

A4.1: Construction Information

1 Introduction

- 1.1.1 This appendix provides an overview of a potential construction scenario for the construction of the proposed scheme. This information was prepared based on the Stage 3 design to provide a set of assumptions for the purposes of assessing potential construction impacts as reported in the ES.
- 1.1.2 It should be noted that the detailed design of the scheme, and the construction programme and methodology, will be determined by the appointed design & build (D&B) contractor, within the constraints of the contract and the requirements of the ES (i.e. to achieve the stated residual impacts).
- 1.1.3 Information is set out under the following headings:
- General Site Operations;
 - Construction Programme and Phasing;
 - Typical Construction Methods;
 - Land Requirements; and
 - Public Access, Site Access, and Traffic Management.
- 1.1.4 Plant likely to be involved in the construction of the proposed scheme are typical for infrastructure projects of this type, and are likely to include:
- excavators;
 - piling rigs;
 - tracked vehicles, bulldozers and dump trucks;
 - HGVs and concrete wagons;
 - hand-operated machinery including compacting plant;
 - portable generators for temporary lighting, pumps and similar;
 - cranes and other lifting equipment; and
 - motorised graders and pavement (road surface) rollers;

2 General Site Operations

2.1 Site Layout

- 2.1.1 For construction purposes, it has been assumed that the site would be broken down into three main areas:
- the southern section of widening of the A9 to the west of the existing carriageway immediately south of the existing Tullybelton/Stanley junctions, including side roads and Pitlandie overbridge (referred to as the southern section);
 - Tullybelton/Stanley Junction, including network connection roads and bridge works;
 - The northern section of widening of the A9 to the east of the existing carriageway immediately north of the existing Tullybelton/Stanley junctions including side roads, new means of access, mainline junctions and overbridges (referred to as the northern section).

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2.2 Safety and Security

- 2.2.1 Throughout the course of the works the contractor will manage the Health and Safety of the site in accordance with the requirements and principles of all current applicable Health and Safety legislation, including the Construction (Design and Management) Regulations 2007, the Health and Safety at Work etc. Act 1974, the Management of Health and Safety at Work Regulations 1999, and the Workplace (Health, Safety and Welfare) Regulations 1992, and will ensure the safety of the public, site personnel, site operators, and visitors.

2.3 Working Hours

- 2.3.1 Anticipated 'typical' working hours of the contractor will be agreed with Transport Scotland and the Perth & Kinross Council Environmental Health Officer (EHO), but for the purposes of assessment are assumed to be as set out below:

- 07:30 to 18:00 on weekdays (Monday to Friday);
- 08:00 to 13:00 on Saturdays; and
- no Sunday working.

- 2.3.2 The above range applies to summer hours, when it is likely to be necessary to maximise the available good weather conditions for carrying out earthworks activities (as poor weather can adversely affect the condition of the material being used and the condition of haul routes). Winter hours will generally be shorter, due to the seasonal restriction on activities that can be carried out efficiently and the length of daylight available.

- 2.3.3 It is anticipated that some work will be required outside the normal working hours for exceptional activities (such as those that can only take place when traffic flows are low), subject to agreement with Transport Scotland and Perth & Kinross Council. These include:

- weekend work to complete critical phases of road construction and surfacing;
- overnight closures for placing of bridge beams over existing carriageways; and
- implementing changes to temporary traffic management layouts.

2.4 Site Lighting

- 2.4.1 Temporary site lighting during construction will generally be required as follows:

- at contractor's compounds for security and safe movement of staff during winter mornings and evenings;
- along temporary access roads;
- at locations where there is currently no lighting, but lighting is required as a safety measure under temporary traffic management (e.g. at carriageway crossovers, contraflows etc); and
- for night time activities or winter afternoon activities.

- 2.4.2 Maintenance of road lighting at locations where the layout is to be changed will be provided by mobile lighting towers or by use of columns in temporary locations.

3 Construction Programme and Phasing

3.1 Construction Programme

- 3.1.1 Construction of the proposed scheme is anticipated to commence in January 2017, with the works expected to take approximately two years.

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3.1.2 The indicative construction programme is broken down into three phases to reduce the impact on road users and neighbouring communities. The anticipated phasing of the construction works is as follows:

- Phase 1 – Set-up initial traffic management and construction of the sections of new carriageway that can be completed adjacent to the existing A9, including the earthworks associated with the eastern section of the proposed Tullybelton/Stanley junction. These works will be carried out during Phase 1 and include construction to the west of the existing A9 in the southern section and to the east in the northern section. This phase will also include the construction of structural elements where possible;
- Phase 2 – Traffic management including temporary surfacing required for the construction of works during Phase 3; and
- Phase 3 – Construction and upgrade of the existing A9 single carriageway, including the earthworks/structures associated with the western section of the proposed Tullybelton/Stanley junction. Phase 3 will also include completion of all structures including overbridges.

4 Typical Construction Methods

4.1 Establishment of Construction Compounds

4.1.1 Preliminary activities include the setting up of the site compounds and offices. This also includes cabins, stores, welfare facilities and car parking. The contractor will determine the location of the main site compound and seek all necessary approvals for its design and construction. Due to the length of the proposed scheme, other smaller offices including welfare facilities and compounds are likely to be established along the route.

4.1.2 Preparatory works for the temporary site establishments will involve some site clearance work, minor earthworks operations to level the site, drainage and pavement works for the car park and services installation (e.g. electrical, communications, water and sewerage). The site compounds will be erected, maintained and subsequently removed in a manner that will aim to avoid or reduce impacts on the locality.

4.1.3 The initial actions will involve the construction of site access and egress points. Wherever practicable, haul routes will also be established to ensure that construction traffic is contained within the confines of the site, as far as possible. However, since the route intersects main roads, local roads and other obstructions, the limited use of other public roads is likely to be required and approval for this will be sought by the contractor with the relevant authorities.

4.2 Temporary and Permanent Fencing

4.2.1 The land area to be occupied by the construction works will be identified accurately on the ground, by surveying and installing appropriate pegs and posts, prior to the works commencing. The area defined will be the land acquired for the permanent works and any other areas that the contractor has acquired by agreement to facilitate construction of the works.

4.2.2 Any permanent fencing required to denote the permanent highway boundary will generally be a timber post and wire fence. There may however be sections of fencing designed to a higher specification for the exclusion of otters (see paragraph below), rabbits and other wildlife where required.

4.2.3 Temporary fencing will be erected where it is not possible to install the permanent fence (e.g. areas where land will be returned to agriculture following completion of the works).

4.2.4 Other specific fencing that may be required temporarily will include higher security fences at compounds or where additional security of the works is required. Environmental fencing (e.g. otter

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fencing) extends below ground level and therefore requires an element of excavation which will be undertaken using a small excavator or by hand digging.

4.3 Site Clearance and Demolition

4.3.1 Site clearance and demolition works typically include the following:

- general clearance;
- demolition of building, walls and bridges;
- removal of pipelines, public and privately owned services or supplies; and
- tree felling and removal of stumps, removal of fencing, hedges, bushes and undergrowth.

4.3.2 Any material to be reused in the permanent works will be stockpiled or taken to store. Surplus and unsuitable materials arising from the site clearance operations will be recycled, or, if they cannot be recycled, disposed of at an appropriate, approved disposal facility in the area. Burning of materials on site will not be permitted, except when specifically required for which approvals will be required.

4.3.3 Materials for off-site recycling or disposal will be transported in appropriate wagons along prescribed main road routes, which are likely to include the A85, A9, A90 and M90. Prescribed routes will be included in the main construction contract documents. The contractor will be required to seek approval from the relevant authority should he wish to use any other routes.

4.3.4 The contractor will be responsible for the timing of demolition and site clearance activities and will be required to take account of seasonal restrictions, such as bird breeding seasons and relocation of any species in his works programme. The detailed timetable for ecological constraints will comply with any requirements of the ES and the Report to Inform an Appropriate Assessment for the River Tay SAC.

4.4 Contaminated Materials

4.4.1 The treatment of any hazardous materials encountered in site clearance will comply with specific contract requirements and will require an assessment in accordance with current health and safety regulations including the Control of Substances Hazardous to Health Regulations (COSHH) Regulations. Contaminated materials may have to be disposed of at licensed sites.

4.5 Temporary and Permanent Surface Water Outfalls

4.5.1 Temporary arrangements will be made to control surface water run-off during construction, where surface water could affect the works or the environmental performance of mitigation measures. Measures implemented may include temporary settlement ponds which will allow sediment to settle before clean water is discharged via a temporary outfall pipe or ditch to receiving watercourses.

4.5.2 During the construction period, and particularly the earthworks construction phase, water will be directed to settlement ponds using temporary cut off ditches. Construction of the ponds will involve earthworks operations including excavation, placement of fill and compaction. Temporary ponds will require to be maintained to remove sediment and silt for example, and ensure that the ponds operate as intended.

4.5.3 Other options for disposal of water include discharging to sewers if they have sufficient capacity, or taking water off site in bowsters or tankers for disposal. It is likely that the permanent drainage basins and ponds will be constructed and used during construction. These will be cleaned and maintained following the main construction works for incorporation into the final drainage network.

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4.6 Service Diversions

- 4.6.1 It is possible that some service diversions will be undertaken in advance of the main construction works. However, other diversions are only likely to be possible once construction has reached a certain stage.
- 4.6.2 Existing services may require temporary diversions as a result of disruption to apparatus during the construction of the works. These temporary diversions will be in place to minimise any disruption to the services being affected by the proposed scheme.
- 4.6.3 Services are either located above or below ground. For works above ground, posts, towers or pylons will have to be delivered to the site and constructed. This will involve transport of materials and some excavation and concrete works for foundations or footings.

4.7 Topsoil Stripping and Storage

- 4.7.1 Where appropriate, topsoil will be stripped off over the full area occupied by the roads, cuttings, embankments and associated structures to depths defined for each particular location. The topsoil will be removed if surplus to requirements or stockpiled outwith working areas, until such time as it is required for reuse. Measures such as cut-off ditches may be required around stockpiles to transfer any contaminated run-off to temporary settlement ponds.
- 4.7.2 The plant potentially used for topsoil stripping includes rubber-tyred motorised scrapers, excavators etc, though more controlled procedures may be required in environmentally sensitive zones using smaller plant. Limits will be imposed on the maximum distance from the zone of excavation to the point of deposition of the topsoil to control invasive plant species and ensure that topsoil is reused close to the location it was stripped.

4.8 Pre-Earthworks Drainage

- 4.8.1 Pre-earthworks drainage generally comprises excavation of unlined or lined ditches, or filter drains constructed at the top of cutting slopes or toe of embankments where required by the design to prevent surface or ground water entering the works. When placed at the top of cuttings, surface water carried by the pre-earthworks drainage is clean and can be transferred directly to watercourses unless the rate of discharge has to be controlled. When placed at the toe of embankments, surface water carried by the pre-earthworks drainage may contain sediment from run-off from the embankments being constructed and will be required to discharge water to temporary settlement ponds prior to it being discharged to a watercourse.
- 4.8.2 The material arising from the excavation of the pre-earthwork drainage will be transported for reuse within the works or off-site, or ultimately disposal off-site. It should be noted that some ditches will have to be lined depending on the nature of the subsoil to prevent erosion of the ditch. Other options in this instance would include use of filter drains.

4.9 Earthworks

- 4.9.1 The principal earthworks process involves layered excavations of soils in cuttings and transportation of the excavated soil to neighbouring zones where embankments are required. Deposition in the fill areas will be built up by depositing the material and using bulldozers to place it in layers which are then compacted by rollers. This process is repeated until embankments are built to the road formation level.
- 4.9.2 Generally, it is preferred to achieve a cut/fill balance and have short haul distances to minimise transport of earthworks materials along the site between cuttings where they are excavated and embankments where they are placed. Indicative lorry loads are shown in Table 5.1.

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Table 5.1: Indicative Lorry Loads – Earthworks

Potential import (m ³)	382,485
Potential disposal (m ³)	180,517
Potential Total Lorry Loads	28,150
Potential length of main earthworks activities (months)	23
Estimated weekly average lorry loads during main earthworks activities	294

- 4.9.3 The undulating topography of the site and alignment standards to be provided complicate achievement of an earthworks quantities balance and long hauls of material may be required. Excavations in cutting will include the removal of the top layers of material which are likely to be unacceptable for use in the main road embankments and transport of this material to stock piles to be reused as landscaping earthworks mitigation at a later date. The lower layers of the cuttings are likely to comprise material that is more acceptable for use in the main road embankments and this will be transported and compacted as described above.
- 4.9.4 Some excavations will encounter rock and this is harder to excavate. In some instances, rock may be ripped using a bulldozer with a blade attached to the rear. Another option where ripping of rock material is not feasible includes using a hydraulic breaker (also known as a rock hammer or pecker). Blasting is not expected for the removal of rock.

4.10 Drainage, Service Ducts and Chambers

- 4.10.1 Construction of carriageway drainage will involve laying filter drains, carrier drains, drainage channels and outfalls to transport surface water run-off from side slopes, carriageways and other paved areas. Drainage products will include pipes, gully pots, cover gratings, graded gravel for pipe bedding, gravel filter material, and other stone pieces for balancing ponds and open channels. Manholes and chambers will be built with in-situ concrete bases, precast concrete ring or brickwork walls and iron cover on precast concrete caps.
- 4.10.2 Construction of carriageway drainage will involve excavation of the drain, with material being deposited adjacent to the drain in the road verge or transported for reuse or disposal. Gravel bedding and filter material (crushed rock) is delivered to the works from either a local quarry or a source on site if extracted rock quality is suitable. The bedding material is placed at the bottom of the excavated trench and the drainage pipes are placed on top before being covered with the filter material. Some filter drains also have a geotextile surround to prevent sediment ingress into the filter material, and if the drainage pipe crosses the road carriageway, it will have a concrete surround which will be transported to the site and placed around the pipe in the trench.
- 4.10.3 As described previously, the permanent treatment and attenuation facilities as part of the Sustainable Drainage Systems (SUDS) will be constructed in a similar manner to the temporary ponds described previously, or by cleaning and maintaining already constructed temporary ponds. An outflow pipe or ditch will transfer runoff from the carriageway drainage network to the permanent ponds, and to the receiving watercourse following treatment/attenuation. If a piped outfall is proposed, a headwall will be required at the point it discharges to the receiving watercourse. Headwalls are likely to be in situ concrete although they may have a stone facing or other finish applied. Headwall construction may require temporary diversion or damming of the watercourse.
- 4.10.4 Service ducts and chambers are constructed in a similar manner as carriageway drainage and catchpits/manholes. However, service chambers may be brick built involving transport of materials and on site manufacture and use of mortar.

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4.11 Topsoiling and Seeding

- 4.11.1 Topsoiling and seeding will be undertaken as soon as possible after earthworks construction is completed. This will enable the subsoil to be sealed preventing sediment run-off. As described previously, topsoil will have been stripped and stored adjacent to the works. The topsoil will be transported from the topsoil storage locations to the works and will be placed by a tracked excavator. Grass seeding may be by hand or by machine spreading, undertaken in the relevant areas specified in the landscape design.

4.12 Pavement Construction

- 4.12.1 Pavement construction involves building the pavement up in layers.
- 4.12.2 The bottom layer (sub-base) is a crushed rock aggregate which will be delivered to the site from local quarries or crushed and graded on site from excavated rock, as described previously. Indicative lorry loads required for pavement construction are shown in Table 5.2. The material is deposited and then pushed into place and compacted.
- 4.12.3 The upper pavement layers will be specified in accordance with the requirements of the contract and will involve transport of material to the site either from local sources or from a batching plant on site.

Table 5.2: Pavement Construction

Parameter	Estimate
Estimated total lorry loads	6,420
Potential length of pavement construction activities (months)	23 months
Estimated weekly average lorry loads during pavement construction	67

4.13 Roadworks Finishes

- 4.13.1 Following pavement construction, safety barriers will be installed. Posts and barriers are delivered to the site and safety barrier installation then involves driving steel posts into the ground or excavating small footings and placing concrete into which the posts are set. The barriers are bolted to the posts and fixed to small concrete anchorages.
- 4.13.2 Sign installation will involve excavation for the concrete foundations, and setting the posts. The sign faces are then fixed to the sign posts. Some signs may be lit and will require cabling to be passed through the service ducts installed as described previously.
- 4.13.3 Road markings will be applied to the road surface using specialist lorry-mounted equipment.

4.14 Accommodation Works

- 4.14.1 Accommodation works will include bridges, access roads, fences and walls or other ancillary items agreed with landowners. Construction methods will be similar to those described for these items in this outline methodology.

4.15 Structures

- 4.15.1 Typical construction methods for bridges and retaining walls are described below and apply to most bridges and retaining walls to be constructed as part of the proposed scheme.

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Retaining Walls

- 4.15.2 The Stage 3 design incorporates a number of retaining walls. These retaining walls are required to support soil where differences in ground levels are needed.

Retaining walls may be constructed by excavating to the required level whilst temporarily supporting the material to be retained. The retaining walls may be pre-cast or cast in-situ. Alternatively, contiguous piles may be installed to form the retaining wall before excavation to the required level.

Broompark Retaining Wall

- 4.15.3 The most significant retaining wall within the Stage 3 design will be constructed within the existing cut slope next to the southbound carriageway at Broompark. This will allow the widening of the A9 to the east of the existing carriageway at this location while retaining the buildings at Broompark. Due to constraints in the available land for construction and the required haul route, it is anticipated that the retaining wall will be constructed from an area between the top of the cut slope and the property at Broompark using contiguous piles. This will require the piling to be carried out in close proximity to the residential property.
- 4.15.4 The wall may be constructed by working from existing ground level, installing piles side by side using the boring technique, prior to excavating to the required level in front of the contiguous piles. The exposed piles would be faced with in situ concrete.

Overbridges

- 4.15.5 An overbridge typically carries a minor road over the mainline and incorporates a deck, supported on piers and/or abutments which are supported by foundations. Abutments support the ends of the bridge deck, whilst piers support the deck on multi span structures. These will be constructed from concrete cast on site (in situ). The main deck elements can be steel or concrete or combinations of these. Concrete can be cast on site (in situ) or the bridge can include precast units which are transported to the site. The exact form and materials used on each bridge will be dependant on the detailed design and is specific to individual locations depending on the nature of the bridge, the alignment of road it carries and span lengths.
- 4.15.6 The road surface on the bridge deck is normally a bituminous bound pavement laid on a waterproofing coat. Bridge deck waterproofing can either be a spray applied or sheet membrane system, and a metal (steel or aluminium) parapet is fixed to each side of the bridge deck.
- 4.15.7 Typical bridge construction procedures are summarised below.

Bridge Foundations

- 4.15.8 Foundations are required to support the abutments and piers. Foundations can be either concrete pad or piled with a pile cap.
- 4.15.9 Pad footings require excavation to a suitable founding soil strata, and then laying a concrete layer reinforced with steel rods/caging. Once abutments or piers have been cast, excavations are backfilled with acceptable material.
- 4.15.10 Piled foundations require preliminary excavations at foundation locations, and then installing foundation piles to a suitable load bearing soil strata - this can either be by driving precast concrete/steel piles to the required depth with a pile driver, or by using a boring machine to create the void for the pile. Piles are then trimmed to required level and a reinforced concrete pile cap is constructed to provide a base for piers or abutments.

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Bridge Piers and Abutments

- 4.15.11 Bridge piers and abutments will be constructed of reinforced concrete, and are usually pre-cast and then transported to their installation location. Exposed surfaces are treated and a waterproof membrane applied.

Underbridges

- 4.15.12 Underbridges accommodate roads or watercourses which pass below the mainline. These can be open structures (similar in appearance to overbridges), or underpasses which are more box-shaped. Both underbridges and underpasses are constructed in a similar manner as overbridges, requiring foundation construction; abutment, pier and wall construction; deck construction; and finishes.

5 Land Requirements

5.1 Land Required During Construction

- 5.1.1 Land required during construction may be in addition to that required for the footprint of the permanent works. The main requirements are described below.

Site Compounds for the Contractor and Others

- 5.1.2 Where possible these would be located close to the proposed works where there is suitable access. They would be used to accommodate offices for the contractor as well as workshops, stores, welfare facilities, etc. and parking for cars and plant.

Additional Works Areas

- 5.1.3 Land may be required to allow the contractor to gain safe access to the permanent works. This is usually where access is very restricted or where the works are adjacent to a live carriageway, such as when carrying out online widening works.

Temporary Diversions

- 5.1.4 In order to maintain traffic flows when undertaking works on the existing highway, such as a new bridge or carriageway tie-ins, it may be necessary to provide a temporary diversion.

Other Works

- 5.1.5 Other works requiring a licence, off-site planting etc. will require temporary land and will be identified as the detailed design is developed.

5.1 Clearance of Site on Completion

- 5.1.1 Clearance of the site on completion of the works will normally involve small dumpers, excavator/loaders and lorries to gather up and dispose of surplus material and generally tidy up.

5.2 Permanent Land

- 5.2.1 The main requirements for permanent land are as follows:

- land taken by footprint of the proposed scheme, including earthworks (i.e. land required to build embankments or excavate cuttings);
- land to allow adequate drainage of the road and the area through which it passes. This includes land required for diversion of watercourses, drainage outfalls and SUDS features, arrangements

for maintenance access, and any compensatory storage areas to accommodate potential watercourse flood events;

- land required for other environmental mitigation, such as landscape planting.

5.2.2 Other land not required for the permanent works may also be permanently acquired by the highway authority due to it becoming unusable or impractical to use as a direct result of the works.

6 Public Access, Site Access and Traffic Management

6.1 Access Routes for Construction Traffic

6.1.1 The proposed works are generally located on the main highway network, so most construction traffic will be able to use the main routes without restriction. However, the contractor will be restricted as to the extent and purpose that the contractor can use other roads for construction purposes. While it is desirable that all construction related access should be via the A9 Trunk Road it will be necessary to provide some access from the side road network. Routes not available to the contractor will be as agreed with the relevant authority and stipulated in the contract.

6.2 Traffic Management Requirements

Introduction

6.2.1 During construction, temporary traffic management will be required to undertake the works, whilst minimising disruption to users of the active road network.

6.2.2 Temporary traffic management will be put in place during construction at works close to or on existing roads, and at site access and egress points. Examples of measures include traffic cones, temporary signs and lighting, temporary speed restrictions, temporary diversions and contraflows.

Lane Requirements

6.2.3 In general, construction phasing and temporary traffic management proposals have been prepared on the basis of keeping at least one lane in each direction available on the A9 at all times except for very specific short term restrictions. Where considered appropriate, the contractor will be required to provide a vehicle recovery service to promptly remove any broken down vehicles within the temporary traffic management areas.

6.2.1 For the main routes, it is proposed to keep traffic on the normal carriageways, wherever possible, and if necessary using narrow lanes. It is also proposed to adopt a 40mph temporary speed limit through the main works areas.

6.2.2 It is generally proposed that other routes including slip roads at major junctions be kept open during construction of the new works. This will, in some cases require construction of extensive temporary alignments. The proposals in this appendix have been prepared on the basis of keeping all routes and accesses open throughout the works wherever feasible.

Works Restrictions

6.2.3 It is generally proposed that the network connection works be constructed within the typical working hours as set out in Section 2.3, with no requirement or intention for prolonged late night or 24 hour working. The only likely exceptions to this would be for activities such as the installation of beams on new bridges which could only be carried out during an overnight closure of the carriageways being spanned, or for critical tie-in works between existing and new carriageways. Alternative diversion routes will be set up during such night time closures, together with advance warning and publicity to help drivers to avoid these locations/dates if possible.

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6.2.4 Road closures and diversions are likely to require a Temporary Traffic Order and be subject to approval by Transport Scotland, Police Scotland, and the Maintaining Authority.

6.2.5 Where night work is required in the vicinity of residential areas, methods of construction should be adopted that keep noise levels to a practicable minimum.

Temporary or Permanent Road Closures or Diversions

6.2.6 Temporary road closures and diversions will be arranged through the Overseeing Organisation following discussions with Transport Scotland, Perth & Kinross Council, Police Scotland and the Maintaining Agents. A Temporary Traffic Order giving the requisite notice will be prepared and a statutory notice placed in local newspapers.

6.2.7 Permanent road closures that occur as a consequence of the phasing for the construction of new alignments, supported by the appropriate legal Orders, will be implemented following discussions with relevant parties and agreement of any temporary traffic arrangements.

Temporary Carriageway

6.2.8 Under the traffic management proposals in this appendix, there may be a requirement to construct some sections of temporary carriageway. The need for these will be dependant on the contractor's detailed design and his construction and traffic management methodology. Appropriate geometric and pavement construction standards for the design of temporary diversions will be set out in the contract.

Approvals

6.2.9 The contractor's detailed proposals for traffic management will only be confirmed after discussions with Transport Scotland, Police Scotland and the Maintaining Agents.

6.2.10 The contractor will be required to appoint a Traffic Safety Officer who be responsible for submitting traffic management layout drawings, method statements, etc. within the requisite notice period for discussion at regular traffic management meetings. The Traffic Safety Officer will be responsible for ensuring that temporary traffic management operations are monitored and maintained.

7 References

Department of Transport (2009).

Traffic Signs Manual. Chapter 8, Roadworks and Temporary Situations.