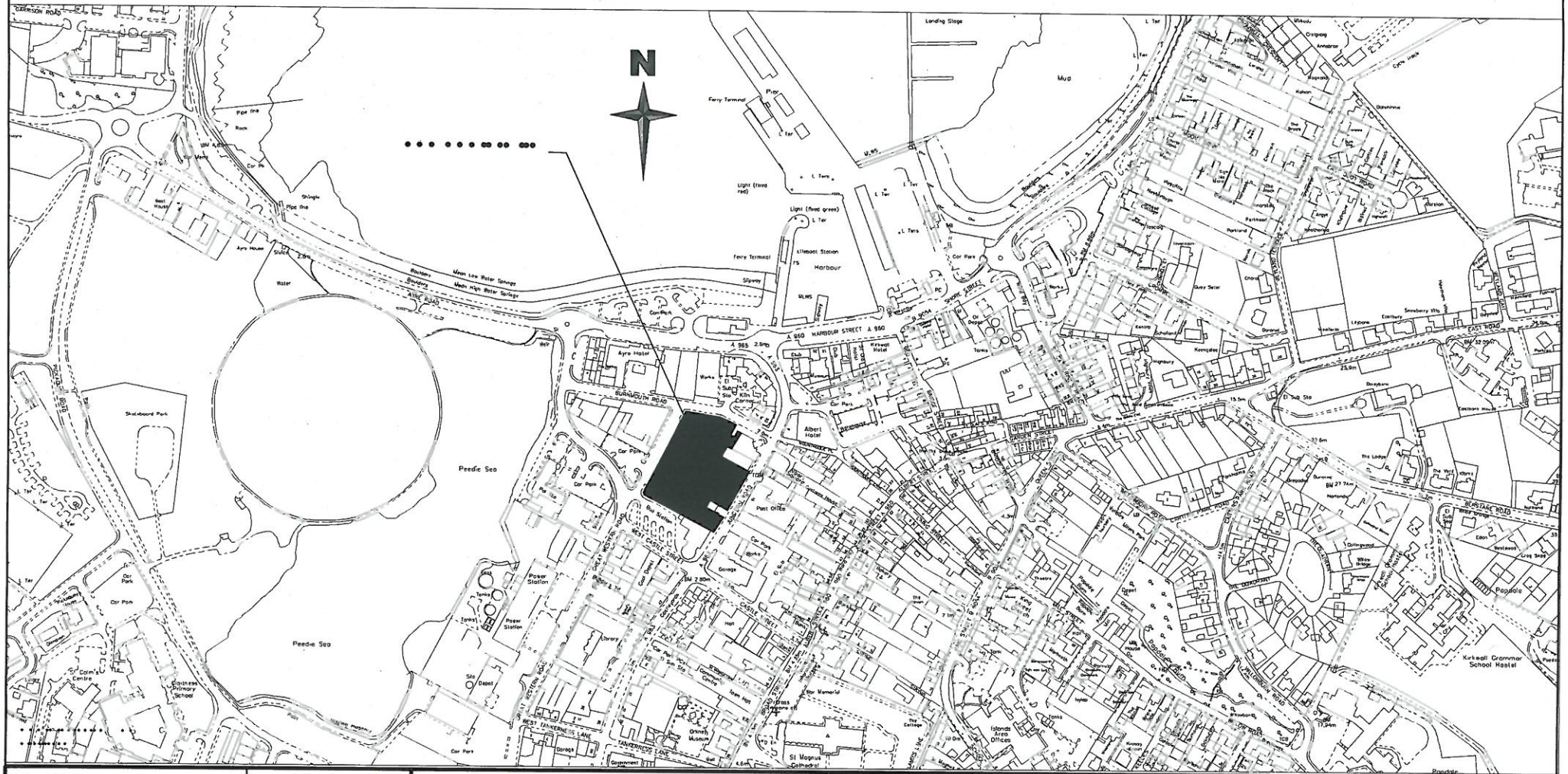
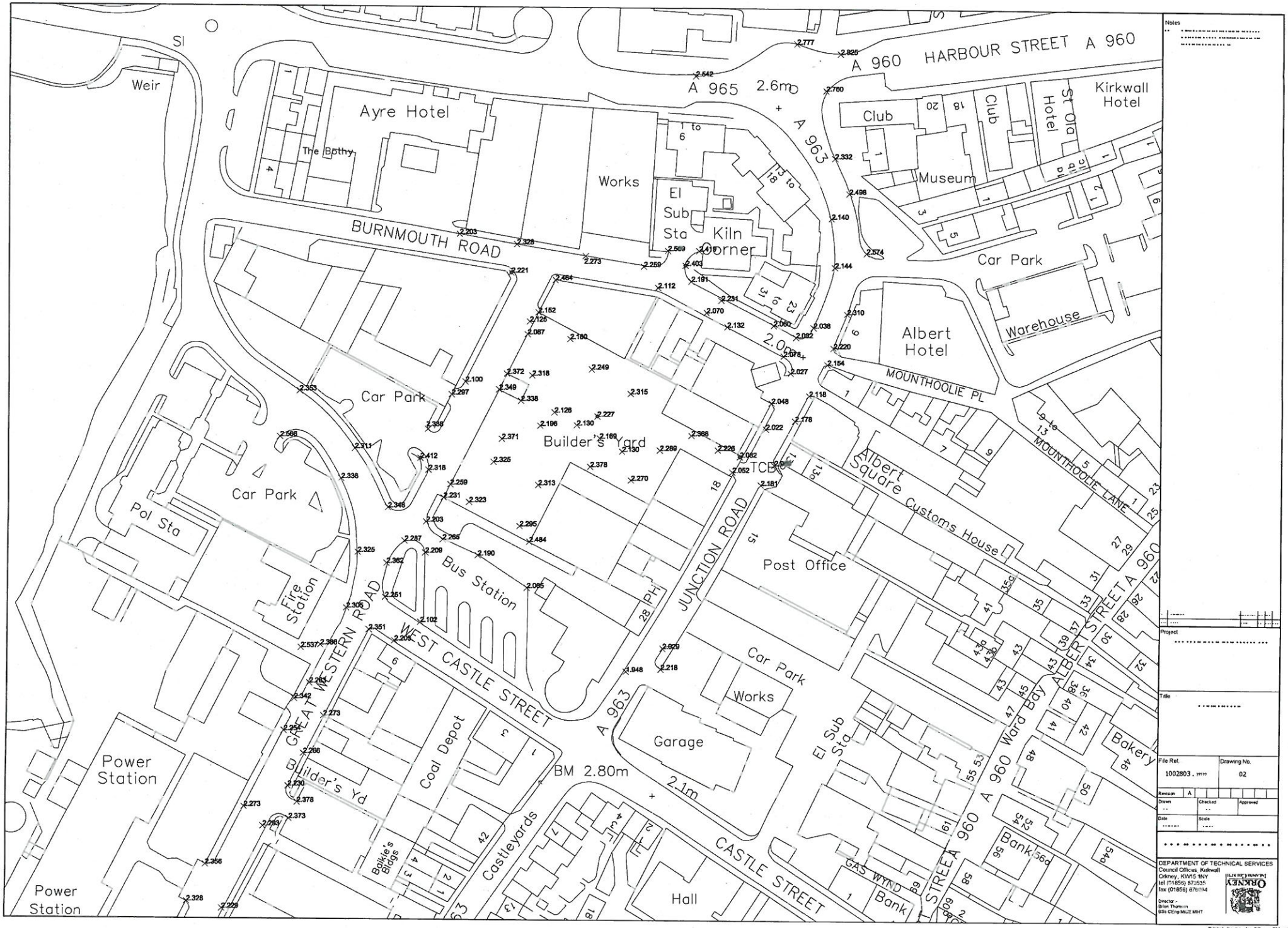


File Ref. 1002803 . ?????	Drg. No. 01		DEPARTMENT OF TECHNICAL SERVICES Council Offices, Kirkwall Orkney, KW15 1NY tel (01856) 873535 fax (01856) 876094 Director :- Brian Thomson BSc CEng MICE MIHT
Revision A			
Date	Drawn		
Scale	Checked		
	Approved		

Original drawing size 297mm x 210mm (A4)



Notes

Project

Title

File Ref.	Drawing No.
1002803 . mm	02

Revision A

Drawn	Checked	Approved
..	..	

Date ..... Scale .....

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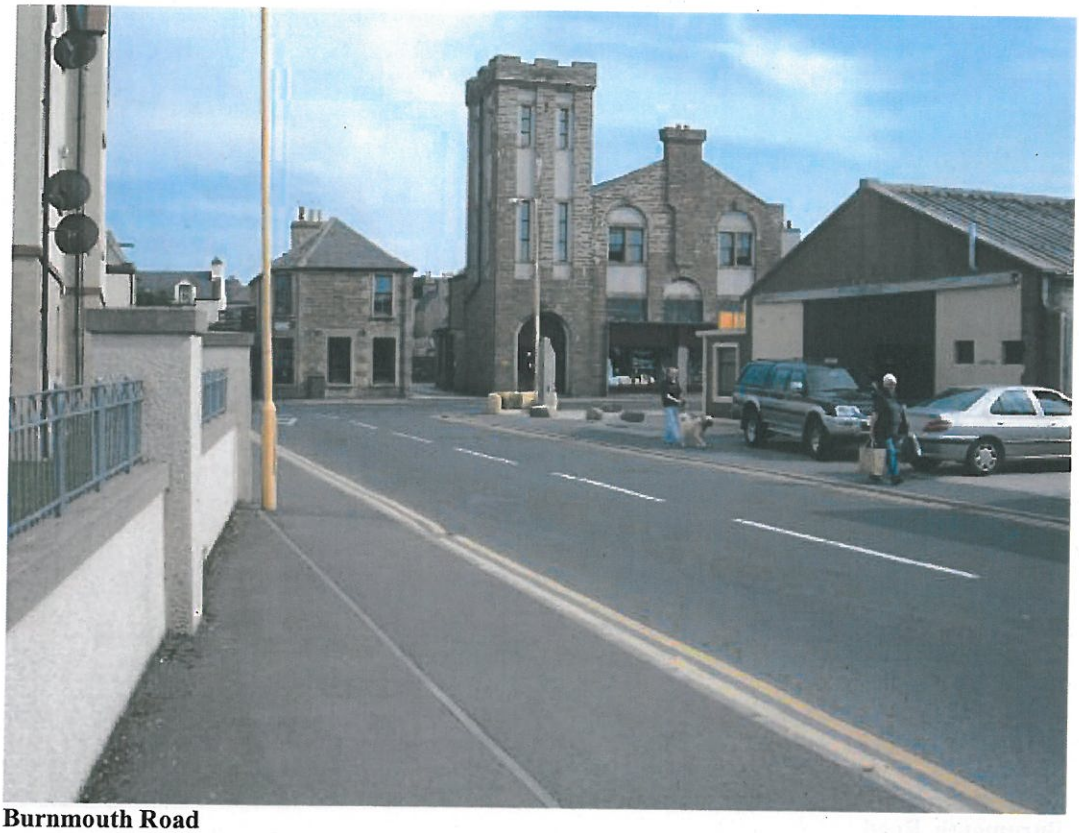
ORKNEY ISLANDS COUNCIL

Original drawing size 841mm x 594mm (A1)



Burnmouth Road

Junction Road

Burnmouth Road

Great Western Road

Ayre Road

Ayre Road

Ayre Road

Ayre Road

Tidal Records at kirkwall Pier
Extract from OIC Data

APPENDIX 5

Date	Month	Year	Time	Av Level	Max Level	Min Level
12	1	2005	820	3.122	3.147	3.06
12	1	2005	830	3.193	3.256	3.13
12	1	2005	840	3.274	3.322	3.227
12	1	2005	850	3.379	3.465	3.295
12	1	2005	900	3.477	3.534	3.418
12	1	2005	910	3.575	3.66	3.501
12	1	2005	920	3.715	3.796	3.648
12	1	2005	930	3.823	3.912	3.761
12	1	2005	940	3.919	3.964	3.882
12	1	2005	950	3.982	4.041	3.919
12	1	2005	1000	4.064	4.105	4.011
12	1	2005	1010	4.109	4.176	4.036
12	1	2005	1020	4.182	4.224	4.119
12	1	2005	1030	4.181	4.254	4.121
12	1	2005	1040	4.189	4.234	4.133
12	1	2005	1050	4.223	4.275	4.141
12	1	2005	1100	4.22	4.28	4.136
12	1	2005	1110	4.171	4.208	4.133
12	1	2005	1120	4.176	4.209	4.137
12	1	2005	1130	4.18	4.227	4.137
12	1	2005	1140	4.145	4.237	4.081
12	1	2005	1150	4.119	4.165	4.079
12	1	2005	1200	4.098	4.126	4.03

Note: **Tide levels shown are to Admiralty Chart Datum, to convert to Ordnance Datum Newlyn subtract 1.4m. Eg max tide level of 4.22m CD = 2.82m OD(Newlyn)**

Appendix. 6

Storm Analysis

Met Office FitzRoy Road Exeter EX1 3PB United Kingdom
Tel: 0870 900 0100 Fax: 0870 900 5050 www.metoffice.gov.uk

Orkney Islands Council

Ref: MO19

F.A.O. **Simon Butcher**

Tel. 01856 8735335

Email :- simon.butcher@orkney.gov.uk

Full Report

Location	Grid Reference	Date	Event Start	Event End
Kirkwall	**3482E 10077N**	**25th & 26th October 2006**	**2200GMT/25th**	**1900GMT/26th**

Return Period of Most Significant Event (yrs)
212 years

Rainfall Type
~~Convective (Showers)~~/Dynamic (Frontal~~)~~

Rainfall Amount	
Data Source	mm
Kirkwall	84.8

Most Significant Amount	
mm	Duration
84.8	21 hours

Return Periods for Standard Durations		
Amount (mm)	Duration	Years
-	15 mins	-
-	30 mins	-
9.2	60 mins	3

Confidence:	HIGH

Event at: **Kirkwall**
Date of event: **25th & 26th October 2006**

Rainfall Stations used in assessment.

Station	Distance (km) & Direction		24/10/06	25/10/06	26/10/06	27/10/06	
Kirkwall	0.0	-	0.6	42.4	44.2	5.4	

Rainfall measurements in mm
Table represents daily 24hr totals from 0900GMT on the date shown

Opinions and conclusions on likely significance of the event

Rainfall Event at Kirkwall on Thursday 26th October 2006

It was a particularly wet night across central and northern Scotland with persistent and sometimes heavy rain. It was also a windy night. Rain also fell across southern Scotland and Northern Ireland, and, towards the end of the night, a narrow band of rain pushed eastwards across the Irish Sea into west Wales and northwest England. It was a very windy day across Scotland. Northeast Scotland saw the strongest winds where severe gales occurred, and there were potentially damaging gusts. The highest gust was 74 knots (85 m.p.h.) recorded at Lerwick. As well as strong winds there were spells of heavy rain. There were frequent blustery showers across Northern Ireland and northern England and here too it was very windy.
Further south across Wales, central and southern England the winds were less severe, and sunny skies developed from the west. A clear evening followed.

An Automatic Station at Kirkwall recorded a 2 day total of 86.6mm from the 25th October 2006. Hourly totals from this station show 69.2mm fell over 13 hours from 0200GMT/26th and 84.8mm over 21 hours from 2200GMT/25th.

The nearest Rainfall Radar site to Kirkwall is over 170km away and was unable to provide any additional guidance for this event.

To provide guidance on how unusual the rainfall may have been at Kirkwall on the 25th/26th October 2006, return periods were calculated for various events based on the hourly rainfall totals from the Automatic Station on Kirkwall. The highest return period obtained for this event was **212 years**.

Prepared by	Date
Richard Brooks	5th December 2006

It is not always the case that the nearest available data site is the most representative of the incident site. *The return period assigned to this radar rainfall value is calculated in accordance with the method described in the Flood Estimation Handbook (FEH). The FEH method used to determine return periods is based on analysis of rain gauge data only. Hence, this return period estimate is for guidance only.

Jewsons Site Development
Junction Road (South) Flooding 26/10/2006

Appendix 7

Jewsons Site Development
Junction Road (North) Flooding 26/10/2008

Appendix 7

Jewsons Site Development
Junction Road (Middle) Flooding 26/10/2006

Appendix 7