusion of the new side road was potentially feasible; however the introduction of the new side road meant it was necessary to re-publish the ES and Draft Orders as well as update the Engineering, Traffic and Economic Assessments.

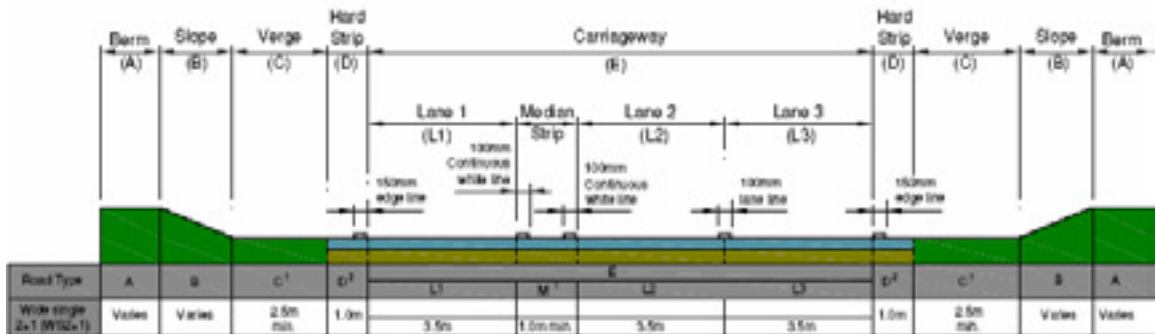
2.5 Scheme Description

The preferred scheme comprises of a widened and straightened carriageway located between the foot of Soutra Hill and the Carfraemill Roundabout. The scheme starts approximately 450m to the northwest of the D47/5 Carfrae/C83 Oxton road junctions with the existing A68 and ties in with the DAL located to the northwest of the Carfraemill Roundabout (Figures 2.1a - c). The overall length of the A68 improvements is approximately 2.15km plus improvements to side roads and farm / residential accesses.

The new carriageway configuration will comprise alternating WS2+1. The WS2+1 consists of a wide single carriageway with two lanes in one direction providing dedicated overtaking opportunity and one lane in the opposite direction with overtaking prohibited in that direction. A typical cross-section of the WS2+1 arrangement, based on that developed for other proposed Scottish WS2+1 schemes, such as the improvements at Soutra Hill itself, is illustrated below. Overtaking will be provided in both northbound and southbound directions as illustrated in Figures 2.1a - c. The

southbound overtaking will be approximately 1290m in length extending from the foot of Soutra Hill (450m northwest of the D47/5 and C83 junctions) to approximately 50m southeast of Riggsyde. A junction changeover section of 500m in length will then be provided to allow safe access to and from the C84 Oxton road. The northbound overtaking will be extended from the existing DAL at Carfrae Roundabout for approximately 210m, just southeast of the C84 Oxton road junction.

Illustrative example of WS2+1 layout.



As part of the preferred scheme, it will be necessary to close up the existing D47/5 Carfrae junction with the southbound A68 at the northern extent of the scheme. A new access road and junction will be provided approximately 100m to the south of the existing junction in order to maintain access to the A68. The C83 Oxton junction with the A68 at this location will also require to be closed to vehicles. In order to maintain a link between the D47/5 and the C83 however, a pedestrian, equestrian and cyclist underpass will be provided in order to provide continued access to recreational users across the A68 at this location.

The existing Annfield Bridge at this D47/5 – C83 junction will remain in place in order to avoid severe environmental damage to the Headshaw Burn, although the existing bridge will require extending works in order to widen the A68 sufficiently to carry a WS2+1 arrangement. Widening works have been scheduled to take place opposite the southbound carriageway (on the northeast of the existing A68).

Due to the closure of the C83 junction with the A68 (to vehicles), a new side road will be constructed between the C84 and the C83 to allow traffic to exit the A68 at the C83 and travel to the D8/5 Hartside \ Threeburnfold and the D1/5 Kirktonhill roads without passing through the village of Oxton. The existing private access to Riggsyde off the trunk road will be stopped up and a new means of access will be provided from the new side road linking the C84 and the C83. This new means of access is shown in Figures 2.1b and c. The new side road also provides access to adjacent farmland and will involve the construction of a new bridge across the Headshaw Burn.

All of the eleven existing field accesses off the trunk road will be stopped up. Alternative means of access to these fields will be provided with the use of new and existing field accesses located on side roads, in combination with farm access tracks.

Some of these access tracks are shown in Figures 2.1a - c.

There are no lay-bys proposed as part of the scheme therefore all the existing lay-bys are to be stopped up, with the exception of the emergency lay-by, which is located immediately south of the scheme. This lay-by is to be retained.

Detailed illustrations of the scheme proposal are presented in Figures 2.1a - c.

2.6 Predicted Benefits of the Proposed Scheme

The proposed WS2+1 scheme has been designed to meet current design standards as stipulated in DMRB Volume 6 and the Draft Advice Note on the Design of Wide Single 2+1 Roads. The scheme fulfils the objectives of providing dedicated overtaking opportunities both northbound and southbound, removing drivers stress from frustration and also reducing the risk of potential accidents occurring at local access junctions with the A68.

The most noticeable benefit will be a change in travel times for vehicle travellers using the A68. The preferred scheme ties in with recent improvements at the Carfrae Roundabout (DAL improvements) and with recent improvements at the foot of Soutra Hill (a northbound dual lane climbing lane). Combined, these improvements will provide additional overtaking opportunities for travellers, improving upon travel times along with alleviating levels of driver stress. In addition, conflicts between long-distance users and local / agricultural traffic will be reduced by this scheme.

Benefits of the scheme will also be to improve the operational performance of the A68 and provide a better level of service and safety by breaking up convoys / platoons of traffic.

With the incorporation of the proposed new access tracks / junctions, severance of existing properties and farmland in the immediate area will be minimised, with substantial improvements on the D47/5 / A68 junction being carried out. Benefits will also be available from the realignment of other junctions and bends.

Equestrians, cyclists and pedestrians will be provided with a direct link between the D47/5 Carfrae and the C83 Oxton side roads, reducing the need for equestrians, cyclists and pedestrians to cross the A68. This will promote the 'Trunk Road Cycling Initiative', which supports the Sustrans Millennium National Cycle Network.

The WS2+1 dedicated overtaking layout will enable closure of one lane during general route maintenance works whilst allowing traffic to continue to flow freely in both directions and therefore minimise disruption.

The proposed scheme involves on-line construction and therefore aims to minimise potential adverse environmental impacts, particularly due to the close proximity of sensitive habitats such as the River Tweed SAC / SSSI.

2.7 Construction Programme

It is anticipated that the construction of the preferred scheme will commence in December 2009. Construction will last for a period of approximately 52 weeks with substantial completion by October 2010.

The sequence of construction activities on site is anticipated to be as follows:

Preliminary Works (December 2009 – January 2010)

- Site establishment including material / plant storage compound.
- Erection of temporary fencing.
- Installation of temporary pollution control measures / pre-earthworks drainage.
- Undertaking of site clearance works, including necessary removal of any vegetation or dry stone walls.
- Creation of haul roads/access locations and setting up of traffic management requirements.

Main Works (January 2009 - October 2010)

January 2009 - April 2010

- Topsoil stripping, soil to be carefully removed and stored appropriately for re-use on site.
- Commence earthworks.
- Undertake bulk earthworks – cut, fill and capping (reuse / import of acceptable material and disposal of unacceptable materials).
- Installation of sustainable urban drainage (SUD) systems for settling of run-off (pond, swales, reed beds and filter drains) and permanent outfall arrangements.

May 2010 – October 2010

- Construction of new side road.
- Construction of new means of access to Riggsyde.
- Completion of drainage (filter drains).
- Laying of sub base.
- Laying of base course.
- Laying of binder course.
- Laying of surface course.

- Construction of kerbs, footways and paved areas.
- Re-instatement of topsoil.
- Commencement of landscaping and planting proposals.
- Provision of Accommodation Works.
- Undertake road marking and erect traffic signs.
- Completion of drainage.

July 2010 – September 2010

- Undertake extension of the Annfield Bridge over the Headshaw Burn.
- Undertake in-river works / temporary channel widening of the Headshaw Burn.
- Removal of temporary sheet piling at Annfield Bridge and completion of river restoration works.
- Undertake construction of pedestrian underpass.
- Construction of new side road bridge over Headshaw Burn.

Finishing Works (October to November 2010)

- Completion of any outstanding works.
- Completion of site restoration / snagging exercise.
- Dismantling of site facilities.

A critical programming activity will be the extension of the Annfield Bridge (west side of the road), which will involve in-river engineering techniques. This construction process will be identified in detail as part of an appropriate assessment completed by the Competent Authority under the Conservation (Natural Habitats & c) Regulations 1994 (and subsequent Scottish amendments), but will involve temporary placement of sheet piling within the existing river along with temporary restriction to river channel width and flow patterns. This work is scheduled to take place between July and August, out with salmonid and lamprey spawning and juvenile emergence periods (December to June).

Although not involving in-river engineering, the construction of the new bridge carrying the new side road across the Headshaw Burn is also a critical construction activity and will also be completed following a sensitive construction and pollution prevention methods in accordance with the requirements of the Conservation (Natural Habitats & c.) Regulations 1994.

Restrictions on the flow of existing vehicle travellers will unavoidably occur during construction works as the majority of the preferred scheme is an on-line proposal. The extension works at the Annfield Bridge are likely to have an effect on traffic movement and require traffic management in the form of traffic lights, as will access/junction

improvements, the construction of sections of WS2+1 carriageway and the tie-in to the existing A68.

2.8 Construction Methods

It is anticipated that conventional construction methods will be employed for the majority of the preferred scheme with no special techniques being required, except for the extension of the Annfield Bridge, which will require sensitive working procedures and timing of works to minimise the environmental impact upon the River Tweed SAC / SSSI.

The scheme essentially involves road widening with the existing road construction being incorporated into the new road by means of a surface course overlay. This would considerably reduce the quantity of new sub-base material and bituminous coated material required and the amount of spoil generated.

It is unlikely that there would be scope for the re-routing of traffic and consequently traffic flow would have to be maintained on the trunk road. Traffic management methods would be in place for the duration of the construction period. This would permit two-way flow for the majority of the construction period, probably with a reduced speed limit in place. It would however be necessary, at times, to operate a traffic light or convoy system to ensure a safe working area for the Contractor to complete the earthworks adjacent to the existing carriageway, to construct structures across the road or extend the Annfield Bridge and also during part of the surfacing works. The traffic management proposals will be co-ordinated with the Trunk Road Maintaining Authority, BEAR.

To minimise the hauling distance of plant, it would be likely that suitable material excavated from the cut area would be used in the nearest areas of fill. Imported fill would be used to complete the upfill of embankments. It is possible that this imported fill could be sourced from the disused quarry at Mountmill and that lorries transporting the fill would take unsuitable excavated material to the quarry on the return journey. It is also possible that any capping material required would also be supplied from the same quarry.

Sub-base would be placed on the road formation as soon as it is prepared to prevent deterioration of sub-grade from adverse weather conditions and construction plant trafficking. The sub-base would probably come from the nearest suitable quarry which would be either Craighouse quarry near Earlston or Cowieslinn near Eddleston.

Bituminous coated material would follow as base, binder and surface courses. These materials would probably be obtained from either Craighouse quarry near Earlston or Cowieslinn near Eddleston.

Annfield Bridge will be extended as an insitu reinforced concrete structure. The bridge will be extended opposite the southbound carriageway at the same span as the existing structure. It is proposed that sheet piling is vibrated into the river bed at both

sides of the river channel. These will provide a dry working area behind the sheet piling, to allow construction of new extension abutments. This will cause a temporary restriction / narrowing of the river channel at this location during construction although water flows will be maintained at all times as the construction works proceed. Construction of the abutments may require the removal of a small area of alluvial deposits which have formed part of the river bank over the past years and this will be reinstated as far as possible once the extension is complete. On completion, the sheet piles will be removed from the river bed and the river channel / flow reinstated. The north abutment will be set back approximately 3m from the existing bank. An estimated 8m of linear banking will be lost on one side with no change to the other. Further details of the proposed construction are under discussion with SNH and SEPA and will be provided as part of the appropriate assessment / detailed design. Alternatives have been investigated and the best environmental option has been identified as extension works rather than replacement of the whole bridge and subsequent creation of a temporary road bridge during replacement works.

The equestrian / pedestrian / cyclist underpass would most likely be installed as a precast concrete structure. The structures would be constructed in parallel with earthworks and surfacing works.

The scheme would be completed with the erection of traffic signs and the installation of road markings.

2.8.1 Earthworks

The approximate earthwork quantities would be as follows:

<u>Cut</u> (cubic metres)	<u>Fill</u> (cubic metres)
11,400	22,300

Ground investigations have verified that a high proportion of the cut material will be suitable as fill. However, one area of the new side road will be constructed within an area of very soft clay material and approximately 2,700 cubic metres of cut material is considered to be unacceptable as fill material. As it will not be possible to achieve an earthwork balance for the proposed scheme, there will be a need to import some fill material and to dispose of some unsuitable excavated material. Wherever possible, unacceptable / surplus acceptable material will be used in landscape areas to avoid the need to transport offsite and dispose.

There is a disused quarry at Mountmill where suitable fill material could be obtained or where unsuitable material could be disposed. This, however, would be a matter for the Contractor, the Planning Authority and SEPA to discuss further.

Cutting and embankment slopes will generally be 1:2 (vertical:horizontal). Earthworks will be topsoiled, sown with grass seed, and landscaped as appropriate.

2.8.2 Construction Plant

The type and number of construction plant used would vary throughout the construction period depending on the operations being undertaken. An indication of plant that would be used on the scheme is given in Table 2.1 below.

Table 2.1. Typical Construction Plant.

Transport	No.	Earthworks	No.	Drainage	No.
Low Loader	1	Tracked Excavator (25T)	2	Excavator	1
Tipper Lorry (16T)	5	Dump trucks (25T)	4	Dumper (6T)	2
Pick-up (7.5T)	2	Dumper (9T)	2	Cat 943	1
		Dozer (Cat D6)	2		
		Vibratory Rollers	2		
Surfacing	No.	Structures	No.	Miscellaneous	No.
Planing Machine	1	Mobile Crane	1	Fuel Bowser	2
Paving machine	1	Vibrating Poker (2")	2	2" Pump	2
Roller	2	Vibrating Poker (6")	2	Vibrating Plate Compactor	2
Bond coat sprayer	1			Generator and Lighting Set	2
				Traffic Lights Set	2
				Road Marking Machine	1

With the exception of the Annfield Bridge extension, it is not anticipated that there would be any exceptionally noisy activities such as piling or rock blasting. There would however be a requirement to use vibratory rollers for compaction of granular material during earthworks fill, capping and sub-base operations. Although these activities are anticipated to be of short duration and intermittent in nature, the Contractor will be required to adhere to maximum noise levels which will be specified within the contract document in accordance with SBC requirements.

For the extension of Annfield Bridge, vibration works will take place in order to drive sheet piling into the river bed / river bank. The purpose of the sheet piling will be to create a dry working zone to allow bridge abutments to be constructed and to allow the remaining restricted width of water to flow freely. Vibration works are likely to be completed using a vibrating poker, although the actual length of time for this work is not currently known.

2.8.3 Vehicle Movements

The main access route to the site will be the A68 trunk road. The direction of traffic to and from the site would be dependent on where the Contractor locates offices, stores,

plant and equipment and where the labour force travels from each day. Mobilisation and demobilisation of plant and equipment during the construction period would entail approximately 300 return trips each using low loaders and other goods vehicles. Travel to and from site would entail approximately 30 return trips each day in pick-ups and cars. Materials may come from a number of different suppliers. Imported fill and capping would generate 900 return trips, sub-base 300 return trips, coated materials 700 return trips and miscellaneous materials such as precast concrete units, ready mix concrete, etc. a further 200 return trips, mainly in 16 tonne tipper trucks.

Over the duration of the contract, the average number of return trips per day would be approximately 40. This equates to two-way traffic flow of 80 vehicles per day, which represents less than 1% of the annual average daily flow of approximately 9000 vehicles per day on the A68 at Oxton. There would however be considerable variation in the number of daily trips depending on the operations being undertaken on site at the time. It is anticipated that vehicle movements will be most frequent from the site compound at both the beginning and end of the working day.

Vehicles travelling south to the site will likely pass through Dalkeith and Pathhead whereas vehicles travelling north will pass through Earlston and Lauder. Vehicles travelling to and from the Mountmill quarry could access the site via the C83 junction to avoid passing through Oxton village.

2.8.4 Hours of Working

Working hours will depend on the contractor employed to complete the works but normal working hours within the site are likely to be set as Monday to Friday between 0700 and 1800 hrs and Saturday between 0700 and 1200 hrs. No work is usually undertaken on a Sunday. Exceptionally, written consent for work outside these hours could be sought from SBC.

2.8.5 Lighting Requirements

Lighting is likely to be required within the site compound area during the winter period for safety reasons. Portable lighting may be required during the construction phase if natural light is inadequate during working hours. Portable lighting may also be required overnight where structures are being completed and in areas where temporary traffic diversions are in place. No requirement for permanent lighting is envisaged.

2.8.6 Fencing

It would be likely that the permanent boundary fence would be installed on both sides of the road at the start of the works to remove the risk of farm stock straying onto the road.

2.8.7 Establishment of Site Compound and Services

The area required for the permanent works would not accommodate a temporary site

compound. It would therefore be the responsibility of the Contractor to identify an area for the site compound in conjunction with local landowners and the SBC Planning Authority. However, the compound should be sited appropriately, well away from watercourses and so that, after site restoration, there are no permanent environmental impacts.

Once the area for the compound is agreed, topsoil will be stripped and the area covered with sub-base material. The area may also be surfaced if necessary. Portable cabins will be erected on site to accommodate offices and welfare facilities. The site compound will require temporary services, e.g. electricity, telephone, water supply and sewage disposal.

The compound area will be defined using security fencing. A night watchman may be employed to reduce the possible threat of vandalism or theft of site equipment.

The reinstatement of the compound area will require the removal of temporary services, surfacing and sub-base and the area finished to the satisfaction of the landowner.

2.8.8 Traffic Management

General traffic management measures will be required but will be the responsibility of the Contractor. No additional land take is expected for this purpose and any ancillary services will be determined and decided upon by the Contractor. A traffic management plan will also be prepared for the preferred scheme.

2.8.9 Environmental Protection

The Contractor will be required to operate a quality management system for construction of the works. This will include an Environmental Management System (EMS) to avoid, wherever possible, environmental accidents and pollution incidents and to encourage reduced consumption of resources and to restrict the production of waste. There will be a requirement to produce site specific method statements for all operations where there may be a risk of environmental damage. SEPA special requirements would also be included as part of the conditions of contract for the scheme. The contractor will also be required to adhere to a detailed Construction Method Statement, which forms part of the appropriate assessment process to ensure protection of the River Tweed SAC / SSSI.

Any areas needing special protection would be fenced off and access restricted.

2.8.10 Pollution Prevention Measures

The contractor will be required to comply at all times with the requirements of the final scheme specification with regard to prevention of pollution. Consultation will be held with SEPA to agree measures required to prevent pollution to watercourses, measures to deal with accidental spillages and discharge points to watercourses. Generators will

be housed within bunded containment areas to prevent possible spread of any accidental spillages. The specification will outline requirements for all cutting equipment to be water-cooled. If necessary, wheel washing facilities will be made available so as to avoid deposition of dirt onto public roads and to reduce the possibility of contamination of watercourses. A portable bowser will be utilised to dampen dry surfaces to avoid unnecessary dust emission.

Surface water drainage will be controlled during the construction period with the use of temporary swales / settlement facilities or other measures of best practice, as appropriate. These will be discussed in advance of works with SEPA and the number / location / type / size of measures agreed. The assessment provided within this report and associated identification of mitigation / compensatory measures will assist in identification of these particular measures (Water Quality and Drainage, Ecology and Nature Conservation and Disruption due to Construction chapters).

With respect to the extension of the Annfield Bridge and construction of a the new side road bridge over the Headshaw Burn, a detailed Construction Method Statement will be produced which will outline in detail, the specific pollution prevention methods required for these aspects of work. This will be approved by SNH and SEPA as part of the appropriate assessment process and CAR licence requirements.

2.8.11 Landscaping Proposals

Appropriate landscaping will be developed for the preferred option within the assessment (Landscape chapter) and will be designed and specified by professional landscape specialists. The aim of the final planting scheme will be to blend the new road alignment into the surrounding landscape as much as possible. Planting will be in keeping with existing natural vegetation patterns and types and native species only will be used.

Landscaping will probably consist of grassing to verges, hedging to new boundary fences and the extension of the avenue of lime trees that run northwards from the Carfraemill Roundabout. There is no requirement for specific landscape earthworks.

It is envisaged that sufficient topsoil will be available from site to meet the requirements of the scheme and consequently there would be no need to import topsoil.

2.9 Operational Requirements

2.9.1 Traffic

It is not anticipated that there will be any significant increase in traffic on the A68 trunk road as a result of implementation of the scheme. The annual average daily traffic flow (AADT) will therefore be approximately 9800 vehicles per day on the year of opening of the scheme.

Stopping up of the Kirktonhill (C83) junction will increase traffic on the Oxton (C84)

junction from approximately 600 to 800 vehicles AADT.

2.9.2 Drainage System

It is anticipated that the proposed road drainage system will consist of filter drains along both sides of the carriageway with catch pits constructed at appropriate intervals. Catch pits will discharge into swales along the foot of the batters and/or settlement ponds before outfalling into watercourses. Accidental spillage containment facilities within swale/settlement pond systems will also be provided to allow quick isolation of pollutants from watercourses. Detailed discharge arrangements for the preferred scheme are currently being discussed in detail with SNH and SEPA as part of the appropriate assessment process.

2.9.3 Permanent Fencing

Stock proof fencing will be installed in agreement with the affected landowners but will typically comprise 1.1 m high timber post and wire mesh fence topped with barbed wire. It is possible that this will be supplemented with rabbit netting to protect newly planted hedging. It is also possible that badger / otter fencing may be required in certain places and this requirement is identified within the Ecology and Nature Conservation chapter.

2.9.4 Road Surfacing and Furniture

It is likely that the majority of the 13.5m wide carriageway will be surfaced with Hot Rolled Asphalt (HRA).

There will be signs associated with the alternating WS2+1 road configuration. These signs will be provided on both sides of the road, primarily in the vicinity of each changeover section. Advance direction and direction signs at each of the junctions will also be required, along with new road layout ahead signs at each end of the new scheme. There will be no need for overhead gantries.

Parapet fencing at the Annfield Bridge and equestrian / pedestrian / cyclist underpass structures will connect onto the safety fencing which will extend along the embankment to suitable termination points. The same is required on the new side road at the new bridge crossing the Headshaw Burn.

New snow gates and associated electricity supply will be provided and are likely to remain at their existing location at the bottom of Soutra South climbing lane. Permanent lighting at the snow gates will also be provided.

It is not proposed to provide permanent lighting within the equestrian, pedestrian and cyclist underpass.

The Oxton traffic counter and emergency telephone will remain at their existing locations.