

**FLOOD PREVENTION AND LAND DRAINAGE
(SCOTLAND) ACT 1997
BIENNIAL REPORT No. 4
NOVEMBER 2003**



**The Highland Council
Project Design Unit
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Brora**

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1. Introduction

1.1 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This Act amended the Flood Prevention (Scotland) Act 1961 and repealed sections of the Land Drainage (Scotland) Act 1930 and the Land Drainage (Scotland) Act 1941.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 and November 2001.

1.2 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 advise 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.

1.3 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	01408 623400
Ross and Cromarty	01349 868440
Inverness	01463 703111
Nairn	01667 458522
Badenoch and Strathspey	REDACTED 9/3/15 (Lagan 1089707)
Lochaber	01397 709000
Skye and Lochalsh	01478 612727

Out of Hours Emergency Numbers

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

2. 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.

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

3.1 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 and the potential impact on developments in respect of all Planning Applications and future developments has been included in the Highland Structure Plan. The Highland Structure plan will also feed into and influence future revisions of the Local Plans within the Highland Area.

The National Planning Policy Guideline NPPG7 Planning and Flooding also requires the Planning Authority to consider flood risk in both the Structure and Local Plans. NPPG7 is soon to be updated. SPP (Scottish Planning Policy) 7 will replace this and it is likely that this guidance will include a flood risk framework which will require 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.

High risk areas (0.5% (1:200)) or greater - not suitable for essential civil infrastructure; but in built up areas protected by flood prevention works most other development should be acceptable; 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 over the page.

3.2 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 proposals:-

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.

3.3 Local Plans

The Council will require development proposals, in all but exceptional circumstances, to comply with the guidance contained in the Sustainable Urban Drainage Systems (SUDS) Design Manual for Scotland and Northern Ireland, produced by the Sustainable Urban Drainage Scottish Working Group and the framework for an agreement drawn up by COSLA and the Water Authorities. 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 Appraisal Group involving partner agencies and other interests will facilitate a coordinated approach to projects and programmes, and advise on river-related works which do not require planning permission, consistent with a National Code of Practice currently being prepared by the Scottish Executive.

3.4 Highland Flood Appraisal Group

Highland Flood Appraisal Group (FAG) 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 FAG meets every quarter, and is convened by the Council. 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 FAG 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 Urban Drainage Systems and other Building Control Matters.

The Remit for the Flood 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 Urban Drainage Systems, and any relevant Building Control matters.
- To set an annual work programme for actions.

For further information on Highland FAG, please contact:

David Gray
Telephone: (01463) 702 264
Email: david.gray@highland.gov.uk

3.5 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.

3.5.1 Aviemore Flood Prevention. (Programmed for 2004/2005)

The Dalfaber Road area of Aviemore is prone to flooding. A report in 1992 prepared by consulting engineers stated that records kept by one of the occupiers of the affected buildings identified 13 flooding events in 18 years. Three houses and the Old Bridge Public House are directly affected.

The proposals for the project require that the properties be protected by the construction of an earth flood bank some 900m long at an estimated cost of £450,000. Consideration is being given to cost effective mechanisms to implement these proposals.

A Draft Flood Prevention Order (FPO), required to permit construction of flood protection schemes, received objections. The scheme is yet to proceed to Notice of Intention to Develop (NID) the planning approval process of The Highland Council or final submission of the FPO due to the objections received and financial constraints.

3.5.2 Kingussie Flood Prevention. (Programmed for 2004/2005)

The areas in Kingussie which are prone to flooding from the River Gynack include the upper section of Spey Street, part of the B970 from Kingussie to Ruthven Bridge, the High School, the Railway Bridge and adjacent sections of the track and the marginal ground along both banks of the river.

The proposals include increasing the capacity of the River Gynack by enlarging the cross-section and gradient of the River. The cost, including protection works to structures is estimated at £200,000.

The ongoing maintenance and monitoring is being evaluated and a revised Flood Prevention Order is under consideration.

3.5.3 Acharacle Flood Prevention

A flood prevention scheme is being designed to mitigate the risk of flooding at Moss Side.

With the area being part of a Site of Special Scientific Interest (SSSI) and a potential Special Protection Area consideration is being given to an environmental assessment and discussions are currently in progress with regard to developing a scoping study to determine the extent of the Environmental Assessment (EA). Following preparation of the Environmental Assessment the scheme development will move onto the formal Flood Prevention Order and Notice of Intention to Develop submissions.

Currently flood monitoring instrumentation is in place to record river flows, loch water levels and rainfall. This data will be used in the design of a cost effective solution to assist in solving the flooding problems.

3.5.4 Inverness, Smithton, Culloden and Balloch Flood Prevention

In recent years there have been increasing problems where the burns draining the catchment area to the south of Inverness meet developed land.

Consultants HR Wallingford were commissioned to undertake an audit of previous technical reports and make recommendations for immediate action.

HR Wallingford have recommended that the resistance to flow through the urban area should be reduced and arrangements are being put in hand to implement these measures as soon as finance permits. The measures will include removal of silt and other existing obstructions, clearance of vegetation and strengthening of vulnerable burn edges.

HR Wallingford further confirmed that a diversion to Holm Mains Burn would be the best long term drainage strategy. It is envisaged that sufficient flow would remain in any existing watercourses to maintain dilution of disposal from downstream developed areas, prevention of stagnant pondings and to preserve amenity value and local diversity.

The Council have employed a flood specialist Consultant, Parkman, to advise and report on all areas south of Inverness, from the River Ness extending eastwards to Balloch. A number of reports and recommendations are complete, other reports are underway:

Feasibility study and recommendations have been completed for the south west area of Inverness.

It is proposed that the Lochardil Burn and Ault na Skiah Burns be dealt with by diverting floodflows via an artificial channel and an improved Holm Mains Burn to the River Ness. Detail design is in progress. An economic appraisal has been completed. A Flood Prevention Order is proposed, approval of this Order will allow The Council to implement the Scheme.

The Feasibility Study, recommendations and economic appraisal of the Mill Burn is also complete. Similarly, detail design is underway and it proposed that a Flood Prevention Order be prepared and promoted for the scheme. The scheme will involve minor improvements of the watercourse and a diversion of a short section of the burn during times of flood.

A feasibility study is complete for the Dell Burn. The options are currently undergoing economic appraisal. A satisfactory appraisal will lead to the preparation and promotion of a Flood Prevention Order.

A feasibility study is underway for the Smithton, Culloden, and Balloch areas. Once completed, the options will be appraised and it is proposed that any necessary Flood Prevention Orders will be promoted.

An environmental assessment is in progress for the schemes in the south west area of Inverness. This study will consider the environmental effects of the proposed schemes and make recommendations for consideration.

3.5.5 Glencoe

One cottage, garages, car park and gardens suffer from flooding.

A draft Flood Prevention Order was prepared in 1991 but not published. This scheme has not been progressed since the last flood report in 2001.

3.5.6 Fort William, Caol

A scheme was prepared to prevent flooding of Caol and Lochyside. A draft Flood Prevention Order has been prepared but not published. This scheme has not been progressed since the last flood report in 2001. This area continues to be monitored.

3.5.7 Rhuarden Court

The issue of the provision of a larger culvert at Rhuarden Court, Grantown on Spey has not been concluded. Discussions are ongoing with the developer and the road has not yet been adopted

3.5.8 Inverness Ness Bank

As identified in previous reports, objections to the proposed scheme to protect several properties and the road were received. No further progress has been made on this scheme. Some urgent attention should now be given to reviewing work done on the scheme and progressing it to a suitable conclusion, taking account of climate change.

3.5.9 Drumnadrochit, River Enrick

Following flooding on the River Enrick The Highland Council commissioned the consulting engineers Halcrow Crouch to assess the flooding risks.

This assessment included:

- a) A review of the 1990 flood study with identification of changes during the last decade.
- b) An inspection of the valley from Corrimony to Urquhart Bay.
- c) Consultation with the River Enrick Riparian Committee.

The report concluded that the last decade has seen an increase in the number of floods and that the development of a flood warning system is a good way of managing flood risk.

The report also made recommendations for the short and medium term. These recommendations include the clearing of tree debris, rip rap protection, monitoring of structures, monitoring of erosion, with the recommendation that further feasibility studies and flood risk assessments be carried out.

Funding is being pursued to allow implementation of the recommendations.

A joint project involving The Highland Council, landowners and riparian owners commissioned a study by an independent consultant to assess the River Enrick catchment. A Catchment Management Plan in accordance with The Highland Council's Structure Plan is being developed to fully consider and advise on the future management of this catchment.

3.5.10 Drumnadrochit, River Coiltie

Most of the Phase 1 works and some of the Phase 2 works identified by consultants Mott MacDonald have been completed, involving the placement of 3850 tonnes of rock as bank protection. Funding will now be sought to complete further works downstream of the A82 Trunk Road.

3.5.11 Dell/Inshes Burn and Cradlehall & Culloden Burns

Parkman Consultants Ltd have been engaged to investigate the capacity of culverts and some channels on all watercourses in this area, with a view to identifying works required. A public roadshow has also been held in the Culloden area and preparations continue for obtaining Flood Prevention Orders.

3.6 Minor Flood Prevention Measures

Inverness

Inverness TEC Services are pursuing a programme of regular waterway inspections aimed at establishing a suitable schedule of regular maintenance. There is significant association with consultants, Scottish Water, SEPA and the Forestry Commission in seeking to resolve flooding problems.

Skye and Lochalsh

The only outstanding location to resolve flooding is behind the primary school in Portree. The effect of the flooding is around one house and into a garage (domestic). The school playground also suffers. The problem has not been an issue for couple of years but could come back at any time. An application for funding has been made and a decision is awaited.

4. Measures Taken to Prevent or Mitigate the Flooding of Non Agricultural Land Since November 2001

4.1 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.

The preparation of the second Biennial 'Flood' Report, published in November 2000, identified inconsistencies in the reporting of flood incidents across the Highlands.

To address this identified problem guidance was issued through the biennial report on the definition of a flood, to clarify to compilers the trigger for implementation of flood reporting procedures.

A thorough review of the requirements of the 'Act' has been undertaken by the Highland Council, to ensure both compliance with the Act and also ensure a consistent approach to implementation by the Area Service Managers of the eight Areas of the Highland Council Area.

National guidance 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.

The implementation guidance is a live document and regular coordination meetings have been held and are programmed, involving representatives from each Area, to report on progress and implementation together with reappraisal of implementation and standardisation processes.

Research is currently ongoing to assess the potential of utilising the Highland Council's Geographical Information System (GIS), to aid in assessment procedures and the digitisation of records.

4.2 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.

4.3 National Helpline

A development that came in to force on 1 November 2001 is that of a "Floodline" this is a telephone Helpline, where members of the public can telephone 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 programs, **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.

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.

4.4 Works

4.4.1 Flood Alleviation Maintenance Works

The Highland Council is divided into 8 Areas, each administered by an Area Service Manager within TEC Services. Flooding events are managed by the relevant Area Service Manager.

It is the role of the Area Service 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 gully 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.

4.4.2 Minor Reported Works Relating to Flooding

4.4.2.1 Inverness

The following matters have been (or are being) specifically considered within the two years time span of this report. A total of £31,400 has been spent on watercourse maintenance in the twelve months from September 2002 to September 2003.

Smithton Burn –

- (a) A temporary primary screen has been installed at the top of Murray Terrace but there have been no further screen modifications since the last report. A CCTV survey has been carried out on all significant lengths of culvert in this watercourse to check for detritus/blockages and broken pipes or illegal connections. A manhole has been constructed over the culvert in the middle of the Smithton playing fields, to enable removal of a large obstruction and facilitate future maintenance. Culverts have been jet cleaned as required.
- (b) Funding has been committed to implementing a solution to a problem at Lochlann Avenue, in co-operation with the Forestry Commission.
- (c) Improvements to the road drainage system on Caulfield Road North at Sinclair Terrace are being monitored and further changes will be investigated.
- (d) Work to counteract overflow into a house garden from uphill ground including a car park at Culloden has been only partially successful, and further investigation is proceeding in association with Housing Service.

Culloden Burn –

In co-operation with the Forestry Commission and Barratt Construction Ltd an open channel has been excavated on a tributary watercourse to divert water away from a sub-standard pipeline and alleviate a flooding problem at Redburn Avenue.

The Forestry Commission has constructed a debris trap on the main burn upstream of Redburn Avenue, and detritus has been removed from the burn within garden grounds to improve and maintain channel capacity. Consultant surveyors have completed a detailed survey of the burn at this location, and measures will be investigated to control scour and bank erosion. A primary screen has been positioned at Ferntower Avenue.

Culverts have been CCTV surveyed, and jet cleaned as necessary. Additional manholes have been constructed as required. Open channel improvements have been completed where necessary.

Culloden Burn North –

A length of old stone culvert (part of the Ferntower Avenue culvert) had collapsed, partially impeding the flow of water, and this has been replaced with a 450mm culvert, with a primary screen installed at the inlet. Channel improvements have been completed immediately upstream, and a joint approach to improvements further upstream is being sought with the Forestry Commission and Muir Homes Ltd.

Culvert/pipeline clearing and channel improvements have been completed on a tributary within and adjacent to Moray Park, Culloden housing areas. An additional manhole has been constructed at Moray Park Avenue. A partial CCTV survey was completed and limitations to flows identified. Further improvements are proposed for this area.

Fiddlers Burn, Balloch –

A CCTV survey was completed of the piped length of this watercourse. An earth bund has been extended and additional road gullies put in place to ameliorate the problems caused by the overflow from the burn down Cameron Avenue.

Culvert improvements have been completed on a tributary of this burn.

Tower Brae Burn –

The channel was cleared of detritus, and primary and secondary screens installed, upstream of Caulfield Road North culverts, but the triple culverts remain in place.

Measures have been taken to reduce or eliminate overflow from a small burn on to the road at Trentham Drive, Westhill.

Muckovie Burn –

Works to improve channel efficiency have been completed at Caulfield Road North culvert.

A screen has been installed on the inlet to a piped length of a tributary at the B9006 road.

Scretan Burn –

A piped tributary at Cradlehall shops was CCTV surveyed. An additional manhole was constructed at Cradlehall Park and culvert clearing carried out.

Scour control works are proposed at the Caulfield Road culvert outlet on the main watercourse.

Mill Burn –

Since the last report, no additional screens have been put in place within the Mill Burn catchment but channel clearing works have been carried out as required. The removal of the old distillery spillway, etc has been delayed, but culverts at Millburn Court and Millburn Road have been jet cleaned. The collapsed gabion protection works at Diriebught Road are being replaced, and bank protection work is being extended at this location. Minor channel clearing has been completed at Harris Road culvert.

A CCTV survey has been completed of the Old Edinburgh Road culvert at Balloan Road junction, and of the piped watercourse extending through the Castle Heather housing development.

Dell/Inshes Burn –

Culvert and channel clearing has been completed as necessary. A long culvert on a tributary has been CCTV surveyed and cleaned generally. A major obstruction was removed and additional manholes constructed.

The trunk roads authority is to install additional road gullies at the low point in the circulating carriageway of Raigmore Interchange. The Council has allocated funds for the installation of additional gullies on Millburn Road at the Thistle Hotel. Pipelines in the vicinity of the hotel have been checked and cleared.

Culvert clearing and improvement to associated watercourses has been completed at the following sites:

A862 road at Bunchrew – 300m of culvert cleaned and new headwall and screen constructed;
A831 road at Struy and at Drumnadrochit;
Cemetery road at Fort Augustus;
B862 road at Dores hill;
Abriachan hill road – headwall and screen constructed.

A CCTV survey was completed of a piped watercourse extending between Leachkin Brae and the Caledonian Canal at Kinmylies.

4.4.2.2 Lochaber Area

The programme of Storm Drain Checks, is ongoing. These are carried out on a fortnightly basis and during periods of heavy rain at the following locations:

- a) 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
 - “Loch Leven” House
 - 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
 - Kilmallie Cemetery

- b) SOUTH – monthly inspections
- | | | |
|-----------------------------|---|----------------------|
| Glencoe Village | | |
| Oldtown, North Ballachulish | | |
| Argyll Cottages | } | Ballachulish Village |
| West Laroch Play Park | | |
| St Brides School | | |
| East Laroch | | |
| Lovat Road | } | Kinlochleven |
| Garbhein Crescent | | |
| Brown Terrace, 2 No | | |
| Wades Road | | |
| Foyers Road, 2 No | | |
| Hill Terrace | | |
- c) 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

Lochyside, Caol , Problems when high tide combines with flood flows in River Lochy. Flooding of adjacent roads and properties.

New house at Columba Road from village road – will only cause problems if ditch is blocked.

Clanranald Terrace – behind houses. 3 monthly inspection of manholes

A82 Achintore Road

Glen Nevis

Rear of Garry Crescent, Invergarry-Drains

Rear of Argyll Terr - Heathercroft

Union Rd, Fort William Upgrade of culvert required

Hill Road, Fort William Culvert pipes fractured and leaking

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

October 2001 Lundavra Road - pipe jetted

April 2002 Morar Village - jet drainage systems

October 2002 Dalour Cottages - a channel has been dug as a form of flood prevention

March 2003 Burnbank, Morar - Replace existing culverts

June 2003 Seafeld Gardens - Improvement works carried out

4.4.2.3 Sutherland

Church of Scotland Manse – Bonar Bridge (S/3/33)£1,500

Water has been emerging from the ground at the rear of the manse in the line of a culverted water course. The water was flooding into the manse and the neighbouring property, Kyle House. The section of drain through the manse property was renewed to rectify the problem.

Dalmore by Rogart River bank protection (S/3/18) £5,000

The garden and underbuilding of property at 63 Dalmore by Rogart was being flooded by the River Fleet when the river was high. The riverbank at this location consists of a bund formed parallel with the watercourse. At a point about 200m upstream, the bank had breached and was allowing water to flood onto the ground in front of the house. The river bank was reconstructed over a length of 20m.

Braelangwell Lodge Ardgay (S/3/35) £2,000

The burn from the hill turned adjacent to the public road, ran into woodland and was then culverted under the C43 downstream of the lodge. The line of the burn was enlarged through woodland to increase capacity and prevent it overtopping and flowing down the public road and into the lodge.

Gilmore Crescent Bonar Bridge (S/3/32) £1,800

The ditched watercourse was overtopping at entrance headwall flowing into adjacent housing estate. A new headwall and grille was constructed with access manhole at the top of the culvert.

4.4.2.4 Nairn

Auldearn Burn

Auldearn Burn was comprehensively cleaned out alongside Balmakeith Park, Nairn to maximize the available waterway area. Works completed April 2003.

4.4.2.5 Badenoch and Strathspey

Loch na Leoba

A new overflow pipe and associated chamber were installed at Loch na Leoba, Old Glen Road, Newtonmore to replace an inadequate smaller diameter pipe. Works completed September 2002.

Gynack Burn

Adjacent to Mill Road, Kingussie the Gynack Burn was cleaned out and rock armour bank protection provided at an area where properties were considered to be vulnerable to flooding. Works completed August 2002.

A939 Dava Road

Comprehensive works, in conjunction with Seafeld Estates, were carried out on either side of the A939 Dava Road in the vicinity of Ian Charles Hospital, Grantown on Spey, to reduce the risk of flooding to the public road, the hospital and adjoining car park. The works carried out included cleaning out and diversion of existing watercourses.

4.4.2.6 Ross and Cromarty

Avoch – Corrachie Burn (beside Industrial Estate)

The culvert grid had been cut and posed a serious threat to public safety. The culvert bar has been welded back into place and a new primary screen has been installed about 15 metres upstream. The primary screen will help to collect the majority of the larger debris.

Burn (situated on Dochcarty Road) Dingwall

Rubbish had been dumped at the culvert exit and had been carried downstream for about 20 metre. The inlet and outlet of the culvert have been dug out and cleared. The rubbish has been removed and the burn now flows freely.

Conon Eel Burn

The Eel Burn flows into a culvert under Station Road. The area surrounding the culvert inlet and outlet had large deposits of silt building up. This has now been dug out and removed.

Conon Eel Burn (Forest House)

The culvert screen in Forest House field had been blocked by debris and branches. The screen has been cleared of the debris and an inspection found that the screen was in good working order.

Dingwall Knockbain Burn (Blackwells Street)

Area behind the funeral director's required to have the vegetation cut back. The silt traps had a number of problems which required to be rectified. The vegetation has been cut away and a clear entrance to the traps has been created. The silt traps have been dug out and the trap at the far end of the tank has been pumped out. New covers are being installed over the open section of the silt traps, this will reduce the risk of a member of the public from gaining access into the tank. The entrance to the main culvert pipe is waiting to have the excess silt removed.

Fortrose (near Industrial Units)

Culvert inlet structure had collapsed with large concrete blocks falling into the inlet area. New culvert has been constructed which includes a new box inlet area covered by a heavy duty manhole cover. This will allow for easy access for inspection and also eliminate the risk to the general public.

Fortrose (near Industrial Units)

Crack in concrete slab on inlet to culvert. Broken slabs lying on top of the culvert inlet. Cracked slab has been replaced and existing culvert grid has been inspected and no problems were found. Vegetation surrounding the culvert inlet has been cleared away.

Loch Garve

The lower reaches of the Garve village were flooding regularly. The outlet from Loch Garve was gradually silting across and a slight bund had formed. Inlet from Blackwater River to loch had silted up to such an extent that the loch was backing up and flooding was occurring outwith the lower flood banks. The gravel spits have now been removed from the outlet to enable the water to dissipate more quickly.

Plot 4, Back Street, Gaza Portmahomack

When there was heavy rain in this area the burn/ditch at Gaza had problems associated with outfalls. Study of drainage patterns and soil/subsoil/geological drainage characteristics have been carried out. The study has shown that the flooding was arising from geological conditions which percolates down through light sandy and gravel soils when it then encounters a bed of clay. This impervious bed diverts the water out in a general horizontal plane. In this case it issues on the embankment where Gaza is located. There is a relatively large loch on the east side of the golf course and it is suspected that this water is simply percolating away down through the geological strata and it is resulting in the phenomenon that is occurring in Gaza.

5. Flooding Events of Non Agricultural Land Since November 1997

5.1 Reported Flood Events

All occurrences of flooding of non agricultural land recorded by The Highland Council since the publication of the previous report are contained in Appendix E.

5.2 Flooding Inverness Area – 7/8 September 2002

Since the publication of the last biennial flood report there has been a significant flood in Inverness on the 7/ 8 September 2002. The severity of this flood warrants additional information within this report.

During the night of 7/8 September over 55mm of rain (over half within a one hour period) fell in and around Inverness causing flooding to roads and property in a number of places mainly within a ten mile radius of the City. As a result the Transport Environmental and Community Services (TECS) of the Highland Council opened up the Diriebught Roads Depot and mobilised Roads Squads in the early hours of Sunday morning.

An incident room was established in the Police Area Command Office at Burnett Road with representatives of the Police, Fire, Ambulance, other Emergency Services, BEAR Scotland (the Trunk Road Contractor for the Scottish Executive) and the Council's Emergency Planning staff.

Roads signs alerting motorists that roads were impassable were erected. A number of people, mainly elderly, were taken from their homes either to neighbours or to Raigmore Hospital. The Thistle Hotel guests were evacuated by boat because of the depth of water within the Hotel and car park. Other hotels were extremely helpful in offering alternative accommodation.

A number of areas in and around Inverness were particularly badly affected by flooding including parts of Drakies, Hilton, Smithton and Culloden. A number of roads in and around these areas were also badly affected and in addition the A82 was blocked by landslides at Abriachan, the A862 was blocked by flooding in the vicinity of Kirkhill Police station, and diversionary routes had to be established along the A96 towards Inverness and to Inverness Airport.

A number of squads from within TEC Services and other Council Services were deployed to these problem areas using a variety of equipment including gully-emptiers, JCBs and roadsweepers in order to assist the reduction in flood water and begin to remove the substantial quantities of debris that the flood waters had brought onto roads and footpaths. In some cases the scope for action was limited until the flood waters went down. There were a number of helpful offers from private companies for the supply of pumps, sandbags, etc.

Priority was also given to the deployment of sandbags to areas where further flooding was expected and members of the public were able to collect sandbags from the Roads Depot. In addition, sandbags were put in place along the banks of the River Ness in the City Centre in areas which had been liable to flood in the past. Fortunately the high tides passed without significantly adding to the flooding problems.

A helpline was established in the Emergency Planning Bunker from 6.00pm on Sunday, 8 September and this operated for a 24 hour period. Around 50 calls were made to the helpline mainly from people requesting sandbags in anticipation of further flooding and also inquiring about road and rail services from Inverness. An Emergency Squad was put on standby throughout that night but did not have to be called out.

On Monday, 9 September, the clean-up campaign continued and priority was given to re-opening the dual carriageway between the Raigmore Interchange and Millburn Roundabout. Other squads were deployed to dealing with debris on the other roads that had been affected. BEAR Scotland were dealing with the closure of the A82 and the slip road from the north-

bound carriageway of the A9 at the Raigmore Interchange. Rail services to the south were affected by a landslip near Culloden and to Aberdeen by flooding around the Culloden area.

Throughout Sunday, 8 September, there was close contact with the media to publicise the action being taken and to provide information advising people about road conditions, travel arrangements and actions to be taken in respect of possible contamination by contact with flood water. The media was extremely responsive and particularly helpful about putting out public information including the Helpline Telephone Number

As a result of the impact of the flooding the City of Inverness and Area Transport, Environmental and Community Services Committee set up a Flooding/SUDS Working Group. This group is made up of elected members, with Council officials and representatives from SEPA and Scottish Water present. The group meet on a quarterly basis and has reviewed available information and specifically the flooding event detailed above. The aim of the group is to make a positive impact on flooding in Inverness and plan for the future in respect of the future flooding events.

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) Known 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 works is identified by the assessment process then the works will be carried out in order of priority within available resources. Prioritisation will consider the following:-

- a) Where there is risk to life.
- b) Where there is a 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, on an individual basis with Committee approval.
- Seek contributions from outside bodies or individuals where 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 strongly to the strategic themes of pro-actively planning for Highland’s natural environment and of providing for quality living environments.

Flooding

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/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 lends The Council to believe that such a Group for this area may be prudent.



INFRASTRUCTURE

Policy Links

- GENERAL STRATEGIC POLICIES
- INTEGRATED RURAL DEVELOPMENT

COMMUNITY

- HOUSING
- RETAILING
- SERVICES AND FACILITIES
- SPORT AND RECREATION

ECONOMY

- BUSINESS AND INDUSTRY
- TOURISM
- AGRICULTURE AND CROFTING
- FISHERIES AND AQUACULTURE
- FORESTRY
- MINERALS AND PEAT
- ENERGY PRODUCTION

ENVIRONMENT

- NATURE CONSERVATION
- LANDSCAPE
- BUILT AND CULTURAL HERITAGE

INFRASTRUCTURE

- TRANSPORT & COMMUNICATIONS
- WASTE
- UTILITIES
- NATURAL HAZARDS



Proposal NH2 Flood Appraisal Group

The Council will establish a Flood Appraisal Group, in partnership with key agencies, to provide a co-ordinated 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 Policy RD1). In view of the impending designation of the Rivers Spey and Kerry as Special Areas of Conservation under the EU Habitats Directive, the catchments of these rivers should be a priority for integrated strategies. The Council would expect central funding 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 EU assistance for preparation, past flood events and the implications of Natura 2000 designation, The Council will support early work on the Rivers Spey and Kerry.

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 Beaully, Cromarty and Dornoch Firths has tentatively been identified as at risk from sea level rising (Natural Environment Research Council Report, 1989). 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.

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 NH5 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 No.	Watercourse	Location	Origin Grid Ref.	Outfall Grid Ref.	Priority	Comments	Date File Opened
I/1	River Ness	Weirs at Dochfour to Moray Firth	2612 8395	2660 8470	3	Known flooding at Ness Bank. High river levels and high tides known to cause flooding at Douglas Row.	Ongoing
I/2	Holm Burn	Loch Ashie to River Ness	2638 8359	2644 8422	2	Propping of Holm Bridge on the B862 has been modified and is now less susceptible to flooding.	July 2001 Photographs only
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

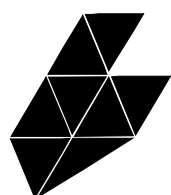
ROUTINE FLOOD ASSESSMENT CHECK CHART

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 (Baal)	Biennial													
Key: Assessment due and date:				Assessment complete											
Assessment due and date:				Assessment Complete											

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

APPENDIX D

ASSESSMENT EXAMPLE



**The
 Highland
 Council**
 Comhairle na
 Gaidhealtachd

SERVING The Highland Community

WATERCOURSE ASSESSMENT RECORD

Watercourse:	Wick River
Watercourse Ref:	C2B Pulteney Distillery Lade
Section under assessment:	
From:	3195,9677
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)	<p>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.</p> <p>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).</p> <p>Screen at the distillery is free of debris.</p>
Recommendations:	Lade should be monitored closely. Any works will need permission of distillery as they abstract water.

APPENDIX E

REPORTED FLOODING OCCURRENCES NOVEMBER 2001 TO NOVEMBER 2003



FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)

Location of Flood:	Balnacoil Bridge
Water Course Name/Ref:	S/3/05
Grid Reference:	280585 E 911030 N
Description of Flood:	300mm of water over road width
Date/Time of Start/Duration of Flood:	21/01/02 / 1430 / 1 day
Threat to People and Properties? (Please give details)	Road blocked impassable with cars
Source of Notification: Name: Address: Tel No:	Ross Mackay Brora Foreman
Works Undertaken: (Please give details)	Road ahead closed signs erected Police informed
Works Required:	None
Does the site have a history of flooding? (Please give details)	Yes has a history of flooding in this area
Recording Officer: Date Completed:	J P Mackay
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	U244 Oykle at Inveran
Water Course Name/Ref:	S/4/02
Grid Reference:	246117 E 901266 N
Description of Flood:	Road Blocked by flood water from the River Oykle
Date/Time of Start/Duration of Flood:	22/01/02 / 9.00 / 1 day
Threat to People and Properties? (Please give details)	Road blocked impassable to road vehicles
Source of Notification: Name: Address: Tel No:	Police Dornoch
Works Undertaken: (Please give details)	Road closed due to flooding signs erected
Works Required:	Lift road alignment above known flood level
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Garry Smith
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	U329 Portgower Inn Road
Water Course Name/Ref:	S/3/08
Grid Reference:	300903 E 913809 N
Description of Flood:	Blocked Culvert flooding over road and flowing down to A9
Date/Time of Start/Duration of Flood:	23/01/02 / 1300 / 6 hours
Threat to People and Properties? (Please give details)	Properties at the bottom of Portgower brae at risk. The cross carriageway drains on A9 coped with water.
Source of Notification: Name: Address: Tel No:	Garry Smith
Works Undertaken: (Please give details)	Helmsdale squad sent to unblock culvert
Works Required:	Works on ditch at inlet end of culvert. Remove vegetation and place grille.
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Garry Smith
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	C24 Clyne - Achrimsdale Road
Water Course Name/Ref:	S/3/09
Grid Reference:	289420 E 905691 N
Description of Flood:	Flooding in corner of field adjacent to Garden sheds and Garages
Date/Time of Start/Duration of Flood:	23/01/02 / 1100 /
Threat to People and Properties? (Please give details)	Private Garages and sheds
Source of Notification: Name: Address: Tel No:	Occupier
Works Undertaken: (Please give details)	None
Works Required:	Request to Murdo Ballantyne Clynelish Farm to clean out watercourse
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Garry Smith
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	C25 Clyne Distillery Road
Water Course Name/Ref:	S/3/09
Grid Reference:	289746 E 905553 N
Description of Flood:	Flooding across road and alongside distillery warehouses
Date/Time of Start/Duration of Flood:	23/01/02 / 1100 /
Threat to People and Properties? (Please give details)	Road passable with care
Source of Notification: Name: Address: Tel No:	Garry Smith
Works Undertaken: (Please give details)	Flood signs erected
Works Required:	Increase capacity of Clyne Burn
Does the site have a history of flooding? (Please give details)	Yes flood during prolonged wet periods
Recording Officer: Date Completed:	Garry Smith
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	U210C Sandside Harbour road
Water Course Name/Ref:	S/2/11
Grid Reference:	0 E 0 N
Description of Flood:	Flooding across road on approach to Harbour
Date/Time of Start/Duration of Flood:	28/01/02 / 1100 /
Threat to People and Properties? (Please give details)	Risk of freezing
Source of Notification: Name: Address: Tel No:	Mr McPherson
Works Undertaken: (Please give details)	Unblocked Gully
Works Required:	None
Does the site have a history of flooding? (Please give details)	No
Recording Officer: Date Completed:	Stephen MacLennan
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Rose Cottage/Old Schoolhouse
Water Course Name/Ref:	S/3/31
Grid Reference:	257316 E 894682 N
Description of Flood:	Culrain Burn has broken its banks and flooded the field adjacent to the houses
Date/Time of Start/Duration of Flood:	21/02/02 / 2200 /
Threat to People and Properties? (Please give details)	3 no. properties in threat from flood water
Source of Notification: Name: Address: Tel No:	PC MacLeod
Works Undertaken: (Please give details)	No resources available Fire brigade broke through wall to relieve flooding in fields
Works Required:	Survey
Does the site have a history of flooding? (Please give details)	Not known
Recording Officer: Date Completed:	Garry Smith
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	U412 Sawmill railway bridge
Water Course Name/Ref:	S/3/04
Grid Reference:	284460 E 901044 N
Description of Flood:	Ponding water below bridge blocking road to traffic
Date/Time of Start/Duration of Flood:	21/02/02 / 1635 /
Threat to People and Properties? (Please give details)	
Source of Notification: Name: Address: Tel No:	Mrs Mason
Works Undertaken: (Please give details)	Reported to BEAR Scotland, road drainage blocked causing ponding water in our road
Works Required:	Clean out blocked drain
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	J P Mackay
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Gilmore Crescent Ardgay
Water Course Name/Ref:	S/3/32
Grid Reference:	261070 E 891890 N
Description of Flood:	Flooding from field into rear of properties in Gilmour Crescent and Carnmhor Road
Date/Time of Start/Duration of Flood:	21/02/02 / 2200 / 6 hours
Threat to People and Properties? (Please give details)	Properties in Gilmour Crescent no.8 and 9
Source of Notification: Name: Address: Tel No:	James Innes (housing)
Works Undertaken: (Please give details)	Sand bags at back door
Works Required:	Survey required to find solution
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Garry Smith
Comments:	Further investigation required

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Rheguile Farm
Water Course Name/Ref:	S/3/34
Grid Reference:	269460 E 885466 N
Description of Flood:	Flood over whole road impassable to traffic due to depth
Date/Time of Start/Duration of Flood:	22/02/02 / 1030 /
Threat to People and Properties? (Please give details)	None but no alternative access to the main road A836
Source of Notification: Name: Address: Tel No:	R+T Dingwall
Works Undertaken: (Please give details)	Flood signs erected
Works Required:	Clean out ditching and culverts in whole section. Otherwise we will need to raise the road level above the flood plain.
Does the site have a history of flooding? (Please give details)	Not known
Recording Officer: Date Completed:	Garry Smith
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Dalmore
Water Course Name/Ref:	S/3/18
Grid Reference:	271503 E 902871 N
Description of Flood:	River Fleet flooding fields around
Date/Time of Start/Duration of Flood:	22/02/02 / 1000 /
Threat to People and Properties? (Please give details)	63 Dalmore Rogart
Source of Notification: Name: Address: Tel No:	Mrs Gunn
Works Undertaken: (Please give details)	24 sandbags delivered by R Mackay
Works Required:	Survey required
Does the site have a history of flooding? (Please give details)	Yes when high tide at loch fleet combine with a high river flooding results
Recording Officer: Date Completed:	R Mackay
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Balnacoil Bridge
Water Course Name/Ref:	S/3/05
Grid Reference:	280586 E 911031 N
Description of Flood:	300mm of water over road width
Date/Time of Start/Duration of Flood:	06/03/02 / 1200 / 6 hours
Threat to People and Properties? (Please give details)	Road blocked impassable with cars
Source of Notification: Name: Address: Tel No:	Ross Mackay Brora Foreman
Works Undertaken: (Please give details)	Road ahead closed signs erected Police informed
Works Required:	
Does the site have a history of flooding? (Please give details)	Yes has a history of flooding in this area
Recording Officer: Date Completed:	J P Mackay
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	U367 Dalchalm
Water Course Name/Ref:	S/3/09
Grid Reference:	290860 E 905988 N
Description of Flood:	Road drainage running down driveway and into garden shed
Date/Time of Start/Duration of Flood:	24/01/02 / / 2 hours
Threat to People and Properties? (Please give details)	Flooding of garden area
Source of Notification: Name: Address: Tel No:	Ray Critchlow
Works Undertaken: (Please give details)	None
Works Required:	Survey and report
Does the site have a history of flooding? (Please give details)	Not known
Recording Officer: Date Completed:	Garry Smith
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Rear of Lairg Police Station
Water Course Name/Ref:	S/4/07
Grid Reference:	258810 E 906300 N
Description of Flood:	Flooded garden and garage containing car and kitchen units in packaging
Date/Time of Start/Duration of Flood:	16/01/03 / 1200 /
Threat to People and Properties? (Please give details)	Garage flooded and water approaching house
Source of Notification: Name: Address: Tel No:	PC Bob Christie
Works Undertaken: (Please give details)	Pump out flooded area into adjacent storm water and foul sewer using local Fire Brigade crew
Works Required:	The existing 9" Drainage Pipe which ties into 4" pipe to outfall requires to be Upgrade to adequate size to accommodate flow. Approx. 70m required.
Does the site have a history of flooding? (Please give details)	No previous incidents reported, however anecdote on site revealed there used to be a pond in this location prior to housing built in the 70's
Recording Officer: Date Completed:	Brian Fraser
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	'Kincora' A836 Lochside Lairg
Water Course Name/Ref:	
Grid Reference:	257988 E 906891 N
Description of Flood:	Water from piped water course on hill behind property flooding into garden
Date/Time of Start/Duration of Flood:	19/01/03 / 1000 /
Threat to People and Properties? (Please give details)	Flooding in garden
Source of Notification: Name: Address: Tel No:	Occupier
Works Undertaken: (Please give details)	NONE
Works Required:	Investigate problem, Blocked pipe? Choked ditch
Does the site have a history of flooding? (Please give details)	Problem since houses were built on hill behind house in the 80's 'Glencairn' - comments made by occupier.
Recording Officer: Date Completed:	Garry Smith
Comments:	Site visit required

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	U2017 Rheguille Farm Edderton
Water Course Name/Ref:	S/3/34
Grid Reference:	269228 E 885486 N
Description of Flood:	Outfall from 'pond' not working, pond overflow causing over 2 foot standing water on road.
Date/Time of Start/Duration of Flood:	18/01/03 / all day /
Threat to People and Properties? (Please give details)	Road (U2017) RHEGUILE BRANCH ROAD Blocked
Source of Notification: Name: Address: Tel No:	Mr J Frost
Works Undertaken: (Please give details)	Open outfall pipe in field and allow water to drain into field
Works Required:	Investigate outfall pipe to find blockage
Does the site have a history of flooding? (Please give details)	Yes, Ross and Cromarty have reported that this road used to be closed regularly
Recording Officer: Date Completed:	Neil Gauld
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Gilmore Crescent Ardgay
Water Course Name/Ref:	S/3/32
Grid Reference:	261070 E 891890 N
Description of Flood:	Flooding from field into rear of properties in Gilmour Crescent and Carnmhor Road
Date/Time of Start/Duration of Flood:	28/01/02 / 1000 /
Threat to People and Properties? (Please give details)	Properties in Gilmour Crescent and Carnmhor Road
Source of Notification: Name: Address: Tel No:	C Morrice Ardgay foreman
Works Undertaken: (Please give details)	Sandbags to divert water from rear of houses
Works Required:	
Does the site have a history of flooding? (Please give details)	n/a
Recording Officer: Date Completed:	Garry Smith
Comments:	Further investigation required

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	A949 Osbisdale
Water Course Name/Ref:	S/3/28
Grid Reference:	271623 E 889503 N
Description of Flood:	Water 9" deep across road
Date/Time of Start/Duration of Flood:	21/02/02 / 1830 / 6 hours
Threat to People and Properties? (Please give details)	Passable with care
Source of Notification: Name: Address: Tel No:	Police Bonar
Works Undertaken: (Please give details)	Signs erected to warn drivers
Works Required:	New culvert and filter drain
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Henry Flett
Comments:	Survey required

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Industrial Estate
Water Course Name/Ref:	S/3/10
Grid Reference:	279907 E 890035 N
Description of Flood:	Dornoch Burn overtopping at culverted section
Date/Time of Start/Duration of Flood:	22/02/02 / 0800 /
Threat to People and Properties? (Please give details)	Workshop of Treecraft Woodwork Ltd flooding with 15" water
Source of Notification: Name: Address: Tel No:	Mrs J Green
Works Undertaken: (Please give details)	None
Works Required:	Survey Required of Problem
Does the site have a history of flooding? (Please give details)	Not Known
Recording Officer: Date Completed:	Garry Smith
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	C20 culvert crossing
Water Course Name/Ref:	S/4/08
Grid Reference:	256485 E 911801 N
Description of Flood:	Flooding over road and into farm yard and barns
Date/Time of Start/Duration of Flood:	21/02/02 / 1630 / 2 hours
Threat to People and Properties? (Please give details)	Barns flooded with water
Source of Notification: Name: Address: Tel No:	A Morrison
Works Undertaken: (Please give details)	Road cleared signs erected
Works Required:	Replace culvert
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Garry Smith
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Church of Scotland Manse and Kyle view
Water Course Name/Ref:	S/3/33
Grid Reference:	261138 E 891269 N
Description of Flood:	Surface water and field drain drainage from field to east overwhelms drainage system in manse garden - threatens manse (sandbagged) and Kyle Home
Date/Time of Start/Duration of Flood:	21/02/02 / 1800 /
Threat to People and Properties? (Please give details)	Threatens manse property - sandbagged to rear threatens to flood solum of Kyle House
Source of Notification: Name: Address: Tel No:	Mrs Thomson
Works Undertaken: (Please give details)	Sandbags delivered to house
Works Required:	Report in preparation
Does the site have a history of flooding? (Please give details)	Yes: when old reservoir in field above removed drainage system unable to cope approx 1990 w&s dept installed 450 dia drain but intake works appear to be inadequate.
Recording Officer: Date Completed:	Les Christie
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	U2017 Rheguile Farm Edderton
Water Course Name/Ref:	S/3/34
Grid Reference:	269228 E 885486 N
Description of Flood:	Outfall from 'pond' not working. Pond overflowing causing over 2 feet of standing water on public road. Road closed as a result
Date/Time of Start/Duration of Flood:	18/02/03 / 1800 /
Threat to People and Properties? (Please give details)	Road (U2017) Blocked.
Source of Notification: Name: Address: Tel No:	Mr J Frost
Works Undertaken: (Please give details)	Open outfall pipe in field and allow water to run down field
Works Required:	Investigate to find blockage. Work carried out under drainage maintenance pipe lengths replaced and outfall to pond reinstated
Does the site have a history of flooding? (Please give details)	Yes. Ross and Cromarty who were previously responsible have reported problems in the past.
Recording Officer: Date Completed:	Neil Gauld
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	U2017 Rheguile Farm
Water Course Name/Ref:	S/3/34
Grid Reference:	269197 E 885468 N
Description of Flood:	Overflowing Pond, collecting in low point across field and swamping road
Date/Time of Start/Duration of Flood:	20/10/02 / /
Threat to People and Properties? (Please give details)	No. Mr Frost at Leachonich stranded
Source of Notification: Name: Address: Tel No:	Mr J Frost
Works Undertaken: (Please give details)	J Bonthronne dispatched to investigate. Reported that water is 4" deep and impossible to do anything about it. Will just have to wait until water recedes
Works Required:	Les Christie to investigate
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Nick Lindsay
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	A949 North Lodge Skibo
Water Course Name/Ref:	S/3/28
Grid Reference:	273571 E 889518 N
Description of Flood:	Water swamping road
Date/Time of Start/Duration of Flood:	22/10/02 / 1545 /
Threat to People and Properties? (Please give details)	Not Known
Source of Notification: Name: Address: Tel No:	Police Dornoch
Works Undertaken: (Please give details)	Jock Bonthronne dispatched to investigate at 1550 Flood signs erected
Works Required:	Not Known
Does the site have a history of flooding? (Please give details)	Not Known
Recording Officer: Date Completed:	Nick Lindsay
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Caledonia House, Dornoch Road, Bonar
Water Course Name/Ref:	S/3/12
Grid Reference:	261033 E 891516 N
Description of Flood:	Water Flowing down road (A949) and flooded into ground floor and basement of old Caledonian Hotel. Water entered from footpath at front which is lower than the adjacent road level.
Date/Time of Start/Duration of Flood:	21/07/03 / 1830 /
Threat to People and Properties? (Please give details)	Flooded private house ground floor and basement (note: Also reported to Social work Emergency Unit at 0850 22/07/03)
Source of Notification: Name: Address: Tel No:	Mr Tomlinson
Works Undertaken: (Please give details)	Noswa who's sewer had also overflowed into property cleaned up area.
Works Required:	Clear existing road gullies down A949, replace with new gully pots as required. Re-new kerbing in front of Hotel to prevent recurrence and keep water on the road.
Does the site have a history of flooding? (Please give details)	No
Recording Officer: Date Completed:	Les Christie
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	C44 Braelangwell Lodge
Water Course Name/Ref:	S/3/35
Grid Reference:	251590 E 892768 N
Description of Flood:	Water flooding from burn through the gate of the lodge
Date/Time of Start/Duration of Flood:	10/04/02 / 0900 /
Threat to People and Properties? (Please give details)	Lodge had to be sandbagged to keep water at bay
Source of Notification: Name: Address: Tel No:	Mr Godman
Works Undertaken: (Please give details)	Sand bags issued to owner
Works Required:	Clean out and deepen burn and roadside ditch.
Does the site have a history of flooding? (Please give details)	Not known
Recording Officer: Date Completed:	Neil Gauld
Comments:	

<p>INVERNESS</p> <p>FLOODING INCIDENT REPORT</p>	
<p>RECORDING FORM: (Mark all applicable options)</p>	
Location of Flood:	Leachkin Brae
Water Course Name/Ref:	Un-named
Grid Reference:	264111 844929
Description of Flood:	Blocked piped watercourse which resulted in an overflow
Date/Time of Start/Duration of Flood:	28/02/2002 (1 Day)
Threat to People and Properties? (Please give details)	Threat to residential property garden and threatened to undermine a wall.
Source of Notification: Name: Address: Tel No:	Mrs Crosbie (landowner) Leachkin Brae Inverness
Works Undertaken: (Please give details)	Sand bags delivered & blocked pipeline noted. Landowner diverted watercourse out of property using a by-pass culvert.
Works Required:	None
Does the site have a history of flooding? (Please give details)	No
Recording Officer: Date Completed:	J. McGuinness 01/03/02
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Ardersier, Culloden/Smithton and Tomatin
Water Course Name/Ref:	Various Allt a Choire Mhoir (in particular)
Grid Reference:	Various 281387 829375 (in particular)
Description of Flood:	Surface flooding of roads and a bridge on the Balvraid road at Corrybrough, Tomatin was washed away
Date/Time of Start/Duration of Flood:	30/07/2002 1 day
Threat to People and Properties? (Please give details)	The loss of the bridge resulted in the isolating of a number of properties
Source of Notification: Name: Address: Tel No:	Police Burnett Road Inverness
Works Undertaken: (Please give details)	Work commenced next day to construct temporary access. A Mabey Quickbridge later installed to improve temporary access. A replacement bridge has since been completed.
Works Required:	None
Does the site have a history of flooding? (Please give details)	No
Recording Officer: Date Completed:	J. McGuinness
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Moray Park Avenue, Culloden
Water Course Name/Ref:	Tributary of Culloden east Burn
Grid Reference:	272612 846395
Description of Flood:	Stone culvert blocked by detritus. Overflow from upstream manhole cover and various cover slabs of stone culvert.
Date/Time of Start/Duration of Flood:	06/08/2002 2 days
Threat to People and Properties? (Please give details)	At least 8 properties were affected, mainly damage to gardens from flowing or ponded water. 2 houses had water underneath floors and garages were flooded
Source of Notification: Name: Address: Tel No:	The Owner/Occupier 10 Moray Park Lane Inverness
Works Undertaken: (Please give details)	Jet cleaning of culvert. Excavation of garden at No. 67 Moray Park Avenue to locate and clean main blockage. Various other clearances.
Works Required:	On-going inspection and cleaning.
Does the site have a history of flooding? (Please give details)	Recent history only, caused by interference with culvert by property owners/developers and blockages by debris from forest clearance/ housing development upstream.
Recording Officer: Date Completed:	Arthur McKenzie
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Culloden/Smithton/Balloch, Westhill and the south west side of Inverness urban area
Water Course Name/Ref:	Various/numerous Dell of Inshes Burn & all Culloden area burns (in particular)
Grid Reference:	Various/numerous. In particular the following: 268830 844352; 268358 845712; 272087 845862; 271480 846483; 271553 845546
Description of Flood:	Extreme localised rainfall caused widespread flooding of roads, gardens, houses, commercial premises
Date/Time of Start/Duration of Flood:	07/09/2002 2 days
Threat to People and Properties? (Please give details)	Numerous properties experienced flooding to varying degrees
Source of Notification: Name: Address: Tel No:	Police Burnett Road Inverness
Works Undertaken: (Please give details)	Supply and/or delivery of sandbags. Clearing debris from roads. CCTV surveys of culverts. Cleaning culverts and replacing some lengths. Constructing additional manholes and installing extra screens at inlets. Reinstating waterway capacity.
Works Required:	Channel improvement works on 3 watercourses at Culloden
Does the site have a history of flooding? (Please give details)	Some sites experience some flooding from rainfall events in excess of 1 in 5 years return periods.
Recording Officer: Date Completed:	Arthur McKenzie On-going
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	King Brude Road/Scorguie/Clachnaharry Road/Chapel Street/Southside Road/Douglas Row/Millburn Road
Water Course Name/Ref:	Various/un-named; River Ness
Grid Reference:	Various. In particular the following: 267220 845610; 266330 845540; 265160 845860
Description of Flood:	Partial flooding of carriageway and footpaths, premises of Farm and Household Stores on Millburn Road were partially inundated due to a choked gully
Date/Time of Start/Duration of Flood:	21/07/03 1 day
Threat to People and Properties? (Please give details)	Sand bags provided for residents of Douglas Row to prevent flooding. Farm and Household premises on Millburn Road partially inundated due to a choked gully.
Source of Notification: Name: Address: Tel No:	Police Burnett Road Inverness
Works Undertaken: (Please give details)	Inspection and monitoring only Reinstatement of King Brude Road by Scottish Water
Works Required:	None
Does the site have a history of flooding? (Please give details)	Some suffer localised flooding on frequent basis
Recording Officer: Date Completed:	L Houlker 28/07/03
Comments:	

LOCHABER

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)

Location of Flood:	Lochy Road Inverlochy
Water Course Name/Ref:	None
Grid Reference:	Easting 211279 Northing 774857
Description of Flood:	Surface water from road flooding garden
Date/Time of Start/Duration of Flood:	14/01/2002 (see comments below)
Threat to People and Properties? (Please give details)	Flooding to garden
Source of Notification: Name: Address: Tel No:	Mrs C Stevenson 11 Lochy Road Inverlochy FORT WILLIAM
Works Undertaken: (Please give details)	None
Works Required:	New surface water drainage system
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Mr C Strong (Senior Engineer)
Comments:	This was brought to our attention by a letter of complaint from the resident, we responded in writing on 25th January 2002

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Highland Trading Company, High Street, Fort William
Water Course Name/Ref:	NONE
Grid Reference:	NN1020 7389
Description of Flood:	WATER THREATENING TO ENTER PREMISES AT REAR
Date/Time of Start/Duration of Flood:	14/01/2002 09.00 - 10.00
Threat to People and Properties? (Please give details)	Water threatening to enter rear of premises
Source of Notification: Name: Address: Tel No:	MARY ROSS (Employee) AS ABOVE
Works Undertaken: (Please give details)	SAND BAGS ISSUED
Works Required:	
Does the site have a history of flooding? (Please give details)	NO
Recording Officer: Date Completed:	C Strong 14.01.02
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	22 Lochy Road, Inverlochy
Water Course Name/Ref:	NONE
Grid Reference:	NN11436 74938
Description of Flood:	Heavy rain combined with a slow running gulley resulted in flooding
Date/Time of Start/Duration of Flood:	22/01/2002 09.00
Threat to People and Properties? (Please give details)	Flooding to garden and footway making it difficult for people entering/leaving the house
Source of Notification: Name: Address: Tel No:	MR J PRYCE 22 LOCHY ROAD INVERLOCHY FORT WILLIAM
Works Undertaken: (Please give details)	Flood signs erected. Sweeper/gulley emptier to attend gulley when available
Works Required:	Investigative works required to determine future works
Does the site have a history of flooding? (Please give details)	Gulley has been slow running for a number of years, according to the complainant
Recording Officer: Date Completed:	Mr I MacLelland 22/01/02
Comments:	French drain in verge to rear of footway which took surface water from neg sloping footway no longer operating effectively

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Ballachulish at Tighphuirst above Brae Cottage
Water Course Name/Ref:	NONE
Grid Reference:	NN 09343 58606
Description of Flood:	Culvert to top side of road blocked causing flooding to road
Date/Time of Start/Duration of Flood:	22/01/2002 12.10 - 15.00
Threat to People and Properties? (Please give details)	FLOODED ROAD - THREAT TO PROPERTY AND GARDEN
Source of Notification: Name: Address: Tel No:	CALLER REFUSED TO LEAVE THIS INFORMATION
Works Undertaken: (Please give details)	PERSONNEL SENT TO CLEAR CULVERT ENT
Works Required:	DEBRIS REMOVED FROM PIPE ENDS
Does the site have a history of flooding? (Please give details)	ONLY IN LAST 48 HOURS
Recording Officer: Date Completed:	I MACLELLAND 22/01/02
Comments:	None

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Columba Road, Morar
Water Course Name/Ref:	NONE
Grid Reference:	NN 167664 793228
Description of Flood:	Flood water from Loch a Ghille Ghobaich brought sand and stones from building site opposite Columba Road blocking pipes and manholes and raising the water level burn at back of Columba Road
Date/Time of Start/Duration of Flood:	08/02/2002 15.00 - 18.00
Threat to People and Properties? (Please give details)	HOUSES BUILT ON HIGH FOUNDATIONS APP. 800MM ABOVE GARDENS FRONT AND REAR GARDENS FLOODED AT NO. 3 & 4 COLUMBA ROAD
Source of Notification: Name: Address: Tel No:	NOT SUPPLIED
Works Undertaken: (Please give details)	CLEANED OUT DITCH AND MANHOLES (APPROX 5) AND DITCH AT REAR OF COLUMBA ROAD
Works Required:	STOP MATERIALS FROM BUILDING SITE COMING DOWN BURN/PIPES NEED JETTING 360 EXC TO CLEAN MAIN DITCH AT REAR OF HOUSES
Does the site have a history of flooding? (Please give details)	
Recording Officer: Date Completed:	R CATTLE 08/02/03
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Glencairn, East Bay , Mallaig
Water Course Name/Ref:	NONE
Grid Reference:	NM 168049 797159
Description of Flood:	Heavy rainfall. Pipes coming down at the back of the property could not cope with volume of water
Date/Time of Start/Duration of Flood:	08/02/02 15.00 - 18.00
Threat to People and Properties? (Please give details)	WATER AT BACK OF HOUSE IN AT BACK DOOR
Source of Notification: Name: Address: Tel No:	NO SUPPLIED
Works Undertaken: (Please give details)	SAND BAGS AT BACK DOOR
Works Required:	CHECK ALL PIPEWORK AND MANHOLES FOR STONES AND SEAL ALL MANHOLES. ROAD GULLIES NEED CHECKING
Does the site have a history of flooding? (Please give details)	
Recording Officer: Date Completed:	R CATTLE 08/02/03
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Morardale, Fassifern Road, Fort William
Water Course Name/Ref:	NONE
Grid Reference:	Easting 210141 Northing 773754
Description of Flood:	Choked gully unable to cope with volume of water produced by heavy rain.
Date/Time of Start/Duration of Flood:	26/02/02 11.00 - 12.00
Threat to People and Properties? (Please give details)	Water entered garden at dropped kerb
Source of Notification: Name: Address: Tel No:	Mrs Cameron As Above
Works Undertaken: (Please give details)	Sandbags supplied and gullies cleared
Works Required:	Drop kerbs could be raised as husband is no longer able to get out of house
Does the site have a history of flooding? (Please give details)	NO
Recording Officer: Date Completed:	Iain Bruce Low 26/02/03
Comments:	There may be drainage problems on Union Road, causing flooding on Fassifern Road

ROSS AND CROMARTY	
FLOODING INCIDENT REPORT	
RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/1/MIL
Grid Reference:	
Description of Flood:	Water pouring off the road and into her property
Date/Time of Start/Duration of Flood:	19/05/2003
Threat to People and Properties? (Please give details)	Yes - threat to property
Source of Notification: Name: Address: Tel No:	Mrs Bell Croy Cottage
Works Undertaken: (Please give details)	Offlets cut
Works Required:	Offlets
Does the site have a history of flooding? (Please give details)	No
Recording Officer: Date Completed:	Sandy Marshall
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Portmahomack
Water Course Name/Ref:	R/1/POR/01
Grid Reference:	291644 884616
Description of Flood:	Surface water problem outside owners property in Portmahomack
Date/Time of Start/Duration of Flood:	05/11/2001
Threat to People and Properties? (Please give details)	Yes – threat to property
Source of Notification: Name: Address: Tel No:	Mr John Mackay 5 Chapelhill
Works Undertaken: (Please give details)	Site was inspected during heavy rainfall on 31/01/02. No problems were found (possible uneven channel causing overflow)
Works Required:	Inspect surrounding gullies
Does the site have a history of flooding? (Please give details)	No
Recording Officer: Date Completed:	Mr J Yuill
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/1/POR/02
Grid Reference:	291474 884185
Description of Flood:	Heavy rain and the burn/ditch at Gaza and problems associated with outfalls in the general area
Date/Time of Start/Duration of Flood:	
Threat to People and Properties? (Please give details)	
Source of Notification: Name: Address: Tel No:	Mrs Oman Plot 4
Works Undertaken: (Please give details)	Study of drainage patterns and soils/subsoil/geological drainage characteristics carried out
Works Required:	Unknown
Does the site have a history of flooding? (Please give details)	Unknown
Recording Officer: Date Completed:	Mr Ian T Hay
Comments:	Consulting with SEPA on this issue

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/1/TAI
Grid Reference:	
Description of Flood:	Concern over drainage outside her house
Date/Time of Start/Duration of Flood:	11/07/2003
Threat to People and Properties? (Please give details)	No
Source of Notification: Name: Address: Tel No:	Tracy H Fraser The Oriel
Works Undertaken: (Please give details)	New channel installed
Works Required:	New channel
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Mr John Hearmon
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/2/FOR
Grid Reference:	
Description of Flood:	Plot channel across road from well at Wards Farm blocked with grit and water is pouring over road
Date/Time of Start/Duration of Flood:	11/02/2003
Threat to People and Properties? (Please give details)	No
Source of Notification: Name: Address: Tel No:	Mrs Webb Kingsburn
Works Undertaken: (Please give details)	Unknown
Works Required:	
Does the site have a history of flooding? (Please give details)	Unknown
Recording Officer: Date Completed:	Sandy Marshall
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/3/COB/01
Grid Reference:	
Description of Flood:	Concerned about the amount of surface run-off outside their property
Date/Time of Start/Duration of Flood:	
Threat to People and Properties? (Please give details)	Yes- threat to property
Source of Notification: Name: Address: Tel No:	Mr J M Torrence Glenrosa
Works Undertaken: (Please give details)	Unknown
Works Required:	
Does the site have a history of flooding? (Please give details)	Unknown
Recording Officer: Date Completed:	Mr Jim Yuill
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/3/COB/02
Grid Reference:	
Description of Flood:	Main road drainage
Date/Time of Start/Duration of Flood:	29/01/2003
Threat to People and Properties? (Please give details)	Yes – threat to property
Source of Notification: Name: Address: Tel No:	Mr John Dunlop 5 Brahan View
Works Undertaken: (Please give details)	Unknown
Works Required:	
Does the site have a history of flooding? (Please give details)	Unknown
Recording Officer: Date Completed:	Mr John Hearmon
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/3/COB/3
Grid Reference:	
Description of Flood:	Flooding on Station Road
Date/Time of Start/Duration of Flood:	03/09/2003
Threat to People and Properties? (Please give details)	Unknown
Source of Notification: Name: Address: Tel No:	Mr D M MacDonald Moorvale
Works Undertaken: (Please give details)	Unknown
Works Required:	
Does the site have a history of flooding? (Please give details)	Unknown
Recording Officer: Date Completed:	Mr Jim Yuill
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/3/DIN
Grid Reference:	254534 859204
Description of Flood:	Gullies not discharging outside no. 19 Simpson Place
Date/Time of Start/Duration of Flood:	14/11/2002
Threat to People and Properties? (Please give details)	Yes
Source of Notification: Name: Address: Tel No:	Mr K Campbell 19 Simpsons Place
Works Undertaken: (Please give details)	Gully outfalls checked. Small manhole built at join of other outlets outfall located. Exposed with headnail and flap valve installed
Works Required:	Check gully is now working correctly
Does the site have a history of flooding? (Please give details)	Unknown
Recording Officer: Date Completed:	Mr Ian T Hay
Comments:	None

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/3/GAR
Grid Reference:	240576 860397
Description of Flood:	Outlet from Loch Garve has gradually been silted across and a slight bund has formed
Date/Time of Start/Duration of Flood:	28/02/2002
Threat to People and Properties? (Please give details)	Yes – to people and property
Source of Notification: Name: Address: Tel No:	Community Council and Local Member Ewan MacKinnon Village of Garve
Works Undertaken: (Please give details)	Removal of gravel spits at outlets has enabled water to dissipate more quickly
Works Required:	None
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Mr Ian T Hay
Comments:	Work was carried out with consent.

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/3/MBK
Grid Reference:	253973 855843
Description of Flood:	Water flowing off railway track is causing flooding on the road
Date/Time of Start/Duration of Flood:	17/06/2002
Threat to People and Properties? (Please give details)	Yes
Source of Notification: Name: Address: Tel No:	Ken Chisholm Tigh Abhinn Wrightfield Park Maryburgh
Works Undertaken: (Please give details)	Insurance company, Scottish Water Authority and Rail Track (now Network Rail) all carried out tests on the site which concluded that they were not responsible for the water flooding the road
Works Required:	New system into river
Does the site have a history of flooding? (Please give details)	No
Recording Officer: Date Completed:	Mr Ian T Hay
Comments:	When Scottish Water were carrying out their tests, they dug a hole in the footpath which has subsequently made the flooding worse and so something

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/3/MUI
Grid Reference:	251715 848029
Description of Flood:	Flooding from the road after surfacing has gone into his drive causing damage and flooding round his house
Date/Time of Start/Duration of Flood:	21/11/2002
Threat to People and Properties? (Please give details)	Yes
Source of Notification: Name: Address: Tel No:	Mr Andrew Ritchie The Croft Clashandorran
Works Undertaken: (Please give details)	Arrangements were made for the gulley to be cleaned out on the 25th November 2002
Works Required:	Check gulley in future to prevent further blockage
Does the site have a history of flooding? (Please give details)	Unknown
Recording Officer: Date Completed:	Mr Ian T Hay
Comments:	None

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/3/STR/01
Grid Reference:	248201 857888
Description of Flood:	Water running onto Garden House Brae
Date/Time of Start/Duration of Flood:	15/12/2001
Threat to People and Properties? (Please give details)	Yes danger to road users
Source of Notification: Name: Address: Tel No:	Mr MacNiven Graden House Brae
Works Undertaken: (Please give details)	S Bruce contacted landowner Mr Mackenzie, Park Farm
Works Required:	Farmer needs to collect water and take to ditch at Park Road
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Mr Ian T Hay
Comments:	None

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/3/STR/02
Grid Reference:	248659 858381
Description of Flood:	Burn overflowed and flooded road and garden
Date/Time of Start/Duration of Flood:	28/11/2001
Threat to People and Properties? (Please give details)	Yes
Source of Notification: Name: Address: Tel No:	Margaret Bluefield Railway Cottages Strathpeffer
Works Undertaken: (Please give details)	Instructions passed to G Walker to clean the grid
Works Required:	The grids will have to be checked regularly
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Mr Ian T Hay
Comments:	Advised by S Grant that it was not possible to clear the grid

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/3/STR/03
Grid Reference:	250005 859628
Description of Flood:	Blocked ditch on road outside house is preventing soakaway function
Date/Time of Start/Duration of Flood:	28/01/2003
Threat to People and Properties? (Please give details)	Yes
Source of Notification: Name: Address: Tel No:	Shirley Henry Inchvannie Cottage Blairninich 01997 421367
Works Undertaken: (Please give details)	In previous years ditch has been cleared and problem solved
Works Required:	Assess on a regular basis and dig out if required
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Mr Ian T Hay
Comments:	None

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/3/STR/04
Grid Reference:	
Description of Flood:	Erosion starting in her drive-way due to flooding
Date/Time of Start/Duration of Flood:	30/07/2003
Threat to People and Properties? (Please give details)	Yes threat to property
Source of Notification: Name: Address: Tel No:	Audrey Bessell Windsor Lodge
Works Undertaken: (Please give details)	Unknown
Works Required:	
Does the site have a history of flooding? (Please give details)	Unknown
Recording Officer: Date Completed:	Mr Jim Yuill
Comments:	

FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	
Water Course Name/Ref:	R/3/ULL
Grid Reference:	212898 894756
Description of Flood:	Severe flooding occurs this property in times of heavy rainfall. 600mm culvert flows into 300mm drains and in times of heavy rainfall this overflows
Date/Time of Start/Duration of Flood:	13/02/2002
Threat to People and Properties? (Please give details)	Yes severe floods
Source of Notification: Name: Address: Tel No:	Mr Gavin Morton Glenburn Hotel
Works Undertaken: (Please give details)	Gullies cleaned out
Works Required:	Inspection and annual cleaning of blocked gullies
Does the site have a history of flooding? (Please give details)	Yes
Recording Officer: Date Completed:	Mr Ian T Hay
Comments:	Frames of gullies are sitting proud in the car park

APPENDIX F

FLOOD ALLEVIATION IN THE HIGHLANDS