



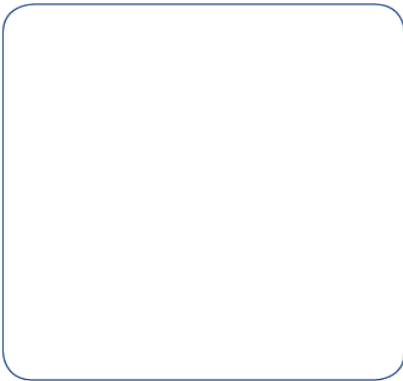
Porthmellon Incinerator Decommissioning and  
Demolition, Isles of Scilly

Tender Document

Site Development

On Behalf of

The Council of the Isles of Scilly



**Date:** February 2015

**Our Ref:** JER6282

**RPS**

2420 The Quadrant  
Aztec West  
Almondsbury  
Bristol  
BS32 4AQ


**Tel:** (0)1291 621 821

**Fax:** (0)1291 627 827

**Email:** [rpssw@rpsgroup.com](mailto:rpssw@rpsgroup.com)




## Quality Management

<b>Prepared by:</b>	John Basford	
<b>Authorised by:</b>	Jason Tose	
<b>Date:</b>	March 2015	
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## Amendment Record

Revision No.	Date	Reason for Change	Authors Initials
V01	9 <sup>th</sup> February 2015	Peer review edits	JB
V02	12 <sup>th</sup> February 2015	JT edits	JB
V03	6 <sup>th</sup> March 2015	Drawings added, decommissioning details added, client comments applied	JB
V04	16 <sup>th</sup> March 2015	Client amendment to Activity Schedule	JT

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## Drawings

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JER6282 002.2 Environmental Permit Boundary

JER6282 SCR 1 – Site Location Plan

Moorwell Incinerator Plan (Henley Burrows)

Plan 1 1977 Incinerator revised arrangements North West and South West

Plan 2 1977 Incinerator revised arrangements NW and SW approved plans

Plan 3 1977 Incinerator revised arrangement ground floor plan

Plan 4 1977 Incinerator Site Plan

## Appendix

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### Appendix 1 – Incinerator Installation Details

# 1 Contract Data

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- 1.1.1 The employer is:
- The Council of the Isles of Scilly
- Town Hall
- St Mary's
- Isles of Scilly
- TR21 0LW
- 1.1.2 RPS Planning and Development Ltd is acting on behalf of The Council of the Isles of Scilly in relation to this contract. The following details apply:
- John Basford – Project Manager
- RPS Planning and Development
- Aztec West
- Almondsbury
- Bristol
- BS32 4AQ
- 1.1.3 The works involve the decommissioning and demolition of a waste incinerator.
- 1.1.4 The site is as identified bounded in red on drawing JER6282 002.2 enclosed
- 1.1.5 The start date to be agreed
- 1.1.6 A programme for completion of **[Tenderer to insert ]** months is anticipated. Tenderers to provide a programme of works for agreement.
- 1.1.7 The period for reply is given in the Invitation to Tender.
- 1.1.8 The defects period runs for 1 months after Completion
- 1.1.9 The defects correction period is 3 weeks (unless otherwise agreed with the employer)
- 1.1.10 The retention is 5%
- 1.1.11 The minimum amount of cover for the third insurance stated in the Insurance Table is 5 million
- 1.1.12 The minimum amount of cover for the fourth insurance stated in the Insurance Table is 10 million
- 1.1.13 The conditions of contract are the **'NEC3 Engineering and Construction Short Contract (June 2005)'** and the following additional conditions.

#### 1.1.14 Payment item 51

In accordance with its obligations under the Public Contract Regulations 2015, the Council of the Isles of Scilly will pay all valid and undisputed invoices within 30 Days of the date on which the invoice has been confirmed as valid. All invoices submitted by the contractor for payment shall be verified by the contracting authority in a timely fashion and undue delays in the verification process will not constitute a justification for failing to regard an invoice as valid and undisputed.

The contractor hereby appointed to deliver this contract shall be required to ensure that it pays all valid and undisputed invoices sent to it within 30 Days of the date on which the invoice has been confirmed as valid. All invoices submitted by a subcontractor for payment shall be verified by the contractor in a timely fashion and undue delays in the verification process will not constitute a justification for failing to regard an invoice as valid and undisputed.

The requirements outlined above shall be complied with where further subcontracting occurs between any subcontractors appointed to this contract and any subcontracts they issue. For the avoidance of doubt this clause applies as if the word “contractor” were replaced with “subcontractor”.

1.1.15 In this Contract, except where the context otherwise requires, the masculine includes the feminine and vice-versa.

1.1.16 The Specification is given in section 5.3 of this document.

## 2 The Contractors Offer

---

### 2.1.1 The Contractor is

Name

Address.....

Telephone .....

E-mail address .....

### 2.1.2 The contractor offers to provide the works in accordance with the conditions of contract for an amount to be determined in accordance with the conditions of contract.

### 2.1.3 The offered total of the Prices for the works is .....

### 2.1.4 Signed on behalf of the contractor

Name .....

Position .....

Signature..... Date .....

### 3 The Employer's Acceptance

---

3.1.1 The employer accepts the Contractors Offer to provide the Works

3.1.2 Signed on behalf of the employer

Name .....

Position .....

Signature.....Date .....

## 4 Price List

Item Number	Description	Unit	Quantity	Rate	Price / £
1	Prepare risk assessments and method statements (Site Demolition Plan) for approval by the EA				
2	Carry out the decommissioning and decontamination of the incinerator and associated equipment				
3	Carry out the controlled demolition/dismantling of all existing structures including the recycling or reuse of recovered materials and the disposal of all waste. Demobilisation and final site clearance				
4 (Provisional)	Break out and excavate all foundations including the concrete base slab and underlying ground to a depth of 1.0 m including the recycling or reuse of recovered materials and the disposal of all materials unsuitable for retention on site.				
The total of the Prices					£

## 5 Works Information

### 5.1 Description of the Works

- 5.1.1 The works covered by this contract are at the Porthmellon Waste Management Site
- 5.1.2 A description of the installation and its current condition is given at Appendix 1
- 5.1.3 The following decommissioning activities have been carried out following the shutdown of the facility:
- Removal of all APC residue, briskcarb and carbon from site;
  - Removal of fuel from the Fuel tank;
  - Draining and clearing of the grate, upper chamber, drag link and ash screw;
  - Shutdown of the Continuous Emissions Monitoring System, Authority to be notified;
  - Removal of all gas cylinders and return to manufacturer where possible;
  - Cornwall Lifeline System removed, Truro notified, and Authority to be notified;
  - All IBA within the incinerator compound double bagged ready for removal;
  - Small Boge Compressor made ready for reuse in Council Workshop;
  - Large Boge Compressor in process of being purchased by AddAir (Cornwall) – to be removed at the same time as the IBA bags;
  - Hydraulic oil removed from the Grate Power Pack Reservoir; Two old ID fan invertors and original monitoring equipment removed to WEEE Facility;
  - The refuse pit has been completely cleared including oil residue;
  - Hydraulic clam shell has been removed and positioned outside;
  - Overhead crane gantry made safe, all associated electrical control gear isolated and shutdown;
  - Pit fire system shut down and made safe; and
  - Battery backup system removed and battery cells to waste facility.
- 5.1.4 The scope of works generally comprise the following:-
- Decommissioning and demolition of the existing Henley Burrows waste incinerator including:
- Carry out decommissioning and decontamination of the structures in accordance with a set of procedures agreed by the Environment Agency
  - Demolition of existing structures
  - Transport and disposal of all inert, hazardous and non-hazardous wastes
  - Segregate, decontaminate and process all suitable materials into secondary aggregates for reuse on the islands



- Provide a final Engineers Verification Report for the works including copies of all relevant paperwork to verify the decommissioning, demolition and recovery / disposal of the materials as requested.

## 5.2 Drawings

JER6282 002.2 Environmental Permit Boundary

JER6282 SCR 1 Site Location Plan

Moorwell Incinerator Plan (Henley Burrows)

Plan 1 1977 Incinerator revised arrangements North West and South West

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Plan 3 1977 Incinerator revised arrangement ground floor plan

Plan 4 1977 Incinerator Site Plan

## 5.3 Specification

- 5.3.1 Prior to any demolition works being carried out on site, the Contractor shall submit and have approved by the Clients Representative and the Environment Agency, a Site Demolition Plan. The plan shall include but not be limited to method statements covering all aspects of the decommissioning and demolition works, health and safety procedures for the duration of the works and associated plans and drawings. It shall include output from a detailed site survey and examination of the buildings and structures to be demolished. It shall include, for example, the methods to be used for the removal of any wastes from the site and the deep cleaning of the hard-standing areas, making the relevant disconnections to site services and the removal of any tanks or equipment from site including the management of all wastes.
- 5.3.2 The Contractor shall carry out all decommissioning and demolition works in accordance with the procedures and method statements contained within the Site Demolition Plan and the Site Closure Plan.
- 5.3.3 Demolition work is subject to the controlling influences of a large number of national and local legal requirements. Amongst others, attention is drawn to the regulations listed in **BS 6187:2011 Code of practice for full and partial demolition** and any revisions or additions which may occur from time to time. The demolition works are to be carried out under the full auspices of the CDM Regulations (2015). The Site Demolition Plan shall be submitted to the Planning co-ordinator for approval under those regulations. Demolition of scheduled buildings to ground level shall be undertaken using methodologies proposed by the contractor and agreed by the Clients Representative. The demolition sequence shall be agreed prior to commencement and should follow all relevant statutory health and safety requirements
- 5.3.4 By law, a Pre-demolition Asbestos Survey must be carried out before any works commence involving demolition or refurbishment work as defined by **MDHS 264** (published by the Health

and Safety Executive). A Pre-Demolition Asbestos Survey is an intrusive investigation to identify all asbestos and intrudes into the fabric and structure of the building to eliminate any areas of doubt with regards to concealed asbestos. It removes uncertainty thus protecting workers against hidden and unforeseen asbestos. Asbestos shall be removed in accordance with the **Health and Safety at Work Act 1974** and the **Control of Asbestos at Work (Amendment) Regulations 2012**.

- 5.3.5 Prior to demolition, all asbestos identified in the Pre-Demolition Asbestos Survey is to be removed by a competent and accredited Contractor specialising in the safe removal of such material. All asbestos removed is to be taken from site by registered waste handlers and disposed of at a suitably licensed waste facility.
- 5.3.6 The Contractor shall maximise the recycling of all materials resulting from the demolition of the installation.
- 5.3.7 Following asbestos removal, all buildings scheduled for demolition shall be stripped of all internal and external fixtures and fittings such as pipework, electrical fixtures, windows and frames, wooden railings / banisters etc. All material that can be recycled shall be sent to an appropriate recycling facility.
- 5.3.8 An appropriate area is required on site for the stockpiling of all demolition won material. The area will also accommodate a suitable crusher to produce appropriate aggregate. The stockpile area shall either be remediated prior to stockpiling or a suitable impermeable barrier shall be laid to prevent contamination of the stockpiled material. The location of the stockpile area shall be agreed with the Engineer prior to commencement of the Works. All brick, stone and concrete shall be crushed to an acceptable size and with appropriate regulatory consent. The grading of the crushed material may vary and will be carried out to maximise its re-use potential. Concrete waste from the demolition shall, where possible, be decontaminated and processed into secondary aggregates to meet the end of waste requirements of the **Quality Protocol for the production of aggregates from inert waste, revised edition (ISBN 1-84405-217-6)**.
- 5.3.9 All material that cannot be crushed or reused on site shall be removed and disposed of appropriately under current legislative requirements. Contaminated Waste shall be transported and disposed of in accordance with the **Hazardous Waste Regulations (England and Wales) 2005 (as amended)**.
- 5.3.10 If subsequently required by the Environment Agency all existing foundations and surrounding contaminated ground are to be removed to a depth defined by the Environment Agency below existing ground level. Where piles are encountered, the position and dimensions of each pile shall be surveyed and recorded. All existing pavement and hardstand surfacing shall be removed to the top of granular sub base / formation material.
- 5.3.11 Any services to be retained should be suitably identified and protection provided to maintain their integrity. All services to remain should be suitably identified, surveyed and protected throughout the demolition works. Services identified as redundant requiring clearance (including

manholes and chambers) shall be removed to a depth of 1.00m below existing ground level. The location of any services remaining below this depth or under concrete slabs that remain in situ should be suitably surveyed and detailed on an appropriate drawing. In some circumstances instruction to remove services greater than 2m depth may be given. Should any service be found or notified to exist which is not shown in the Contract, the Contractor shall at once give written notification and request confirmation of action to be taken.

- 5.3.12 In addition to the technical works the Contractor shall arrange and provide for 1 No. set of digital photographs for progress to be taken at daily intervals throughout the period of the contract. Photographs to be taken from 2 locations to be agreed with the client's representative on commencement of works. Photographs to be taken with a minimum 10 M pixel camera.
- 5.3.13 The contractor will record and retain all documentation associated with the decommissioning and demolition works, particularly duty of care waste transfer paperwork, to be submitted with the Engineers Verification Report.
- 5.3.14 The contractor shall at all times comply with the requirements of the site's Environmental Permit, with particular reference to those conditions regarding emissions.
- 5.3.15 Following demolition and the removal of all waste the site shall be left "level" with all excavations backfilled to the original site levels and clearly demarcated stockpile areas with materials segregated according to engineering characteristics..

## **5.4 Constraints on how the Contractor Provides the Works**

- 5.4.1 No information concerning this Contract may be released by the Contractor to anyone else, except to such persons and to such extent as may be necessary for the performance of the Contract, without the prior consent and approval of the Project Manager.
- 5.4.2 The Contractor shall undertake the role of principal contractor under the Construction (Design and Management) Regulations and shall allocate resources to enable him to comply with the requirements and prohibitions imposed on him by or under the relevant statutory provisions. The information for the Health and Safety File is to be available within 28 days of completion of the Works to enable the Project Manager to compile the document for handing to the Employer at Completion.
- 5.4.3 It is the responsibility of the Contractor not to interfere with the day to day routine of the sites. In particular deliveries of materials should be timed where possible to avoid the busiest period of waste inputs into the sites and should be agreed in advance with the Site Manager.
- 5.4.4 The Contractor shall be required to provide, maintain and subsequently remove a suitable electricity supply to suit his own requirements.
- 5.4.5 A potable water supply is available from the site operations compound to which the Contractor can connect at his own cost. The Contractor shall make arrangements for carrying and storing

water as necessary for the Works. The Contractor shall provide suitable welfare facilities on site for his workforce.

- 5.4.6 The Contractor shall ensure that water does not accumulate on or adjacent to the surfaces of the Works. To ensure this, temporary watercourses, ditches, drains, pumping or other means of maintaining the Works free from water, shall be provided by the Contractor, complying with all statutory requirements and in agreement with the Project Manager.
- 5.4.7 Any provisions required as part of temporary works will be removed / reinstated on completion unless agreed to the contrary with the Project Manager.
- 5.4.8 Site Restrictions/Key Conditions
- 5.4.9 The following highlight some of the key restrictions/issues for the site but do not cover all the Conditions set out in the Planning Permission and the Environmental Permit and should only be used as a guide. It is the responsibility of the Contractor to ascertain the conditions relevant to his works, contained in the Planning Permission and Environmental Permit.
- 5.4.10 The Porthmellon Waste Management Site operates in accordance with Lawful Development Certificate P/13/032 approved by The Council of the Isles of Scilly on 17th July 2013.
- 5.4.11 The Contractor is to facilitate the requirements of CQA as a result of Regulator requirements. This will be via production of expected work programmes (Section 5.5) and notification to the Project Manager of key work activities.

## **5.5 Requirements for the Programme**

- 5.5.1 The programme shall establish the sequence of all activities for the Works incorporating the requirements of all Sub-Contractors, statutory authorities / regulators and others engaged direct by the Employer whose work is dependent upon or has a bearing upon the progress of the Works including durations for ordering and delivery of equipment relating to Sub-Contractors, and statutory authorities.
- 5.5.2 The Contractor shall include sufficient time within the programme for Sub-Contractors, Regulators and statutory authorities to test and validate their works.
- 5.5.3 The Contractor must also indicate, in consultation with the Project Manager, on his programme the latest dates by which he requires final information or Approval from the Project Manager.
- 5.5.4 Site progress meetings will be held when required by the Project Manager and at a minimum of monthly intervals. They shall be attended by representatives of the Contractor.

## **5.6 Services and other things provided by the Employer**

- 5.6.1 No services and other things are to be provided by the Employer other than access to the identified site.

- 5.6.2 Service Plans provided within the pre-construction information pack (PCIP) are an indication only and the contractor must satisfy himself that all pipework, services and electric cables have been identified before works commence.
- 5.6.3 The Site Services and where appropriate, DSEAR drawings, are provided within the PCIP. The contractor will be required to satisfy for himself the location of overhead and underground electric cables present on and adjacent to the Working Areas. The Contractor shall take all necessary precautions to avoid damage to, and safety hazards from, these cables. These precautions shall, at a minimum, be in accordance with the appropriate 'Health and Safety Executive' Guidance Notes.

## 6 Site Information

- 6.1.1 The following provides details of site information and should be read in conjunction with the drawings listed in section 5.2 and Appendix 1. It is the responsibility of the contractor to satisfy himself of the accuracy of the site information.
- 6.1.2 The Contractor shall be deemed to have inspected the site and surroundings and to have satisfied himself as to the means of access, loading constraints, rights of way, public access, nature and conditions of the existing property and generally of any conditions and restrictions which in any way may influence his tender.
- 6.1.3 Arrangements to visit and inspect the site and buildings shall be made with the Site Manager during normal office hours.
- 6.1.4 The Contractor is to confine his operations to the area of the site, or such other areas as the Project Manager may specifically direct.
- 6.1.5 The Contractor shall not use the site for any purpose other than that of carrying out the Works.
- 6.1.6 The Contractor shall be deemed to have made due allowance here or in his prices for local conditions, the nature and accessibility of the site, the nature and extent of the operations and storage space for materials, including all additional handling and transporting, due to site conditions and the nature of the ground. The Porthmellon Waste Management Site is located to the south-east of Hugh Town on the Island of St. Mary's, Isles of Scilly. The Site is accessed from Telegraph Road (A3111) turning on to Moor Well Lane and is the principal waste management site for the Isles of Scilly. The site is an operational waste management site.
- 6.1.7 Landfilling at the site started in 1965 (approximately), with waste tipped directly onto the relatively flat Lower Moors. Wastes accepted at the site include domestic, commercial and industrial waste, including garden, farm and inert waste (demolition materials, rubble and glass). It is understood that historically much of the combustible waste was typically burnt at the site. However, since 1978 the waste has been incinerated and the incinerator ash (IBA) has been deposited at the site. Consequently over time, large stockpiles of IBA have built up across the site. In addition, stockpiles of soil and green waste, loose vegetation, construction and demolition waste and bulky waste have accumulated at the site. These historic deposits are collectively referred to as 'legacy waste'.
- 6.1.8 The site is in close proximity to an Industrial Estate immediately to the north and the residential properties of Hugh Town to the south and west. Further industrial and commercial premises lie to the west of the site.
- 6.1.9 The hospital is located to the south-west of the site. Five Islands School is located approximately 60 m to the north-west of the site and Carn Gwaval Primary School located approximately 100 m to the south-east of site. St Mary's Island airport is located approximately

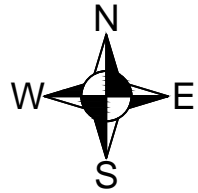
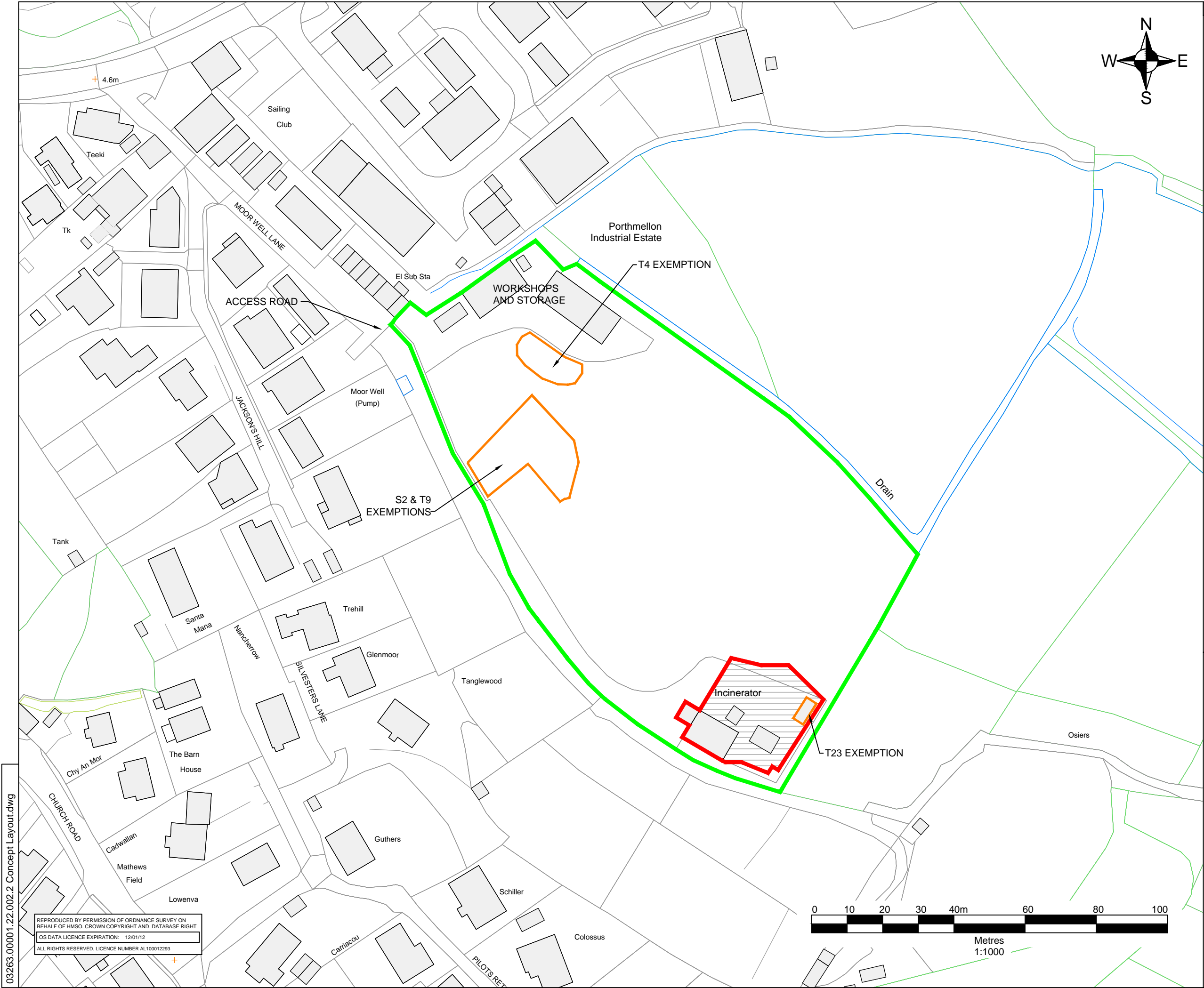
730 m to the south-east of the site. Allotment gardens are located adjacent to the west and south-west of the site.

- 6.1.10 To the north and east of the site the land is low lying and is an ecologically sensitive wetland area that has been designated a Site of Special Scientific Interest (SSSI).
- 6.1.11 The site is located on alluvium deposits consisting of clay, silt, sand and gravel from the Holocene period and underlain by the Isles of Scilly Intrusion, a granite rock from the Permian – Carboniferous period. The alluvial deposit is classed as a secondary aquifer, but in this case is believed to effectively act as an aquitard with relatively low permeability given the silty clay present. Confined below the alluvium are glacial deposits and granite. A local groundwater abstraction (Joaney's Well) is located within the glacial deposits at a distance of approximately 400 m from the Site. The site does not lie within a Source Protection Zone (SPZ).
- 6.1.12 Porthmellon Bay is located approximately 85 m to the north-west of the site, Porthcressa Bay lies approximately 405 m from the site to the south-west and Old Town Bay approximately 390 m from the site to the south-east.
- 6.1.13 Numerous surface water ditches/drains are located to the east and south-east of the site and relate to the low lying marsh lands of the Lower Moors SSSI.
- 6.1.14 The site is not located within a flood zone, however, the flood prediction map made available by the Environment Agency details that the site is partly located in, and surrounded by, land at risk from a 1 in 200 year flood.
- 6.1.15 Throughout the duration of the contract the site shall remain an active waste management site for the purposes of the reception and transfer of waste for which the Employer is required to make provision for. The Contractor shall remain inside of the working areas, unless otherwise directed to do so by the Project Manager, and not cause disruption to the Employer's normal operations, and shall produce in conjunction with the Project Manager a traffic management plan. At all times waste management site traffic shall have priority over the Contractor's construction traffic.
- 6.1.16 **Hours of Work** - The maximum working hours permitted shall be:
- Monday to Saturday - 0800 to 1800 hrs
  - Sundays and Bank or Public Holidays - No works involving the use of machinery
- 6.1.17 The above working hours are for engineering works only. Works outside of the agreed hours may only take place if prior permission is granted by the Project Manager.
- 6.1.18 The Contractor shall ensure that access by unauthorised persons to his site compound and all areas in which he is carrying out work is prevented.

## Drawings

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	PROPOSED PERMIT BOUNDARY
	INCINERATOR ENVIRONMENTAL PERMIT BOUNDARY
	AREAS USED FOR EXEMPT ACTIVITIES
	AREA FOR STORAGE OF IBA GENERATED POST FEBRUARY 2014

**Council of the Isles of Scilly**

TREENWOOD HOUSE  
 ROWDEN LANE  
 BRADFORD-ON-AVON  
 WILTS. BA15 2AU  
 T: 01225 309400  
 F: 01225 309401  
 www.slrconsulting.com

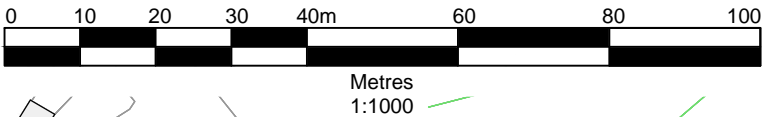
PORTHMELLON WASTE  
 MANAGEMENT SITE  
 ENVIRONMENTAL PERMIT APPLICATION  
 TREATMENT & RECYCLING OPERATIONS  
**PROPOSED ENVIRONMENTAL  
 PERMIT BOUNDARY**

**002 REV 2**

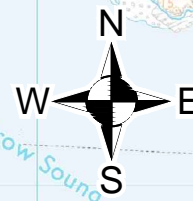
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**Council of the Isles of Scilly**

SLR 

**TEENWOOD HOUSE  
ROWDEN LANE  
BRADFORD-ON-AVON  
WILTS. BA15 2AU  
T: 01225 309400  
F: 01225 309401  
[www.slrconsulting.com](http://www.slrconsulting.com)**

PORTHMELLON WASTE  
MANAGEMENT SITE

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ENVIRONMENTAL PERMIT VARIATION  
APPLICATION BOUNDARY

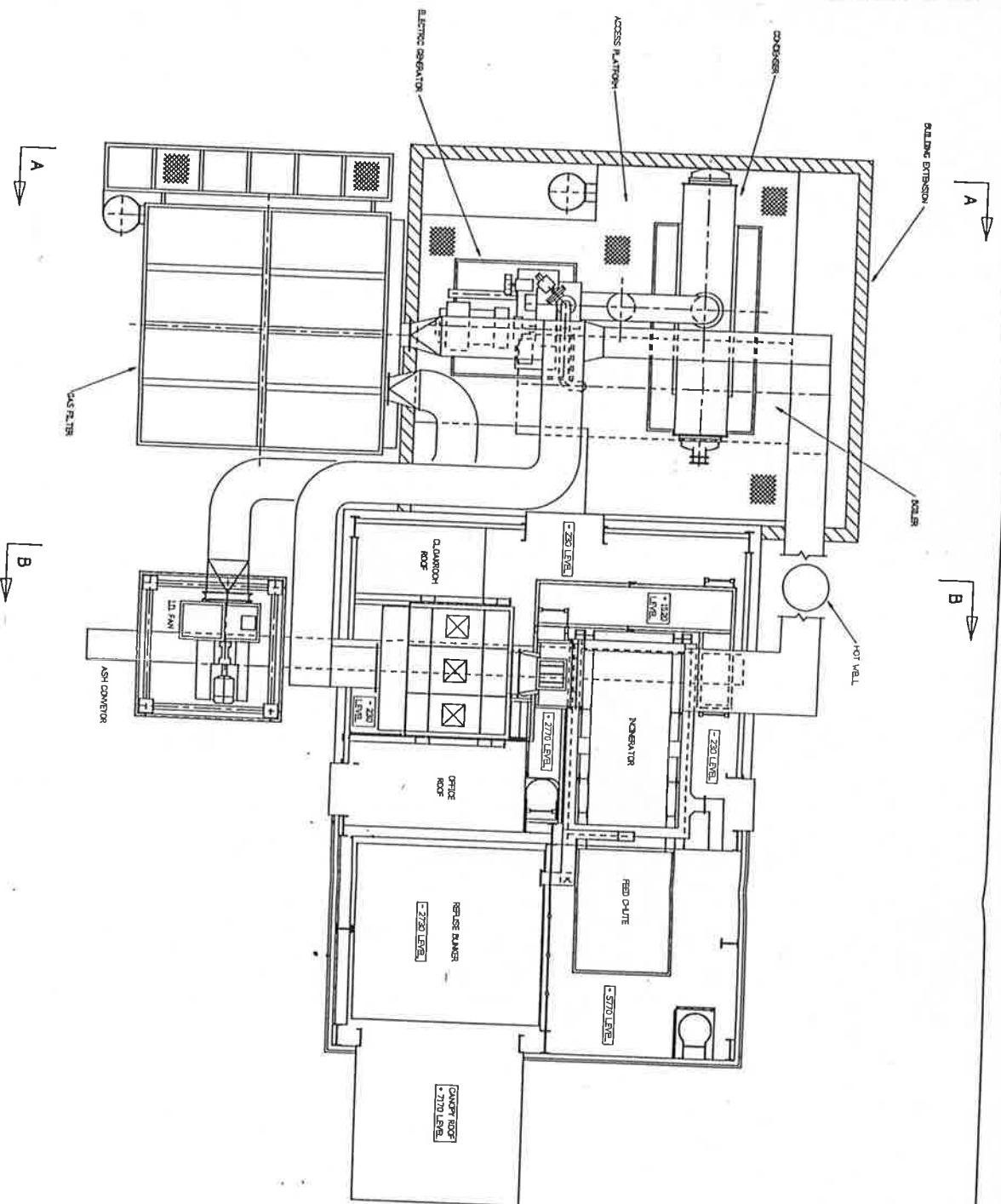
## SITE LOCATION PLAN

**SCR1**

Scale  
1:25000 @ A4

Date JANUARY 2011

3263.00001.22.SCR1.0



NOTE:  
ORIGINAL PLANT IS SCALED COPY OF  
FOSTER WHEELER POWER PRODUCTS LTD.  
DRG. RDM 623/2/61 - PLAN AT +8770 LEVEL

**HENLEY BURROWES**

SUMMIT RD, WORCESTER B10 9JH FAX 01905 26654

**CLIENT**  
ISLES OF SCILLY

**PROJECT**  
PORTHCELL ON INCINERATOR

**TITLE**  
Preliminary Layout Plan On

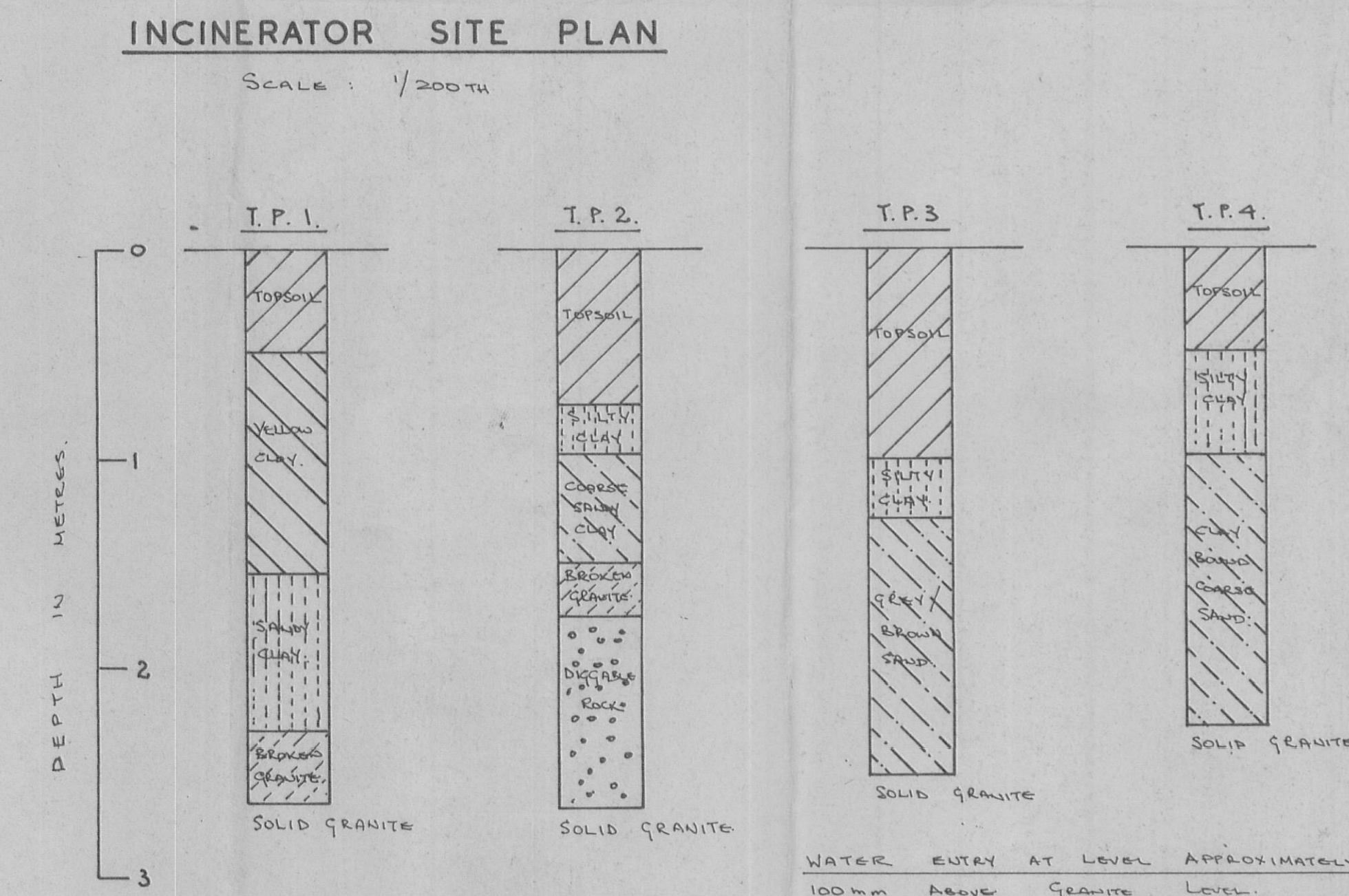
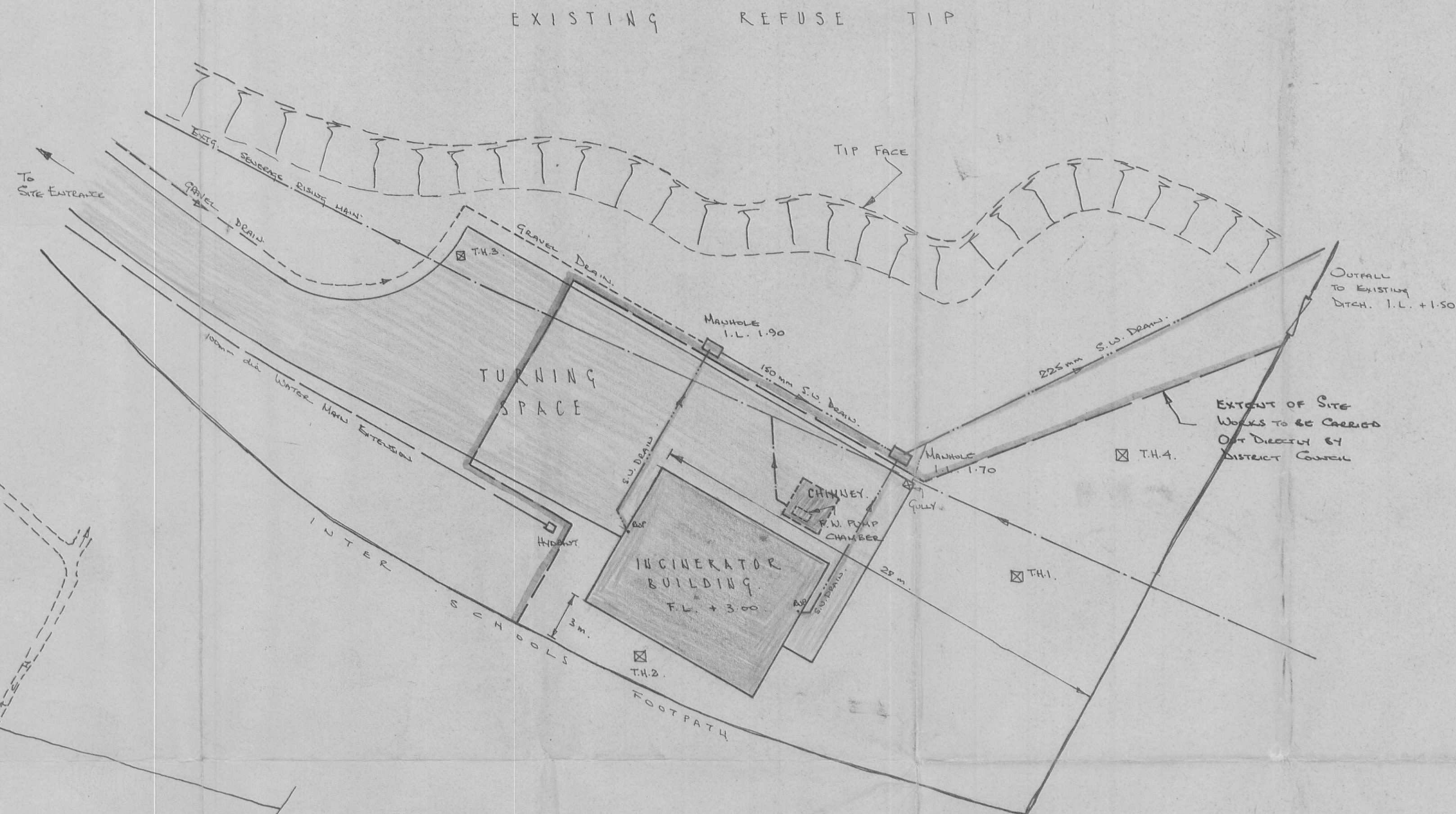
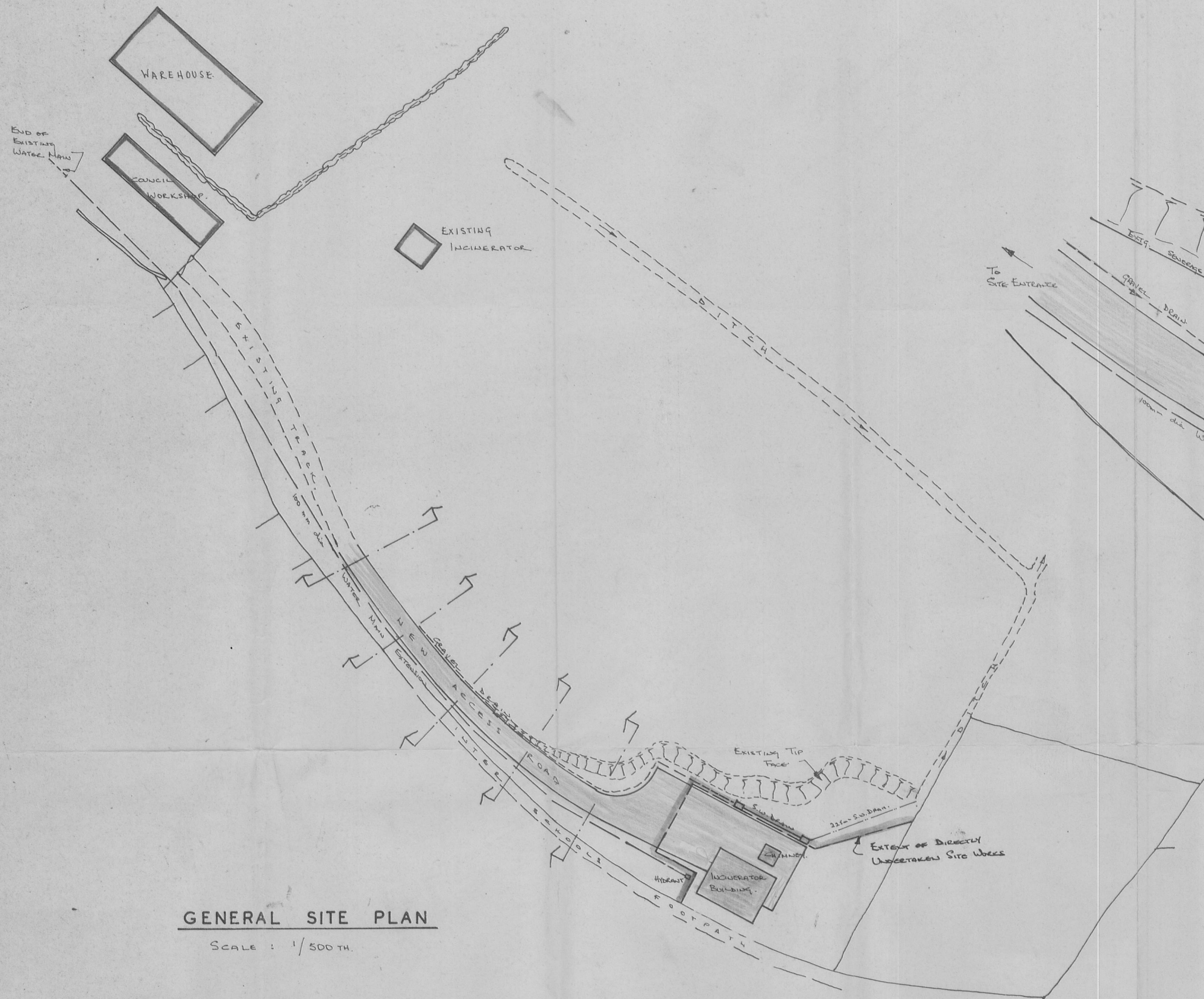
Steam Turbine Electric Generating Plant

**DRG. NO.** PA3 / 4473

UNCONTROLLED DRAWING

NOTES:  
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HENLEY BURROWES.





**COUNCIL OF THE ISLES OF SCILLY**

PLANNING PERMISSION **APPROVED**

Subject to Conditions (if any Specimen in Decision No. **1654**)

THE LATEST DATE FOR:

Application for Approval of Proposed Matters

Development to be Commenced by **8 SEP 1982**

BUILDING REGULATIONS

EXPIRY OF WORKING DRAWINGS

CHAIRMAN

CLERK

DATE OF DECISION **8 SEP 1977**

Rev A. Redrawn July 1977.

IN ASSOCIATION WITH FOSTER WHEELER POWER PRODUCTS LTD.

TITLE **SITE PLANS - EXTENT OF CONTRACT WORKS**

DATE **July 1977**

DRAWN BY **RJS**

PETER J. SCOTT. C.Eng. F.I.C.E., F.I.Mun.E., M.I.Mech.E.,  
CHARTERED ENGINEER.  
3 THE HALL CLOSE, DUNCHURCH, RUGBY. TEL. RUGBY 810839

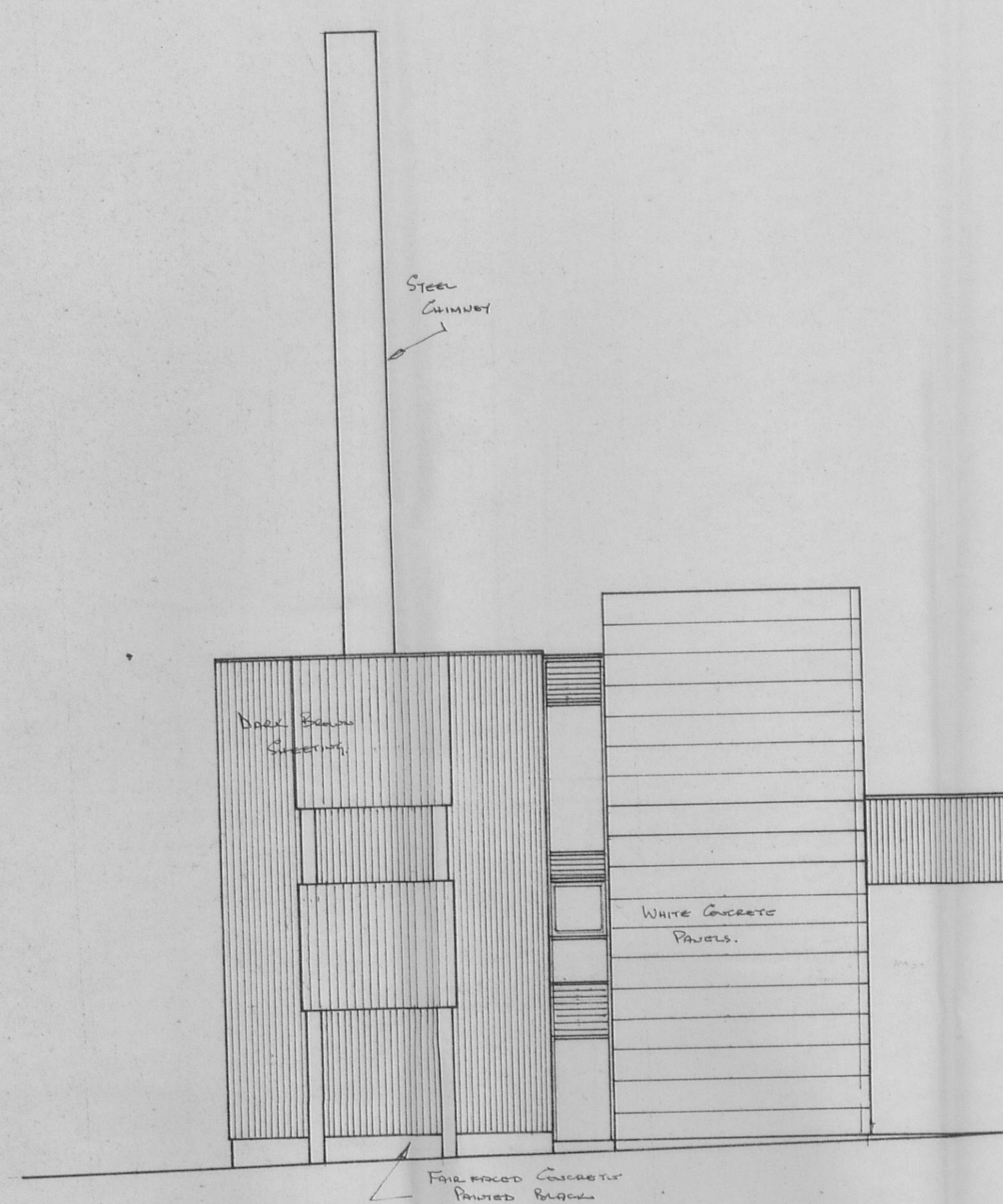
PAUL B. BENEY, R.I.B.A. CONSULTANT ARCHITECT

SCALE **1/500 + 1/200**

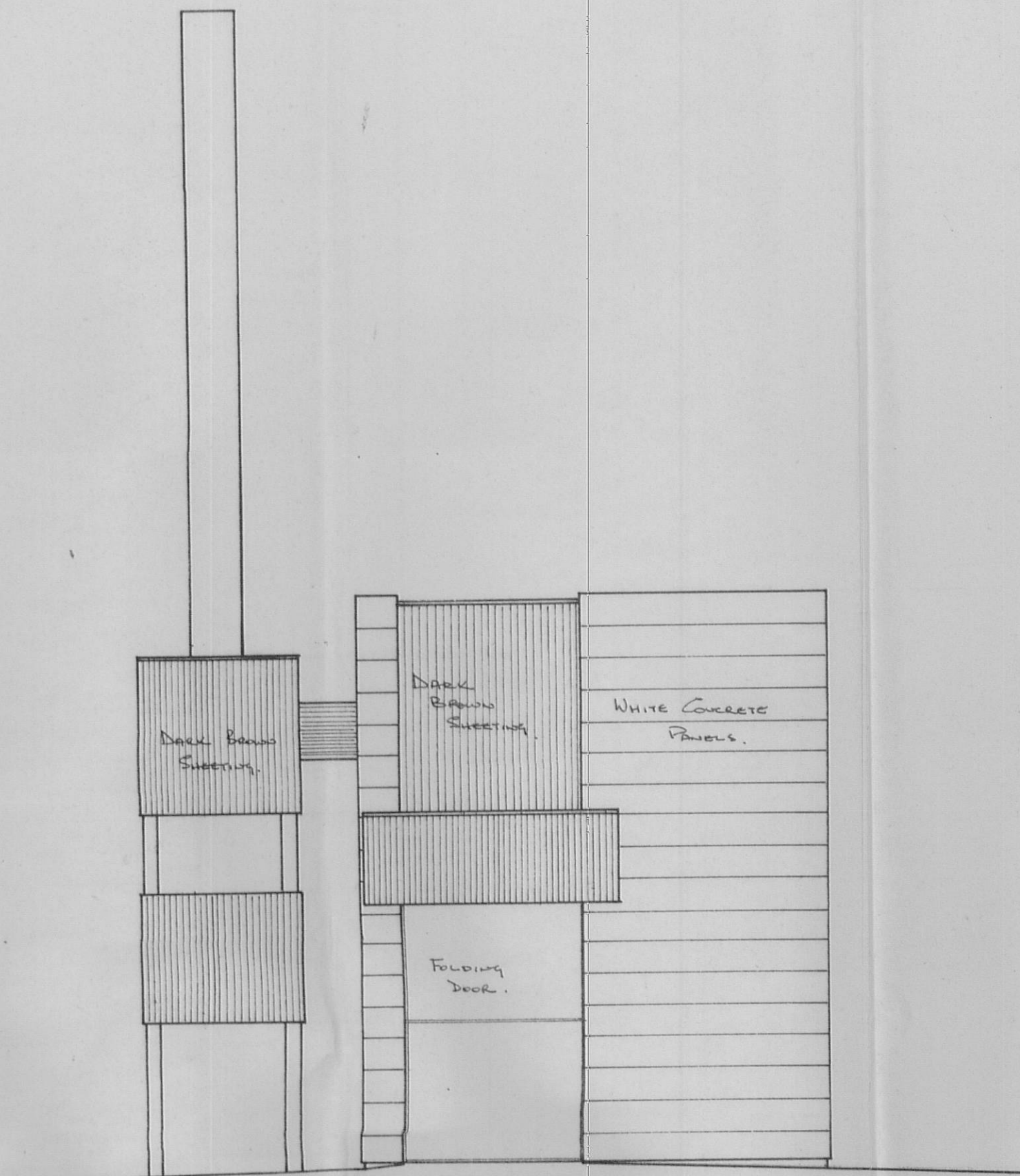
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**INCINERATOR, PORTHMELLON, ISLES OF SCILLY.**

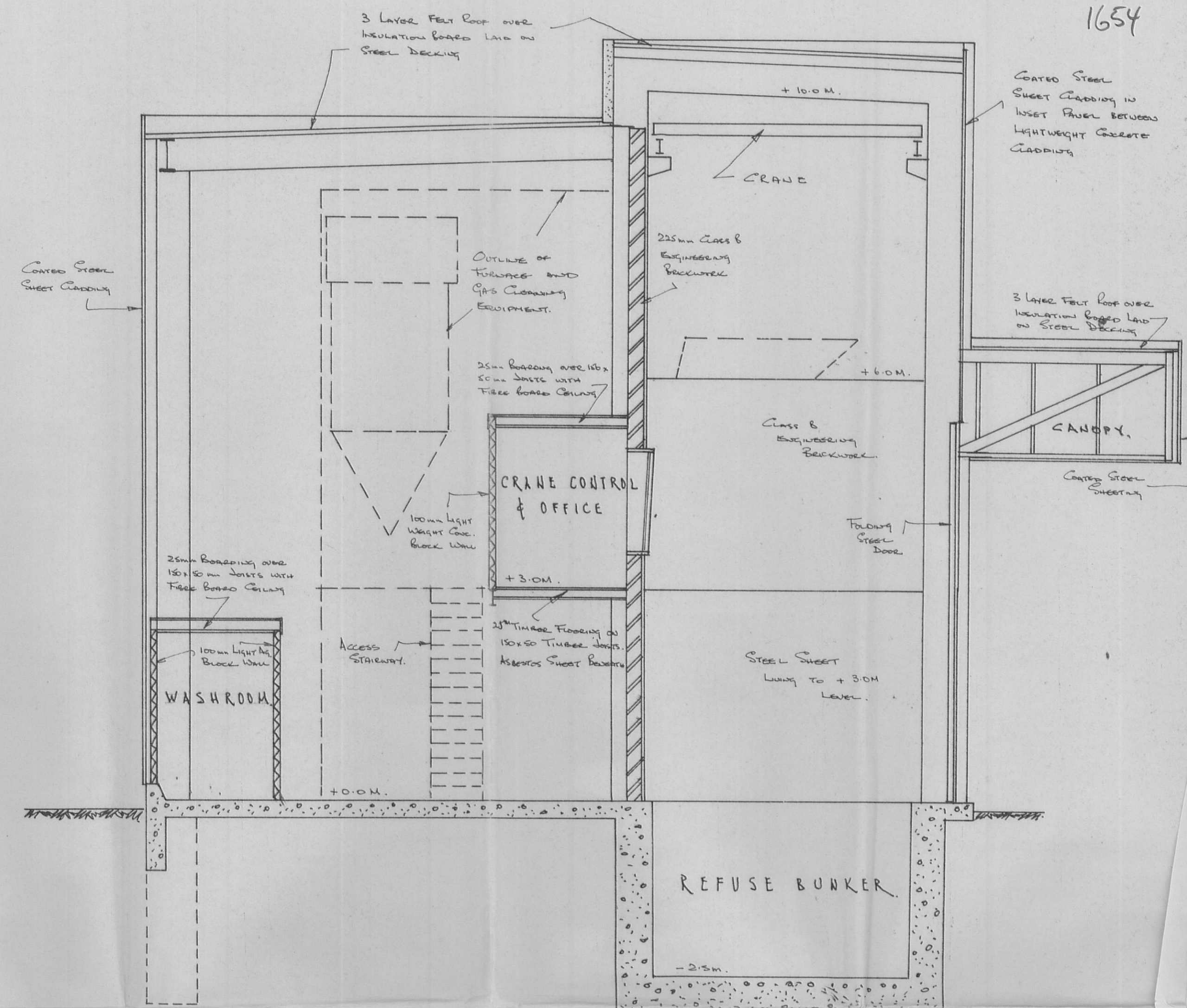




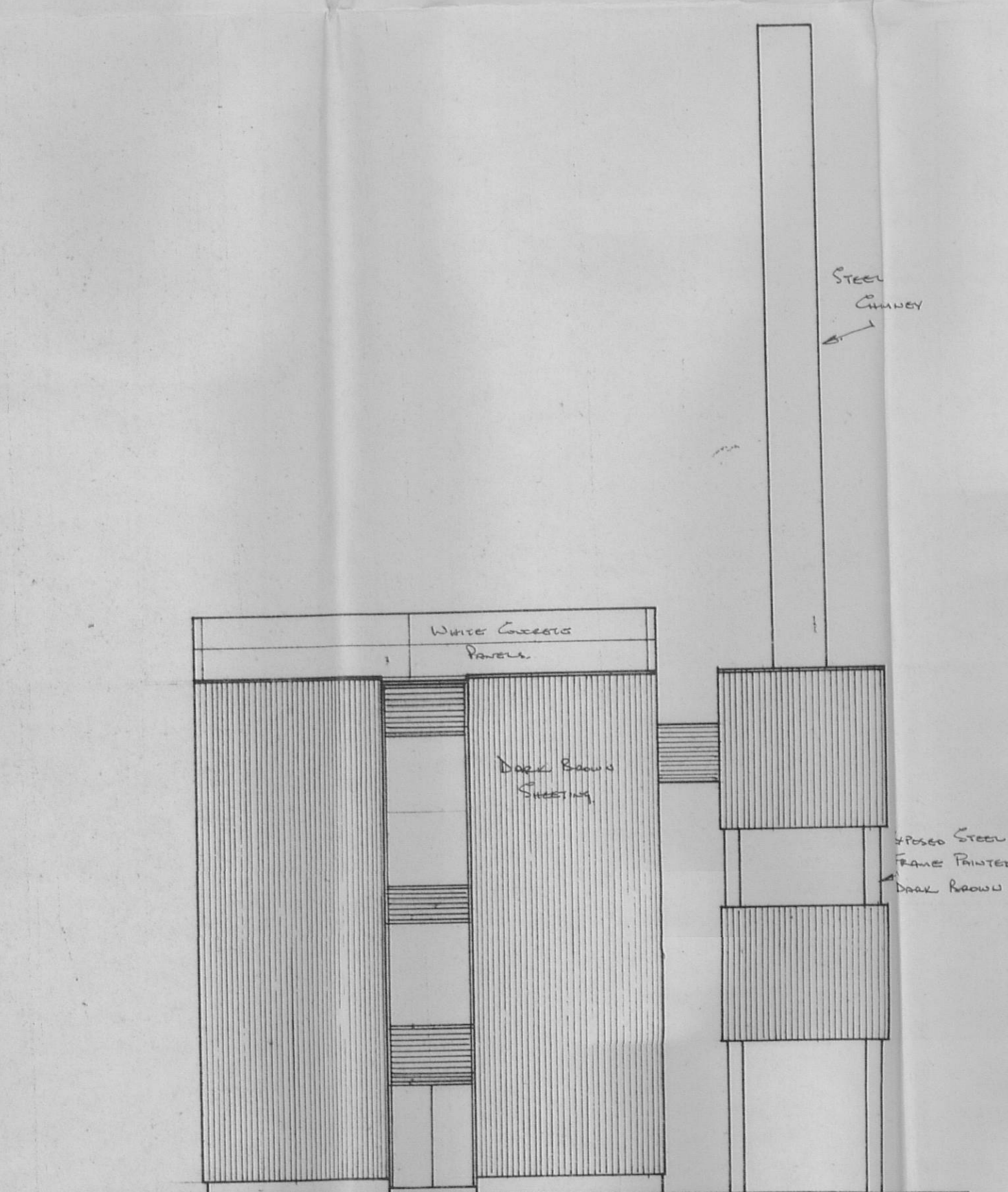
NORTH - EAST ELEVATION



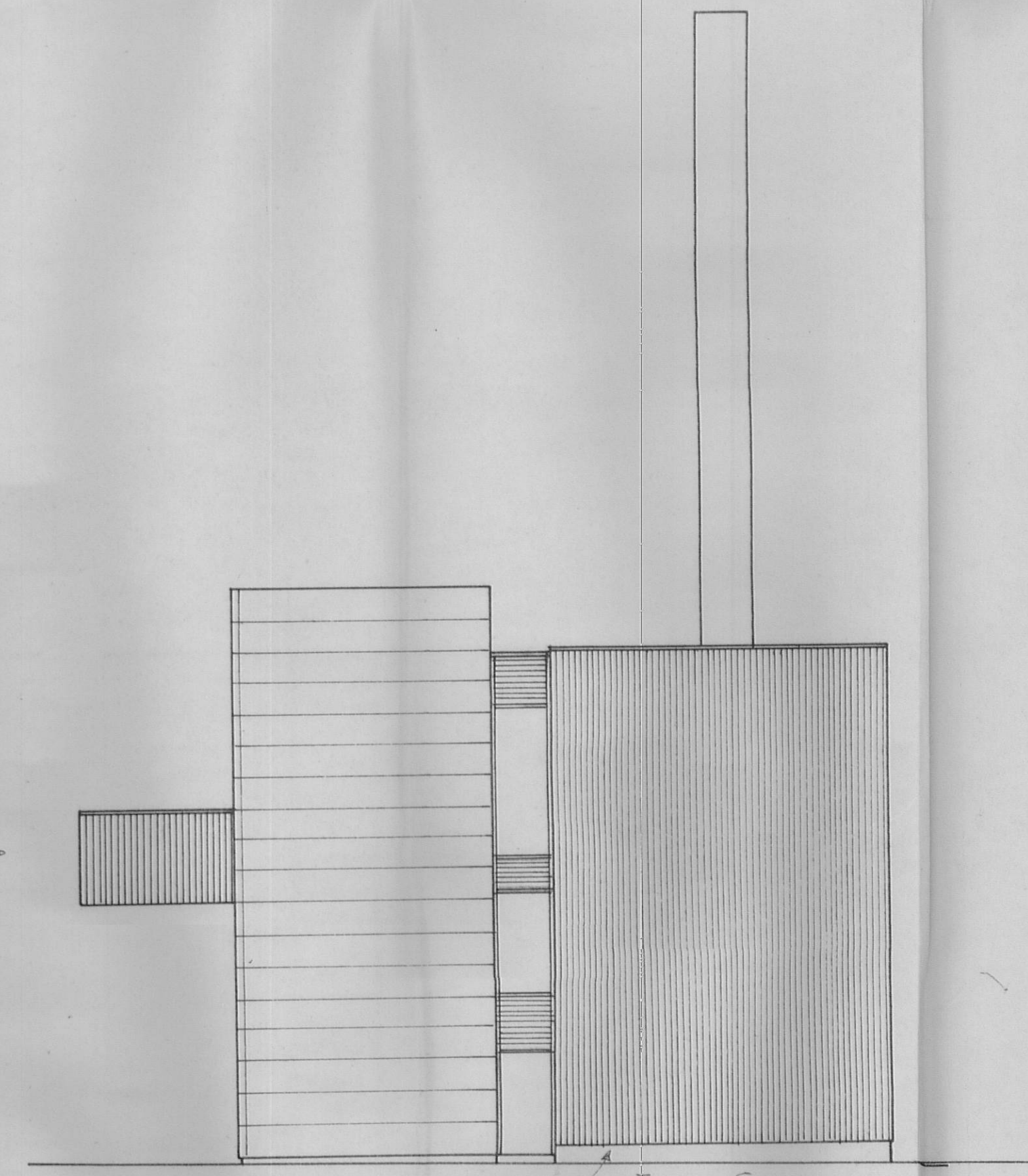
NORTH - WEST ELEVATION



TYPICAL SECTION



SOUTH - EAST ELEVATION



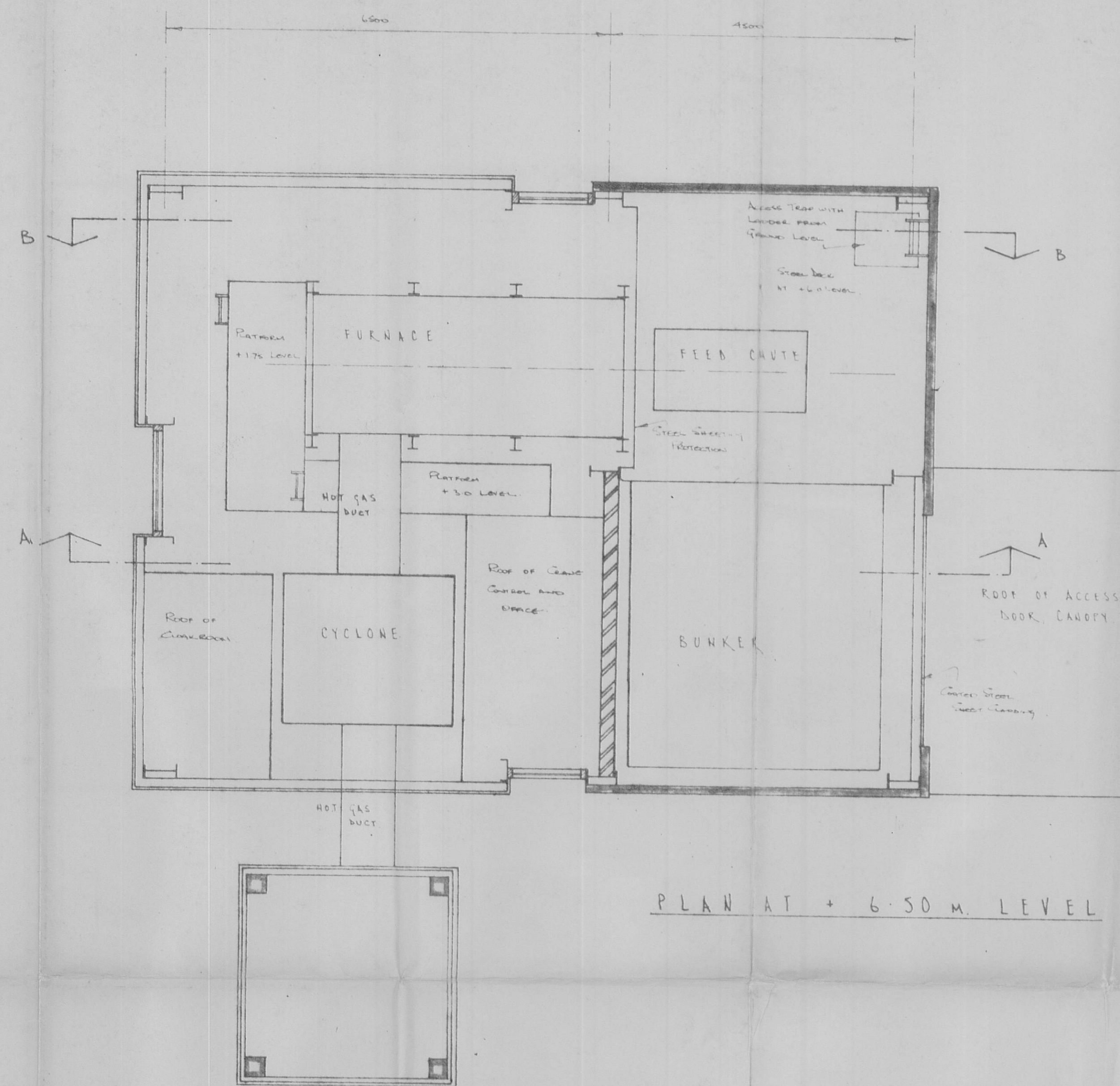
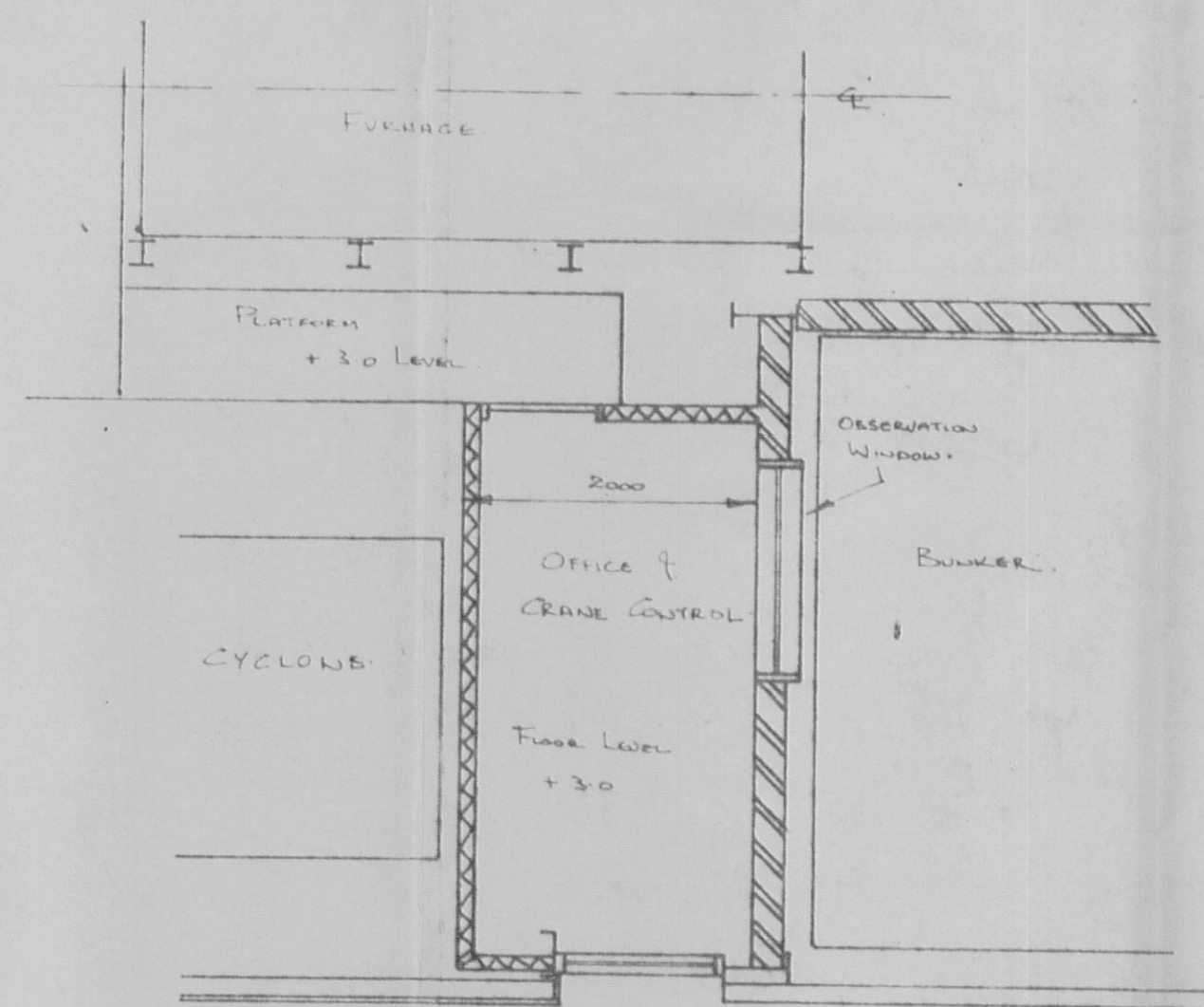
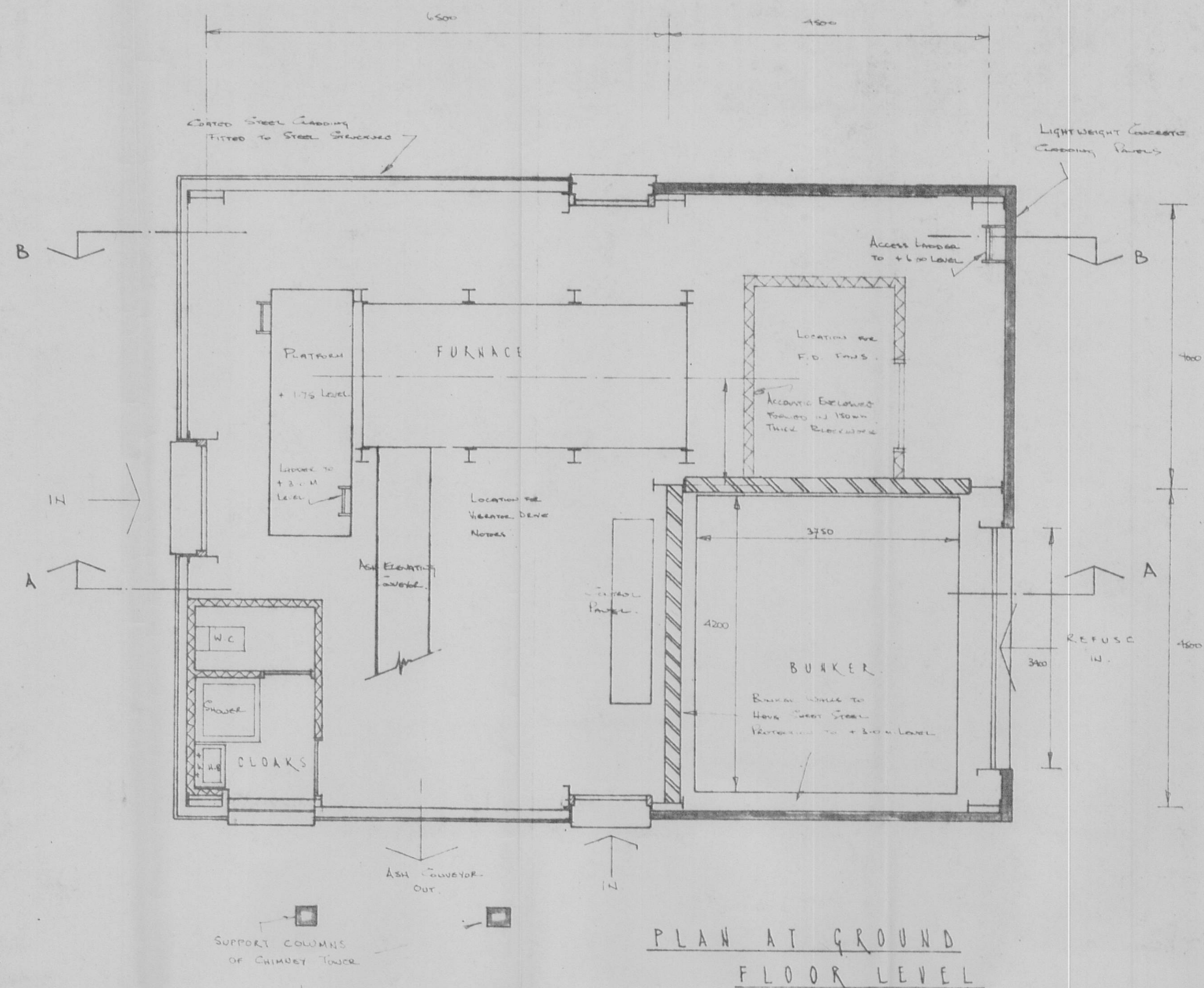
SOUTH - WEST ELEVATION

COUNCIL OF THE ISLES OF SCILLY	
PLANNING PERMISSION	
Subject to Conditions (if any specified in Decision No. 1654)	THE LATEST DATE FOR:
Applications for Approval of Proposed Matters	Development to be Commenced by 18 SEP 1982
BUILDING REGULATIONS	
EXPIRY OF WORKING DRAWINGS	
CHAIRMAN	DATE OF DECISION 8 SEP 1977

INCINERATOR, PORTHMELLON, ISLES OF SCILLY

IN ASSOCIATION WITH FOSTER WHEELER POWER PRODUCTS LTD.	
TITLE	DATE August 1977
INCINERATOR BUILDING REVISED ARRANGEMENT ELEVATIONS & TYPICAL SECTION	DRAWN BY
PETER J. SCOTT. C. Eng. F.I.C.E., F.I.Mun.E., M.I.Mech.E., CHARTERED ENGINEER. 3 THE HALL CLOSE, DUNCHURCH, RUGBY TEL. RUGBY 810839	SCALE 1/100 & 1/50
PAUL B. BENEY, R.I.B.A. CONSULTANT ARCHITECT	DRAWING NUMBER
	336 8



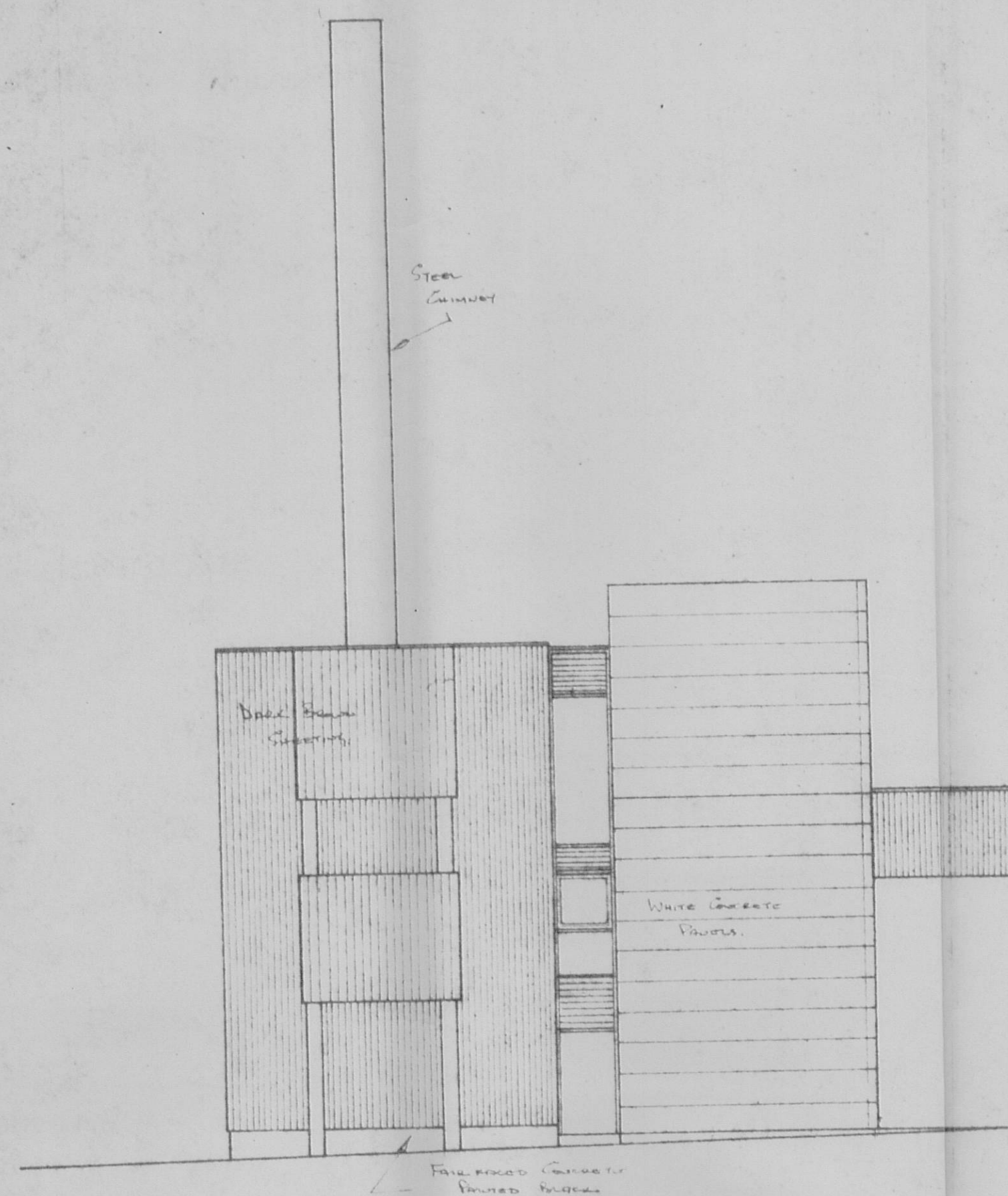


# INCINERATOR, PORTHMELLON, ISLES OF SCILLY.

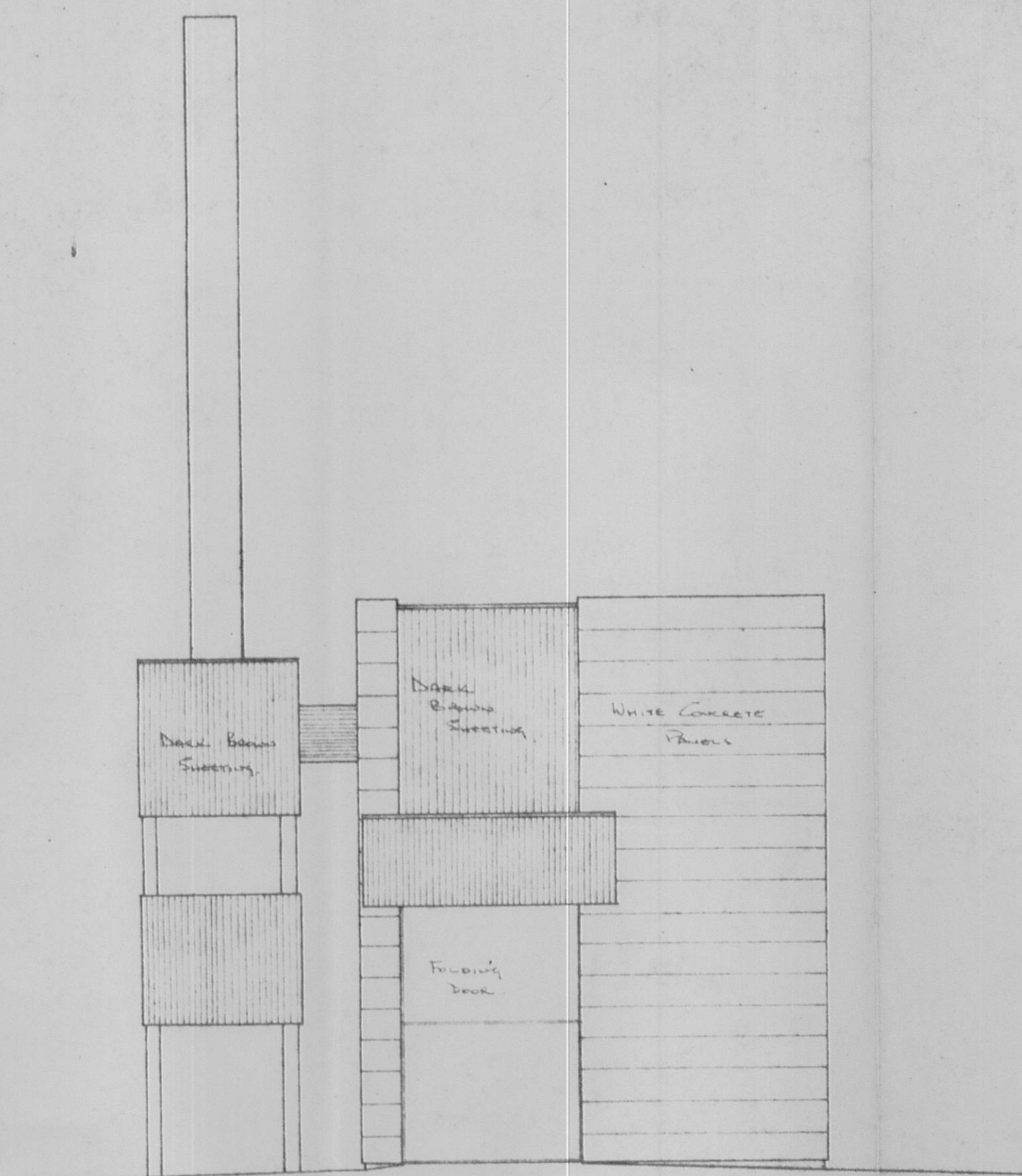
IN ASSOCIATION WITH FOSTER WHEELER POWER PRODUCTS LTD.	
TITLE	DATE
INCINERATOR BUILDING	July 1977
REVISED ARRANGEMENT - PLANS.	DRAWN BY
PETER J. SCOTT, C. Eng. F.I.C.E., F.I.Mun.E., M.I.Mech.E., CHARTERED ENGINEER, 3 THE HALL CLOSE, DUNCHURCH, RUGBY TEL. RUGBY 810839	SCALE 1/50
PAUL B. BENEY, R.I.B.A. CONSULTANT ARCHITECT	DRAWING NUMBER
	336 7.

PRELIMINARY

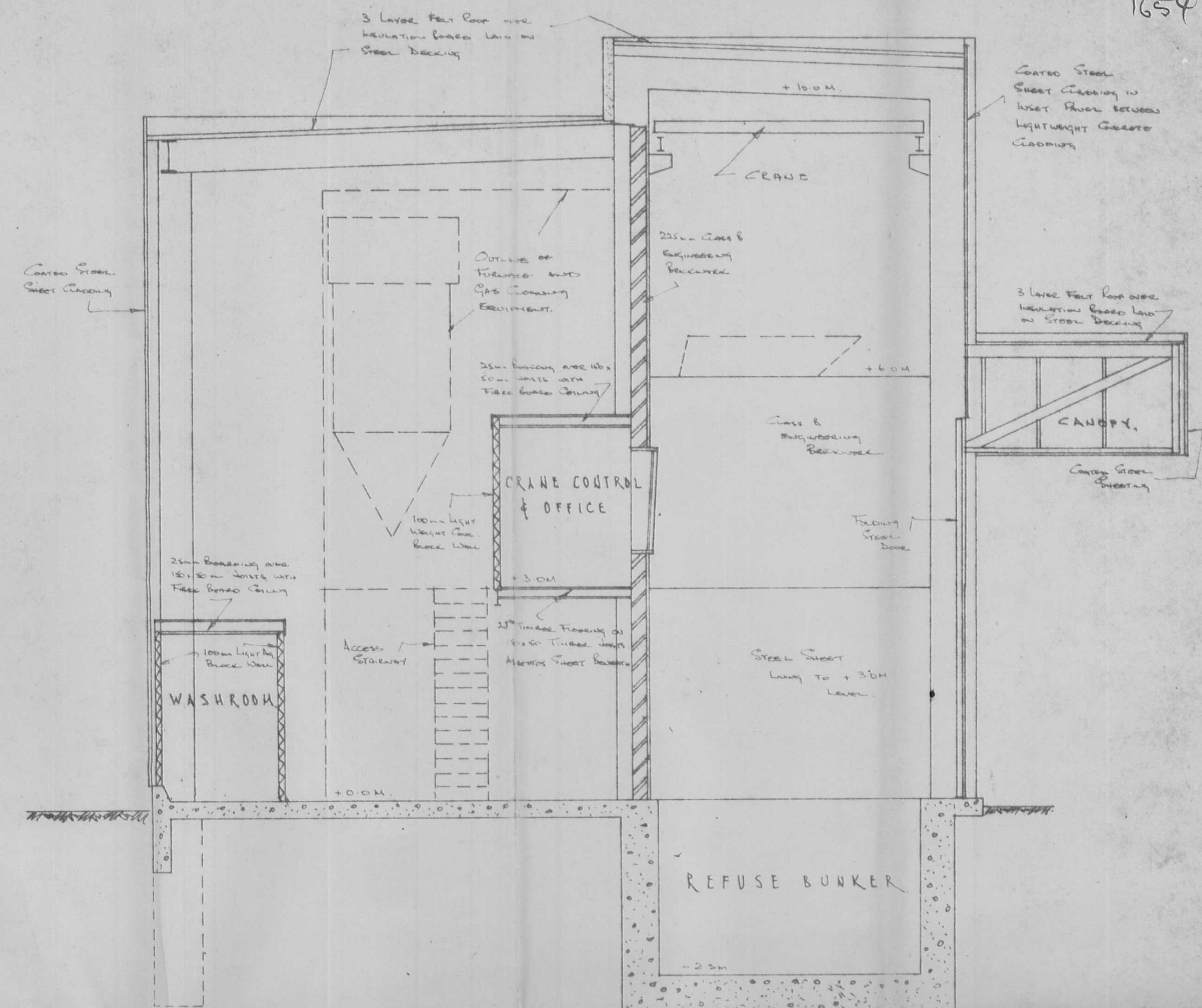




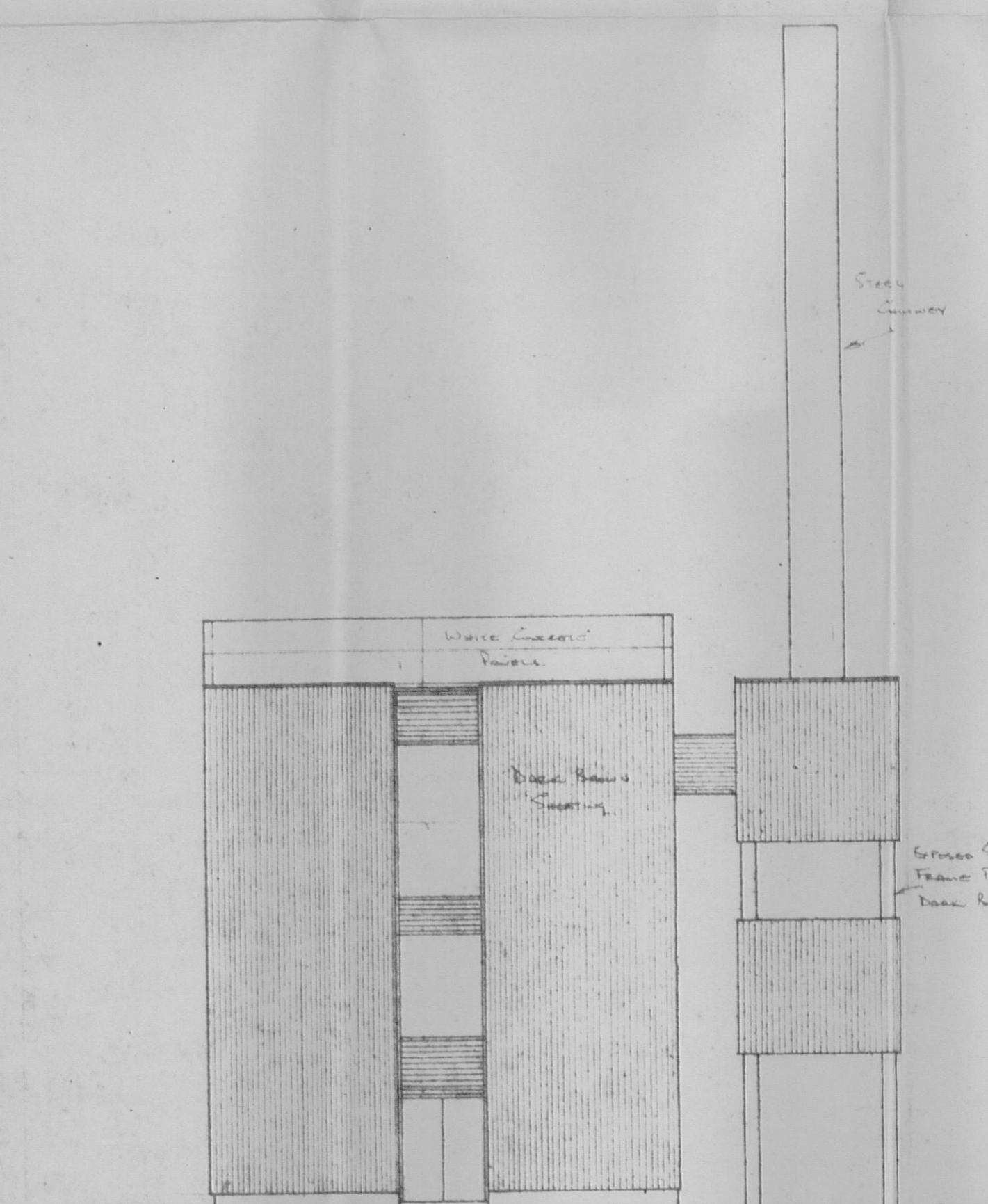
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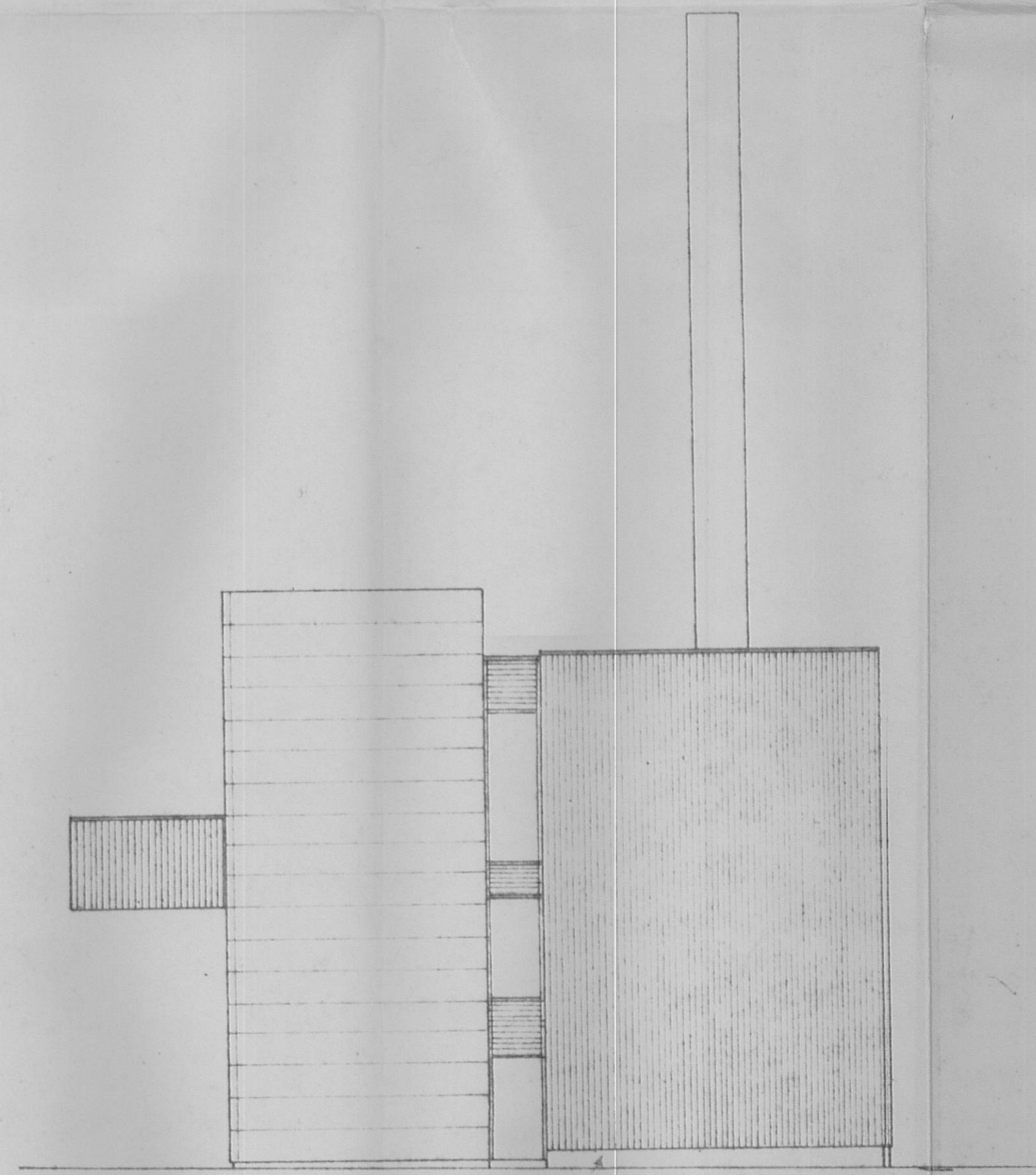
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TYPICAL SECTION



SOUTH - EAST ELEVATION



SOUTH - WEST ELEVATION

# INCINERATOR, PORTHMELLON, ISLES OF SCILLY.

IN ASSOCIATION WITH FOSTER WHEELER POWER PRODUCTS LTD	
TITLE	INCINERATOR BUILDING REVISED ARRANGEMENT ELEVATIONS & TYPICAL SECTION
DATE	August 1977
DRAWN BY	JS
SCALE	1/100 & 1/50
DRAWING NUMBER	336 8
PETER J. SCOTT, C.Eng., F.I.C.E., F.I.Mun.E., M.I.Mech.E., CHARTERED ENGINEER, 3 THE HALL CLOSE, DUNCHURCH, RUGBY TEL RUGBY 810839 PAUL B. BENEY, R.I.B.A. CONSULTANT ARCHITECT	

COUNCIL OF THE  
ISLES OF SCILLY  
31 AUG 1977  
RECEIVED

PRELIMINARY



## APPENDIX 1 – Installation details

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### ***Council of the Isles of Scilly***

### ***Porthmellon Incinerator (extract from SLR Consulting “Stage 2/3 Audit Report” November 2008)***

#### **BACKGROUND**

It is understood that the original plant was installed and commissioned during 1978 although the original grate, being of a pulsating grate design, never operated successfully and was replaced in the first year or two of operation.

It is believed the original grate was replaced with the existing “rocking” grate design by Henley Burrows using the Heenan and Freud Design.

The original plant did not have a flue gas treatment system. This was added in 2001 when the incinerator was subject to more general refurbishment as part of “Project Wise”. The refurbishment process was managed and undertaken by HLC Henley Burrows Ltd with the flue gas treatment being sub-contracted to Lodge Sturtevant Ltd. It is generally accepted, though no evidence of this had been found, that the process is limited to 500kg/hr of waste throughput.

It is clear that the operation of the plant and availability has improved significantly over the years. This is simply down to the dedication and determination of the management, operating staff and supporting consultants who have found ways to improve the process performance over time.

#### **PROCESS DESCRIPTION**

The system comprises a reciprocating grate situated beneath the main primary chamber. The typical exit temperature is 950°C, but this can increase to 1200°C or more depending upon the fire on the grate. A secondary chamber immediately above the primary chamber typically runs at 1100-1150°C. The gases exit the secondary chamber horizontally into a short refractory lined duct. The top of this duct has a modulating louver damper which allows atmospheric air into the system and cools the gasses to approximately 425°C. The gases then pass into a multicyclone unit and finally exhaust, via another short horizontal duct (about 1500 mm) before exiting the furnace building and into the filter ductwork. At this point two butterfly dampers control the filter inlet temperature. One modulates to maintain 200°C approx and the other is an emergency cooling damper to protect the filter bags, although it is believed these two dampers have now both had their respective actuators disconnected, the emergency damper is



fully closed and the control damper is wedged open to achieve a filter inlet temperature of around 180-185°C. From this point the cooled gasses pass horizontally into the filter inlet plenum. The sorbent (sodium bicarbonate) inlet point is located along this duct. The injection point has, in recent times, been moved further away from the filter in an effort to improve the sorbent/gas reaction time.

## **HISTORY**

It would appear that the plant has been beset by a number of processing issues since the original installation, although over time the overall performance appears to have improved quite significantly – due principally to the efforts of the operating staff, as noted above.

An approximate timeline of main issues, upgrades and improvements is provided below:-

1978: Plant installed and commissioned.

1979/80: Grate replaced by a Heenan & Freud “rocking grate”.

1995/96: Grate extended to improve solid retention time by Henley Burrows. Cyclone problems with slag build up.

1981: Poor ignition and combustion control – radiant re-ignition wall installed.

2001: Plant refurbished by HLC Henley Burrows Ltd with Lodge Sturtevant Ltd installing a new flue gas treatment plant.

2006: First full continuous emissions monitoring system (CEMs) is installed.

2006: Lightning strikes plant and CEMs replaced under insurance.

June 2006: Lodge Sturtevant Ltd review and report on “process observations and plant optimisation” following poor HCl results.

2007-8: Ongoing issues with HCl and Dioxin emissions plus poor ash quality.

## **PHYSICAL CONDITION**

Overall the condition of the plant was found to be reasonable given the age of the facility and the erosive and corrosive conditions which are typical. However, there are elements which require urgent attention and others which by virtue of age can only be assumed to require attention in the near future. The following is a brief summary of findings leading through the process from feed to exhaust.

## **AREA CONDITION/OBSERVATIONS**

## WASTE RECEPTION & HANDLING

- Pit and pit structure all in good order
- Grab crane in good order
- Doors functional although have been damaged over time.

## WASTE FEEDING CHUTE

- The feeding system appears to be quite temperamental and can at times wedge open resulting in loss of good combustion control and early reverse pulse cleaning of bag filters.
- Ideally this would be an air lock loader, although the existing arrangement appears to be in reasonable condition.

## PRIMARY COMBUSTION GRATE

It was not possible to inspect the plant internally and the following observations and comments are based on visual appearance, anecdotal evidence and personal experience.

- The grate configuration is robust and bars are now cast locally so spares readily available
- Sub-frame of chamber due to be replaced – other areas in need of repair may come to light when this work is undertaken
- Steel panels to primary chamber need replacing as now pin-holed and thin• Refractory work will need some repair although operator believes this is still relatively robust. Experience suggests that with plants of this age there could be cold face corrosion and other hidden problems which could come to light when undertaking refractory replacement or repair.
- Some underfire air ducts have been blanked off resulting in a reduced level of control. Over primary combustion – this impacts on the quality of the burn out.
- Overall the grate is operating well and doesn't appear to be too problematic.

## SECONDARY COMBUSTION CHAMBER

- The chamber consists of a refractory lined box and duct sections, therefore no real issues.
- The condition of the combustion chamber casing behind the refractory, ie. Cold face, could be deteriorating although ultrasonic testing or similar would be required to confirm this.

## ASH DRAG CONVEYOR

- The ash drag conveyor operates under some of the most aggressive conditions as with all similar installations. The drags and links will require regular repair and replacement.
- It was not possible to view the base of the drag link or trough although again due to the corrosive nature of the material and water being handled this is normally an area where heavy corrosion is experienced.
- It is likely that the whole ash drag conveyor will require replacing in the near future.

#### MULTI-CORE CYCLONE

- The cyclone housing is heavily insulated and therefore it was not possible to see if any corrosion was evident.
- It is possible that some corrosion could be present within the cyclone; indeed it is likely although the extent would have to be determined through an internal inspection and ultrasonic testing.

#### INTERCONNECTING DUCT WORK

- External ductwork is likely to have suffered some corrosion over time, but again the extent of this would have to be confirmed via testing.

#### FLUEGAS TREATMENT

- The filter is a lodge Sturtevant Fabriclean Pulse Jet Filter containing good quality PTFE bags.
- It is believed that the bags are still the original set, which indicates a very long operating life for bags of this type.
- The filter housing, hoppers and interconnecting ductwork would all appear to be in good condition from an external inspection, although this is to be expected. These units would normally fail from the inside and it largely depends on how the filters have been started and stopped ie. with appropriate dew point control or not. Since the plant is shut down every weekend it is likely that the filter housing will have suffered more internal corrosion than a unit operating 24/7.
- A thorough internal inspection of bags, header plates, valves, hoppers and enclosures is recommended in order to determine the likely remaining life of this unit.

## ID FAN

- The ID fan appears to be operating without any real problems.
- For similar reasons as above it is recommended that a thorough internal inspection be conducted at some time in the near future.

## CONDITIONS EMISSIONS MONITORING SYSTEMS (CEMS)

- The CEMS system is a CBISS model and was replaced only a couple of years ago following a lightning strike which destroyed the first unit.
- The CBISS system is checked and recalibrated on a regular basis and can be assumed to be in good condition.

## STACK

It is understood that the stack has not been inspected for some considerable time and therefore would benefit from a detailed inspection. It is likely that the stack would have suffered increased corrosion attack prior to the flue gas cleaning system being installed.

## CONTROLS AND INSTRUMENTATION

The C&I package to the unit is rather basic and no longer provides the operators with full control over all operating parameters. This limits the level of control over the process, and of course compliance with regulatory limits.