O&M Works Requirements

WINTER SERVICE PLAN 2016 - 2017

	Signed	Date
Winter Service Manager		**28/07/16**
Account Manager		**28/07/16**

Document Control

Record of Amendments

REV No.	DATE	TOPIC	APPROVED	AUTHORISED
0	22/07/16	First Draft – July Submission for Written Consent of SM	S McColm	B Lunn
1	28/07/16	Updated following SMSR comments	S McColm	B Lunn

Draft document submitted to the Scottish Ministers Rob McLennan

Signed: _____

Comments to Company from the Scottish Ministers Rob McLennan

Signed: _____

Final Document submitted to the Scottish Ministers Rob McLennan

Signed: _____

Strategy Consented to by the Scottish Ministers Laurence Campbell

Signed: _____

Table of Contents

1.0 INTRODUCTION AND POLICY

1.1. The Network consists of sections of the busiest motorway network in the central belt of Scotland including the M8, M73 and M74. It also includes the A8 and A725 Trunk Roads.

1.2. Winter Service operations shall be provided by Amey on behalf of the Scottish Roads Partnership. They shall allow the safe movement of all road users through the O&M Works Site 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 resource requirements shall fluctuate accordingly.

1.3. Amey will deliver a level of Winter Service commensurate with the winter conditions normally associated with Central Scotland, 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 the O&M Works Contractor are detailed in Part 2 of Schedule 4 and Series 2800 to the Specification of the Project and shall be implemented in cognisance of the principles incorporated in the Scottish Office Code of Practice – Winter Maintenance for Trunk Roads: 1993 and the 'Well Maintained Highways' publication.

1.4. Amey shall provide sufficient resources to ensure that all measures are taken to keep the roads of the O&M Works Site open to its users at all times and shall prevent snow or ice from remaining on Network in accordance with the requirements of Schedule 4 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. 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 is owned by the Winter Service Manager. While the Winter Service Manager has the overall responsibility for the successful delivery of the Plan, he will be assisted in all respects by the Winter Service Duty Officers who will support as required by the prevailing or predicted conditions.

1.7. Any procedures specific to the O&M Works Site consented to in writing by the Scottish Ministers will be included herein.

2.0 MANAGEMENT ARRANGEMENTS

2.1 Winter Service Manager (WSM)

2.1.1 Name

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

2.1.2 Qualifications

Simon is an experienced member of our team who has attended training courses in road meteorology and winter scenarios. He 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

Simon has 11 years previous winter maintenance experience on Transport Scotland's term maintenance contracts and the 2016/17 winter season will be his third year as WSM for the M8 DBFO project.

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
- Daily and annual reporting

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 (WSDOs)

2.2.1 Names

Stewart Allan, Scott Sutherland, Christopher Weir, Stuart Green, Stuart Baird, Steven Murdoch, Martin Docherty, Brian Coyle and Thomas Hernon will undertake the role of Winter Service Duty Officer on a rota basis, being responsible for daily decision making on planned actions.

2.2.2 Qualifications

All WSDOs 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. Refresher training on road meteorology will be undertaken at periods not exceeding three years.

2.2.3 Experience

WSDOs each have relevant experience ensuring competent and consistent winter service decision making and the use of both weather forecast information and the computerised road weather information system.

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 WSDOs are rostered for every week throughout the core Winter Service Season. The WSDO will maintain and update winter records including:

- 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 will be staffed during all Winter Service operations. With our ability to network fully all communications and to

remotely access the Computerised Road Weather Information System (CRWIS), the control room can be established at any location and transferred seamlessly at changes in the duty roster.

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 Office)

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.

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.

2.3.2 Monitoring Arrangements out with normal working hours

Outside of normal working hours the WSDO for the particular week will be responsible for monitoring weather forecasts and actual weather conditions. WSDO's will be placed on stand-by following a weekly rota throughout the winter service period.

2.4 Personnel Resources

2.4.1 Name of Staff and Labour resources

WSM and WSDOs as noted in section 2.2.1

Operations Manager: Christopher Weir

Duty Operations Supervisors: Jack Sutherland, Hugh Gaw, Stewart Croly (Snr) and Graeme Gwynne

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

The DOS 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 OM 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.

Operatives	Depot	Training	Address Postcode
A Macleod	Tannochside	Winter Maintenance City & Guilds	EH52 GLU
S Aitken	Tannochside	Ditto	G66 3BP
A Boyes	Tannochside	Ditto	G71 5RN
D Burns	Tannochside	Ditto	ML5 5ST
C Carlin	Tannochside	Ditto	ML1 4EQ
T Craig	Tannochside	Ditto	G67 2HX
R Guy	Tannochside	Ditto	G33 6AZ
R Haswell	Tannochside	Ditto	KA13 7BB
D Marley	Tannochside	Ditto	ML9 2JW
R Potter	Tannochside	Ditto	G69 8BP
J Sutherland	Tannochside	Ditto	PA3 3EX
G Gwynne	Tannochside	Ditto	G32 0DG
J Weir	Tannochside	Ditto	ML4 2RH
D Chandler	Tannochside	Ditto	ML8 4QE
W Shaw	Tannochside	Ditto	ML6 0JG
P Nicoletti	Tannochside	Ditto	G34 0AZ
S Croly (Jnr)	Tannochside	Ditto	G33 1QF
G McCool	Tannochside	Ditto	ML4 2PT
S O'Rourke	Tannochside	Ditto	G67 2EA

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.

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.

2.4.2 Availability Rosters

Front Line Driver Rota – To be confirmed by the Winter Service Manager on a weekly basis

Patrol Driver Rota – To be confirmed by the winter service manager on a weekly basis

2.5 Call out arrangements

2.5.1 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 the WSDO will mobilise resources to undertake and complete the required treatment.

2.5.2 Outside normal working hours

When a decision to carry out treatment outside normal working hours is made by the WSDO, the WSDO will call out the rostered drivers by telephone directly.

Contact arrangements

2.5.3 During normal working hours

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

2.5.4 Outside normal working hours

A list of direct mobile telephone contact numbers for rostered drivers will be available to the WSDO to call out the drivers directly for unplanned actions out with normal working hours. 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 route within one hour of a call out is achieved, a shift system will operate from mid-November to mid-March. Operatives on shift will be based in Tannochside Depot, facilitating an immediate response to call outs.

Outside of this period, operatives will be on stand-by and will be called out directly by the WSDO if required. Where the 5 day forecast indicates that severe weather is anticipated in these months, operatives will be put onto a shift system.

2.6 Communications Equipment

All winter maintenance vehicles are 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.

Winter Service Patrol vehicles use an encrypted digital radio communications system, "Airwave". Amey 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.

2.7 Training for Managers and Other Staff

2.7.1 Details of previous training

The proposed Winter Service Manager and WSDO's will have attended training courses covering basic road meteorology and the interpretation of weather forecasts. 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 and WSDO's will attend refresher courses provided by The Met Office covering basic road meteorology and the use of weather forecasts, at no greater than three yearly intervals. Attendance at winter scenario training courses will also be considered. 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.

3 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 Office Forecaster for advice or updated information, providing a proactive approach to winter service

3.2 Methodology

Amey will continue to use the expert weather forecasting service (EWFS) from the Met Office 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 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 forecasts - 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 adverse winter conditions expected
Amber	Marginal forecast, potential risk of hoar frost, snow and/or ice with marginal Road Surface Temperature
Red	Adverse winter conditions expected, risk of minus Road Surface Temperature, hoar frost, snow, ice or drifting snow

- 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 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.

3.3 Weather forecasting service

3.3.1 Climatic domains

Given the extent of the O&M Works Site, the small number of treatment routes and the fact that they overlap significantly; it is proposed to continue to utilise one Climatic Domain for the project extents.

3.3.2 Weather radar

The WSDO will have access to a web-based Weather Radar facility provided by the Met Office, 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.

3.3.3 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 Office to model the temperature characteristics of the road pavement and can be accessed directly by the Met Office to assist in producing road-specific weather forecasts.

3.3.4 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.

3.3.5 Location plans

The O&M Works Site will be run as one Climatic Domain, utilising information from the existing Gartcosh outstation.

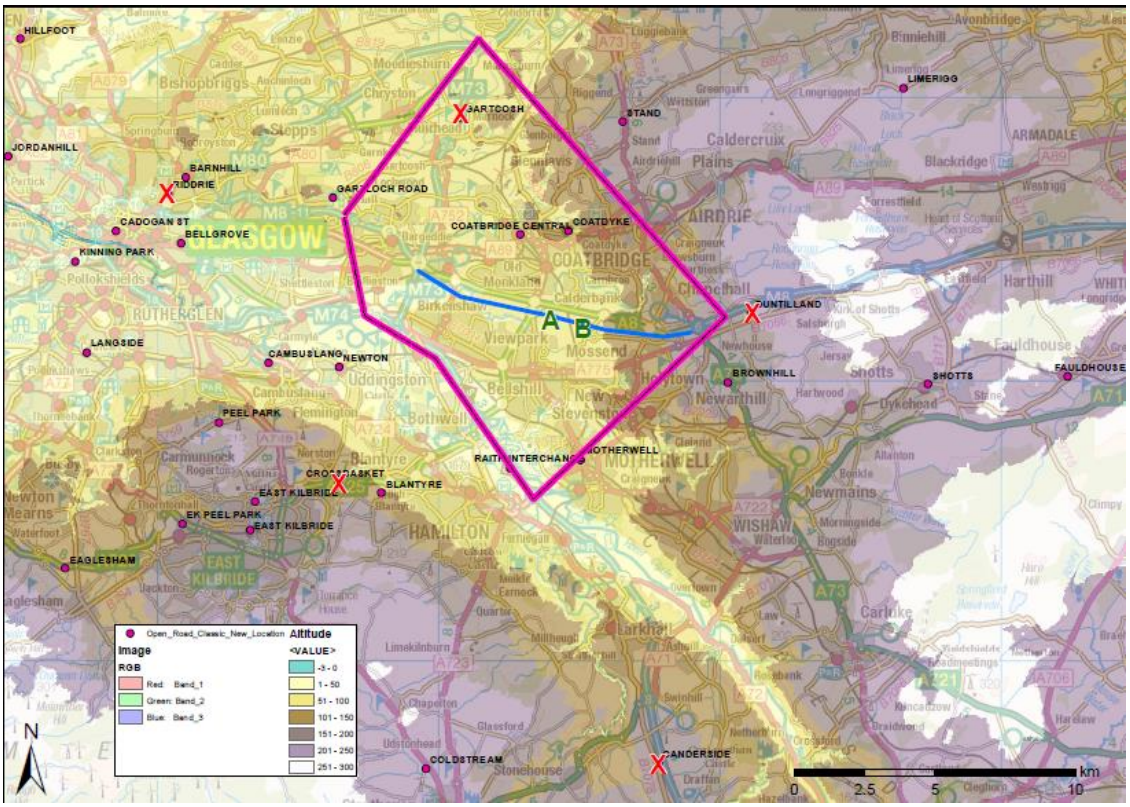


Fig 1. Climatic Domain.

3.4 Computer Systems

The computerised road weather information system (CRWIS) will continue to 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 Office
- Other relevant information

An automatic alarm, which activates when a road sensor falls to +1 degree centigrade, will continue to be utilised. This alarm is monitored from the control room but also operates on the lap top computer used by the WSDO.

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 Office 24 hour consultancy service for assistance, until the system is restored.

4.0 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, (none known at present)
- water run-off is liable to happen (none known at present)

Amey will, throughout the Project period review these areas and add other areas as necessary.

Road Number	Location
A725	**Raith Interchange towards East Kilbride**
A725	**Raith Interchange towards Bellshill**
M73	**Junction 1 to Junction 2**
M74	**Northbound on to M73**

Figure 4/1: Gradient Locations

Each area must be monitored effectively. For both frost susceptible and known surface water run off locations, the ability to monitor and forecast up-to-date road surface temperatures and states is critical.

In addition to the Winter Service Patrols detailed in Section 8 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.

5.0 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 WSM then informs the WSDO 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 Office 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.

5.3 Weather 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 4 Part 2, Table 3.2.1 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.

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.

5.4 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.

5.5 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.

5.6 Road Closure Operational Procedures

Any decision to close a road will normally 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 normally 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.

5.7 Activation of Snow and Ice and Hidden Message Signs

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

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.

5.8 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 5.6 above.

5.9 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.

6.0 LIAISON

6.1 The 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.

The Scottish Ministers 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 The 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 15:00 each day.

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 5.6 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 15:00 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 15:00 each day.

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

6.5 Adjacent South East Unit and South West Unit including DBFOs

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

adjacent Trunk Road Operating Companies of all proposed treatments and patrols once known, but not normally later than 15:00 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.

7. MUTUAL AID ARRANGEMENTS

7.1 Mutual Aid

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.

8. WINTER SERVICE PATROLS

From 1 November to 31 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 4 Part 2 Annex 3.2.

All Winter Service Patrol routes are under continuous review and will be amended as and when necessary throughout the season to reflect changes in the network layout from construction works.

Winter Service Patrols will:

- patrol all carriageways of Trunk Roads, excluding slip roads, identified in Annex 3.2, Table 3.2.1 of Schedule 4 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 3.3 of Schedule 4 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 4, Part 2, Paragraph 3.10.8. 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.

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.

We propose that all Patrol Routes are included as Category A and have included our detailed routes in Appendix B.

This proposal results in a higher level of service provision as all routes will be patrolled four times between the hours of 0200-1000, at two hourly intervals.

Special attention will be given to those locations designated as "Areas Requiring Special Attention" described in Section 4.

8.1 Winter Service Plant and Reporting

8.1.1 Winter Service Plant Provided by Amey for Winter Service Patrols

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,
- equipped with on board global positioning system, and
- a front line service independent and separate to precautionary treatment resources which will not be diverted to other de-icing operations or emergencies.

Welfare Kits

Amey will hold welfare kits, which will be carried by each Winter Service Patrol 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.

9. TREATMENT ROUTES

9.1.1 (i) Precautionary treatment Routes, including sections shared with Scottish Ministers Trunk Road South East and South West Units including DBFO's and other adjacent road authorities

The precautionary treatment routes have been separated into three distinct categories:

- Carriageway precautionary treatments not exceeding 40g/m² (WSP 2 of Appendix D)
- Local Authority Carriageway precautionary treatment routes within the land made available for O&M works. These will continue to be treated by the relevant local authority.
- Sections of footways, footbridges and cycle ways. There are presently no sections of Category A footway, footbridge or cycleway within the Network; accordingly no precautionary treatment is proposed.

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 precautionary treatment routes are under continuous review and will be amended as and when necessary throughout the season to reflect changes in the network layout from construction works.

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 Section 5.2 of this document.

Additional care will be taken at road works, 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.

9.1.1 (ii) 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 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.

9.1.1 (iii) Locations of de-icing material loading and mixing points

All de-icing materials will be stored in Tannochside Depot which will be the loading point for the Project.

9.1.2 Details of Cycling Facilities in Urban Areas.

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

10. SNOW AND ICE CLEARANCE

10.1 Snow Clearing

10.1.1 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-salting vehicles fitted with ploughs, will also be mobilised to aid echelon ploughing on dual carriageways and motorways.

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.

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). Where temporary vehicle restraint systems are installed on the network, a snow blower will be deployed to avoid ploughed snow creating a ramp at the barriers. Ploughing techniques to be adopted are shown in Figure 10/1.

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.

Ploughing Techniques
2 Lane Dual Carriageway Roads without Hard shoulders or where temporary vehicle restraint systems are in place on hard shoulders or central reserves: 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 (c) plough the right hand lane to lane 1, snow blower operating in lane 1 will project snow over barrier on to the verge
2 Lane Dual Carriageway Roads with Hard shoulders: The method of clearance, on both carriageways, should be: (a) plough the left hand lane to the hard shoulder;

(b) plough the right hand lane to the central reservation.; (c) plough the hard shoulder to the verge
3 Lane Dual Carriageway Roads without Hard shoulders or where temporary vehicle restraint systems are in place on hard shoulders or central reserves: The method of clearance, on all 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 (d) plough the right hand lane to lane 2, plough lane 2 to lane 1, snow blower operating in lane 1 will project snow over barrier on to the verge.
3 Lane Dual Carriageway Roads with Hard shoulders: The method of clearance, on all carriageways, shall be : (a) plough the centre lane to the left hand lane; (b) plough the left hand lane to the hard shoulder; (c) plough the right hand lane to the central reservation; (d) plough the hard shoulder to the verge

Figure 10/1: Ploughing Techniques

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.

10.1.2 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 no snow gates within the Network site therefore all closures will be implemented using temporary barriers and adequate appropriate signage.

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.

10.1.3 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 road works, traffic management equipment must not be disrupted. An accumulation of ploughed snow creating a ramp adjacent to safety fences (temporary and permanent) 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 (temporary and permanent)
- 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.
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 C – Maps and Appendix D - Routes.

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

There are none on the Network.

10.1.5 Arrangements for Safe Clearance of Snow or Ice Adjacent to Vertical Concrete Barriers and Temporary Vehicle Restraint Systems

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 or temporary vehicle restraint systems as a result of ploughing will be avoided by employing a snow blower where necessary.

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

There are currently no Footways, Footpaths Cycle facilities, salt bins or self-help heap facilities within the Network.

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.

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).

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

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

10.1.7 Plans Showing the Location of the Footways Footbridges and Cycle Facilities.

There are currently no sections of footway designated as Category A footway, footbridge or cycle facility within the Network area.

11 DE-ICING MATERIALS

11.1.1 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 detailed below:

Salt Union Ltd.	Salt Sales Co.
Astbury House	Fort Road
Bradford Road	Kilroot
Winslow	Carrickfergus
Cheshire	County Antrim
CW7 2PA	BT38 9BT

(v) Our salt will be supplied by Salt Union

(vi) We will store 300 tonnes of salt at Tannochside Depot; with reserve supplies located at Wm Hamilton & Sons, Dovesdale Farm, Larkhall. Stocks will be transferred on a daily basis to the operational depot at Tannochside, as usage requires.

(vii) Our salt will be supplied by Salt Union. An agreement for an automatic restocking

arrangement to ensure that adequate quantities of salt are always available locally will be put in place. Salt tonnages used will be transmitted weekly to Salt Union and will be replenished prior to the salt stock reaching the minimum stock level of 500 tonnes.

Alternative De-Icing Material: Amey will store 10,000 litres of Safecote liquid at Tannochside depot to enable effective reaction to extreme low temperatures or extreme road surface conditions, in combination with abrasive aggregates.

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.

12 WINTER SERVICE PLANT

12.1 Front Line Winter Service Plant permanently available within the O&M Works Site 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.

12.2 Reserve Winter Service Plant

12.2.1 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.

12.3 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.

12.4 Loading Winter Service Plant

12.4.1 Details of all loading Winter Service Plant available within the O&M Works Site are included in Annex WSP 5, Table 5 of Appendix D and includes that available for:

- Front line;
- Reserve; and
- Additional winter service plant.

12.5 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 4, Part 2 Paragraph 3.18.9 of the Project.

.

13 COMPOUNDS, DEPOTS AND FACILITIES

13.1 Details of our office and depot facilities covering the network within the O&M Works Site are provided in Annex WSP 5, Table 6 of Appendix D.

14 MAPS DRAWINGS AND GEOGRAPHICAL INFORMATION

14.1 Maps

The Winter Service Plan includes maps showing:

- Precautionary treatment routes for carriageways, including on/off slips and depots; (appendix C)
- Precautionary treatment routes for footways footbridges and cycling facilities; (None – Appendix E)
- Reactive treatment routes for footways, footbridges and cycling facilities, (None – Appendix E)
- Winter Service Patrol routes (Appendix C)
- Ploughing routes for carriageways, including on/off slips and depots, (Appendix C)
- Road sensors including sensor types and where these sites are equipped with weather cameras, (map to differentiate between single and bi-directional cameras), (Annex WSP 6)
- Salt bins, (None – Section 16)
- Vertical concrete barriers, (Appendix C)
- Other facilities, and (None)
- Where route based forecasting is not used, climatic domains and the sensor used to generate domain forecasts. (Figure 1 and Annex WSP 6)

15 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.

The following typical records will be held electronically;-

- Decisions taken when and by whom
- Planned and actual treatment records
- Planned and actual response times achieved
- Planned and actual commencement times
- Planned and actual route treatment times
- Planned and actual spread rates
- Winter Service Plant down time and software faults
- Winter Service Plant deployment records (including GPS records) and driver operator logs
- Logs of telephone, e-mail and Airwave calls
- Loading point de-icing stocks and replenishment orders
- Ice prediction system records
- Weather forecasts and actual weather experienced
- Complaints from members of public and other road users
- Accidents resulting from winter conditions
- Road closures due to winter conditions
- Weights (and volumes as appropriate) of de-icing materials spread for each route; and

- A log of hours for each operative spent on "call-out" or "standby" shall be kept in accordance with the procedures in the Quality Plan.

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.

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 (Form 1 & Vaisala Navigator)
- Planned and actual spread rates (Form 1 & Form 6)
- Planned and actual commencement times (Form 1 & Form 6)
- Completion times for each route (Form 6)
- Amount of de-icing material spread for each route and the cumulative amount spread during the current Winter Service Period (Form 11)
- Snow plough usage (Form 11)
- Number of treatment days (capability) of de-icing material available from stock based on six treatments per route per day at 20 grams per sq. m (Form 11)
- The weather forecast accuracy (Vaisala Navigator)
- Spreading vehicle's data logging and reporting system output (Exactrack)
- Any other relevant information (Form 11)

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.

16 SALT BINS

16.1 Stock level monitoring and replenishment procedures

There are no salt bins on the Network

We will discuss the locations, if any, with neighbouring Local Authorities and maintain salt bins throughout the Restricted Services period.

17 SALT MEASUREMENT APPARATUS

The axle weighing facility located in Tannochside depot will be utilised to weigh spreaders before and after deployment.

18 ASSOCIATED DOCUMENTS

Well-maintained Highways – Code of Practice for Highway Maintenance Management

19 Documents / Records

Reference	Description	Responsibility for Records a) Retention of.. b) Disposal of..	Location Held/ Storage Medium Electronic (E), Hard Copy (H)	Retention Period Years (Y) Months (M)	Why? (*)
M8DBFO-Plans-PL-006 Form 1	Proposed Action Form	Winter Service Duty Officer	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 2	Communications Log	Winter Service Duty Officer	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 3	Trunk Road Blockages	Winter Service Duty Officer	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 4	Accidents Resulting from Weather Conditions	Winter Service Duty Officer	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 5	Complaints Record Sheet	Winter Service Duty Officer	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 6	Response Times Achieved	Duty Supervisor	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 7	Construction Plant and Equipment Downtime	Duty Supervisor	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 8	Operators Record Log	Duty Supervisor	E	Cont +2Y	C
M8DBFO-Plans-PL-006 Form 9	Winter Service Patrol Report Record	Duty Supervisor	E	Cont +2Y	C
M8DBFO-Plans-PL-006 Form 10	Salting Route Dry Run Record Sheet	Duty Supervisor	E	Cont+2Y	C
M8DBFO-Plans-PL-006 Form 11	Transport Scotland Weekly Report	Winter Service Manager	E	Cont+2Y	C
M8DBFO-Plans-PL-006 Form 12	Monthly Salt Monitoring Report	Winter Service Manager	E	Cont+2Y	C

APPENDIX A

DECISION MAKING
&
TREATMENT MATRICES

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.

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*

Table 3 –Precautionary Treatment Safecote 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	

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

Table 5 – Snow Clearance

Condition Criteria	Category A Patrol Routes		Non Category A Patrol Routes	
	Dual carriageways and Motorways		Dual carriageways	Wide Single 2+1 (WS2+1) & Single carriageways
	Number of Existing Lanes		Number of Existing Lanes	
	2	3 or more	2	1 or 2 (WS2+1)
	Minimum number of lanes in each direction free from ice and snow as far as is reasonably practical		Minimum number of lanes in each direction free from ice and snow as far as is reasonably practical	
Snow at any time	1	2	1	1
Following clearance of minimum lanes of the cessation of snow fall all lanes are to be clear of snow	6 hours	6 hours	12 hours	12 hours

APPENDIX B

PATROL ROUTES for Restricted Services Period

Patrol Route A1

PATROL ROUTE A1 - M73		Vehicle Reg. BG14TVF	
TANNOCHSIDE DEPOT			
Depot to Route (km)	3.45	Time to Route (mins)	4.404255319
Route to Depot (km)	4.6	Route Time (mins)	29.06666667
Patrol Length (km)	43.6	Route to Depot Time	5.872340426
Route Average Speed (km/hr)	90	Total Time	39.34326241

Stage	Route	Description
1	Travel	Depot to M74 S/B - M73 N/B slip
2	M73	M73 from M74 S/B - M73 N/B slip to M73 / M80 DBFO Unit Boundary
3	Travel	M73 N/B from M80 DBFO Boundary to M73 S/B at M80 DBFO Unit Boundary
4	M73	M73 S/B from M80 DBFO Unit Boundary to M73 S/B / M74 S/B slip
5	M74	M74 S/B from M73 S/B slip to M74 Jct 5 off slip
6	M74	M74 - Turn at Jct 5
7	M74	M74 Jct 5 N/B to M74 N/B - M73 N/B slip
8	M74	M74 / M73 N/B link road
9	M73	M73 N/B from M74 to M73 / M8 link road
10	M8	M8 from M73 N/B / M8 W/B link road to M8 Jct 10
11	Travel	Turn around at M8 Jct 10
12	M8	M8 Jct 10 E/B to M8 / M73 slip road
13	M73	M8 link road to M73 S/B
14	M73	M73 Link Road to M73 S/B - M74 N/B link Road

Patrol Route A2

PATROL ROUTE A2 B1 - M8 A8 A89		Vehicle Reg. BL14VKT	
TANNOCHSIDE DEPOT			
Depot to Route (km)	2.28	Time to Route (mins)	2.910638298
Route to Depot (km)	3.16	Route Time (mins)	34
Patrol Length (km)	51	Route to Depot Time	4.034042553
Route Average Speed (km/hr)	90	Total Time	40.94468085

Stage	Route	Description
1	Travel	From Tannochside Depot to A8 W/B at Baillieston Offslip
2	M8	W/B From M8 at Baillieston Rbt to M8 DBFO Unit Boundary at Jct 10
3	Travel	M8 from DBFO Unit Boundary to W/B at Jct 11
4	Travel	M8 - Turn around at M8 Jct 11
5	Travel	M8 Jct 11 E/B to M8 DBFO unit boundary
6	M8	M8 Jct 10 E/B at DBFO Unit Boundary to A8 at Baillieston E/B onslip
7	A8	A8 E/B from Baillieston E/B onslip to Jct 6 offslip
8	M8	M8 E/B from Jct 6 offslip to M8 DBFO Unit Boundary
9	Travel	M8 from DBFO unit boundary E/B to M8 Jct 5
10	Travel	Turn around at M8 Jct 5
11	Travel	M8 E/b from Jct 5 to M8 DBFO Boundary W/B
12	M8	M8 W/B from DBFO unit boundary to M8 Jct 6 Offslip
13	A8	A8 W/B from M8 Jct 6 offslip to A8 Baillieston W/B Offslip
14	A8	A8 Baillieston Rbt
15	A8	A8 Baillieston Rbt to Baillieston Traffic Lights
16	A89	A89 From A8 Bailleston traffic Lights to A752 Langmuir Road Rbt
17	A89	A89 From A752 Langmuir Road Rbt to A8 Baillieston Traffic Lights
18	A8	From A8 Baillieston Traffic Lights to A8 Baillieston Rbt
19	Travel	From A8 Baillieston Rbt to Tannochside Depot

Patrol Route A3

PATROL ROUTE A3 B2 - M74 A725 B7071		Vehicle Reg. WV64 YHR	
TANNOCHSIDE DEPOT			
Depot to Route (km)	3.06	Time to Route (mins)	5.208510638
Route to Depot (km)	9.5	Route Time (mins)	31
Patrol Length (km)	46.5	Route to Depot Time	12.12765957
Route Average Speed (km/hr)	90	Total Time	48.33617021

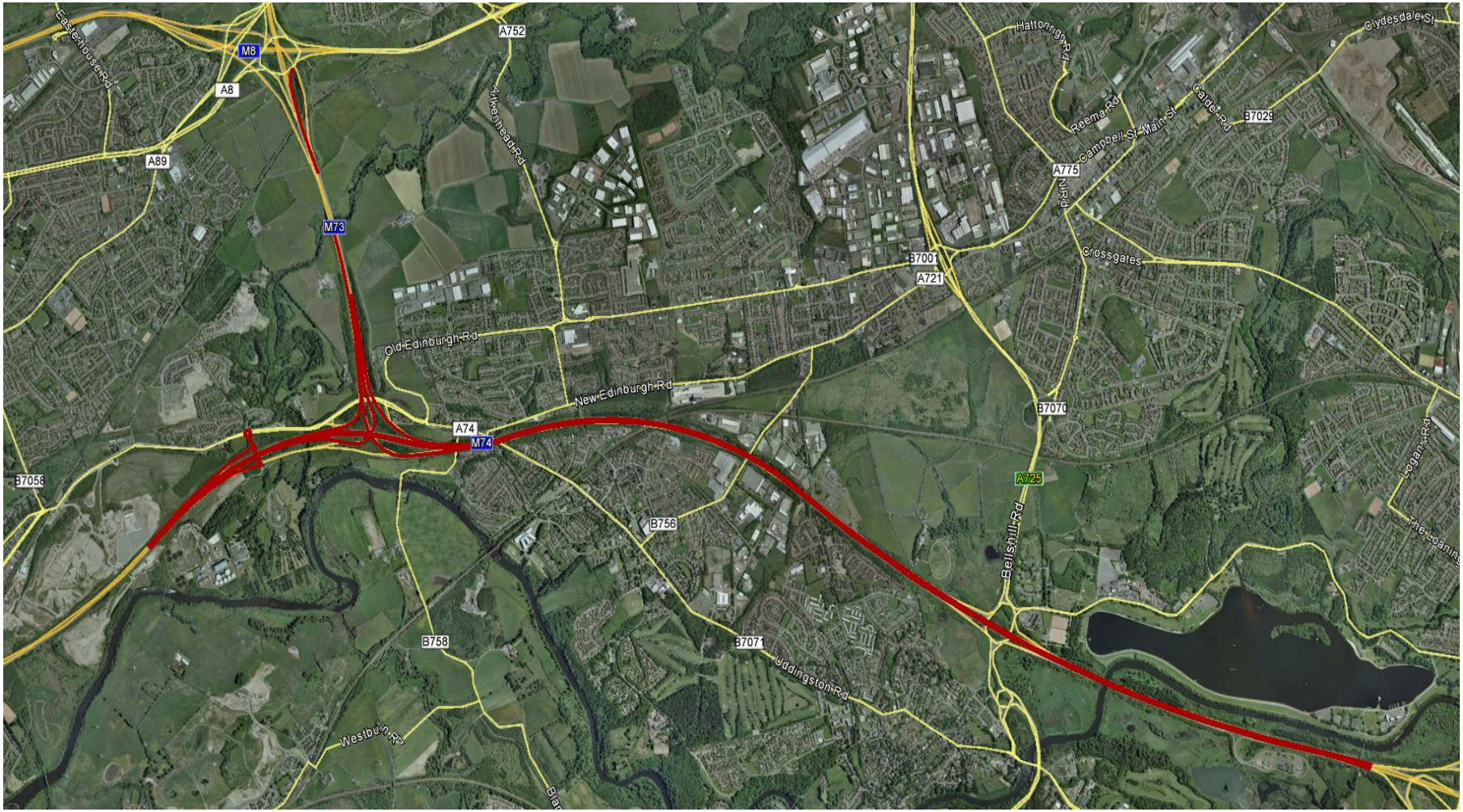
Stage	Route	Description
1	Travel	Tannochside Depot to M74 A721 S/B Onslip
2	M74	M74 A721 S/B Onslip to M74 Jct 6 DBFO Boundary
3	Travel	M74 Jct 6 S/B to M74 Jct 6 N/B
4	M74	M74 Jct 6 N/B to M74 Jct 3a DBFO Boundary
5	Travel	M74 Jct 3a to Jct 3
6	Travel	Turn around at M74 Jct 3
7	Travel	M74 Jct 3 to Jct 3a DBFO Unit Boundary
8	M74	M74 Jct 3a S/B to M74 Jct 5
9	A725	A725 Raith to Bothwell Bridge
13	Travel	A725 S/B from Bothwell Bridge to Craighead
14	Travel	Turn around at Craighead
15	Travel	A725 N/B from Craighead to Bothwell Bridge
10	B7071	From Bothwell Bridge to Hamilton Rd / Bothwell Rd Rbt
11	B7071	From Hamilton Rd / Bothwell Rd Rbt to A725 Raith Rbt
16	A725	A725 N/B from Raith Rbt to Dundyvan Rbt
17	A725	A725 S/B from Dundyvan Rbt to Raith
18	A725	Raith Rbt to M74 Jct 5 N/B
19	Travel	A725 Raith Rbt to Tannochside Depot

APPENDIX C

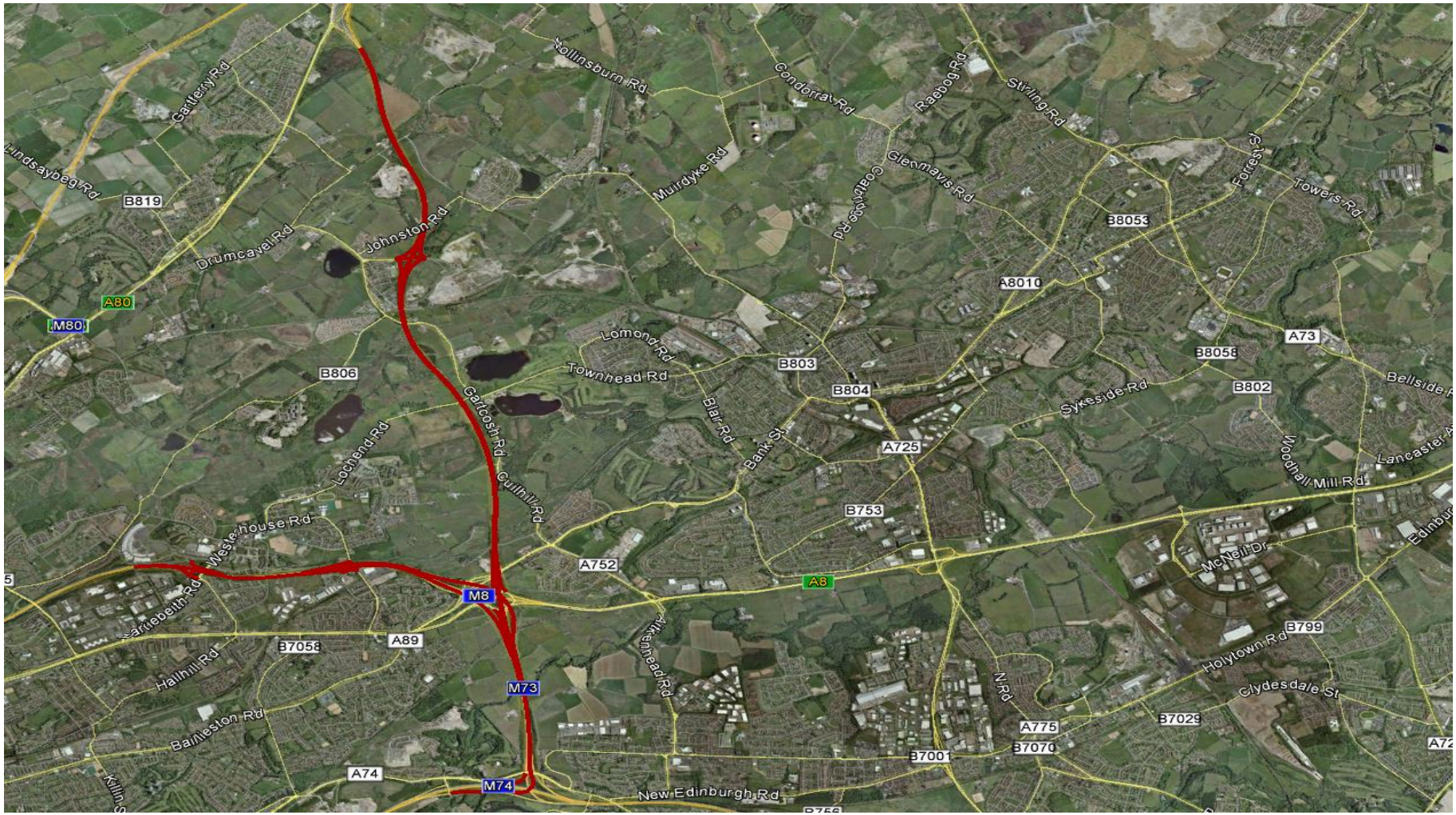
MAPS

TREATMENT ROUTES
&
PATROL ROUTES

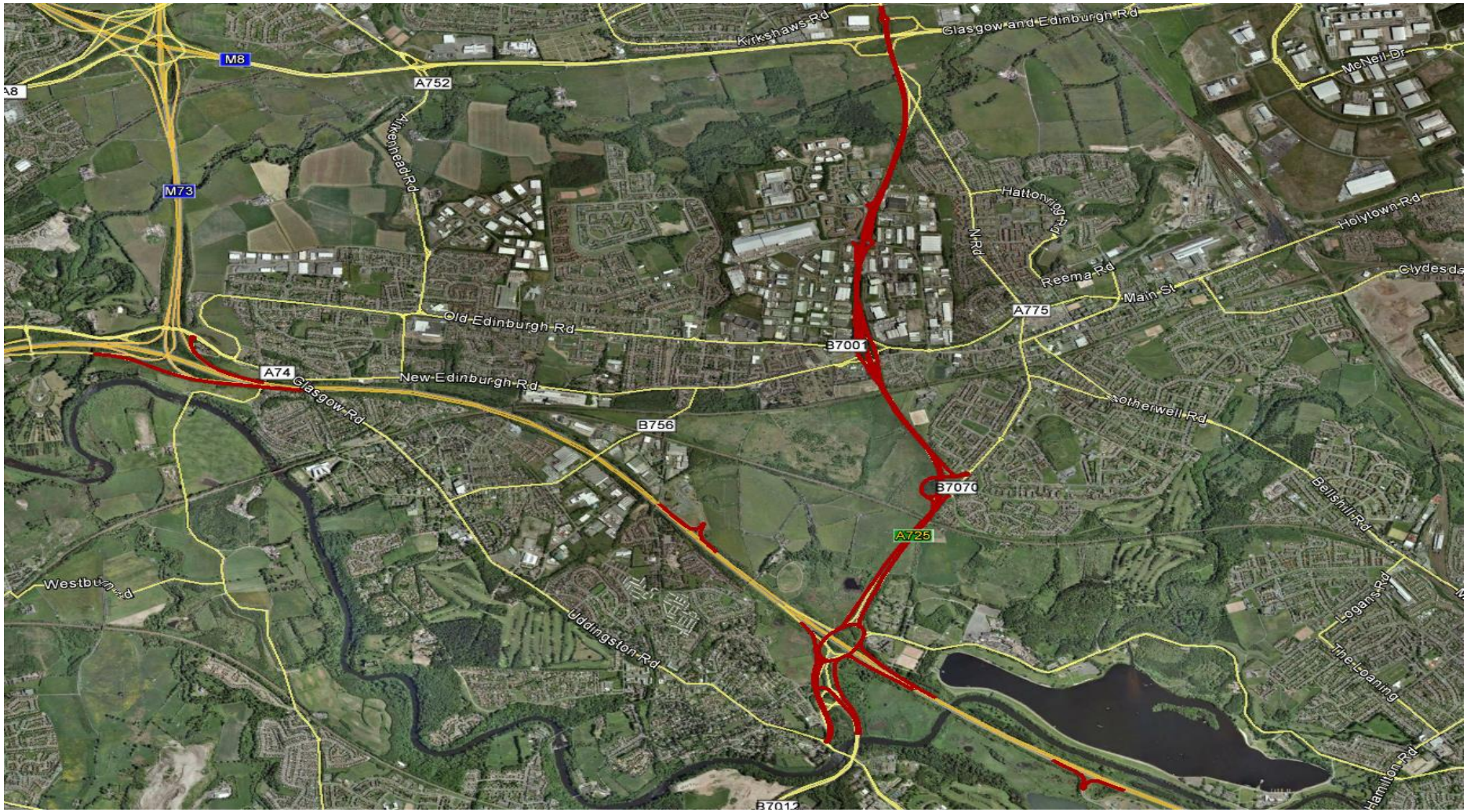
Precautionary Treatment Route 2:



Precautionary Treatment Route 3:

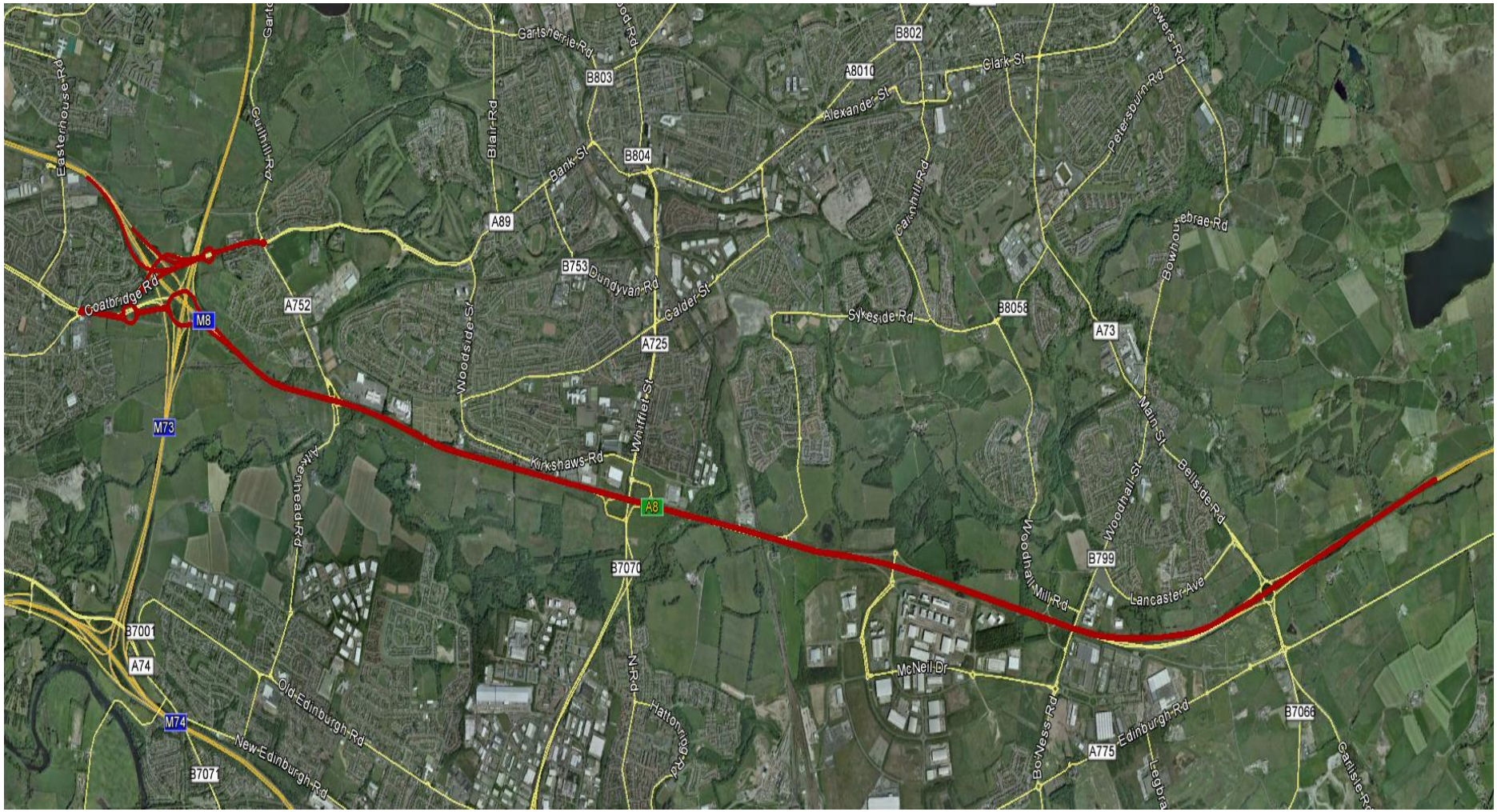


Precautionary Treatment Route 4:

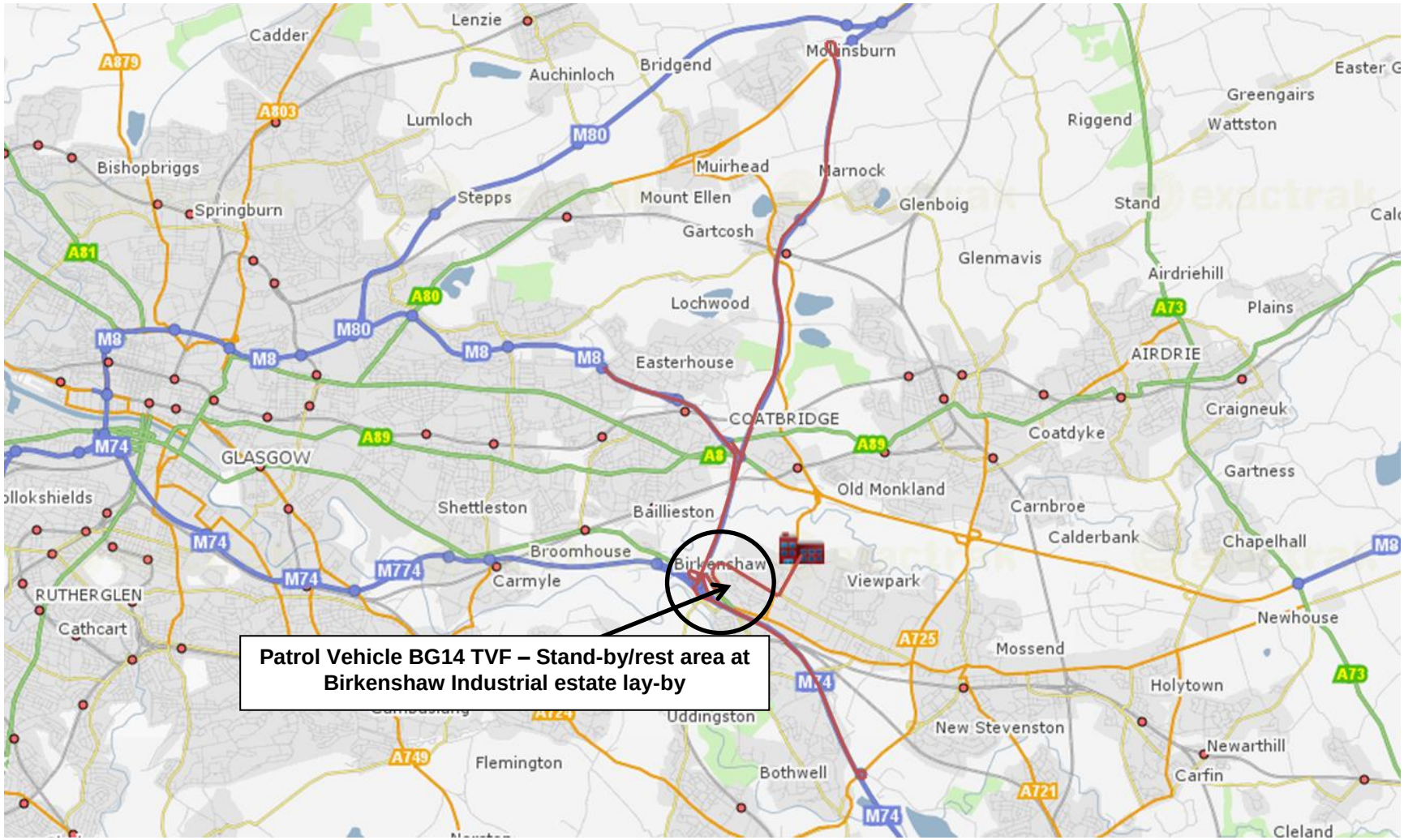


Precautionary Treatment Route 5:

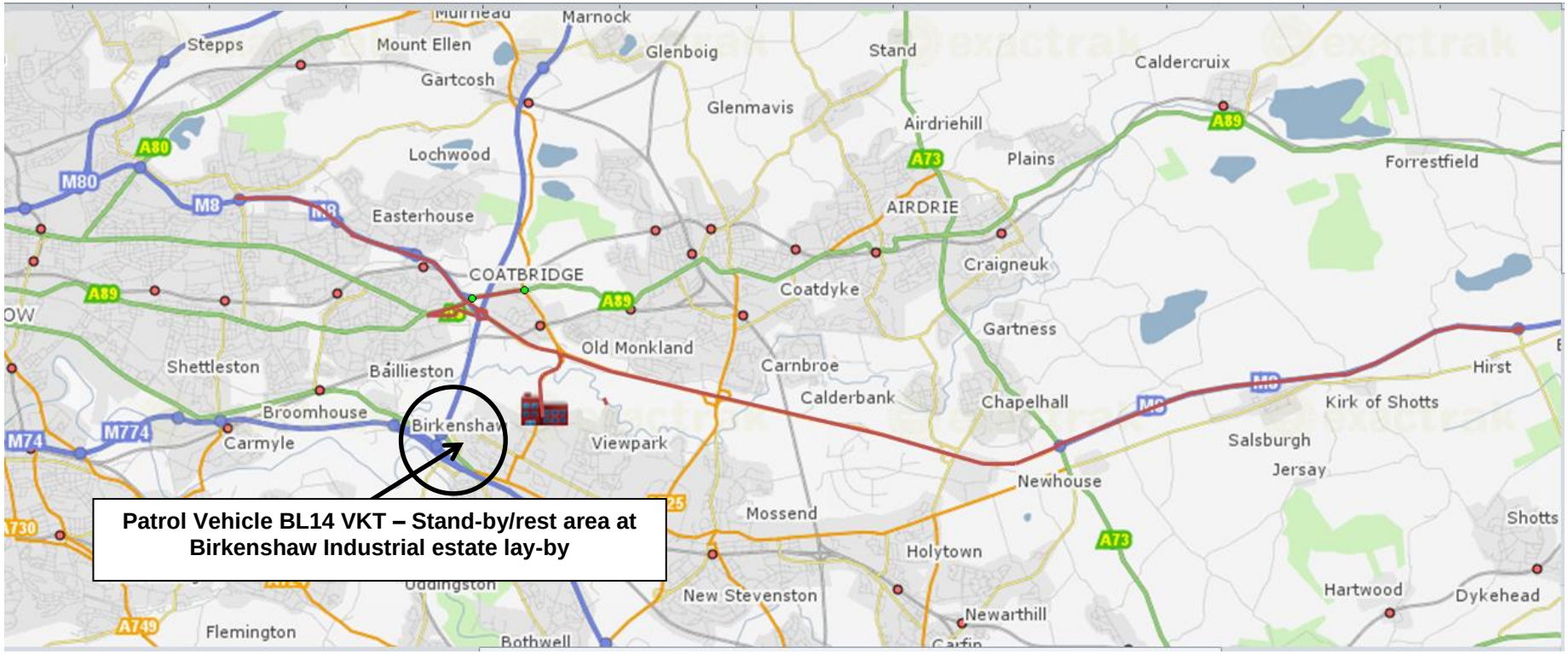
Precautionary Treatment Route 6:



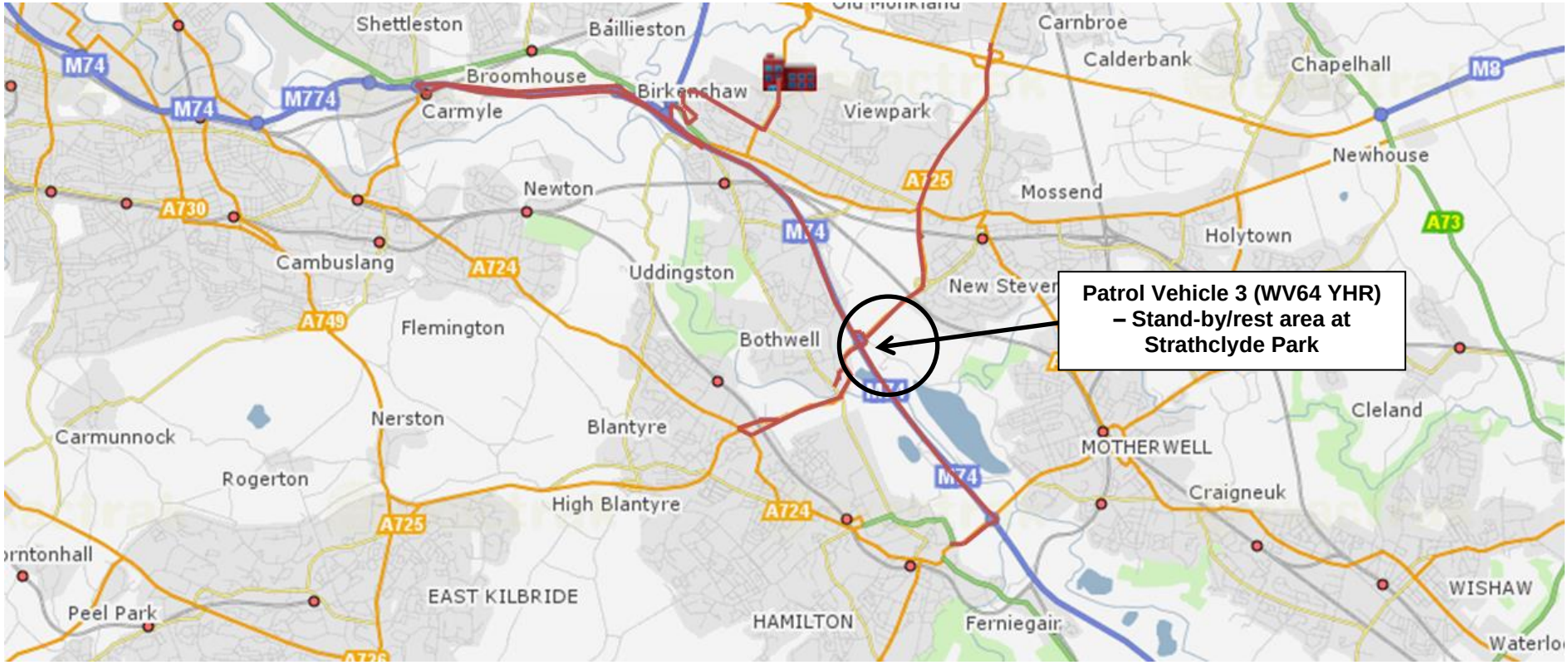
Patrol Route A1



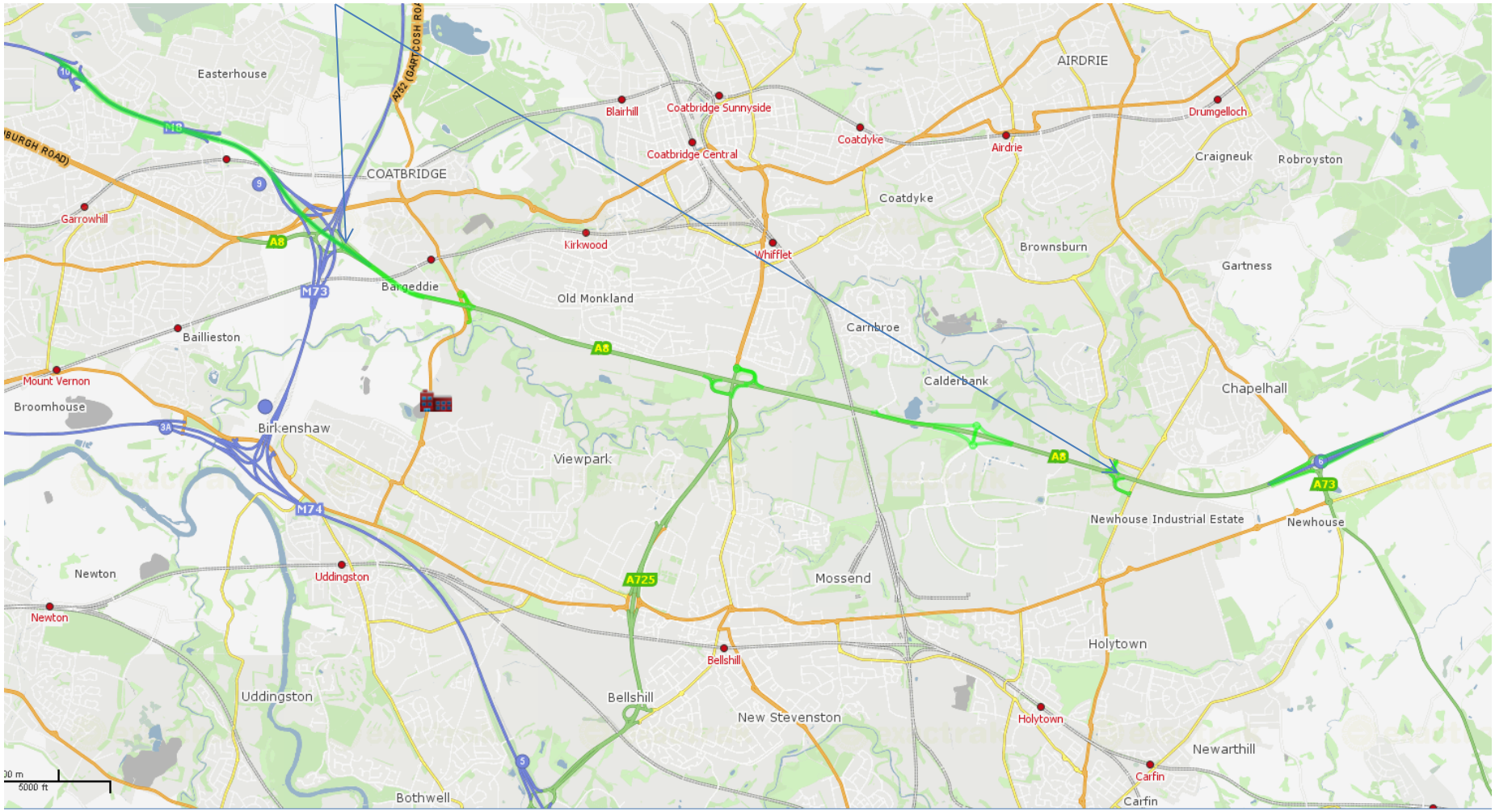
Patrol Route A2/B1



Patrol Route A3/B2



Location of Concrete Barrier



APPENDIX D

ANNEX WSP 1

NOT USED – See Appendices B & C

ANNEX WSP 2

PRECAUTIONARY SALTING ROUTES

Precautionary Salting Route 2

Route 2: M74 : 40G/M2 Precautionary			Vehicle Reg:		WV64 YHS	
Depot To Route (KM)		1	Time to Route (Mins)		1.27	
Route to Depot (KM)		4.1	Gritting Speed (KM/HR)		60	
Route Length (KM)		87.2	Route Treated Length (KM)		45.8	
Route Time (Mins)		78	Route Tonnage		11.2	
Route Average Width (M)		8	Route Average Speed (KM/HR)		66	
Action	Road	From	To	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
Travel	A752 Aitkenhead Road	Depot	A8 W/B Onslip	*1*	47	1.276595745
Travel	A8	A8 Aitkenhead Rd W/B Onslip	A8 Baillieston Rbt – M73 S/B Onslip	1.67	80	1.2525
Grit	M73	M73 W/B Baillieston Rbt Start of S/B Onslip	M73 S/B south of the Baillieston Onslip – after Bredisholm Road Overbridge - (requiring switch from Slip to M73 L1 – Spreading over the slip / High loop slip and hard shoulder)	0.673	47	0.859148936
Travel	M73	Switch over to L2 to allow access to M74		0.693	47	0.884680851
Grit	M73 – M74	M73 S/B From start of dedicated lanes to M74 N/B	Around M73 S/B link road to M74 N/B to end of link slip Treating L1, L2, H/S	1.3	47	1.659574468
Grit	M74	End of M73 S/B – M74 N/B link slip	M74 End of DBFO Unit N/B Treating L1 and H/S	1	47	1.276595745
Travel	M74	M74 N/B End of DBFO	M74 N/B Jct 3 Turn Around	2.5	90	1.666666667
Travel	M74	M74 Jct 3 S/B	M74 – S/B start of DBFO Unit	2.3	90	1.533333333
GRIT	M74	M74 S/B Start of DBFO Unit	M74 S/B at End of M73 N/B Slip at Maryville L2 and L3	1.1	64	1.03125
GRIT	M74	M74 S/B at End of M73 N/B Slip at Maryville	M74 S/B at End of M73 S/B slip L1, L2, H/S	0.872	64	0.8175
GRIT	M74	M74 S/B end of M73 S/B slip	M74 S/B end of DBFO Unit L2, L3	6.8	64	6.375
Travel	M74	M74 S/B End of DBFO Unit	M74 S/B Jct 7 Turn Around	5.5	90	3.666666667
Travel	M74	M74 Jct 7 N/B	M74 N/B to start of DBFO Unit	4.7	90	3.133333333
Grit	M74	M74 N/B Start of DBFO Unit	M74 N/B – start of M73 N/B link road L2, L3	6.9	64	6.46875
Grit	M74	M74 N/B – start of M73 N/B Link Road	M74 N/B – M73 S/B Link road Merge L1, L2, H/S	1.1	64	1.03125
Grit	M74	M74 Main Carriageway N/B – at the M73 S/B Link Road Merge	M74 main carriageway N/B – End of DBFO Unit L2, L3	1.4	64	1.3125
Travel	M74	End of DBFO Unit N/B	Jct 3	2	90	1.333333333
Travel	M74	M74 Jct 3 S/B	M74 S/B Start of DBFO Unit	2.3	90	1.533333333
Grit	M74	M74 S/B Start of DBFO Unit	M74 S/B – M73 N/B slip L1 & H/S	1.1	64	1.03125
Grit	M74-M73	M74 S/B – M73 N/B link road	M73 N/B to first Gantry on M73 L1, H/S	0.763	64	0.7153125
Travel	M73	M73 N/B from Gantry	M73 N/B Baillieston Offslip Turn Around	2.4	90	1.6
Travel	M73	M73 S/B from Baillieston Interchange	M73 S/B – Keep Left to M74 S/B	0.688	90	0.458666667
Grit	M73	M73 S/B at M74 N/B S/B splitter	M73 Link to M74 S/B - L1, L2, H/S (various spreader changes at this point to cover width)	2.05	64	1.921875
Grit	M74	From M73 S/B to M74 S/B Link	M74 S/B Jct 6 (DBFO Boundary L1, HS)	6.7	64	6.28125
Travel	M74	Jct 6 offslip	A723 – Hamilton Turn at Rbt	1.65	48	2.0625
Travel	A723	Hamilton Rbt	M74 N/B Jct 6 Onslip	1.02	48	1.275
Grit	M74	M74 N/B DBFO Boundary	M74 N/B – M73 Maryville N/B Slip H/S & L1	7.09	64	6.646875
Grit	M74	M74 N/B Loop to M73 N/B	M73 N/B to where M74 S/B –M74N/B merge L1, L2, HS	0.663	64	0.6215625
Grit	M73	M74 N/B / S/B Merge	M73 N/B - Keeping left - second Gantry L2 & L3	0.841	64	0.7884375
Travel	M73	Second Gantry	M73 N/B Baillieson Interchange Turn Around	1.7	90	1.133333333
Travel	M73	Baillieston Interchange S/B	M74 Daldowie Offslip	3.1	90	2.066666667
Grit	M74	M74 Daldowie N/B Onslip	M74 End of Daldowie N/B Onslip L1, L2, H/S (various spreadrates)	0.93	48	1.1625
Travel	M74	M74 End of DBFO	M74 Jct 3 – Turn around	2.1	90	1.4
Travel	M74	Jct 3	M74 start of M74 jct 3a onslip S/B	2.3	90	1.533333333
Grit	M74	Start of Jct 3a S/B Onslip	End of Jct 3a S/B Onslip	0.656	64	0.615
Grit	Daldowie overbridge	End of Jct 3a S/B Onslip	Circle rbt, treat overbridge, circle rbt,	0.333	47	0.425106383
Grit	Daldowie OverBridge	End of Jct 3a S//B Onslip	Circle Rbt,	0.075	47	0.095744681
Grit	Daldowie OverBridge	Jct 3a S/B Offslip	Jct 3a N/B Offslip rbt	0.085	47	0.108510638
Grit	Daldowie Jct 3a S/B Offslip Rbt	Daldowie Jct 3a S/B Offslip Rbt	Daldowie Jct 3a S/B Offslip Rbt	0.075	47	0.095744681
Grit	Daldowie Rd	Daldowie Jct 3a S/B Offslip Rbt	Daldowie Jct 3a N/B Offslip rbt	0.187	47	0.238723404
Grit	A721 Hamilton Rd	Daldowie Rd Rbt	Daldowie Rd Rbt– circling the rbt	0.085	47	0.108510638
Grit	A721	A721 / A74 / Daldowie Rd rbt	Old Edinburgh Road Rbt	1.38	47	1.761702128
Grit	A721	Old Edinburgh Road Rbt	Daldowie Rd rbt	1.27	47	1.621276596
Grit	Daldowie rd	Daldowie Rd / A74 Rbt	M74 Jct 3a S/B Offslip Rbt	0.07	47	0.089361702
Travel	A721	Turn around at M74 Jct 3a S/B Offslip Rbt	Tannochside Depot	4.1	50	4.92

Precautionary Salting Route 3

Route 3: M73 : 40G/M2 Precautionary			Vehicle Reg:		WV64 YHT	
Depot To Route (KM)		3.45	Time to Route (Mins)		4.4	
Route to Depot (KM)		6.2	Gritting Speed (KM/HR)		60	
Route Length (KM)		79	Route Treated Length (KM)		36.5	
Route Time (Mins)		76	Route Tonnage		7.2	
Route Average Width (M)		8	Route Average Speed (KM/HR)		63	
Action	Road	From	To	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
Travel	A752 – Old Edinburgh Road – A721	Depot	A721 slip to M73 N/B	3.45	47	4.4043
GRIT	A721 slip to M73 N/B slip only	A721 slip	M73 N/B (stop spreading at the A721 bridge)	0.296	60	0.296
Travel	M73	Move to L2 prior to M8 diverge		0.234	60	0.234
GRIT	M73	M73 N/B at start of M8 / M73 Diverge	M73 N/B at the DBFO boundary (prior to M80 DBFO) Treating L1, L2, and H/S as required	9.1	64	8.5313
Travel	M73	Take Jct 3 offslip	Turn around at Mollinsburn	1.45	47	1.8511
Travel	M73	M80 S/B	M73 S/B DBFO Boundary	1.1	90	0.7333
GRIT	M73	M73 S/B DBFO Boundary	M73 S/B at M74 N/B S/B Split	8.8	64	8.25
Grit	M73	M73 S/B to M74 S/B slip	M73 - M74 Daldowie offslip Treating L1, L2, H/S as required	1.5	64	1.4063
Travel	Daldowie, A721	From M74 Daldowie N/B Offslip	Turn right onto A721, turn right onto M73 N/B slip	0.832	60	0.832
Grit	M73	M73 N/B Onslip	M73 N/B Onslip L1, HS	0.057	47	0.0728
Travel	M73	M73 N/B Onslip at Daldowie	M73 N/B Baillieston Offslip	2	90	1.3333
Grit	M73	M73 Baillieston N/B Offslip	M73 Baillieston N/B Offslip	0.368	47	0.4698
Travel	M73	Baillieston N/B Offslip	Baillieston N/B Onslip	0.198	47	0.2528
Grit	M73	Baillieston n/B Onslip	Baillieston N/B Onslip	0.73	47	0.9319
Travel	M73	Baillieston N/B Onslip	Jct 2a N/B Offslip	3.12	90	2.08
Grit	M73	Jct 2a N/B Offslip	Jct 2 offslip, circle rbt, treat overbridge, circle second rbt, treat other direction of overbridge	1.36	47	1.7362
Grit	M73	M73 Jct 2a N/B Onslip	M73 Jct 2a N/B Onslip	0.572	47	0.7302
Travel	M73	M73 Jct 2a N/B Onslip	M73 Jct 3 offslip Turn around	3.55	80	2.6625
Travel	M73	M73 S/B Jct 3 onslip	M73 S/B Jct 2a offslip	3.4	90	2.2667
Grit	M73	M73 S/B Jct 2a offslip	M73 Jct 2a offslip	0.395	47	0.5043
Travel	M73	Jct 2a S/B offslip	Jct 2a S/B onslip	0.071	47	0.0906
Grit	M73	Jct 2a S/B onslip	Jct 2a S/B onslip	0.613	47	0.7826
Travel	M73	Jct 2a S/B onslip	Baillieston rbt S/B Offslip	3.25	90	2.1667
Grit	M73	Baillieston Rbt S/B Offslip	Baillieston Rbt S/B Offslip	0.533	47	0.6804
Travel	M73	Baillieston Rbt	Daldowie Offslip	3.3	90	2.2
Travel	Daldowie / A721	Daldowie Offslip	Turn right onto A721, head onto M73 N/B onslip at Maryville	0.82	47	1.0468
Travel	M73	M73 Jct 1	M73 / M8 Diverge	0.503	90	0.3353
Grit	M73	From M73 M8 Diverge	M8 W/B DBFO Boundary Treating L1, L2, L3 as required	5.5	64	5.1563
Travel	M8	M8 W/B DBFO Boundary	M8 W/B Jct 11 Turn Around	1.35	70	1.1571
Travel	M8	M8 E/B Jct 11	M8 E/B DBFO Boundary	1.5	90	1
Grit	M8	M8 E/B DBFO Boundary	M8 E/B Jct 9 H/S, L1	1.6	64	1.5
Grit	M8	M8 E/B Jct 9 Offslip	M8 E/B Jct 9 Offslip	0.458	47	0.5847
Grit	Easterhouse Rd	From E/B Jct 9 offslip	Over Easterhouse road, turning right to first rbt, turning back, retreating easterhouse rd overbridge and turning round	0.5	47	0.6383
Travel	Easterhouse Road	From Easterhouse Rd	Jct 9 W/B Onslip	0.288	47	0.3677
Grit	M8	Jct 9 W/B Onslip	Jct 9 W/B Onslip	0.506	47	0.646
Travel	M8	Jct 9 W/B Onslip	Jct 10 W/B Offslip	0.774	90	0.516
Grit	M8	Jct 10 W/B Offslip	Jct 10 W/B Offslip	0.332	47	0.4238
Travel	Westerhouse Road	Turn around	Turn Around at Queenslie Travel to Jct 10 W/B Onslip	1.01	47	1.2894
Grit	M8	Jct 10 W/B Onslip	Jct 10 W/B Onslip	0.558	47	0.7123
Travel	M8	Jct 10 W/B Onslip	Jct 11 W/B Offslip Turn Around	1.3	60	1.3
Travel	M8	Jct 11 E/B Onslip	Jct 10 E/B Offslip	1.5	90	1
Travel	M8	Jct 10 E/B Offslip	Jct 10 E/B Offslip	0.56	47	0.7149
Grit	M8	Jct 10 E/B Onslip	Jct E/B 10 Onslip	0.476	47	0.6077
Travel	M8	Jct 10 E/B onslip	M8 Main carriageway at Jct 9	0.751	90	0.5007
Grit	M8	Jct 9 Main Carriageway E/B	High loop L1, H/S	0.88	64	0.825
Grit	M8 / M73	High Loop	After North Calder Water Bridge L1, L2, H/S	2.17	64	2.0344
Travel	M73, M74, A721, Old Edinburgh Road	Travel from end of route via daldowie, A721, Old Edinburgh Road, Aitkenhead Road	Tannochside depot	6.2	47	7.9149

Precautionary Salting Route 4

Route 4: A725 : 40G/M2 Precautionary			Vehicle Reg:		WV64 YHU	
Depot To Route (KM)		3.04	Time to Route (Mins)		3.88	
Route to Depot (KM)		4.2	Gritting Speed (KM/HR)		47	
Route Length (KM)		72	Route Treated Length (KM)		23.9	
Route Time (Mins)		81	Route Tonnage		4.041	
Route Average Width (M)		8	Route Average Speed (KM/HR)		50	
Action	Road	From	To	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
Travel	Depot-A721 S/B Slip	Tannochside Depot	A721 S/B Slip	3.04	47	3.88
GRIT	M74 - A721 S/B Slip	M74 - A721 S/B Onslip	Blantyre Farm Road Overbridge	0.609	47	0.78
Travel	M74	Blantyre Farm Road Overbridge	M74 Bothwell Services	2.31	64	2.17
GRIT	M74 S/B Bothwell Services	Bothwell Services off slip	Bothwell Services Off slip	0.394	47	0.50
Travel	Bothwell Service Station	Bothwell Services Off slip	Bothwell Services Onslip	0.634	64	0.59
Grit	M74 S/B Bothwell Service	M74 S/B Bothwell Service Onslip	M74 S/B Bothwell Service Onslip	0.526	47	0.67
Travel	M74 S/B	M74 S/B Bothwell Services Onslip	M74 Junction 5 off slip	0.326	64	0.31
GRIT	M74 Junction 5 off slip S/B	M74Jct 5 Offslip	M74 Jct 5 Offslip	0.492	47	0.63
GRIT	A725	From M74 Jct 5 Offslip heading N/B	A725 / A8 Shawhead E/B Rbt (Circling Rbt)	5.15	47	6.57
GRIT	A725	A725 / A8 Shawhead E/B Rbt Headin N/B	Whifflet/Kirkshaws Jct	0.1	47	0.13
Travel	A725	A725 Whifflet Junction	Dundyvan Road Rbt	1.25	50	1.50
Travel	A725	Dundyvan Road Rbt	Whifflet/Kirkshaws Jct	1.25	50	1.50
GRIT	A725	Kirkshaws /Whifflet St Jct	A725 Raith Interchange	5	47	6.38
Grit	A725	Raith Interchange – Circling Rbt	Raith Interchange – Circling Rbt	0.83	47	1.06
GRIT	A725	A725 Raith Rbt	A725 End of DBFO Unit	0.6	47	0.77
Travel	A725	End of DBFO Unit	Blantyre – Turn around and travel N/B to A725 DBFO Boundary N/B	3.1	64	2.91
Grit	A725	DBFO Boundary N/B	Turn Left Onto B7071 to Hamilton Rd / Bothwell Rd Rbt	0.86	47	1.10
Grit	B7071 Bellshill Rd	Circle the Rbt and treat B7071 from Bothwell Rd / Hamilton Rd Rbt	M74 Junction 5 new N/B on slip to End	0.95	47	1.21
Travel	M74	End of M74 Jct 5 new N/B Onslip	M74 N/B Maryville Dedicated lane to M73	3.45	80	2.59
Grit	M74	M74 N/B – M73 N/B dedicated lane	M74 N/B – M73 N/B / M74 Jct 3a splitter	0.91	47	1.16
Grit	M74	M74 Jct 3a offslip	M74 Jct 3a / M73 S/B Merge point	0.281	47	0.36
Travel	M74	Jct 3a N/B Offslip	Daldowie Rd	1	50	1.20
Grit	M74 - A721 S/B Slip	Daldowie Road	A721/M74 S/B slip	0.19	47	0.24
Travel	M74 - A721 S/B Slip	A721/M74 S/B slip	M74 Junction 5 off slip S/B	4.375	80	3.28
Travel	A725	M74 Junction 5 off slip S/B	Orbiston N/B Offslip	1.15	50	1.38
Grit	A725 Orbiston	A725 Orbiston N/B Offslip	A725 Orbiston N/B Offslip	0.601	47	0.77
Travel	Hamilton Rd, Bellshill	Turn around at rbt	Turn around at rbt	0.067	50	0.08
GRIT	A725 Orbiston	A725 Orbiston N/B Onslip	A725 Orbiston N/B Onslip	0.607	47	0.77
Travel	A725	A725 Orbiston N/B Onslip	A725 Bellziehill N/B Offslip	0.71	50	0.85
GRIT	A725	A725 Bellziehill N/B Offslip	A725 Bellziehill N/B Offslip	0.216	47	0.28
Travel	A725	Bellziehill N/B Offslip	Bellziehill N/B Onslip	0.188	50	0.23
Grit	A725	Bellziehill N/B Onslip	Bellziehill N/B Onslip	0.348	47	0.44
Travel	A725	Bellziehill N/B Onslip	A725 Diamond N/B Offslip	0.161	50	0.19
GRIT	A725	Diamond N/B Offslip	Diamond N/B Offslip	0.248	47	0.32
Travel	James St	Turn right at jct	Cross James St Overbridge	0.231	48	0.29
Travel	A725	Diamond S/B Onslip	Bellziehill S/B Onslip	0.75	48	0.94
Travel	A725	Bellziehill S/B Offslip	Bellziehill N/B Onslip	0.422	48	0.53
Travel	A725	Bellziehill N/B Onslip	Strathclyde Business Park N/B Offslip	0.733	50	0.88

Grit	A725	Strathclyde Business Park N/B Onslip	Strathclyde Business Park N/B Onslip	0.288	47	0.37
Travel	Phoenix Cresc	A725 Offslip	First Rbt at Starling Way	0.391	48	0.49
Travel	Phoenix Cresc	First Rbt at Starling Way	A725 N/B Onslip – Strathclyde business park	0.325	48	0.41
Grit	A725	A725 Strathclyde business Park N/B Onslip	A725 Strathclyde business park N/B Onslip	0.271	47	0.35
Travel	A725	A725 Strathclyde business park N/B Onslip	A725 / A8 Shawhead Rbt	1.24	50	1.49
Travel	A725	A725 / A8 Shawhead Rbt	A725 Diamond S/B Offslip	1.68	50	2.02
Grit	A725	A725 Diamond S/B Offslip	A725 Diamond S/B Offslip	0.23	47	0.29
Travel	James St	Cross James St Rbt	Cross James St Rbt	0.045	50	0.05
Grit	A725	A725 Diamond S/B Onslip	A725 Diamond S/B Onslip	0.263	47	0.34
Travel	A725	A725 Diamond S/B Onslip	A725 Bellziehill S/B Offslip	0.178	50	0.21
Grit	A725	A725 Bellziehill S/B Offslip	A725 Bellziehill S/B Offslip	0.317	47	0.40
Travel	A725	Cross Bellziehill Rbt	Cross Bellziehill Rbt	0.16	50	0.19
Grit	A725	A725 Bellziehill S/B Onslip	A725 Bellziehill S/B Onslip	0.3	47	0.38
Travel	A725	A725 Bellziehill S/B Onslip	A725 Orbiston S/B Offslip	0.457	50	0.55
Grit	A725	A725 Orbiston S/B Offslip	A725 Orbiston S/B Offslip	0.243	47	0.31
Travel	A725	Turn around at rbt	Travel to Orbiston S/B Onslip	0.3	50	0.36
Grit	A725	A725 Orbiston S/B Onslip	A725 Orbiston S/B Onslip	0.2	47	0.26
Travel	A725	A725 Orbiston S/B Onslip	A725 Raith Interchange	0.928	50	1.11
Travel	A725	Raith Interchange	M74 Jct 5 S/B Onslip	0.12	50	0.14
Grit	M74	M74 Jct 5 S/B Onslip	M74 Jct 5 S/B Onslip	0.58	47	0.74
Travel	M74	Jct 5 S/B Onslip	M74 Jct 6 S/B Offslip	2	80	1.50
Travel	M74	Hamilton Jct	Motherwell Rd rbt	1.5	80	1.13
Travel	Motherwell Rd, Hamilton	Turn around at rbt	Head N/B to M74 Jct 6 onslip	0.348	50	0.42
Travel	M74	M74 Jct 6 Onslip	M74 Hamilton Services	1.5	80	1.13
Grit	M74	M74 Hamilton Services Off and Onslip	M74 Hamilton Services Off and Onslip	1	47	1.28
Travel	M74	Hamilton Services Onslip	M74 Jct 5 N/B Offslip	0.782	80	0.59
Grit	M74	Jct 5 N/B Offslip	M74 Jct 5 N/B Offslip	0.457	47	0.58
Travel	Raith Interchange	Cross the Rbt	Cross the rbt	0.16	50	0.19
Grit	B7071 Bellshill Rd	Treat B7071 from Raith Rbt to	Junction with A725	0.25	50	0.30
Travel	B7071 Bellshill Rd	Junction with A725	Bothwell Rd / Hamilton Rd Rbt	0.4	50	0.48
Travel	B7071 Bellshill Rd	Bothwell Rd / Hamilton Rd Rbt	Raith Roundabout	0.65	50	0.78
Grit	M74	M74 Jct 5 N/B Onslip	M74 Jct 5 N/B Onslip	0.612	47	0.78
Travel	M74	M74 Jct 5 N/B Onslip	M74 N/B Maryville Dedicated lane to M73	3.45	50	4.14
Travel	M74	M74 N/B – M73 N/B dedicated lane	M74 N/B – M73 N/B / M74 Jct 3a splitter	0.91	47	1.16
Travel	M74	M74 Jct 3a offslip	M74 Jct 3a / M73 S/B Merge point	0.281	47	0.36
Travel	M74	Jct 3a N/B Offslip	Daldowie Rd	1	50	1.20
	End of Route					
Travel	A721 / Old edinburgh Road / Aitkenhead Rd	Back to Depot	Back To Depot	4.2	50	5.04

Precautionary Salting Route 5

Route 5: A8 / M8 Slips : 40G/M2 Precautionary			Vehicle Reg:		WV64 YWR	
Depot To Route (KM)		1	Time to Route (Mins)		1.27	
Route to Depot (KM)		1	Gritting Speed (KM/HR)		53	
Route Length (KM)		66	Route Treated Length (KM)		23.5	
Route Time (Mins)		60	Route Tonnage		3.5	
Route Average Width (M)		6	Route Average Speed (KM/HR)		65	
Action	Road	From	To	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
Travel	Aitkenhead Road	Tannochside Debot	A8 A752 Aitkenhead Road W/B Onslip	1	47	1.2765957
GRIT	A8 Glasgow and Edinburgh Road	A8 Aitkenhead Road W/B Onslip from A752 Jct	A8 end of Aitkenhead Road W/B onslip	0.493	47	0.6293617
Travel	A8	A8 From End of Aitkenhead Road W/B Onslip	A8 Cutty Sark Rail Bridge	0.538	80	0.4035
GRIT	A8 / M8	A8 W/B Cutty Sark Rail Bridge L1, L2, H/S	M8 W/B – M73 N/B merge	1.18	64	1.10625
Grit	M8	M8 W/B – M73 N/B Merge L2, L3	M8 DBFO Unit Boundary L2, L3	3.1	64	2.90625
Travel	M8	M8 DBFO Unit Boundary	M8 Jct 11 W/B	1.34	90	0.8933333
Travel	M8	M8 Jct 11 E/B	M8 DBFO E/B Unit Boundary	1.53	90	1.02
GRIT	M8	M8 DBFO E/B Unit Boundary L2, L3	M8 DBFO E/B at M73 / A89 Slip road L2, L3	2.62	64	2.45625
Grit	M8	M8 DBFO E/B at M73 / A89 Slip Road L1. L2, HS	A8 E/B Baillieston Rbt Onslip L1, L2, HS	1.47	64	1.378125
Travel	A8	A8 E/B End of Baillieston Rbt Onslip	A8 Start of A752 E/B Showcase offslip	0.743	80	0.55725
GRIT	A8	A8 - A752 E/B Showcase Offslip	A8 - A752 E/B end of Showcase Onslip Circle the showcase rbt	0.97	47	1.2382979
Travel	A8	A8 E/B End of Showcase Onslip	A8 E/B Start of A725 Shawhead offslip	2.3	80	1.725
GRIT	A8	A8 E/B start of Shawhead Offslip	A8 E/B end of Shawhead Onslip	1.36	47	1.7361702
Travel	A8	A8 E/B End of Shawhead onslip	A8 E/B Start of Carnbroe Offslip	0.632	80	0.474
GRIT	A8	A8 E/B Start of Carnbroe Offslip	A8 E/B Carnbroe Offslip at speed derestriction sign	0.242	47	0.3089362
Travel	Carnbroe Road	Speed derestriction sign N/B	Speed derestriction sign S/B Travel to first rbt and turn around to Speed derestriction sign S/B	1.5	47	1.9148936
GRIT	A8	Carnbroe S/B Jct at speed deresticton sign	End of Eurocentral E/B offslip Combined on / off slip	1.1	47	1.4042553
Grit	Townhead Avenue	End of Eurocentral E/B Offslip	Dakota / Townhead / A8 W/B Rbt Circle both Rbts	0.601	47	0.767234
GRIT	Townhead Avenue	Dakota / Townhead / A8 W/B Rbt	Eurocentral E/B Offslip / Onslip Rbt	0.156	47	0.1991489
Travel	Townhead Avenue	Eurocentral E/B offslip Rbt	Eurocentral Offslip	0.093	47	0.1187234
GRIT	A8	A8 E/B Top of Eurocentral Onslip	A8 E/B End of Eurocentral onslip	0.697	47	0.8897872
Travel	A8	A8 End of Eurocentral E/B Onslip	A8 Start of Chapelhall Offslip	0.395	80	0.29625
GRIT	A8	A8 Start of Chapelhall E/B Offslip	A8 End of Chapelhall E/B Offslip	0.436	47	0.5565957
Grit	Chapelhall Rbt	A8 End of Chapelhall E/B Offslip	Circle new Chapelhall Rbt	0.734	47	0.9370213
Grit	Chapelhall Rbt	New Chapelhall Rbt	To A8 Chapelhall E/B Onslip	0.737	47	0.9408511
Grit	A8	Chapelhall Start of E/B Onslip	Chapelhall End of E/B Onslip	0.478	47	0.6102128
Travel	A8	A8 Chapelhall End of E/B Onslip	A8 Newhouse Start of E/B Offslip	1.11	80	0.8325
Grit	A8	A8 Newhouse start of E/B Offslip	A8 Newhouse End of E/B Offslip	0.588	47	0.7506383
Travel	Bellside Road	A8 end of Newhouse E/B Offslip	M8 start of Newhouse E/B Onslip	0.119	47	0.1519149
Grit	M8	M8 Start of Newhouse E/B Onslip	M8 End of Newhouse E/B Onslip	0.842	47	1.0748936
Travel	M8	M8 End of Newhouse E/B Onslip	M8 Jct 5 E/B Offslip	7.5	90	5
Travel	M8	M8 Jct 5 W/B Onslip	M8 Jct 6 W/B Offslip	7.64	90	5.0933333
Grit	M8	M8 Jct 6 start of W/B Offslip	M8 Jct 6 End of W/B Offslip	0.5	47	0.6382979

Travel	Bellside Road	M8 Jct 6 end of W/B Offslip	A8 Jct 6 start of W/B Onslip	0.13	47	0.1659574
Grit	A8	A8 Jct 6 start of W/B Onslip	A8 Jct 6 end of W/B Onslip	0.54	47	0.6893617
Travel	A8	A8 Jct 6 end of W/B Onslip	A8 W/B Start of Chapelhall Offslip	1.14	80	0.855
Grit	A8	A8 W/B Start of Tempoaray Chapelhall Offslip	A8 W/B End of Temporary Chapelhall Offslip	0.46	47	0.587234
Grit	A8	A8 W/B Start of Tempoaray Chapelhall Onslip	A8 W/B End of Temporary Chapelhall Onslip	0.45	47	0.5744681
Travel	A8	A8 W/B End of Temporary Chapelhall Onslip	A8 W/B Start of Eurocentral Offslip	0.55	80	0.4125
Grit	A8	A8 W/B Start of Eurocentral Offslip	A8 W/B End of Eurocentral Offslip	0.581	47	0.7417021
Travel	A8	A8 W/B End of Eurocentral Offslip	Cross Rbt to start of W/B Eurocentral Onslip	0.07	47	0.0893617
Grit	A8	A8 Start of W/B Eurocentral Onslip	A8 end of W/B Eurocentral Onslip	0.672	47	0.8578723
Travel	A8	A8 End of W/B Eurocentral Onslip	A8 – start of A725 N/B Off Slip	1.43	80	1.0725
Grit	A8	A8 – start of A725 N/B Off Slip	A8 End of A725 N/B Off Slip Road	0.509	47	0.6497872
Travel	A725	End of A725 N/B Slip Road	A8 Shawhead E/B Onslip	0.352	64	0.33
Travel	A8	A8 Shawhead E/B Onslip	A8 Eurocentral E/B Offslip	2.5	80	1.875
Travel	A8	A8 Eurocentral E/B Offslip	A8 – Turn around at Eurocentral	0.357	64	0.3346875
Travel	A8	A8 Eurocentral W/B Onslip	A8 A725 start of S/B Slip	2.45	80	1.8375
Grit	A8	A8 A725 start of S/B Slip	End of A725 / North Road Jct	0.558	47	0.7123404
Travel	A725	A725 S/B North Rd Jct	A725 S/B Diamond offslip	1.43	64	1.340625
Travel	A725	A725 S/B Diamond Offslip	A725 N/B Diamond Onslip	0.236	64	0.22125
Travel	A725	A725 N/B Diamond onslip	A725 Shawhead A8 W/B Onslip	1.88	64	1.7625
Grit	A8	A8 – from start of A725 W/B Onslip	A8 To End of A725 W/B Onslip	0.662	47	0.8451064
Travel	A8	A8 from end of A725 W/B Onslip	A8 to Start of Aitkenhead Road W/B Offslip	1.87	80	1.4025
Grit	A8	A8 Start of Aitkenhead Road W/B Offslip	A8 End of Aitkenhead Road W/B Offslip	0.462	47	0.5897872
	End of Route					
Travel	A752 Aitkenhead Road	A752 Aitkenhead Road	Tannochside Depot	1	47	1.2765957

Precautionary Salting Route 6

Route 6: A8 / M8 Main C/Way : 40G/M2 Precautionary			Vehicle Reg:		VX64 JMU	
Depot To Route (KM)	2.62		Time to Route (Mins)		3.3	
Route to Depot (KM)	3.1		Gritting Speed (KM/HR)		61	
Route Length (KM)	59		Route Treated Length (KM)		32.5	
Route Time (Mins)	53		Route Tonnage		9.7	
Route Average Width (M)	8		Route Average Speed (KM/HR)		65	
Action	Road	From	To	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
Travel	Tannochside Depot	Depot	Baillieston RBT	2.62	47	3.344681
GRIT	A8 - Baillieston RBT	A8 - Baillieston RBT – Circle Rbt	A8 Baillieston Rbt E/B Onslip	0.78	47	0.995745
Grit	A8	Baillieston Rbt E/B Onslip	A8 Jct 6 (end of A8) all lanes and hard shoulder	9.8	64	9.1875
GRIT	M8	M8 (from End of A8)	M8 DBFO Boundary All lanes and hard shoulder	2.4	64	2.25
Travel	M8	End of DBFO Boundary	M8 Jct 5	7	90	4.666667
Travel	M8	M8 Jct 5 W/B Onslip	M8 DBFO Unit Boundary	6.8	90	4.533333
Grit	M8	M8 DBFO Unit Boundary W/B	A8 (End of M8) All lanes and hard shoulder	1.7	64	1.59375
Grit	A8	A8 J6 (End of M8)	Baillieston Roundabout W/B Offslip	9.5	64	8.90625
Grit	A8	Baillieston Rbt W/B Offslip	Baillieston Rbt W/B Offslip	0.308	47	0.393191
Travel	A8	Cross Baillieston Rbt	Cross Baillieston Rbt	0.291	47	0.371489
Grit	A8	Baillieston Rbt W/B	Swinton Rbt	0.31	64	0.290625
Grit	A8	Swinton Rbt - Circle Rbt	Baillieston Traffic Signals	0.88	64	0.825
Grit	A8	Baillieston Traffic Signals	Swinton Rbt	0.34	64	0.31875
Grit	A89 Coatbridge Rd	Swinton Rbt	Langmuir Road Rbt - (Circle New A8 Rbt if open)	1.72	64	1.6125
Grit	A89 Coatbridge Road	Langmuir Road Rbt	M8 Onslip	0.806	47	1.028936
Grit	M8	Bargeddie W/B Onslip	End of Bargeddie W/B Onslip	1.23	64	1.153125
Travel	M8	Bargeddie W/B Onslip	M8 Jct 10	1.8	90	1.2
Travel	M8	M8 Jct 10 – Turn Around	M8 Jct 10 E/B	0.394	47	0.502979
Travel	M8	Jct 10 E/B	M73 / A89 Exit	2.1	90	1.4
Grit	A89	M8 - A89 Bargeddie E/B Offslip	End of Bargeddie E/B Offslip	1.2	47	1.531915
Travel	A89	A89 End of Bargeddie E/B Offslip	A89 Langmuir Road	0.468	47	0.597447
Travel	A89	A89 Langmuir Road	A89 / M8 splitter W/B	0.817	47	1.042979
Grit	A89	A89 / M8 Splitter W/B	Swinton Rbt	0.854	64	0.800625
Grit	A8	Swinton Rbt	A8 Baillieston Rbt	0.778	64	0.729375
Travel	A8	Baillieston Rbt E/B	A8 Showcase Offslip E/B	1.8	80	1.35
Travel	Aitkenhead Road	A8 Showcase	Depot	1.3	47	1.659574

ANNEX WSP 3

SALT STOCK LEVELS

Table 1: Minimum Salt Stock Levels at Start of Season 2016-2017

Minimum Salt Stock Level (tonnes)
2,700

De-icing Material (i.e. Dry salt/ABP)	Location	Type (barn/open)	Min (tonnes) 1st Oct
Dry Salt	Tannochside	Barn/Covered	300
Dry Salt	Wm Hamilton & Sons, Larkhall.	Barn	2,400

Table 1A –Brine Production and Storage

Location	Type (saturator/storage only)	Capacity (L)	Min (L)
Tannochside	Saturator/store	20,000	10,000
Tannochside	Store	10,000	0

Table 1B –Alternative De-Icing Materials Storage

Location	Material	Capacity (L)	Min (L)
Tannochside	Safecote	10,000	3,000

ANNEX WSP 4

NOT USED

ANNEX WSP 5

WINTER SERVICE PLANT

Table 1: Frontline Winter Service Plant permanently available and located in the O&M Works Site for the Winter Service for carriageways

Type of Winter Service Plant	Depot Location	Vehicle Capacity	Route Details	Vehicle Registration	Plant Use* (i), (ii) (iii)
8 x 4 Spreader	Tannochside	12m^3	Precautionary treatment Route 2	WV64 YHS	(i), (ii) & (iii)
8 x 4 Spreader	Tannochside	12m^3	Precautionary treatment route 3	WV64 YHT	(i), (ii) & (iii)
8 x 4 Spreader	Tannochside	12m^3	Precautionary treatment route 4	WV64 YHU	(i), (ii) & (iii)
8 x 4 Spreader	Tannochside	12m^3	Precautionary treatment route 5	WV64 YWR	(i), (ii) & (iii)
6 x 4 Spreader	Tannochside	9m3	Precautionary treatment route 6	VX64 JMU	(i), (ii) & (iii)
4 x 2 Spreader	Tannochside	6m^3	Patrol route A1	BG14 TVF	(ii) &(iii)
4 x 2 Spreader	Tannochside	6m^3	Patrol route A2	BL14 VKT	(ii) &(iii)
8 x 4 Spreader	Tannochside	12m^3	Patrol route A3	WV64 YHR	(ii) &(iii)

Please refer to Annex WSP 2 for precautionary treatment route details
Please refer to Appendix B for patrol route details

Key:

(i) precautionary treatment;

(ii) snow clearance up to 100 millimetres; and

(iii) Arrangements to comply with Section 3 of this Part 2 of these O&M Works Requirements.

Table 2: Frontline Winter Service Plant permanently available and located in the O&M Works Site for the Winter Service for non-motorised user facilities.

Type of Winter Service Plant	Registration Number	Depot Location	Vehicle Capacity	Number of Vehicles	Plant Use
Multi-Hog tractor with sprayer,	DK14 HHW	Tannochside	250 litre 1 tonne	1	(ii)

mechanical spreader, snowplough and snow blower					

Key:

(i) precautionary treatment;

(ii) Snow Clearance

Table 3: Reserve Winter Service Plant permanently available and located in the O&M Works Site for Winter Service for carriageways, non-motorised user facilities

Type of Winter Service Plant	Registration Numbers	Depot Location	Vehicle Capacity	Number of Vehicles	Plant Use
6 x 4 Spreader	VX57 LCO	Tannochside	$12m^3$	1	(i)
Transit 3.5t pick up, 2 men & manual spreader	LN14 EHV LN14 EKR	Tannochside	1.5 tonnes	2	(ii)

Key:

(i) carriageways; and

(ii) footways, footbridges and cycle facilities

Table 4: Additional Winter Service Plant provided through contingency arrangements with another party, the detail of the arrangement in respect of mobilisation.

Type of Winter Service Plant	Registration Number	Depot Location and Operator	Vehicle Capacity	Number of Vehicles	Provider name and mobilisation arrangement details where third party provider
		Amey Public Services,	$9m^3$	1	

6 x 4 Spreader 290 HP JCB Fast-Trac with USA quick attach 1080rm 9ft Snow Cutter / Blower	YG61 NNJ SD15 JVJ	Bargeddie G69 7RW Grant Ritchie Contracting, Gorebridge EH23 4NL		1	24/7 on call: 07968 320011

Table 5: Loading Winter Service Plant permanently available and located in the O&M Works Site.

Type of Winter Service Plant	Registration Number	Depot Location and Operator	Vehicle Capacity	Number of Vehicles
JCB Telehandler	MK16 DSZ	Tannochside	1 cub m	1

Table 6: The O&M Works Contractors Office and Depot Details.

Compound, Depot or Facility Name	Tannochside Depot
Owner	Leased
Postal Address	Amey Tannochside Depot 51 Aitkenhead Road Tannochside Uddingston Glasgow G71 5RG
Telephone Number	01698 730 280
Purpose	Central Office and Depot
Access Arrangements	Open 24/7 Direct access from Aitkenhead Road
Contact Details	Christopher Weir
Facilities	Full operational facilities

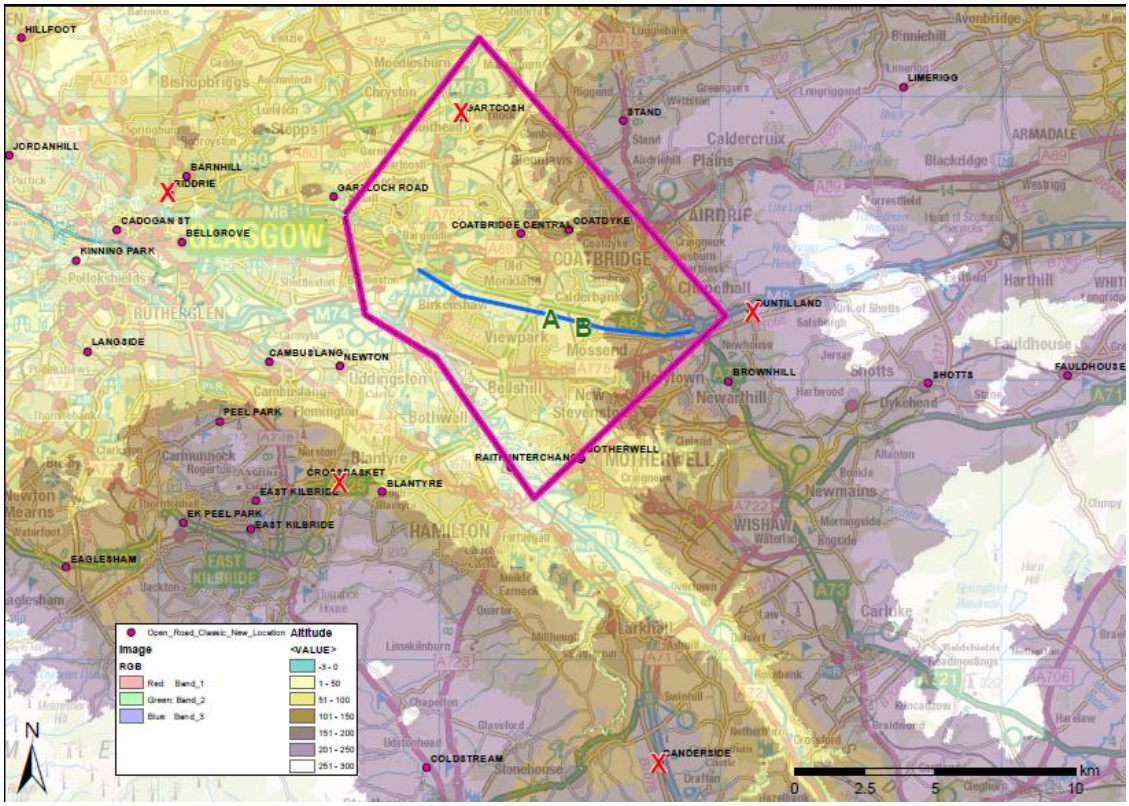
ANNEX WSP 6

LOCATION OF ICE SENSORS
&
WEATHER STATIONS

Table 1: Location of Ice Sensors

Ice Station Number	Route	Site Name	Findlay Irvine / Vaisala	Surface Type	Camera
1	M73	Gartcosh	Vaisala	SMA	None
2	M8	Riddrie	Findlay Irvine	HRA	None
3	M8	Duntilland	Vaisala	SMA	Bi-Directional
4	A725	Crossbaskets	Findlay Irvine	SMA	None
5	M74	Canderside	Vaisala	SMA	None

Note: Only sensor no.1 above situated on M73 Gartcosh is located within the O&M Works Site however sites 2, 3 & 4 are located nearby on the routes noted. All four listed above will be interrogated regularly and information from these will be used when determining the decision on treatment.



APPENDIX E

PRECAUTIONARY TREATMENT ROUTES

FOR

FOOTWAYS, FOOTBRIDGES AND CYCLEWAYS

No Category A Footway Sections Presently Within O&M Works Site.