TRANSPORT SCOTLAND

Annual Landscape Management Report

STRU South East

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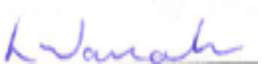
Rev 01	Name: Signature:  Date: 25th May 2016	Name: Lois Warnock Signature:  Date: 26th May 2016	Name: Barry Craig Signature:  Date: 30th May 2016
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1 Executive Summary

This report is prepared in accordance with the 4th Generation Term Contract for Management and Maintenance of the Scottish Trunk Road Network South East Unit Schedule 7 Part 4 Section 1.6 Annual Landscape Management Report.

This executive summary aims to offer a short statement on the main issues arising from the Report, being them the following:

- Issues with the management of Injurious species:
- Despite the spray programme undertaken on 2015 on the main infestation areas along the route, invasive weeds such as Giant Hogweed and Rosebay Willowherb still have a great presence in Unit, and its reduction should be one of the main objectives of the Programme for the following year.
- Issues with the trees:
- There are many points along the Unit where over grown trees are encroaching on site lines and obscuring Traffic Scotland cameras.
- Many trees have been blown by the wind along the whole Unit.
- Health and safety issues relating to the cyclic maintenance programme: Some minimal frequency cut areas should be left to develop as natural succession /nature conservation areas, specially in areas where the maintenance work are particularly risky.

Contents

2 Introduction

This report is developed on a route by route basis, following the routes as identified by the landscape strategy and development plan.

The aim of this report is to provide an annual review of the effectiveness of maintenance activities and to identify any new landscape areas due to the completion of schemes by third parties. This report also provides a review of the effectiveness of any schemes undertaken by the Operating Company.

Appendices of the report include a grassland report, injurious species report, pestivcide plan and records of roadkill.

3 Route Details

3.1 Route A1

3.1.1 General Condition of Landscape Areas

The verges of this route are maintained under cyclic routine operations and in accordance with appendix 30/7 Grass, Bulbs and Wildflower Maintenance. Several bulb and wild flower areas have been identified along the route mainly in the grassland areas. A weed hotspots database has been developed and it will be used as a reference to treat and control the infested areas as well as to monitor the operations. Scrub areas will be controlled and removed where necessary always with a previous inspection of the wildlife.

Hedges, trees and other encroaching vegetation should be identified during routine inspections, in order to keep them under a safe condition, or to undertake any replacement. Dead or dying trees on the highway and adjacent land will also be identified during these inspections. Amey will continue to notify adjacent landowners on their responsibility to have dangerous trees and encroaching vegetation removed.

Woodland management operations are required despite of the recent budget restraints. Some woodland thinning works have been already undertaken, like Cockburnspath roundabout.

Cyclic maintenance operations are carried out on a two week cycle for high amenity shrub beds. Most shrub beds are in a poor condition and would benefit from some remedial planting. Amey will engage with the local community to enhance the shrub beds where they are located within or next to town centres.

The wetlands along this route include all the burns and open ditches crossing or running alongside the road, and also several SUDS's ponds within the trunk road boundary which have not been maintained by the previous operating company. Amey shall establish the location of the ponds on the inventory and the proposed maintenance requirements to allow us to carry out the contractual requirements.

3.1.2 Effectiveness of Maintenance Operations and Consented Changes

This has been generally effective and in accordance with the contract; however the route suffers from extensive weed infestation and it is clear that previous attempts to control injurious and invasive weeds have either failed or have not been included in routine maintenance in line with previous contract requirements. Grass areas are currently under review to ascertain where maintenance activities can be reduced or enhanced to improve biodiversity and visual amenity. Area identified at Burnmouth for possible wildflower planting to increase biodiversity and enhance the visual amenity of this area.

3.1.3 Summary of Planned Maintenance Operations

Cockburns Path Woodland Management involved the thinning of selected species from the woodland areas by 20%, this scheme was completed in March 2015.

3.1.4 Landscape Development Plan (LDP) and Landscape Strategy Operations

The management of the Landscape Areas is in accordance with the requirements of the contract (Schedule 7 Part 4). The previous submitted LDP is still awaiting authorisation from Transport Scotland Area Route Managers.

Table 3-1 Schemes that have been completed which are included in the LDP

Route	A1	
Scheme Name	Scheme 1	Specimen Tree Planting Opportunity
Location	Sheet 4/3 & 5/1	From Bankton Junction to Gladmuir Junction
Synopsis	The area along this stretch of the route is barren and would benefit from specimen tree planting.	
Reasons for selection	This area of the route has open views across the adjacent agricultural land towards the coast. Adding some specimen trees will enhance biodiversity, improve the visual amenity and give a sense of place to road users.	
Cost estimate	I/D £2,500 C £10,000	

Priority rating	1
State of Developement	Cutting back of shrubs has taken place for safety reasons, but re-design of planting species has still to be completed once the LDP programme has been consent by TS Route Managers.
Effectiveness	

Route	A1	
Scheme Name	Scheme 2	Specimen Tree Planting Opportunity
Location	Sheet 6/2 & 7/1,2	From Gladmuir Junction to Oak Tree Junction
Synopsis	The area along this stretch of the route is barren and would benefit from specimen tree planting.	
Reasons for selection	This area of the route has open views across the adjacent agricultural land towards the coast. Adding some specimen trees will enhance biodiversity, improve the visual amenity and give a sense of place to road users.	
Cost estimate	I/D £2,500 C £10,000	
Priority rating	2	
State of Developement	Not started.	
Effectiveness		

Route	A1	
Scheme Name	Scheme 3	Roundabout Planting Enhancement
Location	Sheet 14	Thistly Cross Roundabout
Synopsis	The planting within the roundabout has mainly failed and is not of a reasonable standard.	
Reasons for selection	The roundabout has access problems for operatives to carry out routine maintenance. Most of the existing planting has failed and is need of replacement with a more suitable design to reduce maintenance and blend into the character of the route. There may also be an opportunity to reduce maintenance through hard landscaping.	
Cost estimate	I/D £5,000 C £50,000	
Priority rating	2	
State of Developement	Not started.	
Effectiveness		

Route	A1	
Scheme Name	Scheme 4	Roundabout Planting Enhancement
Location	Sheet 14	Spott Roundabout
Synopsis	The planting within the roundabout has mainly failed and is not of a reasonable standard.	
Reasons for selection	The roundabout has access problems for operatives to carry out routine maintenance. Some of the existing planting has failed and is need of replacement with a more suitable design to reduce maintenance and blend into the character of the route. There may also be an opportunity to reduce maintenance through hard landscaping.	
Cost estimate	I/D £5,000 C £50,000	
Priority rating	1	
State of Developement	Not started.	
Effectiveness		

Route	A1	
Scheme Name	Scheme 5	Specimen Tree and Wildflower Planting Opportunity
Location	Sheet 22/2	Between Pease Bay Roundabout and the A1107 Junction
Synopsis	There are no areas of wildflowers within the route corridor.	
Reasons for selection	Verges along this stretch of the route would benefit from wildflower planting as they are wide and there are no wildflower areas within the route. Specimen tree planting will also add interest and together with the wildflower planting biodiversity will be improved.	
Cost estimate	I/D £2,500 C £8,000	
Priority rating	3	
State of Developement	Not started.	
Effectiveness		

3.2 Route A7

3.2.1 General Condition of the Landscape Areas

The verges of this route are maintained under cyclic routine operations and in accordance with appendix 30/7 Grass, Bulbs and Wildflower Maintenance. Several bulbs and wild flowers areas have been identified along the route mainly in the grasslands.

A weed hotspots database has been completed and it will be used as a reference to treat and control the infested areas as well as to monitor the operations.

Scrub areas will be controlled and removed where necessary always with a previous inspection of the wildlife.

Hedges, trees and other encroaching vegetation should be identified during routine inspections, in order to keep them under a safe condition, or to undertake any replacement. Dead or dying trees on the highway and adjacent land will also be identified during these inspections.

Amey will continue to notify adjacent landowners on their responsibility to have dangerous trees and encroaching vegetation removed.

Woodland management operations are required despite of the recent budget restraints.

Cyclic maintenance operations are carried out on a two week cycle for high amenity shrub beds. Most shrub beds are in a poor condition and would benefit from some remedial planting. Amey will engage with the local community to enhance the shrub beds where they are located within or next to town centres.

The wetlands along this route include all the burns and open ditches crossing or running alongside the road, and two SUDS's ponds within the trunk road boundary at Auchienrivock.

3.2.2 Effectiveness of Maintenance Operations and Consented Changes.

This has been generally effective and in accordance with the contract; however the route suffers from extensive weed infestation and it is clear that previous attempts to control injurious and invasive weeds have either failed or have not been included in routine maintenance in line with previous contract requirements. Grass areas are currently under review to ascertain where maintenance activities can be reduced or enhanced to improve biodiversity and visual amenity.

3.2.3 Summary of Planned Maintenance Operations

None.

3.2.4 Landscape Development Plan and Landscape Strategy Operations.

Summary of Operations Undertaken as Part of the Landscape Development Plan

The management of the Landscape Areas is in accordance with the requirements of the contract (Schedule 7 Part 4). The previous submitted LDP is still awaiting authorisation from Transport Scotland Area Route Managers.

Table 3-2 Schemes that have been completed which are included in the LDP

Route	A7	
Scheme Name	Scheme 1	Specimen Tree Planting
Location	All Areas	The entire route
Synopsis	Many of the mature specimen trees that exist both within and out with the route boundary on private adjacent land have succumbed to defects.	
Reasons for selection	With this route being such a prominent route for tourists and for local commuters, a scheme to investigate the possibility of working in partnership with adjacent landowners to replace ailing mature trees should be considered.	
Cost estimate	I/D £3,000 C £3,000	
Priority rating	2	
State of Developement	Not started.	
Effectiveness		

3.3 Route A68

3.3.1 General Condition of the Landscape Areas

The verges of this route are maintained under cyclic routine operations and in accordance with appendix 30/7 Grass, Bulbs and Wildflower Maintenance. Several bulbs and wild flowers areas have been identified along the route mainly in the grasslands. A weed hotspots database has been completed and it will be used as a reference to treat and control the infested areas as well as to monitor the operations. Scrub areas will be controlled and removed where necessary always with a previous inspection of the wildlife.

Hedges, trees and other encroaching vegetation should be identified during routine inspections, in order to keep them under a safe condition, or to undertake any replacement. Dead or dying trees on the highway and adjacent land will also be identified during these inspections. Amey will continue to notify adjacent landowners on their responsibility to have dangerous trees and encroaching vegetation removed. Woodland management operations are required despite of the recent budget restraints.

Cyclic maintenance operations are carried out on a two week cycle for high amenity shrub beds. Most shrub beds are in a poor condition and would benefit from some remedial planting. Amey will engage with the local community to enhance the shrub beds where they are located within or next to town centres. Few wetland areas exist within the trunk road boundary but where these are evident they shall be monitored to improve species planting through the LDP and increase their biodiversity value wherever possible.

3.3.2 Effectiveness of Maintenance Operations and Consented Changes.

This has been generally effective and in accordance with the contract; however the route suffers from extensive weed infestation and it is clear that previous attempts to control injurious and invasive weeds have either failed or have not been included in routine maintenance in line with previous contract requirements. Grass areas are currently under review to ascertain where maintenance activities can be reduced or enhanced to improve biodiversity and visual amenity.

3.3.3 Summary of Planned Maintenance Operations

None.

3.3.4 Landscape Development Plan and Landscape Strategy Operations

The management of the Landscape Areas is in accordance with the requirements of the contract (Schedule 7 Part 4). The previous submitted LDP is still awaiting authorisation from Transport Scotland Area Route Managers.

Table 3-3 Schemes that have been completed which are included in the LDP

Route	A68	
Scheme Name	Scheme 1	Specimen Tree Planting Opportunity
Location	Sheet 29/2	Tynehead
Synopsis	There is little planting within the route corridor.	
Reasons for selection	Many of the verges are too narrow to support trees along this section of the route; however there is an opportunity to develop specimen trees within this area.	
Cost estimate	I/D £3,000 C £5,000	
Priority rating	1	
State of Developement	Not started.	
Effectiveness		

Route	A68	
Scheme Name	Scheme 2	Shrub Bed Planting
Location	Sheet 30,31	Pathead
Synopsis	Shrub beds through the town require replacement planting.	
Reasons for selection	The shrub beds throughout the town have areas where shrubs have failed and require to be replaced. The local community are involved the scheme and possibly have sponsorship from Dobbie's Garden Centre.	
Cost estimate	I/D £3,500 C £5,500	
Priority rating	1	
State of Developement	Not started.	
Effectiveness		

3.4 Route A702

3.4.1 General Condition of the Landscape Areas

The verges of this route are maintained under cyclic routine operations and in accordance with appendix 30/7 Grass, Bulbs and Wildflower Maintenance. Several bulbs areas have been identified along the route mainly in the grasslands. A weed hotspots database has been completed and it will be used as a reference to treat and control the infested areas as well as to monitor the operations. Scrub areas will be controlled and removed where necessary always with a previous inspection of the wildlife.

Hedges, trees and other encroaching vegetation should be identified during routine inspections, in order to keep them under a safe condition, or to undertake any replacement. Dead or dying trees on the highway and adjacent land will also be identified during these inspections. Amey will continue to notify adjacent landowners on their responsibility to have dangerous trees and encroaching vegetation removed. Woodland management operations are required despite of the recent budget restraints.

Cyclic maintenance operations are carried out on a two week cycle for high amenity shrub beds. Most shrub beds are in a poor condition and would benefit from some remedial planting. Amey will engage with the local community to enhance the shrub beds where they are located within or next to town centres.

3.4.2 Effectiveness of Maintenance Operations and Consented Changes.

This has been generally effective and in accordance with the contract; however the route suffers from extensive weed infestation and it is clear that previous attempts to control injurious and invasive weeds have either failed or have not been included in routine maintenance in line with previous contract requirements. Grass areas are currently under review to ascertain where maintenance activities can be reduced or enhanced to improve biodiversity and visual amenity.

3.4.3 Summary of Planned maintenance Operations

None.

3.4.4 Landscape Development Plan and Landscape Strategy Operations

The management of the Landscape Areas is in accordance with the requirements of the contract (Schedule 7 Part 4). The previous submitted LDP is still awaiting authorisation from Transport Scotland Area Route Managers.

Table 3-4 Schemes that have been completed which are included in the LDP

Route	A702	
Scheme Name	Scheme 1	Abington Roundabout
Location	Sheet 1	Abington
Synopsis	Planting opportunity to enhance the roundabout at the busy Abington services.	
Reasons for selection	The services at Abington are accessed by vehicles traveling north and south of the border and there is a need for replanting to enhance the existing planting within the roundabout. Access for maintenance is difficult for operatives and there may be an opportunity to introduce hard landscaping features to meet Chapter 8 Regulations.	
Cost estimate	I/D £3,000 C £20,000	
Priority rating	2	
State of Developement	Not started.	
Effectiveness		

Route	A702	
Scheme Name	Scheme 2	Maiden Coats Roundabout
Location	Sheet 1	Abington
Synopsis	Planting opportunity to enhance the roundabout.	
Reasons for selection	The services at Abington are accessed by vehicles traveling north and south of the border and there is a need for replanting to enhance the existing planting within the roundabout. Access for maintenance is difficult for operatives and there may be an opportunity to introduce hard landscaping features to meet Chapter 8 Regulations.	
Cost estimate	I/D £3,500 C £25,000	
Priority rating	2	
State of Developement	Not started.	
Effectiveness		

3.5 Route A720

3.5.1 General Condition of the Landscape Areas

The verges of this route are maintained under cyclic routine operations and in accordance with appendix 30/7 Grass, Bulbs and Wildflower Maintenance. Several bulbs and wildflowers areas have been identified along the route mainly in the grasslands. A weed hotspots database has been completed and it will be used as a reference to treat and control the infested areas as well as to monitor the operations. Scrub areas will be controlled and removed where necessary always with a previous inspection of the wildlife.

Hedges, trees and other encroaching vegetation should be identified during routine inspections, in order to keep them under a safe condition, or to undertake any replacement. Dead or dying trees on the highway and adjacent land will also be identified during these inspections. Amey will continue to notify adjacent landowners on their responsibility to have dangerous trees and encroaching vegetation removed.

Woodland management operations are required despite of the recent budget restraints.

Cyclic maintenance operations are carried out on a two week cycle for high amenity shrub beds. Most shrub beds are in a poor condition and would benefit from some remedial planting. Amey will engage with the local community to enhance the shrub beds where they are located within or next to town centres.

3.5.2 Effectiveness of Maintenance Operations and Consented Changes.

This has been generally effective and in accordance with the contract; however the route suffers from extensive weed infestation and it is clear that previous attempts to control injurious and invasive weeds have either failed or have not been included in routine maintenance in line with previous contract requirements. Grass areas are currently under review to ascertain where maintenance activities can be reduced or enhanced to improve biodiversity and visual amenity.

3.5.3 Summary of Planned Maintenance Operations

- Removal of encroaching vegetation at Hainburn Park.
- Removal of encroaching vegetation at Cayiside.
- Removal of encroaching vegetation at Lanark Road.
- Removal of encroaching vegetation at Torphin Bank.

  Removal of storm damaged trees at Torphin bank.

3.5.4 Landscape Development Plan and Landscape Strategy Operations

The management of the Landscape Areas is in accordance with the requirements of the contract (Schedule 7 Part 4). The previous submitted LDP is still awaiting authorisation from Transport Scotland Area Route Managers.

Table 3-5 Schemes that have been completed which are included in the LDP

Route	A720	
Scheme Name	Scheme 1	Planting Enhancement
Location	Sheet 1	Hermiston Gate
Synopsis	The shrub areas are in need of replanting to reduce maintenance and add landscape character.	
Reasons for selection	The roundabout and approaches are located on one for the busiest routes and are an entrance to the east coast routes and the city of Edinburgh. The area suffers from an infestation of invasive and injurious weeds and to help control these, a replanting plan to enhance the area is sought.	
Cost estimate	I/D £4,500 C £10,000	
Priority rating	3	
State of development	Not started	
Effectiveness		

Route	A720	
Scheme Name	Scheme 2	Woodland Management
Location	Sheet 3	Woodland
Synopsis	The woodland areas require to be thinned and planted with mixed native species.	
Reasons for selection	There are little woodland or mature trees within the route corridor due to the narrow verges; woodland that exists requires management through thinning existing species and replanting a mixture of native species to aid biodiversity and the continued existence of the woodland.	
Cost estimate	I/D £4,500 C £10,000	
Priority rating	3	
State of development	Ongoing	
Effectiveness		

3.6 Route A876

3.6.1 General Condition of the Landscape Areas

The verges of this route are maintained under cyclic routine operations and in accordance with appendix 30/7 Grass, Bulbs and Wildflower Maintenance. Several bulbs areas have been identified along the route mainly in the grasslands. A weed hotspots database has been completed and it will be used as a reference to treat and control the infested areas as well as to monitor the operations.

Scrub areas will be controlled and removed where necessary always with a previous inspection of the wildlife. Hedges, trees and other encroaching vegetation should be identified during routine inspections, in order to keep them under a safe condition, or to undertake any replacement. Dead or dying trees on the highway and adjacent land will also be identified during these inspections.

Amey will continue to notify adjacent landowners on their responsibility to have dangerous trees and encroaching vegetation removed. Woodland management operations are required despite of the recent budget restraints.

3.6.2 Effectiveness of Maintenance Operations and Consented Changes.

This has been generally effective and in accordance with the contract; however the route suffers fromextensive weed infestation and it is clear that previous attempts to control injurious and invasive weeds have either failed or have not been included in routine maintenance in line with previous contract requirements. Grass areas are currently under review to ascertain where maintenance activities can be reduced or enhanced to improve biodiversity and visual amenity.

3.6.3 Summary of Planned Maintenance Operations

None.

3.6.4 Landscape Development Plan and Landscape Strategy Operations

The management of the Landscape Areas is in accordance with the requirements of the contract (Schedule 7 Part 4). The previous submitted LDP is still awaiting authorisation from Transport Scotland Area Route Managers.

Table 3-6 Schemes that have been completed which are included in the LDP

Route	A876	
Scheme Name	Scheme 1	Roundabout Planting Enhancement
Location	Sheet 1	Bowtrees Roundabout
Synopsis	The roundabout has no planting included within.	
Reasons for selection	The absence of planting affects biodiversity and the character of the route. The route would benefit from some structure planting within the roundabout which will improve the visual amenity.	
Cost estimate	I/D £2,500 C £3,000	
Priority rating	2	
State of Developement	Not started.	
Effectiveness		

3.7 Route A6091

3.7.1 General Condition of the Landscape Areas

The verges of this route are maintained under cyclic routine operations and in accordance with appendix 30/7 Grass, Bulbs and Wildflower Maintenance. Several bulbs areas have been identified along the route mainly in the grasslands. A weed hotspots database has been completed and it will be used as a reference to treat and control the infested areas as well as to monitor the operations.

Scrub areas will be controlled and removed where necessary always with a previous inspection of the wildlife. Hedges, trees and other encroaching vegetation should be identified during routine inspections, in order to keep them under a safe condition, or to undertake any replacement. Dead or dying trees on the highway and adjacent land will also be identified during these inspections.

Amey will continue to notify adjacent landowners on their responsibility to have dangerous trees and encroaching vegetation removed. Woodland management operations are required despite of the recent budget restraints. Cyclic maintenance operations are carried out on a two week cycle for high amenity shrub beds. Most shrub beds are in a poor condition and would benefit from some remedial planting.

3.7.2 Effectiveness of Maintenance Operations and Consented Changes.

This has been generally effective and in accordance with the contract; however the route suffers from extensive weed infestation and it is clear that previous attempts to control injurious and invasive weeds have either failed or have not been included in routine maintenance in line with previous contract requirements. Grass areas are currently under review to ascertain where maintenance activities can be reduced or enhanced to improve biodiversity and visual amenity.

3.7.3 Summary of Planned Maintenance Operations

- Melrose Bypass Landscape Management phase 1 was completed together with vegetation clearance for resident Mr Paige who had complained that vegetation from within the trunk road boundary was encroaching into his property.
- Melrose Bypass phase 2 has now been completed together with vegetation clearance for Ms Boreham at 15 Ormiston Grove who had complained that vegetation from within the trunk road boundary was encroaching on her property.

3.7.4 Landscape Development Plan and Landscape Strategy Operations

The management of the Landscape Areas is in accordance with the requirements of the contract (Schedule 7 Part 4). The previous submitted LDP is still awaiting authorisation from Transport Scotland Area Route Managers.

Table 3-7 Schemes that have been completed which are included in the LDP

Route	A6091	
Scheme Name	Scheme 1	Tweedbank Roundabout
Location	Sheet 1	Tweedbank
Synopsis	The roundabout has no landscape features.	
Reasons for selection	The roundabout is the main entrance to the town of Tweedbank. It has no landscape features and would benefit from enhancement works. There is no maintenance refuge for operatives and this does not comply with Chapter 8 Regulations.	
Cost estimate	I/D £4,500 C £50,000	
Priority rating	1	
State of Developement	Not started.	
Effectiveness		

3.8 Route M8

3.8.1 General Condition of the Landscape Areas

The verges of this route are maintained under cyclic routine operations and in accordance with appendix 30/7 Grass, Bulbs and Wildflower Maintenance. Several bulbs areas have been identified along the route mainly in the grasslands. A weed hotspots database has been completed and it will be used as a reference to treat and control the infested areas as well as to monitor the operations. Scrub areas will be controlled and removed where necessary always with a previous inspection of the wildlife.

Hedges, trees and other encroaching vegetation should be identified during routine inspections, in order to keep them under a safe condition, or to undertake any replacement. Dead or dying trees on the highway and adjacent land will also be identified during these inspections.

Amey will continue to notify adjacent landowners on their responsibility to have dangerous trees and encroaching vegetation removed. Woodland has the invasive species *Rhododendron ponticum* present and a woodland management plan has been proposed through the LDP (see Appendix B).

Ornamental shrub areas are few and only exist adjacent to Harthill services. Cyclic maintenance operations are carried out on a two week cycle for high amenity shrub beds. The shrub beds at Harthill are overgrown and maintenance work is required

3.8.2 Effectiveness of Maintenance Operations and Consented Changes.

This has been generally effective and in accordance with the contract; however the route suffers from extensive weed infestation and it is clear that previous attempts to control injurious and invasive weeds have either failed or have not been included in routine maintenance in line with previous contract requirements. Grass areas are currently under review to ascertain where maintenance activities can be reduced or enhanced to improve biodiversity and visual amenity.

3.8.3 Summary of Planned Maintenance Operations

- Harthill Services Landscape Management West Bound was completed in March 2015, the East Bound section will be completed in 2016.
- Junction 1 Landscape Management was completed in March 2015.
- Dangerous tree removal within the entire route is ongoing.

Junction 3 Landscape Management was completed in February 2016.

3.8.4 Landscape Development Plan and Landscape Strategy Operations

The management of the Landscape Areas is in accordance with the requirements of the contract (Schedule 7 Part 4). The previous submitted LDP is still awaiting authorisation from Transport Scotland Area Route Managers.

Route	M8	
Scheme Name	Scheme 1	Woodland Management
Location	Entire Route	Various
Synopsis	Many of the woodland areas require thinning and replacement planting. There is evidence of invasive Rhododendron ponticum within woodland.	
Reasons for selection	Woodland along the route is semi mature and mature and requires thinning to let species thrive. A replacement planting programme to ensure the continued existence of the woodland is required. Investigate the presence of Rhododendron ponticum and programme for its control.	
Cost estimate	I/D £2,500 C £20,000	
Priority rating	1 – 3 This is a rolling programme and so should be initiated in the first year of the programme.	
State of Developement	Ongoing	
Effectiveness		

3.9 Route M9

3.9.1 General Condition of the Landscape Areas

The verges of this route are maintained under cyclic routine operations and in accordance with appendix 30/7 Grass, Bulbs and Wildflower Maintenance. Several bulbs areas have been identified along the route mainly in the grasslands, and a proposal through the LDP to encourage areas of wildflower planting will be proposed in future LDP.

A weed hotspots database has been completed and it will be used as a reference to treat and control the infested areas as well as to monitor the operations. Scrub areas will be controlled and removed where necessary always with a previous inspection of the wildlife.

Hedges, trees and other encroaching vegetation should be identified during routine inspections, in order to keep them under a safe condition, or to undertake any replacement. Dead or dying trees on the highway and adjacent land will also be identified during these inspections. Amey will continue to notify adjacent landowners on their responsibility to have dangerous trees and encroaching vegetation removed.

Woodland management operations are required despite of the recent budget restraints. There is a high infestation of *Rhododendron ponticum* especially at Junction 9 Pirnhall where a scheme to control the invasive species has been proposed through the LDP. Cyclic maintenance operations are carried out on a two week cycle for high amenity shrub beds. Most shrub beds are in a poor condition and would benefit from some remedial planting. Wetland areas exist within the trunk road boundary only at Junction 5 Cadgersbrae. This shall be inspected as necessary and any planting / thinning work carried out to both aquatic and pond edge planting through the LDP.

3.9.2 Effectiveness of Maintenance Operations and Consented Changes.

This has been generally effective and in accordance with the contract; however the route suffers from extensive weed infestation and it is clear that previous attempts to control injurious and invasive weeds have either failed or have not been included in routine maintenance in line with previous contract requirements. Grass areas are currently under review to ascertain where maintenance activities can be reduced or enhanced to improve biodiversity and visual amenity.

3.9.3 Summary of Planned maintenance Operations

- Cadgers Brae fence was completed in March 2015 and the removal of existing trees were required for access.
- Dangerous tree removal within the entire route is ongoing.

- Accident damaged trees near junction 9 at Stirling were removed in March 2016.
- Woodland management works at Linlithgow is ongoing.

3.9.4 Landscape Development Plan and Landscape Strategy Operations

The management of the Landscape Areas is in accordance with the requirements of the contract (Schedule 7 Part 4). The previous submitted LDP is still awaiting authorisation from Transport Scotland Area Route Managers.

Table 3-8 Schemes that have been completed which are included in the LDP

Route	M9	
Scheme Name	Scheme 1	Woodland Management
Location	All of Route	Various
Synopsis	Woodland is being taken over by the invasive weed Rhododendron ponticum; thinning and replanting works are required.	
Reasons for selection	To ensure the continued existence of woodland it is recommended that thinning and replanting works are carried out and that the invasive Rhododendron ponticum is controlled to help aid biodiversity.	
Cost estimate	I/D £4,500 C £30,000	
Priority rating	1 – 3 This is a rolling programme and so should be initiated in the first year of the programme.	
State of Developement	Ongoing.	
Effectiveness		

3.10 Route M80

3.10.1 General Condition of the Landscape Areas

The verges of this route are maintained under cyclic routine operations and in accordance with appendix 30/7 Grass, Bulbs and Wildflower Maintenance. Several bulbs areas have been identified along the route mainly in the grasslands, and a proposal made through the LDP to encourage areas of wildflower planting will be proposed in future LDP and LMMS reports.

A weed hotspots database has been completed and it will be used as a reference to treat and control the infested areas as well as to monitor the operations. Scrub areas will be controlled and removed where necessary always with a previous inspection of the wildlife.

Hedges, trees and other encroaching vegetation should be identified during routine inspections, in order to keep them under a safe condition, or to undertake any replacement. Dead or dying trees on the highway and adjacent land will also be identified during these inspections. Many mature trees were lost due to construction upgrading works, age, Dutch elm disease and stresses related to being close to the road. Amey will continue to notify adjacent landowners on their responsibility to have dangerous trees and encroaching vegetation removed.

Woodland areas along the route mainly consist of newly planted species within tree shelters. This was the result of the upgrading works and should still be in the establishment and maintenance period; however no details of handover dates or inventory plans have been submitted by the previous Operating Company.

3.10.2 Effectiveness of Maintenance Operations and Consented Changes.

This has been generally effective and in accordance with the contract; however the route suffers from extensive weed infestation and it is clear that previous attempts to control injurious and invasive weeds have either failed or have not been included in routine maintenance in line withpreviouscontract requirements. Grass areas are currently under review to ascertain where maintenance activities can be reduced or enhanced to improve biodiversity and visual amenity.

3.10.3 Summary of Planned Maintenance Operations

None.

3.10.4 Landscape Development Plan and Landscape Strategy Operations

The management of the Landscape Areas is in accordance with the requirements of the contract (Schedule 7 Part 4). The previous submitted LDP is still awaiting authorisation from Transport Scotland Area Route Managers.

Table 3-9 Schemes that have been completed which are included in the LDP

Route	M80	
Scheme Name	Scheme 1	Woodland Management
Location	Sheet 5	Stirling Services
Synopsis	Extensive woodland located at Stirling Services requires woodland management.	
Reasons for selection	To ensure the continued existence of the woodland thinning and possible replanting should be carried out to help aid biodiversity and maintain the landscape character.	
Cost estimate	I/D £3,500 C £5,000 x 3	
Priority rating	1 – 3 This is a rolling programme and so should be initiated in the first year of the programme.	
State of Development	To be started.	
Effectivenes		

3.11 Route M876

3.11.1 General Condition of the Landscape Areas

The verges of this route are maintained under cyclic routine operations and in accordance with appendix 30/7 Grass, Bulbs and Wildflower Maintenance. Several bulbs areas have been identified along the route mainly in the grasslands. There is a programme currently ongoing for the inspection of all routes for bulbs and wildflowers during 2016.

A weed hotspots database has been completed and it will be used as a reference to treat and control the infested areas as well as to monitor the operations.

Scrub areas will be controlled and removed where necessary always with a previous inspection of the wildlife. Hedges, trees and other encroaching vegetation should be identified during routine inspections, in order to keep them under a safe condition, or to undertake any replacement. Dead or dying trees on the highway and adjacent land will also be identified during these inspections. Many mature trees were lost due to construction upgrading works, age, Dutch elm disease and stresses related to being close to the road. Amey will continue to notify adjacent landowners on their responsibility to have dangerous trees and encroaching vegetation removed.

Woodland management operations are required despite of the recent budget restraints. There is a high infestation of Rhododendron ponticum on this route and woodland management schemes have been proposed through the LDP (see Appendix B).

3.11.2 Effectiveness of Maintenance Operations and Consented Changes.

This has been generally effective and in accordance with the contract; however the route suffers from extensive weed infestation and it is clear that previous attempts to control injurious and invasive weeds have either failed or have not been included in routine maintenance in line with previous contract requirements. Grass areas are currently under review to ascertain where maintenance activities can be reduced or enhanced to improve biodiversity and visual amenity.

3.11.3 Summary of Planned Maintenance Operations

Storm damaged trees were removed from the highway in February 2016.

3.11.4 Landscape Development Plan and Landscape Strategy Operations

The management of the Landscape Areas is in accordance with the requirements of the contract (Schedule 7 Part 4). The previous submitted LDP is still awaiting authorisation from Transport Scotland Area Route Managers.

Table 3-10 Schemes that have been completed which are included in the LDP

Route	M876	
Scheme Name	Scheme 1	Woodland Management
Location	Sheet 1	Area 2
Synopsis	Woodland management is required for the continued existence of the woodland.	
Reasons for selection	The woodland at this location requires woodland management to ensure the continued existence of the woodland and to aid biodiversity. Thinning of existing trees and possible replanting would be required for the woodland to reach its full potential. Control of the invasive Rhododendron ponticum within woodland plots is required.	
Cost estimate	I/D £3,000 C £8,000	
Priority rating	2	
State of Development	To be started.	
Effectiveness		

3.12 Route A977

3.12.1 General Condition of the Landscape Areas

The verges of this route are maintained under cyclic routine operations and in accordance with appendix 30/7 Grass, Bulbs and Wildflower Maintenance. Several bulbs and wildflowers areas have been identified along the route mainly in the grasslands. A weed hotspots database has been completed and it will be used as a reference to treat and control the infested areas as well as to monitor the operations.

Scrub areas will be controlled and removed where necessary always with a previous inspection of the wildlife. Hedges, trees and other encroaching vegetation should be identified during routine inspections, in order to keep them under a safe condition, or to undertake any replacement. Dead or dying trees on the highway and adjacent land will also be identified during these inspections.

Amey will continue to notify adjacent landowners on their responsibility to have dangerous trees and encroaching vegetation removed.

3.12.2 Effectiveness of Maintenance Operations and Consented Changes.

This has been generally effective and in accordance with the contract; however the route suffers from extensive weed infestation and it is clear that previous attempts to control injurious and invasive weeds have either failed or have not been included in routine maintenance in line with previous contract requirements. Grass areas are currently under review to ascertain where maintenance activities can be reduced or enhanced to improve biodiversity and visual amenity.

3.12.3 Summary of Planned Maintenance Operations

None.

3.12.4 Landscape Development Plan and Landscape Strategy Operations

The management of the Landscape Areas is in accordance with the requirements of the contract (Schedule 7 Part 4). The previous submitted LDP is still awaiting authorisation from Transport Scotland Area Route Managers.

Table 3-11 Schemes that have been completed which are included in the LDP

Route	A977	
Scheme Name	Scheme 1	Enhancement Planting
Location	Sheet 1	Gartarry Roundabout
Synopsis	The roundabout requires planting to aid biodiversity and improve landscape character.	
Reasons for selection	The roundabout has no planting included and would benefit from planting to improve the landscape character and the visual amenity. Safe refuges for maintenance operatives and a reduced maintenance design is required to ensure compliance with Chapter 8 Regulations.	
Cost estimate	I/D £2,500 C £15,000	
Priority rating	1	
State of Development	To be started.	
Effectiveness		

3.13 Route A985

3.13.1 General Condition of the Landscape Areas

The verges of this route are maintained under cyclic routine operations and in accordance with appendix 30/7 Grass, Bulbs and Wildflower Maintenance. Several bulbs areas have been identified along the route and added to the inventory.

A weed hotspots database has been completed and it will be used as a reference to treat and control the infested areas as well as to monitor the operations. Scrub areas will be controlled and removed where necessary always with a previous inspection of the wildlife.

Hedges, trees and other encroaching vegetation should be identified during routine inspections, in order to keep them under a safe condition, or to undertake any replacement. Dead or dying trees on the highway and adjacent land will also be identified during these inspections. Amey will continue to notify adjacent landowners on their responsibility to have dangerous trees and encroaching vegetation removed. Small areas of woodland exist along the route and these shall be inspected and if necessary a woodland management plan through the LDP will be produced.

3.13.2 Effectiveness of Maintenance Operations and Consented Changes.

This has been generally effective and in accordance with the contract; however the route suffers from extensive weed infestation and it is clear that previous attempts to control injurious and invasive weeds have either failed or have not been included in routine maintenance in line with previous contract requirements. Grass areas are currently under review to ascertain where maintenance activities can be reduced or enhanced to improve biodiversity and visual amenity.

3.13.3 Summary of Planned Maintenance Operations

None.

3.13.4 Landscape Development Plan and Landscape Strategy Operations

The management of the Landscape Areas is in accordance with the requirements of the contract (Schedule 7 Part 4). The previous submitted LDP is still awaiting authorisation from Transport Scotland Area Route Managers.

Table 3-12 Schemes that have been completed which are included in the LDP

Route	A985	
Scheme Name	Scheme 1	Roundabout Enhancement Planting
Location	Sheet 6	Admiralty Roundabout
Synopsis	The roundabout has some planting within but is untidy with brambles.	
Reasons for selection	The existing planting is located within a small area of the roundabout and has not been maintained. This has allowed brambles and other scrub to colonise and an enhancement replanting plan together with safe refuges as per Chapter 8 Regulations should be produced to aid biodiversity, improve the landscape character and the safety of maintenance operatives.	
Cost estimate	I/D £3,500 C £30,000	
Priority rating	1	
State of Development	To be started.	
Effectiveness		

4 Progress of the Pesticide Plan

The addition of more plant species to the injurious weeds list suggests that levels of herbicide use are unlikely to reduce in the near future. The previous Operating Company has failed to control invasive weeds such as Rosebay Willowherb *(Chamerion angustifolium)* throughout this route. Amey have now introduced a weed hotspot register to assist in identifying and ensuring successful treatment of weed infestations along the route.

Pesticide Records

See Appendix A

5 Performance of Contractors

Maintenance is in accordance with the contract specification.

6 New Landscape Areas

There are no new landscape areas created during the last year in any of the routes.

7 Operations to Enhance Biodiversity and Nature Conservation

No specific operations have been undertaken to date to enhance biodiversity, however in the future the following operations will support this:

- Introduction of specimen trees and wildflower areas through the LDP will enhance biodiversity. (All routes where possible.)
- Proposals to redesign the Abington Roundabouts will enhance biodiversity and reduce maintenance. (Route A702)
- The replanting of tired shrub areas shall improve the appearance of the route at strategic roundabouts and approaches enhance biodiversity, reduce maintenance and improve the landscape character of the route. (Route A720)
- Introduction of shrub planting on Tweedbank Roundabout through the LDP will enhance biodiversity and increase the visual amenity of the route. (A 6091)
- Increasing biodiversity at Melrose through scrub removal which allows beneficial ground flora and fauna to thrive. (A 6091)
- Introduction of woodland management scheme through the LDP will enhance biodiversity through replanted thinned woodland and controlling Rhododendron ponticum. (Route M8)
- Woodland management schemes will ensure that delayed thinning works and underplanting where necessary is achieved through the LDP which will enhance biodiversity and control invasive species. (All routes)
- Extent of invasive species found within woodland areas is having a devastating impact on biodiversity; however Amey plan to control invasive species and improve biodiversity through woodland management schemes. (All routes)
- Recent storms have uprooted and caused damage to a number of trees within this route. Amey have responded and removed all trees posing immediate safety concerns to the highway.
- The removal of a number of boundary trees at Polmaise due to housing development works encroaching on root protection areas. (M9)

- Introduction of shrub planting within Gartarry Roundabout shall enhance biodiversity. (A977)
- Introduction of shrub planting within Admiralty Roundabout will enhance biodiversity and improve the landscape character. (A 985)
- Two issues of encroaching vegetation have been highlighted in Kincardine, one regarding a footpath used by pedestrians and cyclists, and the other is woodland adjacent to Orchard Grove that has not been maintained since the new bypass was constructed. (A 985)

8 Unforeseen Issues and Limitations

The following detals the main issues regarding landscape maintenance on the network:

- Fast-growing tree species planted for quick-effect are maturing and encroaching on site lines and other species are being deprived of growing space. Work to fell or coppice these has been identified and these will be programmed into maintenance works. (All routes)
- Health and safety issues relating to cyclic maintenance at roundabouts are being addressed by proposed design changes to reduce maintenance and provide safety refuges and zones as necessary. Some minimal frequency cut areas should be left to develop as natural succession /nature conservation areas. These will be identified during route inspections and will be proposed in changes to grass cutting regimes in future annual LMMS reports. (All routes)
- Scottish Power will carry out tree cutting operations adjacent to existing power lines within the trunk road boundary.This work has been agreed and it will take place outwith the bird nesting season in 2016. (A7, A702)
- Hillfoots Trail Landscape Management – Investigation works carried out due to public concerns of overgrown vegetation. Scheme drawn up for completion in 2016/2017.
- Adjacent landowner vegetation gives cause for concern due the amount of dead trees and encroaching vegetation. Amey shall notify adjacent landowners on their responsibility to maintain their vegetation so it does not impact on road users. (Route A68)
- High number of dead elm trees within adjacent landowner properties. (A702)
- The infestation of injurious weeds; mainly giant hogweed (*Heracleum montegazzianum*) is a concern along the route. Amey will aim to control injurious and invasive weeds through a weed hotspot register and new methods of treatment such as disposing of the seed head before the plant sets seed. Spraying programme was carried out during 2015 for this area. (A 720)
- Fast growing tree species within this route are now causing problems for Traffic Scotland cameras. Proposals for remedial work are currently being processed. (A 720)

- Drainage problems have been highlighted in adjacent agricultural land. Amey have investigated and proposed remedial works. (A 876)
- Large areas of invasive and injurious weeds are present along the length of the route. These shall be included within the weed hotspot register where their location, control and effectiveness of control can be monitored. (M80)
- Some minimal frequency cut areas should be left to develop as natural succession /nature conservation areas. These will be identified during route inspections and will be proposed in changes to grass cutting regimes in future annual LMMS reports. (M80)
- Two issues of encroaching vegetation have been highlighted in Kincardine, one regarding a footpath used by pedestrians and cyclists, and the other is woodland adjacent to Orchard Grove that has not been maintained since the new bypass was constructed. (A 985)

9 Details of significant amendments to the landscape inventory in IRIS (Integrated Roads Information System)

A visual inspection for invasive species was carried out along the Unit during the summer of 2015 and all the main areas of infestation are now recorded in IRIS. This is also the Injurious Species Hotspot Database.

A visual inspection was undertaken along the Unit in March and April of 2016 to record any new area where bulbs and wildflowers are growing, and this has also been recorded in IRIS.

10 Additional Information

10.1 Injurious Species Report and Management Plan

See Appendix A

10.2 Pesticide Plan

See Appendix B

10.3 Deer Management Plan

See Appendix C

10.4 Road Kill Records Summary

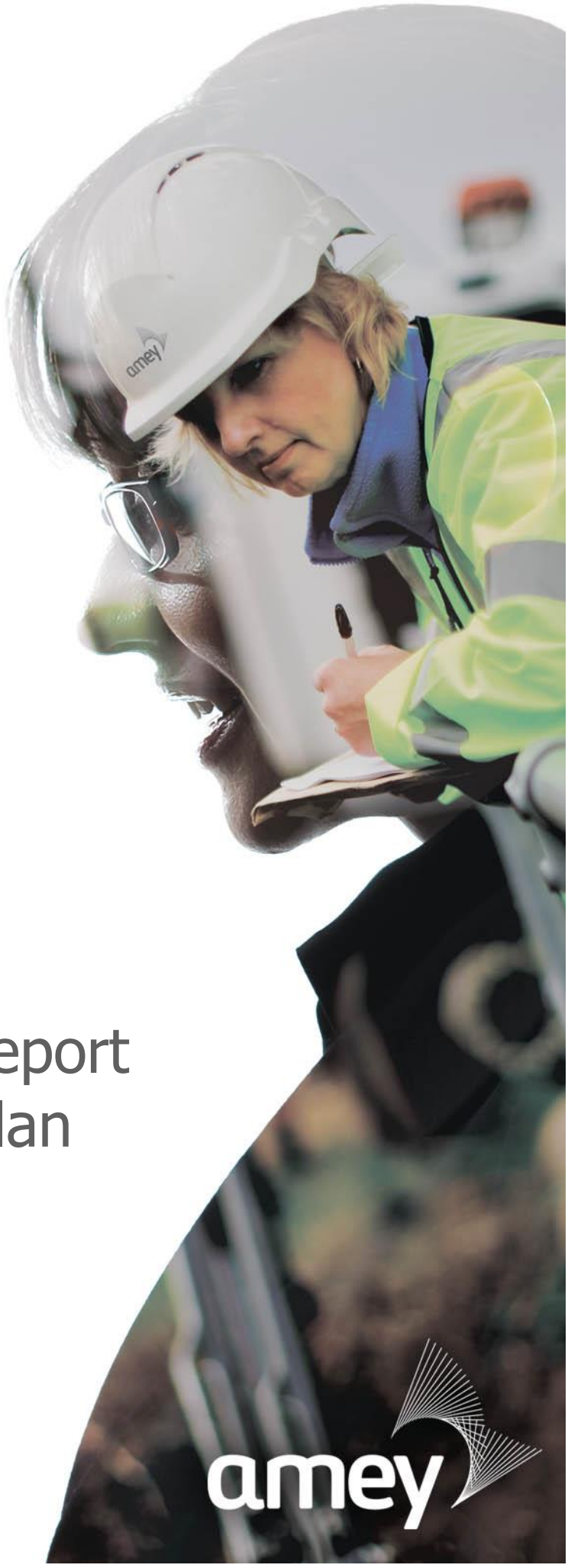
A summary of the road kill records per route is provided in Appendix D.

10.5 Grassland Report

See Appendix E

11 Appendix A Injurious Species Report and Mangement Plan

TRANSPORT SCOTLAND



Injurious Species Report and Management Plan

STRU South East

STRU SE /ALMR 02 APP A Revision 01

May 2016

INVESTORS IN PEOPLE | Gold

INVESTORS IN PEOPLE | Champion

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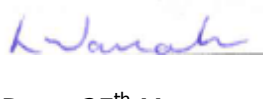
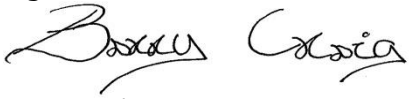
Document Control Sheet

Project Name:	STRU South East
Project Number:	STRU SE
Report Title:	Injurious Species Report and Management Plan
Report Number:	ALMR 02 APP A

Issue Status/Amendment	**Prepared**	**Reviewed**	**Approved**
Rev01	Name: Ian Bennett Signature:  Date: 23rd May 2016	Name: Lois Warnock Signature:  Date: 25th May 2016	Name: Barry Craig Signature:  Date: 27th May 2016
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Contents

Introduction

This document provides an injurious species report for the trunk roads within the 4th Generation Term Contract for Management and Maintenance of the Scottish Trunk Road Network South East Unit (Schedule 3, part 2) as identified below:

- A1 West of A720 Old Craighall Junction, Edinburgh to National Boundary
- A7 Kingsknowe Roundabout, Galashiels to National Boundary
- A68 from A720 Millerhill Junction, Edinburgh to National Boundary
- A702 from A720 Lothianburn Junction, Edinburgh to M74 Junction 13, Abington
- A720 from A1 Old Craighall, Edinburgh to North of M8 J1 Hermiston
- A876 Bowtrees Junction to Kilbagie Roundabout
- A6091 from A7 Kingsknowe Roundabout, Galashiels to A68 Ravenswood Roundabout, Melrose
- M8 J1 Hermiston to M8 DBFO East of Newhouse (J6)
- M9 J1 Newbride to A9 Keir Roundabout, Dunblane
- M80 East of J7 (J4) Haggs to M9 J9 Bannockburn
- M876 from M80 J5 Bankhead to A876
- A977 from A985 Longannet Roundabout to Gartarry Roundabout
- A985 Higgins Neuk Roundabout to M90 J1 Admiralty

All information recorded for injurious weeds can be viewed within the Integrated Road Information System (IRIS).

1 Injurious Species

1.1 Injurious Species List

The list of injurious weed species that are to be controlled are contained in the MCDHW Series 3000 sub-clause 3002.1. with the addition of Oil Seed Rape, Rosebay Willowherb and Rhododendron Ponticum.

Injurious weed species shall include:

- Spear Thistle (*Cirsium vulgare*)
- Creeping Thistle (*Cirsium arvense*)
- Curled Dock (*Rumex crispus*)
- Broad Leaved Dock (*Rumex obtusifolius*)
- Common Ragwort (*Senecio jacobaea*)
- Giant Hogweed (*Heracleum mantegazzianum*)
- Japanese knotweed (*Fallopia japonica)*
- Oil Seed Rape (*Brassica Napus*)
- Rosebay Willowherb (Chamaenerion angustifolium)
- Himalayan Balsam (*Impatiens glandulifera*)
- Rhododendron (*Rhododendron ponticum*)

1.2 Injurious Species – Characteristics/Control Methods

Species	Characteristics	Control Methods
Spear Thistle 	• Seedling plants appear from autumn until April • Biennial – flowers in second year • Purple flowers from July • Spreads only by seed	• Herbicide Spraying either selective or non – selective depending on site • Cutting before July will prevent seed spread but may promote later flowering
Creeping Thistle 	• Perennial plant • Dark pink/purple flowers from July to September • Spreads by creeping roots and airborne seeds	• Herbicide Spraying either selective or non – selective depending on site • Cutting top growth before flowering over several years may reduce spread
Curled Dock 	• Perennial plant but can also behave as biennial or annual • Flowers in early June • Spreads by seed and by vegetative regeneration of underground organs	• Herbicide Spraying either selective or non – selective depending on site • Cutting before mid-June will prevent the spread of viable seed, but will not kill the plant and may promote later flowering

Species	Characteristics	Control Methods
Broad Leaved Dock 	• Perennial plant • Flowers late June • Spreads by seed and by vegetative regeneration of underground organs	• Herbicide Spraying either selective or non – selective depending on site • Cutting before mid-June will prevent the spread of viable seed, but will not kill the plant and may promote later flowering
Common Ragwort 	• Native biennial that can become perennial if cut • This native plant supports many species of wildlife • Bright yellow flowers from late June • The plant contains Pyrrolizidine Alkaloids which are highly toxic to a range of animals including horses and cattle	• Herbicide Spraying either selective or non – selective depending on site • Pulling can be effective if plants are moved offsite • Biological control using the Cinnbar Moth is in the early stages of development in the UK

Species	Characteristics	Control Methods
Giant Hogweed 	• Non- native biennial or perennial that can reach over 3 metres in height • Chemicals in the sap can cause severe skin irritation and blistering • The flowers are white and held in umbels. They appear from late June • Spread by seed, which may remain in the soil for up to 15 years • The plant has thick bristly stems that are often purple blotched	• Herbicide Spraying either selective or non – selective depending on site • Cutting before mid-June will prevent the spread of viable seed, but will not kill the plant and may promote later flowering • Cutting the rootstock at least 10cm to 15cm below ground in March/April can be effective. Young seedlings which appear during the growing season can be hoed

Species	Characteristics	Control Methods
Japanese Knotweed 	• Non-native tall herbaceous perennial with bamboo like stems • Flowers in late summer. Seed is non-viable in the UK • Spread by either fragments of stem or rhizomes (underground root stems) • Can cause structural damage and grow through various surfaces including asphalt	• Herbicide Spraying either selective or non – selective depending on site • Repeated cutting throughout the season for several years may achieve eradication • Biological control using a plant sucker(psyllid) from Japan is currently being tested in the UK and may provide some control
Oil Seed Rape 	• Annual/biennial plant from the cabbage family • Bright yellow flowers from May to August • Spread by seed • Rapeseed is grown to produce animal feeds, biodiesel and vegetable oils	• Herbicide Spraying either selective or non – selective depending on site

Species	Characteristics	Control Methods
Rosebay Willowherb 	• Perennial plant introduced from N. America • Tall plant with pink flower spikes from June, followed by fluffy seed heads • Spread by seed and creeping, fleshy white rhizomes	• Herbicide Spraying either selective or non – selective depending on site • Can be controlled by repeated cutting before seed set
Himalayan Balsam 	• Annual plant native to the Himalayan region of Asia • Can grow to 2 or 3 metres in height • Flowers from June in purple, pink or white helmet shaped flowers • Spread by seed which can be viable for around 2 years • Tends to grow in dense stands along river banks and can impede flow at times of high rainfall	• Herbicide Spraying either selective or non – selective depending on site • Pulling or cutting plants before they flower and set seed can be effective

Species	Characteristics	Control Methods
Rhododendron ponticum 	• Large evergreen shrub with leathery leaves, native to south – west Europe and south – west Asia • Often grows in ecologically sensitive habitats, such as heath, broad-leaved woodland and dunes • Dense growth can considerably alter the structure of the habitat • Flowers are usually pink/purple and occasionally white • Spread by seed	• Cut mature plants and spray stumps with herbicide • Herbicide spraying on foliage of plants below 1.3 metres, either selective or non – selective depending on site • Hand pulling new seedlings • Stem injection of mature plants

2 Infestation

2.1 Extent of Infestation

Large areas of injurious weeds are present along all routes within the Scottish Trunk Road Network South East Unit. There will now be a residual seed/rhizome bank within the network, resulting in injurious weed infestations recurring throughout the duration of this contract and beyond.

Environmentalists at Amey have now identified 1,497 individual areas of injurious weed infestations throughout the South East network. Information on all these areas can be located within the Integrated Roads Information System (IRIS).

In addition to the IRIS information on injurious weed infestations, Amey have produced a weed hot spot register for each route within the South East network. An example of the M9 route is shown in Appendix A.

2.2 Route Infestation

Route	Injurious Species	No. of Recorded Infestations
A1	Giant Hogweed	15
	Rosebay Willowherb	82
	Japanese Knotweed	01
	Common Ragwort	37
A7	Rosebay Willowherb	53
	Common Ragwort	03
A68	Common Ragwort	03
	Rosebay Willowherb	83
	Himalayan Balsam	01

Route	Injurious Species	No. of Recorded Infestations
A702	Giant Hogweed	01
	Rosebay Willowherb	42
	Japanese Knotweed	01
	Common Ragwort	02
A720	Giant Hogweed	26
	Rosebay Willowherb	48
	Japanese Knotweed	02
	Common Ragwort	05
A876	Rosebay Willowherb	01
	Common Ragwort	04
	Spreading Thistle	17
A6091	Rosebay Willowherb	12
	Common Ragwort	01
M8	Giant Hogweed	31
	Rosebay Willowherb	296
	Japanese Knotweed	03
	Common Ragwort	06
	Rhododendron ponticum	03
M9	Giant Hogweed	16
	Rosebay Willowherb	419
	Japanese Knotweed	01
	Common Ragwort	02

Route	Injurious Species	No. of Recorded Infestations
M80	Rosebay Willowherb	30
	Giant Hogweed	02
	Japanese Knotweed	04
M876	Rosebay Willowherb	48
	Common Ragwort	03
	Rhododendron ponticum	13
A977	Rosebay Willowherb	17
	Common Ragwort	04
	Spreading Thistle	10
	Broad Dock	07
A985	Rosebay Willowherb	68
	Common Ragwort	13
	Spreading Thistle	55
	Broad Dock	02
	Giant Hogweed	03
	Spear Thistle	01
	TOTAL	1,497

2.3 Management, Monitoring and Review

- Identification, recording and review of areas of known infestation (hot spots).
- The effectiveness of control measures will be monitored by assessing the reduction in areas of infestation hot spots.
- Regular assessment of trial plots like the A720 Edinburgh Bypass where levels of infestation are high.
- Identifying injurious plant management priorities based on health and safety, ecology and land-use within the network.

Appendix A Weed Hot Spot Register

STRU SE - INVASIVE SPECIES										
High Density =			Medium Density =			Low Density =		Unrecorded Density =		
INVENTORY No. & STRIP PLAN		ROUTE	SPECIES	Owner	Area (m²)	Density	Adjacent Infestation	Date Of Inspection	IRIS Road Section	IRIS UID
1	M9 Sheet 2/w2	M9	Rosebay Willowherb	Scottish Ministers	70	Low	None	18/06/2015	M9 - 10307/10	1064567
2	M9 Sheet 2/w2	M9	Rosebay Willowherb	Scottish Ministers	40	Low	None	18/06/2015	M9 - 10307/10	1064568
3	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	Low	None	18/06/2015	M9 - 10307/10	1064569
4	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	60	Med	None	18/06/2015	M9 - 10307/26	1064570
5	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	35	Low	None	18/06/2015	M9 - 10307/26	1064571
6	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10307/26	1064576
7	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	10	Med	None	18/06/2015	M9 - 10307/26	1064572
8	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	15	Med	None	18/06/2015	M9 - 10307/26	1064573
9	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	20	Low	None	18/06/2015	M9 - 10307/33	1064574
10	M9 Sheet 3/w3	M9	Rosebay Willowherb	Scottish Ministers	130	Med	None	18/06/2015	M9 - 10307/46	1064577
11	M9 Sheet 3/w3	M9	Rosebay Willowherb	Scottish Ministers	30	Low	None	18/06/2015	M9 - 10307/62	1064578
12	M9 Sheet 3/w3	M9	Rosebay Willowherb	Scottish Ministers	50	Med	None	18/06/2015	M9 - 10307/62	1064579
13	M9 Sheet 3/w3	M9	Rosebay Willowherb	Scottish Ministers	30	Med	None	18/06/2015	M9 - 10307/62	1064580
14	M9 Sheet 3/w3	M9	Rosebay Willowherb	Scottish Ministers	50	Med	None	18/06/2015	M9 - 10307/62	1064581
15	M9 Sheet 3/w3	M9	Rosebay Willowherb	Scottish Ministers	85	Med	None	18/06/2015	M9 - 10307/62	1064582
16	M9 Sheet 4/w1	M9	Rosebay Willowherb	Scottish Ministers	50	Low	None	18/06/2015	M9 - 10307/76	1064584
17	M9 Sheet 4/w2	M9	Rosebay Willowherb	Scottish Ministers	20	Low	None	18/06/2015	M9 - 10307/76	1064585
18	M9 Sheet 4/w3	M9	Rosebay Willowherb	Scottish Ministers	20	Low	None	18/06/2015	M9 - 10307/76	1064586
19	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10307/76	1064587
20	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10308/00	1064588
21	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10308/00	1064589
22	M9 Sheet 5/w2	M9	Rosebay Willowherb	Scottish Ministers	10	Low	None	18/06/2015	M9 -10308/45	1064592
23	M9 Sheet 5/w2	M9	Rosebay Willowherb	Scottish Ministers	10	Low	None	18/06/2015	M9 -10308/45	1064593
24	M9 Sheet 5/w2	M9	Rosebay Willowherb	Scottish Ministers	75	Med	None	18/06/2015	M9 -10308/45	1064594
25	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 -10308/45	1064595
26	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 -10308/45	1064596
27	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 -10308/45	1064597
28	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 -10308/45	1064598
29	M9 Sheet 5/w3	M9	Japanese Knotweed	Scottish Ministers	20	Low	Low	18/06/2015	M9 -10308/45	1064599
30	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 -10308/45	1064600
31	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 -10308/45	1064600
32	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10309/00	1064601
33	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10309/00	1064602
34	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10309/00	1064603
35	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10309/00	1064604
36	M9 Sheet 6/w2	M9	Rosebay Willowherb	Scottish Ministers	90	Med	None	18/06/2015	M9 - 10309/00	1064605
37	M9 Sheet 6/w2	M9	Rosebay Willowherb	Scottish Ministers	10	Med	None	18/06/2015	M9 - 10309/00	1064606
38	M9 Sheet 6/w2	M9	Rosebay Willowherb	Scottish Ministers	8	Med	None	18/06/2015	M9 - 10309/00	1064607
39	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10309/00	1064608
40	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10309/00	1064609
41	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10309/00	1064610
42	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10309/00	1064611
43	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10309/00	1064612
44	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10309/21	1064613
45	M9 Sheet 2/w3	M9	Rosebay Willowherb	Scottish Ministers	80	High	None	18/06/2015	M9 - 10309/21	1064614
46	M9 Sheet 6/w3	M9	Rosebay Willowherb	Scottish Ministers	40	Low	None	18/06/2015	M9 - 10309/21	1064615
47	M9 Sheet 6/w3	M9	Rosebay Willowherb	Scottish Ministers	40	Low	None	18/06/2015	M9 - 10309/21	1064616

12 Appendix B Pesticide Plan

12.1 Introduction

This Pesticide Plan has been prepared in accordance with the 4th Term Contract for the Management and Maintenance of the Scottish Trunk Road Network South East Unit.

12.2 Contract requirements

The requirements for weed control are contained in MCDHW Series 3000 Clause 3002 and Appendix 30/2.

Where weed control is required, the following methods may be used:

- Contact, translocated or residual herbicide in hard surfaces
- Translocated herbicide during site preparation and near water
- Selective herbicide in verges
- Hand weeding
- Cutting

12.3 Pesticide Records:

Table 13 Pesticides Used Within SE Unit

Year	**2015/2016**	
Product	**Active Ingredient**	**Use**
Amenity Glyphosate 360	Glyphosate	Weed control to tree and shrub planted areas. Total weed control in 'hard' areas. Spot treatment of Injurious Weeds in grass.
Hedland Guard	Adjuvant	Reduce spray drift and ensure greater coverage of the leaf surface. Also improving rainfast properties of the chemicals applied.
Hedland Foam Free	Silicone based	Reduces foaming of application mixes.

Table 14 Pesticide use Per Route

Route	Total volume (l)
A1	4100
A7	800
A68	1250
A702	650
A720	2540
A876	850
A6091	200
M8	3400
M9	3410
M80	2100
M876	2340
A977	200
A985	750

It should be noted that due to the increase in treating both invasive and injurious weeds and the level of infestation which was evident during handover of the South East network from the previous Operating Company to Amey; together with the increase in applying pesticides to chipped areas it is unlikely that the volume of pesticides used will decrease over the next few years.

12.4 Proposed targets for the potential reduction of pesticides.

- Chemical reduction may be achieved through greater calibration techniques, the use of the correct spray nozzle and application in the right conditions. In general chemical application has been more effective which has reduced the requirement to complete further treatments on areas where treatment has not been successful.
- For Giant hogweed: Cutting before mid-June will prevent the spread of viable seed, but will not kill the plant. Repeated cutting throughout the season for several years may achieve eradication.

- For Japanese Knotweed: Repeated cutting throughout the season for several years may achieve eradication.
- Focusing the action in the main areas recorded in the Weed Hotspot Database, and keeping regular visual inspections during the growing season in order to always count with updated information.

13 Appendix C Deer Management Plan

13.1 Background

This Deer Management Plan has been formulated in accordance with the STRU SE contract, Annex 7.4 B as well as the provisions of The Code of Practice for Deer Management. This plan will set out recommended actions to allow sustainable deer management, to make provisions for collaboration between landowners, managers and the operating company, and to ensure that deer welfare is safeguarded whilst protecting the public.

13.2 Legislation

13.2.1 Deer (Scotland) Act 1996:

All deer in Scotland are protected under this act. The offences include;

- It is illegal to kill deer by means other than shooting;
- Currently there are close seasons during which deer cannot be shot;
- Only certain types of guns and ammunition may be used.

Scottish Natural Heritage can authorise the killing of deer during the closed seasons as an emergency measure to protect against serious damage. In some circumstances, occupiers of land can take action, without authorisation, to prevent serious damage to crops, pasture or woodland.

13.2.2 The Wildlife & Natural Environment (Scotland) Act 2011 (the "WANE Act")

This act is a substantial piece of legislation in regard to land management issues. This Act amends certain legislation including the Wildlife and Countryside Act 1981 and the Deer (Scotland) Act 1996.

The Act modernises game laws, introduces new wildlife offences (including vicarious liability), amends current arrangements for deer management and deer stalking etc. Part 3 of the act focuses on deer management.

13.2.3 The Code of Practice for Deer Management

The Code of Practice for Deer Management ('the Code') was introduced by the Wildlife and Natural Environment (Scotland) Act 2011. The Code applies to all landowners and managers of land where wild deer are found which includes areas within the trunk road boundary. The fundamental objective of the Code is to set out recommended action for sustainable deer management and to make provision for collaboration between landowners and managers, thereby ensuring that any negative impacts of deer on the public interest are minimised as far as practicable and that deer welfare is safeguarded.

A sustainable approach should be adopted in order to achieve the following aims as set out by the Code:

- To deliver the best combination of benefits for the economy; environment, people and communities on any area of land;
- To take other land users into account;
- To be able to adapt to changing circumstances;
- To safeguard deer welfare; and
- To ensure future generations will also be able to enjoy the benefits of deer and deer management.

13.3 Deer species in Scotland

There are two types of native deer in Scotland - Red deer *Cervus elaphus* and Roe deer *Capreolus capreolus* and two introduced species Fallow *Dama dama* and Sika deer *Cervus nippon*. Red deer are Britain's largest native land mammal and are distributed across much of northern Scotland, Argyll, the Trossachs and Galloway. Roe deer are the most widely distributed species of deer in Scotland, occurring in every 10 square kilometre with the exception of some islands. Sika deer are native to Asia and were introduced to British parks in 1860. They escaped and have now become established in mainland Scotland, occupying more than 40% of the red deer range. They are genetically closely related to red deer and hybrids occur. Fallow deer were introduced from the Mediterranean to England, possibly during the 11th or 12th centuries, and they now have a limited range in Scotland.

13.4 Deer populations in SE Scotland

The British Deer Society has been collecting survey data using a standard protocol with data stored as geographical coordinates for each 10km square where at least one sighting of each species has been reported. The resulting Deer distribution Survey 2011 gives an estimate of the deer species present on the SE network;

- Red deer- fairly sparse
- Sitka deer- sparse
- Fallow deer -sparse
- Roe deer – common

13.5 Deer collision hotspots

The collision data was obtained via the Project Leader of the DI/SNH National Deer Vehicle Collisions Research, and is part of a larger Deer Vehicle Collisions monitoring project in Scotland. See Figure 1.1.

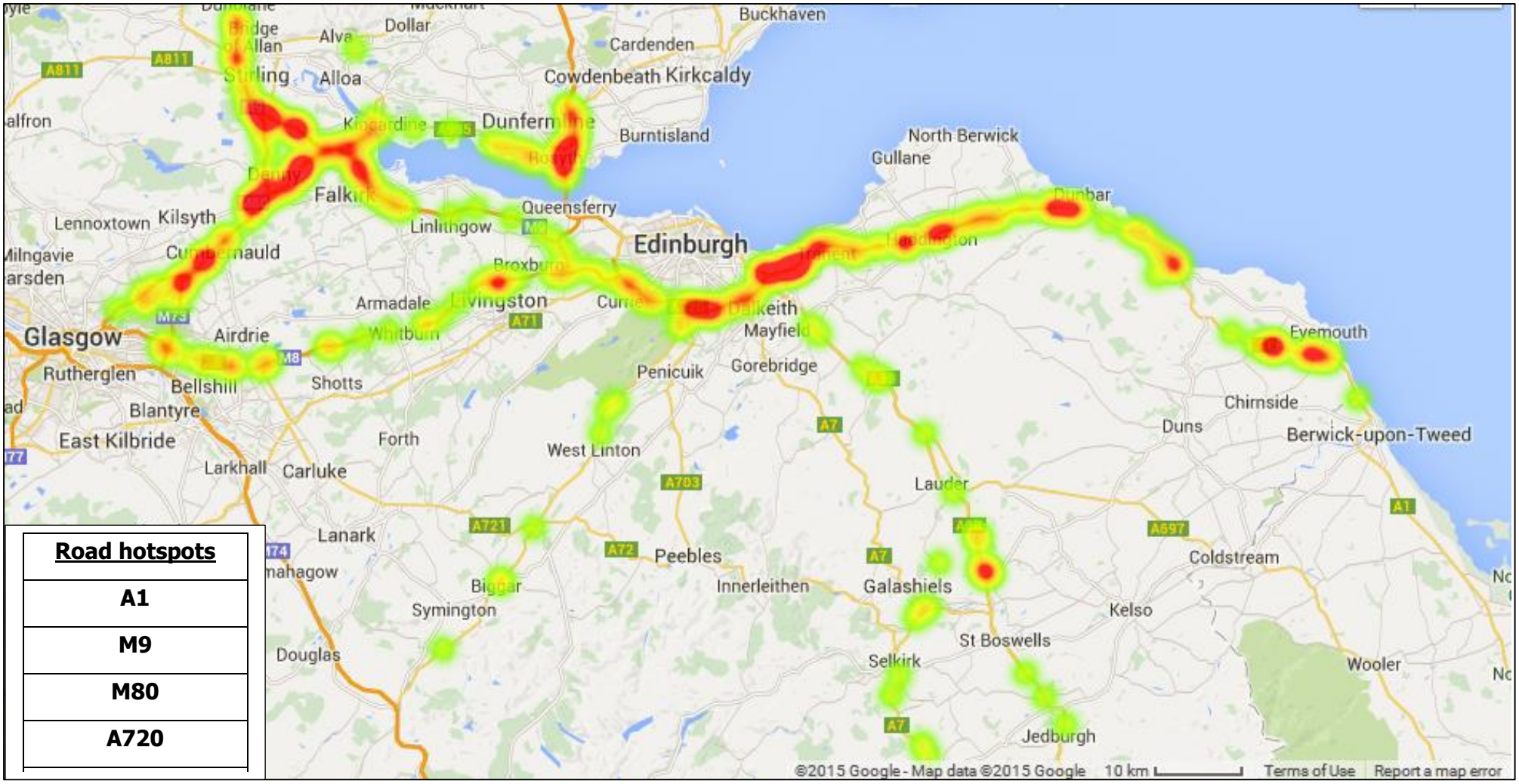


Figure 1.13-1 Hotspots of deer collisions on the SE trunk roads (between2012-2014).

13.6 Identifying the need for deer management

As deer have no natural predators sustainable population management needs to be in place to limit their potential impacts on crops, woodland regeneration and biodiversity and to prevent road traffic accidents.

13.7 Overall strategy

The Code is based on the guiding principles identified in Scotland's Wild Deer: A National Approach. These principles promote wild deer management which;

- Integrates deer management and other land-use objectives;
- Uses collaboration to achieve management objectives;
- Uses a geographic scale and timescale best suited to achieving the management objectives;
- Engages and communicates with all relevant interests;
- Uses sound science and the best available evidence;
- Promotes deer welfare.

The Actions are divided into four themes;

- Ensure that wild deer welfare is safeguarded;
- Protect and enhance the environment;
- Support sustainable economic development;
- Support social well-being.

13.8 Part A

13.8.1 Amey's Strategy – General mitigation measures

Ensure that wild deer welfare is safeguarded

Amey will achieve this by;

- Ensuring network operatives and landowners are aware of, and compliant with the relevant legislation and policies;
- Report any incidences of wildlife crime.

Protect and enhance the environment

Amey will achieve this by;

- Providing new habitat to compensate for areas that have been lost;
- Installing tree guards or fencing to protect newly planted woodland or designated areas.

Support sustainable economic development

Amey will achieve this by;

- Increasing the value of deer management activities

Support social well-being

Amey will achieve this by;

- Provide information on deer hotspots, and encourage people to understand more about wild deer and their management;
- Liaise with local communities e.g. through community councils to keep them informed of local deer management activities;
- Report any suspected incidences of wildlife crime and help contribute to initiatives to tackle wildlife crime.

Specific mitigation measures

Deer collision hotspots

In high risk areas for deer collision (Figure 1.1) the following measures will be considered by Amey, and implemented if required;

- Deer warning signs and speed limit if applicable– Particularly at junctions;
- Deer fencing leading to crossing points;
- Vegetation management. For example keeping vegetation short on roundabouts and road verges discourages deer from that area, and planting trees back from the carriageway;

Prior to these measures being implemented consultation will be sought from Scottish Natural Heritage (SNH) and landowners.

13.8.2 Part B

Over the course of the year, road kill records reported to the Operating Company have indicated that the A1 route remains the key hotspot for deer vehicle collisions. The current strategy and mitigation measures identified should be developed in relation to the routes where the highest number of collisions is being reported. Table 1.1 below identifies the routes where development of schemes should be prioritised.

Table 13:1 Route priority

Route	Priority
A1	1
M9	2
M876	2
A68	3
M8	4
A720	4
A985	4
A876	5
A7	5
M80	6
M90	7
All others	8

13.9 References

The Code of Practice on Deer Management (2011). Scottish Natural Heritage.

Langbein. J. (2011). Deer vehicle collisions in Scotland Monitoring Project 2008-2011. The Deer Initiative.Ltd. 2011.

Langbein, J. and Putman, R. J. (2006). National Deer-Vehicle Collisions Project : Scotland 2003-2005. Final report to Scottish Executive. The Deer Initiative, Wrexham.

Putman, R.J., Langbein, J. & Staines, B.W. (2004). Deer and Road Traffic Accidents: A review of mitigation measures costs and cost-effectiveness. Deer Commission Scotland.

SNH (2008). Scotland's Wild Deer – A National Approach. SNH 2008.

National Deer Vehicle Collisions Project: http://www.deercollisions.co.uk/index.html

Wild Deer Best Practice Guidance: http://www.bestpracticeguides.org.uk/

14 Appendix D Road Kill Data

The road kill data for the Unit is provided from a constantly updated database of road kill incidents reported to Amey.

Table 14-1 **Summary of the Road Kill for all the routes on this contract as recorded from March 2015.**

	Animals								
Routes	Fallow deer	Deer (Unknown)	Fox	Badger	Dog	Cat	Otter	others	**total**
A1	8	29	11	16		1	1	1	67
A7	1	6	1	4				1	13
A68		8		7					15
A702			1	2				1	4
A720	1	6	22	11	2	2	1	1	46
A876	2	1							3
A6091									
M8	1	9	5	4	3			2	24
M9	3	21	11	7	1	4		4	51
M80		3	1	1					5
M876	2	9	1	1					13
A977									
A985	2	6	1						9
total	20	98	54	53	6	7	2	10	250

The table above shows a summarised version of the database, contemplating the numbers for the main species of animals that have been found on the routes and reported to Amey. The majority of the animals found on the routes are deer (unspecific) and fallow deer, followed by foxes and badgers. Rabbits, otters, hedgehogs and different kinds of birds (including swans and birds of prey) appear in much lower numbers and all together they represent the entire spectrum of wild species that are reported. Domestic animals are less commonly found in the routes, and they are mainly dogs, cats, and horses.

The route with a major number of road kills reported is the A1, and this probably relates to the length of the route and its heavy traffic. It is followed in numbers by the M9 and the A720. The routes with lowest numbers of road kill data are the A876 and the A702. It is particularly remarkable the relationship between the numbers of road kill records from the A720 and on other routes like the A68 or the A7. The A720 is not a very long route and it runs around urban areas where wildlife would not be expected to be as numerous as in routes like the A68 or the A7, which present much lower number of road kill incidents reported. This is most likelt attributed to the level of traffic on these routes, so the possibility for road kills increase, but also its proximity to Edinburgh and user numbers probably lead to a larger number of reported road kills in comparison with the A68 or A7.

In these routes, the numbers of road kills are remarkably low, considering their length and the fact that they run though much wilder areas than the A720. This probably means that not all the road kill incidents on these roads are reported, as the traffic is less frequent.

The total number of recorded road kills for the last year is 250, which means around 21 road kills occur per month on the whole Unit. The extent of the wildlife mitigation measures within the Unit is not completely known since the contract was handed over from the previous OC, but some of them are recorded in IRIS:

- In the M8: 4 Badger tunnels, badger fencing and a newt conservation area around Junction 2 with the M9. In the last inspection, these elements didn't present clear signs of having been used, but considering this is the busiest road of the whole Unit, it seems quite likely that this mitigation measures are working properly, because there were 4 badgers reported during the year and this is quite a low number in comparison with other routes.

- In the A1: Deer fences with electric wire, chain link fence around wet woodland, rabbit fences, a wildlife tunnel and some recently planted saplings in fenced areas. In this route the efficacy of the measures seems more questionable, because it is the route with the largest number of road kill.

- In the A7: there are 3 deer warning signs and some recently planted saplings in tubes.

- In the A6091: there are four badger tunnels in this route, but there are no records in the database for this route.

15 Appendix E Grassland Report

TRANSPORT SCOTLAND

Grassland Report

STRU South East

STRU SE /GR 02 Revision 01

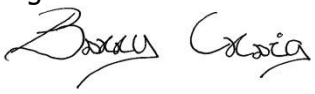
May 2016

INVESTORS IN PEOPLE | Gold

INVESTORS IN PEOPLE | Champion

Document Control Sheet

Project Name:	STRU South East
Project Number:	STRU SE
Report Title:	Grassland Report
Report Number:	GR 02

Issue Status/Amendment	**Prepared**	**Reviewed**	**Approved**
Rev 01	Name: Oa Bescos Signature:  Date: 13/05/2016	Name: Lois Warnock Signature:  Date: 25/05/2016	Name: Barry Craig Signature:  Date: 27/05/2016
	Name: Signature: Date:	Name: Signature: Date:	Name: Signature: Date:
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Contents

Tables

1 Introduction

Grassed areas, in the various categories recorded, make up the largest single landscape element within the trunk road boundary and the management and maintenance of these areas requires the commitment of a considerable level of resource during each annual period.

This document provides an overview of the broad condition of the grassed areas within the Unit, and ensures that the appropriate maintenance operations undertaken meet the objectives of the area as recorded in the Landscape Strategy for the 4th Generation Term Contract for Management and Maintenance of the Scottish Trunk Road Network South East Unit (Schedule 3, part 2).

1.1 General Objectives

1.1.1 Safety:

This relates to general safety of the road network for users and also to safety regarding maintenance operations.

The vegetative growth must not impede:

- Sight lines at junctions, access points and bends
- Visibility signs and signals
- Footways and accesses.

The maintenance operations programme has to comply with the general health & safety measures, but also through the introduction of certain changes in the character of the grasslands (like areas left to naturalise with wildflowers) maintenance activities can be reduced and this can be considered in areas where the maintenance of the sward would result in operatives being at significant risk.

1.1.2 Integration within the wider landscape

This objective is to enhance the "sense of place" and to provide character to the landscape in the Unit. The features of the grassed areas in the verges and embankments of the routes should integrate with the features of the adjacent land, as well as being maintained in a way that favours the enjoyment of the landscape as a whole.

1.1.3 Encouragement of Ecological Diversity

The grassed areas on the verges and embankments play a main role in the biodiversity of the routes such as:

- Possibility of providing the right conditions for different native herbaceous species to grow (including several species of native orchids), and
- Potential value as corridors and shelter for small mammals and invertebrates in extensive agricultural lands.

The maintenance management is a decisive factor on the biodiversity of the grasslands, so this objective should be given full consideration at every stage of Landscape Management and especially when developing opportunities for improvement.

1.1.4 Visual Interest and Amenity

This objective relates to road users and those people living close to the network.

The road verges are highly visible and directly influence how the public perceive each route. A well maintained strip of swathe is the most direct way in which the grasslands can provide visual amenity to the roads, but there are other opportunities for grassland areas to meet this objective such as:

- Areas where bulbs or wildflowers are growing in the verges (bulbs like daffodils are appreciated by the public, but they are not as good for pollinators and do not provide the biodiversity value that native wildflowers, like cowslips do.)
- Junctions or roundabouts with large areas of grass where alternative planting could be introduced to add some visual interest and also reduce the maintenance. Wildflower seed mixes are especially advisable for encouraging wildlife and reducing maintenance, but other options like slow growing varieties of grass or different types of ground cover plants like sedums would also reduce maintenance and provide great visual amenity.

2 General description

The grassland areas within the verges and embankments of the routes form an almost continuous feature that is interconnected throughout the unit. These grassed areas are the front line adjacent to the carriageways, and are directly exposed to pollution coming from the network. This is generally evident from the condition of these areas as they act as an environmental buffer for the areas beyond.

Apart from areas that are maintained on a low, medium or high regime (like verges, bus stops, laybys and junctions etc) the rest of the grassland areas within the unit are defined within the "general grass" or "rough grassland" category.

Details on the condition of these areas are provided under each route as the Unit is too large geographically to consider in general.

3 Specific route areas

3.1 A1 West of A720 Old Craighall Junction, Edinburgh to National Boundary

3.1.1 Any local specific objective

The main local objective for this route is the reduction of giant hogweed. There are high density infestations of giant hogweed along the route.

3.1.2 Description of the grassland features

Table 1 - Grassland Features A1

Grassland Features	Description
Specific Grassland areas	This is a long route that runs through different kinds of landscapes. The condition of the grassed verges is characteristic of the surrounding landscape, which mainly comprises of arable farmland valleys, hills (where the route passes through steep embankments) or coastal. There is a high volume of traffic on this route and the verges are exposed to its effects.
Current maintenance regime	According to the calendar of activities for 2016, the central reservation, slip roads and verges are maintained on a low frequency basis with 3 cuts per year. In the village of Grantshouse there is an area of medium frequency cut, with 7 cuts per year. According to the Cyclic programme, all laybys, bus stops, junctions and roundabouts are also maintained on a medium frequency regime with 7 cuts per year. This programme also includes a low maintenance regime with 1 cut per year for the wide areas. Weed control operations are undertaken twice per year in kerbs, filter drains and central reservations, in the period from April to October.

Grassland Features	Description
Issues arising from current maintenance regime	 There are several areas along the route where gorse is spreading through the grass areas and encroaching into the verges (close to Abbotsview Roundabout) and also some areas were the hedges are overgrown. The giant hogweed growing at the north end of the road suggests that continuing pesticide treatments are one of the principal requirements on the route. 
High amenity grass areas	None along this route.
Amenity grass areas	There is an area of amenity grass within the village of Grantshouse. This is a wider grassed verge on the southbound carriageway of the route that separates the settlement from the road.
General grass	Most of the grassland areas along this route fall under this category. This applies to all the grassed verges that are under a low maintenance regime. The condition of these areas varies along the route, but issues like erosion and the presence of weeds are common.
Rough grass	These are all the areas of unmanaged grass that are beyond the maintained strip. They are often partly encroached by gorse and bramble, different herbaceous plants and also invasive species.

Grassland Features	Description
Specific issues	 There are areas with a high density population of giant hogweed close to Old Craighall Roundabout. Erosion of the soil is an issue along the route and this has a direct effect on the quality of the swathe. The erosion seems to be caused by pollution from the road, but also from the quality of the soil itself.
Sward health	Sward health is variable along the route.  Within flat verges it appears in a very poor condition: the grass is very sparse and the growth is weak, quite often yellowing. The edge of the verge presents signs of being sprayed with pesticide, affecting the grass, leaving patches of bare ground that leave room for other species to grow, mainly weeds. The ground shows signs of salt splashing, erosion or compression. Litter is also present in the verges, especially on the laybys. In large laybys separated from the carriageway and slightly sloping verges, the grassed areas appear to be in better condition but a variety of weeds intermingle with the grass. There are some wider areas of grass at the end of the route (border with England) where the grass presents a better state of health. In these areas there is a thick and uniform ground cover, the sward grows strong and the colour is bright. The presence of weeds growing amongst the grass is very low and the verges are free from litter. 

Grassland Features	Description
Sight line areas	The low maintenance regime is sufficient to keep all sight line areas under control.
Weed content	 Common ragwort and rosebay willowherb are covering large areas of the grassland along this route. There are isolated areas of giant hogweed all along the route, but the major concentration can be found close to the Old Craighall Junction and also where the road passes over the River Esk. A pesticide treatment regime is currently in place along the route.
Erosion / over-run	This route has a high HGV percentage traffic, and there are many areas where the grassed verges are flat and present signs of over run. This is most commonly found in laybys. There are some eroded areas in some of the steep embankments where the soil is sandy and loose in appearance. Many verges also present signs of erosion from pollution such as salt spray, and some areas along the filter drains where treatments with pesticides have been carried out in order to keep the drains clear.
Bulbs	There are 484 m^2 of daffodil bulbs within grassed areas along this route.

Grassland Features	Description
Specific opportunities for amending grass maintenance regime.	There are some opportunities to introduce wildflowers or planting that would reduce the need for maintenance and encourage biodiversity: • Enhancement planting in Burnmouth Roundabout. • Enhancement planting in Thistly Cross Roundabout. • Enhancement planting in Spott Roundabout. • Enhancement planting in the wider areas in the border with England. • Specimen Tree and Wildflower Planting Opportunity between Pease Bay & the A1107 Jct. An example of enhancement planting on roundabouts to encourage and enhance biodiversity is shown below.  **Without planting**  **With planting**

3.2 A7 Kingsknowe Roundabout, Galashiels to National Boundary

3.2.1 Any local specific objective

The reduction of the injurious species is the main objective for this route, especially as it passes through farmland. Common ragwort, recorded along this route, can be fatal if ingested by certain livestock.

3.2.2 Description of the grassland features

Table 2 - Grassland Features A7

Grassland Features	Description
Specific route grassland areas	Due to the length of this road, the characteristics of the verges on this road vary with the ones of the landscape around. In comparison to other similar routes of the Unit, like the A702 or the A68, the grasslands along this route are quite healthy.
Current maintenance regime	According to the calendar of activities for 2016, the verges are maintained on a low frequency basis with 3 cuts per year. In the village of Ashkirk there is an area of medium frequency cut, with 7 cuts per year, and there are areas of high frequency with 14 cuts per year in Kingsknowe, Selkirk and Hawick. According to the proposed Cyclic programme, all laybys, bus stops, junctions and roundabouts are maintained on a medium frequency regime with 7 cuts per year. This programme also includes a low maintenance regime with 1 cut per year for the wide areas. Weed control operations are undertaken twice per year in kerbs, filter drains and central reservations, during the period from April to October.
Issues arising from current maintenance regime	There are some areas of encroachment where the road is narrow and passes through woodlands. The central area of Northbridge Roundabout in Hawick appears neglected and would benefit from some enhancement planting.
High amenity grass areas	There are some areas of high amenity grass in the villages of Kingsknowe, Selkirk and Hawick.

Grassland Features	Description
Amenity grass areas	There are some areas in the village of Ashkirk, and also at some laybys, bus stops, junctions and roundabouts.
General grass	This applies to all the grassed verges that are under a low maintenance regime. The condition of these areas varies along the route, but issues like erosion and the presence of weeds are common.
Rough grass	Areas of unmanaged grass that are beyond the maintained strip.
Specific issues	The presence of invasive species like rosebay willowherb or common ragwort.
Sward health	In general, the health of the sward along this route seems better than in other routes of the Unit, but it varies in relation to the surrounding landscape.  Most of the grassed verges along the route present a good state of health. This means that the grass covers the ground thickly, but weeds and herbaceous plants intermingle with it. There are some signs of salt splashing and erosion on the edges, especially where the road is flat, and where there are filter drains or kerbs that are treated with pesticides. The presence of litter is low, apart from the laybys, where there are also signs of over-run.  Verges adjacent to woodland, hedgerows or stone walls are often very narrow and steep, and the soil appears eroded and bare or covered with weeds. In the damper areas of the route and also on the slopes, there are some reeds growing through the grass areas.

Grassland Features	Description
Sight line areas	The low maintenance regime is sufficient to keep all sight line areas under control.
Weed content	Rosebay willowherb is the main weed along this route, growing in numerous large patches of high density, but with low infestation towards the adjacent lands. Common ragwort has also been recorded, but in lower numbers.
Erosion / over-run	There are some over-run signs at some of the laybys (layby in the south end of Hawick) and some bends where the road is narrow and the visibility low. Erosion is very common on the flatter verges that are lined by filter drains. The maintenance of these implies the use of pesticides that affect the grass on the verges, and then the soil is washed out by the rain. 
Bulbs	There are many areas along this route with clumps of daffodil bulbs, primroses and lesser celandine have also been spotted. Bluebells are growing in some slopes adjacent to the verges of the route. 
Specific opportunities for amending grass maintenance regime.	There is an opportunity to carry out some enhancement planting in the central part of Northbridge Roundabout in Hawick.

3.3 A68 from A720 Millerhill Junction, Edinburgh to National Boundary

3.3.1 Any local specific objective

The reduction of invasive species is one of the main objectives for this route.

3.3.2 Description of the grassland features

Table 3 - Grassland Features A68

Grassland Features	Description
Specific route grassland areas	This is a long route that passes through different landscapes, with varying types of grassed areas along the road. As this road tends to be narrow and winding, issues like overrun and erosion of the grass and soil are very common on the verges.
Current maintenance regime	According to the calendar of activities for 2016 the verges are maintained on a low frequency regime with 3 cuts per year. There are areas of high frequency regime with 14 cuts per year in the villages of Lauder, Earlston, St. Boswells and Jedburgh. According to the proposed Cyclic programme, all laybys, bus stops, junctions and roundabouts are also maintained on a medium frequency regime with 7 cuts per year. This programme also includes a low maintenance regime with 1 cut per year for the wide areas. Weed control operations are undertaken twice per year along kerbs, filter drains and central reservations.
Issues arising from current maintenance regime	The cutting regime on this route is sufficient to keep the grassed verges under control. Problems like erosion or poor sward health could be improved at some point by reseeding and feeding the verges.
High amenity grass areas	There are some areas of this kind of grass in villages and towns: Lauder, Earlston, St. Boswells and Jedburgh.
Amenity grass areas	These are located at laybys, bus stops, junctions and roundabouts.
General grass	The low maintenance 1.2m wide strips of verge along the route belong to this category.

Rough grass	Areas of unmanaged grass that are beyond the maintained strip. These areas are found on the embankments, quite often overtaken by some encroaching gorse and brambles. In some areas of the route (the closest stretch to the Border) reeds are also growing in these areas.
Specific issues	 The over run of the verges by HGV's is one of the main issues for the grasslands of this road, especially in laybys but also in close bends.
Sward health	The sward health along this route varies as the landscape changes, but in general it is found to be medium to poor. The low and narrow verges suffer from road splashes, erosion and over run, so there are some stretches were the ground is bare or the grass intermingles with large numbers of weeds. The swathe growing on steep embankments is also suffering erosion as the soil is wind-blown, and is quite often encroached by gorse and brambles.
Sight line areas	There are some visibility issues at Carfraemill Roundabout, where the laurel hedge in the centre is overgrown, but the grass maintenance regime itself seems sufficient.
Weed content	Rosebay willowherb is the main weed along this route, growing in numerous large patches of high density. Common ragwort has also been recorded, but in lower numbers. There are some areas with giant hogweed in the embankments at the north end of the route.
Erosion / over-run	Over run is a common issue along the route, especially severe in laybys where the vehicles pull up over the and in close bends. There is different types of erosion on the very flat verges which have been worn out, and also in some of the steeper embankments.

Bulbs	There are some areas of daffodils. Wildflowers like cowslip spread in the roundabout and embankments at the north end of the route, and some lupins are also growing in these areas.
Specific opportunities for amending grass maintenance regime.	There is an opportunity for some enhancement planting in the village of Lauder, in a high amenity garden area where some overgrown conifers require being cut down. There are some measures that would enhance biodiversity in the roadside verges, and at the same time to reduce the maintenance. For example: • The timing for the cuttings: reducing the cuttings from three to twice per year, making the first one around April and the second after the seed of the wildflower has set, around August/September. This will encourage the growth of wild flowers. There is a possibility with this measure that the grass to be cut in August/September would be longer and require different machinery. This could initially mean an increase of the costs, but could reduce maintenance works long term. Other advantages include safer for operatives due to less maintenance on busy roundabouts, increased visual amenity, establishment of alternative habitat and flowering species adding a changing colour palate to the urban environment.

3.4 A702 from A720 Lothianburn Junction, Edinburgh to M74 Junction13, Abington

3.4.1 Any local specific objective

This route passes amongst agricultural land where livestock is kept. A specific objective for this route is the effective management of invasive and injurious weeds, to avoid the growth of common ragwort on the verges, which could be fatal for the livestock.

3.4.2 Description of the grassland features

Table 4 - Grassland Features A702

Grassland Features	Description
Specific route grassland areas	The grassed areas of this route grow mainly along very narrow verges. These verges are usually limited by walls, retaining walls, hedgerows or woodland, and quite often they grow on a steep slope, which generally makes the grass grow in a very poor condition.  There are few wider areas of grassland along this route. They appear to be unmanaged, with high levels of weeds growing on them and some reed in the dampest zones.
Current maintenance regime	According to the calendar of activities for 2016, the verges are maintained on a low frequency regime with 3 cuts per year. There is an area of high frequency cutting regime with 14 cuts per year in the village of Carlops. According to the proposed Cyclic programme, all laybys, bus stops, junctions and roundabouts are also maintained on a medium frequency regime with 7 cuts per year. This programme also includes a low maintenance regime with 1 cut per year for the wide areas. Weed control operations are undertaken twice per year in kerbs, filter drains and central reservations.

Grassland Features	Description
Issues arising from current maintenance regime	This road is in general quite narrow and winding, which makes maintenance works particularly difficult. The grass cutting is carried out by a boom mower with a flail head. This does not provide a very regular finish but it is the safest option for the operatives. Rosebay willowherb grows in big patches of rough grass areas. There are some areas where trees encroach onto the verges. 
High amenity grass areas	There is an area of high amenity grass in the village of Carlops.
Amenity grass areas	All laybys, bus stops, junctions and roundabouts.
General grass	Apart from the exceptional areas of high amenity and amenity grassland, most of the grasslands along this route are the 1.2m wide strip of verge maintained on a low frequency regime.
Rough grass	These are the wider areas of unmanaged grass that are beyond the maintained strip. In this route, they are uncommon and not very wide, sometimes just a narrow strip between the maintained part of the verge and the adjacent hedgerow or wall. Rosebay willowherb grows frequently in these areas, and in damper areas reed can also be found.

Grassland Features	Description
Specific issues	Due to the character of this road, winding and narrow, over run is a repeated problem along the verges. This leads to erosion problems that are also frequent in some of the steep and narrow  embankments along the road, especially those under walls from adjacent properties. Hedgerows and trees from the woodland areas encroach onto the verges in several points, and invasive weeds like rosebay willowherb grows in the rough grass areas quite often spreading from adjacent land. The number of laybys provided along the road appears to be low due to the narrow verges and the low visibility. The two roundabouts in Abington, at the south end of the route, appear in a neglected state with over-grown shrubs in the central area, the sward being overtaken by weeds (docks mainly) and the chipped edge of the roundabouts presents severe signs of over-run.
Sward health	The verges of this road are very narrow and the sward is in a generally poor state of health. This appears to be due to splashings from the road, over run by vehicles and shade from the trees or poor soil. As a result there are large patches of bare ground. The sward presents a better state of health where the verges run along farm fields, but in these areas there are many weeds growing, like rosebay willowherb or docks. The amount of litter on the verges is generally low, apart from the laybys.
Sight line areas	The grass maintenance regime is sufficient to keep the sight line areas under control, although some schemes have been undertaken in this route to favour visibility, such as cutting trees back. The winding nature of the route means visibility is the major safety issue of the route.

Grassland Features	Description
Weed content	The main weed along the grasslands of this route is rosebay willowherb, followed by docks that grow in several areas There are some small patches of other invasive species like common ragwort, Japanese knotweed or giant hogweed.
Erosion / over-run	Over run on the verges is one of the biggest issues along this route. The visibility is poor and the carriageways are narrow, so many vehicles over run the verges. This problem is greater in the laybys, where some vehicles pull up over the verge, and in the many bends. There are problems of erosion where the verges are very steep and narrow and also on the flat verges lined by filter drains, kerbs or barriers, because the maintenance required for these features implies the use of pesticides that lessen the quality of the grass and the soil.
Bulbs	Snowdrops and some daffodils are growing along this route. There are crocuses growing on the most northerly roundabout next the A720, however these were planted by Braids Rotary Club. 
Specific opportunities for amending grass maintenance regime.	Enhancement planting opportunity in Abington Roundabout. Enhancement planting at A720 Junction with A73.

3.5 A720 from A1 Old Craighall, Edinburgh to North of M8 J1 Hermiston

3.5.1 Any local specific objective

The reduction of the giant hogweed (Hermiston Junction) is the main objective for this route.

3.5.2 Description of the grassland features

Table 5 - Grassland Features A720

Grassland Features	Description
Specific route grassland areas.	This route passes along the edge of Edinburgh, and for the major part is lined with rock cuttings or screening vegetation, with some open views from the westbound carriageway towards the Pentland Hills. The grassed verges are very exposed to the pollution from the intense traffic of the route, and there are also areas of rough and unmaintained grass on the embankments, where weeds and wildflowers grow.
Current maintenance regime	According to the calendar of activities for 2016 the central reservations and slip roads are maintained on a low frequency regime with 3 cuts per year, to be carried out in the period from March until October. According to the proposed Cyclic programme, all laybys, bus stops, junctions and roundabouts are maintained on a medium frequency regime with 7 cuts per year. This programme includes a low maintenance regime with a frequency of 3 cuts per year for the verges, grade separated junctions and central reserves, and 1 cut per year for the wide areas. There is also a 3 times per year plan for weed control operations to be carried out in April, July and September.

Grassland Features	Description
Issues arising from current maintenance regime	There are many areas of bare ground, possibly due to the maintenance operations for barriers, kerbs and filter drains, which include the treatment with pesticides. These areas have now been overtaken by different weeds and herbaceous plants. (PIC 1020114) The lack of hard shoulders on this route makes maintenance works on the verges especially difficult. Giant hogweed seems to be re-growing so the continued treatment of this infestation with pesticides is required.
High amenity grass areas	None.
Amenity grass areas	None.
General grass	All the maintained grassed areas along this route fall within this category.
Rough grass	These are the wider areas of unmanaged grass that are beyond the maintained strip of grass, and can be generally found on the embankments. Cowslips can be found growing in these areas, and they are quite often overtaken by brambles and scrub. 
Specific issues	There are several points along the route where trees, hedges or scrub encroach onto the grassland. The presence of giant hogweed in Hermiston Junction is one of the main issues of this route.

Grassland Features	Description
Sward health	The grassed areas along this route present a poor to medium state of health, erosion is a problem on the steep bankings, under barriers and along filter drains and kerbs that have been treated with pesticide where the ground is now bare.  In general, the grass is quite sparse and the growth is weak, quite often yellowing. There are large patches of bare ground that leave room for other species to grow, like weeds or moss in the shadiest areas.
Sight line areas	The current maintenance regime is sufficient to keep all the sight line areas in a good state.
Weed content	Giant hogweed covers large areas along this route, especially at Hermiston Gait Roundabout, and also between Gilmerton Junction and Sheriffhall Roundabout. Rosebay willowherb and common ragwort grow all along the road. Japanese knotweed is less common but also present. These weeds are currently under treatment regime with information recorded in the weed hotspot database.
Erosion / over-run	There are signs of erosion on the verges under barriers, and along kerbs and filter drains, due to the maintenance needed for this features. There are also erosion issues in some of the steepest embankments where the rock cutting can be seen.
Bulbs	There is a large area of cowslips within the rough grass on the east bound approach to Dreghorn Junction.
Specific opportunities for amending grass maintenance regime.	There is an opportunity to carry out an enhancement planting at Hermiston Gait Junction, where the introduction of wildflowers would reduce the need for maintenance as well as encourage biodiversity. This could be undertaken once giant hogweed is eradicated from this junction.

3.6 A876 Bowtrees Junction to Kilbagie Roundabout

3.6.1 Any local specific objective

The reduction of the populations of invasive species is the main objective for this route.

3.6.2 Description of the grassland features

Table 6 - Grassland Features A876

Grassland Features	Description
Specific route grassland areas	The grassed verges along this route are narrow strips that open over the surrounding coastal landscape. As the route travels away from the coast, it also goes through some embankments and hedgerows where the grassed areas become wider either side.
Current maintenance regime	According to the proposed Cyclic programme, all the grasslands along this route are maintained on a low regime, with a frequency of 3 cuts per year for the verges, grade separated junctions and once per year for the central reservation and wide areas. There is also a 3 times per year plan for weed control operations.
Issues arising from current maintenance regime	No major issues.
High amenity grass areas	None.
Amenity grass areas	None.
General grass	All the maintained grassland areas on this route fall within this category, and they can be found in the 1.2m wide strip of verge either side of the road.
Rough grass	There are some areas along the route of unmanaged grassland adjacent to the maintained strip of grass on the verges.
Specific issues	The growth of invasive species on the verges of the road and erosion of the soil.

Grassland Features	Description
Sward health	The sward on these verges presents a poor state of health in the areas closest to the Forth, the grass is very sparse and there are many signs of erosion. It becomes a bit thicker as the road goes inland, but it is still intermingled with herbaceous plants and small weeds.
Sight line areas	The current low maintenance regime is sufficient to keep sight line areas under control.
Weed content	Spreading thistle is the main weed along the grasslands of this route, growing together in some points with broad leafed dock, common ragwort and rosebay willowherb.
Erosion / over-run	There are signs of erosion in the grassed verges on this route, especially under barriers and along filter drains and kerbs, all features that have been treated with pesticide and where the grass has disappeared.
Bulbs	There are no areas of bulbs recorded for this route.
Specific opportunities for amending grass maintenance regime.	Opportunity to introduce wild flowers in some roundabouts, reduce the maintenance works and enhance biodiversity in: • Kilbagie Roundabout By introducing the hemi-parasite yellow rattle, the need for grass cutting would decrease, and it would also favour the growth of native species.

3.7 A6091 from A7 Kingsknowe Roundabout, Galashiels to A68 Ravenswood Roundabout, Melrose

3.7.1 Any local specific objective

The reduction of rosebay willowherb along this route is the main objective.

3.7.2 Description of the grassland features

Table 7 - Grassland Features A6091

Grassland Features	Description
Specific route grassland areas	This is a fairly short route, and the grassed verges along it present quite uniform characteristics. They are rather flat and narrow, limited by hedgerows or stone walls as it approaches the urban area of Melrose. There is one area where the grassed verges are wider and include a pedestrian walkway. This is locally known as "the Golden Mile" because of the daffodil bulbs growing alongside.
Current maintenance regime	According to the calendar of activities for 2016, the verges of this road are maintained on a low frequency regime with 3 cuts per year. There is an area maintained on a medium frequency regime of 7 cuts per year in the village of Melrose, and an area maintained on a high frequency regime with 14 cuts per year in Kingsknowe Roundabout. According to the proposed Cyclic programme all laybys, bus stops, junctions and roundabouts are maintained on medium frequency regime with 7 cuts per year. This programme includes a low maintenance regime with a frequency of 3 cuts per year for grade separated junctions and central reserves, and 1 cut per year for the wide areas. There is also a 3 times per year plan for weed control operations.
Issues arising from current maintenance regime	The current maintenance regime is sufficient for grassed areas however the main issue for maintenance here is safety because the verges of the road are quite narrow and there are very few laybys. The maintenance should be therefore undertaken with a boom mower with flail head.
High amenity grass areas	Kingsknowe Roundabout.

Grassland Features	Description
Amenity grass areas	All laybys, bus stops, junctions and roundabouts, and the village of Melrose.
General grass	These areas are formed by the maintained strip of verge along either side of the road.
Rough grass	There are some areas of unmanaged grassland adjacent to the verges, where scrub is growing.
Specific issues	The main issues along the verges of this road are the large incidences of rosebay willowherb.
Sward health	The sward health along this route can be defined as good as grass grows in large clumps that cover the ground in quite a uniform way. Weeds and herbaceous plants of different kind intermingle over the grassland area and there is some litter on the verges. There are some signs of salt splashing and erosion on the edges.
Sight line areas	The low maintenance regime is sufficient to keep sight line areas under control.
Weed content	The main weed along the grasslands of this route is rosebay willowherb, covering large patches of medium and high density. Common ragwort has also been recorded, but in lower numbers.
Erosion / over-run	There are some signs of vehicle damage on the verges of this route, mostly on leaving Ravenswood Roundabout.
Bulbs	There is a long area of planted daffodils along this route, at the village of Melrose, locally known as "The Golden Mile". Cowslips are also growing along this route.

Grassland Features	Description
Specific opportunities for amending grass maintenance regime.	A scheme has been completed to remove the scrub from the grasslands in order to enhance the existing daffodil population (The Golden Mile). There is an opportunity for some enhancement planting and maintenance reduction in Tweedbank Roundabout. The introduction of native wildflowers in the roundabout would reduce the need for lawn maintenance as well as it would encourage biodiversity and provide some visual interest.

3.8 M8 J1 Hermiston to M8 DBFO East of Newhouse (J6)

3.8.1 Any local specific objective

The main objective for this route is the reduction of invasive species.

3.8.2 Description of the grassland features

Table 8 - Grassland Features M8

Grassland Features	Description
Specific route grassland areas	This is one the busiest routes within the unit and this is reflected on the grassed verges. The route runs mainly through agricultural lands, mostly lined by embankments covered with rough grass or woodland. There are hard shoulders all along this route, and these are lined by a flat strip of maintained grass that merges with the embankments or is limited by adjacent land. 
Current maintenance regime	According to the calendar of activities for 2016, the hard shoulders and central reservations are maintained on a low frequency regime with 3 cuts per year. According to the proposed Cyclic programme, Junction 4 at Newbridge is maintained on medium frequency regime with 7 cuts per year, and the wide areas are under a low frequency regime with 1 cut per year. Weed control operations are undertaken twice per year along kerbs, filter drains and central reservations.
Issues arising from current maintenance regime	There are some areas where the grass has almost disappeared and weeds have overtaken: • On the embankments under the main structures. • Under some barriers, and other areas that must have been sprayed or trimmed very low. There are some areas where the adjacent hedgerows and woodland are encroaching into the grassland.

Grassland Features	Description
High amenity grass areas	None
Amenity grass areas	Junction 4 at Newbridge.
General grass	Most of the grassed areas of this route fall under this category.
Rough grass	Grassland areas on the verges beyond the 1.2m strip do not appear to be under any cutting regime and can be considered rough grass. These areas generally merge with the adjacent scrub or woodland. Weeds are growing mainly on rough grass areas and where they merge with the adjacent land. In the shadiest parts grass has been overtaken by moss. 
Specific issues	On the embankments of Junction 4A there are signs of some excessive spraying around the young trees that has spread over the grassland area. (PIC 10020090) This issue is likely to be due to historic spraying regime. Rosebay willowherb spreads along the route and there is a giant hogweed infestation around Hermiston Gait. The populations of Japanese knotweed on this route are also an issue.
Sward health	The grassed verges that are closer to the hard shoulders and the central reservation present a generally poor state of health. The grass is very sparse and the growth is weak, quite often yellowing. There are large patches of bare ground that leave room for other species to grow, like weeds or moss in the shadiest areas. The ground presents signs of salt splashing and erosion or compression, and there is litter on the verges.
Sight line areas	The current maintenance regime is sufficient to keep all sight line areas under control.

Grassland Features	Description
Weed content	The main weed growing along this route is rosebay willowherb, forming large patches of varying density and with different levels of infestation towards the adjacent land. Broad leafed dock spreads all along the route. Many patches of common ragwort grow close to the rosebay willowherb. Giant hogweed appears in clumps all along the route, especially around Hermiston Junction 1 and there are also some patches of Japanese knotweed.
Erosion / over-run	The grass verges present signs of erosion along the hard shoulders, where the grass has disappeared, probably due to salt splashes from the road. The grass is very sparse and there are also signs of erosion under barriers, along filter drains and kerbs and also close to some structures on the road.
Bulbs	There are some small patches of snowdrops and lesser celandine growing along the westbound carriageway between the River Almond and the Union Canal.
Specific opportunities for amending grass maintenance regime.	The maintenance of the embankments of Junction 4 need to be taken in consideration due to the excessive spraying that is being undertaken. Some aspects of the mowing regime could be re-considered in order to enhance biodiversity in the roadside verges, and at the same time to reduce the maintenance. These are mainly the following:
	Reducing the number of cuttings by readjusting the timing: reducing the cuttings from three to twice per year, making the first one around April and the second after the seed of the wildflower has set, around August/September. This will encourage the growth of wild flowers. There is a possibility with this measure that the grass to be cut in August/September would be longer and need different machinery to cut it.

Grassland Features	Description
	The introduction of the hemi parasite yellow rattle (*Rhinanthus minor*): This annual native grows in open grasslands with a pH no lower than 5, it cannot grow in the shade and it prefers moist soil. Its roots take nutrients from the roots of the grass, so it keeps the grass "dwarf" and naturally reduces the need for maintenance, while favouring the growth of different meadow species. *Rhinanthus* spp. can be toxic or poisonous to livestock, so its use needs to be restricted to specific areas that are not close to livestock fields (Junctions and roundabouts around urban areas may be a good place to introduce it.)
	Grass growth regulators could mean a huge reduction in the maintenance operations and costs. They could be introduced as a trial in some areas to start with. • The use of grass growth regulators may have significant improvements on the whole maintenance programme, reducing the need for mowing and therefore the risks for operatives and road users, as well as the disturbance to the wildlife habitats in the verges of the roads. This means that it would also reduce the costs and the carbon footprint of the programme. • Grass growth regulators work by diverting the vertical growth of the plant to more lateral growth and greater root development, which is also a favourable effect. They do not impact other plants, and have no effect on insects, worms or soil microflora. • Their application implies a very low hazard risk for the operatives, and it could also be sprayed at the same time as any herbicide needed. • In low maintenance verges with a frequency of 3 cuts per year, two applications of a grass growth regulator, one around April and the other around September, could reduce the need of mowing to one per year, around June.

3.9 M9 J1 Newbride to A9 Keir Roundabout, Dunblane

3.9.1 Any local specific objective

The local objective for this route is to reduce invasive species due to the large areas of *Rhododendron ponticum*.

3.9.2 Description of the grassland features

Table 9 - Grassland Features M9

Grassland Features	Description
Specific route grassland areas	This route is mostly lined by embankments of different height. These embankments are normally covered by areas of rough grass or woodland, and there is also a flat 1.2m wide strip of grass along the hard shoulder that is under the maintenance regime. These are the general grass areas along this route, and they normally appear in a pretty deteriorated condition due to its exposition to the splashes from the road or the maintenance of other elements like filter drains and barriers.
Current maintenance regime	According to the calendar of activities for 2016, the hard shoulders and central reservations are maintained on a low frequency regime with 3 cuts per year. According to the proposed Cyclic programme, the Newbridge Roundabout is maintained on medium frequency regime with 7 cuts per year, and the wide areas are under a low frequency regime with 1 cut per year. The grassland areas on the embankments of the main junctions and also adjacent to structures are also maintained on a low frequency regime. Weed control operations are undertaken twice per year in kerbs, filter drains and central reservations. 
Issues arising from current maintenance regime	There are some encroachment of trees and *Rhododendron ponticum* from the adjacent woodland.

Grassland Features	Description
High amenity grass areas	None.
Amenity grass areas	There are some areas in Newbridge Junction maintained under a medium frequency regime of 7 cuttings per year.
General grass	Most of the grassed areas of this route are part of this category, being mainly found in the 1.2m maintained strip of verge along the route.
Rough grass	 These are the areas of grasslands that are not under any maintenance regime, they are normally on the embankments and it is mainly on these areas where the weeds grow. Moss is overtaking the rough grass areas in some of the North-facing embankments.
Specific issues	A filter drain renewal scheme has been undertaken between Junction 9 and Bannockburn, on the northbound carriageway, causing damage to the turf and the embankment. This has a direct effect on the visual amenity of the area.
Sward health	In general the sward along this route presents a good level of  health but there are some areas where this deteriorates, such as verges where erosion and salt splashing from the road bring the sward into a very poor condition.
Sight line areas	The low maintenance regime is sufficient to keep all the sight line areas under control.

Grassland Features	Description
Weed content	The main weed within the grassland areas of this route is rosebay willowherb, appearing in large patches of varying density with low or no infestation towards the adjacent land. Broad leaf dock spreads all along the route and common ragwort has also been recorded. Several clumps of giant hogweed have been recorded along the route, becoming more abundant as the route progresses east, especially at Junction 10 Craigforth. *Rhododendron ponticum*, which is a severe infestation in the woodlands along the road, is starting to encroach the grassland areas in some areas. 
Erosion / over-run	 There are some severe signs of erosion on the grassland areas where there have been filter drain works.
Bulbs	There are several patches of snowdrops dotted along the route.
Specific opportunities for amending grass maintenance regime.	No specific opportunities have been identified for the grassland areas, although there are several measures that could enhance biodiversity and reduce some of the maintenance works (see point 3.8.2)

3.10 M80 East of J7 (J4) Haggs to M9 J9 Bannockburn

3.10.1 Any local specific objective

The local objective for this route is to reduce invasive species.

3.10.2 Description of the grassland features

Table 10 - Grassland Features M80

Grassland Features	Description
Specific route grassland areas	This is a very short route within the Unit that runs mostly through steep wooded embankments. These embankments are often supported by retaining walls, making the strip of grass that extends along the hard shoulder look quite poor. The hard shoulder is also lined by a filter drain either side of the route, leaving very little space and very bad conditions for the grass verge to grow. The main grassed areas on this route are therefore those on the embankments, and they are considered wide areas for maintenance. 
Current maintenance regime	According to the calendar of activities for 2016 the hard shoulders and central reservations are maintained on a low frequency regime with 3 cuts per year. According to the proposed Cyclic programme, the wide areas are under a low frequency regime with 1 cut per year. Weed control operations are undertaken twice per year in kerbs, filter drains and central reservations. Some edging works have been recently undertaken.
Issues arising from current maintenance regime	No major issues have been identified.
High amenity grass areas	None.

Grassland Features	Description
Amenity grass areas	None.
General grass	These are the areas of low maintenance grass growing along the hard shoulders. They appear in poor condition along this route.
Rough grass	The rough grass areas are those growing on the embankments and also over retaining walls where they are often overtaken by weeds, ivy or moss.
Specific issues	There is an area on the embankment where the grassland has been damaged by vehicle overrun and compression due to some tree removal works.
Sward health	The sward presents generally a good health on the embankments where the grass covers the ground thickly, presenting a uniform aspect. The sward grows strong and the colour is bright. The presence of weeds growing amongst the grass is very low and the verges are clean. There are some exceptional places where it has been overrun, or over the retaining walls, where it is often in a very poor condition. 
Sight line areas	The low maintenance regime is sufficient to keep all the sight line areas under control.
Weed content	The main weed growing within the grassland areas of this route is rosebay willowherb. There are some areas with severe levels of giant hogweed infestation, especially at the Bannockburn Junction. Broad leaf dock spreads all along the route, and there is also some Japanese knotweed.

Grassland Features	Description
Erosion / over-run	There are some areas of erosion, especially on the steepest embankments and on the verges, where weeds are overtaking grass.
Bulbs	There is a total of 35m^2 of daffodil bulbs and 10m^2 of snowdrops on the route.
Specific opportunities for amending grass maintenance regime.	No specific opportunities have been identified, although there are several measures that could enhance biodiversity and reduce some of the maintenance works (see point 3.8.2 for examples)

3.11 M876 from M80 J5 Bankhead to A876

3.11.1 Any local specific objective

Due to the numbers of invasive species growing on this route and he recent changes on legislations, we aim to reduce these numbers as one of the main objectives for this route.

3.11.2 Description of the grassland features

Table 11 - Grassland Features M876

Grassland Features	Description
Specific route grassland areas	The grasslands of this route can be found growing on verges and embankments and also in roundabouts. They are generally in good condition.
Current maintenance regime	According to the calendar of activities for 2016 the central reservations are maintained on a low frequency regime with 3 cuts per year. According to the proposed Cyclic programme, verges, grade separated junctions, and any strimming works needed (under barriers, close to structures) are also under a low frequency regime with 3 cuts per year, and the wide areas are under a low frequency regime with 1 cut per year. Weed control operations are undertaken twice per year in kerbs, filter drains and central reservations.
Issues arising from current maintenance regime	There is some encroachment from adjacent woodland and scrub into the grassland.
High amenity grass areas	None.
Amenity grass areas	None.
General grass	These are the maintained grassland areas on the verge and roundabouts of this road.

Grassland Features	Description
Rough grass	These are the areas of grass growing on the embankments that are under a minimum or no maintenance regime. They often present high numbers of weeds, brackens and brambles as they merge with the woodland.
Specific issues	Populations of invasive species along the route like rosebay willowherb and common ragwort.
Sward health	The health of the grass is good in general on this route, except where there are gabion retaining walls. In these locations the soil seems to be much more exposed to erosion, and the weeds are overtaking grass.
Sight line areas	The current maintenance regime is sufficient to keep all the sight line areas under control.
Weed content	Rosebay willowherb is the main weed along the grassland areas of this route. Common ragwort is also present, but in lower numbers. There is a severe infestation of *Rhododendron ponticum* along this route, but it mainly affects the woodland areas. Broad leaf dock is also quite common on this route, presenting an especially high population at Bowtrees Roundabout.
Erosion / over-run	There are some signs of erosion on the embankments that descend towards the carriageway.
Bulbs	There is an area of 120m^2 of daffodil bulbs at Junction 8 with the M9.There are sparse daffodils and primroses growing in the rough grass areas.
Specific opportunities for amending grass maintenance regime.	Opportunity to introduce wild flowers, reduce the maintenance works and enhance biodiversity in Bowtrees Roundabout by introducing the hemi-parasite yellow rattle, the need for grass cutting would decrease, and this would also favour the growth of native species. There is a large population of broad docks in this roundabout that would need to be treated before introducing a suitable wildflower seed mix.

3.12 A977 from A985 Longannet Roundabout to Gartarry Roundabout

3.12.1 Any local specific objective

The reduction and eradication of the invasive species populations is the main objective for this route.

3.12.2 Description of the grassland features

Table 12 - Grassland Features A977

Grassland Features	Description
Specific route grassland areas	This is a rather short route that passes through an urban area for roughly half of its extents, and through agricultural land for the other half. There are grassed areas in the village of Kincardine with amenity character and they are maintained by Fife Council. The rest of the grasslands on this route can be found on the verges, which are generally narrow and lined by hedgerows or stone walls, so grass does not grow in a good condition. At some points, the verges are a bit wider, leaving space for some areas of rough and unmaintained grass, where infestations of invasive species can be found, like rosebay willowherb.
Current maintenance regime	According to the 2016 calendar for cutting operations the hard shoulders are maintained on a low frequency regime with 3 cuts per year. According to the proposed Cyclic programme, verges and strimming works are also under a low frequency regime with 3 cuts per year, and the wide areas with 1 cut per year. There are also areas of medium frequency cutting regime, in all laybys, bus stops, junctions and roundabouts. Weed control operations are undertaken twice per year in kerbs, filter drains and central reservations.

Grassland Features	Description
Issues arising from current maintenance regime	There is some encroachment from the woodland in the narrow verges (between Kilbagie Roundabout and Kincardine). The sward on the low maintenance verges is in very poor condition due to erosion. It does not seem to be under any kind of treatment. 
High amenity grass areas	 There are some areas of high amenity grass on this route, as it passes through Kincardine. They appear to be maintained by Fife Council.
Amenity grass areas	All laybys, bus stops, junctions and roundabouts.
General grass	These areas can be found on the low frequency maintained strip of the verges. In this route, this strip is very narrow and lined by stone walls, which sometimes results in the disappearance of grass in favour of small weeds and different herbaceous plants.
Rough grass	There are some areas of rough grass beyond the maintained strip of the verges, often intermingled with brambles and invasive species like rosebay willowherb.
Specific issues	Encroachment from the woodland and the presence of invasive species like rosebay willowherb.

Grassland Features	Description
Sward health	The health of the sward on this route is related to the maintenance regime. In the high amenity areas in Kincardine and also in the roundabouts along the route, the grass covers the ground thickly, presenting a uniform aspect. The sward grows strong and the colour is bright. The presence of weeds growing amongst the grass is very low and there is no litter. In the rest of the verges, the health of the sward is rather poor, the grass has almost disappeared, leaving large patches of bare ground that leave room for other species to grow, like weeds or moss in the shadiest areas. This situation seems to come from the narrowness of the road and also because these verges are often lined by stone walls, leaving them very exposed to salt splashes from the road and erosion.
Sight line areas	The low maintenance regime is sufficient to keep all the sight line areas under control.
Weed content	Rosebay willowherb and spreading thistle are the main weeds on the grassland of this route. Broad dock and common ragwort appear in some areas mixed amongst them.
Erosion / over-run	There are signs of erosion along the narrow verges. Over-run is not a common problem on this road, probably due to the speed limit and the kerbs that line the whole route.
Bulbs	There are some areas of daffodils growing on the verges of this route, covering a total of 112m^2.
Specific opportunities for amending grass maintenance regime.	Opportunity to introduce wild flowers in some roundabouts, reduce the maintenance works and enhance biodiversity in Gartarry Roundabout.

3.13 A985 Higgins Neuk Roundabout to M90 J1 Admiralty

3.13.1 Any local specific objective

Reduction and eradication of injurious species like common ragwort and giant hogweed.

3.13.2 Description of the grassland features

Table 13 - Grassland Features A985

Grassland Features	Description
Specific route grassland areas	This route runs mainly through agricultural lands, although it also crosses the forest of Devilla and some villages. The verges of this road are in general narrow and flat, lined by fences, hedgerows or woodland.In the flattest areas there are filter drains, and as they are treated with pesticide this affects the grass and causes erosion and sparseness.  They are also exposed to salt splashes from the network and over-run from vehicles.
Current maintenance regime	According to the proposed Cyclic programme for 2015-16, the maintenance regime is low for the verges and strimming operations with 3 cuts per year. In the wide areas the frequency is of 1 cut per year. For laybys, bus stops, roundabouts and villages the maintenance regime is medium with 7 cuts per year. There is also a 3 times per year plan for weed control operations.
Issues arising from current maintenance regime	No major issues.
High amenity grass areas	None.

Amenity grass areas	All areas maintained on a medium cutting regime can be considered within this category, but they seem to be maintained by Fife Council.
General grass	All the grassed areas on the low maintained 1.2m strip of the verges fall within this category.
Rough grass	These are the areas of unmanaged grass that are beyond the maintained strip. They tend to merge with the adjacent hedgerows or woodland and it is on these areas where the populations of invasive species grow.
Specific issues	 Part of the route, between High Valleyfield and the junction with B9037, is fence lined, and the grass has been severely damaged and eroded by spray from the road.
Sward health	The sward presents in general acceptable health, the grass grows in big clumps that cover the ground in quite a uniform way, but many of these clumps are yellowing at the base. Weeds and herbaceous plants of different kind intermingle over the grassland area and there is litter on the verges. There are also signs of salt splashing and erosion on the edges, some patches damaged by deflected vehicles, and some areas of mole hills. In the amenity areas and roundabouts (Oakley Roundabout) the sward presents a good level of health due to the higher maintenance regime.
Sight line areas	The medium maintenance regime is sufficient to keep all the sight line areas under control. There is a small area of introduced wild flowers on this route in the junction with the route B9037, but this area is now being reduced due to sightline visibility issues.

Weed content	The grassland areas of this route contain a high proportion of invasive species, with the main two being spreading thistle and rosebay willowherb. Common ragwort, giant hogweed and broad dock are also present.
Erosion / over-run	There are some signs of erosion along the edge of the verges, possibly due to the weed control operations. There are also some are areas of vehicle damage, especially in close bends where the vehicles may run over the verges in order to improve visibility.
Bulbs	Some patches of snowdrops have been identified along this route, and daffodils grow mainly in the roundabouts.
Specific opportunities for amending grass maintenance regime.	Opportunity to reduce the maintenance on some of the roundabouts by introducing native wild flowers: Oakley Roundabout Although the current maintenance regime is effective, by introducing the hemi-parasite yellow rattle, the need for grass cutting could be decreased, and may also favour the growth of native species. Rosyth Roundabout: enhancement planting with suitable native wild flower that could reduce the need for maintenance and encourage biodiversity.