

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 7 PART 8

SEVERE WEATHER SERVICES

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1. INTRODUCTION

1.1 General

- 1.1.1. This Part identifies the planning activities the Operating Company shall undertake in preparation for Incident Response Operations relating to Severe Weather events.
- 1.1.2. The Operating Company shall undertake planning activities for Severe Weather events relating to the Winter Service in accordance with the requirements of Schedule 7 Part 2.
- 1.1.3. The requirements of this Part shall be undertaken as part of the Incident Response Plan and Incident Response Operations stated in Schedule 7 Part 3.
- 1.1.4. The Operating Company shall include documented procedures in the Management System to deliver the requirements of this Part.

2. PLANNING ARRANGEMENTS FOR SEVERE WEATHER EVENTS

2.1 General

- 2.1.1 The Operating Company's planning activities for responding to Severe Weather events shall include the development and use of management plans, processes and systems. The Operating Company shall establish such arrangements in advance of a Severe Weather event occurring to enhance its Incident Response Operations and mitigation activities as stated in Schedule 7 Part 3.

2.2 Information Gathering and Impact Assessment

- 2.2.1 The Operating Company shall establish its arrangements for gathering and processing information on the key characteristics of any Severe Weather event that occurs or is predicted to occur within the Unit. Such information shall include the nature and severity of the Severe Weather event and its potential impact on the operation of the Unit.
- 2.2.2 The Operating Company shall procure the services of an expert weather forecasting service to assist it with the prediction and management of Severe Weather events. This expert weather forecasting service shall be operational seven days a week during Normal Working Hours to provide specific, timely and accurate weather forecasts and advance warnings of Severe Weather events predicted to occur within the Unit. Such information shall, as a minimum, be specific to the conditions of the Unit.
- 2.2.3 The expert weather forecasting service for Severe Weather events is in addition to the Winter Service weather forecasting requirements stated in Schedule 7 Part 2.
- 2.2.4 No later than 30 days prior to Commencement of Service Date 1, the Operating Company shall submit to the Director for written consent, details of its proposed expert weather forecasting service for Severe Weather events.

- 2.2.5 The Operating Company shall provide suitably trained designated personnel who are able to receive, continuously monitor and interpret information provided by its expert weather forecasting service for Severe Weather events. Such personnel shall be authorised to make key decisions on the implementation of the Incident Response Operations relating to Severe Weather events.

2.3 Liaison and Coordination

- 2.3.1 No later than 30 days prior to Commencement of Service Date 1, the Operating Company shall:

- (i) identify all Operational Partners that have involvement in dealing with Severe Weather events,
- (ii) agree the communication arrangements between itself, the Traffic Scotland Operations and Infrastructure Service Contractor and other relevant Operational Partners during a Severe Weather event, and
- (iii) ensure a mutual understanding of the roles and responsibilities of the Operating Company and the relevant Operational Partners during a Severe Weather event.

- 2.3.2 The Operating Company's procedures contained within the Management System shall include as a minimum:

- (i) details of all relevant Operational Partners,
- (ii) the arrangements for disseminating accurate, timely and relevant Severe Weather information to the Traffic Scotland Operations and Infrastructure Service Contractor and other Operational Partners,
- (iii) the communication arrangements between the Operating Company, the Traffic Scotland Operations and Infrastructure Service Contractor and other relevant Operational Partners to be followed during a Severe Weather event, and
- (iv) the roles and responsibilities of the Operating Company and all relevant Operational Partners for dealing with a Severe Weather event.

- 2.3.3 From Commencement of Service Date 1 until the Service End Date, the Operating Company shall attend regular meetings with all relevant Operational Partners to review and update the communication arrangements and enable the integration of communication systems and technology.

2.4 Information Management and Dissemination

- 2.4.1 The Operating Company shall establish and record within the Management System, the arrangements for managing and disseminating Severe Weather information to relevant Operational Partners during the implementation of the Incident Response Operations in accordance with the requirements of Schedule 7 Part 3.

3. SEVERE WEATHER MANAGEMENT PLANS

3.1 General

- 3.1.1 Severe Weather management plans include all of the procedures and plans defined in this Part.

- 3.1.2 The Operating Company shall be responsible for the production of Severe Weather management plans as a part of the Incident Response Plan as stated in Schedule 7 Part 3 and their submission to the Director for written consent.
- 3.1.3 The Operating Company shall manage and implement all Severe Weather management plans and related Incident Response Operations.
- 3.1.4 The Operating Company shall review and update all Severe Weather management plans including those at new Disruption Risk Sites at the same time as undertaking the review and update of the Incident Response Plan as stated in Schedule 7 Part 3. The Operating Company shall submit such plans to the Director for written consent.
- 3.1.5 All Severe Weather management plans shall contain details of the arrangements for Incident Response Operations and mitigation activities at the Disruption Risk Sites where Severe Weather has been identified as a cause of disruption. Such plans shall include actions for dealing with high winds, flooding and landslides as stated in this Part.
- 3.1.6 All Severe Weather management plans shall contain details of any Mutual Aid arrangements.
- 3.1.7 Severe Weather management plans shall form part of Operating Company's Disruption Risk Management Plan as stated in Schedule 7 Part 3.

3.2 Wind Management Plans – Unit Wide Considerations

- 3.2.1 The Operating Company shall develop wind management plans at Disruption Risk Sites where high winds have been identified as a cause, or potential cause, of disruption to the operation of the Unit.
- 3.2.2 The Operating Company shall ensure that all wind management plans:
 - (i) are produced in accordance with Transport Scotland's *High Winds Strategy and National Winds Management Guidelines*, and
 - (ii) take account of other relevant Operational Partners' wind management strategies.
- 3.2.3 Each wind management plan shall contain the arrangements for implementing Incident Response Operations and mitigation activities for any wind related Severe Weather event that occurs or is predicted to occur at the Disruption Risk Site.
- 3.2.4 The Operating Company's expert weather forecasting service for Severe Weather events shall provide real-time wind speed data at all sites subject to a wind management plan. Such data shall be made available to the Director and the Traffic Scotland Operations and Infrastructure Service Contractor.
- 3.2.5 The Operating Company shall review and update all wind management plans at the same time as undertaking the review and update of the Incident Response Plan as stated in Schedule 7 Part 3 and submit any proposed revisions to the Director for written consent.

3.3 Wind Management Plans for the Principal Crossings

- 3.3.1 The historical FETA wind management procedures for the Forth Road Bridge are listed in Schedule 5 Part 1.

- 3.3.2 In addition to the general provisions of this Part, the Operating Company shall produce and develop two wind management plans, one for Network 1 operations no later than 60 days prior to Commencement of Service Date 1 and a second plan for Network 2 operations no later than 60 days prior to the Commencement of Service Date 2. The Operating Company shall submit these wind management plans for the Director's written consent. The wind management plan for Network 2 shall also address all operational windspeed limits for diversionary use of the Forth Road Bridge in emergencies on Queensferry Crossing.
- 3.3.3 Following receipt of the Director's written consent the Operating Company shall provide a copy of each wind management plan to the Traffic Scotland Operations and Infrastructure Service Contractor no later than 15 days prior to Commencement of Service Date 1 for the version for Network 1 and no later than 15 days prior to Commencement of Service Date 2 for the version for Network 2 operation.
- 3.3.4 The wind management plans shall take into account as a minimum the following requirements:
- (i) procedural aspects for Network 1 developed using the historical FETA wind management procedures for the Forth Road Bridge,
 - (ii) ensure clear demarcation of responsibilities for action and communication between the Traffic Scotland Operations and Infrastructure Service Contractor, the police and the Operating Company,
 - (iii) liaison between the Operating Company and the police regarding their attendance at the Principal Crossings to implement traffic measures due to high winds,
 - (iv) notification of all relevant parties including the media with regard to closures of the Forth Road Bridge and or the Queensferry Crossing, their timing and the reasons for such closures.
 - (v) procedural aspects for the Queensferry Crossing shall take account of the effect of the Queensferry Crossing wind attenuation barriers on vehicle stability in high winds,
 - (vi) the outcome of Operating Company reviews, which shall evaluate threshold wind speeds including, as a minimum, consideration of observed effects on traffic, actual gust intensities and local wind acceleration effects due to the topologies surrounding the Principal Crossings and features on the Principal Crossings, in particular, buffeting effects caused by the Queensferry Crossing pylons, and the Forth Road Bridge towers.
 - (vii) where operational benefits can be derived, wind direction when setting wind speed action thresholds.
- 3.3.5 During the production of the wind management plans, the Operating Company shall undertake a risk assessment for closing the Forth Road Bridge to vehicles of all types and their diversion onto the Queensferry Crossing. The Operating Company shall also reassess the Forth Road Bridge wind speed closure thresholds for implementation after Commencement of Service Date 2. This risk assessment and threshold reassessment shall be undertaken and submitted to the Director for written consent no later than 30 days before Commencement of Service Date 2.

- 3.3.6 The Operating Company shall make decisions regarding traffic management measures using wind measurements from road level wind sensors situated on the relevant Structure.
- 3.3.7 The Operating Company shall develop and use the Queensferry Crossing Structural Health Monitoring System to assist in the analysis and reporting of wind events and effects in accordance with the wind management plan implemented after Commencement of Service Date 2.
- 3.3.8 Following Commencement of Service Date 2, the Operating Company shall observe the safety of traffic in windy conditions to identify any wind-sensitive stretches of road on the Queensferry Crossing and its approaches. If necessary, temporary localised controls on traffic speed shall be implemented immediately in wind conditions defined by the Operating Company until a permanent solution can be proposed by the Operating Company for the written consent of the Director.
- 3.3.9 Not later than 180 days after Commencement of Service Date 2 and not later than the first instance of 31st March following Commencement of Service Date 2, the Operating Company shall produce a report on traffic behaviour and safety on the Queensferry Crossing and its approaches in conditions of high winds which shall include credible observations gathered from road users and which shall be used in the further development of the wind management plan. The Operating Company shall submit the updated wind management plan to the Director for written consent.
- 3.3.10 The Operating Company shall review and update all wind management plans at the same time as undertaking the review and update of the Incident Response Plan as stated in Schedule 7 Part 3 and submit any proposed revisions to the Director for written consent.

3.4 Overhead Ice Hazard Management Procedure – Principal Crossings

- 3.4.1 The Operating Company shall develop procedures and proportionate responses to manage the safety of road users where the formation of ice on elements above deck level including cables and pylons could lead to the risk of this ice falling onto the bridge deck. Such procedures shall be documented within the Incident Response Plan as stated in Schedule 7 Part 3.

3.5 Flooding Management Plans

- 3.5.1 Subject to an Order, the Operating Company shall develop flooding management plans at Disruption Risk Sites where flooding has been identified as a cause, or potential cause, of disruption to the operation of the Unit.
- 3.5.2 Each flooding management plan shall detail arrangements for implementing the Incident Response Operations and mitigation activities for any flooding related Severe Weather event that occurs or is predicted to occur at the Disruption Risk Site.
- 3.5.3 The Operating Company shall use its expert weather forecasting service for Severe Weather events to assist in the planning and implementation of its programme for inspections and patrols of Disruption Risk Sites where flooding has been identified as a cause of the disruption. Such inspections and patrols shall be undertaken in accordance with the requirements of Schedule 7 Part 1.

- 3.5.4 The Operating Company shall review and update all flooding management plans at the same time as undertaking the review and update of the Incident Response Plan as stated in Schedule 7 Part 3 and submit any proposed revisions to the Director for consent.

3.6 Landslides Management Plans

- 3.6.1 The Operating Company shall review and update all landslide management plans at the same time as undertaking the review and update of the Incident Response Plan as stated in Schedule 7 Part 3 and submit any proposed revisions to the Director for consent.
- 3.6.2 When rainfall events which could initiate landslides are predicted, the Operating Company shall use its expert weather forecasting service to assist in the planning and execution of additional inspections and patrols in areas identified as being prone to landslides.
- 3.6.3 Subject to an Order, the Operating Company shall develop landslide management plans for new Disruption Risk Sites where landslides have been identified as a cause, or potential cause, of disruption to the operation of the Unit, including those identified in the Transport Scotland's *Landslide Study Report*. The Operating Company shall ensure all landslide management plans take account of other relevant Operational Partners' landslide management strategies.
- 3.6.4 Each landslide management plan shall detail arrangements for implementing the Operating Company's Incident Response Operations and mitigation activities for any landslide related Severe Weather event that occurs or is predicted to occur at the Disruption Risk Site.

4. INCIDENT RESPONSE OPERATIONS FOR SEVERE WEATHER EVENT

4.1 General

- 4.1.1 When the Operating Company becomes aware of a Severe Weather event occurring or predicted to occur within the Unit, it shall commence the Incident Response Operations in accordance with the requirements of Schedule 7 Part 3 and implement the arrangements stated in the relevant Severe Weather management plan.
- 4.1.2 The Operating Company's mitigation activities shall include short and long-term activities aimed at minimising or eliminating the vulnerability and exposure of the Unit and its users to the risks from the types of Severe Weather event detailed in paragraph 3 of this Part. The mitigation activities to be undertaken shall be stated in the relevant Severe Weather management plan. All mitigation activities shall be undertaken in accordance with the Operating Company's Disruption Risk Management Plan, which shall be prepared and maintained by the Operating Company in accordance with the Disruption Risk Manual as stated in Schedule 7 Part 3.

4.2 Post Incident Inspections for the Structures – Response Procedure

- 4.2.1 The Operating Company shall develop a response procedure to inspect parts of the Structures which are identified in the *Forth Road Bridge Engineering Manual* and the *Queensferry Crossing Inspection and Maintenance Manual* relevant to each

Structure as a part of the Severe Weather services plans. This procedure shall be submitted for the written consent of the Director no less than 30 days prior to:

- (i) Commencement of Service Date 1 for the Forth Road Bridge, and
- (ii) Commencement of Service Date 2 for the Queensferry Crossing.

4.2.2 Both the *Forth Road Bridge Engineering Manual* and the *Queensferry Crossing Inspection and Maintenance Manual* detail the types and locations of inspections that are required following Severe Weather events. Specified parts of the Forth Road Bridge and Queensferry Crossing shall be inspected by Special Inspections after high winds, extreme temperatures lightning strike and other Severe Weather events. For the Forth Road Bridge Special Inspections of all temporary works and the permanent bridge gantries shall be undertaken following high winds events when the gust speeds exceeds 65mph. Special Inspections of the Forth Road Bridge ,all temporary works and permanent bridge gantries shall be undertaken when the wind speeds exceed 80mph. Such inspections shall be carried out from the underdeck walkways, the bridge deck and the tower tops.

4.2.3 Areas requiring inspection prior to reopening to traffic shall be explicitly identified in the response procedure produced by the Operating Company.

4.2.4 The response procedure shall be reviewed by the Operating Company after every event giving rise to its use and any proposed to changes to the same shall be submitted to the Director for his prior written consent.

4.3 Records

4.3.1 All information required by the Operating Company to deliver the requirements of this Part shall be collected and stored in accordance with the requirements stated in Schedule 7 Part 3 and Schedule 5 Part 2.

signed for and on behalf of The Scottish Ministers

byRoy Brannen.....

on December 2014.....

atGlasgow.....

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Authorised Signatory

signed for and on behalf of AMEY LG Limited

by

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on December 2014.....

atGlasgow.....

.....
Director/Company Secretary/
Authorised Signatory*

