



BEAR Scotland Transport Scotland.

Debrief Report.

**A83 Landslides -
Rest and be Thankful,
Glen Kinglas and Ardgarten,
Argyll and Bute.
28th October 2014.**

Version History

| Version | Date | Revision |
|-----------|----------|---|
| 0.1 Draft | 18/11/14 | Initial development. Footnotes at this stage to prompt further checks. |
| 0.2 Draft | 20/11/14 | Suggested list of Action for consideration by debrief sponsors added at Appendix B. Forwarded to Morag Mackay for review. |
| 0.3 Draft | 17/12/14 | Review and amendments by Morag Mackay |
| 0.4 Draft | 20/04/15 | Principal Participants comments and Executive Summary incorporated. |
| 1.0 | 24/06/15 | Final |

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1. Introduction

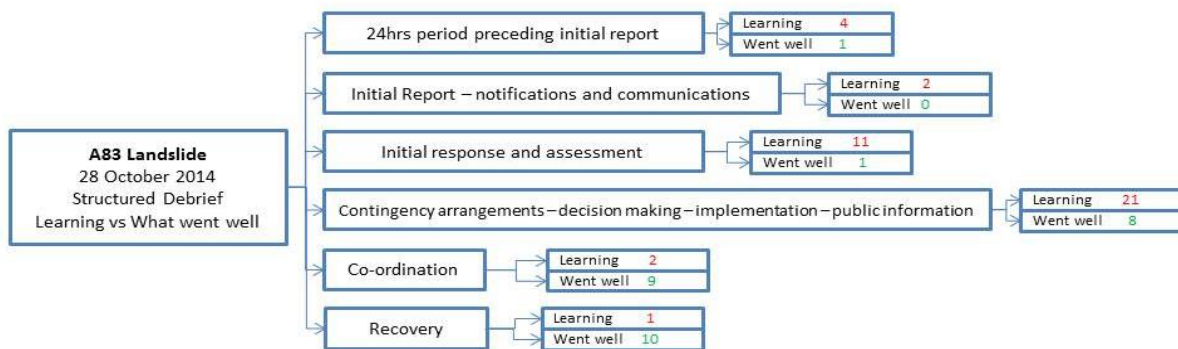
- 1.1. On Tuesday 28 October 2014 the A83 Tarbet to Campbeltown trunk road in Argyll and Bute was closed following three landslides in the vicinity of the Rest and be Thankful (RabT), Glen Kinglas and Ardgarten. A number of responder agencies were involved in communicating the impact of the closure, establishing/operating diversion routes and undertaking recovery operations.
- 1.2. It is normal following such events that a debrief exercise is carried out and it was agreed between BEAR Scotland and Transport Scotland that there would be value in jointly debriefing the response to the event. A Structured Debrief was staged on Monday 17 November 2014 at Transport Scotland's Buchanan House headquarters in Glasgow.
- 1.3. Attendees at the debrief can be found in Appendix A and included representation from:
 - BEAR Scotland (including Grayling Communications)
 - Police Scotland
 - Transport Scotland (including Traffic Scotland)
- 1.4. Feedback from other stakeholders was sought separately and included into the debrief reporting. The five objectives of the debrief were:
 - To facilitate experiential learning for the greater benefit of participants and the organisation.
 - To identify and endorse good practice.
 - To identify areas where improvement is necessary.
 - To inform a debrief report and enable recommendations and actions.
 - To identify any further training and logistic requirements.
- 1.5. The debrief was jointly facilitated by BEAR Scotland (Iain McDonald) and Transport Scotland (Morag Mackay). Attendees were invited to focus upon the following key components of the event:
 - 24 hours preceding event.
 - Initial alert, notification and communications (first 10-minutes).
 - Initial response and assessment (first 90-minutes).
 - Contingency arrangements, decision making, public information.
 - Co-ordination of the response.
 - Recovery.
- 1.6. Attendees were invited to use sticky notes¹ to record learning, good practice and also recommendations for the future.

¹ Pink notes for learning. Green notes for good practice. Yellow notes for recommendations. Available for review if required.

- 1.7. To enable cross-referencing when developing recommendations and actions a numbering system is used within this report to identify the various responses from the debrief participants. Sections 6, 7 and 8 of this report details the phraseology as used by the debrief participants on the sticky notes that formed part of the debrief process.
- 1.8. The selection of their groupings within the six key elements of the response is subjective and many of the comments will fall within several of the six key elements.
- 1.9. This report details the individual comments, the general discussion and deliberations together with key recommendations.

2. Structured Debrief – Executive Summary

The following diagram details the six key elements of the response on the 28 October and where reaction from participants are clustered relative to 'learning' and 'what went well'.



Much of the learning is around the contingency arrangements; the decision making, implementation and issuing of public information. There were many elements of this aspects of the response that were deemed to have the potential for improvement including the need to not deviate from the agreed communications protocol in the A83 Response Plan. However, on the other hand, it should be recognised that there were also elements of the contingency arrangements that were considered to have went well.

There was much that went well in respect of the coordination and recovery phases of the response operations and many of the participants recognised the considerable response to get the road opened as quickly as possible and in a safe manner whilst managing the effective operation of the LDR.

More learning was identified relative to the initial response and assessment and much of that pertains to the need for an early and accurate assessment of location, extent and complexity of the event so as not to be overly optimistic in early communications before a full assessment has been undertaken.

Overall the response operation was considered to have been undertaken well however improvement should still be sought in a number of areas identified by the debrief process.

3. Details of the Incident (s) – Brief Summary

On Tuesday 28 October there were 3 separate landslide events along the A83 trunk road, at Glen Kinglas, the Rest and Be Thankful and at Ardgarten.

BEAR Scotland contacted Transport Scotland (Morag Mackay) at 06:20 hrs to advise that an incident had been reported at the Rest and Be Thankful.

The incident start time was logged by Traffic Scotland at 06:33 hrs and by 06:50 hrs Traffic Scotland posted a Network Status Report (NSR) stating “Police Scotland and Bear Scotland have advised that the A83 is closed in both directions between Tarbet and Inveraray due to a landslip. Local access is available to Arrochar, More information will be provided as it becomes available, Inrix Media have been advised”. BEAR Scotland advised at 08:11 hrs that the A83 was closed due to 2 landslides, one at Dunoon Road End and one at Glencroe Junction (West of Arrochar). At 10:49 hrs it was reported there was also material on the road in the vicinity of the Spanish Steps. Flooding was noted in the vicinity of Ardgarten earlier however it was not until the water started to recede that material was observed on the carriageway.

The initial estimate for material deposited on the A83 at the Rest and be Thankful was approx. 100 tonnes. By 13:30 hrs it was reported that there was approximately 800 tonnes of material on the road at the Rest and be Thankful with a further 1000 tonnes retained by the debris flow barrier. Estimates of material on the A83 at Glen Kinglas and Ardgarten were 20 tonnes respectively.

The Local Diversion Route (Old Military Road)(LDR) could have been used from 08:45 hrs however it could not be put into operation until the landslides at Glen Kinglas and at Ardgarten (Spanish Steps) were assessed and the road at these locations cleared. The Local Diversion Route (LDR) was brought into use at 15:30 hrs on that afternoon.

The LDR was cleared for use overnight by Police Scotland and the LDR continued in operation whilst the clear up at the Rest and be Thankful continued. Initial best estimates for clearance of the landslide material on the A83 and the boulders identified in the channel above which were considered to be unstable was by the pm peak on Thursday 30 October. However once it was considered safe to undertake an inspection of the hillside, further material was identified that was at risk of being mobilised which could reach the trunk road below.

On the morning of Friday 31 October Transport Scotland were advised by BEAR Scotland there was a risk of a further landslide at the Rest and Be Thankful as a further 2000 tonnes of material on the hillside may not be stable. Following this information becoming available, Transport Scotland and BEAR Scotland met to discuss a risk based strategy for partially reopening the A83. The strategy looked at past experience, failure mechanisms and possible mitigation. Following this discussion a solution was adopted whereby the road could be reopened under certain conditions and with appropriate mitigation in place. If weather conditions (rain/visibility) deteriorated or movement on the hillside was noted, it was agreed that LDR would be reactivated. A risk based management strategy was developed including the following triggers and subsequent actions:

- **Forecast >15 mm of rain in a 6 hour period (taken from the most recent forecast)**

BEAR OCR/Network Manager to discuss with TS duty officer, decision to be made by TS to close the A83 and open LDR when the heavy rain is observed to start. (or not)

- **or, BEAR supervisor or Jacobs observe persistent heavy rain on site**

BEAR OCR/Network Manager to be advised, discussion to be held with TS duty officer, TS decision to be made to close A83 and open LDR (or not).

- **or, Dirty Water Observed on site**

BEAR OCR/Network Manager to be advised, discussion with TS duty Officer, TS decision to be made to close the A83 and open LDR (or not).

Wig-wag signs to remain **on** of the duration of the event.

In support of, and to inform the above risk based management strategy:

- BEAR operatives were to remain on site to allow quick reactivation of the LDR should weather conditions be so as to increase the chances of a secondary landslide event. This continued until the temporary fence was erected.
- The BEAR team operated temporary traffic signals on the A83 at the landslide location, and were positioned at the location of the LDR convoy temporary traffic signals to facilitate a swift change over. All TM was to be left in position on the LDR itself but approach signing was laid down on the verge.
- The landowner was advised of the on going situation and kept livestock off the road during this period. He did close the gates to the LDR to ensure that errant motorists don't use the LDR. On reactivation he was contacted to open the gates.
- During this period Jacobs geotechnical specialists were on site during the hours of daylight (8am to 5pm) and to monitor the hillside and the weather. They advised if the weather conditions have met the trigger thresholds required to close the A83 and instigate the LDR. A BEAR supervisor will also be on site to inform of weather conditions on site.
- To assist the process Meteogroup were asked to provide a 6 hourly updated weather forecast. at 06:00, 12:00, 18:00 and 00:00hrs.
- During the hours of darkness a BEAR supervisor remained on site to monitor the weather.

The A83 was finally reopened under traffic management on Sunday 02 November at 12:00 hrs. The opening of the A83/LDR was thereafter actively managed taking cognisance of the prevailing weather conditions at the site and on-going monitoring of the hillside for any observed movement in accordance with the above risk management strategy whilst works to re-install a temporary barrier continued.

The A83 was finally reopened and the LDR stood down on 07 November 2014.

4. Aim and Objectives

The following aim and objectives were used for the debrief.

Aim

To debrief the landslide events at the A83 on 28 October 2014 to enable individual and organisational learning through identifying and endorsing good practice along with identifying areas for improvement and any follow up action.

To ensure that all organisations are best prepared to respond to events in a manner that demonstrates best practice and is within the roles and objectives of the various responding organisations.

To further enhance the existing response process detailed in the 'A83 Rest and be Thankful Operational Response Plan'.

Objectives

- 1 To facilitate experiential learning for the greater benefit of participants and the organisation.
- 2 To identify and endorse good practice.
- 3 To identify areas where improvement is necessary.
- 4 To inform a debrief report and enable recommendations and actions.
- 5 To identify any further training and logistic requirements.

5. Conduct of Debrief

At a pre-debrief meeting between the facilitators the following elements associated with the response on the 28 October were identified as key events:

- 24 hour period preceding initial response
- Initial alert / notifications and communications (first 10 minutes)
- Initial response and assessment (first 2 hours)
- Contingency arrangements / decision making / implementation / public information
- Co-ordination
- Recovery

The key events listed above thereafter formed six separate flip chart sheets. Participants were thereafter asked to develop their response to the following three statements:

1. Identify up to three aspects that went well
2. Identify up to three aspects where there is room for improvement
3. Recommendations for someone performing the same role in the future.

The subsequent responses from the participants were recorded on coloured sticky notes. Green for statement 1, Pink for statement 2 and Yellow for statement 3. The coloured notes subsequently populated the six flip chart sheets providing a visual reference as to where the focus for improvement and good practice were to be found and as indicated in the diagram in Section 2 Executive Summary.

As feedback was received from the participants the debrief facilitators created the opportunity for them to openly share their experiences and encourage subsequent discussion to explore and explain whether there was good reason why something was done the way it was.

Prior to commencing the formal part of the debrief process, participants were informed on the need for debriefing, the benefits of debriefing and the how the debrief would be conducted. The debrief facilitators formally welcomed all participants and emphasised the aim and objectives (see section 4 above).

Participants were reminded of the need to be open and honest and respectful of the views of others and to remain consistent with their professional responsibilities and values of their respective organisations.

In addition to the structured debrief, feedback from stakeholders not involved in the operational response was sought separately and included into the debrief reporting. These stakeholders included Jim Smith (Argyll and Bute Council), Dick Walsh (Leader, Argyll and Bute Council), Mike Story (A83 Marketing Group) and Jane McLeod (Mid Argyll Chamber of Commerce), Gordon Ross (Western Ferries)

6. Structured Debrief – What went well

6.1 Participants were asked to identify up to three areas that went well (using Green sticky notes, grammar and spelling as per written note).

6.1.1 24 hour period preceding initial response.

1. Notification sent out to operational staff prior to A82 & A83 events on the basis of the weather forecast.

6.1.2 Initial alert / notifications and communications (first 10-minutes)

No comments

6.1.3 Initial response and assessment.

1. Large professional team was mobilised quickly including very specialist plant, resources.

6.1.4 Contingency arrangements / decision making / implementation / public information.

1. Bespoke weather forecasts and actual rain gauge measurements were extremely helpful.
2. Geo-team input at the start of event very good. From a high perspective the scarring on the hill looked like the A83 & OMR should remain closed.
3. Communications went well. Hard and social media filled the information gap and kept national media happy.
4. Quick decision that OMR could be used on first day, once Glen Kinglas & Spanish Steps blockage cleared.
5. Good photo and use of social media.
6. Use of images on social media endorsing public understandings of the incident and its effects.
7. OMR successfully opened up at night for first time.
8. Excellent collaboration between Police Scotland and BEAR to re-open OMR / approve use.

6.1.5 Co-ordination.

1. OMR operational plan well established / activated between OC / Police Scotland / landowner.
2. When undertaken, stakeholder management was well managed by BEAR.
3. Operational response excellent on-site.
4. Sharing images (Drone particularly) with media, stakeholders, twitter to help provide clear context of seriousness of situation.

5. Effort and dedication by all staff involved.
6. Excellent social media including pics.
7. Good and open conference calls including input from those staff on-street.
9. Important to keep MART rep involved in conference calls.

6.1.6 Recovery

1. Rapid GEO presence on-site.
2. Close liaison between BEAR Scotland and Police Scotland at incident site.
3. GEO presence, including weekends, over first 2-weeks whilst enhanced risks to A83.
4. Response of supply chain partners.
5. Pictures from site give good realisation of challenge on street. Use of these pictures for twitter, web-site etc. are great.
6. Response to clear-up operations – specialist plant – specialist contractor. Response to flooding issues – OMR.
7. OC operational response on-site excellent and well managed by BEAR.
8. Commitment / effort of BEAR staff on-site to undertake recovery operations.
9. Regular conference calls to update Transport Scotland and Traffic Scotland. Need to ensure that information provided is passed onto others.
10. Provision of experienced and knowledgeable staff at site and in control room. Correct people at correct place.

7. Structured Debrief – Areas for improvement

7.1 Participants were asked to identify up to three areas where there is room for improvement (using Pink sticky notes, grammar and spelling as per written note).

7.1.1 24 hour period preceding initial response.

1. Met Office – first notice of rainfall on Friday. Difficult to crank machine into action
2. Communication of weather to public – only Yellow – normally only notify of Amber.
3. Should Jacobs GEO Glasgow be on alert for a given forecast intensity of rainfall?
4. 'Live' rainfall data should be provided from RabT.

7.1.2 Initial alert / notifications and communications (first 10-minutes)

1. Initial comms incorrect. 3 landslides. Glen Kinglas closing road – not RabT
2. More information requires to go to the MART rep to permit them to have up to date information and work closely with Traffic Scotland.

7.1.3 Initial response and assessment (first 90 mins).

1. Early accurate information on location required to inform public – impact varies depending on location – cannot first say RabT to cover all of A83.
2. Location talked about Spanish Steps – wasn't sure where this was.
3. There is lack of clear information with regards what has occurred on street.
4. Initial understanding (picture) of extent and complexity.
5. More accurate location and photos from site.
6. Is landslide response for NET ops or NET Maintenance.
7. Hugh pressure placed on individuals in BEAR to provide information, open OMR and open road. This forced those to be over optimistic in predicting time taken.
8. Ministerial / Press Comms – Be careful of language used. Do not be over-optimistic or put forward ambitious deadlines. Do not set definitive deadlines and if pushed – make sure caveated. Take considered position.
9. Make sure comms paths followed. Ensure consistent validated comms from site (through MART) – site location – where road is closed – size of landslides.
10. Information relating to A83 Glen Kinglas – initial reports from memory stated less volume of material that later recognised which meant clearance times may have been optimistic.
11. Procedures during MART. BEAR – how BEAR rep in MART is kept up to date by Perth team.

7.1.4 Contingency arrangements / decision making / public information.

1. Calls go into too much detail – too long.
2. MART rep could not get a reply on OC control room telephone.
3. Calls too long.
4. Improvement of OMR at pinch point at bridge and area of flooding at the Ardgarten end of the OMR.
5. Information out of date.
6. How we better deal with abusive public.
7. Clarity and consistency of who is responsible for issuing updates to stakeholders & media as it impacts expectations.
8. Decision to open up OMR for public use needs consultation with Police to arrange joint inspection with OC.
9. Ensuring communication reps are at core of process throughout – to draft and share copy for clearance and issue – Agreeing key messaging collectively to expedite clearance & get info to public.
10. Regular updates were not provided and were on an ad-hoc basis. Info needs to be issued at regular periods i.e. hourly.
11. Communication protocol broke-down at busiest times with cross-communication occurring randomly putting pressure on those in BEAR Resilience Hub.
12. Identify one point of contact within each organisation to avoid unnecessary phone calls.
13. WiFi on-site to aid sending pictures and email updates.
14. Increased pressure on staff to open A83 / OMR prior to assessment being done / works completed.
15. Senior GEO participation in all conference calls / decision making events, as support to Perth based GEO staff.
16. Geotechnical Risk Assessment – Build up and breakdown of assessments would help inform TS decision making.
17. Decision to re-open A83 needs to be taken in consultation with stakeholders and communicated appropriately.
18. Traffic Scotland to make better use of website by providing the stakeholder update & history on the website for the public.

19. Information from Operating Company streams i.e. – MART, Stakeholder updates, Control room updates – were not consistent and provided different info which was not conducive and needed to reflect same details.
20. Avoid unrealistic announcement of completion of recovery operations.
21. Traffic Scotland website not up to date as using Press release i.e. ‘What occurred today and what will happen tomorrow’ is out of date after midnight. Transport Scotland was requested to write information for Traffic Scotland web site. This should be done by Traffic Scotland and kept up to date.

7.1.5 Co-ordination.

1. Copy incident photos to TS briefing team. Good to attach to updates.
2. Communication lines protocol between BEAR and Transport Scotland.

7.1.6 Recovery

1. An agreed Risk Matrix should be devised to allow the A83 to be re-opened.

8. Structured Debrief – Role Recommendations

8.1 Participants were asked to provide recommendations for someone performing the same role in the future (using Yellow sticky notes).

1. Develop risk matrix / decision making tool that we can all use to justify closing the A83 due to landslide risk.
2. Agree briefing protocol that avoids creating unrealistic expectations. Ensure briefings fully explain why, what needs to be done etc. to paint the whole picture.
3. Separate A83 into 500m sections and provide signs – to allow better locations.
4. Lessons learned from A83 shared with other TR Units for their management of similar events (e.g. A77 Girvan – Stranraer).
5. For single incidents considering putting TS resource in BEAR control room rather than MART.
6. Invite press and stakeholders to RabT to show them what we have done etc.
7. Ensure openings / closures are approved by all operational parties (Police /TS / BEAR).
8. BEAR Comms (Grayling) being included in all conference calls.
9. Recording of conference calls during operation.
10. Active monitoring of all information regarding accuracy of radio, news etc. by all stakeholders.
11. Can conference calls be recorded by TS?
12. List of pre-defined (options / immediate measures) to re-open A83 to suit event location and magnitude.
13. Consider who from Police should dial-in to weekend conference calls (attend scene) when 'L' Division RPU Inspector/TS Liaison officer are unavailable.
14. Police Scotland terminal/PC located within the Traffic Scotland Control Room.
15. Better use of images was seen. It had an instant impact of public's understanding. Use of SKYPE access to MART stakeholders – worked for CWG 2014 & Ryder Cup.
16. More structured approach with defined timescales for release. Agree protocol for VMS and Web info for OMR & A83 opening etc.
17. Share story of working OMR with local media as educational piece – what's involved, man-hours, police etc. etc.

9. Structured debrief – Sharing and Discussion

9.1 Participants were invited to share their experience and there were a number of areas that generated constructive discussion. This has been distilled into a summary of the key areas and is detailed below. An informal notes of the full discussion is contained in Appendix F.

9.1.1 24 hour period preceding initial response.

1. There can be short, operational notice of potential weather issues from the Met Office. This can be discussed with them but it is unlikely to change their overall approach. Better use of existing data sources such as the OC's own weather provider, over winter the Traffic Scotland/Met Office resource and improved data from site such as access to SEPA's rainfall gauge(s) or camera install (although this may not be close to landslip location).
2. Relevant OC sub-contractors be put on standby such as Jacobs, and consideration of pre-positioning.

9.1.2 Initial alert / notifications and communications (first 10-minutes)

No issues discussed.

9.1.3 Initial response and assessment (first 90 mins).

1. Improve the assessment and confirmation of location(s). Better use of technology to capture specific locations, show extent of issue(s) and transmission of data. Consider breaking route into agreed, designated sections which can quickly establish a broad location. Only use location terminology that all understand and which is meaningful and not open to misinterpretation.
2. Expectations of stakeholders need closer management. If initial information is still fluid or contradictory then consider a 'holding' statement of issue(s) but details are still unclear.
3. There is an understandable pressure to open the LDR (if at the RabT) or re-open the A83 (if elsewhere), this needs managed as does the need for strategic overview when the focus becomes the immediate, rather than the mid or longer term. That pressure must not convert into overly optimistic timescales with respect to what can be achieved. Operational resources should not be distracted from what should be their main focus i.e the assessment and recovery of the landslide incident.

9.1.4 Contingency arrangements

1. The Landslide Response Plan needs updated, the 2013 debrief recorded that it should be 'reviewed in light of this debrief and updated'. There was comment it would benefit from being shorter and more action list orientated. This should now be a priority in light of the 2014 event which brings further learning.
2. The LDR has been utilised twice since formal opening. A review of the LDR process(es) and approvals for 24 hour operation and physical enhancements to reduce driver issues when in used.

3. Mitigations plans should be developed which identify possible, tested options, and at which locations, these could be used. As the response phase ends time is often spent looking at possible mitigations to barrier the road, these should be determined ahead of time.
4. Introduction of a geotechnical risk assessment/risk matrix into decision making process for operation of the A83/OMR.
5. A mechanism for statutory closing of the A83 ("blue notice") out of hours need developed and agreed, with partners.

9.1.5 Media/Communications

1. The existing media protocol cannot be put aside, otherwise the developed, and agreed, process will take longer to respond and communicate. In 2014, delays occurred due to new information chains and alternative approvals.
2. Better use of technology to provide information which can be shared with Ministers and stakeholders. In 2014, a remote-controlled drone was used to take pictures of the location and the challenging topography. What other technologies could be used to better understand the issues and share them.
3. Continue relationships with stakeholders including verbal updates at time of initial event and key points.
4. Better clarity on when to update stakeholders or media. In 2013, regular hourly updates were used even when no information had changed. In 2014, it was agreed to issue only when there was information to share.
5. The OC's media team needs better sight/understanding of developments, the context, challenges and consequences. Is this possible from a separate location? The issue is often not the work being done but sight of the (creative) solutions being used to meet the challenges or putting matters into context relative to previous events or uniqueness. OC operational resources should not be central to the development or issuing of media materials, but continue to focus on the immediate challenges.
6. Information pictures need to include the latest details. Issuing information which is outdated or contradictory is preventable by checking the latest position beforehand, indeed should it be issued at all? Traffic Scotland issued regular updates which often had not changed or showed an outdated position.
7. What is media position for external communication if the OMR is operational, is the A83 open or closed at the RabT? How is this shared, with whom and by which means, if Minister's are told a position is the same message on VMS, for example.
8. Connectivity in the vicinity of the RabT is still not good. Consideration needs to be given to upgrading data and voice calls which support overall coordination/liaison arrangements.

9.1.6 Command Control & Coordination

1. Greater adherence to the 1-1-1 contact approach, one person at site, one ILO in the OC and one person at TS responsible for operational discussions, between calls or meetings. It could be mirrored at a strategic level, but lines of communication must be suitably resourced (no dual role of operational & strategic & communications) and followed. Agreed timescales for information sharing should be adhered to, with only truly exceptional additional requests made of contacts.
2. OC lines should be as short and clear and as possible, this is recorded in the Response Plan and is clear. Should this occur when there is a wider weather event, or at the weekend, how would OC and other operational partners operate/report to our Resilience Room/MART arrangements?
3. Tactical deployment of TS staff to the OC's Perth Control Room, if possible. They can assist by anticipating and explaining governmental expectations and decisions, by gaining direct access to information coming into the control room and passing to TS and by aiding with and review of communications with stakeholders. Sean Clemie's attendance in the OC's Perth Control Room during the event allowed him to collate information first hand and communicate this back to TS. His knowledge and history of the site allowed him to note the recent incident was the worst in at least 7 years. This was then contextualised in communications and helped greatly to show the challenge.
4. Meetings/conference calls need to be better structured and to be shorter. Operational resources should only be involved (if at all) to provide updates on process, then released to focus on those actions until the next update or call. Strategic discussion can continue either on the call or offline.
5. There is a need to establish methods of logging teleconferences and circulating post-meeting notes.
6. Decisions on key milestones must be discussed and agreed with key partners, for transparency and relationships. The A83 was re-opened without discussion with partners being aware or being shared with the travelling public. There followed a conference call where such a decision could have been discussed and agreed, along with a strategy for communication and timing.

9.1.7 Recovery

1. The focus turns towards the integrity of the hillside, repairs and temporary, or longer term, mitigations but the communication steps and the ongoing relationship with stakeholders need to continue.

10. Implementing Learning and Good Practice

This report is submitted with the following recommendations:

- a. Given that further incidents may occur prior to developing actions from this report, participants at the structured debrief should take immediate steps to implement learning and the recommendations relevant to someone performing the same roles in the future.
- b. This report be circulated in draft to all attendees for agreement, that it accurately reflects the structured debrief process or for them to make recommendation for amendment. (Statements at sections 6, 7 & 8 are copied from the sticky notes and should not be amended).
- c. The final report be circulated to all attendees and agencies or organisations represented. In addition, the recommendations section should be made available to key partners and responders in the local area.
- d. Recommendations and associated actions be developed that enable the learning to be taken forward and thereby demonstrate improvement.

11. Review of 2013 Debrief Recommendations / Actions

11.1. Section 12 of the 2013 debrief report contained three key recommendations.

11.1.1. **Recommendation 1** was to ensure that Transport Scotland should be notified immediately of any event through the Transport Emergencies Mailbox (TEM) and by direct contact with the Resilience Team. In considering this it was agreed that the TEM worked however further consideration should be given to the process of informing the Resilience Team out of normal working hours.

11.1.2. **Recommendation 2** was for Grayling, BEAR Scotland's Public Relations agent, to be informed immediately of an event by BEAR Scotland. Grayling to be listed on the Operational Partner Contact List within the RabT Response Plan. In considering this it was agreed that had been completed.

11.1.3. **Recommendation 3** was for BEAR Scotland to issue regular updates hourly/half-hourly as appropriate to stakeholders with each communication clearly identifying when the next communication will be issued. In considering this it was agreed that clarity is required as in the 2014 there was a decision taken not to put out regular communications if there was no update to the information available. The frequency of communication needs to be reviewed to ascertain how meaningful and achievable the requirement is.

11.2. The 2013 debrief report at Appendix 'E' contained 29 actions. They were reviewed and whilst most have been achieved a number were identified as work in progress. Any on-going actions will be taken forward

12. Summary of Key Recommendations

The debrief exercise considered a number of elements of the response operation; the 24 hour period preceding initial response, the initial alert / notifications and communications (first 10-minutes), the initial response and assessment (first 90 mins), contingency arrangements / decision making / implementation / public information, co-ordination and recovery

A number of recommendations were identified across the different elements and these have been assigned to the appropriate partners. Appendix G details the full list of recommendations to be taken forward from the debrief exercise.

The exercise did however identify that much of the learning is around the initial response and assessment and the contingency arrangements/decision making/public information and therefore the key recommendations relate to this and include:



1. A83 Landslide Response Plan needs updated as a priority.
2. Consider breaking route into agreed, designated sections which can quickly establish location.
3. Telephony in the vicinity of the RabT is still not good. Needs consideration of solutions for upgrading to enable data and voice calls.
4. Stakeholder Expectations – Closer management by using holding lines whilst initial information is still fluid or contradictory.
5. Consider introducing risk assessment matrix that includes geotechnical assessments into decision making pre and post events.
6. Ensure Grayling is shown in plans as a participant in conference calls.
7. Meetings/Conference calls need to be shorter and operational resources only involved to provide updates on process then released.

An action plan will be developed to take forward the above recommendations.

Appendix A – List of Debrief Participants (alphabetical by surname)

| Name | Organisation |
|------------------------|---|
| Joanna Buggy | Grayling |
| Douglas Cairns | Amey |
| Kevin Campbell | BEAR |
| Sean Clemie | Transport Scotland |
| Stein Connelly | Transport Scotland |
| Graham Edmond | Transport Scotland |
| Alan Goodwin | Amey |
| Brian Gordon | BEAR |
| David Hamilton | Transport Scotland |
| Chris Holt | Jacobs |
| Scott Lees | Transport Scotland |
| Paul Macfarlane | Transport Scotland (Note-taker) |
| Morag Mackay | Transport Scotland (Facilitator) |
| Karen MacKinnon | Transport Scotland |
| William Millar | Transport Scotland |
| Iain McDonald | BEAR (Facilitator) |
| Bryan McGeogh | Police Scotland (Liaison Officer with Transport Scotland) |
| Adam Mckenzie | Police Scotland |
| Ian Stewart | BEAR Scotland |
| Eddie Ross | BEAR |

Appendix B – SEPA Flood Warnings



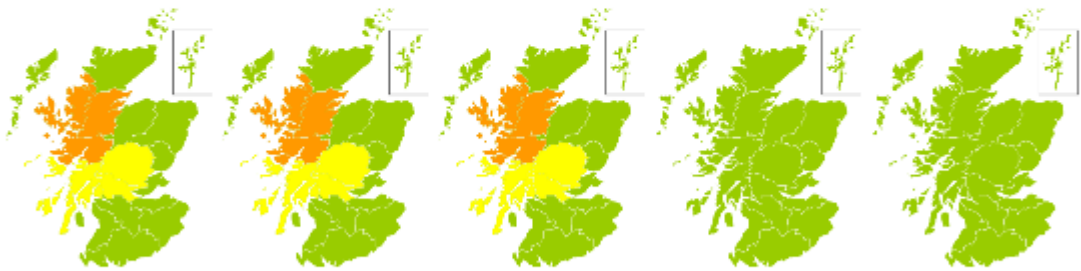
Met Office
Scottish Environment
Protection Agency

Scottish Flood Forecasting Service

Working in partnership

Flood Guidance Statement 16:00hrs Sunday 26 October 2014

Our assessment for daily flood risk in Scotland is below. This statement is valid at the time of issue.



| 16:00 - 23:59hrs Sunday 26 October 2014 | Monday 27 October 2014 | Tuesday 28 October 2014 | Wednesday 29 October 2014 | Thursday 30 October 2014 |
|--|----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|
|--|----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|

General Overview of Flood Risk

The flood risk is MEDIUM from Sunday until early Tuesday morning.

Persistent heavy rainfall is likely to cause significant impacts from river flooding in the northwest during the period, please see area of concern map below.

Weather Summary

Remaining wet across the West Highland region for the rest of Sunday and Sunday night, this rain extending into western Tayside, Argyll and Ayrshire at times. Drier elsewhere. Persistent rain continuing across the west on Monday, heaviest from Lochaber northwards. Drier across the south and east. Widespread rain expected across the country on Monday night before drier weather edges south across all parts during the day. Dry on Wednesday but further rain extending north across most parts on Thursday.

Warnings and Alerts in force in Scotland at 16:00

Flood ([click here](#))
0 Severe Flood Warnings / 6 Flood Warnings / 8 Flood Alerts

Severe Weather (relevant to flood risk) ([click here](#))
Alerts - No / Warnings - Yes

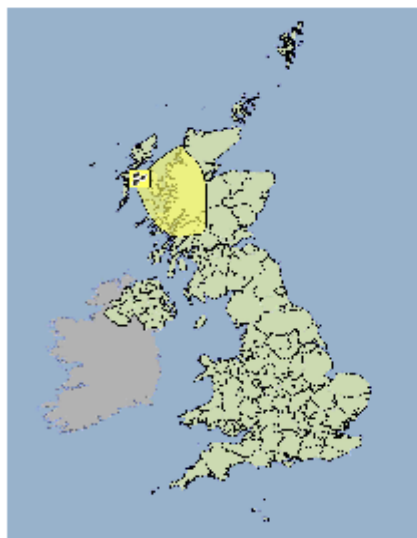
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Page 1 of 3

Appendix C – MET Office Weather Updates



National Severe Weather Warning Service



Chief Forecasters Assessment

A moist and very strong southwesterly flow is expected to develop early on Sunday, with this lasting through much of Monday. A frontal system aligned with this flow is expected to bring periods of heavy rainfall to northwestern parts of Scotland. Rainfall totals in excess of 100 mm are likely, with 200 mm or more possible locally in the mountains.

Gales or perhaps severe gales are also likely with gusts of 50-60 mph at times, perhaps 70 mph in exposure.

The Met Office have issued a **Yellow Warning of Rain**

Valid from 00:10 on Sun, 26th Oct 2014 until 03:00 on Tue, 28th Oct 2014

A frontal system will become slow moving across northwestern parts of Scotland during the early part of Sunday and through Monday, finally clearing southeastwards in the early hours of Tuesday. Heavy persistent rainfall is likely across many parts of the warning area in association with this feature. Largest rainfall totals are likely to be across Lochaber and through the Great Glen (please see separate Amber Warning).

The public should be aware that disruption is likely due to flooding.

An additional hazard will be very strong southwesterly winds, with gales or perhaps severe gales at times, particularly during the first part of Sunday.

This warning is an update to that that first issued on Friday to extend the area somewhat further southeast to include northern parts of Argyll and the northwestern Trossachs, and to suggest a likelihood of medium impacts in the risk matrix.

For more details please go to:

<http://www.metoffice.gov.uk/public/weather/warnings>

Issued by the Met Office at 10:45 on Fri, 24th Oct 2014

Updated by the Met Office at 11:41 on Sat, 25th Oct 2014

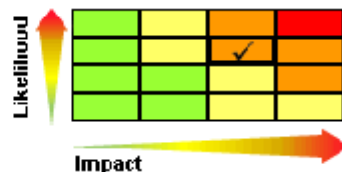
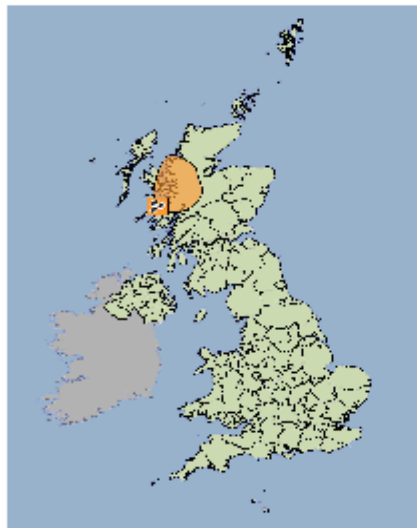
For enquiries regarding this warning please contact the Met Office Weather Desk

Phone: 0870 900 0100 Fax: 0870 900 5050 E-mail: enquiries@metoffice.gov.uk

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National Severe Weather Warning Service



Chief Forecasters Assessment

A moist and very strong southwesterly flow is expected to develop early on Sunday, with this lasting through much of Monday. A frontal system aligned with this flow is expected to bring periods of heavy rainfall to northwestern parts of Scotland. Rainfall totals in excess of 100 mm are likely, with 200 mm or more possible locally in the mountains.

The Met Office have issued an **Amber Warning of Rain**

Valid from **06:00 on Sun, 26th Oct 2014** until **23:50 on Mon, 27th Oct 2014**

Prolonged and heavy rainfall is expected at times during Sunday and Monday, eventually clearing away southeastwards on Monday night. The rain is likely to be heaviest across Lochaber and through the Great Glen. The public should be prepared for disruption due to flooding.

For more details please go to:

<http://www.metoffice.gov.uk/public/weather/warnings>

Issued by the Met Office at 11:25 on Sat, 25th Oct 2014

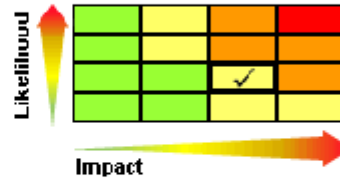
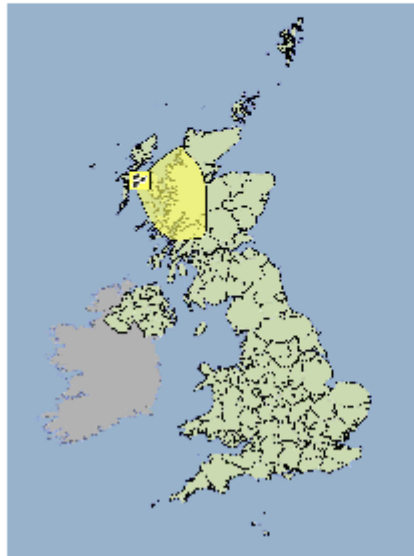
For enquiries regarding this warning please contact the Met Office Weather Desk

Phone: 0870 900 0100 Fax: 0870 900 5050 E-mail: enquiries@metoffice.gov.uk

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National Severe Weather Warning Service



Chief Forecasters Assessment

A moist, strong southwesterly flow will persist across the region until early Tuesday, with the embedded frontal system continuing to generate prolonged heavy rainfall across many northwestern parts of Scotland. Including what has fallen so far on Sunday, rainfall totals in excess of 100 mm are likely to occur at a number of locations, while 200 mm or more is possible locally in the mountains.

Gales are also likely at times on Sunday with gusts of 50-60 mph at times.

The Met Office have issued a **Yellow Warning of Rain**

Valid from 12:00 on Sun, 26th Oct 2014 until 17:00 on Tue, 28th Oct 2014

A frontal system will remain relatively slow-moving across western and northwestern parts of Scotland through the rest of Sunday and Monday, finally clearing southeastwards during the first half of Tuesday. Heavy persistent rainfall is likely across much of the warning area, with the largest rainfall totals in the area covered by the separate Amber Warning. An additional hazard will be strong southwesterly winds, with gales at times during Sunday but with a gradual decrease thereafter.

The public should be aware that disruption is likely due to flooding. This warning is an update to that first issued on Friday, extending the period of the warning further into Tuesday, to cater for later clearance of the rainfall and for residual effects.

For more details please go to:
<http://www.metoffice.gov.uk/public/weather/warnings>

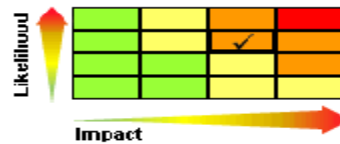
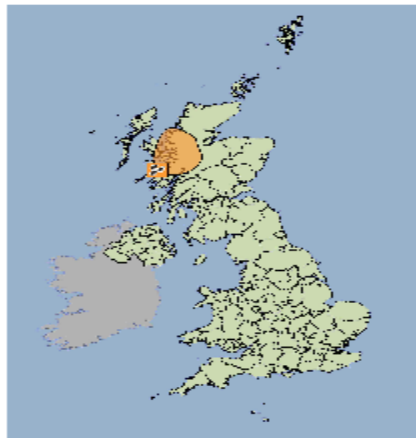
Issued by the Met Office at 10:45 on Fri, 24th Oct 2014

Updated by the Met Office at 11:48 on Sun, 26th Oct 2014

For enquiries regarding this warning please contact the Met Office Weather Desk
 Phone: 0870 900 0100 Fax: 0870 900 5050 E-mail: enquiries@metoffice.gov.uk
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National Severe Weather Warning Service



Chief Forecasters Assessment

A moist, strong southwesterly flow will persist across the region until early Tuesday, with the embedded frontal system continuing to generate prolonged heavy rainfall across many northwestern parts of Scotland. Including what has fallen so far on Sunday, rainfall totals in excess of 100 mm are likely to occur at a number of locations, while 200 mm or more is possible locally in the mountains.

Gales are also likely at times on Sunday with gusts of 50-60 mph at times.

The Met Office have issued an **Amber Warning of Rain**

Valid from **12:00 on Sun, 26th Oct 2014** until **09:00 on Tue, 28th Oct 2014**

A frontal system will remain relatively slow-moving across northwestern parts of Scotland through the rest of Sunday and Monday, finally clearing southeastwards during the first half of Tuesday. Heavy persistent rainfall is likely across much of the warning area. An additional hazard will be strong southwesterly winds, with gales at times during Sunday but with a gradual decrease thereafter.

The public should be aware that disruption is likely due to flooding. This warning is an update to that first issued on Saturday, extending the period of the warning further into Tuesday, to cater for later clearance of the rainfall and for residual effects.

For more details please go to:

<http://www.metoffice.gov.uk/public/weather/warnings>

Issued by the Met Office at 11:25 on Sat, 25th Oct 2014

Updated by the Met Office at 11:56 on Sun, 26th Oct 2014

For enquiries regarding this warning please contact the Met Office Weather Desk

Phone: 0870 900 0100 Fax: 0870 900 5050 E-mail: enquiries@metoffice.gov.uk

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HEAVY RAINFALL WARNING

BEAR Scotland NW

Warning issued on **Friday 24th October 2014 at 06:45**
Forecaster **Claire Austin**

Valid from **0700 Friday 24th October 2014**
Valid until **0700 Saturday 25th October 2014**
Warning no. **90**

Domains
7, 8

Comments

There will be fresh to strong south-westerly winds with scattered showers. These showers will be heavy and thundery during the afternoon. These showers will ease slightly in the evening, but will then merge to longer spells of rain later in the night. This lead to high rainfall totals, particularly in Domain 7, 8 where rainfall totals will reach 30-40mm in 24 hours.

Warning type

Rainfall accumulation of $\geq 25\text{mm}$ in 24hrs

HEAVY RAINFALL WARNING

BEAR Scotland NW

Warning issued on **Friday 24 October 2014 at 13:20**
Forecaster **Paul Mott**

Valid from **0700 Saturday 25th October 2014**
Valid until **0900 Tuesday 28th October 2014**
Warning no. **91**

Domains

1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Comments

A moist south-westerly flow will persist through the coming days, bringing significant amounts of rain to a large part of the Bear NW network until Tuesday morning. Rainfall amounts from Saturday morning through to Tuesday morning are expected to reach around 100-150mm over domains 3, 5, 6 and 7 and perhaps locally nearer to 200mm very locally within domains 6 and 7.

Further east and south across remaining parts of the network there will be nearer to 30-100mm of rain within the same period.

Indications are that the heaviest of the rain is likely to be through Sunday and Monday. Indeed, rainfall rates of >4mm/hour (giving up to 12-15mm of rain within 3 hours) are expected locally within domains 6 and 7 then.

Warning type

Rainfall accumulation of ≥ 25 mm in 24hrs
Rainfall rates of 4mm/hr, giving ≥ 12 mm in 3hrs

HEAVY RAINFALL WARNING

BEAR Scotland NW

Warning updated on **Sunday 26 October 2014 at 21:30**
Forecaster **George Goodfellow**

Valid from **0700 Saturday 25th October 2014**
Valid until **0900 Tuesday 28th October 2014**
Warning no. **91**

Domains

1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Comments

Since this warning was issued, rainfall totals have reached 100-150mm of rain in some parts of western Scotland. For example, Kinlochewe has seen roughly 150mm of rain since 0600 on Saturday 25th. Rain is still expected to continue until Tuesday, and although rainfall rates will vary over the next 36 hours there is a chance of a further 75-100mm of rain falling over the highest ground in west and northwest Scotland. Lower lying sites could see 50-75mm of rain.

The existing rainfall warning has been updated to increase rainfall totals:

Updated warning text:

A moist south-westerly flow will persist through the coming days, bringing significant amounts of rain to a large part of the Bear NW network until Tuesday morning. Rainfall amounts from Saturday morning through to Tuesday morning are expected to reach around **125-175 mm** over domains 3, 5, 6 and 7 and perhaps locally nearer to **225 - 250mm** very locally within domains 6 and 7.

Further east and south across remaining parts of the network there will be nearer to **40-100mm** of rain within the same period.

Indications are that the heaviest of the rain is likely to be through Sunday and Monday. Indeed, rainfall rates of >4mm/hour (giving up to 12-15mm of rain within 3 hours) are expected locally within domains 6 and 7 then.

Warning type

Rainfall accumulation of $\geq 25\text{mm}$ in 24hrs
Rainfall rates of 4mm/hr, giving $\geq 12\text{mm}$ in 3hrs



WIG-WAG RAINFALL WARNING

BEAR Scotland NW

A83 Rest and be Thankful (Ardgartan to Cairndow)

Warning issued on **Friday 24 October 2014 at 13:20**
Forecaster **Paul Mott**

Warning criteria

Rainfall accumulation of $\geq 25\text{mm}$ in 24hrs

Valid from **09:00 Saturday 25th October 2014**
Valid until **09:00 Tuesday 28th October 2014**
Warning no. **48**

Switch **ON** Wig-Wags at **09:00 Saturday 25th October 2014**
Switch **OFF** Wig-Wags at **15:00 Tuesday 28th October 2014**

Appendix F –Discussion Notes

Weather Forecast and Readiness

1. For Transport Scotland although the forecast from the Met Office arrived on the Friday (before the event) it was thereafter difficult due to logistics to get processes into place over the weekend. It was noted at this time (Friday) it was a 'Yellow' Met Office warning for rainfall.
2. Others suggested there had been a further update at about 16:00hrs on the Monday when the Scottish Environment Protection Agency (SEPA) issued a flood warning however this skirted the RabT area and was mainly for North Argyll, Lochaber with a clearing situation.
3. There was some discussion around at what stage is the public warned for potential transport disruption, it was suggested this is only at 'Amber' and above Met Office warnings. It was suggested that it would be interesting to understand if the Met Office would have, on reflection, issued an 'Amber' warning earlier.
4. There was discussion about activation of the 'wig-wags' and whether they are aligned to any Met Office warnings. It was confirmed that the 'wig-wags' were activated on the Friday before the event and not necessarily aligned to Met Office warnings.
5. It was suggested there would be value for high risk areas in having pre-event trigger levels to mobilise resources for geotechnical assessments. In the 24-hr. period before the event operatives of the OC had been placed on stand-by in anticipation of an emergency situation.

Alert and Response

6. It was recognised that it is extremely difficult to predict when something may happen to enable triggering of the RabT Response Plan. There was discussion around the fact that whilst the sighting of 'Dirty Water' is a trigger within the Plan, 'Dirty water' cannot easily be detected in the dark.
7. It was suggested that activation of the RabT Response Plan should also include mobilisation of a geotechnical response. On the other hand it was noted that it is extremely difficult to predict where and when a landslide event may happen for any given hillside. Having geotechnical assets on the hillside pre-event may be dangerous, especially in the dark and an event may only occur after many hours of rainfall.
8. It was suggested that simply to have geotechnical experts available and placed on notice whenever a Met Office warning is received may be good practice and reduce delays, especially given the time to travel from Perth to the locus in poor weather conditions. It was noted that on this occasion the geotechnical input had been excellent.
9. There was much discussion around identification of the areas of the A83 affected and exact location of landslide events. It was recognised that for any event information in the very early stages will often be inaccurate and unreliable until such time as resources arrive on-site and assess the situation. On this occasion information during this initial alert stage included reference to 'two landslides', 'at the Spanish Steps' and 'landslide at Arrochar', all of which can be misinterpreted /misleading.

10. There was general agreement that organisations should be careful when relaying information prior to verification to ensure that the recipients are left in no doubt that the exact locus and impact is yet to be determined. There needs to be an understanding at all levels that verification will take time, use holding statements rather than being drawn into specific detail. There was a suggestion that the susceptible length of the A83 route could be divided into 500 metre signposted sections to enable more accurate assessment of location(s).
11. It was highlighted that operatives on the ground worked very long hours of manual labour. Resources at Inveraray were finite and support had to be brought in from Killin. Enabling that response required considerable work in the background by BEAR.

Command Control and Coordination

12. It was suggested that there may be far too many connectivity links in the response process; various single agency control rooms, the Multi Agency Response Team (MART), the Resilience Room, the Scottish Government Resilience Room (SGoRR) and the Traffic Scotland National Control Centre (TSNCC). As a result connectivity becomes confusing, coordination lost and key resources by-passed in the information chain. Too many 'Hubs' was a phrase used.
13. There was much discussion about the purpose and role of the MART and whether it should be stood-up for these single location events. It was however made clear that the MART had not been stood-up specifically for the A83 Landslides; more for the wider adverse weather forecasts across Scotland. It was suggested that rather than standing-up a MART it may be better to deploy resources to the locus.
14. It was recognised that when resources are deployed to the MART then all organisations must strive to ensure they are fully informed of developments. MART always seemed to be down the list for receiving the most up-to-date information. One organisation highlighted that once they arrive on-site they do not thereafter liaise with the MART. There was a suggestion that perhaps the time is right for a re-think on the role of the MART and level of involvement.
15. On the subject of conference calls there was general agreement that they lack focus and are far too long with some taking upwards of 60-minutes. That stops the operational work from being progressed, especially when after the conference calls there seem to further regular protracted calls from Transport Scotland (to BEAR).
16. At the end of a conference call organisation need to move to implement actions, often that is delayed due to those further calls. The OC specifically stopped operational resources on-site participating in calls to ensure that essential work on the ground continued. It was suggested that conference calls should be recorded in writing and for the notes to be circulated in a timely manner prior to the next call.
17. There was much discussion about the pressure operational resources are under to make decisions and open up the OMR / A83. It was suggested this does nothing to help the situation and it needs to be recognised that a methodical and risk assessed process must be followed. That is very much the case for opening of the OMR, and Police were quite clear they need to be involved in all opening / closing / re-opening determinations.

18. It was suggested that senior managers must be the buffer to absorb external demands placed upon operational resources who are often working in extremely difficult situations. It was suggested that external demands and pressure can be pushed back provided fully assessed and tested information is available to senior managers and they are fully briefed on what steps are being taken to bring about recovery. It was highlighted that it can be difficult assessing volumes of material and therefore difficult to provide definitive recovery times. Material can have varying degrees of consistency; can slop-out of buckets, all which impacts on ability to provide accurate re-opening times.
19. There was concern in the suggestion during the event that BEAR should participate in SGoRR calls. There was general agreement that was not a role for BEAR; although a direct telephone conversation between BEAR senior management and the Minister for Transport and Veterans seem to bring about a calming effect.
20. Communications from the RabT area remains difficult. Data links can quickly become overloaded when images are being transmitted and that leads to a break-down in communications. It was highlighted that there may be an opportunity to pick up a power link from the weather station that would then enable further mobile communication opportunities and provide a Wi-Fi zone. It was suggested that a Traffic Scotland camera on the RabT may be helpful.
21. It was suggested that a plan / grid detailing connectivity between the various responding organisations may be helpful. That would ensure everyone understood who they should be speaking with, by what means and the line management / command arrangements. There was a suggestion that there may be value in sharing lessons learned across all stakeholders involved in network maintenance.
22. Transport Scotland highlighted that as a precautionary measure the A83 had been formally closed since re-opening following the landslide events. As that was outwith an emergency situation that closure had been effected via a statutory process.

Communications / Media / Public Information

23. There was much reflection on the success of the public information and media response. That included use of all available channels including using pictures on social media. That endorsed the need to get pictures from the scene as soon as possible and as a result 'all hell' did not break out with the public, and the media were not particularly evident on-scene. It was highlighted that the Transport Scotland Admin Team need to be included in the information loop to allow preparation for FMQ's such as formatting photographs etc.
24. It was suggested however that the communications side broke down when the RabT Communications Protocol was deviated from. That deviation required all releases to be pre-agreed by Transport Scotland. Consequently releases were only signed off following extensive telephone calls and when eventually signed-off, the information was by then out-of-date. It was suggested that following deviation from the protocol the public information process ground to a halt.
25. At times the OC communications provider, Grayling, found themselves outwith the crisis discussion and co-ordination process resulting in a disconnect. It was agreed that in future BEAR should involve Grayling in the conference call process.

26. There was a suggestion that there may be an issue with the Traffic Scotland website in that after midnight, information can be perceived as being out of date ('what happened today /going into tomorrow').
27. It was highlighted that what shows on the Variable Message Signs (VMS) needs to give an accurate picture. If the OMR is open then is it correct to give the message that the A83 is closed? Whilst technically that may be correct does it relay a meaningful message with respect to transiting the RabT?
28. There was much discussion about the pros and cons of giving a time for the next comms update. Why provide an update if information has not changed? It was suggested that updates should only be provided if there is fresh information.

Contingency Arrangements / Enabling Works / OMR

29. It takes time to assess that the OMR is safe to open. Police Scotland certainly need to be fully consulted before the OMR moves to 24/7 operation. On taking the decision to re-open the A83, Police Scotland suggested they were not included in that process. It was suggested that re-opening of the A83 needs to be fully planned and the risk assessment communicated perhaps through using a shared risk matrix.
30. There was a suggestion that there may be value in pre-determining appropriate mitigation measures for any given location such as use of Containers etc. Counter-measures are not appropriate across all locations and if they were pre-determined along with a list of suppliers that may assist with dynamic decision-making and minimising delays.
31. On the subject of the OMR it was highlighted that further work is required at the 'pinch-point'. That location needs to be widened and requires further investment. It was pointed out that to keep the OMR open and managed 24/7 is a resource intensive operation. This was the first, night-time operation of the OMR and only the second time the OMR had been opened since becoming the contingency route.

General

32. BEAR was keen to stress that although there may be an event in one area they are also often responding to events elsewhere such as on the A85 route. Each time they receive notification of an event resources need to be deployed to investigate and assess. That often leads to finite resources being spread across a large area.
33. It was suggested that there may be a mis-match between perception and reality in respect of the response by BEAR. The service is already good and the latest landslide event was the largest since the mitigation barriers had been erected on the hillside and the work by the operatives to bring about recovery in an extremely difficult environment was recognised. It was recognised that through debriefing and learning that already good response can always be enhanced.
34. Relationships between BEAR, Police Scotland and Transport Scotland were also recognised as being very good.

Appendix G – Action List

List of actions as agreed by debrief sponsors Morag Mackay / Iain Macdonald

| Ref | Action | Action Owner | Review Date |
|-----|--|----------------------------------|--|
| 1 | Establish data collection for rainfall (real-time information) in the vicinity of the RabT from SEPA's rainfall gauges. | Transport Scotland | 31/01/15 |
| 2 | Consider installing a Traffic Scotland camera facility on the RabT. | Transport Scotland | 31/03/15 |
| 3 | Relevant OC subcontractors to be put on standby during periods covered by heavy rainfall warnings such as Jacobs geotechnical team and consideration of pre-positioning. | BEAR Scotland | Currently being incorporated into Incident Response Plan / A83 LRP for submission and approval by 20/05/2015 |
| 4 | Further consideration should be given to the process of informing Transport Scotland out of normal working hours | Transport Scotland | 31/01/15 |
| 5 | Consider breaking route into agreed, designated sections which can quickly establish location. | BEAR Scotland | Currently being incorporated into Incident Response Plan / A83 LRP for submission and approval by 20/05/2015 |
| 6 | Stakeholder Expectations – Closer management by using holding lines whilst initial information is still fluid or contradictory. | Transport Scotland | Next Event |
| 7 | A83 landslide Response Plan needs updated as a priority. | BEAR Scotland | 20/05/2015 LRP |
| 8 | Review of LDR processes and approvals for 24 hr operation. | BEAR Scotland | 20/05/2015 LRP |
| 9 | Review the OMR for any further enabling work such as widening of 'pinch-point' and drainage. | BEAR Scotland | 20/05/2015 |
| 10 | Consider determining appropriate temporary mitigation measures for any given high risk location/situation. Detail these and the supply chain arrangements. | BEAR Scotland | 05/06/15 |
| 11 | Consider introducing risk assessment matrix that includes geotechnical assessments into decision making pre and post events. | BEAR Scotland/Transport Scotland | Incorporate into DRMP process – AMH ranking |
| 12 | Establishment and agreement with appropriate partners on mechanism for statutory closing of A83 (blue notice) out of hours. | Transport Scotland | 10/05/15 |
| 13 | Telephony in the vicinity of the RabT still not good. Needs consideration of solutions for upgrading to enable data and voice calls. | BEAR Scotland | RaBT workshop to be completed by 20/05/2015 |
| 14 | Continue to use and consider use of technology to provide information that can assist in better understanding the | BEAR Scotland | 05/06/15 |

| | | | |
|----|--|----------------------------------|----------------|
| | issues and sharing this to stakeholders. | | |
| 15 | Review the requirement on BEAR to provide updates hourly / half-hourly to stakeholders (key recommendation from 2013 debrief report) as this was put aside during the 2014 event. | Transport Scotland | 31/01/15 |
| 16 | Ensure Grayling is shown in plans as a participant in conference calls. | BEAR Scotland/Transport Scotland | 20/05/2015 LRP |
| 17 | Review and establish media position for external communication if the OMR is operational, i.e is the A83 open or closed at the RabT and this should be reflected in VMS messaging. | BEAR Scotland/Traffic Scotland | 31/01/15 |
| 18 | Clarify lines of communication during a landslide event whilst MART is in Operation. | Transport Scotland | 06/02/15 |
| 19 | Transport Scotland to consider the value of deploying liaison resource to BEAR Scotland Control Room/and or the locus. | Transport Scotland | 30/04/15 |
| 20 | Meetings/Conference calls need to be shorter and operational resources only involved to provide updates on process then released. | BEAR Scotland/Transport Scotland | Next Event |
| 21 | Establish methods of logging teleconferences and circulating post-meeting notes. | Transport Scotland | 06/02/15 |
| 22 | Police Scotland to provide appropriate contact details for outwith normal working hours should they be required to join conference calls. | Police Scotland | 31/01/15 |
| | | | |

Appendix H –Feedback from Stakeholders not Involved in the Operational Response (representatives from Argyll and Bute Council, Western Ferries and representatives from the local business community.

1. Three aspects where improvement was necessary:-
 - The time it took to open up the LDR only for it to be later closed by flooding;
 - Uncertainty as to journey times due to media messages saying journeys could be anything from 15 to 45 minutes longer. A timetable which would provide certainty to journey times would be helpful and lead to safer driving.
 - Was it necessary for the main A83 to be closed for as long as it was and why not make use of the forestry road as well as the LDR.
 - Accuracy of national media coverage (broadcasts were being made to say the Old Military Road was in operation but the road was closed at Loch Glashan & Ardgartan).
 - Time taken to mobilise the LDR (Old Military Road)(an issue that has been raised by our Elected Members and community representatives).
 - Improve resilience of the LDR (Old Military Road) – road unavailable to some vehicles at points during the diversion due to extreme flooding.
 - Inclusion of Western Ferries service as an alternative in all media releases.
2. Good practice:-
 - Good night time lighting;
 - Plenty of personnel and vehicles available to ensure safety.
 - Direct communications from Transport Scotland and BEAR Scotland.
 - Operation of the convoy system.

In addition comment was provided by Argyll and Bute Council as follows:

“Further to your email I can confirm that the Councils Environment, Development and Infrastructure Committee considered the recent landslide at its November meeting. Whilst the diversion operation was considered to be a success the meeting agreed that the Council should seek a permanent solution for the Rest and Be Thankful.”

Appendix I – List of Acronyms

| | |
|-----------------|--|
| BEAR | Road Operating Company |
| CWG | Commonwealth Games (Glasgow 2014) |
| FMQs | First Ministers Questions |
| Geo' | Geotechnical |
| MART | Multi Agency Response Team |
| OC | Operating Company |
| OMR | Old Military Road |
| RabT | Rest and be Thankful |
| RPU | Road Policing Unit |
| SEPA | Scottish Environment Protection Agency |
| TEM | Transport Emergencies Mailbox |
| TS | Transport Scotland |
| TSNCC | Traffic Scotland National Control Centre |
| VMS | Variable Message Sign |
| Wig-Wags | Roadside driver warning system |