London Weather Centre Memorandum No. 8

Tentative Isohels in Greater London for the period 1958 to 1967

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A previous paper(1) showed that there were significant increases in the averages of bright sunshine in Central London during the period 1958-67 compared with 1931-60. In the present paper, averages of bright sunshine for the period 1958-67 were prepared for all observing stations in Greater London and the surrounding area using the values in the Monthly Weather Report(2) and the annual totals of bright sunshine prepared by Met.O.3.

Where there were values for 8 or more years, the remainder of the 10 year period was estimated using adjacent stations with complete records. A list of these stations is given in Annex 1, together with the stations rejected due to shortness of record. In the case of Hoddesdon, 27 months were estimated in order to fill the otherwise large vacant area to the north of London.

The average monthly duration of bright sunshine was calculated in mean hours per day, but where the station had significant obstructions, the percentage lost due to obstructions was added to give the sunshine in the general area of the station. These values appear in Annex 2. It was decided to include the duration of sunshine lost due to obstructions in order to give a value as if no obstruction was present. An annual average was then computed from the amended monthly totals.

These totals were plotted on a series of maps (Scale 1 inch equals 10 miles) and tentative isohels for the Greater London area were drawn. (Annex 3).

Conclusions

The isohels roughly follow a pattern of less sunshine in East London and more in the west. This would be expected, as with a predominately southwesterly wind (over 40% between south and west at London Weather Centre), any smoke which was formed in the west would drift towards the east and reduce the amounts of sunshine in that area even more. The comparatively low values of sunshine at Greenwich may well be due to smoke from shipping, which is not governed by the Clean Air Act. The high values at Hampstead are probably due to the large open area and its height (450 feet A.S.L.). The duration of sunshine at the station is probably larger than in the immediate vicinity once away from the nigh ground or the Heath. The area within the isohels around Hampstead on the maps is therefore larger than would be expected in actual fact.

The anomaly between the values at Regents Park and London Weather Centre needs further investigation but may in part be due to the extra height of the Weather Centre recorder (approximately 80 ft. above that at Regents Park).

References

1. JENKINS, I. Increases in the averages of bright sunshine in Central London. London Weather Centre Memorandum No. 5, 1968.

2. Monthly Weather Report. H.M.S.O. London.

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Annex 1.

Stations with sunshine amounts estimated

(stating periods and stations used in the estimation)

Station	Estimated data	Estimated from
Garston	Jan. to Oct. 1958	Rothamsted and Hurley
Gatwick	1958	East Malling and South Farnborough
Gillingham	Apr. 1966 to Dec. 1967	Isle of Grain and East Malling
Hampstead	May to Aug. 1963	Wealdstone and London Weather Centre
Hoddesdon	Jan. 1958 to Dec. 1959	Rothamsted and Writtle
"	Dec. 1961, May 1962, July 1964	" " "
Swanley	July to Dec. 1967	East Malling and Greenwich

Stations rejected due to short records

Station	Period of Record
Bracknell	June 1964 to Dec. 1967
Bunhill Row	Jan. 1958 to June 1965 (June, July and Sept. 1964 missing)
Croydon	Jan. to Dec. 1958
Harlow	July 1966 to Dec. 1967
St. Albans	1965 to 1967
Tunbridge Wells	Jan. 1958 to June 1964
West Malling	Jan. 1958 to Aug. 1960
	Jan. 1965 to Dec. 1967

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Annex 2

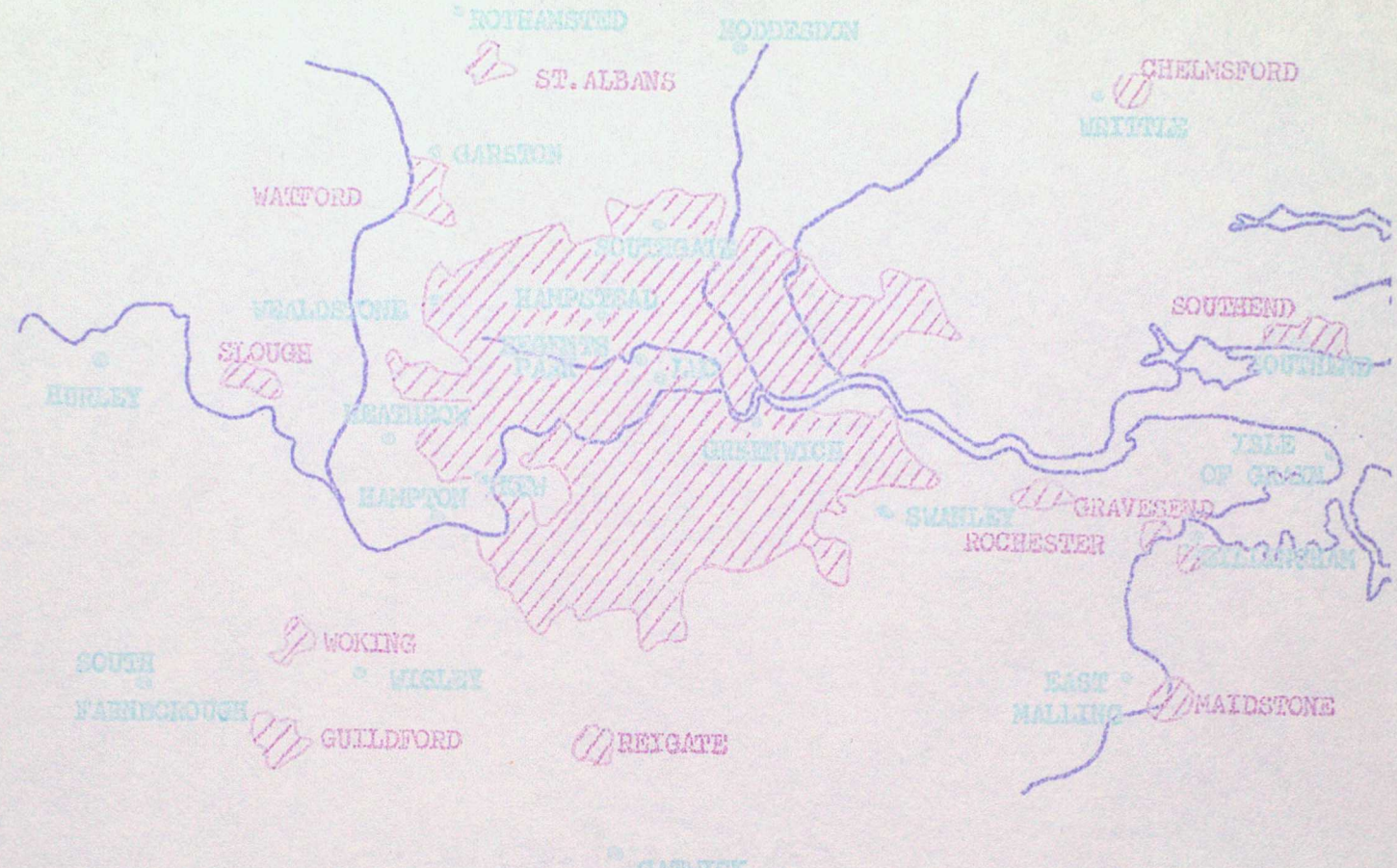
Monthly and Annual Values of Sunshine in mean hours per day

including increases for obstructions.

	JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	Year
East Malling	1.71	2.19	3.98	4.33	6.50	7.05	6.41	6.01	5.20	3.83	2.02	1.62	4.24
Garston	1.92	2.26	3.92	4.33	6.60	7.18	6.15	5.94	5.31	3.62	2.02	1.78	4.26
Gatwick	1.85	2.27	3.79	4.50	6.65	7.12	6.18	5.93	5.14	3.75	2.02	1.63	4.27
Gillingham	1.49	2.07	3.70	4.01	6.03	6.93	6.08	5.66	4.73	3.75	1.88	1.51	4.00
Greenwich	1.17	1.79	3.33	3.96	6.03	6.53	5.79	5.41	4.61	3.20	1.53	0.99	3.70
Hampstead	1.98	2.38	3.98	4.68	6.71	7.31	6.37	5.94	5.44	3.92	2.33	1.96	4.42
Hampton	1.72	2.18	3.89	4.45	6.65	7.31	6.31	5.90	5.23	3.62	2.03	1.52	4.26
Heathrow	1.68	2.07	3.68	4.29	6.33	6.93	6.03	5.64	4.98	3.46	2.00	1.48	4.06
Hoddesdon	1.87	2.06	3.71	4.22	5.92	6.68	5.80	5.56	5.15	3.48	1.95	1.58	4.01
Hurley	1.66	2.14	3.63	4.38	6.32	6.82	5.98	5.65	4.86	3.28	1.95	1.51	4.02
Isle of Grain	1.60	2.17	3.86	4.34	6.34	7.01	6.21	5.83	4.97	3.63	1.96	1.57	4.14
Kew	1.78	2.12	3.82	4.43	6.46	7.04	6.26	5.82	5.08	3.56	2.02	1.51	4.21
London Weather Centre	1.53	2.05	3.65	4.16	6.27	6.92	6.11	5.78	5.07	3.57	1.93	1.47	4.05
Regents Park	1.35	1.86	3.44	4.06	6.10	6.65	5.75	5.51	4.83	3.33	1.78	1.32	3.92
Rothamsted	1.79	2.07	3.56	4.02	6.07	6.68	5.67	5.37	4.86	3.25	1.83	1.65	3.91
Southend	1.78	2.25	4.15	4.55	6.73	7.47	6.49	6.01	5.47	4.10	2.21	1.65	4.42
Sth. Farnborough	1.52	2.09	3.77	4.33	6.34	6.51	5.96	5.59	4.91	3.45	1.93	1.40	3.99
Southgate	1.45	1.97	3.72	4.05	6.06	6.47	5.72	5.49	5.29	3.28	1.79	1.25	3.97
Swanley	1.31	1.83	3.48	4.06	6.05	6.72	6.02	5.59	4.82	3.35	1.74	1.26	3.86
Wealdstone	1.61	1.91	3.34	3.99	6.04	6.69	5.75	5.54	4.87	3.33	1.84	1.73	3.88
Wisley	1.60	2.13	3.71	4.49	6.50	7.02	6.34	5.70	**5.07**	**3.61**	**1.95**	**1.33**	4.12
Writtle	1.76	2.17	3.66	4.43	6.15	6.58	6.00	5.50	4.95	3.58	1.97	1.52	4.03

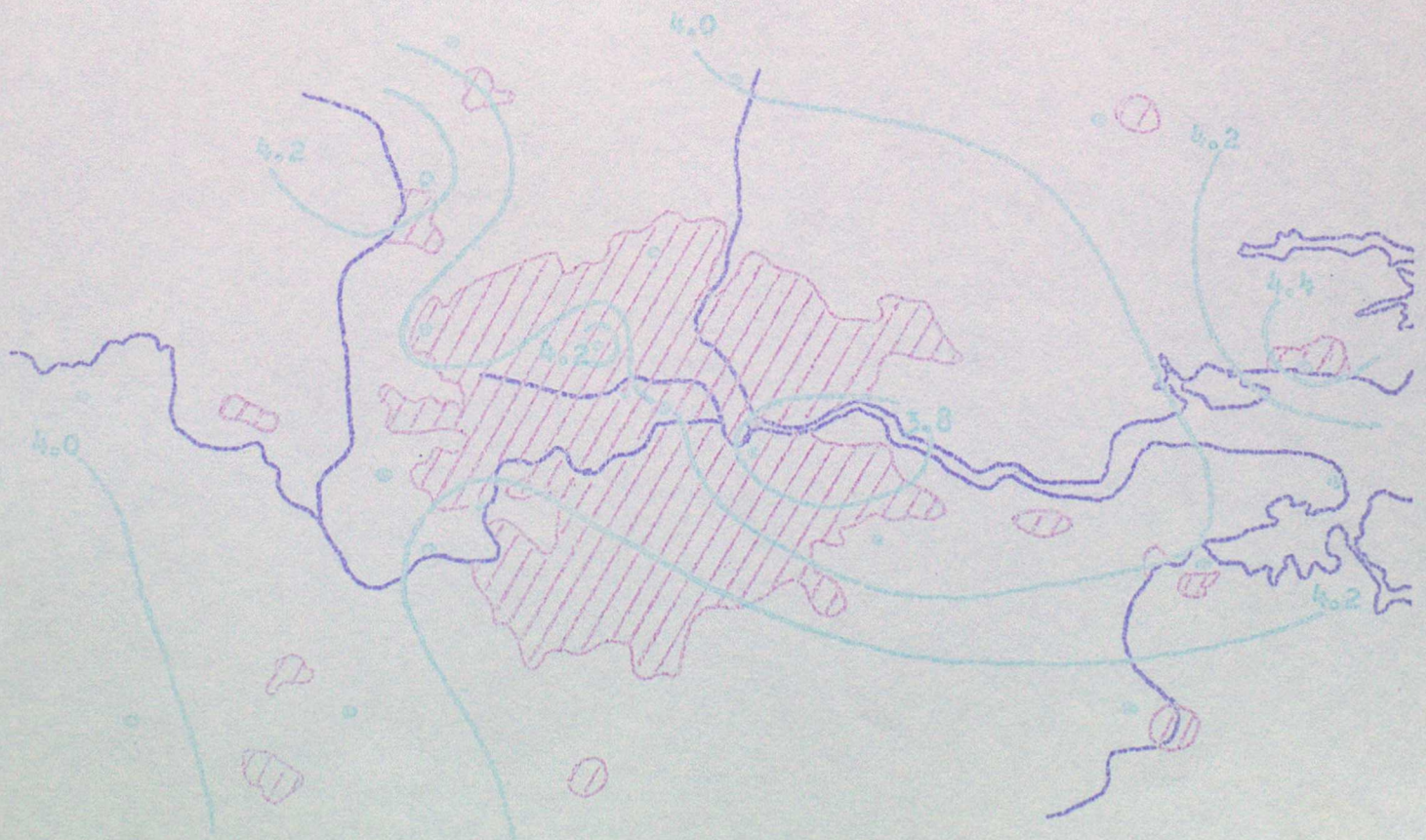
KEY

ANNEX 3



SCALE: 1inch equals 10 miles.

YEAR



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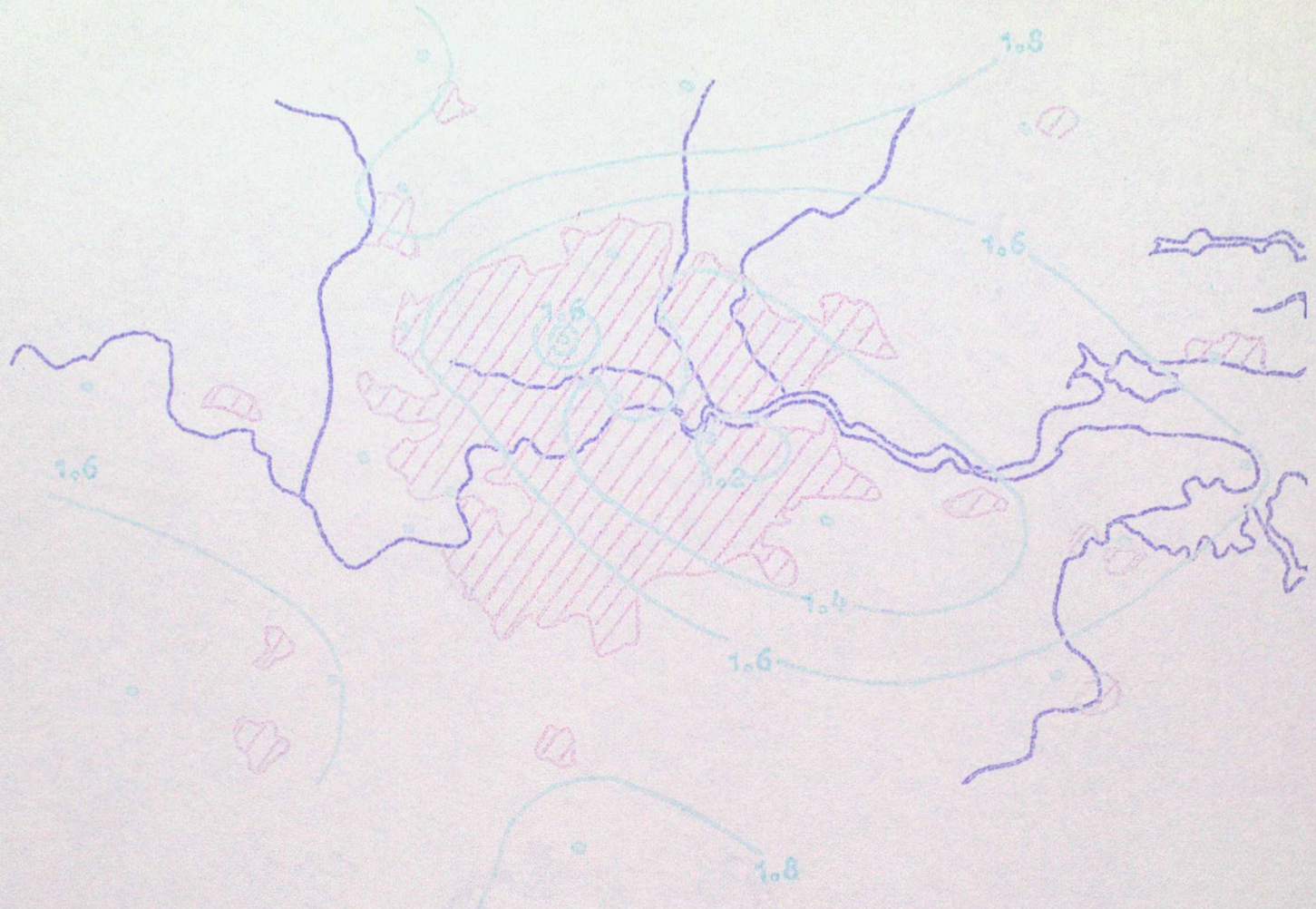

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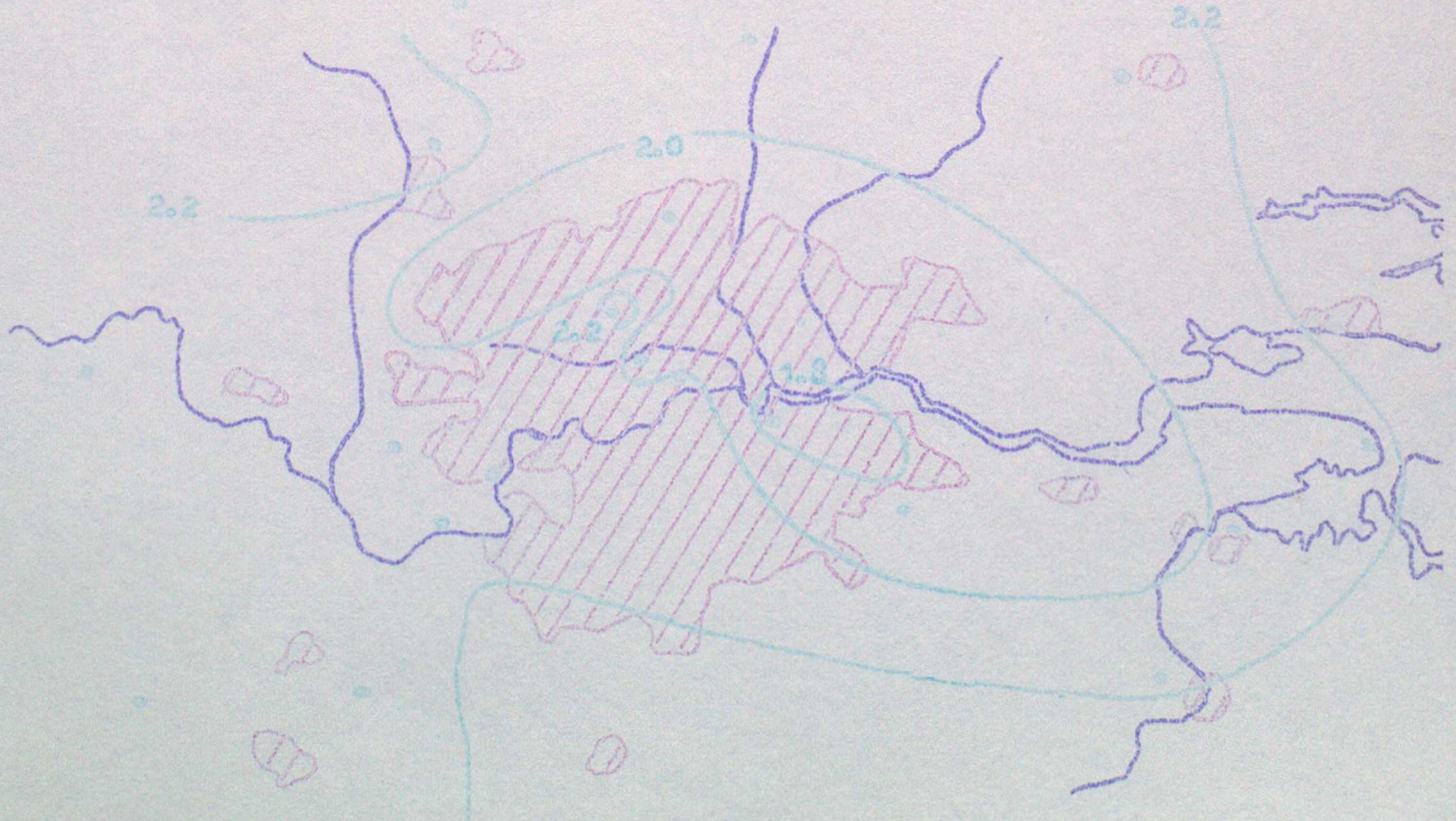

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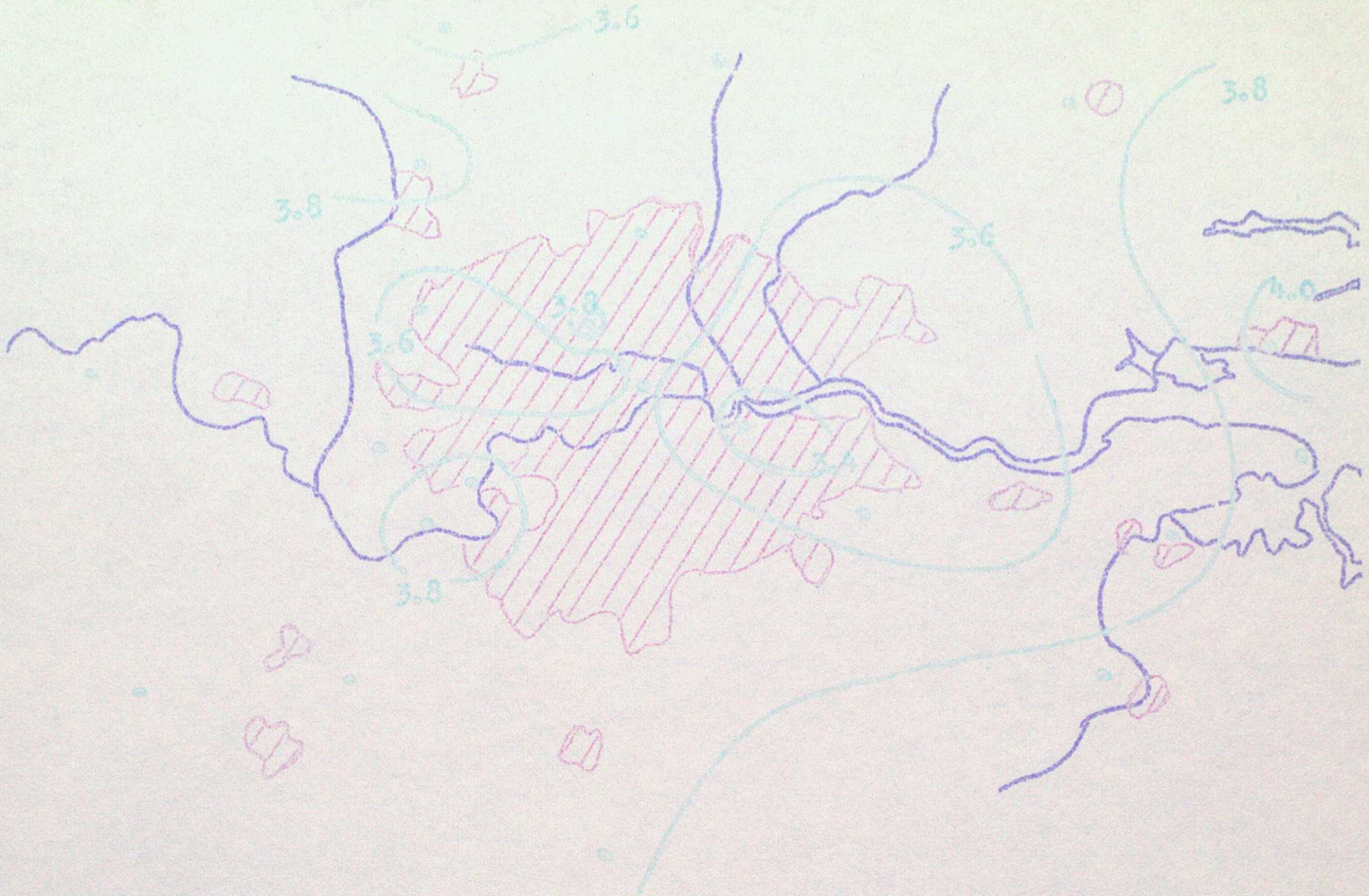

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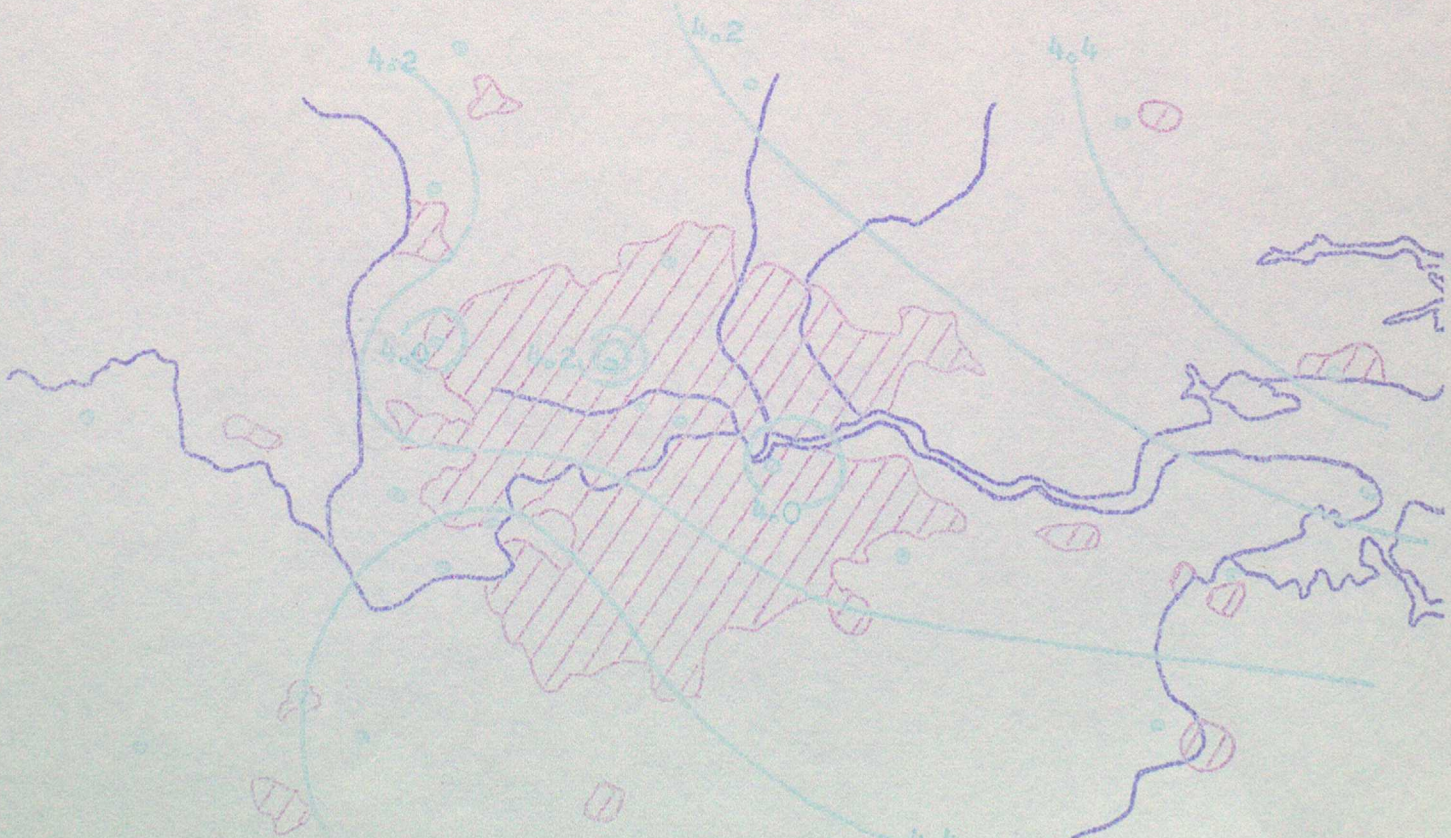

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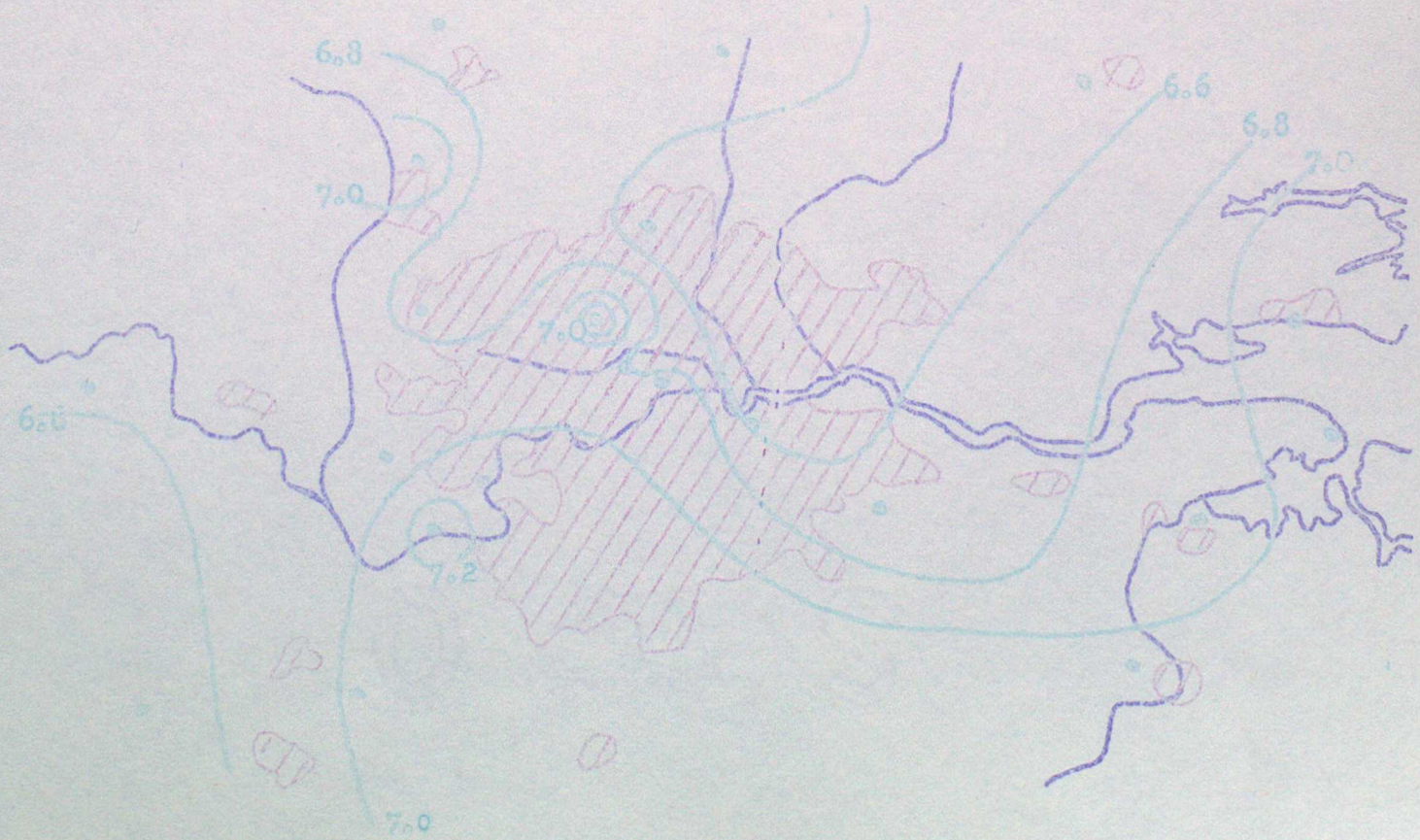

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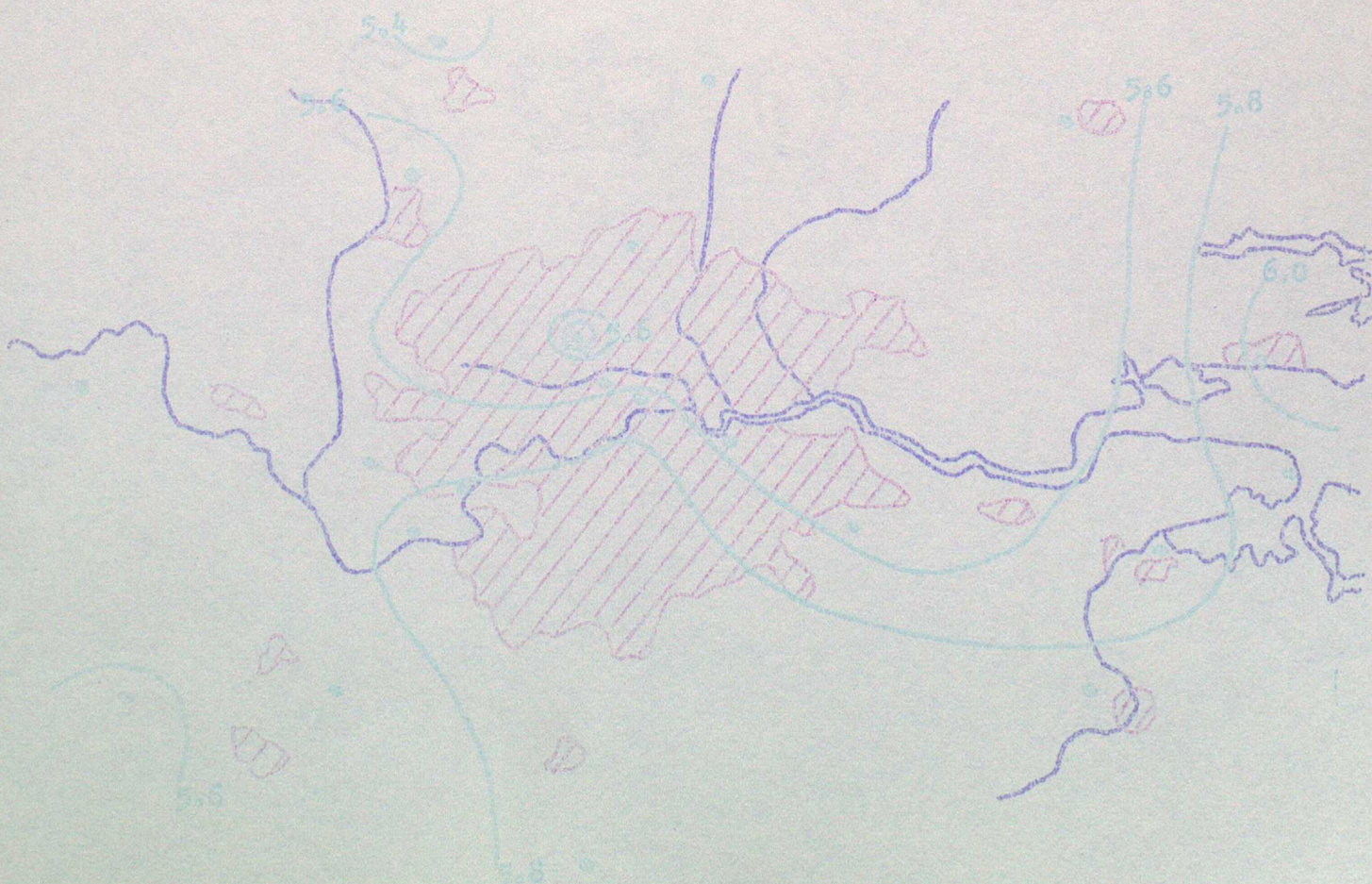

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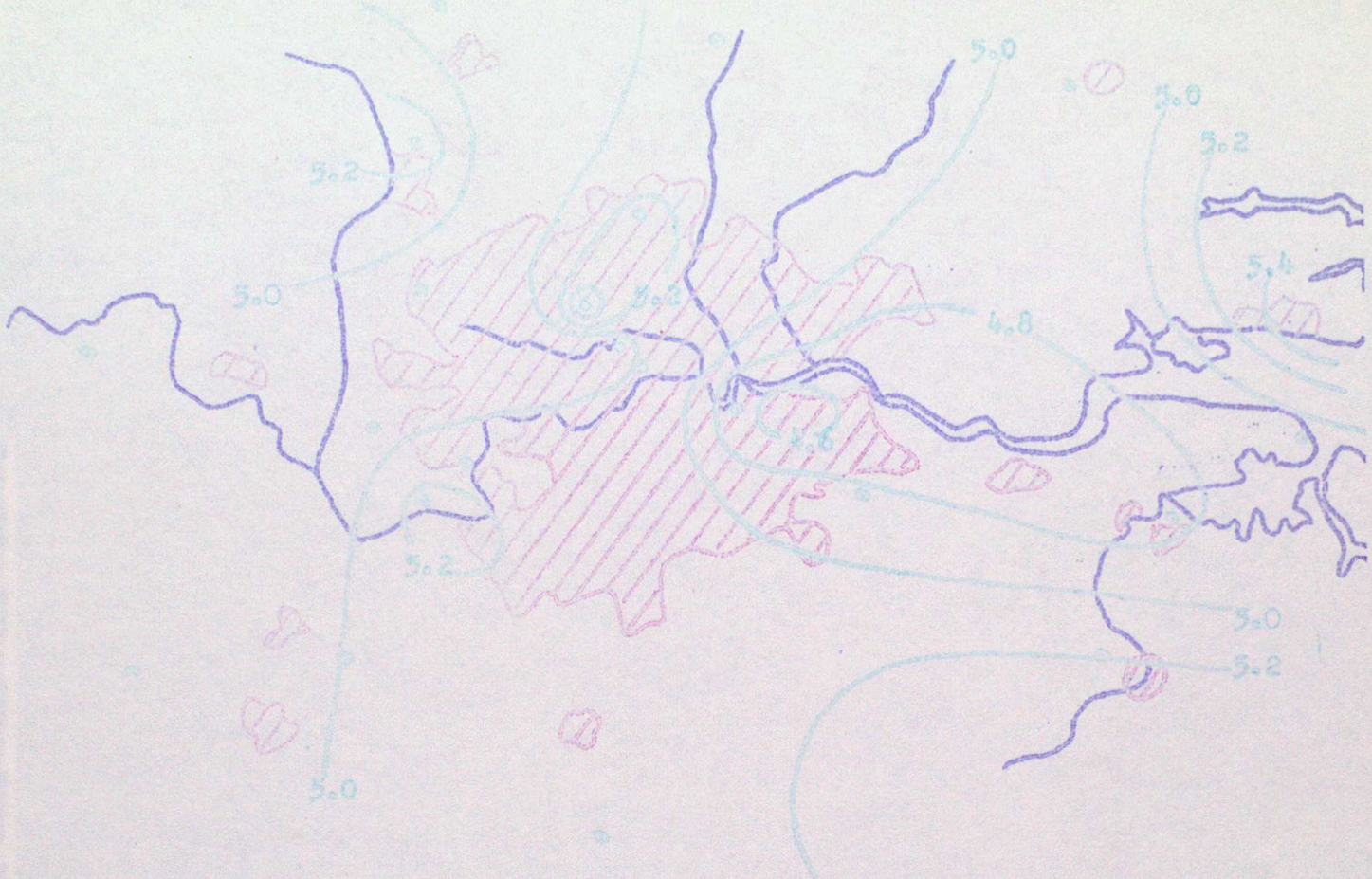

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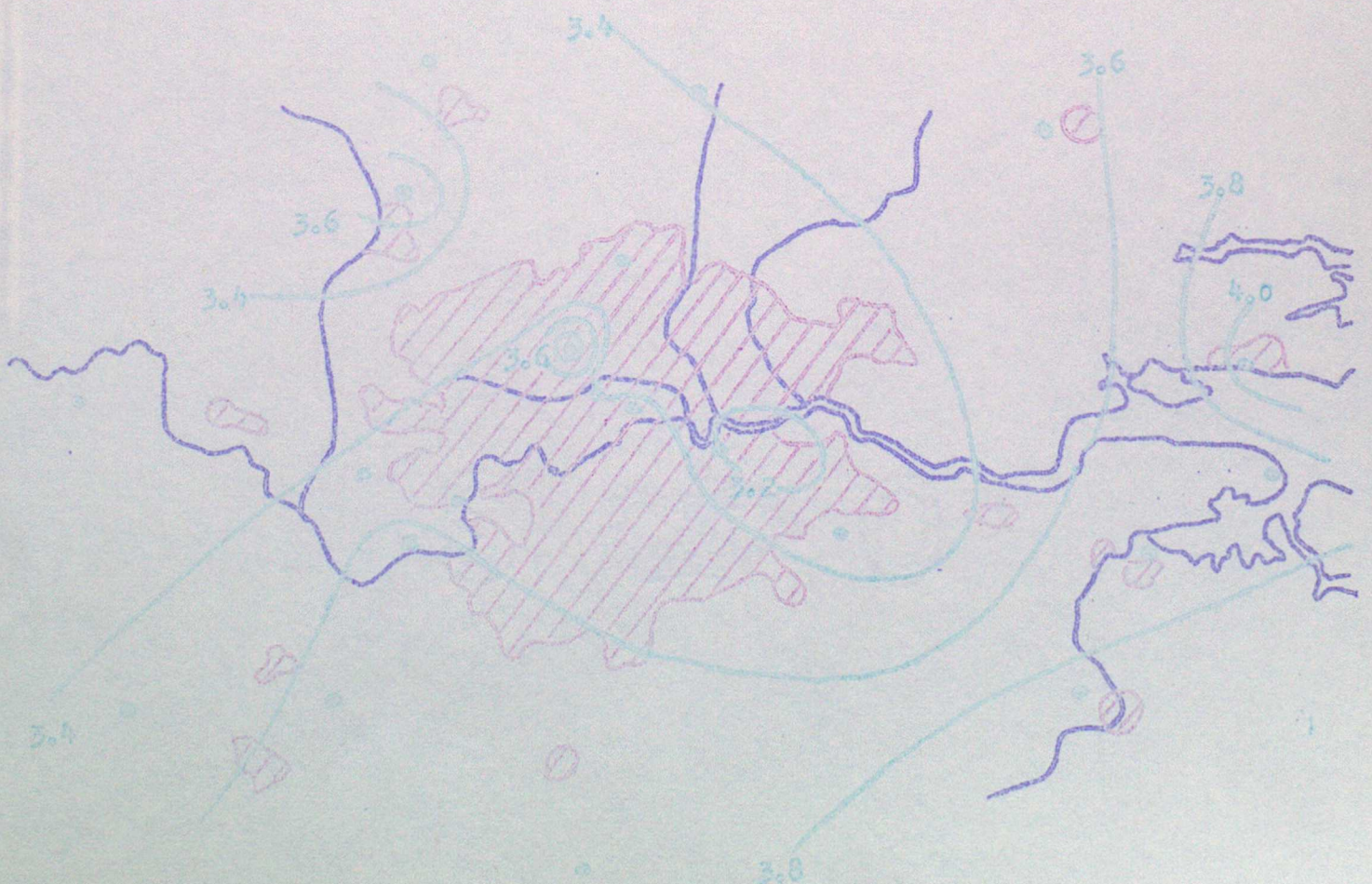

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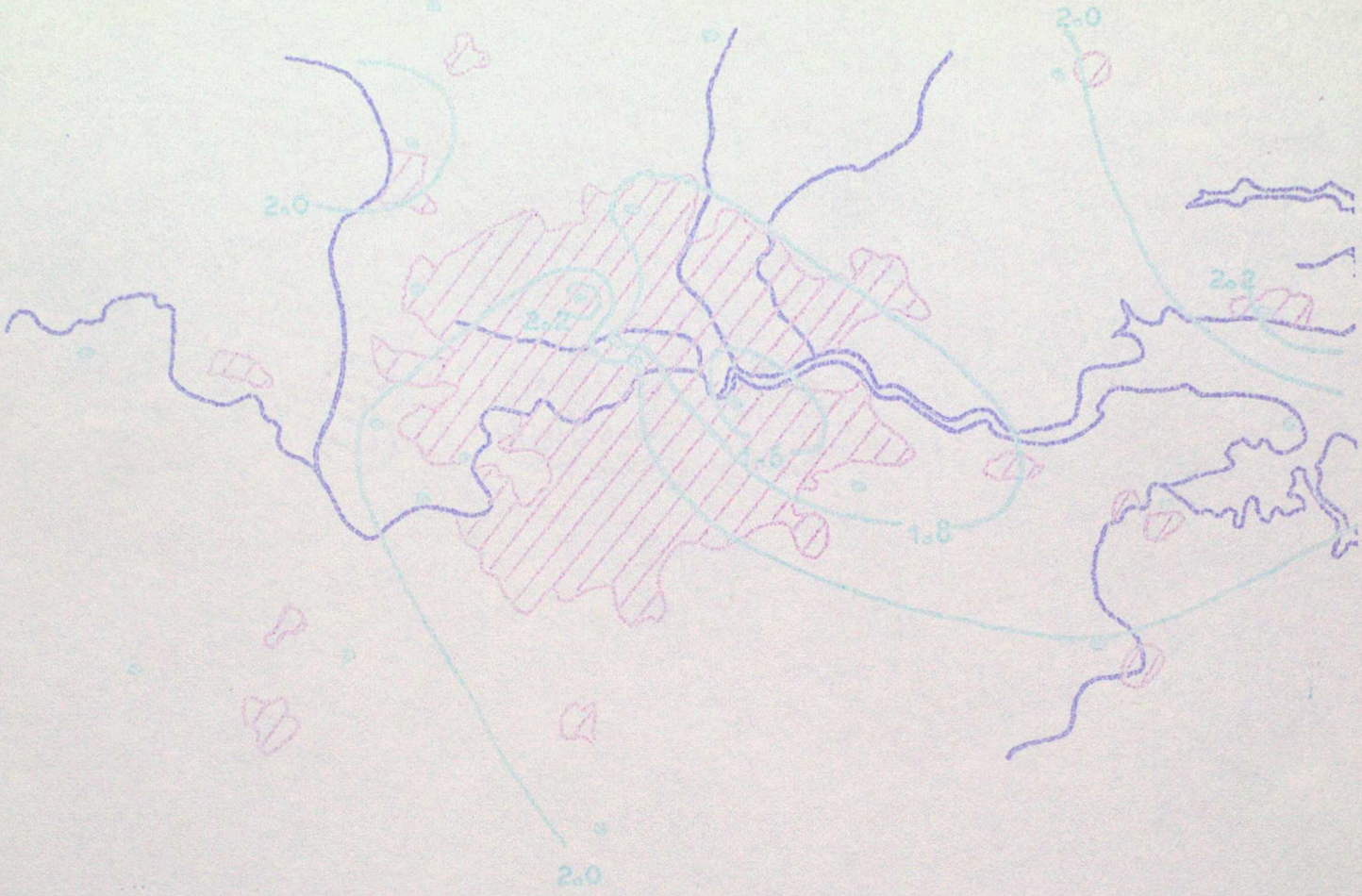

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