

8. CONSERVATION WORKS

Empingham Reservoir

(Note: In view of the importance of this matter and the continual development the practice adopted in the two previous Reports of recording the position at the time of writing is again adopted. Accordingly this section covers the period from 1st January 1971 to the 31st October.)

The Contract for the River Diversion Tunnels and Shafts (Contract No.3) was awarded to Edmund Nuttall Ltd. on a tender of £622,898 from a selected list of six, and they commenced work on the 4th January. The draw off shaft is 35 feet diameter and 110 feet deep, the upstream tunnel is 2,000 feet long and 12 feet diameter, the downstream tunnel is 2,360 feet long and 14.5 feet diameter, and the overflow shaft is 100 feet deep and 12 feet diameter. Work proceeded satisfactorily, and it appears that it will be completed by January 1972, as required.

In accordance with the Undertaking given to the County Council in the course of the Parliamentary Proceedings to provide a new road from Normanton to Empingham to replace that to be closed across the valley a Compulsory Purchase Order was obtained in respect of the land required.

The Plans and Specifications were prepared by the Rutland County Surveyor, and the contract was carried out under his supervision by Sheldon Contracting Co. Ltd. at a tender price of £91,762.

The tender documents and drawings for the Embankment and Ancillary Works (the Principal Contract—No.4) were completed by June, when nine selected contractors were invited to tender. The lowest was that of Gleeson Civil Engineering Limited in the sum of £5,298,462, and on the Consulting Engineer's recommendations it was accepted on the 27th August. The Contractors moved on to the site on the 8th September, and in the favourable autumn weather were making very satisfactory progress.

In the meantime the Staff prepared the specifications for the Pumping Stations at Wansford (River Nene) and Tinwell (River Welland) and the final lift at Empingham. The contract for the Wansford and the Tinwell Pumping Stations was awarded to Allen Gwynnes Pumps Ltd., and that for Empingham Pumping Station was awarded to Weir Pumps Ltd.

The diversion of the overhead cables was carefully considered and agreement was reached with the County Council as to those which should be underground, the County Council agreeing to make a contribution of £25,000 towards the additional cost.

After a meeting with the County Council, the Countryside Commission and the East Midlands Sports Council, a Working Committee was set up to make recommendations as to the recreational and amenity facilities, their location, management and the financial implications. As recreational and amenity possibilities have aroused much interest, and are an important aspect of reservoir construction, a copy of the Committee's Report is contained in the Appendix. The Report was accepted in principle, and with the approval of the County Council, the Rural District Council and the Sports Council, and further planning is proceeding on the lines recommended. The Rutland Sailing Club (recently established for the purpose) have been invited to discuss the development of sailing facilities and the erection of club premises. The Fisheries Committee are examining the fishery problems with a view to developing a trout water.

The Professional Advisors and the Staff are most anxious to promote a good understanding with those affected by the Reservoir, it is realised that there may be no adequate compensation for the upheaval and disruption which some are to suffer, particularly where families have lived and farmed in the valley for several generations, and they are concerned that they should be vulnerable to misunderstanding.

There is a reluctance to accept that compensation can only be paid in accordance with the code prescribed by section 5 of the Land Compensation Act 1961, and that members of the Authority would be liable to be personally surcharged if they agreed to pay compensation in

excess of that recommended by their Professional Advisers. It is also over-looked that there are two parties to an agreement, as there are two solicitors concerned in the conveyancing procedure, and that delays may not be the fault of the staff or land agents.

Messrs. Pick, Everard, Keay & Gimson of Leicester have been retained as Architects, and it is pleasing to record that the initial outline plans for the Pumping Stations were approved and accepted by the County Planning Authorities concerned and by the Royal Fine Art Commission.

Progress on the Reservoir in all directions has been satisfactory, and it is hoped that the work will be completed by the target date, and that water can be supplied by 1976.

9. AGREEMENTS UNDER SECTION 81 AND ORDERS UNDER SECTION 82

No Agreements or Orders were made under section 81 and 82.

10. CHARGES

The Charging Scheme yielded a revenue of £74,518. Only a token £10,000 per year for the Rutland Project was included in the Estimates on which the Scheme was based. But for the very substantial expenditure now arising on the Reservoir the Scheme would have been viable for the five years. The costs of the Parliamentary Promotion and (having regard to the power to capitalise interest under section 92(5)) the "interest on interest" have now to be met, and in the coming two years something of the order of £60,000-£70,000 will have to be found by temporary expedients. There is provision in the Empingham Act for those water boards who are to be afforded a supply from the Reservoir to make contribution outside the Charging Scheme.

RAINFALL GAUGING STATIONS

RECORDS TAKEN BY THE AUTHORITY

Station			National Grid Reference	Station No. B.R.O.	Height of gauge above sea level in metres	Duration of records
Surfleet Reservoir	..	..*	TF 280 293	156328	3.7	7 years
Oundle (Nene Wharf)	..	..*	TL 044 888	163092	20.1	38 years
Oundle (Head Office)	..	..*	TL 042 883	163091	32.3	6 years
Oundle (Head Office)	..	..R	TL 042 883	—	32.3	Sept. 1968
Wellingborough (Nene Wharf)		..*	SP 899 664	160801	41.5	38 years
Northampton (South Bridge)	..	..	SP 755 595	—	60.0	38 years
Bassingthorpe	..	..R	SK 967 286	—	100.6	May, 1968 ¹
Wisbech Office	..	..	TF 457 114	—	6.1	Nov. 1970

RECORDS SUPPLIED TO THE AUTHORITY BY OTHER PERSONS OR ORGANISATIONS

Hovenden House, A. H. Worth (Fleet) Ltd.	..	..	..*	TF 398 262	156940	4.6	11 years
Bingham Lodge, Mr. F. H. Bowser	..	..	..†	TF 391 322	157045	3.0	38 years
Manor Farm, Mr. F. H. Bowser	..	..	..†	TF 355 241	156677	3.0	38 years
Fosdyke (Major's Farm), H. C. C. Tinsley Ltd.	..	..	..*†	TF 346 310	156836	3.7	16 years
Algarkirk, Messrs. Denis's Farms Ltd.	..	..	..	TF 311 355	—	3.7	7 years
Spalding, South Holland Drainage Board*	..	..	..	TF 259 239	154773	3.0	14 years
Weston, Mr. C. Ostler	..	..	..*	TF 275 184	166114	3.0	27 years
Pode Hole, Deeping Fen, Spalding and Pinchbeck I.D.B.	..	..	..	TF 214 219	154720	3.7	143 years
Tongue End, Deeping Fen, Spalding and Pinchbeck I.D.B.	..	..	..	TF 151 185	156194	3.3	23 years
Deeping St. Nicholas, T. R. Pick Ltd.	..	..	..†	TF 213 157	154528	3.0	51 years
Peterborough Sewage Works, Peterborough Corporation	..	..	..†	TF 201 984	164364	3.0	36 years
Sutton Bridge, South Holland Drainage Board	..	..	..*†	TF 476 201	166869	6.4	56 years
Norfolk House Farm, Mr. J. E. Piccaver	..	..	..	TF 441 287	—	3.3	11 years
Sutton St. James, South Holland Drainage Board	..	..	..*	TF 389 181	166569	1.5	4 years
Gedney Hill, Mr. A. Depear	..	..	..	TF 337 118	—	2.4	7 years
Marholm, Mr. Smedley	..	..	..	TF 155 024	—	15.2	6 years ²
Ufford, Mr. S. G. Faulkner	..	..	..*	TF 093 045	153908	24.7	7 years
Wilsthorpe, South Lincs. W.B.	..	..	..	TF 081 148	155989	15.2	86 years

Station		National Grid Reference	Station No. B.R.O.	Height of gauge above sea level in metres	Duration of records
Lound, South Kesteven R.D.C.	..*†	TF 079 194	156215	40.8	10 years
Stamford Sewage Works, Stamford Corporation	..*†	TF 041 075	153155	23.5	9 years
Tixover, Nene and Ouse Water Board	..†	SK 974 001	152742	31.7	9 years
Seaton, Mr. R. E. Richardson	..*	SP 908 977	152542	45.7	30 years
Gunthorpe Hall, Mr. R. Thorp	..*†	SK 869 057	153244	128.0	23 years
Uppingham, Mr. G. E. Stokes	..*†	SP 859 998	152367	163.1	14 years
Caldecott, British Steel Corporation	..†	SP 864 932	4341	53.0	14 years
Hallaton Hall, The Vocation Sisters	..*	SP 791 966	151875	111.9	7 years
Ashley, Mr. T. Kerby	..*†	SP 796 908	151845	73.5	7 years
Market Harborough, Mr. A. D. F. Wooldridge	..†	SP 733 879	151238	105.1	30 years
Market Harborough, U.D.C.	..†	SP 735 870	151237	79.2	65 years
Kibworth Harcourt, Mrs. A. M. Briggs	†	SP 682 945	151472	124.3	51 years
Sibbertoft, Mr. E. J. Middleton	..*	SP 681 826	151026	170.7	7 years
Apethorpe, Messrs. William Tomkins Ltd.	..*	TL 022 961	163737	39.3	22 years
Corby, British Steel Corporation	..*	SP 901 885	163465	97.5	34 years
Harrowden Hall, Mr. A. J. Macdonald-Buchanan	..*	SP 882 709	161562	88.7	27 years
Lamport Hall, Sir Gyles Isham	..*	SP 759 746	159493	146.6	34 years
Northampton Power Station, Central Electricity Generating Board*		SP 762 598	160204	57.9	36 years
Orlbury, Messrs. William Tomkins Ltd.	..*†	SP 843 715	161496	118.6	14 years
Bugbrooke Mill, Messrs. Heygates Ltd.	*	SP 680 588	158802	69.8	20 years
Litchborough, Mr. Ager	..*†\$	SP 624 551	158703	111.3	34 years
Stanground Sluice, Middle Level Commissioners	..†	TL 209 973	196880	4.9	65 years
Stanground, Mr. R. Fathers	..	TL 210 962	196856	11.3	From Dec. 69
Raunds, Mr. T. C. Smith	..	SP 991 721	4382	59.1	30 years
Wollaston, Messrs. Scott Bader & Co. Ltd.	..*	SP 911 631	160775	84.4	23 years
Blisworth, British Waterways Board	..	SP 720 550	159147	90.5	21 years
Norton Junction, British Waterways Board	..	SP 602 657	158443	109.4	21 years
Brigstock, British Steel Corporation	..*	SP 944 852	162681	52.1	13 years
Kelmarsh Hall, Col. C. G. Lancaster, M.P.	..*	SP 735 795	160838	125.9	12 years
Bulwick Hall, Mr. G. T. G. Conant	..*	SP 958 940	163646	68.6	13 years

Station	National Grid Reference	Station No. B.R.O.	Height of gauge above sea level in metres	Duration of records
Yardley Hastings, Forestry Commission *§	SP 852 572	160521	101.2	12 years
Flore, Mr. J. Champion *†	SP 649 601	158618	86.9	47 years
Islip Furnaces, British Steel Corporation *	SP 970 783	162361	49.7	57 years
Preston, Mrs. Bloomfield *	SK 871 024	152993	138.4	3 years
Casterton, Casterton Village College *	TF 003 094	153677	50.6	3 years
Clipsham, Mr. J. Clayton *	SK 970 161	155234	92.0	3 years
Kilsby, Kilsby School *	SP 563 710	450355	131.7	3 years
West Haddon, Mrs. Porteus *	SP 629 719	158203	168.5	3 years
Little Houghton, Mr. R. C. Deacon *	SP 805 598	160279	78.9	3 years
Braunston, Rev. P. R. Gatenby *	SK 829 067	153214	122.2	From June 68
Tilton-on-the-Hill, Mrs. Wrake .. .. *||	SK 745 057	152195	207.9	3 years
Cranford, Deans Primary School *	SP 925 770	162269	66.1	Jan. 69
Welby, Miss Elliott .. .. .R	SK 976 382	—	100.0	May, 68

¹ Records ceased August, 1970.
² Records ceased May, 1970.
* Records from these stations are made to the British Rainfall Organisation.
† Indicates that all records are not available at Head Office.
‡ Break in records, July to December 1964 and June to August 1965.
§ Existing site, records are available for nearby site for previous 9 years.
\$ Gauge sited at Litchborough (SP 624 551) September 1969.
|| Gauge read weekly.
R Recording raingauge.

RAINFALL FOR 1970
River Nene Hydrometric Area

1970	Above Northampton (Litchborough)	Northampton (Hardingstone)	Wellingborough (Nene Wharf)	Oundle (Nene Wharf)	Peterborough (Stanground)
	mm	mm	mm	mm	mm
January	58	62	56	67	51
February	69	63	65	55	46
March	51	73	57	49	37
April	65	61	63	60	54
May	22	9	28	16	36
June	34	20	28	39	31
July	49	47	39	41	41
August	77	97	77	85	56
September	37(e)	28	29	22	26
October	20(e)	13	20	17	14
November	133(e)	120	125	117	112
December	34	40	30	25	31
1970 Total	649(e)	633	617	593	535
1969	649	614	557	597	605
1968	715	718	712	735	727
1967	628	617	573	560	525
1966	796	734	679	713	656
Average 1916-1950	660	583	586	586	552

Comparative Table

Year	Per cent of average
1970	102
1969	102
1968	121
1967	98
1966	121

Note: (1) 1 inch = 25.4mm.
(2) The figures for Litchborough have been estimated by the Meteorological Office.

RAINFALL FOR 1970

River Welland Hydrometric Area

1970	Market Harborough	Caldecott Pumping Station	Gunthorpe	Stamford Sewage Works	Pode Hole (Fen Area)
	mm	mm	mm	mm	mm
January ..	59	63	71	58	54
February ..	70	65	63	46	45
March ..	54	68	61	47	34
April ..	68	73	74	59	70
May ..	15	13	16	17	7
June ..	25	26	32	19	26
July ..	43	37	46	46	41
August ..	54	75	87	59	53
September ..	33	24	36	23	22
October ..	19	19	23	16	19
November ..	133	119	140	123	122
December ..	28	26	31	27	35
1970 Total ..	601	608	680	540	528
1969 ..	672	600	692	669	637
1968 ..	740	687	737	715	669
1967 ..	657	576	636	566	519
1966 ..	737	631	730	680	673
Average 1916-1950	618	575	627	585	602

Comparative Total

Year	Per cent of average
1970	98
1969	109
1968	118
1967	98
1966	115

Note: 1 inch = 25.4 mm.

RIVER AND STREAM GAUGING

(a) Automatic Gauging Stations recording water level and rate of discharge

Station	M= Main River T= Tributary	National Grid Reference	Catchment Area in km ²	Type of Measurement	Duration of Records
WELLAND CATCHMENT					
Kate's Bridge	T	TF 106 149	341.9	Standing wave flume	12 years
King Street Bridge	T	TF 109 106	314.9	Standing wave flume	11 years
Manthorpe	T	TF 068 160	136.2	Simple Crump-type weir	3 years
Grimsthorpe	T	TF 046 203	21.0	Simple Crump-type weir	2 years
Irnham	T	TF 038 273	71.5	Simple Crump-type weir	2 years
Shillingthorpe	T	TF 074 113	173.0	Simple Crump-type weir	3 years
Little Bytham	T	TF 016 179	24.9	Simple Crump-type weir	2 years
Burton Coggles	T	SK 987 261	31.6	Simple Crump-type weir	2 years
Tallington Main Weir	M	TF 095 078	717.4	Compound broad crested weir	3 years
Lolham Mill Stream	M	TF 096 078	717.4	Simple Crump-type weir	5 years
West Deeping Mill Stream	M	TF 094 078	717.4	Simple Crump-type weir	5 years
Belmesthorpe	T	TF 038 097	150.0	Simple Crump-type weir	4 years
North Brook	T	SK 957 089	36.5	Simple Crump-type weir	2 years
Foster's Bridge	T	SK 961 030	68.9	Compound Crump-type weir	3 years
Morcott Brook	T	SK 939 018	19.6	Simple Crump-type weir	From March 1970
Ridlington	T	SK 848 037	18.5	Simple Crump-type weir	From April 1969
Tixover	M	SP 971 998	404.0	Current Meter (over 4.245 cumecs)	9 years
Barrowden	M	SP 948 999	398.9	Simple Crump-type weir (below 4.245 cumecs)	3 years
Ashley	M	SP 819 915	250.7	Simple Crump-type weir	From Feb. 1970
Medbourne Brook	T	SP 798 939	27.9	Simple Crump-type weir	From April 1970
Stonton Brook	T	SP 759 918	42.7	Simple Crump-type weir	From March 1970
Langton Brook	T	SP 755 908	55.1	Simple Crump-type weir	From April 1970
River Jordan	T	SP 740 867	20.8	Simple Crump-type weir	From April 1970
NENE CATCHMENT					
Orton	M	TL 166 972	1634.3	Weir and sluices to approx. 28.300 cumecs	31 years
Orton North Bypass	M	TL 166 972	1634.3	Sharp edged rectangular weir	3 years
Orton South Bypass	M	TL 166 967	1634.3	Sharp edged rectangular weir	3 years

Station	M= Main River T= Tributary	National Grid Reference	Catchment Area in km ²	Type of Measurement	Duration of Records
Wittering Brook	T	TL 089 995	46.9	Simple Crump-type weir	From March 1970
Wansford	M	TL 080 995	1528.1	Current meter (over 28.300 cumecs)	32 years
Willow Brook	T	TL 067 933	89.6	Standing wave flume	32 years
Willow Brook— Central Stream— Tunwell Loop	T	SP 898 892	7.1	Simple Crump-type weir	From August 1969
Willow Brook— South Stream— Stanion Lane	T	SP 901 886	7.6	Simple Crump-type weir	From August 1969
Lilford	M	TL 025 838	1258.0	Simple Crump-type weir	Water level only from August 1970
Harper's Brook	T	SP 983 799	74.3	Compound Crump-type weir	32 years
Harrowden	T	SP 898 715	194.0	Compound Crump-type weir	27 years
Slade Brook	T	SP 872 763	58.3	Simple Crump-type weir	From August 1970
Barford Bridge	T	SP 861 831	62.4	Simple Crump-type weir	From October 1969
Ryeholmes Bridge	T	SP 883 633	47.5	Simple Crump-type weir	From October 1970
Wollaston	M	SP 887 647	644.9	Weir (below 1.698 cumecs)	27 years
Northampton	M	SP 755 597	569.8	Current meter (over 28.3 cumecs)	Level for 37 years. Discharge occasional for 28 years
Lady Bridge	T	SP 736 571	53.3	Simple Crump-type weir	From July 1968
St. Andrews Mill and Bypass	T	SP 747 617	232.8	Mill-Standing wave flume Bypass—Broad crested weir	32 years
Brixworth	T	SP 736 707	58.0	Simple Crump-type weir	From Nov. 1970
Upton Mill and Bypass	T	SP 721 592	223.0	Mill-Standing wave flume Bypass—Simple Crump-type weir	31 years
Dodford	T	SP 627 607	107.0	Simple Crump-type weir	26 years
Surney Bridges	T	SP 620 658	63.4	Simple Crump-type weir	From Jan. 1971

Records from the above, other than those for Northampton (where only water levels are recorded) and Wollaston (where only drought discharges are recorded) are/will be published in the Surface Water Year Book.

When the Greatford Flood Relief Channel is in use, the natural discharge of the River Glen at Kate's Bridge is obtained by adding the discharges at Kate's Bridge and King Street.

(b) Recording Stations—water levels

Station	National Grid Reference	River	Type	Duration of records
Fosdyke, Spalding	TF 318 323	Welland	Tidal	21 years
Marsh Road, Spalding	TF 259 241	Welland	Tidal	Intermittent from December 1953
Marsh Road, Spalding	TF 260 240	Welland	Freshwater	17 years
Cowbit Road, Spalding	TF 246 217	Welland	Freshwater	18 years
Surfleet	TF 280 293	Glen	Freshwater	From March 1969
Dog-in-a-Doublet Lock and sluices	TL 272 993	Nene	Tidal	Intermittent 1946-56 Continuous from December 1957
Dog-in-a-Doublet Lock and sluices	TL 272 993	Nene	Freshwater	From June 1968
Lynn Road Piling, Wisbech§	TF 460 103	Nene	Tidal	13 years
Sutton Bridge	TF 482 210	Nene	Tidal	Records substantially complete 1937 to 1948 continuous from May 1958

§ Intermittent records are available for an adjacent site (TF 459 103) from 1946 to 1956.

(c) Staff Gauges

Station	National Grid Reference	Normal water level (metres above Newlyn Datum)	Duration of Records
Dog-in-a-Doublet lock and sluices	TL 272 993	2.9	32 years
Guyhirne Sluice, upstream and downstream	TF 397 029	Varies with season	32 years
Little Bridge (Moreton's Leam) Whittlesey	TL 273 984	Varies with season	31 years
Stanground Sluice	TL 209 974	d/s varies with season u/s 2.9	65 years
Peterborough Bridge	TL 193 982	2.9	34 years
Water Newton, upstream and downstream	TL 110 974	u/s 8.1 d/s 6.3	33 years
Nene Wharf, Oundle	TL 043 888	18.7	38 years
Nene Wharf, Wellingborough	SP 898 663	39.4	37 years
Northampton Generating Station	SP 762 599	56.0	35 years
Northampton South Bridge	SP 755 597	57.2	37 years
Weedon*	SP 632 598	77.2	32 years
Surfleet	TF 279 293	Varies with season	31 years

Water levels are read daily at 09.00 hours G.M.T. at these stations.

*Records ceased February 1967.

(d) Temporary Low Flow Weirs

Temporary Low Flow Weirs (details of which were included in the Fifth Annual Report) have been superseded by permanent Low Flow Gauging Stations.

RIVER DISCHARGE

(Details of these stations are included on page 23)

NENE HYDROMETRIC AREA

	ORTON (near Peterborough)		
	1968-69	1969-70	1970-71
	cumecs	cumecs	cumecs
April	5.4441	10.4242	20.8673
May	6.1665	21.1949	10.3851
June	3.9671	9.6849	8.8345
July	20.4823	6.7360	8.1370e
August	13.7176	7.7432	7.2537e
September	20.9123	4.6135	3.3146e
October	15.8007	4.2009	1.8276e
November	23.1861	4.9509	8.8663e
December	21.1696	12.2661	10.5353e
January	35.2688	19.4035	25.2894e
February	31.8589	30.6381	18.3129e
March	33.0333	26.9237	14.0157e
Monthly Average ..	19.2506	13.2317	11.4699e

* 1940-60 Average = 8.6032 cumecs.
e = estimated. No records for Orton South Bypass.

Comparative Table

Year	Per cent of average
1970-71	133
1969-70	154
1968-69	224
1967-68	135
1966-67	161

	UPTON (Kislingbury Branch)		
	1968-69	1969-70	1970-71
	cumecs	cumecs	cumecs
April	0.8099	1.5117	3.0212
May	0.9673	2.8161	1.2600
June	0.6812	1.3147	0.7736
July	2.2003	0.8002	0.5645
August	0.8960	1.3268	0.5940
September	1.3007	0.6899	0.4560
October	1.6015	0.5146	0.3481
November	2.7089	0.5800	1.3376
December	2.9489	1.9059	1.3991
January	5.0459	3.0554	4.0672
February	4.2252	4.8408	2.7539
March	2.7522	3.5994	2.2573
Monthly Average ..	2.1782	1.9129	1.5694

* 1940-60 Average = 1.2735 cumecs.

Comparative Table

Year	Per cent of Average
1970-71	123
1969-70	150
1968-69	171
1967-68	123
1966-67	161

	ST. ANDREWS (Brampton Branch)		
	1968-69	1969-70	1970-71
	cumecs	cumecs	cumecs
April	0.6645	1.1742	2.6326
May	0.7347	2.7941	1.0635
June	0.5281	1.1357	0.4815
July	1.1473	0.4537	0.4291
August	0.6489	0.4222	0.4824
September	0.8883	0.3747	0.3512
October	1.0819	0.3048	0.2886
November	1.9533	0.4590	1.1107
December	1.9589	0.9959	1.3083
January	3.3366	*1.9072	3.0777
February	3.4951	*3.4976	2.1027
March	3.3903	*2.8705	1.9567
Monthly Average ..	1.6523	*1.3658	1.2737

1940-1960 Average = 1.2735 cumecs

* Amended rating tables for this station became operative from 1st January, 1970. These figures supersede those figures published in 5th Annual Report.

Comparative Table

Year	Per cent of Average
1970-71	100
1969-70	107
1968-69	130
1967-68	117
1966-67	153

RIVER DISCHARGE
WELLAND HYDROMETRIC AREA

BARROWDEN/TIXOVER (River Welland)				
		1968-69	1969-70	1970-71
		cumecs	cumecs	cumecs
April	.. ..	0.9179	Improvement works in progress 1.4458	4.4526
May	.. ..	0.8742		1.1922
June	.. ..	0.4916		0.3872
July	.. ..	4.4765	0.6178	0.3051
August	.. ..	1.6326	0.6326	0.3859
September	.. ..	4.3228	0.3635	0.2807
October	.. ..	3.2152	0.3268	0.2253
November	.. ..	6.4366	1.1262	1.6401
December	.. ..	5.1293	3.5912	2.0572
January	.. ..	7.4167	4.5453	5.9285
February	.. ..	8.1575	6.5603	3.0053
March	.. ..	6.6265	4.7601	2.9942
Monthly Average	..	4.1415		1.8724

KATE'S BRIDGE including KING STREET—(River Glen)				
		1968-69	1969-70	1970-71
		cumecs	cumecs	cumecs
April	.. ..	0.6594	2.1508	2.8781
May	.. ..	1.2262	5.0600	1.2865
June	.. ..	0.3187	2.1816	0.5949
July	.. ..	1.4654	1.0310	0.3150
August	.. ..	1.2211	0.5612	0.2445
September	.. ..	1.8729	0.4302	0.1930
October	.. ..	1.8769	0.4955	0.1987
November	.. ..	4.1969	0.6186	0.4545
December	.. ..	2.2705	2.1678	0.6815
January	.. ..	3.7809	2.6967	2.3467
February	.. ..	4.2507	2.6724	1.3105
March	.. ..	5.2836	2.5770	1.3382
Monthly Average	..	2.3686	1.8869	0.9868

1961-65 Average = 0.7100 cumecs

Comparative Table	
Year	Per cent of Average
1970-71	139
1969-70	266
1968-69	333
1967-68	144
1966-67	225

BELMESTHORPE (River Gwash)				
		1968-69	1969-70	1970-71
		cumecs	cumecs	cumecs
April	.. ..	0.5428	1.5760	1.9018
May	.. ..	0.6710	2.6497	0.8334
June	.. ..	0.4477	1.1909	0.5527
July	.. ..	1.3284	0.6806	0.4174
August	.. ..	0.8948	0.5609	0.3934
September	.. ..	1.5231	0.3931	0.3563
October	.. ..	1.3259	0.3594	0.3249
November	.. ..	2.1055	0.5753	0.8684
December	.. ..	1.6796	1.5285	0.8863
January	.. ..	2.2388	1.9838	2.0471
February	.. ..	2.5544	2.3650	1.5113
March	.. ..	2.8668	2.1429	1.5678
Monthly Average	..	1.5149	1.3338	0.9717

* 1967-70 Average = 1.2460 cumecs

Comparative Table	
Year	Per cent of Average
1970-71	78
1969-70	107
1968-69	121
1967-68	71

LAND DRAINAGE

1. CAPITAL WORKS

(i) General Account and Progress Report

Welland Outfall, LDW 22875, 23552, 22606. Estimated Cost: £151,548.

Work was concentrated on the extension of the north training wall, which is now continuous to Tabbs Head at a level of minus 3.0 O.D.N. (design level minus 1.0 O.D.N.), and on the south bank upstream of Holbeach Sluice. Approximately 12,000 tons of stone were placed during the year.

It appears that some scour is taking place in the bed downstream of Fosdyke, and a summer survey will assess the full extent.

Welland Fascines, LDW 24418, 25516, 24206, 22104, 26315. Estimated Cost: £24,845.

Work proceeded on the South Bank Scheme No. 5 upstream of Fosdyke Bridge and on No. 3 Scheme near Surfleet.

On the non-tidal section fagot work was carried out between Locks Mill and Folly River on Schemes 6, 7 and 8 in the vicinity of Crowland.

Maxey North Drain, Experimental weirs to check erosion.

Remedial work to check erosion downstream of the first weir was completed, and it appears that a second gabion weir of modified design (near Nunton Lodge Bridge) will be more satisfactory.

River Welland, Stamford to Market Harborough Improvement. LDW 22340, 24768, 25347, 25644 and 24076. Estimated Cost: £198,000.

Dredging was completed, with the exception of the length upstream of Gretton Sluices. High flows shewed the improvement to be effective. Several bridges which were not improved have caused afflux and overflow, and scour was observed in proximity to some.

Market Harborough Flood Alleviation Scheme, LDW 17460. Estimated Cost: £176,088.

The reconstruction of St. Mary's Bridge was completed in June, and pioneer work was carried out on the downstream transition length prior to final excavation.

River Jordan Improvement, LDW 24971. Estimated Cost: £42,500.

The Braybrooke Road bridge was reconstructed, and the flood storage reservoir and control structure and most of the ancillary works were completed.

Foxton Brook Pioneering Scheme, LDW 26295. Estimated Cost: £3,850.

Good progress was made in the clearance and re-fencing of this watercourse, which is typical of the upland streams recently scheduled as "main river".

Car Dyke, Eye, Improvement, LDW 22752. Estimated Cost: £44,078.

Due to the instability of the soil in the vicinity of Eye some slipping occurred, and remedial work will be necessary. It is anticipated that there will be some overspending.

Sea Banks Improvement, LDW 23237, 24831. Estimated Cost: £33,700.

Some storm damage near Lawyers Sluice occurred early in the year, and was made good when the *Famliner* protection was replaced by stone.

Along the West Lighthouse to Lutton Leam section material was carted in, and the bank shaped to final profile and seeded down.

River Nene, Foul Anchor Improvement, LDW 23492. Estimated Cost: £145,294.

Approximately 10,000 tons of stone were placed on the 950 lineal yards of stone toe, and batter work was completed on the left bank. On the right bank the stone toe and fascine works were virtually completed.

River Nene, Slips at Horseshoe Corner, Wisbech, LDW 22580. Estimated Cost: £82,303.

Work on this scheme commenced late in the year, and 500 tons of stone were placed in the toe at a rate of 8 tons per lineal yard. The batters above the toe were protected with stone and fagots.

River Nene, Cromwell Road to Bevis Hall Improvement, LDW 23419. Estimated Cost: £109,600.

The principal work on this scheme was completed, but some faggoting and trimming of spoil remains.

Whittlesey Wash Cradge Bank, LDW 24946. Estimated Cost: £40,600.

Final raising, shaping and re-seeding of the bank downstream of Dog-in-a-Doublet Sluice was completed during the summer. For the upstream length it was necessary to import material. Flooding damaged a length of the uncompleted work near Northey Gravels weir in January, and remedial work, which included stone protection to the berm, was proceeding.

Fender Piles at Dog-in-a-Doublet Sluice, LDW 26042. Estimated Cost: £7,600.

Work started in the Autumn on a scheme providing for concrete piles and new walings and cat walks, and although it was delayed by adverse tides and upstream high water levels the downstream protection was completed.

Bank Protection upstream of Dog-in-a-Doublet Sluice, LDW 24736, 26043. Estimated Cost: £6,170 for Sections 3 and 4.

Erosion on the toe of the barrier bank is being made good by driving heavy section asbestos sheeting with timber walings. Scheme No. 3 was completed, and work was in progress on No. 4.

River Nene, Improvement at Lilford, LDW 24955. Estimated Cost: £21,425.

Construction work on this scheme was completed. The discontinuance of a private electricity supply made it necessary to install a mains supply, and this work was still outstanding.

River Nene (Kislingbury Branch) Improvement, from Upton to Flore, LDW 23764. Estimated Cost: £39,538.

The principal work was completed, but outstanding items include some bridge works and re-seeding and fencing. In January a flow of just over design discharge was recorded at Upton Mill, and no overtopping of the banks occurred on the whole length upstream of Upton.

River Nene (Whilton Branch) Improvement, from Weedon to Long Buckby, LDW 26044. Estimated Cost: £55,000.

This scheme is a continuation of the improvement scheme referred to above. Work consists