Appendix A

Record of Determination

EC DIRECTIVE 97/11
ENVIRONMENTAL IMPACT ASSESSMENT (SCOTLAND) REGULATIONS 1999 (as amended)

RECORD OF DETERMINATION

Name of Project:

M77/A77 Trunk Road – A77 Maybole Bypass

Location:
Maybole, South Ayrshire

Description of Project:

The project is required for the reduction of heavy goods vehicles (HGV's), through traffic and associated congestion within Maybole town centre.

Maybole is one of the five main South Ayrshire towns which lie on the A77 trunk road. There are many existing traffic problems in Maybole, partly due to the large numbers of cars and HGV's using the A77, which runs through the centre of the town.

In addition, where the A77 runs through Maybole it passes along the High Street which is the main retail area in the town. Developed since the medieval ages, the High Street currently has restricted carriageway and footway widths, which result in poor conditions for pedestrians and road users alike.

The findings of a STAG Part 1 assessment in June 2006 recommended that route options for a bypass to the north and south of Maybole should be investigated.

The "Route Options Assessment Report" produced in 2006, examined nine bypass route options to the North West and South East of Maybole and a do minimum scenario. The conclusions from the report recommended that three routes to the north west of Maybole and the do-minimum scenario be taken forward to DMRB Stage 2 Scheme Assessment Report.

The Stage 2 Scheme Assessment Report identified the preferred route to take forward to detailed design.

At approximately 5.2km in length, the proposed route ties into the existing A77 southwest of Maybole by means of a new Broomknowes Roundabout. From here the route climbs steeply, up the south flank of Gallow Hill, where it passes to the east of the summit close to the urban fringe of Maybole.

The route then crosses the B7023 before turning right and crossing Gardenrose Path approximately 150m from the extents of the developed land.

Continuing on a straight, the route passes to the south of the property of Kirklandhill, approximately 130m from the properties on Kilhenzie View and Ashgrove Avenue. From here the route continues to the north of the Stranraer/Glasgow railway line before tying into the existing A77 by means of the Smithston Roundabout, approximately 400m north of Smithston Bridge.

The proposed alignment includes:

- Single carriageway provision + hardstrips,
- 10m carriageway provision for extent of climbing lanes + hardstrips,
- A northbound climbing lane from Broomknowes Roundabout, with a total overtaking opportunity of 890m,
- Two southbound climbing lanes with a total overtaking opportunity of 1965m,
- At-grade roundabout tie-ins with existing A77 at southern and northern extents (Broomknowes 3-arm and Smithston 4-arm),
- An at-grade 70m 4-arm roundabout with the B7023,
- An over bridge at Gardenrose Path, and
- Under bridges at Kirklandhill Path and the B7024, Alloway Road.

Project Procurement:

The project will be procured via a fixed price lump sum contract based on the ICE Conditions of Contract (5th edition – June 1973).

Description of Local Environment:

Air Quality

A total of 1437 properties were identified within 200m of the affected road network.

No Air Quality Management Areas (AQMAs) are declared in South Ayrshire. No exceedances of the Air Quality Strategy (AQS) objectives for benzene, 1, 3- butadiene, CO, lead, NO_2 or SO_2 are expected. PM_{10} concentrations are unlikely to exceed the 2004 AQS objectives. Measured pollutant concentrations of vehicle derived pollutants indicate that background concentrations at Maybole are well below the relevant current AQS objectives.

Cultural Heritage

There are two Scheduled Monuments within or in close proximity to the study area, Lyonston standing stone and Maybole Collegiate Church.

There are 51 Listed Buildings within the study area. Of these, four lie within close proximity to the proposed scheme and could be considered to be potential constraints. The remaining 47 buildings lie within the historic core of the town.

There is one Conservation Area and one Historic Garden and Designed Landscape within the study area. The Conservation Area covers the historic core of Maybole and is not considered to be a constraint to development.

There are 13 recorded sites on the West of Scotland Archaeology Service (WoSAS) Sites and Monuments Record (SMR) within the study area (300m buffer), the majority of which are located within the urban areas of Maybole. Ten of these sites do not lie within the area of the proposed scheme. Three sites do lie within close proximity to the scheme.

There are five National Monuments Records of Scotland within 300m of the carriageway, including Kirklandhill Farmhouse, Kirklandhill Cottage, which are also designated as Scottish Sites and Monuments Records; and East Enoch House.

These records indicate that the northern area of Maybole has some potential for later prehistoric burial and settlement remains as shown by the presence of possible enclosures and a barrow at St Murray and the possible medieval settlement activity at Smithston.

Ecology and Nature Conservation

There are no statutory designated sites within the 2km radius search area. However, there are five non-statutory sites as listed by the Scottish Wildlife Trust (SWT) and South Ayrshire Council.

Other features important to nature conservation within the vicinity of Maybole include both ancient woodland and semi-natural ancient woodland listed on Scottish Natural Heritage's (SNH) Ancient Woodland Inventory (AWI).

From the surveys undertaken at Stage 1 & 2 the survey area is known to support or has the potential to support the following species;

Description of Local Environment:

- Otter - presence confirmed in September 2006 on Brockloch Burn, Chapelton Burn tributary and Rancleugh Burn. Otter Road Traffic Accident (RTA) records for both 2005/2006 from just north of the Smithston Bridge;
- Badger – presence confirmed in November 2006 north of Ladycross Wood at the Scottish Water pumping station. No setts or evidence found within the refined route corridor;
- Important bird species - including sky lark, reed bunting, linnet and yellowhammer, tree sparrow, bullfinch and barn owl;
- Deer- presence confirmed throughout the footprint of works;
- Bats – potential usage of corridors along Brockloch Burn and unnamed burn leading from Ladycross Wood and potentially roosting in buildings and trees within and surrounding the refined route corridor;
- Water vole –low potential as no evidence was located during surveys at Stage 1 or subsequently at Stage 2, although suitable habitat is present;

The main habitats present within the ecological survey area are:

- Arable
- Running water
- Woodland
- Grassland including improved and semi-improved
- Hedgerows and bordering features

Landscape Effects

The study area (2km) contains one landscape designation: Culzean Castle Garden and Designed Landscape. Drumellan Country House is located south of the A77, 800m north east of Maybole. It is designated as a "Country Estate" in the South Ayrshire Local Plan. The route passes close to two other designated landscape areas: Green Network (Ayrshire Joint Structure Plan) / Rural Protection Area (South Ayrshire Local Plan), and Sensitive Landscape Character Area (Ayrshire Joint Structure Plan) / Scenic Area (South Ayrshire Local Plan).

Five 'detailed landscape character areas' were identified and these are described below.

1. Maybole townscape
2. Kirklandhill Ridge
3. Carrick Rolling Hills
4. Hillside Woodland & Pasture
5. Maybole Plain

There are a variety of visual amenity receptors within the study area ranging from new residential estates on the edge of Maybole, to Caravan Holiday Parks and farmsteads accessed via private tracks. Receptors identified within the study area have varying degrees of visibility of the existing A77 road corridor.

Description of Local Environment:

Land Use

Land use in the vicinity of the scheme is almost entirely agricultural with scattered livestock farms and some rural dwellings. There is no prime agricultural land within the scheme. There may be up to fourteen farm units located along the route corridor.

The only significant non-agricultural land use potentially affected by the scheme is the land designated for residential development.

Noise and Vibration

Noise measurements were undertaken at four positions along the existing A77 trunk road through Maybole and four positions around the northern outskirts.

The measured L_{A10} noise levels were typically around 55 – 59 dB(A), except at Kirklandhill Path and Gardenrose Path, where significantly lower noise levels were measured.

Pedestrians, Cyclists, Equestrians and Community Effects

The only route or facility of significance in the area, other than footways associated with roads, is the National Cycle Route (NCN) 7 which runs north – south through Maybole.

There are three roads with footways within the study area namely, the B7023 Culzean Road, B7024 Alloway Road and the 'C' Class road that links the B7023 and B7024. A further two roads without footways, Gardenrose Path and Kirklandhill Path as well as a bridle path (Lovers Lane) were also identified within the study corridor of the proposed route alignments.

There are various community facilities / amenities in and around Maybole, including the local library, town hall, churches, post office, swimming pool, golf course, children's playground, playing fields and the town's cemetery.

Vehicle Travellers

An assessment of the existing route of the A77 indicates that drivers experience high levels of frustration, fear of potential accidents, and uncertainty when using the route due to the lack of safe overtaking sections and congestion. These factors are particularly acute in Maybole town centre.

The views along the A77 northeast of Maybole are open to the southeast, and intermittent to the northwest due to the topography. Within Maybole itself views are restricted by the proximity and scale of the buildings alongside the road. To the southwest of the town, views are generally intermittent as a result of the topography described above.

Road Drainage and the Water Environment

The watercourses within the area include:

- An unnamed burn issues from a spring close to Cultezeoun Farm approximately 500m to the west of Maybole and is culverted under the existing A77 near to Broomknowes Farm at the western tie-in.

- There is a minor watercourse to the east of Ladycross Wood, which was dry at the time of the site survey in June 2006 but was flowing in January 2007. This watercourse runs parallel to the scheme, occasionally below ground level, before turning south west and crossing beneath the railway line and flowing into the Black Glen. It is then culverted beneath the existing A77 and flows into the Chapelton Burn.

- Another small watercourse, the Brockloch Burn, is crossed by the scheme close to the Smithston tie-in.

- A further, unnamed, burn issues adjacent to the railway track bed close to Nether Culzean Farm and flows south to the Chapelton Burn, crossing the existing A77.

Description of Local Environment:

None of the minor watercourses potentially affected by the proposed route options are monitored by Scottish Environment Protection Agency (SEPA). Flows in all watercourses are small and in some cases can be dry during the summer months.

No records of licensed discharges to the watercourses concerned have been received.

The overall groundwater vulnerability classification for the Maybole district is “moderately permeable” but with superficial drift deposits of variable thickness that tend to impede groundwater recharge irrespective of soil classification.

No private water supplies are known of in the study area and there are no known groundwater abstractions.

The minor watercourses potentially affected by the proposed options are not identified as fisheries of any type. However, downstream of the study area these watercourses flow into designated Salmonid Waters under the Fisheries Directive.

The small watercourse adjacent to the Broomknowes tie-in flows into the Abbeymill Burn which is designated as a Salmonid watercourse. The Brockloch Burn adjacent to the Smithston Bridge tie-in flows into the Chapelton Burn which is also designated as a Salmonid watercourse.

Geology and Soils

The scheme is predominantly within Grade 3_2 land which is defined as land capable of average production but high yields of barley, oats and grass. Minor areas of poorer quality Grade 4 land (defined as land capable of producing a narrow range of crops) are also present.

No sites of special geological interest (Sites of Special Scientific Interest (SSSIs) or Regionally Important Geological Sites (RIGS) are present within the study area.

No information was obtained during the course of the desk study or site walk-over to suggest the presence of significant contaminated land within the immediate vicinity of the route options under consideration. However, it should be noted that encountering contaminated material during construction cannot be completely discounted.

Description of main environmental impacts of project and proposed mitigation:

[Summary of main impacts and mitigation. This should be supported by an Impacts and Mitigation Table, attached]

Air Quality

None of the receptors exceed the AQS criteria. Increases are experienced at four receptors near to the proposed new route which is the closest to the existing settlement. Two properties will experience a negligible impact and two properties a slight impact. Absolute values are well below the air quality objectives.

Four receptors will experience a very large decrease which is considered to be a moderate beneficial impact, one receptor is expected to experience a large decrease and one receptor on the B7023 is expected to experience a medium decrease resulting in a slight beneficial impact for both receptors. The absolute concentrations for all receptors are well below the air quality objectives.

No mitigation measures are proposed for road traffic as any scope for mitigation of adverse effects on air quality from changes in traffic flow is limited compared with the reductions in emissions achievable through anticipated improved vehicle technology.

Description of main environmental impacts of project and proposed mitigation:

Cultural Heritage

There will be no adverse effects on Scheduled Monuments, Conservation Areas or Historic Gardens & Designated Landscapes. However the reduction in the volume of traffic would give the current setting of the Maybole Conservation Area, the Listed Buildings within the town and the Lyonstone Standing Stone a major/moderate beneficial impact on their setting.

There is a potential moderate negative change on the setting of the locally important Kirklandhill Farmhouse resulting in an overall minor adverse effect.

There will, potentially, be a substantial negative change on the setting of the remains of Kirklandhill Cottage, which whilst not being recorded on the WoSAS SMR could be considered to be locally important resulting in a moderate / slight adverse effect.

There is, potentially, a medium-scale negative change on the setting of the regionally important East Enoch House (A No. 3), resulting in a moderate adverse effect.

The archaeological potential of the area is not currently known, and therefore potential impacts on as yet unknown buried archaeological remains cannot be ascertained. Further archaeological evaluation fieldwork would be required to assess the nature, extent and significance of any buried archaeological remains identified.

At the current stage of scheme development mitigation proposals for impacts on as yet unknown buried archaeological remains cannot be put forward.

Disruption Due to Construction

The issues relating to the proposed route options, from a disruption due to construction perspective, include:

- Temporary localised increases in noise and dust (Noise and Air);
- Loss of amenity due to traffic management or use of the local roads by construction traffic (Pedestrians, Equestrians, Cyclists and Community Effects);
- Potential impacts on property accesses (Land Use);
- Delays to traffic caused by construction operations;
- Potential impacts on water quality, channel stability, habitats as well as potential for increased risk of flooding (Road Drainage and the Water Environment);
- Disturbance to flora and fauna (Ecology and Nature Conservation);
- Disturbance due to material haulage to and from the site (Geology and Soils); and
- The effect of surplus or deficit earthworks materials (Geology and Soils).

Ecology and Nature Conservation

The scheme would require an area of land take amounting to 19.2 hectares over a length of 5.2 km. and would result in the following impacts:

- The loss of grassland, hedgerows and standard trees;
- Crossing of ephemeral burns north of Black Glen and Nether Culzean;
- Loss of a mature ash tree which has low potential to support a bat roost due to its lack of suitable cavities.

Description of main environmental impacts of project and proposed mitigation:

- Loss of English elm trees north of Black Glen. These trees are not found elsewhere within the study area and are uncommon nationwide due to Dutch Elm disease.

- Loss of a small group of mature broadleaved trees located north of the railway;

- Severance and isolation of grassland and agricultural habitats from the wider rural landscape around Maybole. This is likely to reinforce and extend the barrier posed to wildlife by the existing A77 and rail networks and sever habitat linkages outside of the proposed bypass option (both to the north and south). As a result the area will experience an increased level of disturbance to species.

The impact of this route is likely to be minor negative due to the possible direct loss and severance of habitat supporting otter and permanent loss of the woodland north of Smithston Bridge. mpacts to bats are thought to be limited to habitat fragmentation and severance of commuting corridors potentially increasing the risk of bat RTAs.

At this stage of the assessment compensation measures have not been proposed and therefore these mitigation recommendations focus on generic operations to reduce the level of impact on habitats and species.

Bridges rather than culverts should be used wherever possible. However, when this is not possible box culverts or bottomless arch culverts, will be preferable to closed, cylindrical style culverts. The length of culvert should be kept to an absolute minimum to reduce physical modification to the channel and reduce impacts on species such as fish, water vole and otter.

Retain or reinstate connectivity of the field boundary network. Hedgerows lost to the scheme should be replaced, either by gapping up defunct hedgerows or planting new ones along existing fence lines.

Landscape Effects

The scheme will cause significant direct impacts upon the landform of the area in the following locations:

- Gallow Hill / B7023 junction – Cutting

- B7023 junction – Embankment

- Gardenrose Path junction – Cutting

- Lover's Lane – Embankment

- Nether Culzean – Embankment

- Smithston Bridge – Cutting followed by embankment

All these earthworks will be at significant variance with the existing landform, and in the case of the junctions with Gardenrose Path, Kirklandhill Path and B7024, will require new bridge structures to be introduced into the landscape.

No significant areas of vegetation will be impacted upon, although several hedgerows and associated hedgerow trees will be lost (particularly just north of the junction of B7024 and Lover's Lane, and a prominent field boundary running parallel with the railway line southwest of Smithston Bridge), together with trees and scrub allied to the watercourse northwest of Black Glen.

Although sections of the route are at variance with the existing land pattern, a large portion is generally more sympathetic to the form and shape of the landscape. Despite this, the scheme will still result in considerable field fragmentation due to its alignment.

The scheme's alignment close to the western fringe of Maybole will inevitably lead to it having a significant visual impact on those receptors that are located around this area of the town. Although

Description of main environmental impacts of project and proposed mitigation:

much of the street pattern and prominent views are focussed in a southerly direction in accordance with the underlying landform, their current view of pastoral farmland to the west will be interrupted by the movement of vehicles, road lighting, signage and other infrastructure associated with the road.

Similar significant visual impacts are anticipated to the farmsteads of East Enoch and Kirklandhill due to the proximity of the proposed road, existing view and sensitivity of these receptors.

A noticeable, if not significant, change in view will be experienced by those receptors situated around the northern perimeter of Maybole, where the ridgeline to the north of Maybole is likely to screen much of the proposed road but the movement of high-sided vehicles may still be visible. Moderately significant adverse impacts are also likely to be experienced by some of the more remote farmsteads and residences in the study area, where the introduction of the road into their view of farmland and woodland will be a distant but nevertheless noticeable change.

Mitigation of adverse effects through the design process has been on-going and has been incorporated into the route option selection. However, specific landscape mitigation measures include:

- Screen planting to reduce the visual impact of the road in areas – extended lengths of linear planting will be avoided in order to maintain views from the road to the wider landscape and opportunities for on and off-line planting will be sought to this end
- Sympathetic earthworks to reduce the visual impact of the road in areas, following the characteristics of the existing ridge landform to integrate the mitigation into the landscape
- The established planting will assist in increasing the screening of views from receptors identified along the route and this will reduce the visual intrusion of the proposed scheme.

Land Use

The scheme would require an area of land take amounting to 19.2 hectares.

At East Enoch Farm the scheme would sever pastures from the milking parlour. Field accesses and some farm tracks would also be severed by the proposed bypass, necessitating the provision of alternatives.

No residential properties or farm buildings would need to be demolished.

Earthworks associated with the scheme may impact a small area of land at Whitefaulds designated for residential development.

Mitigation for the scheme will include the provision of a cattle crossing at East Enoch Farm, an alternative access to Cultezeoun, and potential realignment of the road to avoid impacting on the area designated for residential development at Whitefaulds. Compensation will be required for loss of agricultural land.

Noise and Vibration

Reduced traffic flows within Maybole result in decreases in noise of between 5 and 8dB. Reduced traffic flows on the B7023 between the A77 and Maybole result in reductions in noise between 1 and 3dB. Traffic changes on all other routes in and out of Maybole do not result in perceptible changes in noise.

A total of 472 properties will experience an increase in noise levels while 390 properties will experience a decrease in noise levels.

The appropriate mitigation will be developed during the next stage of the design.

The use of low noise road surfacing would reduce the impacts from the scheme at all locations but moderate to substantial noise impacts would still remain at a number of properties.

Description of main environmental impacts of project and proposed mitigation:

Pedestrians, Cyclists, Equestrians and Community Effects

The roundabout with the B7023 Culzean Road will have an impact upon the pedestrian, cycle and equestrian journeys. The junction is proposed to be at-grade and so pedestrians, cyclist and equestrians would have to cross over the bypass to continue their journey along the B7023. Therefore, the roundabout will result in a minor adverse impact on pedestrians, cyclist and equestrians.

The National Cycle Route 7 would also be bridged over the bypass and will therefore not be impacted upon by any of the scheme options. Cyclists travelling along the route will have fewer problems crossing the High Street as all the through traffic will have re-routed onto the bypass. This will therefore result in a minor beneficial impact on cyclists.

The scheme follows an alignment out with the town's settlement boundary to the north and therefore does not pass through any community facilities or cause severance to them.

The scheme reduces the level of traffic in the town. In addition there will be a reduction of Heavy Goods Vehicles (HGVs) travelling through the town which could result in a perception of increased safety to pedestrians and cyclists using the current A77. Overall, the impact is considered to be minor beneficial for pedestrians and others.

Conversely, the reduction in the level of traffic on the local A77 road has the potential to result in an increase in vehicle speeds, reducing safety for pedestrians and others. Without mitigation, this would result in a minor adverse impact on pedestrians and others.

It is recommended that traffic speed levels through Maybole town, specifically along the High Street, is monitored post the bypass opening.

Vehicle Travellers

The first section of this route will be in a deep cutting and therefore there will be no views available in a NW / SE direction although there will be elevated, open views available along the road alignment to the SW.

As the route progresses the view will briefly open up again to the NW / SE, providing intermittent views over Maybole through mitigation planting, before entering a deep cutting once more. Upon leaving the cutting the road will generally be at ground level or shallow embankment, with intermittent views through envisioned mitigation planting.

The remainder of the route will have open, extensive panoramic views to the south and southeast of the Ayrshire Southern Uplands, although it is likely that landscape mitigation works in the form of screen planting and/or earthworks (introduced to reduce the effect of the road on the existing landscape and visual receptors) may restrict some of these views.

No mitigation is proposed for driver stress or regarding views as the scheme provides a beneficial impact on both. It is assumed that appropriate signage and lighting would be installed at the roundabout junction with the B7023.

Road Drainage and the Water Environment

The proposed route options have the potential to impact on the water environment due to the increase in runoff from the greater impermeable surface area.

At Broomknowes Roundabout, the scheme ties-in to the existing A77 to the east of the burn crossing, thereby avoiding the requirement for culverting.

At Smithston Bridge Roundabout the new bypass carriageway will be required to cross Brockloch Burn at the south-west exit from the roundabout. This will require a bridge or culvert along with an upgrade of the culvert where Brockloch Burn passes under the existing A77 route at Smithston Bridge.

Description of main environmental impacts of project and proposed mitigation:

In areas where there is a high risk of oil pollution, it may be necessary to install an oil separator to protect the surface water and reduce the pollution risk.

Due to the relatively low flows in the receiving watercourses there is little potential for dilution of contaminated runoff. It will, therefore, be necessary to incorporate measures to provide treatment of routine road surface runoff at all drainage outfall locations. These may take the form of filter drains, detention ponds and reed beds or a combination of these.

SUDS measures should also be designed to attenuate peak flows and minimise the effects of runoff on water levels within watercourses. SUDS devices such as detention ponds coupled with reed beds would be particularly appropriate as they act to both attenuate peak flows and to remove contaminants by providing a low velocity settlement environment.

Culverts and other artificial reaches of channel can be designed to minimise the impact of modifications to channel morphology and hydraulics and to allow the unhindered passage of fish and mammals.

Geology and Soils

The only significant impact identified as a result of the scheme is the loss of soils due to land take. The impact is considered to be moderate adverse as the land which will be lost is not high quality agricultural land and widespread land of similar soil and agricultural classification will remain in the surrounding area.

To minimise the loss of soils the design should consider the re-use of removed soil material elsewhere in the scheme. In addition should temporary land take be required during construction the design should maximise the proportion of such land which can be returned to agriculture following construction.

Extent of EIA work undertaken and details of consultation:

A Stage 2 DMRB assessment has been undertaken, supplemented by:

- A77 Maybole Transport Study – STAG Part 1 Appraisal Final Report (Atkins, April 2006)

The following organisations have been consulted regarding the [new road/road improvements]:
Statutory

- The West of Scotland Archaeology Service
- Historic Scotland (Stage 1)
- Scottish Natural Heritage
- Scottish Environment Protection Agency
- South Ayrshire Biodiversity Officer
- South Ayrshire Council Planning Department
- Sustrans

Non-Statutory

- Scottish Badgers
- Scottish Wildlife Trust
- Scottish Ornithologists Club
- Rosemary Green (Otter recorder)
- Scottish Mammal Society
- Scottish Bats
- Scotways
- Cyclist Touring Club
- Scottish Equestrian Association
- British Horse Society
- British Geological Survey
- Macaulay Land Use Research Institute

Statement of case in support of a Determination that a formal EIA and Environmental Statement is/is not* required:

This is a relevant project falling within Annex II that:

- [~~does/~~does not] affect a Sensitive Area
- [exceeds~~/does not exceed~~] 1 ha in area

The project has been subject to screening using the Annex III criteria to determine whether a formal Environmental Impact Assessment is required under the EIA (Scotland) Regulations 1999. Screening using Annex III criteria [has~~/has not~~] identified a need for an EIA/ES.

The project is [likely~~/unlikely~~] to have significant effects on the environment by virtue of factors such as:

Characteristics of the scheme

- The route is approximately 5.2km long and passes thorough mainly agricultural land.
- The total land take of the scheme is approximately 19.2 hectares.
- The route comprises a series of cuttings and embankments which are at significant variance with the existing landform.

- The route travels along the urban fringe of Maybole which is adjacent to agricultural land.

Location of the scheme

- The proposed scheme ties into the existing A77 southwest of Maybole by means of a roundabout, Broomknowes Roundabout. From here the route climbs steeply, to a maximum gradient of 6 %, up the south flank of Gallow Hill, where it passes to the east of the summit close to the urban fringe of Maybole. The route then crosses the B7023 before turning on a 720m radius right hand curve and crosses Gardenrose Path approximately 150m from the extents of the developed land.
- Continuing on a straight, the route passes to the south of the property of Kirklandhill, approximately 130m from the properties on Kilhenzie View and Ashgrove Avenue. From here the route continues to the north of the Stranraer/Glasgow railway line before tying into the existing A77 by means of roundabout, Smithston Roundabout, approximately 400m north of Smithston Bridge.

Characteristics of potential impacts of the scheme

- The scheme would require an area of land take amounting to 19.2 hectares over a length of 5.2 km. and would result in the following impacts:
- Earthworks will be at significant variance with the existing landform, and in the case of the junctions with Gardenrose Path, Kirklandhill Path and B7024, will require new bridge structures to be introduced into the landscape.
- The scheme's alignment close to the western fringe of Maybole will inevitably lead to it having a significant visual impact on those receptors that are located around this area of the town. Although much of the street pattern and prominent views are focussed in a southerly direction in accordance with the underlying landform, their current view of pastoral farmland to the west will be interrupted by the movement of vehicles, road lighting, signage and other infrastructure associated with the road.
- Similar significant visual impacts are anticipated to the farmsteads of East Enoch and Kirklandhill due to the proximity of the proposed road, existing view and sensitivity of these receptors.
- A noticeable, if not significant, change in view will be experienced by those receptors situated around the northern perimeter of Maybole, where the ridgeline to the north of Maybole is likely to screen much of the proposed road but the movement of high-sided vehicles may still be visible. Moderately significant adverse impacts are also likely to be experienced by some of the more remote farmsteads and residences in the study area, where the introduction of the road into their view of farmland and woodland will be a distant but nevertheless noticeable change.
- A total of 472 properties will experience an increase in noise levels while 390 properties will experience a decrease in noise levels.

File references of supporting documentation:

- A77 Maybole Transport Study – STAG Part 1 Appraisal Final Report (Atkins, April 2006)
- A77 Maybole Transport Study – DMRB Stage 2 Report (Atkins, October 2007)

I have determined, following discussions with the Transport Scotland Environmental Advisor, that an EIA/ES is~~/is not~~* required for this project.

SIGNATURE Environmental Advisor ……

Date ……..

Authorisation to publish Notice of Determination

SIGNATURE Director MTRIPS ……

Date ……

* Delete as applicable

M77/A77 Trunk Road – A77 Maybole Bypass
ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION: SUMMARY

Issue	Baseline Conditions	Impact	Mitigation
Air Quality	A total of 1437 properties were identified within 200 metres of the affected road network	Increases are experienced at four receptors however absolute values are well below the air quality objectives. Four receptors will experience a very large decrease which is considered to be a moderate beneficial impact as the absolute concentrations are well below the air quality objectives. One receptor is expected to experience a large decrease, and one receptor on the B7023 is expected to experience a medium decrease resulting in a slight beneficial impact for both receptors as the absolute concentrations are well below the air quality objectives.	No mitigation measures are proposed
Noise	There are 245 residential properties including two schools located within 300m of the proposed scheme.	Reduced traffic flows within Maybole result in decreases in noise of between 5 and 8dB. Reduced traffic flows on the B7023 between the A77 and Maybole result in reductions in noise between 1 and 3dB. Traffic changes on all other routes in and out of Maybole do not result in perceptible changes in noise. A total of 472 properties will experience an increase in noise levels while 390 properties will experience a decrease in noise levels.	The appropriate mitigation will be developed during the next stage of the design.
Land Use	Land use in the vicinity of the scheme is almost entirely agricultural with scattered livestock farms and some rural dwellings. There is no prime agricultural land within the scheme. There may be up to fourteen farm units located along the route corridor. The only significant non-agricultural land use potentially affected by the scheme is the land designated for residential development.	The scheme would require an area of land take amounting to 19.2 hectares. At East Enoch Farm the scheme would sever pastures from the milking parlour. Field accesses and some farm tracks would also be severed by the proposed bypass, necessitating the provision of alternatives. No residential properties or farm buildings would need to be demolished. Earthworks associated with the scheme may impact a small area of land at Whitefaulds designated for residential development.	Mitigation for the scheme will include the provision of a cattle crossing at East Enoch Farm, an alternative access to Cultezeoun, and potential realignment of the road to avoid impacting on the area designated for residential development at Whitefaulds. Compensation will be required for loss of agricultural land.
Landscape & Visual Impact	The study area contains one landscape, Culzean Castle Garden and Designed Landscape. Drumellan Country House is located south of the A77, 800m north east of Maybole. The route	The scheme's alignment close to the western fringe of Maybole will inevitably lead to it having a significant visual impact on those receptors that are located around this area of the town. Although much of the	Integration of the cutting between Gallow Hill and western flank of Maybole into the wider landscape via a combination of earthworks and planting – this may require additional sympathetic re-grading of adjacent

Issue	Baseline Conditions	Impact	Mitigation
	passes close to two other designated landscape areas: Green Network (Ayrshire Joint Structure Plan) / Rural Protection Area (South Ayrshire Local Plan), and Sensitive Landscape Character Area (Ayrshire Joint Structure Plan) / Scenic Area (South Ayrshire Local Plan). There are a variety of visual amenity receptors within the study area ranging from new residential estates on the edge of Maybole, to Caravan Holiday Parks and farmsteads accessed via private tracks. Receptors identified within the study area have varying degrees of visibility of the existing A77 road corridor.	street pattern and prominent views are focussed in a southerly direction in accordance with the underlying landform, their current view of pastoral farmland to the west will be interrupted by the movement of vehicles, road lighting, signage and other infrastructure associated with the road. Similar significant visual impacts are anticipated to the farmsteads of East Enoch and Kirklandhill due to the proximity of the proposed road, existing view and sensitivity of these receptors. A noticeable, if not significant, change in view will be experienced by those receptors situated around the northern perimeter of Maybole, where the ridgeline to the north of Maybole is likely to screen much of the proposed road but the movement of high-sided vehicles may still be visible. Moderately significant adverse impacts are also likely to be experienced by some of the more remote farmsteads and residences in the study area, where the introduction of the road into their view of farmland and woodland will be a distant but nevertheless noticeable change.	land to disguise the cutting Screen planting to reduce the visual impact of the road in areas – extended lengths of linear planting will be avoided in order to maintain views from the road to the wider landscape and opportunities for on and off-line planting will be sought to this end Sympathetic earthworks to reduce the visual impact of the road, following the characteristics of the existing ridge landform to integrate the mitigation into the landscape Woodland planting to the relatively narrow strip of land between the route and railway line – this could link the existing woodland at Smithston Bridge and along the rail corridor to that at Black Glen, helping to both screen and integrate the road as well as providing biodiversity benefits. The established planting will assist in increasing the screening of views from receptors identified along the route and this will reduce the visual intrusion of the proposed scheme.
Water Quality	An unnamed burn issues from a spring close to Cultezeoun Farm approximately 500m to the west of Maybole and is culverted under the existing A77 near to Broomknowes Farm at the western tie-in. There is a minor watercourse to the east of Ladycross Wood, which was dry at the time of the site survey in June 2006 but was flowing in January 2007. This watercourse runs parallel to the scheme, occasionally below ground level, before turning south-west and crossing beneath the railway line and flowing into the Black Glen. It is then culverted beneath the existing A77 and flows into the Chapelton Burn. Another small watercourse, the Brockloch Burn, is crossed by the scheme close to the Smithston tie-in. A further, unnamed, burn issues adjacent to the railway track bed close to Nether Culzean Farm and flows south to the Chapelton Burn, crossing the existing A77.	The proposed route options have the potential to impact on the water environment due to the increase in runoff from the greater impermeable surface area. At Broomknowes Roundabout, the scheme ties-in to the existing A77 to the east of the burn crossing, thereby avoiding the requirement for culverting.	At Smithston Bridge Roundabout the new bypass carriageway will be required to cross Brockloch Burn at the south-west exit from the roundabout. This will require a bridge or culvert along with an upgrade of the culvert where Brockloch Burn passes under the existing A77 route at Smithston Bridge. In areas where there is a high risk of oil pollution, it may be necessary to install an oil separator to protect the surface water and reduce the pollution risk. Due to the relatively low flows in the receiving watercourses there is little potential for dilution of contaminated runoff. It will, therefore, be necessary to incorporate measures to provide treatment of routine road surface runoff at all drainage outfall locations. These may take the form of filter drains, detention ponds and reed beds or a combination of these. SUDS measures should also be designed to attenuate peak flows and minimise the effects of runoff on water levels within watercourses. SUDS devices such as detention ponds coupled with reed

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	None of the minor watercourses potentially affected by the proposed route options are gauged by SEPA. Flows in all watercourses are small and in some cases can be dry during the summer months. No records of licensed discharges to the watercourses concerned have been received. The overall groundwater vulnerability classification for the Maybole district is “moderately permeable” but with superficial drift deposits of variable thickness that tend to impede groundwater recharge irrespective of soil classification. No private water supplies are known of in the study area and there are no known groundwater abstractions.		beds would be particularly appropriate as they act to both attenuate peak flows and to remove contaminants by providing a low velocity settlement environment. Culverts and other artificial reaches of channel can be designed to minimise the impact of modifications to channel morphology and hydraulics and to allow the unhindered passage of fish and mammals.
Nature Conservation/ Biodiversity	There are no statutory designated sites within the 2km radius search area. However, there are five non-statutory sites as listed by the Scottish Wildlife Trust (SWT) and South Ayrshire Council. Otter, badger, deer and bats are active in the area. Important bird species are present in the area. The main habitats present are running water, woodland, grassland and hedgerows.	The loss of grassland, hedgerows (with a total of 27 crossings) and standard trees; Crossing of ephemeral burns north of Black Glen and Nether Culzean; Loss of a mature ash tree which has low potential to support a bat roost due to its lack of suitable cavities (which was checked by an Atkins bat specialist); Loss of English elm trees north of Black Glen. These trees are not found elsewhere within the study area and are uncommon nationwide due to Dutch Elm disease. Loss of a small group of mature broadleaved trees located north of the railway . Severance and isolation of grassland and agricultural habitats from the wider rural landscape around Maybole. This is likely to reinforce and extend the barrier posed to wildlife by the existing A77 and rail networks and sever habitat linkages outside of the proposed bypass option (both to the north and south). As a result the area will experience an increased level of disturbance.	At this stage of the assessment compensation measures have not been proposed and therefore these mitigation recommendations focus on generic operations to reduce the level of impact on habitats and species. Bridges rather than culverts should be used wherever possible. However, when this is not possible box culverts or bottomless arch culverts, will be preferable to closed, cylindrical style culverts. The length of culvert should be kept to an absolute minimum to reduce physical modification to the channel and reduce impacts on species such as fish, water vole and otter. Repositioning the alignment could reduce the impact on wooded areas, however if this is not possible then it is advised that a sizable area of woodland is planted to compensate. Retain or reinstate connectivity of the field boundary network. Hedgerows lost to the scheme should be replaced, either by gapping up defunct hedgerows or planting new ones along existing fence lines. A European Protected Species licence may be required for the works. Signs of badgers were minimal and as such there may be limited requirement for tunnels and fencing. However, consideration will need to be given to protected species following further

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			survey and assessment. 20. Lighting should be avoided wherever possible to reduce impacts to bat species and this will benefit other mammal species and birds. 21. The scheme will require the removal of an ash tree of local nature conservation value. This tree is situated at the top of the 'Lover's Lane' Wood. A further woodland area north of Black Glen, which has a group of English elm, would also be affected by this alignment. The only measure to avoid these impacts would be to move the alignment further north. If this is not possible or if only minor adjustments can be made, then compensation will be required although it is impossible to truly compensate for the loss of mature trees.
Cultural Heritage	There are two Scheduled Monuments within or in close proximity to the study area. There are 51 Listed Buildings within the study area. There is one Conservation Area and one Historic Garden and Designed Landscape within the study area. The Conservation Area covers the historic core of Maybole and is not considered to be a constraint to development. There are 13 recorded sites on the WoSAS SMR within the study area, the majority of which are located within the urban areas of Maybole. These remains indicate that the northern area of Maybole has some potential for later prehistoric burial and settlement remains as shown by the presence of possible enclosures and a barrow at St Murray and the possible medieval settlement activity at Smithston.	There will be no adverse effects on Scheduled Monuments, Conservation Areas or Historic Gardens & Designated Landscapes. However the reduction in the volume of traffic would give the current setting of the Maybole Conservation Area and the Listed Buildings a major/moderate beneficial impact on their setting. There is a potential moderate negative change on the setting of the locally important Kirklandhill Farmhouse resulting in an overall minor adverse effect. There will, potentially, be a substantial negative change on the setting of the remains of Kirklandhill Cottage, resulting in a moderate / slight adverse effect. There is, potentially, a medium-scale negative change on the setting of the regionally important East Enoch House, resulting in a moderate adverse effect. The archaeological potential of the area is not currently known, and therefore potential impacts on as yet unknown buried archaeological remains cannot be ascertained.	Further archaeological evaluation fieldwork would be required to assess the nature, extent and significance of any buried archaeological remains within the area of the junction. Mitigation should explore the possibility of putting the route in a cutting between Kirklandhill Farmhouse and Kirkland cottage. Explore screening options that would reduce the visual impacts of the route on the setting of the East Enoch House that would fit in with the surrounding landscape. At the current stage of scheme development mitigation proposals for impacts on as yet unknown buried archaeological remains cannot be put forward.
Geology & Soils	The scheme is predominantly within Grade 3_2 land which is defined as land capable of average production but high yields of barley, oats and grass. Minor areas of poorer quality Grade 4 land (defined as land capable of producing a narrow	The only significant impact identified as a result of the scheme is the loss of soils due to land take. The impact is considered to be moderate adverse as the land which will be lost is not high quality agricultural land and widespread land of similar soil and	To minimise the loss of soils the design should consider the re-use of removed soil material elsewhere in the scheme.

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	range of crops) are also present. No sites of special geological interest (SSSI's or RIGS) are present within the study area. No information was obtained during the course of the desk study or site walk-over to suggest the presence of significant contaminated land within the immediate vicinity of the scheme.	agricultural classification will remain in the surrounding area.	
Pedestrians Equestrians Cyclists & Community Effects	The only route or facility of significance in the area, other than footways associated with roads, is the National Cycle Route (NCN) 7 which runs north – south through Maybole. There are three roads with footways within the study area namely, the B7023 Culzean Road, B7024 Alloway Road and the 'C' Class road that links the B7023 and B7024. A further two roads without footways, Gardenrose Path and Kirklandhill Path as well as a bridle path (Lovers Lane) were also identified within the study corridor of the proposed route alignments. There are various community facilities / amenities in and around Maybole, including the local library, town hall, churches, post office, swimming pool, golf course, children's playground, playing fields and the town's cemetery.	The roundabout with the B7023 Culzean Road will have an impact upon the pedestrian, cycle and equestrian journeys. The junction is proposed to be at-grade and so pedestrians, cyclist and equestrians would have to cross over the bypass to continue their journey along the B7023. Therefore, the roundabout will result in a minor adverse impact on pedestrians, cyclist and equestrians. The National Cycle Route 7 would also be bridged over the bypass and will therefore not be impacted upon by any of the scheme options. Cyclists travelling along the route will have fewer problems crossing the High Street as all the through traffic will have re-routed onto the bypass. This will therefore result in a minor beneficial impact on cyclists. The scheme follows an alignment out with the town's settlement boundary to the north and therefore does not pass through any community facilities or cause severance to them. The scheme reduces the level of traffic in the town. In addition there will be a reduction of Heavy Goods Vehicles (HGVs) travelling through the town which could result in a perception of increased safety to pedestrians and cyclists using the current A77. Overall, the impact is considered to be minor beneficial for pedestrians and others. Conversely, the reduction in the level of traffic on the local A77 road has the potential to result in an increase in vehicle speeds, reducing safety for pedestrians and others. Without mitigation, this would result in a minor adverse impact on pedestrians and others.	It is recommended that traffic speed levels through Maybole town, specifically along the High Street, is monitored post the bypass opening. Should it be confirmed that vehicle speeds have increased, it is recommended that South Ayrshire Council develop appropriate traffic calming measures within the town centre.
Vehicle Travellers	An assessment of the existing route of the A77 indicates that drivers experience high levels of	The first section of this route (ch.0-700m) will be in a deep cutting and therefore there will be no views	No mitigation is proposed for driver stress or regarding views as the scheme provides a beneficial

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	frustration, fear of potential accidents, and uncertainty when using the route due to the lack of safe overtaking sections and congestion. These factors are particularly acute in Maybole town centre. The views along the A77 northeast of Maybole are open to the southeast, and intermittent to the northwest due to the topography. Within Maybole itself views are restricted by the proximity and scale of the buildings alongside the road. To the southwest of the town views are generally intermittent as a result of the topography described above.	available in a NW / SE direction although there will be elevated, open views available along the road alignment to the SW. As the route progresses (ch.700-2600m) the view will briefly open up again to the NW / SE, providing intermittent views over Maybole through mitigation planting, before entering a deep cutting once more. Upon leaving the cutting the road will generally be at ground level or shallow embankment, with intermittent views through envisioned mitigation planting. The remainder of the route (ch.2600-5000m will have open, extensive panoramic views to the south and southeast of the Ayrshire Southern Uplands, although it is likely that landscape mitigation works in the form of screen planting and/or earthworks (introduced to reduce the effect of the road on the existing landscape and visual receptors) may restrict some of these views.	impact on both. It is assumed that appropriate signage and lighting would be installed at the roundabout junction with the B7023.
Construction Impacts	Refer to each individual topic above	The issues relating to the proposed route options, from a disruption due to construction perspective, include: •Temporary localised increases in noise and dust (Noise and Air); •Loss of amenity due to traffic management or use of the local roads by construction traffic (Pedestrians, Equestrians, Cyclists and Community Effects); •Potential impacts on property accesses (Land Use); •Delays to traffic caused by construction operations; •Potential impacts on water quality, channel stability, habitats as well as potential for increased risk of flooding (Road Drainage and the Water Environment); •Disturbance to flora and fauna (Ecology and Nature Conservation); •Disturbance due to material haulage to and from the site (Geology and Soils); and •The effect of surplus or deficit earthworks materials (Geology and Soils).	Some typical mitigation measures which are easily implemented and managed may include: •Regular water-spraying and sweeping of unpaved and paved roads to minimise dust and remove mud and debris; •Using wheel washes for vehicles leaving the site where appropriate to minimise the amount of mud and debris deposited on the roads; •Sheeting vehicles carrying dusty materials to prevent materials being blown from the vehicles whilst travelling; •Enforcing speed limits for vehicles on unmade surfaces to minimise dust entrainment and dispersion; •Dampening down of surfaces prior to their being worked; and, •Storing dusty materials away from site boundaries. •Locating the development or specific areas of ground disturbance away from known buried archaeological remains and elements of the built heritage and their settings; •Providing for the excavation and recording of buried archaeological remains or elements of the built heritage or historic landscape before the start of

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			earth-moving or other construction works that would affect them; •Providing for an archaeologist to be “on call” so that any buried archaeological remains discovered during construction can be recorded (although this may not be the most effective solution) •The risk of pollution can be significantly reduced by the adoption of good working practices and strict adherence to the appropriate SEPA Guidelines. •Where fisheries interests are deemed to be important then construction should be timed to be outside of the main fish spawning/migrating period generally accepted to run between May and October. •Further detailed survey of habitats, flora and fauna would be required to provide sufficient data necessary to inform the DMRB, Stage 3 assessment. •During construction operations, it is advised that the site compound be located where the least landscape impacts will be experienced with regard to vegetation loss. Where vegetation is to be removed, it will be replaced with similar species following completion; •The land take directly affected by the proposals either side of the bypass will be minimised as far as practicably possible. •During construction the works should be undertaken in such a manner to minimise direct impacts to soils within the vicinity of any construction works including compaction of agricultural soils and soil erosion due to vegetation stripping.