

**TRANSPORTATION AND INFRASTRUCTURE COMMITTEE: 6 NOVEMBER 2007****FLOOD PREVENTION AND LAND DRAINAGE (SCOTLAND) ACT 1997****6<sup>TH</sup> BIENNIAL REPORT****REPORT BY THE DIRECTOR OF TECHNICAL SERVICES****1 PURPOSE OF REPORT**

- 1.1 To present the 6<sup>th</sup> biennial report as required in terms of the Flood Prevention and Land Drainage (Scotland) Act 1997.

**2 CORPORATE OBJECTIVE**

- 2.1 Transport 40 – Transport Infrastructure: Flood Prevention and Land Drainage; Biennial Report.

**3 INTRODUCTION**

- 3.1 The Flood Prevention and Land Drainage (Scotland) Act 1997 came into force on 26 May 1997 and amended the Flood Prevention (Scotland) Act 1961 by placing statutory duties on local authorities to maintain watercourses within their area.
- 3.2 The main sections of the Flood Prevention and Land Drainage (Scotland) Act 1997 can be summarised as follows:
- Requires the local authority to assess all watercourses from time to time to ascertain whether or not they are likely to cause flooding of non-agricultural land
  - Requires the local authority to carry out works to reduce the likelihood of flooding of non-agricultural land
  - The Act does not place any duty to undertake capital works
  - Requires local authorities to liaise with adjacent authorities
  - Requires local authorities to prepare and publish biennial reports.
- 3.3 The Act does not apply where failure to maintain would result only in flooding of land in the same ownership as the watercourse requiring maintenance.

**4 PREVIOUS REPORT**

- 4.1 The Council's Initial Report was published in January 1998 and this was followed with reports published in March 2000, November 2001, October 2003 and March 2006.
- 4.2 Slippage through the years has resulted in reports over recent years covering the period from 1 November in the biennial reporting period to the appropriate 31 October in the biennial reporting period. This report covers the period November 2005 to May 2007.

- 4.3 Future reports will cover the period from 1 June to appropriate 31 May in the biennial reporting period and will be published as required under the Food Prevention and Land Drainage (Scotland) Act 1997.

## **5 ASSESSMENTS OF WATERCOURSES**

- 5.1 The Act requires the Council to assess watercourses from time to time to ascertain if they are in a condition likely to cause flooding of non-agricultural land.
- 5.2 Identified watercourses are inspected annually for potential future problems which may cause flooding. This includes checking inlet pipes and grills for debris, checking overgrown vegetation and examining the geometry of the watercourse for potential blockages.
- 5.3 Using maps detailing the extent of all known watercourses, and which identify areas with known flooding problems, an assessment of flows from all new housing developments are evaluated and concerns raised where appropriate.

## **6 MAINTENANCE OF WATERCOURSES**

- 6.1 This section of the Act provides the Council with permissive powers to cleanse, repair or otherwise maintain in a due state of efficiency any watercourse, barrier or ancillary apparatus where there is a likelihood that flooding of non-agricultural land could occur.
- 6.2 During the summer, watercourses are inspected once a week and during the winter they are inspected twice a week. These inspections involve checking the inlets to culverts and the removal of debris from the screens as detailed in Appendix 1 to this report. This regular maintenance is particularly important where watercourses lead directly to the sea.

## **7 6<sup>th</sup> BIENNIAL REPORT**

- 7.1 The measures the Council consider are required to prevent or mitigate the flooding of non-agricultural land in Orkney are as follows:-
- Identify, monitor and inspect all watercourses and carry out any necessary maintenance works. Where necessary provide engineering reports on proposals to prevent any flooding.
  - Within the Winter Maintenance Plan, an integrated service is provided to deal with the extraordinary works associated with flooding caused by severe weather.
- 7.2 Measures taken by the Council to prevent or mitigate such flooding since the date of publication of its previous report are summarised as follows:-
- A965, Stenness – Replaced and upgraded a section of road side drainage adjacent to the Standing Stones Hotel, Stenness.
  - B9066, Westray - Removed a field access across burn and replaced with upgraded brig.
  - Cromarty Square, St Margaret's Hope – Secured funding for replacement of culvert as part of Improved Access to St Margaret's Hope capital road project.
  - A965 Maitland Place, Finstown – Removed outfall pipes, constructed access manhole and replaced outfall pipes by extending culvert.
  - Papdale East, Kirkwall – Headwalls and gratings have been constructed at entry points to the drainage system in the Papdale East area.

- Willow Road, Kirkwall – A replacement and upgraded headwall and screens for the Willowburn, which takes the flow of water from Papdale East has been designed and will be constructed in financial year 2007/08.
- Approached Scottish Executive for guidance on preparing a flood prevention scheme for the Peedie Sea as a priority followed by any other location identified by ongoing survey works (refer to paragraph 15.7 of the Minute of the Transportation and Infrastructure Committee Meeting held on 30 January 2007).
- Working in partnership with Scottish Water on an extensive review of foul sewers in Kirkwall and surface water drains discharging into the Peedie Sea in order to identify potential joint engineering solutions to mitigate flooding in Junction Road and surrounding streets in Kirkwall. Options being considered in October 2007.

7.3 During the period November 2005 to May 2007, 47 incidents were reported. In accordance with The Society for Chief Officers of Transport, Scotland (SCOTS) published notes for guidance, a number of these incidents did not conform to the definition of flooding. For example, a number of reports of flooding were related to high surge tides, burst water mains, minor blockages associated with road gullies or with manholes surcharging following periods of torrential rain.

7.4 The Council has a statutory duty to report the remaining 39 which do conform and these are attached as Appendix 2 to this report. Of the 39 reported incidents 26 relate to the severe weather experienced during the period 26 to 30 October 2006.

7.5 The extensive flooding on 26 October 2006 resulted from a period of unprecedented heavy and prolonged rain. The return period for this most significant event has been calculated by the Met Office as being 1 in 212 years.

## **8 FINANCIAL IMPLICATIONS**

8.1 Costs associated with maintenance of water courses are contained within the roads revenue budget. The revenue budget however does not make any specific provision for the prevention of flooding.

## **9 LEGAL IMPLICATIONS**

9.1 The Flood Prevention and Land Drainage (Scotland) Act 1997 places duties on the Council with a view to preventing the flooding of non-agricultural land.

## **10 POLICY ASPECTS**

10.1 The Council's policy on flood prevention is set out in the initial report submitted to the Roads and Environmental Services Committee on 27 January 1998. The Stage 1 and Stage 2 proposals set out the Council's policy on 'Measures to Prevent or Mitigate Flooding of Non-Agricultural Land in Orkney'.

10.2 At its meeting held on 27 March 2006, the Committee noted the biennial report on the occurrence of flooding of non-agricultural land for the period November 2003 to October 2005 (paragraph 11 of the Minute).

## **11 CONCLUSIONS**

The Flood Prevention and Land Drainage (Scotland) Act 1997 places a duty on the Council to carry out an assessment of watercourses, to carry out maintenance of watercourses and to publish biennial reports.

This report constitutes the 6<sup>th</sup> biennial report on the occurrence of flooding for the period November 2005 to May 2006.

The report details the measures taken to prevent or mitigate flooding of non-agricultural land.

## **12 RECOMMENDATIONS**

The Committee is invited to note:-

12.1 that The Flood Prevention and Land Drainage (Scotland) Act 1997 places the following duties on the Council:-

- 12.1.1 to carry out an assessment of watercourses;
- 12.1.2 to carry out maintenance of watercourses; and
- 12.1.3 to publish biennial reports;

12.2 that measures taken by the Council to prevent or mitigate flooding of non-agricultural land comprise:-

- 12.2.1 the identification, inspection and monitoring of all watercourses;
- 12.2.2 the completion of any necessary maintenance works; and
- 12.2.3 the provision, where necessary, of engineering reports detailing proposals to prevent flooding;

12.3 that, within the Winter Maintenance Plan, an integrated service is provided to deal with extraordinary works associated with flooding caused by severe weather; and

12.4 that the 6<sup>th</sup> biennial report on the occurrence of flooding of non-agricultural land for the period November 2005 to May 2007 included 47 reported incidences, a number of which did not conform to the definition of flooding as defined by guidance notes published by The Society for Chief Officers of Transport, Scotland.

## **13 CONTACT OFFICER**

13.1 David Rendall, Head of Roads, extension 2309.

## **14 APPENDICES**

14.1 Inspection schedule for culverts- 2007/08

14.2 Reported flooding incidents – 1 November 2005 to 31 May 2007

Director  
DJR/KG

## Appendix 1

### **Inspection Schedule for culverts – 2007/08**

Schedule of culverts to be checked and cleared of debris once a week in summer twice a week during winter (October to April)

#### **Kirkwall**

Otterswick, Papdale East.	1 No.
Willow Road/Mill Street	3 No.
Muddisdale Road	2 No.
Weyland Bay	1 No.
New Scapa Road/Holm Branch	3 No.
Burgh Road (Peerie Sea)	1 No.
The Crafty	1 No.
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	12 No.

#### **Stromness**

Garson Road (School)	1 No.
Pumphouse	1 No.
Cairston Road	1 No.
Hillside Road	1 No.
Faravel	1 No.
Innertown Road	1 No.
Mayburn Court	1 No.
Marwick Playing Field	2 No.
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	9 No.

#### **St Margaret's Hope**

Cromarty Square	1 No.
Front Road	1 No.
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	2 No.

Date	Location	Description	Comments	Action
25/11/2005	A961 Berriedale, South Ronaldsay	Road Flooded	Movement of beach stone with tide	Locate and clear outfall
25/11/2005	A960 Airport Area, St Ola	Road Flooded	Water course unable to cope with run off from surrounding land.	Signed and lit. Check and clear offlets
19/04/2006	A965 Saverock, St Ola	Road Flooded	Water course unable to cope with run off from surrounding land.	Signed and lit. Check and clear offlets
26/10/2006	Papdale East, Kirkwall	Flooding	Piped water came over topping at Otterswick and surcharging from manholes along burn.	Inspected piped system and remove any blockages.
26/10/2006	The Meadows, Kirkwall	Road Flooded	Flood water from above system.	As above
26/10/2006	KGS/Papdale Schools, Kirkwall	Flooding	Flood water from above system.	As above
26/10/2006	Queen Street/Bridge Street Wynd, Kirkwall	Road Flooded	Willowburn overtopped at North Ronaldsay Square grill.	Cleared debris from water course and grill.
26/10/2006	Junction Road and Surrounding Streets, kirkwall	Road and Property Flooded	Existing drainage system surcharged from Peerie Sea due to high water levels.	Inspected, monitored levels and operated Peerie valves
26/10/2006	Pickaquoy Road Area and Glaitness School, Kirkwall	Road and Property Flooded	Surcharge from Peerie Sea due to high water levels plus Muddisdale Burn overtopping at Rugby Club and Campsite.	Inspected, monitored levels and operated Peerie valves
26/10/2006	A960 Airport Area, St Ola	Road Flooded	Water course unable to cope with run off from surrounding land.	Investigate water course below and clear - this may be difficult as area is low and v. wet
26/10/2006	A964 Kirbister Mill, Orphir	Water Treatment Works and Road Flooded	Water from Kirbister Loch and surrounding area flooded treatment works - over spilled onto road.	Road closure manned. Checked structure of bridge
26/10/2006	A965 Maitland Place, Finstown	Flooding of Road and Property	Burn overtopped and flooded road and surrounding area.	Diverted water and excavated outfall. Assess capacity.
26/10/2006	A965 and Grainshore Road at Saverock Junction, Kirkwall.	Road Flooded	Water course unable to cope with run off from surrounding land.	Road closure manned. Checked capacity of culvert
26/10/2006	A965 Stenness	Road Flooded	Excess surface water run off.	Signed and lit. Check and clear offlets

Date	Location	Description	Comments	Action
26/10/2006	B9066, Westary	Road Flooded	Excess surface water off fields, drainage system unable to cope with volume of water.	Signed and lit. Road closure. Investigate cause
26/10/2006	A965 Tormiston Mill	Road Flooded	Mill Lade/Burn burst banks and flooded onto road.	Signed and lit. Investigate cause.
26/10/2006	A965 Grainbank and Golf Course, Kirkwall	Road Flooded	Excess surface water and surcharge from manholes.	Investigate drainage and clear/repair before carrying out footpath repairs
26/10/2006	A961 Berriedale, South Ronaldsay	Road Flooded	Excess surface water run off from land. System unable to cope with volume of water.	Frequent flooding of this area. Investigate possible solutions
26/10/2006	A961 Roadside, South Ronaldsay	Road Flooded	As above.	Frequent flooding of this area. Investigate possible solutions
26/10/2006	Cromarty Square, St Margater's Hope	Flooding	Burn over spilled and flooded square area.	Check and clear culvert
26/10/2006	Kirkhouse Mill, South Ronaldsay	Flooded Road and Property	Burn burst and flooded road and property.	Investigate Cause
26/10/2006	Garson Road, Stromness	Flooding	Millburn burst and flooded road and surrounding area.	Check Culvert and Clear if necessary
26/10/2006	North End Road, Stromness	Flooding	Excess surface water run off from surrounding land.	Check drainage system and clear if possible
26/10/2006	Sunnybank Road, St Ola	Flooded	Excess surface water run off from surrounding land.	Check drainage system and clear if possible
26/10/2006	Tenston Road, Sandwick	Flooded	Excess surface water from land.	Check drainage system and clear if possible
26/10/2006	Balfour, Shapinsay	Road Flooded	Excess surface water off fields, drainage system unable to cope with volume of water.	Check drainage system and clear if possible
26/10/2006	South Cara Road, South Ronaldsay	Flooding	Excess surface water off fields, drainage system unable to cope with volume of water.	Check culvert for damage and clear if necessary
26/10/2006	Millburn, Hoy	Millburn	Parapet and side of bridge collapsed, bridge closed to vehicles	Install temporary bridge and reopen road to vehicles. Assess damage and possible repairs

Date	Location	Description	Comments	Action
26/10/2006	Weyland Culvert, Weyland Bay, Kirkwall	Flooding	Excess surface water off fields, drainage system unable to cope with volume of water.	Check culvert for damage and clear if necessary
30/10/2006	A960 Airport Area, St Ola	Road Flooded	Water course unable to cope with run off from surrounding land.	Signed and lit. Road closed. Check and clear offlets
30/10/2006	Junction Road and Surrounding Streets, Kirkwall	Road Flooded	Existing drainage system surcharged from Peerie Sea due to high water levels.	Inspected, monitored levels and operated Peerie valves
10/12/2006	B9056, Skail	Road Flooded	Tidal outfall restricted	Located and cleared outfall
13/12/2006	B9066, Westray	Road Flooded	Excess surface water off fields, drainage system unable to cope with volume of water.	Signed and lit. Check and clear offlets
13/01/2007	A961 Berriedale, South Ronaldsay	Road Flooded	Tidal outfall restricted	Located and cleared outfall
13/01/2007	Old Scapa Road, Kirkwall	Road Flooded	Incomplete culvert flooded during construction	Developer re-routed culvert and completed system
14/01/2007	Heathery Loan, St Ola	Road Flooded	Distillery reservoir overflowed	Owners lowered by pumping
12/02/2007	B9066, Westray	Road Flooded	Excess surface water off fields, drainage system unable to cope with volume of water.	Signed and lit. Check and clear offlets. Monitor effect of replacement field access brig previously constructed
12/02/2007	A965, Stenness	Road Flooded	Excess surface water run off.	Signed and lit. Check and clear offlets. Check drainage
27/02/2007	A960, Deerness	Road Flooded	Excess surface water run off.	Signed and lit. Check and clear offlets.
17/03/2007	A960, A961, A964	Road Flooded	Excess surface water run off.	Signed and lit. Check and clear offlets.