

**FLOOD PREVENTION AND LAND DRAINAGE
(SCOTLAND) ACT 1997
BIENNIAL REPORT No. 6
NOVEMBER 2007**



This document was revised as follows:

Revision Status Indicator

Page no.	Date	Revision	Description of change
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Introduction

Flood Prevention and Land Drainage (Scotland) Act 1997

In March 1997 the introduction of the Flood Prevention and Land Drainage (Scotland) Act 1997 instigated changes to the responsibilities and duties of Local Authorities in Scotland.

This Act amended the Flood Prevention (Scotland) Act 1961 and repealed sections of the Land Drainage (Scotland) Act 1930 and the Land Drainage (Scotland) Act 1941.

In respect of this Act the flooding referred to is the flooding of land, not being agricultural land. Flooding of agricultural land falls outwith the requirements of the Act.

The implications on The Highland Council of this Act impose the following additional requirements:-

- a **Assessment of Watercourses**, from time to time for the purpose of ascertaining whether any such watercourse is in a condition likely to flood.
- b **A Duty to Maintain Watercourses**, which are in a condition likely to cause flooding, or where works would substantially reduce the likelihood of such flooding.
- c **Notification of Local Authorities outwith the Area**. Where it appears to The Highland Council that any watercourse in the area is in a condition which is likely to cause flooding, outwith the area, the Council shall notify the local authority for the area in which that land is situated.
- d **Reports** shall be published, at two year intervals.

In recognition of these requirements The Highland Council prepared and implemented a Flood Prevention Policy, a copy of which is included in Appendix A of this report.

This report is published in accordance with reporting requirements of the Act identified in paragraph 1 .d above.

Previous reports were published in November 1997, November 2000, November 2001, November 2003 and November 2005.

Flood Alleviation in the Highlands

The Council have published a leaflet 'Flood Alleviation in the Highlands' a copy of which is included as Appendix F.

This leaflet seeks to give advice to the public on their responsibilities, coupled with details of the responsibilities of the Council, Scottish Water and the Scottish Environment Protection Agency (SEPA) in respect of flooding issues. It recommends that the public prepare for flooding and contains sensible precautions. The leaflet goes on to contain details of what to do if flooding occurs.

Contacts

Should you need any information on any issues relating to flooding or for assistance during flooding events then please contact the following:-

Normal Working Hours

Caithness	01955 607761
Sutherland/Easter Ross	01408 623400
Ross & Cromarty	01349 868440
Inverness	01463 703111
Nairn	01667 458522
Badenoch & Strathspey	01540 664910
Lochaber	01397 709000
Skye & Lochalsh	01478 612727

You can also contact your local Service Point who can put you in touch with the relevant office.

Out of Hours Emergency Numbers

Housing Services	0845 700 2005
TEC Services/Social Work Services	0845 769 7284

Reporting Requirements of the Flood Prevention and Land Drainage (Scotland) Act 1997

The Act states that each Local Authority in Scotland shall prepare and publish a report specifying:-

- a The measures which they consider that they require to take to prevent or mitigate the flooding of land in their area.
- b The measures which they have taken since the date of publication of their previous report to prevent or mitigate the flooding of such land.
- c All occurrences of flooding of such land since the publication of their previous report.

This report has been prepared to meet the reporting requirements of the Act, and has been subdivided into the three reporting headings specified above.

Measures Required to Prevent or Mitigate the Flooding of Non Agricultural Land

Introduction

In recognition of the impact of flooding on commercial and residential properties coupled with the new responsibilities placed on to the Highland Council as a result of the Flood Prevention and Land Drainage (Scotland) Act 1997, measures to prevent or mitigate flooding are being addressed on a number of fronts.

One issue being addressed is the control of the location and nature of future developments. Careful consideration of flooding issues and flood risk areas is made in assessing all planning applications and in the identification of land for development in local plans.

SPP (Scottish Planning Policy) 7 includes a flood risk framework which requires planners to respond to development proposals in known flood risk areas as follows:

Little or no risk area (less than 0.1% (1:1000)) - no general constraints.

Low to medium risk area (0.1 % to 0.5% (1:1000 - 1:200)) - suitable for most development but not essential civil infrastructure.

Medium to high risk area (0.5% (1:200)) or greater - in built up areas with flood prevention measures most brownfield development should be acceptable except for essential civil infrastructure; undeveloped and sparsely developed areas are generally not suited for most development.

Aside from policy implementation there are the reactive measures needed to address flooding events at locations which are known problem/at risk areas.

Known at risk areas vary significantly in size and impact, and as such differing solutions are identified. These vary from schemes where significant investment and capital build is necessary and Flood Prevention Orders are required to permit construction, down to minor maintenance works to alleviate localised flooding issues.

These strategies are further considered thus:

Implementation of The Highland Council Structure Plan

The Highland Council's Structure Plan constitutes the Council's strategic land use planning framework. The Highland Council's Structure Plan became operative on the 26 March 2001.

When considering sustainable development it is fundamental that the risk from natural hazards is evaluated. To reduce the potential of flooding of future developments and to limit development in flood risk areas the Structure Plan addresses Natural Hazards and more specifically Flooding.

The section relating to Natural Hazards of the Structure Plan, see Appendix B, includes the following proposal-

Proposal NH1 Flood Consultation Areas

Local Plans will identify areas with a perceptible risk of flooding with assessment of development proposals within these areas for compatibility with flood risk.

Proposal NH2 Flood Appraisal Group

The Council will establish a Flood Appraisal Group to provide a coordinated approach to flood management.

Proposal NH3 Integrated Catchment Management Plans

The Council will support integrated catchment management plans.

The finalised Spey Catchment Management Plan was launched in June 2003. This provides an integrated management plan for the sustainable use of the water resource in the Spey catchment.

Local Plans

The Council will require development proposals, in all but exceptional circumstances, to comply with the latest CIRIA document on the subject of Sustainable Drainage Systems guidance contained in the Sustainable Drainage Systems, namely "The SUDS Manual" 2007. Development proposals will be assessed for any requirement to provide related attenuation measures and where necessary, remedial works associated with existing drainage systems. There will be a strict presumption against development not associated with the open space functions of the "green" corridors adjoining rivers and burns as identified in the Local Plan, to avoid jeopardising their potential for disposal or attenuation of surface water.

Flood Risk

Development proposals within areas known to be at risk from flooding will be assessed for their sensitivity according to the following hierarchy:

HIGH	(e.g. sheltered housing, hospitals, emergency services, major public venues)
MEDIUM	(e.g. housing development)
LOW	(e.g. golf course, car parks)

There will be a presumption against high sensitivity developments unless an exceptional need can be demonstrated. Proposals will be considered high risk if they pose an unacceptable threat to public safety, may cause pollution if flooded or may give rise to inordinate public expenditure on flood prevention works. The costs of providing necessary flood prevention works as a result of proposals will be met by developers whether on or off site and regardless of the level of sensitivity.

Medium and low sensitivity developments will be assessed against the following criteria:

Developers must demonstrate that any new building can be adequately protected from flooding and, where appropriate, remedial measures to alleviate the flood risk have been taken.

Evidence is provided that there is no adverse impact on the natural characteristics of the watercourse;
Any such protective/alleviation measures will not involve The Council in inordinate public expenditure.

Developers must employ the use of best management practices in the disposal of surface water runoff.

Layout and building design must take account of the need to ensure proper evacuation procedures.

The Council supports preparation of Integrated Catchment Management Plans for the main rivers in the Plan area. This will enable flood appraisal and management in the context of wider development and land use activities. The establishment of a Flood Liaison and Appraisal Group involving partner agencies and other interests, facilitates a coordinated approach to projects and programmes, and advises on river-related works which do not require planning permission, consistent with Scottish Planning Policy 7.

Highland Flood Liaison and Appraisal Group

Highland Flood Liaison and Advisory Group (FLAG) was set up in November 2002 and is an informal and advisory group tasked with promoting sustainable flood management for the whole of the Highland Council administrative area.

Highland FLAG is convened by the Council and meets on an occasional basis. A variety of people, from several different organisations, attend the group. These include planners, emergency planners and engineers from Highland Council, representatives from SEPA, SNH and Scottish Water and also an insurance representative.

The FLAG has been set up in order to obtain information on flood risk areas to be used in such things as formulating planning policies and advising on planning applications and land allocations. The group will also contribute to a range of other work including Catchment Management Planning, Sustainable Drainage Systems and other Building Control Matters

The Remit for the Flood Liaison and Appraisal; Group is :-

- To assist and promote sustainable flood management over the whole of The Highland Council administrative area.
- To obtain information on flood risk areas and to prepare maps for inclusion in both Emergency and Local Plans.
- To assist with the formulation of planning policy in relation to flooding issues with a view to preparation of a Guidance Note.
- To advise on significant planning applications, development briefs and proposed land allocations within or affecting areas of flood risk.
- To advise on proposals for flood prevention and alleviation works to make recommendations with regard to the desirability of such works.
- To seek ways of enhancing flood warning systems for example, by promotion of the use of Automatic Voice Messaging Systems.
- To identify, support or commission research into flood related matters.
- To provide a forum for reaching an integrated view on flood risk and its consequences, including coastal erosion and inundation.
- To contribute to the biennial preparation of the report under the Flood Prevention and Land Drainage (Scotland) Act 1997.
- To contribute to any other relevant work, including Catchment Management Planning, Sustainable Drainage Systems and any relevant Building Control matters.
- To set an annual work programme for actions.

For further information on Highland FLAG, please contact:

Tim Stott,
Telephone: (01463) 702 265
Email: [tim.stott\(5\)highland.gov.uk](mailto:tim.stott(5)highland.gov.uk)

Major Flood Prevention Schemes

In response to known flood risk areas The Highland Council is currently appraising a number of flood prevention/alleviation schemes, for progression of statutory consents and future implementation, subject to the availability of finance. Schemes currently being evaluated are detailed below.

In September 2007 the Council's Transport, Environmental and Community Services Committee approved the progress of Flood Prevention Orders for areas where there is a history of major flooding.

Inverness, Nairn, Badenoch & Strathspey

River Ness

Properties adjacent to the River Ness have been affected by flooding for a number of years and Mott Macdonald, specialist civil engineering consultants, were appointed to carry out a feasibility study and develop proposals to reduce the risk of flooding. This feasibility study is now complete, and the next stage in the process is to publish Draft Flood Prevention Orders which, if confirmed, will permit construction works to be undertaken.

River Lochy and Caol

Caol and Lochside near Fort William has been the subject of increased and more frequent flooding in recent years. The flooding arises from both flood water in the River Lochy and tidal surge in Loch Linnhe combined to give an increased level of flooding in the adjacent residential areas. Scott Wilson, Scotland Ltd were appointed to carry out a feasibility study and develop proposals to reduce the risk of flooding. The feasibility study is now complete, and the next stage in the process is to publish a Draft Flood Prevention Order which, if confirmed, will permit construction works to be undertaken.

Dell Burn

The Dell Burn in Inverness has a history of flooding; impacting on local residential properties. The frequency of this flooding appears to have increased in recent years Mouchel Parkman Consultants were appointed to carry out a feasibility study into potential flood mitigation measures in the area of Dell Burn. The feasibility study is now complete. It is now proposed to publish a Draft Flood Prevention Order which, if confirmed, will permit construction works to be undertaken.

Millburn

The Millburn has been the subject of increased flooding in recent years which has impacted on adjacent residential housing, commercial property and Millburn Academy. The Millburn is a small steep catchment which has seen high intensity rainfall with increased frequency in recent years, a common feature of global warming and climate change throughout the UK. Mouchel Parkman were appointed to carry out a feasibility study and develop proposals to reduce the risk of flooding. The feasibility study is now complete, and the next stage in the process is to publish a Draft Flood Prevention Order which, if confirmed, will permit construction works to be undertaken.

Inverness South West Flood Relief Channel

There has been a history of flooding which has affected properties in the Lochardil area of Inverness. The flood risk will be reduced by the construction of a relief channel which will intercept and divert excess water in the burns during flood conditions. A Flood Prevention Scheme was published in July 2006 and the Scottish Government are arranging for a Public Inquiry to hear the outstanding objections. Once the Scheme is approved then this will permit construction works to be undertaken.

Ross, Skye & Lochaber

Acharacle Flood Prevention

Recommendations were approved for the development of an alternative solution to the flooding at Moss Road, Acharacle. The current proposal to reduce the risk of flooding at Acharacle, which involves lowering the level of Loch Shiel during times of flooding and increasing the flow in the River Shiel, is no longer pursued due to the difficulties in resolving environmental issues. As an alternative to the original proposal, the development of a scheme to raise the level of Moss Road to ensure access is maintained during periods of flooding

Caithness, Sutherland & Easter Ross

Wick Harbour River Piers

The Council are currently reassessing the economic study undertaken for the previous improvements of the river piers so that the Scottish Government will be enabled to approve the construction of the final phase of the improvements to the piers to ensure their long term viability.

Minor Flood Prevention Measures

Caithness, Sutherland & Easter Ross

Caithness experienced its worst county wide flooding in recent years on the 26th October 2006. TEC Services received over 150 calls including reports of choked gullies and small culverts, flooded houses and businesses and damage to bridges.

The reports of flooding to properties were very wide spread, but most watercourses affected no more than 3 or 4 houses. TEC Service's squads were deployed to a variety of different tasks from filling and delivering sand bags, cleaning out choked gullies and cleaning out blocked culverts and ditches.

TECS staff, in association with the Police, Fire Brigade and Scotland Transerv, undertook extensive clean up operations across the county. Various measures were undertaken to the majority of flooded properties to either prevent or reduce future flooding. These works included kerbing across entrances, replacing roadside drains and culverts with larger diameter pipes and the construction of several new surface water drains.

The flooding also caused damage to several bridges and culverts. Damage varied from minor repairs to structural failure leading to partial collapse. These repairs were carried out by the Direct Labour Organisation (DLO) and several local contractors.

The flooding also seriously affected the road network with the A882 closed at Haster due to the Achairn Burn overtopping the bridge. The A836 was also affected at Scrabster with 150mm to 200mm of water ponded on the road but was passable with care.

Due to the extent of the flood damage the remedial work undertaken is tabulated as follows:

Location	Description	Works Undertaken	Contractor	Date
White Cottage, Castletown	Water backing up and flooding house	New drain installed	DLO	02/06
A836, west of business park, Thurso	Water backing up upstream of bridge	Silt removed from invert	DLO	03/06
32 West Banks Avenue, Wick	Foot of water in bottom of garden	Tried to find ex drain but couldn't, Also no suitable outfall for new drain	DLO	04/06
Reiss Golf Club, Club House, Wck	Carpark flooded	Cleaned grating at inlet to roadside culvert	DLO	03/06
Alan Millers House, Ackergill, Wck	Water flooding across field into garden and house	New surface water drain and filter drain in the field behind the house were constructed	A&W Sinclair + DLO	04/06
Burn of Rattar Cottage, Scarfskerry	Roadside culvert caused water to backup and flood into garden	Culvert was cleaned out	DLO	09/06

White Bridge, Newton	Weeds blocked culvert below the drive causing it to back up and flood their barn	Put a larger pipe in below the drive	DLO	10/06
Strathburn, Lyth	Roadside drain was blocked and water flooded into the garden	A section of ditch was cleaned and the drain was cleaned out	DLO	10/06
B876, at Hastigrow Farm	Water was flooding out onto the road	Section of roadside drain was repaired	DLO	10/06
20 High St, Thurso	Water coming off the road flooded the shop	Gully was cleaned out	DLO	10/06
Gauze Cottage, Canisbay	Water flooding from road into cottage	Kerb along roadside to prevent water running in	DLO	10/06
Morven View, Lybster	Water coming into house caused by a blocked drain	Drain was cleared	DLO	10/06
Tanglewood, Langley Lane, Wck	Water came of surrounding gardens and roads and flooded into house.	New drainage system was put in and road to be reshaped	Gunn's	10/06
Roadside Cottage, Bylbster	Water came in from main road and flooded cottage	Existing roadside drain was replaced by a larger diameter pipe	Millers	10/06
Cardhu, Dunnet	House had water in the founds due to run off from fields and the ditch was unable to take the water away fast enough	Roadside ditch was cleaned out	DLO	10/06
Park Lane, Thurso	Water was backing up and coming into shop	Drain in playing field behind was replaced and a new gully put in	DLO	10/06
Clashvalley, Dunbeath	Water flooded of the road and was running underneath his property	2 gullies and a new drain were put in	DLO	10/06
Schoolhouse, Stemster	Culvert below road held back water causing it to back up and to nearly flood house and garage	Replaced existing culvert with a larger diameter one	Millers	10/06
Burnside Cottage, Newton	Road bridge restricted flow and caused it to back up and flood the cottage	Additional 2 900mm diameter pipes were put in alongside the bridge	A&W Sinclair	10/06
Thura Mains, Bower	Byres were flooded out, this was caused by a culvert below the public road not being able to take the flow of water	A new culvert was constructed	DLO	10/06
Shepherds Cottage, Lynegar	Culvert below the road held back the water causing it to back up and flood the house	A new larger diameter culvert was put in	A&W Sinclair	10/06
Moss O Marl, Achn avast	Water ponding in the founds caused by water overtopping culverts and ditches	2 new culverts were put in and roadside ditches were cleaned	DLO	10/06
Tulach Ard, Glengolly	Water collected in a low spot in the field behind the house and as the water rose it flooded the house and garden	New drainage system has been constructed in the field	Miller	10/06
Glyfada, Mid Calder	Culvert below the junction restricted the flow causing it to backup and flood the founds of the house.	Culvert below the road was replaced with a larger Dia one	DLO	10/06
Juniper Bank, Thurso	Flood water caused a part of a culvert below the road to collapse	Collapse was repaired	DLO	10/06

Ballachy, Houstry, Dunbeath	The roadside drain was unable to cope with the volume of water and it backed up and flooded down the drive	The roadside drain was replaced with a larger diameter pipe	Millers	10/06
Rowan's Cottage, Smerlie	House was nearly flooded due to the amount of water flooding down the road	The ditches were cleaned and the pipe below the drive was replaced	DLO	10/06
Kirkstyle, Dunnet	Water from roadside ditch was flooding into garden	Cleaned out a section of roadside ditch and put in an addition gully	DLO	10/06
11 Howe Cottages, Lyth	Culvert in the roadside ditch held the water back causing it to flood across the road into the garden	Culvert was replaced with a larger diameter pipe	DLO	10/06
Lower Howe, Lyth	Roadside ditches were overflowing and water was flooding towards farm	Ditches and culverts were cleaned	DLO	10/06
Arion, Westside, Dunnet	Garden was flooded	Roadside ditches were cleared and new road crossing was put in	DLO	10/06
Waitside, Castletown Schoolhouse, Durrans	Garden flooded	Kerb was put in across entrance	DLO	10/06
	Water was flooding into house from fields and road above	Replaced roadside drain and culvert below the road.	DLO	10/06
Ivy Cottage, Shebster	Water was backing up from the culvert below the road and was close to flooding the house	Replaced the existing stone culvert with 2 new larger diameter pipes	Holts	12/06
Braemore, Glengolly	Garden flooded due to flood prevention works upstream and poor roadside drainage adjacent to the house	New culvert put in to divert the water across the road to another ditch	Millers	09/07
Burnside Cottage, Gills Slickly Farm, Slickly	Culvert blocked below road causing flooding to garden	Culvert was replaced and ditches were cleaned	DLO	09/07
	Water was overtopping roadside ditches and flowing through barns	Cleaned out ditches and replaced several small culverts	DLO	09/07
Rattar Mains, Barrack	Water was running down the public road and into cottage	Constructed new roadside ditch, replaced culvert and put dropped kerb across entrance	GMR Henderson	
East Calder, Calder	Water was running down the public road and into entrance and ditch also couldn't take flow of water	Cleaned out ditch and replaced pipes below entrance with larger ones and kerbed entrance	GMR Henderson	

Flood Prevention Works

Glengolly Drainage Works (OSGR ND 10115, 65663)

Following previous flooding affecting several houses at Glengolly, near Thurso, a filter drain was constructed to intercept water flowing towards the rear of the houses. The drain then outfalled to the B870 roadside ditch before discharging to the Burn of Geise.

Inverness, Nairn, Badenoch & Strathspey

Inverness TECS carried out annual inspections of all urban watercourses in the Area and maintained/updated the comprehensive photographic record.

There has been continued cooperation with Scottish Water, Consultants, SEPA and Forest Enterprise in seeking to resolve flooding problems.

There have been continued consultations with SEPA, Scottish Water and private Consultants and Contractors to agree SUDS proposals associated with new developments and to make recommendations to the Planning Authority.

Maintenance of ditches and debris screens, or a straightforward Council response to reported blocked gullies and/or gully connections are excluded from the record in the Inverness Area.

Nairn/Badenoch & Strathspey TECS have carried out works relating to flooding at the Gynack Burn, Kingussie - Debris clearing works carried out to Gynack Burn from A86 High Street Bridge to Gynack Burn/River Spey confluence. These works were carried out during January 2007. Subsequent to this flooding incident we have received authorisation subject to conditions for gravel removal of a section of Gynack Burn under the Water Environment (Controlled Activities) (Scotland) Regulations 2005 (CAR Reference Number: CAR/L/1018654).

Measures Taken to Prevent or Mitigate the Flooding of Non Agricultural Land Since November 2005

Implementation of the Flood Prevention Policy

Following the Roads and Transport Committee approval of the Flood Prevention Policy on the 11 June 1997, this policy has been implemented throughout The Highland Council Area. The policy is included as Appendix A of this report.

A thorough review of the requirements of the 'Act' was undertaken by The Highland Council, to ensure both compliance with the Act and also ensure a consistent approach to implementation by the Area Roads & Community Works Managers.

National guidance for the format of the biennial report is currently unavailable, so the review initially involved the appraisal of reporting procedures undertaken by the Local Authorities throughout Scotland, held by the Scottish Executive. Best practice from these reports was established and implementation guidance prepared and circulated.

The completed document contains clarification of responsibilities, legal advice, standardisation of approach and reporting and funding application issues.

Guidance on the referencing/scheduling of watercourses, requirement for an initial desk top assessment and prioritisation of watercourses together with identification of the related assessment regimes are contained therein. Examples of the reference schedule and assessment check chart are included as Appendix C.

An example of a watercourse assessment is included as Appendix D.

In addition to the assessment of watercourses, there is also the requirement and standardisation of Flood Reporting. See Appendix E.

Emergency Planning

The Highland Council have an Emergency Planning Unit whose responsibility it is to plan for emergency events and also co-ordinate resources in reaction to emergencies. Flooding is covered and co-ordination of response to flooding events occurs.

An emergency plan, in respect of flooding, has been developed from evaluation and appraisal of the effectiveness in responses to previous flood events.

The emergency plan is triggered on identification of the possibility of a flood using the Scottish Environment Protection Agency (SEPA) monitoring system, Met Office Severe Weather Warnings and computer 'Flood Modelling'. Warnings would be issued by Emergency Planning directly to Transport, Environmental and Community Services duty staff and a flood support group would convene at The Highland Council, Emergency Operations Centre, Inverness.

This group is drawn from:

- a The Highland Council
- b SEPA
- c Police
- d Fire Service, and
- e HM Coastguard, if applicable.

The object of these parties in meeting, is to alert relevant bodies to the flood risk, establish availability of resources and implement a coordinated response, with the aim of minimising and managing the impact of any flooding.

All relevant information would be available to this group. The bulk of the information would be obtained from river telemetry and weather forecasting however, additional information will be obtained from actual rainfall, lying/melting snow, observers, tide tables, tidal surge data and historical information from previous events.

National Helpline

A development that came into force on 1 November 2001 is that of a "Floodline", this is a telephone and internet Helpline, where members of the public can telephone or visit the SEPA website to obtain information on the state of flooding or the conditions of watercourses and rivers in their local area. It is based on a similar system, operated by the Environment Agency, which has been running in England and Wales for some time.

The warning element is based on one or more of the following conditions being announced during television and radio weather broadcasts and programmes, note Inverness and Nairn are used as an example :

A " Flood Watch (flooding possible) has been issued for the Inverness and Nairn area "

A " Flood Warning (flooding expected) has been issued for the Inverness and Nairn area "

A " Severe Flood Warning (severe flooding expected) has been issued for the Inverness and Nairn area "

The " All Clear (there are no longer any Flood Watches or Flood Warnings) has been issued for the Inverness and Nairn area."

The National " Floodline " number is 0845 988 1188

"Floodline" can also be accessed on-line at the SEPA website www.sepa.org.uk

It should be recognised that the helpline information is based on the telemetry system (remote flow monitoring) operated by SEPA. There is a limited number of telemetry sites throughout the Highlands and these are restricted to major catchments only.

Flood Alleviation Maintenance Works

The Highland Council is divided into 3 Areas, each administered by an Area Roads & Community Works Manager within TEC Services. Flooding events are managed by the relevant Area Roads & Community Works Manager.

It is the role of the Area Roads & Community Works Manager to initially assess the flooding event and take such emergency measures as deemed appropriate. Often flood events are localised and no residential or commercial properties are affected. Where the cause of the flooding is established and remedial measures are of minimal costs, then these are undertaken.

Works that fall into this category are gulley emptying, offlet cutting, removal of vegetation, removal of debris and the like. These works are usually undertaken as an emergency response.

Where flooding events are known to re-occur, local procedures are in place to implement signing, sand bagging and the like at times of impending flood or during flood events.

Due to the minor nature of these floods the reporting of these events are not routinely logged.

Minor Reported Works Relating to Flooding

Inverness, Nairn, Badenoch & Strathspey

A number of problem areas were highlighted and the following flood alleviation schemes were implemented since the last biennial report in November 2005.

Bypass Culvert Moray Park Avenue, Culloden

(Grid Reference NH 726 465)

A relief culvert was extended, completing the diversion of flow from an old stone culvert, chambers and pond. As a result of unsatisfactory alignment and poor condition, these were hydraulically inefficient and impossible to clean without causing damage.

Tower Burn, Resaurie Culvert.

(Resaurie Road/Murray Road; Grid Reference NH 453 710)

Work has started in September 2007 for the replacement of a triple culvert with a box culvert and screen. Re-profiling of adjacent utility landscaping to prevent potential flooding of residential area in case of future overflow at culvert inlet.

Non-return valves at Douglas Row and Huntly Street and along the water front at Ardersier. A relatively low cost measure to increase efficiency of flood defences.

Balloan Road - Ault na Skiach Burn (Oct 2006)

Improve hydraulic gradient over a section to ease overflowing problems upstream. Work in accordance with recommendations of a previous Parkman report.

River Ness, Inverness

High flows in the River Ness overtopped the bank level and resulted in footway closures at Ladies Walk and the Ness Islands for several days in mid December 2006. A temporary closure of the Infirmary footbridge was also necessary as a result of the high flows in the river giving rise to concerns over possible bed erosion at the bridge piers.

Due to predictions of high water levels sandbags were placed along tidally affected sections of the River Ness on 6th September 2006 and removed on 14th September 2006. and were in the event not required to prevent flooding.

Historically in Inverness, the tidally affected section of the River Ness first overtops the river wall at Douglas Row. Similarly due to predictions of high waterlevels sandbags were placed along this section of the river wall on 12th and 13th December 2006 but these were in the event not required to prevent flooding.

Sandbags were loaded onto lorries and staff were on standby to deploy along the River Ness if required between Thursday 31st May and Sunday 3rd June 2007. Monitoring of tidal surges made deployment unnecessary.

Highland Council are currently working on the following flood relief schemes full details will be available elsewhere in this report.

- River Ness, Inverness
- South West Inverness - Flood Relief Channel
- Mill Burn
- Dell Burn
- Culloden/Smithton

Ross, Skye & Lochaber

Storm drain checks, are carried out on a fortnightly basis and during periods of heavy rain at the following locations:

North & Town Area

- A830 Kilmallie Sawmill, Corpach
- A830 Kilmallie Cemetery, Corpach
- A830 Duncan MacDougals, Corpach (2 No.)
- A830 Treasurers of the Earth, Corpach (2 No.)
- A830 Opposite Hillview Drive, Corpach

A830 Opposite Banavie School
A830 Craignish, Corpach
A830 Drumbuie, Corpach
"Loch Leven" House
B8004 - Opposite the Rugby Club, Banavie
Ben Nevis Industrial Estate
Swimming Pool (2 No. at rear of swimming pool)
Police Station
Lochview Estate
Upper Achintore School
Angus Crescent
Pinegrove
2 Seafield Gardens, Fort William
Corpach Kilmallie Cemetery
Caol Service Road (adjacent to Canal)
Caol BMX Track area
Caol Foreshore Outfall pipes

South Monthly Inspections

Glencoe Village
Oldtown, North Ballachulish

BALLACHULISH

Argyll Cottages
West Laroch Play Park
St Brides School
East Laroch
36a West Laroch
Tourist Information Office
MacColl Terrace
Between Lyn Leven guest house and Buckie Breer

KINLOCHLEVEN

Lovat Road Garbhein
Crescent Brown
Terrace Wades Road
Foyers Road Hill
Terrace

West

Granite Square, Strontian
Moss Road, Acharacle (monitor the loch level)
Glencairn (monthly)
Clanranald Terrace, behind houses (3 monthly inspection of manholes)
Columba Road (new house) - monitor ditch ensuring free running

Problem Areas

B8006 - Lochyside, Caol

There is a potential for flooding when high tide combines with flood flows in River Lochy, resulting in flooding of adjacent roads and properties in a highly populated area.

Columba Road, Mallaig

New house at Columba Road from village road - potential problems if ditch is blocked.

Clanranald Terrace, Mallaig

Behind houses; regular inspection of manholes are carried out at this location

A82 Achintore Road

The Scottish Government have issued an instruction to renew 2 new culverts where problems occur.

Glen Nevis - High river levels.

Garry Crescent, Invergarry - Drains at the rear

Rear of Argyll Terrace - Heathercroft, Fort William

A very large development is proposed and hydrological studies have been requested before approvals granted. The drainage for the area of interest has to have unrestricted flow to Loch Linnhe.

Minor Flood Prevention Measures - Programmed

Precautionary measures as above

Glasdrum, Fort William -	Drainage Improvements
West Laroch -	Drainage Improvements
Tigh Phuirst, Glencoe -	Drainage Improvements
Kinross Place, Fort William -	Drainage Improvements
Seafield Gardens, Fort William -	Drainage Improvements
Argyll Road, Fort William -	Drainage Improvements

Measures Taken Against Flood Prevention since October 2005

Work to the following locations was carried out in order to prevent flooding

Lochy Road, Inverlochy -	Drainage Improvement Scheme (Ph I & II)
Pinegrove, Fort William -	(Ph I & II)
Acharacle House, Shielbhdge -	Drainage Improvements
Caol Flood Alleviation Scheme -	Foreshore Outfall Pipes, Repairs & Maintenance
Kinlochleven -	Drainage Improvement Scheme (PhI)-Started Aug 07

APPENDIX A

ROADS AND TRANSPORT FLOOD PREVENTION POLICY



ROADS AND TRANSPORT COMMITTEE

FLOOD PREVENTION POLICY

The Council's general policy on Flood Prevention Maintenance and assessment was agreed at the Roads and Transport Services Committee of 11/06/97.

The general policy is as follows:-

1. **Assessment**

1.1 It is proposed that formal assessments are carried out by a member of staff in Network Management with close involvement of Area staff. These assessments will be prioritised as follows:-

- a Know areas of flooding
- b Urban areas, in order of size of population and possible risk of flooding
- c Rural areas, in order of possible risk of flooding

1.2 The assessments shall be carried out when resources permit. Given the magnitude of the task the requirement to carry out the assessments "from time to time" is likely to lead to the intervals between assessments to be several years. It is also unlikely that all the watercourses that require to be assessed will be completed in less than 3 years.

1.3 SEPA have responsibilities to also carry out formal assessments. Co-operation between the Council and SEPA will be instigated to reduce duplication of effect.

2 **Works**

2.1 Where the need for work is identified by the assessment process then the works will be carried out in order of priority within available resources. Phoritisation will consider the following:-

- a Where there is risk to life.
- b Where there is risk to property which shall be prioritised in the order of residential premises; commercial premises; residential land; commercial land, c Areas of denser population will be given higher priority than single residences.

- 2.2 The prioritisation will take into account the frequency of the risk. Flood frequencies are expressed in terms of statistical return periods which are expressed in terms of 1 in 5 years, 1 in 20 years return periods, etc. These indicate that a 1 in 20 year flood is likely to occur, once during a 20 year period.

However with all statistical analysis the actual occurrence of flooding may be more or less frequent than the prediction. There is also no method of predicting when a 1 in 20 year flood may occur. The lower the return period, the higher the risk of flooding.

- 2.3 The prioritisation will take into account the possible magnitude of the effects of a flood event.
- 2.4 Works will be carried out when resources are available.

3 **Formal Flood Prevention Schemes**

Where the assessment identifies a potential problem which will not be alleviated solely by works under Section 2 of The Flood Prevention (Scotland) Act 1961', but would be alleviated by a formal flood prevention scheme, the feasibility of such a scheme will be investigated with a view to considering such a scheme in the Service capital Expenditure Plan.

4 **Review**

- 4.1 In consideration that these are new duties imposed on the Council, it is proposed to review this strategy at suitable intervals as necessary.

At the meeting of the Roads and Transport Services Committee on 27/08/97, the minutes of the Roads and Transport Strategy Group of 19/06/97 were agreed which included the following policy:-

- Procure flood prevention works only for residential properties and public roads.
- Allocate capital and revenue funds to flood prevention schemes within the budget constraints imposed on the Service, along with adequate resources to procure schemes within the required timescale, taking into account the Statutory requirements.
- Maintain flood prevention schemes constructed by The Highland Council or the previous authority, but not those constructed by other parties except where failure to do so would threaten property.
- Make discretionary contributions to flood prevention works procured by others as deemed appropriate in order to procure flood prevention works.

Those parties promoting Flood Prevention schemes be informed of the Council's inability to fund their schemes in view of the restricted availability of capital expenditure and the schemes already programmed in order that alternative funds could be investigated by them.

APPENDIX B

**EXTRACT FROM
THE HIGHLAND COUNCIL STRUCTURE PLAN
NATURAL HAZARDS**

2.19 NATURAL HAZARDS

2.19.1 In creating the infrastructure for Highland communities, it is essential that full regard is taken of the constraints that exist because of natural hazards. This is a fundamental component of sustainable development, because insufficient attention to natural hazards at the outset can require considerable remedial expenditure in the future. There may also be difficulty in reconciling remedial action with the quality of the natural environment. Some natural hazards have increased in prominence as a result of the consequences of global warming. The issue relates to the strategic themes of proactive planning for Highland's natural environment and of providing for quality living environments.

Flooding¹

2.19.2 Combinations of high rainfall, snow melt, high tides and "storm surges" can lead to serious flood occurrences at lower-lying, near-coastal locations. Localised flooding can occur after periods of very heavy rainfall, abetted perhaps by river defence works upstream or the limited capacity of culverts and drainage infrastructure. Recent years have seen flood incidents on, for example, the Rivers Spey, Ness and Kerry. Given the geography of Highland and its land use pattern, the Council believes flooding to be a localised issue, and so the over-riding strategic approach is included within Strategic Policy G2.

2.19.3 Flood consultation areas will be indicated in Local Plans. One source of information can be 1:50,000 scale Flood frequency maps prepared for the Scottish Environment Protection Agency, based on current hydrological datasets. Within such areas, development should be assessed for its compatibility with the flood risk in terms, for example, of its permanency of occupation, associated flood alleviation measures, and consequences for downstream flows and flow back-up.

Proposal NH1 Flood consultation areas

Local Plans will identify areas with a perceptible risk of flooding. Within these areas, all development proposals will be assessed for their compatibility with the flood risk and with the flow character of the watercourse.

2.19.4 The Council has statutory responsibilities in respect of flood protection for non-agricultural land. Flood Appraisal Groups have been set up elsewhere in Scotland where flooding is a major issue and a co-ordinated integrated approach is essential. Whilst the problem is not so acute and concentrated in Highland, the anticipated scale of future development in the Inverness area leads the Council to believe that such a Group for this area may be prudent.

PART TWO: THE POLICIES



INFRASTRUCTURE

Policy Linki

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COMMUNITY

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ECONOMY

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ENVIRONMENT

- 0 KATVRE^aiNSEJRTIATJOM
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NATURAL HAZARDS

Proposal NH2 Flood Appraisal Group

The Council will establish a Flood Appraisal Group, in partnership with key agencies, to provide a coordinated approach to flood management and inform Local Plans. This will focus initially within the Inverness area.

2.19.5 Flooding will be one issue covered within Integrated Catchment Management Plans. The Council will support the production and implementation of these strategies (see Poker RDI). In view of the impending designation of the Rivers Spey and Kerry as Special Areas of Conservation under the EL Habitats Directive, the catchments of these rivers should be a priority for integrated strategies. The Council would expect central Binding to be made available to facilitate this.

Policy NH3 Integrated Catchment Management Plans

The Council will support the production of Integrated Catchment Management Plans, to include flood management. In view of the prospect of securing EL assistance for preparation, past flood events and the implications of Natura 2000 designation. The Council will support early work on the Rivers Spey and FZerrv.

Coastal erosion

2.19.6 The future threat of rising sea levels has increased concern generally regarding coastal erosion where shorelines are low-lying and formed of soft material. There is much uncertainty over this issue, partly in view of the counter-acting force of isostatic rising of land for Scotland as a whole. Broad advice in Government guidance is that natural processes should be allowed to proceed, since eroded materials may form natural offshore defence mechanisms in the longer term. Coastal defence works may, however, be necessary where the economic and social consequences of inundation would be unacceptable.

2.19.7 On a strategic basis, the shoreline of the Inner Moray Firth area around the Beauly, Cromarty and Dornoch Firths has tentatively been identified as at risk from sea level rising (Natural Environment Research Council Report, 1999). Strategic Policy G2, therefore, allows for consideration of resisting developments in coastal zones where the implications in respect of coastal erosion would be unacceptable. This may be either because of future hazard to the development itself, or because development would inhibit the natural opportunity for landward materials to migrate offshore for natural defence purposes.

2.19.8 Detailed work in respect of Nairn and Burghead to the Souters Gap has already been carried out with the preparation of Shoreline Management Plans. Continued monitoring of the situation is recommended to determine appropriate action. The Moray Firth Partnership and the Cromarty Firth Liaison Group provide vehicles for discussion on appropriate measures.

Policy NH4 Coastal erosion

The Council will work with the Moray Firth Partnership and the Cromarty Firth Liaison Group to ensure that coastal management along the Inner Moray Firth is sustainable bearing in mind climate change, particularly the increased incidence of storm damage.

NATURAL HAZARDS

PART TWO! THE POLICIES

Land instability

2.19.9 Development proposals on steeply sloping land not only face the possible risk of future slope failure, but also the costs of relevant servicing (particularly roads) tends to be high. For these reasons, as a general rule of thumb, land of more than 1 in 7 gradient is not regarded as appropriate for development. Development proposals on ground steeper than this should be accompanied by engineering reports.

Proposal 1NH5 Land instability

Local Plans will identify land slopes of greater than 1 in 7 gradient within settlement areas, within which Strategic Policy G2 will apply.

Radon gas

2.19.10 Radon is a radioactive gas which occurs naturally in low-concentration uranium within general rocks and soils. Some level of radon is found everywhere, but in certain areas it is released in greater volumes. Inside homes and other buildings the gas can accumulate and become a health risk. The Government advises that when recorded levels exceed 200 becquerels per cubic metre of air, the exposure to the gas should be reduced.

2.19.11 While this level can be exceeded in any building wherever located, householder measurements to date have indicated that a particular concentration occurs in South East Sutherland and South East Caithness. These areas have been designated as a "Radon Affected Area", where radon measurements are particularly recommended. Existing and new buildings can reduce internal exposure to the gas by the installation of an extractor sump or enhanced methods of ventilation.

Policy NH6 Radon gas

Local Plans should identify designated Radon Affected Areas. Within these areas, proposed occupied buildings should incorporate provision for reduction of exposure to the gas.

APPENDIX C

WATERCOURSE REFERENCE SCHEDULES & ASSESSMENT CHECK CHART EXAMPLES

**WATERCOURSE REFERENCE SCHEDULE
(To be reviewed and updated as required) AREA:
INVERNESS**

Reference Réf.	Watercourse Ref.	Location	Origin	Grid	Outfall	Grid	Priority	Comments	Date File Opened	No.
I/1	River Ness	Weirs at Dochfour to Moray Firth	2612	8395	2660	8470	3	Known flooding at Ness Bank. Ongoing High river levels and high tides known to cause flooding at Douglas Row.		
I/2	Holm Burn	Loch Ashie to River Ness	2638	8359	2644	8422	2	Propping of Holm Bridge on July 2001 the B862 has been modified and is now less susceptible to flooding.		
I/3	Lochardil Burn	Balmore of Leys to Lodge Road, Inverness	2668	8406	2679	8432	1	Flooding of 5 houses several times in last four years, Drumdevan Road.	May 2001	Photographs only
I/4	Slackbuie	Lower Slackbuie to 11 Green Drive, Inverness	2672	8421	2669	8428	1	2 houses flooded opposite Green Drive.	July 2001	Photographs only
I/5	Ault na skiah	East of Leys castle to River Ness	2687	8412	2665	8441	1	Known flooding of 12 Lodge Road.	July 2001	Photographs only
I/6	Druid Burn	Druid Temple to 20 Heather Road, Inverness	2688	8421	2680	8437	1	Flooding of Sir Walter Scott Drive/Old Edinburgh roundabout due to culvert blockages.	July 2001	Photographs only
I/7	Mill Burn West	Parks to rear of 28 Grebe Avenue, Inverness	2690	8426	2680	8436	1	Known flooding to several houses once in last 6 years.	July 2001	Photographs only
I/8	Mill Burn	Milton of Leys to Moray Firth	2698	8418	2684	8459	1	Houses at end of Diriebught Road flooded several times over the years.	July 2001	Photographs only

ROUTINE FLOOD ASSESSMENT CHECK CHART

Watercourse Ref	Watercourse	Assessment Requirement	YEAR: 2001													
			JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC		
C1	Dunbeath Water Portormin Rd	Biennial														
C2A	Wick River Safeway Car Park	Annual														
C2B	Wick River Distillery Lade	Annual														
C3	Castletown East (Unknown)	Biennial														
C4	Castletown West (Unknown)	Biennial														
C5A	Thurso River (Thurso)	Annual														
C5B	Thurso River (Gerston)	Biennial														
C5C	Thurso River (Braul)	Biennial														

Key: Assessment due and date:
 Assessment due and date:

Assessment complete
 Assessment Complete

Note:All assessment records shall be filed in the appropriate Watercourse Reference File.

APPENDIX D

ASSESSMENT EXAMPLE

Watercourse: Wick River
C2B Pulteney Distillery Lade

Watercourse Ref:

Section underassessment: 3195,9677
From: To: 3202,9682

Date: 5 October 2001

Assessment Officer: I Moncrieff

Reason for Assessment: Annual inspection

Observations: (Note this to include comment on all:-a Structures/culverts b Debris/Location/Nature c Vegetation Growth)

The lade appears heavily overgrown with vegetation. The stilling pond upstream is overgrown and the outfall sluice gate has collapsed. However, the burn does flow past the remains of the gate freely. The culvert beneath Roxburgh Road is approx. running 50% full after heavy rain (although heavy it wasn't considered to be the annual rain fall event). Screen at the distillery is free of debris.

Recommendations: Lade should be monitored closely. Any works will need permission of distillery as they abstract water.

APPENDIX E

REPORTED FLOODING OCCURRENCES NOVEMBER 2005 TO NOVEMBER 2007

(Note the following is a summary of the information collated for each flooding incident)

Caithness, Sutherland & Easter Ross

Date 20/02/2006 ongoing
Location Cottage, Castletown
Description Water backing up and causing house to flood
Work Undertaken trench away from house to allow water to drain away but had no outlet for it
Work Required Put a pipe down the side of the track to join into roadside gully
History of flooding? This is the first recorded incident at this location

Date No exact date March 2006
Location A836 bridge west of business park
Description Water backing up caused by excessive build up of silt in the bridge and at the upstream headwall
Work Undertaken Culvert and upstream end were cleaned out to allow an unrestricted flow
Work Required N/A
History of flooding? None reported

Date Sometime three weeks earlier March 2006
Location West Banks Avenue, Wick
Description A foot of water at the bottom of the garden
Work Undertaken Dug a hole to locate blocked drain and got a pump to take water from the drain. Water in Mr Gunn's garden subsided after a couple of hours, water continued to be pumped the rest of the day
Work Required A new connection from the old stone drain to the sewer in the middle of Newton Avenue (it's a combined sewer). Connection to be done within the next week
History of flooding? This is the first reported incident

Caithness, Sutherland & Easter Ross

Date	27/03/2006
Location	Reiss Golf Club
Description	Grating at end of ditch had blocked-up causing water to over top the ditch and run down road to golf club carpark
Work Undertaken	Debris was cleared from grating to allow water to flow away
Work Required	No further work required
History of flooding?	
Date	Various/frequently after heavy rain or snow melts
Location	Ackergill
Description	Surface water from the field behind the house is flooding into the garden, 8 to 10 inches deep generally
Work Undertaken	None
Work Required	Construction of a drain around the back of Alan's house to tie into proposed drainage improvements due to take place in the summer
History of flooding?	Area floods after heavy rain or snow melts
Date	17/04/2006
Location	Roadside, Gillock
Description	Water overtopped the ditch and flooded across field into garden and stables
Work Undertaken	No works undertaken as water had subsided by time of notification
Work Required	Site needs to be visited during flood conditions to determine what is causing the water to backup and overtop the ditch
History of flooding?	No previous flood incidents recorded at this site

Caithness, Sutherland & Easter Ross

Date No exact dates, during heavy or prolonged spells of rain

Location Cottage, Scarfskerry

Description Blocked culvert causes water to backup, overtop banks of ditch and flood the bottom of their garden as well as flood out onto the public road

Work Undertaken None

Work Required Culvert at field entrance just downstream of the house needs to be replaced

History of flooding? Previously problems with road water running into drive and ponding at the gable end of the house, problem was sorted by putting kerbing across their drive to direct water into the ditch

Date 02/10/2006

Location house, Ackergill, Shore Road, Wck

Description Water collected in a low spot in the field, as water level rose it began to come into Alan's garden and was getting close to his house

Work Undertaken No works undertaken

Work Required Drain to intercept surface water before it reaches the house

History of flooding? Yes, similar flood incidents occur during/after heavy/prolonged rainfall. TEC Services are currently constructing the drain to alleviate flooding

Date 03/10/2006

Location Cottage, Newton Road, Wick

Description Weeds blocked the culvert at the entrance to their house. It caused the water to back up, run down their road and flood their barn

Work Undertaken Weeds were removed from the culvert

Work Required A larger diameter pipe needs to be constructed across the entrance, a 700mm diameter instead of the current 450mm diameter

History of flooding? It is subject to small amounts of flooding each year, due to the same problem. Although it does not usually flood so deep in and around their barn

Caithness, Sutherland & Easter Ross

Date	12/10/2006
Location	House, Lyth
Description	A pipe in the ditch had become blocked causing the water to over top the ditch and flood into the garden
Work Undertaken	Blockage was partially removed allowing the water to drain away faster
Work Required	Approximately 40m of ditches need to be cleaned out. The short section of pipe that caused the flood needs jetting
History of flooding?	No recorded ones
Date	19/10/2006 Duration - early hours of the morning - lunchtime
Location	Cottage, Newton Road, Wick
Description	Weeds blocked a culvert causing the water to back up and flood their barn
Work Undertaken	Weeds were removed from a culvert
Work Required	A larger pipe to be constructed a 700mm diameter instead of current 450 diameter. DLO to put in a new pipe as soon as water level falls
History of flooding?	Site generally has slight flooding each year not generally as bad as this year
Date	19/10/2006
Location	B876, Hastigrow Farm
Description	Ditch feeding into the roadside french drain had been damaged by farm vehicles causing the water to flood over most of 1 lane for 100m and both for 20m
Work Undertaken	Warning signs put out and diverted water into roadside drain
Work Required	Repairs to french drain
History of flooding?	None reported

Caithness, Sutherland & Easter Ross

Date	19/10/2006 Started -23:00 Duration -a few hours before water subsided
Location	John O' Groats (next to the A99) the garden
Description	An old dam burst its bank, causing a large volume of water to run down the ditch that passes along the bottom of the garden
Work Undertaken	No works undertaken
Work Required	Investigation into cause of dam wall failure (Apparently a biodiversity group had been working on the dam a few weeks previously)
History of flooding?	No reported incidents
Date	19/10/2006 Started - 23:00 Duration - for 2-3 hours
Location	John O' Groats
Description	House was 1" away from being flooded. This was caused by the reservoir upstream bursting its bank
Work Undertaken	Fire Brigade attended to help pump the water away
Work Required	
History of flooding?	
Date	23/10/2006 Duration - flooding lasted most of the day
Location	Main Street, Castletown
Description	Neighbouring houses have water going into them as the road drains cannot take it away fast enough
Work Undertaken	Sand bags were provided
Work Required	No works required
History of flooding?	The street does but not this house

Caithness, Sutherland & Easter Ross

Date 23/10/2006
Started -11.45

Location Traill Street, Thurso

Description The water ran off Traill Street, down into the carpark behind the shop and was seeping through the wall into the shop

Work Undertaken The Fire Brigade attended and pumped the water out from behind the building

Work Required

History of flooding?

Date 23/10/2006
Started -12:00 noon

Location High Street, Thurso

Description The road drain in front of the shop was incapable of taking the water resulting in it coming into the shop

Work Undertaken Gully in front of the shop was unblocked, the water quickly receded

Work Required No further works required

History of flooding? No reported cases

Date 23/10/2006
Started-11.30

Location High Street, Thurso

Description Water was coming through the back door of the shop

Work Undertaken Sand bags were supplied as requested

Work Required No works required

History of flooding? No reported incidents

Caithness, Sutherland & Easter Ross

Date 23/10/2006
Duration - flooding lasted most of the day

Location Pilot Row, Papigoe, Wck

Description Path in front of the house is impassable and the garden is being flooded

Work Undertaken No works undertaken

Work Required

History of flooding? No previous reports

Date 23/10/2006
Duration - flooding was most of the day

Location Castletown Post Office, Main Street, Castletown

Description Water was coming into the post office, it was ponding on the road and footpath, it just came inside the door

Work Undertaken No works undertaken

Work Required No works required

History of flooding? No previous reported incidents

Date 23/10/2006

Location Robertson Crescent, Keiss

Description Rubbish in the ditch blocked the grating of the inlet to a culvert causing the water to backup and flood into the garden

Work Undertaken Rubbish was cleared

Work Required No works required

History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date 23/10/2006
Location Alterwall, Lyth
Description The culvert below his access restricted the flow of water causing it to back up and flood down his drive
Work Undertaken No works undertaken
Work Required Larger diameter pipe below access
History of flooding? No previous reports

Date 23/10/2006
Location Thurso East Mains, Thurso East
Description House was close to being flooded
Work Undertaken Sandbags provided
Work Required N/A
History of flooding? No previous reports

Date 23/10/2006
Location Riverside Road, Thurso
Description Building was in danger of being flooded by the river
Work Undertaken Sand bags provided
Work Required N/A
History of flooding? Riverside Road has flooded in different places on the 12/01/05

Date 23/10/2006
Location Miller Avenue, Wck
Description Water running down driveway to house
Work Undertaken Sandbags provided
Work Required None
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date 23/10/2006
Location Kirkstyle, Dunnet
Description Water from the roadside ditch was flooding into the garden
Work Undertaken Cleaned out section of roadside ditch and put in a gully to catch the water
Work Required None
History of flooding? No previous reports

Date 23/10/2006
Location Myreland, Lyth
Description Roadside culvert below the access, restricted the water flow causing it to back up, over top the ditch banks and flood towards the house
Work Undertaken Sandbags provided
Work Required Size of culvert to be checked
History of flooding? No previous reports

Date 23/10/2006
Location Leith Walk, Wck
Description Garden was under several inches of water and garden shed had some water in it
Work Undertaken No works undertaken
Work Required Housing to look into the drainage of their gardens
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date	23/10/2006
Location	Morven View, Lochend, Barrock
Description	Garden flooded
Work Undertaken	Sand bags provided
Work Required	N/A
History of flooding?	No previous reports
Date	23/10/2006
Location	Howe Cottages, Lyth
Description	Water was running down off the fields and into the roadside ditch, a small diameter pipe, below a farm access, caused the water to back up, overtop the ditch banks and flood across the road into the gardens
Work Undertaken	Ditch was cleaned out
Work Required	Pipe below farm access to be replaced with a larger diameter pipe
History of flooding?	No previous reports
Date	23/10/2006
Location	Howe Cottages, Lyth
Description	Water was running down off the fields and into the roadside ditch, a small diameter pipe, below a farm access, caused the water to back up and overtop the ditch banks and flood across the road into gardens
Work Undertaken	Sandbags were provided
Work Required	Small diameter pipe below farm access to be replaced with a larger pipe to allow water to pass below the road unrestricted
History of flooding?	No previous reports

Caithness, Sutherland & Easter Ross

Date 23/10/2006
Location Arion, Westside, Dunnet
Description Garden was flooded
Work Undertaken Sandbags provided. Roadside ditches cleared and road crossing put in to divert water. (Completed 03/03/07)
Work Required None
History of flooding? No previous reports

Date 23/10/2006
Location Waitside, Castletown
Description Garden flooded
Work Undertaken Kerbing across entrance to prevent water from entering - completed (20/12/2006)
Work Required None
History of flooding? No previous reports

Date 23/10/2006
Location South Road, Wck
Description Road flooded and flooding to Gladsmuir and Woodstock
Work Undertaken Sandbags provided
Work Required Scottish Water to sort drain in road
History of flooding? Has flooded on several occasions in the past

Date 23/10/2006
Location Princes Street, Thurso
Description Two gullies in Davidson's Lane blocked and floodwater running across Princes Street
Work Undertaken Cleaned gullies
Work Required N/A
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date	23/10/2006
Location	John Street, Wck
Description	John Street drains flooded especially at number 3
Work Undertaken	Cleaned gullies
Work Required	N/A
History of flooding?	No previous reports
Date	23/10/2006
Location	Cottage, Gillock
Description	House about to be flooded
Work Undertaken	Cleaned out ditch, culvert and manhole as rubbish and silt in them were restricting flow
Work Required	N/A
History of flooding?	House came close to flooding on the 15/10/03
Date	23/10/2006
Location	Banniskirk, Halkirk
Description	Driveway flooded, please check drains and ditches
Work Undertaken	N/A
Work Required	Roadside ditches to be cleaned along road
History of flooding?	No previous reports
Date	23/10/2006
Location	House, John O' Groats
Description	Burst dam floodwater caused damage to fences and trees
Work Undertaken	N/A
Work Required	N/A
History of flooding?	No previous reports

Caithness, Sutherland & Easter Ross

Date	23/10/2006
Location	Fryish, Tannach Road, Thrumster
Description	Water coming into back gardens from fields
Work Undertaken	Sandbags were provided, roadside ditch was cleaned
Work Required	N/A
History of flooding?	No previous reports
Date	25/10/2006
Location	Camilla Street, Halkirk
Description	Flooding outside this property, worried it is going to go into their property, could sandbags be delivered
Work Undertaken	Sand bags provided
Work Required	New drainage system
History of flooding?	No previous reports
Date	25/10/2006 Started- 9.00
Location	Church Street, Halkirk
Description	Water was coming into the house caused by a build up of water on the access track that leads into 2 new houses behind this house
Work Undertaken	No works undertaken
Work Required	No works required
History of flooding?	No previous flooding reported

Caithness, Sutherland & Easter Ross

Date	25/10/2006
Location	Cottage, Thurso East
Description	Property opposite Estate Office - always gets flooded. Water is in her garage at moment will soon be in her house
Work Undertaken	No works undertaken as cottage and land that water is flooding from are owned by the same person, left with owner to sort out
Work Required	N/A
History of flooding?	No previous reports
Date	26/10/2006 Started-11.10
Location	Cottage, Canisbay
Description	The water was flooding off the main road into the house
Work Undertaken	Sand bags were supplied
Work Required	The kerb around the junction is to be extended up past the house to stop the water from coming in
History of flooding?	No reported cases
Date	26/10/2006 Started - 09:00 Duration - most of day
Location	Main Street, Lybster
Description	Water coming into the house caused by a blocked drain
Work Undertaken	Road gulley was cleaned out
Work Required	No works required
History of flooding?	

Caithness, Sutherland & Easter Ross

Date	26/10/2006 Duration - was most of the day
Location	Springpark, Castletown
Description	The Stangergill Burn burst its banks and flooded around House
Work Undertaken	Sandbags were provided as requested
Work Required	Stangergill Burn to be cleaned out for approximately 300m to allow the water to get away faster
History of flooding?	No previous reports
Date	26/10/2006 Duration - was most of the day
Location	Langley Lane, Wck
Description	Water came off the surrounding roads, gardens and flooded into this house
Work Undertaken	No works undertaken
Work Required	Possible upgrade of road drain in front of the house
History of flooding?	No previous reports
Date	26/10/2006 Duration - was most of the day
Location	Cottage (formerly Woodlee) Scarfskerry
Description	Ditch causes flooding to the cottage during heavy rain
Work Undertaken	No works undertaken
Work Required	Ditch needs clearing out
History of flooding?	No previous reports

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Duration - was most of the day

Location West Burnside, Thurso

Description House flooded as the road drains could not cope with the volume of water and it over flowed into his property

Work Undertaken No works undertaken

Work Required Check gullies are clean and drains are clear of obstructions

History of flooding? No previous reports

Date 26/10/2006
Duration - was most of the day

Location ABSL Power Solutions, Thurso Business Park, Thurso

Description The Wolf Burn burst its banks and flooded factory

Work Undertaken No works undertaken

Work Required Wolf Burn may need to be cleaned out

History of flooding? No previous reports

Date 26/10/2006
Duration - flooding was most of the day

Location Heathfield Road, Thurso

Description Water was coming off the carpark behind the house

Work Undertaken Sand bags provided as requested

Work Required No works required

History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Started - 9.00 Duration - was most of the day

Location Tower Square, Ackergill, Wck

Description Water flooded into the gardens of Tower Square, it was approximately 2 inches lower than the air bricks of the houses

Work Undertaken No works undertaken

Work Required

History of flooding? No previous reports

Date 26/10/2006
Duration - 11.00 most of the day

Location Muiron, Newton Road, Wck

Description Water flooded in from the road into her garage

Work Undertaken No works undertaken

Work Required

History of flooding?

Date 26/10/2006
Duration - flooding lasted most of the day

Location Royal Bank of Scotland, Orlig Street, Thurso

Description Water was coming in the back door of the bank

Work Undertaken Sand bags provided as requested

Work Required No works required

History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Location Guest House, The Broo, John O' Groats
Description Water came pouring down and across the road and was flooding around the sides of the guest house
Work Undertaken Sand bags were delivered
Work Required Dropped kerbs and gullies along the road edge in front of the guest house
History of flooding? No previous reports

Date 26/10/2006
Started - 12.00 Duration - most of the day
Location Cardhu, Dunnet
Description Water flooded off surrounding fields and overtopped the ditch behind the house as the roadside ditch was/is heavily over grown and the water could not get away fast enough
Work Undertaken Sand bags were supplied and the Fire Brigade attended to pump out the water
Work Required Roadside ditches need to be cleaned from the house downstream
History of flooding? No reported cases

Date 26/10/2006
Started - 14:00 Duration - was most of the day
Location Clashvalley, Dunbeath
Description Water flooded in off the road above his property, down his drive and underneath his house
Work Undertaken diagonal tracks into the gravel surface of his drive to divert the water away from house
Work Required 2 gully pots at the gate would help to divert/take the water away from the house
History of flooding? There are no previous reports of flooding at this location

Caithness, Sutherland & Easter Ross

Date	26/10/2006 Duration-06:00-12:00
Location	Adjacent to School House, between Stemster Mains and Knockdee on B874
Description	Heavy overnight rain following steady wet weather has lead to huge run-off all draining to culvert below
Work Undertaken	Water level started to drop before affecting house
Work Required	Culvert adjacent to house could not cope. Two stone culverts require to be replaced with 750mm diameter twin walled pipe over a length of some 12+m
History of flooding?	Not usually
Date	26/10/2006 Started — 11:30 Duration - was most of the day
Location	Old Post Office house, Claredon, Thurso
Description	Water is coming into the back of the house
Work Undertaken	Sand bags were supplied as requested
Work Required	
History of flooding?	No reported cases
Date	26/10/2006 Started -12.00 Duration - was most of the day
Location	Water Plant Houses, Shebster
Description	Water was flooding off the road and went into no.1 Water Plant Houses. Mr Gibson at no. 2 was worried it was going to flood his house as well
Work Undertaken	
Work Required	Roadside kerbing to be extended to prevent road surface water getting into the garden of no.1
History of flooding?	No previous reported cases

Caithness, Sutherland & Easter Ross

Date	26/10/2006 Duration - most of the day
Location	Cottage, Newton Road, Wck
Description	The bridge on the Newton Road restricted the flow of water in the burn of Newton causing it to back up and flood into Cottage. The water was 6' deep in the house
Work Undertaken	Fire Brigade pumped the water out of the house
Work Required	Additional pipe to be constructed alongside the bridge to take more of the water
History of flooding?	It flooded the previous week
Date	26/10/2006 Duration-18:00-01:00
Location	Riverside, Gerston, Halkirk
Description	Heavy rain had caused a large amount of water to pond in the adjacent field. Water then began to percolate through the ground and flood his house
Work Undertaken	No works undertaken by the council
Work Required	No works required The Highland Council have just completed construction of a new 700mm diameter drain to alleviate flooding in this area, the flood would have been a lot worse without it.
History of flooding?	The garden and sheds have flooded in the past. This is the first time the house has
Date	26/10/2006 Started - 9.30 Duration - most of the day
Location	Gladsmuir, South Road, Wck
Description	The house flooded due to the surface water drain in the street not being able to cope and surcharging out of the manholes and gullies
Work Undertaken	Fire Brigade attended and pumped the water away from the house
Work Required	Scotland Transerv are drawing up plans for a replacement surface water drain
History of flooding?	There has been flooding on the road before but it has not flooded this house before

Caithness, Sutherland & Easter Ross

Date	26/10/2006 Started - 9.30 Duration - most of day
Location	JGC Engineering Ltd, Harpsdale Smithy, Halkirk
Description	Water running into his garage, into the back door of his house, the water overtopped the ditches on Harpsdale loop road and flowed into his drive 6' deep
Work Undertaken	No works were undertaken
Work Required	Ditches downstream need to be cleaned out to allow the water to get away faster
History of flooding?	
Date	26/10/2006
Location	Cottage, Bylbster, Watten
Description	Water from the main road flooded into all the rooms in her cottage
Work Undertaken	Sand bags were delivered as requested
Work Required	Roadside drain to be replaced with a bigger diameter pipe
History of flooding?	No previous flooding at this site
Date	26/10/2006 Duration - the flooding lasted most of day
Location	Farm, Bower, Caithness
Description	A stone built drain that goes below the public road and the farm house, could not cope with the amount of water, causing it to over top at the inlet and flood the house and byres
Work Undertaken	small earth walls about 1 foot high on the road to divert the water around between the buildings and house and then into a ditch downstream
Work Required	A new 600mm diameter pipe is needed to replace the existing stone culvert, the new drain will be diverted around the side of the house and tie into a downstream ditch
History of flooding?	There has been no reported cases of flooding before

Caithness, Sutherland & Easter Ross

Date	26/10/2006 Duration - was most of the day
Location	Cottage, Watten
Description	Water came down the ditch alongside the house and was unable to get away through the culvert in the road fast enough causing it to back up and flood his house and garden
Work Undertaken	No works undertaken
Work Required	The old stone culvert below the public road needs to be replaced with a higher capacity pipe
History of flooding?	The owner has had problems with surface water from the field behind the house in the past, he had constructed drains in his garden to stop it reaching the house
Date	26/10/2006 Duration - was most of the day
Location	Cottage, Ulbster, KW2 6AA
Description	Field ditch burst its bank causing water to pour down to Smithy Cottage, causing flooding up to 300mm deep in their barn and kennels
Work Undertaken	No works undertaken
Work Required	The breach in the bank at 331665 940721 is to be repaired
History of flooding?	It has flooded several times over the last few years
Date	26/10/2006
Location	Millbank Road, Thurso
Description	Water flowed off rugby pitch, main road and fields above and accumulated in the houses and gardens
Work Undertaken	Sandbags were provided and Fire Brigade came along and pumped out some of the water
Work Required	Detailed look at drainage of the rugby pitch and drainage on Millbank Road
History of flooding?	It has flooded in the past but not as severely as this

Caithness, Sutherland & Easter Ross

Date	26/10/2006
Location	Millbank Road, Thurso
Description	Water flowed off the rugby pitch, main road and fields above and accumulated in the house and garden
Work Undertaken	Sandbags were provided
Work Required	Detailed look at the drainage of the rugby pitch and drainage on Millbank Road
History of flooding?	There has been flooding on this road before but not as severe as this
Date	26/10/2006
Location	Mowat Place, Papigoe, Wck
Description	Road and gardens were flooded
Work Undertaken	No works undertaken
Work Required	The road and drainage is being improved as part of a housing development
History of flooding?	No previous reports
Date	26/10/2006
Location	Burnett Place, Thurso
Description	House and garden were flooded due to a field ditch being overtopped with excessive water
Work Undertaken	No works undertaken
Work Required	
History of flooding?	No previous reports

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Location Tulach Ard, Glengolly, Thurso
Description Rain water collected in a low spot in the field behind the house and as the water rose up it flooded into the garden and house
Work Undertaken No works undertaken
Work Required A new drainage system has been proposed for the field behind the houses, currently waiting on land entry agreement
History of flooding? Neighbouring gardens and sheds/greenhouses were flooded out the previous year

Date 26/10/2006
Location Carona, Dunnet
Description Water flowed from the fields on the opposite side of the road across the public road and down the drive
Work Undertaken No works undertaken
Work Required Ditches need to be cleaned on the road
History of flooding? No previous reports

Date 26/10/2006
Started - 9.30 Duration - most of the day
Location Woodstock, South Road, Wck
Description The house flooded due to the surface water drain in the street not being able to cope and surcharging out of the manholes and gullies
Work Undertaken Fire Brigade attended and pumped the water away from the house
Work Required Scotland Transerv are drawing up plans for replacement surface water drain
History of flooding? There have been several occurrences of flooding at this location

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Location , Mid Calder, Halkirk
Description Culvert below the junction of the road restricted the flow of water, causing it to back up and flood the foundations of the house
Work Undertaken Neighbours put out sandbags but the water overtopped them
Work Required Culvert below road to be replaced with larger diameter pipe. Completed Feb 07
History of flooding? No previous reports

Date 26/10/2006
Location Juniper Bank, Thurso
Description Flood water caused damage to track by collapsing a hole in the top of a culvert underneath it
Work Undertaken Culvert was repaired and the track reinstated
Work Required
History of flooding? No previous reports

Date 26/10/2006
Location House, Braal, Halkirk
Description Water level in Thurso River increased significantly with the heavy rain, water came very close to the house
Work Undertaken Sand bags provided as requested
Work Required No works required
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Location Auchorn Square, Bower
Description Garden flooded and foul smell
Work Undertaken Sand bags given
Work Required N/A
History of flooding? No previous reports other than another resident reporting flood to her house on 26/10/06

Date 26/10/2006
Location Auchorn Square, Bower
Description Unidentified ditch and Burn of Bower overtopped their banks causing the water to flood out across the field and into the garden at no.8
Work Undertaken Sand bags were provided and inspection of watercourses
Work Required No works required
History of flooding? No previous reports for Auchorn Square

Date 26/10/2006
Location Ballachly, Dunbeath
Description Roadside drain was not able to cope with the volume of water, causing the water to flood across the public road and down road, washing away the stones and gravel in the process
Work Undertaken No works undertaken
Work Required Roadside drain to be replaced with a larger diameter pipe
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date	26/10/2006
Location	Cottage, Smerlie, Lybster
Description	The heavy rain caused the roadside ditches to overflow, combined with a lot of water running down the road, it was running in off the road around his house
Work Undertaken	Ditches were cleaned, down and upstream of the house
Work Required	Larger diameter pipe below the road to the cottage and kerbing along the edge of the public road at the cottage
History of flooding?	No previous reports
Date	26/10/2006
Location	Dunster, Knockglass Road, Dunbeath
Description	Surface water ran off the fields above Knockglass Farm, down the public road and into the carpark, it then overtopped the kerb and verge and flowed down through the garden and around the house
Work Undertaken	Sand bags were provided
Work Required	New surface water drain and additional gullies on Knockglass Road
History of flooding?	No previous reports
Date	26/10/2006
Location	The Cottage, Roadside, Dunnet
Description	There was surface water running off the road and it was coming near to the shop door
Work Undertaken	Sand bags provided
Work Required	Possible bull nosed kerb at entrance
History of flooding?	No previous reports

Caithness, Sutherland & Easter Ross

Date	26/10/2006
Location	Stanstill, Bower
Description	Water was lapping at the door to the house
Work Undertaken	Sand bags provided as requested
Work Required	None
History of flooding?	No previous reports
Date	26/10/2006
Location	Breck Cottages, John O' Groats
Description	Water was almost 1 foot deep behind the house and nearly came into the house
Work Undertaken	Sandbags provided
Work Required	None
History of flooding?	No previous reports
Date	26/10/2006
Location	Gothigill Farm, Murkle
Description	Roadside ditches were full and the water was running into their property
Work Undertaken	Sand bags provided as requested
Work Required	Possible ditches and culvert to be cleared
History of flooding?	No previous reports

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Location Lower Howe, Lyth
Description Water flooding off road and out of roadside ditches down towards Lower Howe Farm
Work Undertaken Sand bags provided as requested, ditches and culverts along roadside cleaned
Work Required None
History of flooding? No previous reports

Date 26/10/2006
Location Moray Street, Wck
Description Water was flooding in off the pavement into the lobby of her house
Work Undertaken Advised occupant to clear blocked gutter on roof as this was causing the problem
Work Required None
History of flooding? No previous reports

Date 26/10/2006
Location Giringoe Street, Wck
Description Garden of number 15 was flooded
Work Undertaken Referred to housing
Work Required None
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date	26/10/2006 Duration - most of the day
Location	Egnal, Smerlie, Lybster
Description	Culvert below road restricted flow, causing the water to overtop the ditch and run down the road into the entrance at Mr Poison's
Work Undertaken	Roadside ditches and offlets were cleaned along the public road
Work Required	Dropped kerb across entrance
History of flooding?	No previous reports
Date	26/10/2006
Location	Torrigill, Forss, Thurso
Description	Culvert below main road restricted flow of water causing it to overtop the road and run down the road to Torrigill, causing flooding around the house and eroding the gravel track as well
Work Undertaken	Culvert was replaced with a larger diameter pipe
Work Required	N/A
History of flooding?	Had 1 report of flooding before. The ditch alongside the track was not able to cope with the volume of water going down it. The Highland Council cleaned the ditch and this sorted the problem
Date	26/10/2006 Duration - most of the day
Location	Slickly
Description	During heavy rain, water overtops roadside ditches and floods some farm buildings
Work Undertaken	Roadside ditches were cleaned out and roadside drain was replaced with larger diameter pipe
Work Required	
History of flooding?	Buildings have flooded twice in the last 2 years but to a lesser extent than on 26/10/06

Caithness, Sutherland & Easter Ross

Date	26/10/2006 Duration - whole day
Location	School House, Durran
Description	Water flooded into house and garden from field and roadside ditch
Work Undertaken	Roadside drain was replaced by a substantially larger pipe and a culvert below the road was also replaced with a larger diameter pipe
Work Required	
History of flooding?	No previous reports
Date	26/10/2006
Location	Kylerhea, Harbour Road, Castletown
Description	Water was flooding in from the road and around his house
Work Undertaken	Sandbags were provided
Work Required	Possible dropped kerb
History of flooding?	No previous reports
Date	26/10/2006
Location	Braemore Place and St Andrews Drive
Description	Drains blocked and overflowing at junction between Braemore Place and St Andrews Drive, Thurso. Spreading across the road
Work Undertaken	Cleaned out gully
Work Required	n/a
History of flooding?	No previous reports

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Location Naver car park, Thurso
Description Blocked drain causing flooding to the car park
Work Undertaken Cleaned gullies
Work Required N/A
History of flooding? No previous reports

Date 26/10/2006
Location Church Street, Halkirk
Description Road drain outside the house (drain located on the corner of Church Street/Sinclair Lane) is causing a flood
Work Undertaken 3 new gullies and raised kerb levels
Work Required N/A
History of flooding? No previous reports

Date 26/10/2006
Location Springpark- Dixonfield Road, Thurso
Description The road leading from Springpark- Haimer- Dixonfield towards Weydale was flooded, flood signs needed putting out as the cars were getting stuck
Work Undertaken Flood signs put out
Work Required N/A
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Location Mayfield Road, Thurso
Description Flooding outside this property
Work Undertaken Sand bags provided
Work Required N/A
History of flooding? No previous reports

Date 26/10/2006
Location Morven View, North Killimster
Description They have dug a trench to avoid themselves being flooded but need to get the road looked at
Work Undertaken Cleaned the offlets along the road
Work Required N/A
History of flooding? No previous reports

Date 26/10/2006
Location A882 at Milton, Wck
Description Bad flooding on Wck to Thurso road at Milton - between bridge over Milton Burn and Milton
Work Undertaken Put flooding signs out
Work Required N/A
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Location Bellendaine, Barrock
Description Flooding on road beside her house, she thinks ditches may need cleared
Work Undertaken Sandbags provided
Work Required N/A
History of flooding? No previous reports

Date 26/10/2006
Location School House, Watten
Description Water is heading up the garden and there is flooding at the school in Watten
Work Undertaken Sandbags provided
Work Required N/A
History of flooding? No previous reports

Date 26/10/2006
Location Upper Burnside Drive, Thurso
Description Flooding coming from the car park beside the Weigh Inn Motel. Her back garden backs onto it and is flooding quite badly.
Work Undertaken Sandbags delivered
Work Required N/A
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Location Bank of Scotland, Bridge Street, Wick
Description Could sandbags be provided for Bank of Scotland, Bridge Street, Wick - lower part of bank near Somerfield's for flooding
Work Undertaken Sandbags provided
Work Required N/A
History of flooding? Area behind bank is on the flood plain for Wck River and area has flooded on several occasions in the past

Date 26/10/2006
Location Royal Crescent, Mey
Description Bad flooding is coming from the Crescent and running into the gardens

Work Undertaken Cleaned out gullies

Work Required N/A

History of flooding? No previous reports

Date 26/10/2006
Location Car park, Royal Crescent, Mey
Description Car park at Mey flooded, drains blocked

Work Undertaken Cleaned out gullies

Work Required N/A

History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Location Fas Skerry, Papigoe, Wck
Description Low kerb outside house and floodwater crossed the footpath. Kerb needs to be raised
Work Undertaken N/A
Work Required N/A
History of flooding? No previous reports

Date 26/10/2006
Location Ravensbrook, Murrayfield, Castletown
Description Sandbags required. Burn behind the property has overflowed and water is rapidly approaching the property
Work Undertaken Sand bags provided
Work Required N/A
History of flooding? General area has been subject to flooding in the past, from the Stangergill Burn

Date 26/10/2006
Location George Street, Halkirk
Description Level on the road was raised slightly when the road was recently tarmaced. Since this was done, the water is now running down the drive off the above property and gathering in the garden
Work Undertaken Sand bags provided
Work Required N/A
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Location Heathfield Road, Thurso
Description Property in danger of flooding - provide sandbags
Work Undertaken Sandbags provided
Work Required N/A
History of flooding? No previous report

Date 26/10/2006
Location Comlifoot Terrace, Halkirk
Description Sandbags needed, garden under 1 foot of water
Work Undertaken Sandbags provided
Work Required N/A
History of flooding? No previous reports

Date 26/10/2006
Location Swona View, John O' Groats
Description Water coming in from road and flooding into garden. She is only saved meantime by a low step, this has happened before and something needs to be done to rectify problem
Work Undertaken N/A
Work Required N/A
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Location Derwent, by Glengolly
Description The water is running off the road and down their driveway. It is just about at the house and sandbags would divert this
Work Undertaken Sandbags delivered
Work Required N/A
History of flooding? No previous reports

Date 26/10/2006
Location Murrayfield, Castletown
Description Blocked drain in the road causing flooding
Work Undertaken Cleaned out gullies
Work Required N/A
History of flooding? General area has flooded before but that was due to the burn

Date 26/10/2006
Location A836 at Corsback Cemetery
Description Road is flooded and the cars are getting stuck in the water
Work Undertaken N/A
Work Required N/A
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date	26/10/2006
Location	Watten Bridge over Wck River (A882)
Description	Major flood event following heavy rain preceded by weeks of continuous wet weather saturating ground
Work Undertaken	West channel cleaned out, mass concrete pour tied into abutment walls to east channel and rock armour placed to both upstream and downstream channels
Work Required	Replace/strengthen east channel invert, clear out west channel invert and reinforce all channels upstream and downstream (Gunns completed the above work early Sept 07)
History of flooding?	No
Date	26/10/2006
Location	West Murkle Bridge over Murkle Burn (U242)
Description	Major flood event following heavy rain preceded by weeks of continuous wet weather saturating ground
Work Undertaken	Contractor (Sinclair's) required to install temporary bridge to enable safe repair to existing structure. Insitu concrete arch placed to existing profile and invert strengthened
Work Required	See above (Sinclair's completed the above work early March 07)
History of flooding?	No
Date	26/10/2006
Location	Lythmore Bridge over Forss River (U211)
Description	Major flood event following heavy rain preceded by weeks of continuous wet weather saturating ground
Work Undertaken	Contractor (Gunns) placed insitu concrete, bagwork and blocks in river to stabilise west bridge abutment early Feb 07
Work Required	Advised by Structures Section to undertake GI and install temporary bridge to allow repairs/replacement to existing bridge. Sinclair's completed the above work early Oct 07 - new bridge open to traffic by beginning of Oct 07
History of flooding?	Yes

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Location Heathfield Road, Thurso
Description Flooding outside property
Work Undertaken Sandbags provided
Work Required N/A
History of flooding? Not at this location

Date 26/10/2006
Started -12.00 Duration - most of the day
Location Park Lane, Thurso
Description Drain along the front of the building blocked up and water flooded into the building
Work Undertaken Gulley was cleaned out
Work Required Road needs to be swept more regularly to prevent the leaves from blocking up the road gullies
History of flooding? No previous reported incidents

Date 27/10/2006
Location Auckengill
Description Road water going into area where he feeds cattle, water comes over the road when culvert can't take it
Work Undertaken Drop kerb constructed
Work Required N/A
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date	27/10/2006	
Location	Main Street, Castletown	
Description	Ponded water and mud on adjacent track	
Work Undertaken	Cleared gully	
Work Required	N/A	
History of flooding?	No previous reports	
Date	27/10/2006	
Location	Cottage, Thurso East	
Description	Flooding outside property	
Work Undertaken	Delivered sandbags	
Work Required	N/A	
History of flooding?	No previous reports	
Date	27/10/2006	
Location	Cottage, Thrumster, by Wck	
Description	Drainage problems to rear of property	
Work Undertaken	N/A	
Work Required	N/A	
History of flooding?	No previous reports	
Date	30/10/2006	
Location	Whitebroo Road, Canisbay	
Description	3 places on Whitebroo Road with water coming onto road, be settling due to wash out	Road appears to
Work Undertaken	Removed silt from culverts and roadside ditch	
Work Required	N/A	
History of flooding?	No previous reports	

Caithness, Sutherland & Easter Ross

Date 30/10/2006

Location Croft, Lybster

Description Flooding to croft

Work Undertaken N/A

Work Required N/A

History of flooding? No previous report

Date 30/10/2006

Location Moss 0 Marl, Achnavast

Description There was 16 inches of water ponding in the founs of the house. Water was overtopping the road culvert and flooding in

Work Undertaken No works undertaken

Work Required Roadside ditches need cleaned out, 2 small culverts need replaced and a 600mm diameter pipe is to be constructed from the overflow, along past the house, to an open ditch

History of flooding? The gardens flooded 4 years ago but not as severe as this

Date 31/10/2006

Location Houstry Road, Dunbeath

Description Water was flooding in from road into his property

Work Undertaken Kerb constructed along frontage of property

Work Required N/A

History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date 31/10/2006
Location Viewfirth, Mey
Description Flooding outside property
Work Undertaken Sandbags given
Work Required N/A
History of flooding? No previous reports

Date 01/11/2006
Location Bridge End, Thurso
Description Water from the river backed up through a disused drain into her garden
Work Undertaken No works undertaken
Work Required Possible fitting of a flap valve onto Thurso River wall at old drain outfall
History of flooding? No previous reports

Date 06/11/2006
Location Hill of Forss, Thurso
Description Ran two pumps all day to prevent house from being flooded. Roadside ditches needed cleared out, water flooding from field to rear which then flooded garden
Work Undertaken Cleaned ditch, put in larger diameter pipe below access
Work Required N/A
History of flooding? No previous report

Caithness, Sutherland & Easter Ross

Date Week of 20th November 2006
Location Cottage, Shebster
Description Culvert below main road caused water to back up and flood Ivy Cottage
Work Undertaken Replaced culvert with larger diameter pipes
Work Required
History of flooding? No previous reports

Date No exact date Feb 2007
Location Cottage, Rattar Mains Farm, Scarfskerry
Description Water was running down the public road and flooding into the cottage
Work Undertaken New roadside was constructed, a culvert was replaced and drop kerbing was put across the farm entrance
Work Required
History of flooding? No previous reports

Date 30/05/2007
Duration - most of the day
Location Braemore Road, Dunbeath
Description Water running off the main road and flooding down his driveway
Work Undertaken No works undertaken
Work Required Dropped kerb across entrance
History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date 06/08/2007
Duration - most of the day

Location Cottage, Gills, Canisbay

Description Water was backing up from the pipe below the lay-by, crossing the public road and running down into his garden

Work Undertaken No works undertaken

Work Required Replace small diameter pipe below lay-by with a larger diameter one. Clean out roadside ditch down past property and replace culvert across the road.

History of flooding? No previous reports

Date 07/08/2007

Location Manse Road, Thrumster

Description Surface water drain was unable to take the flow of water causing it to back up and flood the garden

Work Undertaken Checked drain for blockages

Work Required Scottish Water drain, will need to consult with them

History of flooding? No previous reports

Date 24/08/2007
Duration - most of the morning

Location Braemore, Glengolly

Description Garden flooded due to flood prevention works further up the road. Piped ditch in front of house was causing severe restriction

Work Undertaken Tried to clear blockage

Work Required New culvert to divert water across the road before it goes to Braemore, to be completed at the end of October 2007

History of flooding? No previous reports

Caithness, Sutherland & Easter Ross

Date	16/09/2007 Duration - heavy downpour of rain lasted about 10mins
Location	Murray Avenue, Wick
Description	Surface water drain in the road could not cope with the volume of water and surcharged 2 gullies in front of their house and the water flooded around the front of the house and into their garage about 200mm deep
Work Undertaken	No works undertaken
Work Required	Get Scottish Water to check their drain for any restrictions
History of flooding?	1 previous report with similar flooding 01/08/2006
Date	11/11/2005 Started - 08:00 Duration -12 hours
Location	West End Guest House, Durness
Description	Heavy rain not draining away mainly because of flat ground and poor drainage
Work Undertaken	
Work Required	Approx. 500m of tail drain choked and not draining away
History of flooding?	Yes, since the above drain became blocked the area floods during heavy rain
Date	25/11/2005 Started - 23:30
Location	A897 Suisgill Old Lodge
Description	River Helmsdale burst its banks and flooded the road to a depth of 300mm along the length of the old Suisgill Lodge garden
Work Undertaken	
Work Required	
History of flooding?	No

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Date 25/11/2005
Started- 18:00

Location Rear of Brora Co-op

Description Road flooded in front of Red Cross Centre

**Work
Undertaken**

**Work
Required**

**History of
flooding?** Yes - during prolonged and heavy rain

Date 25/11/2005
Started- 18:00

Location Dalchalm Brora

Description Flood came from East Clyne, across the fields, across the A9 through more fields, across the railway, through more fields, across our road (300mm deep), through Fred Sutherlands garden to the Distillery Burn.

**Work
Undertaken** None

**Work
Required**

**History of
flooding?** Yes, this occurs when we have prolonged and heavy rainfall, but I have not seen it so deep. It is not normally more than 100mm deep

Date 25/11/2005
Started- 18:00

Location Brora Distillery crossroads

Description Burn burst its banks at the Distillery Cottages, and the culvert at the crossroads could not cope with the amount of water in the burn.

**Work
Undertaken** Flood signs

**Work
Required**

**History of
flooding?** Yes but not for a number of years

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Date 25/11/2005
Started- 18:00

Location Nursery Bridge, Backies, Golspie

Description This drainage system links into the A9 drainage system at Dunrobin which is not working very well and in heavy rain cannot cope. This has the result that the water under the Backies Bridge floods to a depth of approx 400mm

Work Undertaken Flooding signs erected

Work Required A9 drainage system needs rodded or jetted

History of flooding? Yes - this is an ongoing problem, and has been since about 4 years

Date 25/11/2005
Started- 18:00

Location Golspie Tower

Description Water issuing out of field onto road and running down the road to Tower Street junction

Work Undertaken Water diverted into roadside drainage system

Work Required

History of flooding? Yes this is a regular flood spot

Date 25/11/2005
Started- 18:00

Location Bottom of the Golspie Primary School Hill

Description Water issuing from area between Hallow Park and the school turning area. Running across the school entrance road, across the back road and running into the industrial estate.

Work Undertaken None. There was no way of diverting the water at the time.

Work Required

History of flooding? Yes - I can remember this area flooding on several occasions in the last few years

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Date 02/10/2006
Started - 06:00 Duration -1 day

Location Balnacoil, Brora

Description Loch Brora burst its banks

Work Undertaken Opened flooding signs

Work Required None

History of flooding? Yes

Date 02/10/2006
Started - 08:00 Duration -1 day

Location Linside

Description River Oykel burst its bank

Work Undertaken Road closed due to flooding signs erected

Work Required None

History of flooding? Yes

Date 02/10/2006
Started - 08:00 Duration -1 day

Location Culeave

Description River Carrón burst its banks

Work Undertaken Road closed due to flooding signs erected

Work Required None

History of flooding? Yes

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Date	02/10/2006 Started - 08:00 Duration -1 day
Location	U224 at Oykel Bailey Bridge
Description	River Oykel in spate flooding up and over the U224 Strath Oykel road to a depth of 500mm.
Work Undertaken	Road closed due to flooding signs erected
Work Required	None
History of flooding?	Yes
Date	18/10/2006 Started - 15:30 Duration -1 day
Location	U224 at Oykel Bailey Bridge
Description	River Oykel in spate flooding up and over the U224 Strath Oykel road to a depth of 500mm.
Work Undertaken	Road closed due to flooding signs erected
Work Required	None
History of flooding?	Yes
Date	22/10/2006 Started -12:00 Duration - 6 hours
Location	Unadopted road Ardgay Hill
Description	Water from field flooding into gardens
Work Undertaken	None
Work Required	Bund along property boundary
History of flooding?	Yes

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Date	26/10/2006 Started - 07:00 Duration - 6 hours
Location	Council houses at Golf Road (A897) Helmsdale
Description	Flood water from golf course flowing across the road and into housing
Work Undertaken	Sand bags to housing
Work Required	New drainage scheme to prevent repeat
History of flooding?	Not known
Date	26/10/2006 Started - 07:00 Duration - 6 hours
Location	Cottage, by Helmsdale
Description	Culvert blocked and washed out road blocking A897
Work Undertaken	Road closed
Work Required	New culvert required
History of flooding?	
Date	26/10/2006 Started - 07:00 Duration - 6 hours
Location	A949 Camore
Description	Flood water from road threat to housing
Work Undertaken	Wall removed on opposite side of road to provide storage in field
Work Required	Investigation of Dornoch Burn
History of flooding?	

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Started - 07:00 Duration - 6 hours

Location C006, Loch Brora

Description Road flooded at both ends of Loch Brora

Work Undertaken Road Closed signs erected

Work Required

History of flooding? Yes

Date 26/10/2006
Started - 07:00 Duration - 6 hours

Location Dalchalm

Description Houses and road flooded between 'Clashbuie' and 'Aspen Cottage'

Work Undertaken Road closed and sandbags to housing

Work Required Clean out burn

History of flooding? Yes

Date 26/10/2006
Started - 07:00 Duration - 6 hours

Location Manse Road

Description Water running 100mm deep on road adjacent to housing and KLB High School

Work Undertaken Sand bags

Work Required

History of flooding?

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Date 26/10/2006
Started - 07:00 Duration - 6 hours

Location Millburn, Gartymore

Description Spate in burn caused land slips upstream. It blocked the culvert under the A9 and flooded adjacent house

Work Undertaken Scotland Transerve

Work Required

History of flooding?

Date 26/10/2006
Started - 07:00 Duration - 6 hours

Location Milnclarin Way, Lairg

Description Flooding to gardens alongside burn

Work Undertaken

Work Required

History of flooding?

Date 26/10/2006
Started - 07:00 Duration - 6 hours

Location Tourist information office, Bettyhill

Description Flood defence wall from burn overtopped

Work Undertaken

Work Required

History of flooding? Yes

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Date 26/10/2006
Started - 07:00 Duration - 6 hours

Location Clashmore

Description Burn overtopped into garden and house Claraviel

Work Undertaken

Work Required

History of flooding?

Date 26/10/2006
Started - 07:00

Location Main Street in Golspie

Description Main Street in Golspie from bowling green to Haven

Work Undertaken Sand bags and pumps also attempted to clear drainage to sea outfalls

Work Required Investigation of drainage and coordination of responsibility for drainage outfalls

History of flooding? Yes

Date 26/10/2006
Started - 07:00

Location East Millicent Av, Golspie

Description Rhives Burn too high for culvert under Rhives Road. Water flowing onto Rhives Road thence Back Road and thro the Fire Station into the back gardens of Nos 12/13/14/15 East Millicent Avenue. Drainage system unable to cope and water lying 200mm deep.

Work Undertaken

Work Required Increase capacity of drains in the area to prevent flooding from Rhives Burn

History of flooding? There is a history of flooding onto Back Road and into Fire Station- this is the first recorded incident of flooding affecting the properties in East Millicent Av

Caithness, Sutherland & Easter Ross

Date 26/10/2006
Started 07:00

Location Golspie

Description Water pouring down road adjacent to Tower Farm

Work Undertaken Sand bags to entrance

Work Required Works required to prevent flow onto road above house

History of flooding? No

Date 26/10/2006
Started - 07:00

Location North of Golspie

Description Road crossing under railway flooded

Work Undertaken Road Closed signs erected

Work Required A9 drainage outfall needs to be cleaned out

History of flooding? Yes

Date 26/10/2006
Started - 07:00

Location Golspie

Description Primary school access road blocked

Work Undertaken Road Closed signs and barriers erected

Work Required Scottish Water surface water sewer partially blocked. Requires work

History of flooding? Yes

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Date 26/10/2006
Started - 07:00 Duration - 6 hours

Location Evelix

Description House ground floor flooded

Work Undertaken None

Work Required Investigation of Dornoch Burn

History of flooding? Not known

Date 01/12/2006
Started - 14:00

Location Ardgay Station sidings

Description Water issuing from the field above the siding (between road and rail) not reaching rail drain culvert and flooding sidings 50mm deep

Work Undertaken None

Work Required None

History of flooding?

Date 13/12/2006
Started- 15:00

Location "Greenside", Knockan, Elphin

Description Water flowing from old road onto her ground- flooding drive etc up to house-extension at risk.

Work Undertaken HJF advised- Lochinver C/hand to be instructed to attend site with sandbags ASAP

Work Required Site visit required

History of flooding? Yes- problem may be springs in the area. ACO drain installed here in the past- this may also be a maintenance issue.

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Date	30/05/2007 Started - 13:00 Duration - 2 hours
Location	Rhives Farm House, Golspie
Description	Report of flooding into Rhives House at back door and drains welling up- Fire Brigade in attendance, pumping ongoing as of 1300
Work Undertaken	Manhole checked and pumped out- drain testing dye used but no outfall detected
Work Required	Investigation into the source of water required
History of flooding?	Road flooded in this area during heavy rain in the past
Date	30/5/2007 Started - 14:00
Location	Beinn Ratha Court, Reay
Description	Water failing to drain during heavy rain- sandbags requested by occupier
Work Undertaken	Sandbags delivered to occupier
Work Required	
History of flooding?	
Date	30/05/2007 Started - 16:00
Location	C15 road at Sputie No 2 Bridge
Description	Burn overtopping at constriction through bridge and water flowing down the road
Work Undertaken	'Flood' signs put out
Work Required	
History of flooding?	

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Date	03/07/2007 Started- 17:00
Location	A897 Adjacent to Croick House Trantlebeg
Description	Heavy rain pm resulted in high ground floodwater being channelled into the un-named burn adjacent to Croick House. The flood water picked up debris and blocked the intake of the Xcarhageway twin masonry culvert. Washout of embankment & verge.
Work Undertaken	Installation of twin 1 metre diameter pipe culvert
Work Required	
History of flooding?	
Date	03/07/2007 Started-17:00
Location	C32 Trantlemore - Bighouse Road at 'Chilsey'
Description	Heavy rain pm - large volume of water in roadside ditch opposite house - debris wash from upflow road cutting flowed down ditch, blocked x carriageway culvert - water overtopped road and flowed down driveway
Work Undertaken	Emergency work by Fire Service opening ditch to river
Work Required	Improve drainage on uphill side of road to minimise risk of flooding over road & into property
History of flooding?	Bridge/Culvert U0032N010C79 Chilsey, blocked with flood debris 2005- overtopped and flooded house and garden
Date	27/11/2005 Started - 12:30
Location	On the U2/96 where it conjoins the U2/102 at Katewell
Description	Water crossed single track road scouring out french drain and verge and undermining road. At the point where the burn breached its banks, the invert of the burn is considerably above the road level, so the water then flowed down the road
Work Undertaken	Contractor working on site for Scottish Water reformed bank using site JCB to contain flow
Work Required	Permanent repair to bank. Reinststate filter drain and repair masonry retaining wall. Clear out and install pipe in drain further down hill. Cut out and repair damage to road surfacing
History of flooding?	No

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Date 26/10/2006

Location On the U2/96 where it conjoins the U2/102 at Katewell

Description Two blockages in drains through farmers fields resulted in water flowing down track and some flowing down road to Katewell where road was washed out again. Some followed road south and caused damage here and again at Drummond Road in Evanton

Work Undertaken Cut off drain installed to collect and direct water to burn should drain in farmers field block again. Landowner is planning to regrade track and improve drainage. Burn piped where it is in channel above road level on corner

Work Required Drain clearing works along U2004 still outstanding

History of flooding? Yes, but only in November 2005 following works by Scottish Water

Date 26/10/2006

Location Livera Street, Balconie Street, Evanton

Description Water collected in natural hollow in Livera Street where combined sewer drains are incapable of coping with flow. Water also flowed down Chapel Road towards Balconie Street

Work Undertaken Source of water identified as coming from Swordale Road. Drains are capable of dealing with local water from Livera Street but can't cope with additional water. Measures put in place to improve drainage at Swordale Road

Work Required No further works proposed

History of flooding? Yes

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Date 26/10/2006
Location Drummond Road, Evanton
Description High flow in River Sgitheach - eroded corner and damaged gabion basket wall. River contained within channel by addition of sandbags at low points. Additional flow and debris from landslide and burst new watermain upstream. Burn fed by roadside drain and further exceptional flow from Katewell area unable to get to river. This flow was the source of water that flooded houses

Work Undertaken Gabion wall rebuilt and armoured. Roads resurfaced. Additional overflow ditch and pipe installed to relieve flow from burn fed by roadside drain and further upstream from Katewell area. As stated elsewhere improvements made to drainage at Katewell

Work Required No further works required

History of flooding? No

Date 26/10/2006

Location Pillars Lodge, Ardross

Description Water backed up in culvert under road due to obstruction further downstream. Culvert roof collapsed at various locations

Work Undertaken Two span stone slab culvert downstream of road crossing. Roof and central pier removed from channel over 65m length to fence line

Work Required Further works have also been carried out at school upstream with installation of larger diameter pipe through school playing field and under main B9176 Struie Road to large roadside ditch

History of flooding? Yes

Date 26/10/2006

Location C1012 (formerly C3) Scotsburn Road at Lamington

Description Water flowing from forestry roads. Ditch couldn't cope and water flowed onto road. Properties on opposite side of road from forestry on low side of road at risk of flooding

Work Undertaken Contractor currently on site clearing existing roadside drains and improving outlets

Work Required Works underway

History of flooding? Yes

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Date 14/03/2006 downstream headwall had washed away - noted in routine inspection. Mid September 2007 urgent action required

Location C15Blackfold Road

Description Embankment slip and road collapse, the consequence of collapsed stone culvert. Downstream side verge washed out and road undermined by ~300mm

Work Undertaken Initial traffic management to keep vehicles clear of the edge was followed by repair/improvement scheme

Work Required Remove trees, reinforce watercourse and road embankment, lay replacement culvert, restore verge and safety fence plus new deer fence, create new headwalls and drainage offlets from carriageway

History of flooding? No

Date 04/07/2006
Started - afternoon Duration - 6 hours

Location Moray Park Gardens, Inverness

Description Water from Hillside crossed landscaped open space then through garden and garage to cause flooding on road

Work Undertaken Road flooded, Fire Brigade attended

Work Required Problem brought to the attention of the developer. There is a need to divert overland flow to a nearby watercourse

History of flooding? Yes, almost identical situation on 2nd of October 2006 (except without Fire Service attendance)

Date 02/10/2006
Started - 08:15 Duration -1 hour

Location Cranmore Drive, Inverness

Description Blockage of culvert screen caused overflow onto road and into Cranmore Drive

Work Undertaken/ Work Required **FLOODING INCIDENT ON MONDAY 2nd OCTOBER 2006 CRANMORE DRIVE, INVERNESS**
Flooding occurred on the morning of Monday 2nd October 2006 at Cranmore Drive, Inverness when the Tower Burn overflowed at the triple culvert at Resaurie.

Weather Event
There were approximately 75mm (3 inches) of rain, in the 24hour period between midday on Sunday 1st October and midday on Monday 2nd October, and approximately 55mm (2 inches+) of rain during the hours of darkness (7pm to 7am).
Typically with rainfall of this magnitude, a severe weather warning forecast is issued by the Met Office. No such warning was issued on this occasion.

Incident Report
There have been previous flooding incidents in Cranmore Drive, all due to

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high water levels in the burn associated with very heavy rainfall. Because of the heavy rain the culvert screen was inspected at approximately 7.30am by the Community Works Officer and found to be clear. A call was received by the CWO for the east Inverness area at approximately 8.15am concerning flooding at Resaurie and he attended to assess the situation. It was clear that the grid was being choked with large amounts of sand and gravel with some wood etc. Most of the material causing the blockage at the triple culvert was sand and gravel. The heavy rain and consequent rise in water level brought new detritus into the watercourse and the high flows caused erosion of the burn bed. It is believed that the 'top entry' was also blocked (by polythene or similar). There was also a small amount of erosion near the abutment of a small bridge at the new development immediately upstream.

Council Response

Monday was a public holiday for TEC Services road workers but the CWO immediately arranged remedial works with a private contractor (D&E MacKay) using JCB and dumper truck. An estimated 6 tonnes of material was removed. Opened gate to private drive of Brookside, sometime between 8.30am and 8.45am as debris pushed up against the gate was not allowing water to flow underneath and get back into the burn. By 9.00 to 9.15 the problem was resolved. The CWO received a call about problems at Drumdevan Road and left the site.

On 18th /19th October an additional 'temporary' screen was put in upstream of the screen at the mouth of the triple culvert. In Autumn 2007 work began on replacing the triple culvert with a box culvert.

History of flooding?	Yes
Date	02/10/2006 Duration - 8:30 - 12:30
Location	Drumdevan Road, Inverness
Description	<ul style="list-style-type: none"> • Lochardil Burn overflowed • Properties in Drumdevan Road and Garth Road were affected • The houses at No 29 and 31 and the gardens of No 29 to 39 were flooded by overtopping of the banks • The gardens at No 19 to No 25 flooded • The road was flooded to a depth of approx 300mm outside 3 Drumdevan Road and 2 Garth Rd, flooding the gardens and garages of these properties and the house at 2 Garth Road itself
Work Undertaken/ Work Required	<p>FLOODING INCIDENT ON MONDAY 2nd OCTOBER 2006 DRUMDEVAN ROAD, INVERNESS</p> <p>Flooding occurred on the morning of Monday 2 October 2006 at Drumdevan Road, Inverness when the Lochardil Burn overflowed at several locations due to heavy overnight rain.</p>

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Weather Event

There was approximately 75mm (3 inches) of rain, in the 24hour period between midday on Sunday 1 October and midday on Monday 2 October, with approximately 55mm (2 inches+) of this during the hours of darkness (7pm to 7am).

Typically with rainfall of this magnitude, a severe weather warning forecast would normally be issued by the Met Office. No such warning was issued on this occasion.

Incident Report

Flood water collected at a low point in the road to a depth of approximately 300mm outside 3 Drumdevan Road and 2 Garth Road and flooded the garages of these properties as well as the under building of 2 Garth Road. Water also entered the under building through the air vents of several properties on Drumdevan Road.

There have been previous flooding incidents in Drumdevan Road, (April 2000, April 2001 and 7-8 September 2002), all due to high water levels in the burn associated with very heavy rainfall.

Possible Causes Of The Flooding

An inspection following the flood highlighted a collapsed wall in the burn by No 1 Drumdevan Road which had created a partial dam which raised the water level upstream and may have contributed or caused the burn to overflow. It is uncertain as to whether the wall collapsed before or during the flooding event; however, the evidence does suggest that the collapse was recent. As the owner was away, the wall was removed from the burn by Council workers and temporarily reinstated, (without mortar), against the bank on the 4 October. The owner has since been advised that this wall must be made secure.

On the morning of 2 October the gullies were observed to be 'working' - drawing water down although underneath the floodwater. The gullies were seen to be operating normally under normal conditions, in the weeks following the flooding event. Gullies in the area were last cleaned between the 22 March and 20 April 2006.

Inspections by Council staff are difficult without access to the length of the burn as the burn runs through private property. Highland Council had received no recent warnings about debris etc in the burn.

It appears that the capacity and efficiency of the burn have been adversely affected by artificial constraints created by riparian owners. These include narrowed sections of watercourse caused by extensions to gardens which encroach on the banks, as well as structures and fences built across the burn itself.

Many owners have also raised the level of the ground around their houses with hard landscaping which has left their air vents vulnerable to penetration by flood waters.

Council Response

A call was received by the CWO for the east Inverness area on his mobile

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phone. He visited Drumdevan Road with the Technical Manager, and the Fire Service who were already on site, to assess the situation at around 9.15am.

Flood water had entered several properties through the air vents and also some garages and had flooded the road to a depth of 300mm near to number 3. It was decided that the priority was to try and stop the burn from overflowing by placing sandbags at the critical points on the bank so that the Fire Brigade would then be able to pump the water lying on the road. The first of the sandbags arrived on site at around 9.30am and were placed by roadworkers and firemen.

No property owners had their own sandbags or other flood defences which they could deploy, with the exception of one who had devices installed, plates to seal off his under floor air vents. It was noted that the owner of 2 Garth Road who was at home had his own pallet of sandbags but did not deploy them; he was subsequently flooded.

Sandbags were also made available for collection at the Diriebught depot so that concerned members of the public could also assist themselves.

Shortly after 11.00am the burn stopped overflowing mainly due to the drop in water level rather than the impact of the sandbags. The Fire Brigade was then able to quickly pump the flood water off the road before pumping water from the foundations of several properties.

The Fire Service wanted to open a manhole cover in Drumdevan Road to allow water to escape; the manhole covers and sewer beneath are the responsibility of Scottish Water. During the flood the Council supplied manhole keys to the Fire Service to open these covers. However, they could not open them, due to the weight of water above it and dirt in the joints. Council operatives returned on the afternoon of the 2 October, removed the cover and cleaned the frame so that it would be easier to open in the future.

**History of
flooding?** Yes

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Date	02/10/2006 Started - 09:00 Duration - 2 hours
Location	Dores
Description	Water unable to access culvert behind houses, discharged down bank and affected two properties, blockage of culvert screen caused overflow onto road and into Cranmore Drive
Work Undertaken	None - not alerted until after the event
Work Required	Alterations required to flow channel and culvert access
History of flooding?	Yes
Date	02/10/2006 Duration -12 hours
Location	Woodside of Culloden
Description	Overflow from 2 No detention basins into gardens of properties downhill. Caused by insufficient SUDS measures in place
Work Undertaken	Fire Brigade attended
Work Required	Design of SUDS checked by developers and additional embankment/overflow work undertaken
History of flooding?	No
Date	02/10/2006 Started - 8:00 Duration - 1 to 2 hours
Location	Balloan Road, Inverness
Description	Gullies surcharged water, flooded down back garden to back door
Work Undertaken	Sandbags provided as standby
Work Required	Gullies appear to be working but will be investigated. Additional drainage possibly required
History of flooding?	No

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Date 02/10/2006
Location Millburn Court and lower Diriebught Road, Inverness
Description Flooding from Mill Burn ponds on road and footway, threatens properties
Work Undertaken Sandbags provided by TECS. M H cover was lifted to help drain water away - presumably by a supervisor of the care homes

Work Required

History of flooding? Yes

Date During and after all heavy rain
Location Kessock Road, Inverness
Description Significant areas of ponding on road along Kessock Road. Erosion of seawall in various locations

Work Undertaken

Work Required Repairs to seawall carried out May 2007. Additional gullies and possible reprofiling of the road channel required to alleviate flooding on the road

History of flooding? No

Date 02/07/2007
Started - 24.00 Duration - 2 hours

Location Little Cullernie Park
Description Water from road of Wyvis Drive during thunderstorm flowed into garden

Work Undertaken Sandbags provided as standby

Work Required

History of flooding? No

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Date 04/07/2007
Started morning Duration - 8 hours

Location Moray Park Place

Description Storm water system failed to cope with run off at end of street (north end of two cul-de-sacs)

Work Undertaken Developer has modified the SUDS

Work Required

History of flooding? No

Date 04/07/2007
Started - 24:00 Duration - 8 hours

Location B9006 Upper Muckovie

Description Pipes and gullies surcharging at Ardtower Road and watercourse to west overflowing. Water and debris flowed down B9006

Work Undertaken Screen to burn cleared after event

Work Required

History of flooding? No

Date 04/07/2007
Started - afternoon Duration - 4 hours

Location Tower Road/Barnchurch Junction

Description Gullies surcharging on lower section of Tower Road. Water flowing down road to junction with Barnchurch Road

Work Undertaken None, road passable with care

Work Required

History of flooding? No

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Date 04/07/2007
Started - 13:00 Duration - 4 hours

Location Fir Place, Culloden

Description Water from road off Wyvis Drive during thunderstorm flowed into garden

**Work
Undertaken**

**Work
Required** None

**History of
flooding?** No

Date 04/07/2007 to 05/07/2007
Duration - overnight

Location B852, Dores - Foyers Road

Description Flood water and debris on road caused flooding

**Work
Undertaken** Police closed road, debris cleared to help flood recede

**Work
Required**

**History of
flooding?** No

Date 04/07/2007 - 05/07/2007

Location A831 Drumnadrochit-Milton Drumnadrochit Green

Description Flooding on road and in gardens only

**Work
Undertaken**

**Work
Required**

**History of
flooding?** Yes

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Date 05/07/2007
Location Benleva, East Lewiston
Description Flooding from River Enrick on road and garden of property

**Work
Undertaken**

**Work
Required**

**History of
flooding?** Yes

Date Annually
Location A831 Struy
Description Flooding from River Glass onto road

**Work
Undertaken**

**Work
Required**

**History of
flooding?** Yes, annually

Date Annual
Location C29 Mauld
Description Flooding from River Glass onto road

**Work
Undertaken**

**Work
Required**

**History of
flooding?** Yes, annually

Date Annual
Location Wardlaw Road, Kirkhill
Description Flooding on road

**Work
Undertaken**

**Work
Required**

**History of
flooding?** Yes, annually

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Date	04/12/2006 Started — 11:45 Duration - 21 hours
Location	U220 Garvamore, Coul Farm
Description	Flood water on U220 at Coul Farm making road impassable
Work Undertaken	Road Closed signs erected
Work Required	None
History of flooding?	Yes, occasional minor flooding of road when Spey Dam control gates opened.
Date	13/12/2006 Started -14:30 Duration - 24 hours
Location	C46 Spey Street, Kingussie
Description	Flood water at Spey Street Bridge, Gynack Street, Spey Street, Market Lane, Ruthven Road and Kingussie High School, Kingussie, making road impassable
Work Undertaken	Sand bags placed to divert the flow and Road Closed signs erected
Work Required	Significant volume of sediment and debris build up in invert of Gynack Burn requiring to be cleared. Debris deposited on Gynack Street, Spey Street, Market Lane, Ruthven Road and Kingussie High School, Kingussie, to be cleared. Debris clearing works carried out to Gynack Burn from A86 High Street Bridge to Gynack Burn/River Spey confluence and to associated carriageways during January to March 2007
History of flooding?	Yes, major flooding February 1990

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Date	14/11/2005
Location	Pathend, Main Street, Lochcarron
Description	Water coming down side of house from croft road. Resident thinks that it may be from a culvert
Work Undertaken	
Work Required	
History of flooding?	
Date	25/11/2005
Location	Achterneed by Strathpeffer
Description	River bank breached where farmer had created an access point for cattle to get water from river. Water ran down field and onto C18 Dingwall-Docharty-Achterneed road and then onto main A834 Contin-Strathpeffer-Dingwall road
Work Undertaken	River bank temporarily repaired to stop flow. Flood warning signs put out
Work Required	Permanent repair required
History of flooding?	No
Date	25/11/2005 Started-15:00
Location	Opposite Craig Wood
Description	The culvert under the road is too small. The water backed up in the catchpit in the footway and poured out on to the road. From here it ran down the road towards the two properties
Work Undertaken	Culvert stopped up and water diverted along existing ditch on Craig Wood side of road to large culvert adjacent to houses. Offlet cut in verge to drain water from road - 25/11/05 Additional offlets cut in verge between two culverts - 30/11/05
Work Required	Culvert needs replaced with larger diameter pipe. Ditch downstream of existing large culvert is very overgrown and needs to be cleaned out. Larger diameter culvert under road installed
History of flooding?	Yes, a history of minor flooding to the road but not to property nor requiring closure of road. Previous problems due to poor drainage from gullies. This was all cleared out last year and was working well on this occasion but couldn't cope with volume of water

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Date	25/11/2005
Location	Tulloch Castle Drive, Dingwall
Description	Inlet to culvert under Tulloch Castle Drive blocked. Water backed up and overflowed running down old road to Tulloch Castle Lodge
Work Undertaken	Inlet cleared by mini digger - 25/11/05. Burn then flooded downstream due to debris at grid at 254785, 859872. This also cleared by mini digger. Investigation showed that culvert is still partially blocked. Efforts to remove blockage have only been partially successful and in any case were not cause of flooding. Hedge trimmings and other debris had blocked inlet
Work Required	Inlet is 375mm diameter pipe then stone culvert then 675mm diameter pipe under new road. Proposed solution is to replace small pipe and stone culvert with larger diameter pipe. Lots of services in area. Works carried out June 2007. A 600mm diameter twin-wall pipe installed to replace 375mm diameter inlet pipe and stone culvert
History of flooding?	Flooding also occurred 2 years ago
Date	24-26/10/2006
Location	B9163 north of Newhall Bridge, U2511 (previously U3/27) west of Newhall Bridge, Newhall Smithy and Garage
Description	Newhall Burn and roadside ditches burst banks
Work Undertaken	Road and ditches cleared of silt. New larger diameter pipe installed under U2511 with armoured verge and ditch bank. Roads resurfaced. Land owner has cleared trees and vegetation in and adjacent to river. Council installing relief channel for water coming down hill from south to get to river
Work Required	Plan to install additional relief channel further up hill to south to cut off water before it reaches this low lying area
History of flooding?	History of flooding of roads due to back up of water in Newhall Burn due to high flows restricted by high tide but no recent record of flooding to properties
Date	26/10/2006
Location	Moonrakers, Newhall Point, Balblair
Description	Water ran north along road and drained into low point at cottage
Work Undertaken	Road resurfaced to shed water to sea side opposite cottage
Work Required	No further works proposed
History of flooding?	No

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Date	26/10/2006
Location	Ross Wynd, Dingwall
Description	Field drain burst banks up hill and flowed down following natural gradient to reach road and proceeded to follow road to house at low point
Work Undertaken	Various improvements to collect water at track uphill and return to channel. Improvements to channel. Roundabout re-graded to divert water away from west leg
Work Required	No further works proposed
History of flooding?	No
Date	26/10/2007 Started 07:00
Location	Blackwells Street, Burn Place, Gladstone Avenue and Grant Street Dingwall
Description	Exceptional rainfall on Mitchell Hill area above Dingwall. Debris, washout of silt from channels, gravel from accesses washed away upstream blocked the trash screen at inlet to silt trap at Knockbain Road. Burn burst through garage of undertaker and ran down Blackwells Street to low points in Burn Place, Gladstone Avenue and Grant Street and adjacent streets
Work Undertaken	Extensive investigation and works carried out. Complete overall of the silt trap. Improved trash screen, trash screen access, lighting, fencing and depth gauges. Raising walls of silt trap and headwall to contain water within channel. Additional gullies added at strategic points. Raised banks of the watercourse upstream of the culvert inlet
Work Required	No further works proposed
History of flooding?	Previous flooding in the 60's and 70's
Date	26/10/2006
Location	Shoremill Cottage
Description	Drain through garden ground of property 'Wrain' is too small to carry flood flow. Water instead ran down drive between Wirain and Shoremill Cottage and flooded Shoremill Cottage
Work Undertaken	Started discussion with householder. No works carried out on site other than clearing out gravel build up under masonry arch under road
Work Required	Private drain through property Wirain needs to be opened out to an open channel or replaced with pipe of sufficient capacity. Council will then look to increase diameter or span of downstream extension to masonry arch
History of flooding?	No but burn will only relatively recently have been culverted to form garden ground

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Date	Various occasions
Location	Milltearn, Kinkell, IV7 8AR
Description	Water flows down road from east to west past property entrance. Some enters property at entrance. Run-off elsewhere causes damage to crops in field as there is no adequate drainage in field. Remainder collects at low point in road west of property causing problems for road users
Work Undertaken	Site meeting held with landowners and Councillors. Major source of water identified as coming from Taylor Hill road. Grid drain installed near road end to collect and discharge to roadside drain to east, away from property
Work Required	There is still insufficient drainage from public road but no acceptable outlet has been identified. One solution proposed has been discounted due to objection from landowner and risk of adding to flooding problems elsewhere
History of flooding?	Yes, relatively regular ponding on road
Date	26/10/2006 Duration - road closed for following week while drains unblocked and road cleared of silt
Location	B9163 at Findon
Description	Silt from field runoff overwhelmed and blocked existing roadside drainage resulting in serious flooding and prolonged closure of road
Work Undertaken	New large diameter outlet pipe installed from road down to shore through farmers field. Roadside drainage system replaced with larger diameter pipework in filter drain and improved gullies
Work Required	No further works proposed
History of flooding?	Yes
Date	26/10/2006
Location	Albert Place, Maryburgh
Description	Burn burst banks upstream of garage across burn at coordinates given above. Water passed through gardens of properties and collected in Albert Place
Work Undertaken	Primary restriction to flow - garage - has been removed. Flood study has been carried out
Work Required	Burn to be cleared of minor debris and dead trees which, if washed down could cause a blockage and lead to burn bursting banks
History of flooding?	Yes

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Date	26/10/2006
Location	Marybank
Description	Water flowed down field to behind 4 properties on Ord Road. Investigation showed drain blocked with plastic bottles
Work Undertaken	New grids installed to prevent debris entering pipe. Works undertaken by landowners in wooded area to restore flow to preferred outlet with larger capacity and clear of properties
Work Required	Grids need to be maintained
History of flooding?	Only recently since flow within wooded area was changed
Date	26/10/2006
Location	Namali, Easter Blairfoid
Description	Roadside drain on opposite site of road overtopped with low point being opposite garage
Work Undertaken	Main problem identified as being drain under public road being blocked by debris caught on service cable where culvert has been extended by another utility at request of householder. New additional pipe installed adjacent to existing blocked pipe. Duct for BT cable also installed
Work Required	BT cable to be removed from pipe and put in duct provided. BT cable to be removed from pipe under access opposite. Ditch to be cleaned out
History of flooding?	No
Date	26/10/2006
Location	Main Square, Strathpeffer
Description	Culvert blocked and water bubbled up through road
Work Undertaken	Blockage removed and further exploratory works carried out prior to resurfacing road
Work Required	A scheme is required to replace the old culvert which is both of inadequate capacity and liable to further sudden failures. Application to capital programme has been made
History of flooding?	

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Date	26/10/2006
Location	Park Terrace, Strathpeffer
Description	Water bubbles out from manhole in back garden of No. 2 Park Terrace. Then flows adjacent to house to Park Terrace which floods the road as gullies cannot cope with flow. Water then overflows past No. 3 opposite before reaching Park Road. Water also comes from chamber at top of Park Road and manhole on corner of Park Road/Park Terrace
Work Undertaken	Investigation of drainage in area carried out. New gullies with improved outlet installed at Park Terrace. Flow to pipe which runs through garden of No. 2 restricted to capacity of drain to prevent flooding of No. 2 Park Terrace and road outside
Work Required	Surfacing works are to be carried out to prevent water on Park Road entering Park Terrace. Preventative measures will also be required at drive for 1/2 Park Road. Proper solution to problem is not possible until culvert through Strathpeffer is improved as report above
History of flooding?	Yes
Date	26/10/2006
Location	Willowbank, Dalacalldich, Lochcarron
Description	Water running down road discharges into drive. Drain under road is not coping
Work Undertaken	Offlets cut on road down hill
Work Required	Offlets to be improved. New road gully to be installed on inside of corner before property. Survey of road, house air vents and floor levels to be carried out. Householders to be advised of self protection measures
History of flooding?	Yes - but due to high tides coinciding with low pressure and storm surge. Coastal protection scheme to build wall or raise road considered. This favoured raising road but there were early objections and scheme not progressed
Date	13/12/2006-15/12/2006
Location	U65 Moss, Acharacle
Description	Flood of loch due to heavy rainfall resulting in closure of public road
Work Undertaken	Survey and report
Work Required	Raising of existing road to ensure access to properties is maintained at times of high water levels
History of flooding?	Yes

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Date 13/12/2006-15/12/2006
Location U15 Dorlin, Acharacle
Description Flood water from River Shiel resulting in closure of public road

**Work
Undertaken**

**Work
Required**

**History of
flooding?**

Date 13/12/2006-14/12/2006
Location C55 Glen Nevis
Description River burst its bank resulting in closure of public road

**Work
Undertaken**

**Work
Required**

**History of
flooding?**

Date 03/12/2006-06/12/2006
Location B8044 Pier Road, Acharacle
Description Flood water from Loch Shiel resulting in closure of public road

**Work
Undertaken**

**Work
Required**

**History of
flooding?**

Date 03/12/2006-06/12/2006
Location U15 Dorlin, Acharacle
Description Flood water from River Shiel resulting in closure of public road

**Work
Undertaken**

**Work
Required**

**History of
flooding?**

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Date 03/12/2006-06/12/2006
Location U65 Moss, Acharacle
Description Flooding due to heavy rainfall resulting in closure of public road
Work Undertaken See similar report above
Work Required See similar report above
History of flooding? See similar report above

Date 13/05/2006
Location Strath Cottage, Ardtoe, Acharacle
Description Surface water entered property
Work Undertaken
Work Required
History of flooding?

Date 20/09/2006
Location MacColl Terrace, Ballachulish
Description Watercourse burst its banks. Garden and driveway damaged.
Work Undertaken
Work Required
History of flooding?

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Date 26/09/2006

Location West Laroch, Ballachulish

Description Landslide affecting the garden and house.

Work Undertaken Clearance of watercourse

Work Required The following report was prepared by the Geotechnical Unit

After heavy rainfall in the Ballachulish area of Lochaber on 20th /21st September 2006 flooding was reported in a garden of a house in West Laroch. The TECS Roads and Community Works Lochaber area staff had rectified the immediate problem on 21st and 22nd September, however the Geotechnical Unit of The Materials Testing Laboratory was asked for an opinion and suggestions as to possible further remedial measures.

A site visit was undertaken on 26th September. It was obvious that there had been 3 open-hillside type debris flows on the hillside above the property concerned, although it was not certain if they had all occurred due to the recent rainfall. It appeared as if a slight change to the water flow pattern had occurred and that water and debris had been trapped by a Watergate immediately above the affected property.

It was established that the occurrence of the debris flows was entirely due to excessive rainfall only and not due to poor drainage or other man-made cause. Most of the debris had discharged on to the open hillside without any interference to property. One stream, however had discharged water and debris to affect the property referred to above.

Clearance of this watercourse was initiated on 25th September and was ongoing at the time of the site visit.

It is recommended that this course of action be continued uphill to the base of the debris flow. It is also recommended that timber debris traps be placed in that watercourse to prevent any debris reaching property below. It will be necessary to maintain the debris traps by removal of detritus at regular intervals and also after significant rainfall or snowmelt. It also recommended that no other action be taken on the hillside, but monitoring should take place to determine if there is any hazard to property.

History of flooding?

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Date 13/12/
Location Seafield Gardens, Fort William
Description Water from high ground running through property.
**Work
Undertaken**
**Work
Required**
**History of
flooding?**

APPENDIX F

FLOOD ALLEVIATION IN THE HIGHLANDS

FLOOD PREVENTION AND LAND DRAINAGE (SCOTLAND) ACT 1997

