

APPENDIX E

REPORTED FLOODING OCCURRENCES NOVEMBER 2007 TO NOVEMBER 2009

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

Caithness, Sutherland & Easter Ross

Date	10/11/2007
Location	U224 at Oykel Bailey Bridge
Description	River Oykel in spate flooding up and over Strath Oykel road
Work Undertaken	Closed road with flooding signs
Work Required	None
History of flooding?	Yes

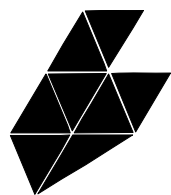
Date	10/01/2008
Location	213 Lednabirichen
Description	Pipe watercourse blocked. Water burst to surface and ran into 213. Water reported in underbuilding. Vents blocked by sandbags to prevent damage.
Work Undertaken	Sandbags delivered to property owner
Work Required	Piped watercourse should be opened up to open ditch; driveway has been realigned to cross watercourse causing problem.
History of flooding?	No. Advised householder to open up ditch to prevent recurrence.

Date	10/01/2008
Location	Rheguile
Description	Pond over-topped and flooded the road to depth of 450mm – 2 householders unable to get vehicles out other than 4X4s.
Work Undertaken	Unable to access outfall due to depth of water.
Work Required	Investigate after flood waters recede
History of flooding?	Yes

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Date	14/01/2008
Location	Rheguile
Description	Pond over-topped again and flooded the road to depth of 450mm – 2 householders unable to get vehicles out other than 4X4s.
Work Undertaken	Unable to access outfall due to depth of water due to further rain
Work Required	Investigate after flood waters recede
History of flooding?	Yes

Date	19/11/2008
Location	River Oykell
Description	High river levels over-topped banks flooding road U224 – road closed
Work Undertaken	Road closed
Work Required	Monitor
History of flooding?	Yes – regular occurrence

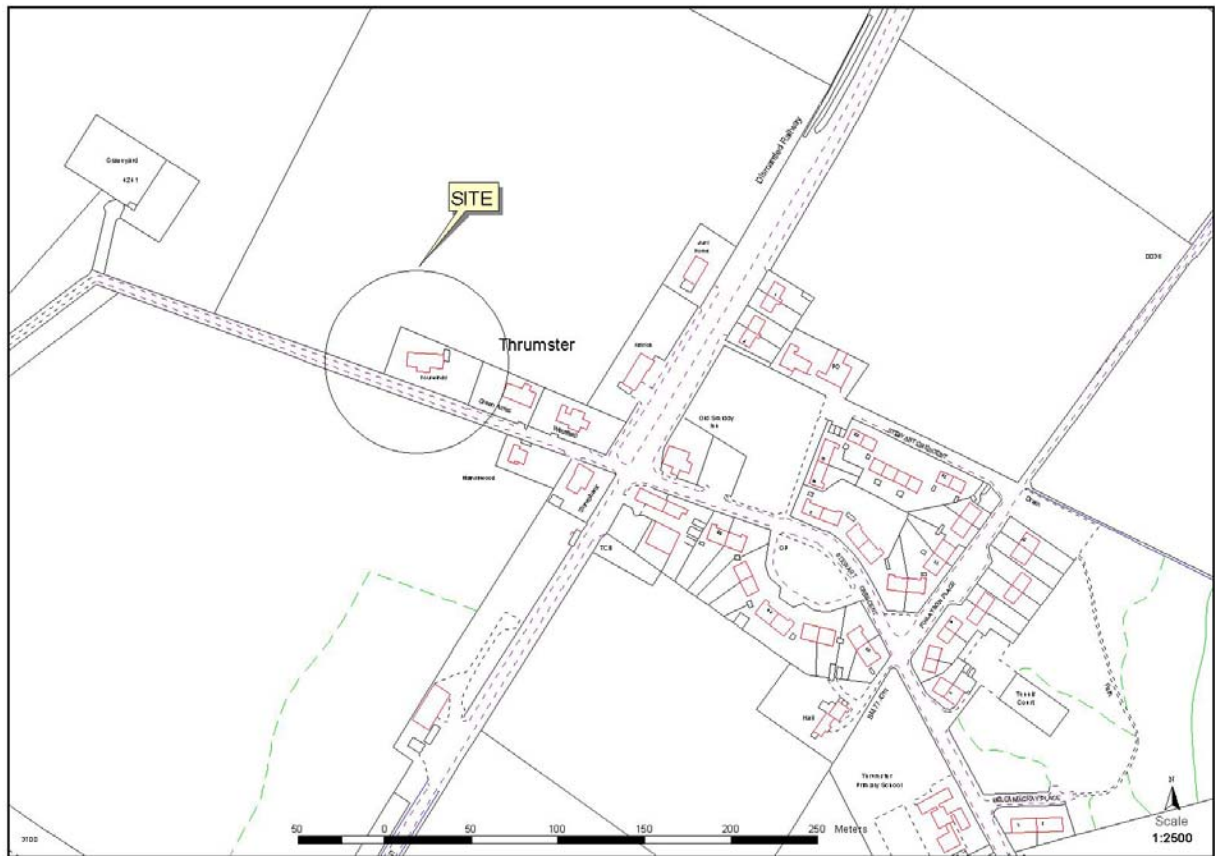
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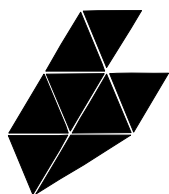
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Fourwinds, Cemetery road, Thrumster
Water Course Name/Ref:	Surface water drain
Grid Reference:	333569, 945285
Description of Flood:	Water was surcharging from a gully in front of the house and running into the garden. The water was a few inches deep in places. Pieces of tree roots had washed down and blocked the pipe at the gully connection. Stopping water from continuing along drain and causing to surcharge out of the gully.
Date/Time of Start/Duration of Flood:	13 october 2009 11.00am to 15 october 2009 12.00 noon
Threat to People and Properties? (Please give details)	Garden had a few inches of water in it.
Source of Notification: Name: Address: Tel No:	Mr Scott Fourwinds Cemetery Road Thrumster
Works Undertaken: (Please give details)	Rodding and jetting of the a surface water drain.
Works Required:	
Does the site have a history of flooding? (Please give details)	Has had a similar problem in the past. Works were undertaken 2 years ago to remove tree roots growing through joints in the pipes.
Recording Officer: Date Completed:	J S Gunn 15 October 2009
Comments:	





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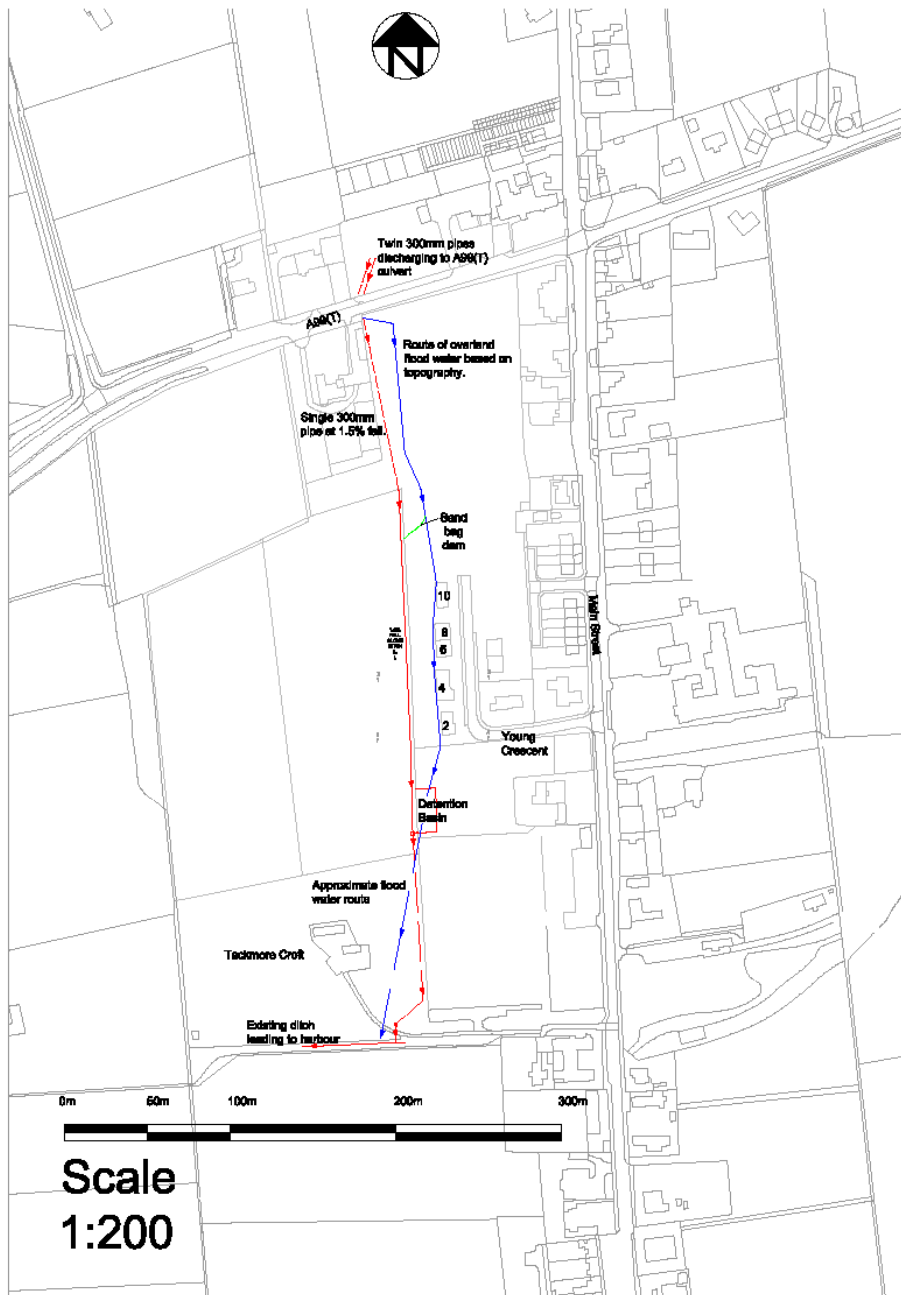
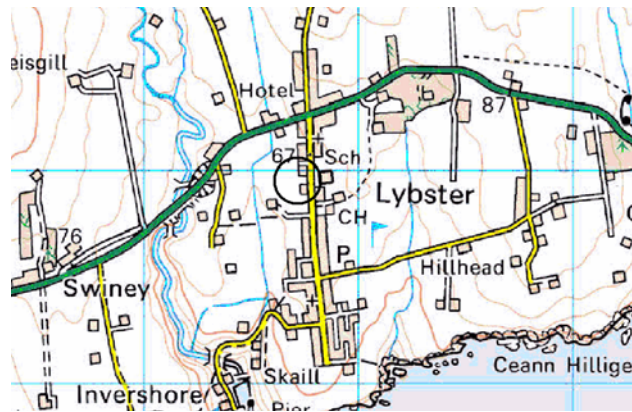
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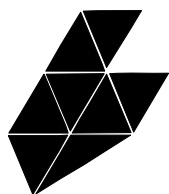
FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)

Location of Flood:	Young Crescent, Lybster
Water Course Name/Ref:	Unknown
Grid Reference:	Young Crescent OSGR 324694, 935990 Tackmore Croft OSGR 324619, 935813
Description of Flood:	Approx 300mm ponded water at the back of Nos 2,4, 6 & 8 Young Crescent. House No 2 also flooded with foul water from the sewer to a depth of 50mm.
Date/Time of Start/Duration of Flood:	24 Jul 2009 Flood started approx 1100 & ended 3 hours later
Threat to People and Properties? (Please give details)	<p>House No 2 Flooding to 50mm above floor level. Foundations flooded to approx 300mm, at floor level. Garden flooded with ponded water to approx 300 – 400 mm depth.</p> <p>House Nos 4, 6 & 8 Foundations flooded to approx 300mm, just below floor level. Garden flooded with ponded water to approx 300 – 400 mm depth.</p> <p>House No 10 Flood water flowed over the garden with minimal impact.</p> <p>Tackmore Croft Flooding to fields & access track with erosion to track.</p>
Source of Notification: Name: Address: Tel No:	J Hindmarch CWO TECS
Works Undertaken: (Please give details)	Sand bag dam built by TECS on the field to the north of the houses to divert the flood water back into the ditch. Fire Brigade pumped out foundations & gardens. Scotland Transerv cleared the collapsed manhole. Scottish Water removed solids from surcharged sewer manholes.
Works Required:	Replace the existing pipe from the A99 – Young Crescent. Replace the existing pipes from downstream of the houses to tie into the ditch running east to west which is located to the south of Tackmore Croft. Clean out the ditch to the south of Tackmore Croft.

Does the site have a history of flooding? (Please give details)	The site flooded in October 2006 during the widespread flooding. This was later confirmed as a 1 in 50 year event of rainfall over the preceding 10 days.
Recording Officer: Date Completed:	Iain Moncrieff 20 Aug 2009
Comments:	<p>During the Planning Application for this development Mr Spencer & Miss Lucas of Tackmore Croft noted the area was subject to flooding. As a result TECS recommended the solum levels of houses 2,4,6,8 & 10 were to be 1m higher than the adjacent burn. Following a survey it was determined that the floor levels of No 2 & 4 were 0.49m & 0.27m below the adjacent burn. It is considered that the risk of flooding to the foundations would have been reduced if this planning condition had been met.</p> <p>At the planning stage it was considered that the main risk of flooding to the housing development would be from the ditch & not from the 300mm pipe upstream. Raising the floor levels to +1m on top of the adjacent ditch would not have prevented the gardens from ponding or from flooding the detention basin & Tackmore Croft.</p> <p>Based on the Institute of Hydology's Report No 124 Flood Estimation for Small Catchments, the annual flow from the catchment area was calculated as 0.3 cu m/s. For a return period of 30 years the flow increases to 0.6 cu m/s and 0.9 cu m/s for a 200 year return period. However the 300mm pipe between the A99(T) and Young Crescent will only carry 0.14 cu m/s. The ditch opposite the houses can carry 2.5 cu m/s but the 225mm pipe downstream of the Young Crescent can only carry 0.06 cu m/s. Consequently the 225mm & 300mm pipes will surcharge under the annual flood flow.</p> <p>On the 24 Jul 09, the 300mm pipe surcharged at the manhole at the A99(T). The force of the water caused the partial collapse of the manhole aggravating the situation. Once the manhole surcharged the flood water flowed over land as illustrated, flooding the gardens at the rear of No 2-8 Young Crescent. As the depth of the ponded water increased the flood water entered the house foundations through the air bricks.</p> <p>The flood water continued to flow over land & surcharged the detention basin built as part of the scheme & then continued to flood Tackmore Croft & cause erosion to the track. At the same time the 225mm pipe downstream of the development which accepts water from the ditch & the scheme's detention basin surcharged at the manhole connecting the detention basin to the upstream end of the 225mm pipe. This increased the volume of flood water running over land onto Tackmore Croft.</p> <p>House No 2 at Young Crescent was flooded internally with foul water from the sewer. This occurred as the manhole level at the front of the house is approximately at the same level as the floor. When the Main St sewer surcharged the water backed up into the Young Crescent sewer which then surcharged the manholes at No 2 – 8. However as No 2 is the lowest property the foul water also surcharged out the shower tray drain & flooded the house. This aspect falls out with of TECS remit under the Flood Prevention & Land Drainage (Scotland) Act 1997 & is a matter for Scottish Water to address in more detail.</p>





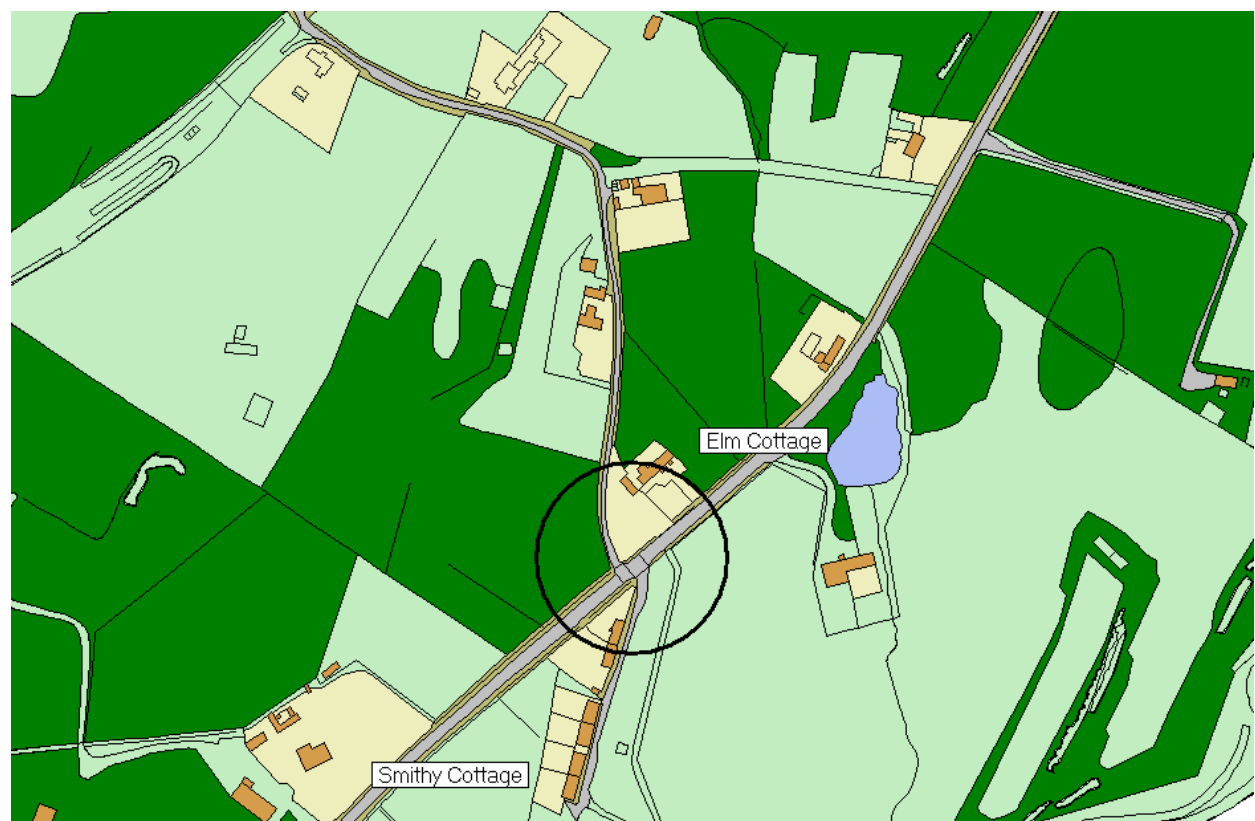
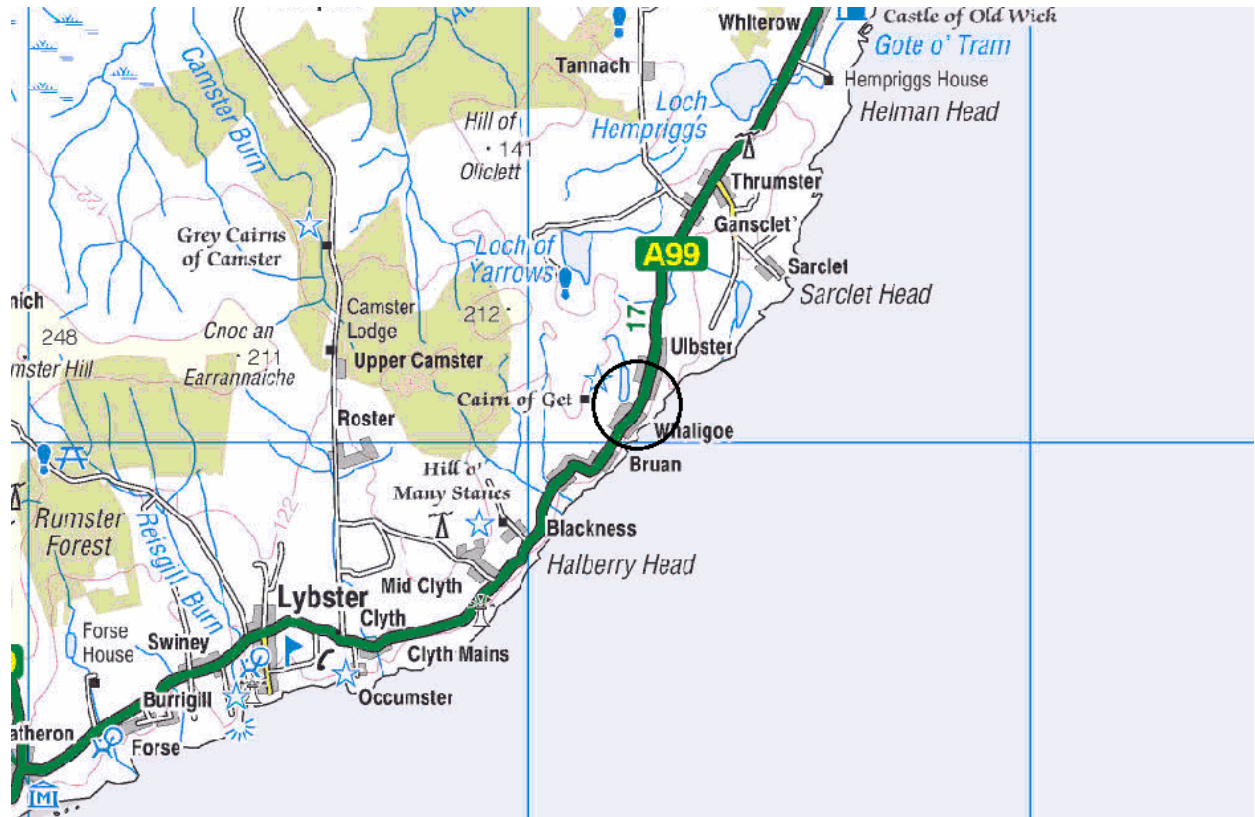
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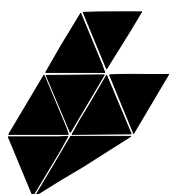
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)

Location of Flood:	A99(T) at Clyth & Ulbster
Water Course Name/Ref:	Unknown C21
Grid Reference:	OSGR 332030, 940487
Description of Flood:	The Lybster to Wick road especially in Clyth and Ulbster is really badly flooded and no signs or anything to the flooding.
Date/Time of Start/Duration of Flood:	3 September 2009
Threat to People and Properties? (Please give details)	Road Closed
Source of Notification: Name: Address: Tel No:	Mrs Sheena MacBeath 11 Mowat Place, Main Street Lybster, KW3 6AJ 01593 721509
Works Undertaken: (Please give details)	Passed to Transerv. Road closed
Works Required:	May need ditch to sea cleaned out.
Does the site have a history of flooding? (Please give details)	Flooded in general area – Elm Cottage 02 Oct 01 See Biennial Flood Report No 3 2001. Also Smithy Cottage – date unknown. See Biennial Report No 5 2005 & 20 Oct 06. See Biennial Report No 7.
Recording Officer: Date Completed:	I Moncrieff 16 Sep 09
Comments:	See CC 11436 This property is at risk of further flooding.





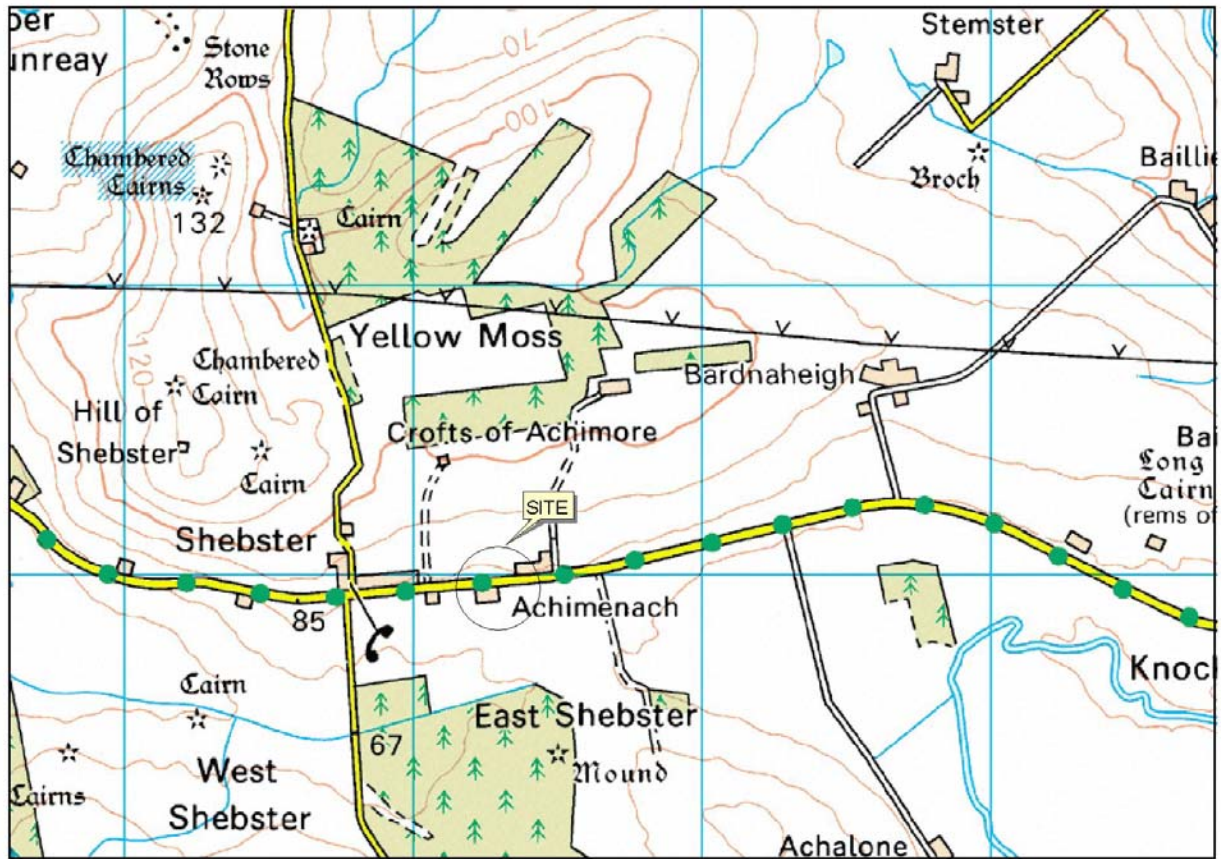
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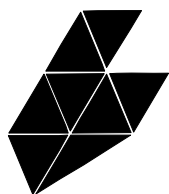
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)

Location of Flood:	Achiebeg Farm, Shebster, Reay
Water Course Name/Ref:	Roadside drains
Grid Reference:	302249, 963979
Description of Flood:	Surface water from the road ran into the farm yard and buildings
Date/Time of Start/Duration of Flood:	July 2009
Threat to People and Properties? (Please give details)	Water was running into some of the farm buildings
Source of Notification: Name: Address: Tel No:	Mrs A Oag Brims Mains Thurso Kw14 7xu
Works Undertaken: (Please give details)	No works undertaken
Works Required:	Kerbing and verging along frontage of farm yard and replace filter material on roadside drains
Does the site have a history of flooding? (Please give details)	None reported
Recording Officer: Date Completed:	J Gunn 29 July 2009
Comments:	





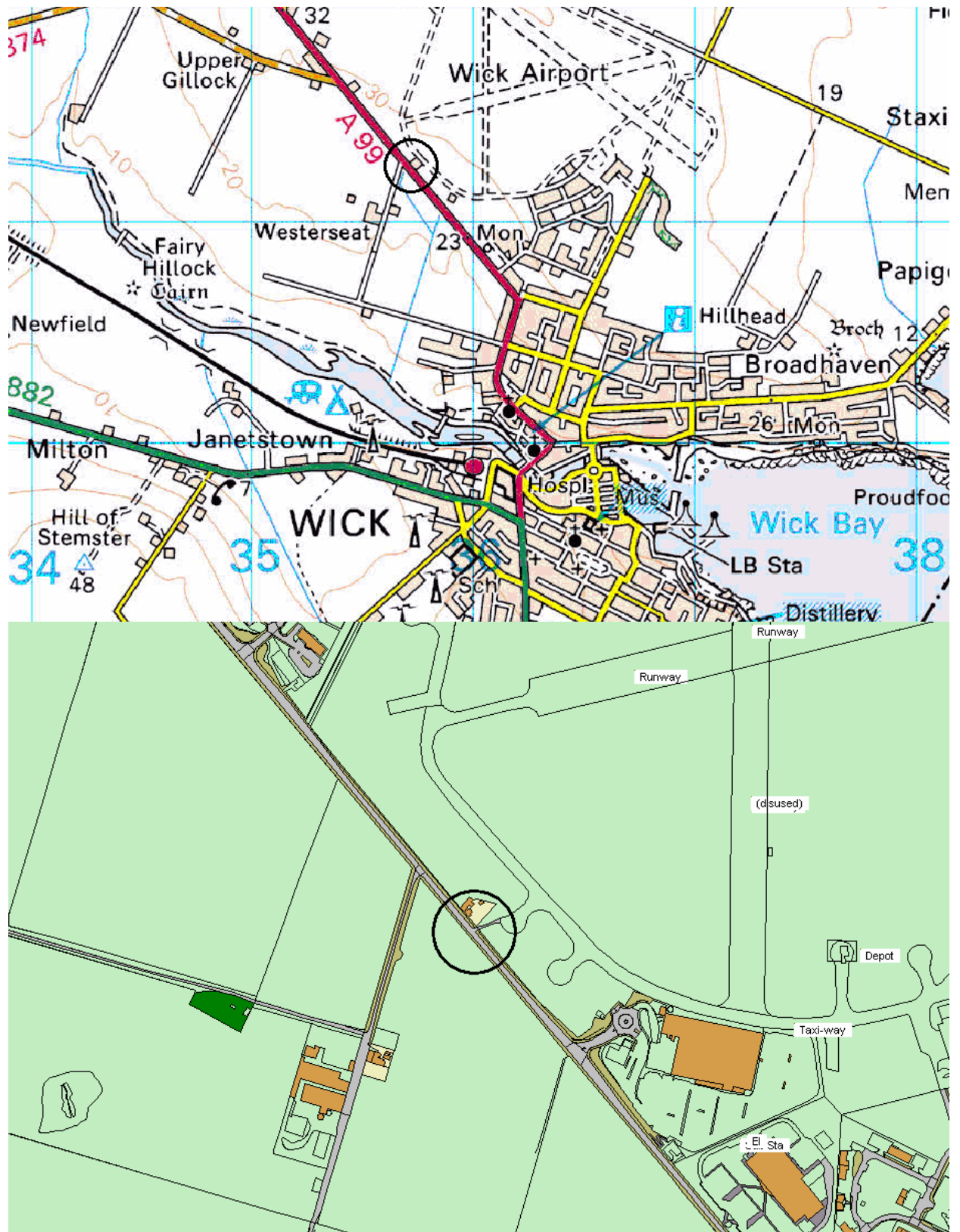
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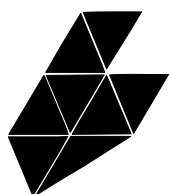
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)

Location of Flood:	Aikerness Cottages on A99 off Westerseat Entrance
Water Course Name/Ref:	
Grid Reference:	335749/952203
Description of Flood:	Airport Surface Water Flowing Down Track (SE of Cottages) on to A99 Carriageway
Date/Time of Start/Duration of Flood:	4 September 2009 - 10.30am
Threat to People and Properties? (Please give details)	Affecting Part of the Carriageway Road Users
Source of Notification: Name: Address: Tel No:	John Niwa PIO 01955 607737
Works Undertaken: (Please give details)	None
Works Required:	.
Does the site have a history of flooding? (Please give details)	
Recording Officer: Date Completed:	
Comments:	





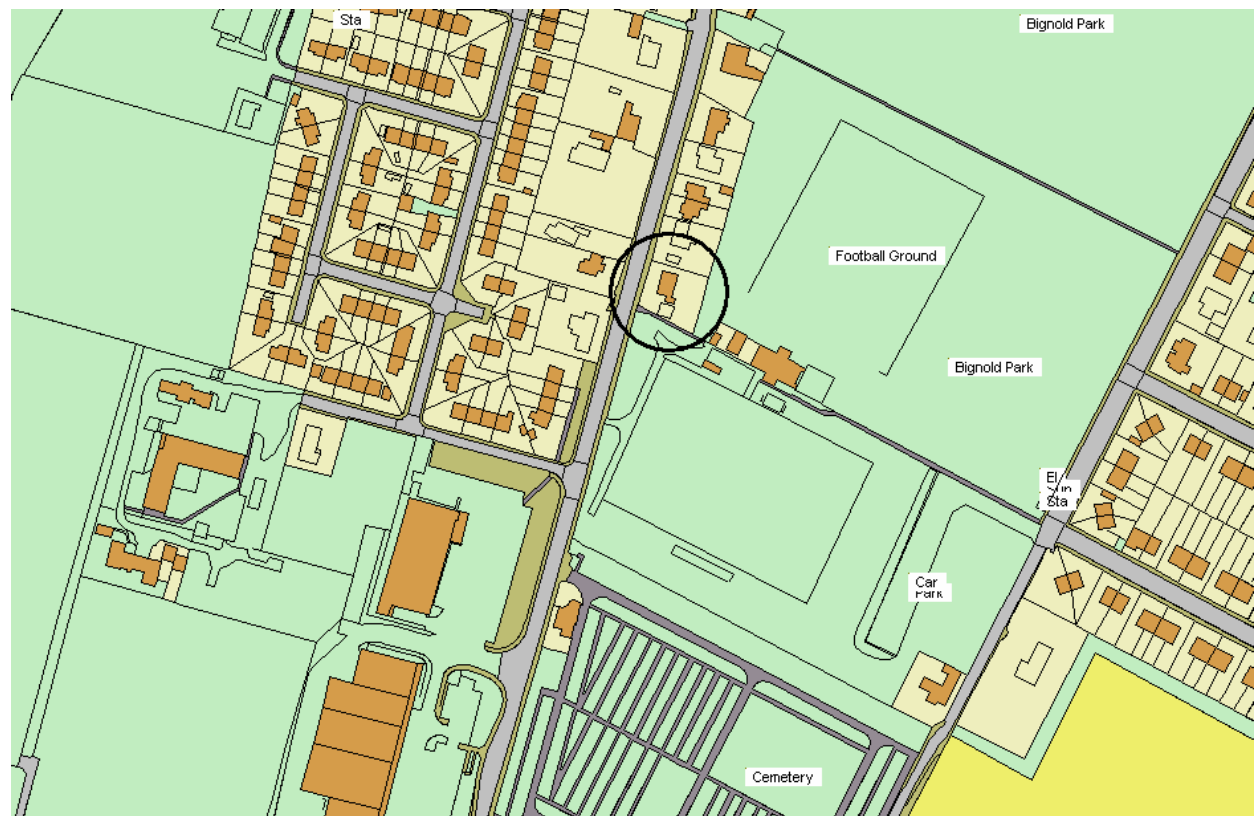
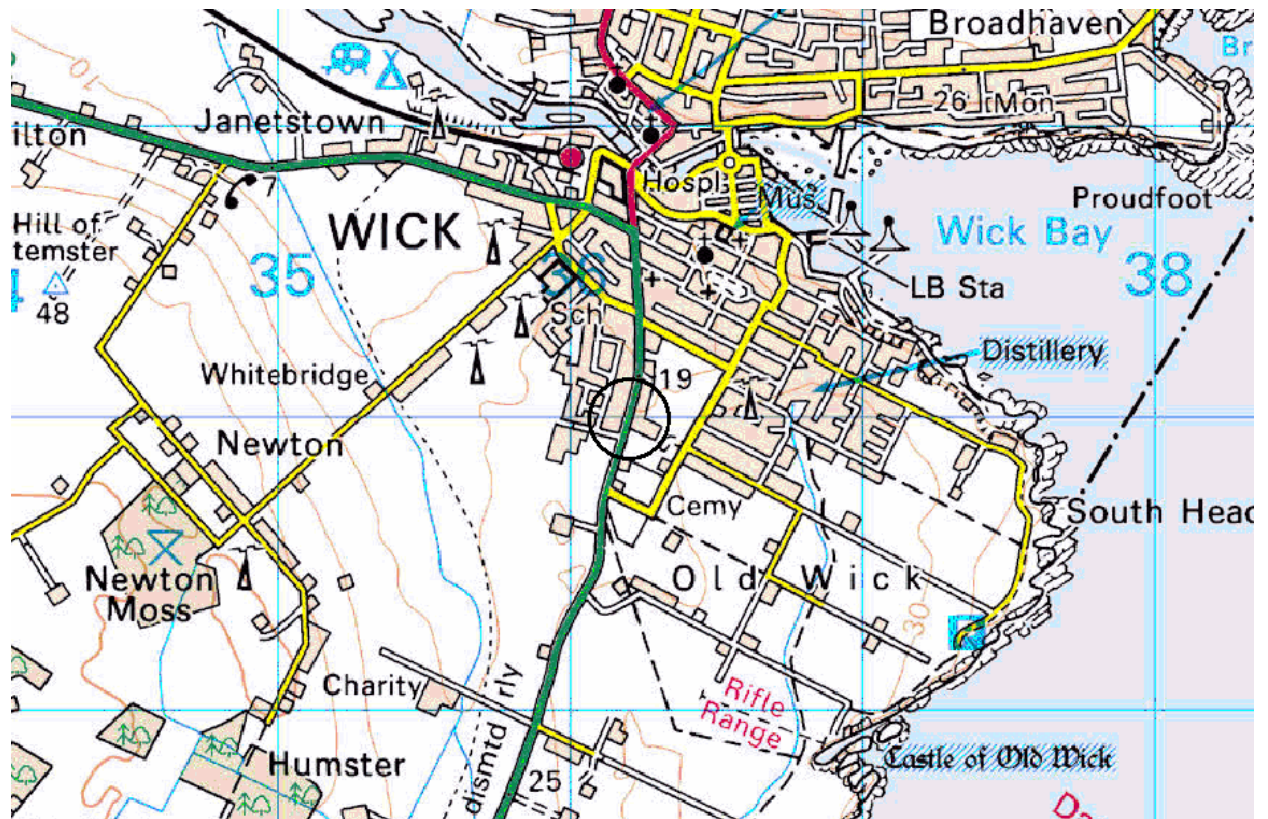
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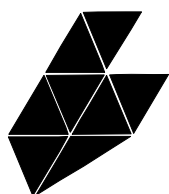
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)

Location of Flood:	B & B Adjacent to Harmsworth Park, Wick
Water Course Name/Ref:	
Grid Reference:	336213/950009
Description of Flood:	Surface Water From A99 due to Burn Bursting its Banks
Date/Time of Start/Duration of Flood:	3 September 2009 – 18.00pm
Threat to People and Properties? (Please give details)	The House
Source of Notification: Name: Address: Tel No:	John Niwa PIO 01955 607737
Works Undertaken: (Please give details)	Fire Brigade with Pumps
Works Required:	Awaiting Major A99 Drainage Works
Does the site have a history of flooding? (Please give details)	October 2006 and Others
Recording Officer: Date Completed:	
Comments:	



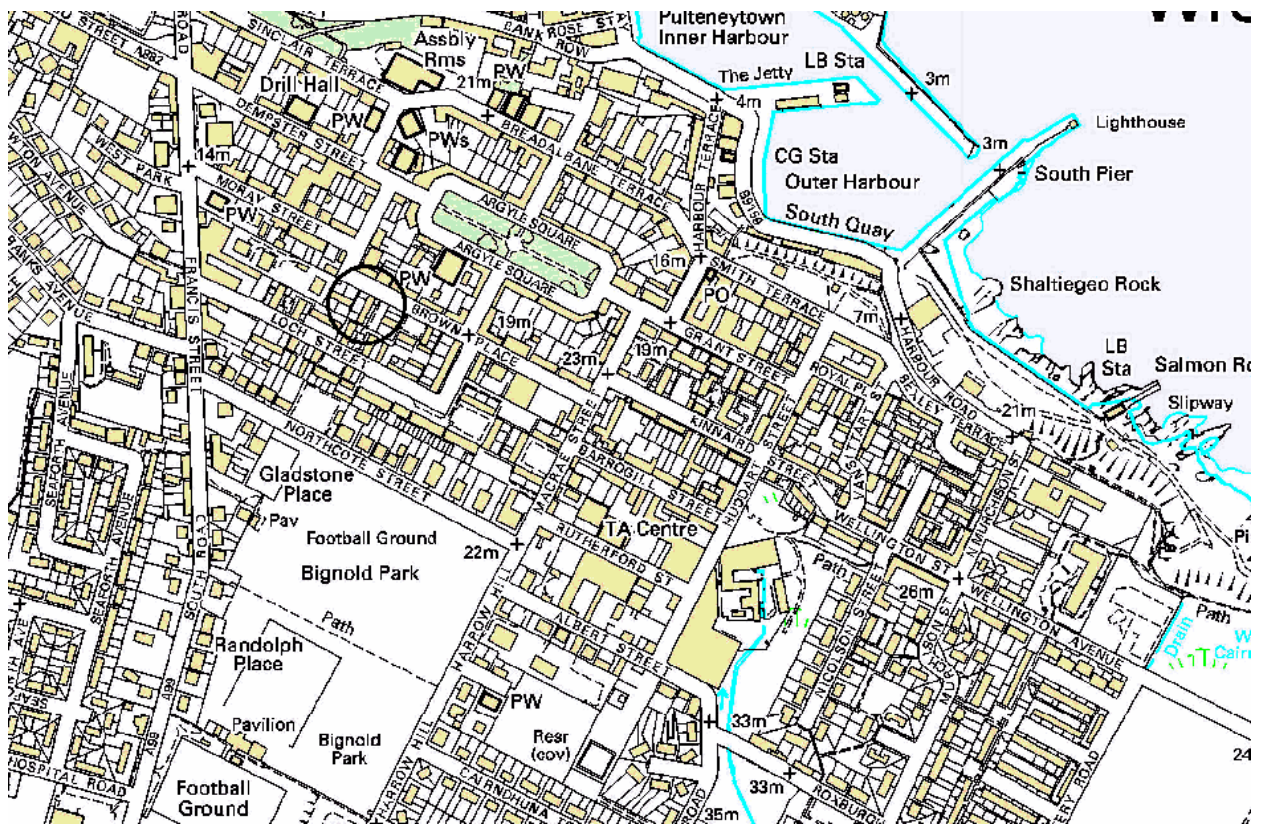


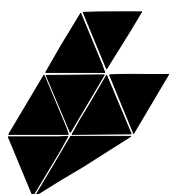
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	37 Brown Pl, Wick
Water Course Name/Ref:	N/A
Grid Reference:	
Description of Flood:	Footway flooded at above property
Date/Time of Start/Duration of Flood:	3 September 2009
Threat to People and Properties? (Please give details)	Threatening to flood house
Source of Notification: Name: Address: Tel No:	Mrs Taylor 37 Brown Pl Wick 01955 603063
Works Undertaken: (Please give details)	None
Works Required:	Check footway is falling towards kerb.
Does the site have a history of flooding? (Please give details)	No previous records
Recording Officer: Date Completed:	I Moncrieff 16 Sep 09
Comments:	See CC 11435 Surface water gathering on the road and pavements causing great difficulty as the pavement slopes resulting in the water gathering at the doorstep and surrounding area - the water has no channels to go down to drain away basically so it just gathers.





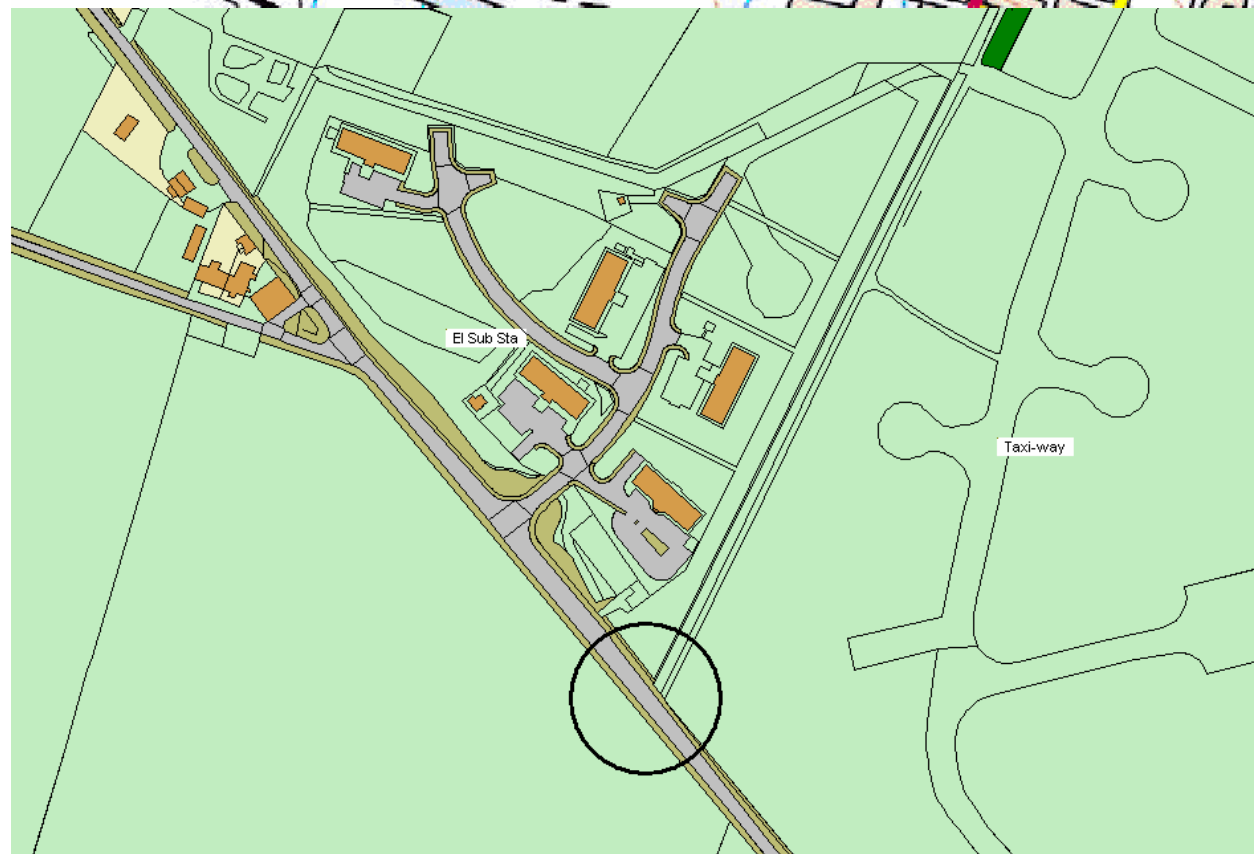
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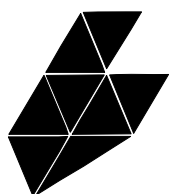
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)

Location of Flood:	SE Boundary of Business Park, Lochshell
Water Course Name/Ref:	
Grid Reference:	335541/952447
Description of Flood:	Ditch overflowing on to A99 partly covering carriageway
Date/Time of Start/Duration of Flood:	4 September 2009
Threat to People and Properties? (Please give details)	Road Users
Source of Notification: Name: Address: Tel No:	John Niwa PIO 01955 607737
Works Undertaken: (Please give details)	.
Works Required:	.
Does the site have a history of flooding? (Please give details)	
Recording Officer: Date Completed:	
Comments:	





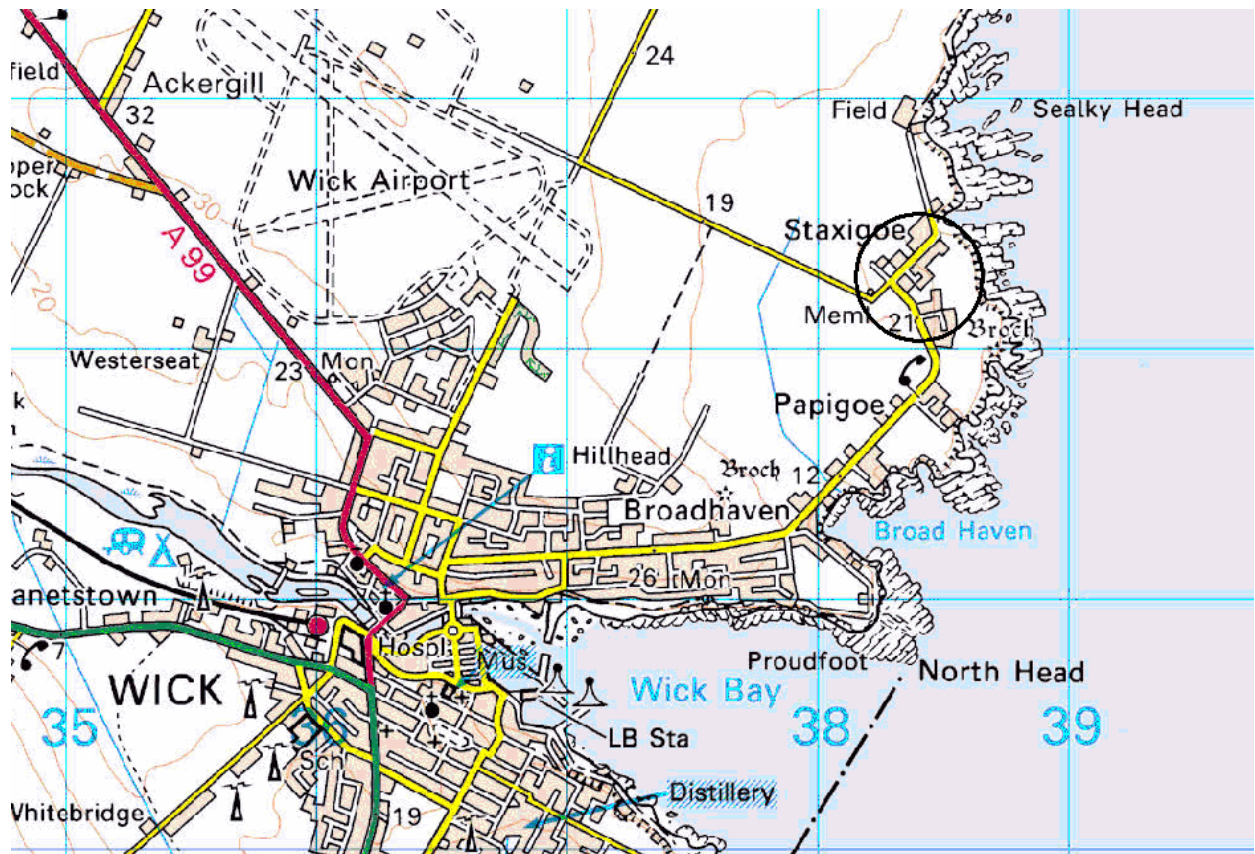
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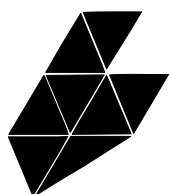
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)

Location of Flood:	Elzy Grove, Staxigoe Turning Head
Water Course Name/Ref:	
Grid Reference:	338413/952286
Description of Flood:	Kerbed Turning Head in Housing Scheme Water Level Rose, Slow to Drain
Date/Time of Start/Duration of Flood:	3 September 2009 - 17.00pm
Threat to People and Properties? (Please give details)	Possible Threat to Properties
Source of Notification: Name: Address: Tel No:	John Niwa PIO 01955 607737
Works Undertaken: (Please give details)	
Works Required:	Clean Out Gullies
Does the site have a history of flooding? (Please give details)	?
Recording Officer: Date Completed:	
Comments:	





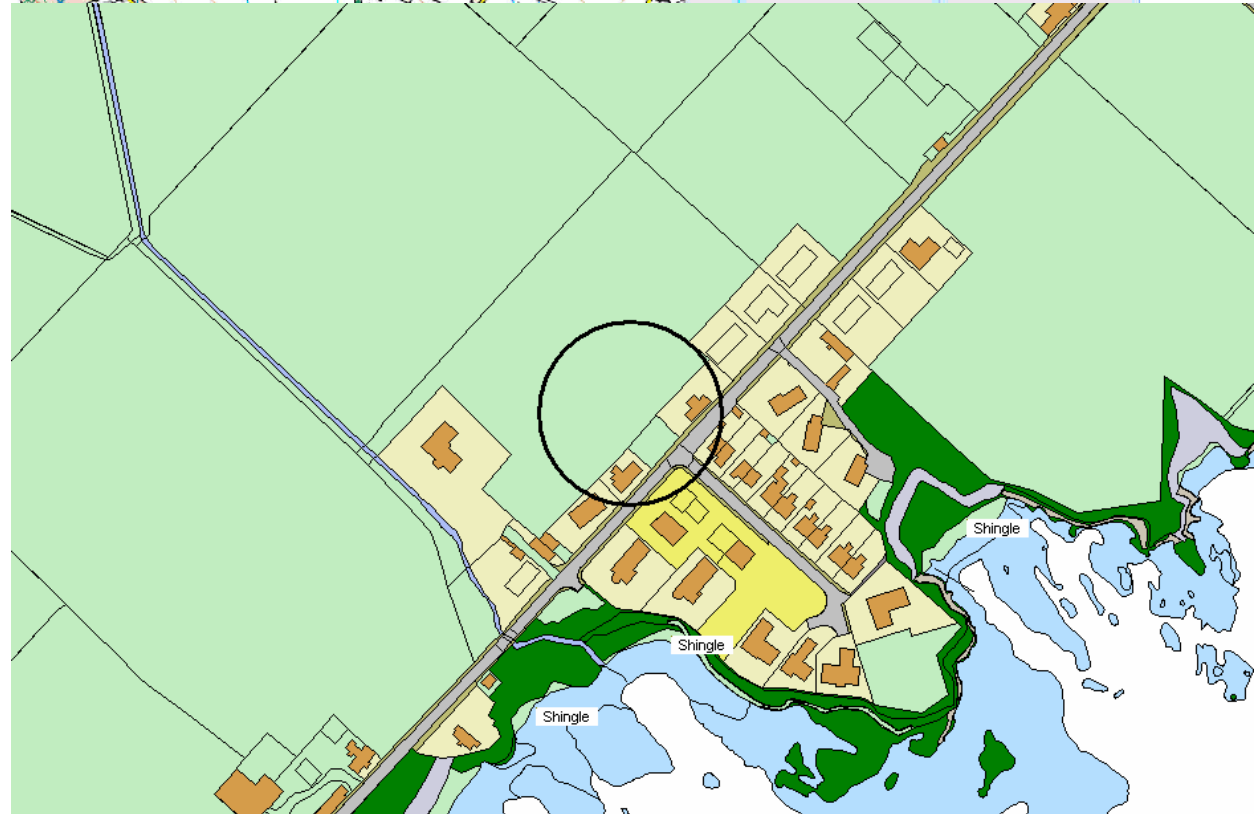
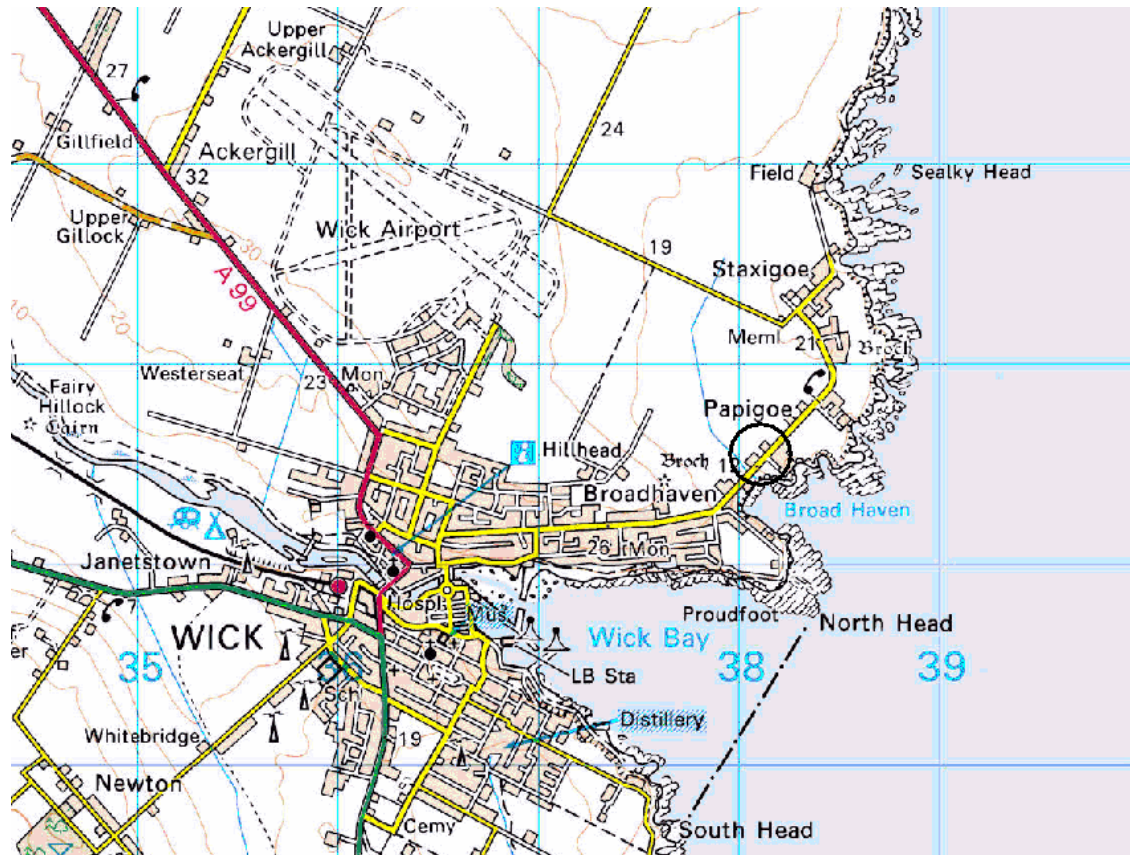
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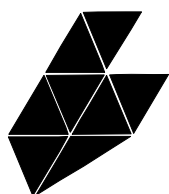
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)

Location of Flood:	Fas Skerry, Papigoe
Water Course Name/Ref:	
Grid Reference:	338114/951565
Description of Flood:	Road Channel Water Ponding at Front Door
Date/Time of Start/Duration of Flood:	3 September 2009 - 16.00pm
Threat to People and Properties? (Please give details)	Could Flood House
Source of Notification: Name: Address: Tel No:	John Niwa PIO 01955 607737
Works Undertaken: (Please give details)	Sand Bags Deployed
Works Required:	
Does the site have a history of flooding? (Please give details)	Yes - 2006
Recording Officer: Date Completed:	
Comments:	



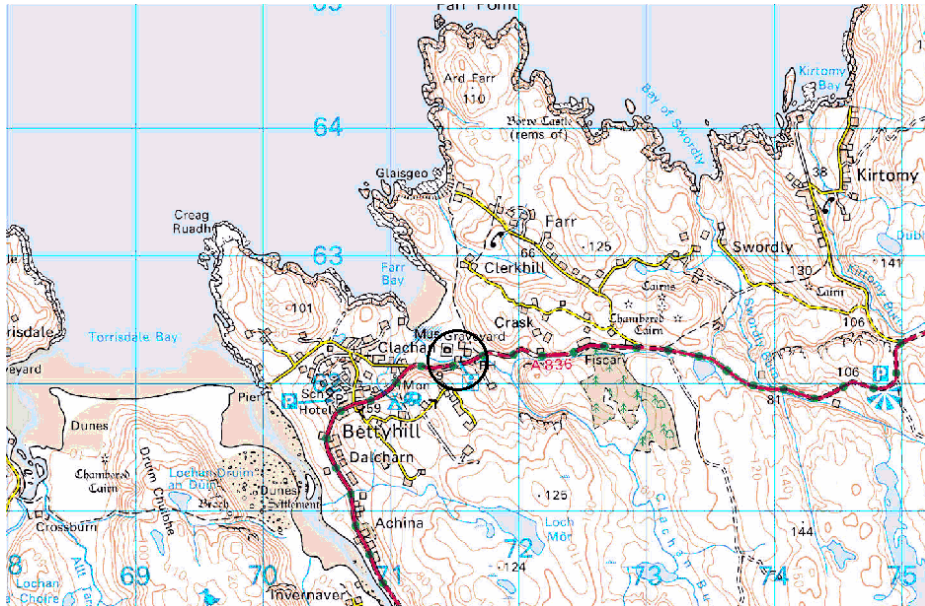


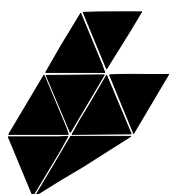
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Bettyhill Café & Tourist Information Bettyhill
Water Course Name/Ref:	Clachan Burn
Grid Reference:	OSGR 271538, 962181
Description of Flood:	Car park & ground floor of café flooded out to approx 150mm. Cause of flood uncertain. Previous floodings caused by adjacent burn overtopping & flap valve rusted open.
Date/Time of Start/Duration of Flood:	03 Sep 09 Started sometime after 5.30pm & continued through the night.
Threat to People and Properties? (Please give details)	Café car park & ground floor flooded out. Café closed to business.
Source of Notification: Name: Address: Tel No:	Mr Boyle Bettyhill Café Bettyhill
Works Undertaken: (Please give details)	Fire Brigade in attendance on 04 Sep 09 to pump out car park & café.
Works Required:	Inspect & replace flap valve. Possibly raise gabion wall Possibly kerb road.
Does the site have a history of flooding? (Please give details)	Flooded circa 1985 with gabion flood defence wall constructed. Flooded on 28 Jun 2004 possibly due to flap valve. Flooded on 26 Oct 2006. Flood defence wall over topped.
Recording Officer: Date Completed:	Iain Moncrieff
Comments:	The property is at risk of further flooding.



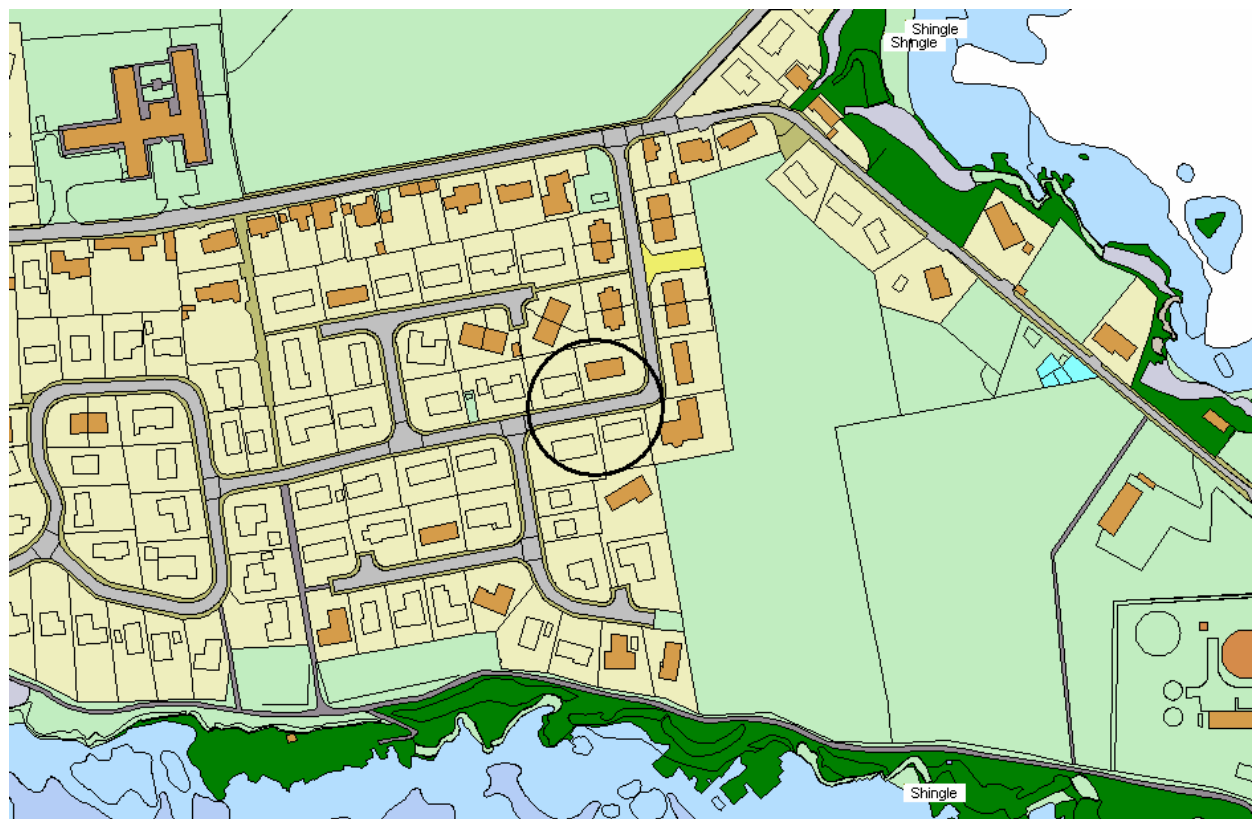


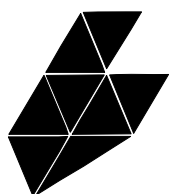
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	No 10 & 12 Murray Avenue, Wick
Water Course Name/Ref:	Unknown N/A
Grid Reference:	OSGR 337847, 951122
Description of Flood:	Gully surcharged, with flood water flowing down driveways.
Date/Time of Start/Duration of Flood:	03 Sep 09 circa 2000 hrs, peaked in 3hrs
Threat to People and Properties? (Please give details)	Garages & gardens flooded
Source of Notification: Name: Address: Tel No:	Mr Doull 10 Murray Ave Wick 01955 605458
Works Undertaken: (Please give details)	Sand bags delivered.
Works Required:	Extra gully required.
Does the site have a history of flooding? (Please give details)	Previous flooded on: 16 Sep 07. See 2007 Biennial Flood Report 01 Aug 06
Recording Officer: Date Completed:	Iain Moncrieff
Comments:	Gullies connect to 150mm Scottish Water surface water sewer. SW consider that 100mm tail from gully to sewer is too small. These properties are at risk of further flooding.



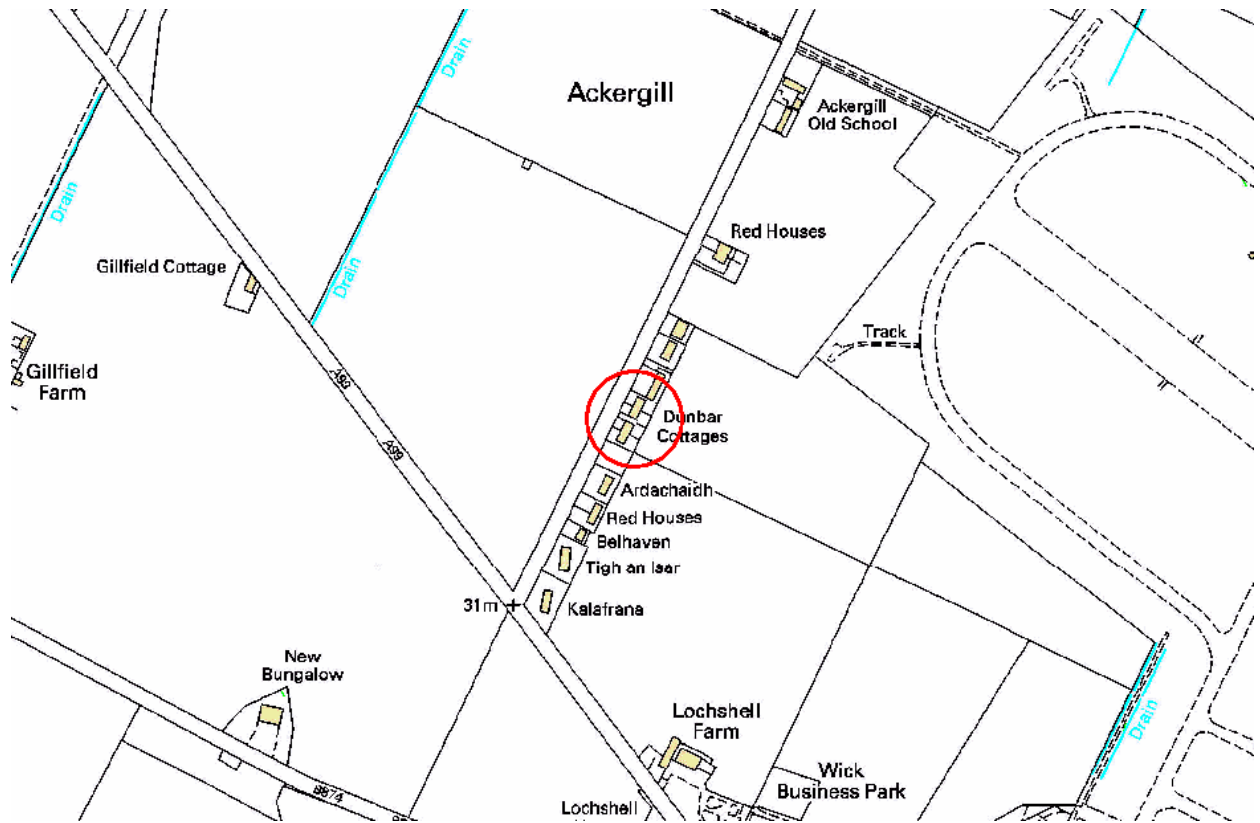


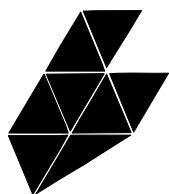
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)	
Location of Flood:	Nos 1 & 2 Dunbar Cottages, Ackergill Wick
Water Course Name/Ref:	N//A
Grid Reference:	OSGR 335248, 953130
Description of Flood:	Park slopes down to rear of houses. Overland flow caused gardens to flood to 2' to back & front of houses.
Date/Time of Start/Duration of Flood:	03 Sep 09 circa 2000 hrs, peaked in 3hrs
Threat to People and Properties? (Please give details)	2 no houses nearly flooded to foundations through air vents. 2' deep. No 1 Mr C MacLeod No 2 Miss K Reid
Source of Notification: Name: Address: Tel No:	Mr C MacLeod No 1 Dunbar Cottages Ackergill
Works Undertaken: (Please give details)	Fire Brigade in attendance last night. Mr MacLeod pumping water away himself.
Works Required:	Unable to extend recent drain to rear of houses due to gradient & topography. May be able to install cut off drain in park. Further studies required.
Does the site have a history of flooding? (Please give details)	Flooded in Oct 06. See 2007 Biennial Flood Report
Recording Officer: Date Completed:	Iain Moncrieff
Comments:	The property is at risk of further flooding. Park owned by Mr W Mackay, Upper Ackergill. Adjacent park owned by GMR Henderson. Input from airport?





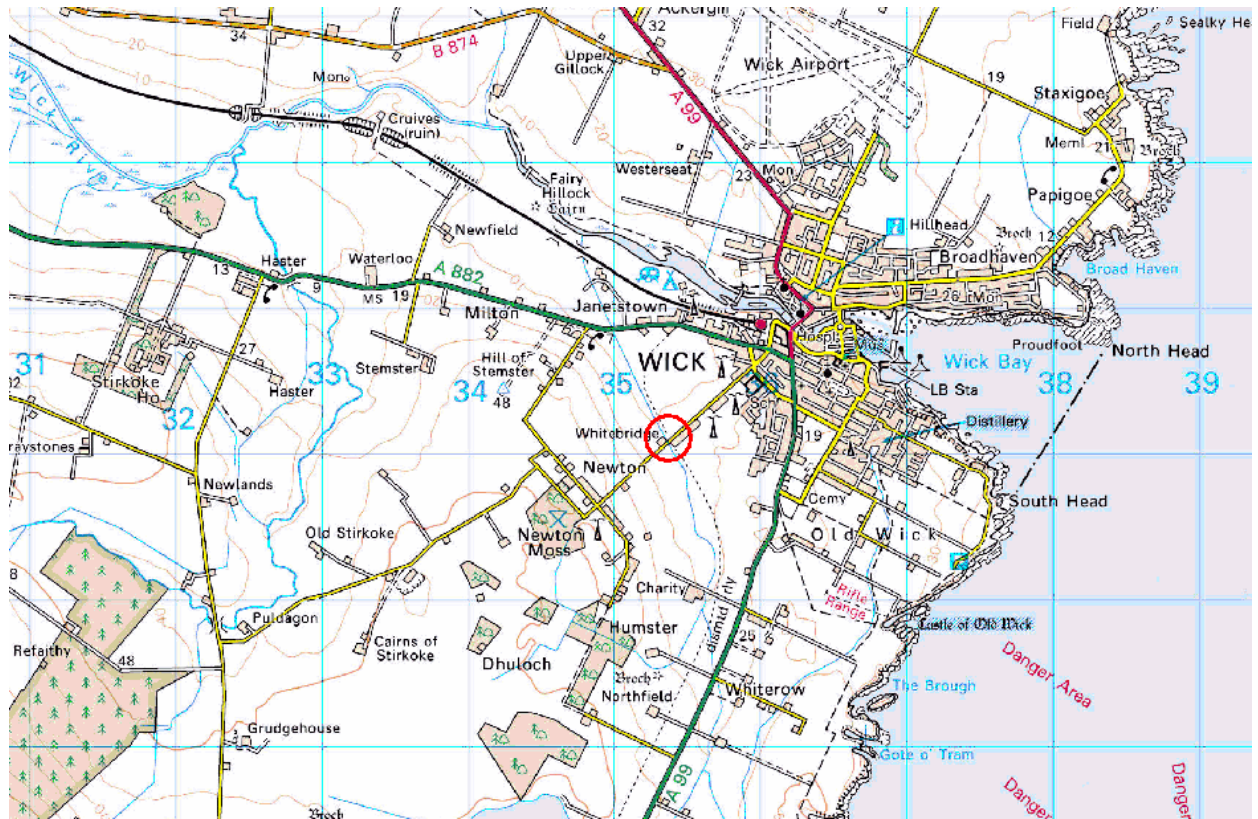
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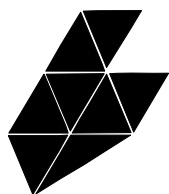
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)

Location of Flood:	Burnside, Whitebridge, Newton Hill
Water Course Name/Ref:	
Grid Reference:	OSGR 335405, 950086
Description of Flood:	Burn flooded from approx 0.5 cum /s to 7 cu m/s. Bridge & recently installed bypass culvert still couldn't take the flow & burn overtopped its banks. This caused the house to be flooded again (see Oct 2006).
Date/Time of Start/Duration of Flood:	03 Sep 09 circa 2000 hrs
Threat to People and Properties? (Please give details)	House adjacent to burn.
Source of Notification: Name: Address: Tel No:	I Moncrieff Principal Engineer TECS 01955 609996
Works Undertaken: (Please give details)	House pumped out.
Works Required:	Previously suggested to Mr Falconer to build a pc block wall sunk into the ground to try to keep the water out.
Does the site have a history of flooding? (Please give details)	Flooded twice in Oct 06. See 2007 Biennial Flood Report
Recording Officer: Date Completed:	Iain Moncrieff
Comments:	The property is at risk of further flooding.





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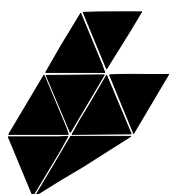
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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)

Location of Flood:	Elm Cottage Ulbster
Water Course Name/Ref:	C21 Ulbster
Grid Reference:	OSGR 332042, 940528
Description of Flood:	Garden & surrounding low lying fields flooded with ponded water.
Date/Time of Start/Duration of Flood:	03 Sep 09 circa 2000 hrs, peaked in 3hrs Flooded till 4 th Sep 09.
Threat to People and Properties? (Please give details)	1 no houses nearly flooded, garden under water.
Source of Notification: Name: Address: Tel No:	I Moncrieff Principal Engineer TECS 01955 607796
Works Undertaken: (Please give details)	?
Works Required:	?
Does the site have a history of flooding? (Please give details)	Repeatedly flooded in recent years. Old filled in ditch recently reopened to take excess flow but overtopped. See 2005 Biennial Flood Report 'Smithy Cottage'
Recording Officer: Date Completed:	Iain Moncrieff
Comments:	The property is at risk of further flooding.





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FLOODING INCIDENT REPORT

RECORDING FORM: (Mark all applicable options)

Location of Flood:	U1276 Banks – Scouthal – Shielton Rd Watten Caithness
Water Course Name/Ref:	Burn of Acharole
Grid Reference:	OSGR 324030, 953682 to 323920, 953448
Description of Flood:	Acharole Burn flooded park to west of road & then crossed back over to rejoin main flow. Cross road flow was significant and the main channel had overtopped its banks. Couldn't distinguish c/w from channel.
Date/Time of Start/Duration of Flood:	03 Sep 09 circa 2000 hrs, peaked in 3hrs Burn in spate all of 04 Sep. Flow dropped by 1400 hrs on 4 th .
Threat to People and Properties? (Please give details)	Road nearly impassable except by 4WD. Severe danger if vehicle left the road. Road closed at 1000 hrs till 1400 hrs on 4 th .
Source of Notification: Name: Address: Tel No:	I Moncrieff Principal Engineer TECS 01955 607796
Works Undertaken: (Please give details)	Road Closed signs erected.
Works Required:	No further works required.
Does the site have a history of flooding? (Please give details)	Possibly flooded in Oct 06. Road built on a flood plain.
Recording Officer: Date Completed:	Iain Moncrieff
Comments:	