South East Trunk Roads Unit

Winter Service Plan 2019 / 2020

Revision History

This plan shall be reviewed at a minimum of 12 monthly intervals and updated as appropriate. The reviews, including no changes, are noted in the following table.

Revision	Date	Amendment	Content Owner	Authorised By
01	Jul 19	Initial Document		
02	Sept 19	Updated following TS and PAG Comments		

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21		Senior Engineer	North Lanarkshire Council
22		Network team Leader	South Lanarkshire Council
23		Roads Maintenance Manager	Stirling Council
24		Senior Manager Roads	Dumfries and Galloway Council
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26		Senior Manager	Fife Council
27		Force Control Room	Police Scotland
28		Area Manager	Transport Scotland
29		Area Manager	Transport Scotland

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Contents

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Introduction and Policy

1.1. The Network consists of the motorway network in the South East of Scotland including the M8, M9, M80 and M876. It also includes the A1, A7, A68, A702, A985, A977, A876, A6091 and A720 Trunk Roads.

1.2. Winter Service Operations shall allow the safe movement of all road users throughout the Network and minimise disruption to users arising from adverse winter weather (ice and snow). The incidence and severity of winter conditions vary throughout the season and from year to year and hence the deployed resource requirements fluctuate accordingly.

1.3. Amey will deliver a level of Winter Service to deal with the winter conditions normally associated with Central Scotland and the Scottish Borders, with the facility to provide additional resources as required to deal effectively with all winter weather conditions which can be expected to arise. The requirements of Amey are provided in Part 2 of Schedule 7.

1.4. Amey shall provide sufficient resources to ensure that all measures are taken to keep the roads within the contract open to its users at all times and shall prevent snow or ice from remaining on Network in accordance with the requirements of Schedule 7 Part 2.

1.5. Amey has previous experience of successfully managing both Trunk Road and Local Authority Winter Service Operations within the UK, including over 12 years in South West Trunk Roads and North Lanarkshire and South East Trunk Roads in the 2nd Generation Contract. This valuable experience has assisted in shaping this strategy, which details how the Scottish Ministers' Winter Service requirements will be achieved.

1.6. This Winter Service Plan is of key strategic importance to the successful operation of the Project and its importance will be reflected in the Plan's ownership by our Winter Service Manager. While our Operating Company Representative has the overall responsibility for the successful delivery of the Plan he will be assisted in all respects by the Winter Service Manager being available to support as required by the prevailing or predicted conditions.

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Management Arrangements

2.1. Winter Service Manager (the Area Manager)

2.1.1. Name

The Operating Company Representative has the ultimate responsibility for management and delivery of the winter service. He will be assisted by the nominated Winter Service Manager (XXX) who has the delegated responsibility for all aspects of winter service provision.

2.1.2. Qualifications

Nick is an experienced member of our team who has attended training courses in road meteorology and is a member of the Northern User Group for Vaisala. He has also successfully completed the IHE Winter Decision Makers Course and is also conversant with The Code of Practice for Winter Maintenance and has a good working knowledge and understanding of both winter maintenance fleet and ice prediction technology.

2.1.3. Experience

The WSM has the relevant experience required to fulfil the duties of this post and ensure compliance with the requirements of the Project. He has done Winter Service decision making since 2005 and was the Winter Service Manager in Northern Ireland from 2008 to 2013 and the South East Unit since 2014.

2.1.4. Responsibilities

The WSM has delegated and overall responsibility for the provision of the winter service and ensuring compliance with the Project for the following activities:

- Ice prediction and weather forecasting service, including sensor calibration
- Collection and management of weather data
- Winter service decision making
- Plant and communications
- De-icing material stock levels and storage
- Staff and Operative training and rosters
- Inspection and maintenance of winter hardware
- Maintaining records
- Liaison with third parties
- Implementing additional resources where required Communicating with Transport Scotland during severe events
- Preparing reports and participating in weekly conference calls with Transport Scotland
- Reporting salt stock levels, as required
- Achieving contractual response times
- Identification and provision of Mutual Aid subject to approval from the Director

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The WSM is the owner of the Winter Service Plan (WSP), being responsible for revisions to this plan at least once annually and whenever considered necessary during the Winter Service Season. The WSM is responsible for submitting the WSP to the Scottish Ministers for written consent no later than 31 July each year.

The WSM is also responsible for the preparation and submission of the Winter Service Annual Report prior to 31 May each year and will attend the subsequent Winter Service annual review meeting with the Scottish Ministers.

2.2. Winter Service Duty Officers

2.2.1. Names

Gordon Gill, Anne Pearson, Anton Barenbrug and Kristoffer Thorbjornsen, will undertake the role of Winter Service Duty Officer on a rota basis, being responsible for daily decision making on planned actions. They will be assisted by XXX, and XXX where required. XXX completed the IHE Winter Decision Makers Course last year and will be getting trained and shadowed this year. In addition the FRB WSDO's; XXXwill work beside the SE WSDO's to gain experience of the SE Network with the upcoming NMC Contract due to start next Winter Season.

2.2.2. Qualifications

All WSDO's will have undertaken suitable training in relation to winter service decision making and weather forecast interpretation, including subjects such as road meteorology and winter service computer systems and software. XXX have all successfully passed the IHE Winter Decision Makers Course.

2.2.3. Experience

WSDO's will each have minimum 4 years' previous experience or IHE Winter Service training ensuring competent and consistent winter service decision making and the use of both weather forecast information and the computerised road weather information system. They will also be supported by several trained Duty Operation Managers who will be available 24/7 for any assistance. Our OCCR staff will also have the Met Office Open Road Training and will be able to monitor the weather in the control room screens.

2.2.4. Responsibilities

The WSDO is authorised by Amey and is responsible for taking decisions, issuing instructions and implementing and directing the Winter Service at all times. If the WSDO is uncertain of conditions and what action to take he should discuss with the Winter Service Manager.

Duty WSDO's will operate on a roster basis. This ensures that two WSDO's are rostered for every week throughout the Winter Service Season. The WSDO will maintain and update winter records including:

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- Planned and actual:
  - Treatment records
  - Response times
  - Commencement times
  - Route times
  - Spread rates
- Observations and actions taken by the Winter Service Patrols
- Output from Constructional Plant on-board data capture devices
- Constructional Plant down time and software faults
- Constructional Plant deployment records (including Global Positioning System records) and driver/operator logs
- Logs of telephone, electronic mail and two-way communication calls
- Ice prediction system records
- Weather forecasts and actual weather experienced
- Complaints by members of the public and road users
- Accidents resulting from winter conditions
- Road closures due to winter conditions

During the months of November to March inclusive, a Winter Service Control Room (at Bilston Glen) will be staffed during all Winter Service Operations. We can remotely access the Computerised Road Weather Information System (CRWIS) and if required our Control Room can be established and transferred seamlessly to a new location should the need arise or extra assistance is needed. This also allows more experienced managers to assist from any location should the need arise.

The WSDO shall be on duty in the control room whenever Winter Service Operations are planned, constantly monitoring weather and road conditions via the CRWIS, Weather Radar and Thermal Maps. The WSDO is able to receive information from and communicate instructions to patrol drivers on a regular basis.

At changes in shift, the outgoing and incoming WSDO will handover and exchange information including:

- 24 hour action plan
- current weather and road conditions including trends
- updates from the Expert Weather Forecasting Service (Met Desk)

The WSDO will be supported by the WSM. The criteria which will determine this support will include guidance and decision making support during:

- marginal conditions
- periods when low confidence forecasts are issued
- severe weather conditions such as prolonged snow, high winds or freezing rain.

In prolonged periods of severe conditions, the WSM will instruct additional resources to be deployed within the Control Room to deal with the increased monitoring requirement and higher level of ingoing and outgoing communications.

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2.3. Monitoring Arrangements

2.3.1. Monitoring arrangements during normal working hours

During normal working hours the WSDO for the particular week will be responsible for monitoring weather forecasts and actual weather conditions throughout the period. They will be assisted by the Control Room staff, who will have the Basic Met Office Open Road training and there will be an experienced Duty Operations Manager available 24/7. The OCCR will have the Vaisala Navigator system showing on a big screen in the Control Room at all times during the Winter Period and alarms set so if any thresholds are broken they will be notified.

2.3.2. Monitoring arrangements out with normal working hours

Outside of normal working hours the WSDO will be responsible for monitoring weather forecasts and actual weather conditions. WSDO's will be placed on stand-by throughout the winter service period and from November to March will be based in the Control Room.

2.4. Personnel Resources

2.4.1. Names of staff and labour resources

Winter Service Manager: XXX

Winter Service Duty Officers: XXX

Trainee Winter Service Duty Officers: All OCCR Employees.

Duty Operations Managers: XXX

All winter staff are suitably qualified and experienced to competently undertake the respective duties associated with their role.

All WSDO's will attend a joint Snow Desk exercise at a time and date to be arranged. This year the snow desk will be done inter unit producing a joint snow plan.

The DOM on duty will be directly responsible for the co-ordination of winter service operatives and constructional plant to deliver the requirements of the daily winter service action plan.

Prior to the beginning of each winter season, the DOM's will prepare a roster assigning sufficient numbers of trained drivers for each precautionary treatment and patrol route. This roster ensures that on a week to week basis, outside of normal working hours, drivers remain on standby or shift pattern to respond to treatment or patrol instructions.

A minimum of three trained and experienced operatives will be employed for each precautionary treatment route, to provide round the clock coverage without compromising Drivers Hours Regulations.

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Name	Depot	Designation	Training
W Cunningham	Burghmuir	Operative	Winter Maintenance City and Guilds
	Burghmuir	Operative	Ditto
	Burghmuir	Operative	Ditto
	Burghmuir	Operative	Ditto
	Burghmuir	Operative	Ditto
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	Bilston Glen	Operative	Ditto
	Bilston Glen	Operative	Ditto
	Bilston Glen	Operative	Ditto
	Bilston Glen	Operative	Ditto
	SBC	Operative	SVQ Winter maintenance
	SBC	Operative	Ditto
	SBC	Operative	Ditto
	SBC	Operative	Ditto
	SBC	Operative	Ditto
	SBC	Operative	Ditto
	SBC	Operative	Ditto
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	SBC	Operative	Ditto

Table 2.1 Spreader Driver Details.

Additionally, every driver will have a basic knowledge of each precautionary treatment route and will be capable of undertaking treatment on that route if necessary.

In the event of severe weather being forecast in the 5 day advance forecast, additional operatives will be put on standby or shift to ensure adequate resources are available to deal with snow conditions. These will be fully trained drivers who are not rostered for that period.

2.4.2.
During the winter period detailed rosters will be prepared detailing all staff referred to in 2.4 of this Winter Service Plan. On a weekly basis during the winter period a specific Roster detailing personnel, contact details and specific duty details will be issued to all key staff. This will be distributed electronically and updated on a shared server area each week to ensure key details are constantly kept up to date.

2.5. Call out arrangements

2.5.1. Call out arrangements during normal working hours

The WSDO will implement call out procedures by issuing the daily action plan for winter service operations. During the working day (Monday to Friday 08:00 to 17:00) the WSDO will liaise with the Depots directly to arrange any treatments required. Outside this the DOM will mobilise resources to undertake and complete the required treatment.

2.5.2. Call out arrangements outside normal working hours

When a decision to carry out treatment outside normal working hours is made by the WSDO, the WSDO will call the DOM who will mobilise the drivers.

2.5.3. Contact arrangements during normal working hours

The WSDO will contact the DOM by mobile telephone to instigate action during normal working hours.

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2.5.4. Contact arrangements out with normal working hours

The WSDO will contact the DOM by mobile telephone to instigate action. In addition there will be a list of direct mobile telephone contact numbers for rostered drivers which will be available to the WSDO if required. Specific contact numbers will be associated with the front line winter service vehicle for each individual route.

2.5.5. Mobilisation times

To ensure that the requirement to mobilise and commence unplanned treatment on any given route is within the one hour period, a shift system will operate which will include a day and night shift during snow and prolonged colder conditions.

Outside of this period, operatives will be on stand-by and will be called out by the WSDO contacting the DOM to mobilise when required. Where the 5 day forecast indicates that severe weather is anticipated, operatives will be put onto a 24/7 shift system.

2.6. Communications Equipment

2.6.1 All winter maintenance vehicles will be fitted with 'hands free' mobile telephones and an integrated satellite tracking and data recording system. All drivers will be trained in the effective use of the system. Any faults in the system of communication will be reported immediately to the WSDO for his action. We will have maintenance support through service level agreements with our Internal Fleet Service and relevant manufacturers to repair or replace communications equipment. The following means of communication will be available throughout the winter period:

- Telecommunications – landline, mobile GSM phone and fax
- Airwave
- Exactrack web-based GPS tracking showing vehicle location
- Email with a dedicated winter email address
- Websites and social media utilising both Traffic Scotland and Amey SE specific
- Variable Message signs – via Traffic Scotland
- Hidden Message signs

2.6.2 Winter Service Patrol vehicles shall use an encrypted digital radio communications system, "Airwave". Amey will utilise this equipment as a dedicated communication system between Winter Service Patrol drivers, the Traffic Scotland Control Centre, the Winter Service Duty Officer and the Police. All Winter Service Patrols will also have mobile phones with hands free operation.

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2.7. Training for Managers and Other Staff

2.7.1. Details of previous training

The proposed Winter Service Manager, WSDO's, DOM's will have attended training courses covering basic road meteorology and the interpretation of weather forecasts prior to inclusion on the rota and this training will be refreshed when required. All operatives performing Front Line and Reserve Winter Service operations will hold an appropriate Class C LGV driving license, and be trained and experienced in Winter Maintenance operations.

2.7.2. Details of proposed training

The Winter Service Manager, WSDO's, DOM's and CRO's will attend and be certified on refresher courses provided by The Met Office and Vaisala every couple of years. An annual pre-winter internal briefing session will also be held in September.

All operatives performing Front Line and Reserve Winter Service Operations will be trained and assessed to meet the requirements of the Winter Maintenance City & Guilds Qualification. Winter Treatment on specific routes will be carried out by trained operatives from our strategic partner, Scottish Borders Council (SBC). Amey will provide spreading equipment for these routes, ensuring consistent communication, including data links with our OCCR, on spreading, location and weather conditions. Our partnership with SBC will provide local knowledge and added resilience on Critical sections of the Unit.
Our WSDO's will assign the resource for Winter Service operations in our Capacity Planner (SAP Planning Board) giving it the highest priority to ensure operative availability for frontline and reserve duties. We will generate a roster that ensures of a base resource at all times, for inclusion in the WSP.
Our WSM will ensure operative familiarisation with the Winter Service routes and plant prior to 1st October each year, recording this in our Management System.

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Weather Forecasting

3.1. Purpose

The purpose is to provide accurate information for interpretation by our WSDO's enabling them to plan the winter maintenance operations for the following 24 hour period. WSDOs also have 24/7 access to the Met Desk Forecaster for advice or updated information, providing a proactive approach to winter service. Consent has been granted previously for the appointment of Expert Weather forecaster and the CRWIS provided.

3.2. Methodology

Amey will obtain the expert weather forecasting service (EWFS) from the Met Desk who will utilise information from the existing road sensor network, to give detailed forecasts for each climatic domain, using information from Scottish Weather Radar and thermal mapping to inform on existing and anticipated conditions. Weather forecasts will be based on 8 domains and be provided from 1 October to 15 May (inclusive), and will be delivered every day by 1300hrs via the web-based Computerised Road Weather Information System (CRWIS), providing:

2 – 5 day forecast
A general area forecast per day, for the 4 days following the day of issue of the 24hr forecast information.

24 Hour Forecast
Domain specific forecasts, giving a general summary of the weather anticipated from 12:00 midday to 12:00 midday the following day. The main features of the forecasts are:-

Readiness colour -

- Green No snow or ice expected
- Amber Risk of snow and/or ice
- Red Snow, ice or drifting snow is expected

Hazards – This section gives detail on the weather conditions such as ice, hoar frost, snow (cms), fog, wind and rain, which give rise to the "readiness colour".

Temperatures – Minimum road surface temperature and time at or below freezing.

Severe Weather Warnings
This service is provided throughout the year. The early warning weather alert provides information regarding heavy snow, high winds and / or heavy rainfall.

24 hour Consultancy Service
This facility is used if there are any doubts about the forecasts or when conditions change significantly. Confirmation of updates will be made by telephone to the WSDO if

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the forecast has changed significantly. The Forecaster will also be available to the WSDO to discuss any matters of concern or to clarify low confidence forecasts.
The consent of the Scottish Ministers, in writing, will be sought prior to appointing the Expert Weather Forecaster and the Computerised Road Weather Information System provider.

3.2.1. Climatic domains

Given the extent of the Network we will use Domain forecasting and there will be 8 Climatic Domains listed below with the station that the forecast will be taken from (shown in Fig 1):

Domain Number	Route	Location
1	A7	Terrona
2	A68	Soutra
3	A1	Grantshouse
4	A720	Swanston
5	A702	Abington
6	M8	Whitburn
7	M80	Haggs
8	M90	Halbeath

3.2.2. Weather radar

The WSDO will have access to a web-based Weather Radar facility provided by the Met Desk, 24 hours a day, seven days a week, throughout the winter season to supplement forecast information. The Radar will help to improve the accuracy of assessing the timing, nature and intensity of precipitation, particularly snowfall.

3.2.3. Ice sensors and weather forecast sites

Ice Sensors located on or close to the Network will be polled on a regular frequency of 1 hour between 15th May and 1st October; and at 20 minute intervals between 1st October and 15th May inclusive. All data will be collected by the Ice Prediction System's Master Station, accessed by the WSDO via a portable computer. Weather forecast sensors have added functionality to allow the Met Desk to model the temperature characteristics of the road pavement and can be accessed directly by the Met Desk to assist in producing road-specific weather forecasts. List of stations can be found in Annex WSP 6.

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3.2.4. Thermal mapping

Thermal maps comprise digitised thermal fingerprints graphically representing variations in road surface temperatures along a route. By combining thermal map and forecast data, route maps can be produced indicating forecast minimum road surface temperatures along each route.

Digitised thermal mapping provides another useful tool for staff to supplement forecast data and local knowledge thereby aiding the decision making process regarding winter maintenance action. The maps can also be used to select suitable locations for additional outstations.

For effective use of thermal mapping, the digital map coverage of the Network must be maintained in a complete and up to date state. Where considered appropriate, recommendations on updating of thermal mapping will be made to the Scottish Ministers. This mapping has not been updated since the 2G Contract.

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3.2.5. Location plans

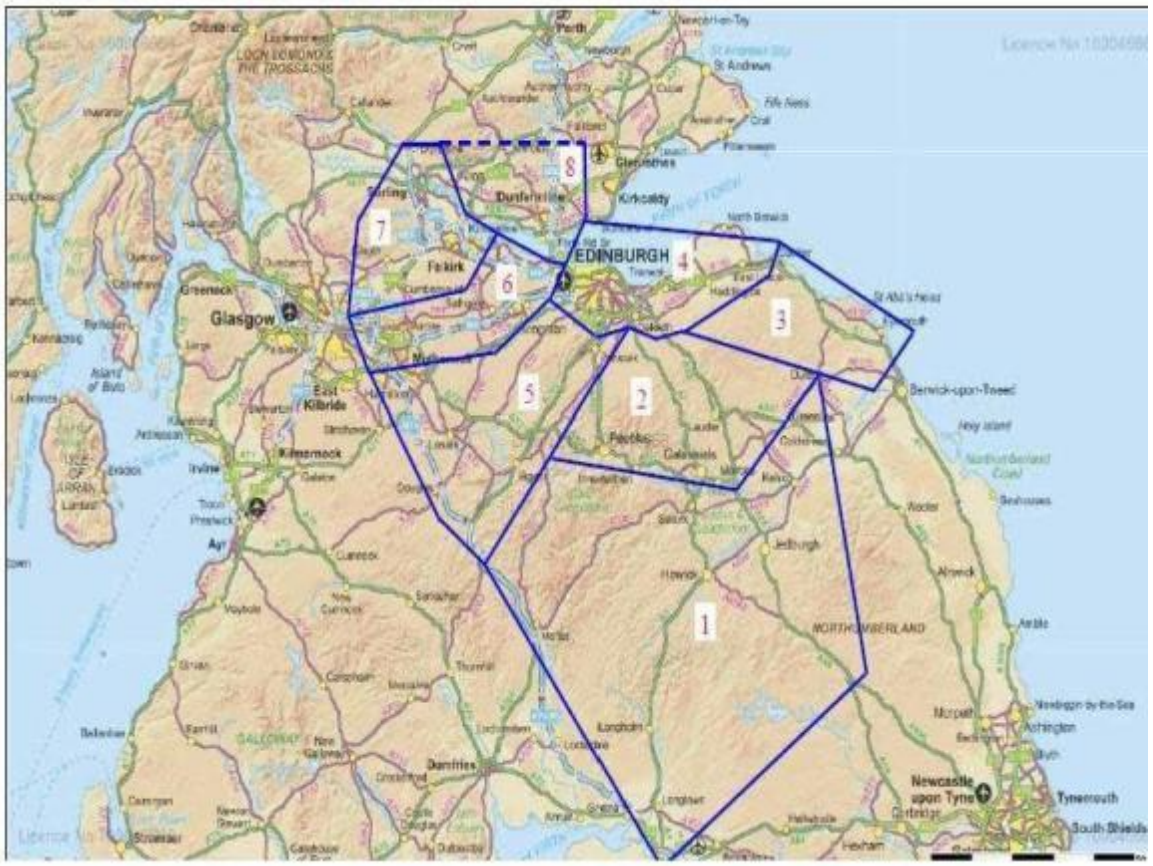

Fig 1. Proposed Climatic Domain.

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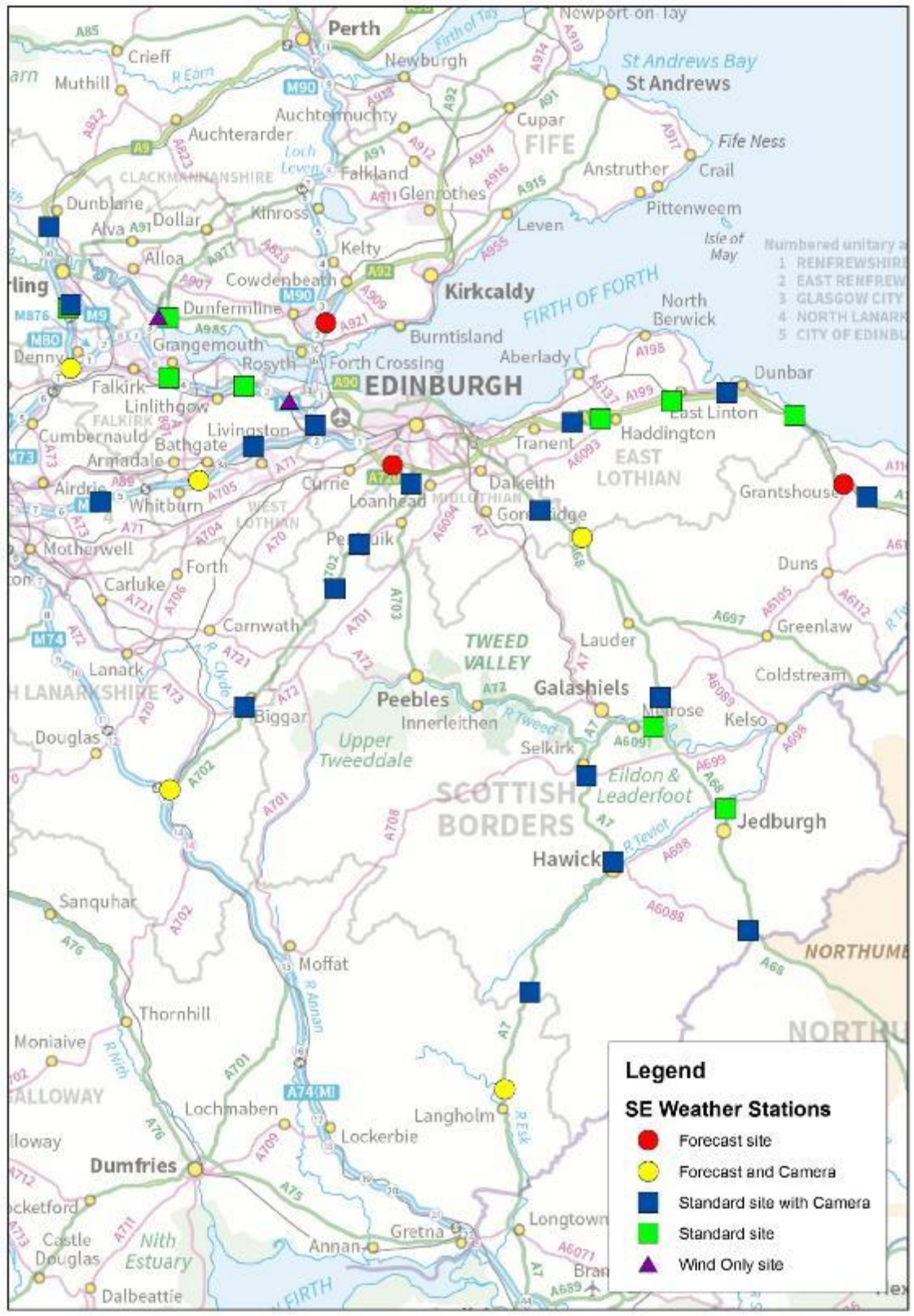

Fig 2. Sensor Location

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3.3 Computer Systems

The computerised road weather information system (CRWIS) will be provided by Vaisala. It will obtain, interpret and display the following, in a manner that predicts trends in weather and road conditions:

- Road sensor data (forecast & actual)
- Thermal maps
- Weather data from the Met Desk
- Weather Camera images
- An automatic alarm has been incorporated, which activates when a road sensor falls to +1 degree centigrade. This alarm will be monitored from the Control Room but also operates on the lap top computer used by the WSDO.
- Frontline Winter Service Plant sensor data (air, RST and spread rates)

In the event of power failure in the Control Room, non-electrical means of heat and light will be utilised pending the switching on of mobile generators from the depot emergency vehicle. Manual records will be maintained and transferred into electronic records on the restoration of the power supply.

In the event of communications failure, mobile phones will be used to maintain contact with vehicle drivers, police, Vaisala and the Met Office. Vaisala will monitor the CRWIS for Amey in this situation.

In the unlikely event that the CRWIS fails for any reason then the WSDO will contact the 24 hour CRWIS helpdesk and / or the Met Desk 24 hour consultancy service for assistance, until the system is restored.

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Monitoring Arrangements for Areas Requiring Special Attention

Areas requiring special attention are known locations on the Network where: Significant gradients exist, shown in Fig 4/1 frost is prone to occur, shown in Fig 4/2 water run-off is liable to happen Fig 4/3

Amey will, throughout the Project period review these areas and add other areas as necessary. All staff involved in Winter Service will be instructed to pay particular attention to the below areas. Any problems identified will be reported back and added to the communications log. Any run off areas will be looked at and bids submitted to investigate to see if a drainage scheme could alleviate any problems.

Road Number	Location
A7	Auchenrivock Improvement
A68	Soutra
M8	Livingston
A720	Calder to Baberton
A68	Carter Bar
A68	St Boswell to Ancrum

4/1 – Significant Gradient Areas

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Road Number	Location
M8	Junction 3 to Junction 5
A68	Huntsfords bends to Carter bar
A68	Pathead to Soutra Hill
A68	South of Soutra to Carfaemill Roundabout
A7	Newmills to Castle Hermitage Junction
A702	South of A703 Junction to North of West Linton
A702	Candymill to north of Coulter

4/2 - Frost Susceptible Areas

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Road Number	Location
A1	Dunbar to English Border
A68	North of Fala
A7	North of Teviothead at Priesthaugh Junction (Drainage work completed but still minor issues)
A7	North of Skippers Bridge near Langholm
A7	South of Langholm at Entrance to Sewage Treatment Works
A702	Immediately north of Sliverburn
A702	North of Abington

4/3 – Water Runoff Areas

Each area must be monitored effectively. For both frost susceptible and known surface water run off locations, the ability to monitor and receive up-to-date road surface temperatures and states is critical. The Patrols on the A702 and the A68 at Soutra will be using a DSP310 Mobile Condition Weather Stations which will give live feed into the Vaisala Navigator system. This will allow these areas to be monitored with increased information live to the WSDO. The M8 patrol vehicle will also be fitted with an Exactrac sensor provided by Transport Scotland.

In addition to the Winter Service Patrols detailed in Section 5 of this document, the WSDO has the authority to instruct the mobilisation of any front-line winter constructional plant to patrol any part of the Network at any time. This action may be necessary to enable the WSDO to receive accurate real time visual information such as road surface state observations, surface water run-off and precipitation type/intensity. This information, combined with data within the CRWIS and Weather Radar allows the WSDO to monitor affected areas along with other areas on the Network and to make appropriate treatment planning decisions.

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AREAS REQUIRING SPECIAL ATTENTION SCHEDULE

Location	A68 Huntsford Bends to Carter Bar
Grid Reference	368982, 608874 – 369822, 606805
Problem	Significant snow accumulations and drifting over higher ground 200 – 350m. gradient can cause HGV's to loose traction
Previous known issues	Over a number of years this area has required additional resources to ensure it remains open. Also south of the Border is not treated regularly so there can be issues there that can affect the running of the Network in Scotland.
Detailed Mitigation Measures	
Optional Mitigation Measures	• The patrol runs 3 miles into England to check conditions to allow the WSDO to contact Northhumberland Council • Reserve fleet will be used to assist in this area during extreme weather events • During snow events a tractor with plough is stationed at Carter Bar to provide extra assistance if required • If possible move resources from areas not affected by snow • Consider the use of alternative de-icers when temperatures are below -7
When enacted	• All patrols will run into England • When there is more than 5cm of snow forecast a tractor will be deployed to the area prior to the snow starting • Alternative de-icers will be used with prior consent from Transport Scotland
Who Enacts	• WSDO in consultation with Winter Manager
Other Measures	• Use of VMS sign to warn drivers of driving conditions or closure • Extra assistance from Scottish Borders Council and local farmers

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Location	A68 Pathhead to A68 Oxton prior to Caffraemill
Grid Reference	339981,663726 – 349317,654609
Problem	Significant snow accumulations and drifting over higher ground 200 – 350m.
Previous known issues	Over a number of years this area has required additional resources to ensure it remains open. This is the highest point on the South East Network.
	Detailed Mitigation Measures
Optional Mitigation Measures	• Reserve fleet will be used to assist in this area during extreme weather events • During snow events a tractor with plough is stationed at Soutra Hill to provide extra assistance if required • If possible move resources from areas not affected by snow • Consider the use of alternative de-icers when temperatures are below -7 • If required snow gates will be closed • Extend to Pathead village
When enacted	• When there is more than 5cm of snow forecast a tractor will be deployed to the area prior to the snow starting • Alternative de-icers will be used with prior consent from Transport Scotland • Snow gates used when road is deemed impassable and unsafe
Who Enacts	• WSDO in consultation with Winter Manager • Police Scotland will make any decision on closing the road
Other Measures	• Use of VMS sign to warn drivers of driving conditions or closure • Extra assistance from Scottish Borders Council and local farmers

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	M8 junction 3 Livingston to M8 Junction 5 Shotts
Grid Reference	304774,670298 – 286711,663890
Problem	13 mile length of 2 Lane Motorway at higher altitude (200 -250m) prone to significant snow accumulations
Previous known issues	Over a number of years this area has required additional resources to ensure it remains open. In 2010 this section of the road was closed due to ice and snow.
Detailed Mitigation Measures	
Optional Mitigation Measures	• Reserve fleet will be used to assist in this area during extreme weather events • During snow events 2 fastacs with ploughs and spreaders are stationed at Livingston and Shotts to provide extra assistance if required • If possible move resources from areas not affected by snow • Consider the use of alternative de-icers when temperatures are below -7 • Request assistance from Amey on the M8 DBFO contract if they are not affected. This will allow all resources to move slightly further east and enable more vehicles to be on the road and treating. • Closure of slip roads using emergency traffic management
When enacted	• When there is more than 5cm of snow forecast a tractor will be deployed to the area prior to the snow starting • Alternative de-icers will be used with prior consent from Transport Scotland • Emergency traffic management will be placed on site prior to any extreme weather being forecast
Who Enacts	• WSDO in consultation with Winter Manager • Winter Manager will consult Transport Scotland prior to using the traffic management • Police Scotland will make any decision on closing the road and implement the traffic management
Other Measures	• Use of VMS sign to warn drivers of driving conditions or closure • Extra assistance from local councils and farmers if possible

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Location	A7 Newmill to Castle Hermitage Junction
Grid Reference	345300, 610511 – 338831, 596216
Problem	Significant snow accumulations and drifting over higher ground 200 – 350m
Previous known issues	Over a number of years this area has required additional resources to ensure it remains open.
	Detailed Mitigation Measures
Optional Mitigation Measures	• Reserve fleet will be used to assist in this area during extreme weather events • During snow events a tractor will be stationed in the area to provide extra assistance where required • If possible move resources from areas not affected by snow • Consider the use of alternative de-icers when temperatures are below -7 • Request assistance from Scottish Borders Council
When enacted	• When there is more than 5cm of snow forecast a tractor will be deployed to the area prior to the snow starting • Alternative de-icers will be used with prior consent from Transport Scotland
Who Enacts	• WSDO in consultation with Winter Manager
Other Measures	• Use of VMS sign to warn drivers of driving conditions or closure • Extra assistance from local councils and farmers if possible

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Location	A702 South of A703 Junction to North of West Linton
Grid Reference	325012,666305 – 315323,652319
Problem	Significant snow accumulations and drifting over higher ground 200 – 250m
Previous known issues	Over a number of years this area has required additional resources to ensure it remains open. In 2010 the road was closed between these points. The steep verges make this area difficult to remove snow and long straights are prone to drifting
Detailed Mitigation Measures	
Optional Mitigation Measures	• Reserve fleet will be used to assist in this area during extreme weather events • During snow events a tractor will be stationed in the area to provide extra assistance where required • If possible move resources from areas not affected by snow • Consider the use of alternative de-icers when temperatures are below -7 • Request assistance from local councils and farmers
When enacted	• When there is more than 5cm of snow forecast a tractor will be deployed to the area prior to the snow starting • Alternative de-icers will be used with prior consent from Transport Scotland
Who Enacts	• WSDO in consultation with Winter Manager
Other Measures	• Use of VMS sign to warn drivers of driving conditions or closure • Extra assistance from local councils and farmers if possible

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Location	A702 Candymill to North of Coulter
Grid Reference	307403,641754 – 302375,634100
Problem	Significant snow accumulations and drifting over higher ground 200 – 250m
Previous known issues	Over a number of years this area has required additional resources to ensure it remains open. In 2010 the road was closed between these points. The steep verges make this area difficult to remove snow and long straights are prone to drifting
Detailed Mitigation Measures	
Optional Mitigation Measures	• Reserve fleet will be used to assist in this area during extreme weather events • During snow events a tractor will be stationed in the area to provide extra assistance where required • If possible move resources from areas not affected by snow • Consider the use of alternative de-icers when temperatures are below -7 • Request assistance from local councils and farmers
When enacted	• When there is more than 5cm of snow forecast a tractor will be deployed to the area prior to the snow starting • Alternative de-icers will be used with prior consent from Transport Scotland
Who Enacts	• WSDO in consultation with Winter Manager
Other Measures	• Use of VMS sign to warn drivers of driving conditions or closure • Extra assistance from local councils and farmers if possible

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Location	A68 St Boswells to Ancrum
Grid Reference	363479, 630500 – 363479, 624944
Problem	The area has a number of small dips and hills along the whole section along with a few junctions. When vehicles stop to turn into junctions HGV's can then struggle for traction.
Previous known issues	Over a number of years this area has required additional resources to assist HGV's with traction once stopped. Once moving again there are no issues.
Detailed Mitigation Measures	
Optional Mitigation Measures	• Additional salt bin to be located at caravan park • When snow is forecast frontline and patrol vehicles to put additional salt down in the area. • If possible move resources from areas not affected by snow • Consider the use of alternative de-icers when temperatures are below -7
When enacted	• All patrols will carefully check area • When there is snow forecast patrols and frontline will do additional blast treatments on hills • Alternative de-icers will be used with prior consent from Transport Scotland
Who Enacts	• WSDO in consultation with Winter Manager
Other Measures	• Use of VMS sign to warn drivers of driving conditions or closure • Extra assistance from Scottish Borders Council and local farmers

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Decision Making

5.1. Role of the Winter Service Manager

The role of the WSM is strategic, and he has ultimate responsibility for the provision of the Winter Service. The Winter Service Duty Officer is delegated the responsibility of producing the daily winter maintenance action plan in conjunction with the treatment matrices shown in Appendix A. The WSDO then informs the WSM of the proposals. Where possible the proposal on the rates of spread of de-icing material, the time of commencement of the routes and the routes to be covered will be made by the WSDO before 14:00 hours. The Winter Service Manager will be available at all times to enable the WSDO to seek advice regarding any aspect of the Winter Service.

Full use will be made of the Met Desk and CRWIS to determine the optimum time to commence precautionary treatments, to ensure that these are completed within two hours of commencement and in advance of sub- zero road surface temperatures.

5.2. Role of the Winter Service Duty Officer

The WSDO will have at his disposal robust procedures, detailed weather forecast information, actual road condition information including information from mobile surface temperature sensors and a communication system to the Winter Service Patrols and operations teams across the Network.

Following receipt of the daily Winter Service action plan, the WSDO will contact all Winter Service drivers informing each of the decision and timing of any treatment in the forthcoming 24hr period. They will also upload the Daily Action Plan to the CMS.

5.2.1 Winter Service Patrol Mobilisation.

Amey will carry out Winter Service Patrols from 1 November to 31 March inclusive on those sections of Trunk Roads identified in Schedule 7 Part 2, annex 7.2/C of the Project and further detailed in Appendix B of this plan

The requirement for Winter Service Patrols is initially determined by the Winter Service Duty Officer on receipt of the Met Office daily forecast and after this has been analysed. From 1st November to 31st March, where the forecast minimum road surface temperature is equal to or less than +3°C, for the climatic domain associated with the Patrol Routes listed in Section 8 of this Plan, the WSDO will instruct Winter Service Patrols on the daily action plan. In these instances the WSDO's are then responsible for mobilisation of the required resources. Category A Patrols will operate out with the time specified in paragraph 2.7.9 when forecasts indicates snow and ice conditions causing an increased risk of delays and disruption to road users.

On occasions the forecast may initially predict road surface temperatures to be above +3°C, but a subsequent forecast update may predict road surface temperatures to drop to or below +3°C. Where such an update is received by the WSDO, Winter Service Patrols will be mobilised directly by the WSDO.

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5.2.2 Proposals for Precautionary and Additional De-icing Treatments when Low Confidence Forecasts shall be issued for Variable Road and Weather Conditions

The minimum requirements for de-icing material spread rates for precautionary treatment shall be as provided in Tables 1, 2 and 3 of Appendix A.

When low confidence weather forecasts are issued by the Met Office, and during marginal conditions, the WSDO's will monitor conditions using the CRWIS. Amey's decision making process accounts for low confidence forecasts received and the WSDO will follow this process when considering the original and updated forecasts.

During marginal conditions the WSDO will always take a conservative approach. It is essential that during these periods the WSDO receives reports and information from the Winter Service Patrols. The WSDO shall instruct patrols to monitor conditions and, if necessary, initiate immediate precautionary treatments in accordance with the proposed de-icing material spread rates detailed in Table 2 of Appendix A.

Any high-risk areas will be monitored closely by the Winter Patrols and all decisions to grit will take these areas into account and decide treatment based on the worst locations. This will allow roads to remain as safe as possible on marginal nights. Patrol; drivers will call the WSDO during his patrol to report the conditions of the high-risk areas.

5.2.3 Proposals for Monitoring the Effectiveness of De-icing Materials

Following any precautionary treatment, the WSDO will continue to monitor the weather forecasts and the actual weather conditions including but not limited to reports from Winter Service Patrols and data from the CRWIS. This information will be used to assess the effectiveness of the treatment and to instruct further treatment when considered necessary; in consideration of forecast conditions.

This is particularly important in situations where precipitation is forecast or has occurred resulting in a potential dilution of the amount of salt present and inherent reduction in the effectiveness of the treatment.

The presence and concentration of salt solution can be detected by Forecast and Road Sensors and displayed within the CRWIS as 'Actual Freezing Temperature'. Actual Freezing Temperature is the theoretical Road Surface Temperature at which ice will form and the salt solution will cease to be effective. The detection of residual salt through the CRWIS, however, depends upon the salt being in solution.

Where there is any doubt as to the ongoing effectiveness of any treatment undertaken, due to either dilution of salt from precipitation, or uncertainty of residual salt levels, the WSDO will err on the side of caution and will instruct further action to be undertaken. We also will fit 2 mobile weather stations to the patrol vehicles covering the A68 Soutra and the A702 to allow us to monitor the conditions on these routes. If required these vehicles will be redeployed to other areas if they are experiencing poorer conditions.

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In extreme conditions when sodium chloride becomes less effective, Amey will use alternative de-icing materials, either pure or blended, in accordance with the table below:

Temperature (Road Surface Temperature)	Conventional Treatment Salt / Sodium Chloride Brine	Alternative Treatment Salt / Alternative Pre-Wetter*
RST down to -7oC	Standard treatment	Reduced spread rate possible
RST between -7oC and down to -10oC	Increased spread rate	Reduced spread rate possible
RST between -10oC and down to -12oC	Not effective	Standard treatment
RST below -12oC	Not effective	Increased spread rate
*Alternative Pre-Wetter;- Mag Chloride Brine – Structures only Sodium Chloride Brine / ABP blend (Safecote) Sodium Chloride Brine / ABP / Mag or Calcium Chloride Brine blend Ecothaw		

5.2.4 Road Closure Operational Procedures

Any decision to close a road will be taken by the Police.

The Winter Service Manager, the Scottish Ministers and Traffic Scotland Control Centre will be informed immediately by telephone, and in writing within 12 hours, of any decision to close a road, or of other major problems encountered within the Network due to winter weather conditions.

The Police will notify the other Emergency Services of any road closures and in liaison with Traffic Scotland will arrange for the provision of advance warning signs and/or activate variable message signs or arrange media coverage where appropriate.

The WSDO will also notify the local Roads Authorities of any relevant road closures.

The WSDO shall immediately inform Traffic Scotland Control Centre and the Scottish Ministers of the reopening of the road.

There are dedicated Traffic Management signs for areas on the M8 and M9 slip roads should these roads need to be closed.

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5.2.5 Activation of Snow and Ice and Hidden Message Signs

Amey will open snow and ice message signs (shown below) prior to 1st October each year or as necessary before this date to provide information to the road user regarding weather and road conditions.

Road	Type of Sign	Location 1	Location 2
A7	Hinged	South of Teviothead	At end of widened carrigeway
A7	Hinged	Hawick	Buccleuch Street
A7	Hinged	Hawick	Burn Foot
A7	Hinged	Gala Kingsknowes	Facing west on Eastbound approach
A7	Hinged	Selkirk Ladylands	Laylands Junction with A699
A7	Hinged	Hawick	Junction with B6359
A7	Hinged	Hawick	Buccleuch Street
A68	Hinged	Cleekim	Junction with A68 / A689 facing North
A689	Hinged	Cleekim	Junction with A68 / A689 facing West
A689	Hinged	Soutra Hill	Northbound Snow gates
A68	Hinged	Soutra Hill	Southbound Snow gates
A68	Hinged	Edgerston	Southbound layby
A68	Hinged	Jedburgh	Oxnam road end, Abbey Bridge
A68	Hinged	Jedburgh	Bonjedward southern end of triangle (A68) Northbound
A68	Hinged	Jedburgh	Bonjedward southern end of triangle (A68) Southbound
A68	Hinged	Cleekim	50m north of A68 / A689 facing north
A68	Hinged	Cleekim	Junction with A68 / A689 facing north
A68	Hinged	St Boswells	A68 / A699 cross roads
A68	Hinged	Carfraemill	Southbound at roundabout
A68	Hinged	Lauder	A68 / A697 at high Cross
A702	Hinged	Dolphinton	Southbound between layby and 40
A702	Hinged	Dolphinton	Northbound between layby and 40
A702	Hinged	Carlops	Northbound at 30mph sign on southside
A702	Hinged	Carlops	Southbound at 30mph sign on southside

Liaison with the Police will take place regarding the activation of hidden message signs when roads are being closed, but these signs will normally be activated by the Police.

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5.2.6 Processes and Procedures for Deciding when it is Unsafe to continue with, or Commencing Clearing Operations

If in exceptionally severe conditions, such as blizzards resulting in reduced visibility and deep drifting snow; the Winter Service Manager decides that it is unsafe for operational personnel to clear snow or ice, operations will be suspended until conditions improve. Such instances are likely to be extremely rare and the Winter Service Manager will liaise with the police, the Director, the expert weather forecaster and Traffic Scotland prior to making such a decision.

Notification of roads closed as a result of being unsafe to continue clearing operations will be notified as 5.2.4 above.

5.2.7 Manual for the Management of the Risk of Unplanned Disruption

The Winter Service Plan is a controlled item of the Quality Plan and forms part of the O&M Manual. The Winter Service Plan forms part of the Disruption Risk Management Plan and shall be reviewed at no greater than 12 monthly intervals.

Liaison

6.1 Scottish Ministers

Effective liaison with the Scottish Ministers prior to, during and after the winter service season is essential to the successful delivery of the service. The Scottish Ministers will be consulted during the preparation, approval and review of the Winter Service Plan on an annual basis. Prior to each winter service season Amey will assist the Scottish Ministers in the preparation and distribution of an annual winter service publicity leaflet.

The Scottish Ministers and PAG will have the capability of remotely accessing electronic winter service records in real time.

Amey will continually review the need for snow fences and shelter belts on the Network and, where it considers that such provisions are necessary; will notify the Scottish Ministers in writing.

Prior to the commencement of the Winter Service Period, the Scottish Ministers will receive one controlled paper copy and one controlled electronic copy of the Winter Service Plan.

6.2 Police

In preparing the Winter Service Plan, Amey will consult with all relevant Police Authorities. The Police shall receive, from Amey, one controlled paper copy and one controlled electronic copy of the Winter Service Plan. All relevant Police Authorities will be notified, by the WSDO, of all proposed treatments and patrols once known, but not normally later than 14:00 each day.

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Amey will liaise closely with the Police to monitor adverse winter weather and travelling conditions. During periods of Severe Weather, the Winter Service Manager and WSDO will work closely with the Police who may supply information to the media regarding travelling conditions on the Network.

Any decision to close a road will always be taken by the Police. Amey will liaise with the Police regarding road closures as detailed in Section 5.2.4 of this document.

6.3 Traffic Scotland Operator

Amey will, prior to the commencement of each winter service season, issue the Traffic Scotland Operator one controlled paper copy and one controlled electronic copy of the Winter Service Plan.

During the Winter Service Period, the Operating Company shall report the known effect of adverse weather and travelling conditions to the Traffic Scotland Operator

Traffic Scotland will be notified by the WSDO of all planned treatments and patrols by 14:00 each day. In addition, should messages be required to be displayed on electronic warning systems and variable message signs, Traffic Scotland Control Centre will be notified by the WSDO.

During periods of severe weather the WSDO will undertake regular reviews, at no less than hourly intervals, of the information published within the severe weather bulletin board, and update this information via the Traffic Scotland Roadwork's diary terminal:

(i) if he is aware of any change in the situation at any location logged on the bulletin board and

(ii) if he is aware of any other locations where severe weather is affecting driving conditions or traffic movements on the Trunk Road network.

6.4 Adjacent Road and Highway Authorities

In preparing the Winter Service Plan, Amey will consult with all adjacent Local Roads Authorities. They will receive, from Amey, one controlled paper copy and one controlled electronic copy of the Winter Service Plan. Adjacent Local Roads Authorities will be notified by the WSDO of all planned treatments and patrols by 14:00 each day.

Amey will liaise closely with all adjacent Local Roads Authorities to monitor adverse winter weather and travelling conditions

6.5 Adjacent North East, North West, South West, FRB Units Including DBFO's

A consistent level of service at boundary interfaces with adjacent Trunk Road Operating Companies is essential to allow the safe movement of road users and to minimise delays and disruption caused by snow and ice conditions.
During the annual preparation and review of the Winter Service Plan, Amey will consult with adjacent Trunk Road Operating Companies. They shall receive one controlled paper copy and one controlled electronic copy of the Winter Service Plan. The WSDO will notify

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adjacent Trunk Road Operating Companies of all proposed treatments and patrols once known, but not normally later than 14:00 each day.

During periods of severe weather, the WSDO will liaise and update the adjacent Trunk Road Operating Companies regarding the current status of the prevailing weather conditions and Amey's winter service operations.

6.6 Network Rail

As there are no railway level crossings, liaison with Network Rail will not be appropriate.

6.7 Communication

We will ensure we communicate with all parties who have an input to the Winter Service. Our WSM will work with our Media and Communications Officer (MCO) to develop our Communication Plan which will be vital for the effective management of Winter Services. The WSP will include contact details for relevant stakeholders and communication arrangements, including those for notification of events such as road closures.

Our MCO will work with our WSM and Press Transport Scotland (PTS) to develop an annual Winter Service publicity leaflet. In collaboration with PTS and other Operating Companies, we will undertake an annual winter service media relations and communications programme, promoting our winter-readiness and safe driving messages.

Each day the WSDO will use Social media to update the public of any treatments planned or completed on the Network. During any severe weather period or incident the WSDO will notify the WSM who will deal with all Social Media notification to allow the WSDO to concentrate on ensuring the roads are free flowing.

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Mutual Aid

Mutual aid will only be executed by agreement from Transport Scotland. A list of contacts for adjacent Operating Companies and Local Authorities will be held by the WSM to allow offers of mutual aid to be made, subject to the availability of resources. This aid may take the form of providing salt stocks or operated winter service plant. Whenever such a request is received, we will endeavour to make this aid available at the earliest opportunity, without compromising the level of service being provided on the Network.
We propose to offer Mutual Aid if instructed to Harthill Services, Edinburgh Airport, the Refinery at Grangemouth, Northumberland Council, M80 DBFO, M6 DBFO and any other agencies at request.

Winter Service Patrols

From 1st November to 31st March inclusive, when the forecast minimum road surface temperature for the Network is less than or equal to 3°C, the WSDO will instruct the relevant Winter Service Patrols covering the routes detailed in Schedule 7 Part 2 Annex 7.2/C. Patrols route cards and maps can be found in Appendices B and C respectively.

Winter Service Patrols will:

- Patrol all carriageways of Trunk Roads, excluding slip roads, identified in Annex 7.2 of Schedule 7 Part 2.
- Report on road conditions encountered to, and take instruction on treatments from, the Winter Service Duty Officer
- Provide an immediate response when instructed to carry out treatments or other de-icing Operations by the Winter Service Duty Officer
- Deal with any situation on the Winter Service Patrol route requiring immediate attention
- Pay particular attention to Areas Requiring Special Attention identified in Annex 7.2 of Schedule 7 Part 2.
- Undertake short stops for minor maintenance such as clearing grips and removing debris, and
- Provide daily reports.

Category A Winter Service Patrols shall operate from 02:00 to 10:00 at two hourly intervals as described in Schedule 7, Part 2. The routes will be designed such that each Winter Service Patrol alternates between a one hour patrol and a one hour standby on each route. All patrol routes shall be completed within one hour of commencement.

The routes for dual carriageways and motorways shall be further designed so that the patrol vehicle, when working, is able to attend any location on its route within 30 minutes of receiving a call from the Winter Service Duty Officer.

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Category A Winter Service patrols shall operate out with the specified times when forecasts indicate an increased risk of delays and disruption to users caused by snow and ice conditions.

Operating periods for Winter Service Patrols shall be between 02:00hrs and 04:00hrs, 04:00hrs and 06:00hrs, 06:00hrs and 08:00hrs and 08:00hrs and 10:00hrs.

Category B Winter Service Patrols shall operate from 00:00hrs to 09:00hrs at three hourly intervals. Operating periods for Category B Winter Service Patrols shall be between 00:00hrs and 03:00hrs, 03:00hrs and 06:00hrs and 06:00hrs and 09:00hrs.

Patrols covering key sites will be fitted with mobile weather stations to enhance available data from sensitive locations. These will be on the patrols covering A68 around Soutra and the A702. There will also be an Exactrac mobile road condition sensor on the M8 patrol near Harthill which has been supplied by Transport Scotland.

The Patrol vehicle covering the southern end of the A68 will continue past Carter Bar and into Northumberland some 3 miles to Byrness village where it will turn and return to the South East Network. If any issues are found the patrol driver will contact the WSDO who will call Northumberland Council.

A list of all Patrols and their category are listed below:

Route	Category
M8	A
M876	A
M80	A
M9	A
M9 / M8	A
A720	A
A1 - A720 To Abbots View Roundabout	A
A68	B
A6091 / A7	B
A720	B
A702	B

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Winter Service Plant and Reporting

9.1 Winter Service Plant Provided by Amey for Winter Service Patrols.

Winter Constructional Plant for Winter Service Patrols, as detailed in Annex WSP 5 of Appendix D, will be:

- fully loaded with de-icing material to provide an immediate response to carry out precautionary treatments or other de-icing Operations for carriageways
- Equipped with on board data logging equipment to record actions taken by Winter Service Patrols,
- Be fitted with RST probes that link back to the OCCR, equipped with on board global positioning system, and route guidance
- A front line service independent and separate to precautionary treatment resources which will not be diverted to other de-icing operations or emergencies.

9.2 Winter Service Patrol Report

Winter Service Patrols will report on road conditions encountered to, and receive instructions from, the WSDO. Winter Service Patrols will provide daily reports to the WSDO using a Patrol Report Record Form (see appendix B)

9.3 Welfare Kits

Amey will hold welfare kits, which will be carried by each Winter Service vehicle and will be distributed in the event of an incident involving stranded vehicles. Each welfare kit shall include 24 space blankets, 24 bottles of water and 24 energy bars.

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10.1 Precautionary treatment routes, including sections shared with Scottish Minister' s Trunk Road North East, North West and South West Units including DBFO's and other adjacent road authorities;

The precautionary treatment routes listed in appendix C have been separated into distinct categories and also identify which routes are operated by our partner SBC:
Carriageway precautionary treatments not exceeding 20g/m²
Carriageway precautionary treatments not exceeding 40g/m²
Sections of footways, footbridges and cycleways.

All precautionary treatment routes have been designed to enable completion of treatment routes, including contiguous laybys but excluding remote laybys, within two hours of commencement of the treatment. Precautionary treatment routes will mobilise, commence and complete before snow and ice conditions are forecast to occur. Immediate responses for unplanned treatments will mobilise and commence within one hour of the WSDO's instruction. All routes will be driven prior to the winter season to allow drivers to be familiar with them.

The Kincardine and Clackmannanshire Bridges will be treated with Potassium Acetate with a combination vehicle. This will allow a continuous route to be followed and not stand alone treatment.

De-icing vehicles and drivers will be assigned to specific routes to promote route ownership and knowledge, but all drivers will have a basic knowledge of every precautionary treatment route and will be capable of undertaking any such route if necessary.

Precautionary treatment spread rates, specified by the WSDO on the daily action plan, will be in accordance with Table 2 of appendix A of this document.

Additional care will be taken at roadworks, where in addition to areas currently being trafficked, all other areas, including contraflows, likely to be opened to traffic are treated. Traffic management equipment, including cones and cylinders, may disrupt distribution of salt, and liaison with engineering staff responsible for roadwork sites is essential if complete and robust treatment is to be ensured. Where more extensive traffic management measures prevent adequate precautionary treatment application, separate treatment will be carried out in advance of the carriageway being re-opened to traffic.

No Winter Constructional Plant will be driven above the legal speed limit at any time or at a speed greater than 40mph during precautionary treatment operations on de-restricted dual carriageways or motorways. On single carriageway roads de-icing material will be spread across the full width of the road in a single pass with the Winter Constructional Plant travelling at a speed no greater than 30mph.

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10.2 Contingency plans for alternative access to precautionary treatment routes where normal access is prevented due to weather related or other incidents.

Amey have put in place arrangements and resources which will ensure that carriageway precautionary treatments will be provided for sections of the Network where normal access is prevented due to weather or other related incidents.

These contingency arrangements provide resources for precautionary treatments using an alternative access. Front Line Winter Constructional Plant will carry out treatment from an alternative access, should, for whatever reason, precautionary treatment not be able to be carried out in accordance with the Route Cards shown in WSP 2 of Appendix D.

For the majority of the Network there are alternative routes available to enable treatment routes to be completed by the de-icing vehicle allocated to that particular route. Network areas that Amey consider are most at risk from restricted access, due to weather or other related incidents, are those with no local suitable alternative routes. The main one on the Network would be the south end of the A1 and the south end of the A68 and A7 as the alternative access is possible with a long diversion.

10.3 Locations of De-icing Material Loading and Mixing Points.

De-icing materials will be stored in Amey Depots at Bilston Glen, Burghmuir and Rosyth Depots as well as Scottish Borders Council (Strategic Partner) Depots in Newton St Boswells, Duns, Kelso, Peebles, Lauder and Hawick. All of which will be the loading points for the Project.

10.4 Details of Cycling Facilities in Urban Areas.

There are presently no designated cycling facilities within urban areas contained within the Network area.

Snow and Ice Clearance

11.1 Snow Clearing

11.1.1 Description of Arrangements and Resources for Snowfall

Amey will, so far as is reasonably practicable, ensure sufficient resources are available to prevent snow or ice from remaining on the Network ,and put into place specific arrangements to ensure that these resources will be mobilised.

The WSDO, in discussion with the Winter Service Manager, will determine, from the 2-5 day weather forecast, the requirements to mobilise additional resources and fit ploughs. Winter Service shifts and the preparation of de-icing and ploughing equipment will be instructed by the WSDO, subject to prior approval by the WSM.

All Front Line, Reserve and Additional Winter Constructional Plant, apart from snow blowers, will be equipped with snow ploughs to effectively clear ice and snow. Non-

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salting vehicles fitted with ploughs, will also be mobilised to aid echelon ploughing on dual carriageways and motorways. We will use a Schmidt KL-V snow plough on the A1 south of Haddington, offering enhanced clearing capability at central reserve crossover at-grade right turns. We have a fast trac machine from Ritchie's will be able to operate Transport Scotland's Raiko Icebreaker.

Conditions and de-icing spread rates for snow and ice clearance of carriageways are detailed in Appendix A Table 4 with Snow Clearance requirements shown in Appendix A Table 5. Each depot will also have a stock of Ecothaw or Safecote which can be used instead of or mixed with Brine that will allow more extreme temperatures to be treated. The table in para 5.2.3 shows what temperatures these materials are suitable for.

Details of Constructional Winter Plant are provided in Section 12 of this document and Annex WSP 5.

The clearance procedure for dual carriageways and motorways will be echelon ploughing (2 or more vehicles moving in the same direction, one behind each other on different lanes). Ploughing techniques to be adopted are shown in Figure 11/1 below.

Ploughing Techniques
2 Lane Dual Carriageway Roads without Hardshoulders: The method of clearance, on both carriageways, should be: (a) plough the left hand lane to the verge; (b) plough the right hand lane to the central reservation
2 Lane Dual Carriageway Roads with Hardshoulders: The method of clearance, on both carriageways, should be: (a) plough the left hand lane to the Hardshoulder; (b) plough the right hand lane to the central reservation.; (c) plough the Hardshoulder to the verge
3 Lane Dual Carriageway Roads without Hardshoulders: The method of clearance, on both carriageways, shall be: (a) plough the centre lane to the left hand lane; (b) plough the left hand lane to the verge; (c) plough the right hand lane to the central reservation
3 Lane Dual Carriageway Roads with Hardshoulders: The method of clearance, on both carriageways, shall be : (a) plough the centre lane to the left hand lane; (b) plough the left hand lane to the Hardshoulder; (c) plough the right hand lane to the central reservation; (d) plough the Hardshoulder to the verge

Figure 11/1: Ploughing Techniques

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Where hard packed snow and ice not exceeding 20mm thick has formed, and the air temperature is above minus 5°C, removal will be achieved by successive spreading of de-icing material. Below minus 5°C or where the snow or ice is more than 20mm thick, a single sized abrasive aggregate of particle size of 6mm, or 5mm sharp sand and having low fines content will be added to the de- icing material on a 1:1 ratio. Reversion to the use of de-icing material only will be made as soon as possible. Abrasive aggregates will be considered as a supplement on footway sections where de-icing material alone would provide an unacceptably slippery surface.

During prolonged periods of snowfall at locations where the use of salt for de- icing is prohibited, ploughing will be continuous followed by repeated applications of de-icing chemical. If snow becomes hard packed, consideration will be given to applying 5mm sharp sand to aid traction while snow clearing operations are being carried out.

Ploughing routes will mirror the precautionary treatment routes and this activity will be carried out utilising the Echelon Ploughing technique.

11.1.2 Road Closure Procedure including use of Snow Gates

The Police will issue instructions to Amey to assist in road closures. When the Police, in consultation with the WSDO, consider that weather conditions have made a road unsafe to vehicular traffic, arrangements will be made with the Police to close the road. There are currently only two set of snow gates within the Network at either end of Soutra hill on the A68.

Having decided on the need to close a road, the Police will issue instructions to close the road. This decision will normally be relayed by the Police to the WSDO using a dedicated contact number. Amey will liaise, and co-operate, with the Police to man each end of the closure, if applicable, until a search of the section of road affected has been undertaken to ensure that no vehicles or pedestrians are trapped within the lengths of closure.

When a road is required to be closed, the WSDO will immediately notify the Traffic Scotland Control Centre by telephone. A written report will be submitted to the Scottish Ministers within 12 hours (or if outside of normal working hours then the morning of the next working day) of the Police instructing road closure.

The Police will normally notify the other Emergency Services of any road closures and will arrange for the provision of advance warning signs and/or will activate fixed or variable message signs where appropriate. The WSDO will also notify the adjoining Local Authorities and Operating Companies of any relevant closures.

Once it has been ascertained that no-one has been trapped within the closure length, the closure will be secured and all Amey personnel withdrawn except those involved in the clearance of snow.

When it is considered safe, the Police will request Amey to re-open the road. The WSDO will immediately inform Traffic Scotland and the Scottish Ministers of the reopening of the road.

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11.1.3 Prolonged Snowfall Strategy

During prolonged periods of snowfall, ploughing will be continuous from the onset of snow to prevent a build-up of snow and compaction by traffic. Ploughing will continue until the Network is clear of snow and ice. Reserve and Additional Winter Constructional Plant will be used, as necessary, to supplement Front Line Winter Constructional Plant in snow conditions. The WSDO will liaise with Scottish Ministers Multi Agency Response Team (MART) throughout this period ensuring the provision of a coordinated response. When planning and carrying out snow clearance, Amey will pay particular attention to the layout of the carriageway in terms of the overall number of lanes and the location of entrance and exit slip lanes. Snow clearance of slip roads will be co-ordinated with main carriageway clearance, and a clear path kept open between those entry and exit points where frequent lane changes are necessary.
For dual carriageways and wide single carriageway roads, echelon ploughing will be carried out utilising two snow plough vehicles moving in the same direction, one behind the other in adjacent lanes.
Irregular windrows caused by ploughing passes, especially those that weave from one lane to another are dangerous, and will be avoided, as they may tempt drivers to overtake by squeezing into the partly cleared lane. Lanes will be completely cleared, such that any windrows of snow remaining form a smooth and continuous line with no sudden encroachments into the cleared path. Clearance of snow from contiguous and remote laybys will be carried out once the main carriageway, junction areas and crossovers have been cleared of snow.

Care will be taken to avoid damage to road surfaces, road studs, roadside furniture and structures. At roadworks, traffic management equipment must not be disrupted. An accumulation of ploughed snow creating a ramp adjacent to safety fences and concrete barriers will be avoided.

Where conventional ploughing or snow ploughing is not possible, for example:

- in exceptional circumstances when the snow on the road is deep and cannot be removed by conventional ploughing or snow blowing
- when de-icing treatment over packed snow is likely to provide an unacceptable surface, or
- when the traffic is insufficient to disperse the snow,

Amey will lift, remove and dispose of snow and ice and/or utilise snow blowers, with the snow being directed onto adjacent land (where Amey has obtained the prior agreement of the landowner and the Scottish Environmental Protection Agency). Such operations will be followed by de-icing treatment.

When snowploughing or snow blowing operations are undertaken care will be taken that snow does not build up across:
railway tracks or against gates, bridges, parapets, fences and safety fences, walls and other boundaries

Speeds of ploughing vehicles will be regulated, particularly at features such as underbridges where snow could be thrown over the bridge parapet, and adjacent to the central reserve where snow could be pushed into the opposing carriageway. When ploughing snow, other vehicles will not be overtaken unless stationary.

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We recognise that additional resources will be required for echelon ploughing in snow conditions. Winter Service operations will accord the highest priority and additional operatives will be rostered to crew additional shifts. Ploughing routes mirror our precautionary treatment routes are shown in Appendix D.

11.1.4 Arrangements for Safe Clearance of Snow and Ice from Wide Single Carriageways.

When clearing wide single carriageway roads, particularly those having more than two lanes, snow clearance operations must avoid the build-up of snow in the centre of the road. The detail of the ploughing strategy to be adopted is shown in Figure 10/1.

11.1.5 Arrangements for Safe Clearance of Snow or Ice Adjacent to Vertical Concrete Barriers.

Echelon ploughing operations will be coordinated to achieve clearance in one pass of at least all running lanes initially to the hard shoulder and then subsequently to the verge. An accumulation of ploughed snow creating a ramp adjacent to vertical concrete barriers will be avoided.

11.1.6 Treatment Strategy for Footways, Footpaths and Cycle Facilities to be Detailed Including Location of Salt Bins where Applicable

(A) All Footways and footbridges shall be cleared of all snow and ice by 08:00 or within two hours of snow ceasing to fall during the period 06:00 to 18:00 hours.

(B) Cycling facilities shall be cleared of all snow and ice by 17:00 hours the following weekday (if the following day is a Saturday or Sunday then the area shall be cleared on the next Monday).

A list of Salt bins and self-help heaps is located in section 15.

For reactive snow and ice clearance of all categories of footways, footbridges and cycleways the following spread rates will apply:

During snow clearance 20g/m2
Following clearance of ice and snow 20g/m2

11.1.7 Treatment of Freezing Rain

Freezing rain will be dealt with in line with the best practice below.

Guidance on dealing with 'Freezing Rain'

This advice has been prepared to assist service providers in developing procedures for taking the necessary actions both in advance of and during an occurrence of freezing rain. The advice is not intended to prescriptively define how freezing rain should be dealt with, as this is an issue for the individual service provider and is dependent on local circumstances.

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It is recognised that the prediction of freezing rain is difficult and the action necessary to deal with it is problematic but service providers need to consider and plan actions to be taken when such events occur. It is important that all details of the actions intended for dealing with the phenomenon of freezing rain are documented in Winter Service Plans. Considering the limits in the effectiveness of treatments in dealing with freezing rain it is essential that all practical measures be implemented to provide warning to road users of the hazardous conditions.
Measures for dealing with freezing rain fall into three main areas: advance planning, operational arrangements, and hazard mitigation. These measures are considered in further detail as follows:

Advance Planning
Advance planning includes consideration of the potential impact of freezing rain and development of contingency arrangements to mitigate the effects. These contingency arrangements should be documented in the Winter Service Plan. Other aspects of advance planning include training and exercises.
Specific measures that should be considered include:
Prior to the commencement of the winter season, agreement should be reached with the local police authorities and, where applicable, the Regional Control Centres (RCCs) on procedures for dealing with occurrences of freezing rain and any incidents that may occur during or following such conditions.
Outline operational arrangements should be developed and documented within the Winter Service Plan. Although the adverse effects of freezing rain can impact across any part of the network particular consideration should be given to those parts where the impact may be more significant such as on gradients or difficult alignments.
Operational Arrangements
Operational arrangements should include details of treatment regimes. In general, freezing rain should be treated in a similar manner to snow, i.e. treatment in advance of and during the event and then treatment following as required.
Specific measures that should be considered include:
If the condition of freezing rain is anticipated, contact with the Police, RCC, adjoining service providers and Local Authorities is to be made to acquaint them of the possibility and the proposed action.

Prior to the arrival of the freezing rain a pre-treatment is to be made in the same manner as would be made prior to snow falling.
Constant monitoring of the situation is to be made and an additional treatment is to be carried out immediately the rain commences and continued until such time that the rain has ceased or the temperature of the road has risen above freezing.
Freezing rain usually occurs along the line of an incoming warm front. If possible, to ensure maximum effectiveness of the salt, the advance treatment should be made in the same direction and immediately in advance of the weather front. Use should be made of weather radar where available, to help determine the timing of treatment. Consideration should be given to stationing vehicles at the point on the route where the weather front will first hit in order that timely treatments can be undertaken.
Some salt will inevitably be lost during and following treatment and therefore careful consideration needs to be given to the requirement for continued successive treatments.
Hazard Mitigation
The very nature of freezing rain means that treatments will have virtually no effect initially and ice will form on the carriageway. Mitigation of the hazard is therefore a

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significant aspect of the actions taken in response to freezing rain. The main action is to inform road users of the hazard but more pro-active measures might be required. For example, consideration should be given to closing the road as the rain arrives and holding the traffic (rather than diverting) until such times as it is deemed safe to proceed. Such considerations will need to be made on a local basis taking into account local circumstances.

Specific measures that should be considered include:

Where available fixed or mobile Variable Message Signs should be used to warn road users of the hazard. The existing established procedures for requesting VMS settings to be made should be followed well in advance. The following legend is currently the most appropriate for use in these circumstances:

SKID RISK SLOW DOWN

Press officer should be contacted in order that the local media can be advised as necessary.

Where available, use of variable mandatory speed limits should be considered. This will require arrangements and protocols to be established with the appropriate Police Control Office (PCO) or RCC as part of the advance planning procedures.

Consideration should be given to the use of rolling blocks and convoy arrangements to either hold or slow traffic down both just prior to and during the event. This will require arrangements and protocols to be established with the appropriate police authorities or RCC Operations Managers as part of the advance planning procedures.

In addition to the arrangements made in respect of advance planning, operational procedures and hazard mitigation it will be necessary to consider the arrangements to be implemented should any incidents occur as a result of the freezing rain. This may, for example, include liaison with PCOs or RCCs to provide advance warning to recovery companies. Procedures for giving such advance warning would need to be established in advance with PCOs and RCCs and documented within the Winter Service Plan.

11.1.8 Location of the Footways Footbridges and Cycle Facilities.

Below is a list and designated category of each footway, footbridge or cycle facility within the Network area and tables showing what treatment they should receive.

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Location Number	Route	Location	Name of street (side of street to be treated)	Details of Footway		Route Centreline Length (m)			
				Start	Finish	Category A	Category B	Category C	Category D
1	A68	Jedburgh	Newcastle Road (West)	Oxnam Road	Front of Queen Mary's Building			515	
			Bongate/Edinburgh Road (Both)	Front of Queen Mary's Building	Riverside Workshops			900	
			Edinburgh Road (East)	Riverside Workshops				200	
2	A68	Earlston	Melrose Road (West)	"Leader Cottage" (13025/74/1060)	"Kirkgate Cottage" (13025/74/1220)			160	
			Melrose Road/Thorn Street (Both)	"Kirkgate Cottage" (13025/74/1220)	Westfield Road			215	
			Lauder Road (East)	End of divided section of road (1041/05/280)	"Otford House" (13041/05/440)			160	
3	A68	Lauder	East High St (Both)	"Wyndhead Lodge" (13053/05/370)	Kirk Wynd			355	
			Market Pl/West High St (Both)	Kirk Wynd	13053/57/210		330		
			West High St/Edinburgh Rd (Both)	13053/57/210	"The Haven" (13055/05/115)			545	
4	A68	Pathhead	A68 (Both)	"Whippielaw" (13074/64/1110)	Pathhead Primary School main gate (13075/00/105)			105	
			Main St (Both)	Pathhead Primary School main gate (13075/00/105)	Oxenford Ave (13075/00/645)		545		
			Main St (Both)	Oxenfoord Ave (13075/00/645)	Crichton Rd			295	

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Location Number	Route	Location	Name of street (side of street to be treated)	Details of Footway		Route Centreline Length (m)			
				Start	Finish	Category A	Category B	Category C	Category D
5	A7	Langholm	A7/High St (West)	Glenesk Rd	94 Main St (11004/05/315)			570	
			High St (Both)	94 Main St (11004/05/315)	Thomas Telford Rd (bridge)		285		
			Townhead/A7 (West)	Thomas Telford Rd (bridge)	11006/05/290			645	
6	A7	Hawick	Buccleuch Rd (Both)	Langheugh Rd	Second easternmost entry into Hawick High School (11035/05/725)			480	
			Buccleuch Rd (South)	Second easternmost entry into Hawick High School (11035/05/725)	Buccleuch Pl			90	
			Buccleuch Rd (North)	Second easternmost entry into Hawick High School (11035/05/725)	Buccleuch Pl	90			
			Buccleuch St (Both)	Buccleuch Pl	Roundabout	225			
			Sandbed (Both)	Roundabout	Start of Albert Rd	70			
			Albert Rd (Both)	End of Sandbed	Commercial Rd	120			
			Commercial Rd (Both)	Albert Rd	Bath St			285	
			Commercial Rd (West)	Bath St	Dovemount Pl			415	
			Dovemount Pl/Wilton Hill (Both)	Commercial Rd	Fire Station (11039/36/400)			535	
			Wilton Hill/A7 (West)	Fire Station (11039/36/400)	"Rose Cottage" (11039/36/770)			385	

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Location Number	Route	Location	Name of street (side of street to be treated)	Details of Footway		Route Centreline Length (m)			
				Start	Finish	Category A	Category B	Category C	Category D
7	A7	Selkirk	Hillside Tce (Both)	Tennis Courts (11048/05/530)	High School Ln			150	
			Hillside Tce (North)	High School Ln	11048/60/65		165		
			Hillside Tce (South)	High School Ln	11048/60/65			155	
			Hillside Tce/Tower St (Both)	11048/60/65	Back Row			220	
			Tower St (Both)	Back Row	High St		115		
			High St (Both)	Tower St	Ettrick Tce		80		
			Ettrick Tce (Both)	High St	Chapel St		105		
			Ettrick Tce (Both)	Chapel St	Entrance into Factory (11053/05/150)			1280	
8	A702	Coulter	A702 (Both)	Bend in road near PO (13501/80/00)	Brae Cottage (13501/80/720)			765	
9	A702	Biggar	Coulter Rd (Both)	20 Coulter Rd (13511/05/645)	Park Pl			460	
			High St (Both)	Park Pl	B7016		720		
			Edinburgh Rd (Both)	B7016	22 Edinburgh Rd (13511/05/2085)			205	
			Edinburgh Rd (South)	22 Edinburgh Rd (13511/05/2085)	Springdale (13511/05/2238)			150	

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Location Number	Route	Location	Name of street (side of street to be treated)	Details of Footway		Route Centreline Length (m)			
				Start	Finish	Category A	Category B	Category C	Category D
10	A702	Dolphinton	A702 (Both)	Hillside Gardens	Bend near the Beehive (13525/63/1060)			1040	
11	A702	West Linton	Dolphinton Rd/Carlops Rd (Both)	"The Paddock" (13531/05/5855)	Roundabout			960	
			Carlops Rd (West)	Roundabout	"Linton Grange" (13533/79/165)			220	
12	A702	Carlops	A702 (Both)	"The Old Manse" (13535/05/240)	"The Cottage" (13535/05/860)			635	
13	A702	Silverburn	A702 (Both)	60m South West from Hopelands Rd	210m North East from Hopelands Rd			270	
14	A6091	Tweedbank Roundabout To Kingsknowe Roundabout	A6091 (north side)	A7 Kingsknowe Roundabout (10205/05/0)	Start of Galafoot Bridge (10205/05/329)		329		
			A6091 (north side)	Start of Galafoot Bridge (10205/06/0)	End of Galafoot Bridge (10205/06/213)		213		
			A6091 (north side)	End of Galafoot Bridge (10205/10/0)	Tweedbank Roundabout (10205/10/451)		451		
15	A985	Rosyth	Admiralty Rd/ Both Sides	Kings Rd	M90 Offramps			1220	
16	A985	Crombie	Main Rd/ Southern Side	Farm Rd (14620/18/240)	14620/18/900			660	
17	A977/ A985	Kincardine	A977- Feregait- Toll Rd/ Both Sides	Broomsknowe Dv	Easter Kincardine (15902/05/365)			2120	

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Categories	Requirements
A and B	Apply de-icing treatment before 08.00 hours each morning to any ice which has formed.
C	Clear all ice by 17.00 hours on the same day the ice formed excluding Saturdays and Sundays when the area shall be cleared by 17.00 hours on the Monday immediately following.
A, B and C	Following clearance of ice or if ice has melted naturally during the day, spread anti-icing materials to prevent ice formation on the cleared surfaces in accordance with paragraph 3.1.17 of this Part.
D	These footways, footbridges and cycleways shall receive treatment when required by the Director.

Categories	Requirements			
	General	Between 06.00 and 18.00 hours	Between 08.00 and 17.00 hours	Treatments out with daytime hours
A and B	Between the hours of 06.00 and 18.00, commence snow clearing as soon as practicable to prevent compaction by traffic. Ploughing should be continuous thereafter to prevent a build up of snow.	Clear all snow within 2 hours of snow ceasing to fall. On wide Routes, 1.2 metre minimum width shall be cleared initially.		Clear snow when required by the Director.

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Categories	Requirements			
C	Between the hours of 08.00 and 17.00, commence snow clearing as soon as practicable to prevent compaction by traffic. Ploughing should be continuous thereafter to prevent a build up of snow.		Clear all snow by 17.00 hours on the day the snow first fell excluding Saturdays and Sundays when the area shall be cleared on the Monday immediately following. On wide Routes, 1.2 metre minimum width shall be cleared initially.	Clear snow when required by the Director.
A,B and C		Following clearance of snow, spread anti-icing materials to prevent ice formation on cleared surfaces in accordance with paragraph 3.1.17 of this Part. Note brine shall not be used as the anti-icing agent where compacted snow or ice lenses remain on the surface of the Route.	Following clearance of snow, spread anti-icing materials to prevent ice formation on cleared surfaces in accordance with paragraph 3.1.17 of this Part. Note brine shall not be used as the anti-icing agent where compacted snow or ice lenses remain on the surface of the Route.	
D	These footways, footbridges and cycleways shall receive treatment when required by the Director.			

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De-Icing Materials

Details
Salt used for de-icing, including that used for the manufacturing of brine used in pre-wetting will be 6.3mm grading particle size and comply with the following:

(i) 6.3mm grading particle size to BS 3247:1991 treated with an anti-caking agent,

(ii) Salt storage areas will be maintained to ensure the following:

Salt is stored in dry conditions, such that moisture content does not exceed 4%.
No sheer faces left on stockpiles.
Salt stockpiles do not become contaminated.
Salt stockpiles or adjacent operations do not affect the environment.

(iii) Moisture content at existing salt stocks will be measured at monthly intervals throughout each Winter Period. The results will be recorded on an electronic data base which will be available for access at any time by the Director and PAG. Should the moisture content of salt used for de-icing exceed 4%, spread rates will be increased by 100% for spread rates up to and including 20gm/m2.

Within 10 days of new salt deliveries, salt will be tested in accordance with BS 812 at a UKAS accredited laboratory and results recorded to ascertain:

Moisture content (1 test per 500 tonnes)
Particle size distribution (1 test per 500 tonnes)
Chloride content (1 test per 1500 tonnes)
Soluble sulphate compounds (1 test per 1500 tonnes)

(iv) Amey has developed a long standing agreement with national de-icing material suppliers Cleveland potash, Salt Union Ltd and Salt Sales Co.

(v) A list of stock can be found in Annex WSP 3

(vi) Our salt will be supplied by Cleveland Potash. We have an agreement for an automatic restocking to ensure that adequate quantities of salt are always available locally is in place.

(vii) All brine saturators will have digital readouts of salt concentration and in addition testing using a refractometer will be done to confirm the electronic readout.

Alternative De-Icing Material. A list of alternative materials can be found in Annex WSP 3 of Appendix D. This includes Potassium Acetate, Magnesium Chloride and Safecote or Ecothaw.

Details of de-icing materials stocks are provided in Annex WSP 3 to Appendix D and take account of the minimum stock levels to be maintained as required by the Project.

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Winter Service Plant

Front Line Winter Service Plant permanently available within the Unit for the Winter Service

Front Line Winter Constructional Plant will undertake Winter Service Patrols, precautionary treatments and snow and ice clearance to the total width of carriageways including slip roads, hard strips, turning lanes, central reserve crossovers, lay-bys, bus bays and the like.

All front line plant will be fitted with brine saddle tanks to allow the use of pre-wetted salt.

The Company's front line Winter Service Plant for carriageways is detailed in Annex WSP 5, Table 1 of Appendix D.

Details of our front line Winter Service Plant for footways footbridges and cycling facilities shall be as referred to in Annex WSP 5, Table 2 of Appendix D.

Reserve Winter Service Plant

Reserve Winter Service Plant will be used to supplement front line plant during snow conditions and arising from breakdowns of front line plant.

All reserve carriageway plant will be fitted with brine saddle tanks to allow the use of pre-wetted salt.

Details of reserve winter plant are included in Annex WSP 5, Table 3 of Appendix D.

Additional Winter Service Plant

Details of additional Winter Service Plant available through the wider Amey business, sub-contractors and supply chain are included in Annex WSP5, Table 4 of Appendix D.

Additional Winter Service Plant available through contingency arrangements for the Winter Service for carriageways, footways, footbridges and cycling facilities is included in Annex WSP5. This includes 24/7 contact details made available to the WSDO.

Loading Winter Service Plant

Details of Loading Winter Service Plant available within the Unit is included in Annex WSP 5, Table 5 of Appendix D and includes that available for:

(i) front line;

(ii) reserve; and

(iii) additional winter service plant.

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Calibration of Winter Service Plant

- All calibration and re-calibration shall be independently carried out and certified. Calibration records for all salting vehicles will be held in the Central Office in accordance with our documented Quality Management System.
- Calibration checks will be carried out at the final service before the winter maintenance season in September, and in January of each winter maintenance period.
- Dynamic calibration will be carried out in accordance with the National Salt Spreading Research Document 'Best Practice Guidance for Salt Spreading' and BS 1622:1989 Test B and C.
- Additional calibration and testing will be carried out after repairs to the spreading equipment and at other times when necessary to ensure the accuracy of de-icing material spreading.
- All calibration will be undertaken to comply with the requirements of Schedule 7, Part 2.

Compounds, Depots and Facilities

Details of our office and depot facilities covering the network within the Unit are provided in Annex WSP 5, Table 6 of Appendix D.

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Maps, Drawings and Geographical Information

The Winter Service Plan includes maps showing:

- precautionary treatment Routes for carriageways, including on/off slips and depots,
- precautionary treatment Routes for footways, footbridges and cycling facilities,
- reactive treatment Routes for footways, footbridges and cycling facilities,
- Winter Service Patrol Routes,
- ploughing Routes for carriageways, including on/off slips and depots, as precautionary treatment routes
- road sensors including sensor types and where these sites are equipped with weather cameras, (map to differentiate between single and bi-directional cameras),
- snow gates
- snow fences
- shelter belts, N/A (x)
- snow poles, N/A
- snow or ice and hidden message signs
- salt bins,
- vertical concrete barriers
- other facilities, and
- where route based forecasting is not used

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Compiling and Maintaining Records

Records of decisions, amendments to decisions, actions taken and patrol communications will all be entered in an electronic log by the Winter Service Duty Officer. The Winter Service Duty Officer shall ensure that all winter service records (electronic and paper copies) are referenced, filed securely and maintained.

The spreader vehicle data logger reports will be reviewed for completeness of data and effectiveness of applied treatment. A daily report on the previous 24 hours' winter service operations will be prepared by the Winter Service Duty Officer and submitted to the Winter Service Manager, highlighting any aspects where action may be required.

i) The following typical records will be held electronically;-

ii) Decisions taken, when and by whom;

iii) and actual treatment Records,

iv) Planned and actual response times achieved

v) Planned and actual commencement times,

vi) Planned and actual Route times,

vii) Planned and actual spread rates,

viii) Observations and actions taken by the Winter Service Patrols, (viii) output from Winter Service Plant on-board data loggers,

ix) Winter Service Plant down time and software faults,

x) Winter Service Plant deployment Records (including vehicle location Records) and driver and operator logs,

xi) Logs (both manual and electronic) for telephone, electronic mail and two way communication calls,

xii) Loading point de-icing stocks and replenishment orders,

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xiii) Ice prediction system Records,

xiv) Weather forecasts and actual weather experienced,

xv) Complaints by members of the public and Trunk Road users, (xvi) accidents during winter conditions,

xvi) Road closures due to winter conditions,

xvii) Weights and volumes as appropriate for the amount of de-icing material(s) spread on each Route for each treatment,

xviii) Pre- and mid-season road sensor calibration systems,

xix) Winter Service Plant calibration Certificates, and

xx) Actual salt stocks held including strategic salt stocks

Amey will maintain accurate salt stock monitoring records and will submit monthly salt stock reports to the Scottish Ministers on the first working day of each month during the Winter Service Period – and at such other times and frequencies as requested. The form below will be used for monitoring the salt stock and the stocks will be updated on the DfT Portal in line with the timescales provided.

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Operating Company	Reporting Month
Salt used during reporting period	
Actual salt stocks held at the end of the reporting period	
Salt orders placed and deliveries received during reporting period	
Salt orders expected during next reporting period (include imports, dates deliveries expected & tonnage expected)	
Forecast usage during next reporting period	
Any other items to report (such as reduced treatment networks, any notable arrangements with local authorities, etc.)	

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Each day during the Winter Service Period the WSDO will produce planned and actual reports for each precautionary treatment route; these will be held electronically and will typically include;

- Summary forecast and actual weather data
- Planned and actual spread rates
- Planned and actual commencement times
- Completion times for each route
- Amount of de-icing material spread for each route and the cumulative amount spread during the current Winter Service Period
- Snow plough usage
- Number of treatment days (capability) of de-icing material available from stock based on six treatments per route per day at 20 grammes per sq m
- The weather forecast accuracy
- Spreading vehicle's data logging and reporting system output
- Any other relevant information

Prior to 31 May each year the Winter Service Manager will submit a Winter Service report to the Scottish Ministers prepared for the immediately preceding Winter Service period ending 15th May. This report will review the previous Winter Service Operations and shall help inform the requirements for the subsequent Winter Service Plan.

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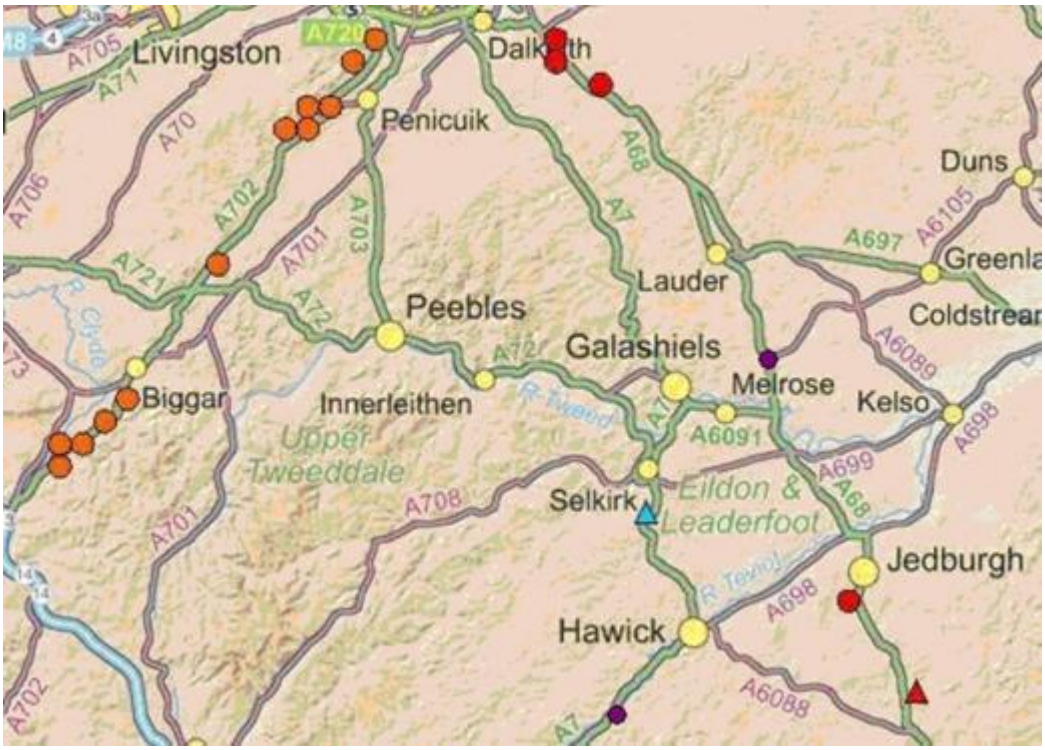
Salt Bins

A number of salt bins are required on the Network and we intend to continue using existing locations at present. This will be updated and reviewed at the end of each season.

These will be stocked prior to 30th September each year and stock levels monitored and replenished as required throughout the period. At the end of each year salt bins will be taken back to depots and stored.



Salt bin / heap locations

Road No (Colour reference)

Salt bin – Dot and coloured per route

Salt Heap – triangle and coloured by route Location

A68 (Red) At junction with Frostineb Road

A68 (Red) Outside Primary School, Pathhead

A68 (Red) Near Hundalee

A68 (Red) Pathhead Medical Centre

A702 (Orange) At Lothianburn Golf Club

A702 (Orange) At Wallstone near A766 junction
A702 (Orange) At Braidwood

A702 (Orange) At Castlelaw Road

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A702 (Orange) At junction with UC95, Ninemileburn

A702 (Orange) Outside No. 2 Biggar Road, Silverburn

A702 (Orange) At Lammington crossroads

A702 (Orange) At Townfoot, Coulter

A702 (Orange) At Birthwood Road, Coulter

A702 (Orange) At Beechwood Tea Rooms, Dolphinton

A702 (Orange) At Clanalba House, Lamington

A702 (Orange) At Post Office, Lamington

A702 (Orange) Carlops (One at north end, one at car park)

A68 (Purple) Earlston - Two on main road

A7 (Purple) Newmill – Two on main road

A68 (Red triangle) Huntford Bends, north of Carter Bar

A7 (Blue Triangle) Bigwood 1 mile south of Selkirk

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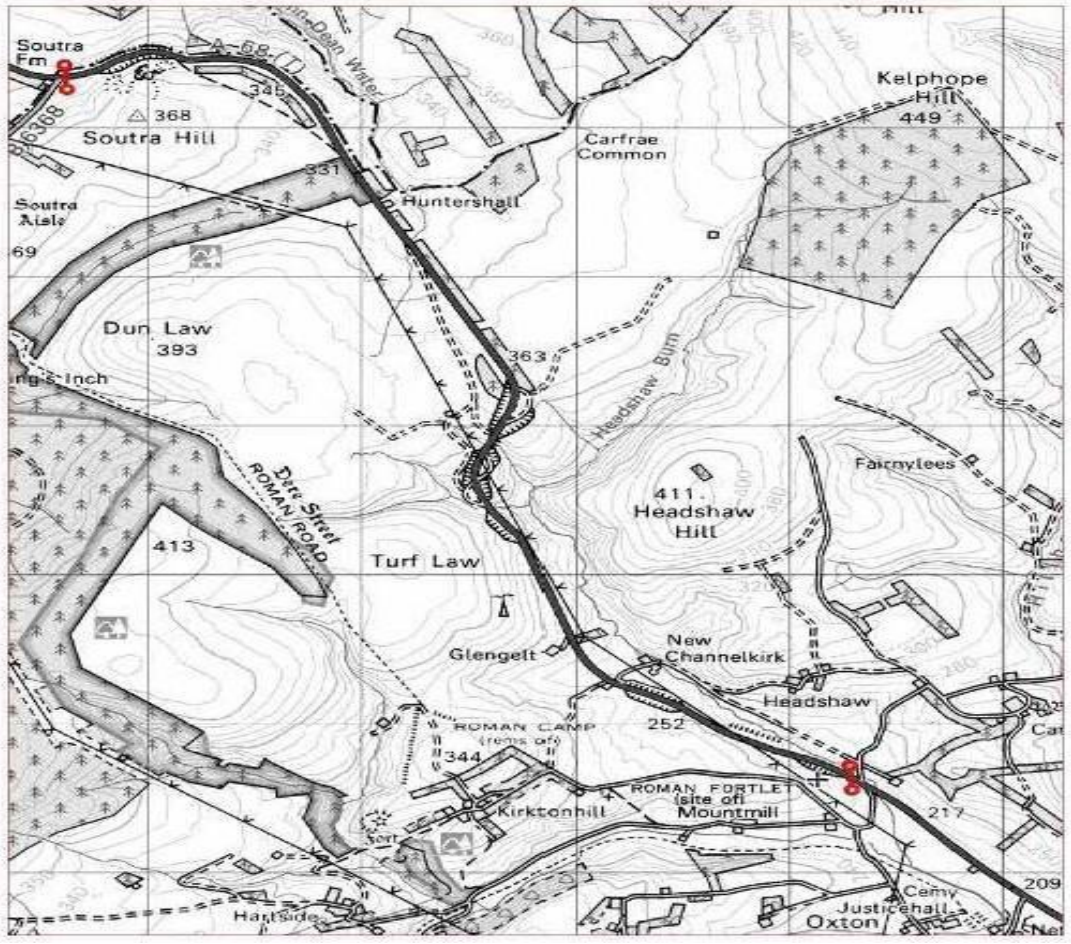
Snow Gates and Snow Fences

There are 2 sets of snow gates on the Network on either side of Soutra. The map below shows the location

- Soutra Hill – at Soutra Mains Cottage
- Soutra Hill – North of Oxton Junction



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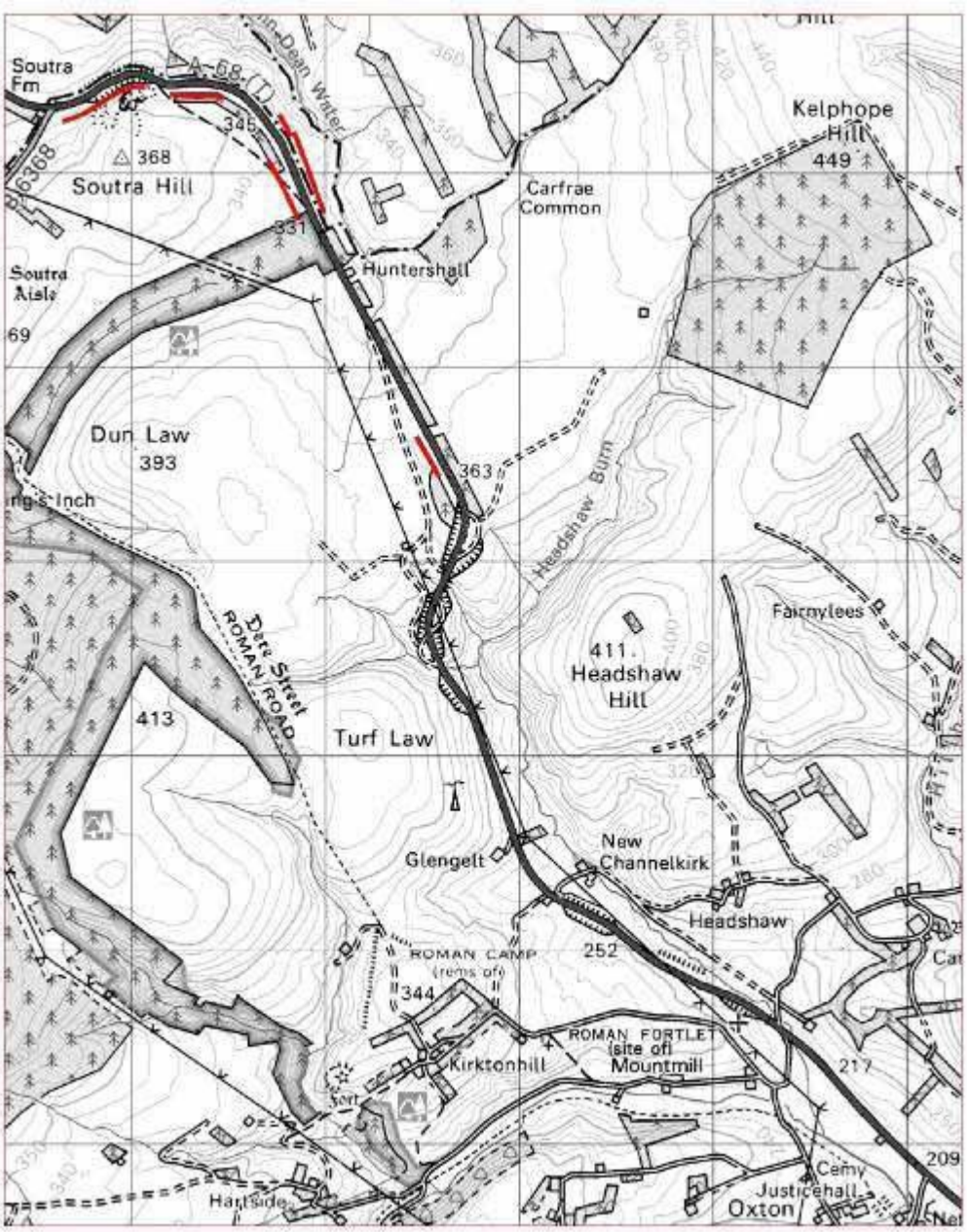
There is only one snow fence on the Network located on the A68 at Soutra shown on the map below.



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Variable Message Snow and Ice Hidden Message Signs

Below is a list of the signs on the Network:

Road	Type of Sign	Location 1	Location 2
A7	Hinged	South of Teviothead	At end of widened carriageway
A7	Hinged	Hawick	Buccleuch Street
A7	Hinged	Hawick	Burn Foot
A7	Hinged	Gala Kingsknowes	Facing west on Eastbound approach
A7	Hinged	Selkirk Ladylands	Laylands Junction with A699
A7	Hinged	Hawick	Junction with B6359
A7	Hinged	Hawick	Buccleuch Street
A68	Hinged	Cleekim	Junction with A68 / A689 facing North
A689	Hinged	Cleekim	Junction with A68 / A689 facing West
A689	Hinged	Soutra Hill	Northbound Snow gates
A68	Hinged	Soutra Hill	Southbound Snow gates
A68	Hinged	Edgerston	Southbound layby
A68	Hinged	Jedburgh	Oxnam road end, Abbey Bridge
A68	Hinged	Jedburgh	Bonjedward southern end of triangle (A68) Northbound
A68	Hinged	Jedburgh	Bonjedward southern end of triangle (A68) Southbound
A68	Hinged	Cleekim	50m north of A68 / A689 facing north
A68	Hinged	Cleekim	Junction with A68 / A689 facing north
A68	Hinged	St Boswells	A68 / A699 cross roads
A68	Hinged	Carfraemill	Southbound at roundabout
A68	Hinged	Lauder	A68 / A697 at high Cross
A702	Hinged	Dolphinton	Southbound between layby and 40 sign
A702	Hinged	Dolphinton	Northbound between layby and 40 sign
A702	Hinged	Carlops	Northbound at 30mph sign on southside
A702	Hinged	Carlops	Southbound at 30mph sign on southside

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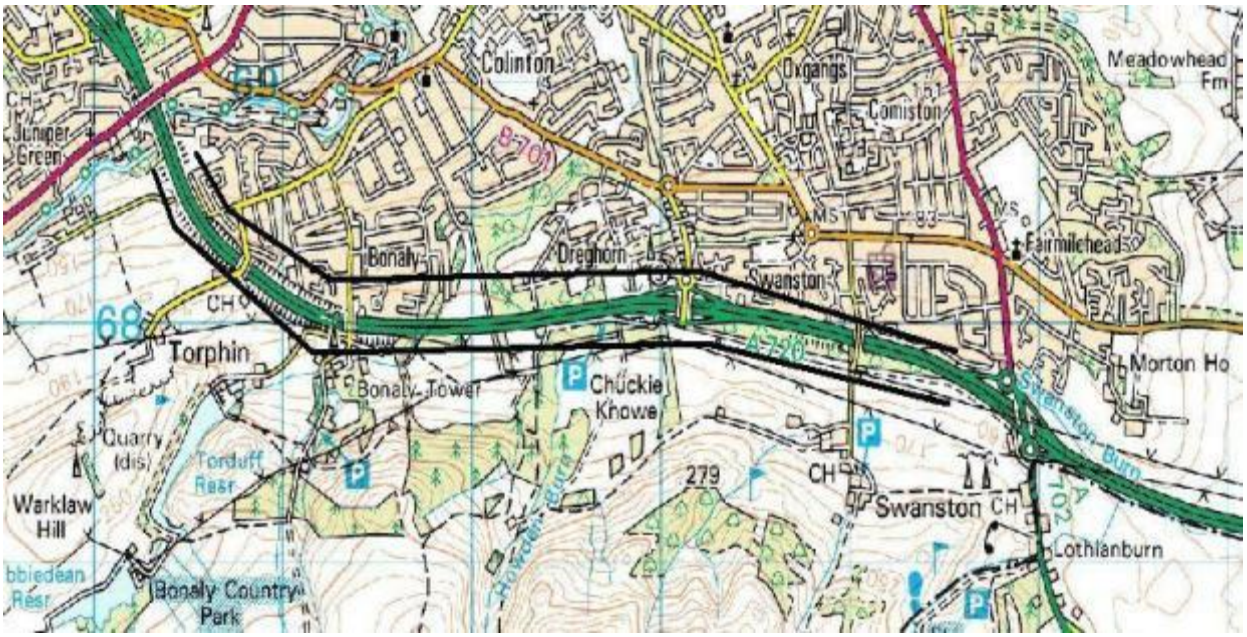
Vertical Concrete Barriers

The A720 between Water of Leith and Lothianburn Junction is the only area on the network with Vertical concrete barrier. A location map is shown below



Salt measurement Apparatus

The weighing facilities presently located in all depots will be brought in to calibration prior to 1st October each year and utilised to weigh spreaders before and after deployment. These will be printed out at the start and end of each gritting run and attached to the Operator log and filed in the central office.

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Related documents

Document Reference	Document Title
SEUNIT-SOLUT-Disruption Plan-PL-009	Disruption Risk Management Plan

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Appendix A - Decision Making and Decision Making Process

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Table 1 – Decision Making Process for Winter Service

<table>
<tr><th colspan="4">Decision Matrix</th></tr>
<tr><td></td><td colspan="3">Predicted Road Conditions</td></tr>
<tr><td>Road Surface Temperature</td><td>Wet</td><td>Wet Patches</td><td>Dry</td></tr>
<tr><td>May fall below 1°C</td><td rowspan="2">Salt before frost</td><td>Salt before frost (See note A)</td><td>No action likely, monitor weather (See note A)</td></tr>
<tr><td rowspan="4">Expected to fall below 1°C</td><td colspan="2">Salt before frost (see note B)</td></tr>
<tr><td colspan="3">Salt after rain stops</td></tr>
<tr><td colspan="3">Salt before frost and after rain stops (see note C)</td></tr>
<tr><td colspan="2">Salt before frost</td><td>Monitor weather conditions</td></tr>
<tr><td>Expected snow</td><td colspan="3">Salt before snow</td></tr>
<tr><td rowspan="3">Freezing Rain</td><td colspan="3">Salt before rainfall (see note C)</td></tr>
<tr><td colspan="3">Salt during rainfall (see note C)</td></tr>
<tr><td colspan="3">Salt after rainfall (see note C)</td></tr>
<tr><td colspan="4">The decision to undertake precautionary treatments should, if appropriate, be adjusted to take account of residual salt or surface moisture.</td></tr>
</table>

A. Particular attention should be given to any possibility of water running across carriageways and such locations should be monitored and treated as required.

B. When a weather warning contains reference to expected hoarfrost considerable deposits of frost are likely to occur and close monitoring will be required. Particular attention should be given to the timing of precautionary treatments due to the possibility that salt deposited on a dry road may be dispersed before it can become effective.

C. Under these circumstances rain will freeze on contact with running surfaces and full pre-treatment should be provided even on dry roads. This is a most serious condition and should be monitored closely and continuously throughout the danger period.

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Table 2 - Treatment Matrix

Treatment Matrix **Spread rates for precautionary treatments**			
Forecast weather condition		Frost Susceptible/surface water run-off area (grammes/square metre)	Road Surface Wet (grammes/square metre)
A.	RST higher than plus 1°C	*0*	*0*
B.	RST lower than or equal to plus 1°C but higher than minus 2°C	*10 to 20*	*10 to 20*
C.	RST lower than or equal to minus 2°C but higher than minus 5°C	*10 to 20*	*10 to 20*
D.	RST lower than or equal to minus 5°C	*20*	*20*
E.	RST lower than or equal to plus 1°C but higher than minus 2°C following rain	*20*	*30*
F.	RST lower than or equal to minus 2°C but higher than minus 5°C following rain	*30*	*40*
G.	RST lower than or equal to minus 5°C following rain	*40*	*40*
H.	Hoar Frost	*20*	*20*
I.	Freezing Fog	*10*	*20*
J.	Freezing Rain	*40* *(See decision matrix)*	*40* *(See decision matrix)*
K.	Snow Accumulations up to 30mm	*30*	*40*
L.	Snow Accumulations over 30mm	*40*	*40*
M.	Hard Packed Snow/Ice	*See clearance matrix*	*See clearance matrix*

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Table 3 –Precautionary Treatment Potassium Acetate Spreading Rates (Other alternative de-icing agent spreading rates to be in accordance with manufacturers recommendations)

CONDITIONS FORECAST	SPREAD RATE (litres/square metre)
Road surface temperature lower than or equal to plus 1°C but higher than minus 2°C	0.0156
Road surface temperature lower than or equal to minus 2°C but higher than minus 5°C	0.0312
Frost and road surface temperature lower than -5°C	a minimum of 0.0312 which should be increased with manufacturer's recommendations
Snow	
Freezing conditions after rain	

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Table 4: Snow or Ice Clearance Salt Spreading Rates

Clearance Matrix			
Minimum Salt Spread rates for Snow or Ice Clearance			
	Treatment		
Road Surface Condition	**Spreading (grammes/square metre)**	**Ploughing**	**Blowing**
	Salt		
Ice Formed	20 to 40	No	No
Snow covering of less than 30mm	20	Yes	No
Snow covering exceeds 30mm	20 to 40	Yes	No
Snow accumulations due to prolonged snowfall	20 to 40	Yes (continuous)	Where applicable
Hard packed snow/ice less than 20mm thick	20 to 40 (successive treatments)	No	No
Hard packed snow/ice	salt/abrasive (successive)	No	No

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Appendix B - Patrol Routes

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Category(A/B)	Route	Depot	Route Description	Depot to Route (km)	Time to Route (mins)	Patrol Length (km)	Average Speed (kph)	Route Time	Route to Depot (km)
A1	M80 / M9 M876	Burghmuir	(Depot – M80 Jct 7) M80 Jct 7 - M80 Jct 9 M80 Jct 9 - M9 Jct 11. U turn. M9 Jct 11 - M80 Jct 7. U turn. M80 Jct 7 - M876 Jct 3. U turn M876 Jct 3 - M80 Jct 7	22	16	70	80	52	22
A2	M8	Burghmuir	(Depot – M8 Jct 3 Livingston) M8 Jct 3 – M8 DBFO, U turn Newhouse, M8 DBFO - M8 Jct 3	37	31	55	70	47	37
A3	A720 / A1	Bilston Glen	(Depot – A720 Sherrifhall) A720 / A7Sherrifhall – A1 Abbotsview jct - A720/A7 Sherrifhall Roundabout	8	9	45	65	51	8
A4	M9	Burghmuir	(Depot to M9 Jct 3) M9 Jct 3 – M9 Jct9. U turn. M9 Jct 9 - M9 Jct 3	0.5	1	61	80	46	0.5
A5	A720	Bilston Glen	(Depot to A720 Sherrifhall) A720 Sherrifhall - Gogar. U turn. A720 Gogar - Sherrifhall	8	9	34	55	37	8
A6	M8	Burghmuir	(Depot to M8 Hermiston Gait) M8 Hermiston Gait - M8 Jct 3 Livingston, U turn. M8 Jct 3 - M8 Hermiston Gait.	19	16	32	60	32	19
A7	M8/M9	Burghmuir	(Depot to M9 Jct 3) M9 Jct 3 - M9 Jct 1A, M9 Spur, A90, U turn at B800. A90, M9 Spur, M9 - M8 Jct 2 - M8 Jct 3, U turn. M8 Jct 3 - M8 Jct 2 - M9 Jct 3	0.5	1	51	60	51	0.5
B1	A702	Bilston Glen	(Depot to A720 Lothianburn) A702 Lothianburn - M 74 Abington, U turn. A702 Abington – A720 Lothianburn	6	8	116	55	126	6
B2	A68	Bilston Glen	(Depot to A6091 Ravenswood) A720 Millerhill – A68 Ravenswood, U turn A68 Ravenswood – A720 Millerhill	17	20	96	55	105	17
B3	A7	Hawick	(Depot to A7 Trunk Road) A7 Hawick s/b - National Boundary, U turn. A7 National Boundary n/b - Ashkirk, U turn. A7 Ashkirk s/b - Hawick	2	5	122	55	133	2
B4	A68 / A6091/ A7	Newtown St Boswells	(Depot to A68 Trunk Road) A68 Newtown St Boswells - Carter Bar, U turn. A68 Carter Bar - A6091 Ravenswood A6091 Ravenswood - A7 Ashkirk, U turn. A7 Ashkirk n/b - A6091 Ravenswood - A68 Newtown St Boswells	0.5	1	112	55	122	0.5

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Winter Service Patrol Report Record

Patrol Route…… **Date……** **Information checked**

by……

Winter Service Patrol start and end time	**Weather conditions for Winter Service Patrol route**		**Assessed road condition (by driver) (X)**				**Assessed residual salt level (by driver) (X)**			**Action implemented (use symbols provided below)***						**Route salted prior to patrol (X)**		
	Air (°C)	Road Surface temperature (°C)	Snow	Icy	Wet	Dry	High	Medium	Low	Action code	Treatment Type	Spread rate (g/m^2)	Approximate location of salting or other action	Treatment Start Time	Treatment End Time	Yes	No	Time of salting

*Action symbols:

1	Spot treatment as instructed by the Winter Service Duty Officer.	2	Spot treatment as determined by driver.
3	Route treatment as advised by the Winter Service Duty Officer.	4	Route treatment as determined by driver.
5	Attend to runoff or seepage on surface.	6	Remove obstruction (eg dead dog, fallen tree, and other obstructions.) from surface.
7	Pre-wetted Salt	8	Dry Salt
9	Potassium Acetate		

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Appendix C – Maps Treatment Routes

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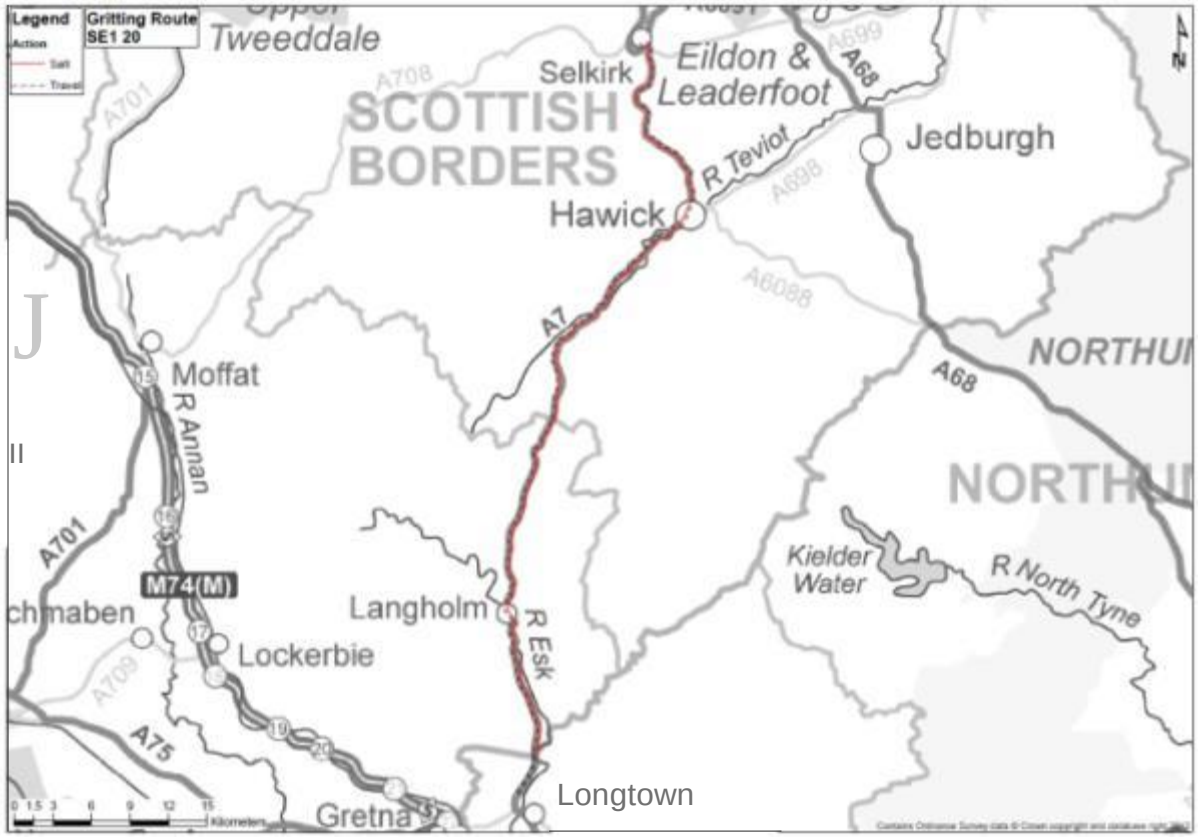
20 gramme Precautionary Treatment Route - SE1



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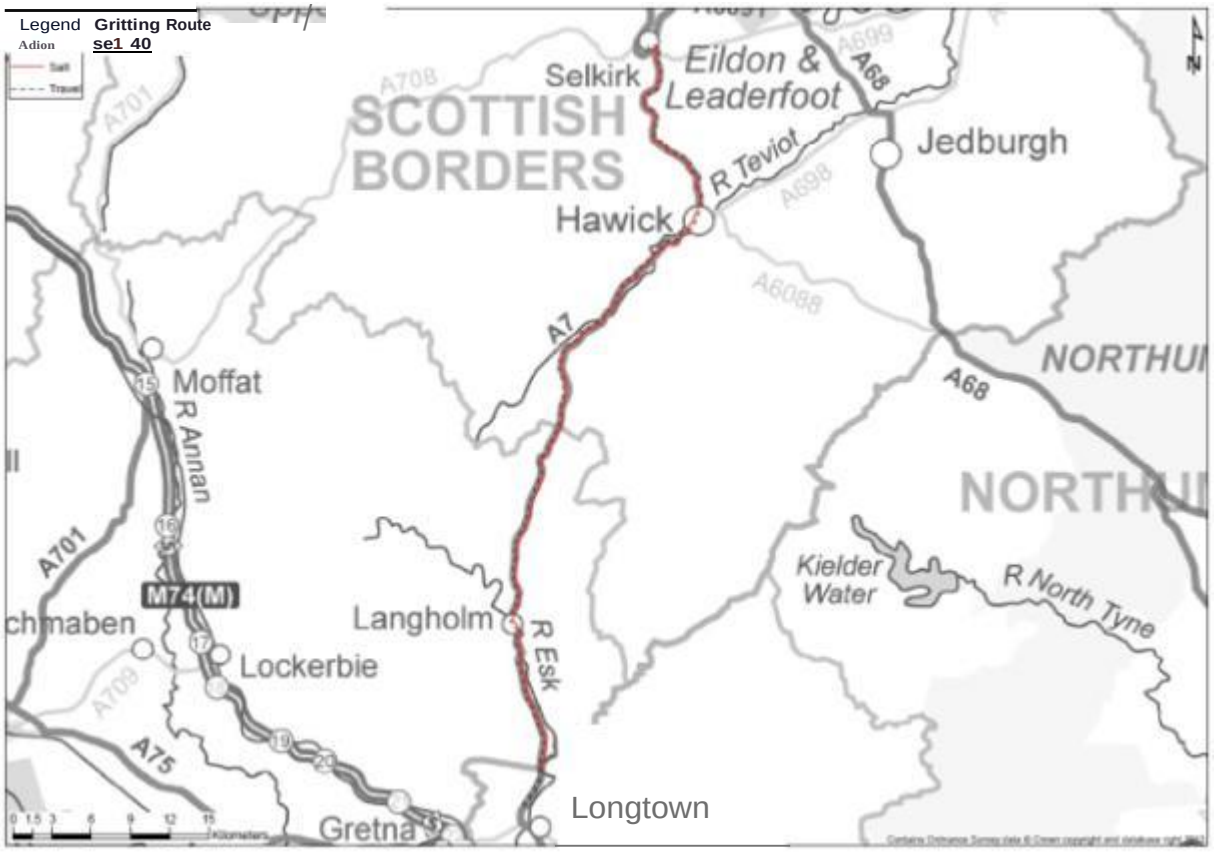
40 gramme Precautionary Treatment Route - SE1



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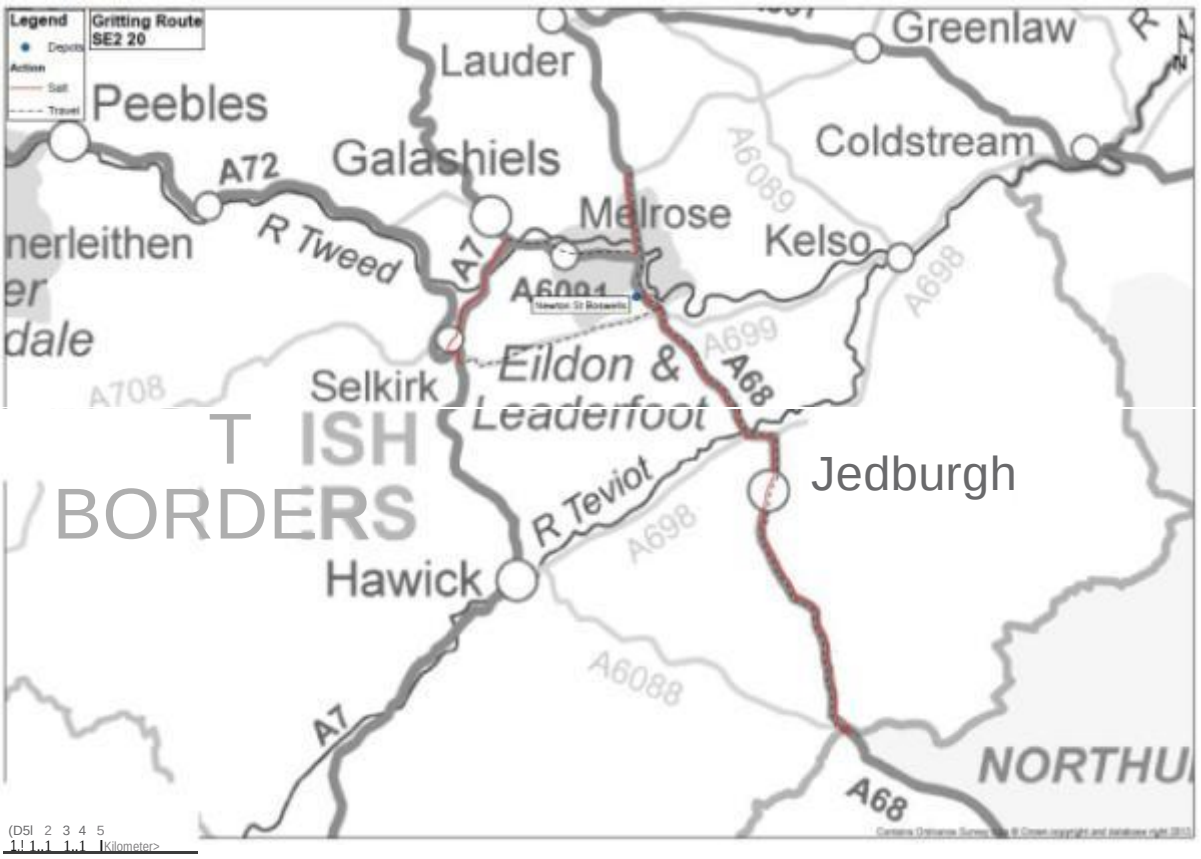
20 gramme Precautionary Treatment Route – SE2



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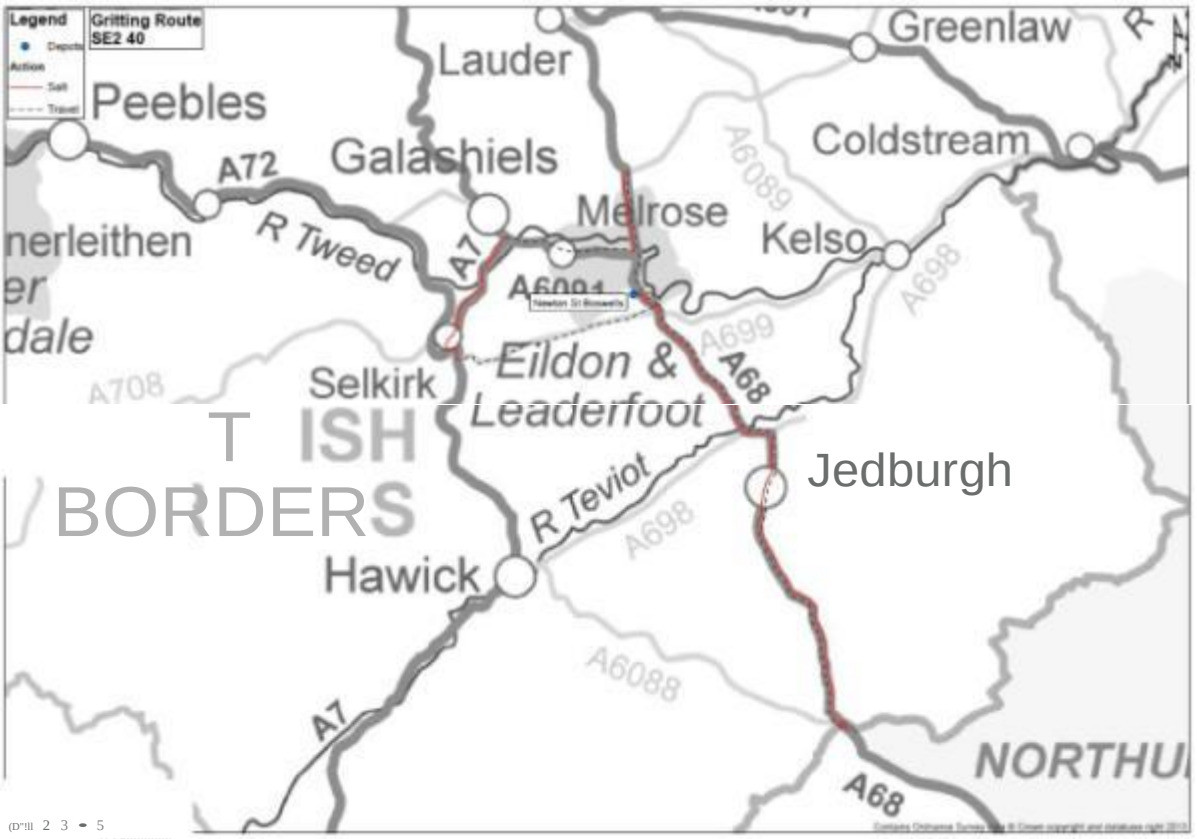
40 gramme Precautionary Treatment Route – SE2



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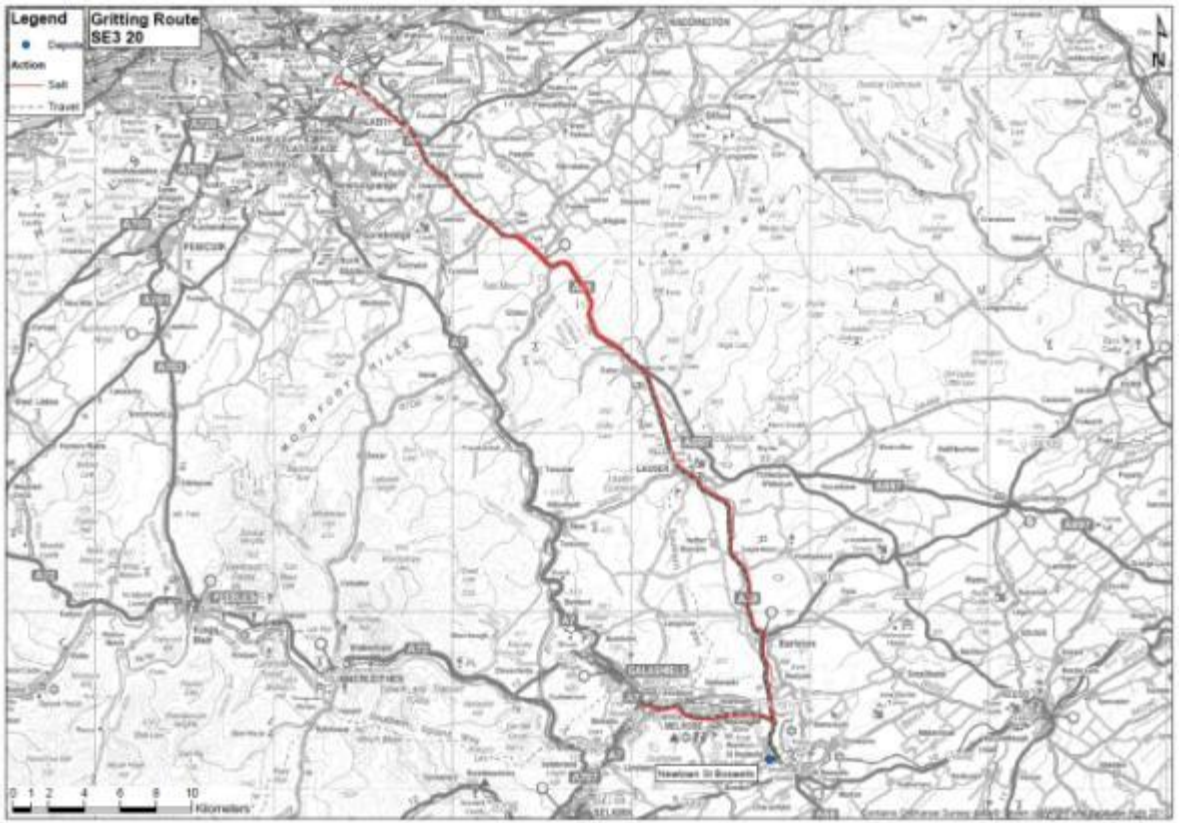
20 gramme Precautionary Treatment Route – SE3



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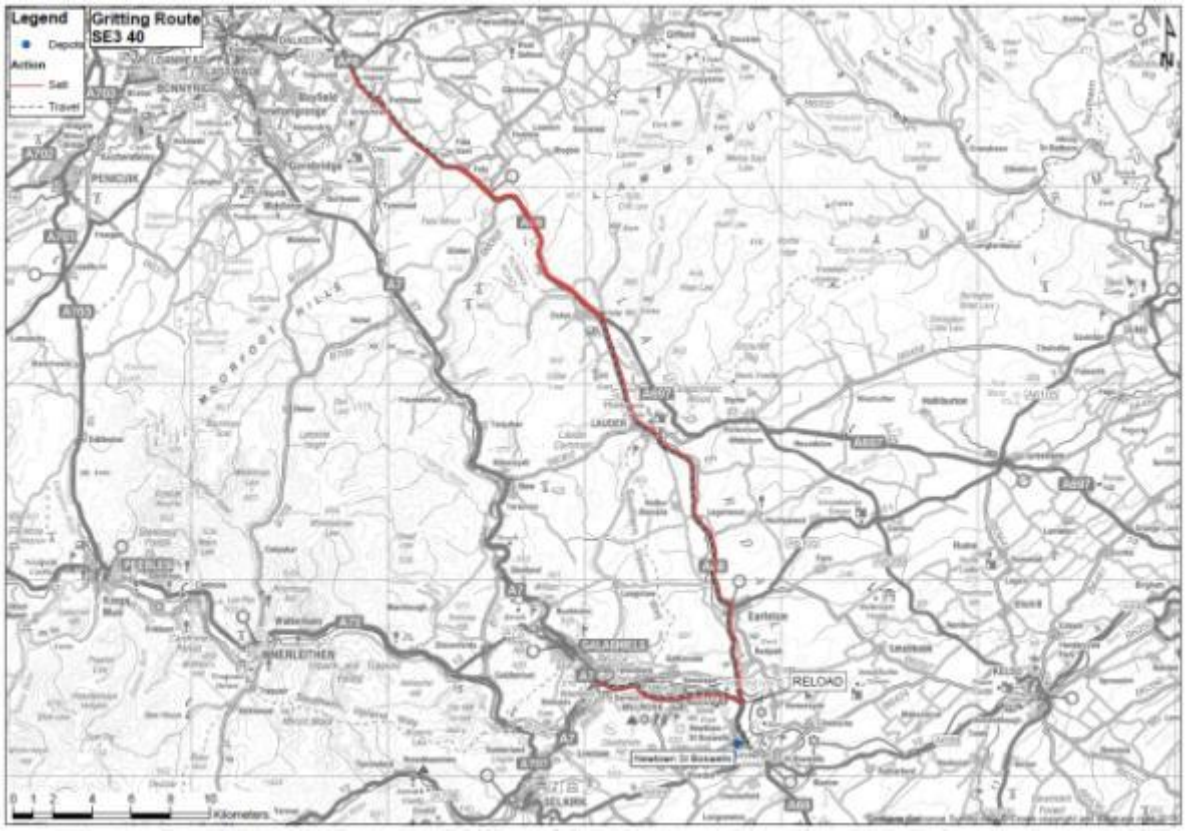
40 gramme Precautionary Treatment Route – SE3



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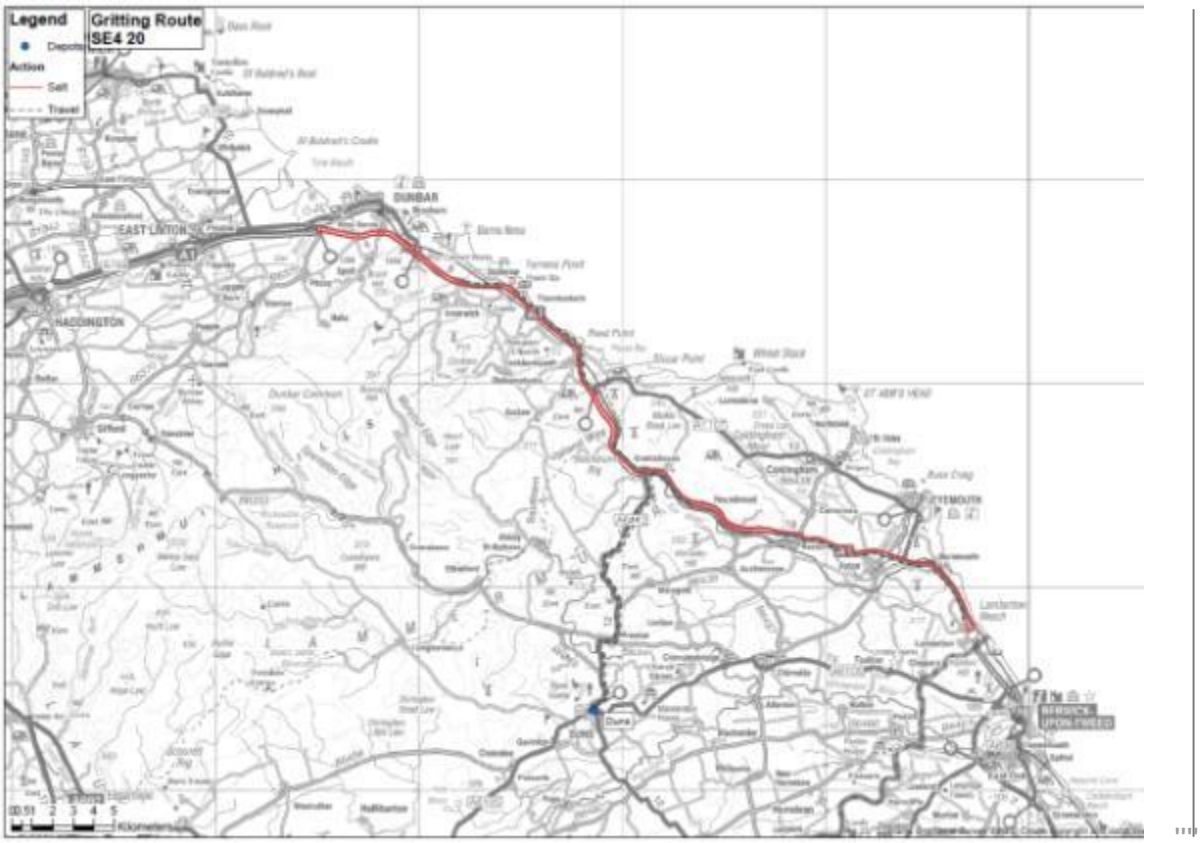
20 gramme Precautionary Treatment Route – SE4



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40 gramme Precautionary Treatment Route – SE4

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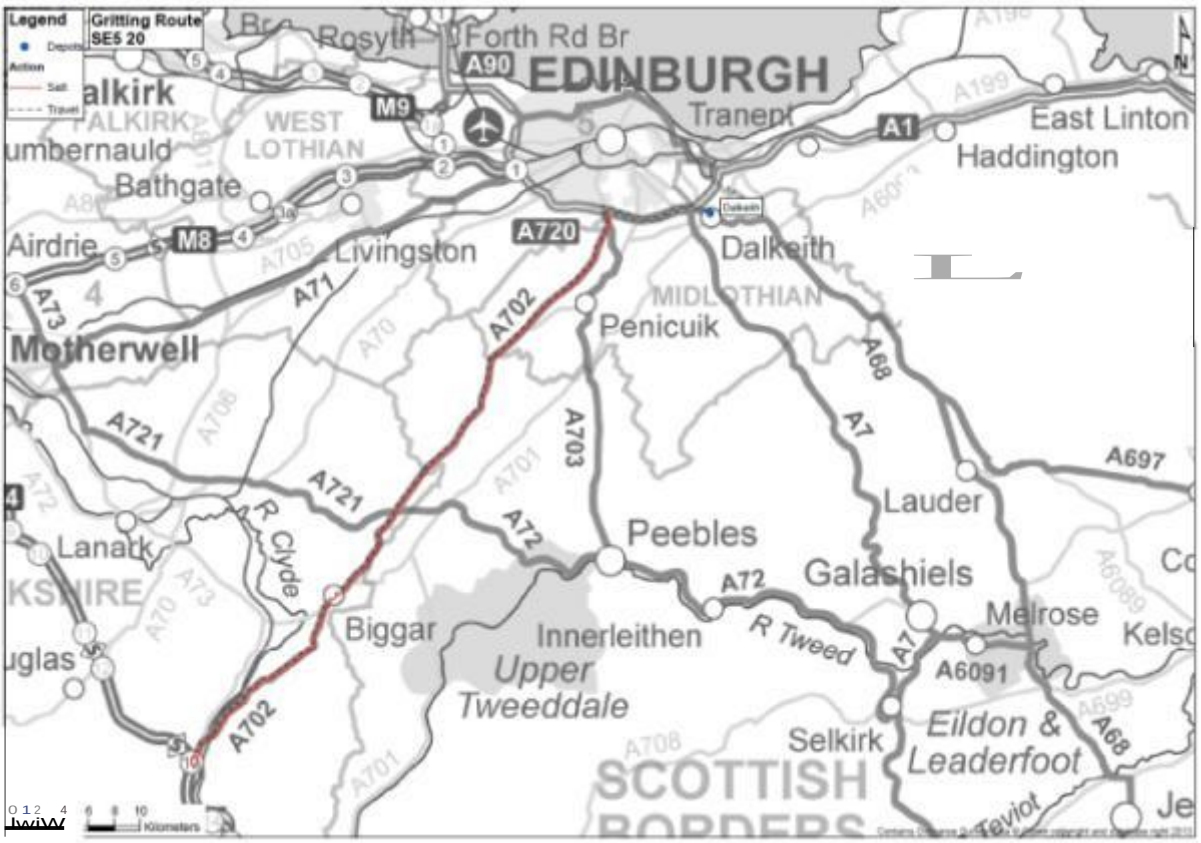
20 gramme Precautionary Treatment Route – SE5



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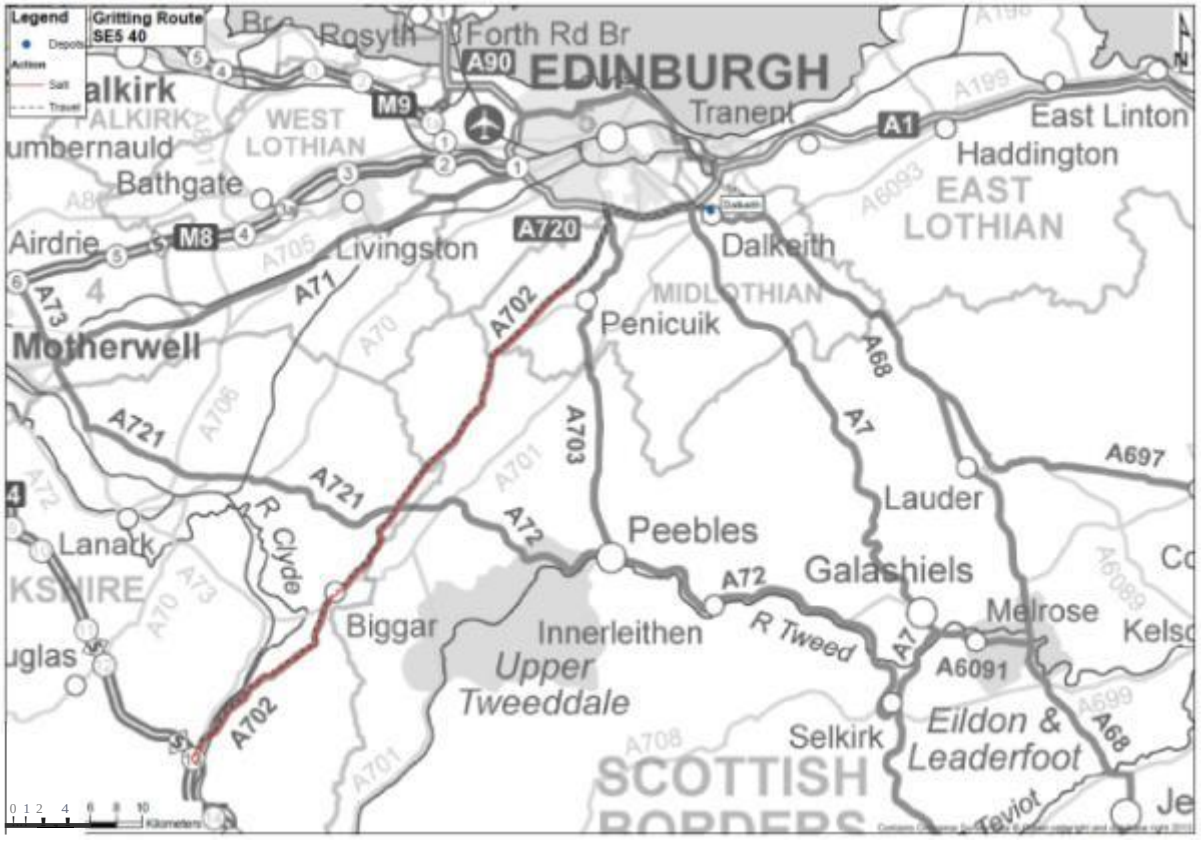
40 gramme Precautionary Treatment Route – SE5



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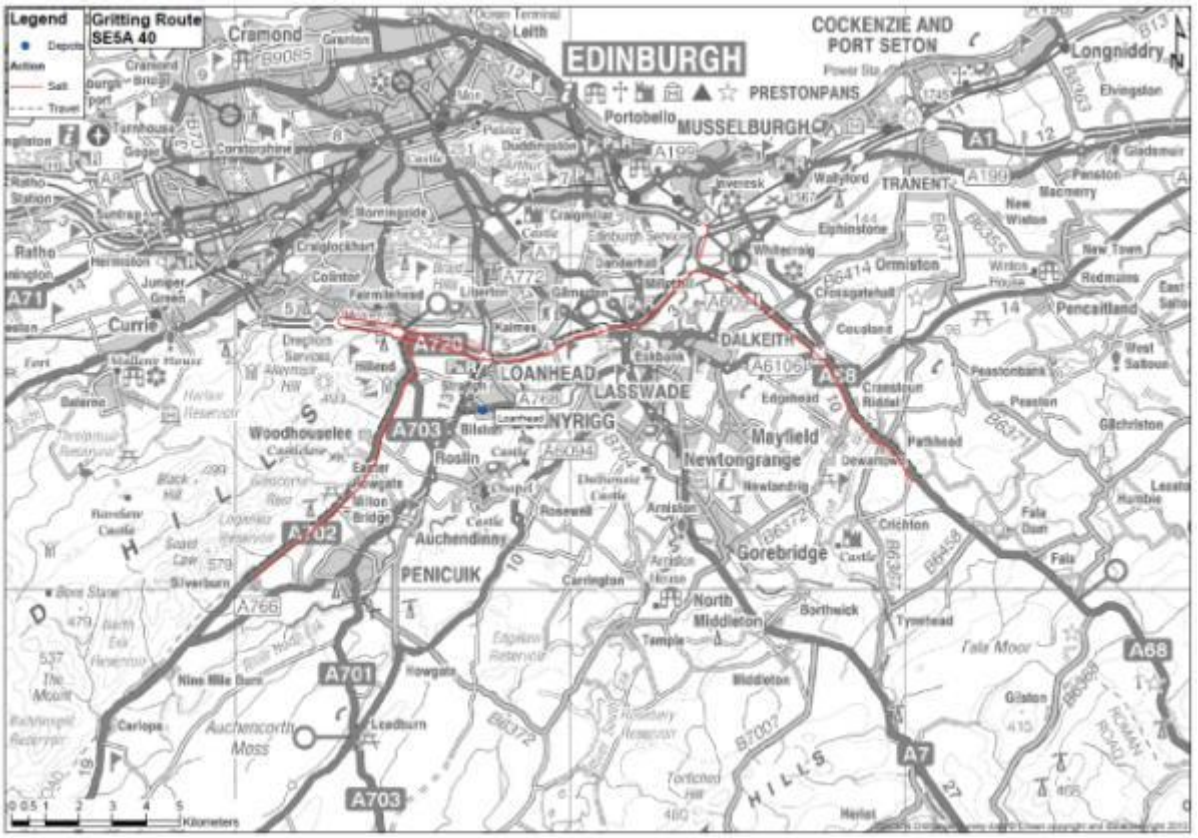
40 gramme Precautionary Treatment Route – SE5A



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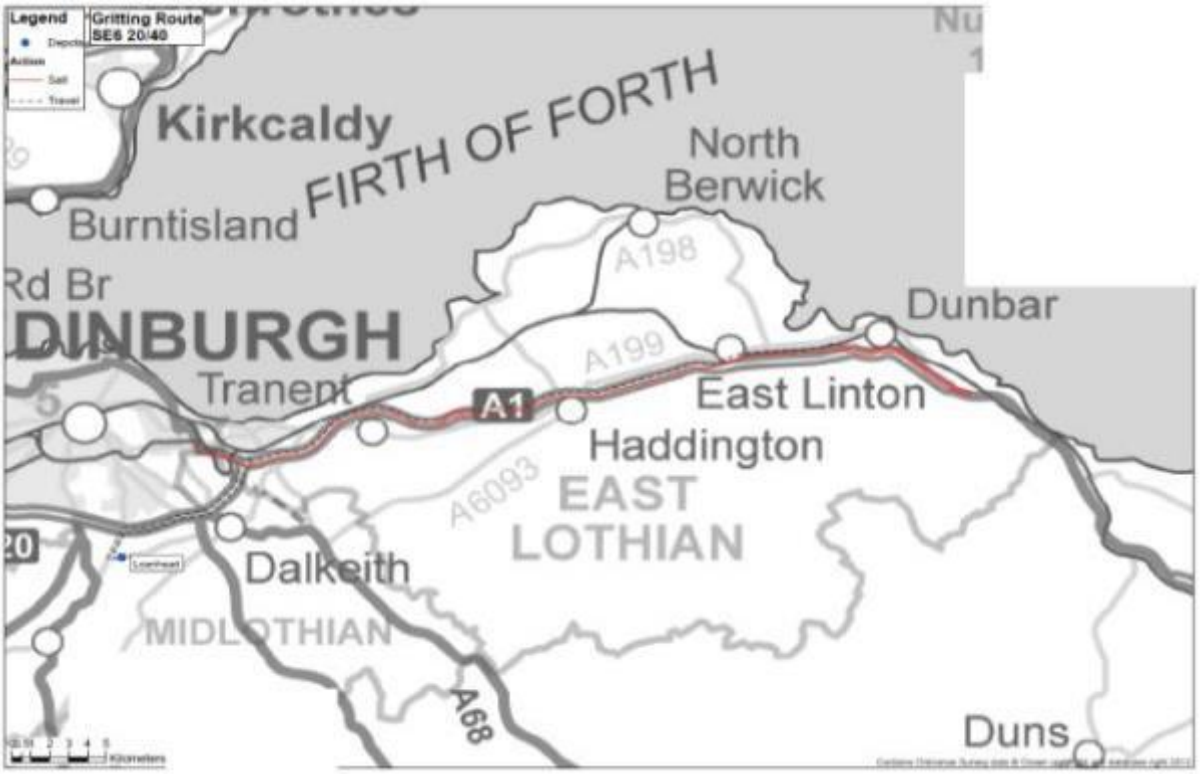
20/40 gramme Precautionary Treatment Route – SE6



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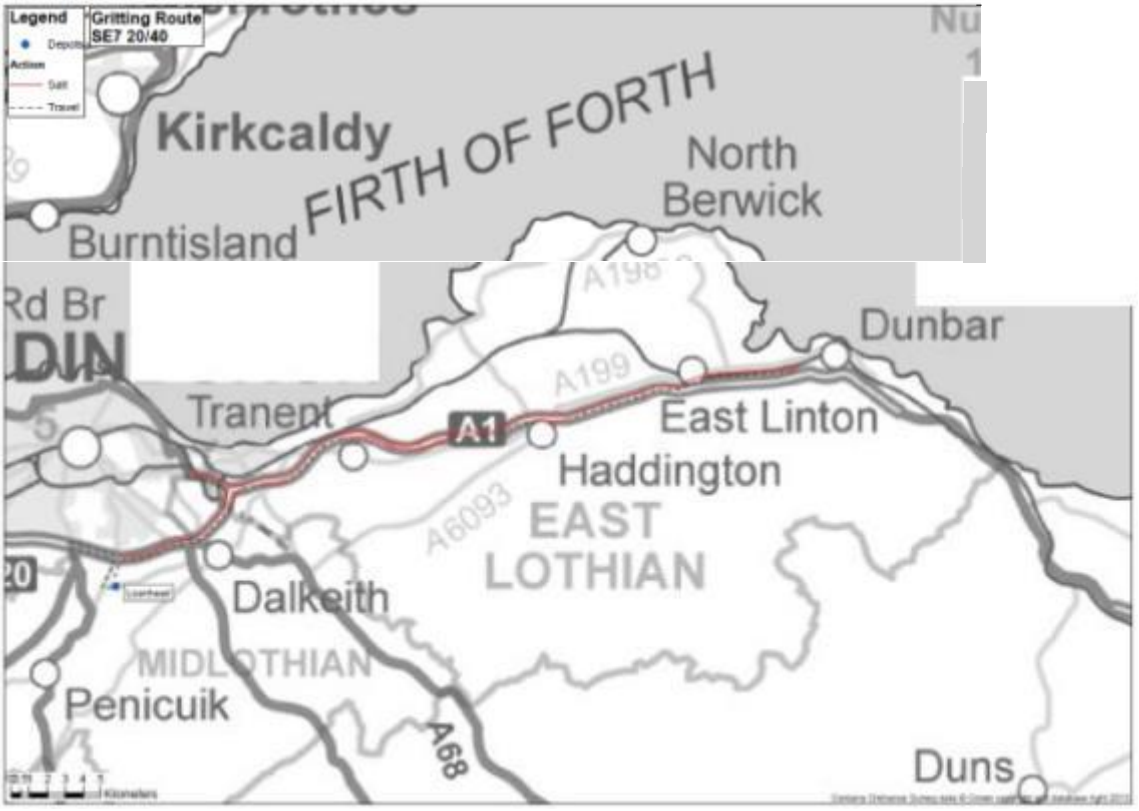
20/40 gramme Precautionary Treatment Route – SE7



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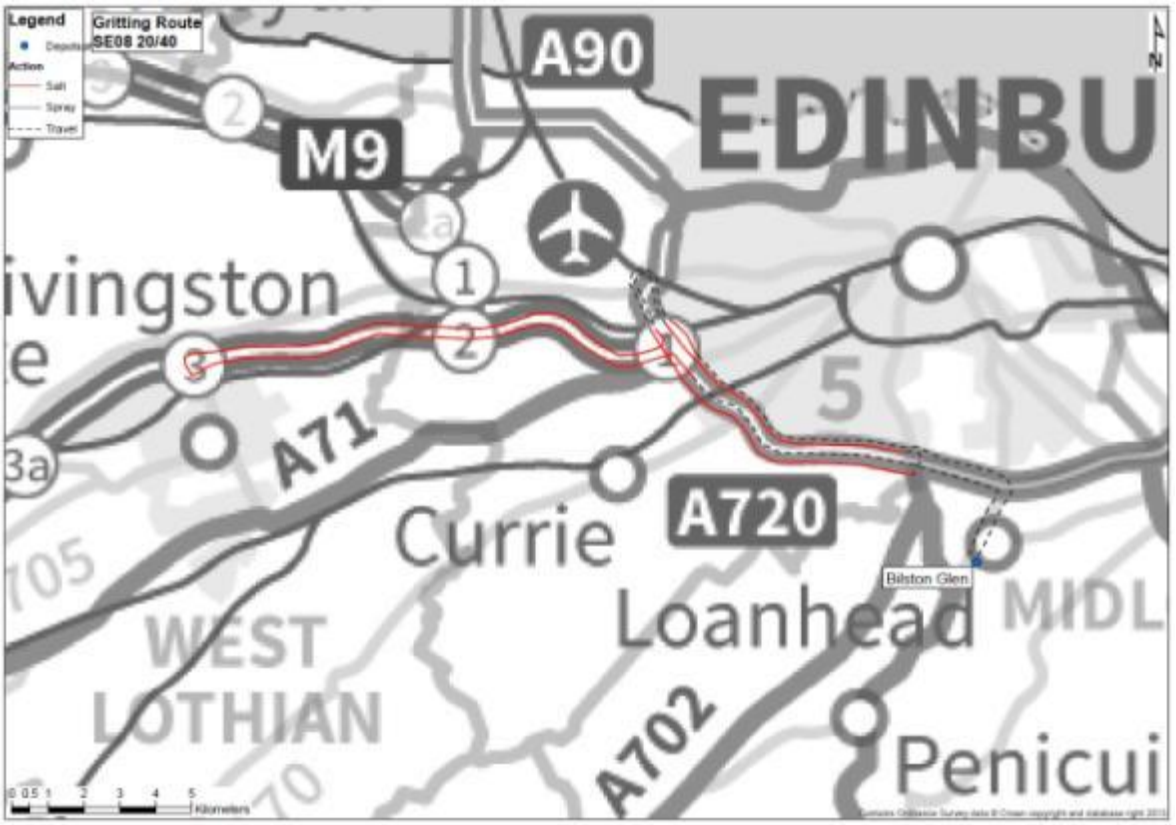
20/40 gram Precautionary Treatment Route – SE8



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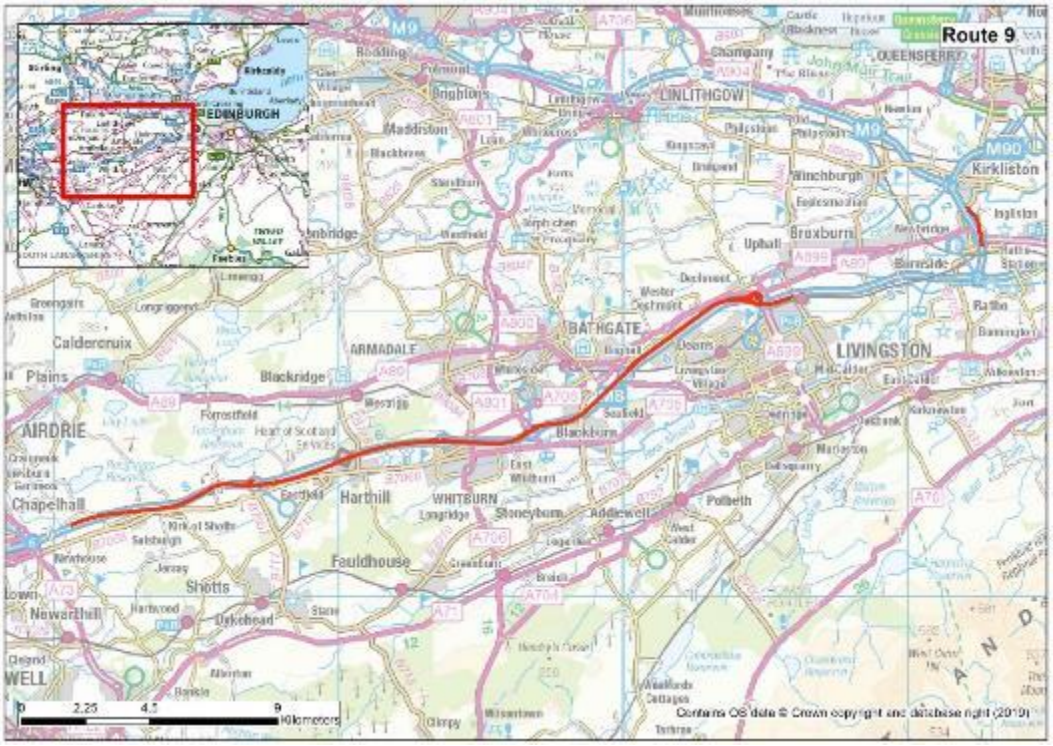
20/40 gram Precautionary Treatment Route – SE9



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20/40 gram Precautionary Treatment Route – SE10

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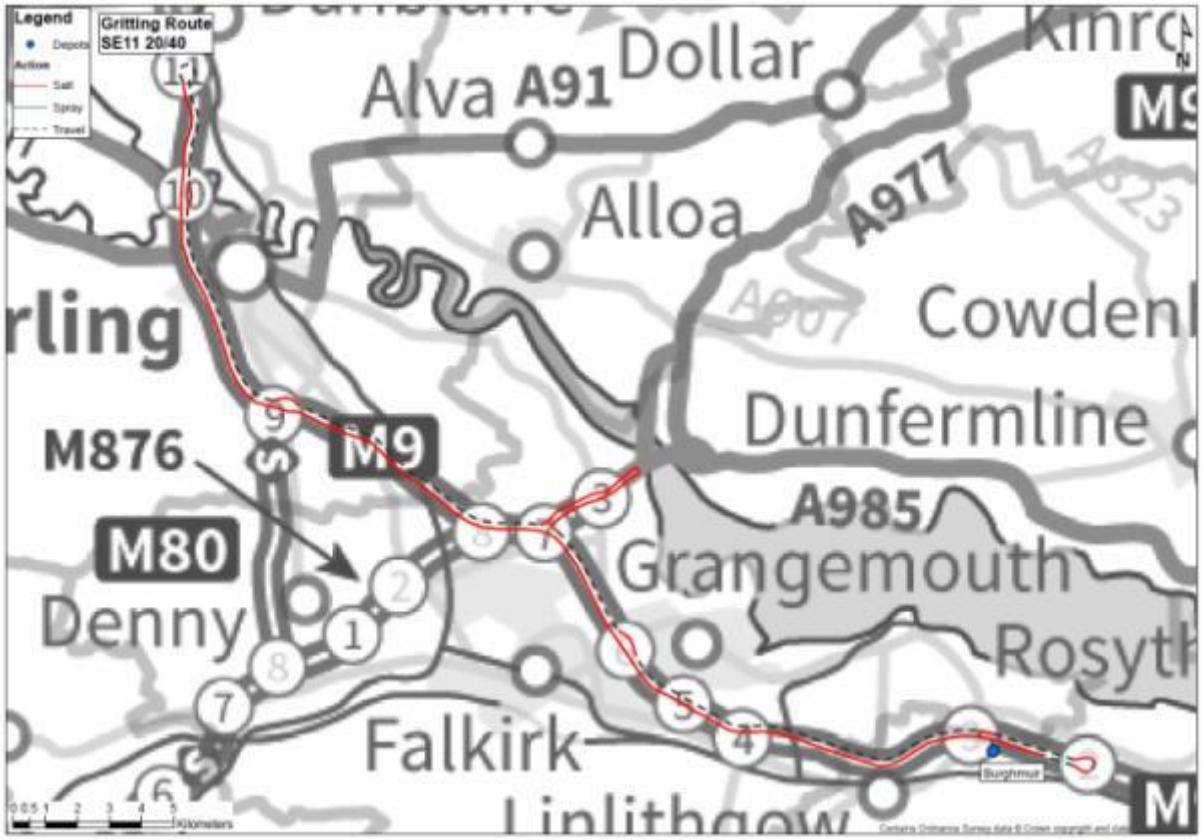
20/40 gram Precautionary Treatment Route – SE11



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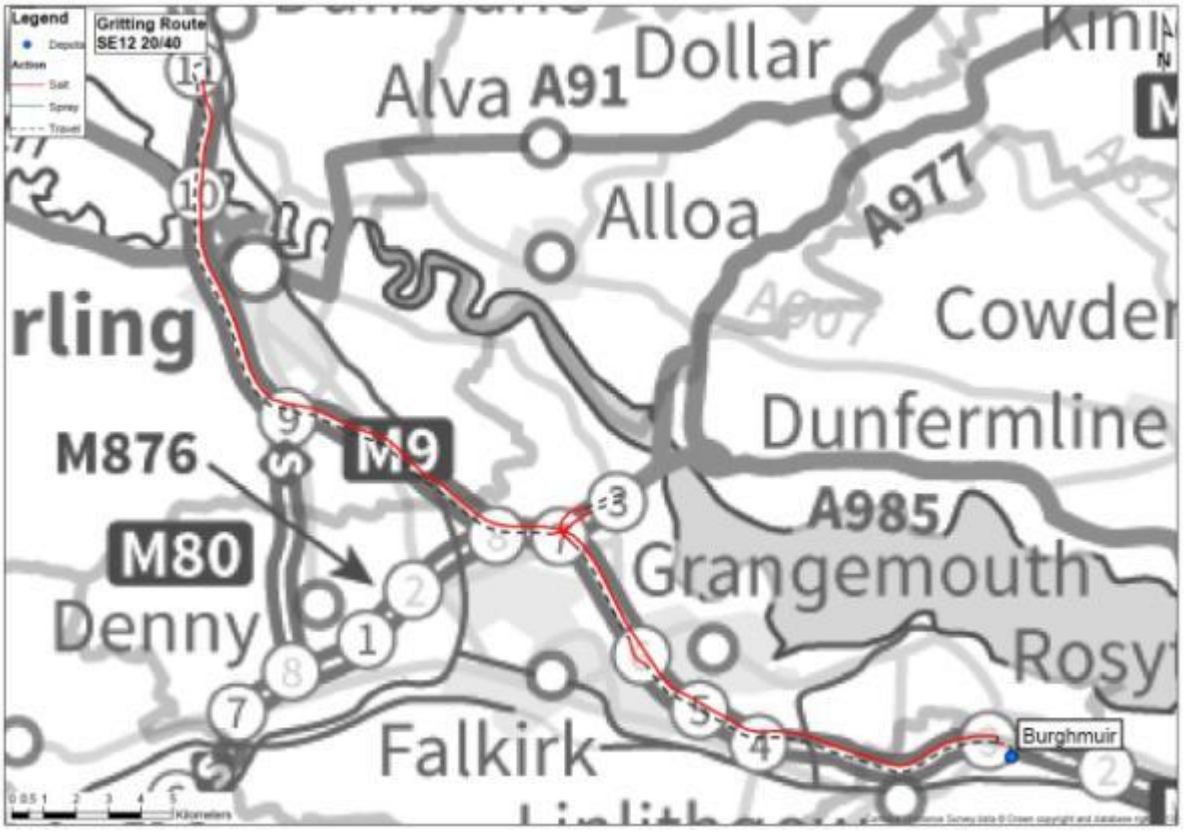
20/40 gram Precautionary Treatment Route – SE12



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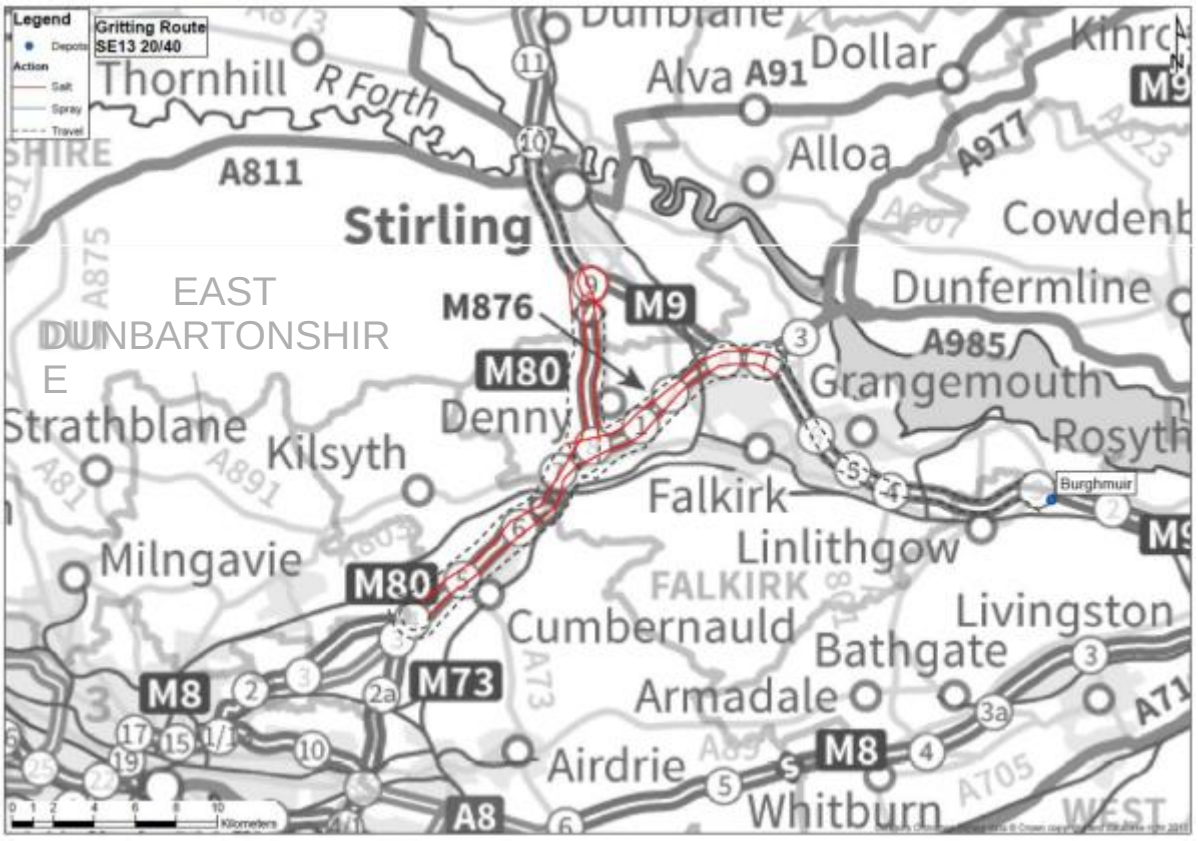
20/40 gram Precautionary Treatment Route – SE13



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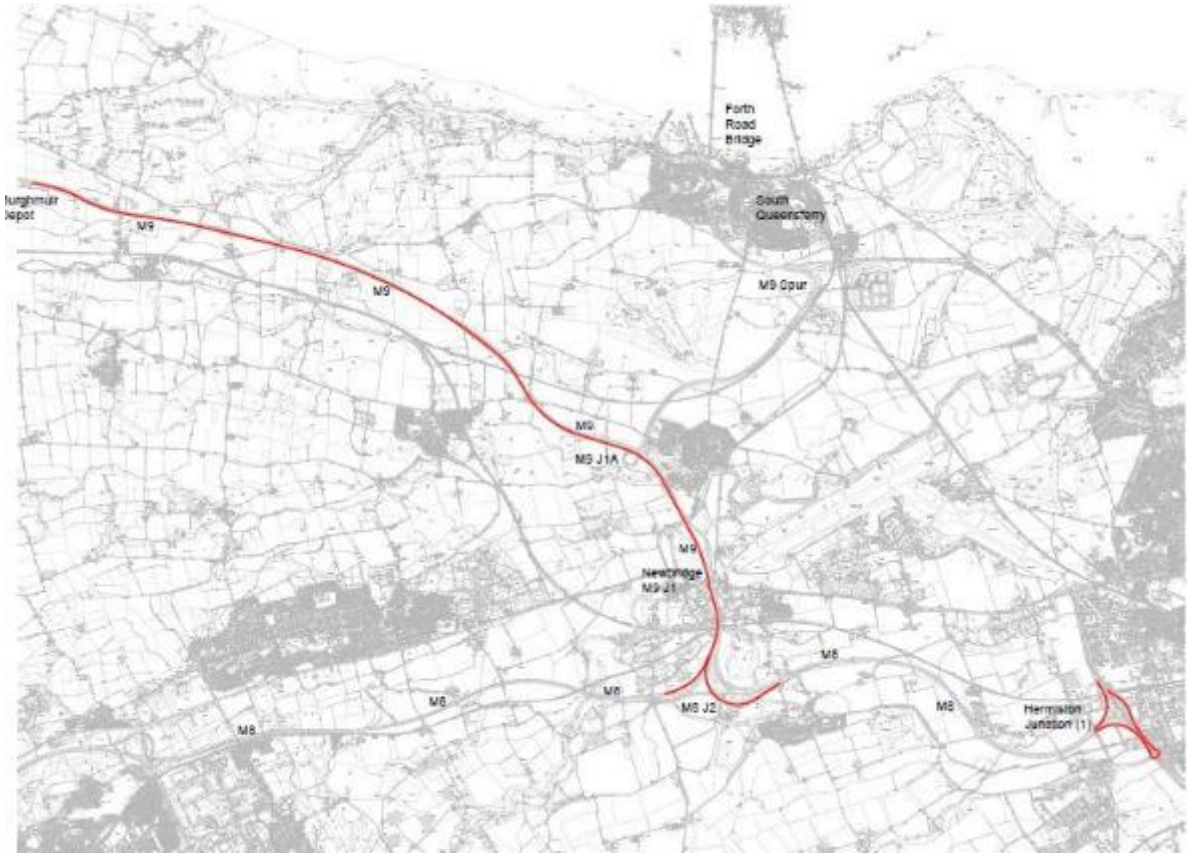
20/40 gram Precautionary Treatment Route – SE14



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40 gramme Precautionary Treatment Route - SE15A

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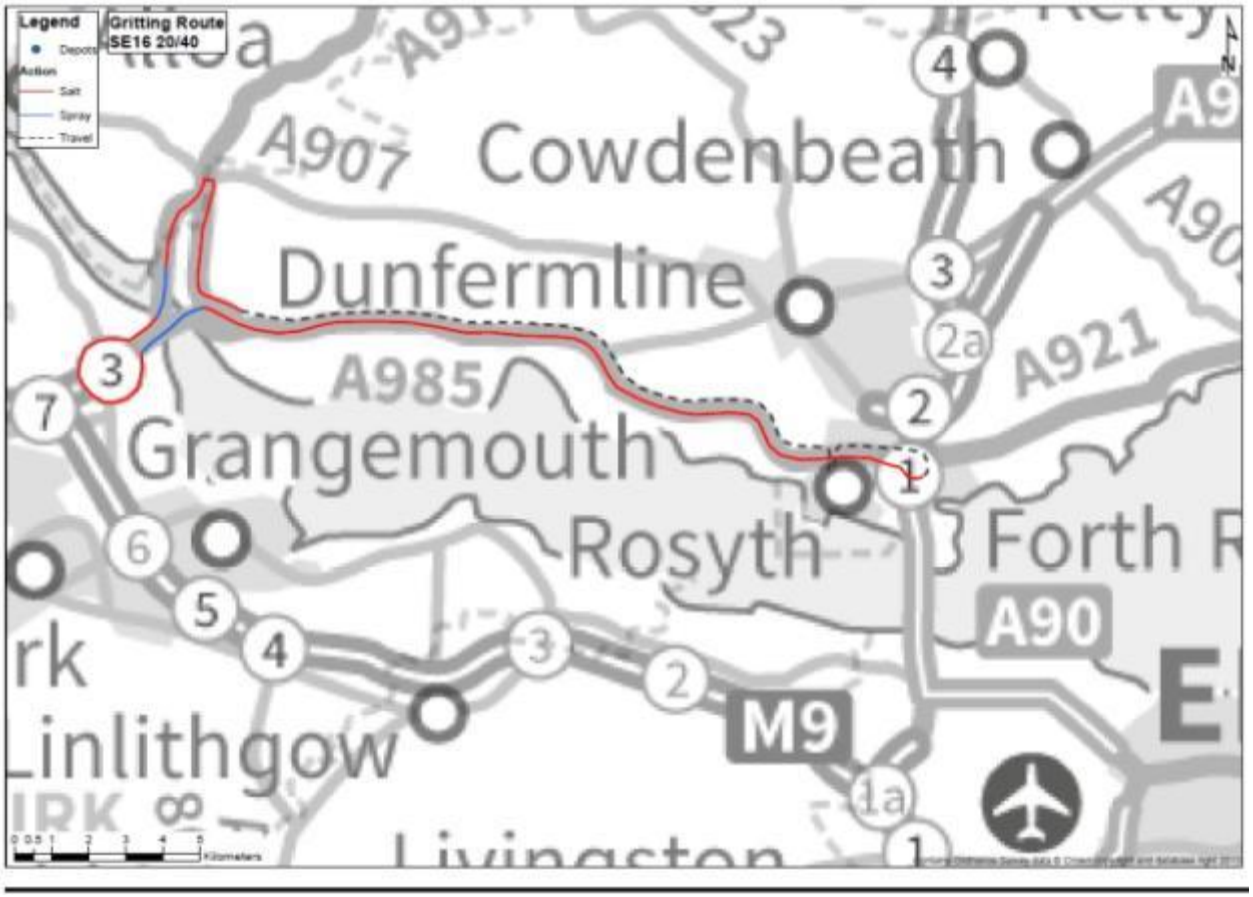
20/40 gramme Precautionary Treatment Route – SE16



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Appendix C -Maps Patrol Routes

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Winter service Patrol - A1

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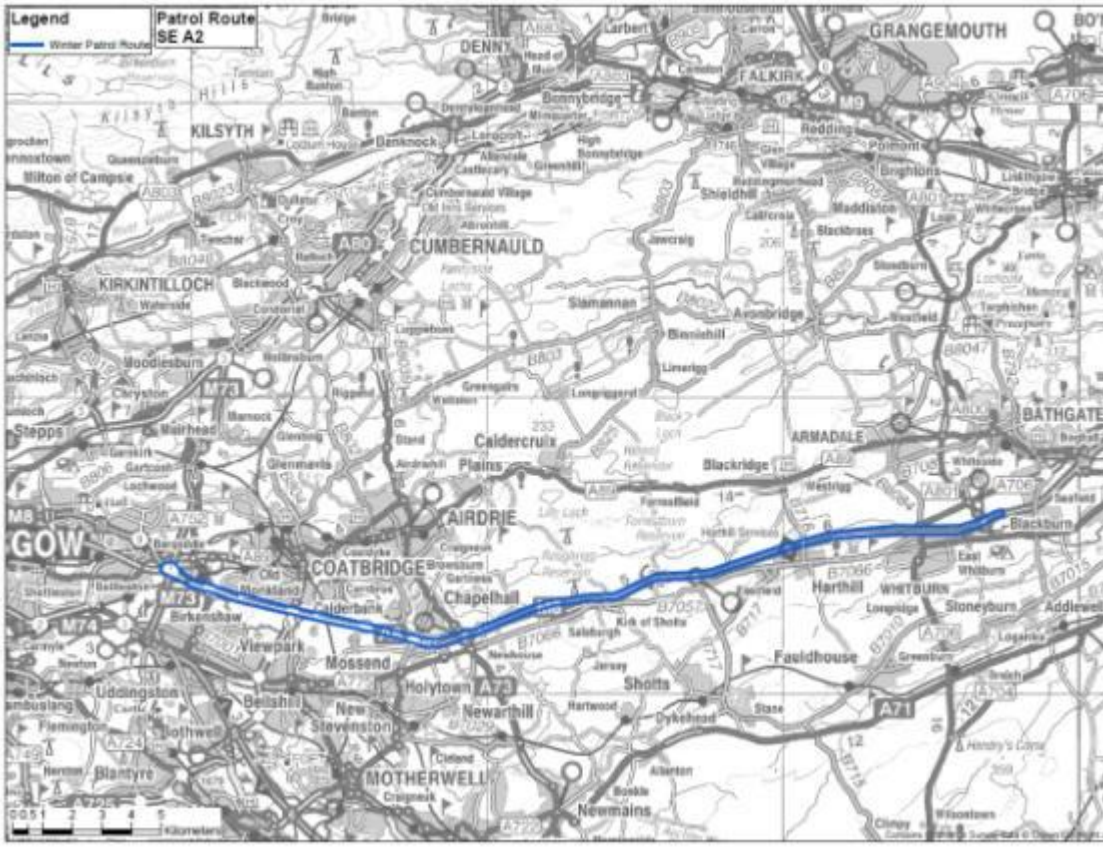
Winter service Patrol - A2



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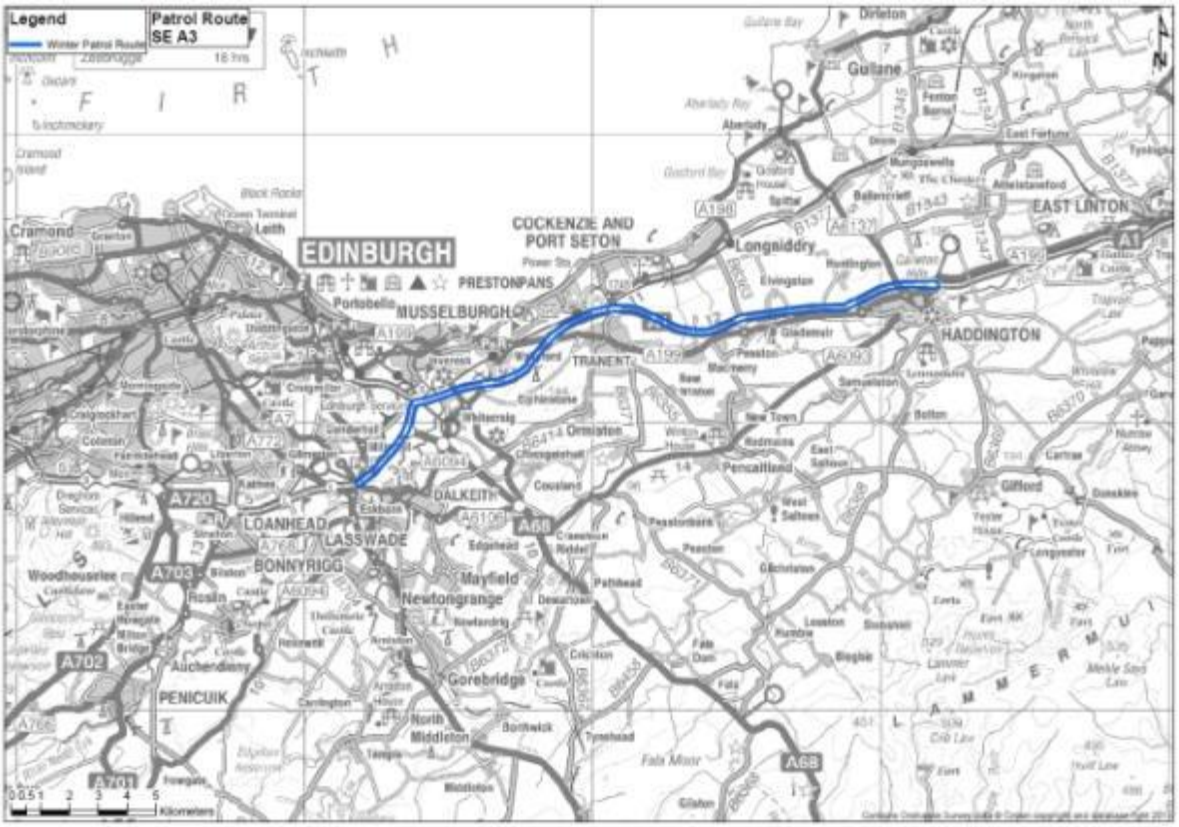
Winter service Patrol - A3



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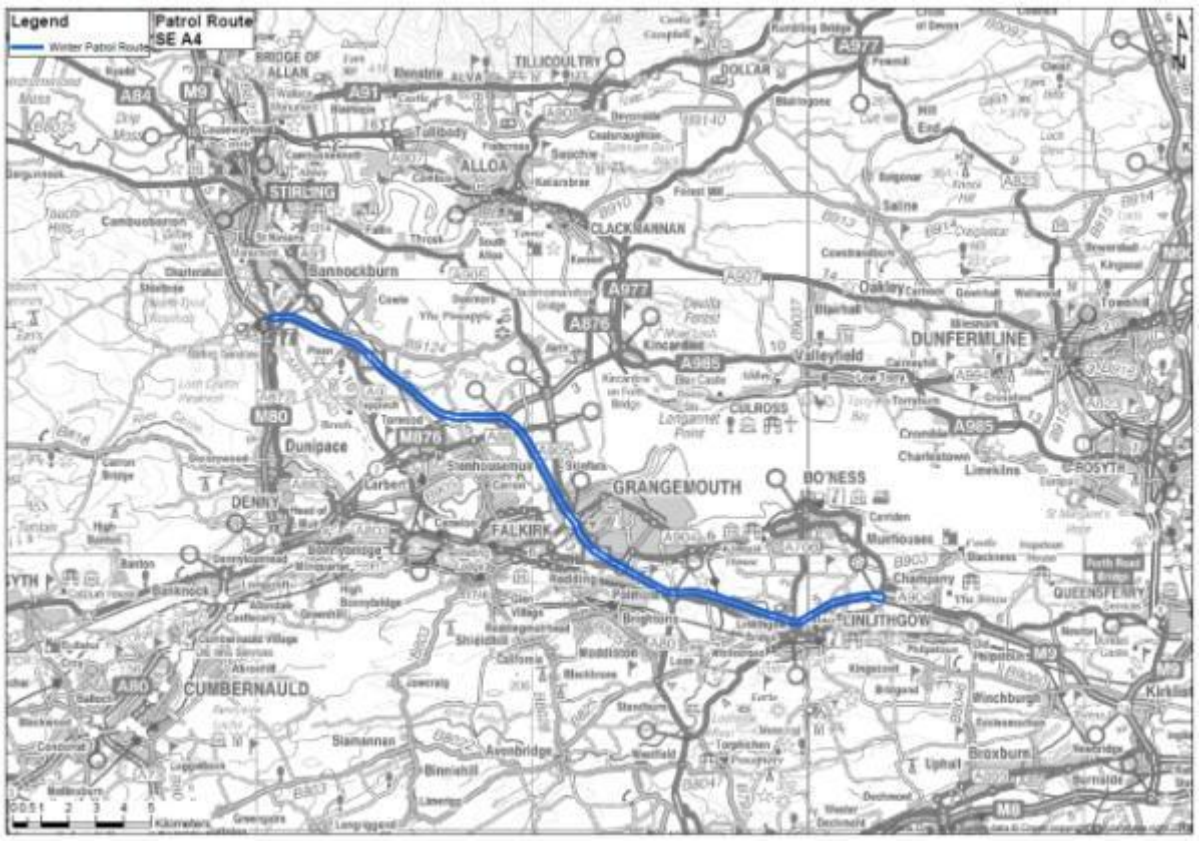
Winter service Patrol - A4



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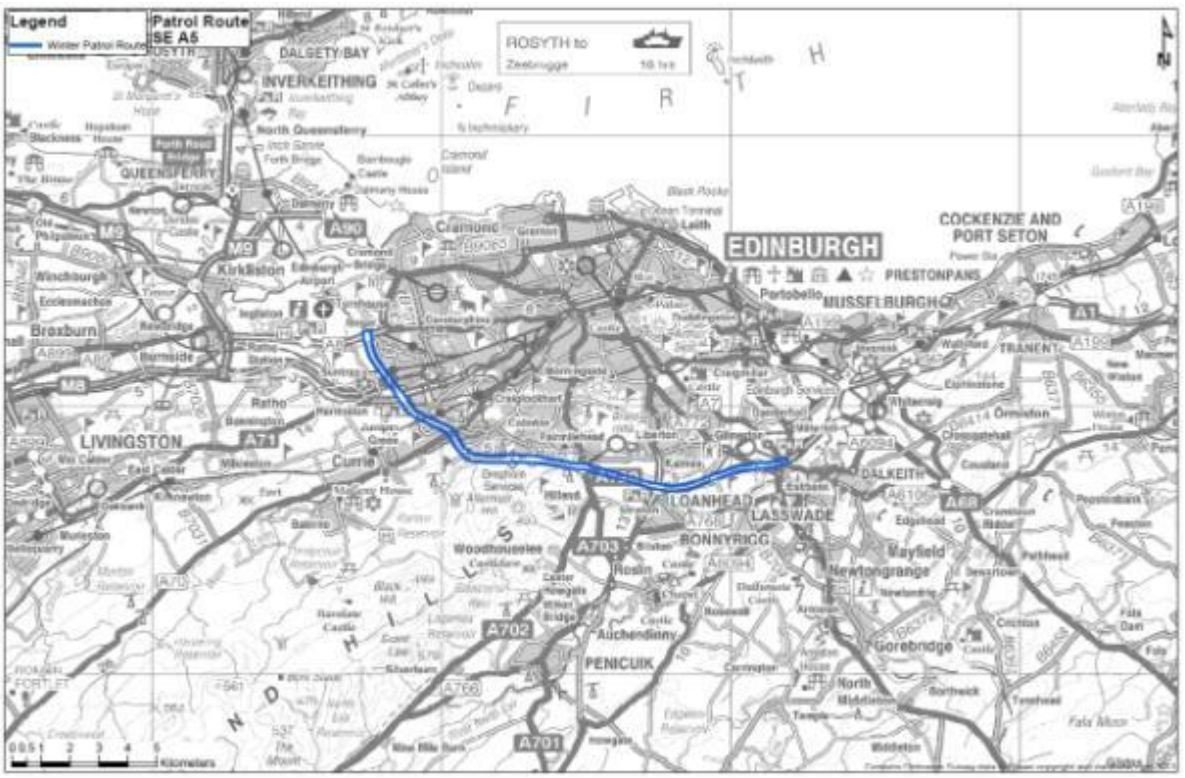
Winter service Patrol - A5



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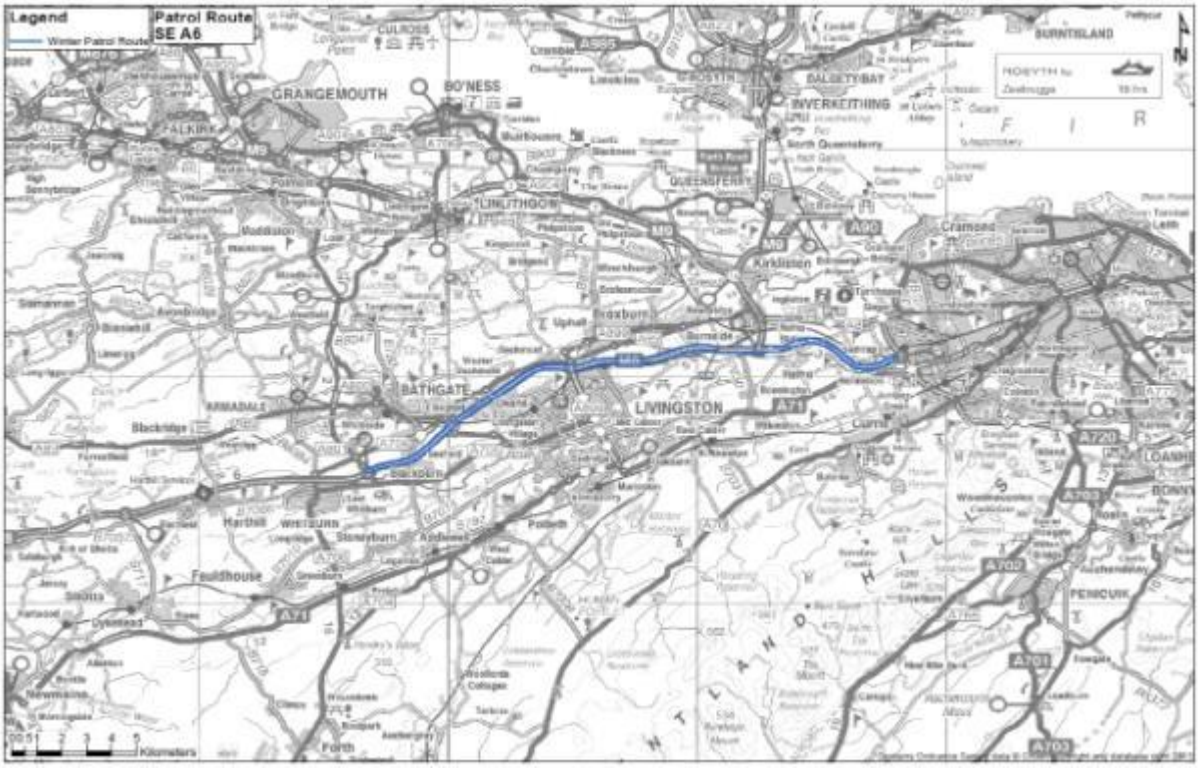
Winter service Patrol – A6



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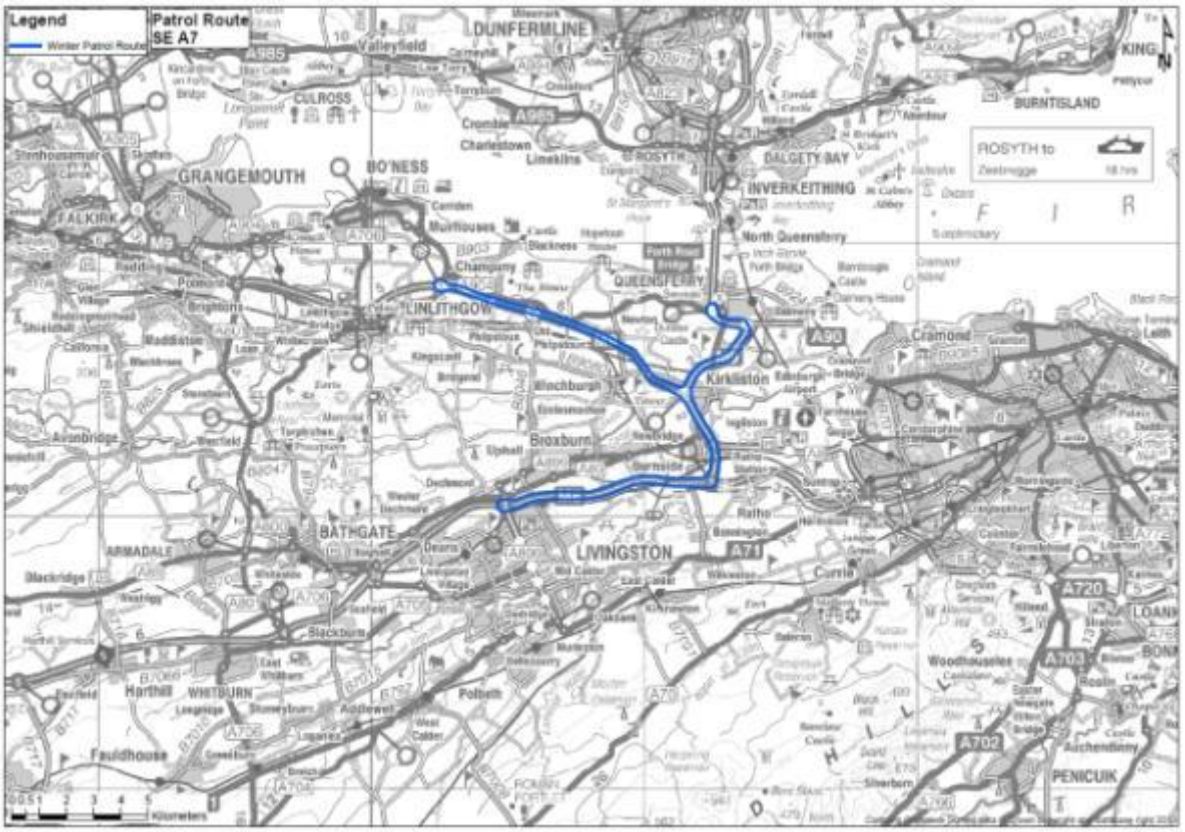
Winter service Patrol – A7



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Winter service Patrol - B1

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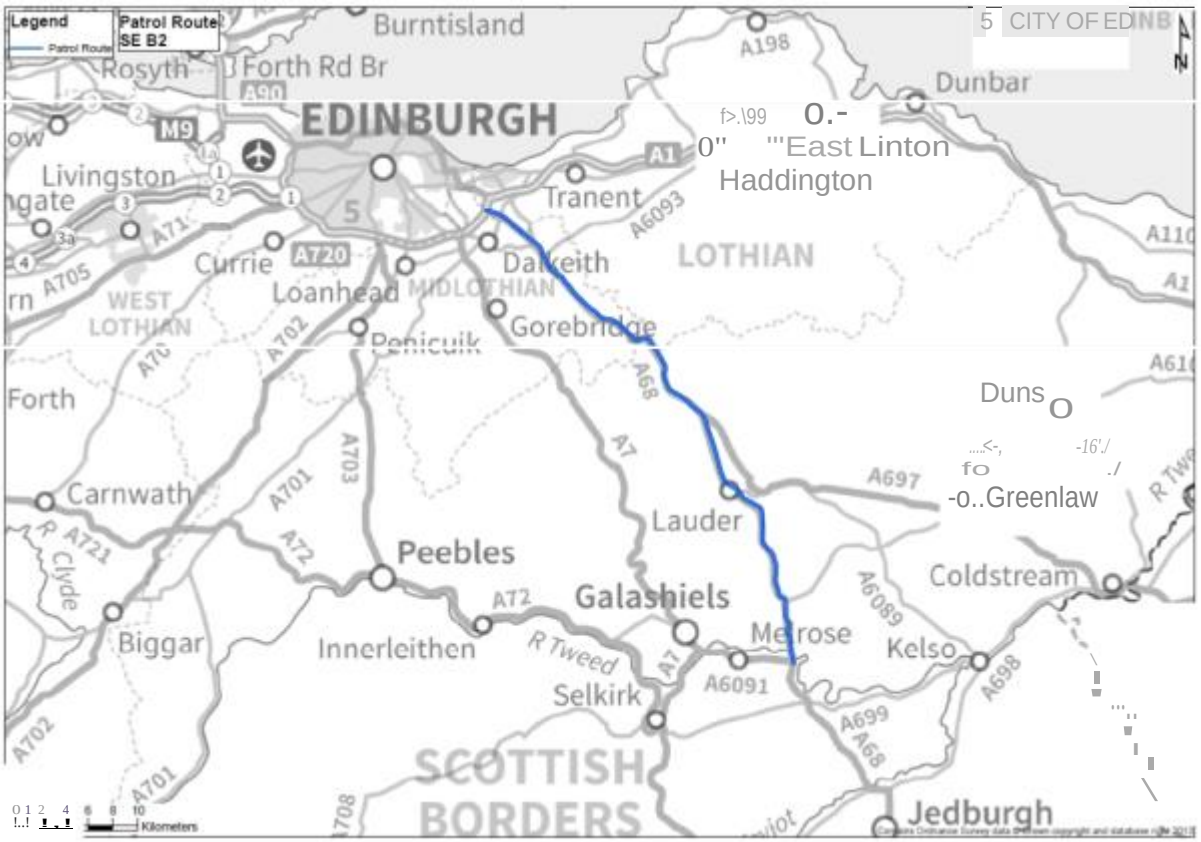
Winter service Patrol - B2



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Winter service Patrol- B3

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Winter service Patrol – B4

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Appendix C - Maps Footways

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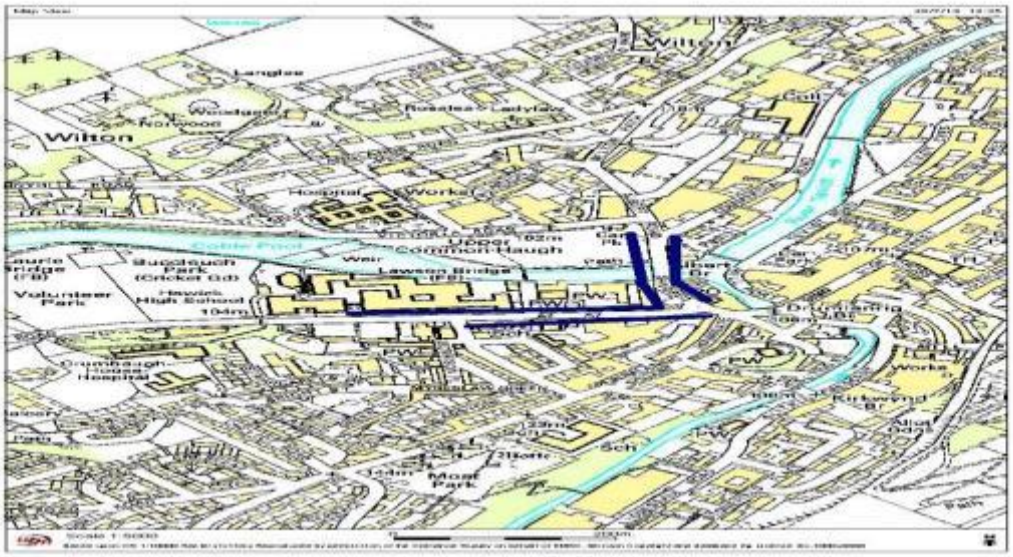
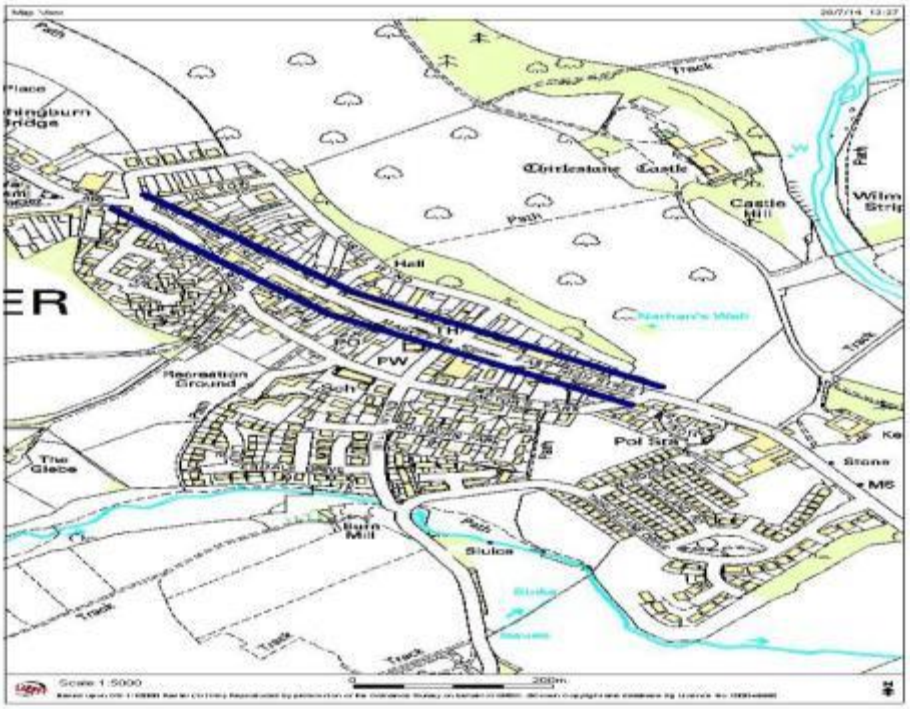
Footways Category A - Hawick



Footways Category B + C - Lauder



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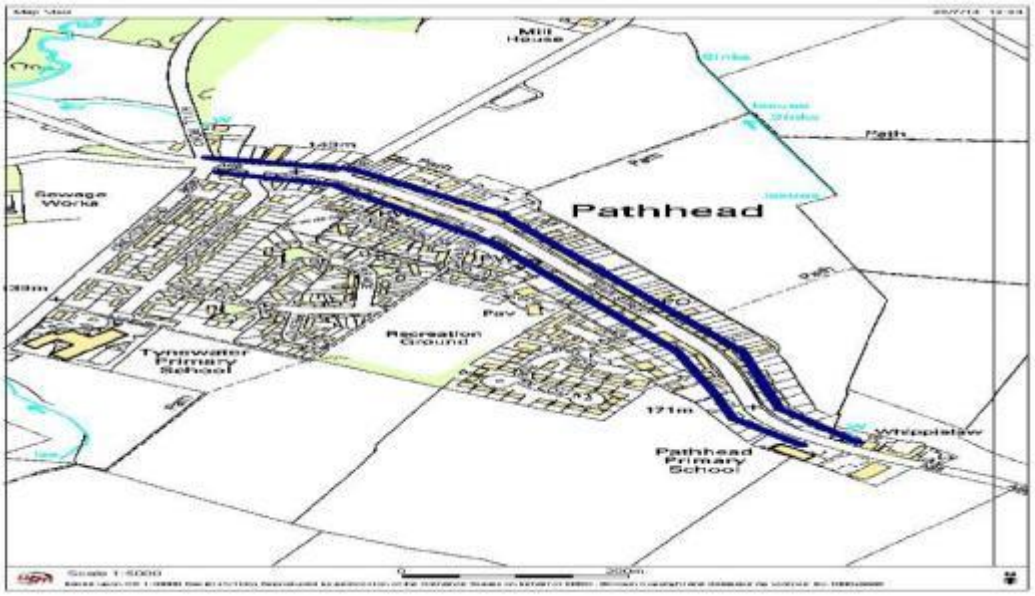
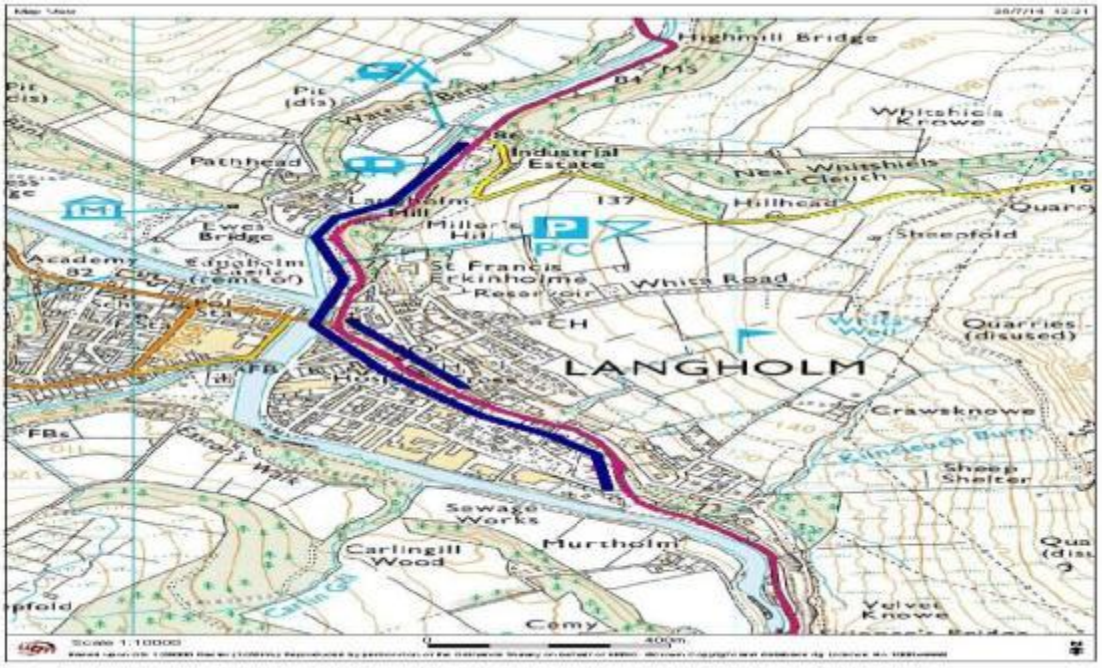
Footways Category B + C - Pathhead



Footways Category B + C - Langholm



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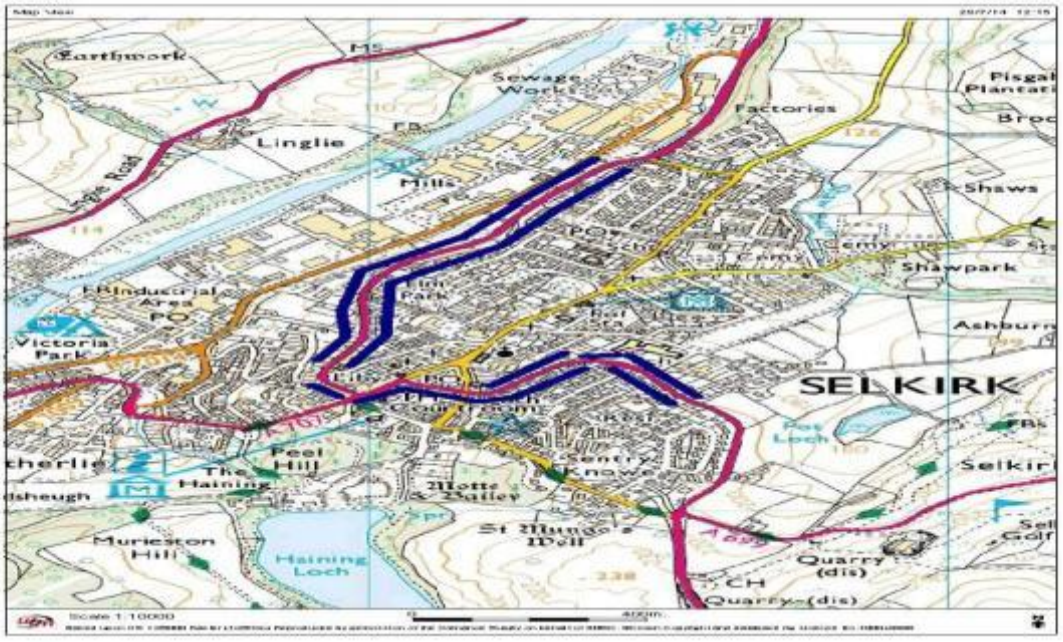
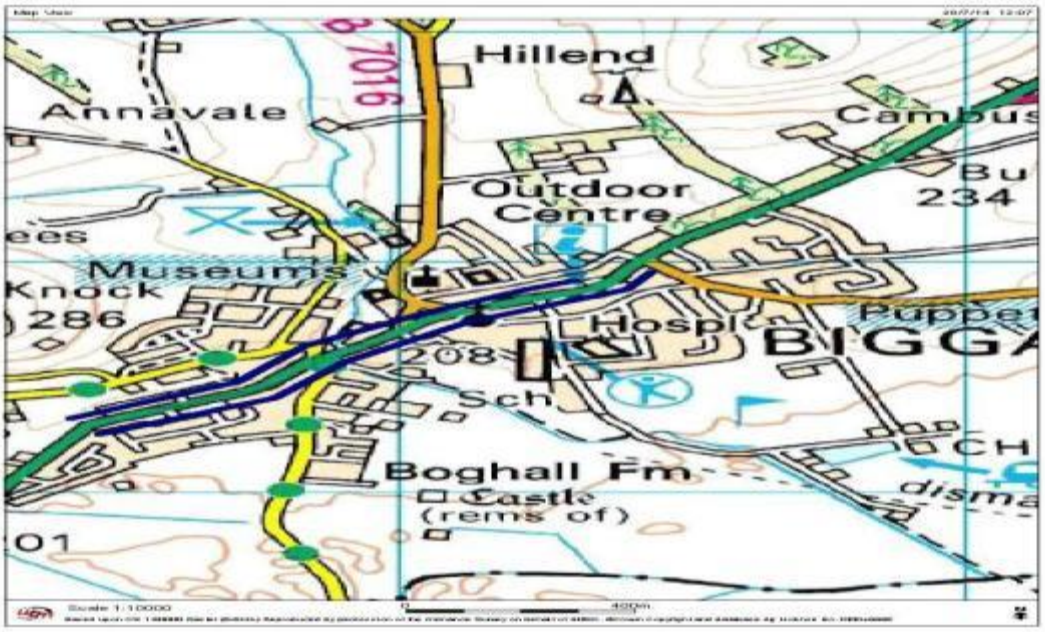
Footways Category B + C - Selkirk



Footways Category B + C - Biggar



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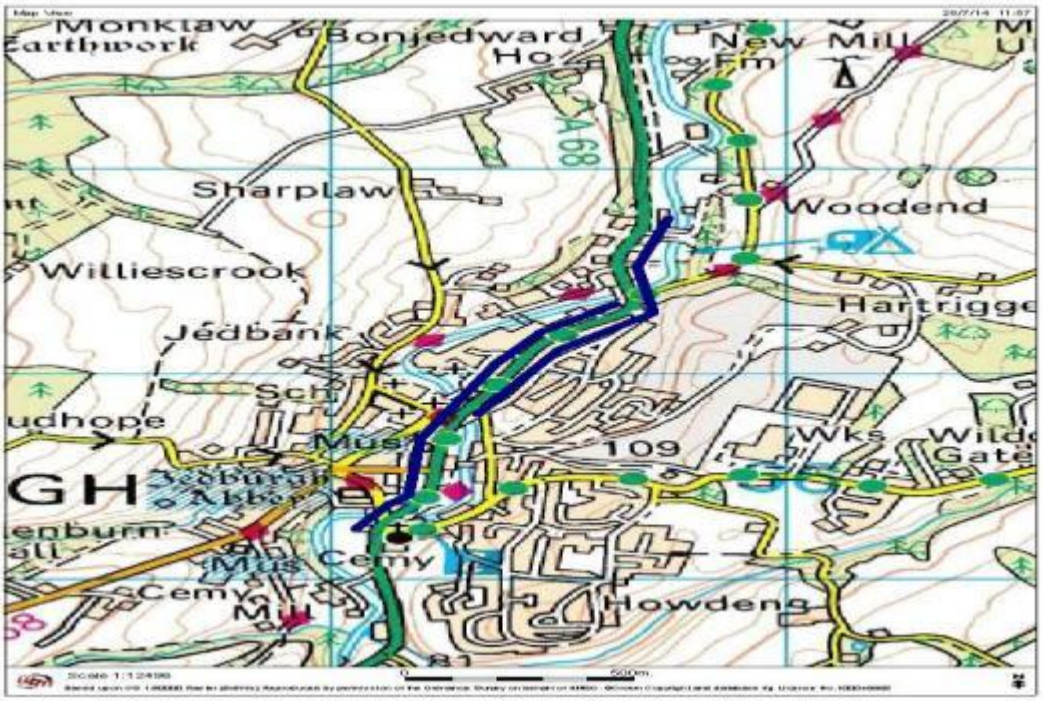
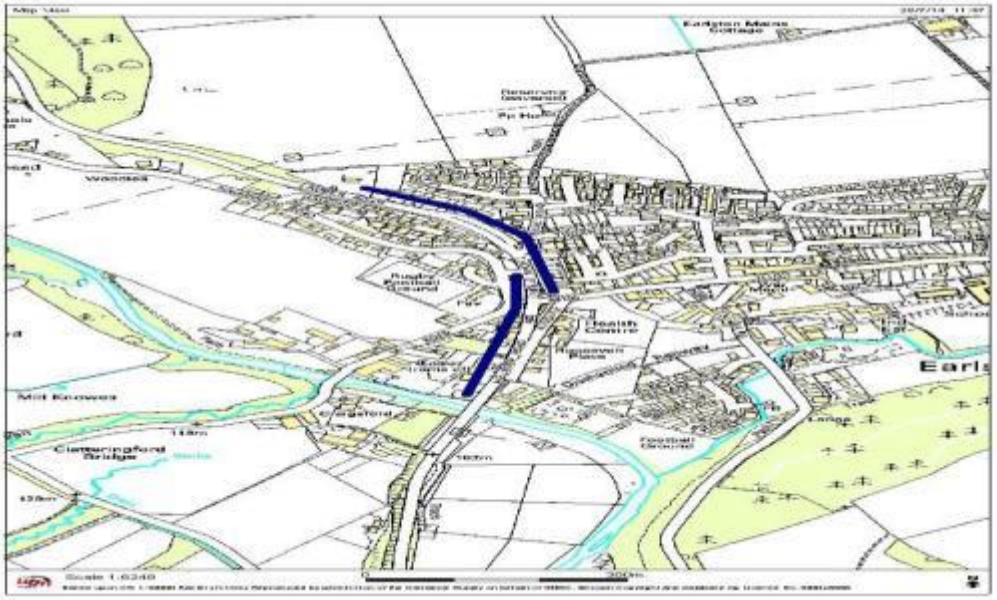
Footways Category C - Jedburgh



Footways Category C - Earlston



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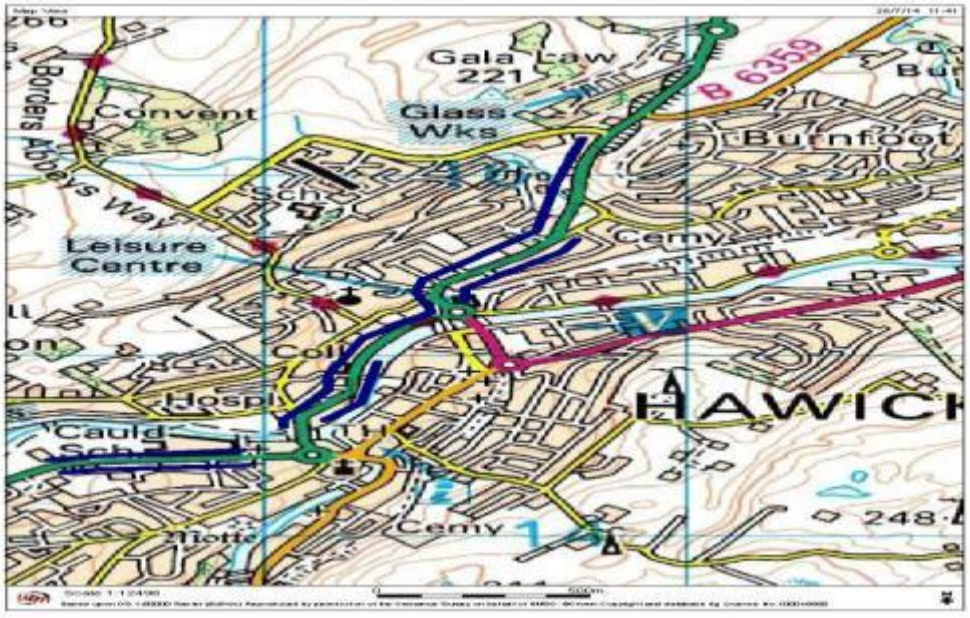
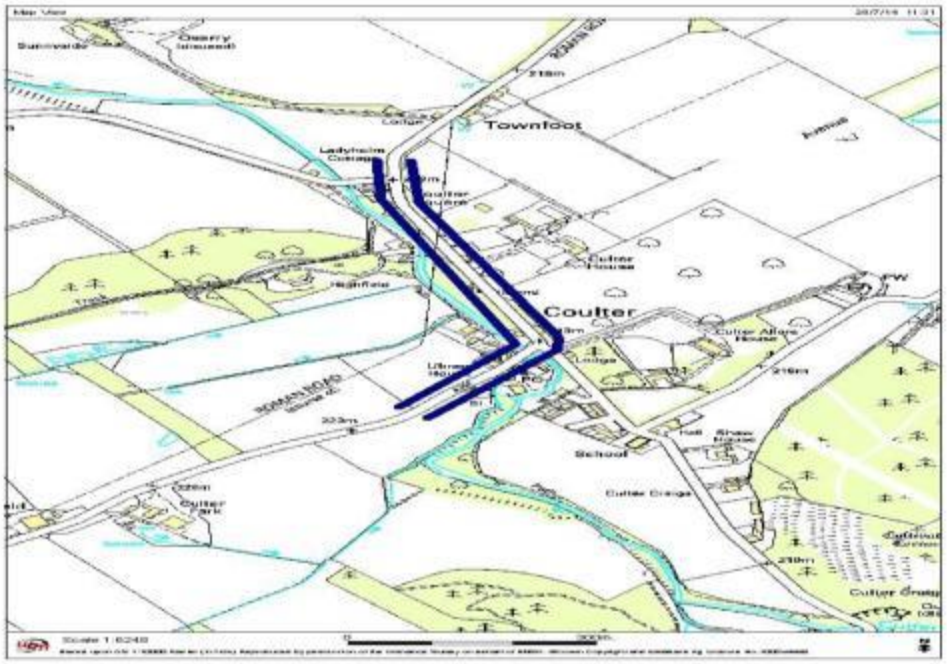
Footways Category C - Hawick



Footways Category C – Coulter



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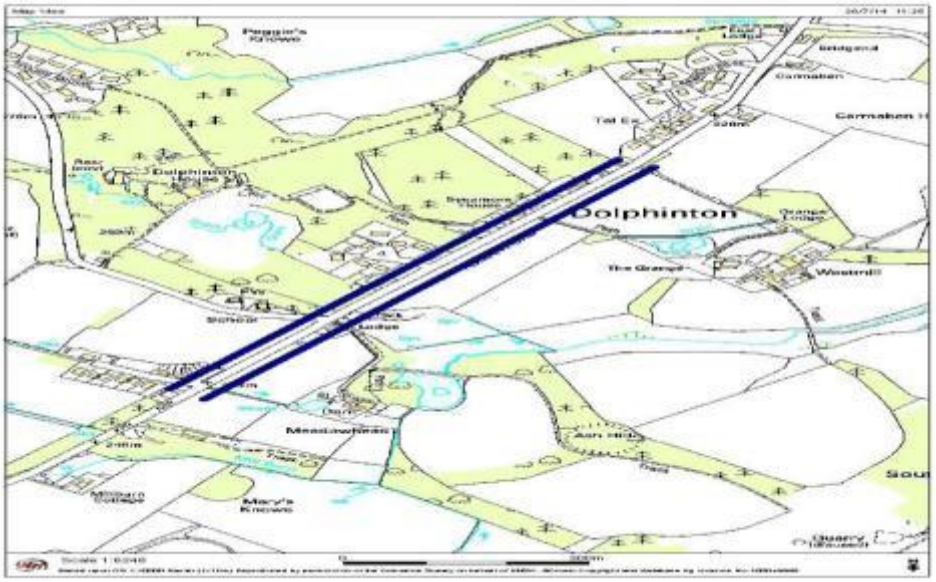
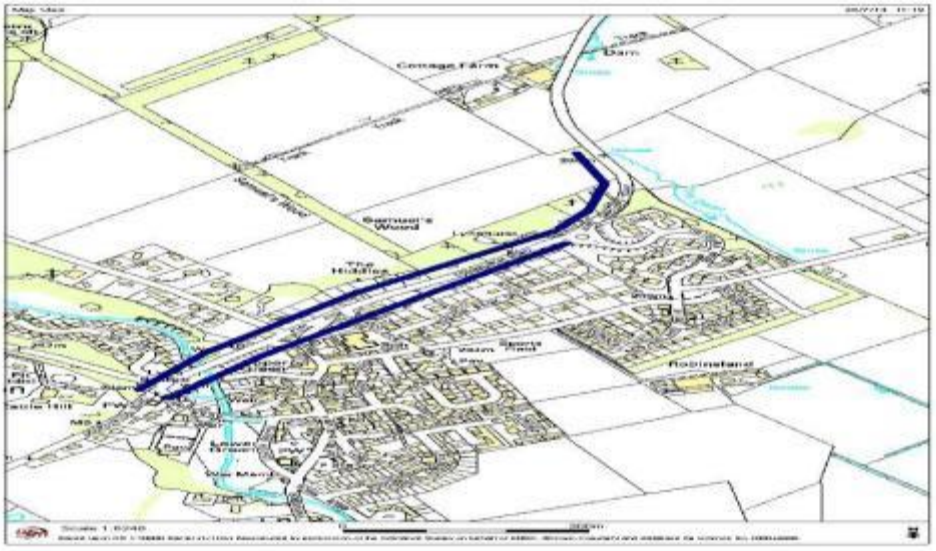
Footways Category C – Dolphinton



Footways Category C – West Linton



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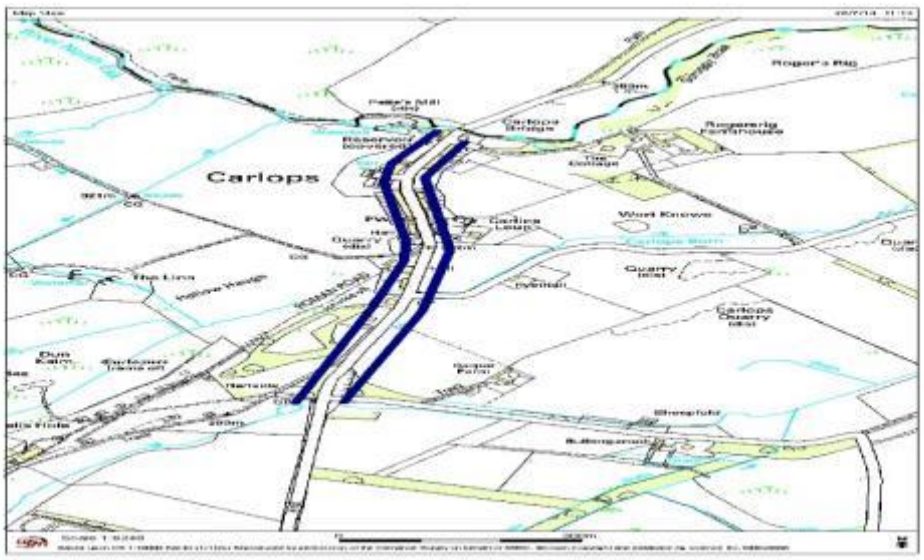
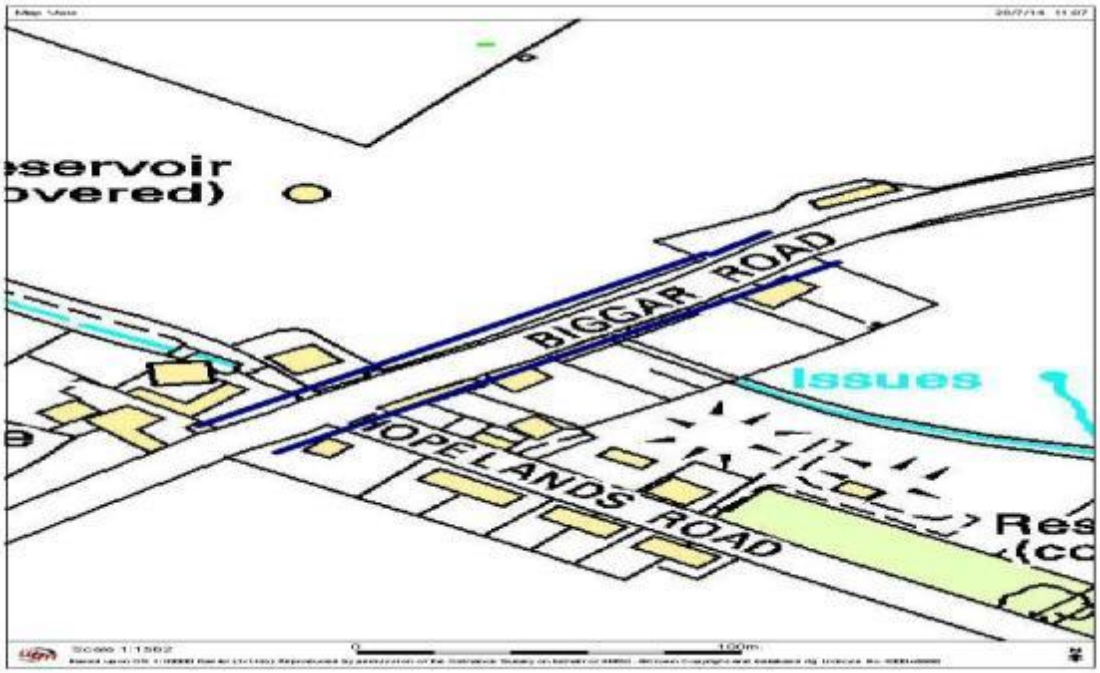
Footways Category C – Carlops



Footways Category C – Silverburn



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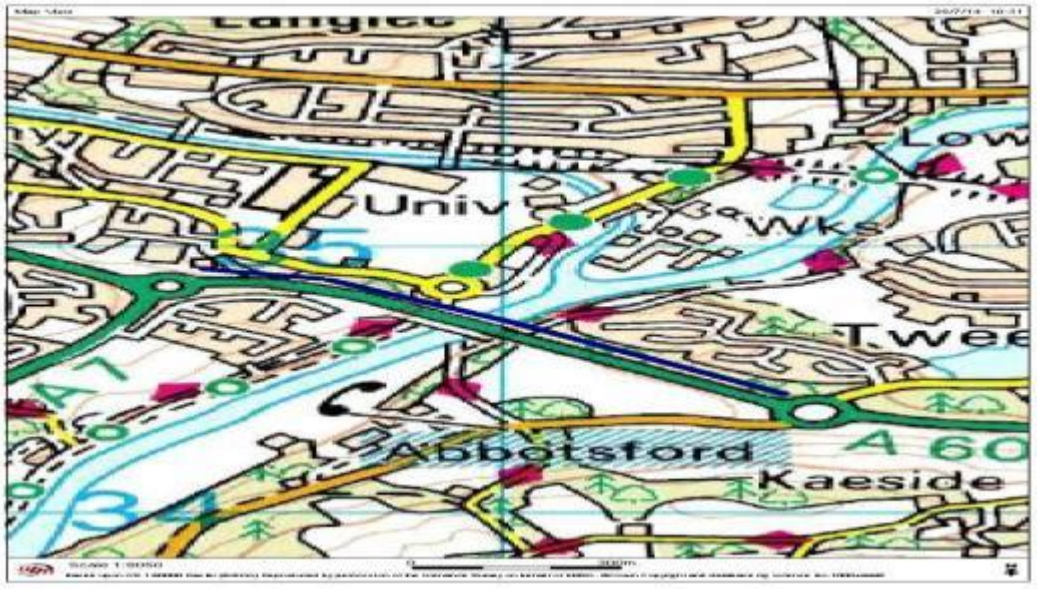
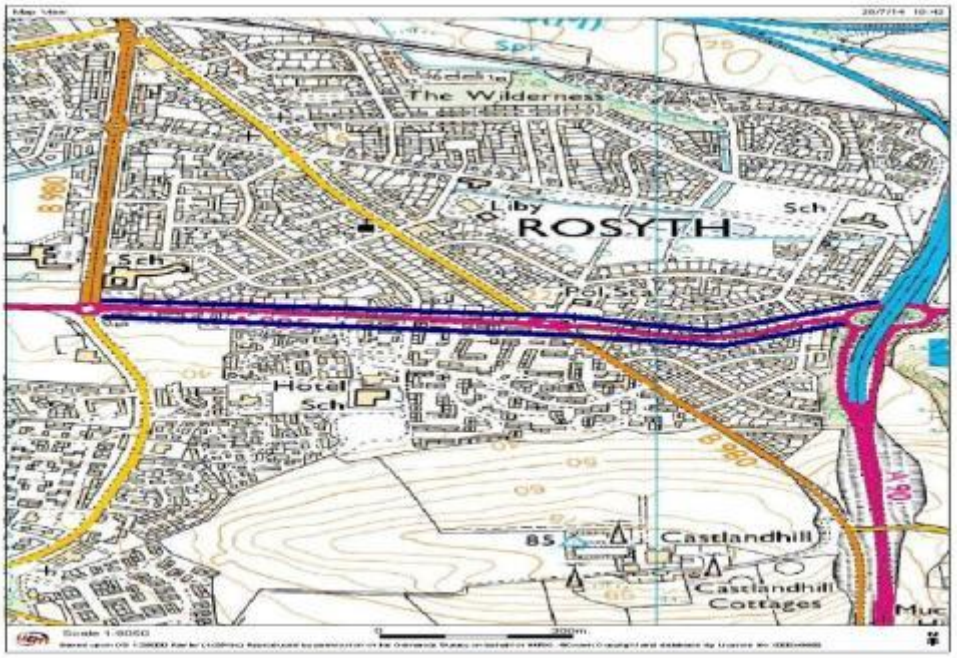
Footways Category C – A6091



Footways Category C – Rosyth



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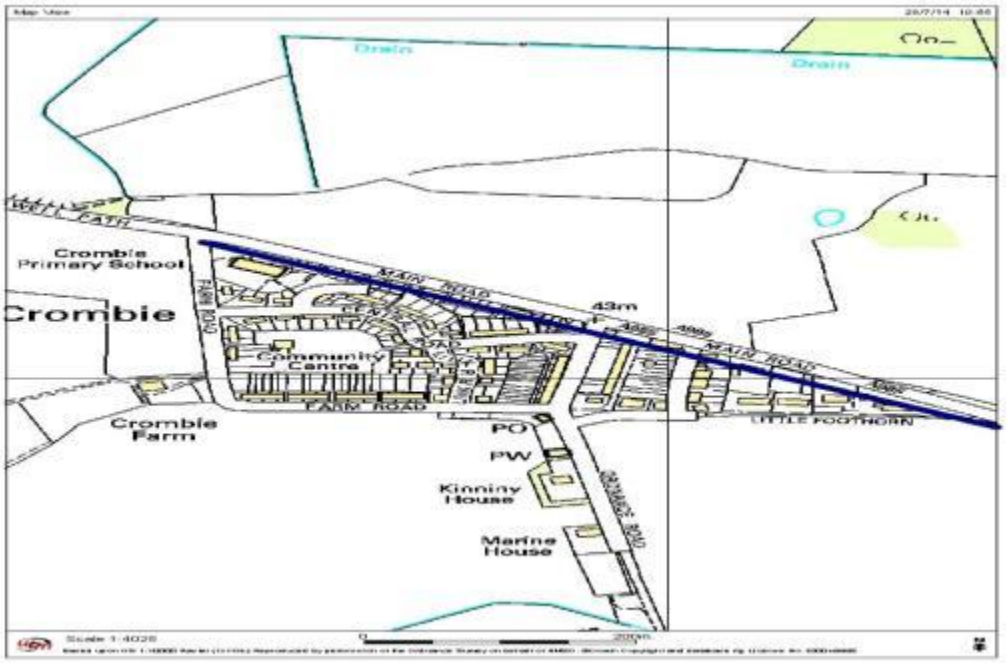
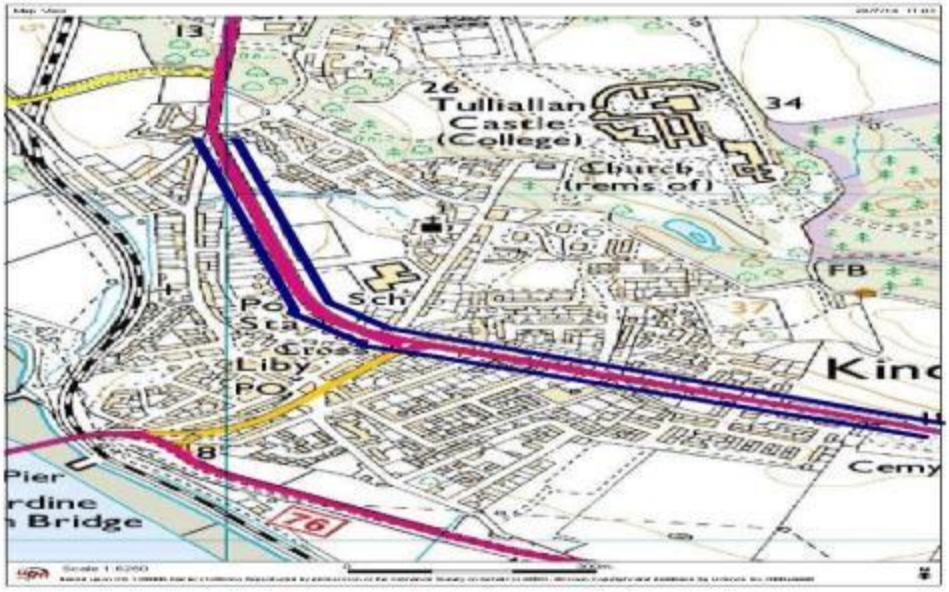
Footways Category C – Crombie



Footways Category C – Kincardine



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Appendix D - Annex WSP 1 Not Used

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Appendix D - Annex WSP 2 Precautionary Salting Routes

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Precautionary Treatment Routes (20 gramme routes)

Route	**Depot**	**Description**	**Depot to Route (km)**	**Time to Route (mins)**	**De-icing Length (km)**	**Average Speed (kph)**	**Route Time (mins)**	**Route to Depot (km)**	**Average Width of Route (m)**	**Alter-native Access**	**Route Tonnage at 20 g/sq m (tonne)**	**Route Tonnage at 40 g/sq m pre-wet**	**Treatment Type**
1-20	Hawick (SBC)	A7 Hawick - Selkirk, Hawick A7 Hawick - National Boundary	1.8	2.5	67.5	48	110	62.6	7.7	Eaglesfield	7.28		Pre-wet
2-20	Newtown St Boswells (SBC)	A68 National Boundary - A6091	19	22	45.31	52	101	10	7.9	Hawick	5.02		Pre-wet
3-20	Newtown St Boswells (SBC)	A7 at Galashields - A68 Ravenswood - A720	24.4	27	65.41	49	110	16	7.5	Bilston Glen	6.87		Pre-wet & pot acetate
4-20	Duns (SBC)	A1 Thistly cross - National Boundary	15	17	63.73	56	102	19	8.8	Bilston Glen	7.85		Pre-wet
5-20	Bilston Glen	A702 Lothianburn -	8	10	59.5	48	106	52	7.8	Crawford	6.50		Pre-wet
6-20	Bilston Glen	A1/A720 Dunbar - Dreghorn	8	10	62.25	56	116	8	9	Burghmuir	7.91		Pre-wet
7-20	Bilston Glen	A1/A720 Dunbar - Dreghorn	5	6	56.2	56	103	5	9	Burghmuir	7.08		Pre-wet
8-20	Bilston Glen	M8/A720	14	16	51.3	49	101	13	9.3	Burghmuir	6.68		Pre-wet
9-20	Burghmuir	M8	12.9	10	34.22	52	83	22.1	17	Bilston Glen	6.5		Pre-wet
10-20	Burghmuir	M8	8.5	6.5	33.39	56	100	13	10	Bilston Glen	6.68		Pre-wet
11-20	Burghmuir	M9 NB J3-11/M876	0.1	0.5	47.7	56	73	24	11	Rosyth	9.54		Pre-wet
12-20	Burghmuir	M9 SB J11-3/M876	7.8	6	50.1	60	118	5.6	7	Rosyth	6.95		Pre-wet
13-20	Burghmuir	M9/M876/M80	11	8	53.7	62	103	8	10	Rosyth	7.63		Pre-wet
14-20	Burghmuir	M9 J3-1/M8	1.2	3	48.3	56	80	1.1	5	Bilston/ Rosyth	6.76		Pre-wet
16-20	Burghmuir	A985/A977/A876/M876	17.4	18	41 (2.85)	53	88	13.2	8.0 (10)	Rosyth	4.56 (445)		Pre-wet & pot acetate
FP 1	Hawick (SBC)	A7	1	3	0.5	6	5	1	2.0	Bilston Glen	20 litres		Brine

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Precautionary Treatment Routes (40 gramme routes) 17 Routes

Route	Depot	Description	Depot to Route (km)	Time to Route (mins)	De-icing Length (km)	Average Speed (kph)	Route Time (mins)	Route to Depot (km)	Average Width of Route (m)	Alter-native Access	Route Tonnage at 20 g/sq m (tonne)	Route Tonnage at 40 g/sq m pre-wet (tonne)	Treatmen t Type
1-40	Hawick (SBC)	A7 Hawick - Selkirk, Hawick A7 Hawick - National Boundary	20.5	26	67.5	48	112	62.6	7.7	Eaglesfield		14.55	Pre-wet
2-40	Newtown St Boswells (SBC)	A68 Carter Bar National Boundary - Earlston	19	22	45.31	48	101	10	7.9	Hawick		10.04	Pre-wet
3-40	Newtown St Boswells (SBC)	A68 Stair Arms - Ravenswood - A6091 - Ravenswood - A7	24.4	27	57.96	48	109.5	16.1	7.5	Bilston Glen		12.18	Pre-wet
4-40	Duns (SBC)	A1 Penmanshiel - Thurston - National Boundary	15	18	47.6	53	92	19	8.4	Bilston Glen		11.27	Pre-wet
5-40	Bilston Glen	A702 Silverburn - Abington	21	25	49.9	49.9	91	42	7.8	Crawford		10.70	Pre-wet
5A - 40	Bilston Glen	A68 Stair Arms – Millerhill A1 Craighall - Fort Kinnaird A720 Craighall – Dreghorn A702 Lothianburn - SIlverburn	15	18	44.55	49	81	19	8.0	Burghmuir		9.98	Pre-wet
6-40	Bilston Glen	A1/A720 Dunbar - Dreghorn	8	10	52.55	56	91	8	9	Duns		13.24	Pre-wet
7-40	Bilston Glen	A1/A720 Spott Rdbt - Dreghorn	5	6	48.58	56	82	12	9	Duns		12.24	Pre-wet
8-40	Bilston Glen	M8/A720	14	16	51.3	49	101	13	9.3	Burghmuir		13.36	Pre-wet
9-40	Burghmuir	A8/M8	12.9	10	34.22	56	83	22	20	Bilston Glen		13.7	Pre-wet
10-40	Burghmuir	A8/M8	8.5	6.5	33.39	56	100	13.2	11	Bilston Glen		10.22	Pre-wet
11-40	Burghmuir	M9/M876	3.8	3	41.1	56	53	29	10	Rosyth		11.51	Pre-wet
12-40	Burghmuir	M9/M876	23.6	20	41.5	60	71	5.6	7	Rosyth		11.62	Pre-wet
13-40	Burghmuir	M9/M876/M80	11.2	8.4	37	60	68	8	10	Rosyth		10.36	Pre-wet
14-40	Burghmuir	M9/M8/A720	1.2	1.2	45.8	56	80	1.1	5	Bilston Glen		18.32	Pre-wet
16-40	Burghmuir	A977/A985/A876	17.4	18	43.55 (2.85)	53	88	32	8.0 (10.0)	Rosyth		16 (890)	Pre-wet & pot acetate
15A-40	Burghmuir	M9/M876/M80	0.1	0.1	34.95	50	95	24	10	Rosyth		13.98	Pre-wet
FP 1	Hawick (SBC)	A7	1	3	0.5	6	5	1	2.0	Bilston Glen		20 litres	Brine

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Appendix D - Annex WSP 3 Salt Stock levels

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Operational Salt Stock Levels

Operating Company	Minimum Salt Stock Level at Start of Season (tonnes)
South East Region	20,700

De-icing Material (i.e. Dry salt/ABP)	Location	Type (barn/open)	Min (Max) 1st Oct in tonnes
Dry Salt Mag Chloride	Bilston Glen	Barn	800 salt (1000) 10,000 Mag Chloride
Dry Salt	Dovesdale (Hamilton)	Barn	1000 salt (10000)
Dry Salt Mag Chloride Ecothaw Potassium Acetate	Burghmuir	Barn	2500 salt (3000) 10,000 Mag Chloride 25,000 Ecothaw 25,000 Pot Acetate
Dry Salt	Rosyth	Barn	1500 salt (5000)
Dry Salt	Hawick (SBC)	Barn	1000 salt (2000)
Dry Salt	Duns (SBC)	Barn	1000 salt (2000)
Dry Salt ABP	Newtown St Boswells (SBC)	Barn	1000 salt (3000) 5,000 ABP
Dry Salt	Peebles (SBC)	Barn	3000 salt (5000)
Dry Salt	Lauder (SBC)	Barn	1000 salt (2000)
Dry Salt	Gorebridge (Ritchie)	Barn	8000 salt (10000)
Total			**20800**

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Brine Production and Storage

Location	Type (saturator/storage only)	Capacity (L)	Min (L)
Hawick (SBC)	Saturator + storage	7500	5200
Duns (SBC)	Saturator + storage	5000	4025
Newtown St Boswells (SBC)	Saturator + storage	10000	7940
Bilston Glen	Saturator (10000) + storage (15000)	25000	20840
Burghmuir	Saturator (10000) + storage (30000)	32000	25680

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Appendix D - Annex WSP 4 Not Used

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Appendix D - Annex WSP 5 Winter Service Plant

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Table 1: Frontline Winter Service Plant permanently available and located in the Unit for the Winter Service for carriageways

Type of Winter Service Plant & registration number #	Depot location	Vehicle capacity	Number of vehicles	Plant use* (i), (ii), (iii)
32 tonne 8x4 spreader VX64JWC	Hawick	12 cub m	1 Schmidt	(i) & (iii)
25 tonne Mercedes Zetros 6x6 spreader VX64 JNZ	Newtown St Boswells	9 cub m	1 Schmidt	(i) & (iii)
25 tonne Mercedes Zetros 6x6 spreader VX64 JNV	Newtown St Boswells	9 cub m	1 Schmidt	(i) & (iii)
26 tonne 6x4 spreader VX64JNJ	Duns	9 cub m	1 Schmidt	(i) & (iii)
26 tonne 6x4 spreader VX64JMO	Bilston Glen	9 cub m	1 Schmidt	(i) & (iii)
26 tonne 6x4 spreader VK65JUT	Bilston Glen	9 cub m	1 Schmidt	(i) & (iii)
32 tonne 8x4 spreader VX15CXL	Bilston Glen	12 cub m	1 Schmidt	(i) & (iii)
32 tonne 8x4 spreader VX15CYC	Bilston Glen	12 cub m	1 Schmidt	(i) & (iii)
26 tonne 8x4 spreader WV64YWP	Bilston Glen	12 cub m	1 Schmidt	(i) & (iii)
26 tonne 6x4 spreader VX64JMV	Burghmuir	9 cub m	1 Schmidt	(i) & (iii)
26 tonne 6x4 spreader VX64JNF	Burghmuir	9 cub m	1 Schmidt	(i) & (iii)
32 tonne 8x4 spreader VK65JUJ	Burghmuir	12 cub m	1 Schmidt	(i) & (iii)
32 tonne 8x4 spreader VX64JWD	Burghmuir	12 cub m	1 Schmidt	(i) & (iii)
32 tonne 8x4 spreader VX15CYE	Burghmuir	12 cub m	1 Schmidt	(i) & (iii)
32 tonne 8x4 spreader VX64JWA	Burghmuir	12 cub m	1 Schmidt	(i) & (iii)
26 tonne 6x4 spreader VE64BKN	Burghmuir	9 cub m	1 Schmidt	(i) & (iii)

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32 tonne 8x4 Combi spreader / sprayer VX64JWE	Burghmuir	12 cub m / 1500 litre tank	1 Schmidt	(i) & (iii)
4x2 Atego spreader YF63HUU	Burghmuir	6 cub m	1 Econ	(ii)
4x2 Atego spreader YF63HUV	Burghmuir	6 cub m	1 Econ	(ii)
26 tonne 6x4 spreader WX64ZGY	Bilston Glen	9 cub m	1 Schmidt	(ii)
26 tonne 6x4 spreader VX15CXJ	Burghmuir	9 cub m	1 Schmidt	(ii)
4x2 Atego spreader YF63HUZ	Bilston Glen	6 cub m	1 Econ	(ii)
26 tonne 6x4 spreader VU15CMK	Burghmuir	9 cub m	1 Schmidt	(ii)
26 tonne 6x4 spreader VX15CYF	Burghmuir	9 cub m	1 Schmidt	(ii)
4x2 Atego spreader YF63HUY	Bilston Glen	6 cub m	1 Econ	(ii)
4x2 Atego spreader YF63HVC	Bilston Glen	6 cub m	1 Econ	(ii)
Econ dedicated spreader SN60BBK	Hawick	6 cub m	1 Econ	(ii)
Econ dedicated spreader SN60BBV	Newtown St Boswell	6 cub m	1 Econ	(ii)

Key:

(i) Precautionary treatments and clearance of snow or ice with a depth up to 100 millimetres
(ii) Winter Service Patrols
(iii) Other arrangements to comply with the requirements of this Part.

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Table 2: Frontline Winter Service Plant permanently available and located in the Unit for the Winter Service for footways footbridges and cycling facilities

Type of Winter Service Plant & registration number	Depot location	Vehicle capacity	Number of vehicles	Plant use* (i), (ii), (iii)
Mini Tractor, brine sprayer + salt spreader SN55HDF	Hawick	50 litre sprayer, 0.5 cu m spreader	1	(i), (ii), (iii)
Mini Tractor + salt spreader Various SBC	Newtown St Boswells	0.5 cu m spreader	1	(ii), (iii)
Multihog + salt spreader PU15TUU	Bilston Glen	1.0 cu m spreader	1	(ii), (iii)
Multihog + salt spreader MX14UVE	Burghmuir	1.0 cu m spreader	1	(ii), (iii)
Mini Tractor + salt spreader Various SBC	Hawick	0.5 cu m spreader	1	(ii), (iii)

Key:

(i) precautionary treatments for Category A response
(ii) snow clearance and ice clearance for Category A response
(iii) snow or ice clearance for Category B, Category C, and Category D response.

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Table 3: Reserve Winter Service Plant permanently available and located in the Unit for Winter Service for carriageways, non-motorised user facilities

Type of Winter Service Plant & registration number	Depot location	Vehicle capacity	Number of vehicles	Plant use* (i), (ii), (iii)
26 tonne spreader YG68DHV	Newtown St Boswells	9 cu m	1	(i), (ii), (iii)
26 tonne 6x4 spreader YG68DHP	Hawick	9 cu m	1	(i), (ii), (iii)
26 tonne 6x4 spreader YG68DGX	Burghmuir	9 cu m	1	(i), (ii), (iii)
32 tonne 8x4 spreader VU15CMV	Bilston Glen	12 cu m	1	(i), (ii), (iii)
26 tonne 6x4 spreader VK65JUH	Bilston Glen	9 cu m	1	(i), (ii), (iii)
26 tonne 6x4 spreader YG68DGU	Newtown St Boswells	9 cu m	1	(i), (ii), (iii)
32 tonne 8x4 spreader YG68DGY	Duns	12 cu m	1	(i), (ii), (iii)
26 tonne 6x4 spreader VE64BKU	Bilston Glen	9 cu m	1	(i), (ii), (iii)
26 tonne 6x4 spreader VE64BKO	Bilston Glen	9 cu m	1	(i), (ii), (iii)
26 tonne 6x4 spreader YG68DGV	Burghmuir	9 cu m	1	(i), (ii), (iii)

Key:

(i) Precautionary treatment and clearance of snow with a depth up to 100 millimetres
(ii) Winter Service Patrols.
(iii) Other arrangements to comply with the requirements of this Part.

Table 4: Additional Winter Service Plant

Type of Winter Service Plant & registration number	Depot location or third party operator and location	Number of vehicles	Mobilisation time in hours
IPV and Plough	Bilston Glen	1	2
IPV and plough	Burghmuir	1	2
TM Truck and Plough	Burghmuir	1	2
Rolba Snow Blower	Duns (SBC)	1	2
Rolba Snow Blower	Newtown St Boswells (SBC)	1	2

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4wd Tractor with Plough and 2 cu m Mounted Salt Spreader	(Ritchies) Soutra, Carter Bar and Mosspaul as first priorities.	3	2
4wd Tractor with Plough	(Howieson), Biggar, West Linton	2	4

Raiko Icebreaker. (Extreme conditions)	Transport Scotland	2	4
4 WD Tractor with Plough and 2 cu m Mounted Salt Spreader	(Ritchie) Harthill and Livingston as first priority.	2	2
Toyota Hilux Type 2 ISU 4x4 with snowplough blade	Newtown St Boswells, Bilston Glen, Burghmuir	3	2

Table 5: Loading Winter Service Plant permanently available and located in each loading point.

Type of Winter Service Plant & registration number	Depot location	Vehicle capacity	Number of vehicles
JCB Telescopic Loader (or similar)	Hawick	1.5 cu m	1
JCB Telescopic Loader (or similar)	Newtown St Boswells	1.5 cu m	1
JCB Telescopic Loader (or similar)	Duns	1.5 cu m	1
JCB Telescopic Loader (or similar)	Bilston Glen	1.5 cu m	1
JCB Telescopic Loader (or similar)	Burghmuir	1.5 cu m	1
JCB Telescopic Loader (or similar)	Gorebridge	1.5 cu m	1
JCB Telescopic Loader (or similar)	Kelso	1.5 cu m	1

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Table 6: The Operating Company's Compounds, Depots and Facilities

Compound, Depot or Facility Name	Owner	Postal Address	Purpose	Access Arrangements	Contact Details	Facilities
Bilston Glen	Sharkey Group	6A, Dryden Road, Bilston glen, Midlothian, EH20 9TY	Central Office & Primary Depot	Unlimited		Main Office
Burghmuir	Transport Scotland	Junction 3 M9, Linlithgow	Primary Depot	Unlimited		Operational Depot
Newtown St Boswells	Scottish Borders Council	Council Headquarters, Newtown St Boswells, Melrose, TD6 0SA	Primary Depot	Shared with Scottish Borders		Operational Depot
Gorebridge	Grant Ritchie	Montieth House Farm Gorebridge EH23 4NL	Secondary Depot	Unlimited		Operational Depot
Hawick	Scottish Borders Council	Mansfield Road, Hawick, Roxburghshire, TD9 2HD	Secondary Depot	Shared with Scottish Borders		Operational Depot
Duns	Scottish Borders Council	Station Road, Duns, Berwickshire, TD11 3HS	Secondary Depot	Shared with Scottish Borders		Operational Depot
Kelso	Scottish Borders Council	Spylaw Road, Kelso, Roburghshire, TD5 7DN	Secondary Depot	Shared with Scottish Borders		Operational Depot
Peebles	Scottish Borders Council	Innerleithen Road, Eshiels, Peebles, EH45 8LZ	Secondary Depot	Shared with Scottish Borders		Operational Depot

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Appendix D - Annex WSP 6 Location of Ice Sensors and Weather Stations

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Table 1: Location of Ice Sensors

Route	Location	Altitude	Type
A1	Gladsmuir	100	Vaisala
A1	Grantshouse	120	Vaisala
A1	Haddington	80	Vaisala
A1	Myreside	40	Findlay Irvine
A1	Torness	110	Vaisala
A1	Tyne (East Linton)	40	Findlay Irvine
A1	Houndwood	70	Vaisala
A6091	Newstead	110	Vaisala
A68	Bonjedward	90	Vaisala
A68	Carter Bar	310	Vaisala
A68	Hope	210	Findlay Irvine
A68	Soutra	340	Vaisala
A68	Earlston	120	TBC
A7	Mosspaul	260	Findlay Irvine
A7	Selkirk	230	Findlay Irvine
A7	Hawick	120	Vaisala
A7	Terrona	110	Vaisala
A702	Abington	228	Vaisala
A702	Boghall	200	Vaisala
A702	Biggar (Causewayend)	105	Vaisala
A702	Ninemileburn	276	Vaisala
A702	West Linton	240	Vaisala
A720	Swanston	160	Findlay Irvine
M80	Haggs	90	Vaisala
A985	Kincardine ELR	15	Findlay Irvine
M8	Duntilland	250	Vaisala
M8	Whitburn	160	Vaisala
M8	Livingston (J3)	140	Vaisala
M80	Pirnhall	95	Vaisala
M9	Kier	60	Vaisala
M9	Linlithgow	63	Vaisala
M9	Bannockburn (Pirnhall)	70	Vaisala
M9	Polmont	30	Vaisala
M9	Newbridge	50	Findlay Irvine
M9	J2 to 1A (Wind Only)	50	Vaisala
A876	Clackmannanshire Bridge (Wind Only)	20	Vaisala
M90	Halbeath	120	Vaisala

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Appendix E - Precautionary treatment Routes

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Precautionary Salting Route 1 20

Depot: Hawick		**Vehicle: 32 Tonnes GVW 8X4**				
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	Mansfield Road / A7	Hawick Depot	Sandbed Roundabout	1.8	45	2.5
Salt	A7	Sandbed Roundabout	A699 St Boswells jct	17.42	48	22
TF	A7	A699 St Boswells jct	Turn in Selkirk	1.3	45	1.8
TF	A7	Selkirk	A699 St Boswells jct	1.2	45	1.8
TF	A7	A699 St Boswells jct	Galalaw Roundabout	13.6	45	18
Salt	A7	Galalaw Roundabout		0.16	20	0.5
TF	A7	Galalaw Roundabout	Dovemount Place Roundabout	1.6	45	2
Salt	A7	Dovemount Place Roundabout		0.11	20	0.5
TF	A7	Dovemount Place Roundabout	Sandbed Roundabout	0.88	48	1
Salt	A7	Sandbed Roundabout		0.07	20	0.25
Salt	A7	Sandbed Roundabout	National Boundary	49.7	48	62
TF	A7	National Boundary	Hawick Depot	62.6	56	67

Total time from start to finish of precautionary treatment (Mins) : 110
Total length of carriageway salted (km) : 67.46
Average width of carriageway (m) : 7.7
Total tonnage dry salt used at 20gm/m^2 : 7.27
Total tonnage for route : 10.38

Carriageway Precautionary Treatment Route 1 20

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Precautionary Salting Route 1 40

Depot: Hawick		**Vehicle: 32 Tonnes GVW 8X4**				
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	Mansfield Road / A7	Hawick Depot	Sandbed Roundabout	1.8	45	2.5
TF	A7 N/b	Sandbed Roundabout	A699 St Boswells jct	16.2	48	20
TF	A7	A699 St Boswells jct	Turn in Selkirk	1.3	45	1.8
TF	A7	Selkirk	A699 St Boswells jct	1.2	45	1.8
Salt	A7 S/b	A699 St Boswells jct	Galalaw Roundabout	13.6	45	18
Salt	A7 S/b	Galalaw Roundabout		0.16	20	0.5
Salt	A7 S/b	Galalaw Roundabout	Dovemount Place Roundabout	1.6	45	2
Salt	A7 S/b	Dovemount Place Roundabout		0.11	20	0.5
Salt	A7 S/b	Dovemount Place Roundabout	Sandbed Roundabout	0.88	48	1
Salt	A7 S/b	Sandbed Roundabout		0.07	20	0.25
Salt / TF	A7 N/b Roundabout splitters	Sandbed Roundabout	Galalaw Roundabout	0.34 2.48	45	4
TF	A7 S/b	Galalaw Roundabout	Sandbed Roundabout	2.82	45	4
TF		Sandbed Roundabout	Hawick Depot	1.8	45	2.5
Reload 2 tonnes						15

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TF	Mansfield Road / A7	Hawick Depot	Sandbed Roundabout	1.8	45	2.5
Salt	A7	Sandbed Roundabout	National Boundary	49.7	48	62
TF	A7	National Boundary	Hawick Depot	62.6	56	67

Total time from start to finish of precautionary treatment (Mins) : 112

Total length of carriageway salted (km) : 67.46

Average width of carriageway (m) : 7.7

Total tonnage dry salt used at 40gm/m^2 : 14.55

Total tonnage for route : 20.78

Carriageway Precautionary Treatment Route 1 40

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Precautionary Salting Route 2 20

Depot: Newtown St Boswells			**Vehicle: 26 Tonnes GVW 6X6**			
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	A68	Newtown St Boswells Depot	B6357 Junction	19.08	52	22
Salt	A68	B6357 Junction	National Boundary	13.6	48	17
Turn	A68			0.2	10	2
TF	A68	National Boundary	B6357 Junction	13.6	55	15
Salt	A68	B6357 Junction	Ravenswood roundabout	20.84	50	25
Turn	A68	Ravenswood roundabout				0.5
TF	A68	Ravenswood roundabout	A699	4.13	55	4.5
TF	A699	A68 Junction St Boswells	A7 Junction Selkirk	12.8	60	13
Salt	A7	A699 Junction St Boswells	A6091 Kingsknowe roundabout	9.37	45	12.5
TF	A6091	A7 Kingsknowe roundabout	A68 Ravenswood roundabout	8.19	55	9
TF	A68	Ravenswood roundabout	Start of climbing lane south of Earlston	0.68	58	0.75
Salt	A68	Start of climbing lane south of Earlston	End of climbing lane south of Earlston	1.5	48	2
TF	A68	End of climbing lane south of Earlston	Newtown St Boswells Depot	10.1	58	10.5

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Total time from start to finish of precautionary treatment (Mins)	: 101
Total length of carriageway salted (km)	: 45.31
Average width of carriageway (m)	: 7.9
Total tonnage dry salt used at 20gm/m^2	: 5.01
Total tonnage for route	: 7.16

Carriageway Precautionary Treatment Route 2 20

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Precautionary Salting Route 2 40

Depot: Newtown St Boswells			**Vehicle: 26 Tonnes GVW 6X6**			
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	A68	Newtown St Boswells Depot	B6357 Junction	19.08	52	22
Salt	A68	B6357 Junction	National Boundary	13.6	48	17
Turn	A68			0.2	10	2
TF	A68	National Boundary	B6357 Junction	13.6	55	15
Salt	A68	B6357 Junction	Ravenswood roundabout	20.84	50	25
Turn	A68	Ravenswood roundabout				0.5
TF	A68	Ravenswood roundabout	A699	4.13	55	4.5
TF	A699	A68 Junction St Boswells	A7 Junction Selkirk	12.8	60	13
Salt	A7	A699 Junction St Boswells	A6091 Kingsknowe roundabout	9.37	45	12.5
TF	A6091	A7 Kingsknowe roundabout	A68 Ravenswood roundabout	8.19	55	9
TF	A68	Ravenswood roundabout	Start of climbing lane south of Earlston	0.68	58	0.75
Salt	A68	Start of climbing lane south of Earlston	End of climbing lane south of Earlston	1.5	48	2
TF	A68	End of climbing lane south of Earlston	Newtown St Boswells Depot	10.1	58	10.5

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Total time from start to finish of precautionary treatment (Mins)	: 101
Total length of carriageway salted (km)	: 45.31
Average width of carriageway (m)	: 7.9
Total tonnage dry salt used at 40gm/m^2	: 10.02
Total tonnage for route	: 14.32

Carriageway Precautionary Treatment Route 2 40

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Precautionary Salting Route 3 20

Depot: Newtown St Boswells			**Vehicle: 6x6 26 Tonnes GVW 6X6**			
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	A68	Newtown St Boswells Depot	Carfraemill Roundabout	24.4	55	27
Salt	A68 n/b	Carfraemill Roundabout	Stair Arms	18.53	48	23
Salt	A68 n/b	Stair Arms	Millerhill Interchange	7.45	47	9.5
TF	A68 s/b	Millerhill Interchange	Stair Arms	7.3	52	8.5
TF	A68 s/b	Stair Arms	Start of s/b climbing lane	8.93	55	10
Salt	A68 s/b	Start of s/b climbing lane	Start of n/b climbing lane	7.63	48	10
TF	A68 s/b	Start of n/b climbing lane	End of overtaking lane	1.08	60	1
Salt	A68 s/b	End of overtaking lane	Carfraemill Roundabout incl rdbt	0.9	40	1.5
Salt	A68 s/b	Carfraemill Roundabout	A6091 Ravenswood Roundabout	22.48	48	28
Salt	A6091 w/b	A68 Ravenswood Roundabout	A7 Kingsknowe Roundabout incl rdbts	8.42	46	11
TF	A6091 / A68	A7 Kingsknowe Roundabout	Newtown St Boswells Depot	16.1	50	19

Total time from start to finish of precautionary treatment (Mins) : 109

Total length of carriageway salted (km) : 65.41

Average width of carriageway (m) : 7.5

Total tonnage dry salt used at 20gm/m^2 : 6.87

Total tonnage for route : 9.81

Carriageway Precautionary Treatment Route 3 20

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Precautionary Salting Route 3 40

Depot: Newtown St Boswells			**Vehicle: 6x6 26 Tonnes GVW 6X6**			
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	A68	Newtown St Boswells Depot	Carfraemill Roundabout	24.4	55	27
Salt	A68 n/b	Carfraemill Roundabout	Stair Arms	18.53	48	23
Turn						2
TF	A68 s/b	Stair Arms	Start of s/b climbing lane	8.93	55	10
Salt	A68 s/b	Start of s/b climbing lane	Start of n/b climbing lane	7.63	48	10
TF	A68 s/b	Start of n/b climbing lane	End of overtaking lane	1.08	60	1
Salt	A68 s/b	End of overtaking lane	Carfraemill Roundabout incl rdbt	0.9	40	1.5
Salt	A68 s/b	Carfraemill Roundabout	A6091 Ravenswood Roundabout	22.48	48	28
TF	A68 s/b	A6091 Ravenswood Roundabout	Newtown St Boswells Depot	3	48	4
Reload 2 tonnes						15
TF	A68 n/b	Newtown St Boswells Depot	A6091 Ravenswood Roundabout	3	48	4
Salt	A6091 w/b	A68 Ravenswood Roundabout	A7 Kingsknowe Roundabout incl rdbts	8.42	46	11
TF	A6091 / A68	A7 Kingsknowe Roundabout	Newtown St Boswells Depot	16.1	50	19

Total time from start to finish of precautionary treatment (Mins) : 109

Total length of carriageway salted (km) : 49.43

Average width of carriageway (m) : 7.8

Total tonnage dry salt used at 40gm/m^2 : 10.78

Total tonnage for route : 15.4

Carriageway Precautionary Treatment Route 3 40

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Precautionary Salting Route 4 20

Depot: Duns		**Vehicle: 26 Tonnes GVW 6X4**				
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	Various	Duns Depot	A6112 Grantshouse	15	52	17.5
Salt	A1	A6112 Grantshouse junction	Start n/b Penmanshiel dual c/way	2.66	48	3.5
Salt	A1	Start n/b Penmanshiel dual c/way	End n/b Penmanshiel dual c/way	2.7	48	3.5
Salt	A1	End n/b Penmanshiel dual c/way	Cocksburnpath roundabout	2.7	45	2
Salt	A1	Cocksburnpath roundabout	Dunglass Bridge	0.5	48	0.75
Salt	A1	Dunglass Bridge	Start Torness dual c/way	3.53	48	4.5
Salt	A1	Start Torness dual c/way	End Torness dual c/way	0.56	58	1
Salt	A1	End Torness dual c/way	Start of Thurston dual c/way	1.97	48	2.5
Salt	A1	Start of Thurston dual c/way	Spott roundabout	4.81	58	5
Salt	A1	Spott roundabout	Spott roundabout	0.2	25	.5
Salt	A1	Spott roundabout	Thistly Cross roundabout	3.04	57	3.5
Salt	A1	Thistly Cross roundabout	Thistly Cross roundabout	0.2	25	.5
Salt	A1	Thistly Cross roundabout	Spott roundabout	3.04	57	3.5
Salt	A1	Spott roundabout	End Thurston dual c/way	4.81	58	5

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TF	A1	End Thurston dual c/way	Start Torness dual c/way	1.97	58	2
Salt	A1	Start Torness dual c/way	End Torness dual c/way	0.56	58	1
TF	A1	End Torness dual c/way	Dunglass Bridge	3.53	48	4.5
Salt	A1	Dunglass Bridge	Cocksburnpath roundabout	0.62	50	0.75
Salt	A1	Cocksburnpath roundabout	Start s/b Penmanshiel dual c/way	2.49	55	2.75
Salt	A1	Start s/b Penmanshiel dual c/way	End s/b Penmanshiel dual c/way	2.7	64	2.5
TF	A1	End s/b Penmanshiel dual c/way	A6112 Grantshouse junction	2.66	55	3
Salt	A1	A6112 Grantshouse junction	Start of Houndwood s/b dual c/way	3.51	47	4.5
Salt	A1	Start of Houndwood s/b dual c/way	End of Houndwood s/b dual c/way	3.67	60	3.75
Salt	A1	End of Houndwood s/b dual c/way	A1107 Eyemouth junction	7.3	48	9.5
Salt	A1	A1107 Eyemouth junction	South side of Burnmouth jct	1.5	48	2
Salt	A1	South side of Burnmouth jct	Start of Lamberton s/b dual c/way	3.07	53	3.5
Salt	A1	Start of Lamberton s/b dual c/way	National Boundary	1.36	58	1.5
TF	A1	National Boundary	Berwick upon Tweed roundabout	2.9	58	3
TF	A1	Berwick upon Tweed roundabout	National Boundary	2.9	58	3
Salt	A1	National Boundary	End of Lamberton n/b dual c/way	1.36	58	1.5

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TF	A1	End of Lamberton n/b dual c/way	South side of Burnmouth jct	3.07	53	3.5
Salt	A1	South side of Burnmouth jct	A1107 Eyemouth junction	1.5	48	2
TF	A1	A1107 Eyemouth junction	Start of Houndwood n/b dual c/way	7.56	57	8
Salt	A1	Start of Houndwood n/b dual c/way	End of Houndwood n/b dual c/way	3.67	59	3.75
TF	A1 / A6112	End of Houndwood n/b dual c/way	Duns Depot	19	58	20

Total time from start to finish of precautionary treatment (Mins) : 102

Total length of carriageway salted (km) : 63.73

Average width of carriageway (m) : 8.8

Total tonnage dry salt used at 20gm/m^2 : 7.85

Total tonnage for route : 11.22

Carriageway Precautionary Treatment Route 4 20

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Precautionary Salting Route 4 40

Depot: Duns		**Vehicle: 26 Tonnes GVW 6X4**				
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	Various	Duns Depot	A6112 Grantshouse	15	52	17.5
Salt	A1	A6112 Grantshouse junction	Start n/b Penmanshiel dual c/way	2.66	48	3.5
Salt	A1	Start n/b Penmanshiel dual c/way	End n/b Penmanshiel dual c/way	2.7	48	3.5
Salt	A1	End n/b Penmanshiel dual c/way	Cocksburnpath roundabout	2.7	45	2
Salt	A1	Cocksburnpath roundabout	Dunglass Bridge	0.5	48	0.75
Salt	A1	Dunglass Bridge	Start Torness dual c/way	3.53	48	4.5
Salt	A1	Start Torness dual c/way	End Torness dual c/way	0.56	58	1
Salt	A1	End Torness dual c/way	Start of Thurston dual c/way	1.97	48	2.5
TF	A1	Start of Thurston dual c/way	Spott roundabout	4.81	64	4.5
TF	A1	Spott roundabout	Start Torness dual c/way	6.78	74	5.5
Salt	A1	Start Torness dual c/way	End Torness dual c/way	0.56	58	1
TF	A1	End Torness dual c/way	Dunglass Bridge	3.53	48	4.5
Salt	A1	Dunglass Bridge	Cocksburnpath roundabout	0.62	50	0.75
Salt	A1	Cocksburnpath roundabout	Start s/b Penmanshiel dual c/way	2.49	55	2.75

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Salt	A1	Start s/b Penmanshiel dual c/way	End s/b Penmanshiel dual c/way	2.7	64	2.5
TF	A1	End s/b Penmanshiel dual c/way	A6112 Grantshouse junction	2.66	55	3
Salt	A1	A6112 Grantshouse junction	Start of Houndwood s/b dual c/way	3.51	47	4.5
Salt	A1	Start of Houndwood s/b dual c/way	End of Houndwood s/b dual c/way	3.67	60	3.75
Salt	A1	End of Houndwood s/b dual c/way	A1107 Eyemouth junction	7.3	48	9.5 60
Salt	A1	A1107 Eyemouth junction	South side of Burnmouth jct	1.5	48	2
Salt	A1	South side of Burnmouth jct	Start of Lamberton s/b dual c/way	3.07	53	3.5
Salt	A1	Start of Lamberton s/b dual c/way	National Boundary	1.36	58	1.5
TF	A1	National Boundary	Berwick upon Tweed roundabout	2.9	58	3
TF	A1	Berwick upon Tweed roundabout	National Boundary	2.9	58	3
Salt	A1	National Boundary	End of Lamberton n/b dual c/way	1.36	58	1.5
TF	A1	End of Lamberton n/b dual c/way	South side of Burnmouth jct	3.07	53	3.5
Salt	A1	South side of Burnmouth jct	A1107 Eyemouth junction	1.5	48	2
TF	A1	A1107 Eyemouth junction	Start of Houndwood n/b dual c/way	7.56	57	8
Salt	A1	Start of Houndwood n/b dual c/way	End of Houndwood n/b dual c/way	3.67	59	3.75
TF	A1 / A6112	End of Houndwood n/b Dual	Duns Depot	19	58	20

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Total time from start to finish of precautionary treatment (Mins)	: 91
Total length of carriageway salted (km)	: 47.93
Average width of carriageway (m)	: 8.4
Total tonnage dry salt used at 40gm/m^2	: 11.27
Total tonnage for route	: 16.1

Carriageway Precautionary Treatment Route 4 40

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Precautionary Salting Route SE 5 20

Depot: Bilston Glen		**Vehicle: 26 Tonnes GVW 6X4**				
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	Various	Bilston Glen Depot	A720 / A702 Lothianburn junction	9.3	50	11
Salt	A702 n/b	Lothianburn roundabout south	Lothianburn roundabout north	0.5	20	2
Salt	A702 s/b	Lothianburn roundabout north	M74 Abington west roundabout	58.5	45	77
TF	A702 n/b	M74 Abington west roundabout	M74 Abington east roundabout	0.25	30	1
Salt	A702 n/b	M74 Abington east roundabout	End of n/b dual carriageway	0.5	45	1
TF	A702 / A720	End of n/b dual carriageway	Bilston Glen Depot	67.3	57	71

Total time from start to finish of precautionary treatment (Mins) : 106

Total length of carriageway salted (km) : 59.5

Average width of carriageway (m) : 7.8

Total tonnage dry salt used at 20gm/m^2 : 6.23

Total tonnage for route : 8.9

Carriageway Precautionary Treatment Route SE 5 20

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Precautionary Salting Route SE 5 40

Depot: Bilston Glen		**Vehicle: 26 Tonnes GVW 6X4**				
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	Various	Bilston Glen Depot	A702 Silverburn	19.2	55	21
Salt	A702 s/b	Silverburn	M74 Abington west roundabout	48.5	50	58
TF		M74 Abington west roundabout	M74 Abington east roundabout	0.25	30	1
Salt	A702 n/b	M74 Abington east roundabout	End of n/b dual carriageway	0.5	45	1
TF	A702 n/b	End of n/b dual carriageway	Silverburn	48.5	55	53
TF	Various	Silverburn	Bilston Glen Depot	19.2	60	19

Total time from start to finish of precautionary treatment (Mins) : 91

Total length of carriageway salted (km) : 49

Average width of carriageway (m) : 7.8

Total tonnage dry salt used at 40gm/m^2 : 10.3

Total tonnage for route : 14.7

Carriageway Precautionary Treatment Route SE 5 40

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Precautionary Salting Route 5A 40

Depot: Bilston Glen		**Vehicle: 26 Tonnes GVW 6X4**				
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	Various / A68	Bilston Glen Depot	Stair Arms	15	50	18
Salt	A68 n/b	Stair Arms	A720 Millerhill jct	7.45	47	9.5
TF	A720 e/b	Millerhill jct	Old Craighall roundabout	1.5	45	2
Salt	A1 n/b	Old Craighall roundabout	End of dual at Fort Kinnaird	4	50	4.8
TF	A1 s/b	End of dual at Fort Kinnaird	Old Craighall roundabout	4	60	4
Salt	A720 w/b	Old Craighall roundabout	Start of w/b off slip to Dreghorn	12.4	55	13.5
Salt	Slip	Start of w/b off slip to Dreghorn	End of w/b off slip to Dreghorn	0.25	50	0.5
TF	Dreghorn Link	End of w/b off slip to Dreghorn	Start of e/b on slip to A720	0.15	20	0.5
Salt	Slip	Start of e/b on slip to A720	End of e/b on slip to A720	0.25	50	0.5
Salt	A720	End of Dreghorn e/b on slip	Just after Straiton Interchange	4.6	60	4.6
TF	A720	Just after Straiton Interchange	Start of e/b off slip to Lasswade Rd	1	60	1
Salt	Slip	Start of e/b off slip to Lasswade Rd	End of e/b off slip to Lasswade Rd	0.48	37	0.75
TF	Link	End of e/b off slip to Lasswade Rd	Start of w/b on slip from Lasswade Rd	0.1	20	0.25
Salt	Slip	Start of w/b on slip from	End of w/b on slip from	0.65	40	1

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		Lasswade Rd	Lasswade Rd			
TF	A720 w/b	End of w/b on slip from Lasswade Rd	Start of w/b off slip to A701 Straiton Interchange	1	48	1.25
Salt	Slip	Start of w/b off slip to A701 Straiton Interchange	End of w/b off slip to A701 Straiton Interchange	0.35	42	0.5
TF	Link	End of w/b off slip to A701 Straiton Interchange	Start of w/b on slip from A701 Straiton Interchange	1.7	51	2.0
Salt	Slip	Start of w/b on slip from A701 Straiton Interchange	End of w/b on slip from A701 Straiton Interchange	0.45	37	0.75
TF	A720 w/b	End of w/b on slip from A701 Straiton Interchange	Start of w/b off slip to A702 Lothianburn Interchange	1.9	60	1.9
Salt	Slip	Start of w/b off slip to A702 Lothianburn Interchange	End of w/b on slip to A702 Lothianburn Interchange	0.8	40	1.2
TF	A720 w/b	End of w/b on slip to A702 Lothianburn Interchange	Start of w/b off slip to Dreghorn	1.2	60	1.2
TF		Start of w/b off slip to Dreghorn	Start of e/b off slip to A702 Lothianburn Interchange	1.85	42	2.7
Salt	Slip	Start of e/b off slip to A702 Lothianburn Interchange	End of e/b on slip from A702 Lothianburn Interchange	0.74	45	1.0
TF	A720 w/b	End of e/b on slip from A702 Lothianburn Interchange	Start of e/b off slip to A701 Straiton Interchange	2	60	2
Salt	Slip	Start of e/b off slip to A701 Straiton Interchange	End of e/b on slip from A701 Straiton Interchange	0.91	44	1.25

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TF	A720 w/b	End of e/b on slip from A701 Straiton Interchange	Start of e/b off slip to A772 Gilmerton	2.5	60	2.5
Salt	Slip	Start of e/b off slip to A772 Gilmerton	End of e/b off slip to A772 Gilmerton	0.39	46	0.5
TF	Link	End of e/b off slip to A772 Gilmerton	Start of w/b on slip from A772 Gilmerton	0.24	30	0.5
Salt	Slip	Start of w/b on slip from A772 Gilmerton	End of w/b on slip from A772 Gilmerton	0.43	55	0.5
TF	A720 w/b	End of w/b on slip from A772 Gilmerton	Start of w/b off slip to A702 Lothianburn	5.8	60	5.8
Salt	A702	End of w/b off slip to A702 Lothianburn (incl link and roundabouts)	Silverburn	10.4	50	12.5
TF	A702 / A720	Silverburn	Bilston Glen Depot	19.2	60	19

Total time from start to finish of precautionary treatment (Mins) : 80

Total length of carriageway salted (km) : 44.55

Average width of carriageway (m) : 7.5

Total tonnage dry salt used at 40gm/m^2 : 9.4

Total tonnage for route : 13.4

Carriageway Precautionary Treatment Route 5A 40

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Precautionary Salting Route 6 20

Depot: Bilston Glen			**Vehicle: 32 Tonnes GVW 8X4**			
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	Various	Bilston Glen Depot	A720 / A68 Millerhill Interchange	8	52	10
Salt	A720 / A68 Millerhill Interchange	E/b off-slip	E/b on slip, inc roundabout	0.4	30	0.8
TF	A720	End of E/b on slip Millerhill	A1 on slip from A720	1.5	45	2
Salt	A1 (e/b)	On slip from A720 roundabout	A1 main c/way	0.48	44	0.75
TF	A1 (e/b)	End of on slip from A720 Roundabout	Start of off slip to A6094 Wallyford Int	1.5	60	1.5
Salt	Wallyford Interchange	Start off slip from A1	End of on slip to A1	1.32	45	1.75
TF	A1 (e/b)	End of Wallyford on slip to A1	Start of off slip to A199 Dolphinstone Interchange	2.3	60	2.3
Salt	Dolphinstone Interchange	Start off slip from A1	End of on slip to A1	0.74	45	1.00
TF	A1 (e/b)	End of on slip from A199 Dolphinstone Interchange	Start of off slip to A198 Bankton Interchange	1.8	60	1.8
Salt	Bankton Interchange	Start off slip from A1	End of on slip to A1	0.52	45	0.75
TF	A1 (e/b)	End of on slip from A198	Start of off slip to B6363 Gladsmuir Interchange	3.9	60	3.9
Salt	Gladsmuir Interchange	Start of off slip to B6363	End of on slip from B6363	0.95	30	1.90

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TF	A1 (e/b)	End of on slip from B6363	Start of off slip to A199 Oaktree Interchange	3.4	60	3.4
Salt	Oaktree Interchange	Start of off slip to A199	End of onslip from A199	0.62	45	0.83
TF	A1 (e/b)	End of onslip from A199 Oaktree Interchange	Start of off slip to A199 Abbotsview Interchange	3	60	3.00
Salt	Abbotsview Interchange	Start of off slip to A199	End of onslip from A199	1.11	45	1.5
TF	A1 (e/b)	End of on slip from A199 Abbotsview Interchange	Thistly Cross Roundabout	13.11	79	10
Salt	A1 (w/b)	Thistly Cross Roundabout	End of A1 dual at Fort Kinnaird	33.91	60	34
TF	A1 (e/b)	End of A1 dual at Fort Kinnaird	Start of e/b off slip to A720	4.6	70	4
Salt	A1 (e/b)	Start of e/b off slip to A720	End of e/b off slip to A720 at Old Craighall rdbt	0.4	45	0.53
Salt	A720 (w/b)	End of e/b off slip to A720 at Old Craighall rdbt	Start of w/b off slip to Dreghorn	12.4	60	12.4
TF	Dreghorn Slips	Start of w/b off slip to Dreghorn	Start of e/b on slip from Dreghorn	0.41	50	0.5
Salt	Dreghorn Slips	Start of e/b on slip from Dreghorn	End of e/b on slip from Dreghorn	0.33	30	0.7
TF	A720 (e/b)	End of e/b on slip from Dreghorn	Start of e/b off slip to Lothianburn	1.1	65	1
Salt	Lothianburn slips	Start of e/b off slip to Lothianburn	End of e/b on slip from Lothianburn	0.74	45	1
TF	A720 (e/b)	End of e/b on slip from Lothianburn	Start of e/b off slip to Straiton	2	60	2

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Salt	Straiton slips	Start of e/b off slip to Straiton	End of e/b on slip from Straiton	0.91	45	1.2
TF	A720 (e/b)	End of e/b on slip from Straiton	Start of e/b off slip to Gilmerton	2.5	60	2.5
Salt	Gilmerton slips	Start of e/b off slip to Gilmerton	End of e/b off slip to Gilmerton	0.4	50	0.5
TF	Gilmerton slips	End of e/b off slip to Gilmerton	Start of w/b on slip from Gilmerton	0.24	30	0.5
Salt	Gilmerton slips	Start of w/b on slip from Gilmerton	End of w/b on slip from Gilmerton	0.43	45	1
TF	Various	End of w/b on slip from Gilmerton	Bilston Glen Depot	6	60	6

Total time from start to finish of precautionary treatment (Mins) : 100

Total length of carriageway salted (km) : 62.75

Average width of carriageway (m) : 7.5

Total tonnage dry salt used at 20gm/m^2 : 6.6

Total tonnage for route : 9.4

Carriageway Precautionary Treatment Route 6 20

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Precautionary Salting Route 6 40

Depot: Bilston Glen			**Vehicle: 32 Tonnes GVW 8X4**			
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	Various	Bilston Glen Depot	A720 / A68 Millerhill Interchange	8	52	10
Salt	A720 / A68 Millerhill Interchange	E/b off-slip	E/b on slip, inc roundabout	0.4	30	0.8
TF	A720	End of E/b on slip Millerhill	A1 on slip from A720	1.5	45	2
Salt	A1 (e/b)	On slip from A720 roundabout	A1 main c/way	0.48	44	0.75
TF	A1 (e/b)	End of on slip from A720 Roundabout	Start of off slip to A6094 Wallyford Int	1.5	60	1.5
Salt	Wallyford Interchange	Start off slip from A1	End of on slip to A1	1.32	45	1.75
TF	A1 (e/b)	End of Wallyford on slip to A1	Start of off slip to A199 Dolphinstone Interchange	2.3	60	2.3
Salt	Dolphinstone Interchange	Start off slip from A1	End of on slip to A1	0.74	45	1.00
TF	A1 (e/b)	End of on slip from A199 Dolphinstone Interchange	Start of off slip to A198 Bankton Interchange	1.8	60	1.8
Salt	Bankton Interchange	Start off slip from A1	End of on slip to A1	0.52	45	0.75
TF	A1 (e/b)	End of on slip from A198	Start of off slip to B6363 Gladsmuir Interchange	3.9	60	3.9
Salt	Gladsmuir Interchange	Start of off slip to B6363	End of on slip from B6363	0.95	30	1.90

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TF	A1 (e/b)	End of on slip from B6363	Start of off slip to A199 Oaktree Interchange	3.4	60	3.4
Salt	Oaktree Interchange	Start of off slip to A199	End of onslip from A199	0.62	45	0.83
TF	A1 (e/b)	End of onslip from A199 Oaktree Interchange	Start of off slip to A199 Abbotsview Interchange	3	60	3.00
Salt	Abbotsview Interchange	Start of off slip to A199	End of onslip from A199	1.11	45	1.5
TF	A1 (e/b)	End of on slip from A199 Abbotsview Interchange	Thistly Cross Roundabout	13.11	79	10
Salt	A1 (e/b)	Thistly Cross Roundabout		0.2	25	0.5
Salt	A1 (e/b)	Thistly Cross Roundabout	Spott Roundabout	3.04	60	3
Salt	A1 (e/b)	Spott Roundabout		0.2	25	0.5
Salt	A1 (e/b)	Spott Roundabout	End of Thurston dual c/way	4.81	58	5
TF	U turn A1 (w/b)		End of Thurston dual c/way			2
Salt	A1 (w/b)	Thurston dual c/way	Spott Roundabout	4.81	58	5
Salt	A1 (w/b)	Spott Roundabout	Thistly Cross Roundabout	3.04	58	3.25
Salt	A1 (w/b)	Thistly Cross Roundabout	N/b on slip from Old Craighall	29.91	60	30
TF	A1 (n/b)	N/b on slip from Old Craighall	End of A1 dual at Fort Kinnaird	4	60	4
TF	A1 (e/b)	End of A1 dual at Fort Kinnaird	Start of e/b off slip to A720	4.6	70	4
Salt	A1 (e/b)	Start of e/b off slip to A720	End of e/b off slip to A720 at Old Craighall rdbt	0.4	45	0.53
TF		End off slip to A720 at Old Craighall	Bilston Glen Depot			

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Total time from start to finish of precautionary treatment (Mins)	: 90.43
Total length of carriageway salted (km)	: 52.55
Average width of carriageway (m)	: 7.5
Total tonnage dry salt used at 40gm/m^2	: 11.1
Total tonnage for route	: 15.8

Carriageway Precautionary Treatment Route 6 40

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Precautionary Salting Route 7 20

Depot: Bilston Glen			**Vehicle: 32 Tonnes GVW 8X4**			
	Road	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	Various	Bilston Glen Depot	Just before Straiton Interchange	5	30	6
Salt	A720 (e/b)	Just before Straiton Interchange	Old Craighall roundabout (inc Sheriffhall & Old Craighall roundabouts	7.7	45	10.3
Salt	A1	Old Craighall roundabout	End of w/b on slip from A720	0.5	40	0.75
TF	A1	End of w/b on slip from A720	Start of A1 trunk road at Fort Kinnaird	4.6	68	4.0
Salt	A1 (e/b)	Start of A1 trunk road at Fort Kinnaird (incl roundabout)	Thistlycross roundabout (incl roundabout)	33.7	60	33.7
TF	A1 (w/b)	Thistlycross roundabout	Start of off slip to A199 Abbotsview Interchange	13.16	80	10
Salt	Abbotsview Interchange	Start of off slip from A199 Abbotsview Interchange	End of on slip to A199 Abbotsview Interchange	0.99	40	1.5
TF	A1 (w/b)	End of on slip from A199 Abbotsview Interchange	Start of off slip to A199 Oaktree Interchange	1.96	75	1.5
Salt	Oaktree Interchange	Start of off slip to A199 Oaktree Interchange	End of on slip from Oaktree Interchange	0.6	40	0.9
TF	A1 (w/b)	End of on slip from Oaktree	Start of off slip to B6363 Gladsmuir	3.4	75	2.75

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		Interchange	Interchange			
Salt	Gladsmuir Interchange	Start of off slip to B6363 Gladsmuir Interchange	End of on slip from Gladsmuir Interchange	0.89	40	1.33
TF	A1 (w/b)	End of on slip from Gladsmuir Interchange	Start of off slip to A198 Bankton Interchange	3.9	75	3.15
Salt	Bankton Interchange	Start of off slip to Bankton Interchange	End of on slip from Bankton Interchange	0.7	40	1
TF	A1 (w/b)	End of on slip from Bankton Interchange	Start of off slip to A199 Dolphinstone Interchange	1.35	65	1.25
Salt	Dolphinstone Interchange	Start of off slip to A199 Dolphinstone Interchange	End of on slip from A199 Dolphinstone Interchange	1.3	40	1.95
TF	A1 (w/b)	End of on slip from A199 Dolphinstone Interchange	Start of off slip to A6094 Wallyford Int	2.3	75	1.85
Salt	Wallyford Interchange	Start of off slip to A6094 Wallyford Int	End of on slip from A6094 Wallyford Int	1.26	40	1.9
TF	A1 (w/b)	End of on slip from A6094 Wallyford Int	Start of off slip to A720 Old Craighall Roundabout	1.8	75	1.44
Salt	Old Craighall slip road	Start of off slip to A720 Old Craighall Roundabout	End of off slip to A720 Old Craighall Roundabout	0.54	40	0.81
TF	A720	End of A1off slip to Old Craighall Roundabout	Start of westbound off slip to Millerhill Junction	1.1	60	1.1
Salt	A720 Millerhill Interchange	Start of westbound off slip to Millerhill Interchange	End of westbound on slip from Millerhill Interchange	0.4	30	0.8

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TF	A720 (w/b)	End of westbound on slip from Millerhill Interchange	Start of westbound off slip to Straiton Interchange	6.4	60	6.4
Salt	Straiton slips	Start of westbound off slip to Straiton Interchange	End of westbound off slip to Straiton Interchange	0.35	42	0.5
TF	A701	End of westbound off slip to Straiton Interchange	Start of westbound on slip from Straiton Interchange	1.7	60	1.7
Salt	Straiton slips	Start of westbound on slip from Straiton Interchange	End of westbound on slip from Straiton Interchange	0.45	40	0.7
TF	A720 (w/b)	End of westbound on slip from Straiton Interchange	Start of westbound off slip to Lothianburn Interchange	1.9	60	1.9
Salt	Lothianburn slips	Start of westbound off slip to Lothianburn Interchange	End of westbound on slip from Lothianburn Interchange	0.8	40	1.2
TF	A720 (w/b)	End of westbound on slip from Lothianburn Interchange	Start of westbound off slip to Dreghorn Interchange	1.2	60	1.2
Salt	Dregorn Slips	Start of westbound off slip to Dreghorn Interchange	End of westbound off slip to Dreghorn Interchange	0.33	40	0.5
TF	Dregorn Slips	End of westbound off slip to Dreghorn Interchange	End of eastbound on slip from Dreghorn Interchange	0.41	32	0.75
Salt	A720 (e/b)	End of eastbound on slip from Dreghorn	Just after Straiton interchange	4.6	60	4.6

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		Interchange				
TF	A720 (e/b)	Just after Straiton interchange	Start of e/b off slip to Lasswade	1	60	1
Salt	Lasswade Slips	Start of e/b off slip to Lasswade	End of e/b off slip to Lasswade	0.48	45	0.6
TF	Lasswade Slips	End of e/b off slip to Lasswade	Start of w/b on slip from Lasswade	0.1	20	0.25
Salt	Lasswade Slips	Start of w/b on slip from Lasswade	End of w/b on slip from Lasswade	0.65	40	1
TF	A720 / various	End of w/b on slip from Lasswade	Bilston Glen Depot	5	45	7

Total time from start to finish of precautionary treatment (Mins) : 103.4

Total length of carriageway salted (km) : 56.24

Average width of carriageway (m) : 7.5

Total tonnage dry salt used at 20gm/m^2 : 5.9

Total tonnage for route : 8.4

Carriageway Precautionary Treatment Route 7 20

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Precautionary Salting Route 7 40

Depot: Bilston Glen			**Vehicle: 32 Tonnes GVW 8X4**			
	Road	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	Various	Bilston Glen Depot	Just before Straiton Interchange	5	30	6
Salt	A720 (e/b)	Just before Straiton Interchange	Old Craighall roundabout (inc Sheriffhall & Old Craighall roundabouts	7.7	45	10.3
Salt	A1	Old Craighall roundabout	End of w/b on slip from A720	0.5	40	0.75
TF	A1	End of w/b on slip from A720	Start of A1 trunk road at Fort Kinnaird	4.6	68	4.0
Salt	A1 (e/b)	Start of A1 trunk road at Fort Kinnaird (incl roundabout)	Thistlycross roundabout (incl roundabout)	33.7	60	33.7
TF	A1 (w/b)	Thistlycross roundabout	Start of off slip to A199 Abbotsview Interchange	13.16	80	10
Salt	Abbotsview Interchange	Start of off slip from A199 Abbotsview Interchange	End of on slip to A199 Abbotsview Interchange	0.99	40	1.5
TF	A1 (w/b)	End of on slip from A199 Abbotsview Interchange	Start of off slip to A199 Oaktree Interchange	1.96	75	1.5
Salt	Oaktree Interchange	Start of off slip to A199 Oaktree Interchange	End of on slip from Oaktree Interchange	0.6	40	0.9
TF	A1 (w/b)	End of on slip from Oaktree Interchange	Start of off slip to B6363 Gladsmuir	3.4	75	2.75

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			Interchange			
Salt	Gladsmuir Interchange	Start of off slip to B6363 Gladsmuir Interchange	End of on slip from Gladsmuir Interchange	0.89	40	1.33
TF	A1 (w/b)	End of on slip from Gladsmuir Interchange	Start of off slip to A198 Bankton Interchange	3.9	75	3.15
Salt	Bankton Interchange	Start of off slip to Bankton Interchange	End of on slip from Bankton Interchange	0.7	40	1
TF	A1 (w/b)	End of on slip from Bankton Interchange	Start of off slip to A199 Dolphinstone Interchange	1.35	65	1.25
Salt	Dolphinstone Interchange	Start of off slip to A199 Dolphinstone Interchange	End of on slip from A199 Dolphinstone Interchange	1.3	40	1.95
TF	A1 (w/b)	End of on slip from A199 Dolphinstone Interchange	Start of off slip to A6094 Wallyford Int	2.3	75	1.85
Salt	Wallyford Interchange	Start of off slip to A6094 Wallyford Int	End of on slip from A6094 Wallyford Int	1.26	40	1.9
TF	A1 (w/b)	End of on slip from A6094 Wallyford Int	Start of off slip to A720 Old Craighall Roundabout	1.8	75	1.44
Salt	Old Craighall slip road	Start of off slip to A720 Old Craighall Roundabout	End of off slip to A720 Old Craighall Roundabout	0.54	40	0.81
TF	A720	End of A1off slip to Old Craighall Roundabout	Start of westbound off slip to Millerhill Junction	1.1	60	1.1
Salt	A720 Millerhill Interchange	Start of westbound off slip to Millerhill Interchange	End of westbound on slip from Millerhill Interchange	0.4	30	0.8
TF	A720 / various	End of westbound on slip from Millerhill	Bilston Glen	12	45	16

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Total time from start to finish of precautionary treatment (Mins)	: 81.98
Total length of carriageway salted (km)	: 48.58
Average width of carriageway (m)	: 7.5
Total tonnage dry salt used at 40gm/m^2	: 10.2
Total tonnage for route	: 14.6

Carriageway Precautionary Treatment Route 7 40

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Precautionary Salting Route 8 20

Depot: Bilston Glen			**Vehicle: 32 Tonnes GVW 8X4**			
	Road	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF		Bilston Glen	Start of the A720 WB Off Slip to M8	13.7	55	15
SALT	A720	Start of the A720 WB Off Slip to M8	End of the A720 WB Off Slip to M8	0.32	30	0.64
SALT	M8	End of the A720 WB Off Slip to M8/Hermiston Gait Roundabout	Treat Hermiston Gait Roundabout	0.48	30	0.96
SALT	M8	Hermiston Gait	Just beyond J3	14.06	60	14.06
TF	M8	Just beyond J3	Start of the dedicated WB Off Slip to A899	0.59	30	1.18
SALT	M8	Start of the dedicated WB Off Slip to A899	End of the dedicated WB Off Slip to A899	0.71	30	2.12
TF	A899/M8	End of the dedicated WB Off Slip to A899	End of the EB On Slip from A899 (turning at Houston Interchange)	4.02	60	4.02
SALT	M8	End of the EB On Slip from A899	Hermiston Gait/Start of A720 WB On Slip from M8	14.06	60	14.06
SALT	A720	Hermiston Gait/Start of A720 WB On Slip from M8	End of A720 WB On Slip from M8	0.48	30	0.96
SALT	A720	End of A720 WB On Slip from M8 (turning at	Start of A720 at Gogar	2.3	30	4.6

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		Gogar)	Roundabout			
SALT	A720	Start of A720 at Gogar Roundabout	East of Dreghorn Interchange	7.58	60	7.58
TF	A720	East of Dreghorn Interchange	Lothianburn Interchange	1.07	30	2.14
TF	A720	Lothianburn Interchange / EB Off Slip to A702 (turn around)	WB On Slip from A702	0.69	30	1.38
TF	A720	WB On Slip from A702	East of Dreghorn Interchange	1.48	30	2.96
SALT	A720	East of Dreghorn Interchange	Gogar Roundabout	8.06	60	8.06
TF	A720	End of A720 (turn around at Gogar)	Start of link to Calder	1.8	30	3.6
SALT	A720	Start of link to Calder	End of link to Calder	0.8	30	1.6
TF	A71	End of link to Calder (turn around at roundabout)	Start of link to Gogar	0.24	30	0.48
SALT	A720	Start of link to Gogar	End of link to Gogar	1.63	30	3.26
TF	A720	End of link to Gogar (turn around at Gogar)	Start of EB Off Slip to M8	1.8	30	3.6
SALT	A720	Start of EB Off Slip to M8	End of EB Off Slip to M8/Start of EB On Slip from M8	0.75	30	1.5
SALT	A720	Start of EB On Slip from M8	End of EB On Slip from M8	0.37	30	0.74
TF	A720	End of EB On Slip from M8	Start of EB Off Slip to Dreghorn Interchange	4.88	60	4.88

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SALT	A720	Start of EB Off Slip to Dreghorn Interchange	End of EB Off Slip to Dreghorn Interchange	0.33	30	0.66
TF	A720/A701/A702	End of EB Off Slip to Dreghorn Interchange (turn at roundabout)	Start of WB On Slip from Dreghorn Interchange	0.1	30	0.2
SALT	A720	Start of WB On Slip from Dreghorn Interchange	End of WB On Slip from Dreghorn Interchange	0.31	30	0.62
TF	A720	End of WB On Slip from Dreghorn Interchange	Start of WB Off Slip at Baberton Interchange	3.1	60	3.1
SALT	A720	Start of WB Off Slip at Baberton Interchange	End of WB Off Slip at Baberton Interchange	0.36	30	0.72
TF	B701	End of WB Off Slip at Baberton Interchange (turn around)	Start of EB On Slip at Baberton Interchange	0.26	30	0.52
SALT	A720	Start of EB On Slip at Baberton Interchange	End of EB On Slip at Baberton Interchange	0.33	30	0.66
TF	A720	End of EB On Slip at Baberton Interchange	End of the EB Off Slip to Dreghorn Link	3.42	60	3.42
TF	A720	End of the EB Off Slip to Dreghorn Link (turn around)	Start of the WB On Slip from Dreghorn Link	0.1	30	0.2
TF	A720	Start of the WB On Slip from Dreghorn Link	Start of the WB Off Slip to A71 Calder Interchange	5.32	60	5.32
SALT	A720	Start of the WB Off Slip to A71 Calder Interchange	End of the WB Off Slip to A71 Calder Interchange	0.32	30	0.64
TF	A72	End of the WB Off Slip to A71 Calder	Start of EB On Slip from A71 Calder	0.24	30	0.48

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		Interchange (turn around at roundabout)	Interchange			
SALT		Start of EB On Slip from A71 Calder Interchange	End of EB On Slip from A71 Calder Interchange	0.4	30	0.8
TF		End of EB On Slip from A71 Calder Interchange	Bilston Glen	12.9	60	12.9

Total time from start to finish of precautionary treatment (Mins) : 101

Total length of carriageway salted (km) : 53.65

Average width of carriageway (m) : 7.5

Total tonnage dry salt used at 20gm/m^2 : 5.7

Total tonnage for route : 8.1

Carriageway Precautionary Treatment Route 8 20

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Precautionary Salting Route 8 40

Depot: Bilston Glen			**Vehicle: 32 Tonnes GVW 8X4**			
	Road	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF		Bilston Glen	Start of the A720 WB Off Slip to M8	13.7	55	15
SALT	A720	Start of the A720 WB Off Slip to M8	End of the A720 WB Off Slip to M8	0.32	30	0.64
SALT	M8	End of the A720 WB Off Slip to M8/Hermiston Gait Roundabout	Treat Hermiston Gait Roundabout	0.48	30	0.96
SALT	M8	Hermiston Gait	Just beyond J3	14.06	60	14.06
TF	M8	Just beyond J3	Start of the dedicated WB Off Slip to A899	0.59	30	1.18
SALT	M8	Start of the dedicated WB Off Slip to A899	End of the dedicated WB Off Slip to A899	0.71	30	2.12
TF	A899/M8	End of the dedicated WB Off Slip to A899	End of the EB On Slip from A899 (turning at Houston Interchange)	4.02	60	4.02
SALT	M8	End of the EB On Slip from A899	Hermiston Gait/Start of A720 WB On Slip from M8	14.06	60	14.06
SALT	A720	Hermiston Gait/Start of A720 WB On Slip from M8	End of A720 WB On Slip from M8	0.48	30	0.96
SALT	A720	End of A720 WB On Slip from M8 (turning at	Start of A720 at Gogar	2.3	30	4.6

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		Gogar)	Roundabout			
SALT	A720	Start of A720 at Gogar Roundabout	East of Dreghorn Interchange	7.58	60	7.58
TF	A720	East of Dreghorn Interchange	Lothianburn Interchange	1.07	30	2.14
TF	A720	Lothianburn Interchange / EB Off Slip to A702 (turn around)	WB On Slip from A702	0.69	30	1.38
TF	A720	WB On Slip from A702	East of Dreghorn Interchange	1.48	30	2.96
SALT	A720	East of Dreghorn Interchange	Gogar Roundabout	8.06	60	8.06
TF	A720	End of A720 (turn around at Gogar)	Start of link to Calder	1.8	30	3.6
SALT	A720	Start of link to Calder	End of link to Calder	0.8	30	1.6
TF	A71	End of link to Calder (turn around at roundabout)	Start of link to Gogar	0.24	30	0.48
SALT	A720	Start of link to Gogar	End of link to Gogar	1.63	30	3.26
TF	A720	End of link to Gogar (turn around at Gogar)	Start of EB Off Slip to M8	1.8	30	3.6
SALT	A720	Start of EB Off Slip to M8	End of EB Off Slip to M8/Start of EB On Slip from M8	0.75	30	1.5
SALT	A720	Start of EB On Slip from M8	End of EB On Slip from M8	0.37	30	0.74
TF	A720	End of EB On Slip from M8	Start of EB Off Slip to Dreghorn Interchange	4.88	60	4.88

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SALT	A720	Start of EB Off Slip to Dreghorn Interchange	End of EB Off Slip to Dreghorn Interchange	0.33	30	0.66
TF	A720/A701/A702	End of EB Off Slip to Dreghorn Interchange (turn at roundabout)	Start of WB On Slip from Dreghorn Interchange	0.1	30	0.2
SALT	A720	Start of WB On Slip from Dreghorn Interchange	End of WB On Slip from Dreghorn Interchange	0.31	30	0.62
TF	A720	End of WB On Slip from Dreghorn Interchange	Start of WB Off Slip at Baberton Interchange	3.1	60	3.1
SALT	A720	Start of WB Off Slip at Baberton Interchange	End of WB Off Slip at Baberton Interchange	0.36	30	0.72
TF	B701	End of WB Off Slip at Baberton Interchange (turn around)	Start of EB On Slip at Baberton Interchange	0.26	30	0.52
SALT	A720	Start of EB On Slip at Baberton Interchange	End of EB On Slip at Baberton Interchange	0.33	30	0.66
TF	A720	End of EB On Slip at Baberton Interchange	End of the EB Off Slip to Dreghorn Link	3.42	60	3.42
TF	A720	End of the EB Off Slip to Dreghorn Link (turn around)	Start of the WB On Slip from Dreghorn Link	0.1	30	0.2
TF	A720	Start of the WB On Slip from Dreghorn Link	Start of the WB Off Slip to A71 Calder Interchange	5.32	60	5.32
SALT	A720	Start of the WB Off Slip to A71 Calder Interchange	End of the WB Off Slip to A71 Calder Interchange	0.32	30	0.64
TF	A72	End of the WB Off Slip to A71 Calder	Start of EB On Slip from A71 Calder	0.24	30	0.48

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		Interchange (turn around at roundabout)	Interchange			
SALT		Start of EB On Slip from A71 Calder Interchange	End of EB On Slip from A71 Calder Interchange	0.4	30	0.8
TF		End of EB On Slip from A71 Calder Interchange	Bilston Glen	12.9	60	12.9

Total time from start to finish of precautionary treatment (Mins : 101

Total length of carriageway salted (km) : 53.65

Average width of carriageway (m) : 7.5

Total tonnage dry salt used at 40gm/m^2 : 11.3

Total tonnage for route : 16.1

Carriageway Precautionary Treatment Route 8 40

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Precautionary Salting Route 9 20

Depot:		**Vehicle: Route 9 20 and 40g**				
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9	Burghmuir Depot	Start Dedicated slip from Newbridge off slip to Airport	12.9	80	9.7
Salt	M9	Start Dedicated slip from Newbridge off slip to Airport	End Dedicated slip from Newbridge off slip to Airport	0.1	40	0.2
TF	A8	End Dedicated slip from Newbridge off slip to Airport	Start Dedicated slip from A8 to Newbridge SB On slip	5.4	60	5.4
Salt	M9	Start Dedicated slip from A8 to Newbridge SB On slip	End Dedicated slip from A8 to Newbridge SB On slip	0.1	40	0.2
TF	M9 / M8	End Dedicated slip from A8 to Newbridge SB On slip	Just before the start of the WB Off Slip to J3 (Treating main line)	8.3	80	6.2
SALT	M8 (WB)	Just before the start of the WB Off Slip to J3 (Treating main line)	Start of the 3 Lane Section WB	1.35	60	1.4
SALT	M8 (WB)	Start of the 3 Lane Section WB	End of the 3 Lane Section WB	1.55	60	1.6
SALT	M8 (WB)	End of the 3 Lane Section	M8 DBFO	24.56	60	24.6
TF	M8 / A8	M8 DBFO	Start J5 EB Off Slip	12.8	80	9.6
SALT	M8 (EB)	Start of EB Off Slip to B7057 at J5	End of EB Off Slip to B7057 at J5	0.46	60	0.35
TF	B7057	End of EB Off Slip to B7057 at J5	B7066	0.43	40	0.35
TF	M8 (EB)	B7066 (turn around)	Start of EB On Slip from B7057 at J5	0.43	40	0.35

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SALT	M8 (EB)	Start of EB On Slip from B7057 at J5	End of EB On Slip from B7057 at J5	0.53	50	0.64
TF	M8 (EB)	End of EB On Slip from B7057 at J5	Start off slip to Harthill services	2.5	60	2.5
SALT	M8 (EB)	Start of Hartill services off slip	Through bus lane and to End On slip from Harthill Services	1	60	1
TF	M8 (EB)	End of EB On Slip Services	Start of EB Off Slip to J4A Heartlands	3	80	2.5
SALT	M8 (EB)	Start of EB Off Slip to J4A Heartlands	End of EB On Slip from J4A Heartlands	1	60	1
TF	M8 (EB)	End of EB On Slip from J4A Heartlands	Start of EB Off Slip to A801 at J4	3.37	60	3.4
SALT	M8 (EB)	Start of EB Off Slip to A801 at J4	End of EB On Slip from A801 at J4	1	60	1
TF	M8 (EB)	End of EB On Slip from A801 at J4	Start of EB Off Slip to Carnegie Road at J3A	3.85	60	3.9
SALT	M8 (EB)	Start of EB Off Slip to Carnegie Road at J3A	End of EB Off Slip to Carnegie Road at J3A	0.35	60	0.4
TF	U/C	End of EB Off Slip to Carnegie Road at J3A	Roundabout	0.1	40	0.15
TF	U/C	Roundabout (Turn around)	Start of EB On Slip from Carnegie Road at J3	0.1	40	0.15
SALT	M8 (EB)	Start of EB On Slip from Carnegie Road at J3	End of EB On Slip from Carnegie Road at J3	0.63	40	1
TF	M8 (EB)	End of EB On Slip from Carnegie Road at J3	Start of EB Off Slip to A899 at J3	3.57	60	3.6
SALT	M8 (EB)	Start of EB Off Slip to A899 at J3	End of EB Off Slip to A899 at J3	1.47	60	1.5
TF	M8 (EB)	End of EB Off Slip to A899 at J3	A899 Roundabout	0.22	40	0.4

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TF	A899	A899 Roundabout (Turn around)	Start of EB On Slip from A899 at J3	0.22	40	0.4
SALT	M8 (EB)	Start of EB On Slip from A899 at J3	End of EB On Slip from A899 at J3	1.12	60	1.1
TF	M8 / M9	End of EB On Slip from A899 at J3	Burghmuir Depot	22.2	80	

Total time from start to finish of precautionary treatment (Mins) : 83
Total length of carriageway salted (km) : 35.22
Average width of carriageway (m) : 10
Total tonnage dry salt used at 20gm/m2 : 5
Total tonnage for route : 7.04

Carriageway Precautionary Treatment Route 9 20g

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Precautionary Salting Route 9 40

Depot:		**Vehicle: Route 9 20 and 40g**				
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9	Burghmuir Depot	Start Dedicated slip from Newbridge off slip to Airport	12.9	80	9.7
Salt	M9	Start Dedicated slip from Newbridge off slip to Airport	End Dedicated slip from Newbridge off slip to Airport	0.1	40	0.2
TF	A8	End Dedicated slip from Newbridge off slip to Airport	Start Dedicated slip from A8 to Newbridge SB On slip	5.4	60	5.4
Salt	M9	Start Dedicated slip from A8 to Newbridge SB On slip	End Dedicated slip from A8 to Newbridge SB On slip	0.1	40	0.2
TF	M9 / M8	End Dedicated slip from A8 to Newbridge SB On slip	Just before the start of the WB Off Slip to J3 (Treating main line)	8.3	80	6.2
SALT	M8 (WB)	Just before the start of the WB Off Slip to J3 (Treating main line)	Start of the 3 Lane Section WB	1.35	60	1.4
SALT	M8 (WB)	Start of the 3 Lane Section WB	End of the 3 Lane Section WB	1.55	60	1.6
SALT	M8 (WB)	End of the 3 Lane Section	M8 DBFO	24.56	60	24.6
TF	M8 / A8	M8 DBFO	Start J5 EB Off Slip	12.8	80	9.6
SALT	M8 (EB)	Start of EB Off Slip to B7057 at J5	End of EB Off Slip to B7057 at J5	0.46	60	0.35
TF	B7057	End of EB Off Slip to B7057 at J5	B7066	0.43	40	0.35
TF	M8 (EB)	B7066 (turn around)	Start of EB On Slip from B7057 at J5	0.43	40	0.35
SALT	M8 (EB)	Start of EB On Slip from B7057 at J5	End of EB On Slip from B7057 at J5	0.53	50	0.64
TF	M8 (EB)	End of EB On Slip from B7057 at J5	Start off slip to Harthill services	2.5	60	2.5

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SALT	M8 (EB)	Start of Hartill services off slip	Through bus lane and to End On slip from Harthill Services	1	60	1
TF	M8 (EB)	End of EB On Slip Services	Start of EB Off Slip to J4A Heartlands	3	80	2.5
SALT	M8 (EB)	Start of EB Off Slip to J4A Heartlands	End of EB On Slip from J4A Heartlands	1	60	1
TF	M8 (EB)	End of EB On Slip from J4A Heartlands	Start of EB Off Slip to A801 at J4	3.37	60	3.4
SALT	M8 (EB)	Start of EB Off Slip to A801 at J4	End of EB On Slip from A801 at J4	1	60	1
TF	M8 (EB)	End of EB On Slip from A801 at J4	Start of EB Off Slip to Carnegie Road at J3A	3.85	60	3.9
SALT	M8 (EB)	Start of EB Off Slip to Carnegie Road at J3A	End of EB Off Slip to Carnegie Road at J3A	0.35	60	0.4
TF	U/C	End of EB Off Slip to Carnegie Road at J3A	Roundabout	0.1	40	0.15
TF	U/C	Roundabout (Turn around)	Start of EB On Slip from Carnegie Road at J3	0.1	40	0.15
SALT	M8 (EB)	Start of EB On Slip from Carnegie Road at J3	End of EB On Slip from Carnegie Road at J3	0.63	40	1
TF	M8 (EB)	End of EB On Slip from Carnegie Road at J3	Start of EB Off Slip to A899 at J3	3.57	60	3.6
SALT	M8 (EB)	Start of EB Off Slip to A899 at J3	End of EB Off Slip to A899 at J3	1.47	60	1.5
TF	M8 (EB)	End of EB Off Slip to A899 at J3	A899 Roundabout	0.22	40	0.4
TF	A899	A899 Roundabout (Turn around)	Start of EB On Slip from A899 at J3	0.22	40	0.4
SALT	M8 (EB)	Start of EB On Slip from A899 at J3	End of EB On Slip from A899 at J3	1.12	60	1.1
TF	M8 / M9	End of EB On Slip from A899 at J3	Burghmuir Depot	22.2	80	

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Total time of precautionary treatment (Mins)	: 70
Total length of carriageway salted (km)	: 35.02
Average width of carriageway (m)	: 10
Total tonnage dry salt used at 40gm/m^2	: 10.98
Total tonnage for route	: 14

Carriageway Precautionary Treatment Route 9 40

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Precautionary Salting Route 10 20

Depot:	**Vehicle: Route 10 20g and 40g**					
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9 / M8	Burghmuir Depot	Start WB off slip to A899 J3	8.5	80	6.38
TF	M8 (WB)	Newbridge Roundabout	Start of WB Off Slip to A899 at J3	8.5	80	6.38
SALT	M8 (WB)	Start of WB Off Slip to A899 at J3	End of WB On Slip to A899 at J3	1.23	30	2.46
TF	M8 (WB)	End of WB On Slip to A899 at J3	Start of WB Off Slip to Starlaw Road at J3a	5	80	3.8
SALT	M8 (WB)	Start of WB Off Slip to Starlaw Road at J3a	End of WB Off Slip to Starlaw Road at J3a	0.69	30	1.38
TF	U/C	End of WB Off Slip to Starlaw Road at J3a	Roundabout (turn around)	0.1	30	0.2
TF	U/C	Roundabout	Start of WB On Slip from Starlaw Road at J3a	0.1	30	0.2
SALT	M8 (WB)	Start of WB On Slip from Starlaw Road at J3a	End of WB On Slip from Starlaw Road at J3a	0.9	30	1.8
TF	M8 (WB)	End of WB On Slip from Starlaw Road	Start of WB Off Slip to A801 at J4	2.6	80	5.2
SALT	M8 (WB)	Start of WB Off Slip to A801 at J4	End of WB On Slip to A801 at J4	0.79	30	1.58
TF	M8 (WB)	End of WB On Slip to A801 at J4	Start of WB Off Slip to J4A Heartlands	3.7	50	5
SALT	M8 (WB)	Start of WB Off Slip to J4A Heartlands	End of WB On Slip from J4A Heartlands	1	30	2
TF	M8 (WB)	End of WB On slip from J4A Heartlands	Start Off slip to Harthill Services	3	60	3
SALT	M8 (WB)	Start off slip to Harthill	Through bus lane and to end on Slip from Harthill Services	1	60	1
TF	M8 (WB)	End of WB On Slip at Harthill Services	Start of WB Off Slip to B7057 at J5	2.5	65	2.5
SALT	M8 (WB)	Start of WB Off Slip to B7057 at J5	End of WB Off Slip to B7057 at J5	0.41	30	0.82

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TF	B7057	End of WB Off Slip to B7057 at J5	Turn around at B7066	0.17	30	0.34
TF	B7057	Turn around at B7066	Start of WB On Slip from B7057 at J5	0.17	30	0.34
SALT	M8 (WB)	Start of WB On Slip from B7057 at J5	End of WB On Slip from B7057 at J5	0.59	30	1.18
TF	M8 / A8	End of WB On Slip from B7057 at J5	Start SE Network EB	9.7	65	9
SALT	M8 (EB) (Main Cway)	M8 DBFO Boundary	Just beyond the end of EB On Slip from A899	27.58	60	27.58
TF	M8 (EB)	Just beyond the end of EB On Slip from A899	Newbridge Roundabout dedicated slip to Services	8.5	80	6.38
Salt	M9	Start dedicated slip	End Dedicated slip at Old Liston Rd	0.1	30	0.2
TF	Local Roads	End Dedicated slip at Old Liston Rd	Start Dedicated on slip to M9 NB from A89	1.8	30	3.6
Salt	M9	Start Dedicated on slip to M9 NB from A89	End Dedicated on slip to M9 NB from A89	0.1	30	0.2
TF	M9	End Dedicated on slip to M9 NB from A89	Burghmuir Depot	13.2	80	9.9

Total time from start to finish of precautionary treatment (Mins) : 91

Total length of carriageway salted (km) : 33.39

Average width of carriageway (m) : 10

Total tonnage dry salt used at 20gm/m^2 : 4.7

Total tonnage for route : 6.68

Carriageway Precautionary Treatment Route 10 20

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Precautionary Salting Route 10 40

Depot:	**Vehicle: Route 10 20g and 40g**					
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9 / M8	Burghmuir Depot	Start WB off slip to A899 J3	8.5	80	6.38
TF	M8 (WB)	Newbridge Roundabout	Start of WB Off Slip to A899 at J3	8.5	80	6.38
SALT	M8 (WB)	Start of WB Off Slip to A899 at J3	End of WB On Slip to A899 at J3	1.23	30	2.46
TF	M8 (WB)	End of WB On Slip to A899 at J3	Start of WB Off Slip to Starlaw Road at J3a	5	80	3.8
SALT	M8 (WB)	Start of WB Off Slip to Starlaw Road at J3a	End of WB Off Slip to Starlaw Road at J3a	0.69	30	1.38
TF	U/C	End of WB Off Slip to Starlaw Road at J3a	Roundabout (turn around)	0.1	30	0.2
TF	U/C	Roundabout	Start of WB On Slip from Starlaw Road at J3a	0.1	30	0.2
SALT	M8 (WB)	Start of WB On Slip from Starlaw Road at J3a	End of WB On Slip from Starlaw Road at J3a	0.9	30	1.8
TF	M8 (WB)	End of WB On Slip from Starlaw Road	Start of WB Off Slip to A801 at J4	2.6	80	5.2
SALT	M8 (WB)	Start of WB Off Slip to A801 at J4	End of WB On Slip to A801 at J4	0.79	30	1.58
TF	M8 (WB)	End of WB On Slip to A801 at J4	Start of WB Off Slip to J4A Heartlands	3.7	50	5
SALT	M8 (WB)	Start of WB Off Slip to J4A Heartlands	End of WB On Slip from J4A Heartlands	1	30	2
TF	M8 (WB)	End of WB On slip from J4A Heartlands	Start Off slip to Harthill Services	3	60	3
SALT	M8 (WB)	Start off slip to Harthill	Through bus lane and to end on Slip from Harthill Services	1	60	1
TF	M8 (WB)	End of WB On Slip at Harthill Services	Start of WB Off Slip to B7057 at J5	2.5	65	2.5

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SALT	M8 (WB)	Start of WB Off Slip to B7057 at J5	End of WB Off Slip to B7057 at J5	0.41	30	0.82
TF	B7057	End of WB Off Slip to B7057 at J5	Turn around at B7066	0.17	30	0.34
TF	B7057	Turn around at B7066	Start of WB On Slip from B7057 at J5	0.17	30	0.34
SALT	M8 (WB)	Start of WB On Slip from B7057 at J5	End of WB On Slip from B7057 at J5	0.59	30	1.18
TF	M8 / A8	End of WB On Slip from B7057 at J5	Start SE Network EB	9.7	65	9
SALT	M8 (EB) (Main Cway)	M8 DBFO Boundary	Just beyond the end of EB On Slip from A899	27.58	60	27.58
TF	M8 (EB)	Just beyond the end of EB On Slip from A899	Newbridge Roundabout dedicated slip to Services	8.5	80	6.38
Salt	M9	Start dedicated slip	End Dedicated slip at Old Liston Rd	0.1	30	0.2
TF	Local Roads	End Dedicated slip at Old Liston Rd	Start Dedicated on slip to M9 NB from A89	1.8	30	3.6
Salt	M9	Start Dedicated on slip to M9 NB from A89	End Dedicated on slip to M9 NB from A89	0.1	30	0.2
TF	M9	End Dedicated on slip to M9 NB from A89	Burghmuir Depot	13.2	80	9.9

Total time from start to finish of precautionary treatment (Mins) : 91

Total length of carriageway salted (km) : 33.39

Average width of carriageway (m) : 10

Total tonnage dry salt used at 40gm/m^2 : 9.4

Total tonnage for route : 13.4

Carriageway Precautionary Treatment Route 10 40

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Precautionary Salting Route 11 20

Depot:	**Vehicle: Route 11 20g Revised**					
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9	Burghmuir depot	Start J3 NB off slip	0.1	30	0.2
Grit	M9	Start J3 Off slip	End J3 Off slip	0.5	40	0.8
TF	A803	End J3 Off slip	Start J3 SB on Slip	0.1	30	0.2
Grit	M9	Start J3 SB on Slip	End Of J3 SB on slip	0.5	40	0.8
TF	M9	End J3 on slip	Start of J2 SB off slip	2.6	60	2.6
Grit	M9	Start J2 Off Slip	End J2 Off Slip	0.5	40	0.8
TF	B8046	End J2 SB off slip	Start J2 NB On Slip	0.1	30	0.2
Grit	M9	Start J2 NB Off Slip	End J2 On Slip	0.5	40	0.8
TF	M9	End J2 On Slip	200m Countdown marker for J3	2.5	60	2.5
Grit	M9	200m marker for J3	Keir Roundabout (doing lane 2 and 3 of 3 lane section)	39	60	39.0
TF	M9	Keir Roundabout	J10 SB Off slip	4.2	70	3.6
Grit	M9	Start J10 SB Off Slip	End J10 SB Off Slip	0.5	40	0.8
TF	M9	End of Off Slip	Start J10 SB On Slip	0.2	30	0.4
Grit	M9	Start J10 SB On Slip	End J10 SB On Slip	0.5	40	0.8
TF	M9	End Of J10 On Slip	Start of J9 SB Off Slip	6.2	70	5.3
Grit	M9	Start J9 SB Off Slip	End J9 SB Off Slip	0.55	40	0.8

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TF	M9	End J9 Off slip	Start of J9 SB On Slip	0.2	30	0.4
Grit	M9	Start J9 SB On Slip	End J9 SB On Slip	0.55	40	0.8
TF	M9	End J9 SB On Slip	Start J7 SB Off Slip Dedicated lane	7.9	70	6.8
Grit	M876 / A876	Start J7 off slip	Higgins Neuk Roundabout	3.4	60	3.4
TF	A876	Higgins Neuk Roundabout	Dedicated Slip / layby	0.8	60	0.8
Grit	A876	Dedicated Slip / layby	Start to Finish	1.2	50	1.4
TF	M876 / M9	End of route return to depot	Return to Depot	24	80	

Total time from start to finish of precautionary treatment (Mins) : 73

Total length of carriageway salted (km) : 47.7

Average width of carriageway (m) : 10

Total tonnage dry salt used at 20gm/m^2 : 6.68

Total tonnage for route : 9.54

Carriageway Precautionary Treatment Route 11 20

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Precautionary Salting Route 11 40

Depot:	**Vehicle: Route 11 40g**					
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9	Brughmuir Depot	200m marker for J3	3.8	80	2.9
Grit	M9	200m marker for J3	Keir Roundabout (doing lane 2 and 3 of 3 lane section)	39	60	39.0
TF	M9	Keir Roundabout	J10 SB Off slip	4.2	80	3.2
Grit	M9	Start J10 SB Off Slip	End J10 SB Off Slip	0.5	40	0.8
TF	M9	End of Off Slip	Start J10 SB On Slip	0.2	40	0.3
Grit	M9	Start J10 SB On Slip	End J10 SB On Slip	0.5	40	0.8
TF	M9	End Of J10 On Slip	Start of J9 SB Off Slip	6.2	80	4.7
Grit	M9	Start J9 SB Off Slip	End J9 SB Off Slip	0.55	40	0.8
TF	M9	End J9 Off slip	Start of J9 SB On Slip	0.2	40	0.3
Grit	M9	Start J9 SB On Slip	End J9 SB On Slip	0.55	40	

Total time from start to finish of precautionary treatment (Mins : 53

Total length of carriageway salted (km) : 41.1

Average width of carriageway (m) : 10

Total tonnage dry salt used at 40gm/m^2 : 11.6

Total tonnage for route : 16.5

Carriageway Precautionary Treatment Route 11 40

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Precautionary Salting Route 12 20

Depot:	**Vehicle: Route 12 20g Revised**					
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9	Burghmuir Depot	J4 NB Off Slip	7.8	30	5.9
Grit	M9	Start J4 NB Off Slip	End J4 NB Off Slip	0.5	30	0.8
TF	M9	End NB Off Slip	Start J4 NB On Slip	0.3	30	0.6
Grit	M9	Start J4 NB On Slip	End J4 NB On Slip	0.5	30	0.8
TF	M9	End J4 On Slip	Start J5 NB Off Slip	0.9	40	1.4
Grit	M9	Start J5 NB Off Slip	End J5 NB Off Slip (use widest spread at bottom section)	0.7	30	1.1
TF	M9	End J5 NB Off Slip	Start J5 NB On Slip	0.1	30	0.2
Grit	M9	Start J5 NB On Slip	End J5 NB On Slip	0.5	30	0.8
TF	M9	End of J5 On Slip	Start of J7 NB Off Slip	6.1	60	5.2
Grit	M9 / M876	Start J7 NB Off Slip	100m Prior to J3 Bowtrees off Slip	1.9	60	1.9
TF	M876	Just Prior to Bowtrees Off slip	Start J3 Bowtrees Off Slip	0.1	60	0.1
Grit	M876	Start J3 Bowtrees Off Slip	End J3 On Slip	0.7	30	1.1
TF	M876	End J3 NB Off Slip	Start of J3 Bowtrees SB On Slip	0.3	30	0.6
Grit	M876 / M9	Start J3 SB On Slip	And Continue to M9 NB merge at 1st Gantry	3.0	50	3.0
TF	M9 / M876	From M876 / M9 merge	M876 J2 WB Off Slip	3.0	60	3.0

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Grit	M876	Start J2 WB Off Slip	End J2 WB Off Slip	0.45	30	0.7
TF	A9 Stirling Rd	End J2 WB On slip	Start J2 WB On Slip at North Broomage	0.5	30	1.0
Grit	M876	Start J2 WB On Slip	End J2 WB On Slip	1.2	30	1.4
TF	M876	End J2 WB On Slip	Start J1 WB Off Slip	0.9	50	1.1
Grit	M876	Start J1 WB Off Slip	End J1 WB On Slip	0.4	30	0.8
TF	B905 / A8004	End of J1 Off Slip	Via Checkbar Roundabout to Start J1 WB On Slip	1.0	50	1.2
Grit	M876	Start J1 WB On Slip	End J1 WB On Slip	0.4	30	0.6
TF	M876 / M80	End of J1 WB On slip	Via Haggs to M876 J1 EB OFF Slip	9.4	70	8.1
Grit	M876	Start J1 EB Off Slip	End J1 EB Off Slip	0.4	30	0.6
TF	A883	End J1 Off slip	Via Checkbar and return to J1 EB On Slip	1.0	30	2.0
Grit	M876	Start J1 EB On Slip	End J1 EB On Slip	0.3	30	0.5
TF	M876	End J1 EB On Slip	Start J2 EB Off Slip	1.4	50	1.4
Grit	M876	Start J2 EB Off Slip	End J2 EB off Slip	1.2	30	1.4
TF	A9 Stirling Rd	End J2 Off slip at North Broomage	Start J2 EB On Slip	0.6	30	1.2
Grit	M876	Start J2 EB On Slip	End J2 EB On Slip	0.5	30	0.8
TF	M876 / M9	End J2 EB On Slip	Via Bowtrees to turn and proceed to M9 J9 NB Off Slip	17.2	70	14.7
Grit	M9	Start of J9 NB Off Slip	End J9 NB Off Slip	0.6	30	0.9
TF	M9	End J9 NB Off Slip	Start J9 NB On Slip	0.3	30	0.6

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Grit	M9	Start J9 NB On Slip	End J9 NB On Slip	0.6	30	0.9
TF	M9	End J9 NB On Slip	Start J10 NB Off Slip	6.4	60	6.4
Grit	M9	Start J10 NB Off Slip	End J10 NB Off Slip	0.7	30	1.1
TF	M9	End J10 NB Off Slip	Start J10 NB On Slip	0.3	30	0.6
Grit	M9	Start J10 NB On Slip	End J10 NB On Slip	0.6	30	0.9
TF	M9	End J10 NB On Slip	to Start M9 SB at Keir	4.1	60	4.1
Grit	M9	Start M9 at Keir	Just after J3 SB On slip (treat L2 and 3 between J8 and J7)	39.0	60	39.0
TF	M9	Just after J3 SB On slip	Burghmuir Depot	5.6	70	

Total time from start to finish of precautionary treatment (Mins) : 118

Total length of carriageway salted (km) : 54.15

Average width of carriageway (m) : 10

Total tonnage dry salt used at 20gm/m^2 : 7.6

Total tonnage for route : 10.8

Carriageway Precautionary Treatment Route 12 20

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Precautionary Salting Route 12 40

Depot:	**Vehicle: Route 12 40g**					
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9	Burghmuir Depot	Start J9 NB Off Slip	26.3	80	19.7
Grit	M9	Start of J9 NB Off Slip	End J9 NB Off Slip	0.6	40	0.9
TF	M9	End J9 NB Off Slip	Start J9 NB On Slip	0.3	40	0.5
Grit	M9	Start J9 NB On Slip	End J9 NB On Slip	0.6	40	0.9
TF	M9	End J9 NB Off Slip	Start J10 NB Off Slip	6.4	80	4.8
Grit	M9	Start J10 NB Off Slip	End J10 NB Off Slip	0.7	40	1.1
TF	M9	End J10 NB Off Slip	Start J10 NB On Slip	0.3	40	0.5
Grit	M9	Start J10 NB On Slip	End J10 NB On Slip	0.6	40	0.9
TF	M9	End J10 NB On Slip	to Start M9 SB at Keir	4.1	80	3.1
Grit	M9	Start M9 at Keir	Just after J3 SB On slip (treat L2 and 3 between J8 and J7)	39.0	60	39.0
TF	M9	Just after J3 SB On slip	Burghmuir Depot	5.6	80	

Total time from start to finish of precautionary treatment (Mins) : 71

Total length of carriageway salted (km) : 41.5

Average width of carriageway (m) : 10

Total tonnage dry salt used at 40gm/m^2 : 11.6

Total tonnage for route : 16.6

Carriageway Precautionary Treatment Route 12 40

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Precautionary Salting Route 13 20

Depot:		**Vehicle: Route 13 20g Revised**				
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9 (northbound)	Burghmuir Access	Start of M9 Junction 5 (NB) Offslip	11.2	80	8.4
TF	M9 J5 Offslip (northbound)	Start of M9 Junction 5 (NB) Offslip	End of M9 Junction 5 (NB) Offslip	0.7	60	0.7
TF	Local authority roads	End of M9 Junction 5 (NB) Offslip	Start of M9 Junction 6 (NB) Onslip	4.2	80	3.2
SALT	M9 J6 Onslip (northbound)	Start of M9 Junction 6 (NB) Onslip	End of M9 Junction 6 (NB) Onslip	0.7	60	0.7
TF	M9 (northbound)	End of M9 Junction 6 (NB) Onslip	End of Junction 7 On Slip	4.3	80	3.2
Salt	M9 / M876 / M80	1st Gantry at J7 On Slip	Start M80 J4 Haggs WB off slip (treat L 1 and HS and 3 lane section)	10.3	60	10.3
TF	M80	Start Haggs WB off slip	End Haggs NB On Slip	1.2	60	1.2
Salt	M80	End Haggs NB On Slip	Start of M80 Pirnhall Off Slip (treat lane 2 and 3 at 3 lane section)	13	60	13
Salt	M80	Start Pirnhall Off slip	End Pirnhall Off Slip	1	60	1
Salt	M9 Pirnhall roundabout	End Pirnhall Off slip from M80	Start Pirnhall On Slip to M80	1	40	1.5
Salt	M80	Start of Pirnhall SB On slip to M80	DBFO Boundary prior to M80 Haggs	12	60	12
TF	M80	DBFO Boundary	Start off slip to M80 Pirnhall	13	80	9.8
Salt	M80 / M9	Mainline from start off slip to Pirnhall	100m after merge with M9	2.3	60	2.3

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TF	M9	100m after merge with M9	Via J10 to 100m before M9 / M80 split	13.2	80	9.9
Salt	M9 / M80	100m before M9 / M80 Split	End M80 Pirnhall SB On slip	2.4	60	2.4
TF	M80	End of SB Slip from Pirnhall	End of Haggs NB On Slip	12.2	80	9.2
Salt	M80 / M876	End of Haggs On slip	M876 / M80 Split at J5 (treat lane 1 and HS)	1.4	60	1.4
Salt	M876 / M9	M80 / M876 Split	End of three lane section at M9 J7	9	60	9
TF	M9	End of three lane section	Start J6 SB Off Slip	3	60	3
Salt	M9	Start J6 SB Off Slip	End Of J6 SB Of Slip	0.6	40	0.9
TF	M9	End J6 SB Off Slip	Burghmuir Depot	8	80	6

Total time from start to finish of precautionary treatment (Mins) : 103

Total length of carriageway salted (km) : 53.7

Average width of carriageway (m) : 10

Total tonnage dry salt used at 20gm/m^2 : 7.5

Total tonnage for route : 10.7

Carriageway Precautionary Treatment Route 13 20

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Precautionary Salting Route 13 40

Depot:		**Vehicle: Route 13 40g Revised**				
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9 (northbound)	Burghmuir Access	Start of M9 Junction 5 (NB) Offslip	11.2	80	8.4
TF	M9 J5 Offslip (northbound)	Start of M9 Junction 5 (NB) Offslip	End of M9 Junction 5 (NB) Offslip	0.7	60	0.7
TF	Local authority roads	End of M9 Junction 5 (NB) Offslip	Start of M9 Junction 6 (NB) Onslip	4.2	80	3.2
SALT	M9 J6 Onslip (northbound)	Start of M9 Junction 6 (NB) Onslip	End of M9 Junction 6 (NB) Onslip	0.7	60	0.7
TF	M9 (northbound)	End of M9 Junction 6 (NB) Onslip	End of Junction 7 On Slip	4.3	80	3.2
Salt	M9 / M876 / M80	1st Gantry at J7 On Slip	Start M80 J4 Haggs WB off slip (treat L 1 and HS and 3 lane section)	10.3	60	10.3
TF	M80	Start Haggs WB off slip	End Haggs NB On Slip	1.2	60	1.2
Salt	M80	End Haggs NB On Slip	Start of M80 Pirnhall Off Slip (treat lane 2 and 3 at 3 lane section)	13	60	13
Salt	M80	Start Pirnhall Off slip	End Pirnhall Off Slip	1	60	1
Salt	M9 Pirnhall roundabout	End Pirnhall Off slip from M80	Start Pirnhall On Slip to M80	1	40	1.5
Salt	M80	Start Pirnhall on Slip	End Pirnhall On Slip	1.2	60	1.2
TF	M80	End of Pirnhall SB On slip to M80	End Haggs NB On Slip	13.5	80	10.1
Salt	M80 / M876	End of Haggs On slip	M876 / M80 Split at J5 (treat lane 1 and HS)	1.4	60	1.4

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Salt	M876 / M9	M80 / M876 Split	End of three lane section at M9 J7	9	60	9
TF	M9	End of three lane section	Start J6 SB Off Slip	3	80	2.3
Salt	M9	Start J6 SB Off Slip	End Of J6 SB Of Slip	0.6	60	0.6
TF	M9	End J6 SB Off Slip	Burghmuir Depot	8	60	8

Total time from start to finish of precautionary treatment (Mins) : 68

Total length of carriageway salted (km) : 37

Average width of carriageway (m) : 10

Total tonnage dry salt used at 40gm/m^2 : 10.4

Total tonnage for route : 14.8

Carriageway Precautionary Treatment Route 13 40

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Precautionary Salting Route 14 20

Depot:	**Vehicle: Route 14 20g Revised**					
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9	Burghmuir Depot	End of J3 SB On Slip	1.2	60	1.2
Grit	M9 / M8	End J3 SB On Slip	End M8 J2 (Claylands) WB On Slip (treat L2 and 3 between J1A and J1)	13.9	60	13.9
TF	M8	End of J2 WB On Slip	Via Livingston to start M8 J2 EB Off Slip	14.8	80	11.1
Grit	M8	Start J2 EB Off Slip	End J2 EB Off Slip	1.1	60	1.1
TF	M8 / M9	End J2 EB Off Slip	Start M9 J1 NB Off Slip	0.45	40	0.7
Grit	M9	Start J1 NB Off Slip	End J1 NB Off Slip	0.4	40	0.6
TF	M9	End J1 NB Off Slip	Start J1 NB On Slip	0.1	40	0.2
Grit	M9	Start J1 NB On Slip	M9 NB At B800 Overbridge	0.9	60	0.9
TF	M9 (move to lane 3)	B800 overbridge	M9 / M90 Split 200m countdown sign	0.8	60	0.8
Grit	M9	From M9/M90 200m countdown	Just prior to J3 NB Off Slip	9.6	60	9.6
Travel	M9	Just Prior to J3 NB Off slip	To M9 J1 Slip just before B800 Overbridge	11.6	80	8.7
Grit	M9	Just Before B80 overbridge	End J1 SB Off Slip at Newbridge roundabout	1.1	60	1.1
TF	M9	End J1 SB Off Slip	Start J1 SB on slip	0.2	60	0.2
Grit	M9 / M8	Start J1 SB On slip and	End M8 J2 EB On Slip	1.8	60	1.8

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		dedicated lane to M8 J2 EB slip				
TF	M8	End J2 EB On Slip	M8 J1 EB Off Slip (to Airport)	5.0	80	3.8
Grit	M8	Start J1 off Slip	End J1 Off slip at merge with A720	1.1	60	1.1
TF	A720	End of M8 J1 and A720 merge	Via Gogar and Hermiston roundabouts to A720 dedicated slip to A71 from retail park	3.6	80	2.7
Grit	A720	From Splitter at Retail park	Lane 1 and 2 (A71) up to split, and then all 3 Lanes (directional change of salt spread from Right to Left, as gritter will need to stay in lane 3 to go WB again)	0.7	60	0.7
TF	A71	End Off slip from Hermiston	Start on Slip from Hermiston towards M8 / Airport	0.3	30	0.6
Grit	A720 / M8	Start on slip from Hermiston	Lane 1 and 2 to M8 A720 Split then onto M8 WB On slip	1.1	60	1.1
TF	M8	End J1 WB On Slip	Start M8 J2 WB Off slip to M9	4.5	70	3.9
Grit	M8 / M9	Start J2 WB On slip	200m marker for M9 / M90 Slip	14.1	60	14.1
TF	M9	M9 / M90 split	Burghmuir Depot	1.1	60	

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Total time from start to finish of precautionary treatment (Mins)	: 80
Total length of carriageway salted (km)	: 45.8
Average width of carriageway (m)	: 10
Total tonnage dry salt used at 20gm/m^2	: 6.5
Total tonnage for route	: 9.2

Carriageway Precautionary Treatment Route 14 20

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Precautionary Salting Route 14 40

Depot:	**Vehicle: Route 14 20g Revised**					
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9	Burghmuir Depot	End of J3 SB On Slip	1.2	60	1.2
Grit	M9 / M8	End J3 SB On Slip	End M8 J2 (Claylands) WB On Slip (treat L2 and 3 between J1A and J1)	13.9	60	13.9
TF	M8	End of J2 WB On Slip	Via Livingston to start M8 J2 EB Off Slip	14.8	80	11.1
Grit	M8	Start J2 EB Off Slip	End J2 EB Off Slip	1.1	60	1.1
TF	M8 / M9	End J2 EB Off Slip	Start M9 J1 NB Off Slip	0.45	40	0.7
Grit	M9	Start J1 NB Off Slip	End J1 NB Off Slip	0.4	40	0.6
TF	M9	End J1 NB Off Slip	Start J1 NB On Slip	0.1	40	0.2
Grit	M9	Start J1 NB On Slip	M9 NB At B800 Overbridge	0.9	60	0.9
TF	M9 (move to lane 3)	B800 overbridge	M9 / M90 Split 200m countdown sign	0.8	60	0.8
Grit	M9	From M9/M90 200m countdown	Just prior to J3 NB Off Slip	9.6	60	9.6
Travel	M9	Just Prior to J3 NB Off slip	To M9 J1 Slip just before B800 Overbridge	11.6	80	8.7
Grit	M9	Just Before B80 overbridge	End J1 SB Off Slip at Newbridge roundabout	1.1	60	1.1
TF	M9	End J1 SB Off Slip	Start J1 SB on slip	0.2	60	0.2

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Grit	M9 / M8	Start J1 SB On slip and dedicated lane to M8 J2 EB slip	End M8 J2 EB On Slip	1.8	60	1.8
TF	M8	End J2 EB On Slip	M8 J1 EB Off Slip (to Airport)	5.0	80	3.8
Grit	M8	Start J1 off Slip	End J1 Off slip at merge with A720	1.1	60	1.1
TF	A720	End of M8 J1 and A720 merge	Via Gogar and Hermiston roundabouts to A720 dedicated slip to A71 from retail park	3.6	80	2.7
Grit	A720	From Splitter at Retail park	Lane 1 and 2 (A71) up to split, and then all 3 Lanes (directional change of salt spread from Right to Left, as gritter will need to stay in lane 3 to go WB again)	0.7	60	0.7
TF	A71	End Off slip from Hermiston	Start on Slip from Hermiston towards M8 / Airport	0.3	30	0.6
Grit	A720 / M8	Start on slip from Hermiston	Lane 1 and 2 to M8 A720 Split then onto M8 WB On slip	1.1	60	1.1
TF	M8	End J1 WB On Slip	Start M8 J2 WB Off slip to M9	4.5	70	3.9
Grit	M8 / M9	Start J2 WB On slip	200m marker for M9 / M90 Slip	14.1	60	14.1
TF	M9	M9 / M90 split	Burghmuir Depot	1.1	60	

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Total time from start to finish of precautionary treatment (Mins)	: 80
Total length of carriageway salted (km)	: 45.8
Average width of carriageway (m)	: 10
Total tonnage dry salt used at 40gm/m^2	: 12.8
Total tonnage for route	: 18.3

Carriageway Precautionary Treatment Route 14 40

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Precautionary Salting Route 16 20

Depot: Burghmuir		**Vehicle: Route 16 20g**				
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9 / M90	Burghmuir Depot	Admiralty Interchange	17.4	60	17.4
Grit	A875	End of off slip to Admiralty	Longannet Roundabout including the roundabouts	20.8	60	20.8
Grit	A977	Langannet roundabout	Kilbagie Roundabout (highest spread and blast through Kincardine lights)	4.7	40	7.1
Grit	A977	Kilbaggie Roundabout	Gartarry Roundabout inc roundabouts	0.3	40	0.5
TF	A977	Gartarry Roundabout	Start A876 at Kilbagie Roundabout	0.3	40	0.5
Grit	A876	Start at Kilbagie	100m prior to Clackmannan Bridge	2.4	60	2.4
Spray	A876	100m prior to bridge	100m after Bridge	1.4	60	1.4
Grit	A876	100m after bridge	Higgins Neuk Roundabout inc roundabout	0.6	60	0.6
Spray	A985	Higgins Neuk Roundabout	Kincardine lights at North approach rd	1.1	40	1.7
Grit	A985	Lights at North Rd	Longannet Roundabout	1.4	60	1.4
TF	A977	Longannet roundabout	To A876 North Approach Rd	1.2	60	1.2
Grit	A876	Traffic lights	Traffic lights at A985 Going right	0.5	40	0.8

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TF	A985	Traffic lights	Higgins Neuk and back to start dedicated slip to North Approach Road	2.3	40	3.5
Grit	A876	Start Dedicated slip	End Dedicated slip	0.1	40	0.2
TF	A876	End dedicated slip	Turn in village and return to dedicated slip to longannet	0.6	40	0.9
Grit	A876	Start dedicated slip	End dedicated slip	0.1	40	0.2
TF	A985	End of slip to Longannet	Longannet roundabout Roundabout	1.4	60	1.4
Grit	A985	Longannet roundabout	Traffic lights prior to Kincardine bridge	1.4	60	1.4
TF	A985	Lights at Kincardine	Higgins Neuk Roundabout	1.2	40	1.8
Grit	A876	Higgins Neuk	100m before Clackmannan Bridge	0.2	40	0.3
Spray	A876	100m before Bridge	100m After bridge	1.4	60	1.4
Grit	A876	100m after bridge	Kilbagie Roundabout	2.6	60	2.6
TF	A876	Kilbagie Roundabout	Higgins neuk Roundabout	4.3	60	4.3
Grit	A86 / M876	Higgins Neuk Roundabout	Over bridge after on slip from Bowtrees	2.6	60	2.6
TF	M876	Over bridge After Bowtrees	Start J7 on slip to M9	0.5	60	0.5
Grit	M876 / M9	Start J7 SB on slip	End J7 SB on Slip	0.8	60	0.8
TF	M9	End J7 SB On Slip	Start J5 SB Off Slip	5.0	80	3.8
Grit	M9	Start J5 SB Off Slip	End J5 SB Off Slip	0.35	60	0.4
TF	A905	End J5 SB Off Slip	Start J5 SB On Slip	1.1	40	1.7

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Grit	M9	Start J5 Sb On Slip	End J5 Sb On Slip	0.7	40	1.1
TF	M9	End J5 Sb On Slip	Start J4 SB Off Slip	0.9	40	1.4
Grit	M9	Start J4 SB Off Slip	End J4 Sb Off Slip	0.7	40	1.1
TF	M9	End J4 SB Off Slip	Start J4 Sb On Slip	0.1	40	0.2
Grit	M9	Start J4 Sb On Slip	End J4 Sb On Slip	0.5	40	0.8
TF	M9	End J4 Sb On Slip	Burghmuir Depot	13.2	80	

Total time from start to finish of precautionary treatment (Mins) : 88

Total length of carriageway salted (km) : 43.55

Average width of carriageway (m) : 7.5

Total tonnage dry salt used at 20gm/m^2 : 4.6

Total tonnage for route : 6.7

Potassium Acetate

Spray length (km) : 2.85

Average width of carriageway (m) : 7.5

Spray volume at 0.0156 litres / sq m : 334 litres

Carriageway Precautionary Treatment Route 16 20

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Precautionary Salting Route 16 40

Depot: Burghmuir			Vehicle: Route 16 40g			
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9 / M90	Burghmuir Depot	Admiralty Interchange	17.4	60	17.4
Grit	A875	End of off slip to Admiralty	Longannet Roundabout including the roundabouts	20.8	60	20.8
Grit	A977	Langannet roundabout	Kilbagie Roundabout (highest spread and blast through Kincardine lights)	4.7	40	7.1
Grit	A977	Kilbaggie Roundabout	Gartarry Roundabout inc roundabouts	0.3	40	0.5
TF	A977	Gartarry Roundabout	Start A876 at Kilbagie Roundabout	0.3	40	0.5
Grit	A876	Start at Kilbagie	100m prior to Clackmannan Bridge	2.4	60	2.4
Spray	A876	100m prior to bridge	100m after Bridge	1.4	60	1.4
Grit	A876	100m after bridge	Higgins Neuk Roundabout inc roundabout	0.6	60	0.6
Spray	A985	Higgins Neuk Roundabout	Kincardine lights at North approach rd	1.1	40	1.7
Grit	A985	Lights at North Rd	Longannet Roundabout	1.4	60	1.4
TF	A977	Longannet roundabout	To A876 North Approach Rd	1.2	60	1.2
Grit	A876	Traffic lights	Traffic lights at A985 Going right	0.5	40	0.8
TF	A985	Traffic lights	Higgins Neuk and back to start dedicated slip to North	2.3	40	3.5

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			Approach Road			
Grit	A876	Start Dedicated slip	End Dedicated slip	0.1	40	0.2
TF	A876	End dedicated slip	Turn in village and return to dedicated slip to longannet	0.6	40	0.9
Grit	A876	Start dedicated slip	End dedicated slip	0.1	40	0.2
TF	A985	End of slip to Longannet	Longannet roundabout Roundabout	1.4	60	1.4
Grit	A985	Longannet roundabout	Traffic lights prior to Kincardine bridge	1.4	60	1.4
TF	A985	Lights at Kincardine	Higgins Neuk Roundabout	1.2	40	1.8
Grit	A876	Higgins Neuk	100m before Clackmannan Bridge	0.2	40	0.3
Spray	A876	100m before Bridge	100m After bridge	1.4	60	1.4
Grit	A876	100m after bridge	Kilbagie Roundabout	2.6	60	2.6
TF	A876	Kilbagie Roundabout	Higgins neuk Roundabout	4.3	60	4.3
Grit	A86 / M876	Higgins Neuk Roundabout	Over bridge after on slip from Bowtrees	2.6	60	2.6
TF	M876	Over bridge After Bowtrees	Start J7 on slip to M9	0.5	60	0.5
Grit	M876 / M9	Start J7 SB on slip	End J7 SB on Slip	0.8	60	0.8
TF	M9	End J7 SB On Slip	Start J5 SB Off Slip	5.0	80	3.8
Grit	M9	Start J5 SB Off Slip	End J5 SB Off Slip	0.35	60	0.4
TF	A905	End J5 SB Off Slip	Start J5 SB On Slip	1.1	40	1.7
Grit	M9	Start J5 Sb On Slip	End J5 Sb On Slip	0.7	40	1.1
TF	M9	End J5 Sb On Slip	Start J4 SB Off Slip	0.9	40	1.4

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Grit	M9	Start J4 SB Off Slip	End J4 Sb Off Slip	0.7	40	1.1
TF	M9	End J4 SB Off Slip	Start J4 Sb On Slip	0.1	40	0.2
Grit	M9	Start J4 Sb On Slip	End J4 Sb On Slip	0.5	40	0.8
TF	M9	End J4 Sb On Slip	Burghmuir Depot	13.2	80	

Total time from start to finish of precautionary treatment (Mins) : 88

Total length of carriageway salted (km) : 45.33

Average width of carriageway (m) : 8.0

Total tonnage dry salt used at 40gm/m^2 : 9.2

Total tonnage for route : 13.5

Potassium Acetate

Spray length (km) : 2.85

Average width of carriageway (m) : 10

Spray volume at 0.0312 litres / sq m : 890 litres

Carriageway Precautionary Treatment Route 16 40

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Precautionary Salting Route 15A 40

Depot:		**Vehicle: Route 15 40g revised**				
Action	**Road**	**From**	**To**	**Distance (KM)**	**Average Speed (km/hr)**	**Time (Mins)**
TF	M9	Burghmuir depot	Start J3 NB off slip	0.1	40	0.2
Grit	M9	Start J3 Off slip	End J3 Off slip	0.5	40	0.8
TF	A803	End J3 Off slip	Start J3 SB on Slip	0.1	40	0.2
Grit	M9	Start J3 SB on Slip	End Of J3 SB on slip	0.5	60	0.5
TF	M9	End J3 on slip	Start of J2 SB off slip	2.6	60	2.6
Grit	M9	Start J2 Off Slip	End J2 Off Slip	0.5	60	0.5
TF	B8046	End J2 SB off slip	Start J2 NB On Slip	0.1	40	0.2
Grit	M9	Start J2 NB Off Slip	End J2 On Slip	0.5	40	0.8
TF	M9	End J2 On Slip	Start J4 NB Off Slip	10.4	80	7.8
Grit	M9	Start J4 NB Off Slip	End J4 NB Off Slip	0.5	40	0.8
TF	M9	End NB Off Slip	Start J4 NB On Slip	0.3	40	0.5
Grit	M9	Start J4 NB On Slip	End J4 NB On Slip	0.5	40	0.8
TF	M9	End J4 On Slip	Start J5 NB Off Slip	0.9	60	0.9
Grit	M9	Start J5 NB Off Slip	End J5 NB Off Slip (use widest spread at bottom section)	0.7	40	1.1
TF	M9	End J5 NB Off Slip	Start J5 NB On Slip	0.1	40	0.2
Grit	M9	Start J5 NB On Slip	End J5 NB On Slip	0.5	40	0.8

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TF	M9	End of J5 On Slip	Start of J7 NB Off Slip	6.1	60	6.1
Grit	M9 / M876	Start J7 NB Off Slip	100m Prior to J3 Bowtrees off Slip	1.9	60	1.9
TF	M876	Just Prior to Bowtrees Off slip	Start J3 Bowtrees Off Slip	0.1	40	0.2
Grit	M876	Start J3 Bowtrees Off Slip	End J3 On Slip	0.7	40	1.1
TF	M876	End J3 NB Off Slip	Start of J3 Bowtrees SB On Slip	0.3	40	0.5
Grit	M876 / M9	Start J3 SB On Slip	And Continue to M9 NB merge at 1st Gantry	3.0	60	3.0
TF	M9 / M876	From M876 / M9 merge	M876 J2 WB Off Slip	3.0	60	3.0
Grit	M876	Start J2 WB Off Slip	End J2 WB Off Slip	0.45	40	0.7
TF	A9 Stirling Rd	End J2 WB On slip	Start J2 WB On Slip at North Broomage	0.5	40	0.8
Grit	M876	Start J2 WB On Slip	End J2 WB On Slip	1.2	60	1.2
TF	M876	End J2 WB On Slip	Start J1 WB Off Slip	0.9	40	1.4
Grit	M876	Start J1 WB Off Slip	End J1 WB On Slip	0.4	40	0.6
TF	B905 / A8004	End of J1 Off Slip	Via Checkbar Roundabout to Start J1 WB On Slip	1.0	60	1.0
Grit	M876	Start J1 WB On Slip	End J1 WB On Slip	0.4	40	0.6
TF	M876 / M80	End J1 Wb On Slip	M80 Nb at Pirnhall Off slip	17	80	12.8
Salt	M80 / M9	Mainline from start off slip to Pirnhall	100m after merge with M9	2.3	60	2.3
TF	M9	100m after merge with M9	Via J10 to 100m before M9 / M80 split	13.2	80	9.9
Salt	M9 / M80	100m before M9 / M80 Split	DBFO Boundary	13.4	60	13.4

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TF	M876 / M80	DBFO Boundary	Via Haggs to M876 J1 EB OFF Slip	5.9	80	4.4
Grit	M876	Start J1 EB Off Slip	End J1 EB Off Slip	0.4	40	0.6
TF	A883	End J1 Off slip	Via Checkbar and return to J1 EB On Slip	1.0	40	1.5
Grit	M876	Start J1 EB On Slip	End J1 EB On Slip	0.3	40	0.5
TF	M876	End J1 EB On Slip	Start J2 EB Off Slip	1.4	60	1.4
Grit	M876	Start J2 EB Off Slip	End J2 EB off Slip	1.2	60	1.2
TF	A9 Stirling Rd	End J2 Off slip at North Broomage	Start J2 EB On Slip	0.6	40	0.9
Grit	M876	Start J2 EB On Slip	End J2 EB On Slip	0.5	40	0.8
Grit	M876 / A876	Start J7 off slip	Higgins Neuk Roundabout	3.4	60	3.4
TF	A876	Higgins Neuk Roundabout	Dedicated Slip / layby	0.8	40	1.2
Grit	A876	Dedicated Slip / layby	Start to Finish	1.2	60	1.2
TF	M876 / M9	End Dedicated slip / Layby	Burghmuir Depot	24	80	

Total time from start to finish of precautionary treatment (Mins) : 95

Total length of carriageway salted (km) : 34.95

Average width of carriageway (m) : 10

Total tonnage dry salt used at 40gm/m^2 : 9.2

Total tonnage for route : 14

Carriageway Precautionary Treatment Route 15A 40

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