NATIONAL INDUSTRIAL FUEL EFFICIENCY SERVICE LTD
NIFES HOUSE, SINDERLAND ROAD, BROADHEATH,
ALTRINCHAM, CHESHIRE, WA14 5HQ.
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Ipswich Borough Council
Room 409
Civic Centre
Civic Drive
Ipswich
IP1 2EE

Our Ref: RGD/TCB/EN671

16 October 1997

For the attention of Mr.Clive Bentley

Dear Mr.Bentley,

IPSWICH CREMATORIUM : NEW CREMATORS

Please find enclosed the following:-

1. Application for Variation of Authorisation.
2. Supplementary Notes.
3. A draft of the notice to be published in the newspaper.
4. A copy of the Contractors drawing number CF 488-2.

The application now includes the name of the newspaper in paragraph 7.

The Supplementary Notes have been amended as follows following our telephone discussion.

1. A Section 2.0 Process control has been included to explain how the temperature and residence time in the secondary chamber is controlled.
2. Paragraph a. Improved Training in Section 4 Techniques for the Prevention of Releases states the qualifications of all the operators.
3. Paragraph a. in Section 5.0 Releases to atmosphere has been reworded.
4. The Calculation of Chimney Height is now included in Appendix 6.
5. The reference to BS.6069 in Section 6.0 Proposals for Monitoring has not been changed.

   Appendix 2 to PG5/2(95) Paragraph 2 Protocol, copy attached, explains that the location of sampling points in the flues may not be ideal because of the constraints of fitting new cremators into an existing building as is the situation at Ipswich.

It states a preference to sampling in the hot leg.

From the Contractors drawing you will see sampling points have been provided in the vertical flue immediately above each cremator, the hot leg, and in the horizontal flue above the committal, the cold leg.

The eductor air is introduced into the flue between these sampling locations which cools the flue gas.

Provision is available to permit hot and cold leg sampling.

Whilst the location of the sampling points may not be exactly comply with BS.6069 it may be an acceptable velocity profile is found to prevail when the tests are conducted.

If this is not the case, then sampling will have to be conducted in the vertical flues in the chimney tower.

Bearing in mind the pigeon infestation of the tower and the associated health hazards, this latter location is not desirable.

Paragraph 4 on page 2 of PG5/2(95) refers.

NIFES will be carrying out the acceptance tests to demonstrate that the operation of the new cremators complies with the requirements of PG5/2(95).

Rest assured we will not proceed with the tests if the velocity profiles in the flues are not acceptable when measured.

You will be given the opportunity to witness the tests.

6. Section 5 Proposals for Monitoring paragraph 5 the 60 minute mean value is stated in PG5/2(95) Emission Limits and Controls.

7. Section 8.0 Maintenance, the flue chimney intervals has been added.

Could you please confirm if the draft notice to be inserted in the newspaper is acceptable and the date when you wish this to be published.

Yours sincerely

R.G.Daley
Associate
Environmental Services Division

ENVIRONMENTAL PROTECTION ACT 1990, PART I
THE ENVIRONMENTAL PROTECTION (PRESCRIBED PROCESSES AND SUBSTANCES) REGULATIONS 1991, SI 472
THE ENVIRONMENTAL PROTECTION (APPLICATIONS, APPEALS AND REGISTERS) REGULATIONS 1991, SI 507

APPLICATION FOR AUTHORISATION UNDER SECTION 6 OF THE ENVIRONMENTAL PROTECTION ACT 1990

1. Process for which authorisation is sought

   CREMATION OF HUMAN REMAINS

2. (a) name, address and telephone number of applicant* (or address of applicant's principal place of business—for mobile plant)

   IPSWICH BOROUGH COUNCIL
   THE CIVIC CENTRE, CIVIC DRIVE
   IPSWICH, SUFFOLK. IP1 2EE
   TEL: 01473 262626

   (b) name, number and registered office of applicant company* *(if applicable)*

   *the person/consultant who will operate the process, not eg the person/consultant who is writing the application on the operator's behalf

   (c) address for correspondence (if different from a) or b) above)

   NIFES CONSULTING GROUP
   NIFES HOUSE, SINDERLAND ROAD, BROADHEATH,
   ALTRINCHAM, CHESHIRE. WA14 5HQ
   TEL: 0161 928 5791

3. Name and address of premises where process is or will be carried on *(not applicable to mobile processes)*

   IPSWICH CREMATORIUM, CEMETERY LANE, CEMETERIES OFFICE,
   CEMETERY ROAD, IPSWICH, SUFFOLK. IP4 2HN
   TEL: 01473 252931 and 263580

4. Name of local authority in whose area the process will be operated (or local authority area in which the operator has his principal place of business—for mobile plant)

   IPSWICH BOROUGH COUNCIL

5. List of maps or plans enclosed with the application showing the location of the premises where the process will be carried on.

1. LOCATION PLAN FOR THE CEMETERY & CREMATORIUM

2. PLAN OF CEMETERY AND CREMATORIUM

Where the process is or will be carried on on only part of the premises whose address is given at 3 above, *either* describe which part of the premises *or* list the plan(s) which identifies these parts.

THE PROCESS WILL BE CARRIED OUT AT THE CREMATORIUM OFF CEMETERY LANE IN THE CREMATORY SHOWN ON THE SITE PLAN.

6. List of attached documents comprising part of the application **

SUPPLEMENTARY NOTES FOR THE APPLICATION FOR AUTHORISATION UNDER SECTION 6 OF THE ENVIRONMENTAL PROTECTION ACT 1990 FOR IPSWICH CREMATORIUM CEMETERY LANE

use continuation sheet if necessary)

**Regulation 2 of the Environmental Protection (Applications, Appeals and Registers) Regulations 1991 requires that all applications must include the following information (for guidance on these requirements see General Guidance Note No 3—"Secretary of State's Guidance: Applications and Registers", HMSO, 1991: ISBN 0 11 752425 5, £4):

—a description of the prescribed process

—a list of prescribed substances (and any other substances) which might cause harm if released into the air) which will be used in connection with, or will result from the carrying on of the prescribed process

—a description of the techniques to be used for preventing releases into the air of prescribed substances, for reducing such substances to a minimum and for rendering harmless any substances that are released

—details of any proposed release of such substances into the air and an assessment of the environmental consequences

—proposals for monitoring any release of such substances, the environmental consequences or any such release and the use of techniques for preventing etc releases

—the matters on which the applicant relies to establish that the objectives mentioned in section 7(2) of the Act will be achieved and that he will be able to comply with the condition implied by section 7(4) of the Act.

The applicant may also supply any other information he wishes the local authority to take into account in considering his application.

7. Name of newspaper in which it is proposed to advertise the application

IPSWICH EVENING STAR

.....

8. Fee enclosed *(cheques to be made payable to* ..... *Council)*

£.....

I hereby certify that all the information contained in this application is, to the best of my knowledge, correct

..... (signature)

..... (name in BLOCK CAPITALS and capacity in which signing)

..... (date)

ENVIRONMENTAL PROTECTION ACT 1990, PART I

APPLICATION FOR AUTHORISATION

.....[name of applicant] has applied for an authorisation from .....[local authority] to operate .....[description of process] at .....[name, if any, and address of premises where process is or will be carried on].

A copy of the application is available for public inspection free of charge, at ..... [place(s) designated by local authority].

Written representations about the application may be sent to ..... [local authority and address] within 28 days of ..... [date of the advertisement].

Printed in the United Kingdom for HMSO
Dd293094 4/91 C15 G3390 10170

ENVIRONMENTAL PROTECTION ACT 1990, PART I

APPLICATION FOR AUTHORISATION

.....[name of applicant] has applied for an authorisation from .....[local authority] to operate .....[description of process] at .....[name, if any, and address of premises where process is or will be carried on].

A copy of the application is available for public inspection free of charge, at ..... [place(s) designated by local authority].

Written representations about the application may be sent to ..... [local authority and address] within 28 days of ..... [date of the advertisement].

Printed in the United Kingdom for HMSO
Dd293094 4/91 C15 G3390 10170

ENVIRONMENTAL PROTECTION ACT 1990 PART 1

APPLICATION FOR A VARIATION OF AUTHORISATION

Ipswich Borough Council has applied for a variation of authorisation from Ipswich Borough Council to operate a process of cremating human remains at Ipswich Crematorium, Cemetery Lane, Ipswich.

A copy of the application is available for public inspection at Room 409, The Civic Centre, Civic Drive, Ipswich, Suffolk, IP1 2EE.

Written representations about the application may be sent to Ipswich Borough Council, Environmental Services, The Civic Centre, Civic Drive, Ipswich, Suffolk, IP1 2EE within 28 days of __ October 1997.

SUPPLEMENTARY NOTES FOR THE APPLICATION FOR AUTHORISATION UNDER SECTION 6 OF THE ENVIRONMENTAL PROTECTION ACT 1990

FOR

IPSWICH CREMATORIUM
CEMETERY LANE

REF: RGD/TCB/EN671
DATE: SEPTEMBER 1997

CONTENTS

1.0 DESCRIPTION OF THE PROCESS

Ipswich Crematorium carry out 3000 cremations per year.

At the conclusion of the funeral service in one of the two chapels the coffin and contents are removed from the catafalque onto a bier and thence to the transfer/committal areas. Depending on the number of cremations to be carried out, the coffin remains in the transfer/committal area until a cremator is available. All coffins are cremated during the day they are received.

At present there is a natural gas fired Shelton double ended Diamond twin cremator in operation.

Two new Furnace Construction double ended Joule single natural gas fired cremators have been installed and commissioned.

Following, initial proving operation of the two Joule cremators, the Shelton twin cremator is to be removed and a third Joule cremator is to be installed and commissioned.

The Joule cremator comprises a primary chamber surmounted by a secondary chamber.

A burner is fitted to heat the primary chamber and primary air is provided by jets positioned in each side wall to combust the coffin and contents.

The products of combustion pass from the primary chamber via an opening in the roof and enter a combustion tube mounted in the secondary chamber.

A burner is fitted to the secondary chamber and this fires into the combustion tube.

Secondary air is admitted through a swirler at the gas inlet to the combustion tube.

Complete combustion of the products of cremation occur in this combustion tube.

At the exit from the tube the products of combustion egress into the secondary chamber vestibule.

The temperature in the secondary chamber vestibule is held at a minimum temperature of 850°C throughout the process and has a volume to give the residence time to the products of combustion required by PG5/2(95).

Finally the products of combustion are discharged from the secondary chamber into a waste gas duct and insulated chimney flue to atmosphere.

The operation of the Joule cremator consists of heating the secondary chamber to 850°C before the charge door can be opened and the coffin and contents are automatically charged by means of a charging machine.

The cremation process then proceeds under computer control and takes 70 to 90 minutes to complete depending on the weight of the charge.

During the first 10 minutes of the cycle, the coffin, wood and wood finishes are combusted, after this the coffin breaks down and the body tissue and any remaining wood is combusted.

In about 30 minutes the coffin has been consumed and during the next 30 minutes the body tissue is broken down, finally calcination of the bones takes place. At the end of the cycle, the remains are raked out into a holding sump where they are cooled.

The computer controls the combustion rate by the management of the operation of the primary and secondary chamber burners and air supply to ensure complete combustion of the cremation products so as to eliminate the emission of smoke, odour carbon monoxide and partially oxidated gases.

Finally the ashes are decanted from the sump via a door into a funnel type ash pan.

The remains are then taken to an ash processor where they are reduced in size to a powder form, they are then decanted into a sealed urn/container which may be given to the relatives of the deceased or be scattered in the dedicated area of the crematorium/cemetery grounds.

The ash processor automatically removes any metal from the remains and incorporates an integral vacuum system which eliminates the emission of dust during charging and emptying.

A sealed discharge and urn transfer system is provided to ensure there is no dust emission from this last stage of handling the remains.

A simplified Process Flow Diagram is shown in Appendix 1.

2.0 PROCESS CONTROL

After the initial heating of the cremator refractories and the temperature throughout the secondary chamber is being maintained at 850°C it is not usually necessary to provide heat energy through the primary burner.

The cadaver usually provides the heat energy for combustion in the primary chamber until the latter part of the cycle when the primary burner may have to be fired to complete the process. During the process the secondary burner modulates and for a major period of the cycle is on low fire.

The direction and quantity of air introduced into the primary and secondary chamber is continuously adjusted to optimise combustion, particularly during the cremation cycle when the coffin is charged, the coffin is combusted, the coffin breaks open and the cadaver is combusted.

The control of these two combustion air supplies is by means of motor actuated flow control valves. The speed and positioning of these valves is infinitely variable and controlled by the computer, the status of the valve opening positions are fed back to the computer.

Instruments to monitor the oxygen and carbon monoxide content and the temperature are provided in the waste gas duct through which the products of combustion are exhausted from the cremator.

An eductor system is incorporated in the waste gas duct to supplement the natural draught created by the chimney.

The combined negative pressure causes the products of combustion to flow through the cremator, waste gas duct and the vertical flue to atmosphere. A pressure transducer is fitted in the primary chamber which senses the magnitude of the negative pressure in the primary chamber and sends an analogue signal to the computer. From this signal the computer controls the air supply to the eductor adjusting the induced negative pressure to give the required pressure depression in the primary chamber.

The computer uses the known fuel gas flow rates for the burners, together with the calorific value of the fuel gas, the coffin and cadaver, the combustion times for each of these in the cremation cycle to determine and control the combustion air flow. The air flow is regulated by the computer to give a controlled temperature and oxygen content in the products of combustion leaving the secondary chamber in sympathy with the combustion heat release rate for that particular phase in the cycle to ensure the residence time is never less than 2 seconds.

The computer programme automatically compensates for varying sizes and types of charge using the information derived from the instrumentation and makes continuous adjustments to optimise combustion throughout each stage of the cycle at a controlled rate to ensure the products of combustion are retained at 850°C for 2 seconds in the secondary chamber.

3.0 PRESCRIBED SUBSTANCES

During the cremation cycle the emissions to air of prescribed substances that may occur are as follows:-

a. Carbon monoxide.
b. Hydrogen chloride.
c. Organic compounds.
d. Particulate matter.

4.0 TECHNIQUES FOR THE PREVENTION OF RELEASES

The production of carbon monoxide, organic compounds and particulate matter are a function of incomplete combustion which arise during the initial part of the cremation cycle.

Hydrogen chloride is dependent on the materials used to make the coffin, particularly the lining.

The technique for preventing emissions will consist of the following:-

a. Improved Training

Two of the three cremator operators hold the Certificate of Proficiency in Cremator Operation issued by the Council of the Institute of Burial and Cremation Administration.

The third operator is studying for a Certificate of Proficiency in Cremator Operation and presently operates the cremators under the supervision of a Certified Operator.

In addition, the Operators are to be given full instruction in the Operation of the Joule cremator by the builders, Furnace Construction Co.Ltd. Written operating instructions have been provided.

b. Control of Materials of Construction Coffins

Instructions for Funeral Directors have been issued by the Federation of British Cremation Authorities (see Appendix 3) which eliminate major emission problems resulting from inappropriate materials of construction.

c. Communications

The times when emissions can occur are when abnormal charges are being cremated.

These can be very large cadavers, some post mortem cases, cancer victims or even particular items included for cremation with the deceased at the request of the relatives.

Funeral Directors are required to give prior notice to the crematorium of abnormal charges so that adequate precautions can be taken during the cremation cycle.

d. Operation

In order to ensure complete combustion and hence the elimination of smoke, unburnt gases and particulates the primary chamber and secondary chambers are heated to a minimum temperature of 850°C prior to charging the coffin and its contents to ensure proper combustion occurs.

Once the coffin and contents have been charged into the cremator ignition is virtually instantaneous and combustion then proceeds under computer control.

5.0 RELEASES TO ATMOSPHERE

The harmful effects of releases to atmosphere will be minimised as a result of the following:-

a. Due to the nature of the process and the variations in contents of the coffins, releases to atmosphere may occur of carbon monoxide particulates, organic compounds and hydrogen chloride. It is now expected with the instructions for Funeral Directors, that, in particular, the releases of HCl will be reduced. In addition as a result of these instructions and progressively improved communications with the Funeral Directors, the releases of other substances will again be limited.

b. In line with the Secretary of State's Guidance Note on Crematoria, the means of exhausting the products of combustion from the cremation process will be improved so that each cremator is independently flued and the efflux velocity of the products leaving the chimney is increased.

These modifications will improve the dispersion of the emissions and reduce the environmental impact.

The details of the existing chimney and the new dedicated cremator flues are as follows:-

Height	=	19.5 metres
Number of Flue Liners	=	3
Diameter of Each Flue Liner at Outlet	=	380 mm

The position of the chimney in relation to the crematorium is shown on the appended plan.

The existing chimney height is greater than the height of 16.4 metres calculated in accordance with the HMIP Technical Guidance Note D1. A copy of this calculation is included in Appendix 6.

c. The new cremators will fully comply with the Secretary of State's Guidance Process Guidance Note covering Crematoria.

The requirement to hold the products of combustion for a minimum period of two seconds in the secondary chamber at a minimum temperature of 850°C from inlet to outlet will be achieved by computer control of combustion by the automatic management of burner firing and the supply of air so that the temperature and volume of the products produced is regulated.

By this regulation of the temperature and the flow volume of the products of combustion and the volume of the secondary chamber a minimum 2 seconds residence time is maintained.

The computer control to regulate the volume of the products of combustion relies on the calibrated measurement of the automatic air flow control valves and the design gas flow of the burners as the main control parameters and uses these to calculate the secondary chamber residence time throughout the cremation cycle.

The validity of the computer control system will be verified as part of the acceptance test which will be conducted on each cremator.

Physical measurements will be made continuously throughout the test of the oxygen content, temperature and volumetric flow of the products of combustion in the waste gas duct from the cremator.

All measurements will be stored in a data logger during the test and subsequently downloaded and processed to be used to calculate the residence time by determination of the volumetric flow which will be checked by heat balance.

d. The releases to air from the new ash processor are considered to be negligible.

6.0 PROPOSALS FOR MONITORING

Test fitments have, or are, to be provided in each cremator exhaust waste gas duct to the chimney flue liner to permit testing to BS.6069 to determine particulate emissions. In addition the test points will allow the gaseous emissions of HCl, CO and organic compounds to be determined.

All these emissions will be measured during the acceptance test to be conducted in each cremator and subsequently every 12 months.

The following permanent monitoring instrumentation is or will be provided for each cremator.

i. Thermocouples to measure (indicate and record) the temperatures in the following locations:-

   a. Primary chamber.

   b. Inlet to the secondary combustion zone.

   c. Outlet from the secondary combustion zone.

   d. Waste gas duct next to the opacity transmitter.

ii. Gas analysers to measure (indicate and record) the oxygen and carbon monoxide content in the waste gases.

iii. Opacity meter to measure the light density of the gas stream and transmit this to the computer in proportion to the opacity. The computer then calculates the percentage opacity using known parameters for dust type and size expressed as a dust burden on particulate concentration.

   The temperatures measured at positions c. and d. together with the oxygen concentration leaving the cremator are used to determine the quantity of dilution air introduced to the waste gas duct at the opacity meter position. The computer then calculates the particulate concentration at normal conditions.

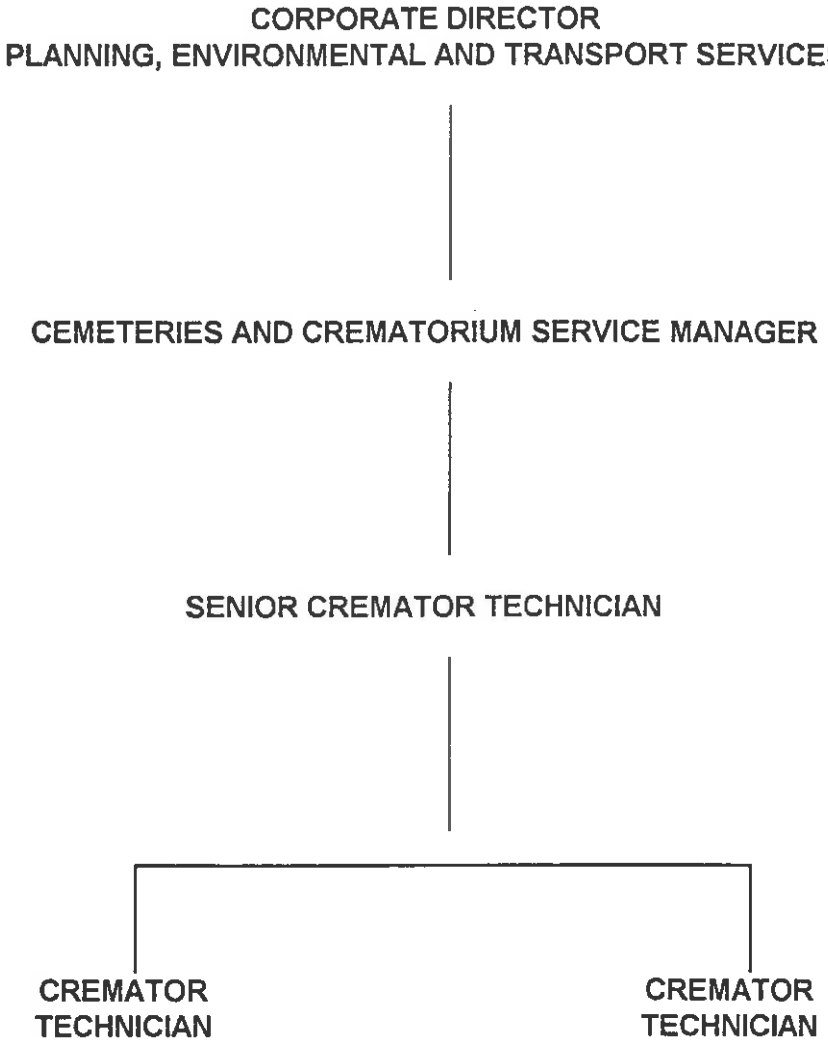
All continuous monitoring instrument readings are continuously recorded at duct conditions and computer corrected to the standard reference conditions.

The readings will be on continuous display to the operator and visual and audible alarms will be activated whenever a 60 minute mean value exceeds the limit, the alarms will be electronically recorded.

All readings will be electronically stored to enable summaries to be displayed and printed out by the operators.

7.0 MANAGEMENT

For good environmental control a capable management structure is required. Ipswich Borough Council are a very experienced crematoria operator with an efficient management team which is as follows:-



8.0 MAINTENANCE

A service contract to regularly inspect service and maintain the 3 new cremators is to be arranged with the manufacturers at the end of the contract defects liability period.

The waste gas ducts and flues will be cleaned at monthly intervals.

9.0 START UPS AND BREAKDOWNS

The Crematorium operates from Monday to Friday from approximately 0900 hours to 1700 hours depending on the number of cremations on the day.

consequently, the cremators are started and shutdown each day.

The number of cremations each day governs the number of cremators to be used.

Irrespective of the number of cremators to be in use the individual start up procedure is to preheat the cremators by firing natural gas until the temperature in the secondary chamber is 850°C before charging. The charge door opening is inhibited by the computer control to prevent the door being opened until the secondary chamber is at 850°C.

With only natural gas being burnt in this period the emissions to atmosphere will be acceptable.

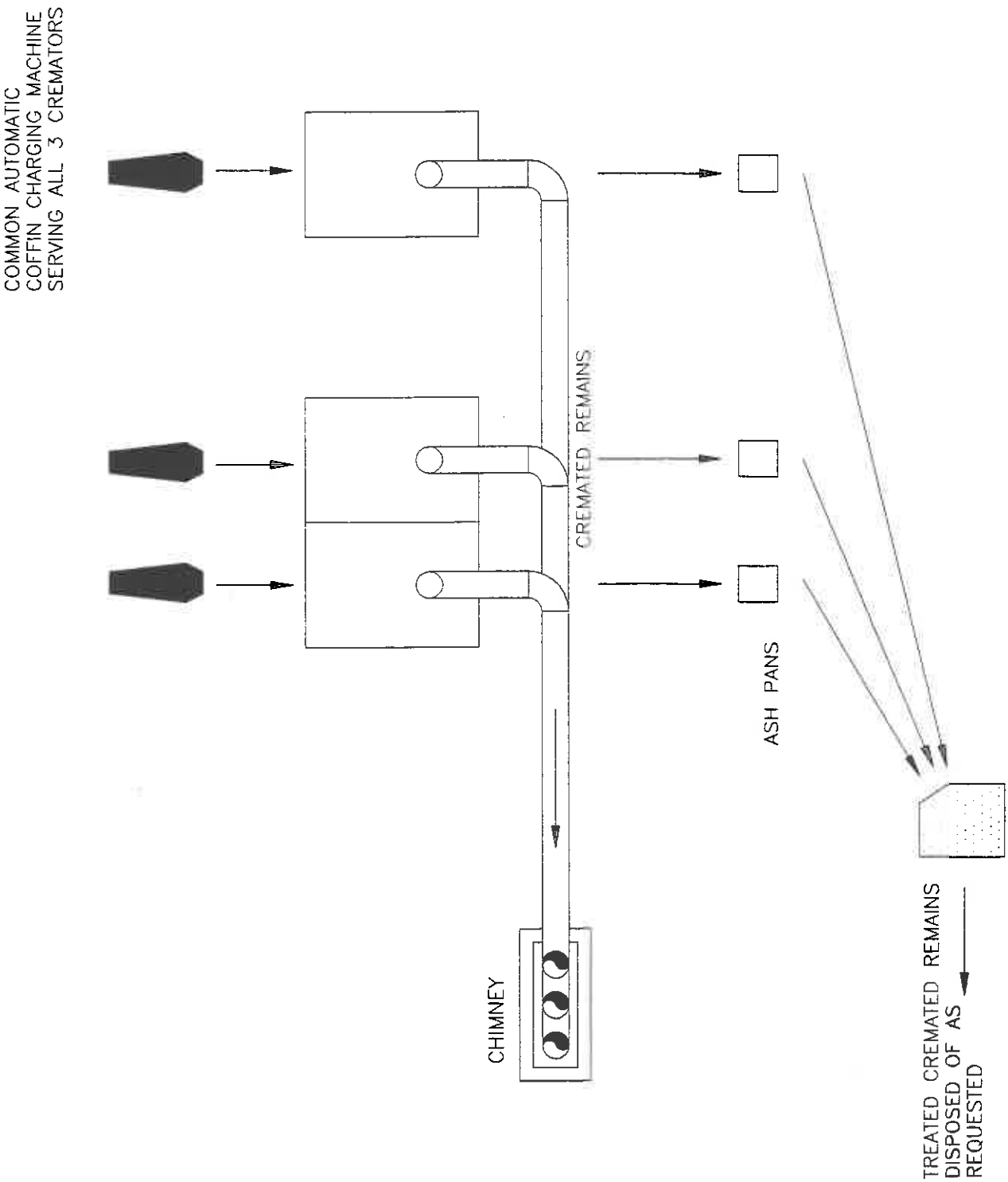
With three cremators there is ample capacity to cater for the normal cremation each day throughout the year.

In the event of a breakdown, particularly when mortality is high, the working day will be extended to ensure the disposal of the charges with the one day period required by the Code of Cremation Practice.

APPENDIX 1

APPENDIX 1

PROCESS FLOWSHEET



APPENDIX 2

THE FEDERATION OF BRITISH CREMATION AUTHORITIES

Instructions for Funeral Directors

1. **RESPONSIBILITY.** The Funeral Director shall observe the regulations of the Cremation Authority. The Funeral Director is responsible for the provision of sufficient bearers to convey the coffin reverently from the hearse to the catafalque. When the coffin is in position on the catafalque or deposited in the rest room or Chapel of Repose at the Crematorium the responsibility of the Funeral Director towards it ceases and that of the Cremation Authority begins.

2. **CONSTRUCTION OF THE COFFIN.** The coffin must be made of wood or a wood by-product which, when placed in a cremator and subjected to the accepted cremation processes, is easily combustible and which does not emit smoke, give off toxic gas or leave any retardent smears or drips after final combustion. No metal furniture or fittings whatever shall be used on a coffin for cremation. No metal of any kind shall be used in the manufacture of such coffin except as necessary for its safe construction and then only metal of a high ferrous content. Cross pieces must not be attached to the bottom of the coffin. If it is desired to strengthen the bottom of the coffin, wooden strips may be laced lengthways for this purpose. The coffin must not be painted or varnished but may be covered with a suitable cloth. Products manufactured in polyvinyl chloride (PVC) must not be used in the construction of the coffin or its furnishings. The use of polystyrene must be restricted to the coffin nameplate only in which case it must not exceed 90 grams in weight.

3. **LINING OF THE COFFIN.** The use of sawdust or cotton-wool must be avoided. If circumstances require, suitable sealing material may be used, but no metal, rubber or polyvinyl chloride (PVC) will be permitted and on no account must pitch or similar substance be used.

4. **SIZE OF THE COFFIN.** Where the external dimensions of a coffin are likely to exceed length 81 inches (206 cm); width 28 inches (71 cm); depth 22 inches (56 cm) the proper officer of the crematorium must be given advance notice.

5. **NOTICE OF CREMATION.** The Funeral Director must observe the Cremation Authority's regulation regarding the length of notice to be given.for a cremation and the time of the cremation, as agreed, must be strictly adhered to. All statutory and non-statutory forms and certificates, as required by the Cremation Authority, must reach the crematorium office by the specified time.

6. **CREMATION OF INFANTS.** In cases when bereaved parents desire the cremation of the body of an infant, they should be warned that there are occasions when no tangible remains are left after the cremation process has been completed. This is due to the cartilaginous nature of the bone structure.
If the warning is not given the parents may have been denied the choice of earth burial and thereby subjected to understandable distress.

7. **CREMATED REMAINS.** The utmost care should be taken when dealing with cremated remains. If the Funeral Director supplies an urn or casket for cremated remains it should be of sufficient internal dimension to provide a minimum of 200 cubic inches (3,280 cubic cm) and securely labelled. The container should be strong enough to resist breakage in transit. The lid must fit tightly and the fastening should be strong enough to prevent the lid being forced open by distortion of the container through maltreatment in transit.

Revised October 1990

APPENDIX 3

I N D E M N I T Y

I/We confirm that all coffins supplied for cremation meet the conditions stated in the Instructions for Funeral Directors as issued by the Federation of British Cremation Authorities.

SIGNED .....

..... (Name in Block Capitals)

NAME AND ADDRESS OF FUNERAL DIRECTOR.....

.....

.....

.....

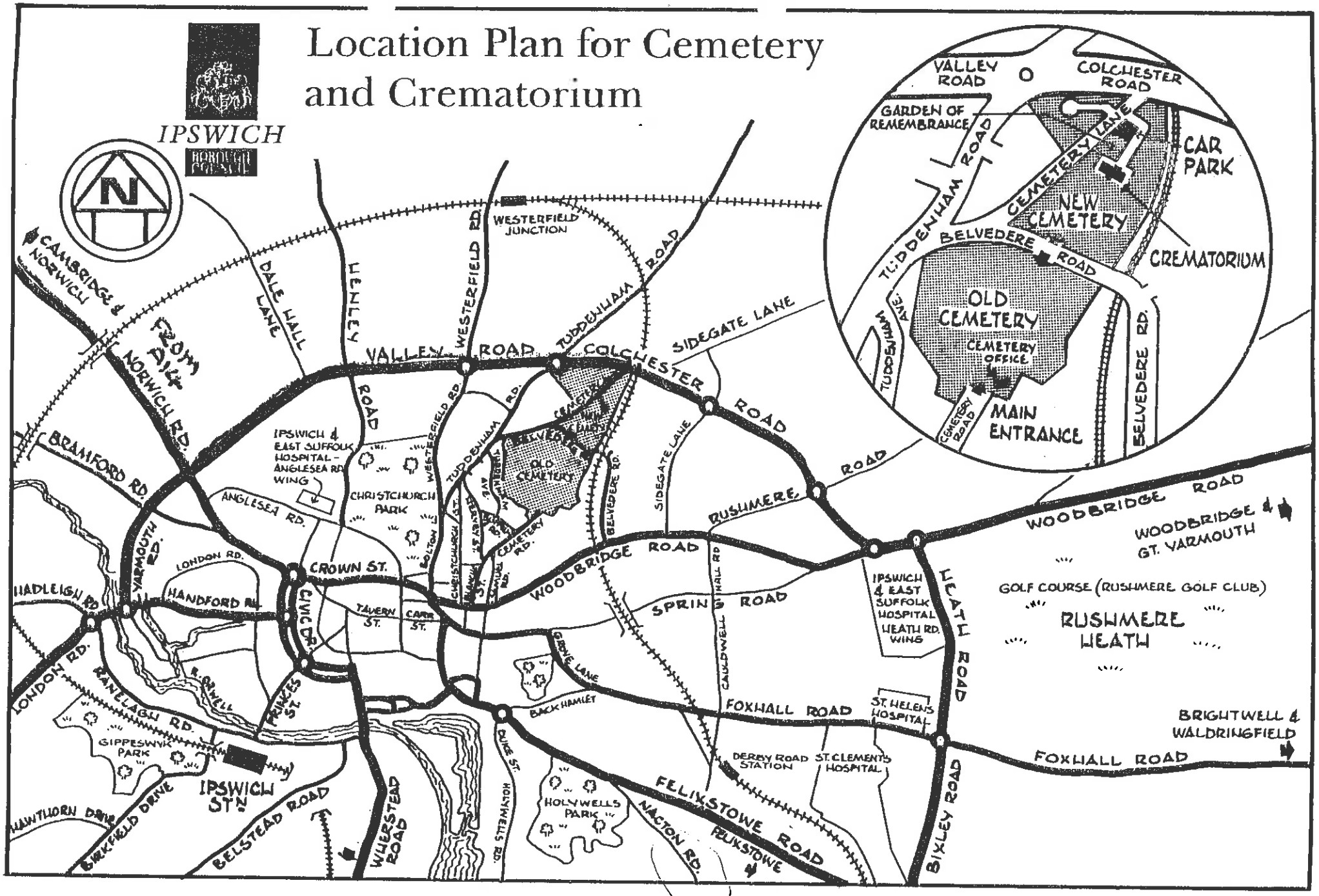
.....

TO ..... CREMATORIUM

April 1991

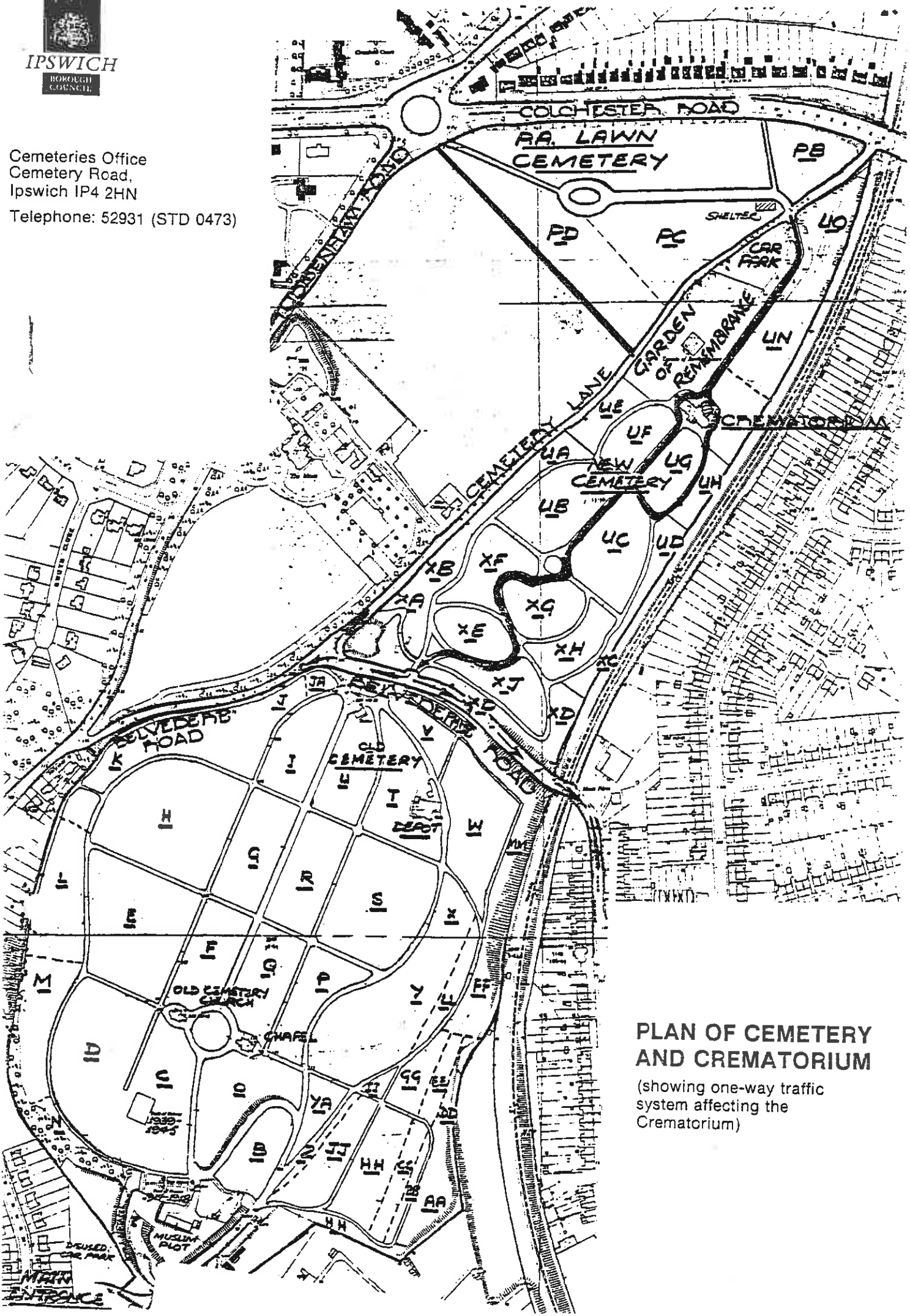
APPENDIX 4

Location Plan for Cemetery and Crematorium



IPSWICH
BOROUGH COUNCIL

Cemeteries Office
Cemetery Road,
Ipswich IP4 2HN
Telephone: 52931 (STD 0473)



PLAN OF CEMETERY AND CREMATORIUM

(showing one-way traffic system affecting the Crematorium)

APPENDIX 6

DETERMINATION OF DISCHARGE STACK HEIGHTS FOR POLLUTING EMISSIONS
HMIP Technical Guidance Note - D1

IPSWICH CREMATORIUM
Installation of 3 new cremators

WASTE GAS DATA

Number of Cremators		3
Vol of Flue Gases (Corrected to Stds)	Nm^3/s	0.35
Flue Gas Temperature	°C	500
Flue Gas Oxygen (Dry)	%	16.5
Flue Gas Moisture	%	4
Reference Oxygen	%	11
Ambient Temperature	°C	10
Final Diameter of Each Flue Core	mm	440
Dry Gas Discharge Volume at Exit Conditions	m^3/s	6.69
Wet Gas Discharge Volume at Exit Conditions	m^3/s	6.97
Efflux Velocity	m/s	15.3

Pollutant Discharge Rates	Concentration		Mass Emission	Pi
Sulphur Dioxide	mg/m^3	100	0.105 g/s	328
Nitrogen Dioxide	mg/m^3	50	0.053 g/s	656
Nitric Oxide	mg/m^3	175	0.184 g/s	245
Hydrogen Chloride	mg/m^3	200	0.210 g/s	2901
Formaldehyde	mg/m^3	0	0.000 g/s	
Carbon Monoxide	mg/m^3	100	0.105 g/s	2
Particulate Matter (SPM)	mg/m^3	80	0.084 g/s	840

Discharge gases which will add to background Pollution levels from list below .....

		Gd/Gb	Be
A: Sulphur Dioxide	Y	1	0.12 mg/m^3
B: Hydrogen Chloride	Y	0.23	0.03 mg/m^3
C: Hydrogen Fluoride	N	0	0 mg/m^3
D: Sulphuric Acid	N	0	0 mg/m^3
E: Nitric Acid	N	0	0 mg/m^3

District Category..... B
From list below :-
A: Major City Centre / Heavily Industrialised
B: Highly Developed Large Urban Area
C: Urban Area of Limited Size with Parkland or Largely Rural Surroundings
D: Partially Developed Area
E: Rural Area with Little Development

Building Dimensions
Is there more than a single dominant building which is wider than it is high or are there other Structures such as trees or lattice towers within a distance of 39.1 metres from Chimney which exceed the highest adjacent roof ridge height ?

Enter Yes or No (Y / N)..... N

If "NO" to question above give basic building details:-

Building Length :	27	metres
Building Width :	8.8	metres
Building Height :	11	metres

If "YES" to question above, fill in details below :-

	Width metres	Height metres	Factor K	Factor T
Building 1	0	0	0	0
Building 2	0	8	0	8
Building 3	0	8	0	8
Building 4	0	0	0	0
Building 5	0	0	0	0

RESULTS
Derived Factors

Pi (Acids)	3229	m^3/s
Pi (Others)	840	m^3/s
Pi Used	3229	m^3/s
Q	1.52	MW
a	-1.1525	
b	0.4945	
Ub	3.8272	metres
M	38.9695	m4/s/s
x	-2.1814	
y	4.9074	
Um	7.8164	metres
A	2.0423	

Calculated Chimney Height	=	16.4	metres
Calculated Height Above Ridge	=	5.4	metres
Present Chimney Height	=	19.5	metres
Present Height Above Roof Ridge	=	8.5	metres
Increase in Chimney Height Required	=	0.0	metres

No increase in Chimney height required

In accordance with section 7(11), enforcing authorities are required to have regard to any guidance issued to them by the Secretary of State when determining appropriate techniques in relation to the above-mentioned objective. The Secretary of State will also treat this guidance as one of the material considerations when determining any appeals made against a local enforcing authority decision.

The guidance contained in this Note was determined after full consultation with members of the HM Inspectorate of Pollution/Local Authority Enforcement Liaison Committee (IPLA) and interested bodies. It is based on the state of knowledge and understanding of these processes, their potential impact on the environment, and the available control techniques at the time of publication. The guidance will be updated regularly to reflect changes in knowledge and understanding; however, it will not always be possible to revise the Notes quickly enough to keep in absolute step with rapid changes. Further, the guidance cannot take into account individual process characteristics, in particular location, which may on occasion influence the nature of the conditions that are included in an authorisation.

Guidance on interpretation of the terms used in this Note is provided in General Guidance Note 4 (GG4)—"Secretary of State's Guidance on Interpretation of Terms used in Process Guidance Notes".

Processes must be operated in order to protect persons at work as well as the environment, therefore conditions in the authorisation must not impose any requirement that would put at risk the health, safety or welfare of persons at work. Section 7(1) of the Act requires that no conditions are to be imposed which are designed *only* to secure the health of persons at work (as defined in Part I of the Health and Safety at Work etc Act 1974).

Wherever emission limits quoted in this Note *conflict with* occupational exposure limits set under the Health and Safety at Work etc Act 1974 to secure the health, safety or welfare of persons at work, the tighter limit should prevail.

Revised Guidance

1. This Note amends and replaces PG5/2(91) ("the original guidance"), which was published in February 1991. Appendix 4 contains a summary of the changes that have been made. The revised guidance should be applied in accordance with paragraphs A, B and C below (as appropriate). (There may be cases where both paragraphs A and B apply.)

A. Where this revised guidance specifies standards or requirements higher than or (subject to paragraph B) different from those in the original guidance, upgrading of existing processes[3] having regard to these higher or different standards or requirements should be completed in accordance with the timetable specified in Clause 8.

Relevant authorisations should be varied (as may be necessary) having regard to the higher or different standards and the timetable in Clause 8. Any such variations should normally be able to be made as part of the review of authorisations required by section 6(6) of the Act.

B. Where

a) standards or requirements in the original guidance have been deleted in this revised guidance, or

b) where this revised guidance specifies less stringent standards or requirements than those in the original guidance and the deadline for upgrading in the original guidance has been reached,

relevant authorisations for existing processes[3] should be varied (as may be necessary) having regard to the revised guidance.

develops on the potential for harmful effects from emissions, immediate review of the process should be undertaken and any new requirements and compliance time-scales should be specified by the local enforcing authority.

10. Prior to upgrading in accordance with Clause 8, existing cremators should meet the following minimum requirements for smoke emissions from the chimney:

(a) during any period of eight hours the aggregate of the periods of emission of dark smoke[4] should not exceed five minutes;

(b) no single emission of dark smoke should exceed two minutes;

(c) there should be no emission of black smoke[5].

Emission Limits and Controls

11. All emissions to air, other than steam or condensed water vapour should be free from droplets and from persistent mist and persistent fume.

12. Emissions from the cremator should, in normal operation (including start up and shut down), be free from visible smoke and no emission from the cremator should exceed the equivalent of Ringelmann Shade 1.[6]

13. All emissions should be free from offensive odour beyond the process site boundary as perceived by the Inspector.[7]

14. All pollutant concentrations should be expressed at reference conditions; 273 K, 101.3 kPa and 11% oxygen, dry gas.

15. Where continuous monitoring is undertaken:

(a) no more than 5% of all 60-minute mean emissions should exceed the specified emission limits, and

(b) no 60-minute mean emission should exceed twice the specified emission limits.

The 60-minute period should relate to the first 60 minutes of each cremation or such shorter period where the cremation is of less than 60 minutes duration. Carbon monoxide emissions after 60 minutes of cremation ought to be minimal.

16. The following are the specified emission limits for each cremator and no results obtained from non-continuous monitoring should exceed the following emission limits:

SUGGESTED TEST METHODS FOR MONITORING EMISSIONS OF DIFFERENT POLLUTANTS (see Clause 34)

1. Test Methods

The table below specifies the preferred test methods to be used in monitoring emissions from crematoria for each particular pollutant in PG5/2(95).

Pollutant	Preferred test method	Other test methods
Particulate matter	United States Environmental Protection Agency (US EPA) method 5[a,b]	German VDI 2066-1-2 BS6069 section 4.3 (also known as ISO9096)
Hydrogen chloride	US EPA 26A	VDI 3483 BS6069
Organic compounds excluding particulate matter	US EPA 25A	US EPA 25B VDI3483
Oxygen	US EPA 3a	BS1756 part 2
Carbon monoxide	US EPA 10	VDI 2459
Polychlorinated dibenzo-p-dioxins and furans	US EPA 23	

[a] For the purpose of this document, these United States Environmental Protection Agency methods are taken to be those summary documents which are available on-line from the Agency's Emission Measurement Technical Information Centre bulletin board. This is accessible through the Agency's Technology Transfer Network either via the internet at TTNBBS.RTPNC.EPA.GOV or via dialup at + 1 919 541 5742.

[b] Method 5 also makes use of methods 1 to 4 which deal with respectively the sampling location and traverse points, the initial traverse, and the determinations of the molecular weight and moisture content of the flue gases.

2. Protocol

2.1 Preferred sampling location

In most crematoria in the UK, the cremators have been designed to fit into an existing building. Thus, even those built to be compliant with the Environmental Protection Act tend to have very few locations where a sampling point can actually physically be placed, and fewer still have sampling points which are the correct number of flue diameters away from bends and other obstructions. Given the choice, sampling points located in the "hot-leg" of the flue—that is, prior to the introduction of dilution air—are to be preferred, since the oxygen concentration at such points will be lower, and thus the correction to 11% oxygen will be better defined given a constant error on an oxygen determination. However, when sampling for polychlorinated dibenzo dioxins and furans, the sampling point should if possible be located such that the temperature of the flue gases is below 200°C—that is, outside the temperature range where reformation or de novo synthesis takes place—and remains so until discharge to atmosphere. Where this is not possible, the operator should notify the authority of the minimum temperature at which the measurement can practically be made, and the reason why this cannot be below the maximum temperature, before sampling takes place.

2.2 Sampling points

For each pollutant to be measured, calculation of the location and number of sampling points should be carried out as specified in the relevant US EPA

IPSWICH BOROUGH COUNCIL **M E M O R A N D U M**

To: Kim Spencer, Pollution Services Manager

From: Jill Rodacan, Cemeteries Manager 1 Feb 1994

ENVIRONMENTAL PROTECTION ACT 1994
AUTHORISATION

In accordance with Condition 30 of the Authorisation, I am advised that it is the intention of the Council to provide a new crematorium on a new site.

Jill Rodacan
Cemeteries Manager

ıronibit waiting and loading/unloading in parts of
Blofield Road and Fagbury Road;

ırohibit waiting between 8.00 am and 6.00 pm
in part of Maidstone Road;

ıonvert the existing taxi rank in Orwell Road
between Hamilton Road and Highfield Road) to a
30 minute limited waiting area (return prohibited
within one hour) and two three hour parking bays
or orange badge holders;

ıove the existing parking bays for orange badge
ıolders in Cobbold Road nearer to the junction
vith Crescent Road.

ng measures which conflict with or duplicate the
will be revoked.

ptions to the waiting restrictions allow a vehicle to
or so long as may be necessary to board or alight;
s to be loaded or unloaded (except in (c) above);
uilding, industrial or demolition works; for the
enance of the road or the services therein, and
rtain other purposes specified in the order. There
lso the usual exemptions for disabled persons'
es (except in (c) above).

etails may be obtained from the order.

py of the order, which comes into effect on
:tober 1997, and a set of plans showing the roads
ed, may be inspected at Felixstowe Library,
ent Road, between 9.30 am and 5.30 pm on
ay and Thursday; 9.30 am and 1.00 pm on
esday; 9.30 am and 7.30 pm on Friday; and
en 9.30 am and 5.00 pm on Saturday. These
ıents may also be inspected at my office, between
am and 5.00 pm Monday to Thursday and 9.00
ıd 4.00 pm on Friday.

ıne wishes to question the validity of the order or
provision contained in it on the grounds that it
within the powers conferred by the Road Traffic
ation Act 1984, as amended, or on the grounds
any of the requirements of that Act or any
ment made under it have not been complied with
ıtion to the order, they may within six weeks of
ate on which the order was made apply to the
Court for this purpose.

29 ber 1997.

TEVENS, COUNTY SECRETARY AND SOLICITOR,
y Hall, Ipswich IP4 2JS.

09403P

TICE OF PUBLIC BRIDLEWAY ORDER WN AND COUNTRY PLANNING ACT 1990, SECTION 257 D PARAGRAPH 1 OF SCHEDULE 14 MID SUFFOLK DISTRICT COUNCIL EDHAM MARKET BRIDLEWAY NO. 15 (PART)) PUBLIC BRIDLEWAY DIVERSION ORDER 1997

ıove order was made on 21 October 1997. fect of the order will be to divert the public vay running from grid reference 035470 south of Chainhouse in a west north ly direction to grid reference TM08915471 ool Street to a line running from grid refer- TM08945469 abutting the existing route of dleway, first at a width of 1.5 metres and idening to a maximum width of 3.0 metres, ıangi to a 1.5 metre width first in a west- ectio ıjacent to a metalled turning head a north westerly direction across the turn- ıd to its western edge at the southern end ool Street at grid reference TM08915471. of the order and the order map may be ree of charge at Council Offices, High Needham Market between the hours of 9 d 4.30 pm (1 pm to 2 pm excluded) on any y working day. A copy has also been ted with the Clerk to Needham Market Council at Town Council Office, Communi- tre, Needham Market where it may be ed free of charge at all reasonable hours r appointment. Copies of the order and ay be purchased from the undersigned. ıresentation about or objection to the order sent or delivered in writing addressed to f Construction Services, Council Offices, treet, Needham Market IP6 8DL, not later 5 November 1997. Please state the s on which it is made.

ıch representations or objections are duly or if any so made are withdrawn, Mid Suf- strict Council may itself confirm the order nopposed order. If the order is sent to the ıry of State for the Environment for confir- any representations or objections which ot been withdrawn will be sent with the

29 October 1997

I F RICKARD LLB
Solicitor and Head of Administration

Mill Hill, Framsden.
(5) 946/97 (+LB/197/97) - Conversion of former granary to form staff accommodation, The Granary, Willow House, Fressingfield.
(4) 937/97 - Erection of extension to existing agricultural storage building, Kenton Hall, Kenton.
(4) OL/88/97 - Conversion of workshop/barn to form dwelling including installation of private sewage treatment works, Potash Farm, Eye Road, Kenton.
(5) LB/201/97 - Erection of single storey extension to east elevation and installation of staircase, Thatched Cottage, High Street, Rattlesden.
(1) 945/97 - Erection of single storey side extension and detached garage, Hanley House, The Street, Rickinghall Superior.
(1) 956/97 - Removal of existing shop front and replacement with new, 10 Ipswich Street, Stowmarket.
(3) LB/198/97 - Removal of first floor window, block in; insertion of replacement window in new position; removal of existing front door, re-use on new porch, erection of porch, Mill Farmhouse, Mill Lane, Thurston.
(4) 952/97 - Conversion of barn to two dwellings with layout and construction of new vehicular access, Home Farm Barns, Ixworth Road, Walsham-le-Willows.
(3) LB/195/97 - Repair work to brick plinth and underpinning, Fox Farm, Wetherden.
(5) 958/97 (+LB/203/97) - Construction of 3 no. dormer windows (2 south and 1 north elevations), erection of conservatory to south elevation, Sunny Ridge Cottage, Rags Lane, Woolpit.
(1.) Within Conservation Area
(3.) Listed Building Consent
(4.) Listed Building Setting
(5.) Listed Building Consent within Cons Area
Copies of the applications, the plans and any other documents submitted with them may be inspected at the Planning Reception, 131 High Street, Needham Market, Ipswich IP6 8DL on Mondays to Fridays 8.30 a.m to 5.00 p.m. Anyone wishing to make representations about these applications should write to me at the above address during the period of 21 days beginning today.

STUART BROOKS
Head of Development Control

ENVIRONMENTAL PROTECTION ACT 1990 PART 1 APPLICATION FOR A VARIATION OF AUTHORISATION

Ipswich Borough Council has applied for a variation of authorisation from Ipswich Borough Council to operate a process of cremating human remains at Ipswich Crematorium, Cemetery Lane, Ipswich.
A copy of the application is available for public inspection at Room 409, The Civic Centre, Civic Drive, Ipswich, Suffolk IP1 2EE.
Written representations about the application may be sent to Ipswich Borough Council, Environmental Services, The Civic Centre, Civic Drive, Ipswich, Suffolk IP1 2EE within 28 days of 29 October, 1997.

SUFFOLK COUNTY COUNCIL

Town and Country Planning (General Development Procedure) Order 1995

NOTICE UNDER ARTICLE 8 OF APPLICATION FOR PLANNING PERMISSION

Proposed development at **Disused Pit, Ash Road, Tunstall.**

I give notice that Sir Edward Greenwell is applying to Suffolk County Council for planning permission to:

Renew planning permission reference C92/1174, to infill pit with inert, Category A waste.

Members of the public may inspect copies of:

- ☐ the application
- ☐ the plans
- ☐ and other documents submitted with it

at the Planning Department, Suffolk Coastal District Council, Melton Hill, Woodbridge, Suffolk IP12 1AU during all reasonable hours until 19th November 1997 or by prior appointment at the County Environment and Transport Department, St Edmund House, Rope Walk, Ipswich, Suffolk, IP4 1LZ (Tel: Ipswich (01473) 583349).

Anyone who wishes to make representations about this application should write to the County Director of Environment and Transport, Suffolk County Council at St Edmund House, County Hall, Ipswich, Suffolk, IP4 1LZ by **19th November 1997.**

Signed: P. J. THOMPSON, County Director of Environment and Transport.

Date: 29th October 1997.

962/97 - Weybread Broiler Growers Ltd - Erection of poultry house 'C' and four silo feed bins and construction of cesspool, (renewal of planning permission ref. 694/92), OS 0003, St James Road, Metfield.
963/97 - Weybread Broiler Growers Ltd - Erection of poultry house 'D', four silo feed bins, cesspool, and additional gas tank, (renewal of planning permission ref. 692/92), OS 0003, St James Road, Metfield.
(*) OL/89/97 - Mr D W Farrow - Severance of garden for erection of one dwelling with garage and layout and construction of new vehicular access land adjacent the Homestead, Stoke Ash.
938/97 Mr and Mrs F Scahill - Erection of two storey extension to rear of dwelling; erection of front porch and extension to existing garden curtilage area, Leather Bottle Cottage, Leather Bottle Hill, Little Blakenham.
* These proposed developments do not accord with the provisions of the development plan in force in the area in which the land to which the applications relate is situated.
Copies of the applications, the plans and any other documents submitted with them may be inspected at the Planning Reception, 131 High Street, Needham Market, Ipswich IP6 8DL on Mondays to Fridays 8.30 a.m to 5.00 p.m. Anyone wishing to make representations about these applications should write to me at the above address during the period of 14 days beginning today.

STUART BROOKS
Head of Development Control

ENVIRONMENTAL PROTECTION ACT 1990, PART 1
THE ENVIRONMENTAL PROTECTION (PRESCRIBED PROCESSES AND SUBSTANCES) REGULATIONS 1991, SI 472
THE ENVIRONMENTAL PROTECTION (APPLICATIONS, APPEALS AND REGISTERS) REGULATIONS 1991, SI 507

APPLICATION FOR AUTHORISATION UNDER SECTION 6 OF THE ENVIRONMENTAL PROTECTION ACT 1990

1. Process for which authorisation is sought the cremation of human remains
See Appendix 1 for Prescribed Process

2. (a) Name, address and telephone number of applicant* (or address of applicant's principal place of business - for mobile plant)

Ipswich Borough Council
Civic Drive
Ipswich

(b) Name, number and registered office of applicant company* (if applicable)

*the person/consultant who will operate the process, not eg the person/consultant who is writing the application on the operator's behalf.

(c) Address for correspondence (if different from (a) or (b) above)

3. Name and address of premises where process is or will be carried on (not applicable to mobile processes)

IPSWICH CREMATORIUM
CEMETERY LANE
IPSWICH

4. Name of local authority in whose area the process will be operated (or local authority area in which the operator has his principal place of business - for mobile plant)

Ipswich Borough Council

5. List of maps or plans enclosed with the application showing the location of the premises where the process will be carried on.

Plan of Cemeteries & Crematorium
Boundary marked in blue Crematorium shown in red

Where the process is or will be carried on on only part of the premises whose address is given at 3 above, *either* describe which part of the premises *or* list the plan(s) which identifies these parts.

6. List of attached documents comprising part of the application**

Document (A) Instructions on coffin construction to Funeral Directors
" (B) Cross Section of cremator - J. Sheltons (Diamond)
" (C) Average test results of Shelton cremator (Diamond)
" (D) Characteristics of Shelton cremator (Diamond)
" (E) Code of Cremation Practice

(use continuation sheet if necessary)

7. Name of newspaper in which it is proposed to advertise the application.

.....

8. Fee enclosed (cheques to be made payable to .....

.....Council) £ .....

I hereby certify that all the information contained in this application is, to the best of my knowledge, correct.

.....(Signature)

J. Rodacan - Manager (Name in BLOCK CAPITALS and capacity in which signing)

26/9/91 (Date)

***Regulation 2 of the Environmental Protection (Applications, Appeals and Registers) Regulations 1991 requires that all applications must include the following information (for guidance on these requirements see General Guidance Note No 3 - "Secretary of State's Guidance: Application and Registers", HMSO, 1991: ISBN O 11 752425 5, £4):*

- *a description of the prescribed process*
- *a list of prescribed substances (any other substances) which will be used in connection with, or will result from the carrying on of the prescribed process*
- *a description of the techniques to be used for preventing releases into the air of prescribed substances, for reducing such substances to a minimum and for rendering harmless any substances that are released*
- *details of any proposed release of such substances into the air and an assessment of the environmental consequences*
- *proposals for monitoring any release of such substances, the environmental consequences or any such release and the use of techniques for preventing etc releases*
- *the matters on which the applicant relies to establish that the objectives mentioned in Section 7(2) of the Act will be achieved and that he will be able to comply with the condition implied by Section 7(4) of the Act.*

The applicant may also supply any other information he wishes the local authority to take into account in considering his application.

Appendix 1

PRESCRIBED PROCESS FOR CREMATION

Operation

The application is made for authorisation of an existing crematorium carrying out cremation of human remains since 1929.

The process of cremation is carried out using four cremators, details of which are contained in Appendix D with plan at Appendix B

Chimney

The products of combustion are passed out into atmosphere via two twin wall insulated exhaust flues and chimney, each serving two cremators.

The chimney is located at position ● on the enclosed site plan (Document A).

Fuel

The cremation process comprises the combustion of human cadaver and coffin within the specially designed cremators using natural gas as the support fuel.

Currently the materials employed in coffin construction are regulated by the "Instructions for Funeral Directors" issued by the Federation of British Cremation Authorities, relevant extracts of which are reproduced in the Particulars of Cremation document to be completed by the Funeral Director for each cremation. (Document A)

Operator Qualification

Cremation is conducted from receipt of coffin to disposal of ashes, in accordance with the "Code of Cremation Practice" issued by the Federation of British Cremation Authorities, copy enclosed (Document E). Operators are trained in the proper use of the cremation equipment by the manufacturers of the cremator at installation and additionally within the training programme provided by the Institute of Burial and Cremation Administration in conjunction with the Federation of British Cremation Authorities.

After completion of the training programme, operatives are examined and where performance is of the required standard, a Certificate of Proficiency issued - these are displayed adjacent to the cremators.

Emissions

The cremation leads to emissions of the following prescribed substances (as contained with SI 1991 No 472:Schedule 4)

Oxides of carbon, i.e. carbon dioxide, carbon monoxide

Organic compounds and partial oxidation products
Particulate matter

In addition the possibility exists for the following, dependent upon the characteristics of the coffin and cadaver.

Metals, metalloids and their compounds, e.g calcium, phosphorus
Halogens and their compounds, in particular chlorine

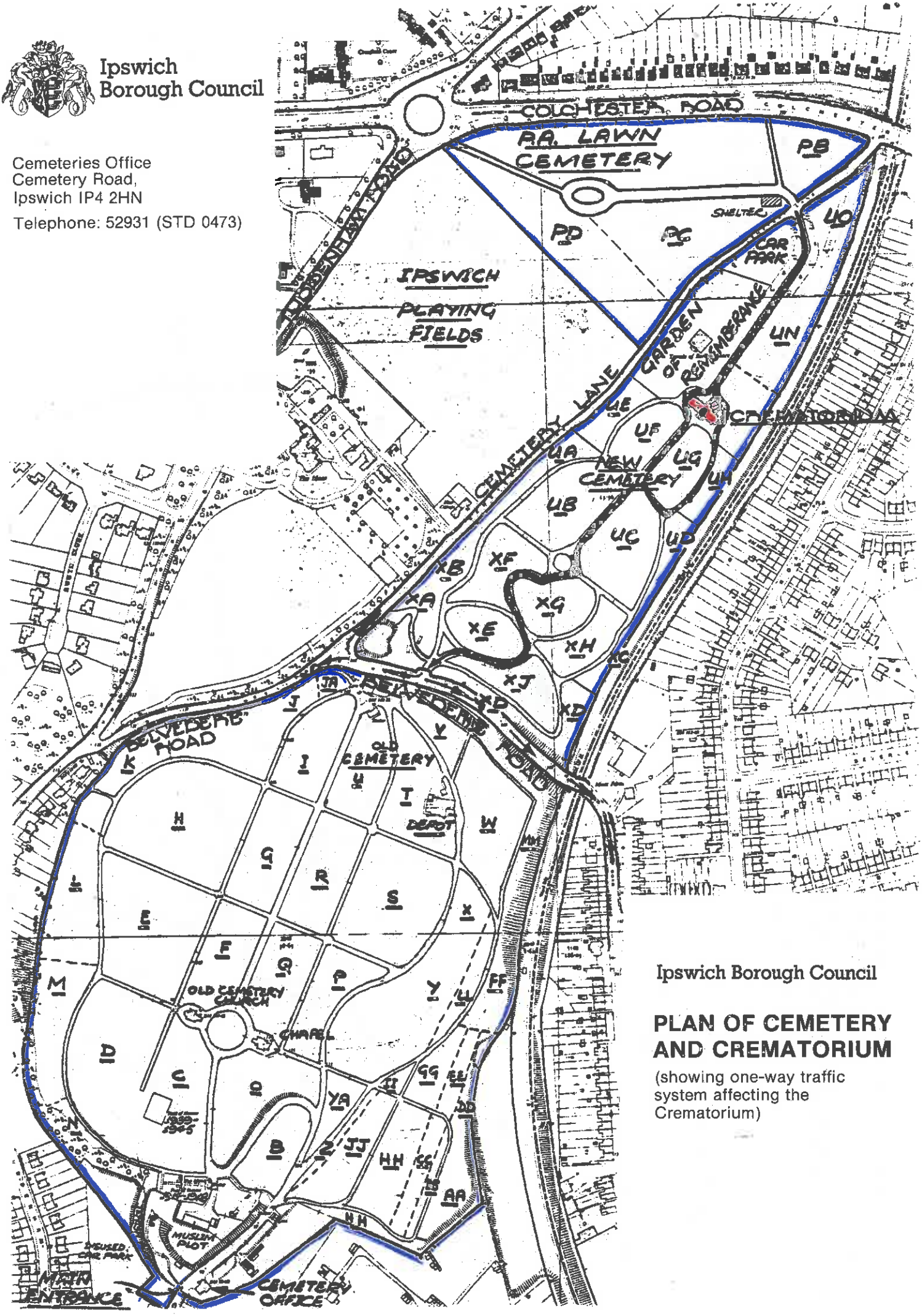
Emission Testing

The release of all of these is minimised by proper use of the specially designed cremators. It has not been possible to carry out actual emission tests owing to the present exhaust system/building design which does not permit sampling in accordance with BS.3405:1983, however emissions from similar equipment at sites where testing is possible have been carried out and an average test report is enclosed (Document C) which may be regarded as typical.

Currently the emissions are continuously monitored at the cremator outlet for visible smoke emissions, and percentage opacity, by the smoke density equipment (see cremator details, Documents B & D) and continuously recorded. In addition the staff are instructed to make regular checks on stack emissions outside the operating area. The temperature within the cremator main chamber is also continuously monitored (see cremator details, Documents B & D)

Ipswich
Borough Council

Cemeteries Office
Cemetery Road,
Ipswich IP4 2HN
Telephone: 52931 (STD 0473)



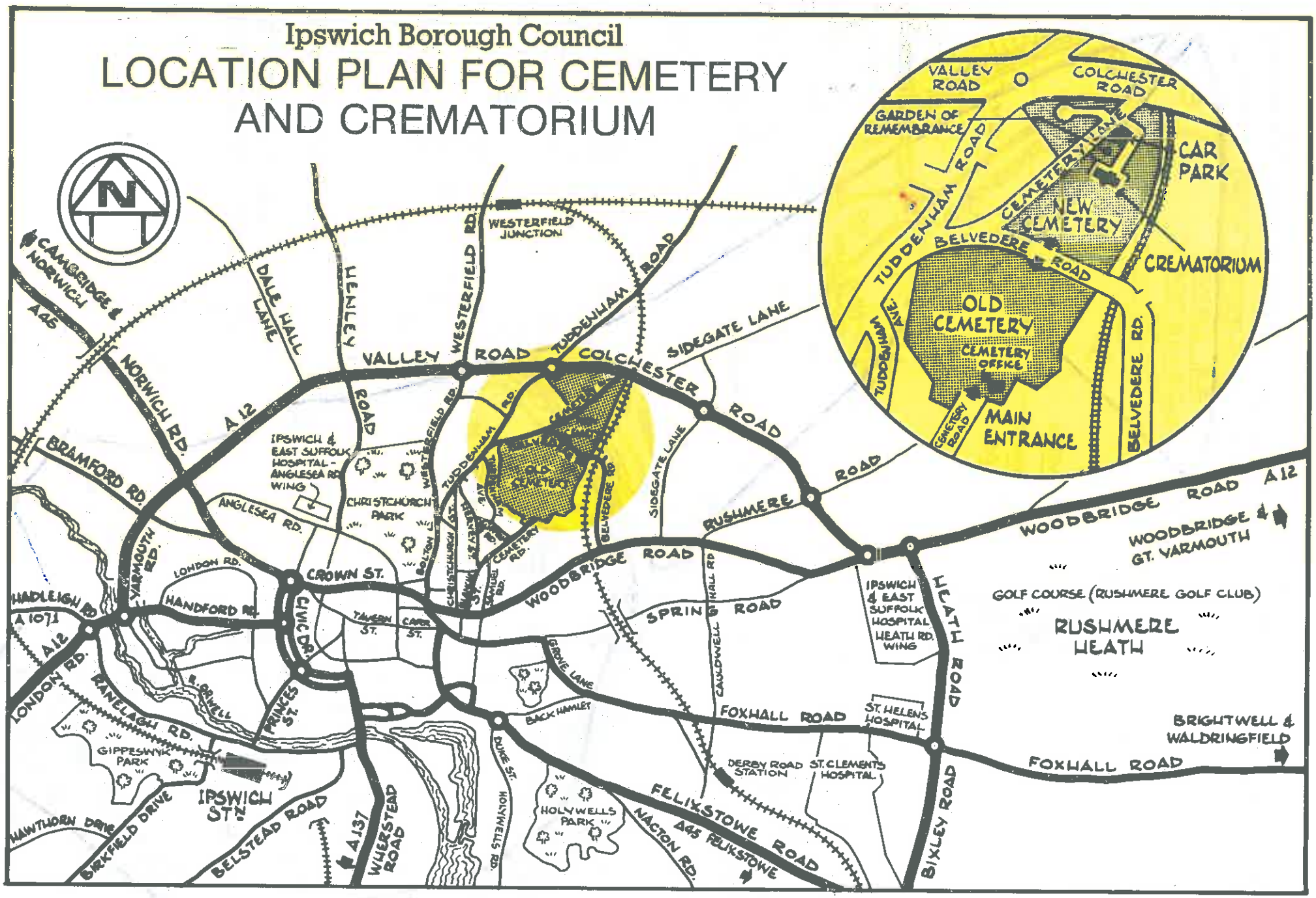
Ipswich Borough Council

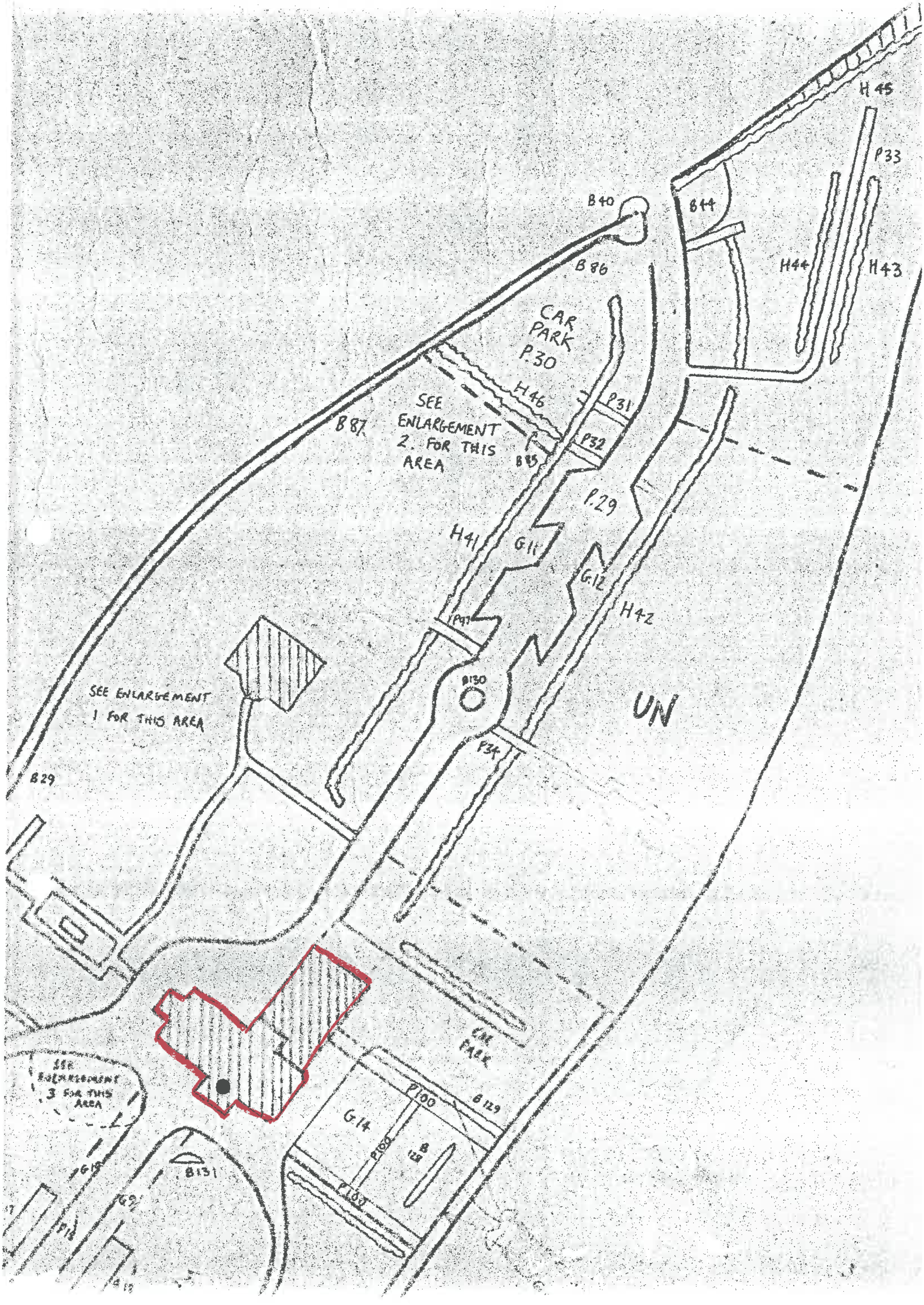
PLAN OF CEMETERY AND CREMATORIUM

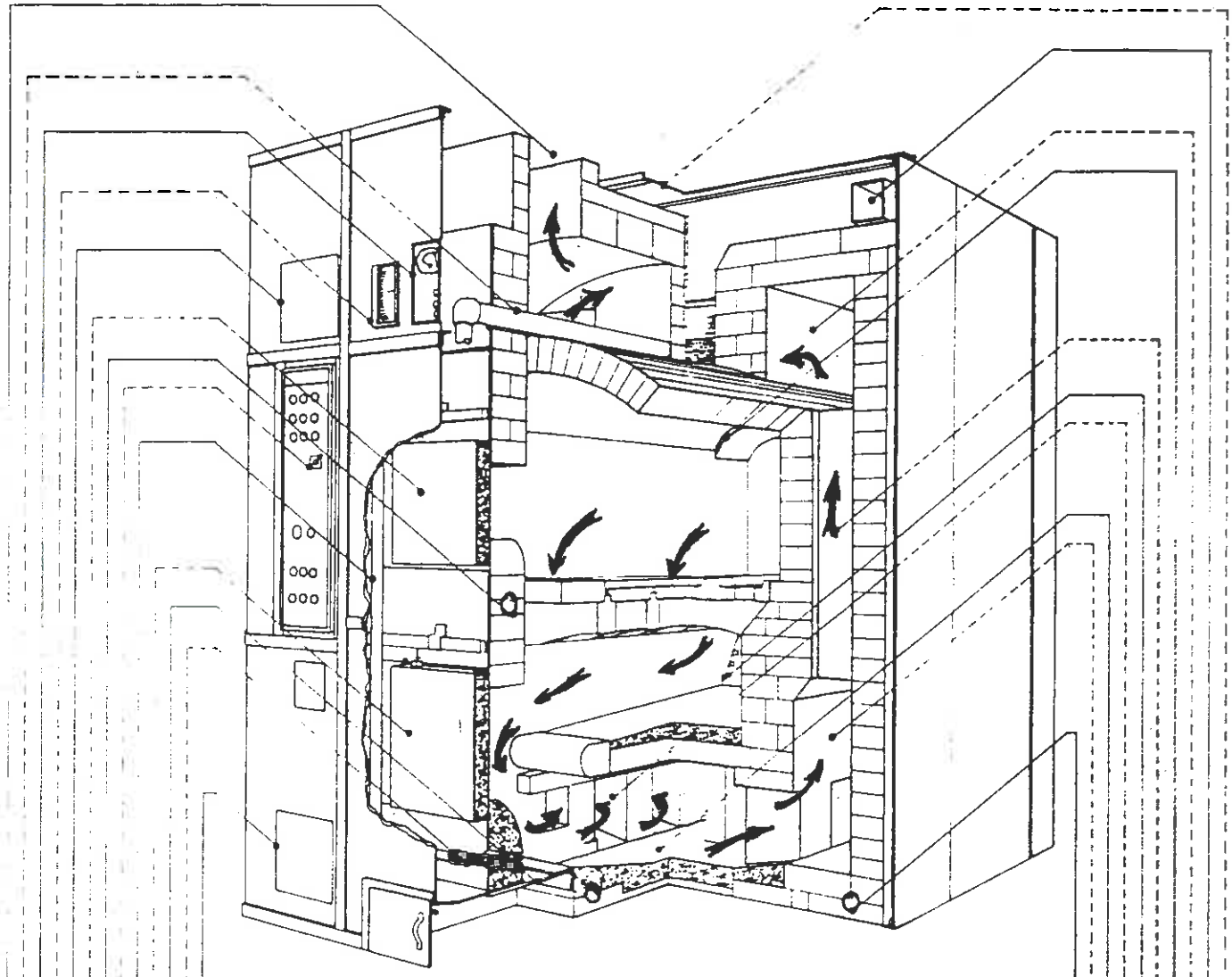
(showing one-way traffic system affecting the Crematorium)

Ipswich Borough Council

LOCATION PLAN FOR CEMETERY AND CREMATORIUM




H 45
P 33
B 40
B 44
H 44
H 43
B 86
CAR PARK P.30
H 46
P 31
P 32
SEE ENLARGEMENT 2. FOR THIS AREA
B 87
B 85
P.29
H 41
G 11
G 12
H 42
P 41
B 130
UN
SEE ENLARGEMENT 1 FOR THIS AREA
P 34
B 29
CAR PARK
SEE ENLARGEMENT 3 FOR THIS AREA
P 100
B 129
G 14
B 131
P 102


CLEAN OUT COVER FOR LOWER HORIZONTAL FLUE
AFTER BURNER
SLIDING ASH DAMPER
LOWER OPERATING DOOR
AFTER BURNER SUPPLY PIPE
CABINET ISOLATING SWITCH
REVERSE FLOW AIR
UPPER OPERATING DOOR
CLEAN OUT COVER FOR UPPER HORIZONTAL FLUE
TEMPERATURE INDICATOR
SMOKE DENSITY INDICATOR
SECONDARY (RECUPERATOR) AIR
EXHAUST GAS OUTLET
SMOKE CHAMBER AIR
LOWER HORIZONTAL FLUE
ASH REFINING HEARTH
EXHAUST PORTS TO LOWER HORIZONTAL FLUES
UNDERHEARTH AIR
VERTICAL SIDE FLUE
DOOR RELIEF EXHAUST PORT
UPPER HORIZONTAL FLUE
MAIN BURNER AIR SUPPLY DUCT
WALKWAY

SUMMARY OF TEST RESULTS

MORRISTON CREMATORIUM

AVERAGE TEST RESULTS

Date of Tests	10 January, 1990
Average Temperature	310°C
Velocity of waste gases at Duct Conditions	12.6 m/sec
Volume of waste gases at Duct Conditions	123.11 m^3/min.
Weight Collected	0.283 g
Solid Emission Rate	0.281 kg/h
Solid Concentration @ 0°C. 1 bar and 11% O_2 Dry Gases Average Over Cycle	85.4 mg/m^3
Carbon Monoxide Concentration @ 0°C. 1 bar and 11% O_2 Dry Gases. Average Over Cycle	162 mg/m^3
Hydrogen Chloride Concentration @ 0°C. 1 bar and 11% O_2 Dry Gases. Average Over Cycle	Nil

D

DIAMOND MARK IIIA CREMATOR CHARACTERISTICS

a) Two main burners of 115kw each

b) After burner (160kw)

c) Automatic flame failure control (BS.5885;1990)

d) Recuperator air
Cross hearth air
Underhearth air
Reverse flow air

e) Hand operated air valves

f) Main chamber temperature indication
Main chamber pressure indication
Smoke density indication (opacity meter)
Smoke density visual alarm
Smoke density emissions recording

THE CODE OF CREMATION PRACTICE

The manner in which a dead body is cremated is not regulated by statute law. The Code of Cremation practice issued by the Federation of British Cremation Authorities is, however, relevant in ascertaining the standard of care to be expected from cremation authorities at common law.

1. CONDUCT

The cremation of a human body is a highly emotional occasion for those taking part in the service. This must never be forgotten by the officials of the crematorium who must combine to create and maintain an atmosphere of reverence and respect throughout the entire procedure.

2. STAFF

The greatest care must be taken in the appointment of the members of the crematorium staff, any one of whom may by conduct or demeanour detract from the atmosphere of reverence which it is endeavoured to create. When an appointment is made, preference should be given to certificated applicants. In addition, it should be realised that the wrong type of person is capable of comment outside the crematorium which can bring the crematorium and cremation into disrepute.

3. AFTER COMMITTAL

(a) A body shall not be removed from the crematorium after the service of committal except for a lawful purpose.

(b) On the day when the committal service takes place provided the necessary authority to cremate has been received, the coffin and its contents shall be put into the cremator exactly as they have been received on the catafalque for the cremation.

(c) Once a coffin with its contents has been placed in the cremator it shall not be touched or interfered with until the process of cremation has been completed. On completion, the whole of the cremated remains shall be collected and, following their reduction, shall be disposed of according to instructions received.

4. CORRECT IDENTITY

(a) No coffin shall be accepted at any crematorium unless there are adequate particulars of the identity of the deceased person therein.

(b) Every care must be taken to ensure correct identification throughout the whole proceedings from the moment the coffin is received onto the catafalque until the final disposal of the cremated remains.

5. SEPARATELY CREMATED

Each coffin given to the care of the cremation authority shall be cremated separately.

6. METAL RESIDUE

Any metal found amongst the cremated remains shall not be salvaged for any purpose but should be disposed of in aggregate in accordance with directions of the cremation authority or higher authority.

7. CREMATED REMAINS - CARE TO BE TAKEN

The utmost care should be taken to ensure cremated remains resulting from each cremation should be kept separate. Following their removal from the cremator, the cremated remains shall be reduced and placed in a separate container whilst awaiting final disposal. If the cremated remains are to be strewn on the Garden of Remembrance the ceremony shall be conducted with the greatest reverence and respect and in such a manner as not to leave the cremated remains visible. When the cremated remains are to be sent by rail or through the post specially constructed containers shall be provided for this purpose, suitably labelled and dealt with according to recommendations laid down by the Federation of British Cremation Authorities in their special leaflet on this subject. Cremation Authorities shall ensure by regulation that cremated remains leaving their crematorium always do so in a suitable type of container.

8 MECHANICAL APPARATUS

Cremators and all other mechanical apparatus used in the crematorium shall be kept in good repair and regularly overhauled and cleaned to ensure that they are being kept in perfect working order and to prevent friction noises which would distract and disturb the mourners. Special attention should be paid to mechanical devices which are particularly prone to developing imperfection.

9. STATUTORY REGULATIONS

All cremations shall be carried out according to the provisions of the Cremation Acts and the regulations made thereunder or under the appropriate statutory provisions and regulations applicable to the area in which the crematorium is situated and in those places where it is applicable, no cremation shall take place except on the written authority of the Medical Referee.

(A)

EXTRACT FROM

THE FEDERATION OF BRITISH CREMATION AUTHORITIES

Instructions for Funeral Directors

CONSTRUCTION OF THE COFFIN. The coffin must be made of wood or a wood by-product which, when placed in a cremator and subjected to the accepted cremation processes, is easily combustible and which does not emit smoke, give off toxic gas or leave any retardent smears or drips after final combustion. No metal furniture or fittings whatever shall be used on a coffin for cremation. No metal of any kind shall be used in the manufacture of such coffin except as necessary for its safe construction and then only metal of a high ferrous content. Cross pieces must not be attached to the bottom of the coffin. If it is desired to strengthen the bottom of the coffin, wooden strips may be placed lengthways for this purpose. The coffin must not be painted or varnished but may be covered with a suitable cloth. Products manufactured in polyvinyl chloride (PVC) must not be used in the construction of the coffin or its furnishings. The use of polystyrene must be restricted to the coffin nameplate only in which case it must not exceed 90 grams in weight.

LINING OF THE COFFIN. The use of sawdust or cotton-wool must be avoided. If circumstances require, suitable sealing material may be used, but no metal, rubber or polyvinyl (PVC) will be permitted and on no account must pitch or similar substance be used.

SIZE OF THE COFFIN. Where the external dimensions of a coffin are likely to exceed length 81 inches (206 cm); width 28 inches (71cm); depth 22 inches (56 cm) the propoer officer of the crematorium must be given advance notice.

STATEMENT TO BE COMPLETED BY FINERAL DIRECTOR

UNDERTAKING ARRANGEMENTS FOR CREMATION

I declare that the coffin containing the remains of ..... deceased, whose details are described overleaf, conforms to the requirements as printed above.

Signed ..... On behalf of .....

..... Date .....

CM1005/2/91

Ipswich Cemeteries and Crematorium
Cemeteries Office, Cemetery Road, Ipswich IP4 2HN
Telephone: Ipswich 252931

PARTICULARS FOR A CREMATION AT IPSWICH CREMATORIUM

THIS FORM MUST BE SENT TO THE CEMETERIES MANAGER IMMEDIATELY FOLLOWING THE VERBAL ARRANGEMENTS MADE BY TELEPHONE, ALL OTHER FORMS TO BE RECEIVED NOT LATER THAN 9.30 am THE DAY PRIOR TO CREMATION, EXCLUDING SATURDAY, SUNDAY AND PUBLIC HOLIDAYS

1. DECEASED

Name ..... Age .....

Address .....

.....

2. SERVICE

Day ..... Date ..... Time ..... WEST CHAPEL / NORTH CHAPEL

Full Service ☐ Committal ☐ No Service ☐

NOTE: Organ music is provided at Full or Committal Service unless specially excluded. Organ not required ☐

Name of Minister ..... Denomination .....

Any Hymns or special music required .....

.....

.....

3. DISPOSAL OF CREMATED REMAINS

Please read this section carefully and indicate your clients wishes by a tick in the appropriate box

Scatter in the Garden of Rest (no charge) ☐
To be left in Temporary Deposit ☐
To be taken away ☐
Urn required ☐
Niche in Temple of Remembrance ☐

Rights of Burial Urn Garden Grave (New) ☐
Rights of Burial Urn Garden Grave (Re-used) ☐
Front Row ☐ or Back Row ☐
Tick if relatives wish to select (Re-used only) ☐
Burial in Urn Garden Grave/Family Grave ☐
Grave Number .....
Tick if relatives wish to attend Burial of Remains ☐

OFFICIAL USE	£	p
Cremation Fee		
Burial Rights Crem Plot		
Burial in Grave		
Urn		
Postage & Packing		
TOTAL		

4. FUNERAL DIRECTORS

Name .....
Address .....
Telephone .....
Date .....

5. ENCLOSURES

Form A (Application for Cremation) ..... ☐
Form B & C (Medical Certificates) ..... ☐
or Form E (Coroners Certificate) ..... ☐
Certificate for Disposal ..... ☐

OFFICE HOURS Monday-Friday 8.30-1.00/2.00-4.30

NO CREMATIONS ON SATURDAYS, SUNDAYS OR BANK HOLIDAYS

CM1003/2/91(325)

EHI

ENVIRONMENTAL PROTECTION ACT 1990
PART 1
APPLICATION FOR AUTHORISATION

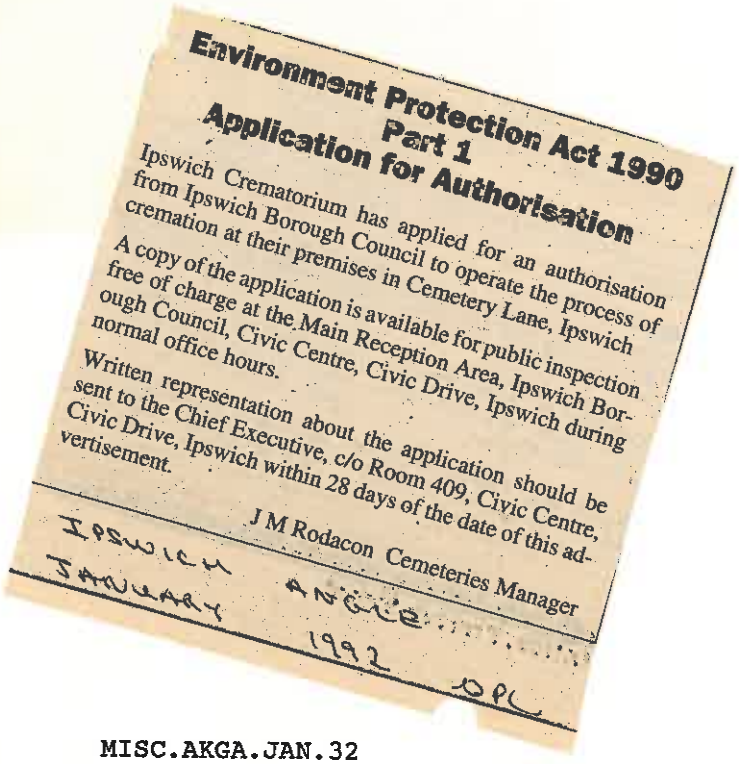
Ipswich Crematorium has applied for an authorisation from Ipswich Borough Council to operate the process of cremation at their premises in Cemetery Lane, Ipswich.

A copy of the application is available for public inspection free of charge at the Main Reception Area, Ipswich Borough Council, Civic Centre, Civic Drive, Ipswich during normal office hours.

Written representation about the application should be sent to the Chief Executive, c/o Room 409, Civic Centre, Civic Drive, Ipswich within 28 days of the date of this advertisement.

J M Rodacon

Cemeteries Manager



Environment Protection Act 1990
Part 1
Application for Authorisation

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J M Rodacon Cemeteries Manager

IPSWICH ANGLE
JANUARY 1992

MISC.AKGA.JAN.32

ENVIRONMENTAL PROECTION ACT 1990, PART I - EXISTING PROCESS

Additional Information Required in Relation to Application for Authorisation Dated 30th September 1991.

1.Emission Monitoring

Further to my memorandum of 9th July regarding sampling, I highlighted the possible inaccuracy of sampling with shared stacks (as is the case at Ipswich), therefore the actual emissions testing was not possible in accordance with BS 3405:1983. For that reason, documents were produced at time of application giving average results of samples from other sites with similar equipment where it was possible to carry out the specified tests. The results of the tests were provided to each crematorium with such equipment (of which Ipswich is one) and this information has been accepted as part of the Application.

On further investigation, the only site at Ipswich crematorium where it may be possible to carry out representative sampling, is on the horizontal section within the roof cavity of the flue serving Nos.1 and 2 cremators. There is though, insufficient clearance for reasonable access.

The flue system itself comprises the exhausts from two cremators entering into one of a pair of stainless steel ducts erected inside the main chimney. The insulation of these two ducts is loose particle (vermiculite), which means that sampling ports cannot be placed within these ducts, as immediately the outer lining is pierced, the vermiculite flows out, leading to a destruction of the insulation.

Following these investigations, I have received a report which implies that some particulate matter found outside of the flues, has possibly come from the twin walled ducts. Tests carried out have revealed heat marks on the outside skin which suggests that the inner skin is corroded and the insulation defective at those points.

With this in mind, the replacement of the exhaust flues is given priority under the anticipated programme for upgrading.

Unless you, as enforcing authority, direct otherwise, I request you accept the average tests results carried out at Morriston Crematorium and produced as Document C of the Application.

2.Working Procedures

a) Proposed levels of process maintenance: Twice yearly service visits (6 monthly) June and December, on 4 cremators. Service/repairs carried out by Cremator Manufacturers engineers.

For each cremator;

checks - operation & balance) on charging doors
door seals) top operating doors
hand control gears) lower operating doors
motorised controls)
track gears).
clean/lubricate chain gears,)
shafts and bearings)

checks - ashing chamber door closures
damper operation
damper condition
damper seal

inspect secondary air controls
check and oil bearing surfaces of air controls

Instrumentation checks
Burner inspections
Fail-safe device checks
Fan inspections
chimney eductor system checks

b) Prior to carrying out daily cremations, pre-heating of the flues and chambers is obtained by use of the after-burner. This assists warming the flues prior to waste gases entering them and also aids temperature.

Once pre-heating has been carried out, a coffin can be charged. After the first cremation has taken place in each chamber, it may not be necessary to pre-heat, but the after-burner may still be used in the initial stages of each cremation, to arrest smoke emission.

Coffins may only be charged into a cremator which has a temperature of less than 600^{o}C. The temperature of the chamber for the first charge of the day will be low at the time of charging but the main burner will be used to increase temperature quickly. Combustion will take place at temperatures in excess of 600^{o}C, (the coffin itself being fuel) and once ignited will burn freely with adequate air supply being introduced via the manual controls.

Complete combustion without smoke can occur between the temperatures of 600-950°C. Each cremation is individual and requirements for air/gas can vary considerably according to the type of coffin, condition and size of body. The body normally assists combustion and in some cases very little applied heat is necessary. In such cases, the air requirements is much greater to avoid a runaway situation and smoke emission.

If temperatures rise too quickly, there is a risk of pressurisation of the chamber once the coffin breaks down and the body's natural gases ignite. If combustion takes place too rapidly, and the chamber pressurises, burners may be extinguished and the operation continue on air application alone, until the situation is brought under control.

The cremators are capable to producing temperatures of up to 1000°C (but not practical).

c) Staff Supervision:- There are four personnel employed at the Crematorium. Each works on a rota of chapel duty and cremator operation. No person is allowed to operate equipment unless qualified or under the direct supervision of an experienced and qualified (certificated) operator.

All current operating staff hold the Certificate of Proficiency which is the only recognised qualification and is issued by the Institute of Burial & Cremation Administration in conjunction with the Federation of British Cremation Authorities, (as per Sections 60-63 Secretary of State's Guidance - Crematoria PG5/2(91)
In addition all have been trained in the use of equipment by the cremator manufacturers.

The Certificates of Proficiency are displayed in the crematory area of the crematorium.

Disposal of Residues:

The removal of ash and non-combustible residues from the cremator is carried out by raking down of the calcined remains into the ashing pit. Ash removal is then carried out inside the cremator, ash pans being inserted through double leaf doors. The opening from the ash refining hearth to the ash pan can be sealed by a sliding damper to prevent ashes falling into the lower chamber when the ash pan is not inside.

The remains are pulverised in a form of ball mill, one which has an internal bag filter and extraction, the other connected to a dust extraction cabinet, with bag filter and close hooding. In both cases there is no exhaust vent location. As stated before it is on an internal cyclone system.

I fail to understand the request for "monitoring, eg for cyclone failure".

In the event of malfunction of either machine, the manufacturers are able to change the ball drum on site, or for more major works, have a loan replacement scheme.

After treatment, the remains are stored in covered containers,and kept in storage space, awaiting final disposal.

Jill Rodacan
Cemeteries Manager

04.08.92

IPSWICH BOROUGH COUNCIL **M E M O R A N D U M**

To: C. BENTLEY - ENVIRONMENTAL SERVICES

From: J. RODACAN - CEMETERIES & CREMATORIUM ext.3580

9 July 1992

APPLICATION FOR AUTHORISATION - ENVIRONMENTAL PROTECTION ACT 1990 PART I EXISTING PROCESSES

Further to your memo of 4th June, the following additional information is given in support of our application which was lodged on 30th September 1991.

1) The height of the stack was increased some years ago to its existing height of 19 metres, and would presumably have been set against criteria at that time, LG1/232/36 which advised a minimum height of 12 metres, with not less than 3 metres above the highest part of the associated building.

2) In general the "main procedure requirements" of BS.3405 can be met during testing at crematoria. In the case of a shared stack it may not be possible to comply with the limits on change of average velocity during sampling over lengthy periods when more than one cremator is working.

3) Details of operating techniques and working practices as per the Code of Cremation Practice were supplied at time of application. I understand you do not consider this information sufficient and would therefore add the following statement.

   In order to complete the reduction by oxidisation of the human body and coffin, and to obtain complete combustion without smoke the following basic principles apply:-

   i) operation at an adequate temperature (generally 600^{o} -950^{o}C)

   ii) The introduction and mixing of air in sufficient quantities utilising the right air at the right time. This will depend entirely upon the individual charge and can not be pre-determined.

   In accordance with the Code Of Practice, no interference is made of the coffin, nor its contents. Following cremation, the ashes from each cremation are kept separate. Residue metals are extracted before the ashes are placed in containers pending final disposal.

   N.B. Coffins containing lead or zinc are not accepted at this Crematorium for cremation.

Each operator employed has undertaken training and holds a Certificate of Proficiency.

4) It is considered that due to the small scale of our operations, the consequences of any emissions into the air are virtually negligible.

5) As (3) with the addition that internal cyclone dust extraction units are situated in the crematory for use during reduction of remains.

Jill Rodacan

ENVIRONMENTAL PROTECTION ACT 1990, PART 1
THE ENVIRONMENTAL PROTECTION (PRESCRIBED PROCESSSES AND SUBSTANCES) REGULATIONS 1991, SI 472
THE ENVIRONMENTAL PROTECTION (APPLICATIONS, APPEALS AND REGISTERS) REGULATIONS 1991, SI 507

APPLICATION FOR AUTHORISATION UNDER SECTION 6 OF THE ENVIRONMENTAL PROTECTION ACT 1990

1. Process for which authorisation is sought the cremation of human remains
See Appendix 1 for Prescribed Process

2. (a) Name, address and telephone number of applicant* (or address of applicant's principal place of business - for mobile plant)

Ipswich Borough Council
Civic Drive
Ipswich

(b) Name, number and registered office of applicant company* (if applicable)

*the person/consultant who will operate the process, not eg the person/ consultant who is writing the application on the operator's behalf.

(c) Address for correspondence (if different from (a) or (b) above)

3. Name and address of premises where process is or will be carried on (not applicable to mobile processes)

IPSWICH CREMATORIUM
CEMETERY LANE
IPSWICH

4. Name of local authority in whose area the process will be operated (or local authority area in which the operator has his principal place of business - for mobile plant)

Ipswich Borough Council

5. List of maps or plans enclosed with the application showing the location of the premises where the process will be carried on.

Plan of Cemeteries & Crematorium
Boundary marked in blue Crematorium
shown in red

Where the process is or will be carried on on only part of the premises whose address is given at 3 above, *either* describe which part of the premises or list the plan(s) which identifies these parts.

6. List of attached documents comprising part of the application**

Document (A) Instructions on coffin construction to Funeral Directors
" (B) Cross Section of cremator - J. Sheltons (Diamond)
" (C) Average test results of Shelton cremator (Diamond)
" (D) Characteristics of Shelton cremator (Diamond)
" (E) Code of Cremation Practice

(use continuation sheet if necessary)

7. Name of newspaper in which it is proposed to advertise the application.

.....

8. Fee enclosed (cheques to be made payable to .....

.....Council) £.....

I hereby certify that all the information contained in this application is, to the best of my knowledge, correct.

.....(Signature)

J. RODACAN ..... Manager. (Name in BLOCK CAPITALS and capacity in which signing)

26.9.91 .....(Date)

***Regulation 2 of the Environmental Protection (Applications, Appeals and Registers) Regulations 1991 requires that all applications must include the following information (for guidance on these requirements see General Guidance Note No 3 - "Secretary of State's Guidance: Application and Registers", HMSO, 1991: ISBN O 11 752425 5, £4):*

- *a description of the prescribed process*
- *a list of prescribed substances (any other substances) which will be used in connection with, or will result from the carrying on of the prescribed process*
- *a description of the techniques to be used for preventing releases into the air of prescribed substances, for reducing such substances to a minimum and for rendering harmless any substances that are released*
- *details of any proposed release of such substances into the air and an assessment of the environmental consequences*
- *proposals for monitoring any release of such substances, the environmental consequences or any such release and the use of techniques for preventing etc releases*
- *the matters on which the applicant relies to establish that the objectives mentioned in Section 7(2) of the Act will be achieved and that he will be able to comply with the condition implied by Section 7(4) of the Act.*

The applicant may also supply any other information he wishes the local authority to take into account in considering his application.

Appendix 1

PRESCRIBED PROCESS FOR CREMATION

Operation

The application is made for authorisation of an existing crematorium carrying out cremation of human remains since 1929.

The process of cremation is carried out using four cremators, details of which are contained in Appendix D with plan at Appendix B

Chimney

The products of combustion are passed out into atmosphere via two twin wall insulated exhaust flues and chimney, each serving two cremators.

The chimney is located at position ● on the enclosed site plan (Document A).

Fuel

The cremation process comprises the combustion of human cadaver and coffin within the specially designed cremators using natural gas as the support fuel.

Currently the materials employed in coffin construction are regulated by the "Instructions for Funeral Directors" issued by the Federation of British Cremation Authorities, relevant extracts of which are reproduced in the Particulars of Cremation document to be completed by the Funeral Director for each cremation. (Document A)

Operator Qualification

Cremation is conducted from receipt of coffin to disposal of ashes, in accordance with the "Code of Cremation Practice" issued by the Federation of British Cremation Authorities, copy enclosed (Document E). Operators are trained in the proper use of the cremation equipment by the manufacturers of the cremator at installation and additionally within the training programme provided by the Institute of Burial and Cremation Administration in conjunction with the Federation of British Cremation Authorities.

After completion of the training programme, operatives are examined and where performance is of the required standard, a Certificate of Proficiency issued - these are displayed adjacent to the cremators.

Emissions

The cremation leads to emissions of the following prescribed substances (as contained with SI 1991 No 472:Schedule 4)

Oxides of carbon, i.e. carbon dioxide, carbon monoxide

Organic compounds and partial oxidation products
~~Particulate matter~~

In addition the possibility exists for the following, dependent upon the characteristics of the coffin and cadaver.

Metals, metalloids and their compounds, e.g calcium, phosphorus
Halogens and their compounds, in particular chlorine

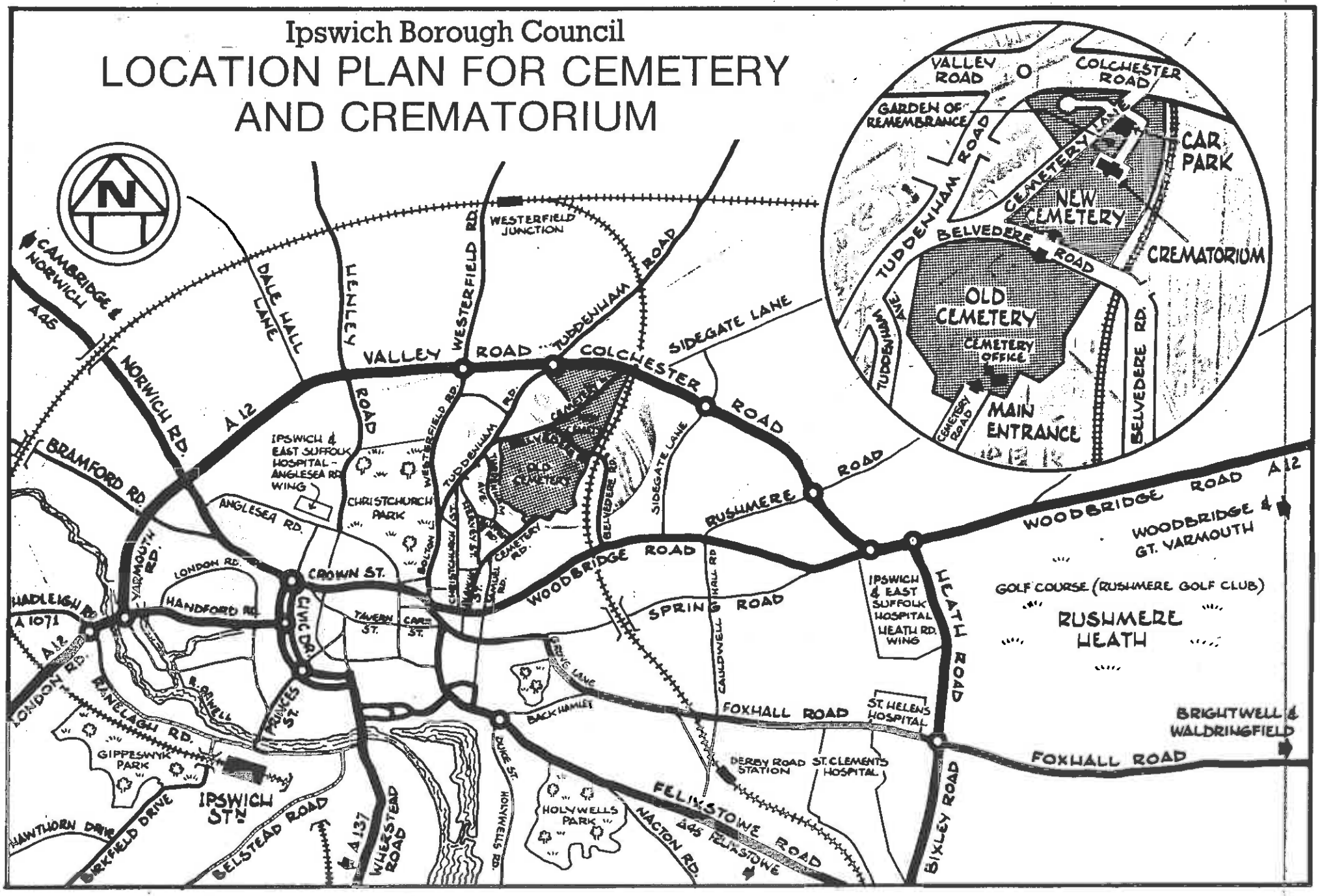
Emission Testing

The release of all of these is minimised by proper use of the specially designed cremators. It has not been possible to carry out actual emission tests owing to the present exhaust system/building design which does not permit sampling in accordance with BS.3405:1983, however emissions from similar equipment at sites where testing is possible have been carried out and an average test report is enclosed (Document C) which may be regarded as typical.

Currently the emissions are continuously monitored at the cremator outlet for visible smoke emissions, and percentage opacity, by the smoke density equipment (see cremator details, Documents B & D) and continuously recorded. In addition the staff are instructed to make regular checks on stack emissions outside the operating area. The temperature within the cremator main chamber is also continuously monitored (see cremator details, Documents B & D)

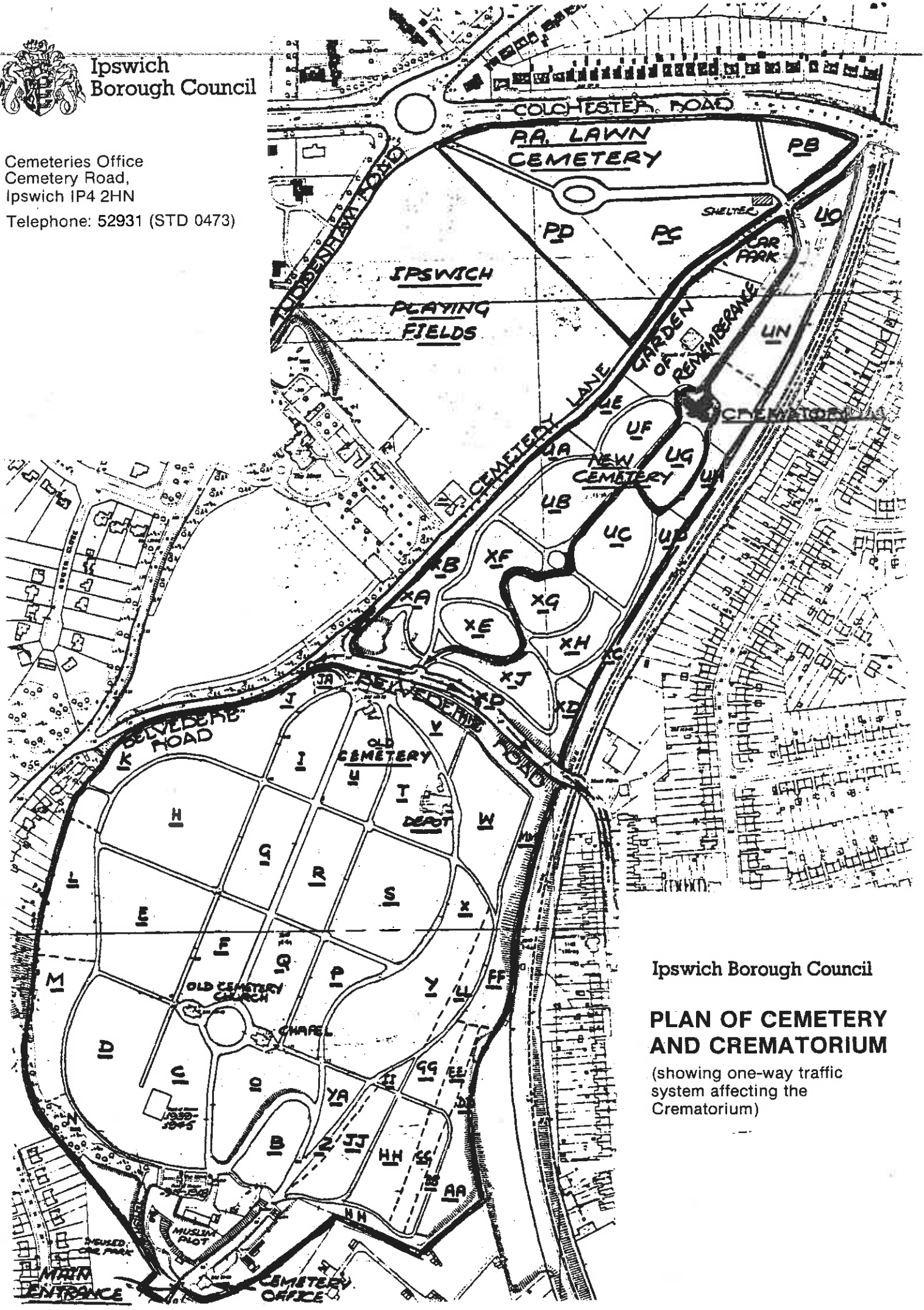
Ipswich Borough Council

LOCATION PLAN FOR CEMETERY AND CREMATORIUM



Ipswich
Borough Council

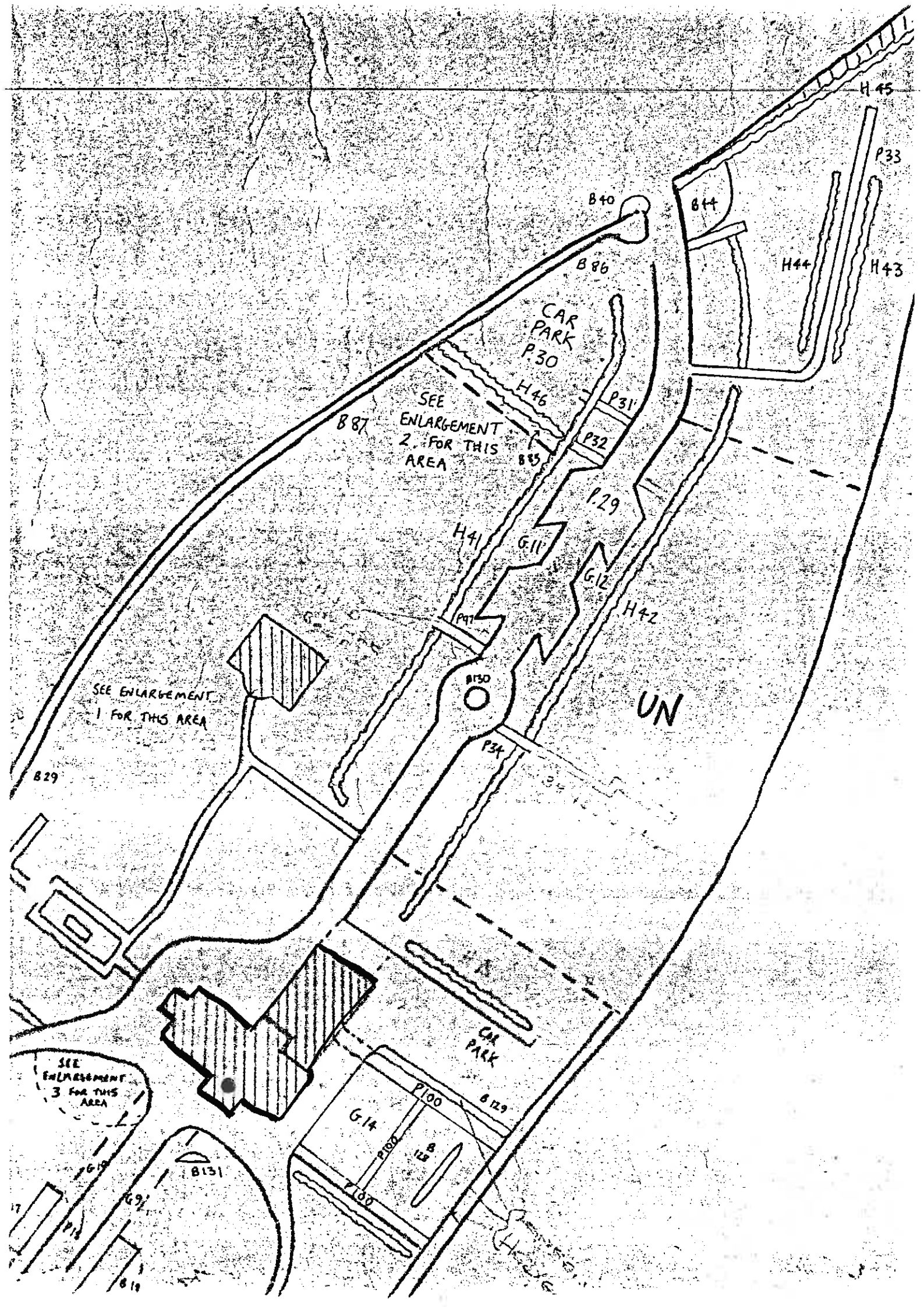
Cemeteries Office
Cemetery Road,
Ipswich IP4 2HN
Telephone: 52931 (STD 0473)



Ipswich Borough Council

PLAN OF CEMETERY AND CREMATORIUM

(showing one-way traffic system affecting the Crematorium)


H45
P33
B40
B44
B86
H44
H43
CAR PARK P30
H46
P31
B87
SEE ENLARGEMENT 2 FOR THIS AREA
B85
P32
P29
H41
G11
G12
H42
P97
B130
UN
SEE ENLARGEMENT 1 FOR THIS AREA
B29
P34
CAR PARK
SEE ENLARGEMENT 3 FOR THIS AREA
P100
B129
G14
P100
B128
B131
G13
G9
P100
B19

(A)

EXTRACT FROM

THE FEDERATION OF BRITISH CREMATION AUTHORITIES

Instructions for Funeral Directors

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STATEMENT TO BE COMPLETED BY FINERAL DIRECTOR

UNDERTAKING ARRANGEMENTS FOR CREMATION

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Signed ..... On behalf of .....

..... Date .....

CM1005/2/91

Ipswich Cemeteries and Crematorium
Cemeteries Office, Cemetery Road, Ipswich IP4 2HN
Telephone: Ipswich 252931

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1. DECEASED

Name ..... Age .....

Address .....

.....

2. SERVICE

WEST CHAPEL
NORTH CHAPEL

Day ..... Date ..... Time .....

Full Service ☐ Committal ☐ No Service ☐

NOTE: Organ music is provided at Full or Committal Service unless specially excluded. Organ not required ☐

Name of Minister ..... Denomination .....

Any Hymns or special music required .....

.....

.....

3. DISPOSAL OF CREMATED REMAINS

Please read this section carefully and indicate your clients wishes by a tick in the appropriate box

Scatter in the Garden of Rest (no charge) ☐
To be left in Temporary Deposit ☐
To be taken away ☐
Urn required ☐
Niche in Temple of Remembrance ☐

Rights of Burial Urn Garden Grave (New) ☐
Rights of Burial Urn Garden Grave (Re-used) ☐
Front Row ☐ or Back Row ☐
Tick if relatives wish to select (Re-used only) ☐
Burial in Urn Garden Grave/Family Grave ☐
Grave Number .....
Tick if relatives wish to attend Burial of Remains ☐

OFFICIAL USE	£	p
Cremation Fee		
Burial Rights Crem Plot		
Burial in Grave		
Urn		
Postage & Packing		
TOTAL		

4. FUNERAL DIRECTORS

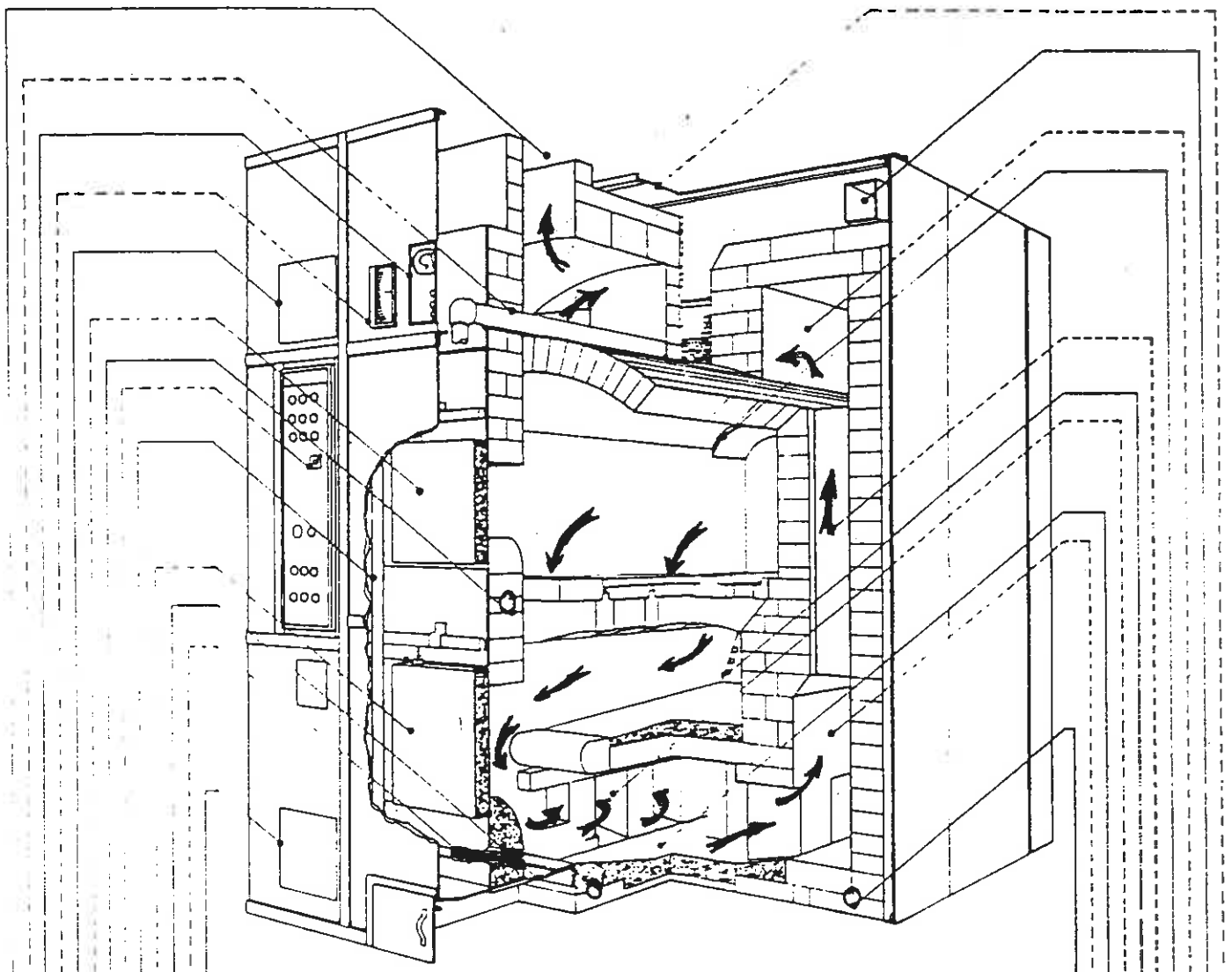
Name .....
Address .....
Telephone .....
Date .....

5. ENCLOSURES

Form A (Application for Cremation) ..... ☐
Form B & C (Medical Certificates) ..... ☐
or Form E (Coroners Certificate) ..... ☐
Certificate for Disposal ..... ☐

OFFICE HOURS Monday-Friday 8.30-1.00/2.00-4.30

NO CREMATIONS ON SATURDAYS, SUNDAYS OR BANK HOLIDAYS


CLEAN OUT COVER FOR LOWER HORIZONTAL FLUE
AFTER BURNER
SLIDING ASH DAMPER
LOWER OPERATING DOOR
AFTER BURNER SUPPLY PIPE
CABINET ISOLATING SWITCH
REVERSE FLOW AIR
UPPER OPERATING DOOR
CLEAN OUT COVER FOR UPPER HORIZONTAL FLUE
TEMPERATURE INDICATOR
SMOKE DENSITY INDICATOR
SECONDARY (RECUPERATOR) AIR
EXHAUST GAS OUTLET
SMOKE CHAMBER AIR
LOWER HORIZONTAL FLUE
ASH REFINING HEARTH
EXHAUST PORTS TO LOWER HORIZONTAL FLUES
UNDERHEARTH AIR
VERTICAL SIDE FLUE
DOOR RELIEF EXHAUST PORT
UPPER HORIZONTAL FLUE
MAIN BURNER AIR SUPPLY DUCT
WALKWAY

SUMMARY OF TEST RESULTS

MORRISTON CREMATORIUM

AVERAGE TEST RESULTS

Date of Tests	10 January, 1990
Average Temperature	310°C
Velocity of waste gases at Duct Conditions	12.6 m/sec
Volume of waste gases at Duct Conditions	123.11 m^3/min.
Weight Collected	0.283 g
Solid Emission Rate	0.281 kg/h
Solid Concentration @ 0°C. 1 bar and 11% O_2 Dry Gases Average Over Cycle	85.4 mg/m^3
Carbon Monoxide Concentration @ 0°C. 1 bar and 11% O_2 Dry Gases. Average Over Cycle	162 mg/m^3
Hydrogen Chloride Concentration @ 0°C. 1 bar and 11% O_2 Dry Gases. Average Over Cycle	Nil

DIAMOND MARK IIIA CREMATOR CHARACTERISTICS

a) Two main burners of 115kw each

b) After burner (160kw)

c) Automatic flame failure control (BS.5885;1990)

d) Recuperator air
Cross hearth air
Underhearth air
Reverse flow air

e) Hand operated air valves

f) Main chamber temperature indication
Main chamber pressure indication
Smoke density indication (opacity meter)
Smoke density visual alarm
Smoke density emissions recording

The manner in which a dead body is cremated is not regulated by statute law. The Code of Cremation practice issued by the Federation of British Cremation Authorities is, however, relevant in ascertaining the standard of care to be expected from cremation authorities at common law.

1. CONDUCT

The cremation of a human body is a highly emotional occasion for those taking part in the service. This must never be forgotten by the officials of the crematorium who must combine to create and maintain an atmosphere of reverence and respect throughout the entire procedure.

2. STAFF

The greatest care must be taken in the appointment of the members of the crematorium staff, any one of whom may by conduct or demeanour detract from the atmosphere of reverence which it is endeavoured to create. When an appointment is made, preference should be given to certificated applicants. In addition, it should be realised that the wrong type of person is capable of comment outside the crematorium which can bring the crematorium and cremation into disrepute.

3. AFTER COMMITTAL

(a) A body shall not be removed from the crematorium after the service of committal except for a lawful purpose.

(b) On the day when the committal service takes place provided the necessary authority to cremate has been received, the coffin and its contents shall be put into the cremator exactly as they have been received on the catafalque for the cremation.

(c) Once a coffin with its contents has been placed in the cremator it shall not be touched or interfered with until the process of cremation has been completed. On completion, the whole of the cremated remains shall be collected and, following their reduction, shall be disposed of according to instructions received.

4. CORRECT IDENTITY

(a) No coffin shall be accepted at any crematorium unless there are adequate particulars of the identity of the deceased person therein.

(b) Every care must be taken to ensure correct identification throughout the whole proceedings from the moment the coffin is received onto the catafalque until the final disposal of the cremated remains.

5. SEPARATELY CREMATED

Each coffin given to the care of the cremation authority shall be cremated separately.

6. METAL RESIDUE

Any metal found amongst the cremated remains shall not be salvaged for any purpose but should be disposed of in aggregate in accordance with directions of the cremation authority or higher authority.

7. CREMATED REMAINS - CARE TO BE TAKEN

The utmost care should be taken to ensure cremated remains resulting from each cremation should be kept separate. Following their removal from the cremator, the cremated remains shall be reduced and placed in a separate container whilst awaiting final disposal. If the cremated remains are to be strewn on the Garden of Remembrance the ceremony shall be conducted with the greatest reverence and respect and in such a manner as not to leave the cremated remains visible. When the cremated remains are to be sent by rail or through the post specially constructed containers shall be provided for this purpose, suitably labelled and dealt with according to recommendations laid down by the Federation of British Cremation Authorities in their special leaflet on this subject. Cremation Authorities shall ensure by regulation that cremated remains leaving their crematorium always do so in a suitable type of container.

8 MECHANICAL APPARATUS

Cremators and all other mechanical apparatus used in the crematorium shall be kept in good repair and regularly overhauled and cleaned to ensure that they are being kept in perfect working order and to prevent friction noises which would distract and disturb the mourners. Special attention should be paid to mechanical devices which are particularly prone to developing imperfection.

9. STATUTORY REGULATIONS

All cremations shall be carried out according to the provisions of the Cremation Acts and the regulations made thereunder or under the appropriate statutory provisions and regulations applicable to the area in which the crematorium is situated and in those places where it is applicable, no cremation shall take place except on the written authority of the Medical Referee.